



National Training Workshop

24th – 28th March 2013

Khulna, Bangladesh

Technical Training Manual

SMART Partners



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Module 1 - Configuring a Conservation Area

Objective:

In this module, you will work through the creation and setup of a Conservation Area to the point that patrol information can be entered into SMART.

This will include:

- **starting SMART on your computer for the first time;**
- **naming and describing the Conservation Area;**
- **creating user accounts;**
- **choosing a data model;**
- **defining spatial boundaries;**
- **creating a list of stations;**
- **defining participating organizations and ranks;**
- **creating employees;**
- **defining patrol teams, transport types, objectives and mandates.**

Detailed Steps:

Starting the SMART application for the first time

Installing SMART is easy. Create a folder called **SMART_Training** on your hard drive. Copy the file **SMART_HKK_Training.zip** (USB/software) onto your computer and unzip it. Copy the contents into the folder SMART_Training you just created.

- Find the file called **SMART.exe**.
- Right-click on the file SMART.exe and select 'Create shortcut'
- Copy and paste the shortcut file (**SMART.lnk**) onto your desktop.

Create a New Conservation Area

SMART has the ability to manage multiple Conservation Areas within a single database, and this version of SMART already includes a sample Conservation Area (HKK Training) that will be used in later training modules. You will create a second Conservation Area and begin the process of populating the database.

- Start the SMART application by clicking on the SMART desktop shortcut.
- Click **Advanced...**

The SMART login screen features a logo on the left consisting of a blue shield with a white grid pattern and a blue silhouette of a panther standing on it. To the right of the logo, the word "SMART" is displayed in large, blue, sans-serif capital letters. Below the logo and text, there is a "Conservation Area:" label followed by a dropdown menu showing "HKK - Training". Underneath this are two text input fields labeled "User Name:" and "Password:". To the right of the "Password:" field is a red button labeled "Advanced...". At the bottom center are two buttons: "Exit" and "Login".

SMART

Conservation Area: HKK - Training

User Name:

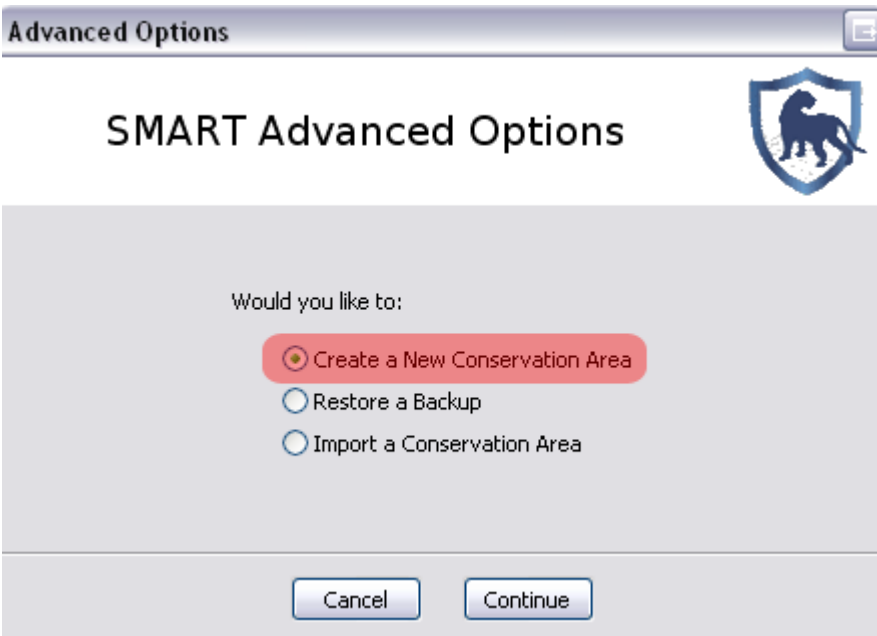
Password:

Advanced...

Exit Login

On the next screen, you can choose one of three options:

- Create a New Conservation Area
- Restore a Backup
- Import a Conservation Area
-

The "Advanced Options" dialog box has a title bar with the text "Advanced Options" and a standard window icon. The main content area has the title "SMART Advanced Options" on the left and the SMART logo on the right. Below the title, the text "Would you like to:" is followed by three radio button options: "Create a New Conservation Area" (which is selected and highlighted with a red background), "Restore a Backup", and "Import a Conservation Area". At the bottom of the dialog are two buttons: "Cancel" and "Continue".

Advanced Options

SMART Advanced Options

Would you like to:

☒ Create a New Conservation Area

☐ Restore a Backup

☐ Import a Conservation Area

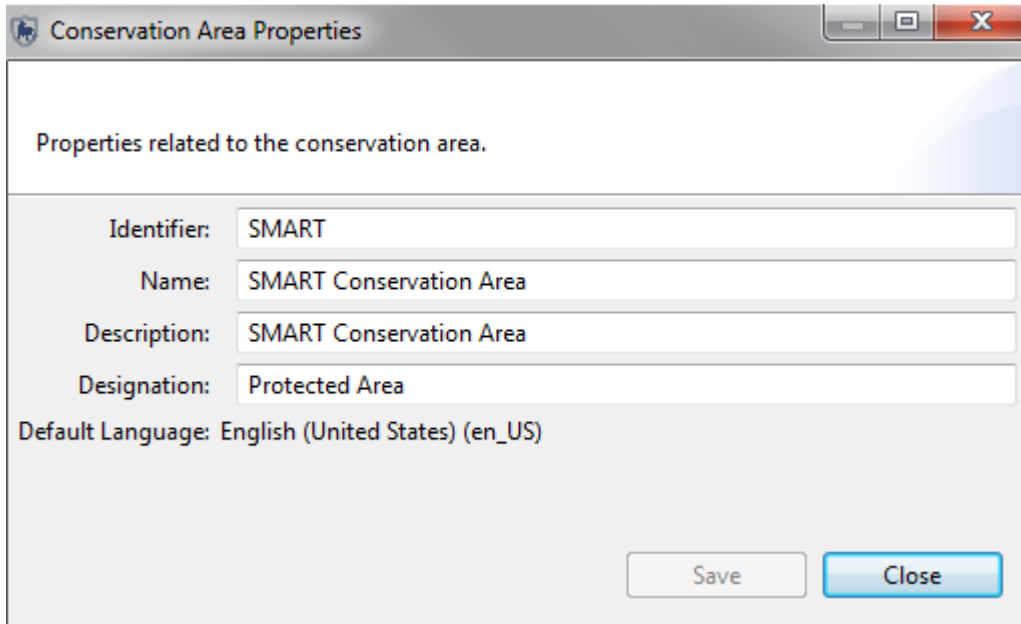
Cancel Continue

- Keep the default of **Create a New Conservation Area**
- Click **Continue**

Note: if SMART contains no databases, then SMART automatically opens at this page.

Conservation Area Properties

The Conservation Area properties are names and descriptors assigned to a specific Conservation Area. These properties can help users of the SMART software manage multiple conservation areas.



Conservation Area Properties

Properties related to the conservation area.

Identifier: SMART

Name: SMART Conservation Area

Description: SMART Conservation Area

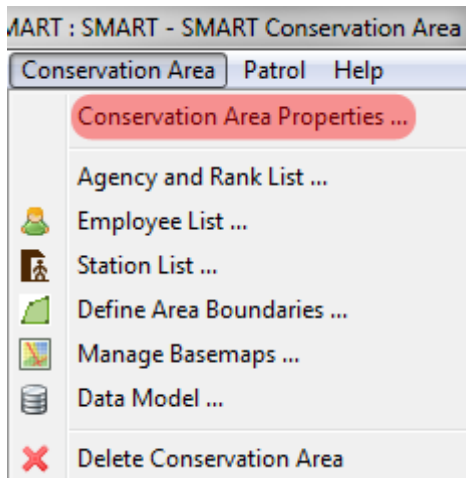
Designation: Protected Area

Default Language: English (United States) (en_US)

Save Close

- Enter in the following information:
 - Identifier: **SMART**
 - Name: **SMART Conservation Area**
 - Description: **SMART Conservation Area**
 - Designation: **Protected Area**
- Click **Next**

Note: Properties of the Conservation Area may also be modified later on, after initial Conservation Area creation (see screenshot below)



Defining an Administrative User

Creating an account for the primary administrator of a newly created Conservation Area is required, and the fields will need to be populated before the software will advance. After completing the form, the primary administrator's account will be created and can be used to make any changes within the newly defined Conservation Area.

Create Conservation Area Wizard

Administrative User

You must create one administrative user here. Additional users can be created later.

Id: system-generated

Given Name(s): *

Family Name(s): *

Conservation Area Start: Wednesday, July 04, 2012

Birth Date: Sunday, January 01, 1950

Gender: ☒ Male ☐ Female

Smart User

Smart User Name: *

Smart Password: *

Re-Type Password:

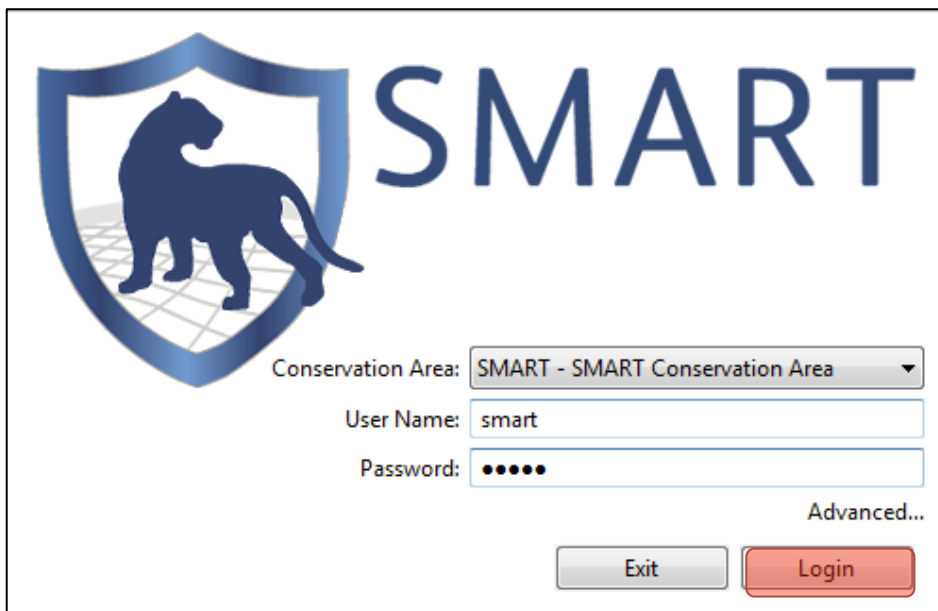
< Back Next > Finish Cancel

- Enter in the following information:
 - Given Name(s): **smart**
 - Family Name(s): **smart**
 - Conservation Area Start: **Wednesday July 4 2012**
 - Birth Date: **April 05, 1980**
 - Gender: **Male**

Note: The ID field is automatically populated but will accept entered values if an employee has an existing ID.

- Under the Smart User section enter the following information:
 - Smart User Name: **smart**
 - Smart Password: **smart**
 - Re-Type Password: **smart**
- Click **Finish**

Note: After creating the primary administrator account the application will restart and bring you back to the initial start screen.



The image shows the SMART application login screen. On the left is a logo featuring a blue silhouette of a panther standing on a checkered floor, enclosed within a blue shield. To the right of the logo, the word "SMART" is displayed in large, blue, sans-serif capital letters. Below the logo and text, there are three input fields: a dropdown menu labeled "Conservation Area:" with "SMART - SMART Conservation Area" selected, a text box labeled "User Name:" containing the text "smart", and a password box labeled "Password:" with six black dots. To the right of the password box is a link that says "Advanced...". At the bottom of the screen are two buttons: a grey "Exit" button and a red "Login" button.

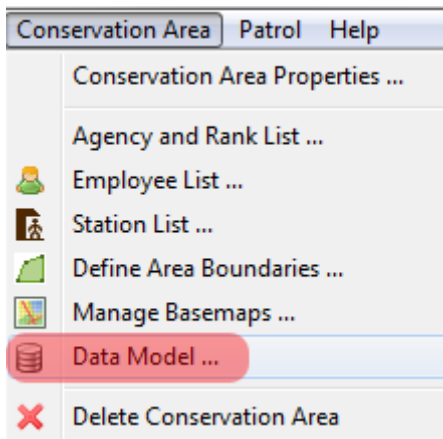
- Enter in the log in information:
 - Conservation Area: **SMART - SMART Conservation Area**
 - User Name: **smart**
 - Password: **smart**
- Click **Login**

Defining a Data Model

Upon initialization of a new Conservation Area, the primary administrator will need to define the data model to be used for the new Conservation Area.

This process can be accomplished by:

- Using the default IUCN¹ data model;
- Copying from an existing Conservation Area that has been previously initialized by that instance of SMART; or,
- Importing a custom data model (if a previously exported XML data model file exists).

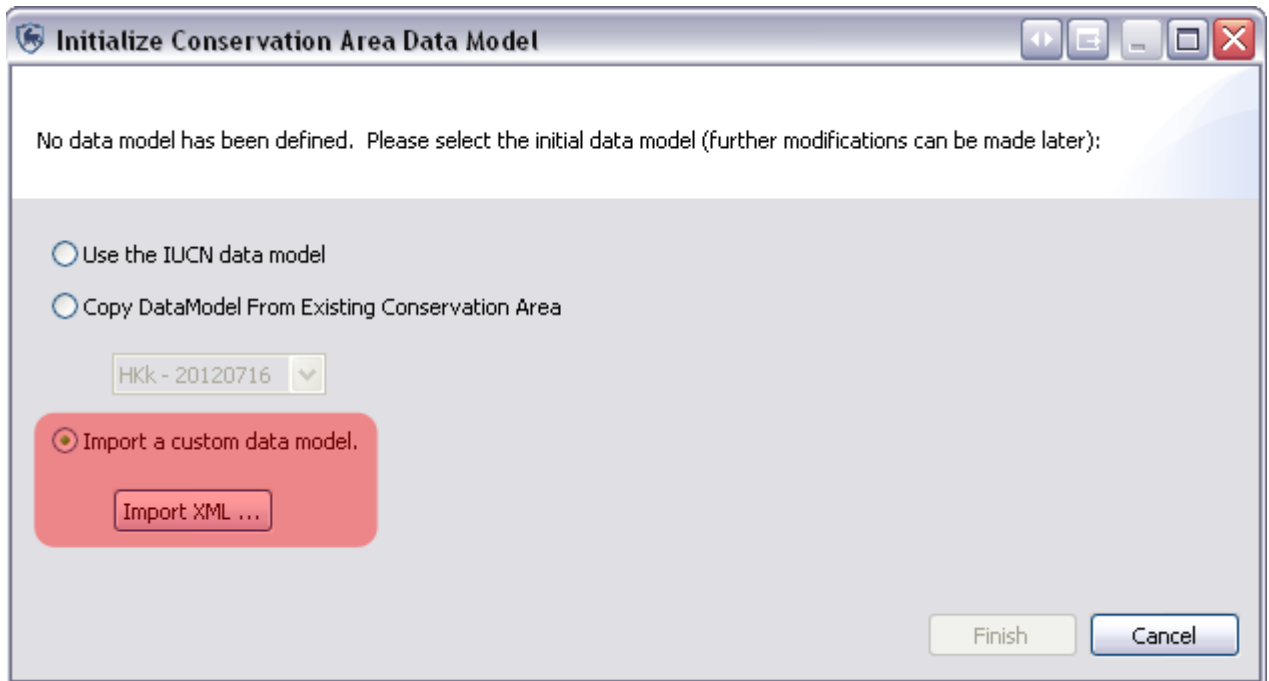


In the menu bar ...

- Click **Conservation Area ... Data Model**

For this exercise you will import a custom data model.

¹ *International Union for Conservation of Nature*



- Select **Import a custom data model**
- Click **Import XML ...**
- In the **Module 1** folder select **DataModel.xml**
- Click **Open**
- Click **Finish**
- After the data model has finished loading click **Close**

Note: For further information on editing, modifying, importing/exporting and other elements of Data Models please refer to Module 8 - Data Model Management.

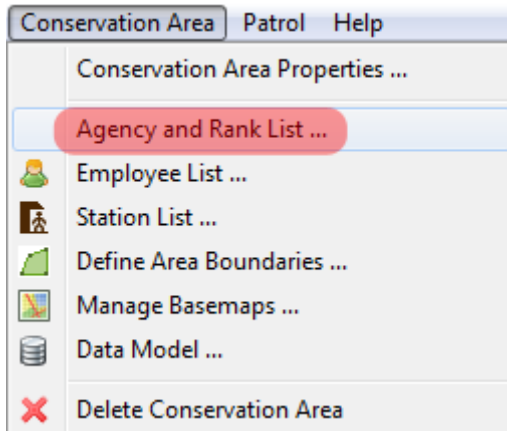
The Conservation Area currently has a name and descriptors, a primary administrator and a data model but more work is needed to prepare it before patrol information can be entered.

Entering Agencies and Ranks

Employees working within a Conservation Area, and SMART users, may belong to a particular agency, and may have a rank within that agency.

As part of the initial setup of a Conservation Area, the list of Agencies and their associated Ranks is accessed through the menu "Conservation Area - Agency and Rank List ..."

Note: Agencies are defined first because Ranks are always associated with an Agency. Be careful to enter the agency names exactly as given below as we will be using them later!



In the menu bar ...

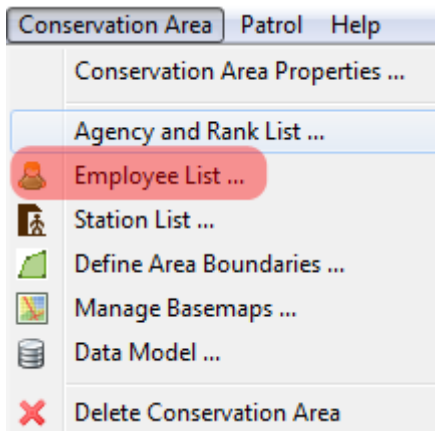
- Click **Conservation Area ... Agency and Rank List**

- Click **Add Agency**
- Click over **New Agency**
- Type in **National Park Department**
- Click **Add Rank**

- Click over **New Rank**
- Type in **Warden**
- Click **Add Rank** two more times
- Change **New Rank** entries to **Ranger** and **Manager**
- Add a second **Agency** of **Forest Conservation International**
 - Add three new Ranks
 - **Forester**
 - **Administrator**
 - **Researcher**
- Click **Save**
- Click **Close**

Note: All entries can be edited by clicking on the name and retyping in new values. Agencies and Ranks can be deleted by clicking the Delete Agency or Delete Rank button.

Entering Conservation Area Employees



In the menu bar ...

- Click **Conservation Area ... Employee List**

The current Employee List contains the single administrator account that was created during the initialization of the Conservation Area. Additional employees of a Conservation Area can be entered individually, or through a bulk upload process.

Create Employee

Id: system-generated

Given Name(s):

Family Name(s):

Conservation Area Start: Wednesday, July 25, 2012

Birth Date: Sunday, January 01, 1950

Gender: ☒ Male ☐ Female

Agency:

Rank:

Smart User

☒ Smart User

Smart User Name:

Smart Password:

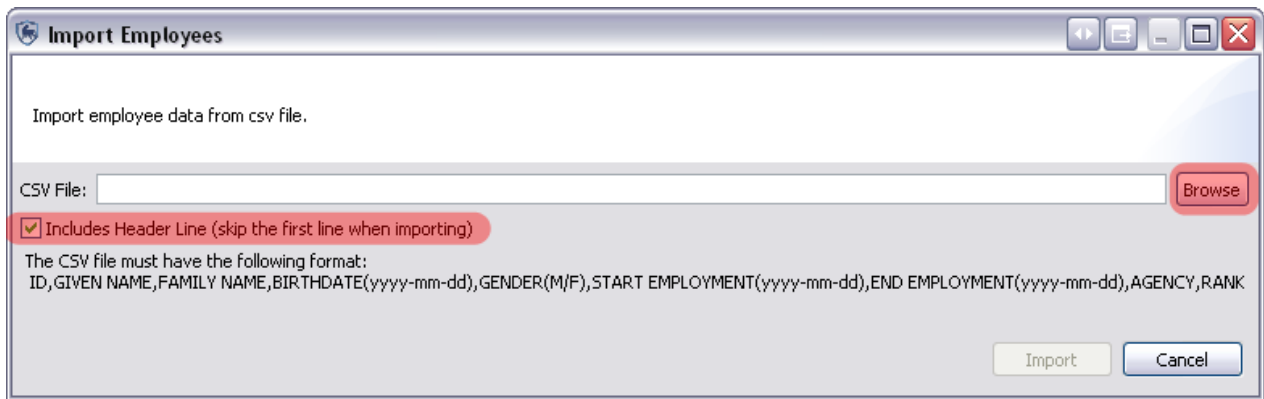
Re-Type Password:

Smart User Level: DATA_ENTRY

Save Cancel

- Click the **Smart User** box
- Under the Smart User section enter the following information:
 - Smart User Name: **dataentry**
 - Smart Password: **dataentry**
 - Re-Type Password: **dataentry**
 - Choose Smart User Level: **DATA_ENTRY**
 - Click **Save**
- Repeat the process and add three (3) more employees using the Smart User Level as the names and passwords. Create accounts for the following user types:
 - **ANALYST**
 - **MANAGER**
 - **ADMIN**

- Click **Import ...**



- Check **Includes Header Line (skip the first line when importing)**
- Click **Browse**
- In the Module 1 folder select **Employees.csv**
- Click **Open**
- Click **Import**
- Click **OK**

After the import you should have all of the new employees entered into the database for this Conservation Area.

Employee List

Manage the employees.

Enter search terms

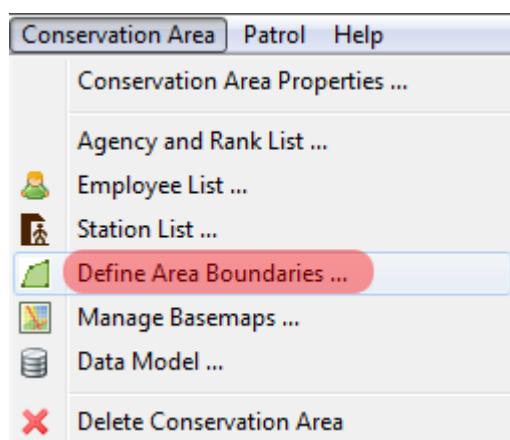
A	Id	Family Name(s)	Given Name(s)	Gender	Birth Date	Agency	Rank	Smart User Name	Smart User Level	Conservation Area Start	Employment End	Date Create
Y	198000060	smart	smart	M	Apr 5, 1980			smart	ADMIN	Jul 4, 2012		Oct 20, 2012
Y	195000065	dataentry	dataentry	F	Jan 1, 1950			dataentry	DATA_ENTRY	Oct 20, 2012		Oct 20, 2012
Y	195000066	analyst	analyst	F	Jan 1, 1950			analyst	ANALYST	Oct 20, 2012		Oct 20, 2012
Y	195000067	manager	manager	M	Jan 1, 1950			manager	MANAGER	Oct 20, 2012		Oct 20, 2012
Y	SMART1	Owens	Dana	F	Mar 18, 19...	National Park Department	Warden			Apr 25, 2012		Oct 20, 2012
Y	SMART2	Cohen	Ellen	F	Sep 19, 1941	Forest Conservation International	Forester			Apr 25, 2012		Oct 20, 2012
Y	SMART3	Barrett	Roger	M	Jan 6, 1946	National Park Department	Ranger			Apr 25, 2012		Oct 20, 2012
Y	SMART4	Hewson	Paul	M	May 10, 1...	Forest Conservation International	Researcher			Apr 25, 2012		Oct 20, 2012
Y	SMART5	Gordon	Rawlston	M	Jan 17, 1966	National Park Department	Ranger			Apr 25, 2012		Oct 20, 2012
Y	SMART6	Hendrix	Johnny	M	Nov 27, 19...	Forest Conservation International	Administrator			Apr 25, 2012		Oct 20, 2012
Y	SMART7	Sarkisian	Cherilyn	F	May 20, 1...	National Park Department	Ranger			Apr 25, 2012		Oct 20, 2012
Y	SMART8	Sumner	Gordon	M	Oct 2, 1951	Forest Conservation International	Forester			Apr 25, 2012		Oct 20, 2012
Y	SMART9	Gillis	John	M	Jul 9, 1975	National Park Department	Manager			Apr 25, 2012		Oct 20, 2012
Y	SMART10	Zimmerman	Robert	M	May 24, 1...	Forest Conservation International	Researcher			Apr 25, 2012		Oct 20, 2012
Y	SMART11	Stokes	Emma	F	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012
Y	SMART12	Faengbubpha	Kamon	M	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012
Y	SMART13	Mufeng	Voon	F	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012
Y	SMART14	Klanprasert	Supalerk	M	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012
Y	SMART15	Sae-ma	Sanpob	M	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012
Y	SMART16	Vongphouthone	Phoungneune	M	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012
Y	SMART17	Khiewvongpha...	Xaisavanh	M	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012
Y	SMART18	Johnston	Jim	M	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012
Y	SMART19	Peiqi	Liu	M	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012
Y	SMART20	Ving	Li	F	Jan 1, 1980					Nov 18, 2012		Oct 20, 2012

- Click Save
- Click Close

Defining Conservation Area Boundaries

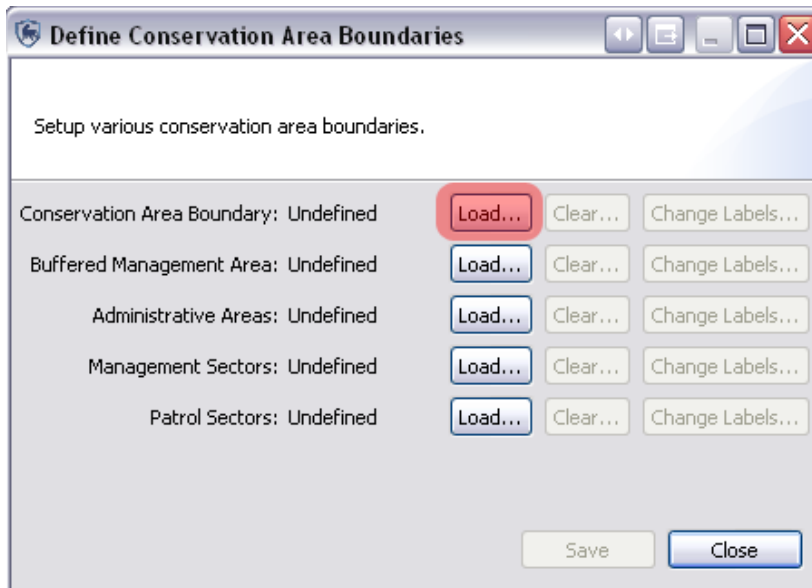
The final step in initializing a Conservation Area is to define the spatial boundaries. This is accomplished by uploading ESRI Shapefiles for the five (5) administrative divisions.

Note: Shapefiles are required to have an ESRI projection file (.prj)*



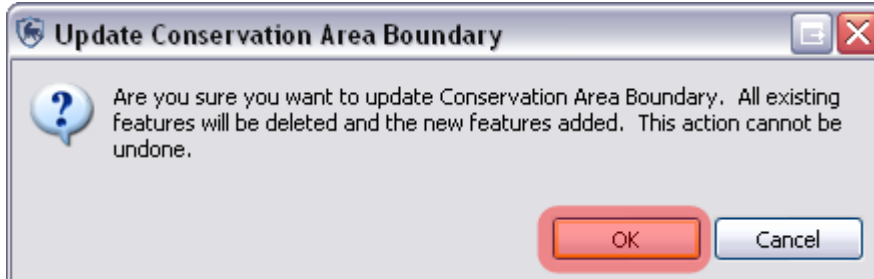
In the menu bar ...

- Click Conservation Area ... Define Area Boundaries



- Click corresponding **Load** button beside Conservation Area Boundary to begin the load process

NB: Not all five different zones will apply to all conservation areas.



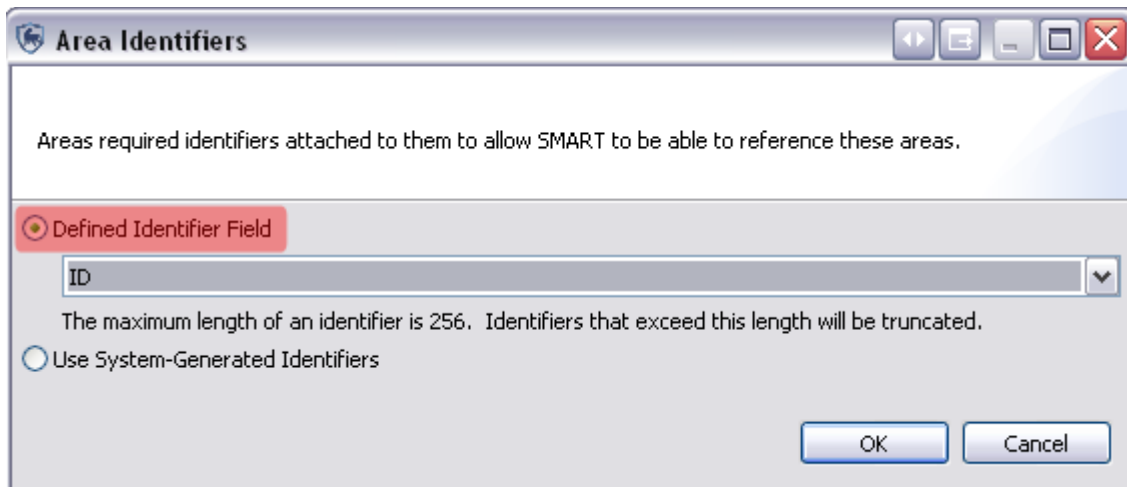
Note: For the initial load of boundaries there are no features that will be overwritten. On future uses of this feature, the previously loaded boundaries will be replaced with the new selections.

- Click **OK**

Name	Date modified	Type
 CA.shp	10/16/2012 9:36 AM	SHP File
 CA_BUFF.shp	10/16/2012 9:35 AM	SHP File
 MS.shp	1/22/2008 8:24 AM	SHP File

- In the **Module 1\Boundaries** folder select **CA.shp**
- Click **Open**

As part of the definition process, the user is required to select an identifier field that will be used for display and querying purposes.



- Select **Defined Identifier Field**
- Choose **ID**
- Click **OK**
- Repeat the process for the remaining two boundary types for this particular Conservation Area
 - Buffered Management Area = **CA_BUFF.shp**
 - **Defined Identifier Field = BUFF_ID**
 - Management Sectors = **MS.shp**
 - **Defined Identifier Field = ZONE**
- Press **Close**
-

Note: If no fields exist it is recommended to create meaningful identifiers or select the option "Use System-Generated Identifiers"

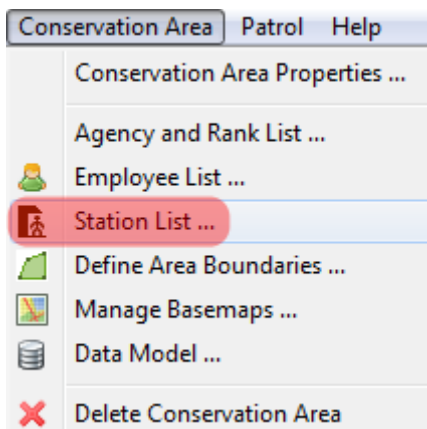
Note: If you don't immediately see the map layers in the window then click on the Zoom to Full

Map Extent icon in the top left hand corner of the map window



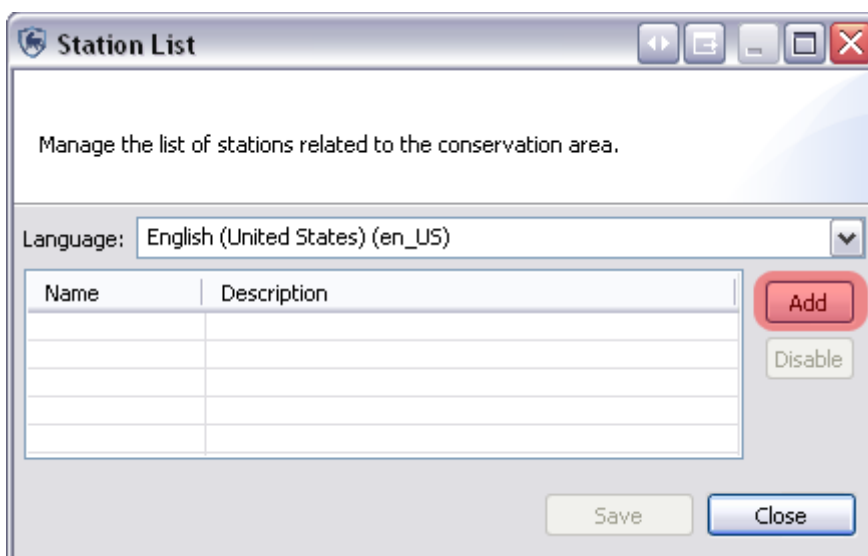
Entering Stations

Another part of the initialization process is defining the list of stations that are used by employees to start their patrols.



In the menu bar ...

- Click **Conservation Area ... Station List**



- Click **Add**
- Change **New Station** to **HQ**
- Click in the Description cell for **HQ**
- Type in **Headquarters**
- Add **three(3)** more Stations using the same process:
- **Name - Description**
 - **Patrol Station 1 – Substation 1**
 - **Patrol Station 2 – Substation 2**
 - **Marine 1 – Marine Station 1**
- Click **Save**
- Click **Close**

Defining Patrol Types

Patrol Types help define the mode of transportation used for the patrols. The Patrol Types are defaulted to Air, Ground and Marine. The subtypes or “Transportation Options” define the various forms of transportation used for each of the three Patrol Types. The “Add” button will allow administrative users to add new Transportation Options for the three Patrol Types of Air, Ground and Marine.

Manage the patrol types and patrol transport types for the conservation area.

Language: English (United States) (en_US)

Patrol Types:

Active	Patrol Type
Active	Air
Active	Ground
Active	Marine

Disable

Transportation Options:

Active	Transport Type

Add

Enable

Save Close

- Click **Patrol ... Patrol Types**
- Select Patrol Type **Air**
- Click the **Add** button
- Select the **New Transport Type**.
- Type in **Aeroplane**.
- Click the **Add** button to add another entry to Air Patrols
- Type in **Helicopter**
- Select Patrol Type **Ground** in the top list
- Click **Add**
- Select the **New Transport Type**
- Enter **Foot**
- Click **Add** to add another entry to Ground Patrols
- Select the **New Transport Type**
- Enter **Vehicle**
- Click **Add** to add a third entry to Ground Patrols
- Enter **Motorbike**
- For the Patrol Type of Marine add two Transportation Options
 - Boat
 - Canoe
- Click **Save**
- Click **Close**

Defining Patrol Mandates

Patrol Mandates state the general objective of a patrol and require the administrator to define the entries. These are assigned to each patrol in order to categorize patrols according to their objective.

Patrol Mandate

Manage the list of mandates associated with a patrol.

Language: English (United States) (en_US) ▼

Mandate

Add Enable

Save Close

- Click **Patrol ... Patrol Mandates**

- Click the **Add** button
- Select the **New Patrol Mandate**.
- Type in **Enforcement**
- Add 2 more Mandates
 - **Monitoring**
 - **Market control**
- Click **Save**
- Click **Close**

Defining Patrol Teams

Patrol Teams state the specialty of the team, or the name of the team. Patrol Teams are assigned to each patrol in order to categorize them according to their specialty or team name.

Manage the list of patrol teams.

Language: English (United States) (en_US) ▼

Team	Mandate	Description

Add

Enable

Save Close

To create a new patrol team:

- Click **Patrol ... Patrol Teams**
- Click **Add**
- Click the **New Team** entry and type in **Team 1**
- Select the Mandate **Enforcement**
- Enter in the Description of **Patrol Substation 1 Team**
- Click **Add**
- Click the New Team entry and enter **Team 2**
- Select the Mandate **Monitoring**
- Enter in the Description of **Camera Trapping Team**
- Click **Add**
- Click the New Team entry and enter **Team 3**
- Select the Mandate **Market Control**
- Enter in the Description of **Mobile Team**
- Click **Save**
- Click **Close**

Managing Patrol Options

Managing Patrol Options allows the Administrator to specify a time period (in days) for how long after a Patrol was entered that the users can edit the Patrol information. -1 indicates that there is no time limit for editing patrols - they may always be edited.

Another parameter on this screen, is whether to collect distance and direction information. For example, a Conservation Area manager may wish to have rangers record an observation that was seen, say, "500 metres to the North-East".

For the purposes of this training module you will leave the default settings.



- This menu is located under **Patrol ... Patrol Options**
- Click **Close**

<End of Module 1 - Configuring a Conservation Area>

Module 2: Patrols

Objective:

In this module you will work through the process of creating patrols in SMART. The goal of the module is to let you become familiar with creating, editing, and managing patrol data.

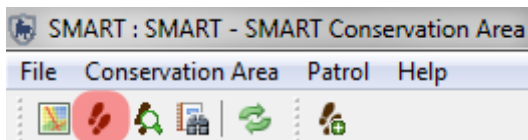
You will be working to understand the following features in this module:

- **Creating a Patrol**
- **Loading Waypoints**
- **Loading or Setting Tracks**
- **Entering Observations**
- **Viewing a Patrol Map**
- **Making Manual Corrections**
- **Multi-leg Patrols**
- **Exporting and Importing Patrols**
- **Patrol View Filters**
- **Fixed Patrols**

Detailed Steps:

Patrol Perspective

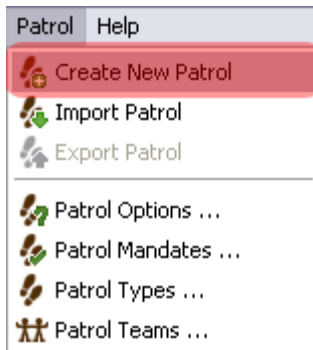
The SMART application allows the user to switch between perspectives. In this module you will explore options within the Patrol Perspective.



- Click the **Patrol Perspective Icon**, highlighted above in red

You will see that in the Patrol List View there are no patrols currently listed.

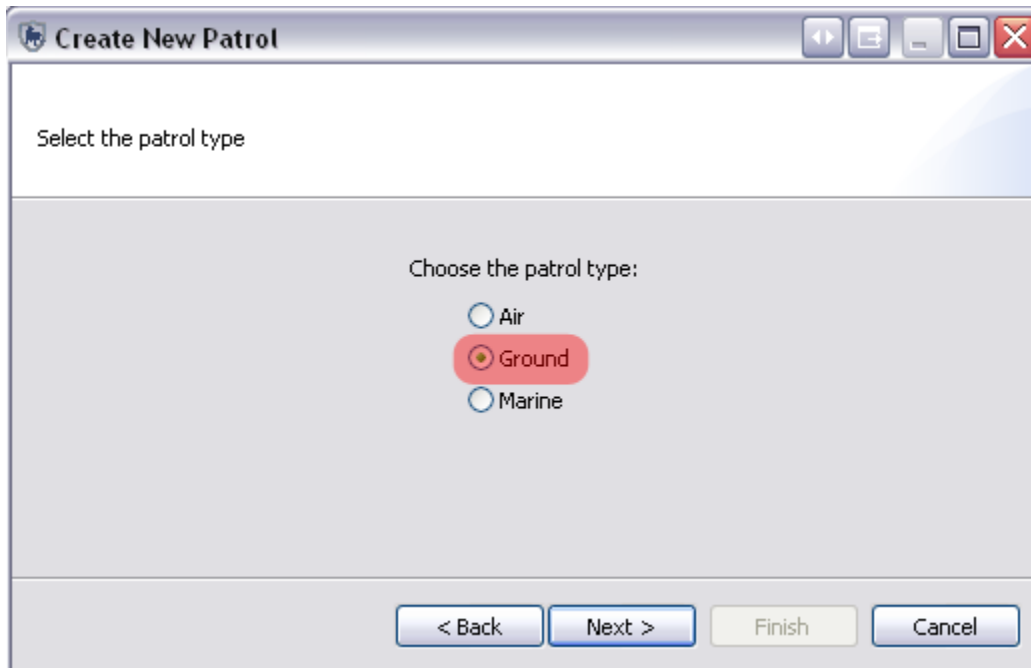
- To create a patrol click on the Patrol menu item **Create New Patrol**



The Patrol ID will be automatically populated with unique values unless the user enters a new ID manually.

- [Click Next](#)

The default Patrol Types of Air, Ground and Marine are listed at this stage.

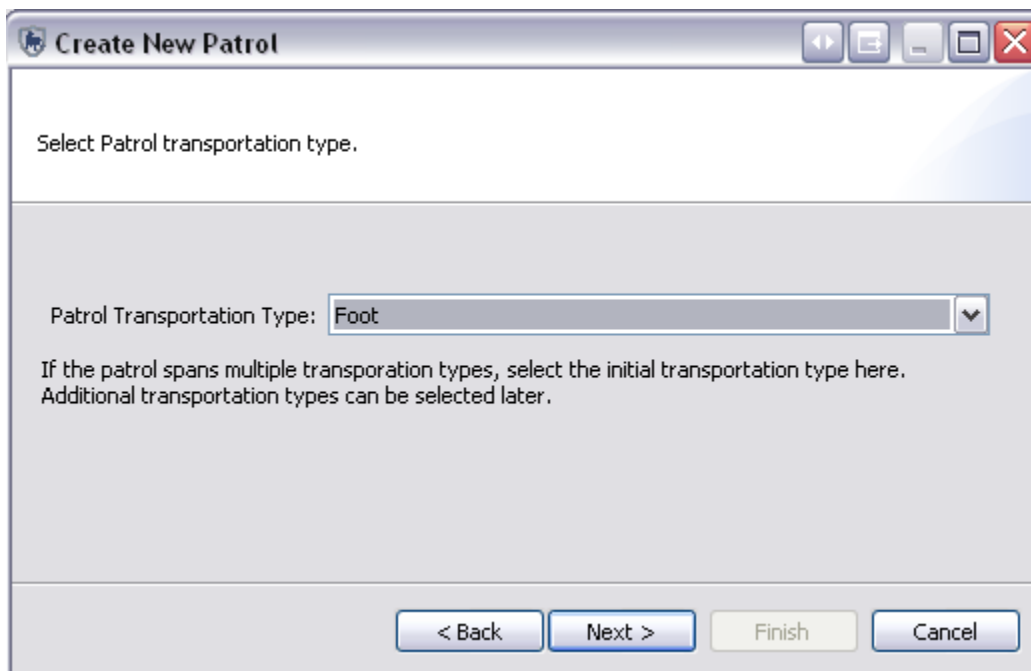


The dialog box is titled "Create New Patrol" and contains the following elements:

- Header: "Select the patrol type"
- Section: "Choose the patrol type:"
- Options: Three radio buttons labeled "Air", "Ground", and "Marine". The "Ground" option is selected and highlighted with a red oval.
- Footer: Four buttons labeled "< Back", "Next >", "Finish", and "Cancel".

- Select **Ground**
- Click **Next**

SMART will now reference the previously entered choices for Ground Patrols and populate a pull-down list with those values.

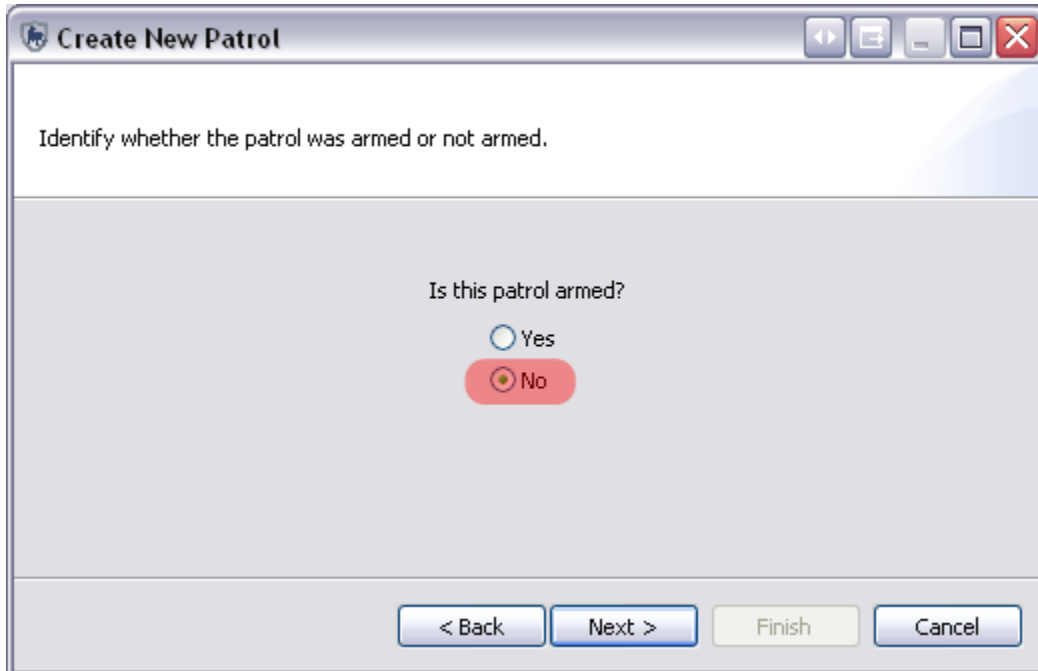


The dialog box is titled "Create New Patrol" and contains the following elements:

- Header: "Select Patrol transportation type."
- Section: "Patrol Transportation Type:"
- Form: A pull-down menu with "Foot" selected.
- Text: "If the patrol spans multiple transportation types, select the initial transportation type here. Additional transportation types can be selected later."
- Footer: Four buttons labeled "< Back", "Next >", "Finish", and "Cancel".

- Select **Foot**
- Click **Next**

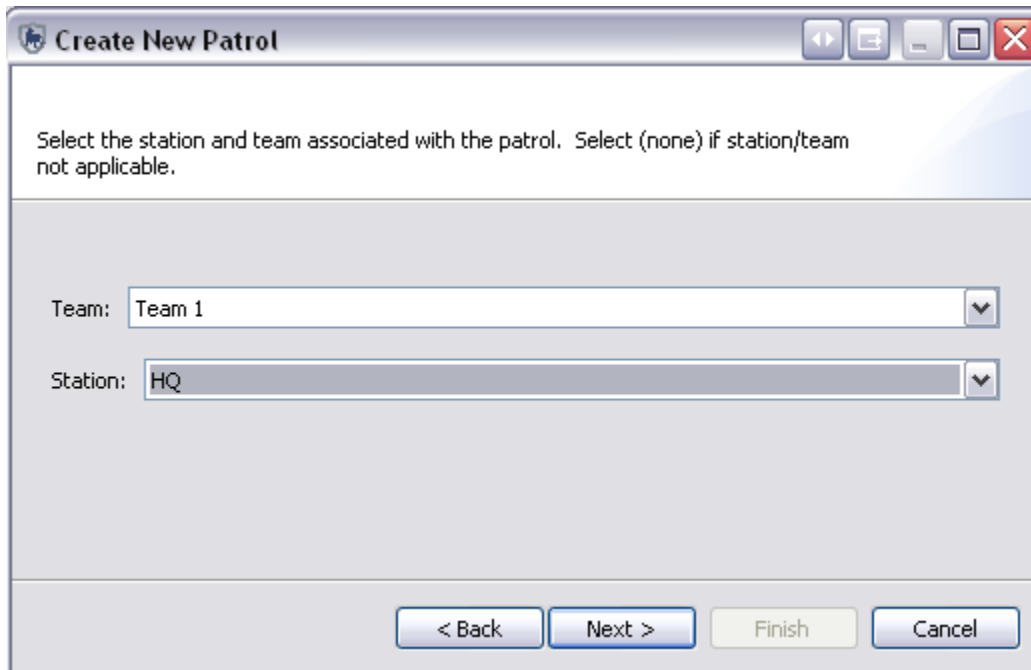
This screen allows you to specify whether the patrol is armed.



The screenshot shows a window titled "Create New Patrol" with standard Windows window controls (back, forward, print, save, close). The main content area has a light blue header with the text "Identify whether the patrol was armed or not armed." Below this, the question "Is this patrol armed?" is centered. There are two radio button options: "Yes" (unselected) and "No" (selected, highlighted with a red pill-shaped background). At the bottom of the window, there are four buttons: "< Back", "Next >", "Finish" (disabled), and "Cancel".

- Select **No**
- Click **Next**

Once again, SMART references the previously entered values for Teams and Stations to populate pull-down lists.



The dialog box is titled "Create New Patrol" and contains a header with a small icon and standard window controls. The main area has a light blue header with the text: "Select the station and team associated with the patrol. Select (none) if station/team not applicable." Below this, there are two dropdown menus. The first is labeled "Team:" and has "Team 1" selected. The second is labeled "Station:" and has "HQ" selected. At the bottom, there are four buttons: "< Back", "Next >", "Finish", and "Cancel".

Select the station and team associated with the patrol. Select (none) if station/team not applicable.

Team: Team 1

Station: HQ

< Back Next > Finish Cancel

Select:

- Team: **Team 1**
- Station: **HQ**
- Click **Next**



The dialog box is titled "Create New Patrol" and contains a header with a small icon and standard window controls. The main area has a light blue header with the text: "Select the patrol mandate". Below this, there is a single dropdown menu labeled "Patrol Mandate:" with "Law Enforcement" selected. At the bottom, there are four buttons: "< Back", "Next >", "Finish", and "Cancel".

Select the patrol mandate

Patrol Mandate: Law Enforcement

< Back Next > Finish Cancel

Select:

- Patrol Mandate: **Enforcement**
- Click **Next**

In the Patrol Objectives form you can type free form text to describe the objective of the patrol.



Enter the patrol objective.

Patrol Objective:

Responding to reports of illegal activities.

< Back Next > Finish Cancel

- Type in **“Responding to reports of illegal activities.”**
- Click **Next**

In the Patrol Comments form you can type free form text to enter any comments related to the patrol.

The screenshot shows a window titled "Create New Patrol" with standard Windows window controls. The main area contains the instruction "Enter any comments associated with the patrol." Below this is a section labeled "Patrol Comments:" followed by a text area containing the text "Found evidence : people encountered." At the bottom of the window are four buttons: "< Back", "Next >", "Finish", and "Cancel".

- Type in **“Found evidence : people encountered.”**
- Click **Next**

The next screen is for entering the start and end date of the patrol.

The screenshot shows the same "Create New Patrol" window, now at the second step. The instruction "Select the start and end dates for the patrol." is at the top. Below are two date selection fields. The "Patrol Start Date:" field shows "Thursday , August 09, 2012" with a calendar icon. The "Patrol End Date:" field shows "Thursday , August 09, 2012" with a calendar icon. At the bottom are the same four buttons: "< Back", "Next >", "Finish", and "Cancel".

- Enter in the date of **Thursday, August 09, 2012** for both the Start and End date.
- Click **Next**

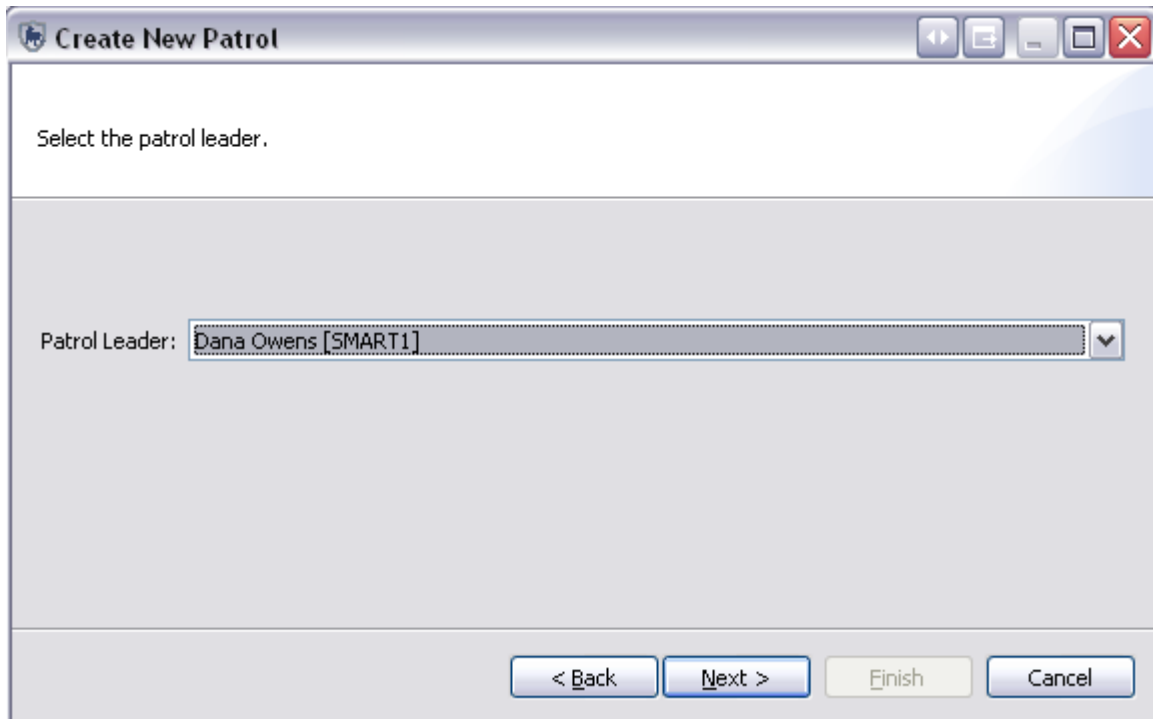
Each patrol must have at least one employee associated with it. For this patrol, you will select three employees to be associated with the patrol.

- Select **Dana Owens, Roger Barrett and Johnny Hendrix**
- Click **Add ->**

Once the three names appear in the Selected Employees window

- Click **Next**

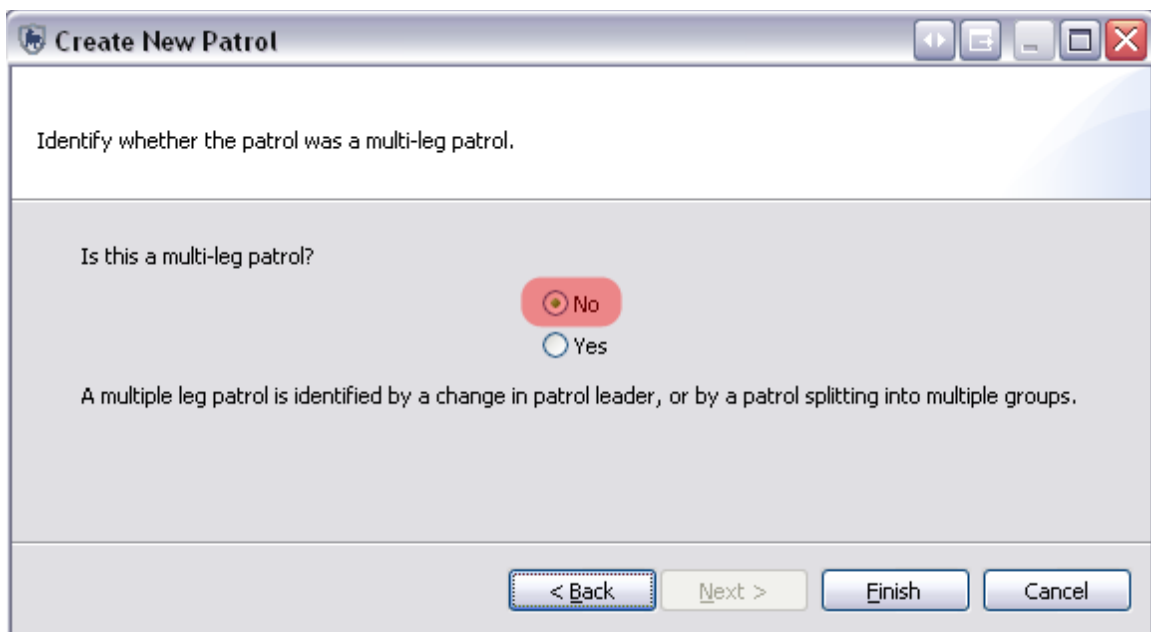
Each patrol must be assigned a leader. SMART will populate the pull-down list with the three previously selected names.



The dialog box is titled "Create New Patrol" and contains the instruction "Select the patrol leader." Below this is a dropdown menu for "Patrol Leader:" with "Dana Owens [SMART1]" selected. At the bottom are four buttons: "< Back", "Next >", "Finish", and "Cancel".

- Select **Dana Owens**
- Click **Next**

SMART has the ability to manage multi-leg patrols. These patrols involve portions of the patrol splitting off into a separate group with their own leader and transport type. Later in the exercise you will create a multi-leg patrol. For this patrol you will keep the default setting.



The dialog box is titled "Create New Patrol" and contains the instruction "Identify whether the patrol was a multi-leg patrol." Below this is the question "Is this a multi-leg patrol?" with two radio button options: "No" (selected) and "Yes". A note states: "A multiple leg patrol is identified by a change in patrol leader, or by a patrol splitting into multiple groups." At the bottom are four buttons: "< Back", "Next >", "Finish", and "Cancel".

- Select **No**
- Click **Finish**

SMART will now bring you to the Patrol Summary screen, which shows all of the values that you entered in the previous forms. Any of these can be edited by clicking the [edit](#) links next to the item.

The screenshot shows the SMART Conservation Area software interface. The main window displays the Patrol Summary for SMART_000001. The interface includes a menu bar (File, Conservation Area, Patrol, Query, Report, Planning, Help), a toolbar, and a sidebar with a 'Patrol List View' and a 'Layers' panel. The 'Patrol List View' shows a list of patrols, with SMART_000001 selected for the date range 8/9/12 - 8/9/12. The 'Layers' panel shows various map layers like Conservation Area Boundary, Management Sectors, Buffered Management Area, Administrative Areas, and Patrol Sectors.

The main content area is titled 'SMART_000001' and contains two sections: 'Patrol Information' and 'Patrol Data'.

Patrol Information

Patrol Type:	Ground	Patrol ID:	SMART_000001	edit
Transportation Type:	Foot	edit	Objective:	Responding to reports of illegal activities
Armed?:	☐	edit	edit	
Mandate:	Enforcement	edit	Comment:	Found evidence: people encountered
Team:	Team 1	edit	edit	
Station:	HQ	edit	edit	
Members:	★ Johnny Hendrix [SMART6] ★ [Leader] Dana Owens [SMART1] ★ Roger Barrett [SMART3] edit			

Patrol Data

Start Date: August 9, 2012 End Date: August 9, 2012 [edit](#)

Day	Start Time	End Time	Distance	Hours
Aug 9, 2012 Thu	12:00:00 AM	11:59:59 PM	0	24.00

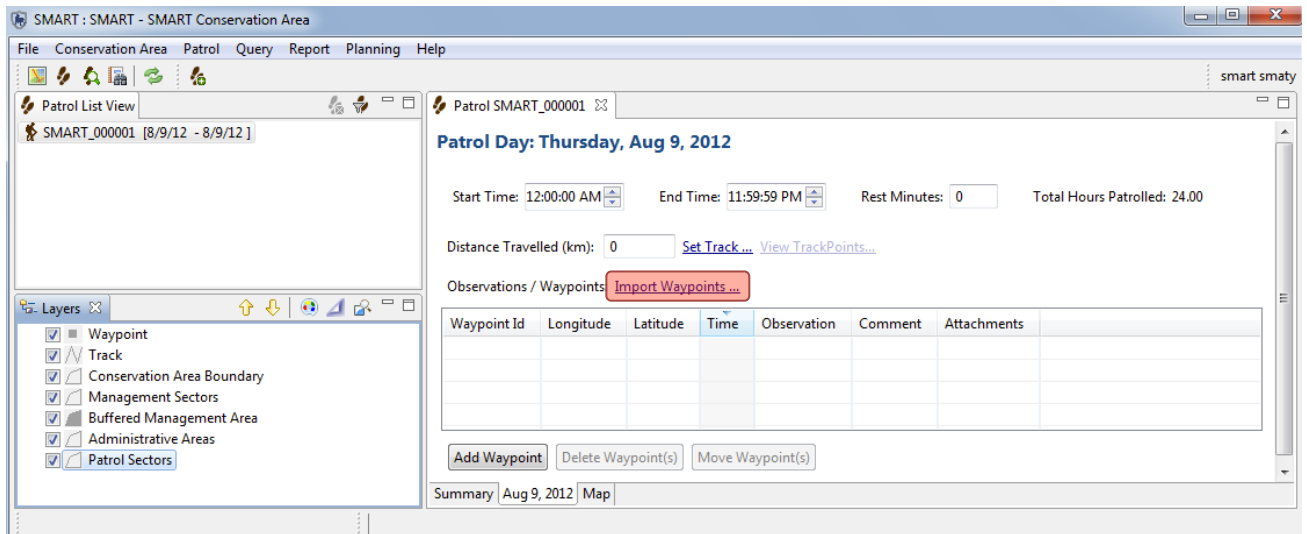
Summary Aug 9, 2012 Map

- Click the tab **Aug 9, 2012**

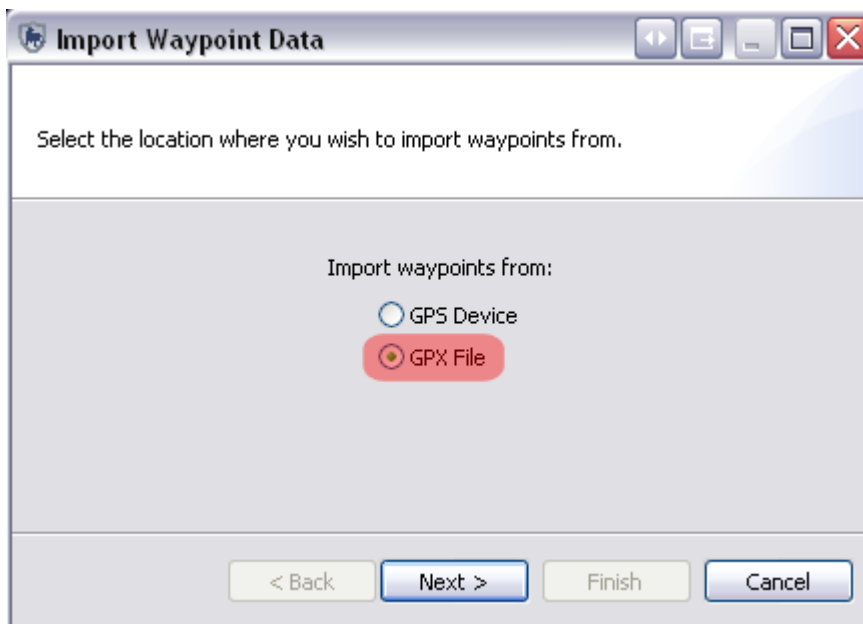
Patrol Waypoints

Waypoints can be entered into SMART in three distinct ways:

- Direct import from a GPS device;
- Import of a GPX data transfer file; or
- Manually entered.



- Click **Import Waypoints ...**

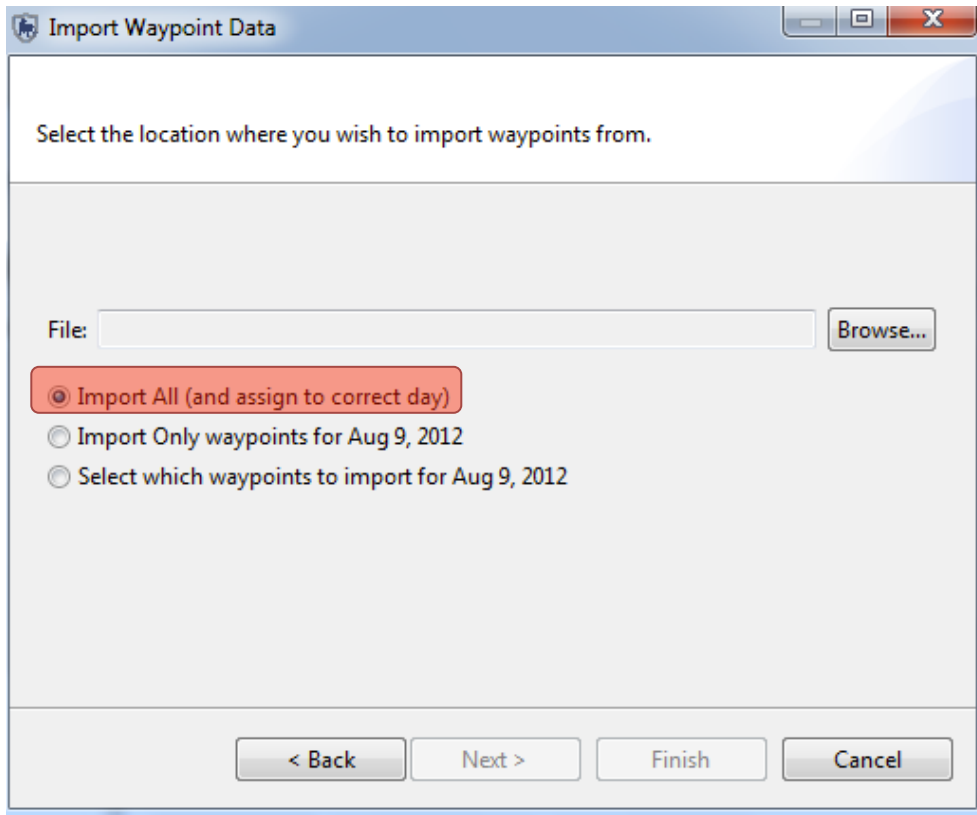


- Select **GPX File**
- Click **Next**

When importing GPX files, you have three options for how to associate the waypoints with a particular date:

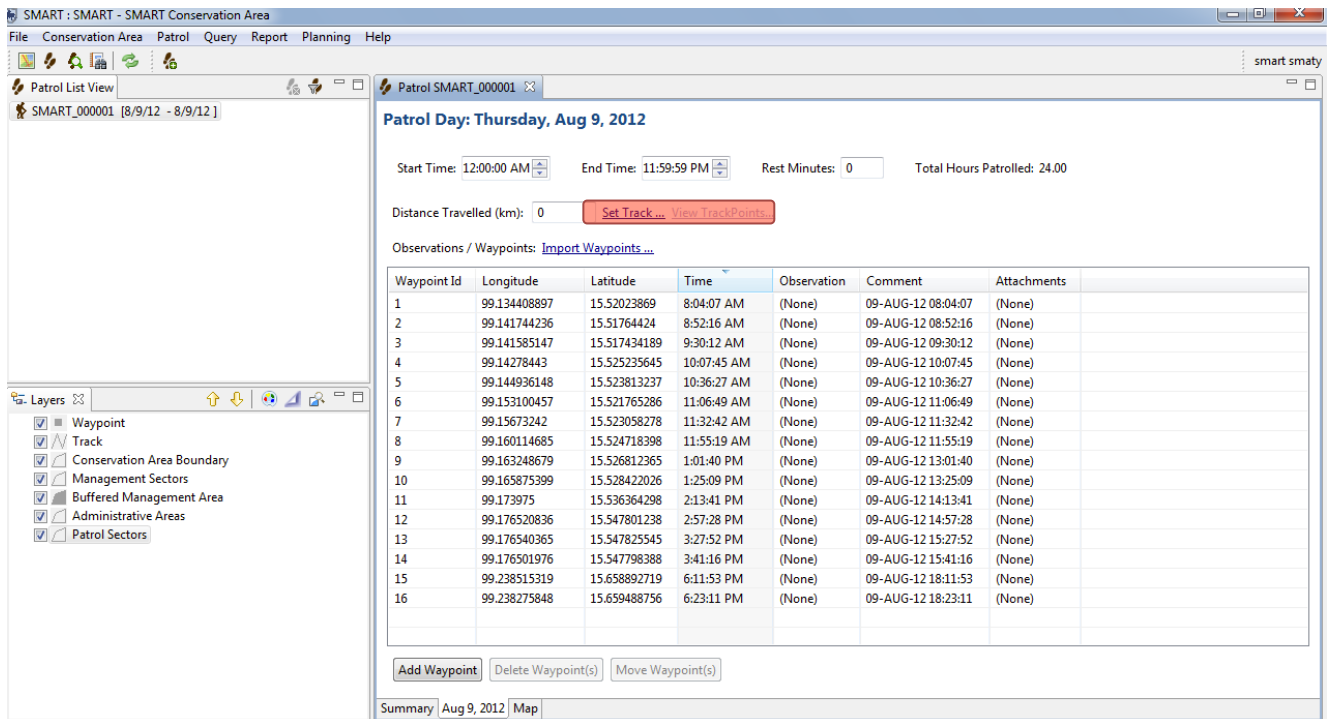
- Import All (and assign to correct day)
 - for multi-day patrols but can also be used for single day patrols

- Import Only waypoints for that date tab
 - for extracting out a single day and ignoring the other dates associated with that GPX file
- Select which waypoints to import for that date tab
 - a manual method where you will select and assign waypoints to a particular date



- Select **Import All (and assign to correct day)**
- Browse to the folder Module 2 select **WPT_20120809.GPX**
- Click **OK**
- Click **Finish**

SMART will read the GPX file and assign the waypoints to the appropriate date.



Add Waypoint - Allows for the manual creation of a waypoint

Delete Waypoint(s) - Deletes a selected waypoint

Move Waypoint(s) - Allows for a waypoint to be moved to a different day

Setting Tracks

As part of the patrol, Tracks allow SMART to make calculations based on the length of the patrol and to allow for visualization of the patrol's route.

Most GPS units collect Track information, and SMART has the ability to import Tracks in the same way as waypoints were imported. SMART can also calculate Tracks based on the available waypoint location and waypoint times.

Importing GPS Tracks

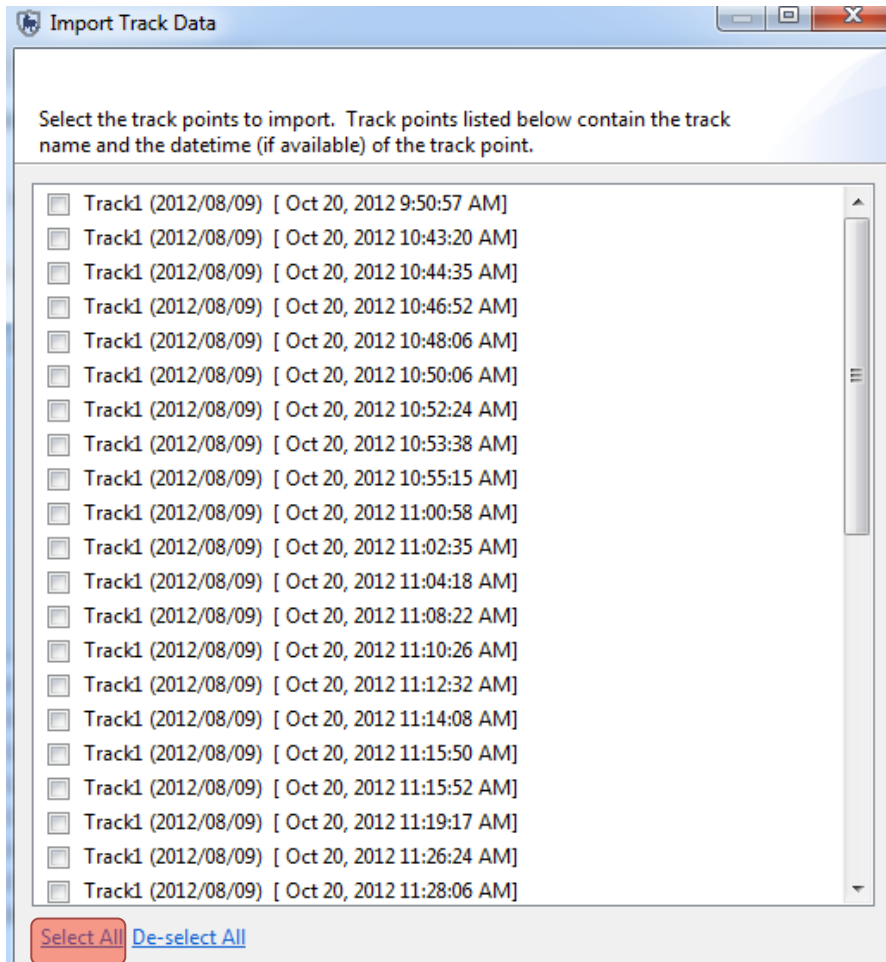
- Click **Set Track ...** (see above screenshot for location)



- Select **GPX File**
- Click **Next**
- Browse to the **Module 2** select **TRK_20120809.gpx**
- Click **OK**
- Choose **Select which tracks to import for Aug 9, 2012**
- Click **Next**

*Note: It is at this screen where you can choose to have SMART **calculate** the Track based on the previously imported waypoints, if no GPS track data is available.*

You will see the available Track information. If multiple dates are present you will need to select the appropriate dates. For this example you will select all of them.



- Click **Select All**
- Click **Finish**
- Click **OK**

Patrol SMART_000001

Patrol Day: Thursday, Aug 9, 2012

Start Time: 12:00:00 AM End Time: 11:59:59 PM Rest Minutes: 0 Total Hours Patrolled: 24.00

Distance Travelled (km): 19.94 [Set Track ...](#) [View TrackPoints...](#)

Entering Observations

At this point, you should have configured your Conservation Area with an appropriate observation data model. Now comes the time to transfer the observation data collected in the field into SMART.

Observations / Waypoints: [Import Waypoints ...](#)

Waypoint Id	Longitude	Latitude	Time	Observation	Comment	Attachments
1	99.134408897	15.52023869	8:04:07 AM	(None) 	09-AUG-12 08:04:07	(None)
2	99.141744236	15.51764424	8:52:16 AM	(None)	09-AUG-12 08:52:16	(None)
3	99.141585147	15.517434189	9:30:12 AM	(None)	09-AUG-12 09:30:12	(None)
4	99.14278443	15.525235645	10:07:45 AM	(None)	09-AUG-12 10:07:45	(None)

- Double-Click the **Observation cell** for Waypoint 1
- Click the **square button** (highlighted above) on the right to bring up the observation data model

Modify Waypoint Observations - Waypoint Id: 1

Select the type of observation made at the waypoint. If multiple observations were observed select one here, additional observations can be made later.

type filter text

- Data Model
 - Threats
 - Residential & Commercial Development
 - Agriculture & Aquaculture
 - Energy Production & Mining
 - Transportation & Service Corridors
 - Biological Resource Use
 - Human Intrusions & Disturbance
 - Natural System Modifications
 - Invasive & Other Problematic Species & Genes
 - Pollution
 - Geological Events
 - Climate Change & Severe Weather
 - Other
 - Position 
 - Mammals
 - Track
 - Dung
 - Scent
 - Scrape
 - Claw
 - Kill
 - Carcass
 - Sighting
 - Call
 - Features
 - Fig Tree
 - Salt Lick
 - Tandiran

< Back Next > Finish Cancel

You will now start populating the waypoints in this first patrol

- Click **Position**
- Click **Next**
- In the Position Type cell select **Start**
- Click **Next**
- Click **Finish**

For Waypoint ID 1 you will see Position in the Observation field. Now you will move on to populating the remaining waypoints.

Waypoint 2

- Double-Click in the Observation for Waypoint ID 2 to open the data model
- Select the **Sighting** under Mammals
- Click **Next**
- Double-click in the Species window then select the ... button to open the dialog
- Type in **Gaur** into the *type filter text* cell
- Select **Gaur, Indian Bison**
- Click **OK**
- Enter in the number sightings
 - **Number of Adult Males Seen = 1**
 - **Number of Animals Seen = 1**
- Click **Next**
- Click **Finish**

Waypoint 3

- This is a position point so you can leave as the default 'none'

Note: The default 'none' in SMART is equivalent to the default 'Position' in MIST

Waypoint 4

Modify Waypoint Observations - Waypoint Id: 4

Select the type of observation made at the waypoint. If multiple observations were observed select one here,

type filter text

- ▲ Data Model
 - ▲ Threats
 - ▶ Agriculture & Aquaculture
 - ▶ Energy Production & Mining
 - ▶ Transportation & Service Corridors
 - ▲ Biological Resource Use
 - ▲ Hunting & Collecting Terrestrial Animals
 - People Seen
 - People Confronted
 - Weapons Seen
 - Weapons Confiscated
 - Weapons Destroyed
 - Transportation Seen
 - Transportation Confiscated
 - Camp
 - ▶ Animals Seen
 - ▶ Animals Confiscated
 - ▶ Animals Destroyed
 - Gun Shots Heard
 - Poaching Sign
 - Hide
 - ▶ Gathering Terrestrial Plants
 - ▶ Logging & Wood Harvesting
 - ▶ Fishing & Harvesting Aquatic Resources
 - ▶ Human Intrusions & Disturbance
 - ▶ Natural System Modifications
 - ▶ Invasive & Other Problematic Species & Genes
 - ▶ Pollution
 - ▶ Climate Change & Severe Weather
 - ▶ Other
- Position

< Back Next > Finish Cancel

- Under Threats - Biological Resource Use - Hunting and Collecting Terrestrial Animals select **Camp**
- Click **Next**
- Complete the Observation with the following information
 - **Stakes to Dry Meat = No**
 - **Camp Capacity = 10**
 - **Camp Seen or Destroyed = Destroyed**
 - **Camp Status = Old Abandoned**
- Click **Next**
- Click **Finish**

Waypoint 5

- Select **Track** under Mammals
- Click **Next**
- Complete the Observation with the following information
 - **Species = Sumatran Tiger**
 - **Track Type = Front**
 - **Width of Pad mm = 130**
- Click **Next**
- Click **Finish**

Waypoints 6

- Leave as default 'none'

Waypoint 7

SMART has the ability to record multiple observations at a single waypoint.

For this waypoint (7), you will learn how to enter multiple observations.

- Under Threats - Biological Resource Use - Hunting and Collecting Terrestrial Animals select **People Confronted**
- Click **Next**
- Complete the Observation with the following information
 - **Number of People Confronted = 2**
 - **People Armed = Armed**
 - **Action Taken = Arrested**
 - **Type of Local People Confronted = Local People**
- Click **Next**
- To enter additional observations you will now click **Next**
- Under Threats - Biological Resource Use - Hunting and Collecting Terrestrial Animals select **Weapons Confiscated**
- Click **Next**

- Complete the Observation with the following information
 - **Type of Weapon = Single Action Rifle**
 - **Number of Weapons = 2**
- Click **Next**
- To enter one more observation you will now click **Next**
- Under Threats - Biological Resource Use - Hunting and Collecting Terrestrial Animals - Animals Confiscated select **Dead**
- Click **Next**
- Complete the Observation with the following information
 - **Age of Animal = Adult**
 - **Gender of Animal = Unknown**
 - **Age of Animal Carcass = Fresh**
 - **Species = Southern Red Muntjac**
 - **Number of Animals Dead = 1**
 -
- Click **Next**

Review the observation data you have entered. Use the edit button to edit observations. Press 'Next' to enter another observation. 'Finish' if the observations are complete.

People Confronted - Hunting & Collecting Terrestrial Animals - Biological Resource Use - Threats					Delete Edit
Action Taken	Type of People...	People Armed	Number of Pe...		
Arrested	Local People	Armed	2.0		

Weapons Confiscated - Hunting & Collecting Terrestrial Animals - Biological Resource Use - Threats				Delete Edit
Number of We...	Type of Weapon	Number of am...		
2.0	Single Action ...			

Dead - Animals Confiscated - Hunting & Collecting Terrestrial Animals - Biological Resource Use - Threats					Delete Edit
Age of Animal ...	Gender of Ani...	Age of Animal	Species	Number of Ani...	
Fresh	Unknown	Adult	Southern Red ...	1.0	

To complete the observations for this waypoint

- Click **Finish**

Waypoints 8

- Keep the default 'none' for this waypoint

Waypoint 9

- Select **Dung** under Mammals
- Click **Next**
- Complete the Observation with the following information
 - **Species = Banteng**
 - **Age of Dung = Recent**
- Click **Next**
- Click **Finish**

Waypoint 10

- Under Threats - Biological Resource Use - Hunting and Collecting Terrestrial Animals - Animals Confiscated select **Parts**
- Click **Next >**
- Complete the Observation with the following information
 - **Species = Silvered langur**
 - **Meat Seized Kg = 15**
 - **Type of Animal Part = Meat**
- Click **Next**
- Click **Finish**

Waypoint 11

- Select **Track** under Mammals
- Click **Next**
- Complete the Observation with the following information
 - **Species = Indochinese Tiger**
 - **Track Type = Hind**
 - **Width of Pad mm = 110**
- Click **Next**
- Click **Finish**

Waypoint 12

- Leave as default 'none'

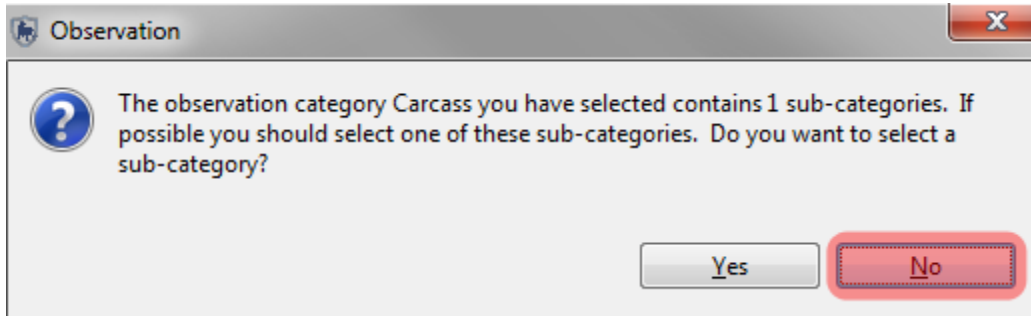
Waypoint 13

- Select **Track** under Mammals
- Click **Next**
- Complete the Observation with the following information
 - **Species = Gaur**
- Click **Next**
- Click **Finish**

Waypoint 14

- Select **Carcass** under Mammals
- Click **Next**

When selecting Observations from the data model, you have the ability to select any category or sub-category. If sub-categories exist, the following message will appear:



- Click **No**
- Complete the Observation with the following information
 - **Species = Indochinese tiger**
 - **Age of Animal = Adult**
 - **Gender of Animal = Male**
 - **Cause of Death = Poaching**
 - **Type of Weapon = Poison Furadan**
 - **Age of Animal Carcass = Recent**
- Click **Next**
- Click **Finish**

Waypoint 15

- Under Threats - Biological Resource Use - Hunting and Collecting Terrestrial Animals select **Hide**
- Click **Next**
- Complete the Observation with the following information
 - **Hide Status = Recently Abandoned one to four weeks**
 - **Hide Seen or Destroyed = Destroyed**
 - **Number of Ground Hide = 1**
 - **Type of Hide = Ground Hide**

Waypoint 16

- Enter the value of **Position - End**

Your list of waypoints should look like the following:

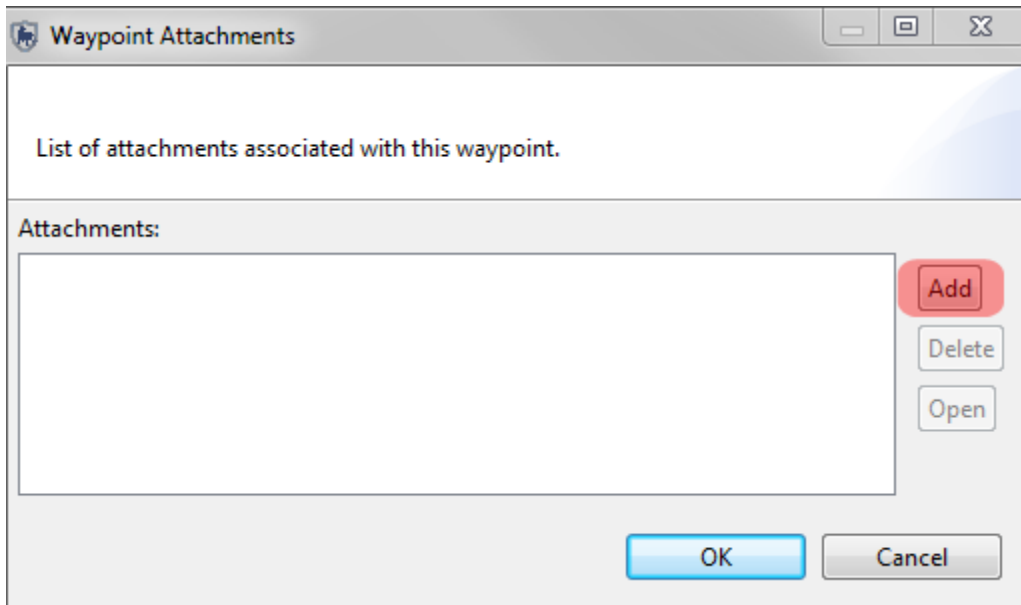
Waypoint Id	Longitude	Latitude	Time	Observation	Comment	Attachments
1	99.134408897	15.52023869	8:04:07 AM	Position	09-AUG-12 08:04:07	(None)
2	99.141744236	15.51764424	8:52:16 AM	Sighting	09-AUG-12 08:52:16	(None)
3	99.141585147	15.517434189	9:30:12 AM	(None)	09-AUG-12 09:30:12	(None)
4	99.14278443	15.525235645	10:07:45 AM	Camp	09-AUG-12 10:07:45	(None)
5	99.144936148	15.523813237	10:36:27 AM	Track	09-AUG-12 10:36:27	(None)
6	99.153100457	15.521765286	11:06:49 AM	(None)	09-AUG-12 11:06:49	(None)
7	99.15673242	15.523058278	11:32:42 AM	3 Observati...	09-AUG-12 11:32:42	(None)
8	99.160114685	15.524718398	11:55:19 AM	(None)	09-AUG-12 11:55:19	(None)
9	99.163248679	15.526812365	1:01:40 PM	Dung	09-AUG-12 13:01:40	(None)
10	99.165875399	15.528422026	1:25:09 PM	Parts	09-AUG-12 13:25:09	(None)
11	99.173975	15.536364298	2:13:41 PM	Track	09-AUG-12 14:13:41	(None)
12	99.176520836	15.547801238	2:57:28 PM	(None)	09-AUG-12 14:57:28	(None)
13	99.176540365	15.547825545	3:27:52 PM	Track	09-AUG-12 15:27:52	(None)
14	99.176501976	15.547798388	3:41:16 PM	Carcass	09-AUG-12 15:41:16	(None)
15	99.238515319	15.658892719	6:11:53 PM	Hide	09-AUG-12 18:11:53	(None)
16	99.238275848	15.659488756	6:23:11 PM	Position	09-AUG-12 18:23:11	(None)

Adding Attachments

Attachments of any file type can be added to each waypoint via the observation window.

Observation	Comment	Attachments
Track		(None) 
(None)		(None)

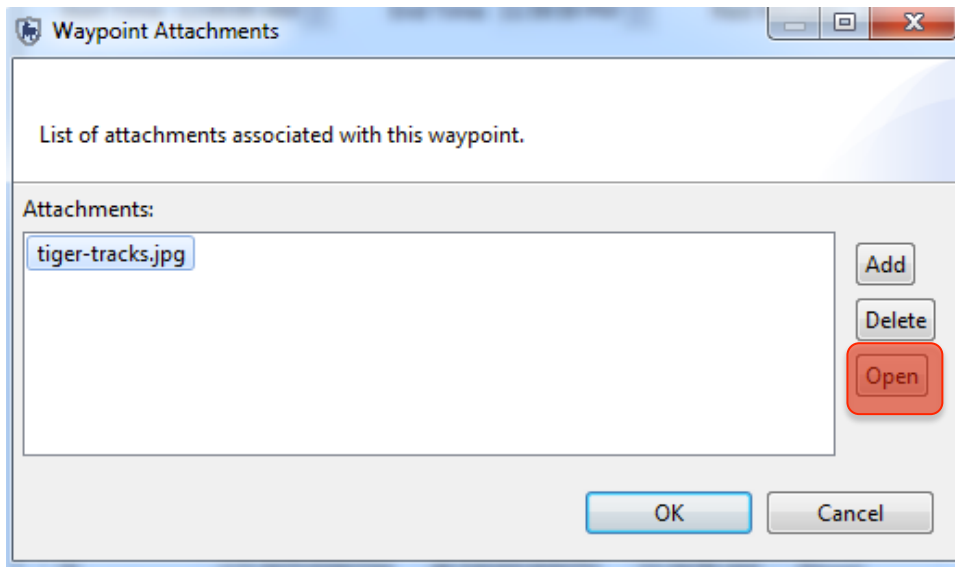
- Double-click the **Attachment** cell for Waypoint ID 11
- Click the square **icon** to launch the file attachment process



- Click **Add**
- Browse to the folder **Module 2**
- Select the file **tiger-tracks.jpg**
- Click **OK**

Viewing Attachments

Attachments in SMART are opened by other applications that are installed on your computer.



- Open the Waypoint dialog box
- Click on **tiger-tracks.jpg**
- Click **Open**



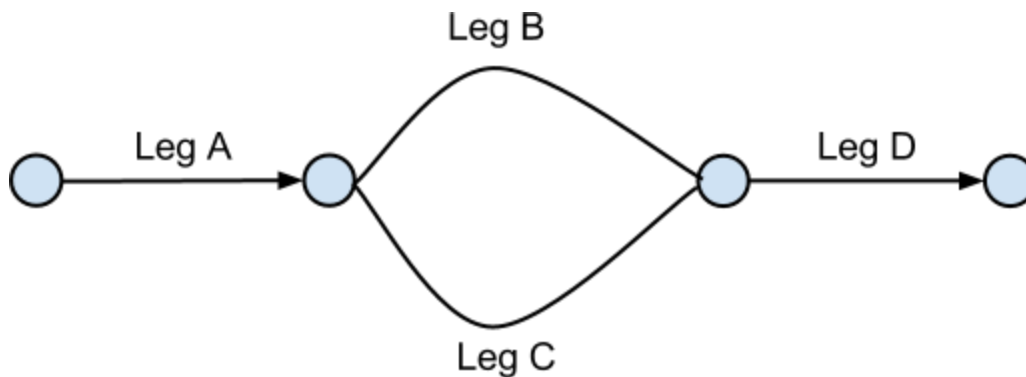
tiger-tracks.jpg

Multi-Leg Patrols

SMART has the ability to track multi-leg patrols. A multi leg patrol occurs when a patrol group splits up into smaller groups. Each of the smaller groups can have its own patrol leader, patrol transport type and patrol pilot (if available). Groups can be recombined at a later date.

A multi-leg patrol is tracked as a single patrol in SMART with Legs identifying the components within the patrol.

In this example all members are part of Leg A heading east. At the end of Leg A half the team heads north to form Leg B. the other half heads south to form Leg C. Both teams recombine and finish the patrol as Leg D.



Creating a Multi-Leg Patrol

The process for creating a multi-leg patrol is very similar to the previous example. The initial steps in setting up a the patrol framework in the same until the step in creating the patrol leg divisions.

- From the menu select **Patrol - Create New Patrol**
- Keep the default Patrol ID: **SMART_000002**
- Click **Next**
- Select **Ground**
- Click **Next**
- Select Patrol Transportation Type: **Vehicle**
- Click **Next**
- Keep the default of **No** for Is this patrol armed?
- Click **Next**
- Select Team: **Team 1**
- Select Station: **Patrol Station 1**
- Click **Next**
- Select Patrol Mandate: **Law Enforcement**
- Click **Next twice** to skip Patrol Mandate and Patrol Comments
- Enter Patrol Start Date: **September 01, 2012**
- Enter Patrol End Date: **September 03, 2012**
- Click **Next**

As with basic patrol you will need to select the patrol members that will take part in this patrol.

Create New Patrol

Select the members who participated in this patrol. Select all members even if the patrol split into multiple groups. At least one member must be selected.

Select members that participated in the patrol:

All Employees:

- smart smart [195000015]
- Rawlston Gordon [SMART5]
- Johnny Hendrix [SMART6]
- Cherilyn Sarkisian [SMART7]
- Gordon Sumner [SMART8]
- John Gillis [SMART9]
- Robert Zimmerman [SMART10]
- dataentry dataentry [195000010]

Selected Employees:

- Dana Owens [SMART1]
- Ellen Cohen [SMART2]
- Roger Barrett [SMART3]
- Paul Hewson [SMART4]

Add ->

<- Remove

< Back Next > Finish Cancel

- Highlight the Selected Employees: **Dana Owens, Ellen Cohen, Roger Barrett, Paul Hewson**
- Click **Add**
- Click **Next**

The screenshot shows a window titled "Create New Patrol". The main instruction is "Select the patrol leader." Below this is a dropdown menu labeled "Patrol Leader:" with "Dana Owens [SMART1]" selected. The dropdown is highlighted with a red rounded rectangle. At the bottom, there are four buttons: "< Back", "Next >" (highlighted with a blue dashed border), "Finish", and "Cancel".

- Select **Dana Owens** as the Patrol Leader
- Click **Next**

Up until this point the creation of a patrol is exactly the same as a regular patrol. At this step you will begin the process of defining a multi-leg patrol.

The screenshot shows the same "Create New Patrol" window, now at the second step. The instruction is "Identify whether the patrol was a multi-leg patrol." Below this is the question "Is this a multi-leg patrol?" followed by two radio buttons: "No" and "Yes". The "Yes" radio button is selected and highlighted with a red rounded rectangle. Below the radio buttons is a text box containing the instruction: "A multiple leg patrol is identified by a change in patrol leader, or by a patrol splitting into multiple groups." At the bottom, the same four buttons are present: "< Back", "Next >" (highlighted with a blue dashed border), "Finish", and "Cancel".

- Select **Yes**
- Click **Next**

At this step you will create the split in the patrol. Other options are also available using this screen.

The screenshot shows a window titled "Create New Patrol". Inside, there is a text box that says: "Setup Patrol Legs. Patrol legs are identified by changes in the patrol leader or the patrol splitting into multiple groups. Use the buttons below to add, remove, or edit legs." Below this, it says "Patrol Start: Sep 1, 2012 Patrol End: Sep 3, 2012". There is a table with the following data:

Leg	Start Date	End Date	Transport Type	Leader	Members
1	Sep 1, 2012 12:00:00 AM	Sep 3, 2012 11:59:59 PM	Truck	Dana Owens [SMART1]	4: Dana O

Below the table is a horizontal scrollbar. Underneath the scrollbar are five buttons: "Change of Transport", "Change of Leader", "Patrol Split" (highlighted in red), "Remove Leg", and "Edit Leg". At the bottom of the window are four buttons: "< Back", "Next >", "Finish" (highlighted in blue), and "Cancel".

- Select **patrol leg 1**
- Click **Patrol Split**

Change of Transport - allows for a change of transportation type

Change of Leader - allows for the leader of the patrol to change

Patrol Split - the base patrol splits off into two groups each with their own leader and transport type

For this example you will create a multi-leg patrol where the group physically splits up to cover different ground and then recombines in the final leg to finish the patrol. The following screenshot is the initial screen used to define the patrol split.

Patrol Split

Select information for the patrol split.

Date of Split: Saturday , September 01, 2012

Time of Split: ☒ Start of Day ☐ Custom: 12:00:00 AM

Date Groups Joined: Monday , September 03, 2012

Time Groups Joined: ☒ End of Day ☐ Custom: 11:59:59 PM

Dana Owens [SMART1]
Ellen Cohen [SMART2]
Roger Barrett [SMART3]
Paul Hewson [SMART4]

Group A

Transportation Type: Truck

Members:

-> <-

Group A Leader:

Group B

Transportation Type: Truck

Members:

-> <-

Group B Leader:

OK Cancel

You should use the following screenshot as reference to what features need to be changed when defining a multi-leg patrol. For this example the group will split up at the start of the

second day and recombine at the end of the same day. Two members will continue on in the truck and the other two will complete their patrol leg on foot.

Patrol Split

Select information for the patrol split.

Date of Split: Sunday, September 02, 2012

Time of Split: ☒ Start of Day ☐ Custom: 12:00:00 AM

Date Groups Joined: Sunday, September 02, 2012

Time Groups Joined: ☒ End of Day ☐ Custom: 11:59:59 PM

Group A

Transportation Type: Truck

Members:

-> Dana Owens [SMART1]
Ellen Cohen [SMART2]

<-

Group A Leader: Dana Owens [SMART1]

Group B

Transportation Type: Foot

Members:

-> Roger Barrett [SMART3]
Paul Hewson [SMART4]

<-

Group B Leader: Roger Barrett [SMART3]

OK Cancel

Patrol Split Dates and Times

Date of Split: **Sunday September 2, 2012**

Time of Split: **Start of Day**

Date Groups Joined: **Sunday September 2, 2012**

Time Groups Joined: **End of Day**

Setup - Group A

Transportation Type: **Truck**

Members: **Dana Owens, Ellen Cohen**

Group A Leader: **Dana Owens**

Setup - Group B

Transportation Type: **Foot**

Members: **Roger Barrett, Paul Hewson**

Group A Leader: **Roger Barrett**

- At the end of the setup click **OK**

The screenshot shows a window titled "Create New Patrol" with a subtitle "Setup Patrol Legs. Patrol legs are identified by changes in the patrol leader or the patrol splitting into multiple groups. Use the buttons below to add, remove, or edit legs." Below this is a table with columns: Leg, Start Date, End Date, Transport Type, Leader, and Members. The table contains four rows: "1", "1 - Group A", "1 - Group B", and "1 - End". Below the table are buttons: "Change of Transport", "Change of Leader", "Patrol Split" (highlighted with a blue border), "Remove Leg", and "Edit Leg". At the bottom right are buttons: "< Back", "Next >", "Finish", and "Cancel".

Leg	Start Date	End Date	Transport Type	Leader	Members
1	Sep 1, 2012 12:00:00 AM	Sep 2, 2012 12:00:00 AM	Truck	Dana Owens [SMART1]	4: Dana Owens [SMART1]; Eller
1 - Group A	Sep 2, 2012 12:00:00 AM	Sep 2, 2012 11:59:59 PM	Truck	Dana Owens [SMART1]	2: Dana Owens [SMART1]; Eller
1 - Group B	Sep 2, 2012 12:00:00 AM	Sep 2, 2012 11:59:59 PM	Foot	Roger Barrett [SMART3]	2: Roger Barrett [SMART3]; Pau
1 - End	Sep 2, 2012 11:59:59 PM	Sep 3, 2012 11:59:59 PM	Truck	Dana Owens [SMART1]	4: Dana Owens [SMART1]; Eller

Buttons: Change of Transport, Change of Leader, **Patrol Split**, Remove Leg, Edit Leg

Bottom buttons: < Back, Next >, Finish, Cancel

- Click **Finish** to complete the multi-leg patrol

The summary screen of the patrol will allow for future edits, and also provides access to the tabs that bring up the waypoint and track imports.

SMART_000002

Patrol Information

Patrol Type: Ground
Patrol ID: SMART_000002
Armed?: ☐
Mandate: Law Enforcement
Team: Team 1
Station: Patrol Station 1
Members:

- Ellen Cohen [SMART2]
- [Leader] Roger Barrett [SMART3]
- [Leader] Dana Owens [SMART1]
- Paul Hewson [SMART4]

Objective:
Comment:

This is a multi-leg patrol. To change the patrol members or transport type use the edit button below in the Patrol Data section.

Patrol Data

Start Date: September 1, 2012
End Date: September 3, 2012

Leg	Day	Start Time	End Time	Distance	Hours	Transport	Leader
1	Sep 1, 2012 Sat	12:00:00 AM	11:59:59 PM	0	24.00	Truck	Dana Owens [S...
1 - Group A	Sep 2, 2012 Sun	12:00:00 AM	11:59:59 PM	0	24.00	Truck	Dana Owens [S...
1 - Group B	Sep 2, 2012 Sun	12:00:00 AM	11:59:59 PM	0	24.00	Foot	Roger Barrett [...]
1 - End	Sep 3, 2012 Mon	12:00:00 AM	11:59:59 PM	0	24.00	Truck	Dana Owens [S...

Summary
Sep 1, 2012
Sep 2, 2012
Sep 3, 2012
Map

- Click the tab **Sep 2, 2012** to access the waypoint dialog.

After accessing the day where the multi-leg patrol took place on SMART will have two separate dialogs for importing waypoints, tracks and the related observations. The process to complete the observations for a multi-leg patrol would be the same as a regular patrol but you will need to populate each leg individually. In populating the last patrol you gained experience importing waypoints and creating observations.

Note: For multi-leg patrols you will just need to make note that all the sections would require waypoints and tracks to be imported separately.

Patrol SMART_000002

Patrol Day: Sunday, Sep 2, 2012

▼ Leg: 1 - Group A

Start Time: 12:00:00 AM
End Time: 11:59:59 PM
Rest Minutes: 0
Total Hours Patrolled: 24.00

Distance Travelled (km): 0
[Set Track ...](#)
[View TrackPoints...](#)

Observations / Waypoints: [Import Waypoints ...](#)

Waypoint Id	Longitude	Latitude	Time	Observation	Comment	Attachments

Add Waypoint
Delete Waypoint(s)
Move Waypoint(s)

▼ Leg: 1 - Group B

Start Time: 12:00:00 AM
End Time: 11:59:59 PM
Rest Minutes: 0
Total Hours Patrolled: 24.00

Distance Travelled (km): 0
[Set Track ...](#)
[View TrackPoints...](#)

Observations / Waypoints: [Import Waypoints ...](#)

Waypoint Id	Longitude	Latitude	Time	Observation	Comment	Attachments

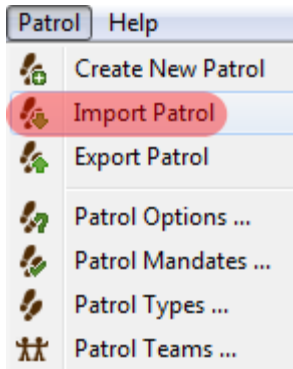
Add Waypoint
Delete Waypoint(s)
Move Waypoint(s)

Summary
Sep 1, 2012
Sep 2, 2012
Sep 3, 2012
Map

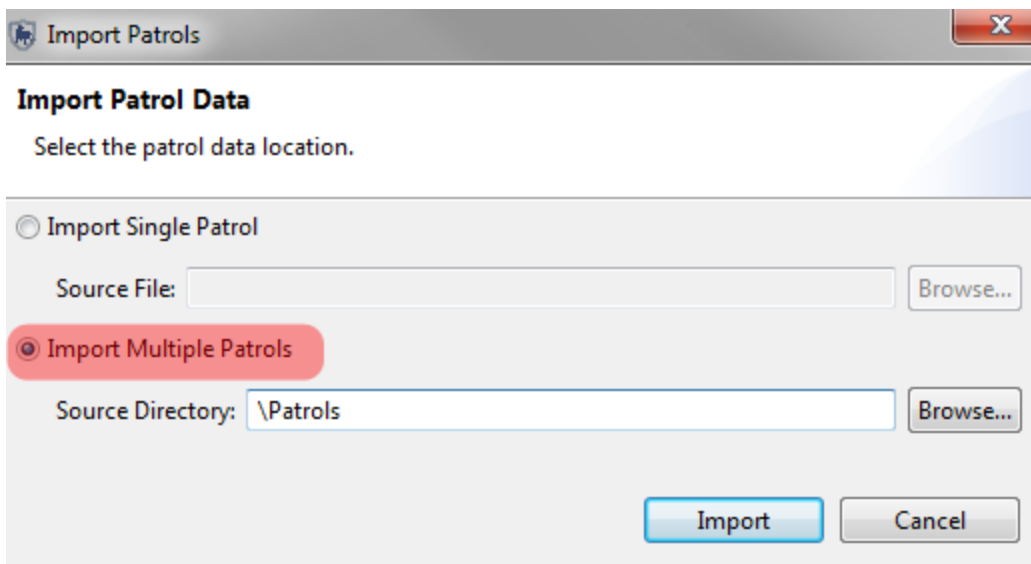
57

Importing Patrols

Now that you have worked through the process of creating a couple of patrols you will now import a few more patrols. Patrol exports/imports allows for multiple computers to be used to enter in the patrol information while allowing one or more computers to function as the central computer that imports all of the patrols.



- From the menu select **Patrol - Import Patrol**

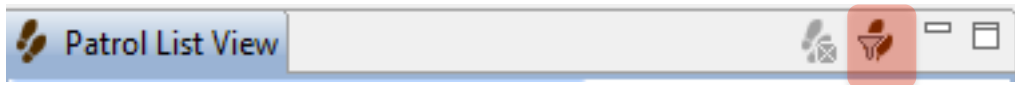


Individual patrols or a bulk load of patrols is possible in SMART. For this exercise you will perform a bulk load of patrols.

- Select **Import Multiple Patrols**
- Browse to the folder **Module 2 \ Patrols**
- Click **Import**

After a successful import you should see more patrols in the Patrol Perspective window.

*Note: To view all patrols, select the **Patrol Filter** and specify 'Include All Dates'*



<End of Module 2 - Patrols>

Module 3 - Map Navigation

Objective:

This Module will instruct you on how to use SMART's mapping features. You will learn how to create custom maps, export maps, set basemaps and access attribute information directly from the mapping windows.

- **Icons and Navigation**
- **Adding Datasets**
- **Styling and Labelling**
- **Exporting Data**
- **Setting Basemaps**
- **Setting Map Projections**
- **Identifying Features**

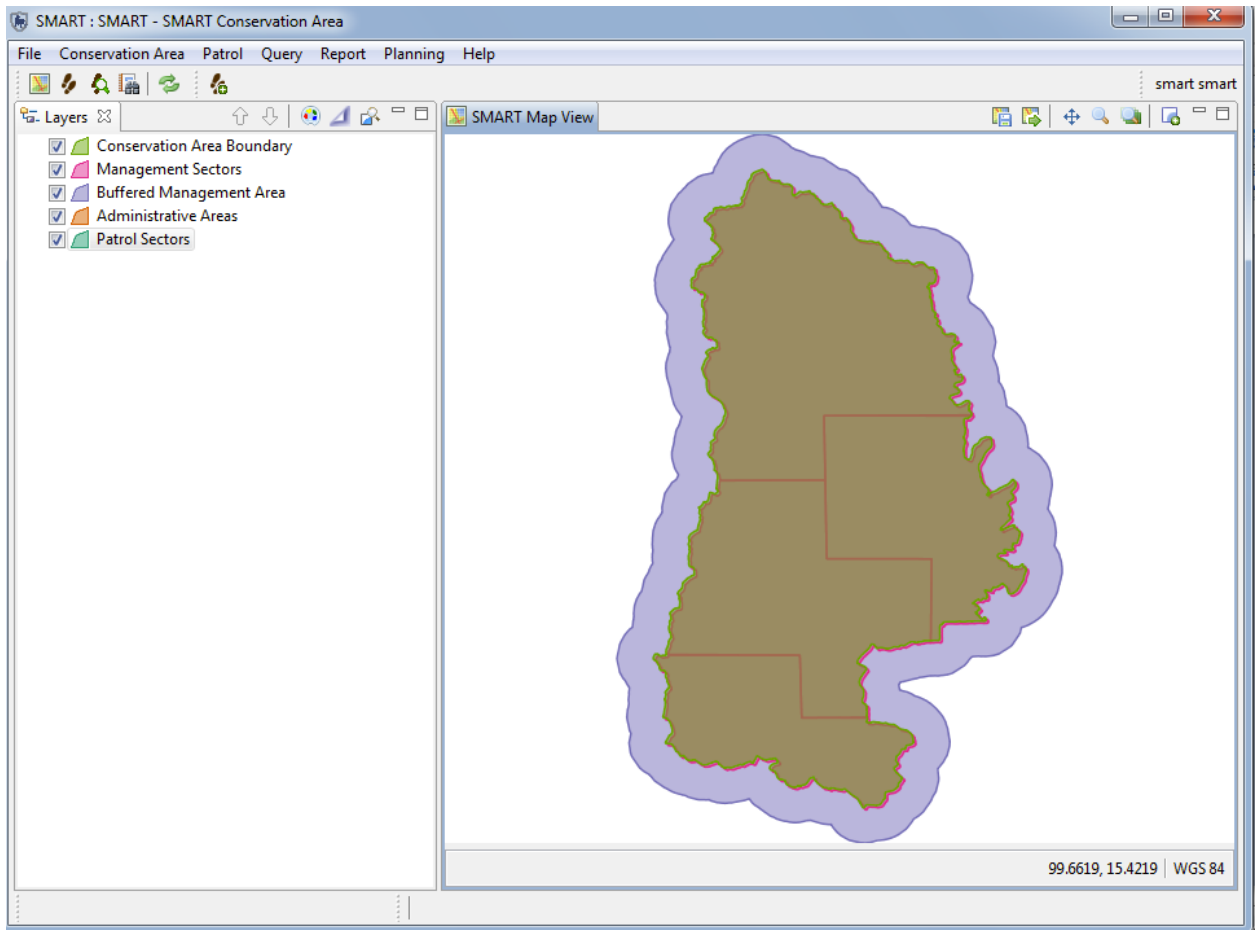
Detailed Steps:

Embedded in SMART in the Mapping, Patrol and Query perspectives are the mapping features that allow for the visualization of the spatial data used to manage the Conservation Area. Boundaries, GPS waypoints and observations, query results and other spatial data sets are all easily viewed within SMART's mapping framework.



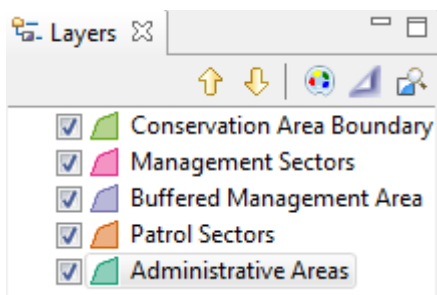
- Click the Map Perspective icon

The Map Perspective contains two main sections. On the right is the mapping window called SMART Map View and on the left are the boundary layers that were loaded into the Conservation Area in Module 1 (*remember only 3 were loaded*).



Icons and Navigation

Upon logging into the application as an administrator SMART will open the Map Perspective window. In this window will be displayed the five (5) previously loaded administrative layers in the Layers tab found on the left side of the screen. The icons above the layers list allow for reordering, restyling and zooming to the extents of the layers.

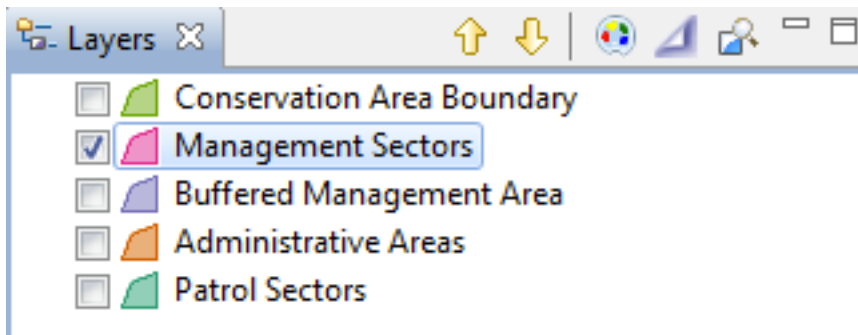


	Moves the selected layer up
	Moves the selected layer down
	Changes the style of the selected layer
	Toggles whether the selected layer should be focused or not
	Zooms to selected layers

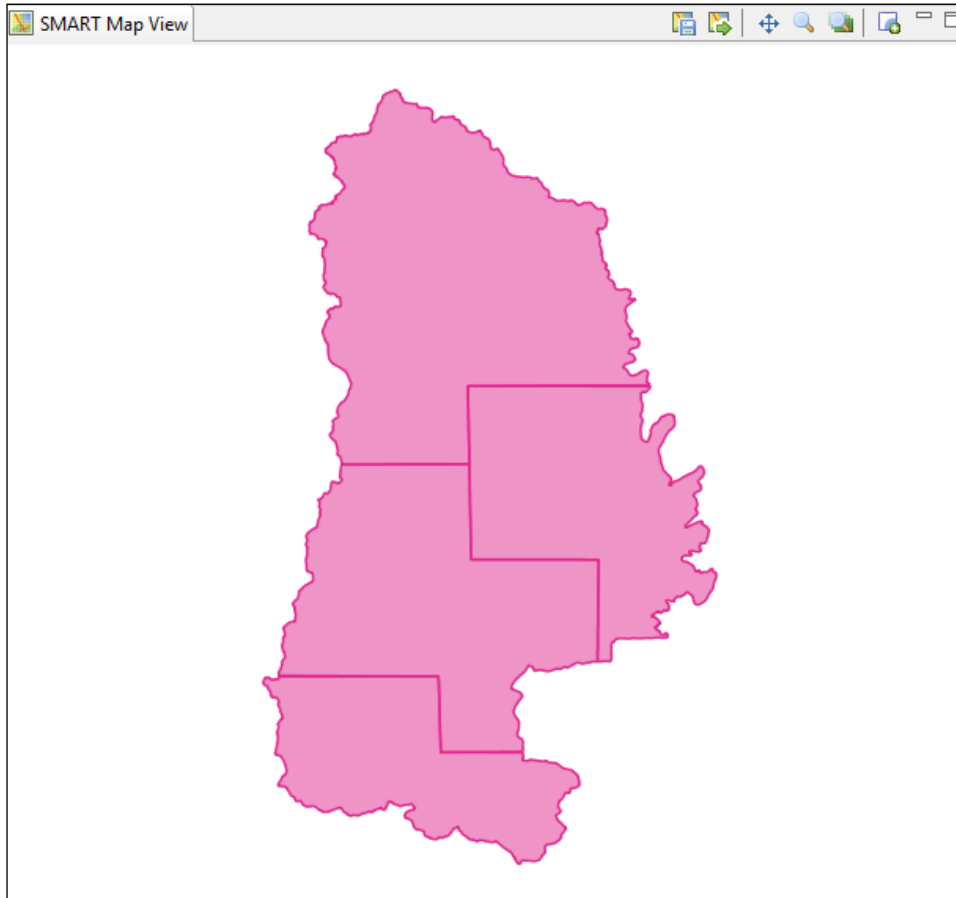
- Turn layers **off/on** by clicking the checkbox next to a layer
- Move layers **up/down** by using the arrows or by dragging the layer
- Select Conservation Area Boundary and click **Zoom to selected layers** icon

Changing Styling

SMART has an extensive tool set for creating custom maps with user-defined colors and labels.



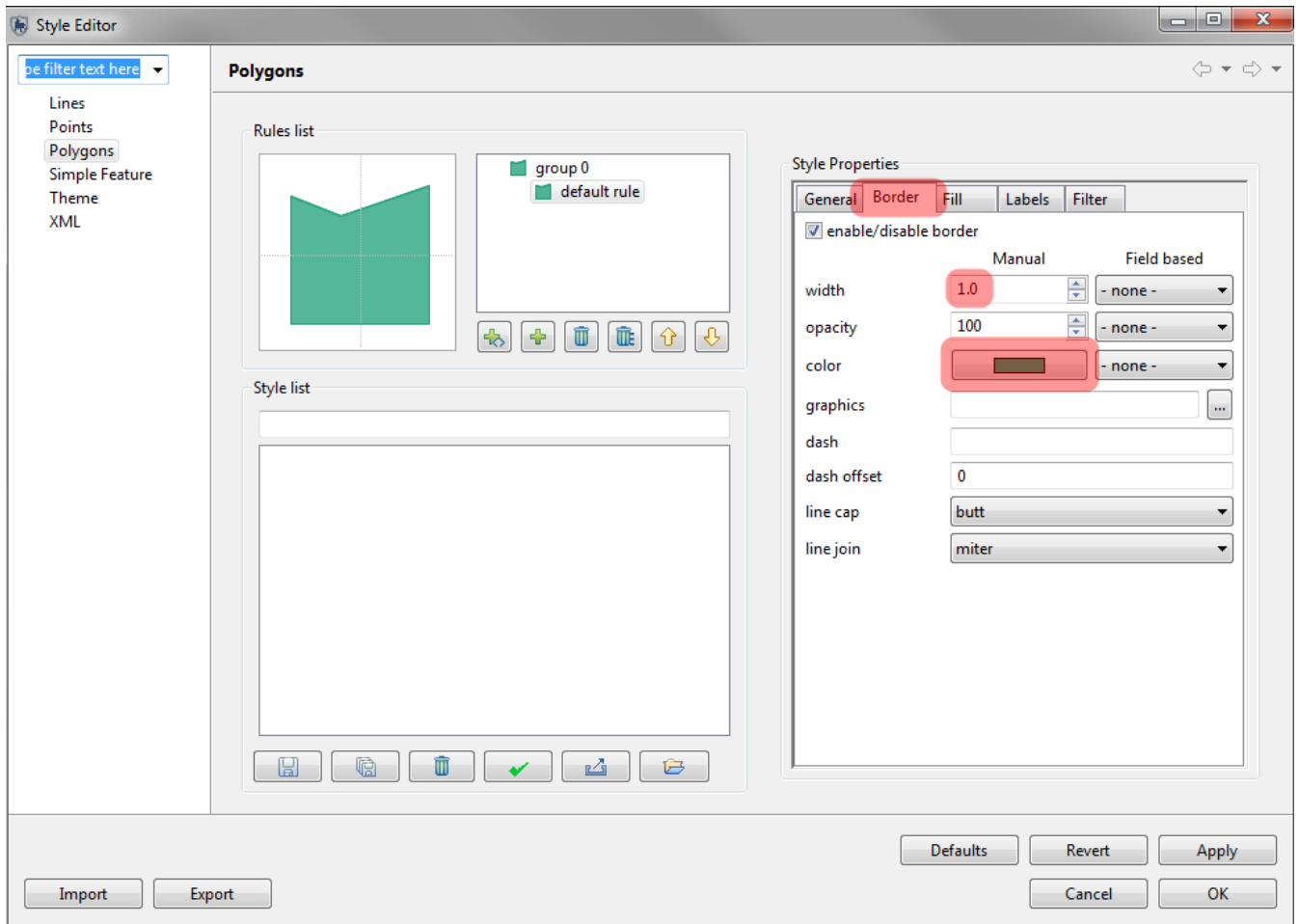
- Turn **off/on** all layers except for **Management Sectors**
- Select and highlight **Management Sectors**



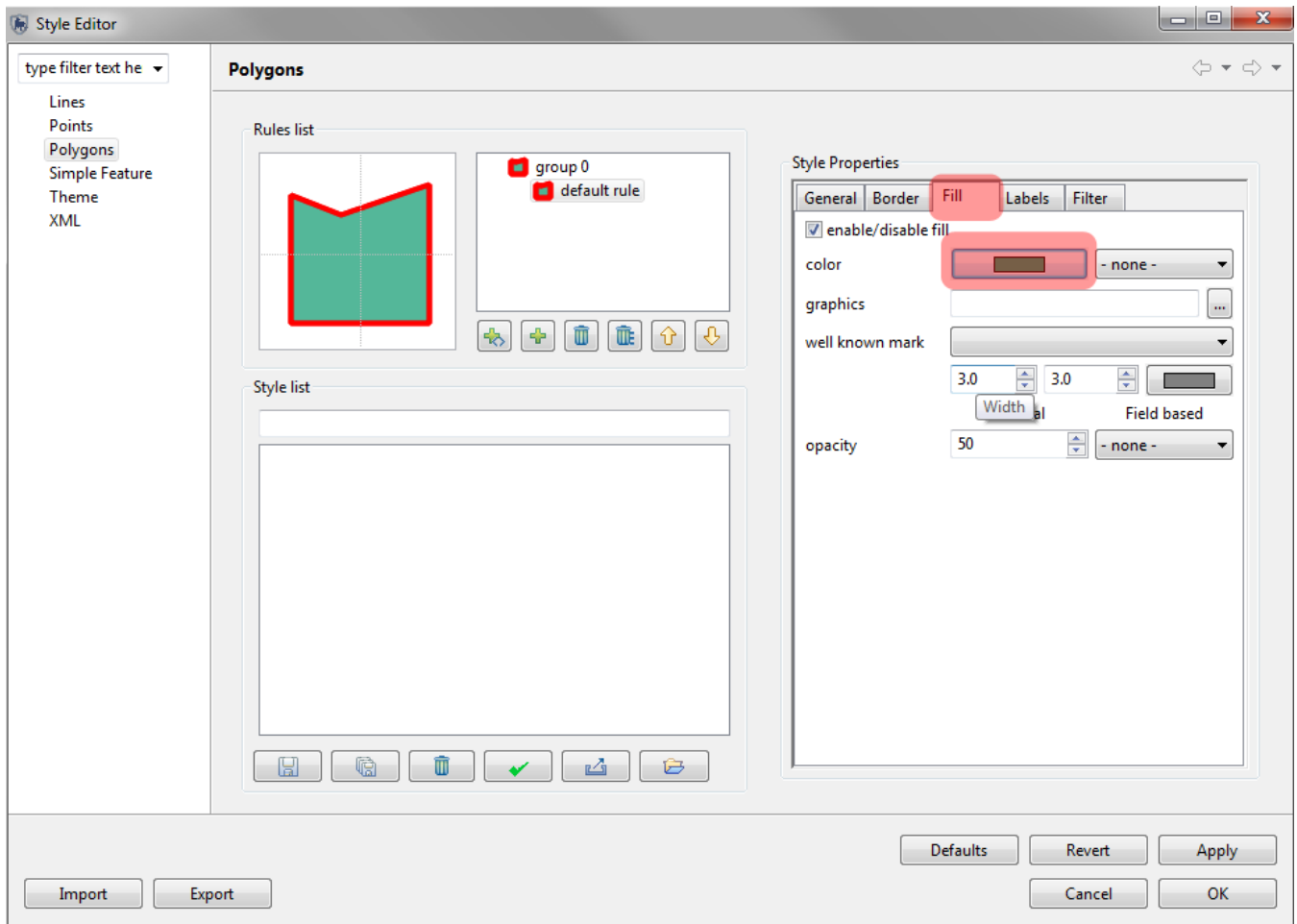
- Click the style icon above the map legend on the left hand side



The Style Editor dialog box will appear. There are many styling features that are available but for this exercise you will adjust the border fill color, line size and create a label for the feature.

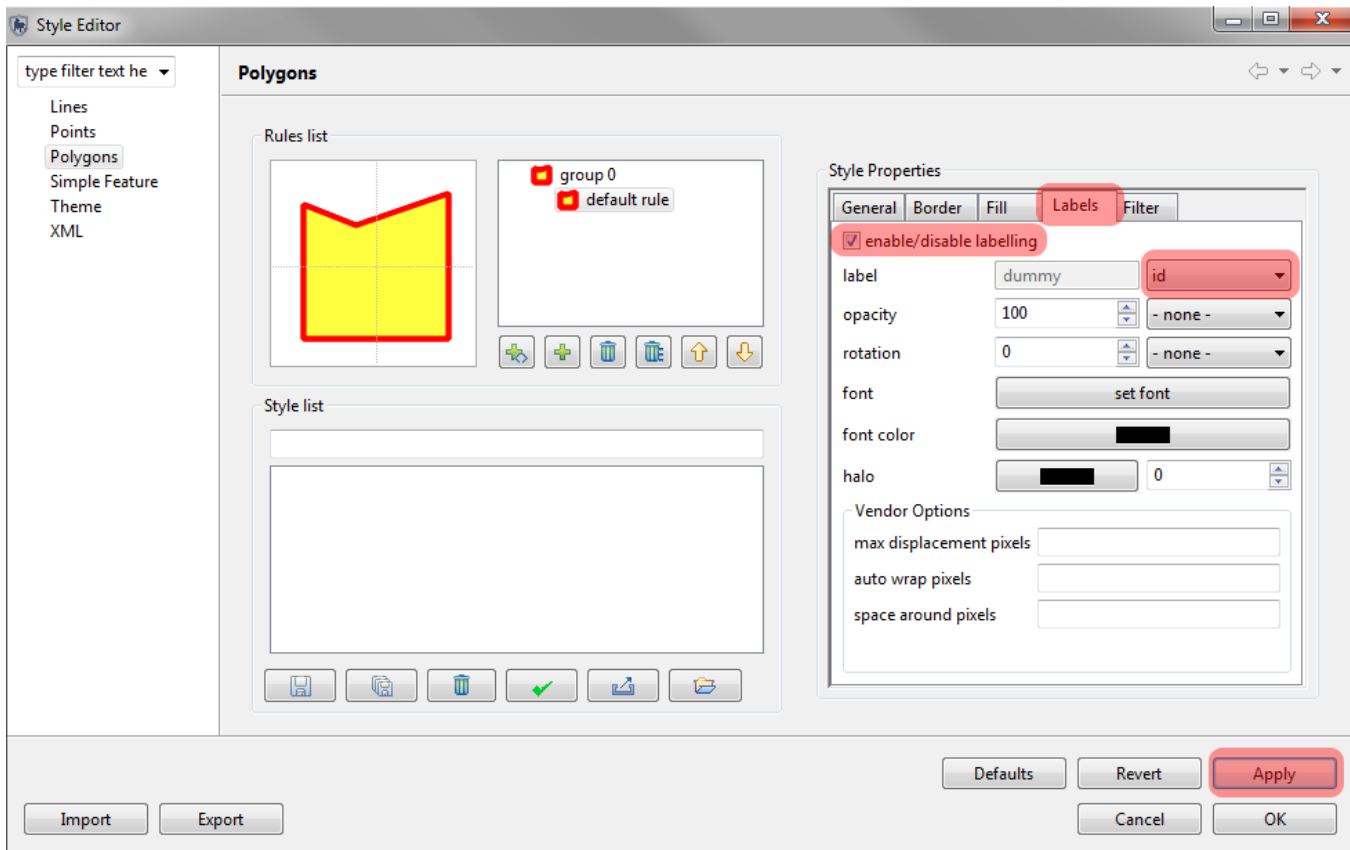


- Click the tab **Border**
- Click **color** to open the color selector
- Select the color **Red**
- Click **OK**
- Set the width to **3.0**



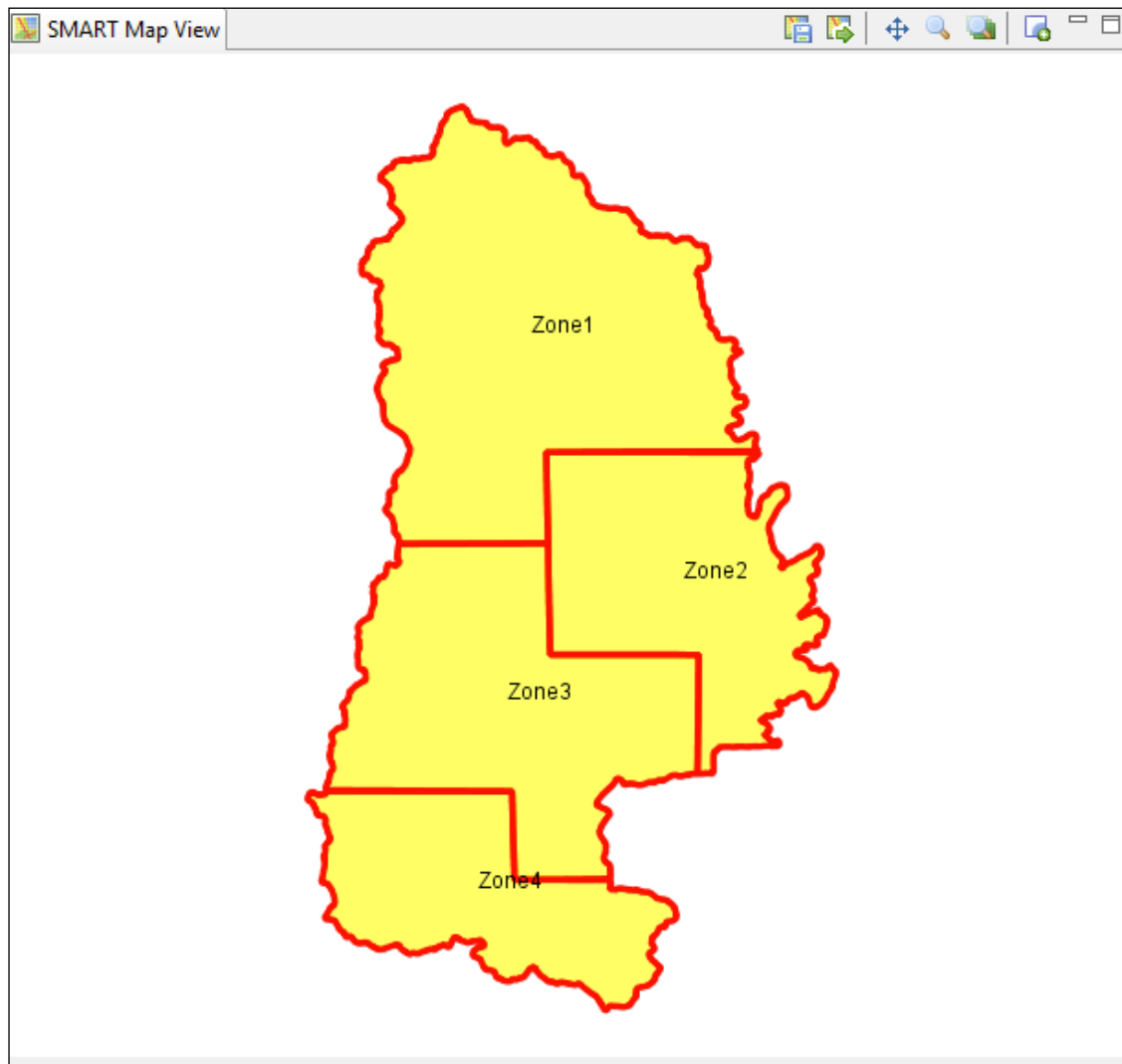
- Click the tab **Fill**
- Click **color** to open the color selector
- Select the color **Yellow**
- Click **OK**

Your Management Sector polygons should appear yellow with a thick red border.



- Click the tab **Labels**
- Click **enable/disable labelling** to activate labelling
- In the pulldown of label select **id**
- Click **Apply**
- Click **OK**

In the SMART Map View window your Management Sector layer should appear as below.

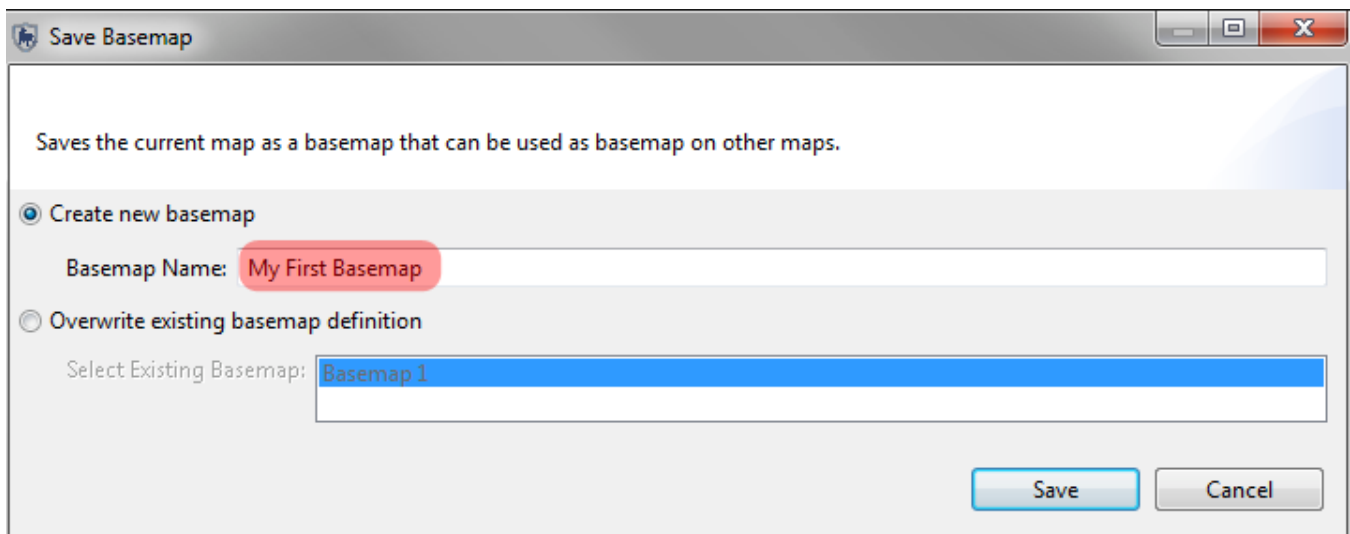


In the SMART Map View you will see the boundary files that are associated with the Conservation Area. In the upper right of the SMART Map View window are the map navigation icons.

	Saves the current map as a Basemap
	Selects a saved Basemap
	Pans/moves the map

	Zooms the map in
	Zooms to the full extent of all layers
	Adds data layers to the map

- To save your first Basemap click the **Save Basemap Icon** 



The dialog box is titled "Save Basemap". It contains the following elements:

- A description: "Saves the current map as a basemap that can be used as basemap on other maps."
- Two radio buttons:
 - ☒ **Create new basemap**
 - ☐ **Overwrite existing basemap definition**
- Under "Create new basemap", there is a text field labeled "Basemap Name:" with the value "My First Basemap".
- Under "Overwrite existing basemap definition", there is a text field labeled "Select Existing Basemap:" with a dropdown menu showing "Basemap 1".
- At the bottom right, there are two buttons: "Save" and "Cancel".

- Select **Create new basemap**
- Enter in Basemap Name: **Module 3 - Basemap 1**
- Click **Save**

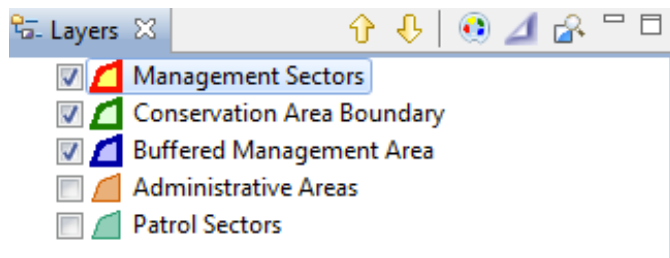
The management sector layer has been set but the remainder of the other layers are still unstyled. You will now need to set the other layers to match the following screenshot.

Colors to use for Module 3 - Basemap 1

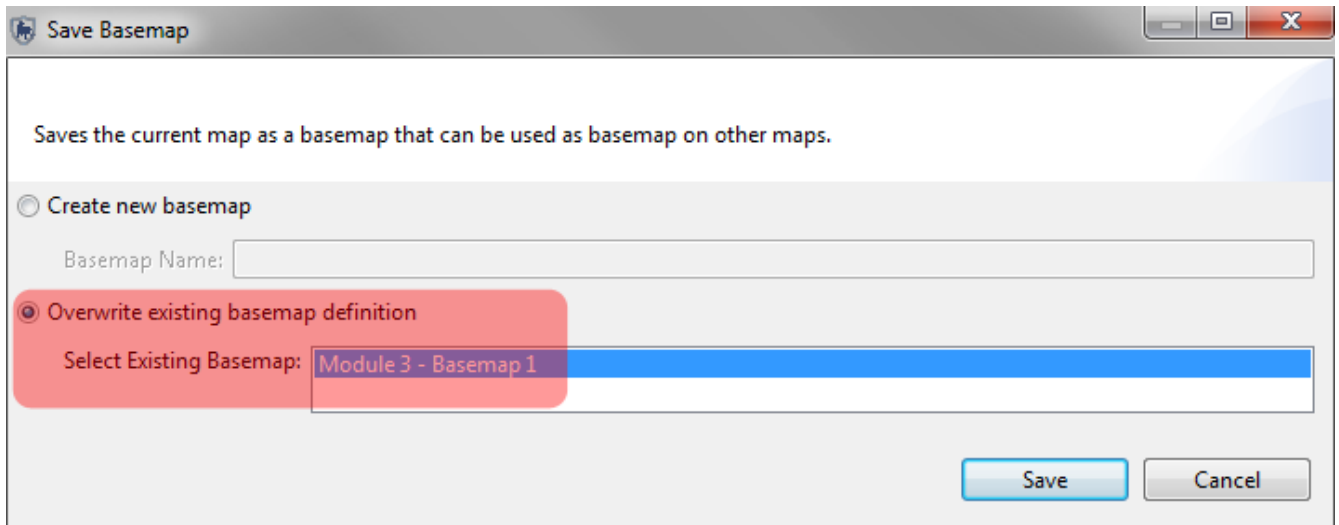
Set the remainder of the layers using the specifications in the following table.

Layer	Border Color	Border Width	Fill Color	Label
Conservation Area	Dark Green	3	Light Green	none
Management Sector	Red	3	Yellow	none
Buffered Management Area	Dark Blue	3	Light Blue	none

We will de-select the Administrative Area and the Patrol Sectors as we will not use those layer for this Conservation Area



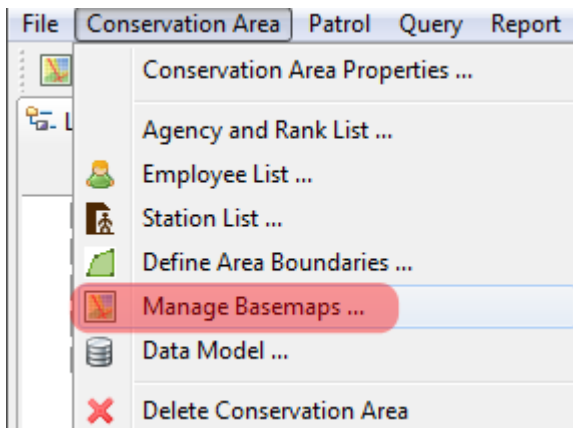
- Order the layers so Management Sectors is on Top and the ones below follow the same order.



- After the styling has been set re-save and overwrite **Module 3 - Basemap 1**

Setting a Saved Basemap

After a basemap has been saved it can be set as the default for the entire session.

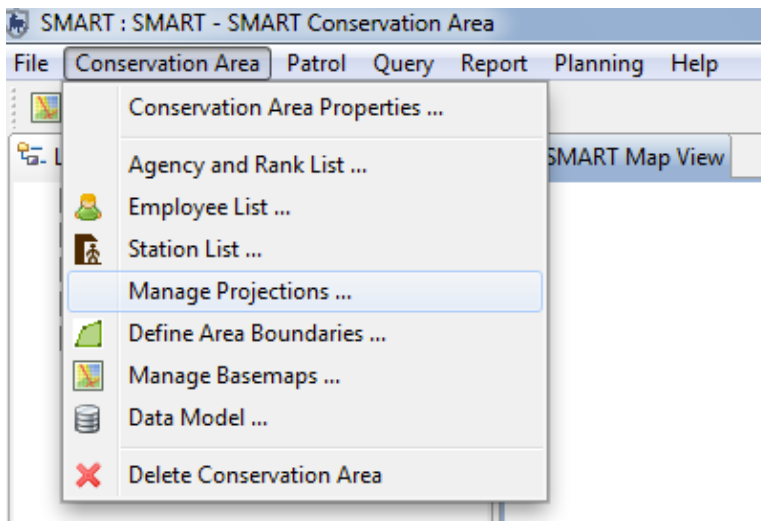


- From the menu select **Manage Basemaps**
- Select **Module 3 - Basemap 1**
- Click **Set as Default**
- Click **Save**
- Click **Close**

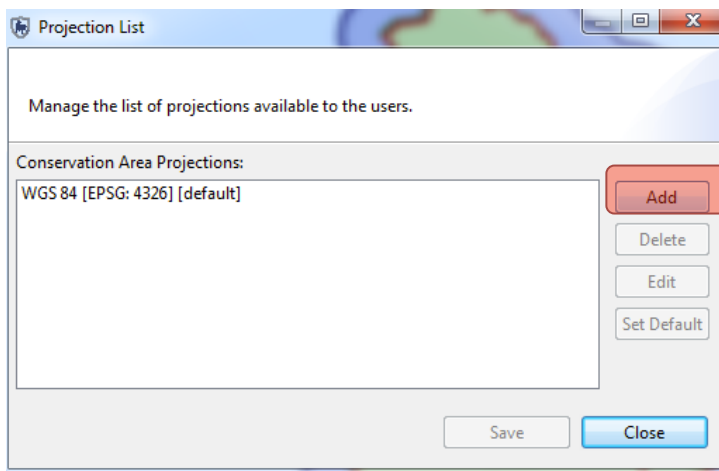
Setting Map Projections

SMART uses geographic coordinates and WGS85 as default (i.e. decimal degrees). If you want to load spatial boundaries in a different projection and/or datum (e.g. UTM and/or India Thailand 1960) you can set this manually.

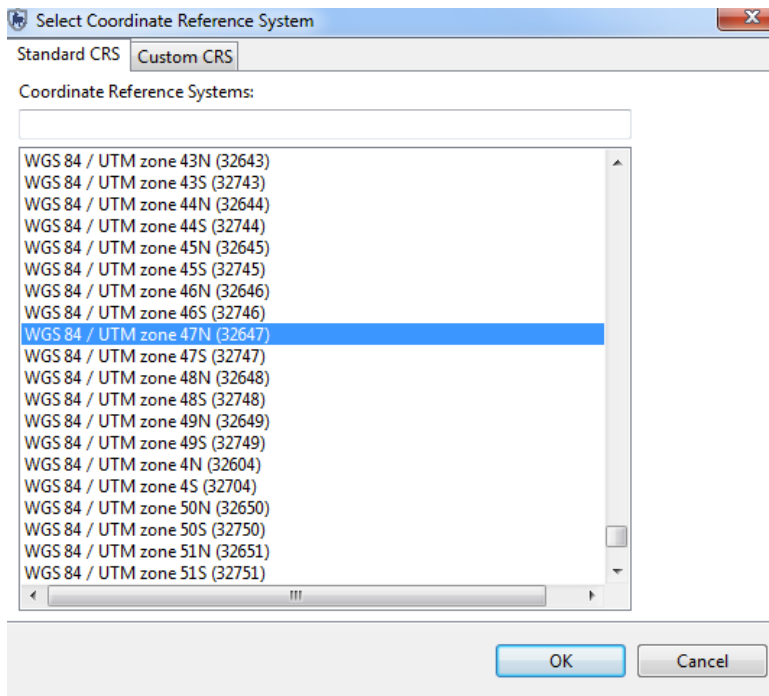
- Go to **Conservation Area menu – Manage Projections**



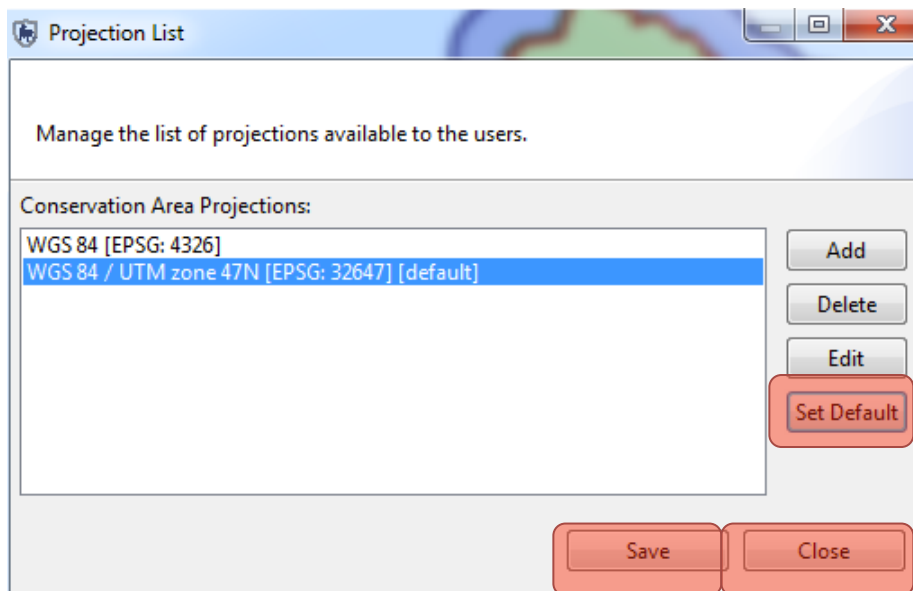
- You will see the default projection. Click **Add**



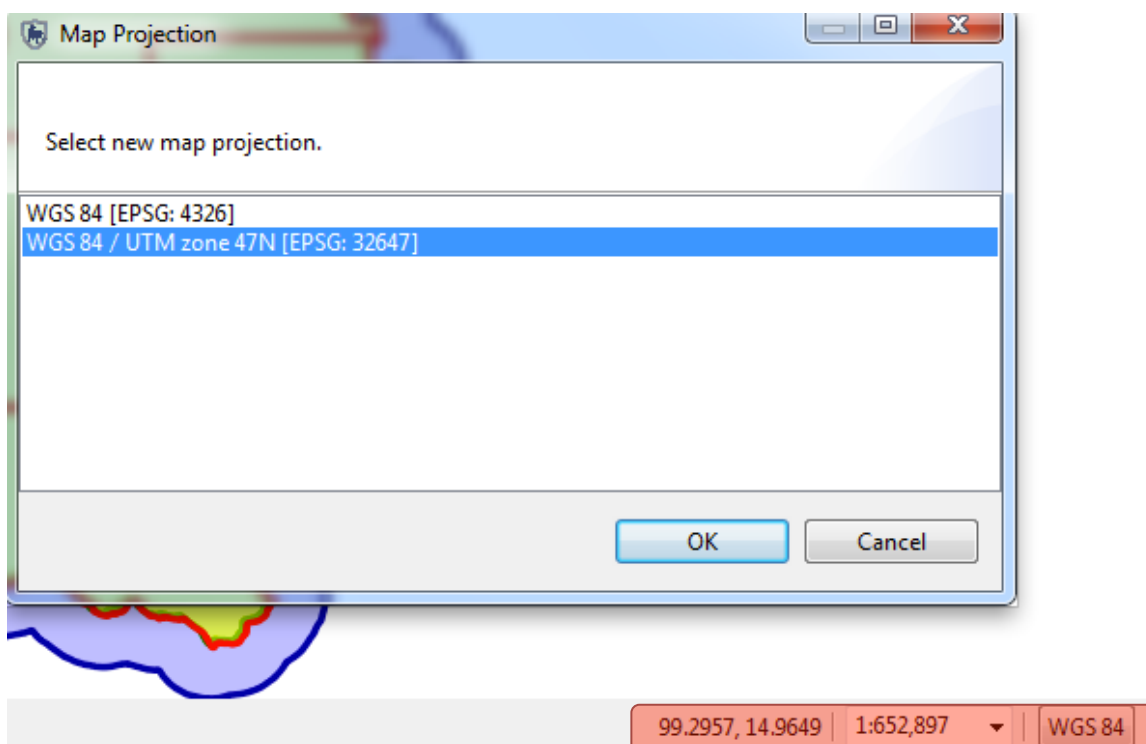
- Select **WGS 84/UTM Zone 47N**
- Click **Ok**



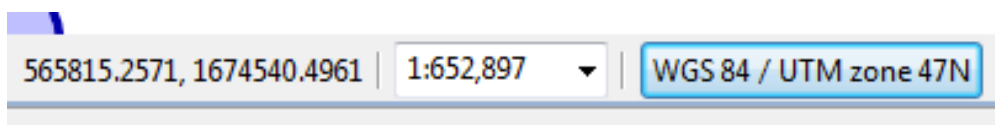
- Click **Set as Default**
- Click **Save**
- Click **Close**



- In the bottom right hand corner of the map window, click the projection and select the default option



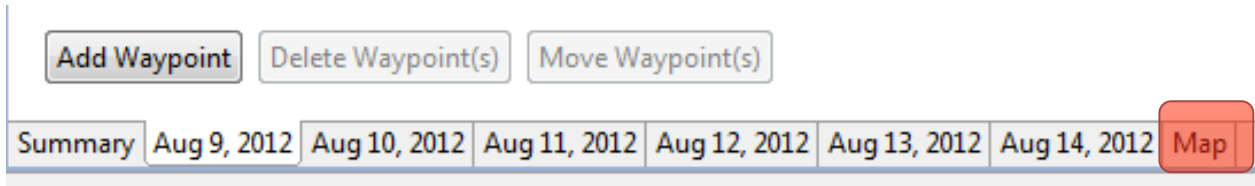
- You should then see your map coordinates displayed in UTM



Patrol Perspective - Map

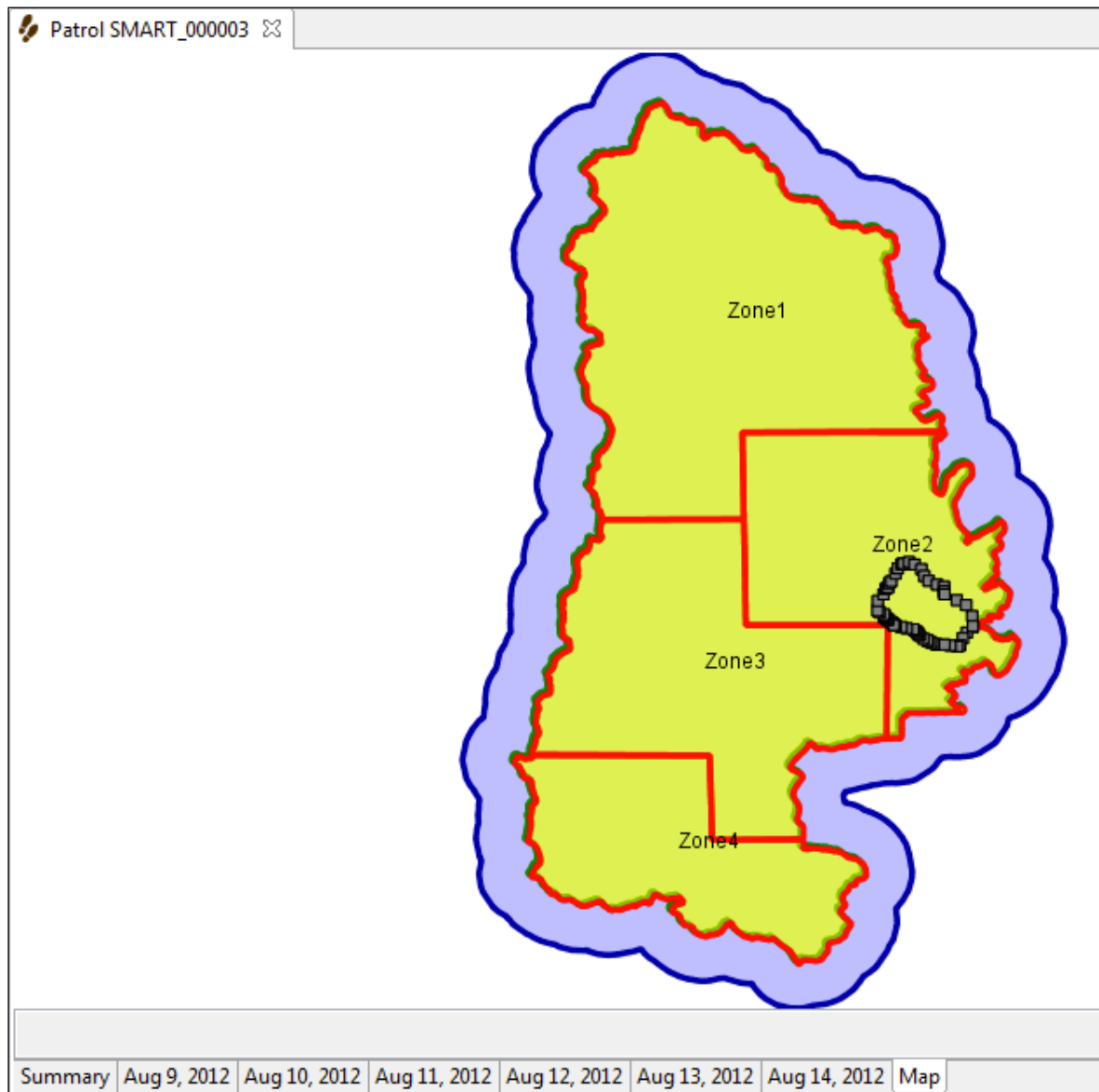
The initial map perspective is only one area where the mapping layers can be accessed. There are mapping windows in the Patrol and Query Perspectives which should all appear the same now that you have set a basemap for the session.

- In the Patrol List View double-click the **patrol SMART_000003** (you may have to change the patrol filter to look for patrols from all dates)

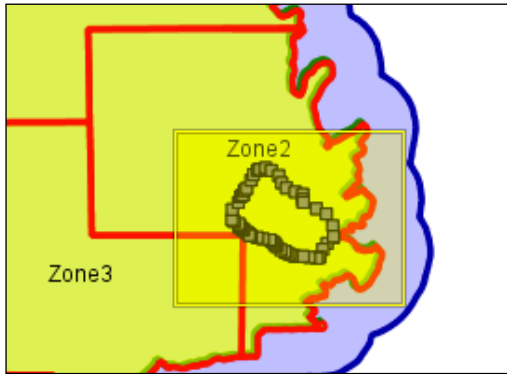


- At the bottom of the screen select the **Map** tab

The Patrol SMART_000003 should appear in the Management Sector: Zone 2

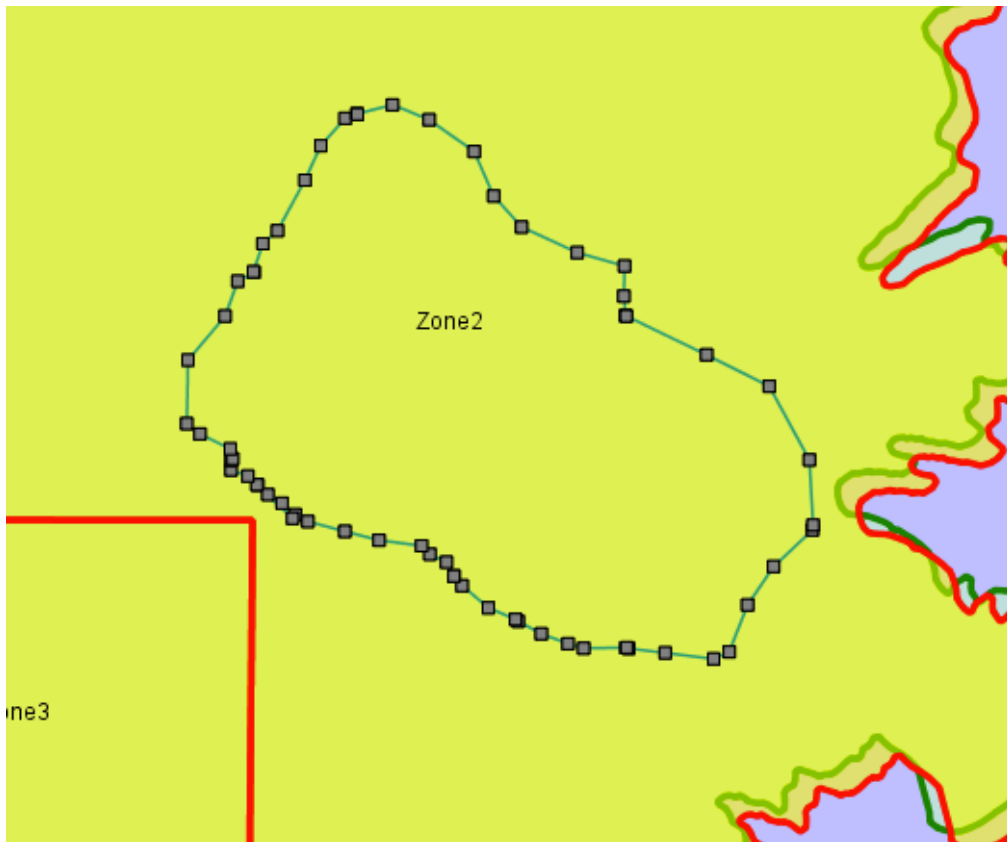


Note: In the bottom left-hand Layers window you may have to move the waypoints and track to the top of the legend to view it properly

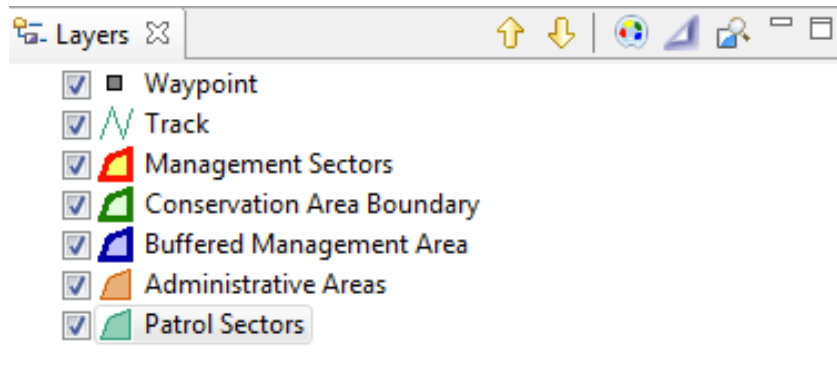


- Using the Zoom icon  draw a box around the circle of waypoints for the patrol

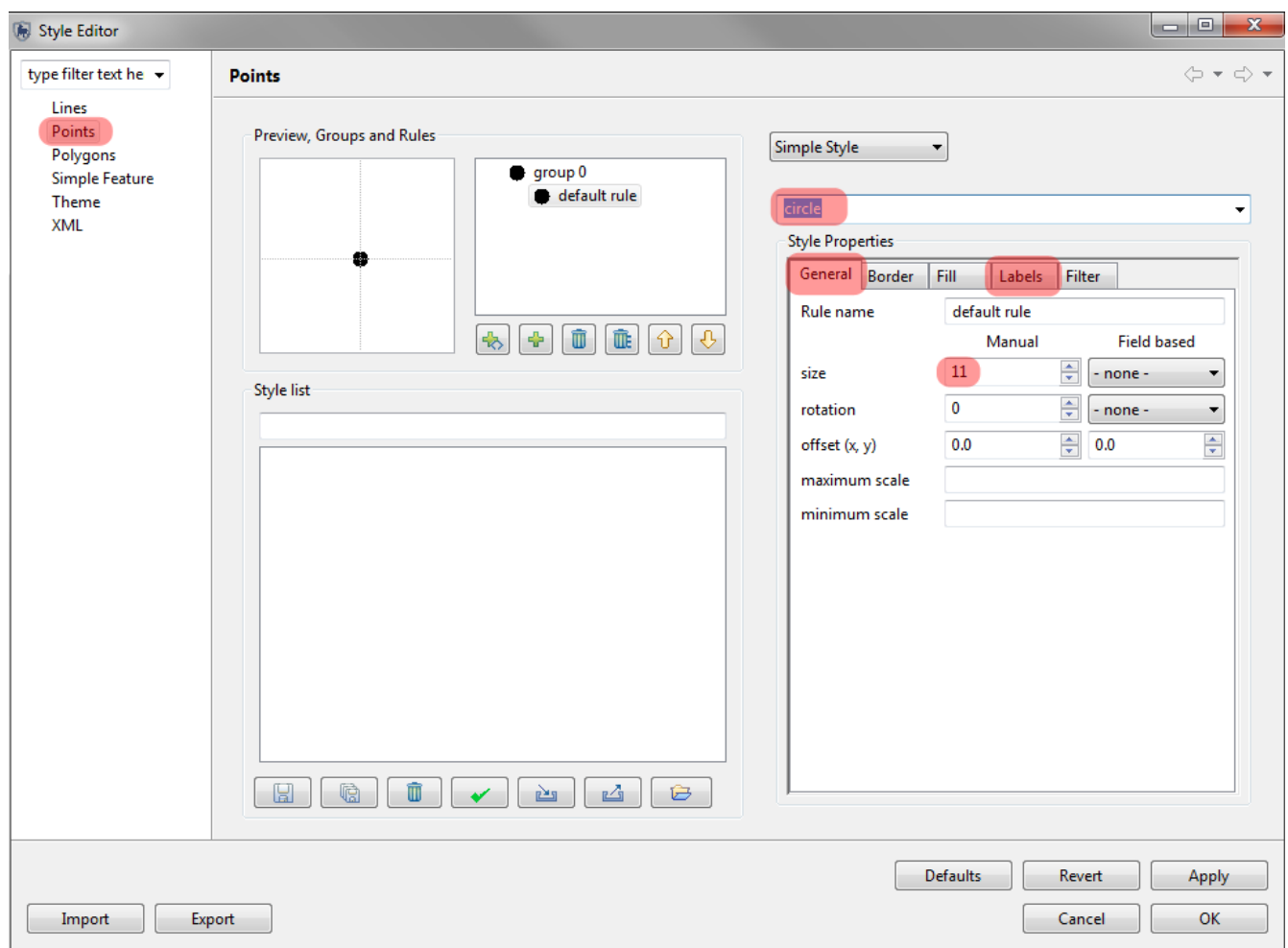
At this point you should see the series of waypoints that were collected for the patrol SMART_000003 and the track for that patrol.



In the lower left Layers window you will see the legend for the boundary layers as well as two new layers (Waypoint and Track)



As with the boundary layers the Waypoint and Track layer can be styled and labelled.

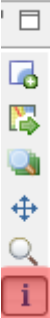


- Select the layer **Waypoint**
- Click the **Style Editor** icon
- On the left select **Points**
- From the dropdown (above Style Properties) select **circle**
- In the General tab of Style Properties set **size to 11**
- In the Fill tab set color to **black**
- In the Labels tab
 - **enable labelling**
 - Set Field based labels to **observation**
- Click **Apply**, then **OK**



Information Tool

The map windows for the patrol and query perspective contain an extra icon that is not available in the map perspective mapping window.



The map info tool allows for more information to be displayed in the mapping window.

- Click the Map Info tool to activate it.
- Click on a **waypoint**
- On the left the information will be shown in the Information tab

Layers		Information	
● 23_db8		Property	Value
Aug 11		Attributes	
f93a150		Comment	11-AUG-12 11:00:25
2506c3		Date	2012-08-11 00:00:00.0
89c779		Fid	23_db829fa129284e1ea6d06cf721d...
		Id	23
		Observation	Weapons Destroyed
		Time	11:00:25
		Feature	
		Bounds	(99.3579931,15.3072244), (99.35799...
		ID	23_db829fa129284e1ea6d06cf721d...
		Geometries	
		Default Geometry	Point

Note: If the original size of the window isn't sufficient to view the results you should resize the window to allow for easier reading.

The screenshot shows the QGIS Information panel with the 'Layers' tab selected. The layer '23_db829fa129284e1ea6d06cf721dd18c1' is selected. The 'Property' and 'Value' columns are visible, showing the following data:

Property	Value
Attributes	
Comment	11-AUG-12 11:00:25
Date	2012-08-11 00:00:00.0
Fid	23_db829fa129284e1ea6d06cf721d...
Id	23
Observation	Weapons Destroyed
Time	11:00:25
Feature	
Bounds	(99.3579931,15.3072244), (99.35799...
ID	23_db829fa129284e1ea6d06cf721d...
Geometries	
Default Geometry	Point

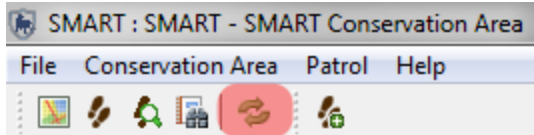
By clicking on the map layers you can view the attributes for each of the layers that were underneath the point where you used the Info Tool.

The screenshot shows the QGIS Information panel with the 'Layers' tab selected. The layer 'f93a150d40a94f23afa91fa9a76f5320' is selected. The 'Property' and 'Value' columns are visible, showing the following data:

Property	Value
Attributes	
Id	Zone2
Key	zone2
Uuid	f93a150d40a94f23afa91fa9a76f5320
Feature	
Bounds	(99.2057602,15.2002173), (99.46977...
ID	f93a150d40a94f23afa91fa9a76f5320
Geometries	
Default Geometry	MultiPolygon

- Click the **Management Sector layer** (red and yellow) to view the attributes associated with that layer

Note: At anytime during a session the SMART windows can be resized, undocked, and repositioned. If you wish to reset the SMART application back to its default window placement you will need to click the double green arrows just below the menus.



- Click the **window reset icon** to return to the default settings
- Click **Yes**

You should still be zoomed into the points and track for the patrol SMART_000003.

- To return to the full extent click the **Zoom to Full Extent icon** 

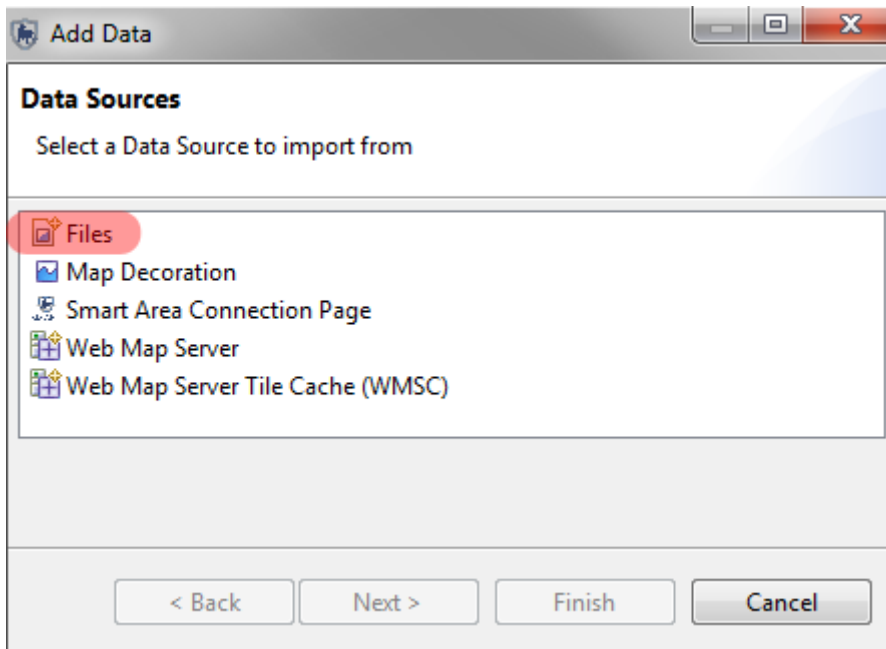
Adding New Layers

During the configuration of the Conservation Area you were guided through the process of loading the five (5) base boundary layers.

SMART's mapping framework allows for the addition of:

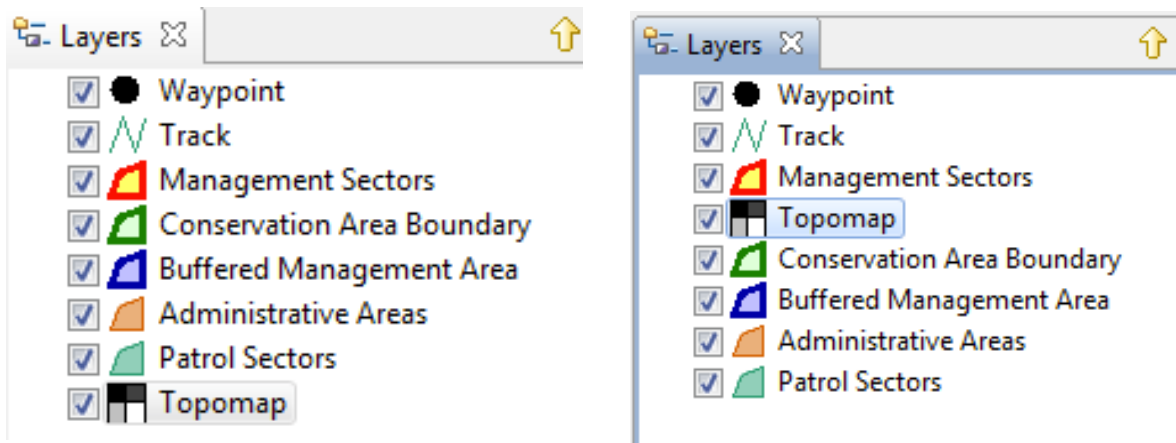
- Custom data layers including both vector and raster layers (Files)
- Cartographic items (Map Decoration)
- SMART boundary layers (Smart Area Connection Page)
- Web Mapping Server
- Web Mapping Server Tile Cache (WMSC)

- In the upper right part of the SMART application click the **Add Data icon** 



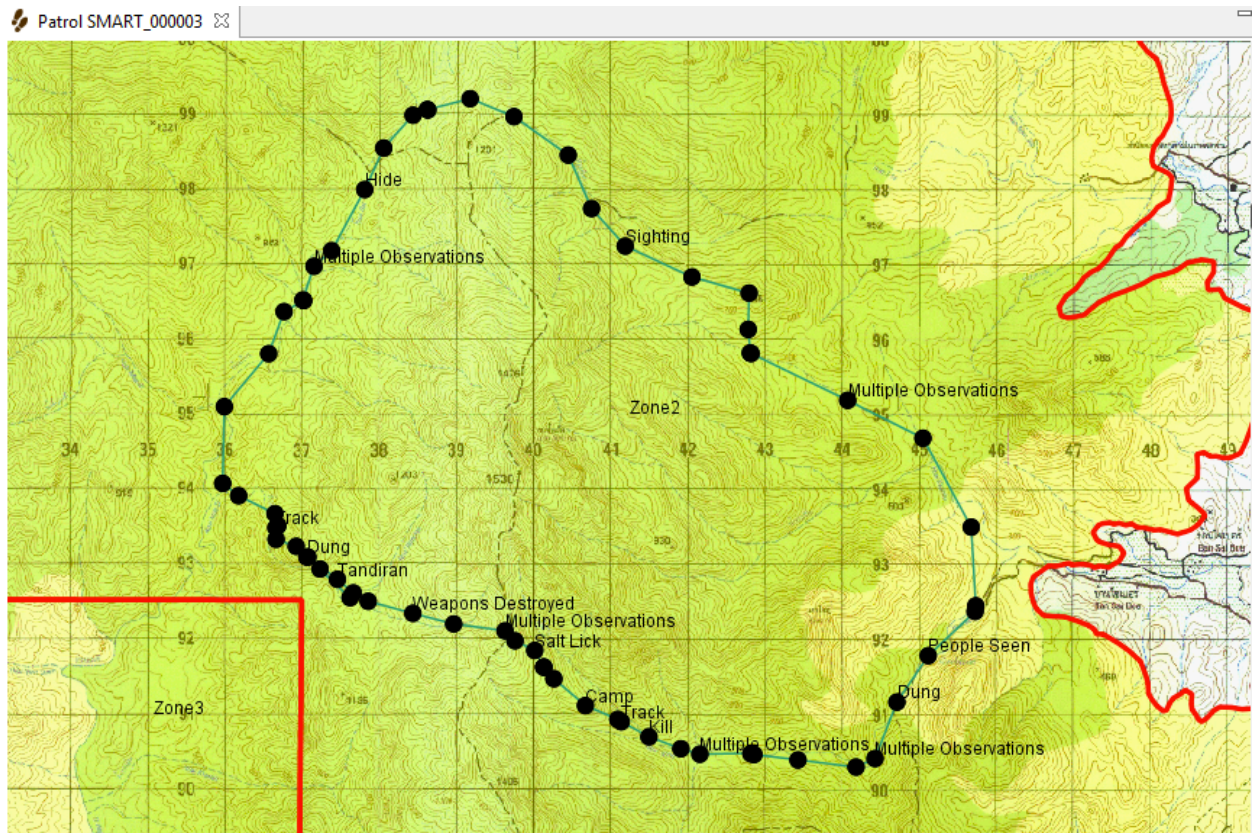
- Select **Files**
- Open the folder **Module 3**
- Select the file **Topomap**
- Click **Open**

After the import process has finished the layer will appear at the bottom of the Layers list.



- Select the layer camps and **move it below the Management Sector layer**

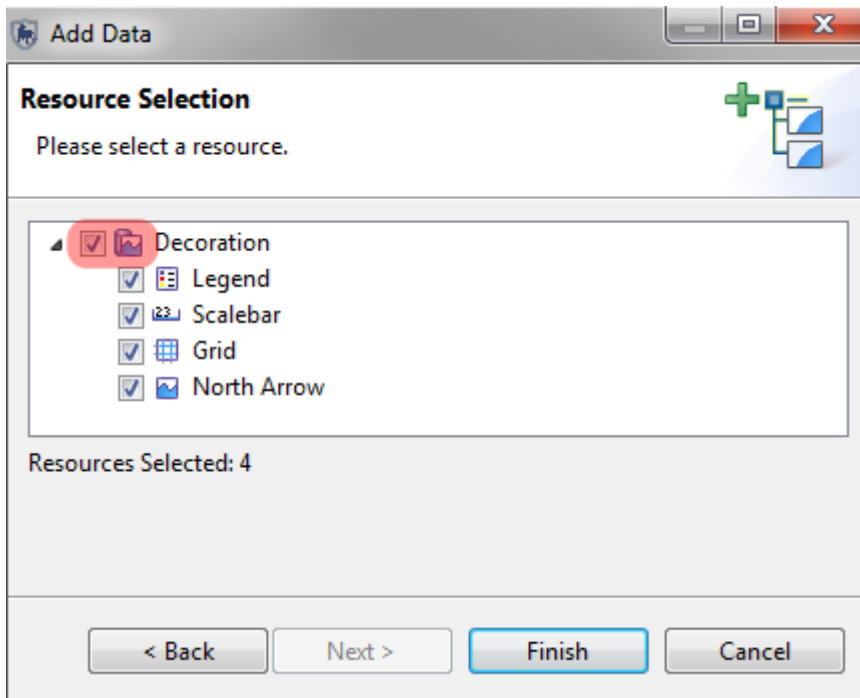
Note: For better viewing options. Select Management Sector, Open Style Editor and under Fill reduce the opacity value to 30



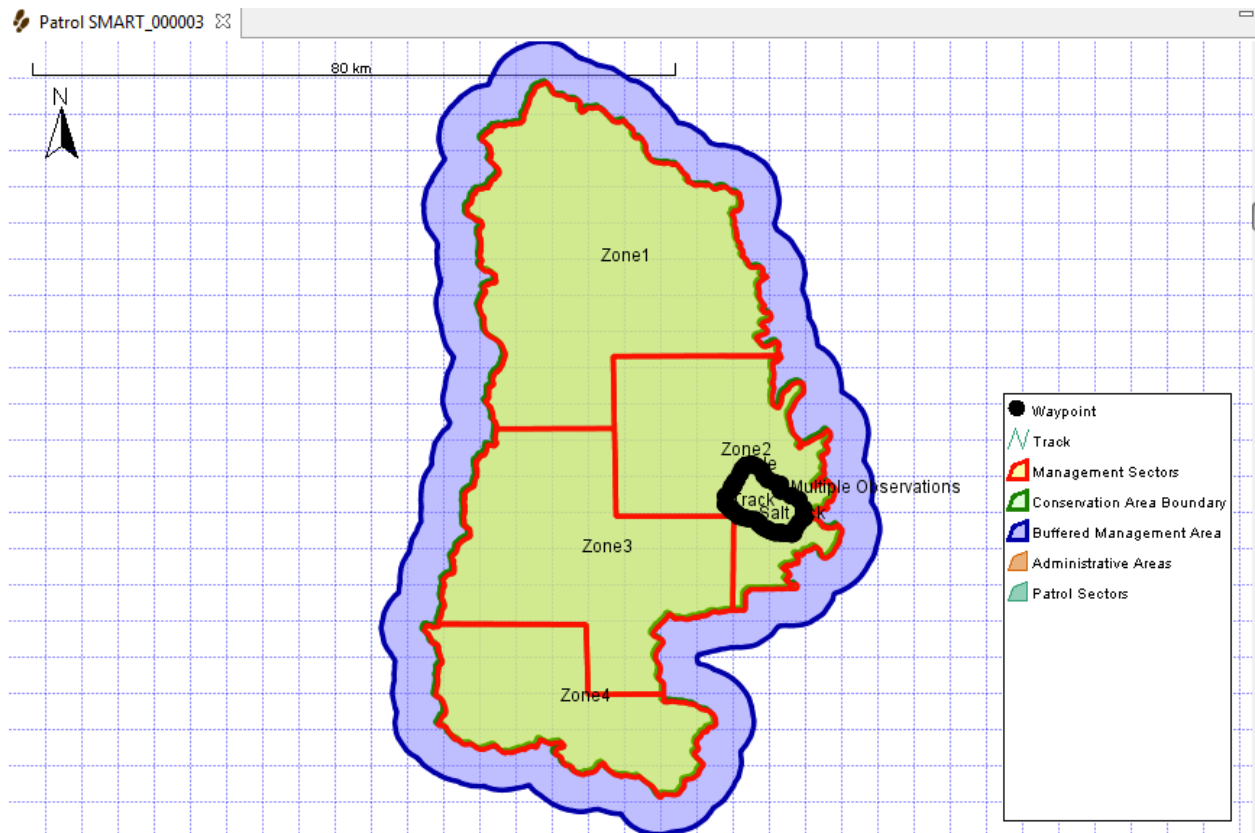
Adding Map Decorations

Map decorations are cartographic elements that add usability to a map.

- Click the **Add Data icon** 
- Select **Map Decoration**
- Click **Next**



- In the Resource Selection window click the **checkbox** next to Decoration to highlight all features.
- Click **Finish**
- **In the Map Perspective, Click Zoom to Full Extent**
- De-select the TopoMap layer



Note: As with the data layers the Map Decorations have customization options and are edited using the same Style Editor icon.

<End of Module 3 - Map Navigation>

Module 4 - Data Collection

Objective:

In this module, you will gain experience in recording observations, transferring GPS waypoints into SMART, and also entering the field observations into the **SMART Conservation Area** database.

Note: this module is not intended to be a tutorial on the usage of your GPS device.

This will include:

- a field exercise to collect GPS data and record observations;
- creating new patrols based on the field exercise;
- transferring waypoint data directly into SMART; and,
- entering in observations collected during the field exercise;

Detailed Steps:

Collecting Waypoints and Observations

For this exercise you will head outside to collect GPS waypoints and record observations that will be used to populate a SMART patrol. You will need your GPS and a field observation form.

At each waypoint you will need to:

- collect (mark) a GPS waypoint using the default settings for waypoint number from your GPS;
- record the observation and waypoint number on the field observation form; and,
- proceed to collect the next waypoint

Note: Observations can be actual observations of animals or observations that are invented. A sample list of observations exists later in this document and can be used to populate the observations list.

Note: When you begin your 'patrol'. Set your GPS to also record an automatic tracklog. Set the time interval to record every 5 minutes. For Garmin 60Csx models, do NOT save the active track.

Note: As in MIST, make sure you take a position waypoint every 30 minutes even if you don't make any observations

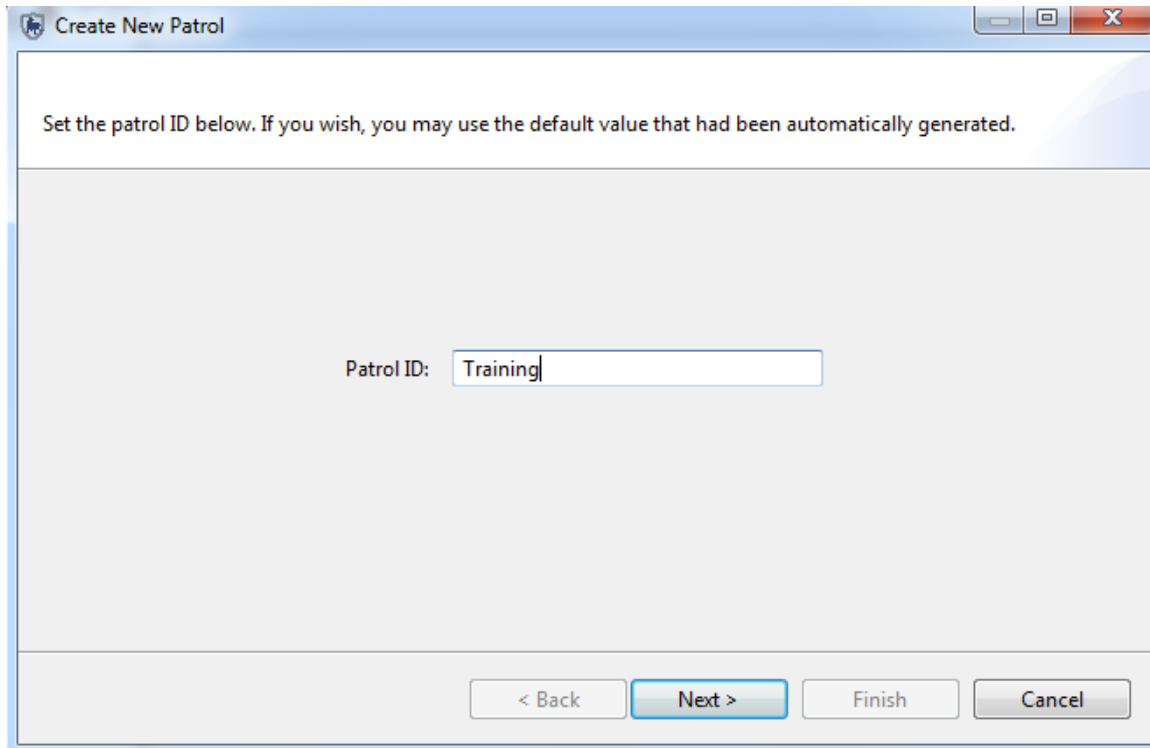
When you are back from your patrol follow the steps below.

Adding a new Patrol team and mandate

First, we will add a new Training Patrol team and Training Mandate, which we will use to enter data from our patrol.

- Select **Patrol Mandate** from the Patrol Menu Bar
- Add a new Mandate and call it **Training**
- Save and close

- Select **Patrol Teams** from the Patrol Menu Bar
- Add a new team called '**Training**'
- Select **Mandate = Training**
- Add description of '**SMART Training Team**'
- Save and close



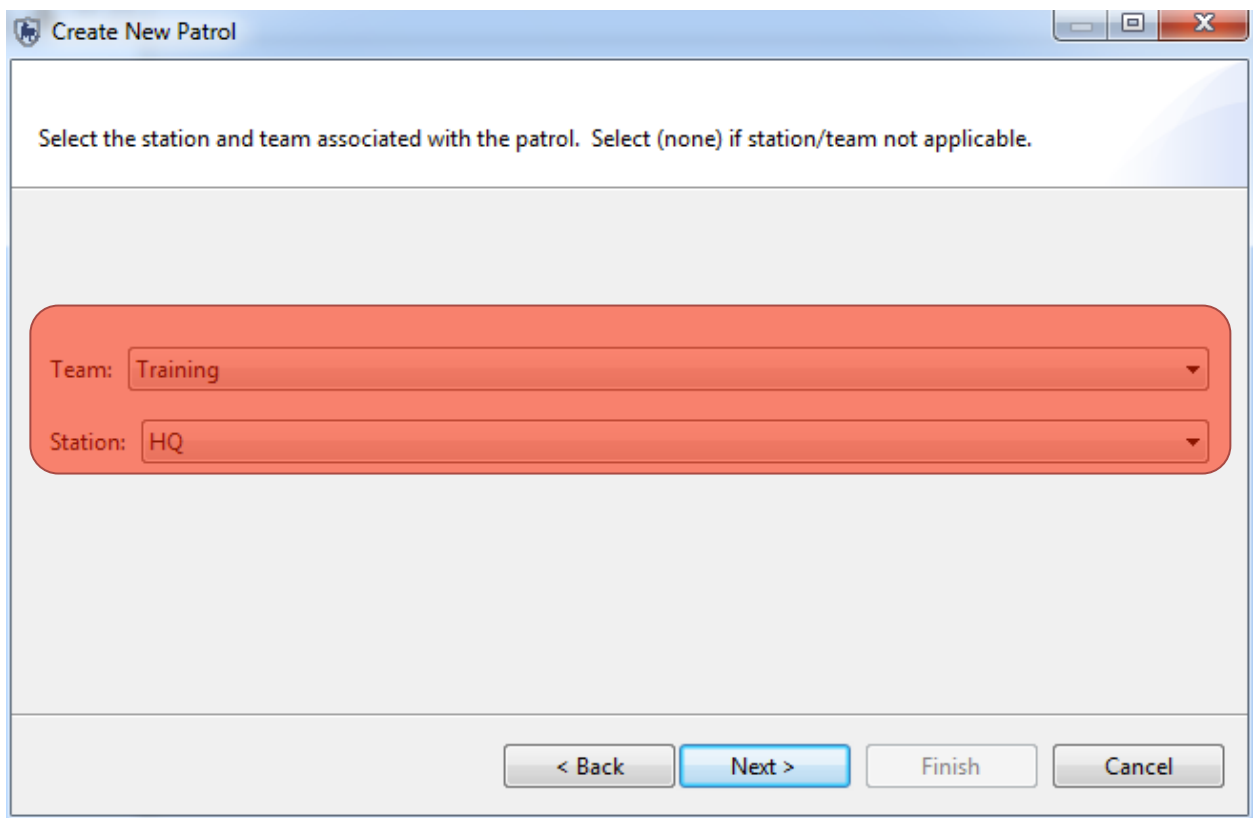
Create New Patrol

Set the patrol ID below. If you wish, you may use the default value that had been automatically generated.

Patrol ID: Training

< Back Next > Finish Cancel

- From the menu select **Create New Patrol**
- In the Patrol ID: type in **Training** (overwrite default patrol ID)
- Click **Next** to accept the name
- Click **Next** to accept the patrol type of Ground
- Select **Foot**
- Click **Next**
- Select **No** for Is this patrol armed?
- Click **Next**



Create New Patrol

Select the station and team associated with the patrol. Select (none) if station/team not applicable.

Team: Training

Station: HQ

< Back Next > Finish Cancel

- Select Team = **Training**
- Select Station = **HQ**
- Click **Next**
- Select Patrol Mandate = **Training**
- Click **Next**

The screenshot shows a window titled "Create New Patrol". Below the title bar, it says "Enter the patrol objective." There is a text area labeled "Patrol Objective:" containing the text "To learn how to transfer data from the GPS into SMART". At the bottom, there are four buttons: "< Back", "Next >" (highlighted in blue), "Finish", and "Cancel".

Create New Patrol

Enter the patrol objective.

Patrol Objective:

To learn how to transfer data from the GPS into SMART

< Back Next > Finish Cancel

- Type in **To learn how to transfer data from the GPS into SMART**
- Click **Next**

The screenshot shows the same "Create New Patrol" window, but now it says "Enter any comments associated with the patrol." The text area labeled "Patrol Comments:" contains the text "Nice to get outside!". The "Next >" button remains highlighted in blue.

Create New Patrol

Enter any comments associated with the patrol.

Patrol Comments:

Nice to get outside!

< Back Next > Finish Cancel

- Type in **Nice to get outside!**
- Click **Next**

Create New Patrol

Select the start and end dates for the patrol.

Patrol Start Date: Tuesday , November 20, 2012

Patrol End Date: Tuesday , November 20, 2012

< Back Next > Finish Cancel

- Select **Tuesday, November 20, 2012** for both dates
- Click **Next**

Create New Patrol

At least one employee must be selected

Select members that participated in the patrol:

All Employees:

- Emma Stokes [SMART11]
- Kamon Faengbubpha [SMART12]
- Voon Mufeng [SMART13]
- Supalerk Klanprasert [SMART14]
- Sanpob Sae-ma [SMART15]
- Phoungune Vongphouthone [SMART16]
- Xaisavanh Khiewvongphachan [SMART17]
- Jim Johnston [SMART18]
- Liu Peiqi [SMART19]
- Li Ying [SMART20]
- Michiel Hotte [SMART21]
- Igor Kolodin [SMART22]
- Donny Gunaryadi [SMART23]
- Edward Efendi Rumapea [SMART24]
- Amir Hamzah Ritonga [SMART25]
- Chandy Phu [SMART26]
- Sopheap Keo [SMART27]
- Htun Saw [SMART28]
- Zaw Than [SMART29]
- Poh Yen Thai [SMART30]
- Norhidayati Khalid [SMART31]
- Sahil Nijhawan [SMART32]
- John Goodrich [SMART33]

Selected Employees:

Add ->

<- Remove

< Back

Next >

Finish

Cancel

- Select the names of your team members
- Click **Add ->** to move them into the Selected Employees window
- Click **Next**
- Select a Patrol Leader
- Click **Next**
- Accept default of **No** for a multi-leg patrol
- Click **Finish**

After the patrol framework has been entered, the patrol perspective screen will appear:

Patrol List View

- Training [11/21/12 - 11/21/12]
- SMART_000004 [8/23/12 - 8/27/12]
- SMART_000003 [8/9/12 - 8/14/12]
- SMART_000002 [9/1/12 - 9/3/12]
- SMART_000001 [8/9/12 - 8/9/12]

Layers

- Waypoint
- Track
- Management Sectors
- Conservation Area Boundary
- Buffered Management Area
- Administrative Areas
- Patrol Sectors

Training

Patrol Information

Patrol Type: Ground Patrol ID: Training [edit](#)

Transportation Type: Foot [edit](#)

Armed?: ☐ [edit](#)

Mandate: Training [edit](#)

Team: Training [edit](#)

Station: HQ [edit](#)

Members: [+ \[Leader\] Emma Stokes \[SMART11\]](#) [edit](#)

Objective: To learn how to transfer GPS data into SMART [edit](#)

Comment: Its nice to get outside [edit](#)

Patrol Data

Start Date: November 21, 2012 End Date: November 21, 2012 [edit](#)

Day	Start Time	End Time	Distance	Hours
Nov 21, 2012 Wed	12:00:00 AM	11:59:59 PM	0	24.00

Summary **Nov 21, 2012** | Map

- Verify that the information for the patrol has been entered correctly.
- If there are any errors, click the **edit** link next to the item and make the correction.
- On the bottom of the screen, click the tab **Nov 20, 2012**

Patrol Training

Patrol Day: Wednesday, Nov 21, 2012

Start Time: 12:00:00 AM End Time: 11:59:59 PM Rest Minutes: 0 Total Hours Patrolled: 24.00

Distance Travelled (km): 0 [Set Track ...](#) [View TrackPoints...](#)

Observations / Waypoints: [Import Waypoints ...](#)

- Enter in the **Start Time**, **End Time** and number of **Rest Minutes** taken
- Click [Import Waypoints ...](#)

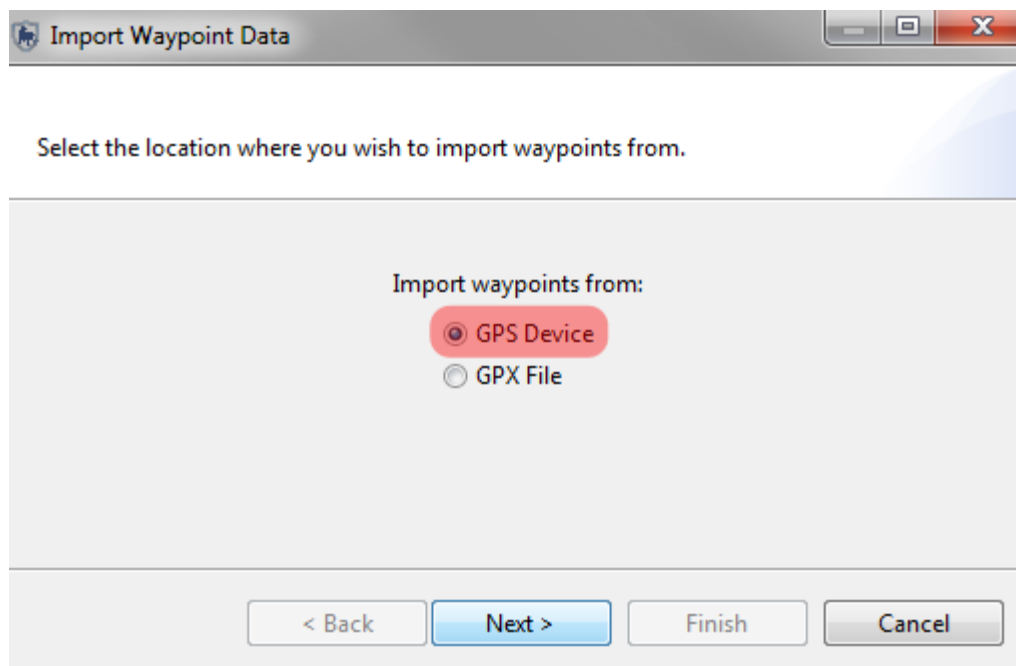
GPS Waypoint Import

The sections to follow will depend on which GPS device you are using. The immediate section is for users of the **Garmin 60CSx**. If you are using the Garmin **GPSmap 62** please refer to the section for that device. If your device is different than the two listed you should be aware of which section is appropriate for your GPS device.

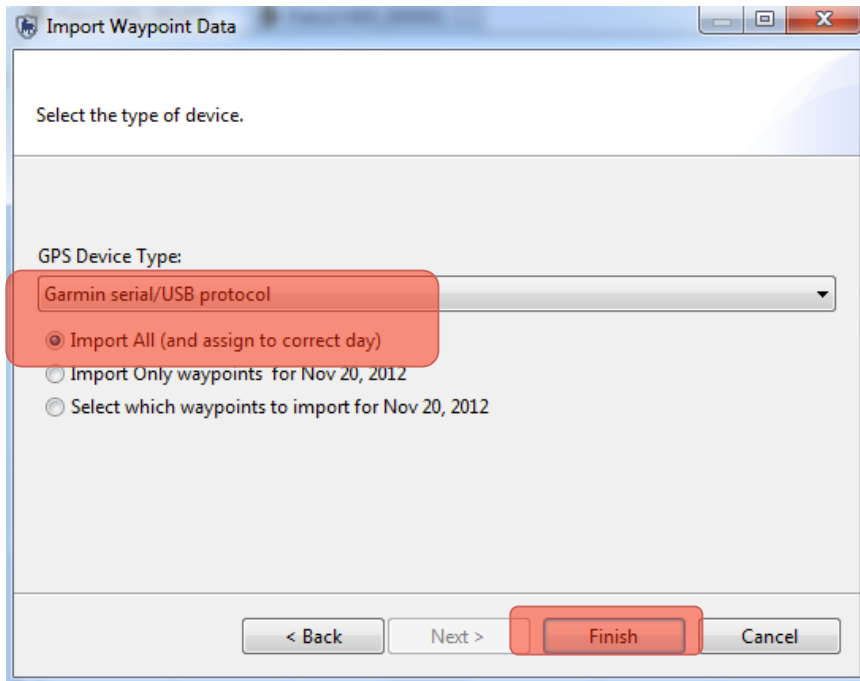
Note: GPS units that functions as a mass storage device should use the section for the Garmin GPSmap 62.

Importing Waypoints using the Garmin 60CSx

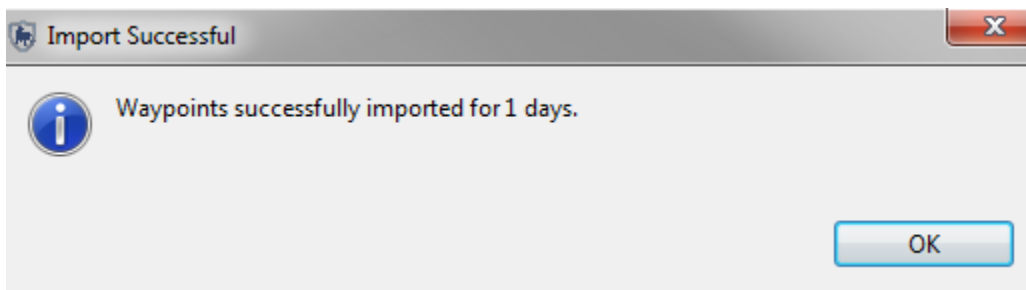
This unit does not function like an external storage device. To access the waypoint and track information in the Garmin 60CSx, you will need to select **GPS Device**.



- Select **GPS Device**
- Click **Next**



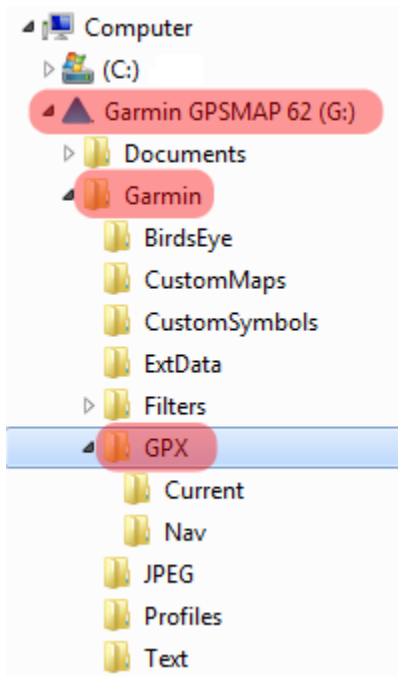
- Select **Garmin serial/USB protocol**
- Select **Import All (and assign to correct day)**
- Click **Finish**



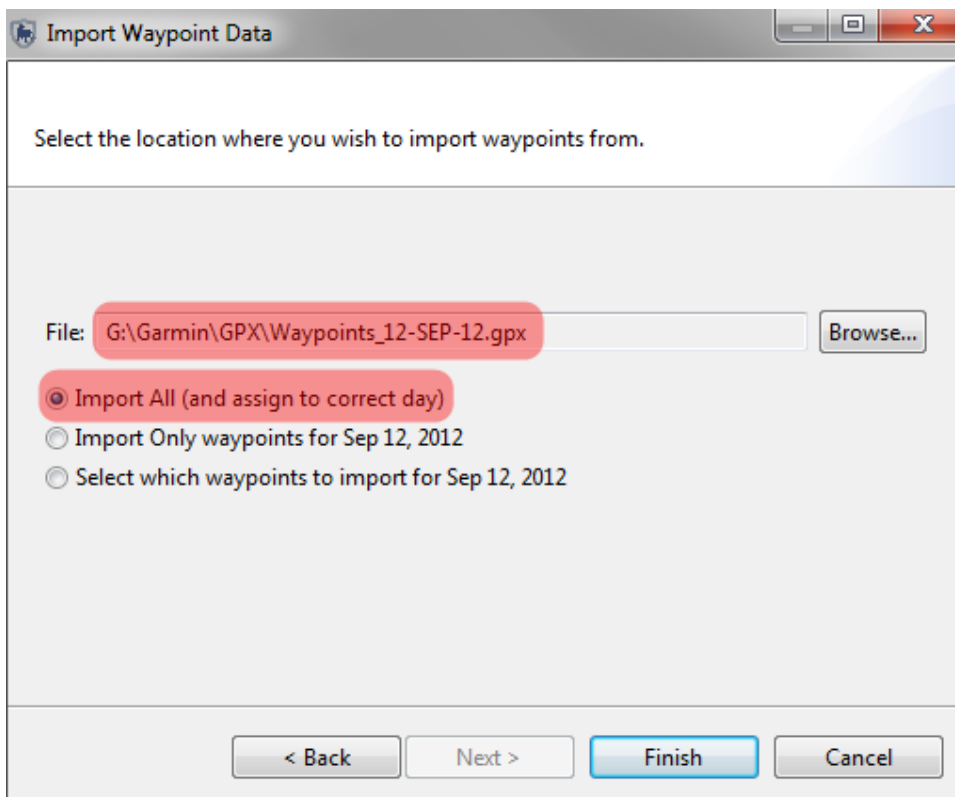
- Click **OK**

Importing Waypoints using the Garmin GPSmap 62

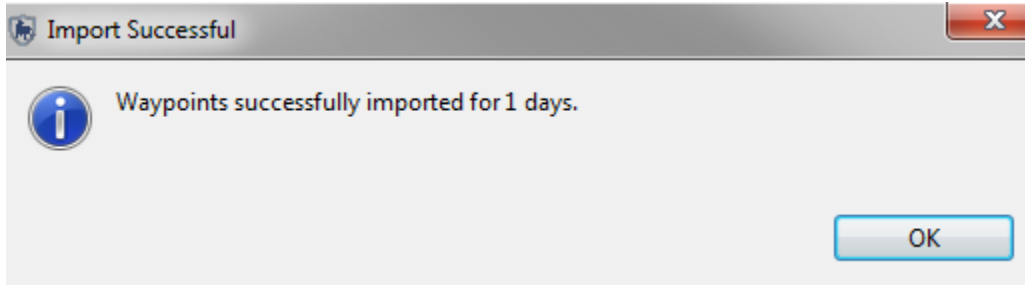
The Garmin GPSmap 62 functions a little differently than the Garmin 60CSx and requires a few more steps before the data can be imported into SMART. The Garmin GPSmap 62 behaves like an external storage device and requires you to select the **GPX File** option when importing waypoints.



- Browse to the folder on your GPS called **Garmin\GPX**
- Select the file **Waypoints_20-Nov-12.gpx**
- Click **Open**



- Select **Import All (and assign to correct day)**
- Click **Finish**



- Click **OK**

A successful import will bring up the 8 waypoints collected during the field exercise.

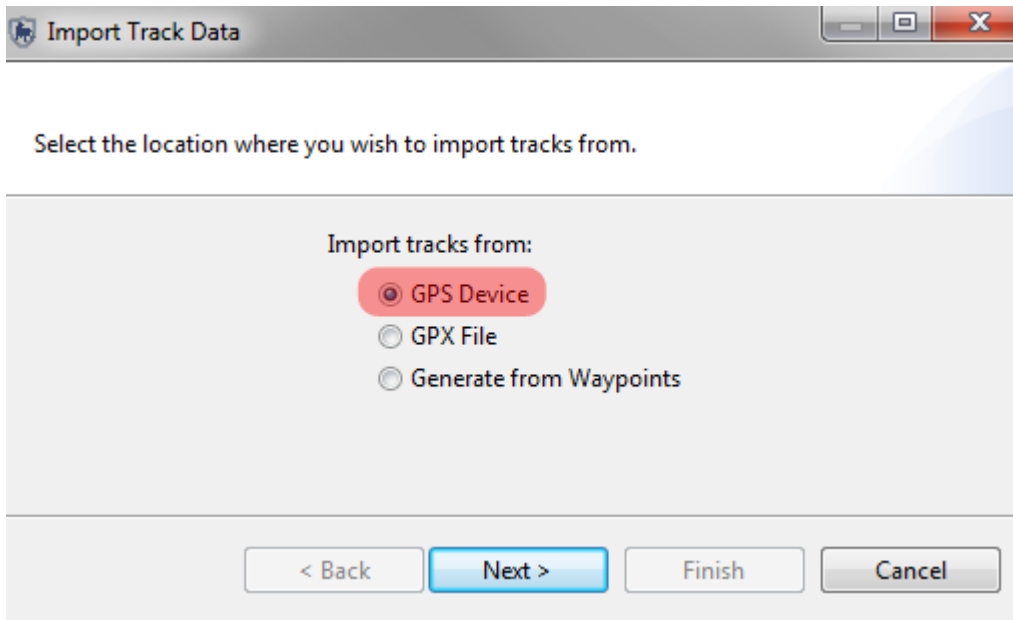
Distance Travelled (km): [Set Track ...](#) [View TrackPoints...](#)

Observations / Waypoints: [Import Waypoints ...](#)

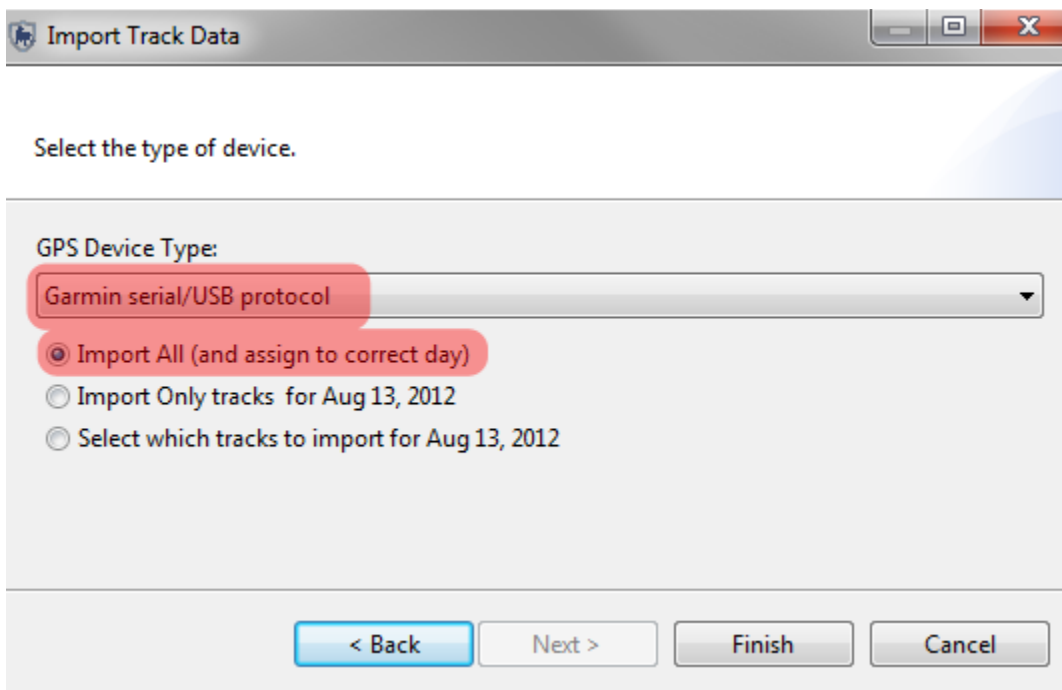
Waypoint Id	Longitude	Latitude	Time	Observation	Comment	Attachments
1	28.3694017525556	-25.7834109965774	10:21:01 AM	(None)		(None)
2	28.3700238982436	-25.78358519737	10:25:59 AM	(None)		(None)
3	28.3704220714839	-25.7845308588158	10:35:59 AM	(None)		(None)
4	28.3700238982436	-25.7850783470212	10:37:59 AM	(None)		(None)
5	28.3691280084529	-25.7851032328487	10:38:59 AM	(None)		(None)
6	28.3688791501777	-25.7844064296782	10:41:59 AM	(None)		(None)
7	28.3690035793153	-25.7838091698177	10:42:59 AM	(None)		(None)
8	28.3693989687173	-25.7834120370018	10:45:59 AM	(None)		(None)

Importing Tracks using the Garmin 60CSx

Now that the waypoints are in SMART, you will need to import the GPS tracks.



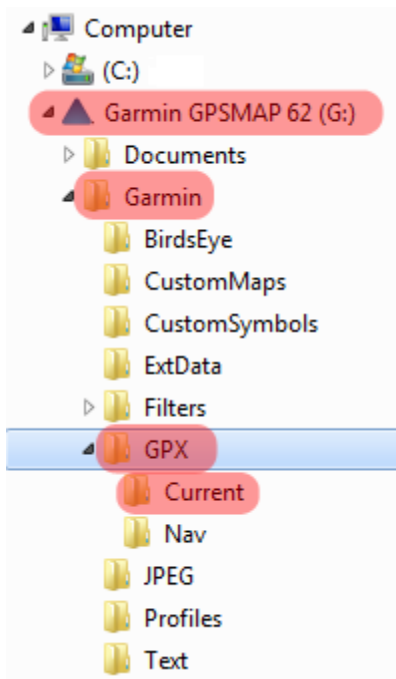
- Select **GPS Device**
- Click **Next**



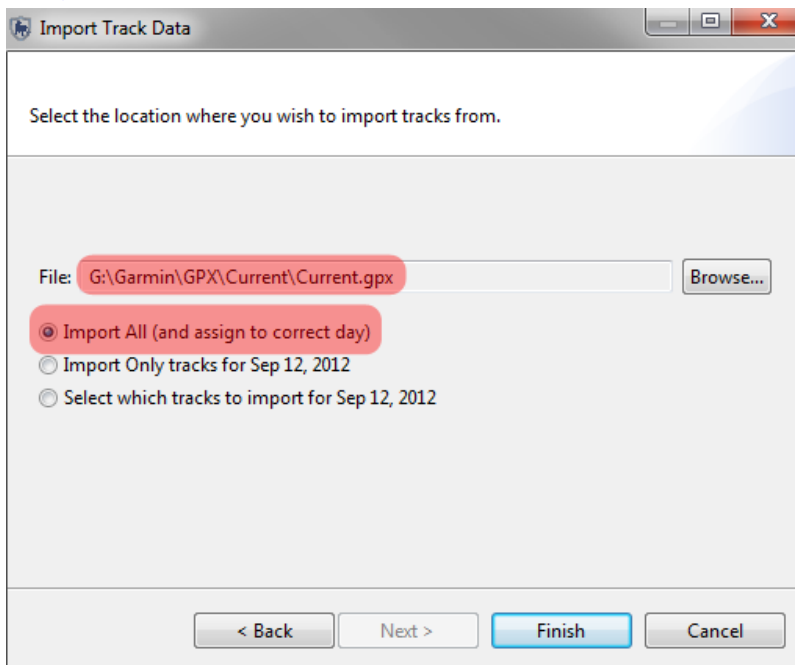
- Select **Garmin serial/USB protocol**
- Select **Import All (and assign to correct day)**
- Click **Finish**

Importing Tracks using the GPSmap 62

Now that the waypoints are in SMART, you will need to import the GPS tracks.



- Browse to the folder on your GPS unit called **Garmin\GPX\Current**
- Select the file **current.gpx**
- Click **Open**
-



- Select **Import All (and assign to correct day)**
- Click **Finish**

Entering Observations for Waypoints

The next step of the exercise is to populate the waypoints with observations, within SMART.

You will now use your field notes to populate the patrol data with the correct observations.

Waypoint Id	Longitude	Latitude	Time	Observation	Comment	Attachments
1	28.3694017525556	-25.7834109965774	10:21:01 AM	(None) 		(None)
2	28.3700238982436	-25.78358519737	10:25:59 AM	(None)		(None)
3	28.3704220714839	-25.7845308588158	10:35:59 AM	(None)		(None)
4	28.3700238982436	-25.7850783470212	10:37:59 AM	(None)		(None)
5	28.3691280084529	-25.7851032328487	10:38:59 AM	(None)		(None)
6	28.3688791501777	-25.7844064296782	10:41:59 AM	(None)		(None)
7	28.3690035793153	-25.7838091698177	10:42:59 AM	(None)		(None)
8	28.3693989687173	-25.7834120370018	10:45:59 AM	(None)		(None)

- Start by clicking on the **icon** in the upper right of the observation cell for waypoint 1 to activate the observation form.
- Enter the observations from your data sheet
- For 'position' points you can leave as the default 'none'
- For multiple observations at the same waypoint, make sure you click Next (instead of Finish) after entering observation information (Check Module 2)
- Follow steps in Module 3 to view your observations on the Map in Patrol Perspective

<End of Module 4 - Data Collection>

Module 5: Queries and Summaries

Objective

This Training Module will introduce you to the Queries Perspective in SMART. This feature in SMART is a powerful tool that lets the user perform a wide variety of different analyses. In this training module we will look at the following functionality:

- **Creating a Simple Query Using Patrol Filters**
- **Creating Compound Queries Using Patrol Filters**
- **Creating Queries Using Data Model Filters**
- **Creating Queries Using Spatial Filters**
- **Understanding & Changing Query Properties**
- **Saving & Deleting Queries**
- **Exporting & Importing Queries**
- **Creating Simple Summaries**
- **Creating Complex Summaries**

Detailed Steps:

In this Module you will start exploring some very powerful functions that allow for simple or complex queries and summaries to be developed and exported. Queries and summaries are tools used to extract patrol and observation information from the database. They each produce their own type of results and have different workflows to produce those results

Definitions

Query

A query displays raw records that are selected using filters. No summarizing (totals, etc.) is done. This allows users to view the raw patrol and observation data. Queries can be viewed in tables or on a map.

Example: Show me all waypoints for Patrol ID 102

Patrol ID	Patrol Leg	Patrol Date	Time	Observation Type
102	1	Nov 3, 2011	9:34	Human Activity
102	1	Nov 3, 2011	10:23	Animals

- **Patrol Query** - Returns the patrols that were involved in the particular query. No observation information is retrieved from the database.
- **Observation Query** - Returns the observations that were involved in the particular query.

Summary

A summary summarizes the raw data and allows for grouping into different categories. Items that can be summarized are values such as total number of patrols, the total distance travelled, the total number of snare observations, etc. Groupings are categories such as management sectors, patrol types, patrol mandates, stations, teams, etc. Summaries can only be viewed as tables.

Example: Show me the total number of snares observed in each management sector for each of the last 6 months.

	January	February	March	April	May	June
	# of Snares	# of Snares	# of Snares	# of Snares	# of Snares	# of Snares
Sector A		7	6		3	
Sector B	15	10	2	19	5	3

Query Components

A SMART query is a logical expression used to filter the entries in the database.

SMART Filters include:

- Date
- Patrol
- Data Model
- Area

Operators are used to alter the logic of the query to allow SMART users to be able to build more complex queries.

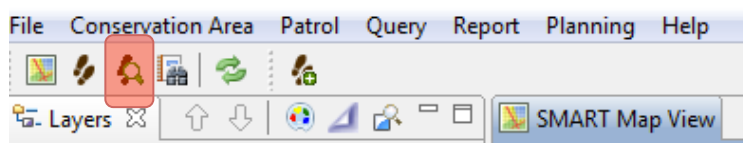
Operators include:

- AND
- OR
- NOT
- Brackets: ()
- Contains
- Not Contains
- Equals: =
- Less Than: <
- Greater Than: >
- Less Than or Equal to: <=
- Greater Than or Equal to: >=
- Less Than or Greater Than (Not Equal to): <>

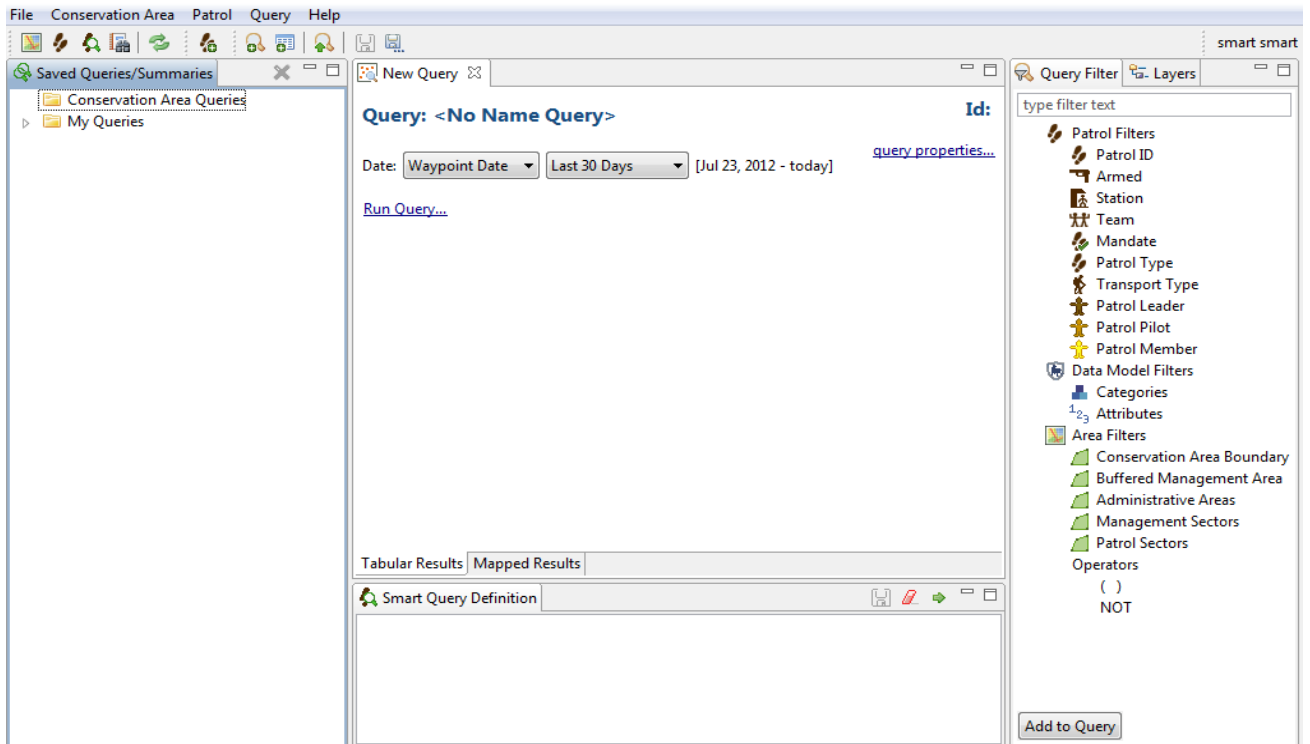
- For this module we will log into a new Conservation Area that has a large number of patrols already entered– **HKK Training**



- Launch SMART and select the **HKK Training** Conservation Area
- Log in using:
 - **Username: smart**
 - **Password: smart**
 - Click the **Query Perspective** icon



Note: On first launch into the Query Perspective the application defaults to an observation query.

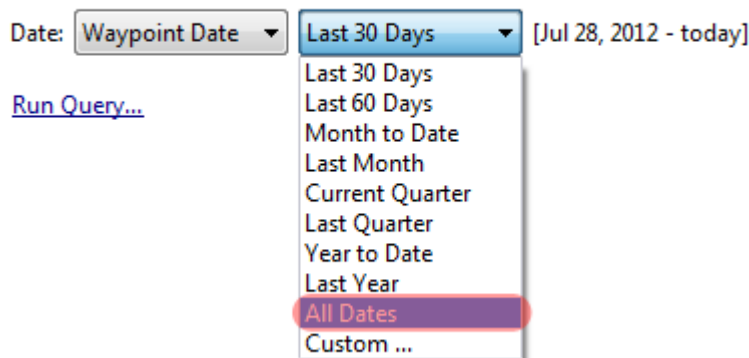


Date: Waypoint Date Last 30 Days	Filters the date of the query
Query: <No Name Query>	Used to change the name of the query
query properties...	Changes the name of the query. Filters the fields returned in the query results
Tabular Results Mapped Results	Switches between tabular results and mapping results
Saved Queries/Summaries Conservation Area Queries My Queries	Folders of saved queries
Patrol Filters	Used to filter the results based on patrol information
Data Model Filters	Used to filter the results based on categories and attributes in the data model
Area Filters	Used to filter the results based on the spatial boundaries of the Conservation Area
Operators () NOT	Operators of NOT and Brackets () used to change the logic of the query
Run Query... &	Launches the query
	Clears the query
	Saves the query

Creating a Simple Observation Query Using Patrol Filters

For this example, you will build a simple query to extract which observations were made by a specific team.

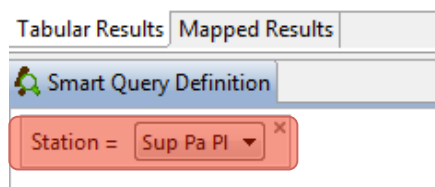
Query: <No Name Query>



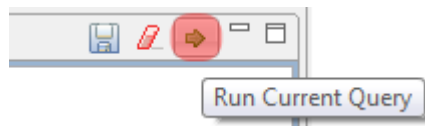
- Change the date setting to **All Dates**

*Note: The default for the query dates are for the last 30 days. For these exercises you should change the setting to **All Dates** unless instructed otherwise.*

- To begin building the query, double-click **Station** under the Patrol Filters



- From the drop down list select **Sup Pa Plu**



- In the lower right of the query window, click the green arrow icon **Run Current Query**

The amount of time required to return query results will depend on the complexity of the query and the number of observations in the database. After the processing has completed, SMART will return the results.

*New Query

Query: <No Name Query>

Id:

Date: Waypoint Date

All Dates

[query properties...](#)

Number of Records: 5524

Patrol ID	Type	Patrol Start Date	Patrol End Date	Station	Team	Objective	Mandate
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			
HKk_000727	Ground	Jul 6, 2008	Jul 10, 2008	Sup Pa Plu			

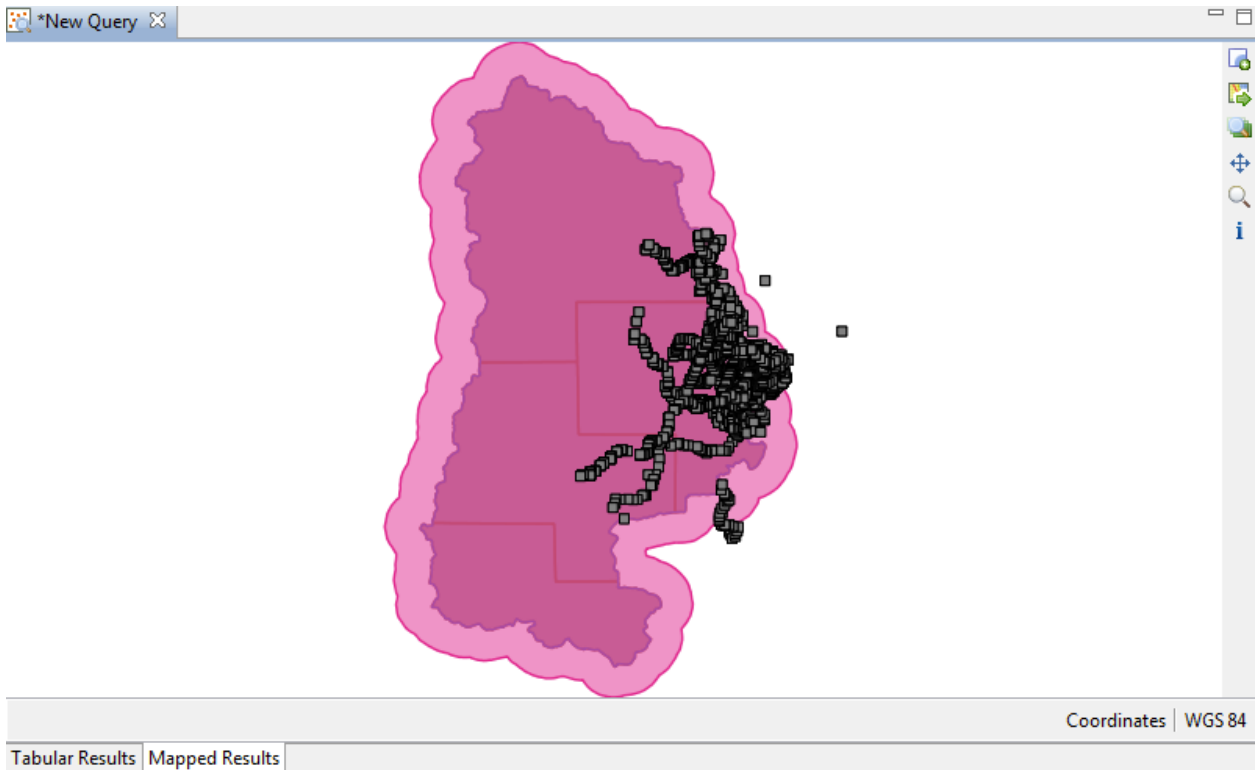
Tabular Results

Mapped Results

Smart Query Definition

Station = Sup Pa Pl

SMART queries can be viewed in table form or in a mapping window.



- To switch over to the mapped results, click the **Mapped Results** tab

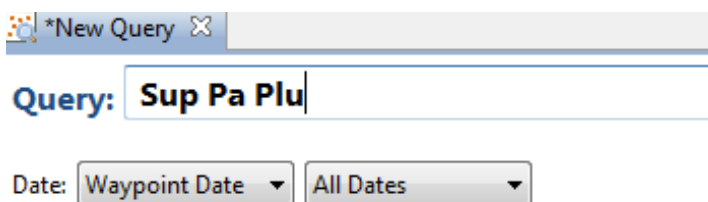
Note: The process of customizing the map's appearance and settings are the same in the Mapped Results windows as in other windows.

Naming Queries

There are three different ways to name a query:

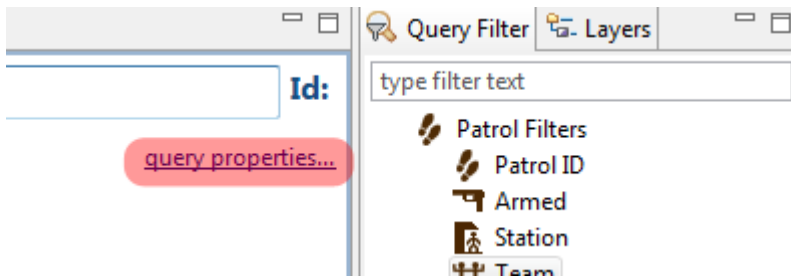
- Enter a name into the main screen
- Use the query properties
- Save As ...

Main Screen Name Change

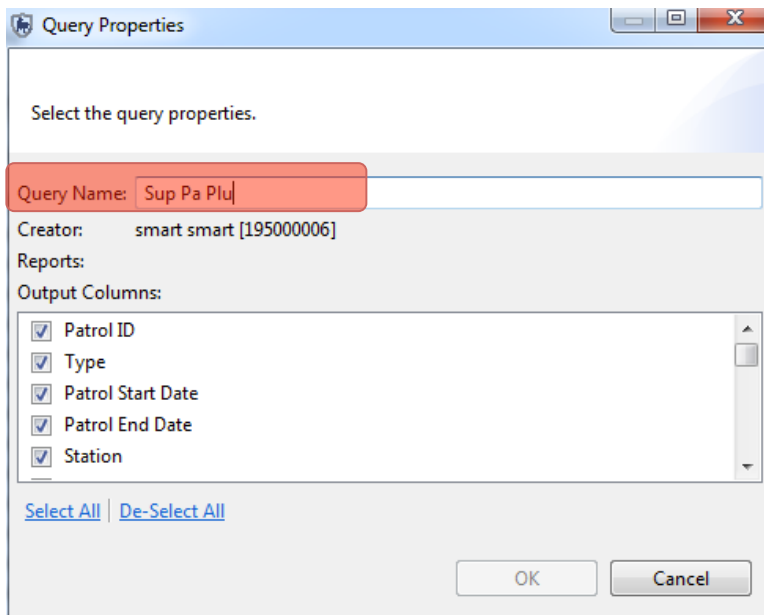


- Click inside the name box of **<No Name Query>**
- Type in **Sup Pa Plu**
- Click the **Enter** key on your keyboard

Query Properties

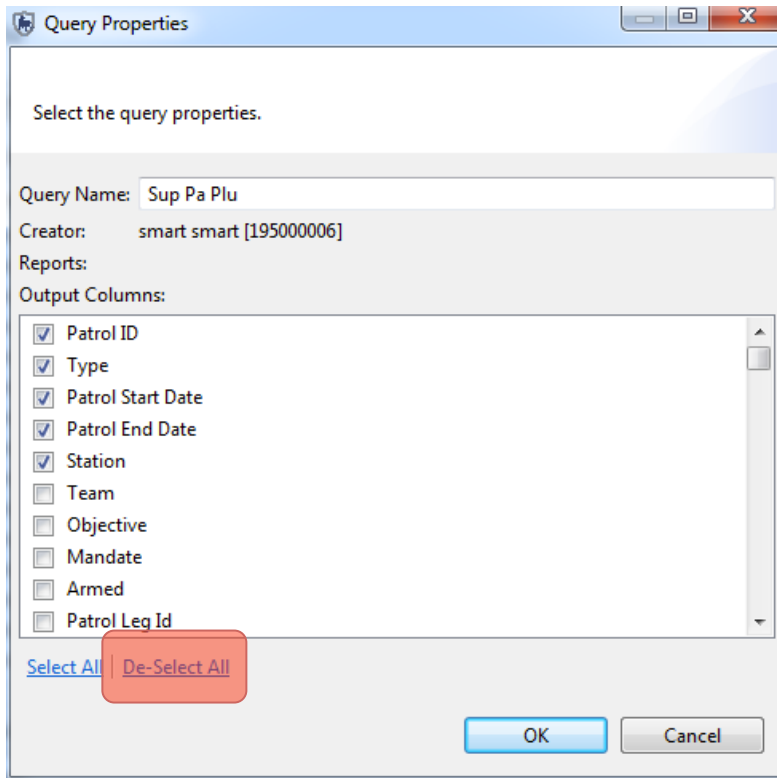


- Click **query properties ...**



- Type in **Sup Pa Plu** into the Query Name: text box
- Click **OK**

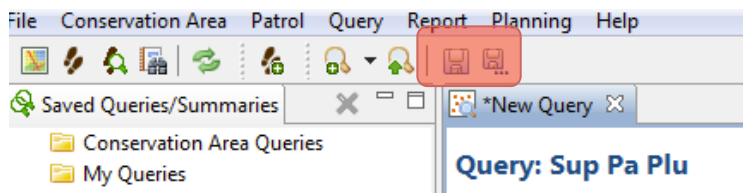
In the Query Properties window you can select which fields are returned from the query results.



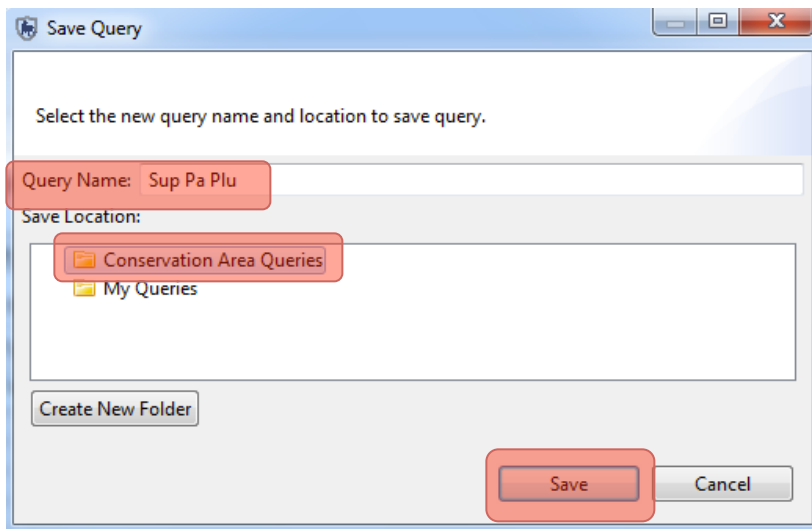
- Resize the window to show the fields Armed and Patrol Leg ID
- Click **De-Select All**
- Click the check-boxes for:
 - **Patrol ID**
 - **Type**
 - **Patrol Start Date**
 - **Patrol End Date**
 - **Station**
- Click **OK**

Save and Save As

The third option to name a query is one that will also allow you to save the query at the same time. If a name has not been assigned then the best option to save would be to use Save As. This will allow for a name to be chosen and the query to be saved at the same time.

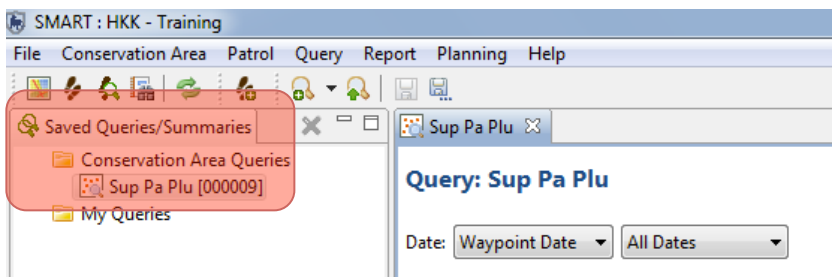


- Click the **Save As** icon



- Enter in **Sup Pa Plu** into the Query Name box
- Select **Conservation Area Queries** as the location of the saved query
- Click **Save**

The query named Team 1 will now appear under the folder Conservation Area Queries in the Saved Queries/Summaries window.



Conservation Area Queries and My Queries

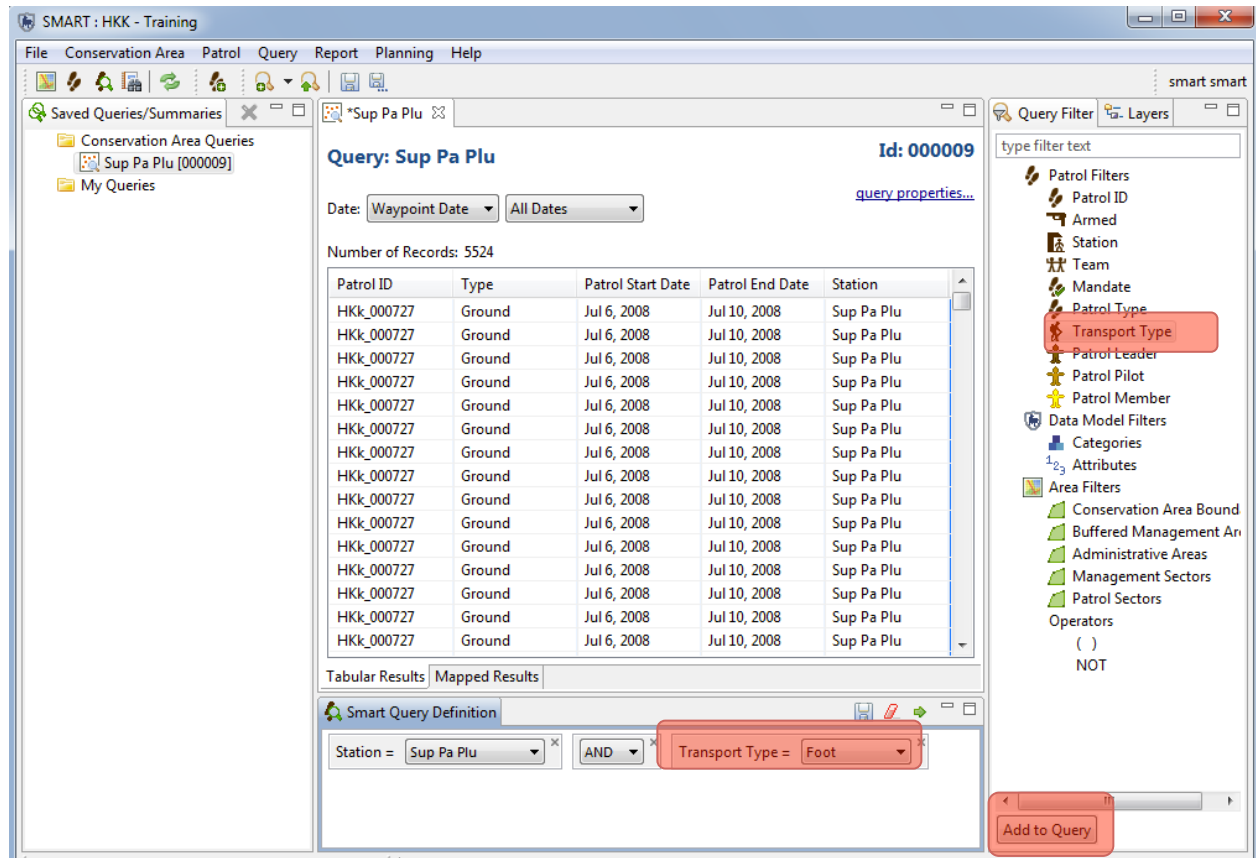
The two base areas to save queries are Conservation Area Queries and My Queries.

- **Conservation Area Queries** - Accessible by all user accounts except for Data Entry, but only Admin and Manager user levels can save and make edits.
- **My Queries** - Accessible only by the user account that created them. All accounts except for Data Entry can save and make edits.

Note: Queries and Summaries saved under My Queries will only be accessible to Reports saved under My Reports. Queries and Summaries saved under Conservation Area Queries will only be accessible to anyone generating a report. (Note: Reports will be covered in Module 6).

Creating Compound Queries using Patrol Filters

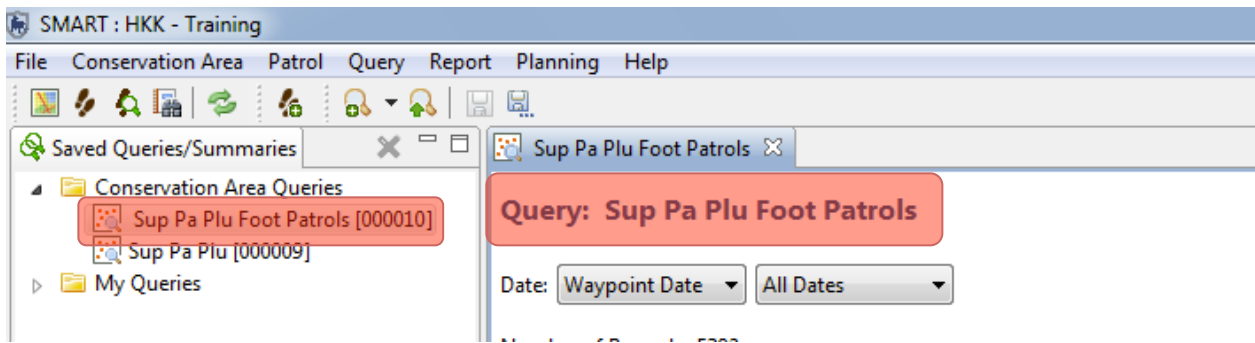
In the previous example, you extracted all observations made by Station Sup Pa Plu. For the next example, you will create a compound query to further filter the results by finding only the patrols from station Sup Pa Plu that were foot patrols.



- Double-click on **Sup Pa Plu** in the Conservation Area Queries to activate the query
- Select **Transport Type** from the Query Filter window and double-click or click **Add to Query**
- In the Smart Query Definition window select **Foot** for Transport Type
- Select **All Dates** from the Date filter
- Click the green arrow **Run Current Query** icon to launch the new query

Note: The number of records returned will have reduced

After creating and running this new query you will need to assign a new name and save the query. **To save a query under a new name – make sure you select Save a Copy of the Query/Summary**



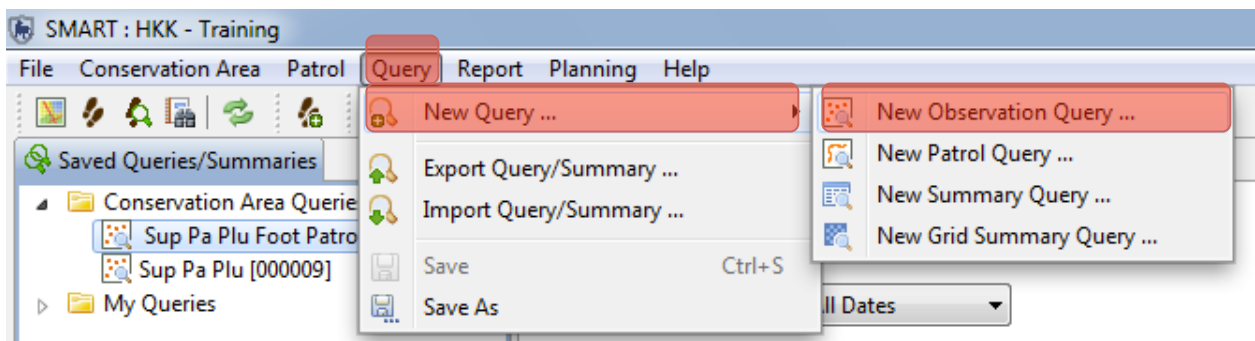
- Save a copy of the Query as **Sup Pa Plu Foot Patrols**
- Save the query to the **Conservation Area Queries** folder

Creating a Simple Observation Query Using Data Model Filters

Queries created using the Data Model Filters allow for specific information about observations to be accessed. Data Model queries can be on specific attributes or based on categories that contain those attributes. If a category is chosen, all of the sub-categories and related observations for those sub-categories are also returned.

This next query will return all observations that were recorded under the main category of Mammals - Tracks.

- To start a new Observation Query select **New Observation Query** from the menu



- Select **All Dates**

Query: <No Name Query>

Date: Waypoint Date All Dates

- Double-Click on **Data Model Filters: Mammals – Tracks**
- Run the query

Data Model Filters

- Categories
 - Threats
 - Position
 - Mammals
 - Track**
 - Species
 - Track Type
 - Width of Foot mm
 - Length of Track mm
 - Width of Track mm
 - Number of Adult Females Seen
 - Number of Adult Males Seen
 - Number of Animals Seen
 - Number of Young Seen

Tabular Results Mapped Results

Smart Query Definition

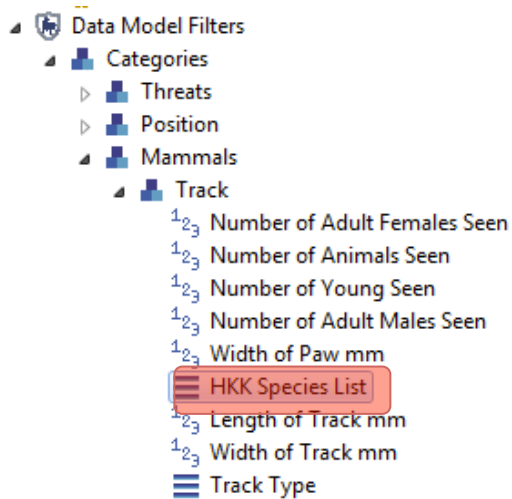
Track - Mammals

Using Category Attributes

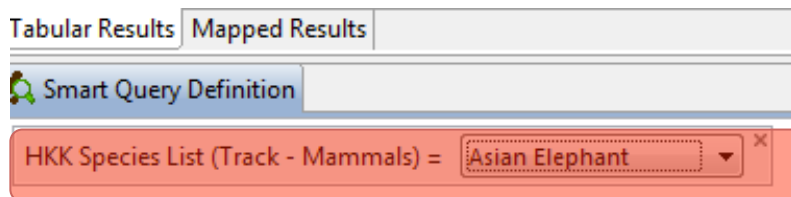
If an attribute of a category is chosen, the results returned will be limited to that specific category or sub-category even though that particular attribute is used to record other observations.

For this example you will build a query to extract **only the tracks of Asian Elephants**.

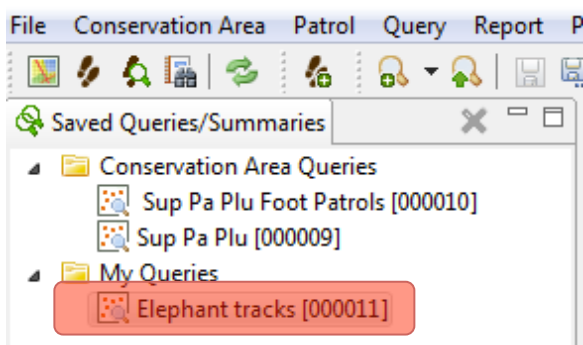
- **Clear the current query** by clicking on the Clear the Query icon  to remove the previous query
- Double-click the attribute **HKK Species List** under the Track category



- Select **Asian Elephant** from the drop-down list of species



- Ensure the **Date Filter** is set to **All Dates**
- Run the query
- Check the tabular and the map results

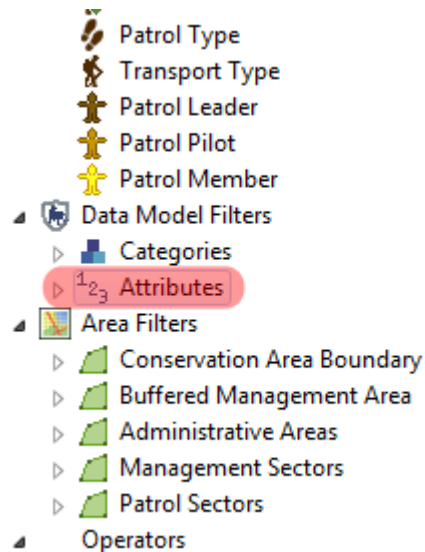


- Save the query under the folder of **My Queries** as **Elephant Tracks**

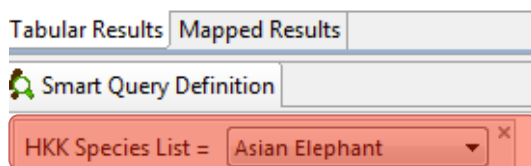
Using Attributes

Queries based on attributes will return results across all categories in the entire data model for any observation where that attribute value was used.

For this example, you will create a simple Data Model Attribute query to extract all observations where Asian Elephants were used in the species list.



- Create a new Observation query.
- Save query as **Elephant Observations** under My Queries
- Under the Data Model - Attributes scroll down and select **HKK Species List**
- Double-click **HKK Species List** or click **Add to Query**



- Select **Asian Elephant** from the species tree
- Set to **All Dates**
- Run the query
- In the query properties **De-Select All** then select
 - **Patrol ID**
 - **Observation Category 0**
 - **Observation Category 1**
- Click **OK**

The fields of the returned results can be sorted to increase readability.

Sup Pa Plu Foot Patrols | Elephant tracks | Elephant observations

Query: Elephant observations Id: 000012

Date: Waypoint Date Custom ... Between 1/ 1/2008 And [query properties...](#)

Number of Records: 2662

Patrol ID	Observation C...	Observation C...
HKk_000612	Mammals	Call
HKk_000612	Mammals	Call
HKk_000548	Mammals	Call
HKk_000549	Mammals	Call
HKk_000604	Mammals	Call
HKk_000544	Mammals	Call
HKk_000533	Mammals	Dung
HKk_000533	Mammals	Dung
HKk_000612	Mammals	Dung
HKk_000571	Mammals	Dung
HKk_000571	Mammals	Dung
HKk_000571	Mammals	Dung
HKk_000571	Mammals	Dung
HKk_000571	Mammals	Dung
HKk_000571	Mammals	Dung

Tabular Results | Mapped Results

Smart Query Definition Save Edit Run

HKK Species List = Asian Elephant

- Sort the field Observation Category 1 by clicking on the **field name**

Compound Queries using Operators

Using Operators allows for more complex queries to be built. The logic for Operators is the same in SMART as it would be when building a mathematical equation.

Smart Query Definition Save Edit Run

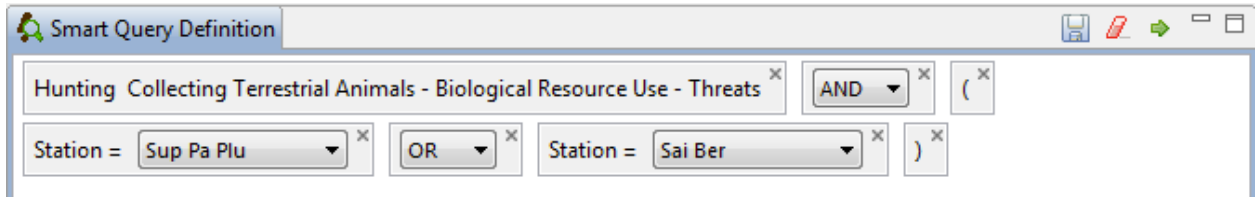
Hunting Collecting Terrestrial Animals - Biological Resource Use - Threats × AND × Station = Sup Pa Plu ×

This query will return all of the Hunting threats observed by Station Sup Pa Plu

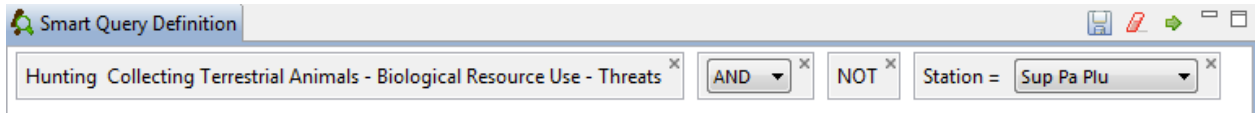
Smart Query Definition Save Edit Run

Hunting Collecting Terrestrial Animals - Biological Resource Use - Threats × OR × Station = Sup Pa Plu ×

This query will return all Hunting threats as well as all observations recorded by Station Sup Pa Plu



This query will return all of the Hunting threats observed by Station Sup Pa Plu or Station Sai Ber



This query will return all of the Hunting threats observed by any station other than Sup Pa Plu 2

Note: Once components in the Smart Query Window have been included, they can be repositioned by dragging and dropping or removed by clicking the “x” in the upper right of the feature.

Invalid Query

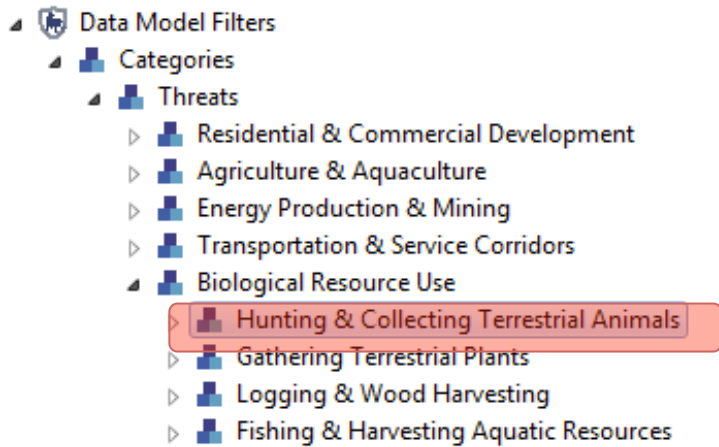
SMART will only allow valid queries to be run. If a query is incomplete or invalid, the green Run Current Query icon will be unavailable and there will be a Query error warning at the bottom of the screen.



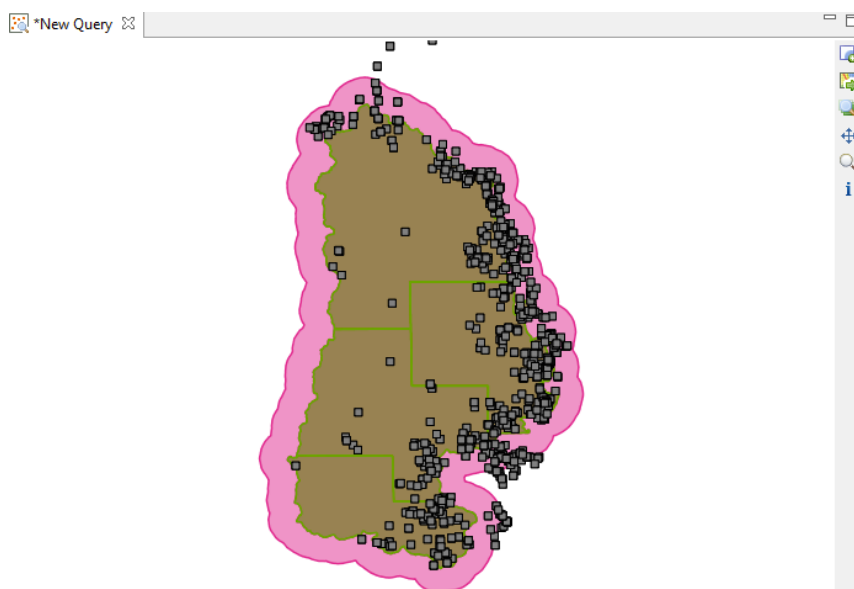
Creating Queries using Area Filters

Area filters allow for results to be filtered using the administrative boundaries associated with the Conservation Area.

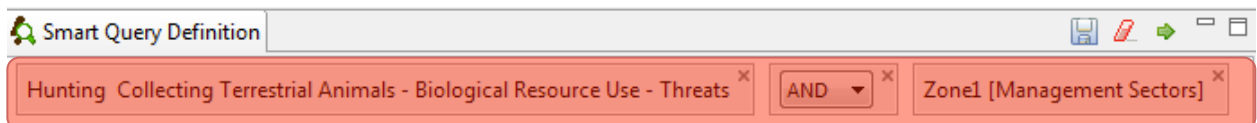
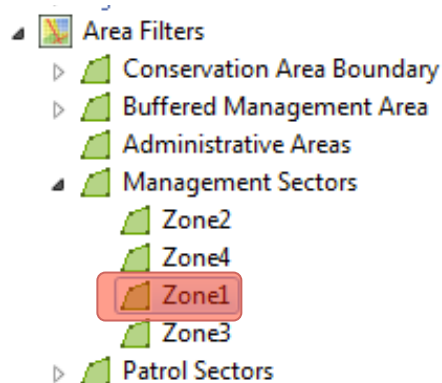
For this example, you will build an observation query to extract all the Hunting and Collecting Terrestrial Animals in Zone 1 Management Sector



- Create new Observation Query
- Add the category of **Hunting and Collecting Terrestrial Animals** to the query window
- Select **All dates**
- Run the query and view the results in the Mapped Results tab

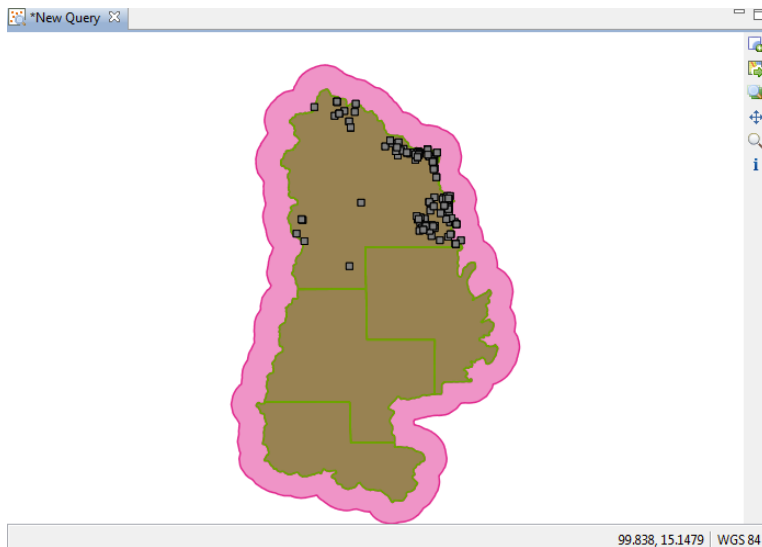


- Now add the category of Area Filters – Management Sectors – **Zone 1** to the query window



- Run the query and view the results in the Mapped Results tab

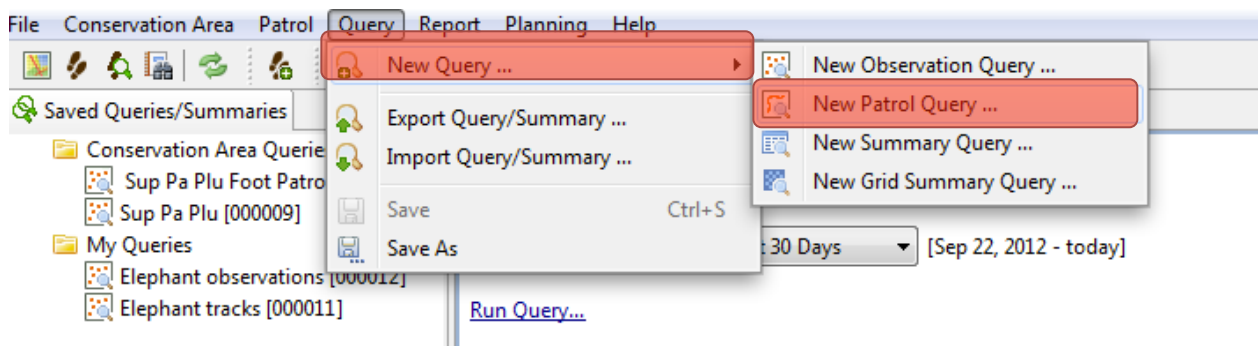
After the Area Filter has been added to the query, the results will be for observations within that selected area.



Patrol Queries

Up to this point, all queries have been Observation Queries and the results returned are of the individual observations. The process of building a Patrol Query is the same as the Observation Queries but the results will return which patrols were involved and not the individual observations.

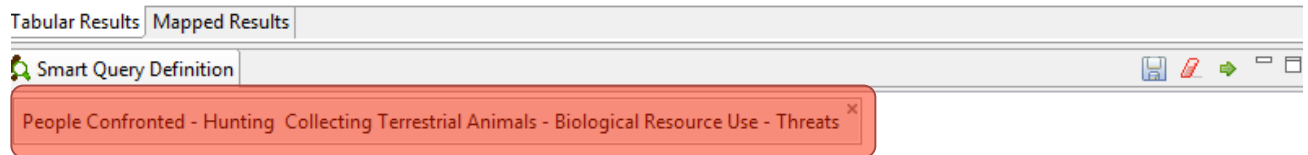
For this query you will build a query to see which patrols were involved in Hunting confrontations.



- Select **New Patrol Query** from the menu
- Select **All Dates** from the Date filter
- Name the query **People Confrontations**

- ▲ **Biological Resource Use**
 - ▲ **Hunting & Collecting Terrestrial Animals**
 - ▶ **People Seen**
 - ▶ **People Confronted**
 - ▶ **Weapons Seen**
 - ▶ **Weapons Confiscated**
 - ▶ **Weapons Destroyed**
 - ▶ **Transportation Seen**
 - ▶ **Transportation Confiscated**
 - ▶ **Camp**
 - ▶ **Animals Seen**
 - ▶ **Animals Confiscated**
 - ▶ **Animals Destroyed**
 - ▶ **Gun Shots Heard**
 - ▶ **Poaching Sign**
 - ▶ **Hide**
 - ▶ **Domestic Dogs**

- Add Categories - Threats - Biologic Resource Use - Hunting & Collecting Terrestrial Animals - **People Confronted** to the query window
- Run the query



In the Query Properties for a Patrol Query you will see that the available fields are fields related to the patrols and not of the observations.

Query Properties

Select the query properties.

Query Name:

Creator: smart smart [195000015]

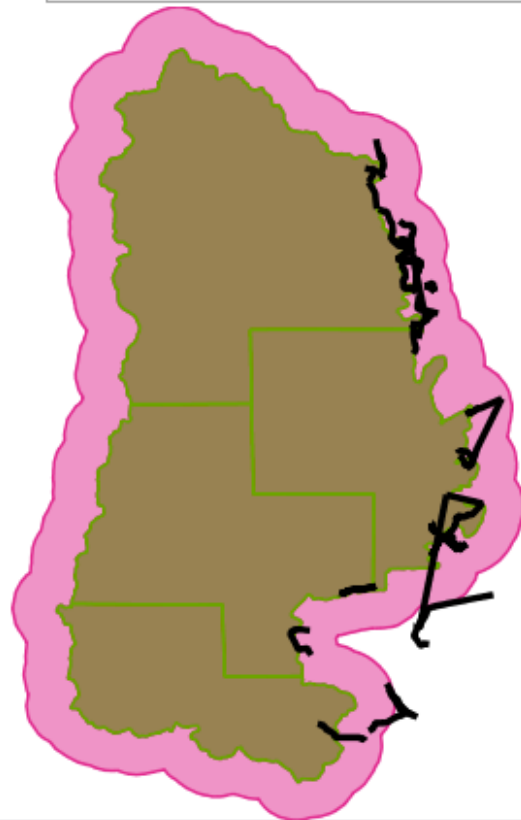
Reports:

Output Columns:

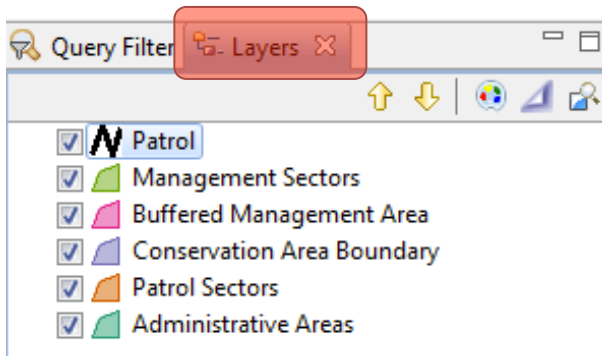
- ☒ Patrol ID
- ☒ Type
- ☒ Patrol Start Date
- ☒ Patrol End Date
- ☒ Station
- ☒ Team
- ☒ Objective
- ☒ Mandate
- ☒ Armed
- ☒ Patrol Leg Id
- ☒ Leader
- ☒ Pilot
- ☒ Patrol Leg Start Date
- ☒ Patrol Leg End Date
- ☒ Patrol Transport Type

[Select All](#) | [De-Select All](#)

In the Mapped Results view the Tracks of the various patrols are returned and mapped. No waypoint information is returned.

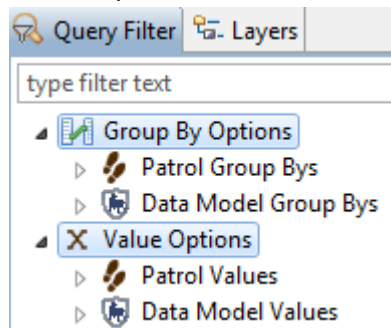


Note: Your results will likely not show the patrol tracks as a thick black line. The color and thickness of the line can be edited using the same tools as the other layers (by selecting the Layers tab on the right-hand side)



Summaries

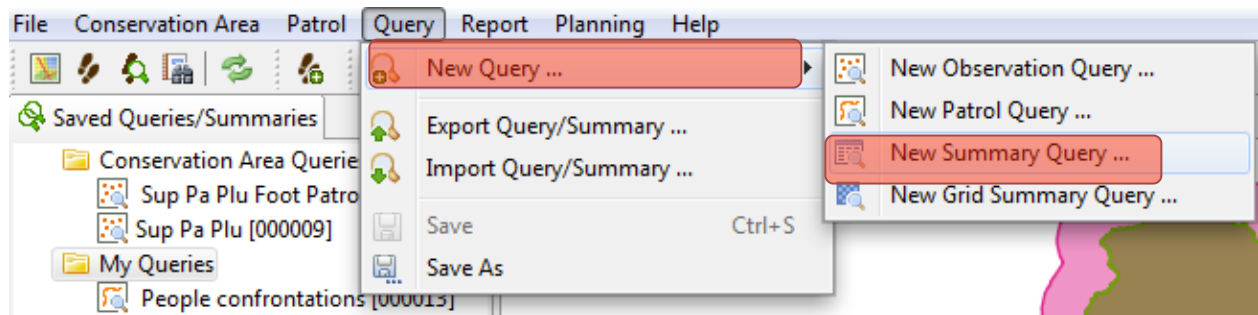
Summaries are built placing Value Options and Group By Options into the Smart Query Definition windows. The Group By Options are used to provide an aggregation of the Value Options.



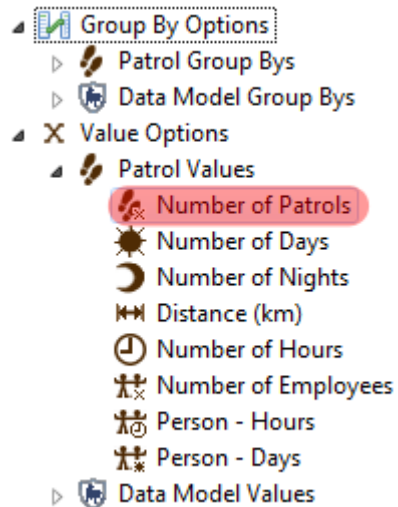
The simplest of Summaries can be a single Value option with no Group By Options, and there is no end to how complex a summary can be. However, some combinations of Values and Group Bys are not permissible and SMART will not allow the summary to be run until the error is resolved.

Simple Patrol Summaries

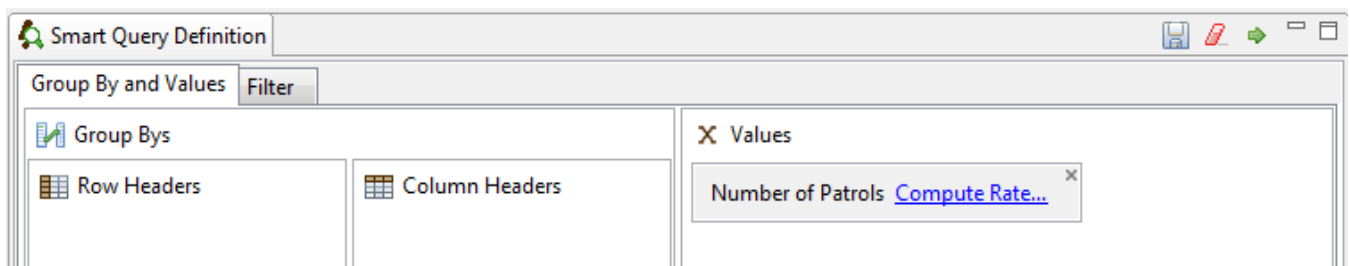
For this example, you will build a simple summary to calculate the total number of patrols entered into the system for this Conservation Area.



- From the menu select **New Summary Query**
- Set the Date filter to **All Dates**

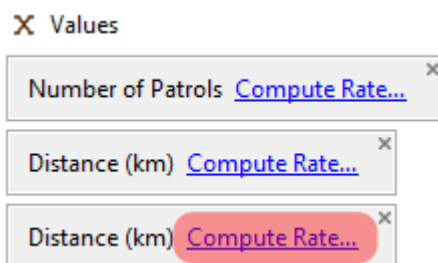


- Add Value Options - Patrol Values - **Number of Patrols** to the query



- Run the query

The SMART summary will display the total number of patrols for this Conservation Area



- Return to the Value Options and add **Distance (km)** to the query
- Add **Distance (km)** a second time to the query window

Building on the complexity of the summary you will add the **computed value of Number of Patrols per Kilometer travelled.**

Encounter Rate

Select the encounter rate to compute

Distance (km)

- Distance (km)
- Number of Hours
- Number of Days
- Person - Days
- Person - Hours
- Number of Patrols

- On the lower Distance (km) click **Compute Rate ...**
- Select **Number of Patrols** from the pull down list
- Click **OK**
- Run query

The results of this summary shows the total number of patrols, the total distance travelled by those patrols and the average distance travelled per patrol.

Summary: <No Name Summary>

Date: Waypoint Date Custom ... Between 1/ 1/2008 And

Number of Patrols	Distance (km)	Distance (km) per Number of Patrols
195.0	4114.9921875	21.10252403846154

The following screenshot is for a basic Patrol Summary for the Conservation Area. This example does not include any Observation Values, Computed Rates, or Group Bys.

Summary: <No Name Summary> **Id:**

Date: Waypoint Date Custom ... Between 1/ 1/2008 And 7/ 1/2008 [summary properties...](#)

Number of Patrol:	Distance (km)	Number of Days	Number of Night:	Number of Hours	Number of Employees	Person - Hours	Person - Days
195.0	4114.9921875	907.0	721.0	4087.68749997...	150.0	16328.1333332...	3661.0

Smart Query Definition

Group By and Values Filter

Group Bys

Row Headers Column Headers

Values

Number of Patrols [Compute Rate...](#)

Distance (km) [Compute Rate...](#)

Number of Days [Compute Rate...](#)

Number of Nights [Compute Rate...](#)

Number of Hours [Compute Rate...](#)

Number of Employees [Compute Rate...](#)

Person - Hours [Compute Rate...](#)

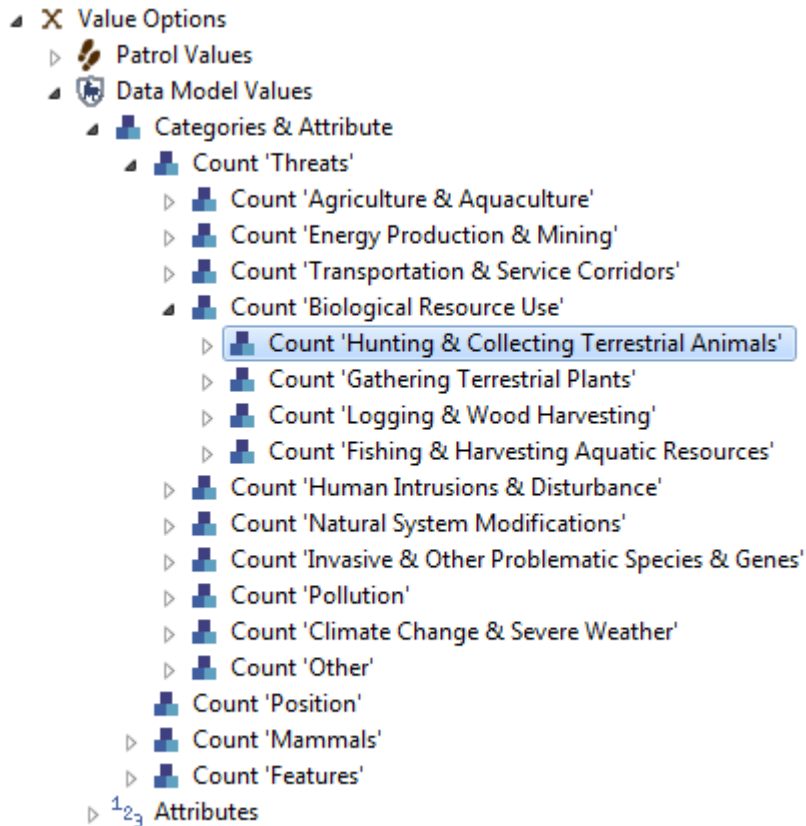
Person - Days [Compute Rate...](#)

Simple Data Model Summaries

As with the queries there are options to build up summaries of Patrol Values, Data Model Values or a combination of the two.

This example is a simple data model summary to count the total number of observations that are under the category of Hunting & Collecting Terrestrial Animals.

- [Clear the current Summary](#)
- [Add Data Model Values Count 'Hunting & Collecting Terrestrial Animals'](#)
- [Keep the date range as All Dates](#)



Summary results for the total number of observations for Hunting & Collecting Terrestrial Animals.

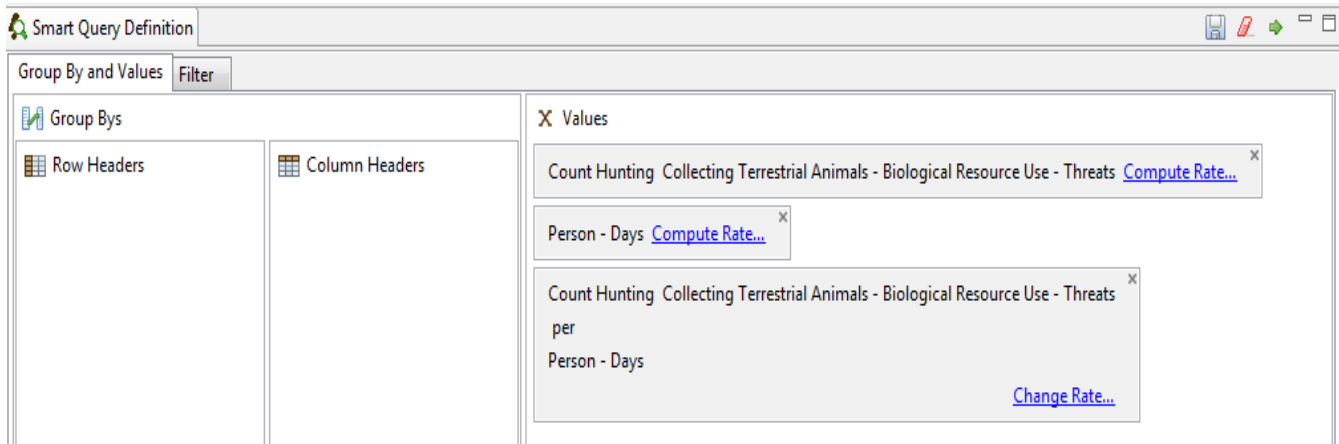
*New Query

Summary: <No Name Summary>

Date: Between

Count Hunting & Collecting Terrestrial Animals
97.0

By bringing in a combination of observation values, patrol values and computed rates, SMART can calculate the number of Hunting & Collecting observations per person day.



- From the Patrol Values add **Person - Days** to the query
- Add **Count Hunting & Collecting Terrestrial Animals** for a second time
- Click Compute Rate on the **Count Hunting & Collecting Terrestrial Animals**
- Select **Person - Days**
- Click **OK**
- Run the query

SMART's computed results show less than one Hunting & Collecting observation is recorded per person day

Summary: <No Name Summary>

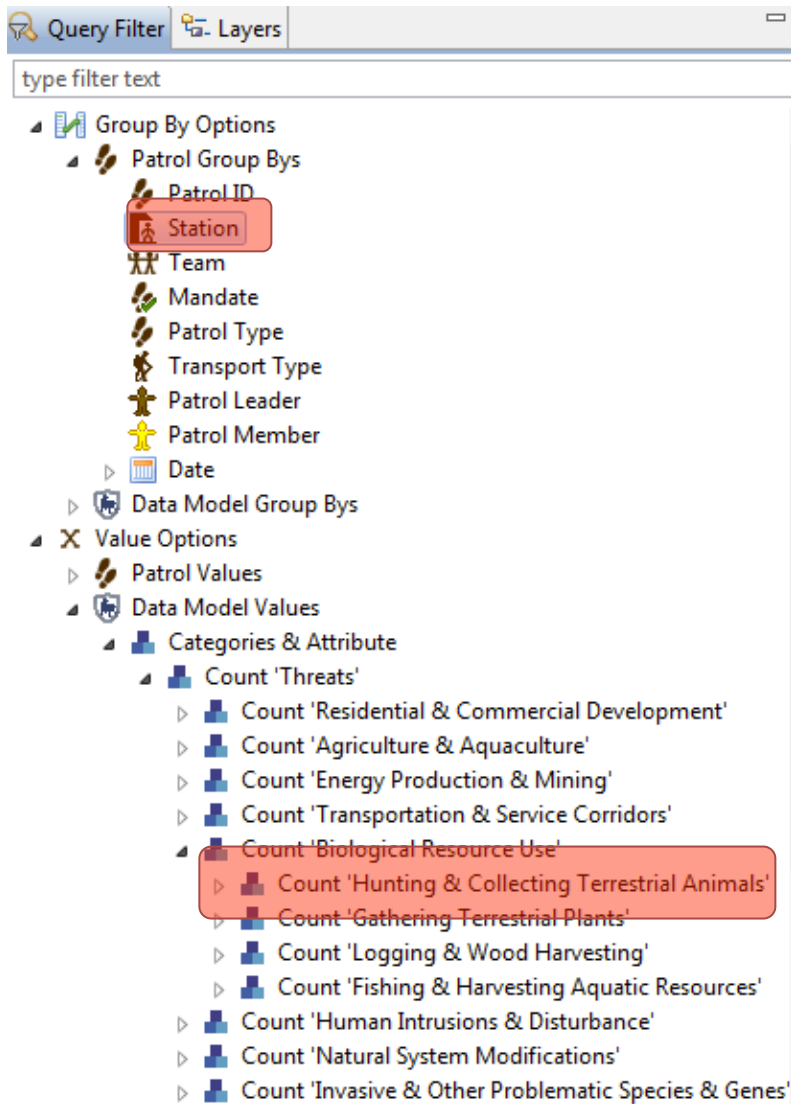
Date: Between And [sumr](#)

Count Hunting & Collecting Terrestrial Animals	Person - Days	Count Hunting & Collecting Terrestrial Animals per Person - Days
97.0	3661.0	0.026495493034689975

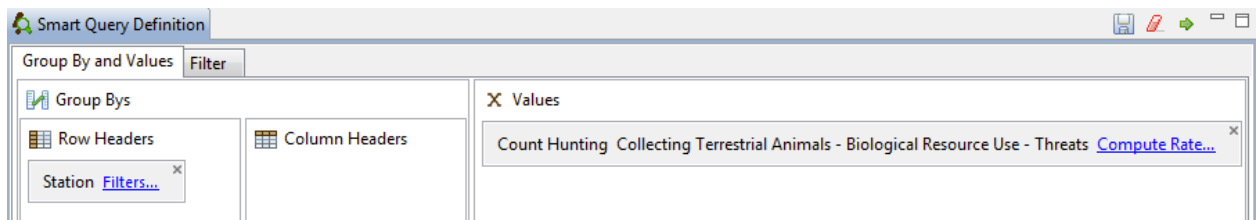
Group By Options

The previous summary examples have all been summaries without any Group By Options. For the next example you will build on the previous summary a simple summary using Group By Options.

For this example you will be using the Hunting & Collecting Terrestrial Animals Values and a Group By of **Patrol Station**. This will return the number of Hunting & Collecting observations recorded by each Station.



- Clear the query
- Add to the query **Count 'Hunting & Collecting Terrestrial Animals'** from the Data Model Values
- Add to the query a Patrol Group Bys of **Station**
- Keep date range as **All Dates**



- Run the query

The following summary results show the distribution of the Hunting & Collecting observations by patrol station

 *New Query 

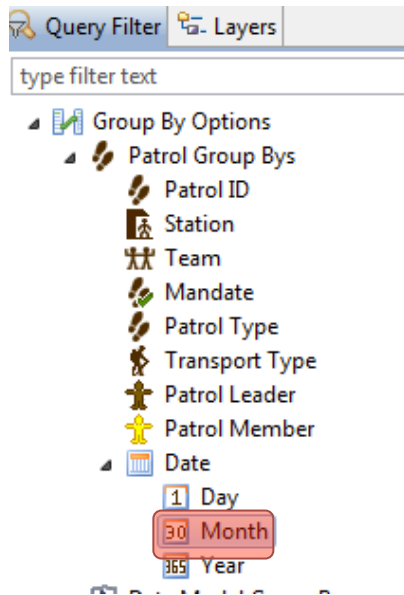
Summary: <No Name Summary>

Date: Waypoint Date ▾ Custom ... ▾ Be

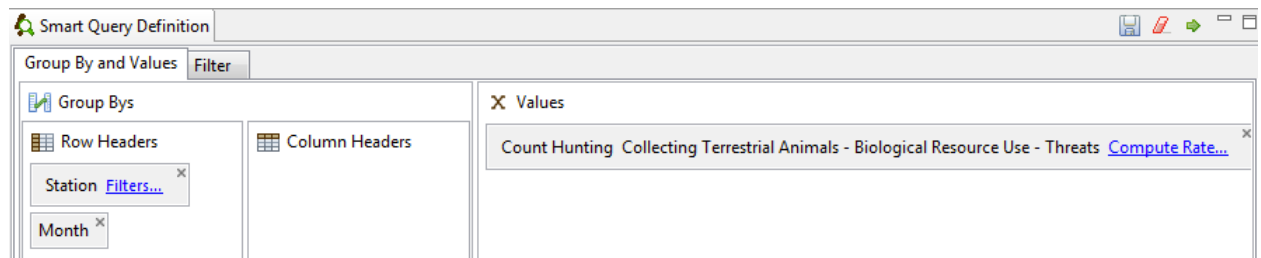
	Count Hunting &	
Sai Ber	10.0	
Wang Pai	10.0	
Ong Thang		
Sup Pa Plu	2.0	
Klong Sa Lao	3.0	
Huai Yu Yi		
Huai Nam Kao		
Ka Puk Ka Peang		
Huai E Sa	11.0	
Huai Mae Dee	2.0	
Thung Fage	17.0	
HQ		
Khoa Keaw	14.0	
Sup Pha Pa	2.0	
Huai Nam Tern		
Ban Kluai	2.0	
Ta Pern Khi	3.0	
Khoa Pan So	13.0	
Kreung Krai	3.0	
Khoa ban Dai	5.0	

Group Bys using Dates

Using the same summary as before, you will now add a Date Group By Option. This will allow SMART to calculate how many observations were reported by each station and in which month.



- Add Group By - Patrol Group Bys - Date - **Month** to the query



- Run the query

Note: The list will be quite long and you will need to scroll down through the list and see the recorded results.

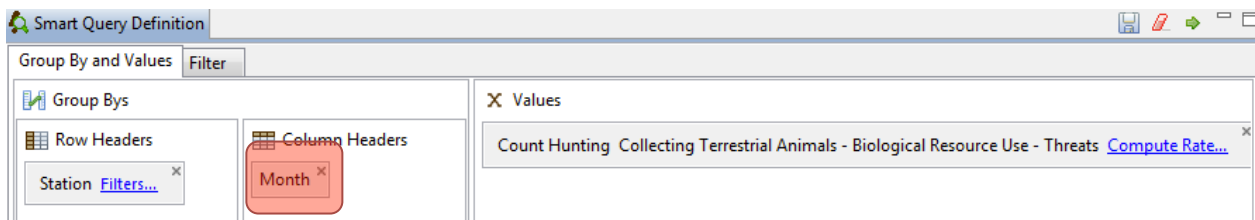
***New Query**

Summary: <No Name Summary>

Date: Between And

Count Hunting & Collecting Terrestrial Animals		
Sai Ber	1/2008	5.0
Sai Ber	2/2008	
Sai Ber	3/2008	
Sai Ber	4/2008	
Sai Ber	5/2008	1.0
Sai Ber	6/2008	4.0
Sai Ber	7/2008	
Wang Pai	1/2008	4.0
Wang Pai	2/2008	1.0
Wang Pai	3/2008	
Wang Pai	4/2008	
Wang Pai	5/2008	5.0

Note: The default placement for Group Bys is in the Row Headers window. This can be altered to produce a different results layout if the Column Headers is used.



- Using the mouse, left-click on the **Month** item and drag it into the **Column Header** section
- Run the query.

The base information is the same in the results; only the formatting of the table has changed.

***New Query**

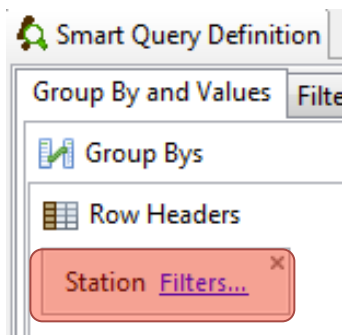
Summary: <No Name Summary>

Date: Between And [summ...](#)

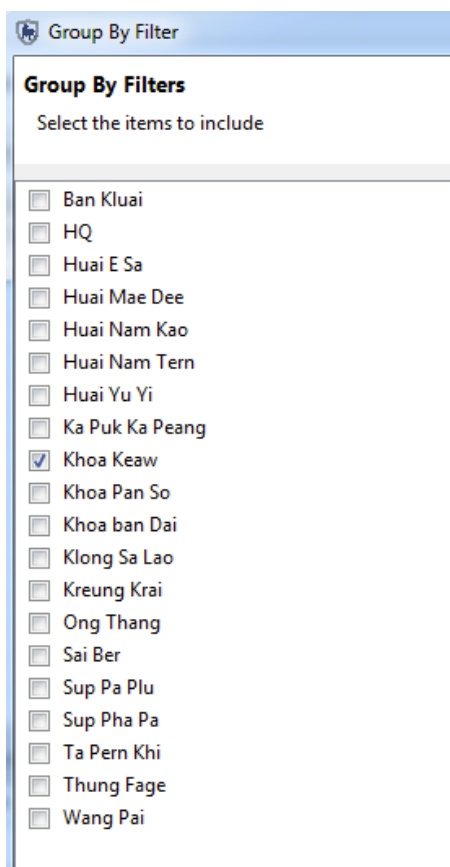
	1/2008	2/2008	3/2008	4/2008	5/2008	6/2008	7/2008
	Count Hunting &	Count Hunting &	Count Hunting &	Count Hunting &	Count Hunting &	Count Hunting &	Count Hunting &
Sai Ber	5.0				1.0	4.0	
Wang Pai	4.0	1.0			5.0		

Group By Filters

Group By Filters provide a simple way to filter results from the summaries.



- In the Group Bys click the Station **Filters ...**



- Deselect all of the stations except for **Khoa Keaw**
- Click **OK**
- Run the query

The results have now been filtered down to just this one station

 *New Query 

Summary: <No Name Summary>

Date: Between  And 

[summ:](#)

	1/2008	2/2008	3/2008	4/2008	5/2008	6/2008	7/2008
	Count Hunting &	Count Hunting &	Count Hunting &	Count Hunting &	Count Hunting &	Count Hunting &	Count Hunting &
Khoa Keaw	8.0	3.0		2.0	1.0		

There is another way of filtering down summaries, and that is to build a query as was done in the early part of this training module.

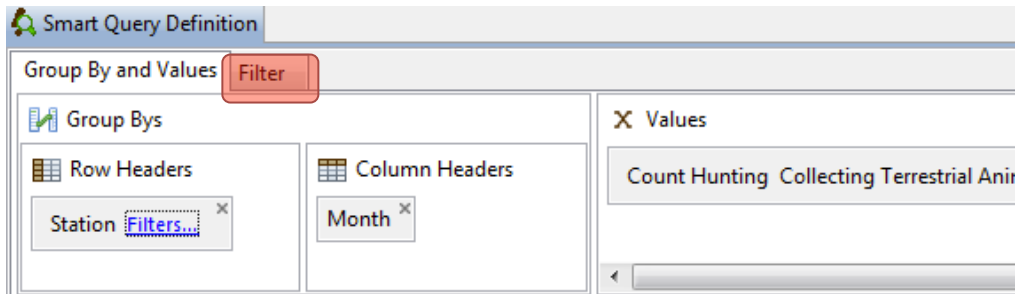
 Group By Filter

Group By Filters

Select the items to include

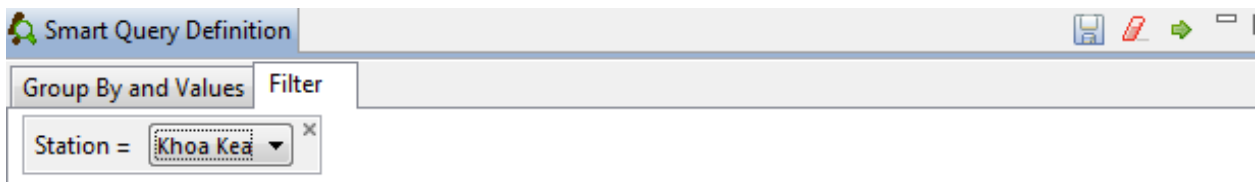
- ☒ Ban Kluai
- ☒ HQ
- ☒ Huai E Sa
- ☒ Huai Mae Dee
- ☒ Huai Nam Kao
- ☒ Huai Nam Tern
- ☒ Huai Yu Yi
- ☒ Ka Puk Ka Peang
- ☒ Khoa Keaw
- ☒ Khoa Pan So
- ☒ Khoa ban Dai
- ☒ Klong Sa Lao
- ☒ Kreung Krai
- ☒ Ong Thang
- ☒ Sai Ber
- ☒ Sup Pa Plu
- ☒ Sup Pha Pa
- ☒ Ta Pern Khi
- ☒ Thung Fage
- ☒ Wang Pai

- Click on the **Station Filter**
- Select **all Stations**
- Click **OK**



- After all of the patrols have been re-selected, click the **Filter** tab

The Summary Filter tab will open up the query builder interface. To filter out all stations except for Khoa Keaw you will need to complete a query as seen below.

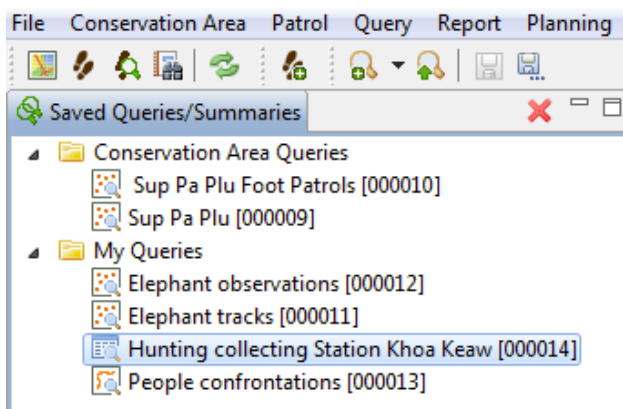


- Double Click on the **Station** under Patrol Filters
- Select **Khoa Keaw**
- Run the summary

After the Filter Tab query has been run, the results are returned to the summary table. The information returned is almost the same as when you ran the summary using the Patrol ID filters. Using this method, however, does not filter out the rows for the non-queried patrols.

Saving Summaries

Summaries are saved in the same way as queries. You will now save this last summary as “**Hunting Collecting Station Khoa Keaw**” under My Queries.



Exporting and Importing Queries and Summaries

Once a query or summary is created, it can be exported out to an XML file that can be used by another Conservation Area. Importing pre-existing queries and summaries allows for standardization of analysis and reporting (Note: Reports will be covered in Module 6).

Query and Summary Exports

Queries can be exported in one of three formats:

- **Shapefile (*.shp)** *****Only Available for Queries*****
- **Comma Separated Values (*.csv)**
- **Query Definition (*.xml)**

Shapefile Export *****Only Available for Queries*****

A query export of the file type Shapefile will produce a shapefile of the results that are viewable in the Mapped Results tab. This shapefile can be used for creating new maps or to distribute to others.

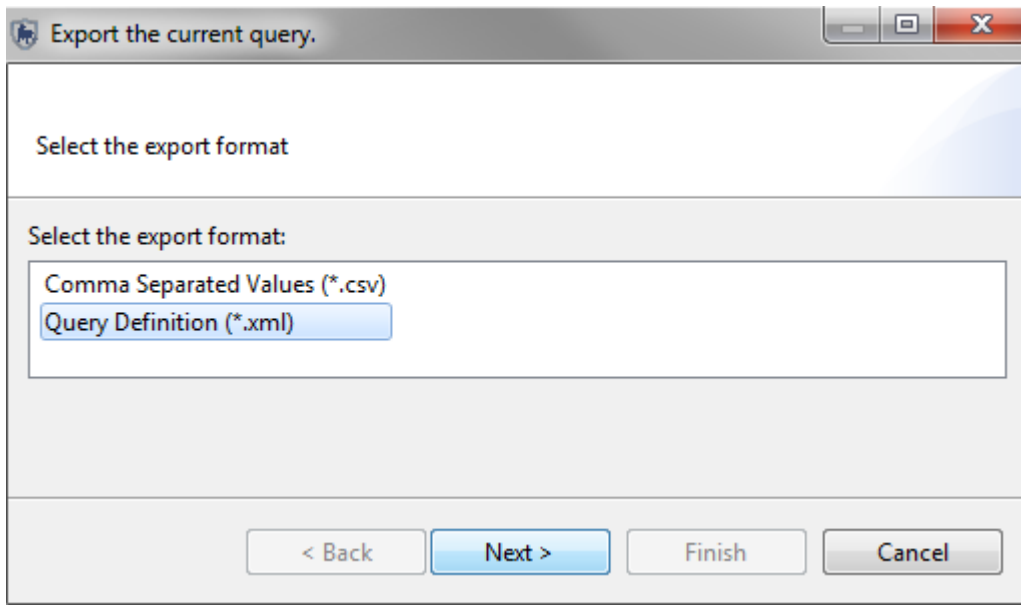
Comma Separated Values

A query export of the file type Comma Separated Values will produce a text file that can be imported into other spreadsheet or database software, to recreate the results that are seen in the Tabular Results view.

Query Definition

A query export of the file type Query Definition will produce an XML text file that can be distributed to others, allowing them to import the query into their Conservation Area.

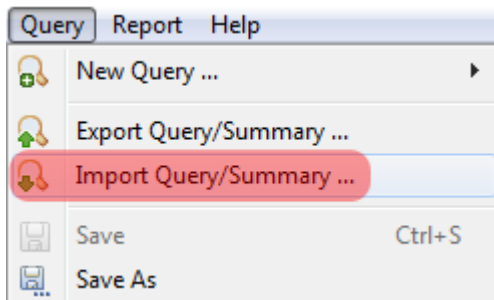
Using the menu or the export query icon  you can export queries and summaries.



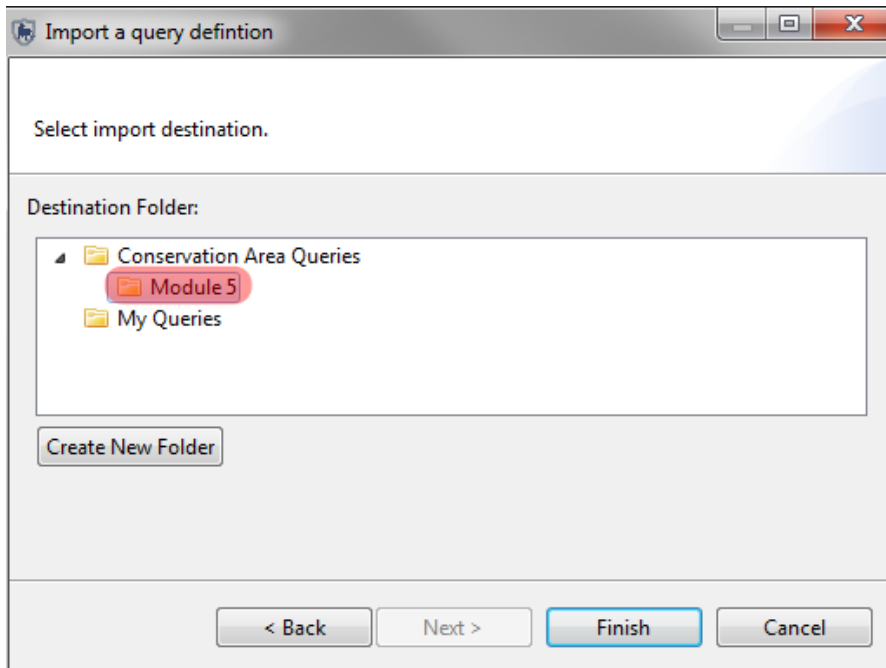
Importing Queries and Summaries

Queries and Summaries are imported into SMART using a previously exported query saved as an XML file. To demonstrate this, you will import a few queries and summaries into a custom folder in the Conservation Area Queries.

Note: Importing into a custom folder isn't required but the exercise will highlight some options for query management.

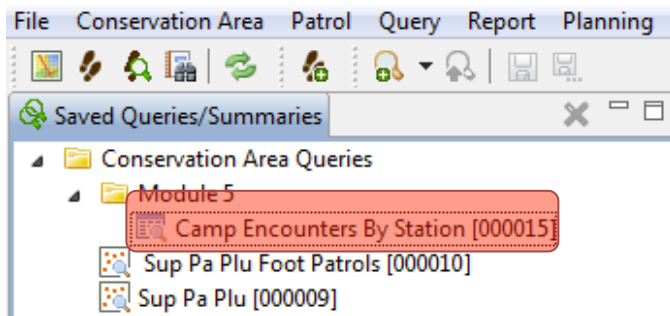


- From the menu select **Import Query/Summary ...**
- Browse to folder **Module 5 \ Queries**
- Select **Camp Encounters By Station.xml**
- Click **Open**
- Click **Next**



- Select the folder **Conservation Area Queries**
- Double-click **Create New Folder** to rename folder to **Module 5**
- Click **Finish**

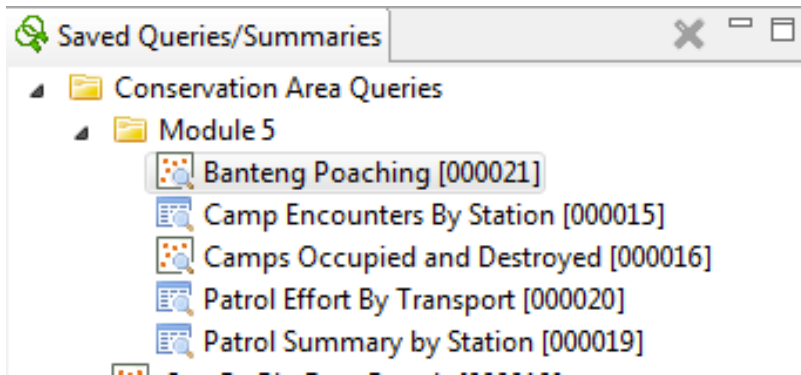
Under the Module 5 folder the newly imported summary should appear.



- Double-click on the summary to make it active and view the summary structure
- Run query

In the Queries directory there are other queries and summaries that will need to be brought into SMART.

- Import the remaining queries and summaries into the same folder of **Module 5**



- Activate the query “Camps Occupied and Destroyed” by **double-clicking** the name
- Change the dates to be **All Dates**
- Click **query properties**
- Click **De-Select All**
- **Turn on** the attributes of:
 - **Patrol ID**
 - **Patrol Start Date**
 - **Patrol End Date**
 - **Station**
 - **Observation Category 2**
- Click **OK**
- Run query to verify changes to column selection
- **Save** the query

Note: This was done to prepare the query for Module 6, where this query will be referenced in a report.

<End of Module 5 - Queries and Summaries>

Module 6: Reports

Objective:

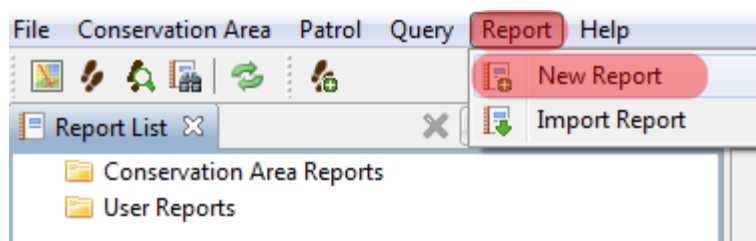
This Training Module will guide you through the process of creating, editing and populating a SMART report. SMART reports are highly configurable and allow for a wide range of standardized reporting. The information on the reports can be dynamically generated based on the results of SMART queries and summaries. A major component of SMART is its mapping ability, and SMART reports allow maps to be included and customized to suit the report.

- **Understanding the Components of the Report Editor**
- **Configuring Data Access**
- **Creating Headers and Footers**
- **Creating Master Pages**
- **Updating the Library**
- **Building a Report**
- **Running a Report**
- **Exporting Reports**

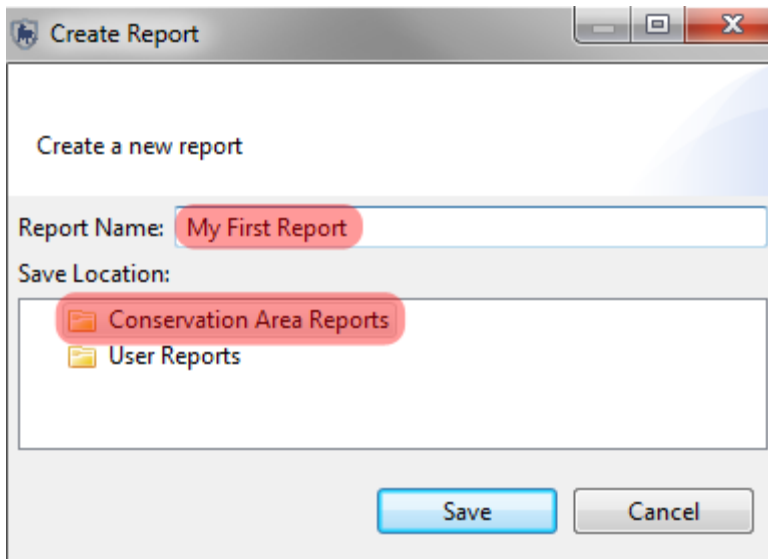
We will continue using the **HKK Training database**

Detailed Steps:

The Conservation Area does not come pre-loaded with any reports, so the very first step is to create a report. We will be using **HKK_Training database**



- From the menu select **New Report**



- For Report Name type in **My First Report**
- Select the **Conservation Area Reports** folder as the location
- Click **Save**

Switching Between Report List and Report Editor

After creating the first report SMART will display the Report List screen and toolbars

To run, export or manage reports you will need to be using the Report List screen.

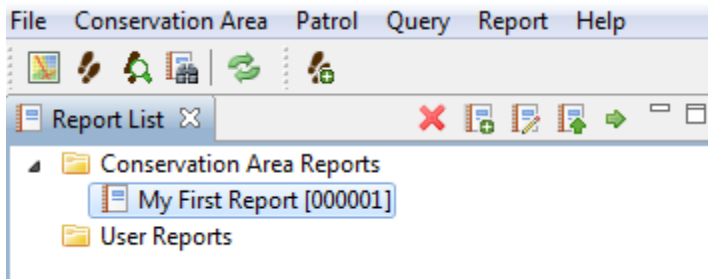
The icon to return to the report list screen is available on the default SMART icon bar.



- To return to the Report List select the **Show Reports icon** 

Report List Toolbar

The report toolbar has icons for creating, editing, running, exporting and deleting reports.

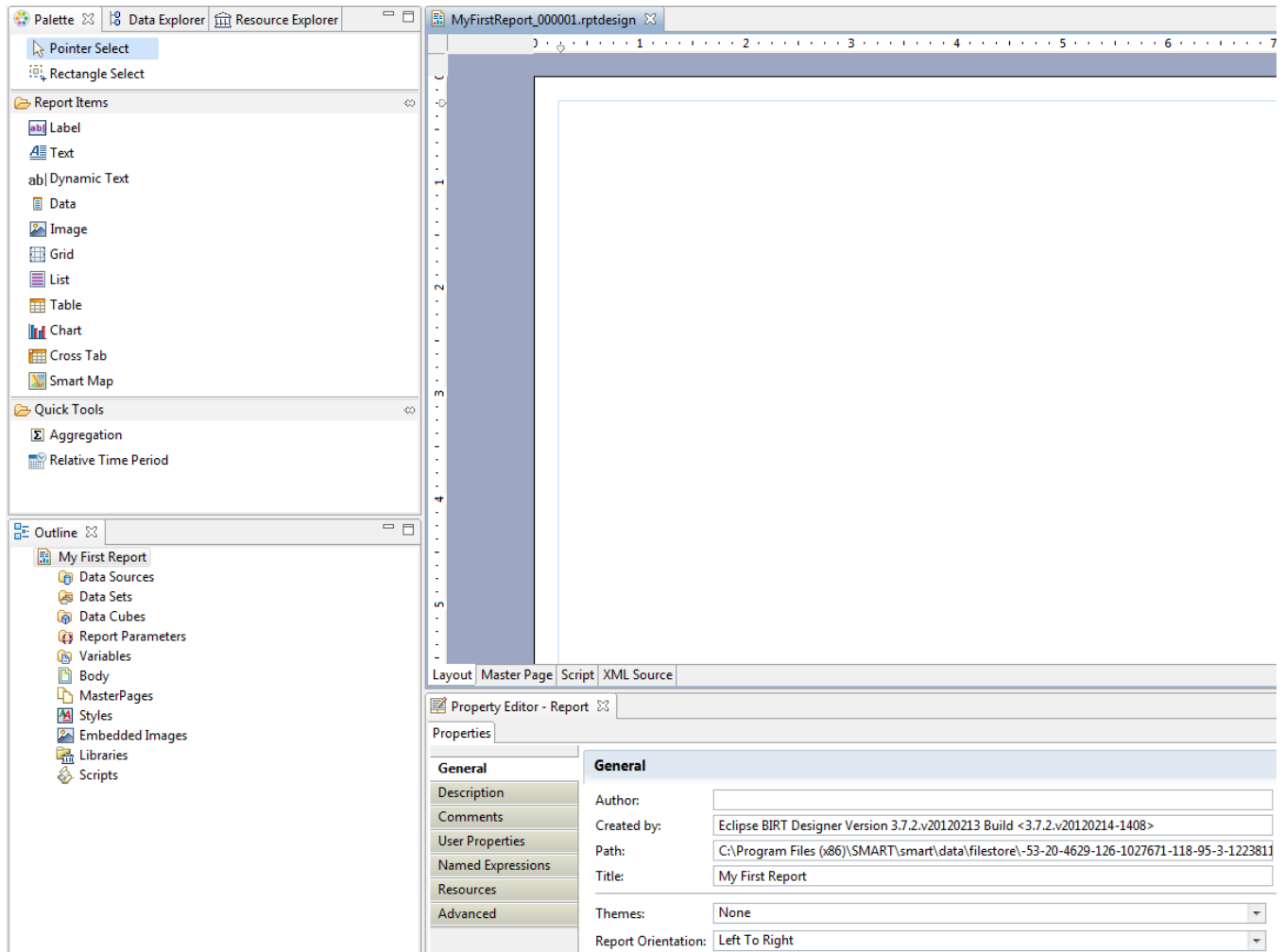


	Deletes the selected report(s)
	Creates a new report
	Edits the selected report(s)
	Runs and exports the selected report(s)
	Runs the selected report(s)

- To return to the Report editor select the **Edit Report icon** 

Components of the Report Editor

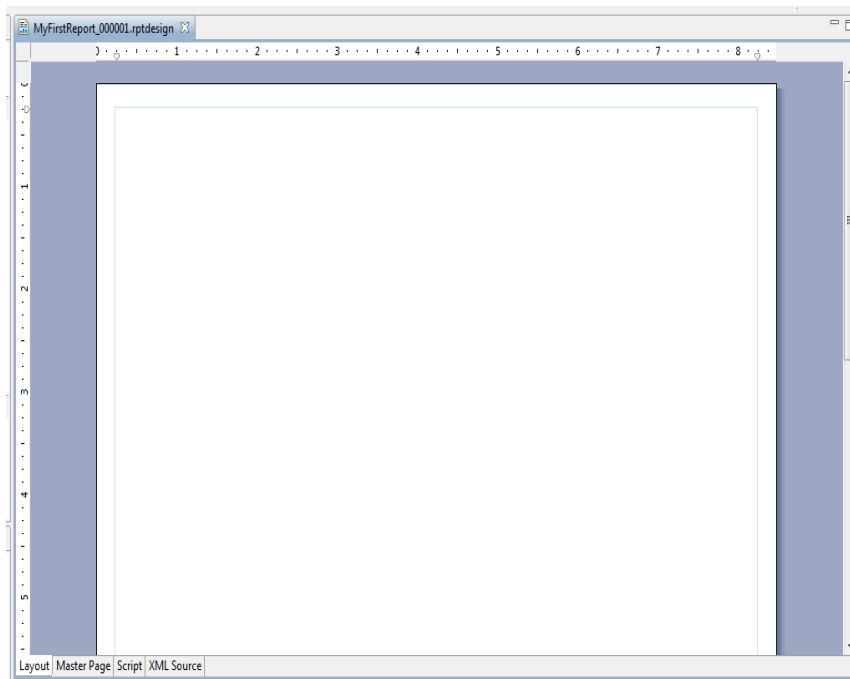
The Report Editor consists of a few basic components which contain their own functionality and have their own purpose.



Design Window

The Design Window is where the components of the report are organized. This window does preview what the final report will look like as reports are generally based off dynamic data. The window allows for the layout of the objects to be added and customized as to content, size and style.

The Layout and Master Page tabs at the bottom are the two tabs that most users will mainly use. It is highly recommended not to make any edits in the Script or XML Source tabs, unless you are an advanced user who understands the risks of directly editing the code used to generate the report.



Property Editor

This window is used to edit the properties of the objects that have been loaded into the Design Window. The Property Editor options will change if you move between the Layout and Master Page tabs.

Report Properties (Layout tab)

Used to specify general properties of the report.

General	
Author:	
Created by:	Eclipse BIRT Designer Version 3.7.2.v20120213 Build <3.7.2.v20120214-1408>
Path:	C:\Program Files (x86)\SMART\smart\data\filestore\53-20-4629-126-1027671-118-95-3-1223811
Title:	My First Report
Themes:	None
Report Orientation:	Left To Right
Display Name:	
Thumbnail:	

Report Properties (Master Page tab)

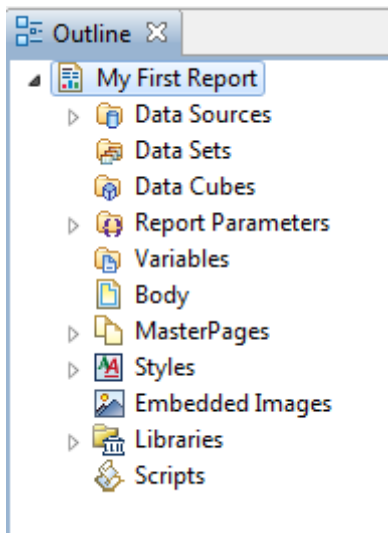
Used to specify general properties of the report's master page.

The screenshot shows the 'Property Editor - Master Page' dialog box with the 'General' tab selected. The 'Properties' list on the left includes General, Border, Margin, Header/Footer, Comments, and Advanced. The 'General' tab contains the following settings:

- Name: NewSimpleMasterPage
- Header height: 0.5 in
- Footer height: 0.5 in
- Width: 8.5 in
- Height: 11 in
- Background color: Auto
- Orientation: Auto
- Type: US Letter

Outline

The Outline is used to organize the objects that are used to build and organize your report. Objects and Elements are imported into the outline, and allow for easy access to these components when reports are designed in the Design Window.



Data Sources - Linked to the embedded database of the active Conservation Area (SMART Data). Other data sources can be included, allowing for external data to be part of the report.

Data Sets - Linked to existing tables in the database (employees, stations, agencies and ranks, etc...) or to saved queries and summaries.

Data Cubes - Used to aggregate tables and query results

Report Parameters - Used to create new report parameters or variables that can be used throughout the report. Current set parameters are the Start and End Date of the Report timeframe.

Variables - Used to create custom variables using a JavaScript editor. Custom variables allow for commonly used information to be reused without having to recreate it upon each use

Body - When objects of the report are brought into the Layout Editor these objects will be visible in the Body section. Objects can be selected directly in this folder, moved around, deleted or edited through exposed parameters.

MasterPages - A Simple Master Page is included by default in this folder. The default has elements for Headers and Footers which are common elements that are standardized before reports are generated.

Styles - Styles or themes include fonts, colors, date and number formatting, alignment and other common style options that are common to many applications.

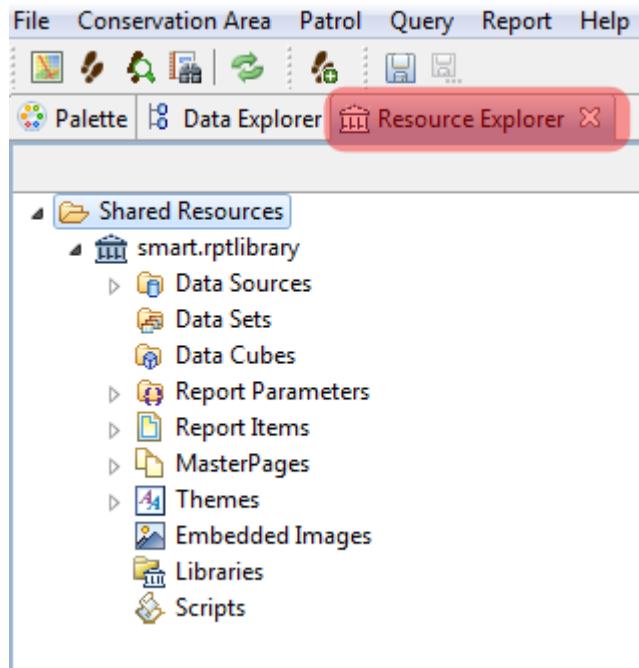
Embedded Images - Any images to be included in the report must first be included in this folder.

Libraries - A library is where common objects are stored. Common objects in a library can be used by anyone accessing the Report Editor. By default there is one library (smart) included in this folder but other libraries can be created and populated with common elements. Libraries in this folder are linked to the Resource Explorer (see below). The structure of the library under the Resource Explorer is similar to the structure used in the outline. Objects created in your working area (Outline) can be exported to the Library.

Scripts - Any custom scripts written will be made available in this folder.

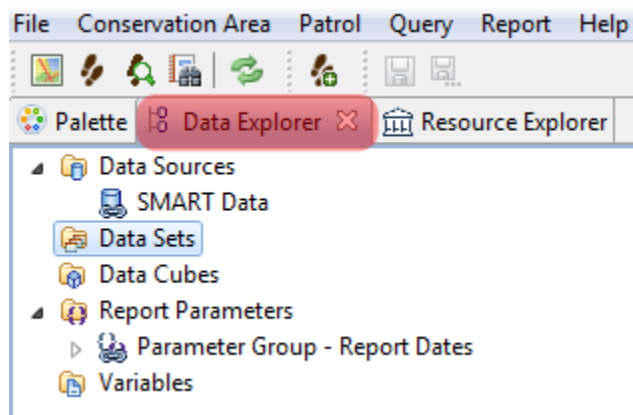
Resource Explorer

The Resource Explorer is where the Shared Resources of the library are accessed.



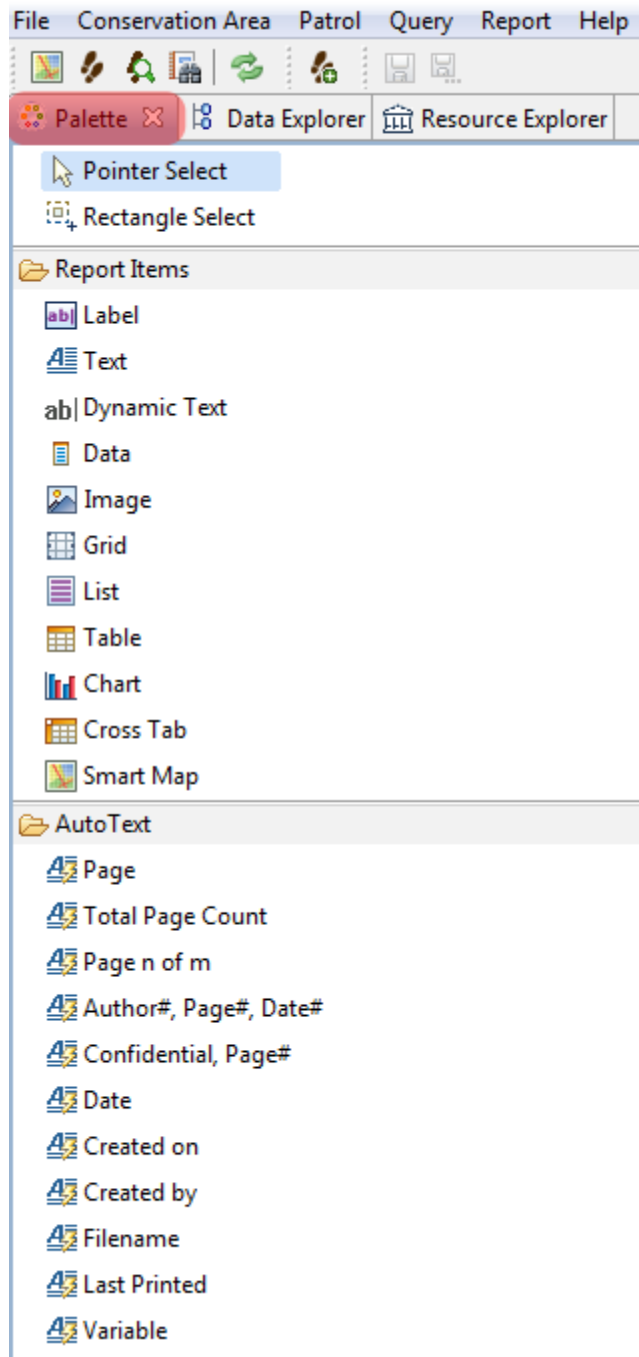
Data Explorer

The Data Explorer allows for access to common data sources held within the library.



Palette

The Palette is where the base objects are selected and included in the report.



Report Items

- **Label** - generally single line objects used for report titles or object labels.
- **Text** - open text boxes allowing for static text to be typed into the report.
- **Dynamic Text** - text based off custom or predefined variables or functions
- **Data** - items in this data section have to be pre-loaded in the Outline or Library before they will appear.
- **Image** - items in the image section have to be pre-loaded in the Outline or Library before they will appear.
- **Grid** - grids allow for layout objects to be organized into rows and columns.
- **List** - insert flexible format presentation of data set rows in header/detail & footers.
- **Table** - insert column presentation of data set rows in header/detail & footers.
- **Chart** - used to insert charts into the report
- **Cross Tab** - inserts aggregated data in row and column format
- **Smart Map** - inserts maps into the report

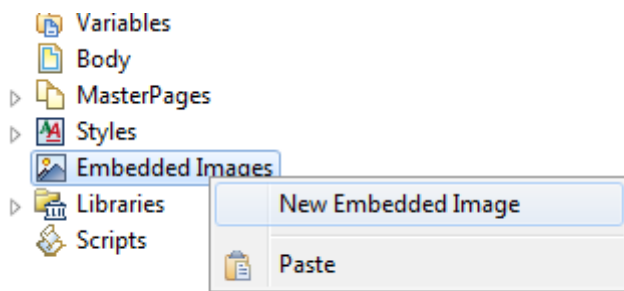
AutoText

AutoText options allow for dynamic data with predefined characteristics to be inserted into the report.

Configuring Data Access

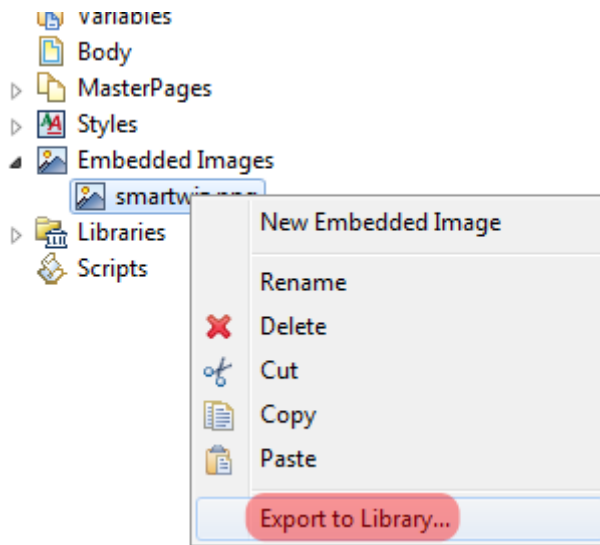
In the first module you configured the Conservation Area to have a number of predefined elements allowing for the creation of patrols. Before reports can be created, data access also needs configuring. *The following steps will guide you through setting up access to tables, queries/summaries and images.*

Embedded Images

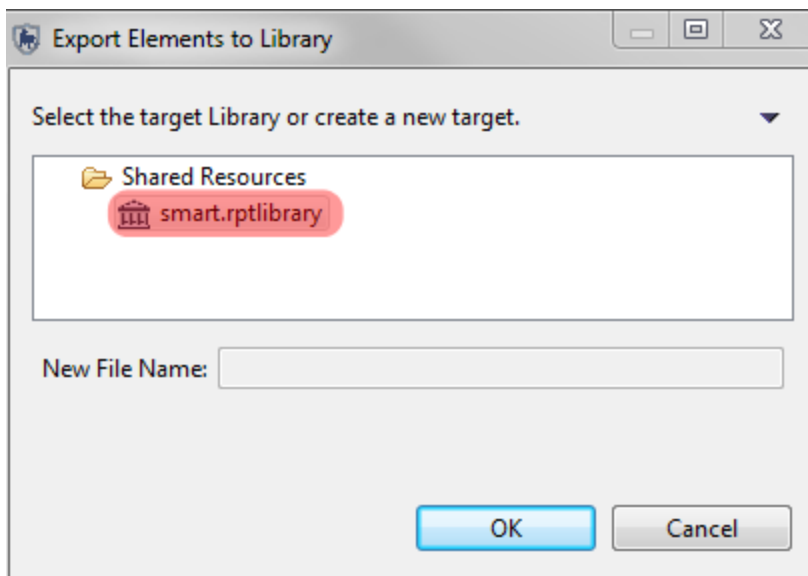


- Using the mouse right-click over the **Embedded Images** in the Outline
- Select **New Embedded Image**
- Browse to the folder **Module 6 \ Embedded Images**
- Select **smartwiz.png**

- Click **Open**



- Using the mouse right-click over **smartwiz.png**
- Select **Export to Library...**



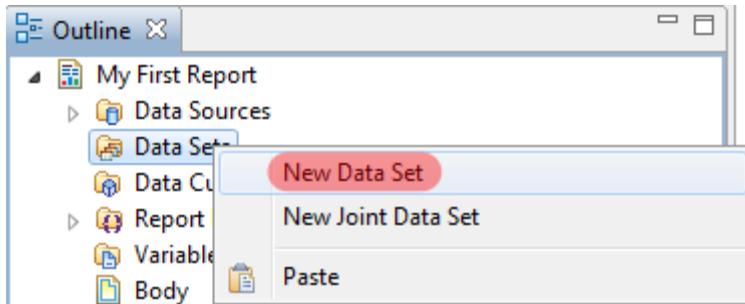
- Select **Shared Resources ... rptlibrary ... smart.rptlibrary**
- Click **OK**

The embedded image is now available in your Outline and the Shared Resources Library.

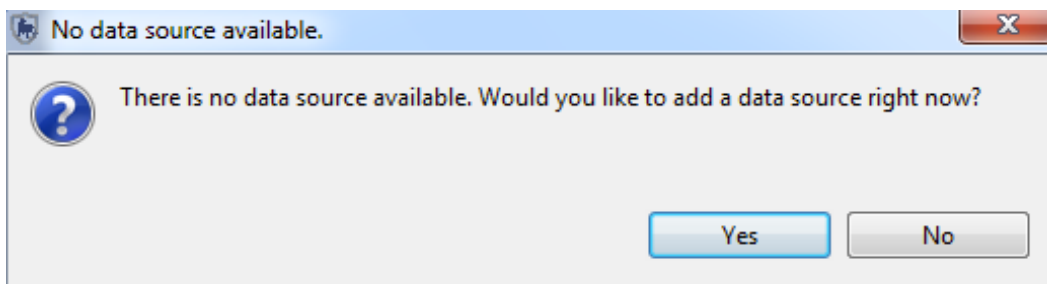
Configuring Tables, Queries and Summaries

Tables

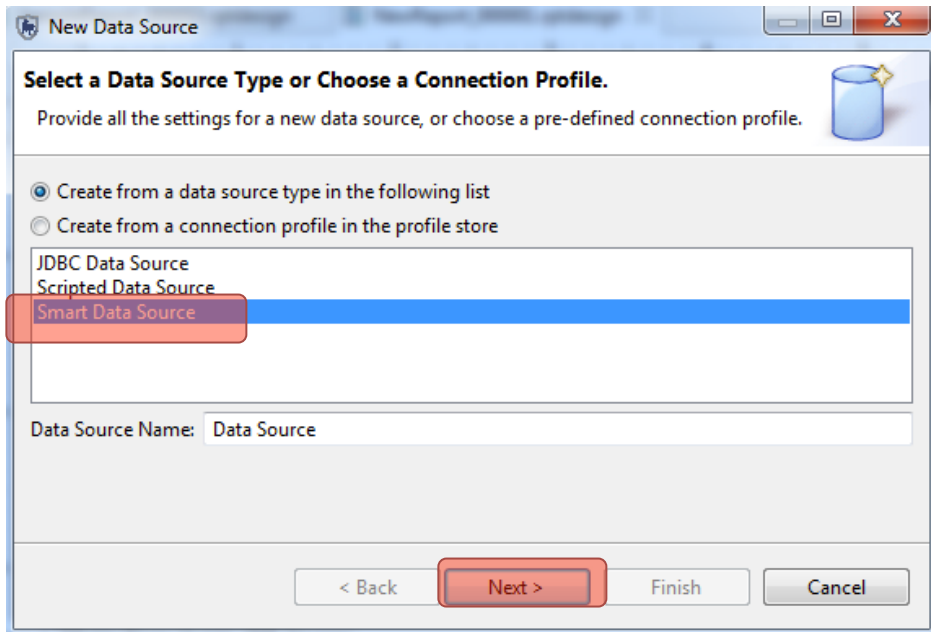
The first data set you will configure will link the SMART table of Employees to the Report Editor.



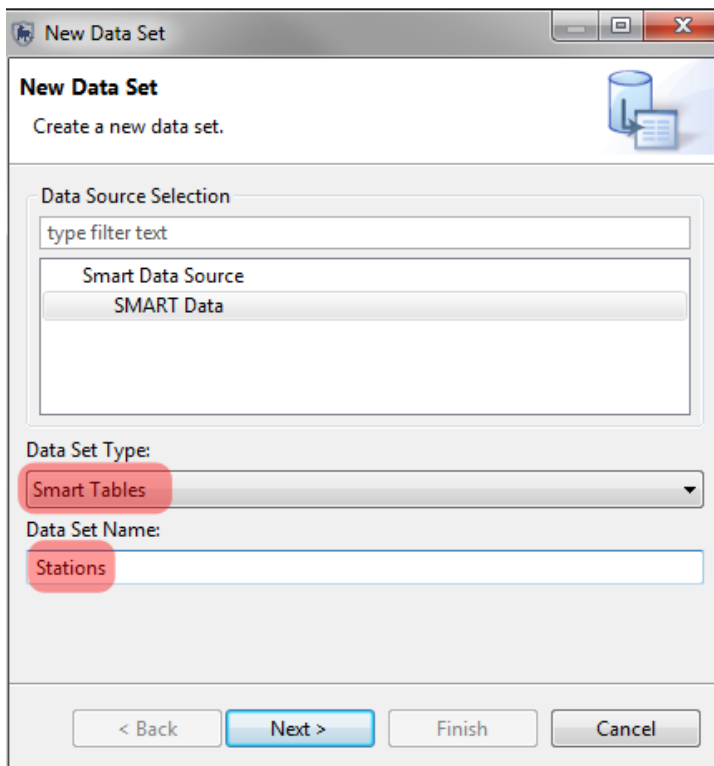
- In the Outline right-click over **Data Sets** and select **New Data Set**
- SMART will ask you to first select a data source – Click **Yes**

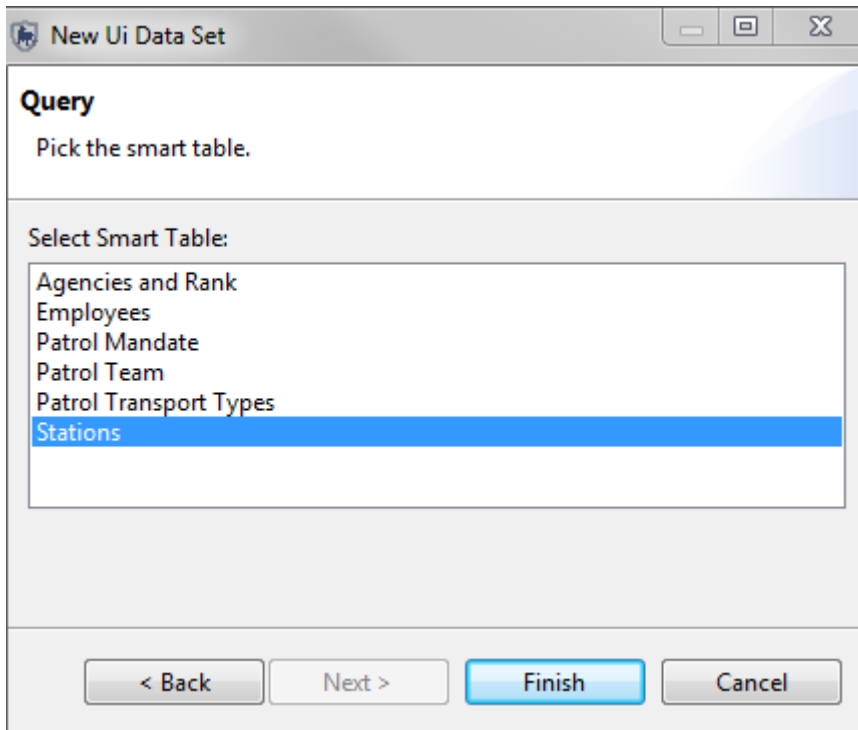


- Select **SMART data**
- Click **Next**
- Then Click **Finish**



- From the Data Set Type pulldown select **Smart Tables**
- For Data Set Name type in **Stations**
- Click **Next**





- Select the SMART Table of **Stations**
- Click **Finish**
- Click **OK**

Queries

The process of configuring a query is similar to the previous example except that the Data Set Type selection will point towards a query and not a static table. You will also have to navigate to the query to select the correct one.

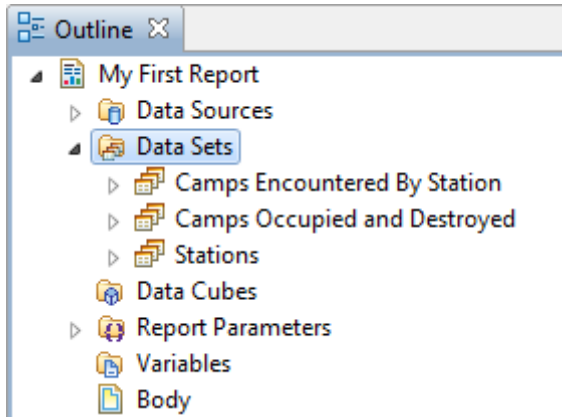
- In the Outline right-click over **Data Sets** and select **New Data Set**
- From the Data Set Type pulldown select **Smart Queries Data Set**
- For Data Set Name type in **Camps Occupied and Destroyed**
- Click **Next**
- Navigate to the custom folder of **Module 5** and select **Camps Occupied and Destroyed**
- Click **Finish**
- Click **OK**

Summaries

The process of configuring summaries follows the same process as the Queries.

- In the Outline right-click over **Data Sets** and select **New Data Set**
- From the Data Set Type pulldown select **Smart Queries Data Set**
- For Data Set Name type in **Camps Encountered By Station**
- Click **Next**

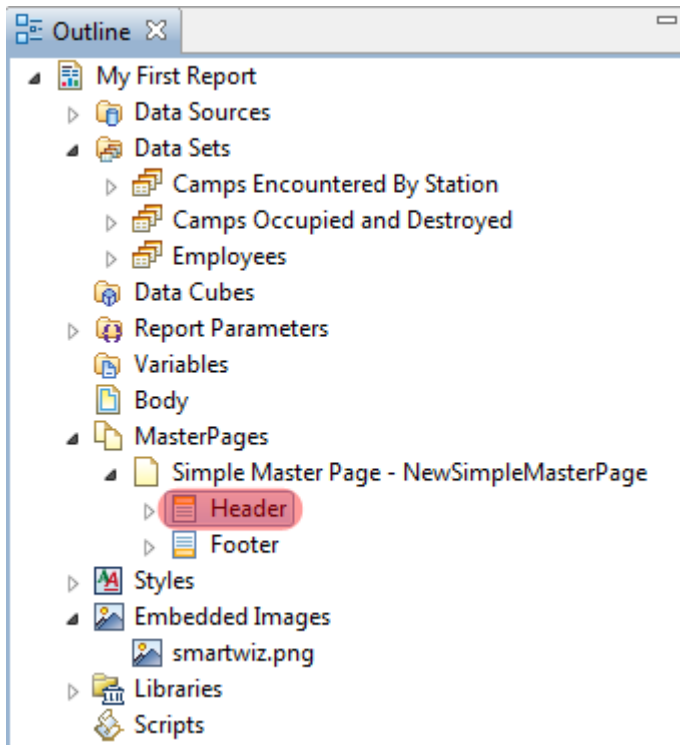
- Navigate to the custom folder of **Module 5** and select **Camps Encountered By Station**
- Click **Finish**
- Click **OK**



Note: The library should be used for objects common to all or almost all reports. Libraries containing many queries and summaries will have a negative impact on the performance of the Report Editor. It is recommended to keep the queries and summaries in the Outline, unless they will be used extensively throughout many reports.

Creating Headers and Footers

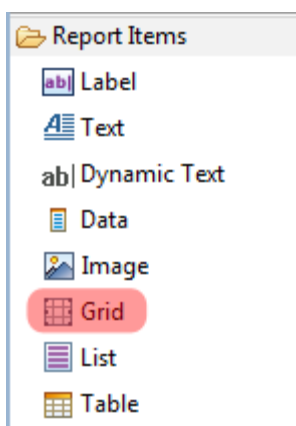
Headers and footers provide standardized context to reports, and they will be the first report object that you will create.



- In the Outline under MasterPages select **Header**

The Report Editor will enable the headers found in the Design Window. To provide placement options you will add a grid that will allow for three objects to be placed beside each other.

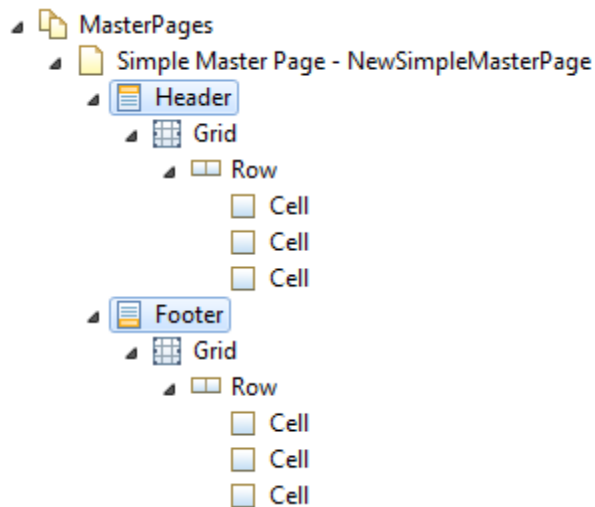
Placing a Grid



- Select the **Master Page** tab in the **Design Window Area**

- From the Report Items select and drag **Grid** into the **Header** of the **Design Window**
 - Select **Number of Columns: 3**
 - Select **Number of Rows: 1**
 - Click **OK**
 - Click below the inserted grid but above the bottom of the Header
 - Use the mouse to select the bottom of the grid and **expand the grid's height**
-
- Repeat the process and **add the same sized grid to the Footer**

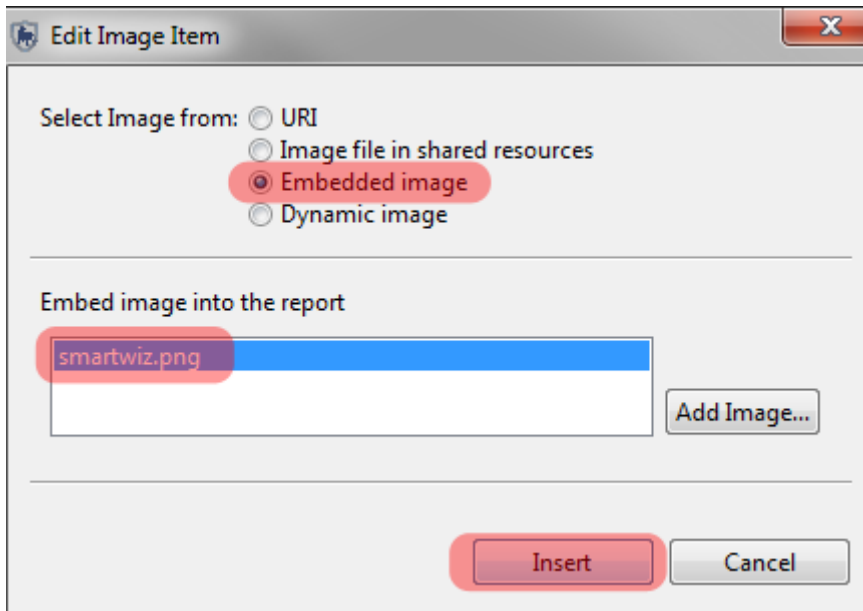
In the Outline under the MasterPages you can now see the structure of the grid. The grids have been created and now you will add elements into the grid cells.



Adding an Image

This example will demonstrate adding the embedded image into the Header

- From the Report Items select **Image** and drag it into the **Header's left grid cell**

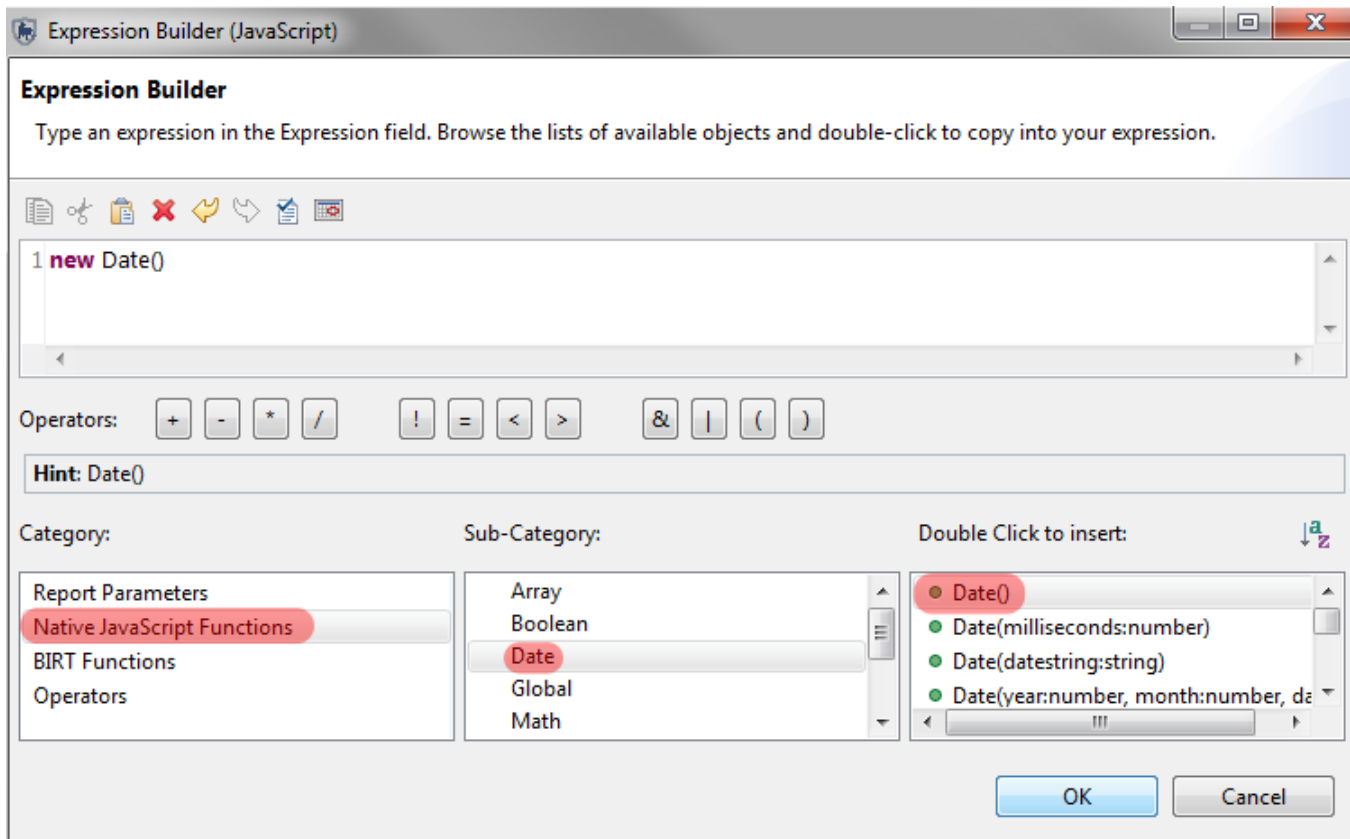


- Select **Embedded image smartwiz.png**
- Click **Insert**
- After the image has been placed, **resize image** to fit in the Header grid cell
- Click outside of the Header to deselect the image

Adding Dynamic Text of Reporting Dates

This example will demonstrate adding the dynamic text of **today's date** to the header.

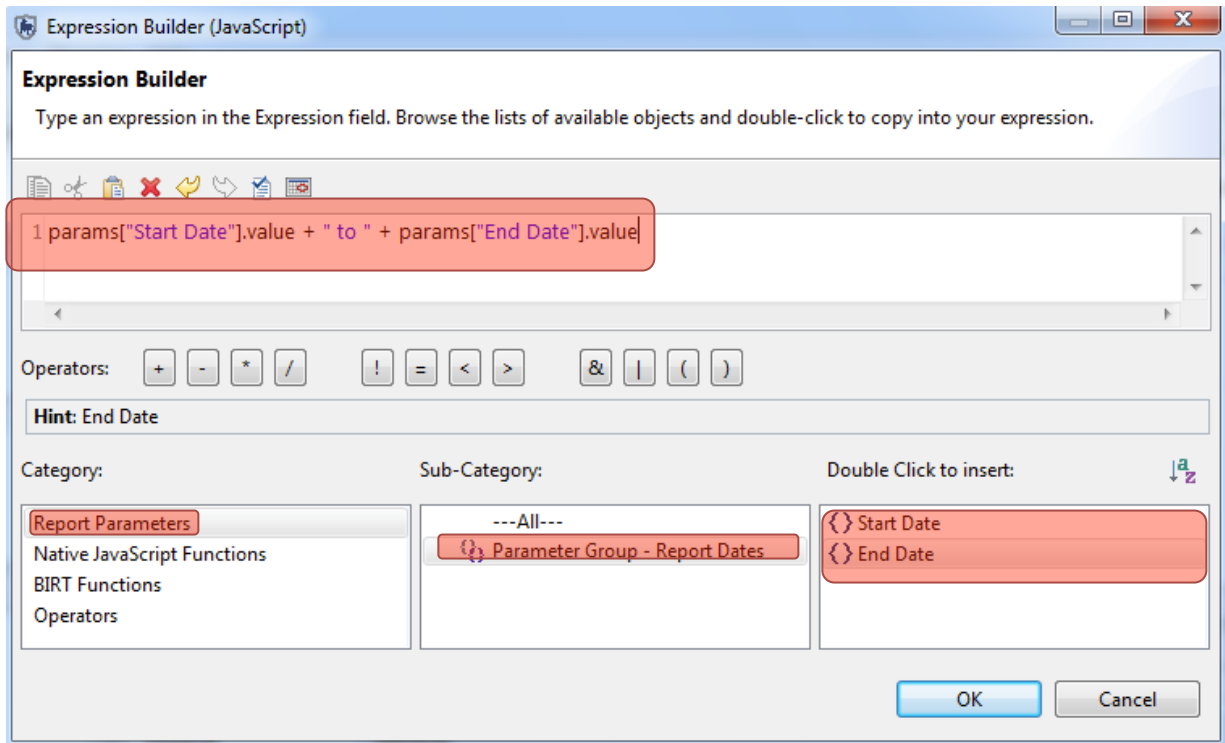
- From the Report Items select **Dynamic Text** and drag it into the **Header's right grid cell**



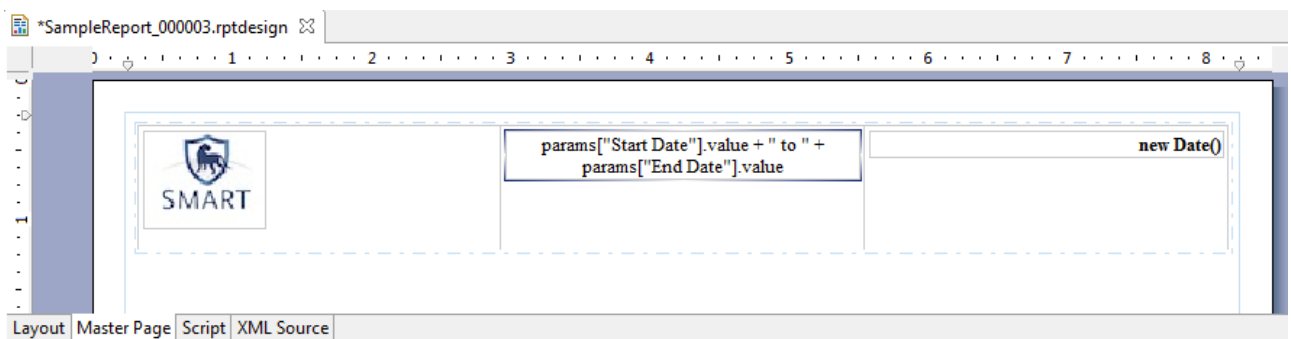
- Select Category of **Native JavaScript Functions**
- Select Sub-Category of **Date**
- Double Click **Date()** to insert function into the expression builder.
- Click **OK**
- In the **Property Editor** (bottom of screen) select alignment of **Right**

Now to create the **reporting dates** in the header (this will show the time period selected for the query)

- From the Report Items select **Dynamic Text** and drag it into the **Header's middle grid cell**

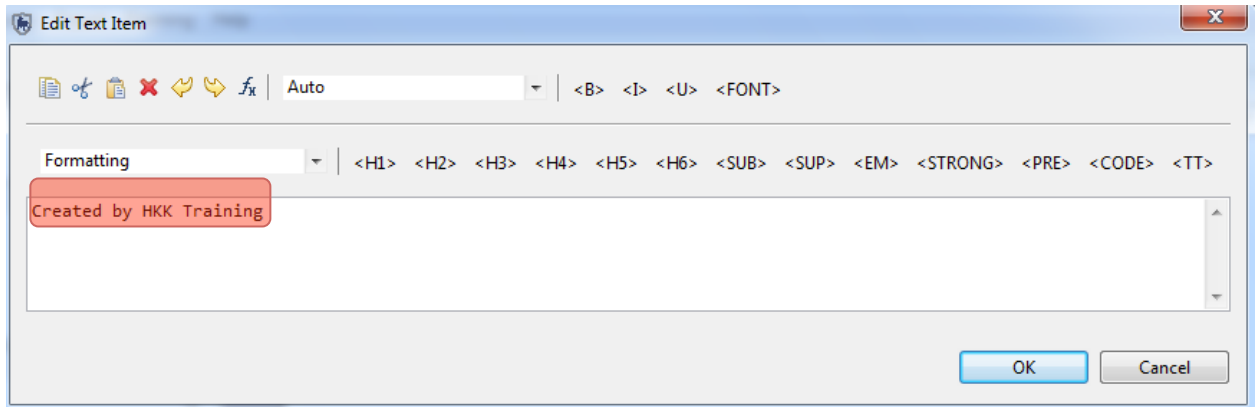


- Select Category of **Report Parameters**
- Select Sub-Category of **Parameter Group – Report Dates**
- Double Click **{ Start Date** to insert function into the expression builder.
- In the top window, type + **“ to ”** + after **{ Start Date**
- Double Click **{ End Date** to insert function into the expression builder.
- Click **OK**
- In the **Property Editor** (bottom of screen) select alignment of **Center**



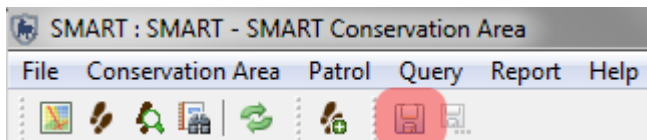
Adding Page Numbers to the Footer

- In the Footer's right grid cell add the **AutoText** object of **Page**
- In the **Property Editor** (bottom of screen) select alignment of **Right**
- In the Footer's left grid cell add the Report Item object of **Text**



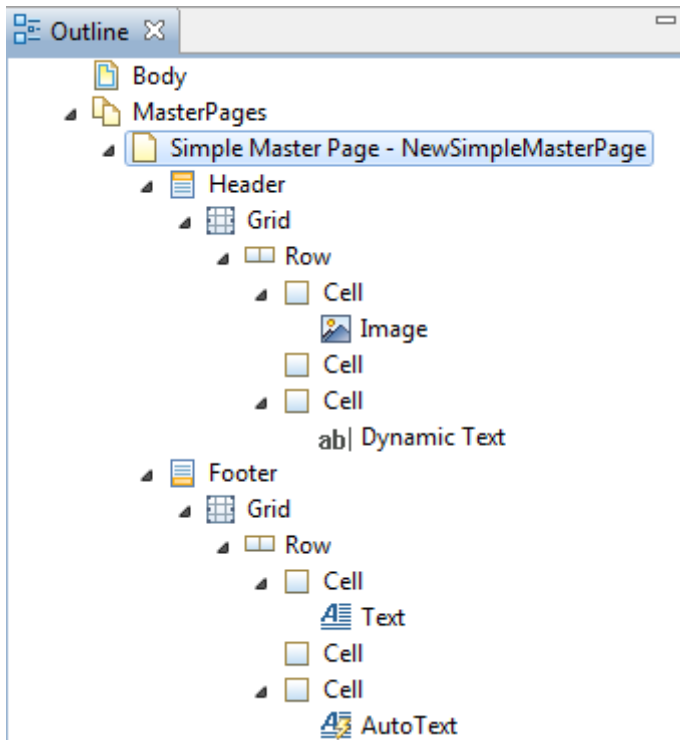
- In the text window type in **Created By: HKK Training**
- Click **OK**

Now that you have introduced some objects into the report it is recommended that you save the report.

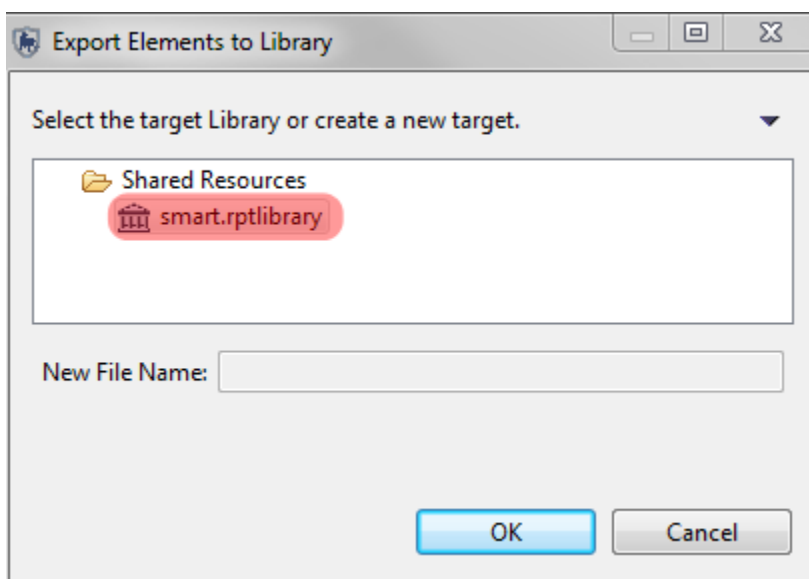


- In the icon bar click **Save Report**

In the Outline you can now see the grid structure and the four (4) items that were entered into the grid cells. These objects can be moved, copied/pasted, deleted, renamed or exported to the library by using the mouse right-click options. Moving objects around in the Outline provides another option to editing report objects other than using the Design Window.



- In the Outline MasterPages select **Simple Master Page - NewSimpleMasterPage**
- On the mouse right-click and select **Rename**
- Type in the new name of **My First MasterPage**
- Click **OK**
- Over top of the name **My First MasterPage**, right-click on the mouse and select **Export to Library**



- Select **Shared Resources ... rptlibrary ... smart.rptlibrary**
- Click **OK**

- In the Resource Explorer tab, verify that the new MasterPage has been added
- **Save Report**

Adding Report Objects to the Layout

After adding the objects to the Header and Footer, the next element you will add will be the title of the report.

- **Switch** from the Master Page tab **to the Layout Tab** in the **Design Window**
- Drag the Report Item **Label** into the Layout
- Double-click the blank Label, then type **Camp Encounters for SMART Conservation Area**

Properties Highlights

General

Padding

Border

Margin

Hyperlink

Page Break

Visibility

Localization

Table of Contents

General

Name: Element ID:

Font: Size: points

Color: Background color:

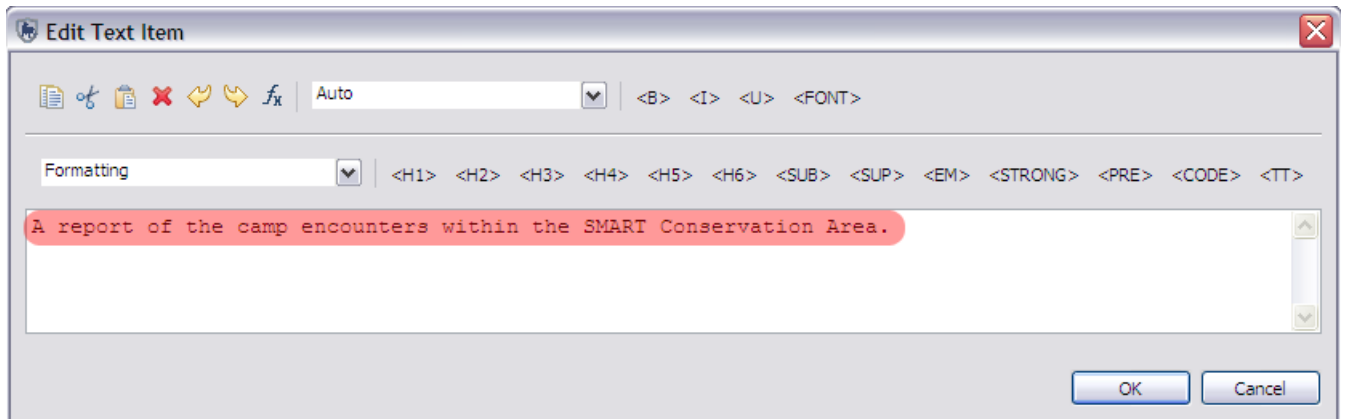
B **I** **U** **S** **Left** **Center** **Right** **Justify** Whitespace: ☒ Auto ☐ No Wrapping ☐ Normal ☐ Preformatted

Style: Display:

- In the Properties Editor change the **font size to 18**
- Set the Alignment to **Center**

Adding Static Text to the Report Layout

The next item to add will be a simple explanation of the report using a static text box.

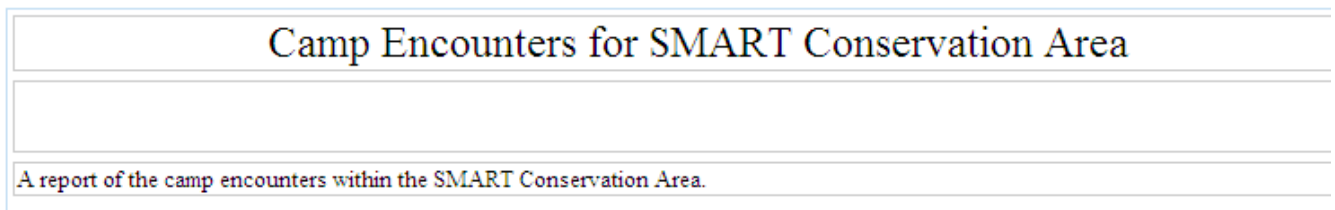


- Drag the Report Item **Text** into the Layout below the Label object
- In the Text Editor type in **A report of the camp encounters within the SMART Conservation Area.**
- Click **OK**

When adding objects to the Design Window the application will add the object directly below the last object, leaving little space between objects. If more space is desired between objects, a grid with the dimensions of 1x1 can be added and resized to provide the desired amount of empty space.

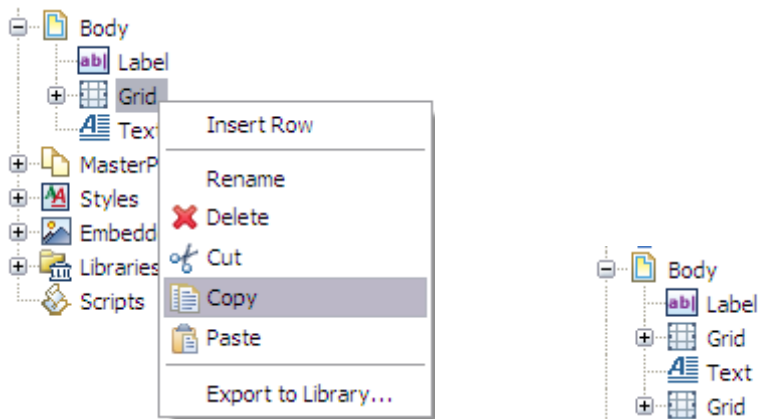
- Add a grid with the dimensions of **1 column and 1 row** to the layout
- Click in the middle of the empty layout to deselect the grid
- Drag the Static Text below the Grid
- **Select and resize** the grid to be approximately **40 pixels**
- Once again Click in the middle of the empty layout to deselect the grid
- Save the report

After the addition and resizing of the grid, the layout should look like the example below:



Using the Body to Organize Objects

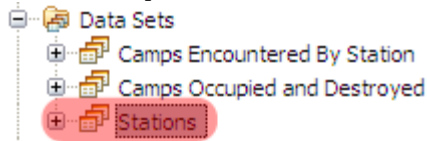
You will now make a copy of the grid that you used to create white space to provide more white space after the description; but this time you will use the Outline - Body to complete the task.



- Select the Grid and use the mouse right-click to make a copy
- While still in the Body, paste the copy and drag it below the text object

Adding Tables

Next in the process will be to add the table containing the stations of the Conservation Area



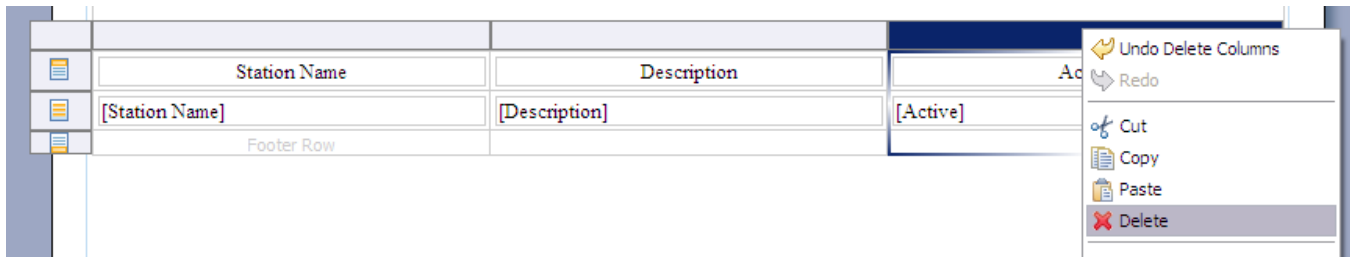
- In the Outline - Data Sets select the table **Stations** and drag it into the Design Window

The Stations table contains a column that needs to be removed from the report. To remove a table field you must first have the table active in the Design Window.

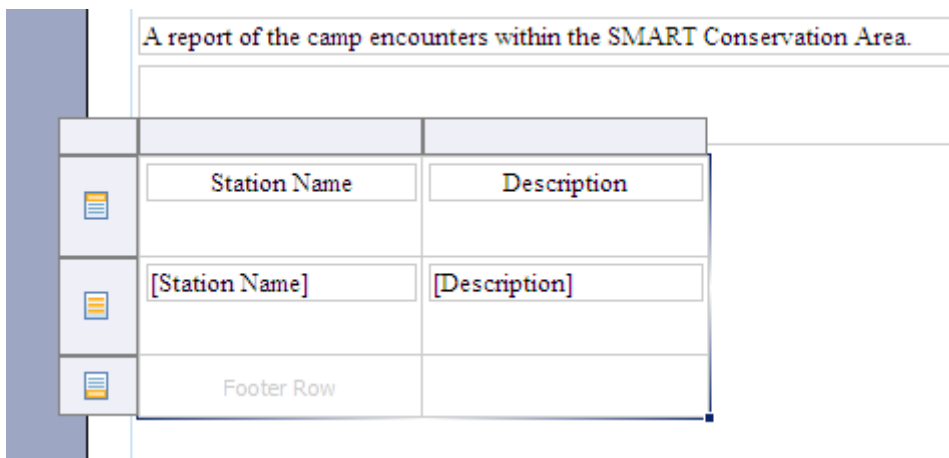
	Station Name	Description	Active
	[Station Name]	[Description]	[Active]
	Footer Row		

Table

- Moving the mouse to the lower left of the table will bring up a popup icon. When the Table icon appears click the popup. This will select the table or do nothing is the table is already selected.



- Select the column **Active** by clicking the blank cell above the work Active with the left mouse button. When selected it will highlight and turn blue.
- Use the right mouse button and select the option **Delete**



- After the column Active has been deleted, resize the table by selecting the lower right and dragging it towards the center of the screen to make the table approximately half the width of the screen.

Adding Queries and Summaries

The process for adding a query or summary is the same as the previous example of adding the table of stations.

- In the Outline - Data Sets select the summary **Camps Encountered By Station** and drag it into the Design Window

Count Camp - text without square brackets [] indicates text that can be edited

[Count Camp] - text with square brackets [] indicates that values will be brought into the tables when the report is actually run.

- Change the four (4) entries of Camp in the top row to match the previous screenshot.
 - **Hunting Camp**
 - **NTPF Camp**
 - **Logging Camp**
 - **Fishing Camp**
- Rename the **Header** column as **Station**

	Station	Hunting Camp	NTPF Camp	Logging Camp	Fishing Camp
	[Header]	[Count Camp]	[Count Camp]	[Count Camp]	[Count Camp]
	Footer Row				

- Highlight the table and select the row containing the updated names by selecting the very left cell in the row.
- In the Properties Editor, give the headers a **Bold** font

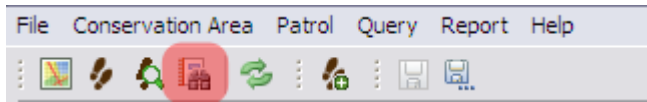
The screenshot shows a report editor interface. At the top, a table is displayed with the following structure:

	Station	Hunting Camp	NTPF Camp	Logging Camp	Fishing Camp
	[Header]	[Count Camp]	[Count Camp]	[Count Camp]	[Count Camp]
	Footer Row				

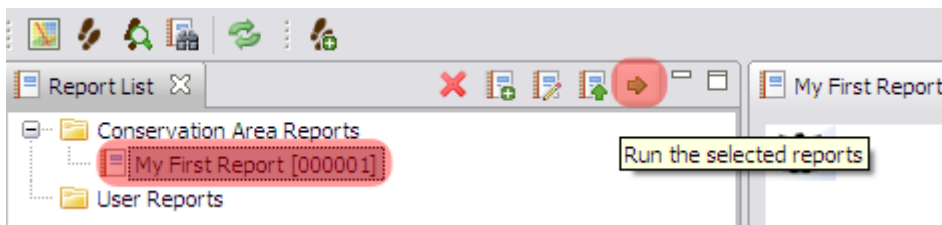
Below the table, the Properties Editor - Table window is open. The 'Border' tab is selected. The 'Style' dropdown is set to 'All borders'. The 'Color' dropdown is set to 'Black'. The 'Width' dropdown is set to '1px'. A preview of a bordered box is shown on the right.

- In the Properties Editor select **Border**
- Select the table of camps encountered
- Select **All borders**
- Add the same border to the Stations table
- Save report

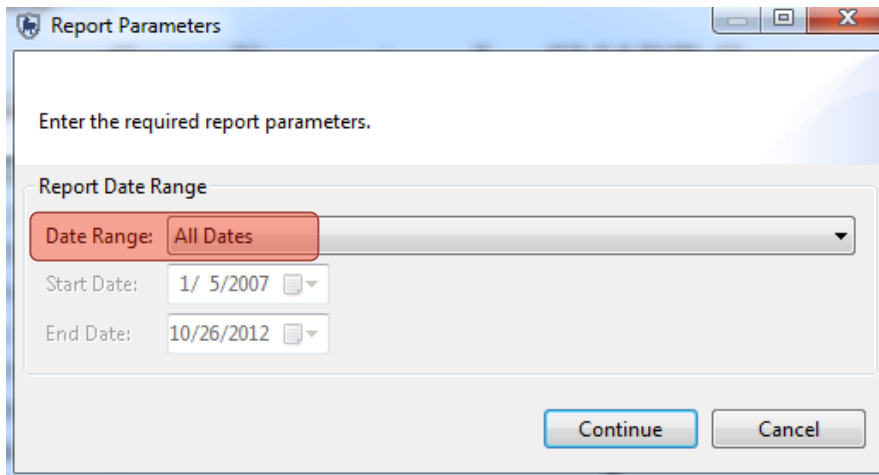
Now that the report has some information in it, we will run the report to see how it looks.



- Click the Report Icon to return to the main screen

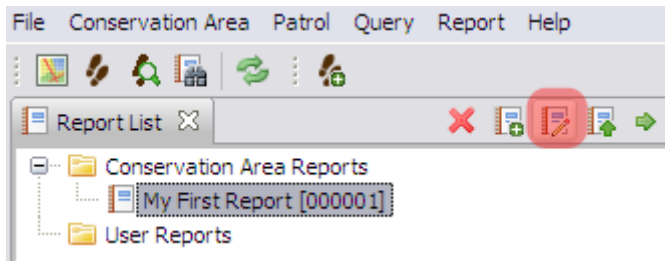


- Select the report **My First Report** and click the **run report icon**



- Select **All Dates**
- Click **Continue**

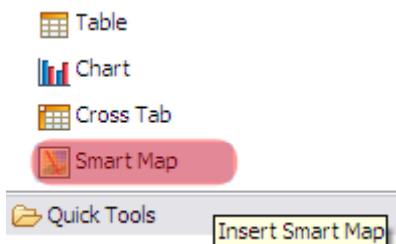
After processing, the report will appear in window on the right.



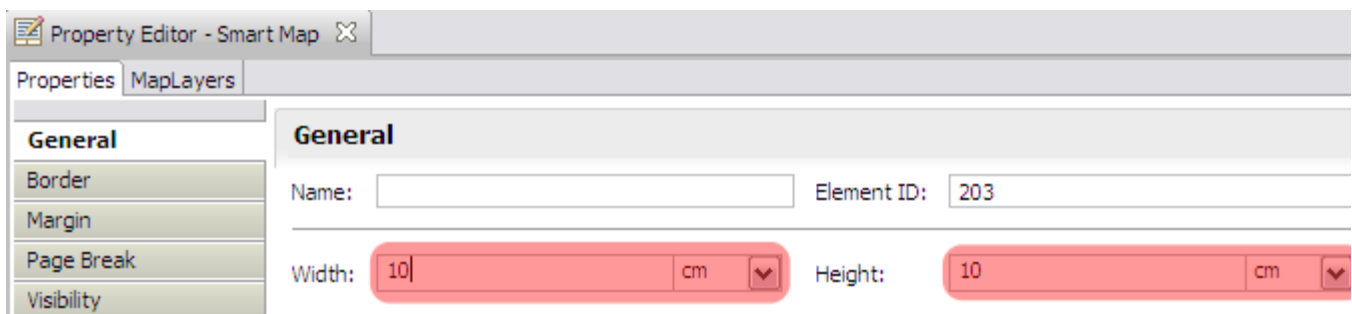
- To return to the Report Editor click the **Edit Report icon**

Adding Maps to the Report

In Module 5: Queries and Summaries you explored the options for viewing the results of the queries with both a table and map view. In this report, you have added the table results and now it is time to add mapped results.



- You could also **Right Click** My First Report in the Report List and select **Edit Report** to get to this editing screen.
- **drag the Smart Map icon** from the Report Items List into the Designer Window



- In the Properties Editor change the dimensions of the map to:
 - **Width = 10 cm**
 - **Length = 10 cm**

The map object has been added and resized and now you will need to have the map object reference a basemap and dataset.

Property Editor - Smart Map

Properties | **MapLayers**

Basemap: **HKK Basemap**

Map Bounds: (map extents) SRID: WGS 84 [Set Bounds](#) [Clear](#)

Map Layers:

Report Dataset	Layer Name	Style

Add
Remove

- In the Property Editor window switch tabs from Properties to **MapLayers**
- Select **HKK Basemap** from the pulldown list
- Click **Add**

The Add Layers button brings in query results overtop of the saved basemaps.

Note: More than one query result can be added to the report's map object.

Add Layer

Select the dataset to add to the map

Camps Occupied and Destroyed [000030]

OK **Cancel**

- Select **Camps Occupied and Destroyed**
- Click **OK**

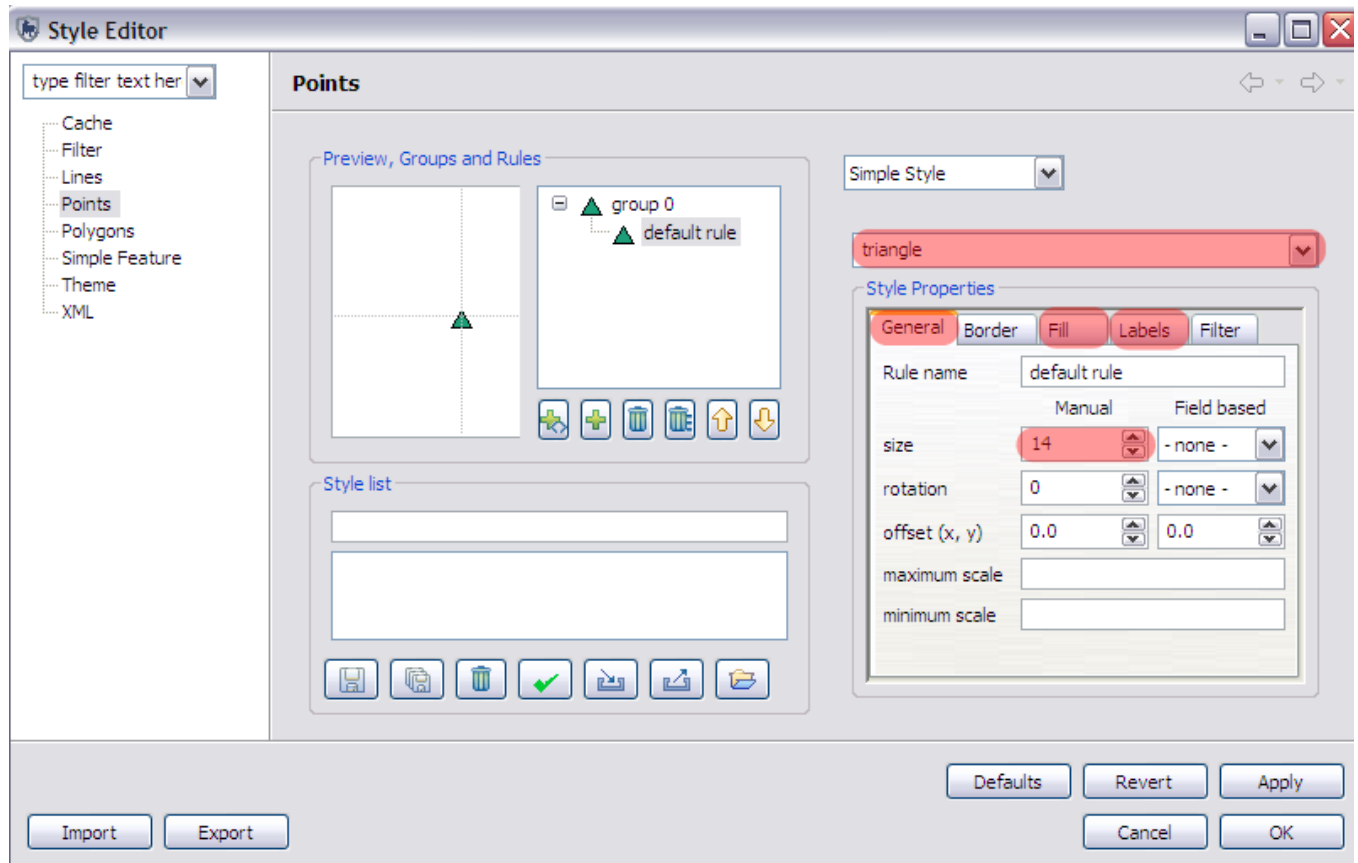
The map object reference is Camps Occupied and Destroyed. You will now add a style to the map layer.

Map Layers:

Report Dataset	Layer Name	Style
Camps Occupied and Destroyed [000...	Camps Occupied and Destroyed [00...	org.wcs.smart.birt.map.properties.L[...]

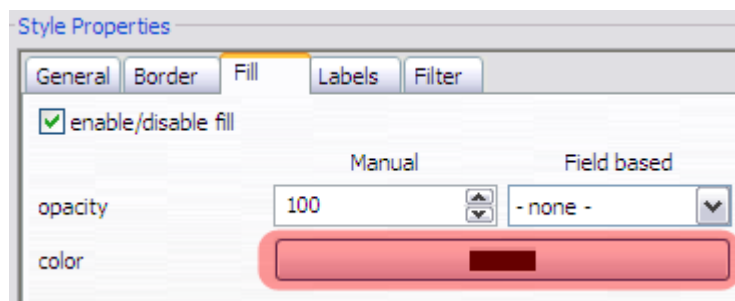
- In the Style cell click the **icon** on the right to bring up the Style Editor

In the General Tab set



- **Symbol Type = triangle**
- **size = 14**

In the Fill Tab



- Set the color of the symbol to **Black**

In the Labels Tab set:

The screenshot shows a 'Style Properties' dialog box for a 'triangle' object. The 'Labels' tab is selected, and the 'enable/disable labelling' checkbox is checked. The 'label' field is set to 'Camp_Status' under the 'Field based' column. Other settings include opacity (100), rotation (0), font (set font), font color (black), halo (0), anchor (top), and displacement (0.0). The 'Vendor Options' section includes fields for max displacement pixels, auto wrap pixels, and space around pixels. The 'Apply' and 'OK' buttons are highlighted in red.

	Manual	Field based
label		Camp_Status
opacity	100	- none -
rotation	0	- none -
font	set font	
font color	[black]	
halo	[black]	0
anchor	top	right
displacement	0.0	0.0

Vendor Options

max displacement pixels: []

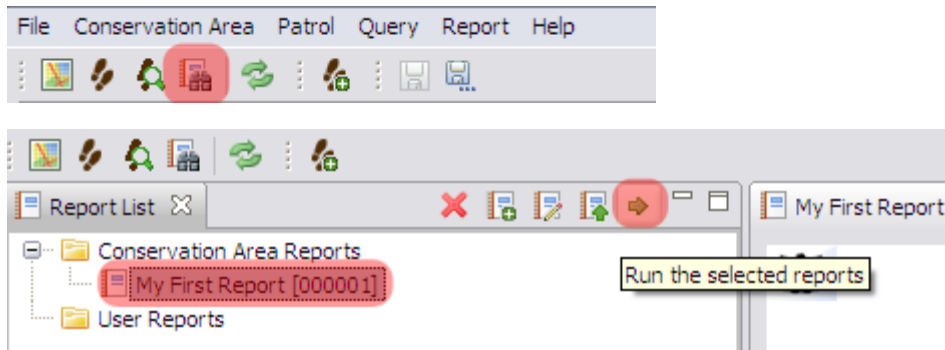
auto wrap pixels: []

space around pixels: []

Buttons: Defaults, Revert, Apply, Cancel, OK

- **label = Camp Status**
- Click **Apply**
- Click **OK**
- Save report

To view the map object in the report you must re-run the report.



- Rerun the report with **All Dates** selected and view the results

After the processing has completed, the results should look similar to the following screenshot:



2008-01-07 to 2012-11-06

Nov 5, 2012 10:05 AM

Camp Encounters for SMART Conservation Area

A Report of the Camps Encountered in the SMART Conservation Area

Station Name	Description
Sai Ber	
Wang Pai	
Ong Thang	
Sup Pa Phu	
Klong Sa Lao	
Huai Yu Yi	
Huai Nam Kao	
Ka Pak Ka Peang	
Huai E Sa	
Huai Mae Dee	
Thung Fage	
HQ	
Khoa Keaw	
Sup Pha Pa	
Huai Nam Tern	
Ban Klui	
Ta Pern Khi	
Khoa Pan So	
Kreung Krai	
Khoa ban Dai	

Station	Hunting Camp	NTPP Camp	Logging Camp	Fishing Camp
Sai Ber	6	2		
Wang Pai	2	4		
Ong Thang				
Sup Pa Phu	2	1		
Klong Sa Lao	20			
Huai Yu Yi				
Huai Nam Kao				
Ka Pak Ka Peang	19			
Huai E Sa	7	1		
Huai Mae Dee	1			1
Thung Fage		2		
HQ				

Created by HKK Training

1



2008-01-07 to 2012-11-06

Nov 5, 2012 10:05 AM

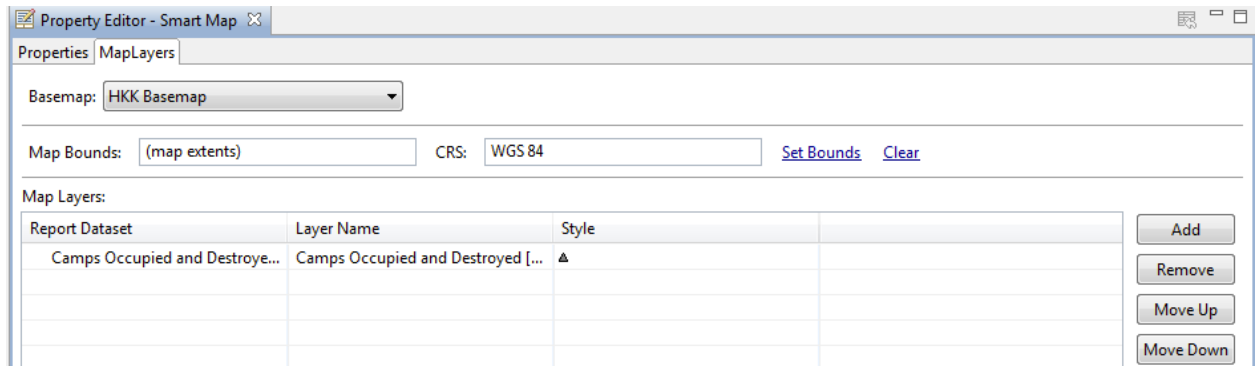
Station	Hunting Camp	NTPP Camp	Logging Camp	Fishing Camp
Khoa Keaw	11		2	
Sup Pha Pa	1	1		
Huai Nam Tern				
Ban Klui	5			
Ta Pern Khi	8			2
Khoa Pan So	19	8		
Kreung Krai	8			
Khoa ban Dai	12			



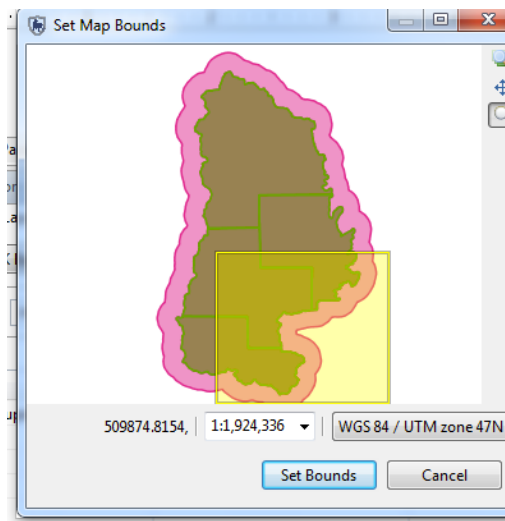
Changing View Extents for the Map

The default view extents for a newly added map object is the entire area of the basemap. At times you might find it useful to change the view extents to highlight a specific portion of the Conservation Area.

After previewing the report return to the Report Editor.



- Select the **MapLayers** tab for the map object
- Click **Set Bounds**
- Using the Zoom Icon **draw a box around the South Eastern Zone of HKK**



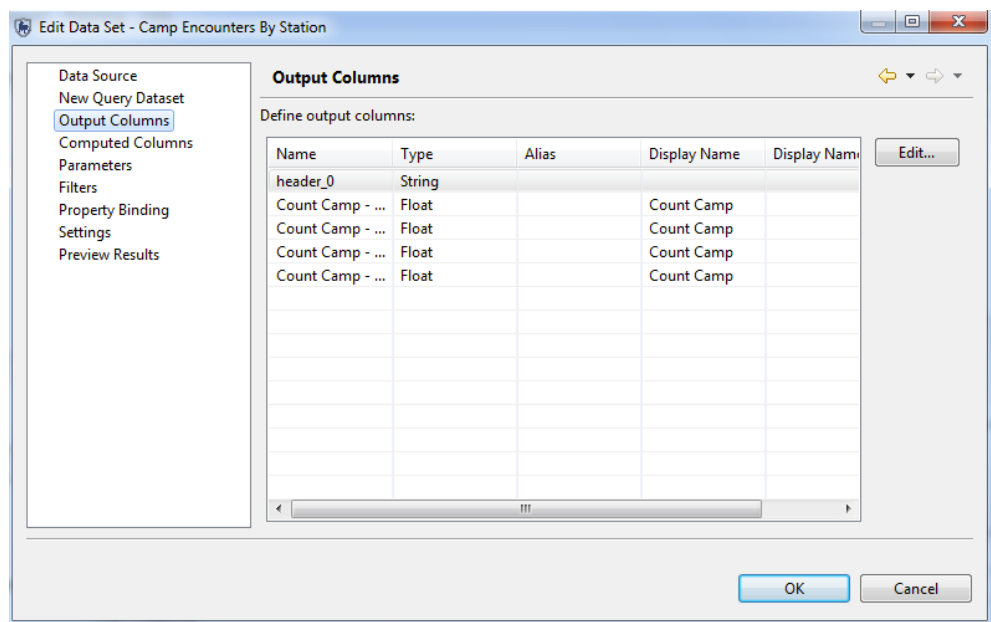
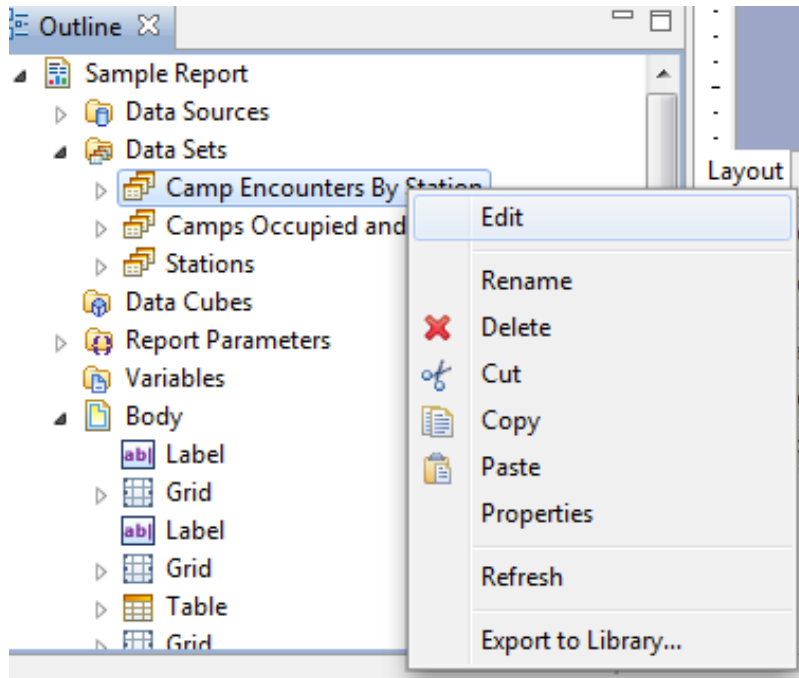
- Click **Set Bounds**
- Save Report
- Rerun and preview report

Adding Charts to the Report

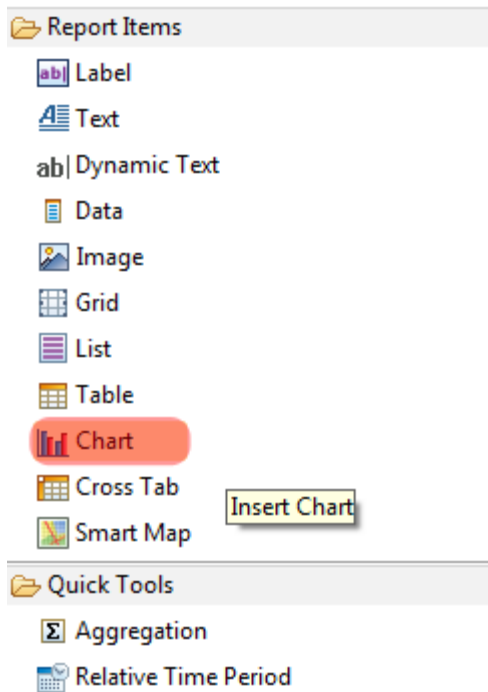
Charts add another option of visualization option for SMART reports. Adding charts to SMART follows the same process as other Report objects.

First we want to set our data sets to be used in a Chart

- In Edit Report mode, under Data Sets, right click on **Camps Encountered by Station**

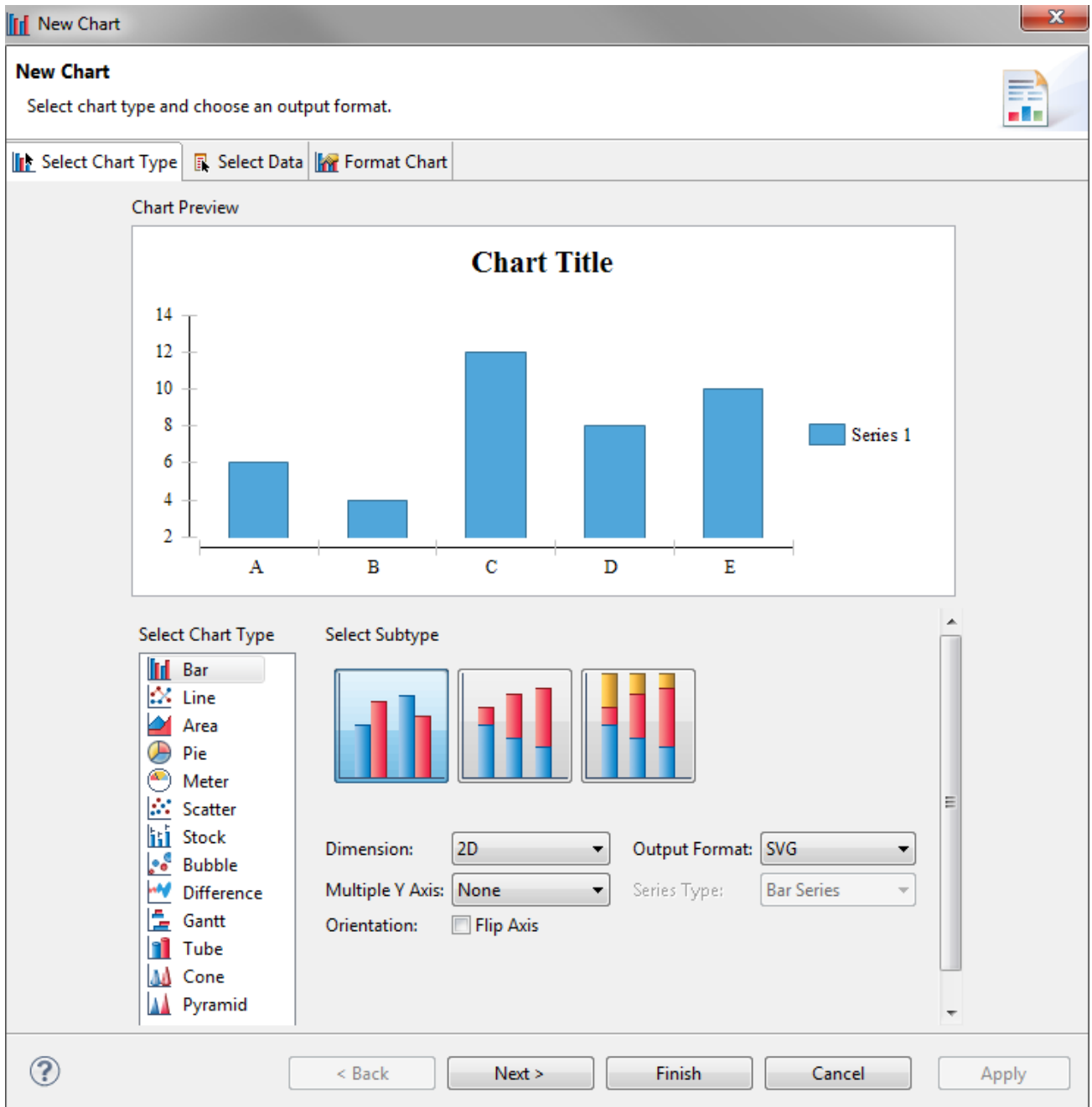


- Select **Output Columns**
- Click **OK**



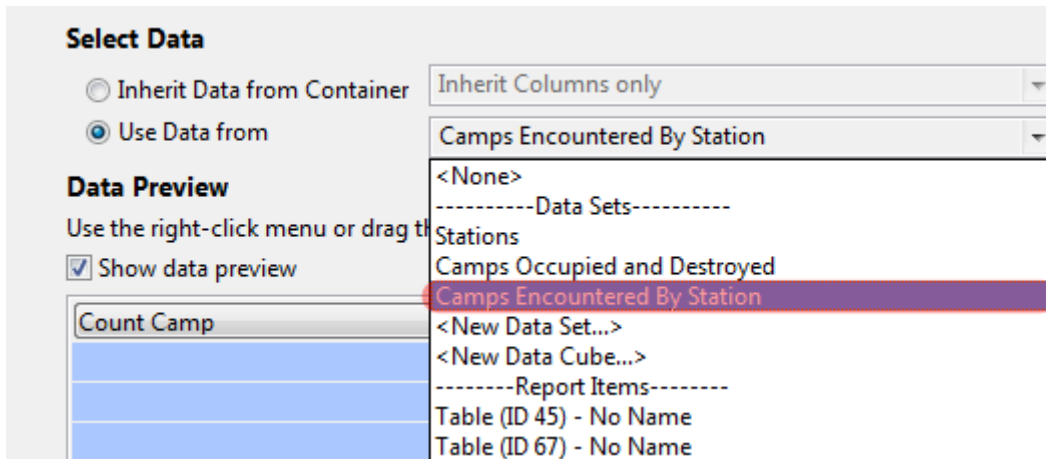
- From the Report Items select **Chart** and drag item below the map object in the report designer window.

After placing the chart object in the report designer window SMART will open a dialog wizard to guide users through the steps to set up a chart. The default chart is a Bar chart which will be the one used in the following example. Other chart types are available and can be selected in the “Select Chart Type” window on the left.



- Keep the default chart option of Bar chart and click Next to accept the chart defaults.

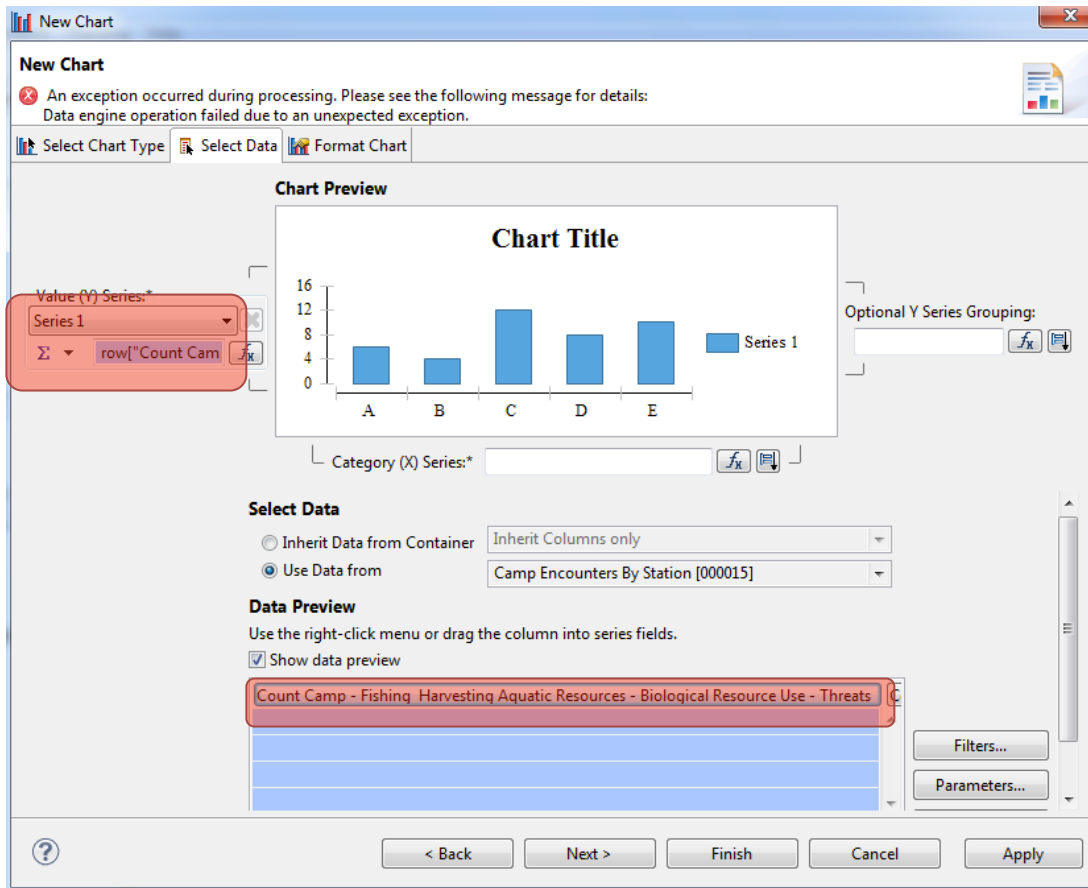
The chart structure has been created but no data has been assigned to populate the chart. The next couple of steps is to define the data source for the chart and assignment of the X and Y components of the chart.



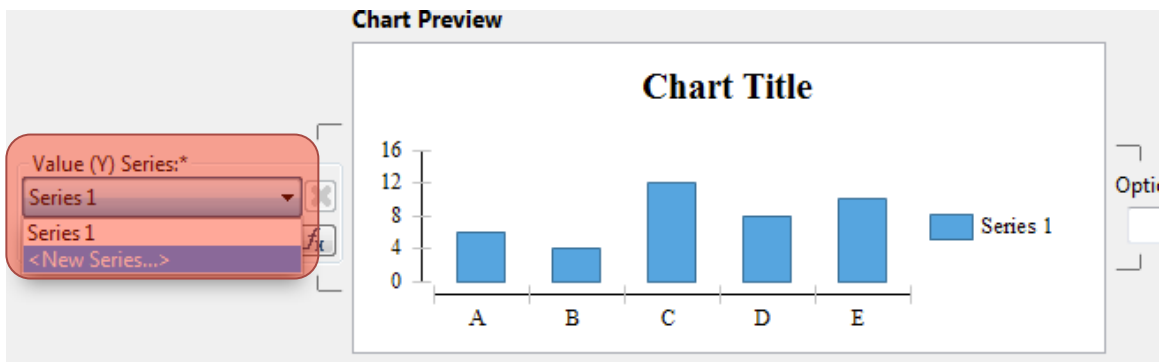
- Click over **<None>** to open data select list
- Select **Camps Encountered By Station**

The data source is now defined but the definition of the X and Y axis or series is still required.

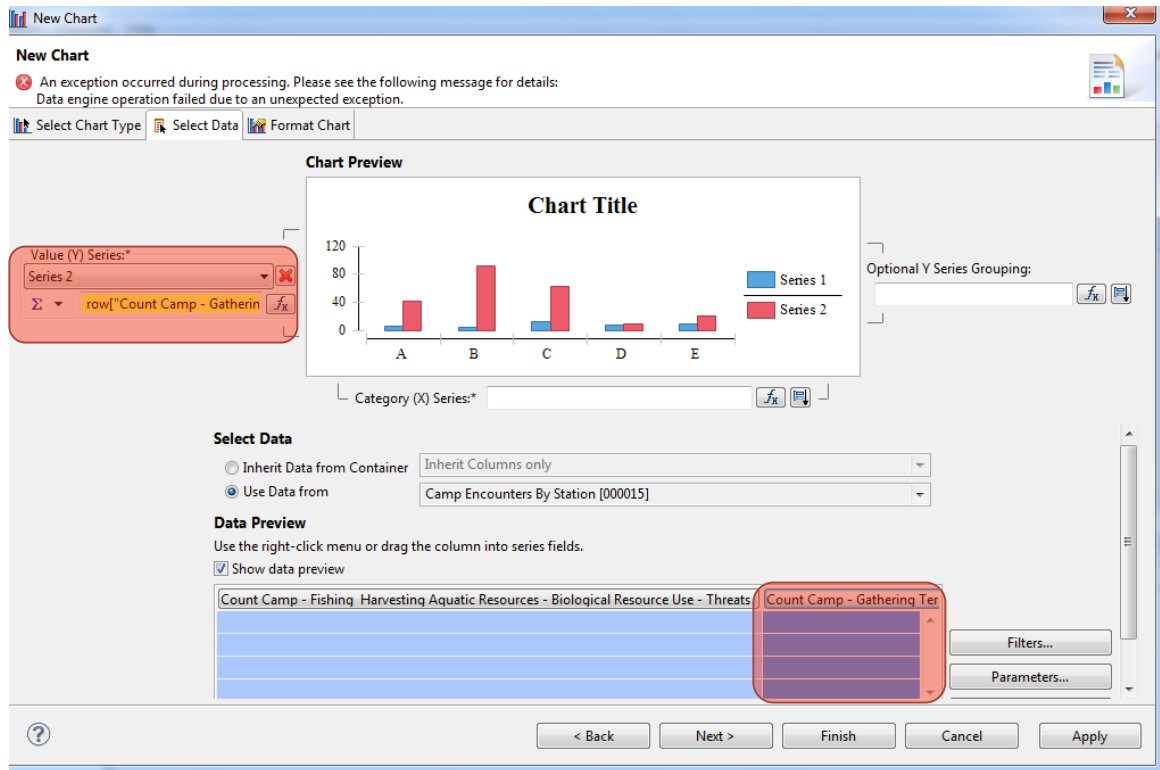
We are going to add four data series for each type of camp



- Select and drag **Count Camp – Fishing...** to the Value (Y) Series 1
- Under Value (Y) series – **Select New Series**



- Select and drag **Count Camp – Gathering Terrestrial Plants....**to the Value (Y) Series 2

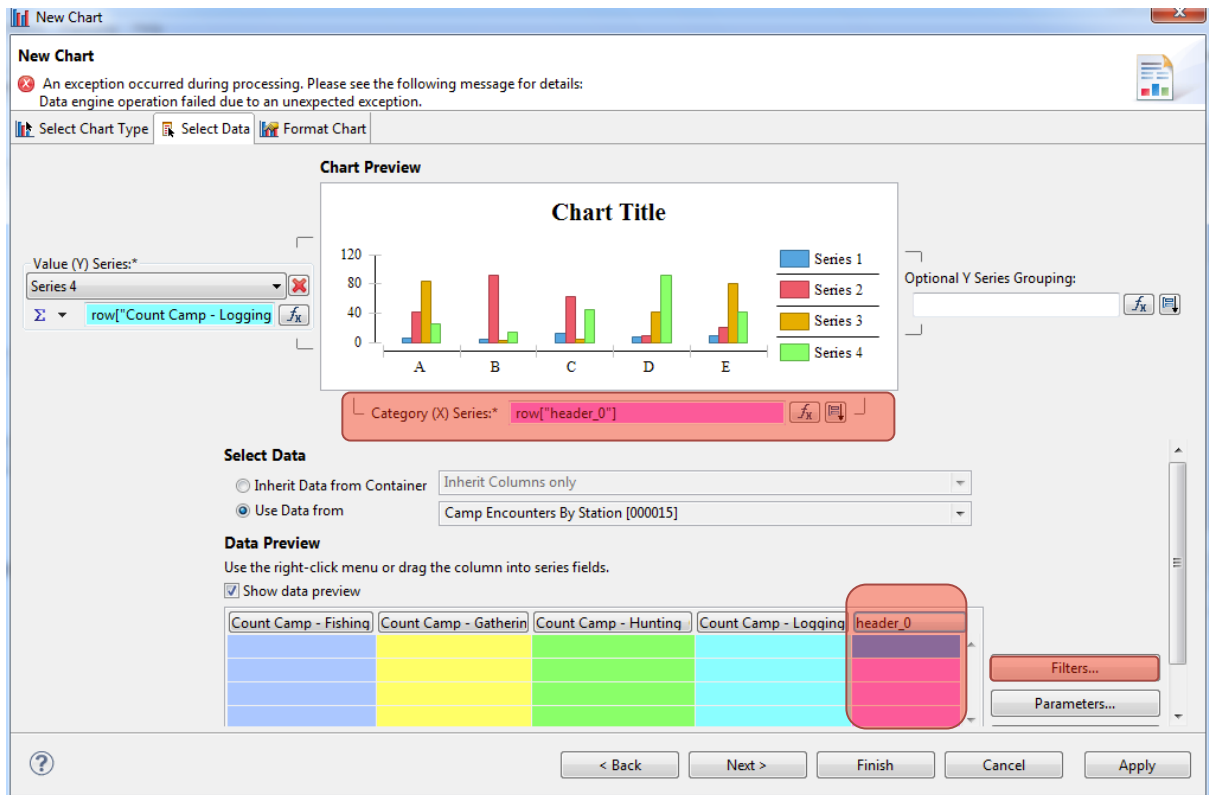


- Create 2 more Y value series and drag the remaining two camp types (Hunting and Logging).
- **You will have 4 Y value series in total for each of the four types of camp**

Note: You can adjust the column width of each field in the Data preview window to fit the size of the columns to the window

- Finally, select and drag **Header (yellow)** to the Category (X) Series

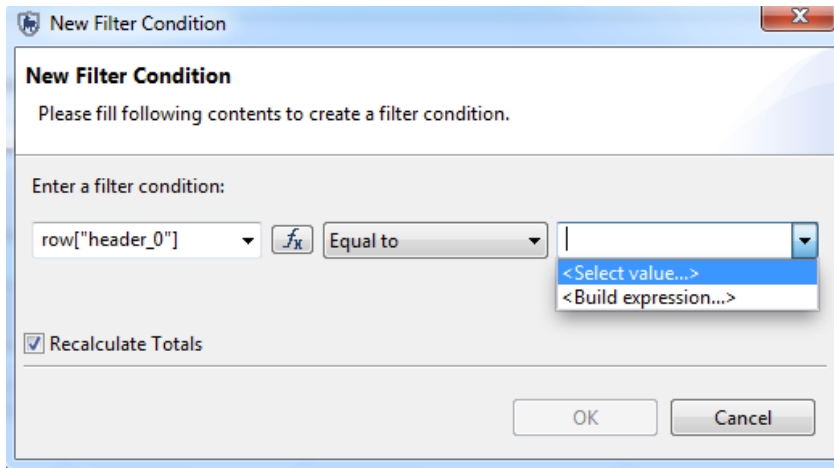
Note: The Header column is the last column to the right



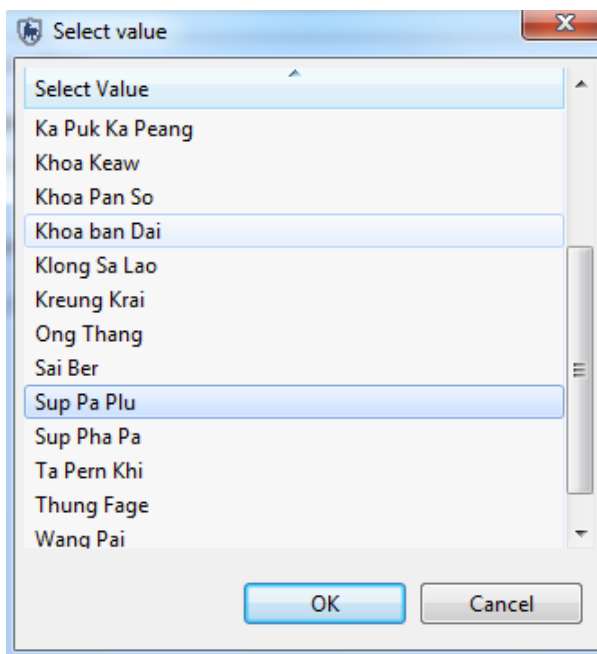
Now we are going to add a data filter to the chart query

- Click on **Filters**
- Select **Add** to add a new filter

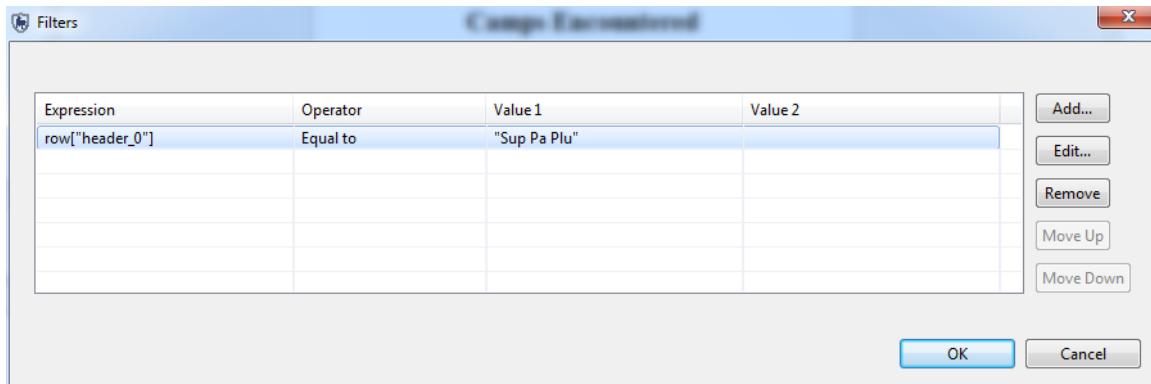
- Under the filter condition select **header** from the drop down list (this is your station list)
- Select **Equal to** as the query expression
- Select **'Select Value'** as the value



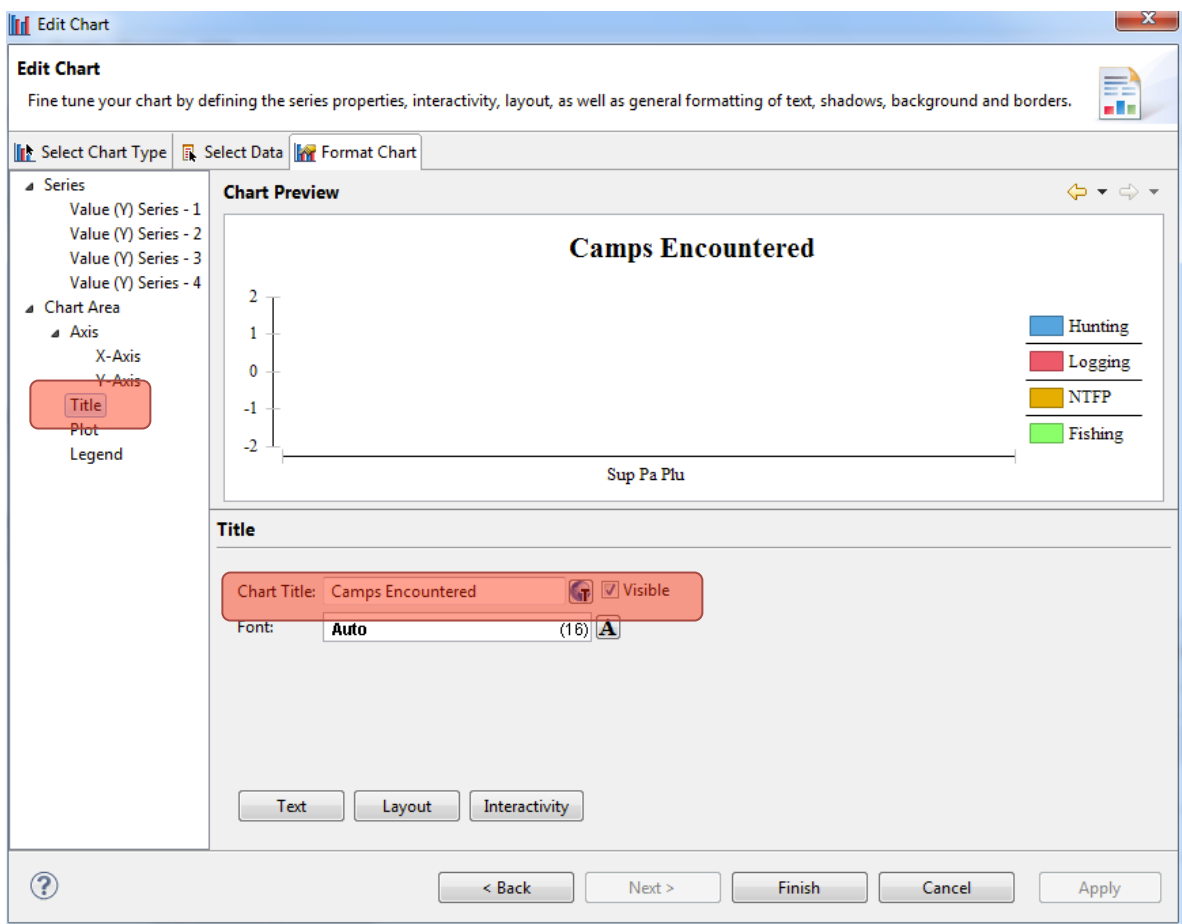
- Select **Sup Pa Plu** from the list of stations
- Click **OK**



- Click **OK**
- You will now query the data on camps encountered only from the Station Sup Pa Plu

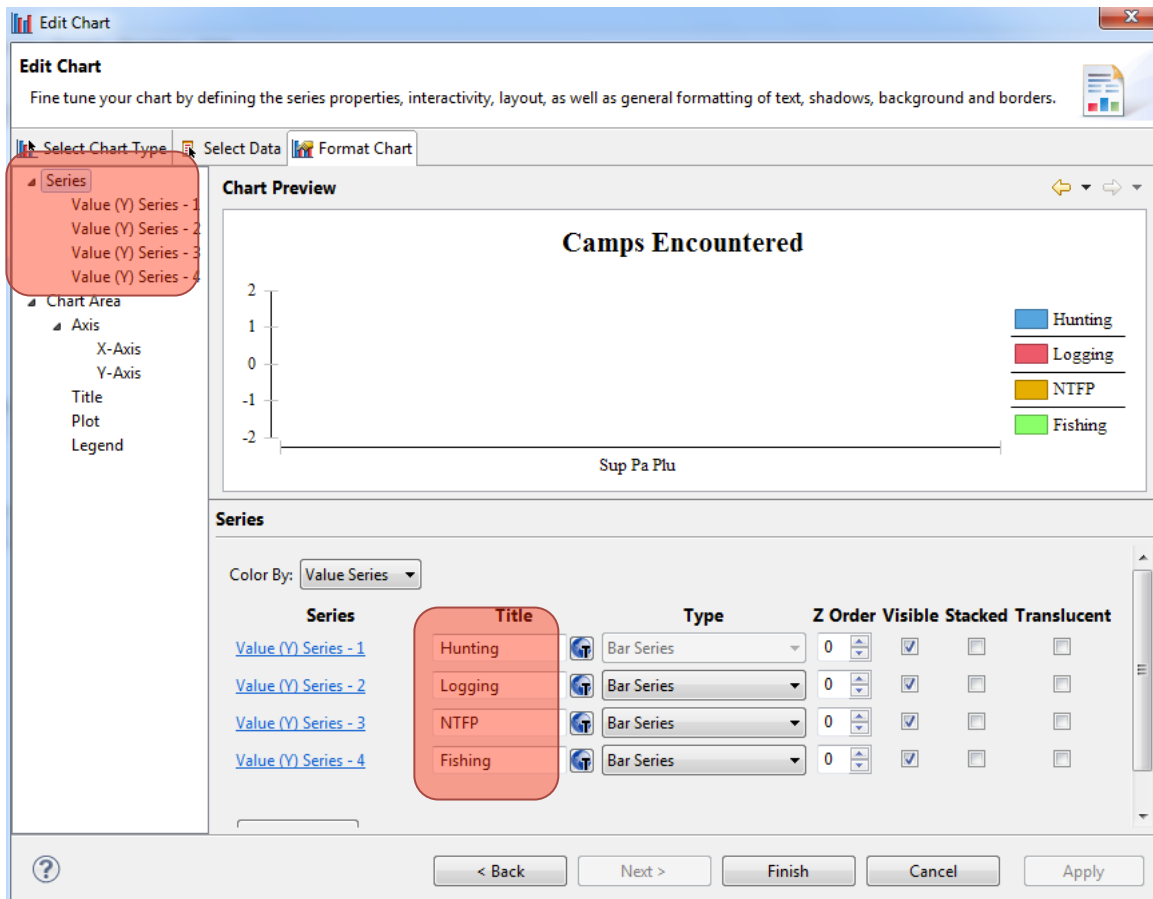


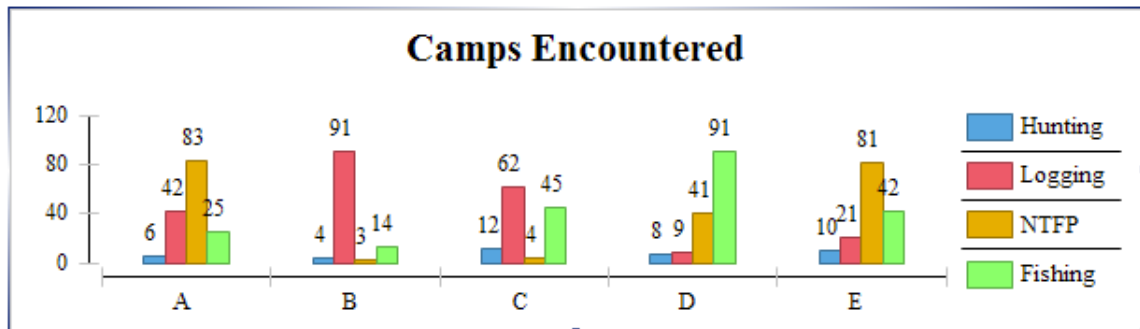
The following steps will be to customize the chart by adding a title and value labels to the chart.



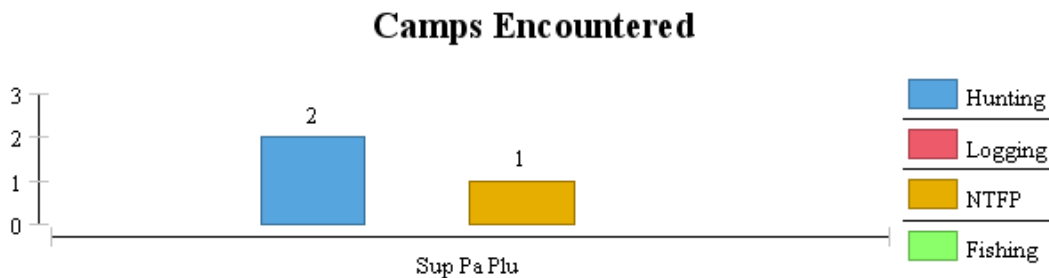
- Click **Title**
- Type into Chart Title: **Camps Encountered**

- Click **Value (Y) Series**
- Enter the four types of camps as **Fishing, NTFP, Hunting and Logging** (*Make sure you get the right camp for the right series – you can check back to the previous window!*)
- Click **Finish**





- Select the **right edge** of the chart object and **expand the object** to fill the width of the report
- **Save Report**
- Run Report and view results



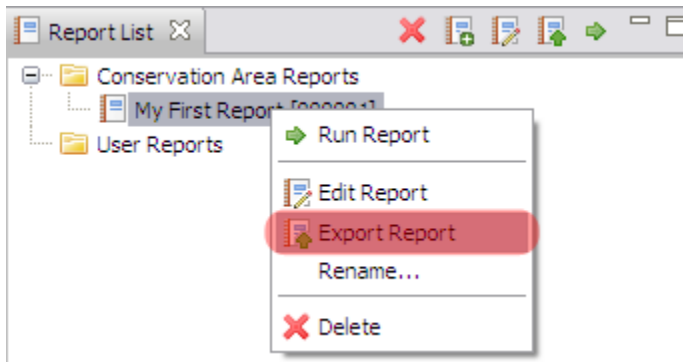
After running the report the chart will display the camps encountered by Sup Pa Plu station in a bar chart format. For this chart there were no logging or fishing camps encountered for this station so no data has been displayed.

Exporting Reports

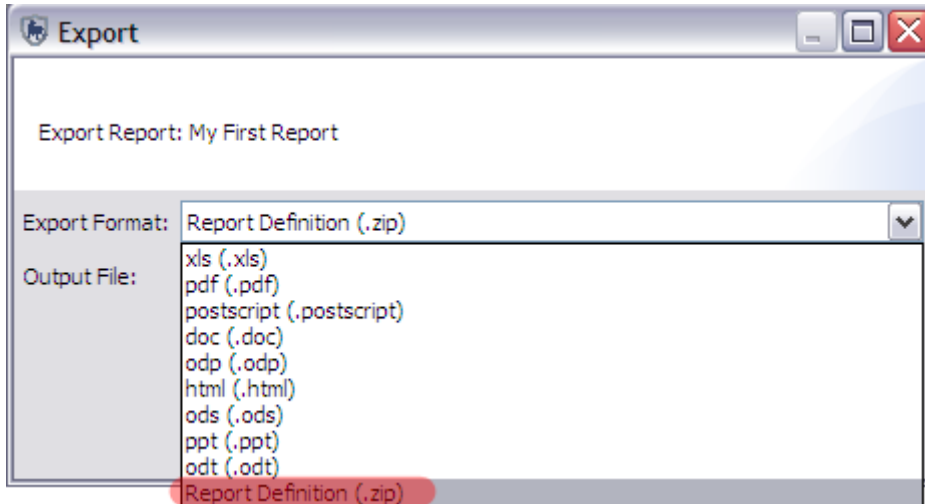
Reports can be exported in a variety of formats, which then can be used for easy distribution or importing into other applications. In addition to being able to export/import patrols, queries and summaries, SMART can export report definitions that can be imported into another installation of SMART. This feature allows for a template to be built and then distributed to other regions or offices to reduce the effort in creating new reports, and of course to ensure consistency in reporting.

Report Definition

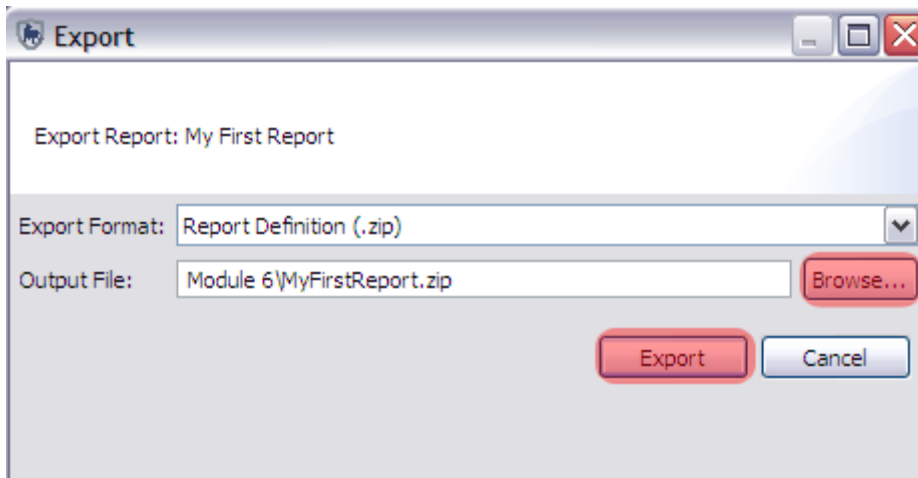
A Report Definition zipfile is a complete package that allows for other installations of SMART to import the report and its dependencies. A report can contain images, queries and other report objects and the report definition file bundles these together to make for easy importing into another system.



- In the Report List right-click the mouse to bring up the **Export Report** option



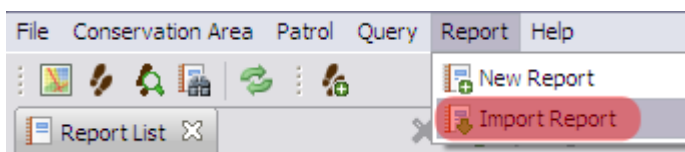
- At the bottom of the list select **Report Definition (.zip)**



- Browse to the folder **Module 6**
- Keep the name as **MyFirstReport.zip**
- Click **Export**
- Click **OK**

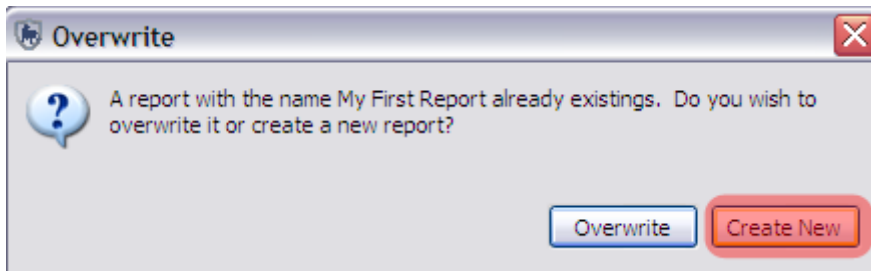
Importing Reports

After the report has finished exporting, you will import the report definition back into your installation of SMART and rename the report. Imported reports will also import any queries, summaries and other report objects if they do not currently exist.

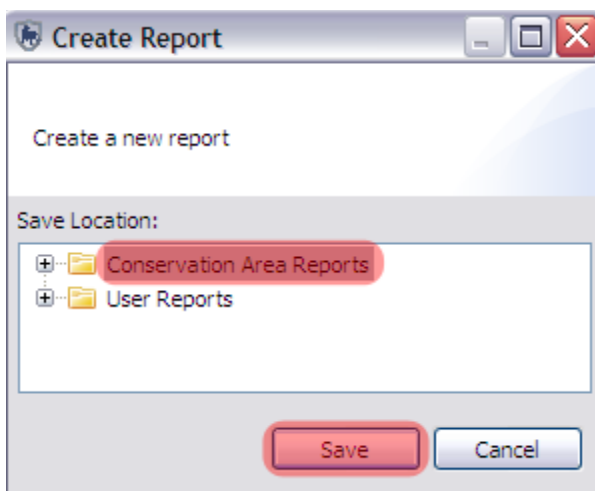


- In the menu select **Import Report**
- Browse to the folder **Module 6**
- Select **MyFirstReport.zip**
- Click **Open**

SMART will alert users to when any import is being duplicated.

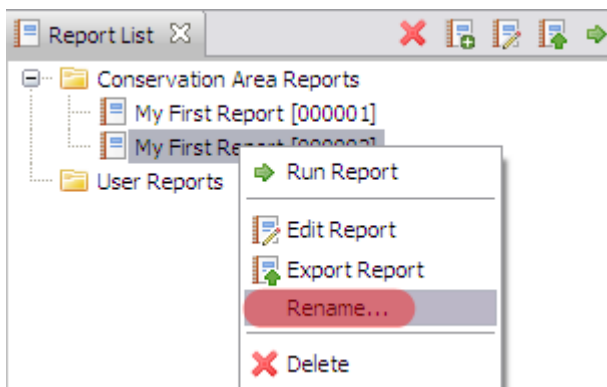


- Click **Create New**
- Click **OK**



- Select **Conservation Area Reports**
- Click **Save**

In the Report List you should see two reports. Currently both reports have the same name, but they do have unique identifiers.



- To rename the imported report use the mouse and right-click to select **Rename**
- Rename to **My Imported Report**

Note: After the rename the unique identifier for this report will stay the same.

<End of Module 6 - Reports>

Module 7: Gridded Analysis

Objective:

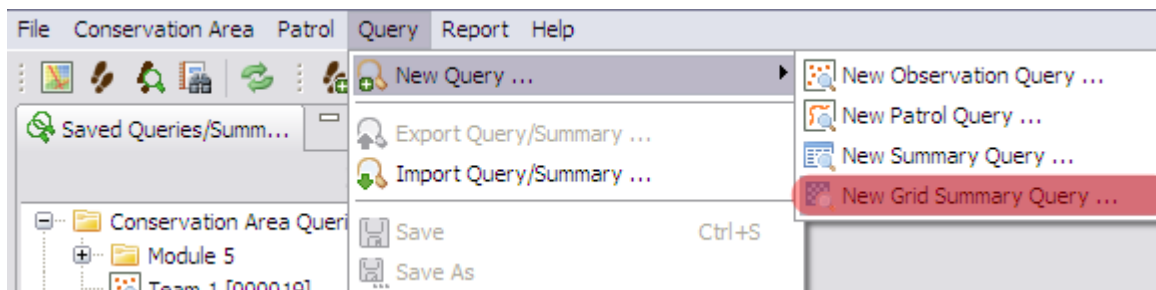
This Training Module will guide you through the process of creating, running and viewing the results of a Gridded Analysis Summary Query. Building a gridded analysis summary query follows the same procedures as building other types of queries that were covered in Module 5: Queries and Summaries. This training module will cover the specific requirements for building and running a gridded analysis summary query, and how to apply custom styling to the produced grid.

We will continue using the **HKK Training database**

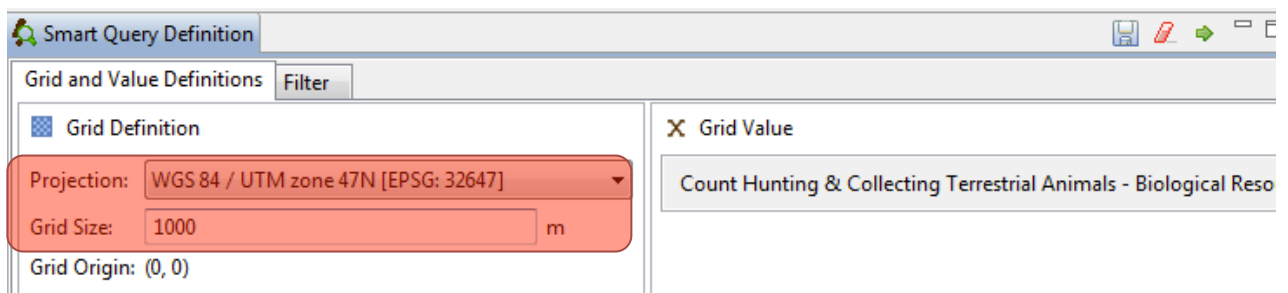
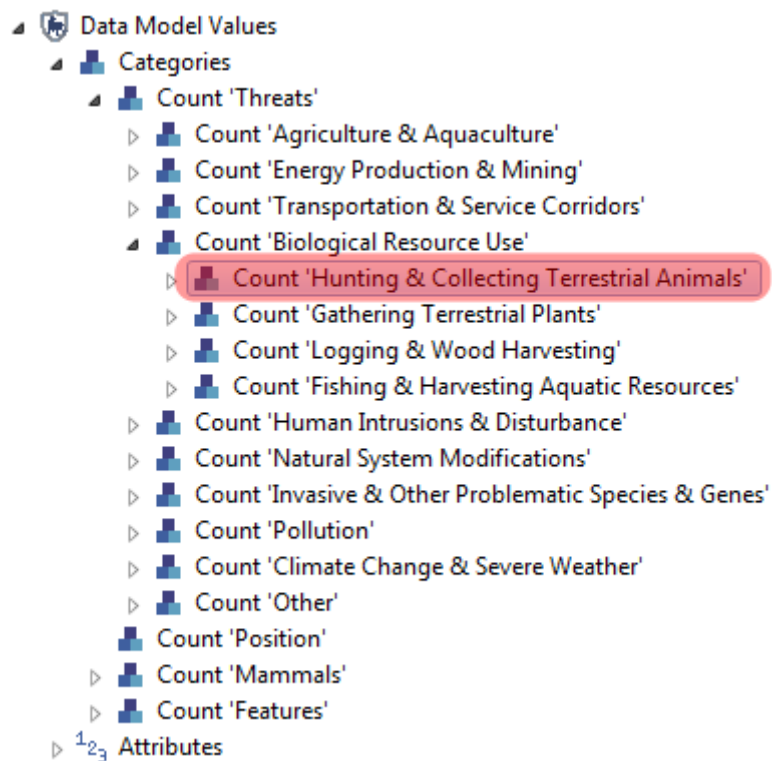
Detailed Steps:

Building a Query

Building a gridded analysis summary query follows the same procedures as building other types of queries, that were covered in Module 5: Queries and Summaries.



- In the menu select **New Grid Summary Query**
- Set the date to **All Dates**



- From the Data Model Values double-click **Count Hunting and Collecting Terrestrial Animals** or select the entry and click **Add to Query**
- Ensure Projection = WGS 84/UTM 47N
- Change **grid size to 1000m**
- Select **All Dates** in the date filter
- Run query

Tabular Results

The default view is for the list of tabular results. This table shows the tile coordinates and values of how many observations were found within that grid cell. The output includes all grid cells patrolled during that period, so if a grid cell was patrolled and found no observations it will have a value of 0. The table also includes the denominator value (e.g. distance patrolled) if there is one selected (see encounter rates below). For most users, the Tabular Results will not be as important as the Mapped Results.

*New Query

Query: <No Name Gridded Summary> Id: [query properties...](#)

Date: Waypoint Date All Dates

Number of Records: 2375

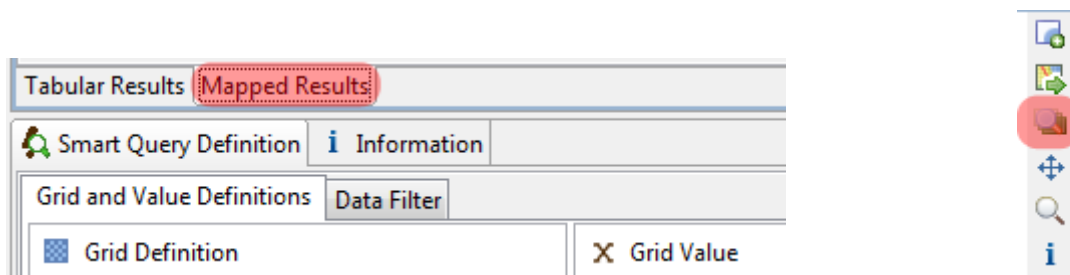
Tile X ID	Tile Y ID	Value
530	1680	0.0
530	1681	0.0
530	1684	0.0
510	1720	0.0
530	1685	0.0
530	1683	0.0
510	1729	0.0
530	1689	0.0
530	1688	0.0
530	1687	0.0
530	1686	0.0
510	1727	0.0
510	1728	0.0

Tabular Results Mapped Results

Smart Query Definition

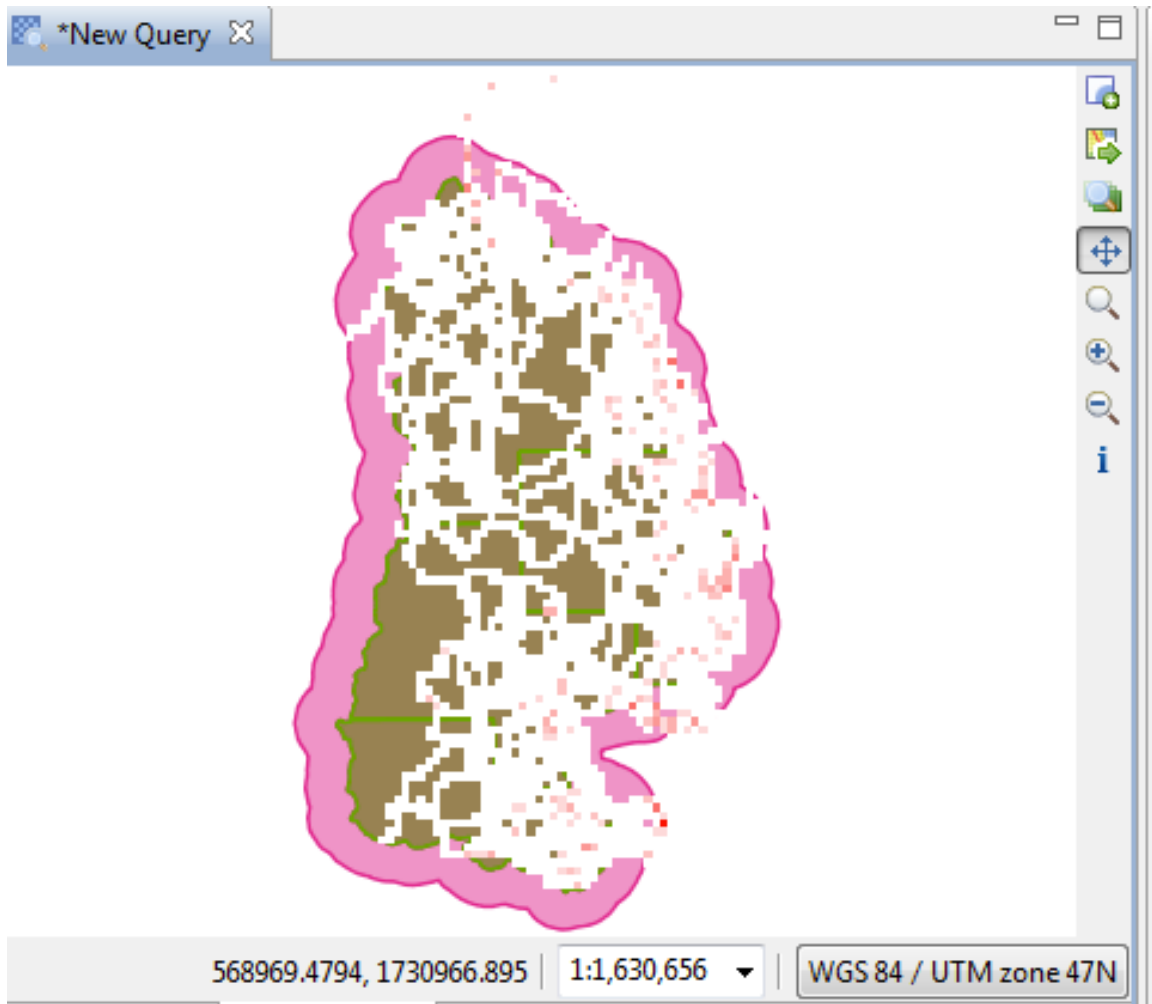
Mapped Results

As with other types of queries the results can be viewed in tables or in a map. The results for this type of query are displayed as a raster or grid layer.



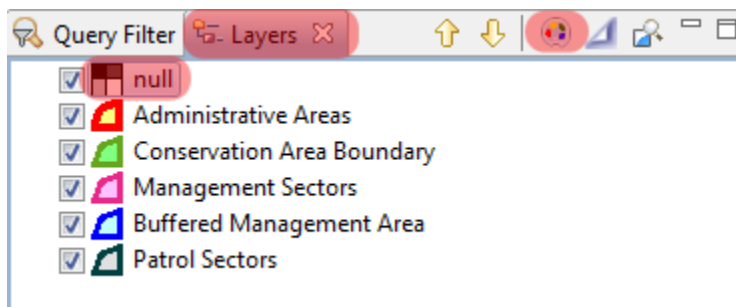
- Switch to the **Mapped Results** Tab
- If the Conservation Area isn't visible click the zoom to extents icon (see above)

The Mapped Results screen now shows a number of grid cells of varying color where grid cells were patrolled and where observations from the query can be found. The color of each grid cell corresponds to the number of observations recorded within the cell.

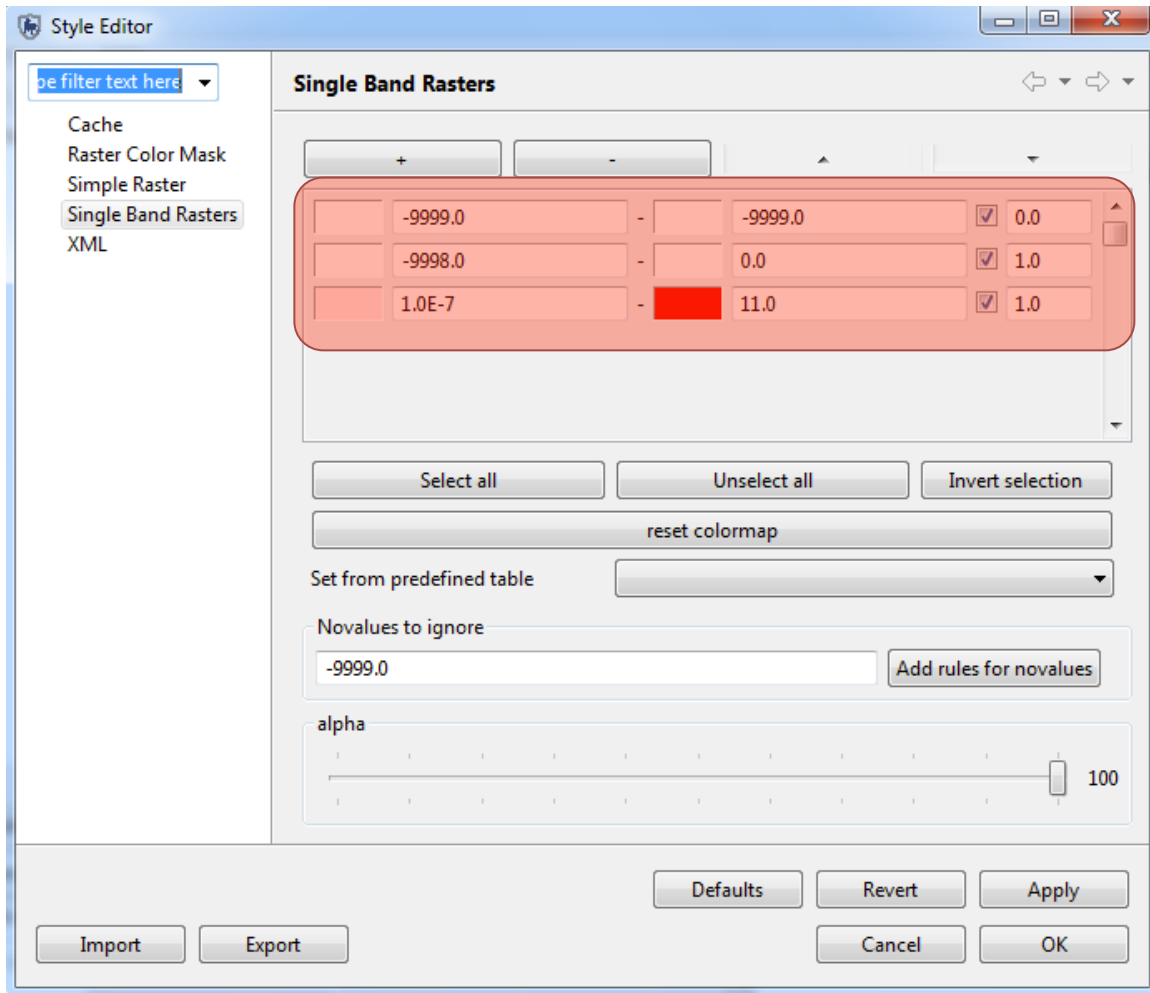


Changing Color Stylings of Rasters

In previous modules you explored some of the various options on styling points, lines and polygons and now you will change the styling of a raster or grid layer.



- Switch to the **Layers** Tab (next to Query Filter)
- Select the **Raster Layer (null)**
- Click the **Change Style** icon

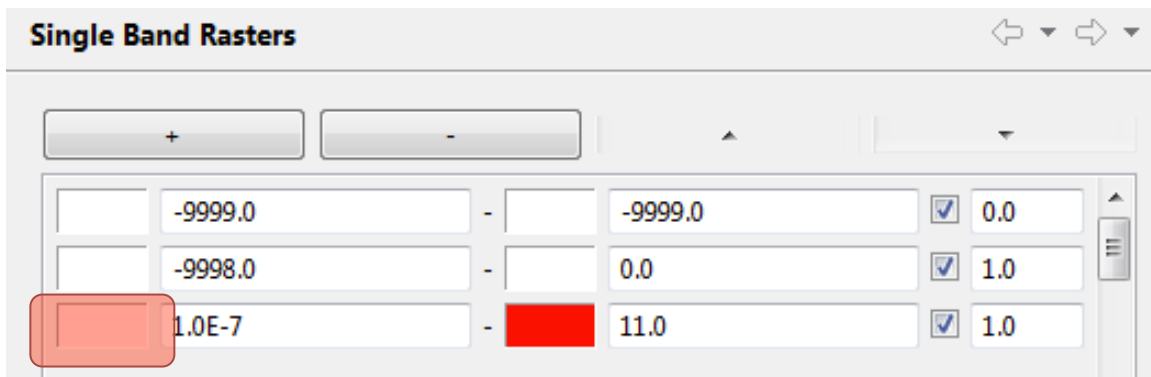


Visible Grids

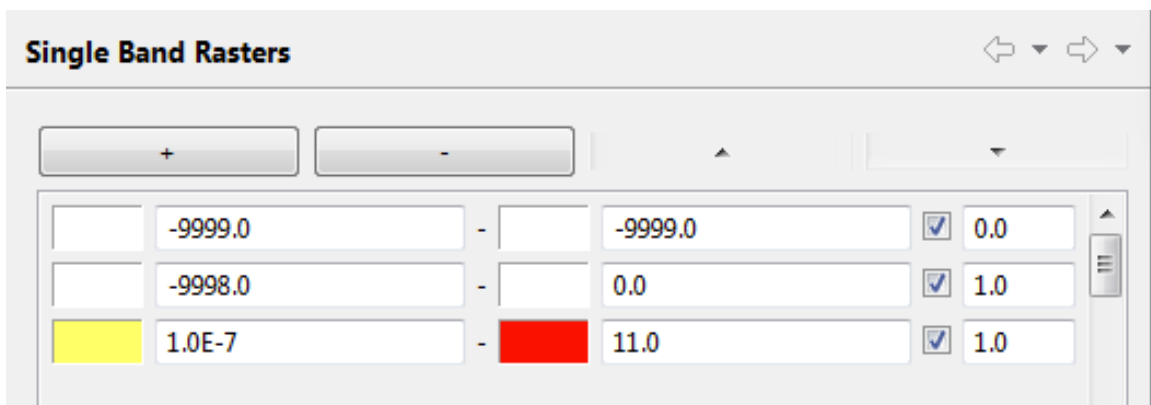
These values show the colors and values for the visible layer.

- The first layer is areas outside of the patrol coverage (-9999)
- The second layer is areas patrolled where no observations were made (0)
- The third layer is the observations and can be any value between any value >1.

The value on the right hand column is the transparency setting (0 is completely transparent, visible cells are set to 1.0)



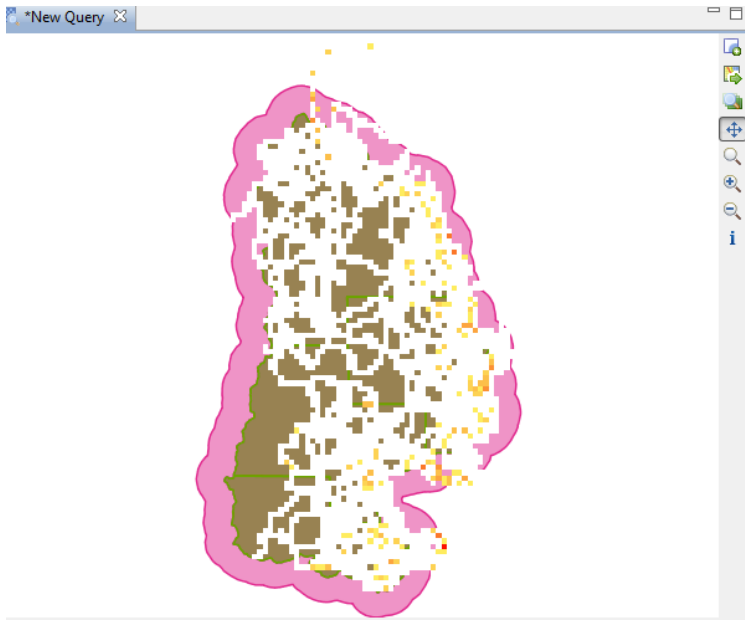
- Click the **pink box** to the left of the third layer



- In the color picker select **Yellow**
- Click **OK**
- In the lower right click **Apply**
- Click **OK**

The new colors now start with yellow to red for observations (white is still the colour for patrolled grid cells where observations = 0)

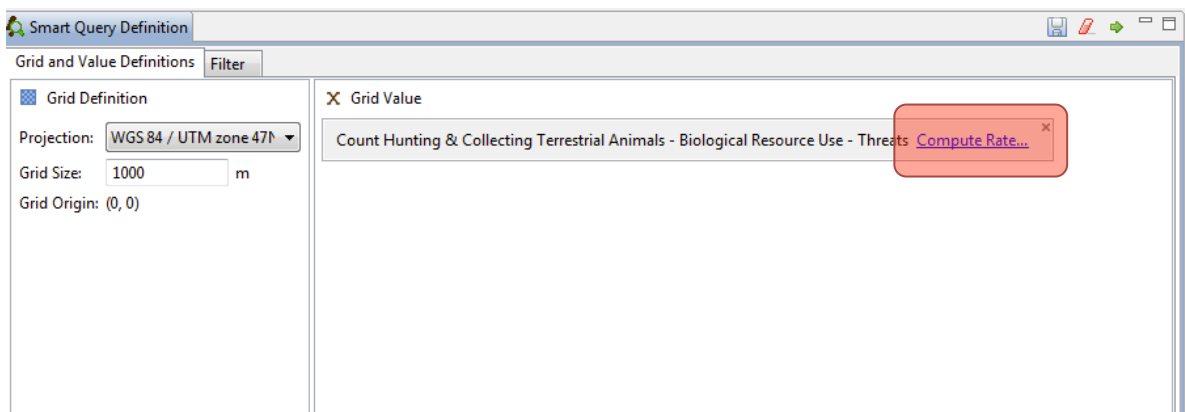
Note: Query results with a larger spread will have more colors available to represent the color ranges from the minimum value to the maximum value



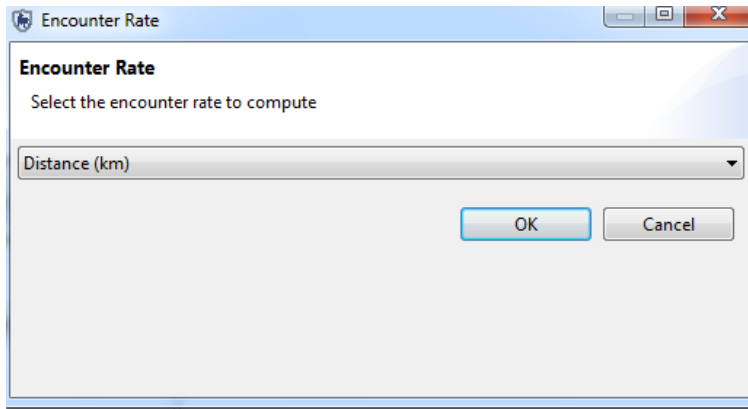
Encounter rate grids

You can also directly calculate encounter rates (e.g. number of observations/unit effort) in each grid cell.

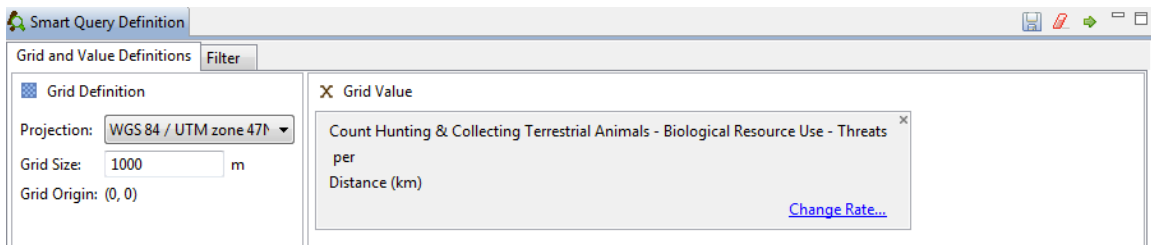
- Click on **Compute Rate** next to Hunting category in the query grid value



- Select **Distance (km)**
- Click **OK**



- The query will now calculate the number of hunting observations/km patrolled.
- Run the query

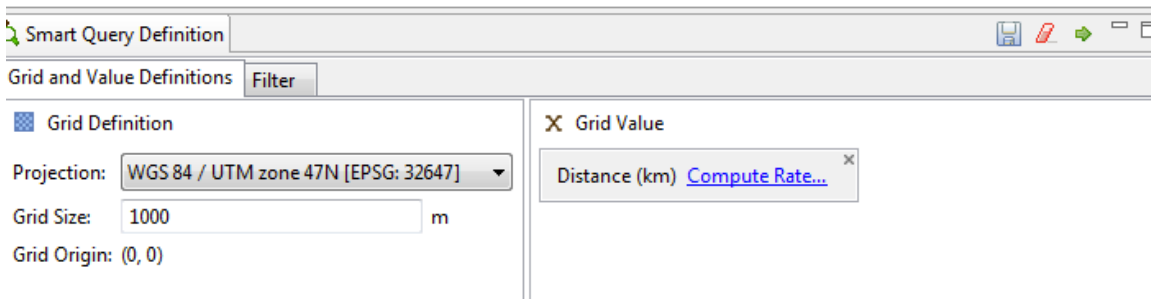


- Save the query as **Hunting encounter rates** under **My Queries**

Patrol effort grids

Grids can also be created for different measures of patrol effort (distance patrolled in each grid cells, number of patrol days in each grid cell).

- Create a new gridded summary query
- Set Projection to UTM 47 and grid size to 1000m
- From Patrol Values, select **Distance**



- Select All Dates
- Run query

Hunting Encounter rates *New Query

Query: <No Name Gridded Summary>

Date: Waypoint Date All Dates

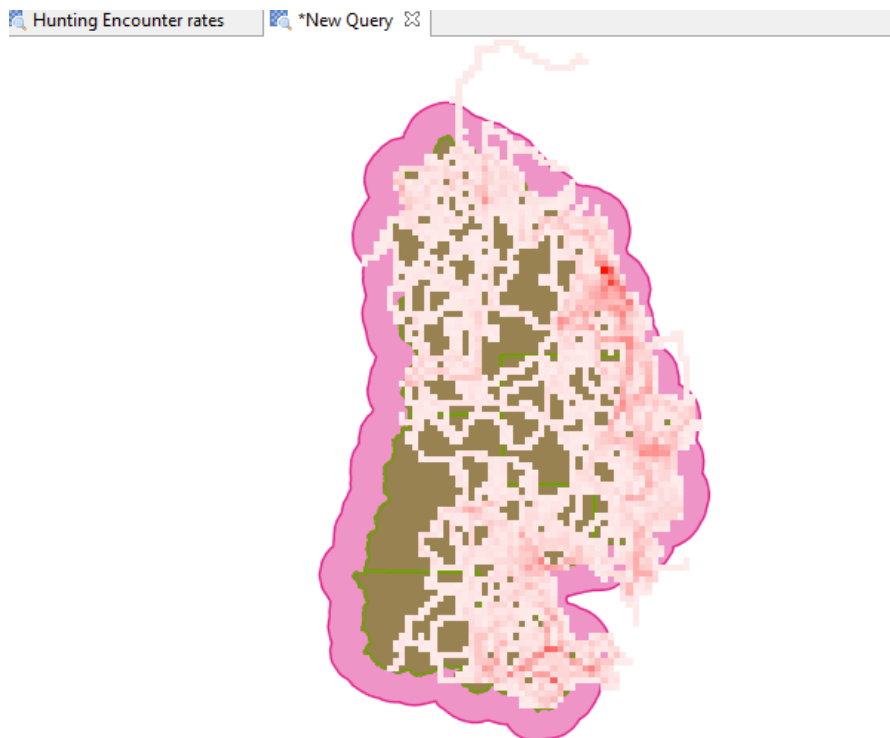
Number of Records: 2375

Tile X ID	Tile Y ID	Value	
509	1712	2.96545912995...	
508	1743	5.19900580367...	
509	1713	0.09036633759...	
510	1682	1.36125794214...	
510	1683	4.25173248741...	
510	1684	3.69003165748...	
509	1715	2.36019878265...	
508	1739	4.46407484428...	
509	1709	9.12108188129...	
508	1740	2.43434712712...	
509	1710	3.07795120369...	
508	1741	0.59209783183...	
509	1711	7.91744957341...	
509	1720	1.64073132839...	
509	1716	0.40434160615...	
510	1685	1.36610285784...	
509	1718	2.43245882340...	
509	1719	4.81397366241...	
508	1727	1.09640681720...	

The tabular results show the distance patrolled in each grid cell

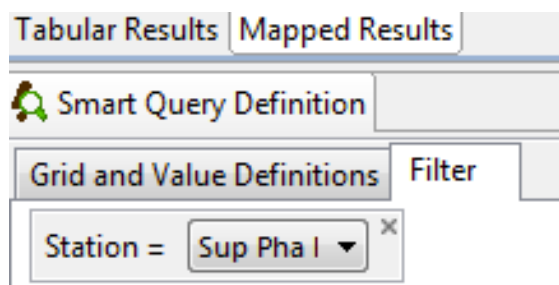
The mapped results shows patrolled coverage as a function of patrol distance patrolled in each grid cell

- Save the query as **Patrol Coverage by Distance** under **My Queries**



Filtering a Query

A filter can be applied to the gridded summary using the same procedure as was done in Module 5: Queries and Summaries.



- In the SMART Query Definition window switch to the **Data Filter** tab
- Switch back to the **Query Filter** tab on the right side window instead of the Layers tab to select your data filters.
- Build a simple patrol query of **Station = Sup Pha Plu** from the Patrol Values
- Run query

The results for the gridded analysis will now be filtered by the station query.

<End of Module 7 - Gridded Analysis>

Module 8 - Data Model Management

Objective:

This Training Module will instruct you on how to manage the Observation Data Model within the SMART system. In this module, you will learn how to create, disable or delete categories and attributes in line with best practices and principles of data modelling.

For this module we will be using the **SMART Conservation Area database**

Detailed Steps:

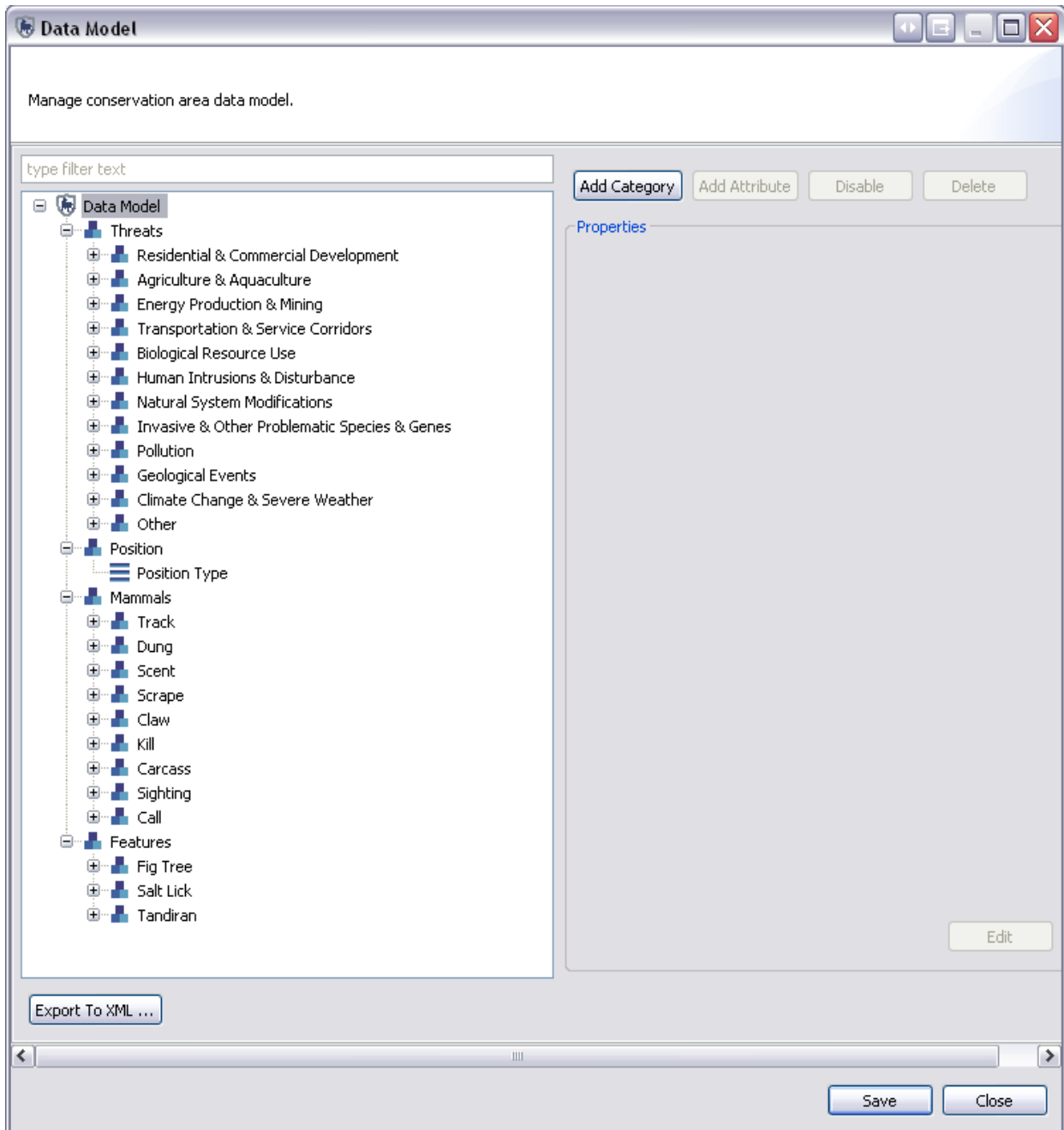
To access the observation data model:



- Open the **SMART – SMART Conservation Area database**
- From the Conservation Area menu, select **Data Model ...**

Data Model Overview

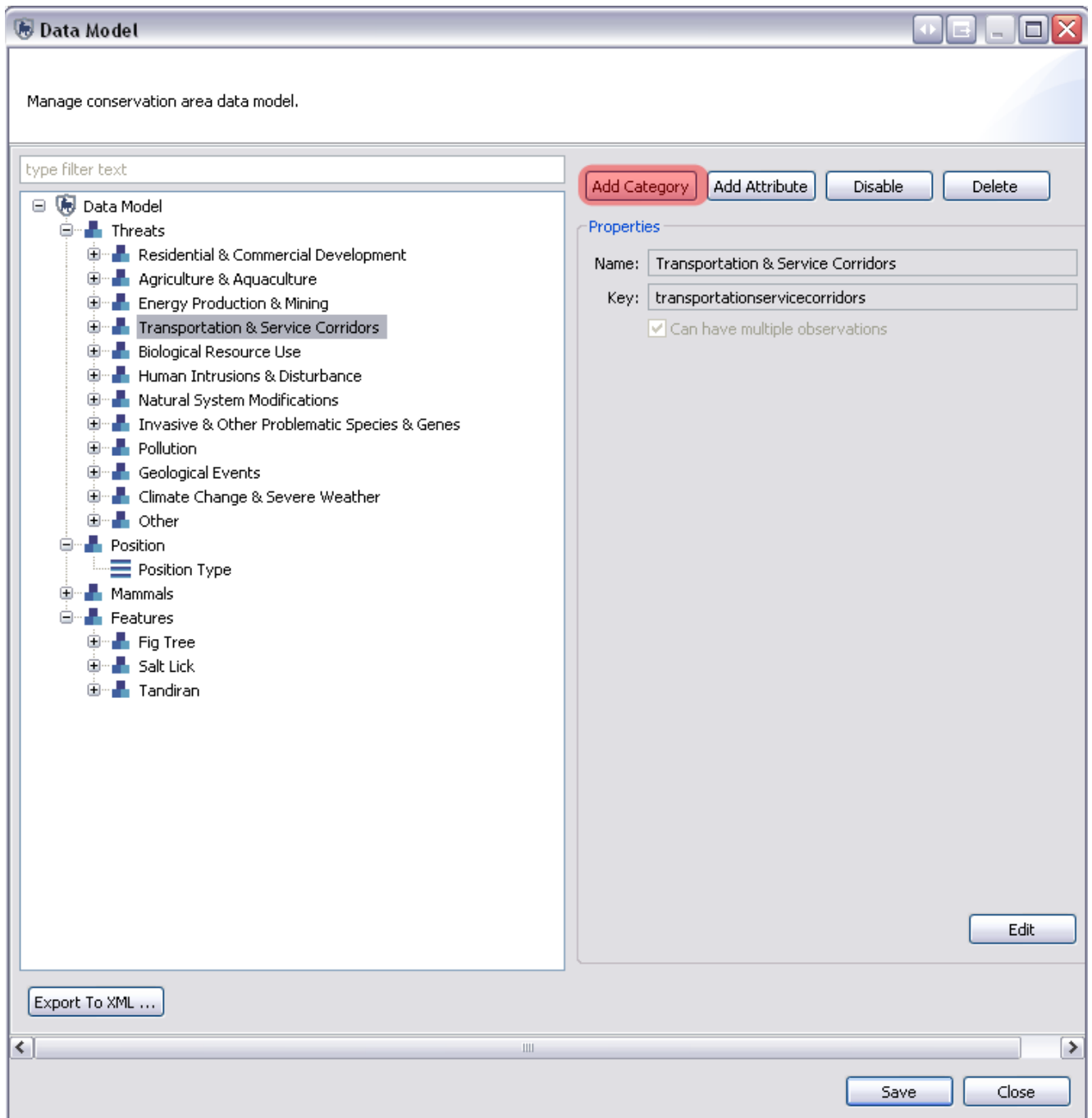
The SMART data model structure is based on a tree structure, comprised of nodes (Categories) and a series of custom attributes that can be associated to any portion of the tree's categories.



For this training module, you will use a custom data model that contains four high level nodes, namely Threats, Position, Mammals and Features. Below each of these four nodes, there will be varying levels of nested categories and associated attributes.

Adding a Category to the Data Model

At any level in the data model, new categories can be created, edited, disabled or deleted. In the example below, the new category will be one level below Transportation & Service Corridors.



- In the Data Model tree on the left, select “**Transportation & Service Corridors**”
- This will activate the buttons on the top right.
- Click **Add Category**

- Create a new category named “**Hunting Trail**”. Allow the application to create the key “**huntingtrail**”.
- Accept the default of “**Can have multiple observations**”
- Click **OK**

*Note: The **Key** is automatically created, and is a lower case concatenation of the category name with the spaces removed. This key can be edited by clicking on **Change...** although this is not recommended.*

Attribute Types

SMART supports attribute types of Numeric, Text, List, Tree and Boolean. Usage of the attribute types will depend on the nature of the observation information collected in the field.

Examples and recommended usages of attribute types are:

Numeric - widths, lengths, amounts, numbers of animals, people or items

Text - specific names that cannot be preloaded into a list

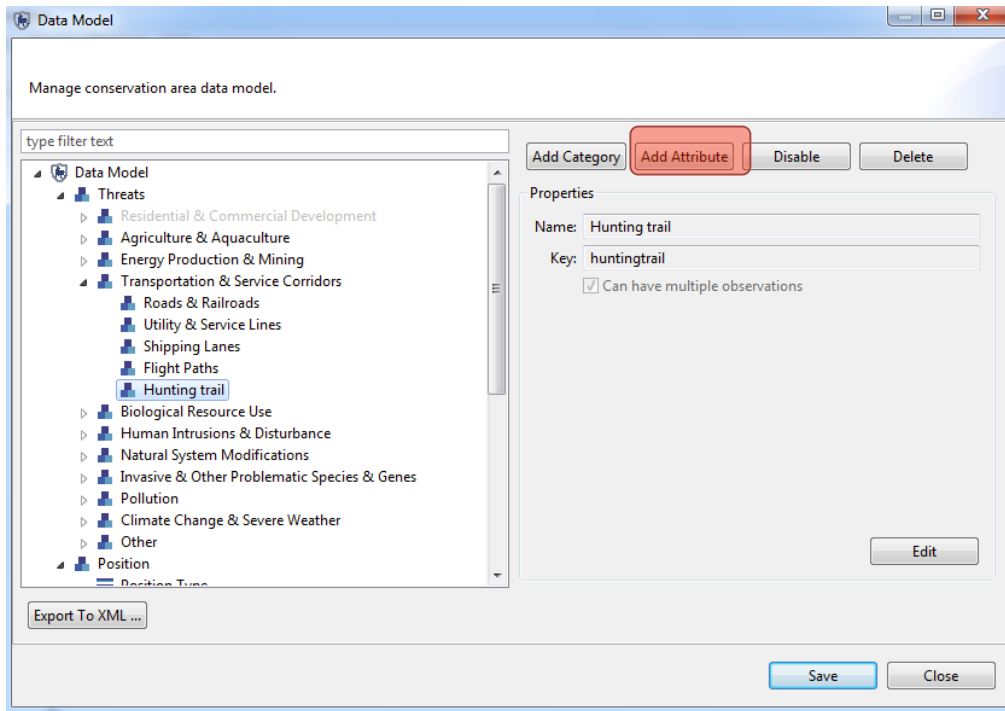
List - names of items where the list is known and the list is not too long

Tree - a collection of attributes that can be arranged in a hierarchical or logical format such as animal species

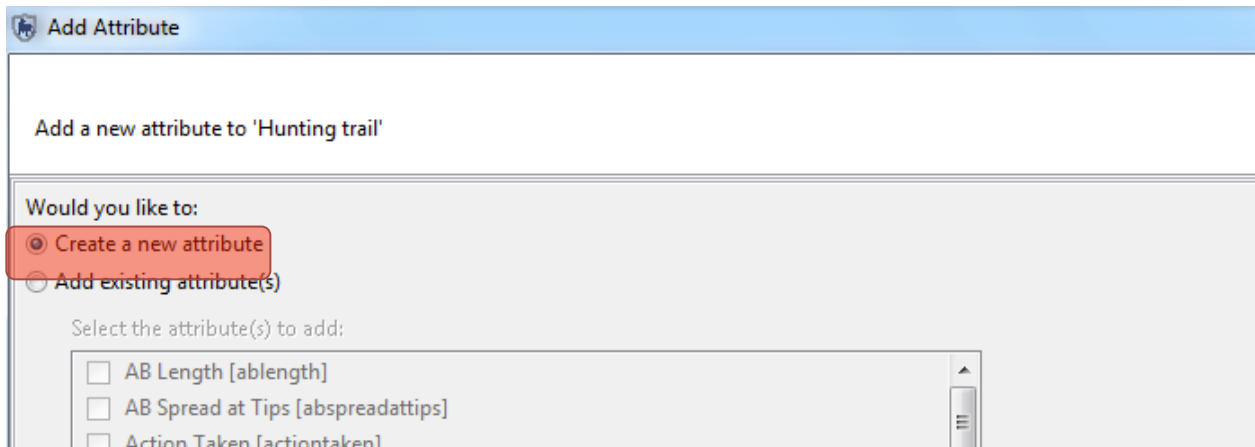
Boolean - any situation that can be answered with a Yes or No

Creating New Attributes

Under the category Hunting Trail you will now add the first attribute using the attribute type List.



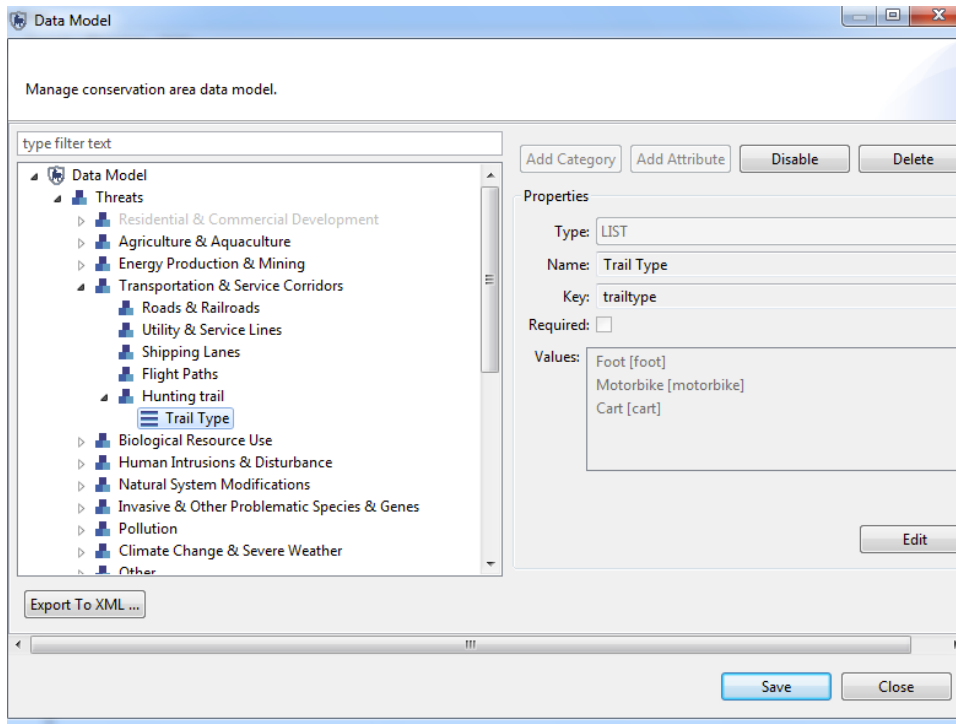
- The new category “Hunting Trail” should appear under “Transportation and Service Corridors” in the data model.
- With “Hunting Trail” selected, click **Add Attribute**



- Select **Create a new attribute**
- Click **Next**

- Create a new attribute with
 - Type = **“LIST”**
 - Name = **“Trail Type”**
 - Key = “trailtype” (automatically populated)
 - Values = **“Foot”**, **“Motorbike”**, **“Cart”** (add them one at a time using the dialogue box that pops up when you click **“Add”**)
 - Click **Finish**

Note: Required (if checked) forces the attribute to be populated with an approved value before the observation record can be completed.



- The new attribute “Trail Type” should appear as a List type under the category “Hunting Trail”
- Click **Save** to save the changes to the data model
- Click **Close**

In the above screenshot you will see the newly created list attribute of Trail Surface. Under the category Horse Trail, you will now create a few more attributes using some of the other attribute types.

- Select the category **Hunting Trail**
- Click **Add Attribute**
- Select **Create a new attribute**
- Click **Next**

The next category you will add is a numeric attribute to capture the width of the Hunting Trail.

Create a new attribute.

Type: NUMERIC

Name: Width of trail

Key: widthoftrail Change...

Required: ☐

Aggregations: ☒ Average ☒ Maximum
☒ Minimum ☒ Sum

Minimum Value:

Maximum Value:

Finish Cancel

- Select **NUMERIC** for Type
- Enter in "**Width of trail**" for Name
- Check all Aggregations
- Click **Finish**

Note: When forming queries on numerical attributes, it will be possible to create queries using the Average, Minimum, Maximum, Sum and Standard Deviation values for that attribute. Only the Aggregations that are checked will be available for queries.

For the final attribute of Hunting Trail, you will create an attribute to indicate if the trail is active. This attribute will be set as a Boolean (true or false).

Create Attribute

Create a new attribute.

Type: **BOOLEAN**

Name: Hunting trail active

Key: huntingtrailactive [Change...](#)

Required: ☐

[Finish](#) [Cancel](#)

- Select **BOOLEAN** for Type
- Enter in “**Hunting trail active**” for Name
- Click **Finish**

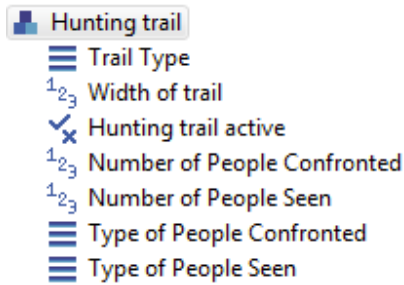
Using Existing Attributes

In the previous steps, you added new attributes to the category of Hunting Trail. SMART has the ability to apply existing attributes for ease of reuse and to allow for enhanced querying.

The screenshot shows a window titled "Add Attribute" with a subtitle "Add a new attribute to 'Horse Trail'". It contains two radio buttons: "Create a new attribute" and "Add existing attribute(s)". The second option is selected and highlighted with a red circle. Below this is a section "Select the attribute(s) to add:" containing a list of attributes with checkboxes. Two attributes are checked and highlighted with a red box: "Number of People Confronted [numberofpeopleconfronted]" and "Number of People Seen [numberofpeopleseen]". At the bottom are four buttons: "< Back", "Next >", "Finish" (highlighted with a blue border), and "Cancel".

- Select **Hunting trail** category
- Select **Add Attribute**
- Select **Add existing attribute(s)**
- From the list of attributes select:
 - **Number of People Confronted**
 - **Number of People Seen**
 - **Type of People Confronted**
 - **Type of People Seen**
- Click **Finish**

Under the your newly created category of Hunting Trail you will see the list of new and existing attributes all applied to this category.



Disabling and Deleting Attributes

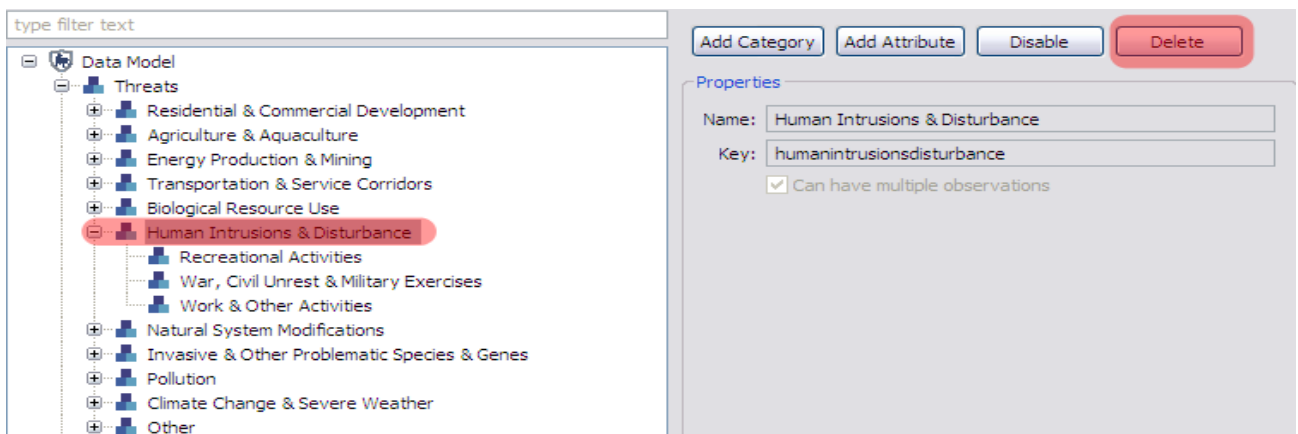
Categories, attributes or values within attributes can all be deleted from the data model, or disabled.

Deletion - Completely removes the feature from the data model. This can only be done if there are no dependencies. A dependency can be a child category, attribute, recorded observation or query/summary. If no dependencies exist, the feature can be completely removed from the data model.

Disable - If dependencies exist or the administrator does not wish to fully remove the feature, it can be disabled. Disabling removes the ability to record any observations based on the disabled feature, but does preserve the ability to perform analysis on the feature.

Deleting Categories

Geologic events are out of scope for the training conservation area, and to simplify the model you will delete the category of Human Intrusions & Disturbance. To do this, you must delete the three sub-categories first, before deleting the category of Human Intrusions & Disturbance.



- Select Human Intrusions & Disturbance sub-category **Recreational Activities**
- Click **Delete**
- Click **OK** when prompted for confirmation
- Select **War, Civil Unrest & Military Exercises**

- Click **Delete** then **OK**
- Repeat for **Work & Other Activities**

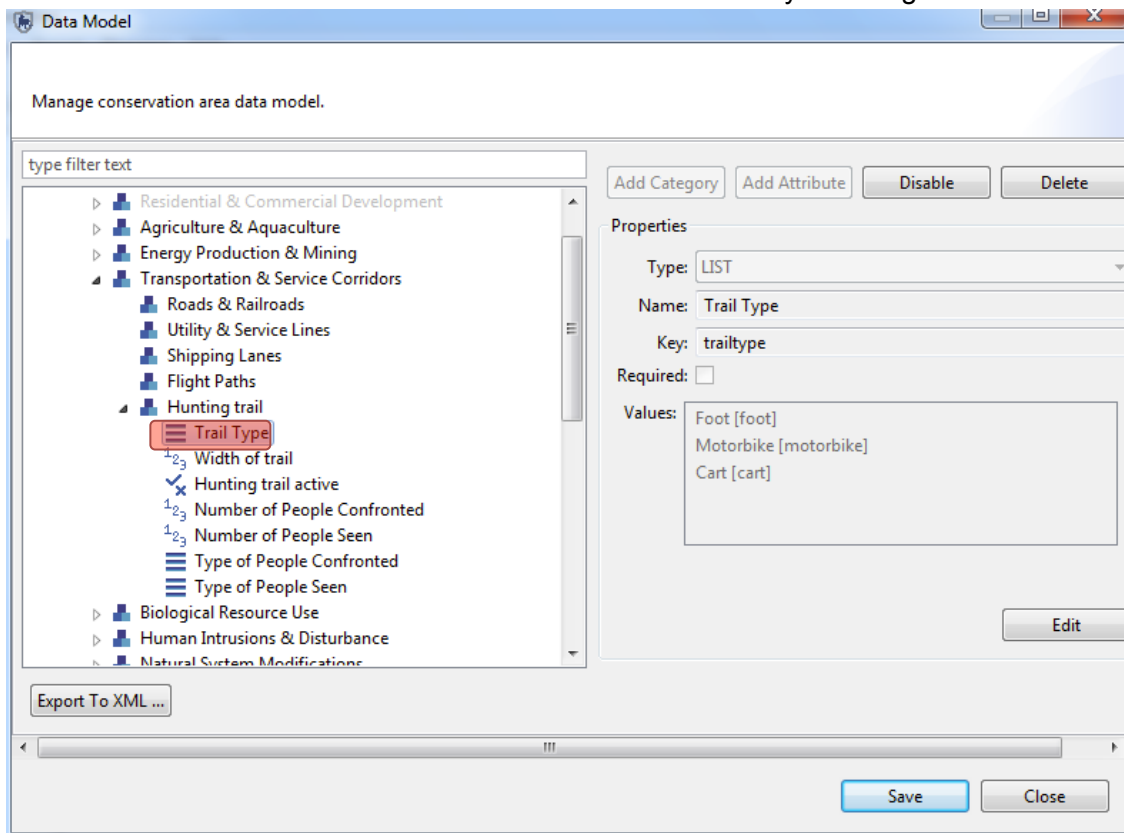
At this point you should still have the category of Human Intrusions & Disturbance, but with no sub-categories.

- Select the category of **Human Intrusions & Disturbance**
- Click **Delete** then **OK**

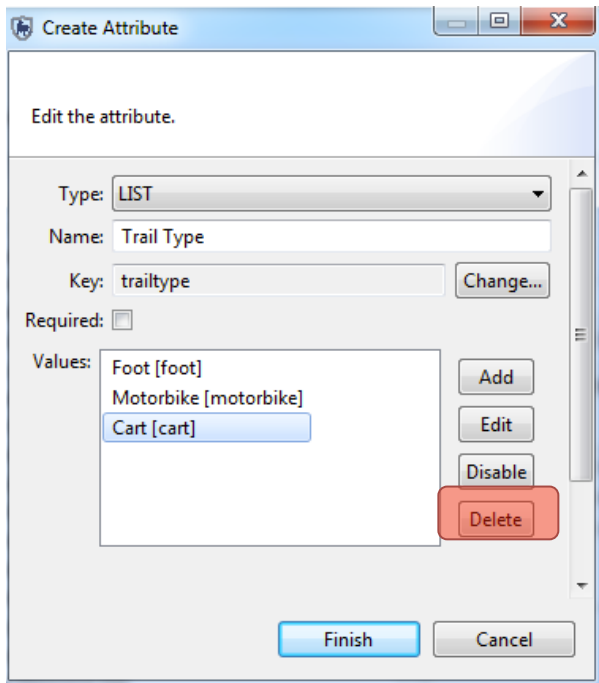
The category of Human Intrusions & Disturbance should no longer be present as a category under Threats.

Deleting Attribute Values

Attribute values in lists can be deleted in much the same way as categories.



- Select the attribute of **Trail Type**
- Click **Edit**

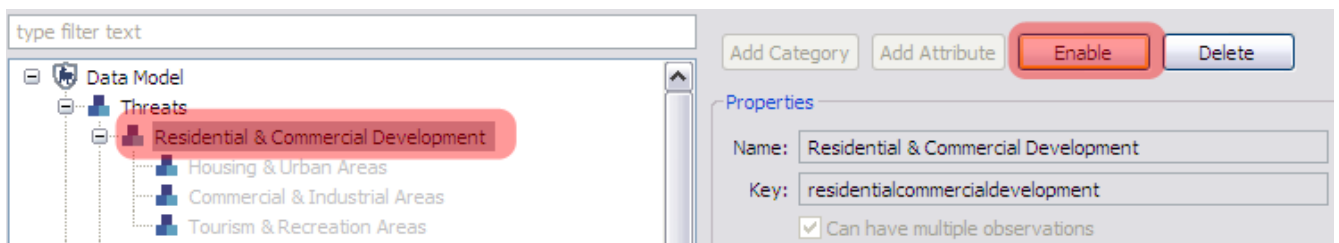
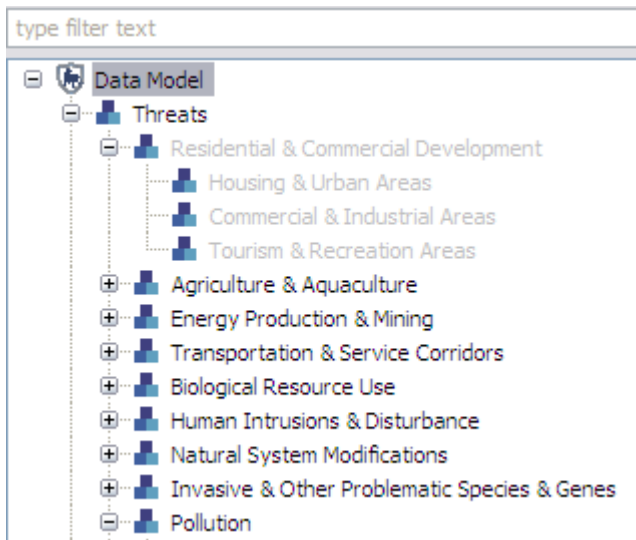


- Select the value of **Cart**
- Click **Delete**
- Click **OK**
- Click **Finish**

Disabling / Enabling Categories

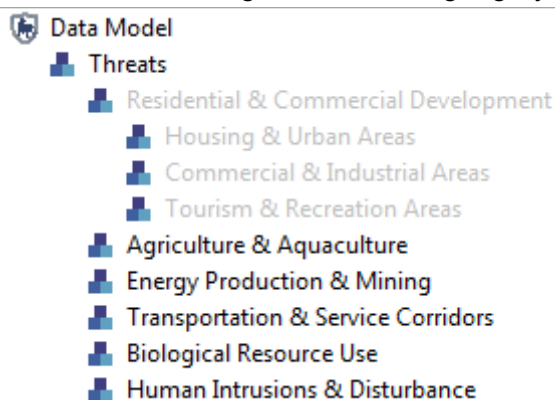
Disabling / Enabling categories is a much easier process because it does not require that all dependencies be disabled before proceeding with the higher level category. It also allows for reintroduction if the need arises.

In the data model the Category of Residential & Commercial Development along with its sub-categories is already disabled. You will enable it then disable it to see the entire process.



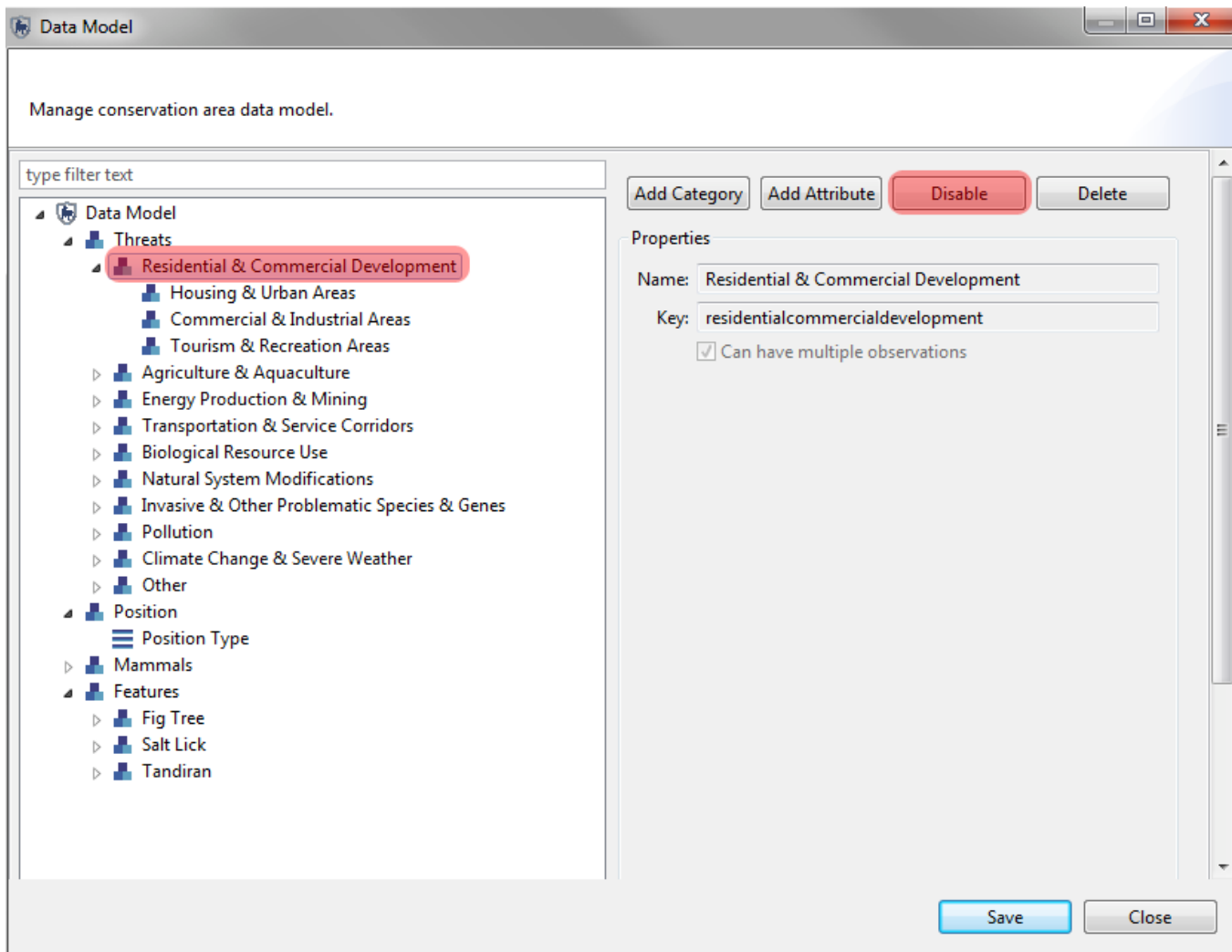
- Select the category of **Residential & Commercial Development**
- Click **Enable**

You will see that the category of Residential & Commercial Development text color has changed from a light gray to black. This indicates that the category has been enabled. The three sub-categories are still light gray indicating they are Disabled.



- Repeat the process of **Enabling** for the three sub-categories

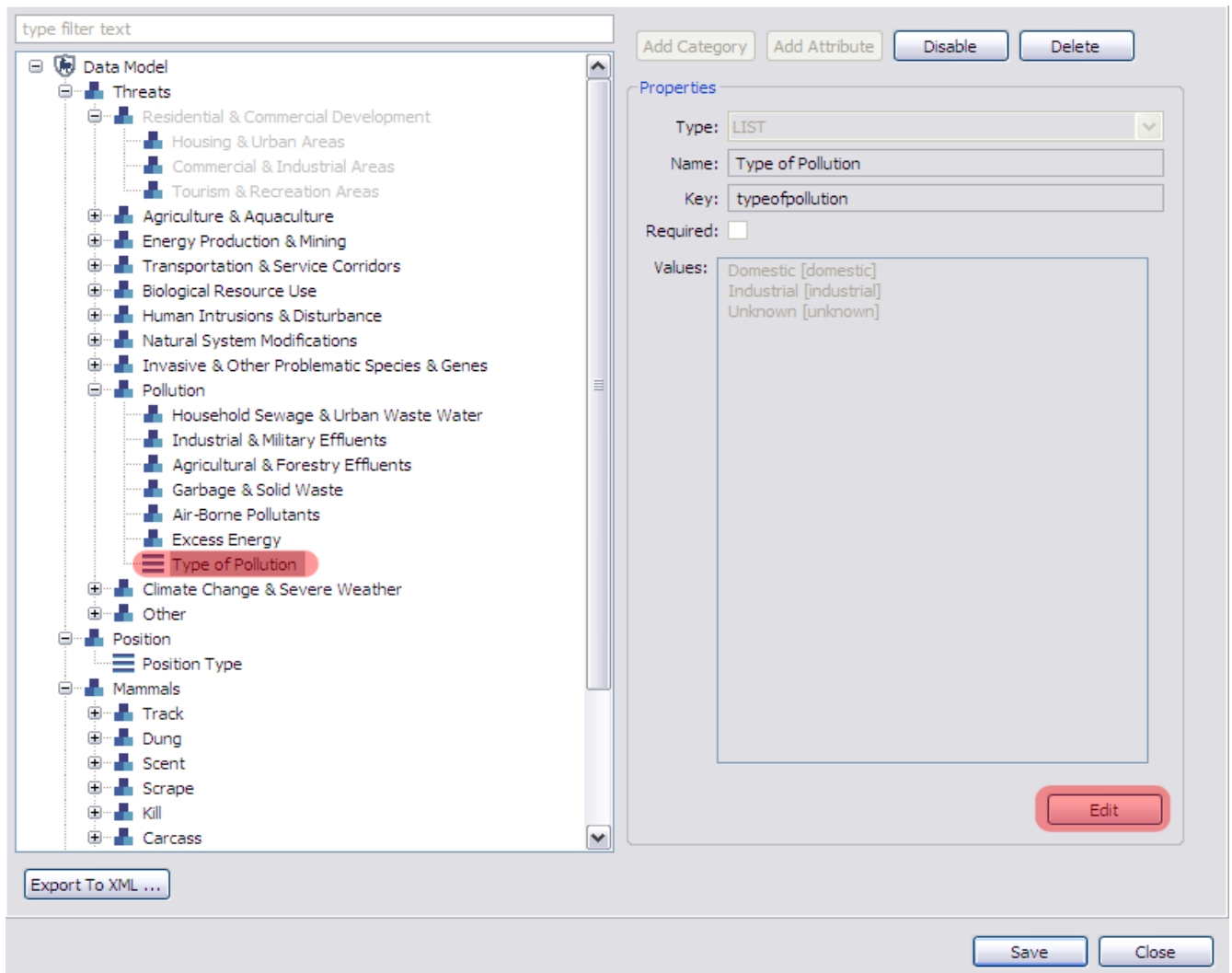
Enabling has to be done one category at a time. Disabling is much faster and will automatically disable the sub-categories below it.



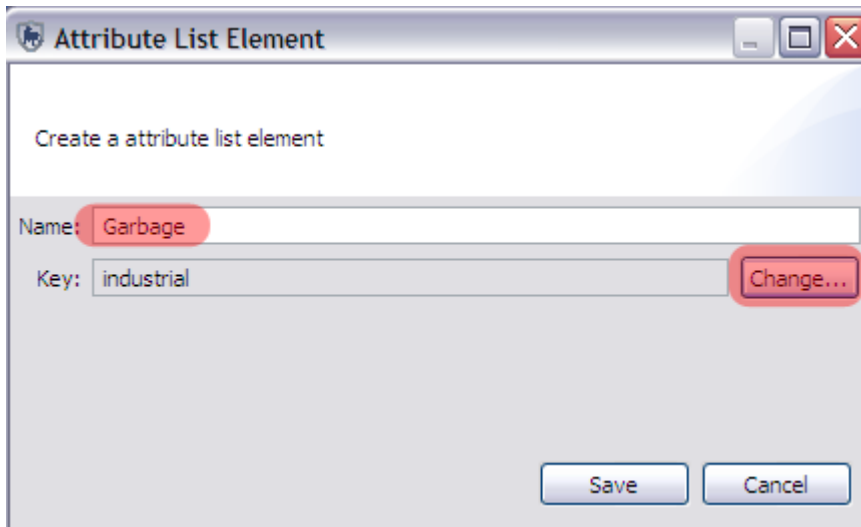
- Select the category of **Residential & Commercial Development**
- Click **Disable**
- Click **OK**

Attribute Inheritance

Attributes associated with higher level categories will be inherited by all of the following sub-categories. In this example, you will add an attribute of Pollution Type to the category of Pollution.



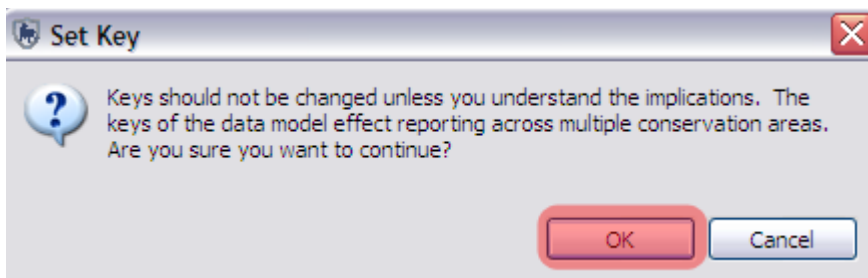
- In the category of Pollution select the attribute **Type of Pollution**
- Click **Edit**
- Select the attribute of **Domestic**
- Click **Delete**
- Click **OK**
- Select the attribute of **Industrial**
- Click **Edit**



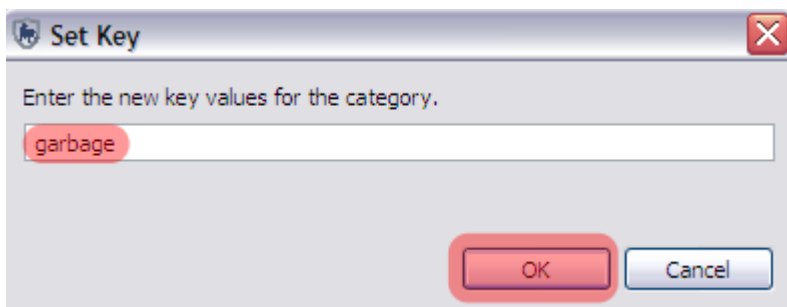
- Type in **Garbage** into the Name field

This will change the visible name of the attribute but the database key will not change automatically.

- Click **Change** to change the name of the database key



- Click **OK**



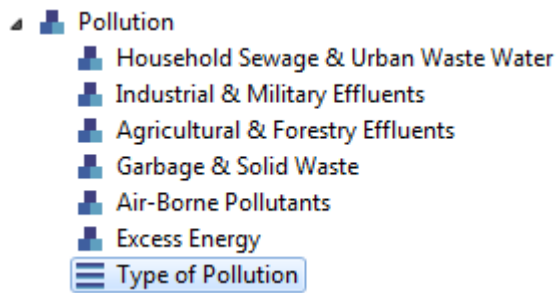
- Type in **garbage**
- Click **OK**
- Create two new attributes of:

- **Chemical**
- **Biological**
- After adding the two new attributes click **Finish**

Click Save to save your data model changes

In the SMART data model tree you should see the attribute Type of Pollution on the same level as the sub-categories.

Note: This indicates that the attribute is associated with the parent category and is an inherited attribute of the six other sub-categories.



<End of Module 8 - Data Model Management>

Module 9: Administrative Tasks

Objective:

This Training Module will introduce you to a number of administrative functions to ensure a productive working environment in SMART. During this module, you will look at the export/importing capabilities, backing up and restoring of a conservation area, along with other best practices that will ensure a minimal amount of downtime if disaster strikes.

- **Changing Your Username and Password**
- **Exporting and Importing Patrols**
- **Exporting the Data Model**
- **Importing a new common Data Model template for your sites**
- **Exporting and Importing a Conservation Area**
- **System Backup**
- **Configuring Automatic Backups**
- **Backing up and Restoring the Database**

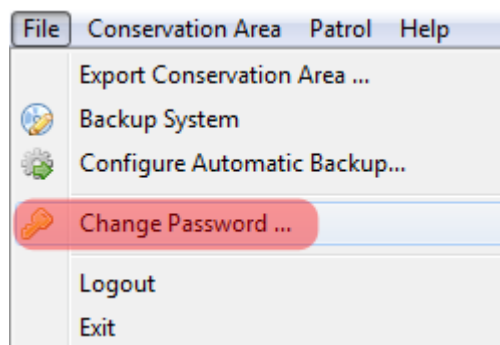
In this module we will start by using the **SMART Conservation Area database**

Detailed Steps:

Previous modules that you have worked on have focused on one particular portion or perspective within the SMART application. This module will explore many perspectives but with a focus on creating backups and other safeguards to protect your conservation area(s).

Changing Username and Password

The following steps are to change the password for the account that is logged into and active.



- Log into **SMART – SMART Conservation Area database**
- From the File menu select **Change Password ...**

Change username password.

To change your password enter your current password and your new password.

Username: smarter Change...

Current Password:

New Password:

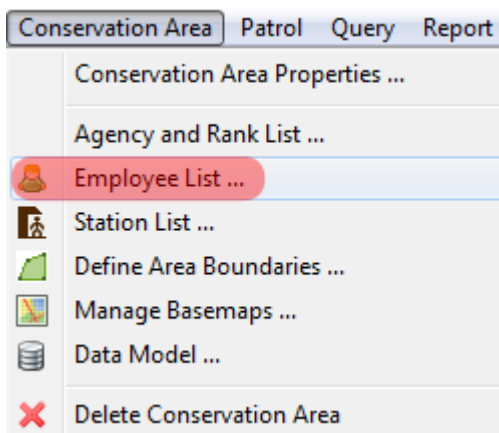
Re-type New Password:

Save Close

- Click **Change...**
- Type in **smarter**
- Click **OK**
- Type in
 - Current Password = **smart**
 - New Password = **smarter**
 - Re-type New Password = **smarter**
- Click **Save**
- Repeat the process and change it back to **smart**

Changing Username and Password of Other Accounts

If a non-administrator account has forgotten the username or password an Administrator account can log into SMART and change the account settings for that employee.



- From the menu select Conservation Area - **Employee List**

Update Employee: 195000010

Id: 195000010

Given Name(s): dataentry

Family Name(s): dataentry

Conservation Area Start: Monday , March 24, 2008

☐ Inactive

Employment End: Wednesday, October 10, 2012

Birth Date: Sunday , January 01, 1950

Gender: ☒ Male ☐ Female

Agency:

Rank:

Smart User

☒ Smart User

Smart User Name: dataentry

Smart Password:

Re-Type Password:

Smart User Level: DATA_ENTRY

Save Cancel

- Type in Smart Password: **dataentry**
- Re-Type in Smart Password: **dataentry**
- Click **Save**

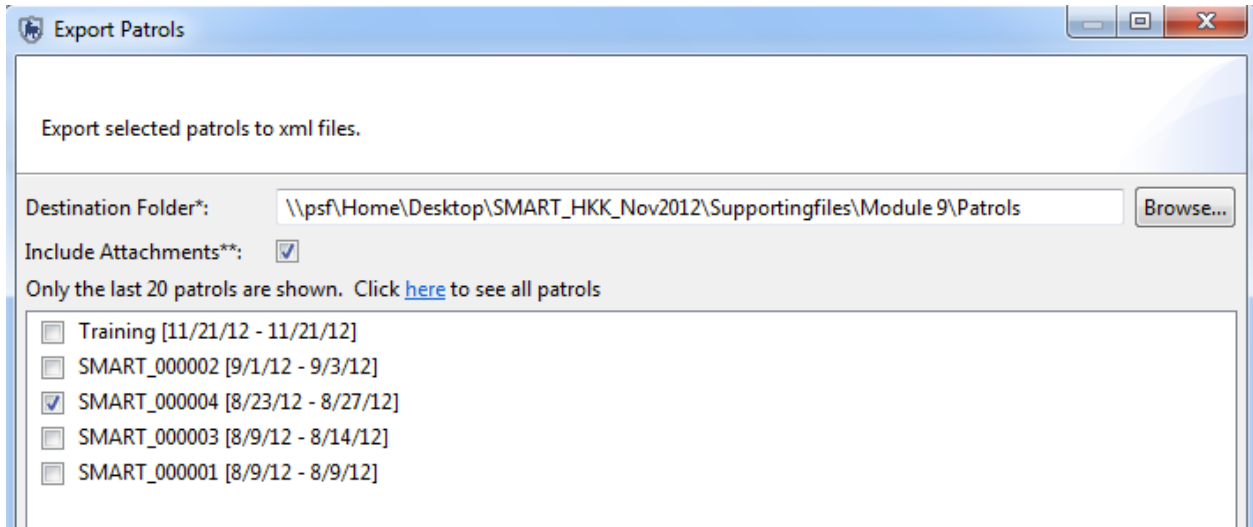
Note: The Update Employee window can be used to update all aspects of a particular employee including Agency, Rank, Smart User Level.

Exporting and Importing Patrols

SMART's ability to Export and Import patrols allows for distributed data entry and reloading into a master system, as well as functioning as a backup file in the event of data loss.

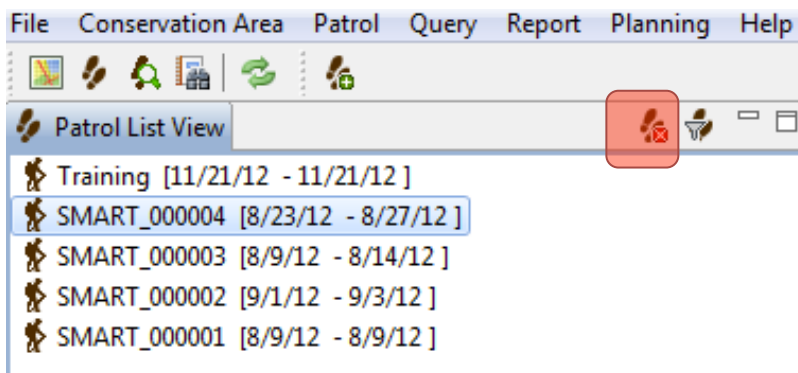
- Change to the **Patrol Perspective**

- From the Patrol List View double-click the Patrol **SMART_000004** (select all-dates in the filter if you can't see the patrol), you need to open the patrol before you can export it.
- On the Patrol Menu select **Export Patrols**

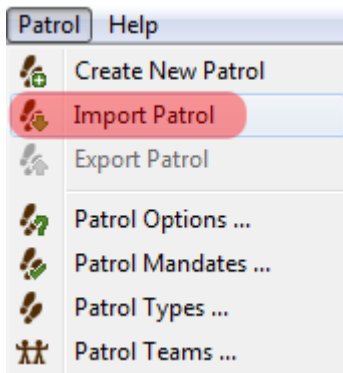


- Browse to Destination folder **Module 9 \ Patrols**
- Select **SMART_000004**
- Use the default of Include Attachments
- Click **Export**
- Click **OK**
- Verify that the file has been saved in the **Module 9 \ Patrols** folder

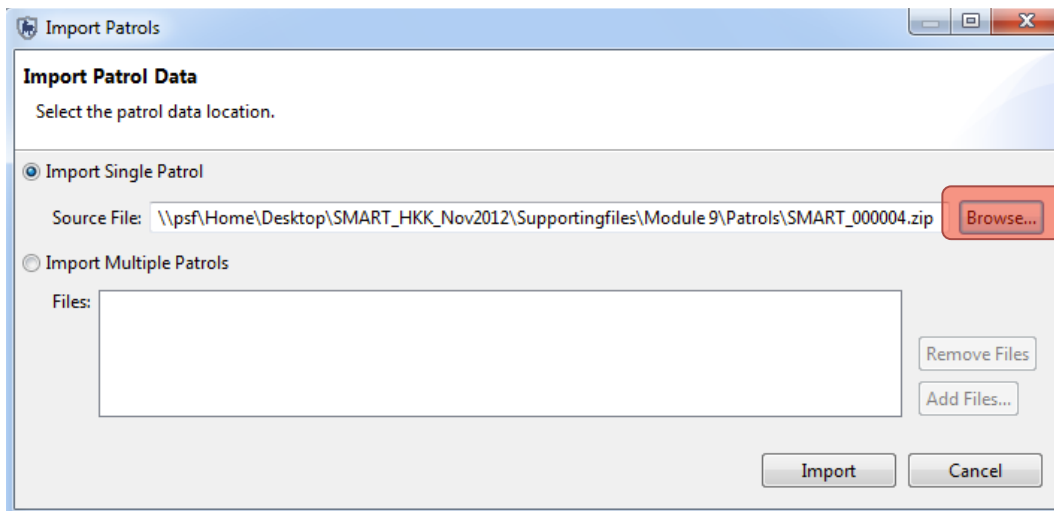
To test the import process, you will need to delete the Patrol SMART_000004 before you import it.



- Select the Patrol **SMART_000004**
- Click the **Delete Patrol** icon
- On the confirmation screen click **OK**
- Click **OK** once more to complete the process



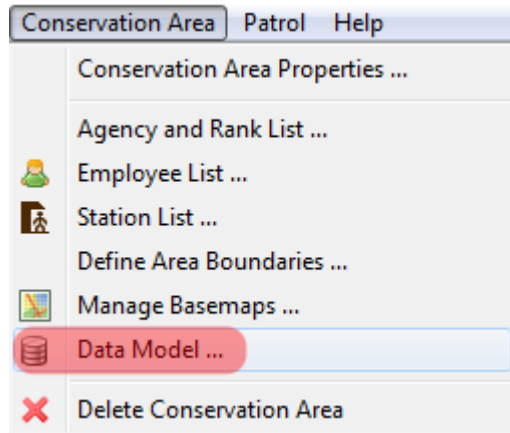
- From the menu select **Import Patrols**



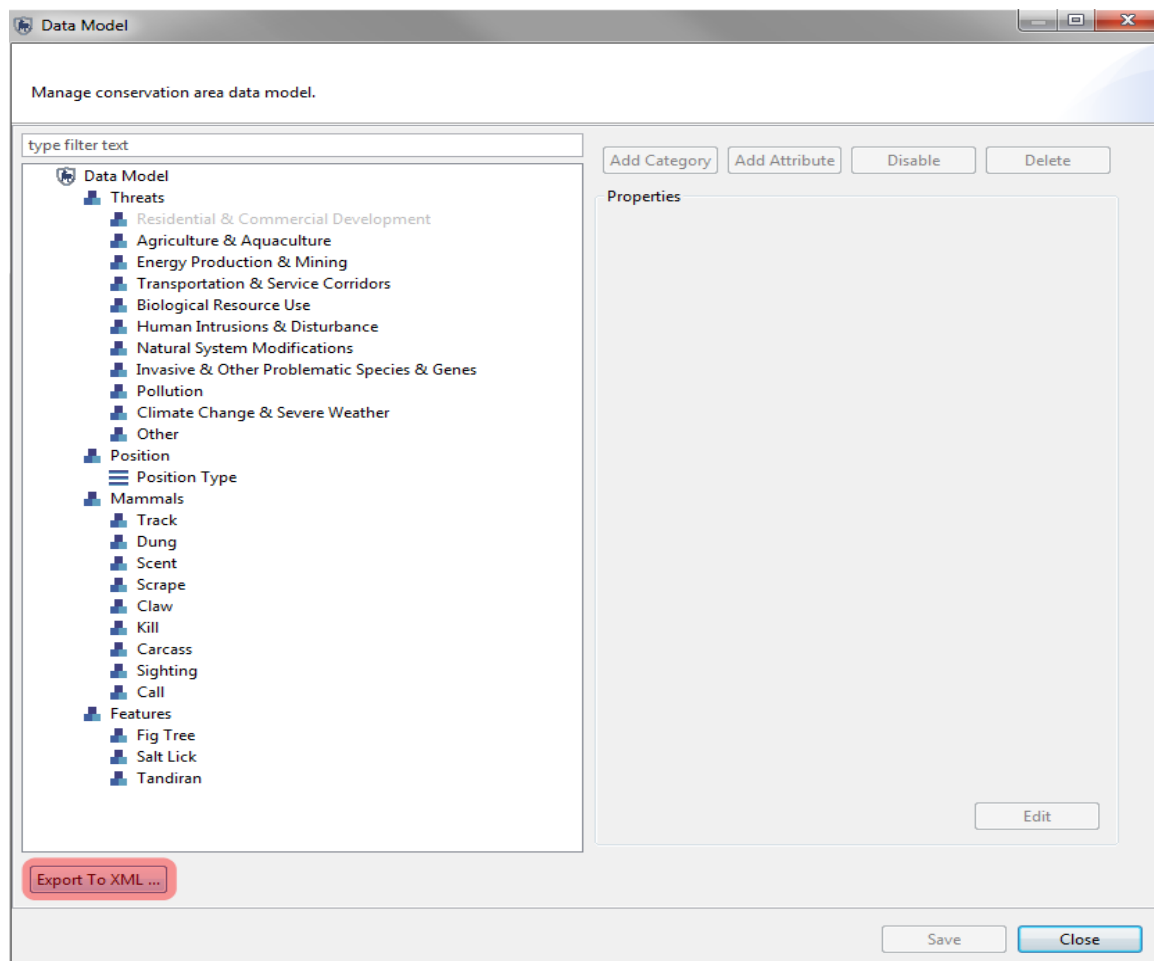
- Select **Import Single Patrol**
- Browse to the exported patrol file **SMART_000004.zip**
- Click **Import**
- Open patrol **SMART_000004** and review the contents of the patrol

Exporting the Data Model

To assist in distribution of a well-designed data model or to protect against data loss, SMART can export the data model in a structured XML format. This XML file can be used to construct a new Conservation Area or to rebuild a corrupt Conservation Area.



- In the Conservation Area menu select **Data Model ...**



- Click **Export to XML ...**
- Browse to folder **Module 9 \ DataModel**
- Save file with filename **datamodel_export.xml**
- Click **OK**

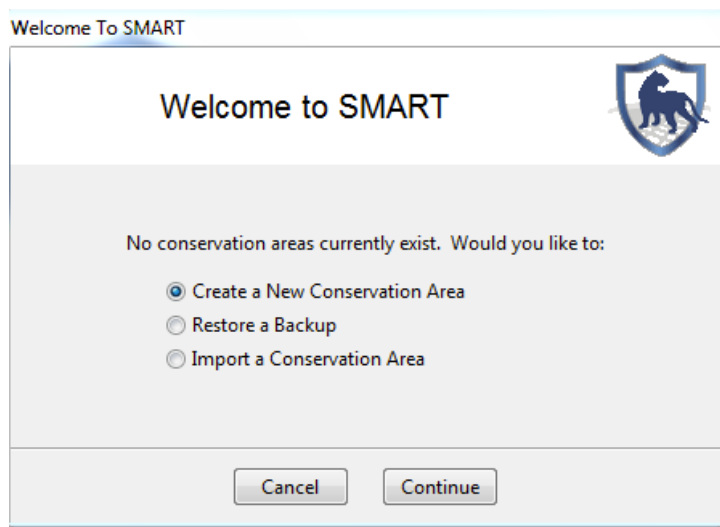
Importing the Data Model

In Module 5 you already went through the process of importing a custom data model.

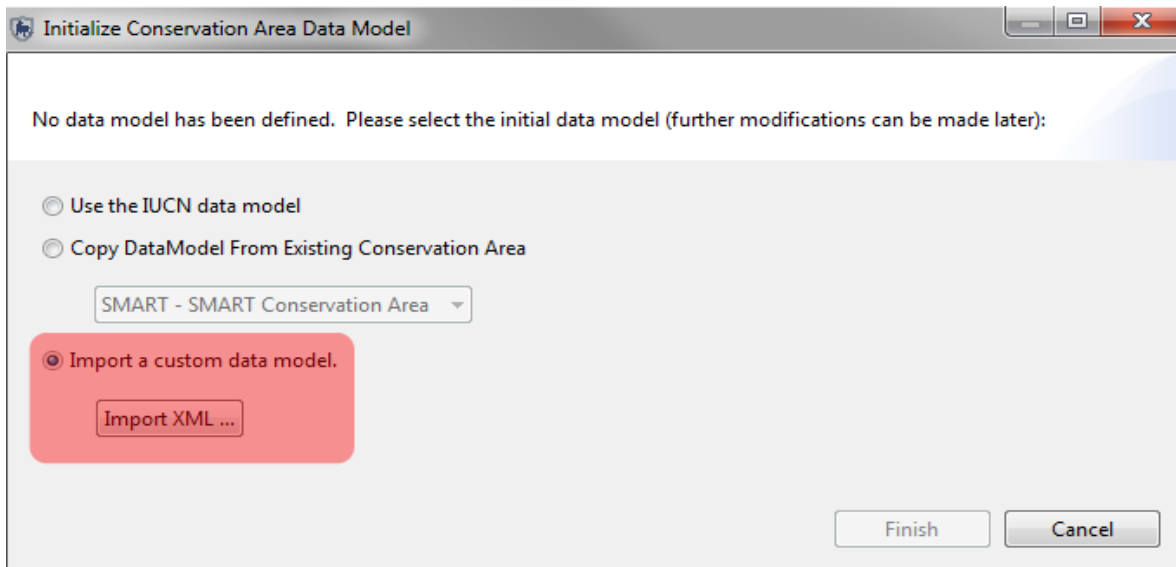
We are going to create a new conservation area and import a new data model here. This new data model can be used to start collecting data when you go back to your sites following this training.

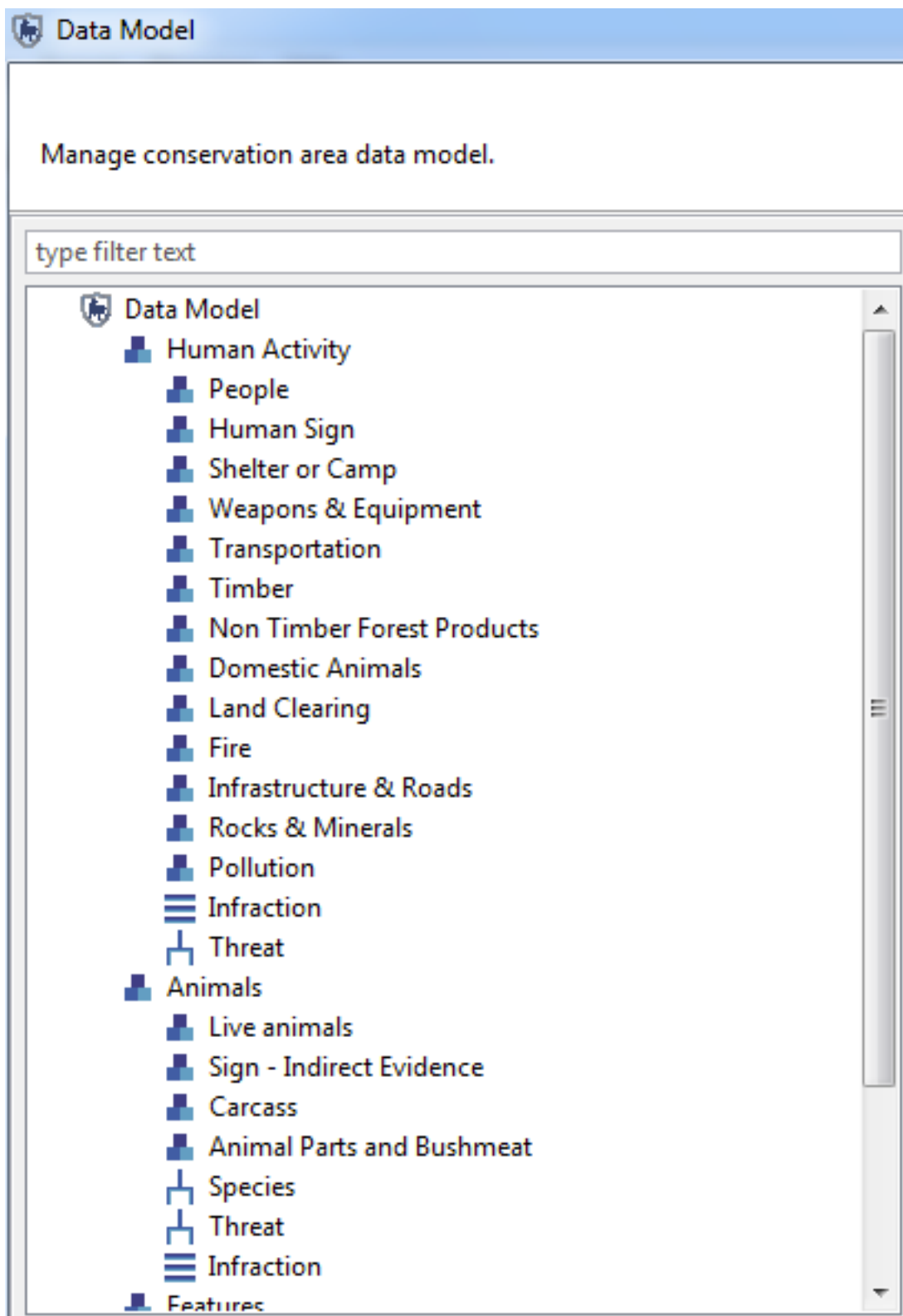
It is based on the MIST data models you already know, but is a much more efficient design. Use this model as a template for customizing your own site databases.

- Logout your current database
- Click on **Advanced** in the SMART login window
- Select Create a New Conservation Area
- **Set up the new conservation area for your own site**
- Click Finish



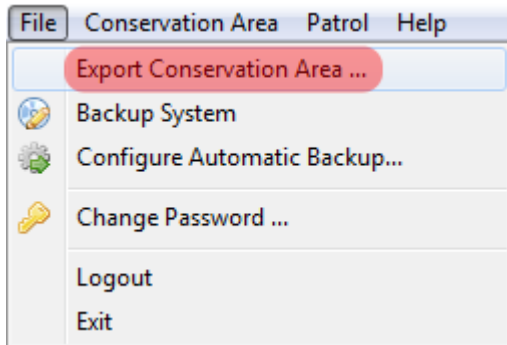
- In the Conservation Area menu select **Data Model**
- Select **Import XML**
- Browse Module 9/Data Models under Supporting Files
- Select **common_datamodel.xml**
- Click **Finish**



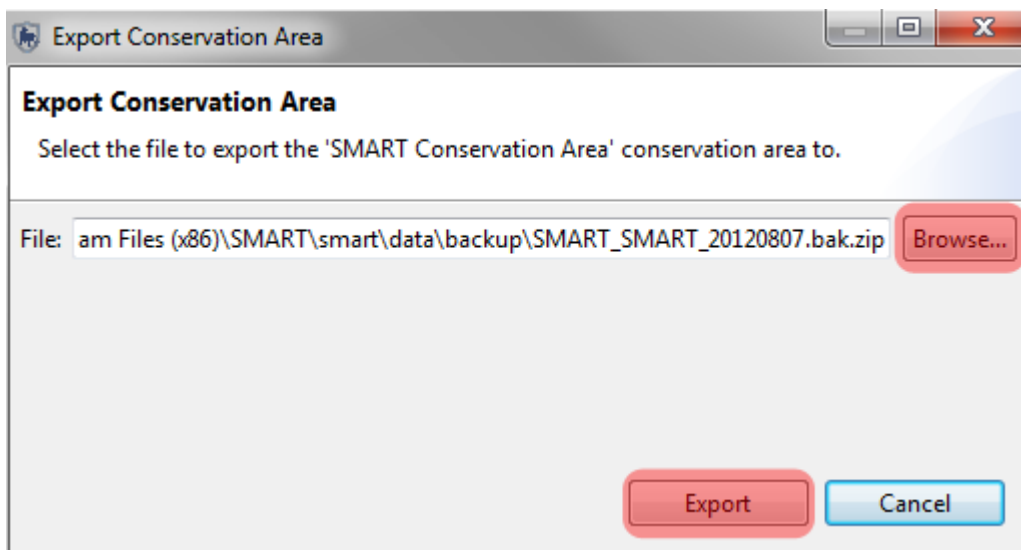


Exporting a Conservation Area

The exporting of a Conservation Area will export all of the components of a particular Conservation Area. This function not only allows for the archiving of a Conservation Area, but also for distribution and sharing.



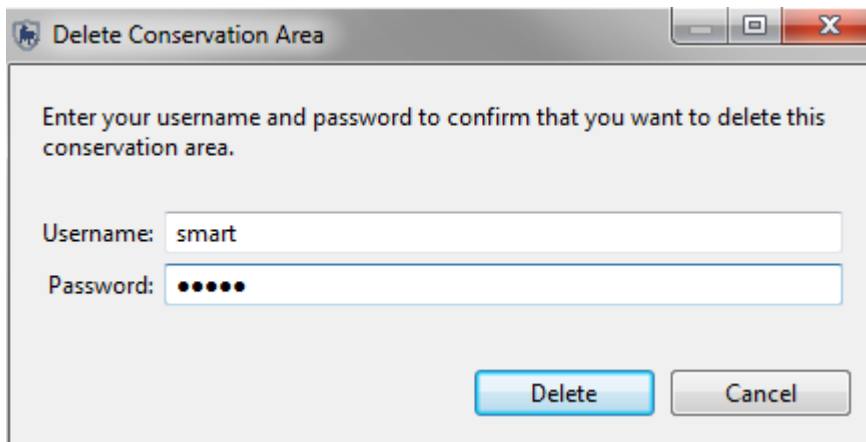
- From the File menu select **Export Conservation Area** (this will export the new conservation area you just created...)



- Click **Browse...**
- Browse to the folder **Module 9 \ CA_Backup**
- Keep the default file name
- Click **Save**
- Click **Export**

To test the functionality of the Conservation Export and Import process, you will now delete the current Conservation Area.

- From the Conservation Area menu select **Delete Conservation Area ...**
- Click **OK** on the confirmation screen



A Windows-style dialog box titled "Delete Conservation Area". It contains a message: "Enter your username and password to confirm that you want to delete this conservation area." Below the message are two input fields: "Username:" with the text "smart" and "Password:" with six black dots. At the bottom right are two buttons: "Delete" (highlighted in blue) and "Cancel" (grey).

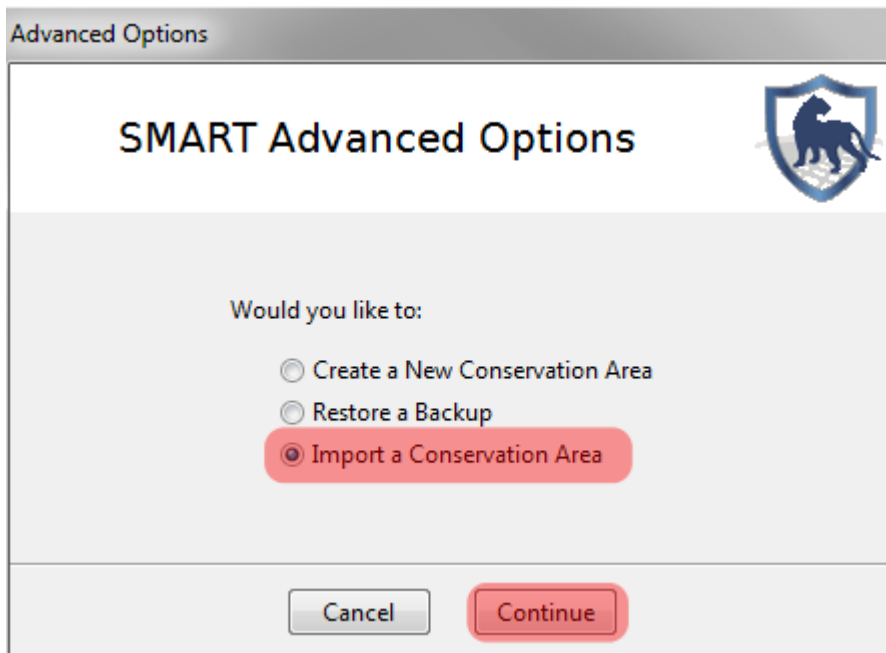
- Type in
 - Username = **smart**
 - Password = **smart**
- Click **Delete**

SMART will now restart the application and bring you back to the original log in screen.



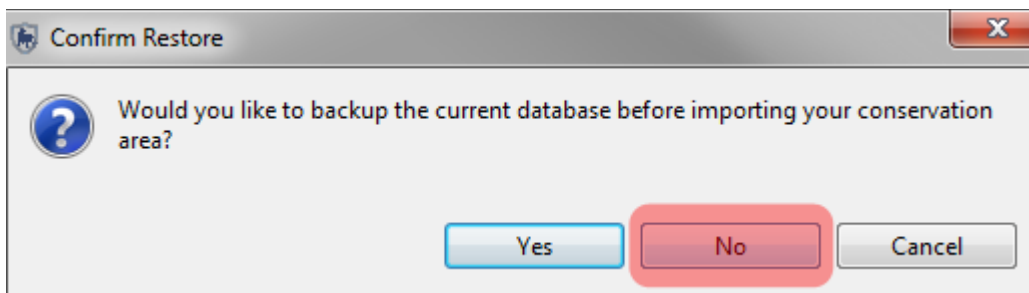
The SMART login screen. On the left is a logo featuring a blue silhouette of a panther standing on a grid, enclosed in a shield. To the right of the logo, the word "SMART" is written in large blue letters, with "Spatial Monitoring and Reporting Tool" in smaller blue letters below it. Below the text are three input fields: "Conservation Area:", "User Name:", and "Password:". At the bottom right is a red button labeled "Advanced...". At the bottom center are two buttons: "Exit" and "Login".

- Click **Advanced**

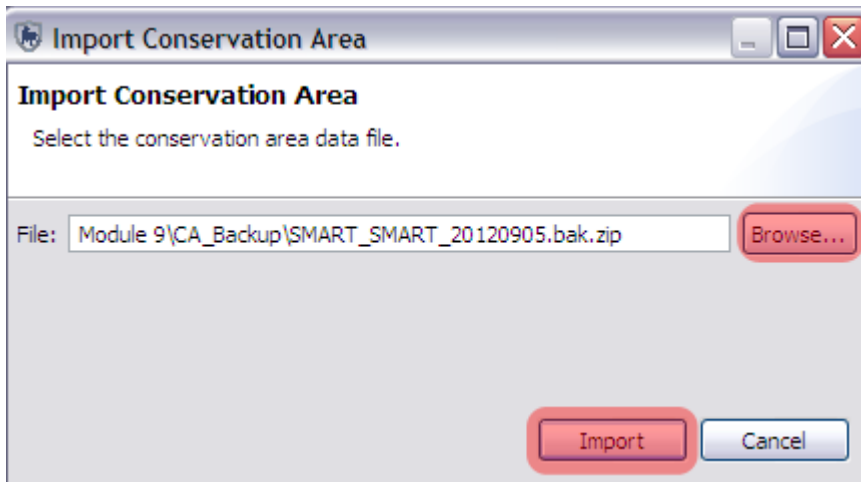


- Select **Import a Conservation Area**
- Click **Continue**

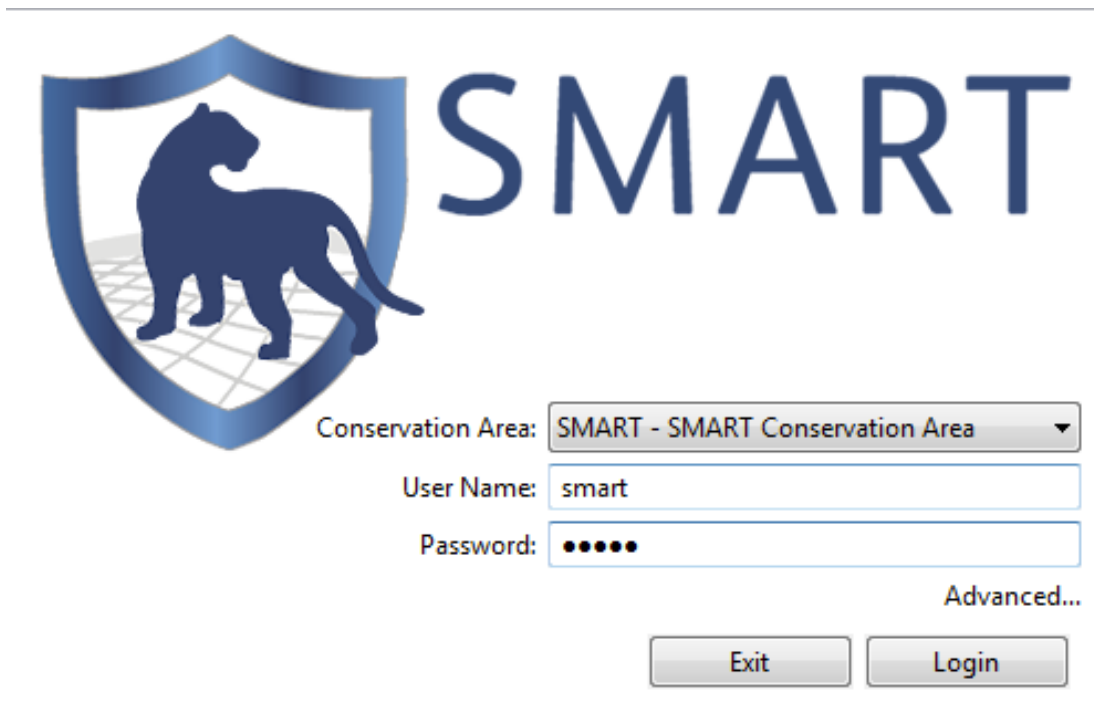
SMART will ask you if you would like to backup the existing database before importing a Conservation Area. For this example you will click No as there are no other Conservation Areas in the database to preserve.



- Click **No**



- Browse to folder **Module 9 \ CA_Backup**
- Select your backup file
- Click **Import**
- Once the import has completed click **OK**



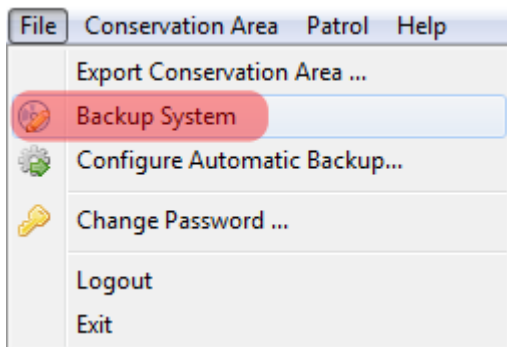
- Select the Conservation Area **SMART - SMART Conservation Area**
- Type in
 - User Name = **smart**
 - Password = **smart**
- Click **Login**

You should now see the SMART Map View of your newly imported Conservation Area.

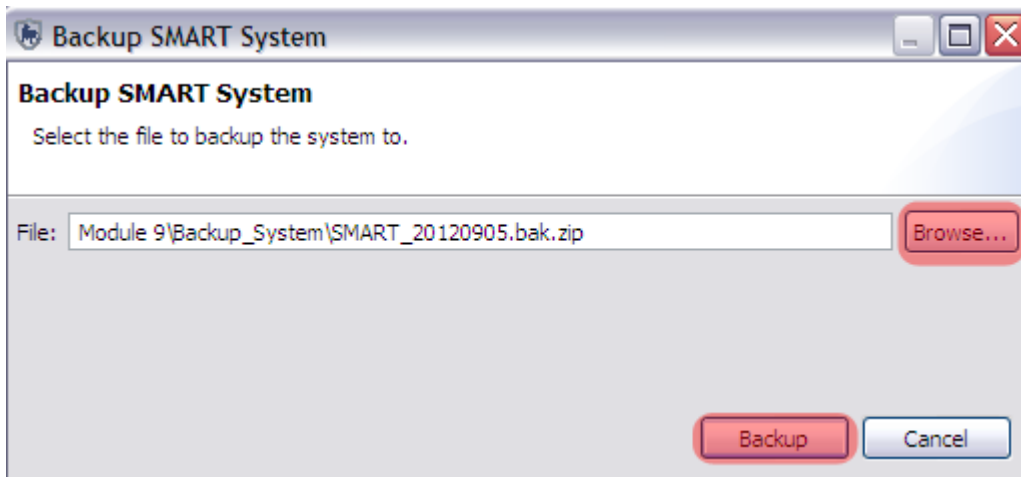
Backup System

In the previous example you exported and then imported a single Conservation Area. The Backup System function will create a backup file of the entire database and backup every Conservation Area managed by that database.

Note: if you have multiple conservation areas in the database, this will back-up everything in one step



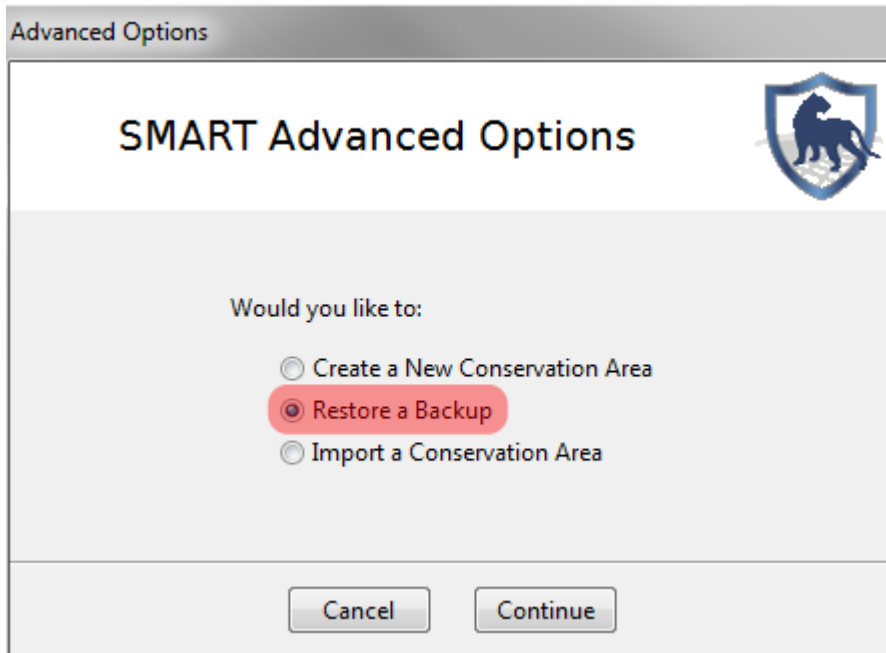
- In the File menu select **Backup System**



- Browse to the folder **Module 9 \ Backup_System**
- Keep the default file name
- Click **Backup**
- Once the process has completed click **OK**
- Browse to the folder **Module 9 \ Backup_System** to ensure that the file has exported correctly

Note: the filename is nearly the same as the Conservation Area export file with the exception that no specific Conservation Area names are included in the export filename.

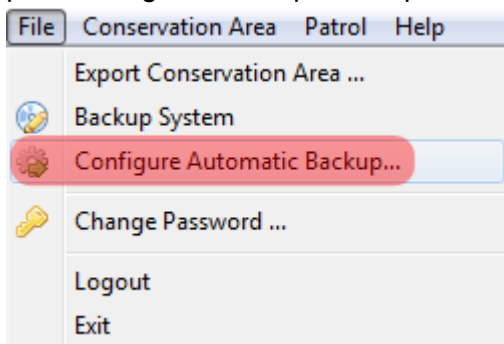
At this point you will not need to restore the entire database, but the following screenshot is a reminder of where the import would take place.



Note: the backup file can be imported through the SMART Advanced Options screen.

Configuring Automatic Backups

Remembering to perform regular backups is critical to ensuring that data can be recovered in the event of a system crash. SMART has the ability to automatically perform regular backups to a specified folder.



- In the File menu select **Configure Automatic Backup...**

Note: The frequency (and file location) for the Auto-Backup Configuration will be left up to the individual administrators.

The screenshot shows a Windows-style dialog box titled "SMART System Automatic Backup Settings". It contains three main sections for configuration:

- Auto-Backup Configuration:** A text box explains that the system checks for backups when the application closes. Below this, a question asks "How often would you like the system to perform an automatic backup?". The answer is "Every -1 days*", where "-1" is highlighted in a red box. A footnote states: "* Enter -1 to turn off auto-backup. Enter 0 to perform an auto-backup every time the application is closed."
- When should automatic backup files be deleted?:** A text box asks for the deletion threshold. The answer is "Delete files older than 30 days", where "30" is highlighted in a red box.
- Where should automatic backup files be placed?:** A text box shows the default path "C:\Program Files (x86)\SMART\SMART_Backups", which is highlighted in a red box. A "Browse..." button is to the right.

At the bottom right, there are "Save" and "Cancel" buttons.

- Set the backup for **every 1 day**
- Leave the default delete threshold and backup location
- Close the Application. You should notice a short backup process that occurs before the application finally closes, this process may take much longer for large databases with many patrols, basemaps and attachments.
- Log back in and change the autoback-up configuration back to -1 to disable auto-backups

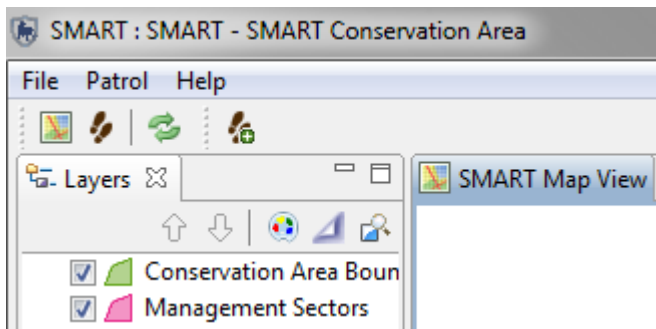
User Levels Permissions and Restrictions

Throughout the technical training modules all examples have been performed through the Administrator account which has full access to all SMART functions. Other SMART accounts have varying access permissions allowing Administrators to assign an appropriate user level to employees. SMART design is dynamic and

Data Entry

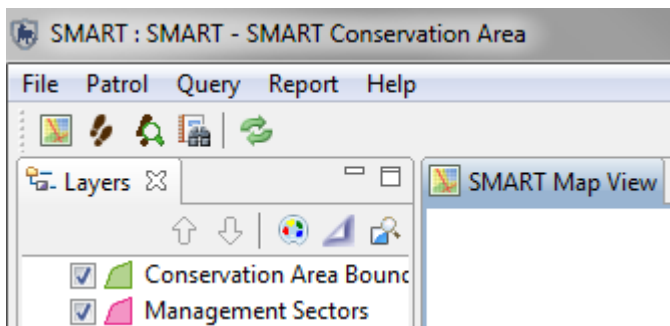
The data entry user level has the most restrictions in place. The menu bar and icons available have been customized to include only the features required for the account to enter patrol data.

The data entry user level can enter create, export, import patrols, and create system backups after patrol information has been completed.



Analyst

The analyst user level is designed for employees to create, export, import, run queries and reports. The analyst user level cannot create, alter or delete any queries or reports that have been saved in the Conservation Area Queries (or) Reports. This user level can run, create, alter or delete reports saved in the My Queries or My Reports folders. An analyst account cannot enter patrol data or export/import patrols.



Manager

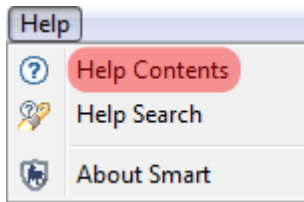
The manager account can make full changes to the patrol, query, report or planning modules. A manager account cannot make changes to the data model, update Conservation Area or patrol parameters.

Administrator

The administrator account has full access to all functions and options in SMART.

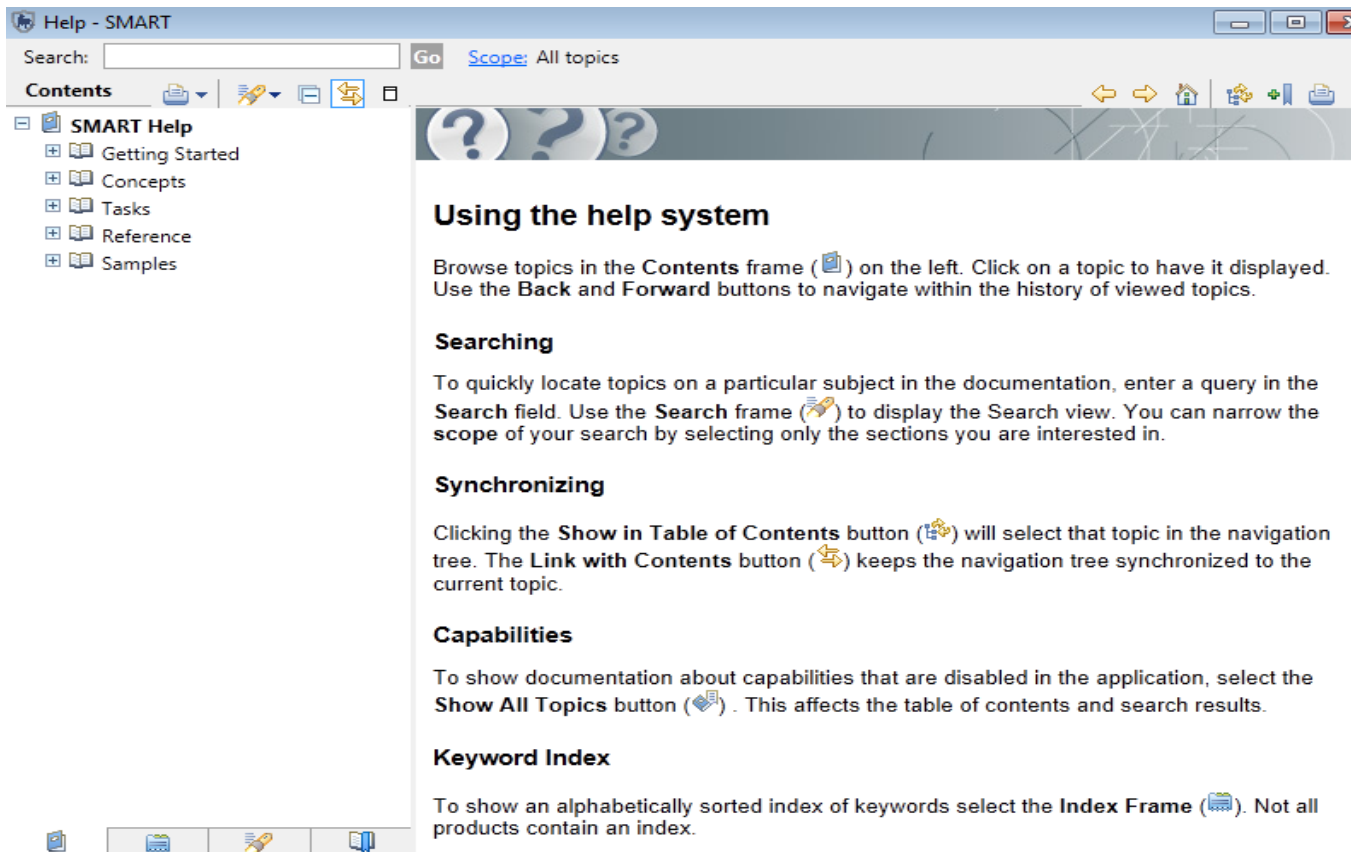
SMART Help

SMART's help system can be accessed directly through the menu bar. The Help Contents section



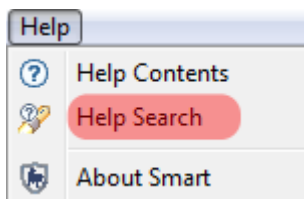
- To access the Help Contents from the menu select **Help Contents**

Contents of SMART can be accessed through the Help tree (right) or by directly entering in key words into the Search bar.



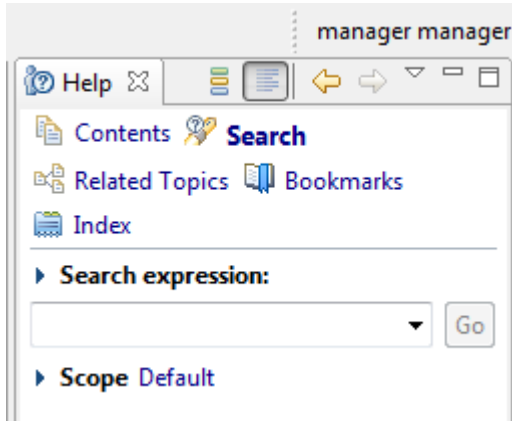
SMART Help Search

SMART Help search can be viewed through a side window to allow for regular viewing of the application.



- To access the Help Contents from the menu select **Help Contents**

In the window on the left the Help Search functions are available. Direct keyword searching is entered in the Search expressions: field. Browsing of the help tree is available through the Contents link.



<End of Module 9 - Administrative Tasks>