

## How to set up a CPW database using EcoAssist

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11

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# Contents

2
2
3
4
5
6
7
7
10
15
15
20
20
21
21

# Introduction

The Warddeken Land Management Mayh Project runs the largest species-monitoring network established by an Aboriginal organisation or Indigenous Protected Area (IPA) in Australia. Co-designed by Bininj leaders and Elders to detect long-term changes in key species, the project operates across 21 clan estates and involves Landowners from across the IPA.

To safeguard the health of the Kuwarddewardde mayh (Stone Country animals), Nawarddeken (people of the Stone Country) combine customary practices with modern land management techniques and technologies. One such technology is the use of CPW Warehouse, customised with a bilingual database, which enables Rangers to identify animals in images using language names. Additionally, Warddeken integrates CPW Warehouse with the programs MegaDetector and EcoAssist to identify and remove images without animals. Searching empty images is a lengthy and tedious task and time saved since implementing these programs has empowered daluk (women) rangers to engage in a broader range of land management activities, increasing confidence and technological capacity in the workplace.

This tutorial will guide you through the setup and basic functions of a CPW Warehouse database, integrated with MegaDetector, EcoAssist and a bilingual database. CPW Warehouse is a versatile program, with good capacity to accommodate the unique needs of your project as you set it up. If required, the resources at the end of this document will guide you through advanced troubleshooting and functionality.

# How to use EcoAssist to set up a CPW database

**CPW Warehouse** is a customisable program designed to facilitate archiving, identifying, summarising and analysing photo data collected from remote wildlife cameras.

**EcoAssist** is a no-code user interface (after installation) that separates images with

animals from empty images. EcoAssist does this using MegaDetector's artificial intelligence framework.

**MegaDetector** is an 'object detection program,' which identifies animals, people and vehicles in images. It also identifies empty images.

# **Folder setup**

Create a folder for your camera trap images and add the below sub folders.

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Name	Date modified	Туре	Size
Copied_Images	30/04/2024 10:55 AM	File folder	
📒 json	30/04/2024 10:55 AM	File folder	
MD_Images	30/04/2024 10:56 AM	File folder	
🧮 Raw Images	30/04/2024 10:56 AM	File folder	

- Upload your SD cards into the **Raw Images** folder. Each SD card should have its own folder, named after the camera number.
- If there are multiple folders on the SD card, copy the first folder's images across. Then, select all images in the second folder and rename them so that the number in the name is 10,000. If there is a third folder, select all and change the number to 20,000 and so on. Then copy those images to the folder. When there are multiple folders containing over 10,000 images on a single SD card, this preserves the order that the images were taken, so that we can easily find raw images if required.



• Create an additional folder for your images on C Drive. EcoAssist will process images directly from this folder. Copy the subfolders containing your raw images to this folder.

This PC > OS (C:) > Monitoring

		↑↓ Sort ~	$\equiv$ View $\cdot$				
Nar	ne	^		Date modified	Туре	Size	
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C Drive has less disk space than other drives, so if you have a large number of images, you may need to repeat the EcoAssist processing step multiple times with smaller batches of images, deleting a batch from C Drive as you complete it, then copying the next batch of folders across.



# MegaDetector and EcoAssist installation

- Install MegaDetector and EcoAssist from <u>github.com/</u> <u>PetervanLunteren/EcoAssist#windows-installation</u>.
- Download packages Git and Anaconda directly to your C Drive from **<u>Gitforwindows.org</u>** and **<u>anaconda.com</u>**.
- Right-click to open EcoAssist as an administrator on the installation download. A command prompt box will open.
- Specify where Anaconda3 and Git have been downloaded to in your C Drive.

Administrator: C:\WINDOWS\System32\cmd.exe ding to install.. roceeding to install... istall script is located on drive: 'C:' coAssist will be installed on drive: 'C:' 'C:' hanged drive to: C:\Program Files' 'C:\Program Files\EcoAssist\_files' 'C:\Program Files\EcoAssist\_files' 'C:\Program Files\EcoAssist\_files' ocation: emoved reated empty dir nter path to conda installation (for example C:\ProgramData\anaconda3): C:\Users\CaraPenton\anaconda3 ath to conda is defined as: 'C:\Users\CaraPenton\anaconda3' nter path to git installation (for example C:\Program Files\Git): C:\Program Files\Git Mier path to git installation (for example C:\Program Files\Git): C:\Pro ath to git is defined as: 'C:\Program Files\Git' % Total % Received % Xferd Average Speed Time Time Time Dload Upload Total Spent Left 00 56832 100 56832 0 0 38609 0 0:00:01 0:00:01 -:----Time Current Left Speed 00 56832 100 56832 0 38608 ello world Administrator: C:\WINDOWS\System32\cmd.exe coassistcondaenv \* C:\Users\CaraPenton\anaconda3\envs\ecoassistconda Volume in drive C is Windows Volume Serial Number is 8222-E54E Directory of C:\Program Files\EcoAssist\_files 3/05/2023 05:29 PM 3/05/2023 05:31 PM 3/05/2023 05:31 PM 3/05/2023 05:30 PM 3/05/2023 06:34 PM ai4cutils <DIR> alaeutils cameratraps EcoAssist 30,271 installation\_log.txt labelImg 31 path\_to\_conda\_installation.txt 22 path\_to\_git\_installation.txt pretrained\_models <DTR> 3/05/2023 05:31 PM 3/05/2023 05:30 PM 3/05/2023 05:30 PM 3/05/2023 05:32 PM 3/05/2023 05:30 PM [3/05/2023 05:32 PM <DH> pretrained\_m ]/05/2023 05:30 PM 56,832 wtee.exe ]/05/2023 05:31 PM <DHR> yolov5 4 File(s) 87,156 bytes 7 Dir(s) 622,924,422,904 bytes free installation ended at Sat 13/05/202318:34:15.83 Installation ended at Sat 13/05/202318:34:15.83 1 file(s) moved. 1 file(s) moved. 1 file(s) moved. If EINSTALLATION IS DONE! You can close this window now and proceed to open EcoAssist by double clicking h file in the same folder as this installation file (so probably Downloads). (ecoassistcondaenv) C:\Program Files\EcoAssist\_files>

Move the EcoAssist shortcut from Downloads to your preferred area.

Once entered the prompt will download everything you need to run MegaDetector. This can take up to 40 minutes depending on internet connection and computer processing capacity.

# Using EcoAssist to process images

- Open EcoAssist. The program will ask permission to make changes to your computer, click yes. It will initially open a command prompt box, but will convert to a user interface a few seconds later.
- Browse to the folder where your images are stored on C Drive. Select the boxes in the image below and set the checkpoint frequency to 500.

Ecolaristi v4.0	K)	EcoAssist No-code platform to train and deplay ML	
Deploy Train Annotate Help About Step 1: Choose folder to analyse Change folder?	LML Camera Monitorino Project/Images/J	mages for Franksvist Tutorial/Raw Images	
Step 2: Run model		r Step 3: Post-processing (optional	I)
Model	MegaDetector 5a 🛁	Destination folder	Browse
Don't process subdirectories	Г	Separate files into subdirectories	Г
Exclude detections from output file	Г	- Separation options	
Use custom image size	Г	Method of file placement	G Copy C Move
Use absolute paths in output file	F	Sort results based on confidence	Г
Process all images in the folder specified	P	Draw bounding boxes and confidences	Г
Limage options		Crop detections	F
Use checkpoints while running	<b>v</b>	Create annotations in VOLO format	-
L Checkpoint frequency	500	Export results to .csv files	-
Continue from last checkpoint file	E	Confidence threshold	0.2
Process all videos in the folder specified	Г	Post-proces	s files
Video options	1		
Don't process every frame	E		
L Analyse every Nth frame	E.g.: 10		
Deploy mode	el (		

• Click Deploy model. A progress box will appear.

EcoAssist vL0 Deploy progres EcoAssist No-code platform to train and deploy ML	×	EcoAssist No code platform to train and orphy ML	
Process images —			
Percentage done: 11% Processing image: 24 of 219 Elapsed time: 0.024 Remaining time: 0.025 Image per sec: 5.51 Running cm: GPU	MegaDetector 5a —	Step 3: Post-processing (optional) Destination folder	Browse
Cancel	Г	Separate files into subdirectories	Г
xciude detections from output the		<ul> <li>Separation options</li> </ul>	
lse custom image size	Г	Method of file placement	Copy C Move
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rocess all images in the folder specified	<b>A</b>	Draw bounding boxes and confidences	
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Use checkpoints while running	<b>v</b>	Create annotations in YOLO format	E
L Checkpoint frequency	500	Export results to .csv files	Π.
Continue from last checkpoint file	Г	Confidence threshold	0.2
rocess all videos in the folder specified	г	Post-process fi	le
- Video options -	-		
Uon't process every frame			

• Once image processing is complete, an image recognition JSON file will be added to your image folder in C Drive.

If you have poor internet connectivity or do not have access to a high-powered computer, it may be beneficial to set checkpoint frequency to 50, so that progress is saved every 50 images, rather than every 500.

Depending on the power of your PC and number of images that need to be processed, it may take anywhere from minutes to weeks to complete this step. For example, we used a lowerpowered PC to process 20,000 images and it took 24 hours to process. In contrast, we processed millions of images on a high-powered PC, which took around a week and half of 24/7 processing.

You may need to change the settings on the PC so that it doesn't go to sleep if left to process overnight. There is an option to draw bounding boxes around the animals, to expedite the identification process. Leave this box unchecked if you would like to encourage thorough searching of images.

# Post-processing to prepare images for CPW

Use the post-processing function to automatically group images into separate entities (animals, people, vehicle, empty) with their own folders.

 Browse to the location where the post-processed images will be saved (MD\_Images). Select Copy in Separation options.



• Once post-processing is complete, open the **MD\_Images** folder, select your desired entity and the camera you are interested in. The animal folders can now be uploaded to CPW. The image recognition JSON file can be moved from C Drive into the JSON folder you created earlier.

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	<b>W</b>	38			11/12/2023 4:36 PM	File folder			

# **Preparing a CPW database**

• Download a copy of CPW (Version: 4.3.0.6) and the user manual below.

Colorado Parks & Wildlife – Software: CPW Photo Warehouse (**state.co.us**).

- When making a new CPW database, copy the download into the desired location and re-name it, rather than writing over the top of the download.
- Open CPW. The CPW switchboard should appear.

The user manual contains detailed instructions and troubleshooting which is not covered in this general set-up document.

### **Security warnings**

If a security warning or a message indicating that VBA code is blocked appears, you will see a screen similar to below. To fix it, you will need to save the folder containing the database as a **Trusted Location**. Depending on which version of Windows you are operating, try one of the below two options.

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-	Home	Create	Externa	I Data	Database Tools		
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Lookup	Tables		¥		clicki	ng the option	s button a
Other 1	[ables		×				

This image and option one text from CPW User Manual, Newkirk, E. S. 2016

#### **Option one**

First, open Access (CPW uses Microsoft Access to store and make data connections) from the **Start** menu. You should see a welcome screen with options to build a new database, open an existing one, get content from Microsoft Online, etc. Click the **Office** Button. Now click **Access Options**  $\rightarrow$  **Trust Center**  $\rightarrow$  **Trust Center Settings**  $\rightarrow$  **Trusted Locations**. Check to see if the folder where you want to save the database is included in the list. If not, you can add it by clicking the **Add New Location...** button. Note that subfolders are not necessarily included, so a database saved in a folder within **My Documents** may not work even if **My Documents** is a trusted location. If you want subfolders of a particular location to be trusted make sure to check the box for that option.

When the above steps are complete, restart the application and it should display the above switchboard.

#### **Option two**

Click **File**  $\rightarrow$  **Options** (in the bottom left corner of the screen)  $\rightarrow$  **Trust Centre**  $\rightarrow$  **Trust Centre Settings**.



#### Then click **Trusted locations** → **Add new location**.



Browse to the folder where the database is stored. Check **Subfolders of this location are also trusted** if required, then click **OK**.

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Micros	oft Office Trus	ted Location				?		×
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Sub	folders of this lo	cation are also	trusted					
Descript	tion:							
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In this tutorial, we will import data directly to tables.

There is an example of Warddeken's species spreadsheet included at the end of this section. This spreadsheet is where we combine common, scientific and language names to form the bilingual database. Using this as a template for your species list, the end user will be able to tag images using language or common names.

In order for any file to upload to CPW correctly, the column headings on your spreadsheet must match the column headings in the CPW table exactly. You can add, rename and re-order columns in CPW prior to uploading files.

### **Importing data**

You can set up a database using the options on the switchboard or by accessing the database tables directly. If you have a small number of cameras, using the switchboard and entering data manually may be feasible. If there are many cameras, data can be imported directly to CPW tables, saving time and reducing the likelihood of error. Data can also be cut-and-pasted from Excel or typed directly into tables.

You will need three items before you can upload images:

- 1 A unique name and number for the study area.
- 2 A spreadsheet or text file with camera numbers and locations (with coordinates).
- 3 A list of species you expect to see, (including Latin names) and any additional details you might want to add (e.g. sex, collared, language names). You can also add the species as they are identified through the 'photo ID form'.

Optional add-ins (recommended):

- 4 Species groups, such as mammal, bird, reptile, amphibian; native or introduced, or events such as fire or flood.
- 5 A list of names of observers.

In this tutorial, we have used text files. Create an Excel spreadsheet for your data and save it as a tab-delimited text file to match. However, importing other file types is a very similar process.

 To import directly into tables, click the X to close the switchboard form and the Access database will appear. You can re-open the switchboard anytime by double clicking Switchboard in the Forms section on the left of the page.



• Enter the Study Area by clicking on the **Camera Data Tables** drop-down menu and selecting **StudyAreas**.



 Select External Data → New Data Source → From File → Text File.



The Data Wizard will appear. **Browse** to your file, then select **Append a copy of the records to the table**  $\rightarrow$  **Select** the relevant CPW table from the drop-down menu and click **OK**.

	Data - Text File				?	
Select t	he source and destination of the d	lata				
Specify the	e source of the definition of the objects.					
<u>E</u> ile n	ame: G:\CPW Setup Master Text Files\Tutorial	l text files\Tutorial_StudyAreas.tx	t		Browse	
Specify ho	w and where you want to store the data in the o	current database.				
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### Select **Delimited**, then click **Next**.

Import Text Wizard		×
Your data seems to be in a 'Delimited' format. If it describes your data.	$\ensuremath{snt}\xspace$ , choose the format that more correctly	
O Delimited - Characters such as comma or tab	separate each field	
	nu spaces nerviteti tach heid	
Sample data from file: G:\CPW SETUP MASTER TEXT i IStudyAreaIDStudyAreaNameStudyAre 21NameOneWAONorth 32NameTwoWATWest	FILES\TUTORIAL TEXT FILES\TUTORIAL_STUDYAREA eaAbbrStudyAreaDescription	S.TXT.
Ħ		
Advanced	Cancel < Back	Next > Finish

Select **Tab** as the delimiter and check **First Row Contains Field Names** if your text file contains column headings. A preview of your table will appear as you select options. Click **Next**.

Choose the de	separates your newsr o	we fielder	minter and see now your text is and	cied in the preview below.	
	Semicolon	<u>C</u> omma OSpace	Qther:		
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tudyAreaID	StudyAreaName	StudyAreaAbbr	StudyAreaDescription		
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Double check that the correct table has been selected and click **Finish**.

Import Text Wizard	>	
×	That's all the information the wizard needs to import your data.	
1	Import to Table:	
	StudyAreas	
	I would like a wizard to analyze my table after importing the data.	
Advanced	Cancel < Back Next > Enish	

The table should match your text file or spreadsheet.



• To enter camera locations, repeat the above import process, ensuring the columns in your text file match the columns in CPW exactly. You can add, rename or re-arrange columns to suit your requirements. The below picture shows the unmodified camera locations table and the second image shows additional columns we have added to suit our operations.



Repeat the import steps for species list, species groups and observers. These three tables can be found under the **Other Tables** drop-down menu.

Import & Li	nk		<u> </u>				Бир	ort					Web Linked Lists	
Custom		<		StudyAreas	×	Species	×	SpeciesGro	ups X		Observers	× 🔳	CameraLocations	×
Gabtonn				LocationID		StudyAreaID		SiteID 👓	Plot	D	v Locatio	nNan 🗸	CameraNum 🗸	UTI
My Queries					1		1/	A_11			1		32	
Camera Data Tables					2		2 E	3B_22			2		38	
Lookup Tables					3									
Other Tables					4									
DetailShortcuts					5									
					6									
					7									
Individuals					8									
AL AL					0									

### **Bilingual database**

This is Warddeken's species list. We have added an additional column for language names (KunwokName) and also added language names to the ShortName column. If we do not have a language name, we use the common name. Importing the species list enables users to tag images in language or common names.

SpeciesID	CommonName	KunwokName	ScientificName	Genus	Species	ShortName	Non-native
1	Australian Magpie		Cracticus tibicen	Cracticus	tibicen	Australian Magpie	0
2	Agile Wallaby	kornobolo	Macropus agilis	Macropus	agilis	kornobolo	0
3	Agile Wallaby Female	meribbe	Macropus agilis	Macropus	agilis	meribbe	0
4	Azure Kingfisher		Ceyx azureus	Ceyx	azureus	Azure Kingfisher	0
5	Banded Fruit-dove		Ptilinopus cinctus	Ptilinopus	cinctus	Banded Fruit-dove	0
6	Banded Honeyeater		Cissomela pectoralis	Cissomela	pectoralis	Banded Honeyeater	0
7	Barking Owl		Ninox connivens	Ninox	connivens	Barking Owl	0
8	Agile Wallaby Male	warradiangkal	Macropus agilis	Macropus	agilis	warradjangkal	0
9	animal	mayh	animal			mayh	0
10	Antilopine Wallaroo Female	kalabah	Macropus antilopinus	Macropus	antilopinus	kalabah	0
11	Antilopine Wallaroo Male	karndayh	Macropus antilopinus	Macropus	antilopinus	karndayh	0
12	Blue-winged Parrot		Neophema chrysostoma	Neophema	chrysostoma	Blue-winged Parrot	0
13	Australian Owlet-nightjar	lablab	Aegotheles cristatus	Aegotheles	cristatus	lablab	0
14	Brown Quail	djirndih	Coturnix ypsilophora	Coturnix	ypsilophora	Brown Quail	0
15	Bush Stone-curlew		Burhinus grallarius	Burhinus	grallarius	Bush Stone-curlew	0
16	Carpentarian Grasswren		Amytornis dorotheae	Amytornis	dorotheae	Carpentarian Grasswren	o
17	Australian White Ibis	kernalk	Threskiornis molucca	Threskiornis	molucca	kernalk	0
18	Bar-shouldered Dove	korlobok	Geopelia humeralis	Geopelia	humeralis	korlobok	0
19	Bird	mayhmayh	mayh mayh	Bird	Bird	mayhmayh	
20	Emerald Dove		Chalcophaps indica	Chalcophaps	indica	Emerald Dove	0
21	Black Flying-fox	murru	Pteropus alecto	Pteropus	alecto	murru	0
22	Black Wallaroo Female	djukerre	Macropus bernardus	Macropus	bernardus	djukerre	0
23	Black Wallaroo Male	barrk	Macropus bernardus	Macropus	bernardus	barrk	0
24	Black-footed Tree-rat	bakkadidii	Mesembriomys gouldii	Mesembriomys	gouldii	bakkadidii	0

### **Importing images**

Open the switchboard (double click **Switchboard** in the **Forms** section on the left of the page), and select **Add or Edit Visits**. Under the **Select Location** drop-down menu, all of your cameras should appear as location names, prefixed with a study area acronym. Select a location and click the **Add New Visit** button.

== V	isits						—	$\times$
Ca	mera Visi	its						۲
Selec	t a Location:	WAO - AA_110	1		~			
N	visit Type 🛛 🕻	Date	Comments			Photos		
			Ad	d New Visit				
A	ccess:							

Select **Set**, **Check** or **Pull** from the visit types (set is when you set the camera up, pull is when you retrieved it and check is if you checked the camera in between setting and pulling) and add the date that these occurred. Select **Next Visit** to enter additional visits.

📑 Visits		×
Add New	Visit	¢
Location:	WAO - AA_11C1	
Visit Type Visit Date Comments	Set	Previous Visit Next Visit

Once you have entered a set and a pull date, a **Load Photos** option will appear. Select this.

wai	D - AA_11C1			
Visit Date Comments Photos	8/12/2023		Visit	lext Visit
		Load Photos		

Browse to the folder containing animal images: **MD Images**  $\rightarrow$  **animal** and select the camera that corresponds with the selected location and click **OK**.

ImportOptions		×			
Import Optic	ons	ø	ø		
Select the visit for the p	hotos you want to import:				
WAO - AA_11C1		¥	×		
Srowse	Adaptan Antonia Disentation		_		
$\leftrightarrow \rightarrow \checkmark \uparrow$	Images > Images for EcoAssist Tut	orial > MD_Images > animal	~ C	Search animal	م
Organize • New fo	older				≣• (
🛓 Downloads 🏾 🖈	Name	Date modified	Туре	Size	
🔛 Documents 🥒	📕 💳 W32	8/12/2023 10:01 AM	File folder		
R Pictures *	📜 W38	8/12/2023 10:02 AM	File folder		
🚱 Music 🛛 🖈					
Fol	der name: W32				
			Tools 🔻	ОК	Cancel
				_	

Check **Copy Image Files** and browse to the destination folder, in this case it is the **Copied Images** folder you made earlier. Once inside the **Copied Images** folder, create a new folder for the copied images. You can name this folder after the camera number or the location code (below) for this camera.

ImportOptions		
Import Options		
Select the visit for the photos y		
WAO - AA_11C1		
ImportOptions		×××
Import Options		• •
Select the visit for the photos you want to import:		
WAT - BB_22C1 1/06/2023 (Pull)	~	
Enter the path for the folder containing the photos:		
Z:\WLML Camera Monitoring Project\Images\Imag	ges for E	Visit
Copy image files Destination folder: Z:\WLML Camera Monitor	ing Project\Images\Images for E	
Browse		
$\leftarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ ${\frown}$ $\bullet$ Images $\rightarrow$ Images for E	coAssist Tutorial > Copied_Images ~	' C Search Copie
Organize • New folder		
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> - USB Drive (G:)	8/12/2023 2:47 PM	File folder
🗸 🎾 Network 📲 🛄 🛄 W38	8/12/2023 2:52 PM	File folder
> 📮 ECOLOGYBOS: 🔻		
Folder name: W38		
_		Tools - OK

When EcoAssist returns processed images, they will no longer be in chronological order. Renaming the images retains the order. Rename the image files to prefix with location ID and rename with image number, date and time. Click **Import Photos**.

ImportOptions	×
Import Options	Ø
Select the visit for the photos you want to import:	
WAT - BB_22C1 1/06/2023 (Pull)	×
Enter the path for the folder containing the photos:	
Z:\WLML Camera Monitoring Project\Images\	Images for E
Include subfolders	
Copy Image files	ite sin a Dracio att lan ang tan 5
2:\wLML Camera Mor	hitoring Project (images (images for E
🖌 Rename image files	
Prefix Options:	
<ul> <li>Location ID</li> </ul>	Prefix: WAT-BB 22C1
O Text Prefix	
Rename files using:	
Image Number + Date + Time	
O Image Number + Date	
O Image Number	
Number of digits for image number: 5	
Impo	rt Photos Cancel
Number of digits for image number: 5	rt Photos Cancel

### This screen will display if a folder of images has uploaded correctly.

a ImportOptions	×
Import Options	۲
Select the visit for the photos you want to import:	
WAT-BB_22C1 1/06/2023 (Pull)	
Enter the path for the folder containing the photos:	
Z:\WLML Camera Monitoring Project\Images\Images for E	
Include subfolders	
Convinged files	
Destination folder: Z:\WLML Camera Monitoring Project\Images\Images for E	ei -
Rename image files	
Prefix Options:	
Location ID     Prefix: WAT-BB_22C1	
Text Prefix     Microsoft Access     X	
Rename files using:	
O Image Number + D 88 photos successfully imported.	
O Image Number + D	
O Image Number	
Number of digits for ima	
Updating camera activity fields	

When you click **OK**, you will see that images from that camera have replaced the **Load Photos** button in the camera visits form.



- Repeat this process for all cameras.
- As you add visits and import images, the visits table will automatically populate the set and pull dates (under visit type ID and visit date). You will also notice that CPW has automatically detected the active start and end dates for each camera.

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	Visits X										
	VisitID		LocationID	VisitTypeID		VisitDate 🗢	Comments v	ActiveStart		ActiveEnd 🗢	SetVisitID 🔝 Click t
		10		2	3	1/02/2023					
		11		2	2	1/06/2023		9/03/2023 3:34:	52 PM	8/05/2023 7:07:38 PM	10
		14		1	3	1/02/2023					
		15		1	2	1/06/2023		20/03/2023 7:26:3	33 AM	20/03/2023 7:26:37 AM	14
10	(N	(wo									

If the camera's date and time were incorrect during the deployment, you can adjust this by selecting Add or Edit Visits on Switchboard  $\rightarrow$  Select The Location. Click the Edit button on the Pull line  $\rightarrow$  Adjust Photo Date / Time. From here you can add or subtract days from the first image on the camera and CPW will automatically adjust the remaining images and update the active start and end dates in the visits table.



### **Image ID**

To identify images, select **ID Photos** on **Switchboard**  $\rightarrow$  select your name from the drop-down menu (if you added observers during setup).



Select a location and you can now use the photo ID form to ID images.



### **Create modules**

CPW can produce 'modules' which can be emailed, shared via sharing services or copied to external hard drives if you have rangers who would like to ID animals from an external PC or laptop. A single module contains a database and images for a single camera. Rangers can ID animals, but will not have access to any other CPW functions. These modules can then be uploaded to CPW when complete.

In order for the modules to upload correctly, the module name must match the location code (below image) exactly. The modules can be renamed once on the hard drive or receiving PC. Only the module database needs to be uploaded to CPW, the photo folder is not required after image ID is complete.

S Visits		
Add Ne	ew Visit	

You can close the program at any time and your work will save automatically.

See page 23 of the CPW User Guide for details on creating and uploading modules.

# Resources

### Warddeken Land Management – How to set up a camera trap for biodiversity monitoring projects

https://healthycountryai.org/files/ WarddekenCameraTrapSetup.pdf

#### Warddeken Land Management – How to set up a Timelapse database using EcoAssist

https://healthycountryai.org/files/ WarddekenTimelapseDBSetup.pdf

#### **EcoAssist**

addaxdatascience.com/ecoassist/

# References

Newkirk, E. S. (2016). *CPW Photo Warehouse.* Colorado Parks and Wildlife, Fort Collins, Colorado, USA.

#### **EcoAssist GitHub repo**

github.com/PetervanLunteren/ EcoAssist?tab=readme-ov-file#windowsinstallation

### How do I get started with Megadetector?

wildlabs.net/event/how-do-i-get-startedmegadetector

### **CPW Photo Warehouse**

cpw.state.co.us/learn/Pages/ ResearchMammalsSoftware.aspx







