

EPAT Users' Guide

Introduction

The Ecoregional Portfolio Assembly Tool (EPAT) is a decision support tool implemented in Microsoft Access that provides a framework for assembling an ecoregional portfolio of conservation areas. Although the tool can be used in all situations presented to an ecoregional planning team, its greatest strengths lie in regions where conservation options are somewhat limited.

EPAT implements a consistent and efficient methodology for portfolio assembly that meets the requirements outlined in *Geography of Hope II*. EPAT also has a number of features that indirectly support the portfolio assembly methodology, including displays of GIS data, information management enhancements such as tight integration with the Conservation Planning Tool, and a number of reports that give meaningful insight into the results of the assembly process.

Architecture

EPAT is a standalone application written in and requiring Microsoft Access 2000. It uses CPT data stores as a source for all data. When connecting to a CPT dataset for the first time, EPAT will make some modifications to the table structure to enable the storage of EPAT-specific data as well as GIS information, which CPT is not normally capable of storing.

EPAT uses MapObjects to provide integrated mapping capabilities, and is able to use geographic data from a number of sources and integrate it tightly with CPT's tabular data model.

Number and Variety ranks are combined into a composite Number/Variety rank, which is then combined with Preliminary Functionality via weighted averages to arrive at a final rank for the PCA.

Portfolio assembly

Portfolio assembly takes place via an interactive review of each PCA. At this time, practitioners can decide whether to add the PCA to the portfolio, exclude it if it is redundant or too low-quality, or mark it provisional and revisit it later in the process.

This way, the best PCAs contribute to goals first, while lesser-quality areas are only brought into the portfolio if their targets are not adequately represented elsewhere.

Tutorial

This document contains tutorial steps mixed in with the documentation. For a thorough introduction to EPAT, you should follow the steps from beginning to end. The information also stands on its own for future reference during portfolio assembly.

| Tutorial steps are marked with a line to the left of the paragraph (this paragraph is an example.)

Starting EPAT

After installing EPAT (including MapObjects), start EPAT from the Windows Start menu in the lower-left corner of the screen. If you haven't installed MapObjects yet, you should do so first.

Connecting to CPT.mdb

To connect to the tutorial dataset, click the Connect button on EPAT's main screen. EPAT will ask for the location of "CPTdata.mdb," which is the standard filename for CPT datasets. The tutorial dataset should be in the same place you installed EPAT (usually `C:\Program Files\EPAT`), under the Tutorial folder.

Once you have successfully connected, the Connect button will change to Reconnect and the other buttons will be enabled.

Starting a portfolio

Before you can do much with EPAT, you need to tell it which ecoregion you're working in and start a portfolio there. Click the Begin Portfolio button, enter a name for the portfolio ("tutorial portfolio, take one") and select the ecoregion. The tutorial ecoregion is called North Central Neverland.



In the future, you can switch between different portfolios-in-progress by using the Existing tab. Prioritization and portfolio data is not shared between different portfolios, so you can keep several efforts going at once. However, all the biological and spatial data is kept in common between portfolios, so if you want to drastically alter your datasets to explore different scenarios (e.g., with different target lists or revised goals), it is a better idea to make a separate copy of CPTdata.mdb instead.

Browsing through data

The Queries button presents a large number of different ways to view and interact with the biodiversity data present in CPT. Although there are many different options, there are only three basic entities EPAT is concerned with: PCAs, Targets, and Target Occurrences.

Query Navigation



On the EPAT toolbar, there are several buttons devoted to navigating through data. If the main EPAT screen gets lost you can click the EPAT button to bring it up in front. The Recent button will give you a list of recent queries so you can easily hop back to a previous query. (EPAT will remember the current record as well.) The back and forward buttons allow you to navigate through the recent query list as well.

Clicking the Print Query button builds a printable report of the current query and will be explored in more detail later, as will EPAT Selection.

Spend a bit of time poking around the tutorial dataset, using the information below to guide you through the query results.

Viewing PCAs

Query results

Site name

Site id

Arroyo del Macho

Battle Creek

Bell Ranch Grassland

Big Juan (Juan Largo)

Big Lake

Black Kettle

Blackwater Draw

Border Hills

Buckeye

Bueyeros Grasslands

Canadian River - Old

Canadian River East

Canadian River Gorge

Canyon Largo

Canyon Playas

Detail | Map of query

Battle Creek

Overview | Map | Metrics | Mgmt/Land use | Action site sel | Issues | Portfolio

Name: Battle Creek

-> Occurrences for this PCA

Description:

Centroid latitude: 34.70905

Centroid longitude: -101.09872

Area in hectares: 58861

Assign ID

Site ID: 10110109872234705

Foreign ID: 118

- Name: This field is optional, but can be filled with a name if you choose to give the PCA one. Some teams have adopted the habit of naming major PCAs but leaving minor ones unnamed.
- Occurrences For This PCA: Clicking this button brings up a new query that lists all the occurrences found within that PCA.
- Site ID: This is CPT's internal ID for the PCA. It must not be blank, and it must be unique. It can be generated from the centroid latitude and longitude information by clicking the Assign ID button, but can also be set by hand so long as it remains unique.
- The Foreign ID is used by EPAT, but very useful in tracking CPT's data to other sources, such as GIS or spreadsheets. It is also an easy to remember identifier that's a much more painless way to refer to a PCA rather than CPT's internal site id.
- The remaining fields on the Overview tab can be filled in for documentation and informative purposes, but EPAT doesn't use them in any substantive way.

Viewing Targets

- Scientific and common name: These are the names the target will be known by in EPAT.
- Selected as target: When this is checked, the target will be tracked in the portfolio and goals assessed. If it is not checked, this target and its occurrences will be ignored.
- Geographic scale: This information is necessary for EPAT to perform the Variety step of the ranking process.
- The Occurrences button will bring up a query with all occurrences of that target in the ecoregion.
- The New Occurrence button will create a new, blank occurrence of the target.

The Goals tab is where target goals are entered and maintained:

Stratification unit	Goal	
Middle Brazos	1	Occurrences
Canadian River Corridor	2	Occurrences
Capulin High Plains	2	Occurrences
Montane Ecotone	2	Occurrences
New Mexico High Plains	2	Occurrences
Northern Llano Estacado	2	Occurrences
Southern Llano Estacado	2	Occurrences
Western Rolling Plains	1	Occurrences
*	0	

- Overall goal: This is the overall goal for the entire ecoregion.

In most cases, the overall goal should be the sum of all stratification unit goals, since EPAT will not count excess in any stratification unit towards the overall goal.

- Stratification unit goals: This is where goals are entered for each stratification unit the target occurs within.

EPAT can only assess occurrence and hectare goal units

Viewing Target occurrences

Occurrences are the most important data elements in EPAT's assembly methodology, and the most complicated. There are many important fields, most dealing either with an occurrence's viability, or with its relationship to other entities in the database.

The screenshot shows the 'Occurrences - All' window in EPAT. On the left, there is a list of occurrences, all with the scientific name 'Athene cucularia h'. The main window is divided into two tabs: 'Detail' and 'Map of query'. The 'Detail' tab is active, showing a form for a specific occurrence. The form includes the following fields:

- Name: (blank)
- Overall viability: (dropdown menu)
- Comments: Texas Breeding Bird Survey
- Size: (dropdown menu)
- Condition: (dropdown menu)
- Last observed: 1989
- Info source: 9
- Context: (dropdown menu)
- Centroid lat: 35.91986
- Centroid long: -102.56721
- EO ranking: (dropdown menu)
- Area in hectares: 0
- ID: 1028X102810030466
- GIS Suitability: 0
- Heritage ID: (blank)
- Percent MDA: 0
- Foreign ID: DALHART

- Name: This optional field can be helpful managing data sources and keeping track of what's where, but often it's more convenient to leave blank.
- Overall Viability: If the overall viability of the occurrence is known, then it should be entered here. This is the first place EPAT will look for viability information when it is assessing the viability of the occurrence.
- Size, Condition, Context: These fields are for documenting the three main components of the overall viability; EPAT does not use them but they are important to have.
- Centroid lat and long: Optional, but useful for creating a spatial record for the occurrence.
- GIS Suitability: EPAT can use this to assess viability if the overall viability is not set. It should be a number from zero to 100. (100 is best, zero worst.)
- Percent MDA: EPAT can use this in conjunction with the GIS suitability to deduce occurrence viability if the Overall Viability is blank. It too should be a number from 0 to 100.
- Target name: The target name is listed across the top of the record (both scientific and common). To view the target in a query, click the arrow button to the right of the common name.

If you choose Unknown as the overall viability, EPAT will not try to guess at the viability by other methods as it will when this field is blank.

An occurrence's spatial relationships

Even if you have everything mapped correctly, if the spatial relationship fields are not filled out, EPAT will ignore your occurrence. This is because EPAT does not use GIS data for any calculation steps, instead always trusting the tables from CPT.

Some of the most important pieces of the dataset are tables that record the spatial relationships between occurrences and PCAs, stratification units, and each other. If these are unknown, EPAT has no way of telling which goals an occurrence should contribute to or which conservation area.

- PCAs: This list shows which PCAs the occurrence is in. There are several special buttons to the right of the PCA name and ID.
 - : This button brings up a new query for the listed PCA.
 - : This button makes this occurrence embed all other occurrences with the listed PCA. This is useful for quickly marking an occurrence as the dominant occurrence for a PCA and easily creating occurrence embedding information.
 - : This button brings up a new query with all occurrences that have the same target as this one within the listed PCA. During the process of grouping together redundant occurrences, this query is a useful one.
 - : This will edit the occurrence's boundary so that it is identical to the PCA's boundary. If you have no other spatial information, it can be helpful to use this as a quick way to map an occurrence.
- To create PCA data, you can select a PCA from the dropdown list of all PCAs or click the Assign PCAs button, which will perform a spatial query of EPAT's GIS information to automatically fill in the PCA information.
- Occurrence embedding: If this occurrence is embedded within another occurrence that could be used as a surrogate for viability assumptions, you should fill this in. There are three ways to create this data:
 - Cut and paste the Occurrence ID of the other occurrence into this field.
 - Click Assign Embedding, which will use GIS information to automatically fill the field.

- From the parent occurrence, click the exclamation mark to make that occurrence the dominant one for the entire PCA. This will create an embedding record for all other occurrences at the PCA.
- Stratification units: This list stores the stratification unit information for the occurrence. It is necessary in order for goal assessments to work properly; if EPAT doesn't know the stratification unit for an occurrence it cannot count it towards any goals. To set values, choose a stratification unit from the dropdown list and enter a percentage, or click the Assign Stratification Units button.

How occurrence viability is assessed


During the prioritization process, EPAT will assess the viability of the occurrence. There are several steps:

- If the overall viability is known, EPAT uses this. If it is marked as unknown, EPAT will leave it as unknown and not proceed further.
- If the GIS Suitability and the Percent MDA fields are non-zero, EPAT will average them via a weighted average to arrive at a viability score for the occurrence.
- If the occurrence is embedded with another occurrence and that occurrence has a known viability, EPAT will assume that this occurrence has the same viability.

Making simple changes

For the most part, entering and editing data works as you would expect. For example, the Ferruginous Hawk target needs its overall goal adjusted from 4 to 3 since the count is wrong and the units changed to occurrences from hectares. First bring the target up in a query (Targets-Selected) and find it in the results. Then, choose the goals tab, highlight the offending value, and type in the new value. To change the units, click the drop-down next to the goals and select Hectares. The values should be appropriately edited.

To edit lists of items, such as the PCAs an occurrence is contained within or the stratification unit goals for a target, MS Access uses the following conventions:

- The gray boxes to the left of the list are called the Record Selectors. The current item on the list is indicated with a little arrow: 
- The last row is empty and, instead of an arrow, the record selector contains a star. This is where you should enter data to add a new item to the list.
- To delete an item on the list, click on its record selector. The selector will darken; to delete the record press the delete key on the keyboard or go to the Edit menu and choose Delete.
- Editing data in the lists works the same as anywhere else.

As an example, the Mangrove Forest target is missing a stratification unit goal where it should have one of seventy-five acres; you should enter it now. (You could find this with the “Occurrences with no assoc. strat unit goal” query under Troubleshooting, which brings up occurrences that are in stratification units that their target doesn't specify a goal for. Then you could use the arrow next to the target name to bring up the target to edit the goals.)

There are a few more changes that need to be made to the dataset before proceeding with the tutorial:

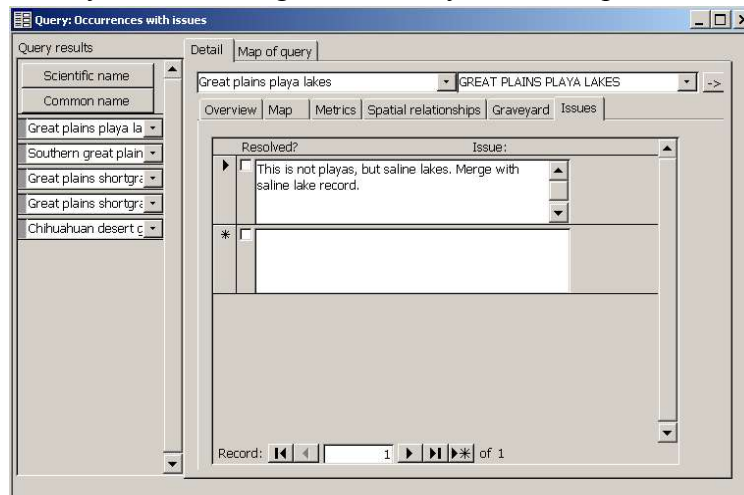
- There's a typo in the name of the Poudre River Vallye PCA; it should read Valley instead.
- An occurrence of the Mangoves target is accidentally marked as being within two PCAs, when really it should just be in the Seashore Haven PCA. Delete the erroneous record. (Hint: Use the “Occurrences with more than one PCA” query.)

Tracking issues

If you try the “Occurrences of hectare targets w/o an area” troubleshooting query, you'll see that it brings up one record of a Mangrove occurrence. This occurrence will not count towards the goal until its area field is in, since this target's goals are in hectares rather than a count of occurrences.

Unfortunately, we don't know what the area value should be and need to call an expert to find out. To top things off, it happens to be the weekend (right?) and nobody is available.

Rather than leaving the record behind and hoping you can find it again (what if the query brought up 300 records, or there was no specific query for the problem?), EPAT provides rudimentary issue-tracking functionality built on top of CPT.



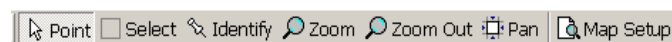
If you click the Issues tab on the occurrence record, you can enter an issue to be tagged with this occurrence; using the “Occurrences with Issues” query in the future will bring this occurrence up until the issue is resolved (and you check the box that says so).

Create an issue and leave the query; then try bringing it back up with the Occurrences With Issues query. Then resolve the issue by entering an area of 33 hectares and checking off the issue on the Issues tab.

Interacting with maps

The basics

EPAT displays maps in many places. For any PCA or occurrence query, you can click the “Map of Query” tab to view the spatial distribution of the query results; for any PCA or occurrence, you can see and edit its boundary on the Map tab.



EPAT's mapping toolbar comes with a number of tools to ease interacting with maps. From left to right:

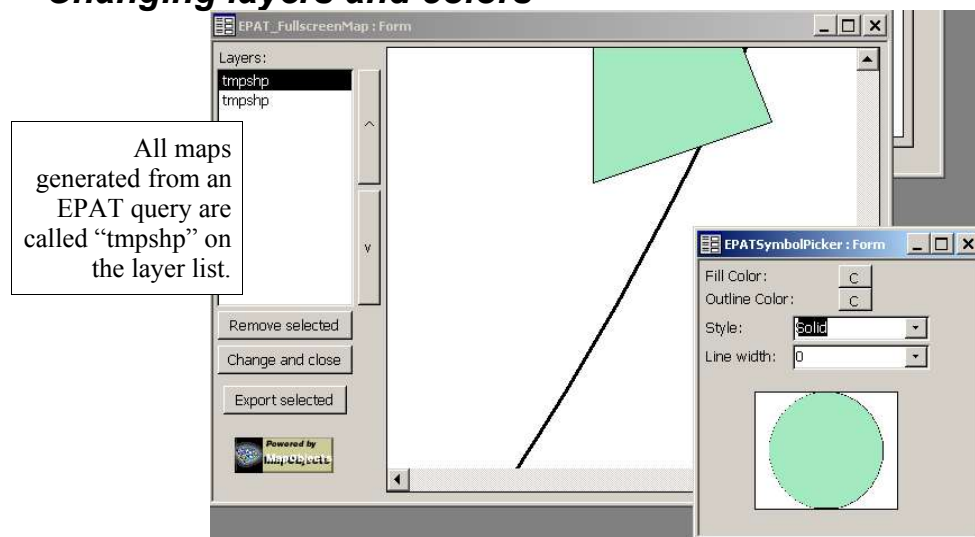
- Point: Used to choose a shape from a map; usually when importing from a shapefile.
- Select: Used to select shapes much like ArcView's selection tool. EPAT uses this primarily for grouping duplicate occurrences.
- Identify: Clicking on a map item brings up a window that displays the record(s) at the mouse click.
- Zoom: Zooms in the map. Click and drag to zoom to a rectangle. You can also zoom out by holding the control key with the Zoom tool.
- Zoom out: Zooms out.
- Pan: Click and drag to navigate around the map.
- Map Setup: Opens a dialog with two maps to edit the default view.

Right-clicking on any map will bring up a menu with several additional actions.

Adding additional layers to the map

To add more layers to the map, right-click on it and use the Add Layer options available. EPAT maintains built-in layers for stratification units, PCAs, and occurrences. You can also use the Load option to add any shapefile you wish.

Changing layers and colors



To change the way a map is displayed, you must first bring it up into a full-screen view by right-clicking on the map, then selecting Full Screen Map. From here, you can:

- Reorder layers: Select the layer from the list on the left and use the up and down arrow buttons to raise or lower the selected layer.
- Remove a layer: Select the layer from the list, then click the Remove Layer button.
- Export a layer to a shapefile: Select it, then click the Export Layer button.

- Change the way a map layer is drawn: Double-click on the layer to modify its symbol. You can change the border and fill colors, the border width, and the fill style.

Once you're happy with the map, you can click Change and Close and your changes to the map will remain on the non-fullscreen view.

Setting up a default view

Clicking the Map Setup button on the mapping toolbar brings up a form with two maps on it. You can edit these however you wish. EPAT will add the layers from the default background automatically to all its maps behind the layer of interest, and the default foreground in front of it.

It is useful to set up your maps at the beginning of an EPAT session so that you'll have additional spatial information for orientation and reference on all EPAT maps.

It would be useful for the next few steps to set up a default map background that has all stratification units; use the Map Setup to do so. Making the layer transparent with a thick border will make things easier to follow.

Remapping an occurrence or a PCA

Both PCAs and occurrences have a map of the current record's polygon on the Map tab, as well as a few buttons beneath the map to edit it. Due to a limitation of EPAT, the polygon will always be red and always be on top of all other layers.

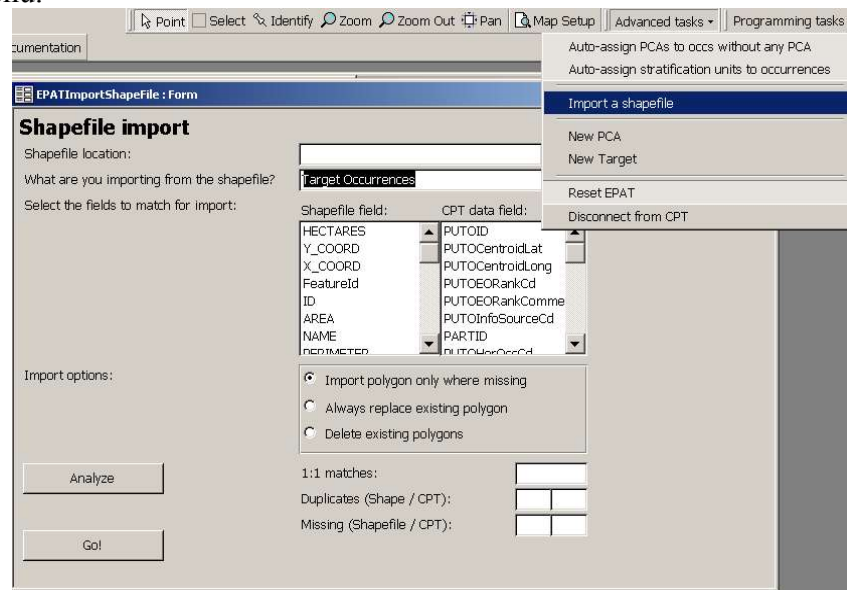
- Buffering (occurrences only): If an occurrence has its centroid fields filled in, you can create a new polygon for the occurrence by clicking the Buffer Centroid button. EPAT will prompt for the buffer distance, then create a new polygon for the occurrence.
- Redrawing: To redraw a polygon, click the Draw button, then start clicking on the map. Each click will add a new point to the polygon. To finish the polygon, double-click without moving the mouse.
- Importing a polygon from a shapefile:
 - Click the Import button on the Map tab.
 - If this is the first time you've imported during this session, EPAT will prompt you for a folder that contains your shapefiles.
 - Any shapefiles in that folder will appear on the list to the upper-left. To work with one, click on its filename.
 - Make sure that the Point tool is selected from the mapping toolbar.
 - Click on the shape you want to use. Its details will show up on the bottom-left part of the form.
 - Click Use This Shape to update the polygon with the currently chosen one, or Cancel to go back without losing any data.

After changing the polygon, you can undo your change by clicking the Undo button if you'd like to revert to the last polygon.

Importing a shapefile all at once

If you have an entire shapefile that has been created or edited significantly in

ArcView or another GIS platform and would prefer to update the polygons stored in EPAT all at once, you can use the Import Shapefile command from the Advanced Tasks menu.



In order to import data from a shapefile, it must have an attribute that uniquely links each polygon in the shapefile to a record in CPT. (The Foreign ID field in CPT is often used for this.) The CPT Data Dictionary, distributed with CPT, explains the meanings of the CPT fields.

To import the shapefile:

- Select the shapefile you wish to import by clicking the button next to the shapefile location field.
- Choose the type of object stored in the shapefile: EPAT manages polygons for PCAs, Occurrences, and Stratification Units.
- Select the fields that link the shapefile polygons to CPT records.
- Decide whether you want the new shapefile to only add polygons to CPT records that don't have one, overwrite existing polygons in CPT (useful if you've changed boundaries), or completely wipe all polygons from the CPT table before importing polygons in the shapefile.
- Click the Analyze button. EPAT will report how many CPT records were matched exactly by shapefile records, how many duplicates there were in the chosen fields for CPT and the shapefile, and how many shapefile rows were missing from CPT and how many CPT rows were missing from the shapefile.
- If the analysis is satisfactory, click the Go button. EPAT will import your polygons.

Getting tricky

The following example is a walkthrough of the more complicated spatial abilities of EPAT, and includes a few ugly steps made necessary by current limitations in MapObjects and EPAT.

If you examine Oversized Draw (a PCA), you'll see that although it is huge, all of its occurrences are clustered in a small corner. You'd like to re-map it so that it more accurately reflects the target occurrences that it represents:

- Map a query of all occurrences in the pca named Oversized Draw. (Find the PCA in the PCAs, sorted by names query, then click on the Occurrences button, then look at the Map Of Query)
- Right click on the map and bring it up full screen. Highlight the first layer and export it to a shapefile. Put it in a temporary folder or somewhere you'll remember to delete it when you're done.
- Visit the PCA again (click the back arrow), and look at the Map tab for the PCA (not the Map of query tab). Right click on that map and choose Add Layer, then Load.
- Find the shapefile you just saved. It should be added to the map. Unfortunately, the polygon for the PCA completely covers the occurrences, so you can't see what you're doing.
- Choose the Draw button and redraw the PCA's boundary to be something small and out of the way. The occurrences should now be uncovered.
- Choose Draw again, and this time draw a polygon that's nice and tight with the occurrence distribution.

That's it! The PCA boundary should be updated appropriately.

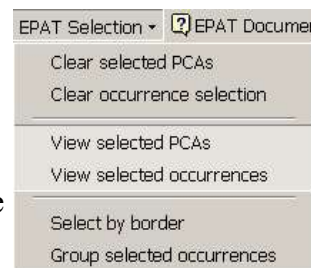
Grouping duplicate records

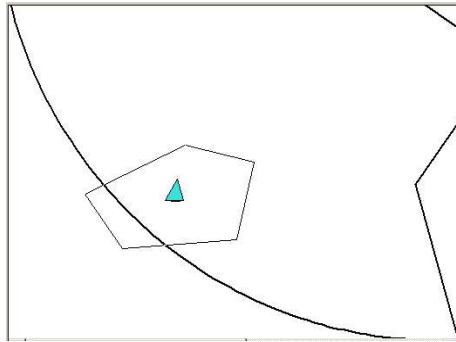
Often, especially when importing data from multiple sources, there will be several different occurrence records that are redundant and should be clumped together to eliminate the extra information and create a single representative occurrence.

EPAT provides two different ways of grouping duplicate occurrences: One that allows planners to draw the boundary for the new functional occurrence, which is most useful in the case of redundant data; and another that groups many occurrences within the same PCA together in order to collect many occurrence records into a single presence/absence record.

To group redundant occurrences on a map:

- View the distribution of a target by using the “Occurrences” button from the target and looking at the Map of Query. It may also be helpful to use the full screen map, but not necessary.
- Add the Selected Occurrences built-in layer by right-clicking on the map. This layer contains occurrences that have been selected for clustering, which will help you to see what you're doing.
- On the EPAT Selection menu, choose Select By Border. The current map tool will change to one that draws polygons on the map.
- Click on the map to begin drawing a boundary. Each click adds another corner to the polygon. When you're done, double-click.
- The polygon will disappear, but the occurrences that were inside should now be selected and show up on the Selected Occurrences map layer.





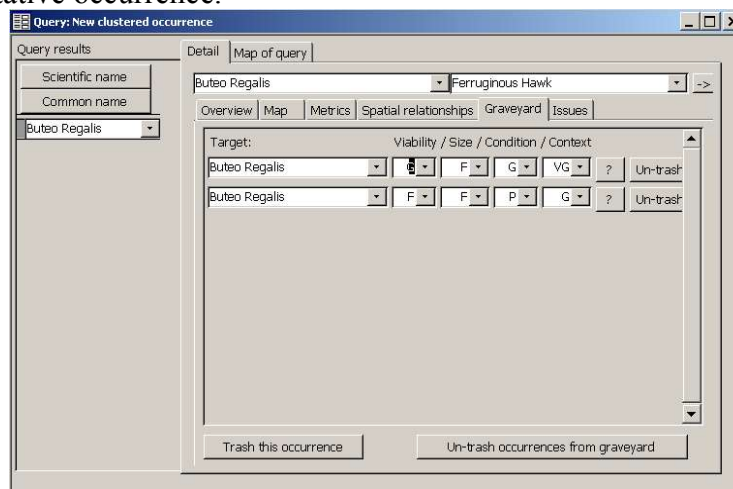
- If the selection is not satisfactory, you can clear the selection using Clear Occurrence Selection and try again. Otherwise, choose Group selected occurrences.
- A new occurrence will come up, with the boundary that you drew.

If you want to group a number of occurrences together with a PCA to create a presence/absence representative occurrence, and don't care about how it's mapped, you can use the following alternate way of selecting and grouping occurrences:

- View a list of occurrences within a PCA. (The best way is to use the All Occurrences of the Same Target at the Same Site button on an occurrence's Spatial Relationships tab.)
- Select the occurrences you wish to group by:
 - Clicking the gray box to the left of the target name. It should turn yellow, which indicates that it is selected.
 - Using the Select tool from the mapping toolbar. (Adding the Selected Occurrences layer will help to see what's selected.)
- Use Group Selected Occurrences. A new occurrence will come up that replaces the selected ones and already marked as belonging to the appropriate PCA. Its initial polygon will be the same as the PCA's.

The Graveyard

When you group redundant occurrences together, EPAT does not delete them. Instead, they are moved to an area called the Graveyard, which is associated with the new representative occurrence.



From the graveyard, you can:

- View detailed information about the original component occurrences by clicking the question-mark buttons next to them.
- Bring a single component occurrence back into the dataset by clicking the Un-trash button next to each.
- Bring all the component occurrences back at once using the Un-trash occurrences from graveyard button.
- Delete this occurrence record by clicking the Trash this occurrence button.

In the tutorial dataset, there are two Ferruginous Hawk records that are right on top of each other. Use the method of your choice to group them into a single representative occurrence.

Entering new records

New Targets

To create a new target, choose New Target from the Advanced Tasks menu. A blank target will be brought up for data to be entered.

Creating new occurrences

To create a new occurrence, you bring up the desired target from any target query. Then click the New Occurrence button to create a new, blank, occurrence. A new query will be brought up with the occurrence form to be filled in.

New PCAs

To create a new PCA, use the New PCA command on the Advanced Tasks menu. EPAT will create a new PCA and bring the form up. Before you do anything else, EPAT needs to create an internal CPT identifier for this PCA. Because of the way CPT was designed (this should go away in later versions!) the ID is derived from the PCA's centroid, giving you two choices:

- Enter values for the Centroid Latitude and Longitude fields, then click the Assign ID button. This will create a properly-formed ID for the record.
- Make up an ID unrelated to the centroid and type it directly into the Site ID field. If the centroid is unknown and you're in a hurry, this is the easiest option. It must be unique, with no duplicates allowed anywhere in the dataset.

Create a new target, a new viable occurrence of that target, and a new PCA that contains it.

Troubleshooting the data

EPAT has a number of queries designed to find records that have problems with methodology-related values. It's a good idea to go through them looking for problem records before beginning the assembly process.

Some of the more common troubleshooting queries:

- **Occurrences with no viability or embedding:** Any occurrences with no viability set, and no way for EPAT so assess it via embedding.

- **Occurrences of hectare targets w/o an area:** Occurrences that have goals specified in hectares, but whose area field has a zero value.
- **Occurrences with graveyard information:** This brings up representative occurrences formed through grouping.
- **Occurrences with more than one PCA:** Although having more than one PCA is allowed, it can also indicate a data problem.
- **Occurrences with no assoc. strat unit goal:** An occurrence that has no corresponding target goal, since it lies outside of any stratification units where goals were set.
- **Occurrences with partial viability information:** This brings up occurrences with some of the viability fields (Size, Condition, Landscape Condition) filled in, but no overall viability set.
- **Targets with a goal for a strat with no occs:** Targets that have a goal set for a stratification unit, but there are no occurrence records there.

Prioritizing the PCAs

Once the dataset is in acceptable shape and you're ready to begin portfolio assembly process, the first step will be to prioritize the PCAs. The prioritization process will calculate several rankings in order to arrive at a final ordering for potential conservation areas.

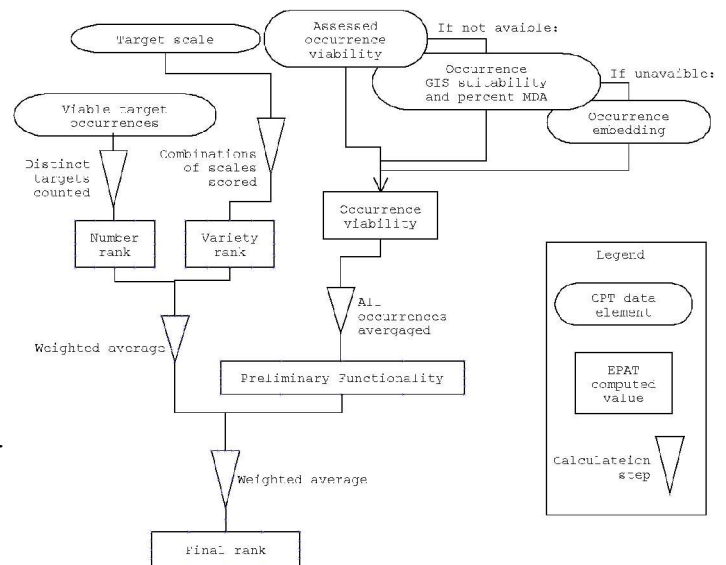
Number, variety, and preliminary functionality ranks are calculated in a 0-100 scale, where 100 is the best example in the ecoregion. This is necessary to combine the metrics in a meaningful way, but also means that the values only hold their meaning within the ecoregion: the #3 variety ranked PCA in one ecoregion is not necessarily similar to the #3 PCA from a different part of the world.

Two primary metrics are combined to create the final ranking: Number/Variety, and Preliminary Functionality. EPAT will ask you how these should be weighed relative to each other; the default considers the Number/Variety rank and the Preliminary Functionality ranks equally. (50/50)

The Number/Variety rank is itself a weighted combination of two sub-rankings, the Variety score and the Number score. The number portion is intended to promote PCAs that contain more distinct targets, while the variety ranking benefits PCAs where targets of different scales occur.

Preliminary functionality is calculated as the average viability of all occurrences within the PCA.

To begin prioritization, click the Prioritize PCAs button on EPAT's main screen. It may take some time for the form to come up on the screen, since EPAT loads all data into memory before in order to speed up the actual calculations.



Once the form comes up, begin by clicking the Do Calculations button. EPAT will begin to prompt you for values used during the prioritization methodology:

- Number/Variety and Preliminary Functionality combination: You can change the weights used for the averaging of these two rankings.
- Number and Variety weighted average: This combination can also be adjusted to emphasize one factor over the other.
- GIS Score weight v. % MDA weight. EPAT can calculate occurrence viabilities via a weighted combination of the GIS score and minimum dynamic area estimates as entered on the occurrence records. This is only done for records where the Overall Viability has not been set.
- Viability Scoring: EPAT needs to translate the values entered into the Overall Viability field for an occurrence into a value from 0 to 100 in order to combine it

meaningfully with other values.

- Variety scoring: EPAT assigns point scores from 0-100 to various combinations of target scales, with 100 being the highest possible score. If you wish to tweak the default scores, this is where it's done.

Once the prioritization is complete, you can browse the results on the prioritization form. Click the name of a step on the list, and you can see how PCAs or occurrences were scored during that step. You can also use the Map tab to view a map of the results of the selected step, colored by performance. (By default, red is used for higher ranks, black for lower.)

If you want to tweak your inputs, you have two options: You can click Do Calculations and start prioritization over, or you can select Change Parameters to change the inputs only for the currently selected step and reprioritize.

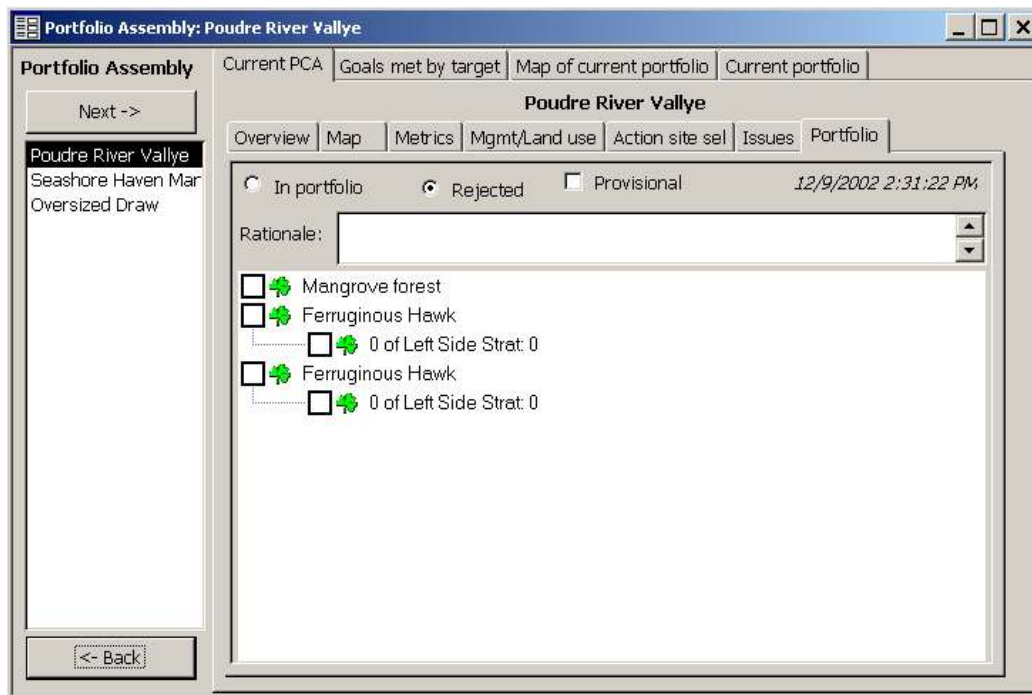
Recalculating goal contributions is also necessary after most modifications to the dataset

Once you are finished, it is very important that you click the Recalc Goal Contribs button. This is necessary because EPAT pre-calculates information about how PCAs and occurrences will contribute to various target goals. Since only viable occurrences are counted towards the goals, and because you have control over the viability assessment steps during prioritization, you'll need to (re)build the precalculated goal information each time you change anything dealing with target viabilities.

Prioritize the tutorial dataset! Make sure that your new PCA and occurrence show up correctly in the prioritized list.

Portfolio Assembly

After prioritization is done, you can close the prioritization form and click the Assemble Portfolio button.



The portfolio assembly process walks planners through the assembly process as follows:

- A PCA is brought up, with the portfolio tab and goal information visible. (The screenshot shown is using the uncorrected tutorial dataset. This is why it's important to make sure target goals are set correctly!) How to read the goal contribution information:
 - Each viable target occurrence is listed.

- Underneath each, and indented, is how much that occurrence contributes to the various stratification unit goals. (40% of Left Side Strat means that the Hawk occurrence would meet 40% of the target goal for that stratification unit).
- EPAT also displays the percentage of the goal that is met by the current portfolio. This is the second number, after the stratification unit name.
- If the portfolio currently exceeds the goal for a target, the icon changes from a green leafy thing to a red flowery thing. (Better icons are coming soon!)
- You can select the in portfolio or rejected status of the PCA. Note how the goal information is updated.
 - There are two major choices for a PCA: Accepted or Rejected. If you don't think your decision is final, want to revisit a PCA later, you can check the Provisional box.
 - The Rationale box allows planners to document their decision about a PCA.
- PCAs can also be selected for certain occurrences only, by unchecking the box to the left of the target name for unwanted species.
- You can also navigate the different tabs and bring up queries for additional information if necessary.
- Once you've completed a PCA, you can click the Next button on the left. EPAT will bring up the next PCA in the priority list, ready for planners to decide on.

Assemble a portfolio in the tutorial dataset. Watch how goal information is maintained through the assembly process, and how the portfolio comes together... Your new occurrence and target should be showing up in the goal information!

Revising the portfolio

To change the portfolio status of a PCA and its occurrences, you can use the Portfolio tab on the PCA to edit it, or revisit the portfolio assembly screen and just hop around on the prioritized list.

Printing reports

EPAT is capable of printing a report for any query. To do this, choose the query from the menu after clicking the Print Reports button on the main screen, or click the Print Query button on the query navigation toolbar to print the query currently on the screen.

You will be prompted to enable or disable optional sections of the report, allowing you to customize the information shown in the final report. EPAT is not currently capable of printing maps; to do this, export the query to a shapefile and use ArcView or other GIS software.

After choosing which report components to include, clicking the Print button brings up a preview of the final report. To print it, use the Print command from the file menu.

You can also export the report to Microsoft Word by right-clicking on the report and choosing Export. Change the type from MS Access to RTF and Word will be able to read the final report.

Appendix: Starting with a blank CPT dataset

Unfortunately, EPAT does not currently provide a user interface to enter all the data required into CPT's data store that is required for assembly.

This means that in order to start with a fresh, blank dataset you'll need to use CPT's own interface to get started before moving into EPAT.

What needs to be entered via CPT:

- The ecoregion (CPT calls it the planning unit) and any optional descriptive information
- The stratification unit names and (optional) extra fields.

To do this, start CPT and follow CPT's instructions for connecting to a dataset. (EPAT provides a blank dataset in the same folder it is installed to, called BLANK_CPTData.mdb. You copy and rename this to CPTdata.mdb and use this dataset!) Then click "Enter or Update Data," choose an ecoregion, and enter any optional data you like. Finish by entering stratification units on the Blah tab.

At this point, you can move to EPAT for remaining assembly-related data entry tasks.

Appendix: Building your own queries

This is for advanced users only!

- Start EPAT while holding the shift key
- Design the query using Access' query designer: Must contain all fields from tblPlanningUnitTargetOccurrence, tblERPSite, or tblPUTarget. Additionally, there are no duplicate names allowed, so you need to rename the fields of other tables if you're joining to.
 - To rename a field, type a name in front of it, then a colon, in the Query designer. E.g., if you're renaming the "PUTOID" column in a query to something else, enter "renamed_putoid: PUTOID" in the Field row on the Query designer.
- On the View menu, choose SQL. Copy the SQL to the clipboard.
- Close the query (don't save it) and open the useful_queries table. Paste the SQL into the SQL field.
- Enter a name, type, and category for the query. Occurrence queries are type 1, Targets type 2, and PCAs are 3.
- Your new query should show up on the Queries menu when you start EPAT. If there are problems with it, EPAT will tell you by suffering internal errors.