

# “Hot Topic” webinar

**Gadgets and Technology:** Tuesday 25th June 2024

- Thermal scanners, scopes, binoculars
- Digital data collection in the bush
- BirdWeather PUC
- Copernicus Browser
- Macro lens and microscopes
- Which torch reigns supreme?





# LAND COVENANTORS VICTORIA

*Land Covenantors Victoria acknowledges the Traditional Custodians of Country throughout Victoria and their deep connections to land, water and community.*

*We pay our respect to their Elders past and present and extend that respect to all Aboriginal and Torres Strait Islander peoples today.*

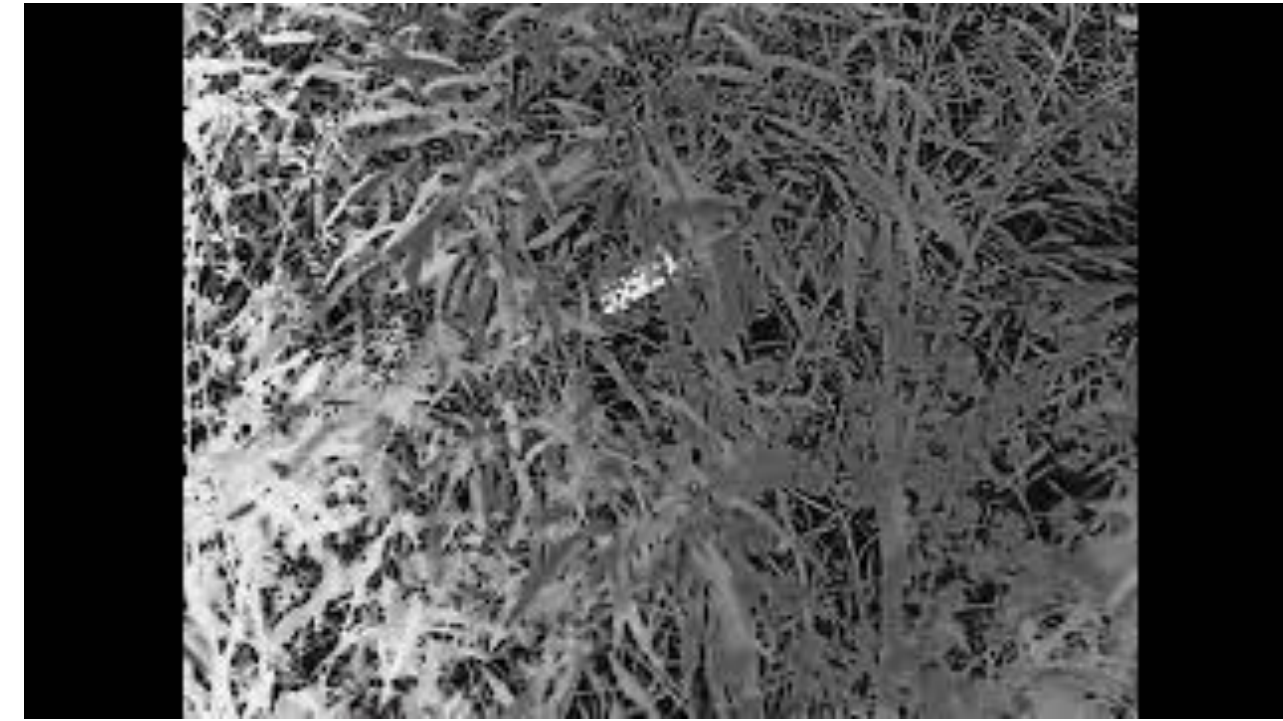
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# Thermal scanners

- Infiray FH35R cost ~\$4200
- <https://www.huntthenight.com.au/products/infiray-finder-fh35r-v2-thermal-monocular>
- Handheld monocular scanner - very useful tool for detecting animals and a nice compact, ergonomic design
- Invaluable for monitoring our resident small mammals (Mitchell's Hopping Mice and Western Pygmy-possum)
- Significant advantages over spotlighting
- Laser range finding ability critical for thermal vision in pest control



# Thermal scope for rifle

- Infiray TH50 cost ~\$6500
- <https://www.huntthenight.com.au/products/infiray-tube-th50-v2-thermal-sight>
- Traditional style rifle scope (tube design) so mounts the same as glass optics
- Has been a complete godsend for pest animal control ('see through' vegetation)
- Significantly better than spotlighting - less animal detection
- Small learning curve to use



# Thermal binoculars

- Pulsar Merger XP 50 LRF ~\$7000
- <https://www.pulsar-nv.com/glo/products/33/thermal-imaging-binoculars/merger/>
- Fully waterproof high resolution thermal imaging binoculars with laser rangefinder. Magnification x2.5-20. Inbuilt photo/video recording. Can stream to compatible devices (useful for demonstrations). Can detect kangaroo/wallaby size animals at 1km.
- Intuitive to use once you are familiar with control buttons. Numerous options for display customisation. Excellent battery life and quick to recharge. Has internal + removable battery, I bought a spare.
- An absolute game changer for surveying wildlife, I've even picked up insects and recent wallaby droppings!







# Three free apps for collecting location data on your property

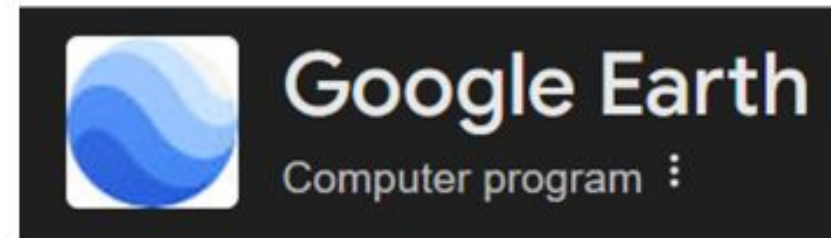


## EpiCollect5

Collect detailed data into electronic forms

Invite others to use the forms

<https://five.epicollect.net/>



## Google Earth

View and organise location data into folders

<https://earth.google.com/>



## Avenza Maps

Collect data straight onto a map

<https://store.avenza.com/>

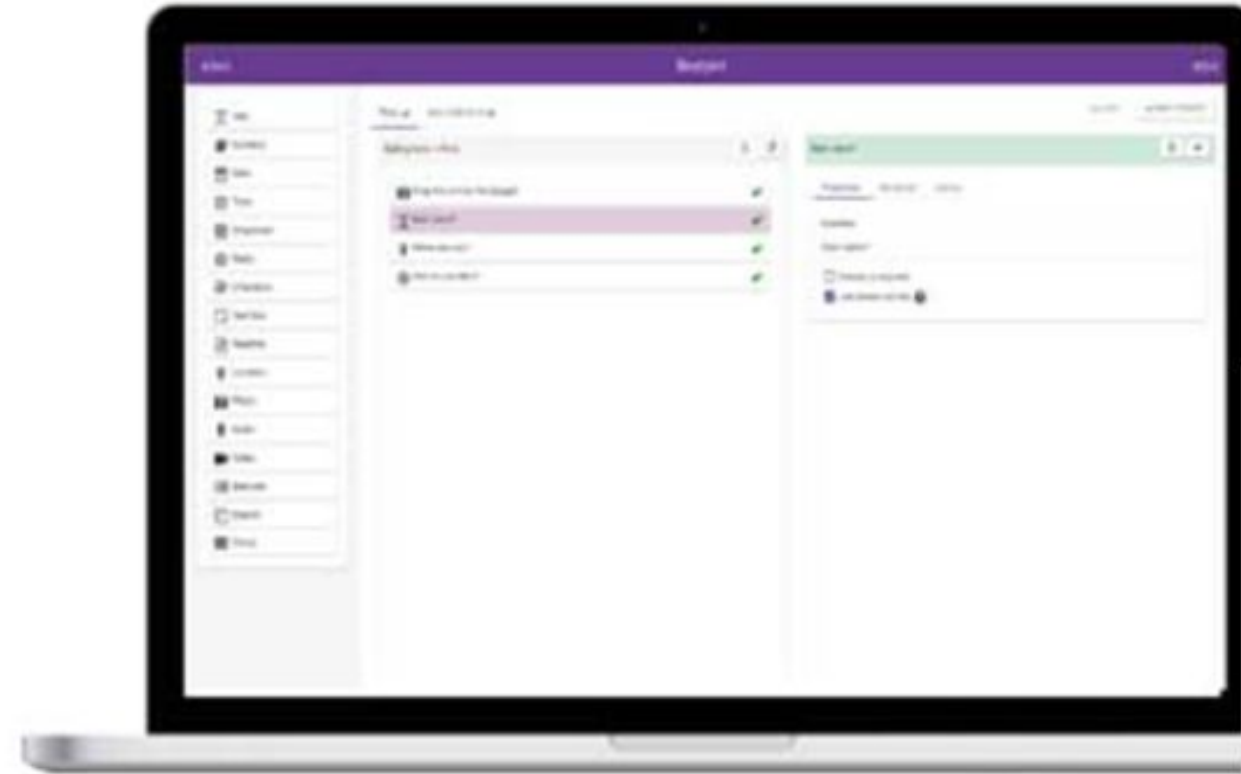
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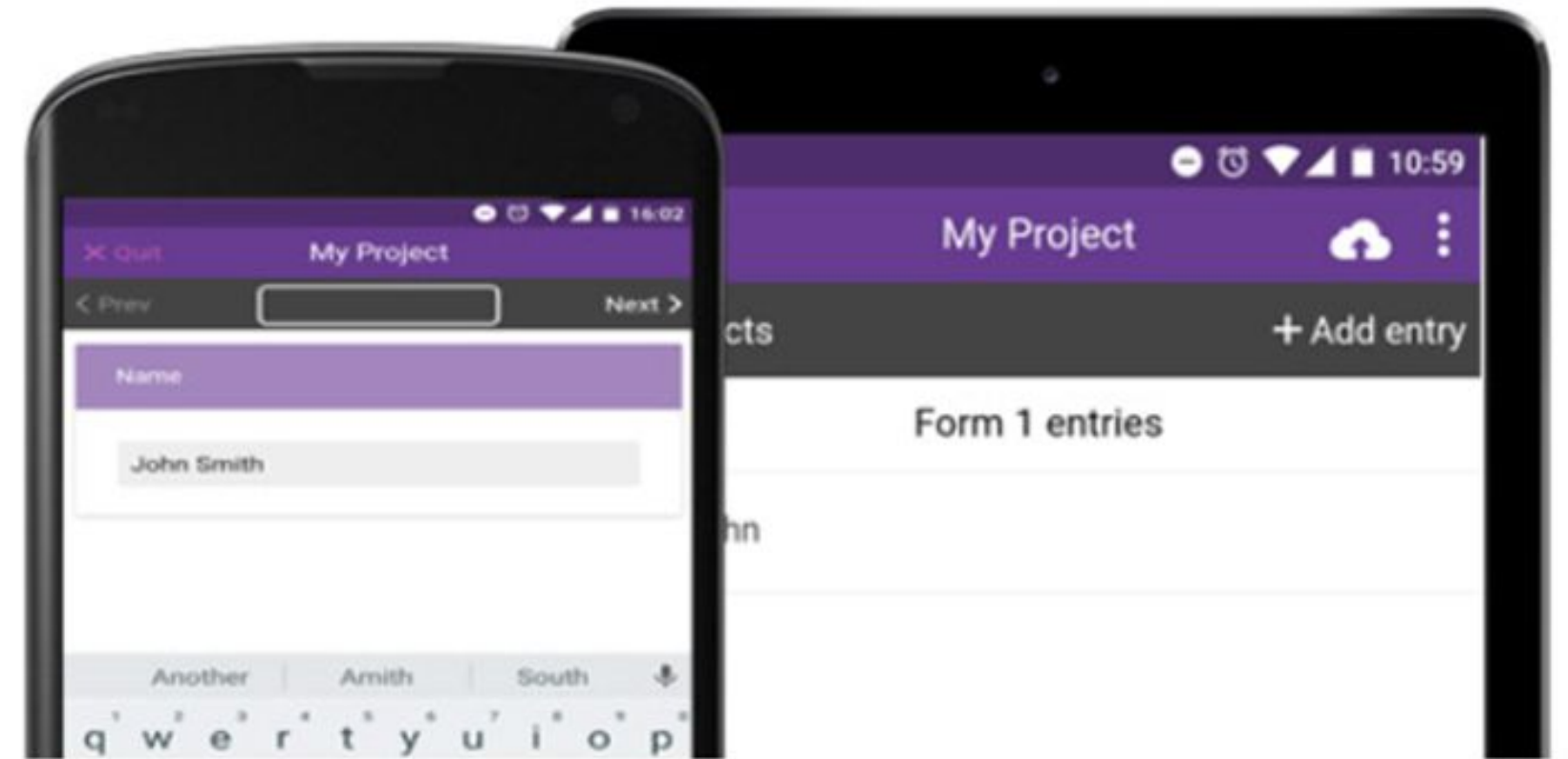
Invite others to use the forms

Design forms with:

- Point locations
- Drop-down lists
- Photos
- Free text
- Autopopulate date and time
- etc





Create your project and forms  
Desktop version



Collect data online or offline

Mobile app

Available on  



<https://five.epicollect.net/>



# Design forms in desktop app

## Drag and drop

## Design your own form

## Fields like drop-down lists

← Back AC Ant collection 2024 ⏻ Exit

Ant samples ✓ Add child form +

Form > Ant samples

- # Label (eg Camter\_FM\_001) ✓
- ⊙ Site Ⓣ ✓
- # Site Ⓣ ✓
- T New site name ✓
- ⊙ Dataset ✓
- # TreeID if recoded on a tree dataset (0 if not) ✓
- 📍 Location ✓
- 📅 Date ✓
- ⊙ Collector ✓
- ⊙ Soil type Ⓣ ✓
- T Other soil ✓

Soil type 📄 🗑️ ✓

Properties Advanced Jumps

Question

Soil type

Answer is required

Limit of 3 titles reached ?

Possible answers + ADD ANSWER ▾

- ↕ Red sand ✕
- ↕ White sand ✕
- ↕ Clay ✕



Easily enter data in form fields using mobile phone app

The image displays three sequential screenshots of a mobile application interface for data collection, titled "ANT SAMPLES".

**First Screenshot (7:56):** Shows the "Date" field. The format is "dd/MM/YYYY". A date picker is open, showing "22 Jun 2024". A note states: "\* This field is required". Below the picker, it says "The date selected is: 22/06/2024".

**Second Screenshot (7:56):** Shows the "Location" field. A green button labeled "UPDATE LOCATION" is visible. Below it, the following location data is displayed:  
Latitude -34.578760  
Longitude 142.383980  
Accuracy 25

**Third Screenshot (7:58):** Shows the "Vegetation present" field. A note states: "\* This field is required". Below it, a list of vegetation types is shown with checkboxes:  
Blackbox   
Moonah   
Red Gum   
Hopbush   
Mallee   
Other

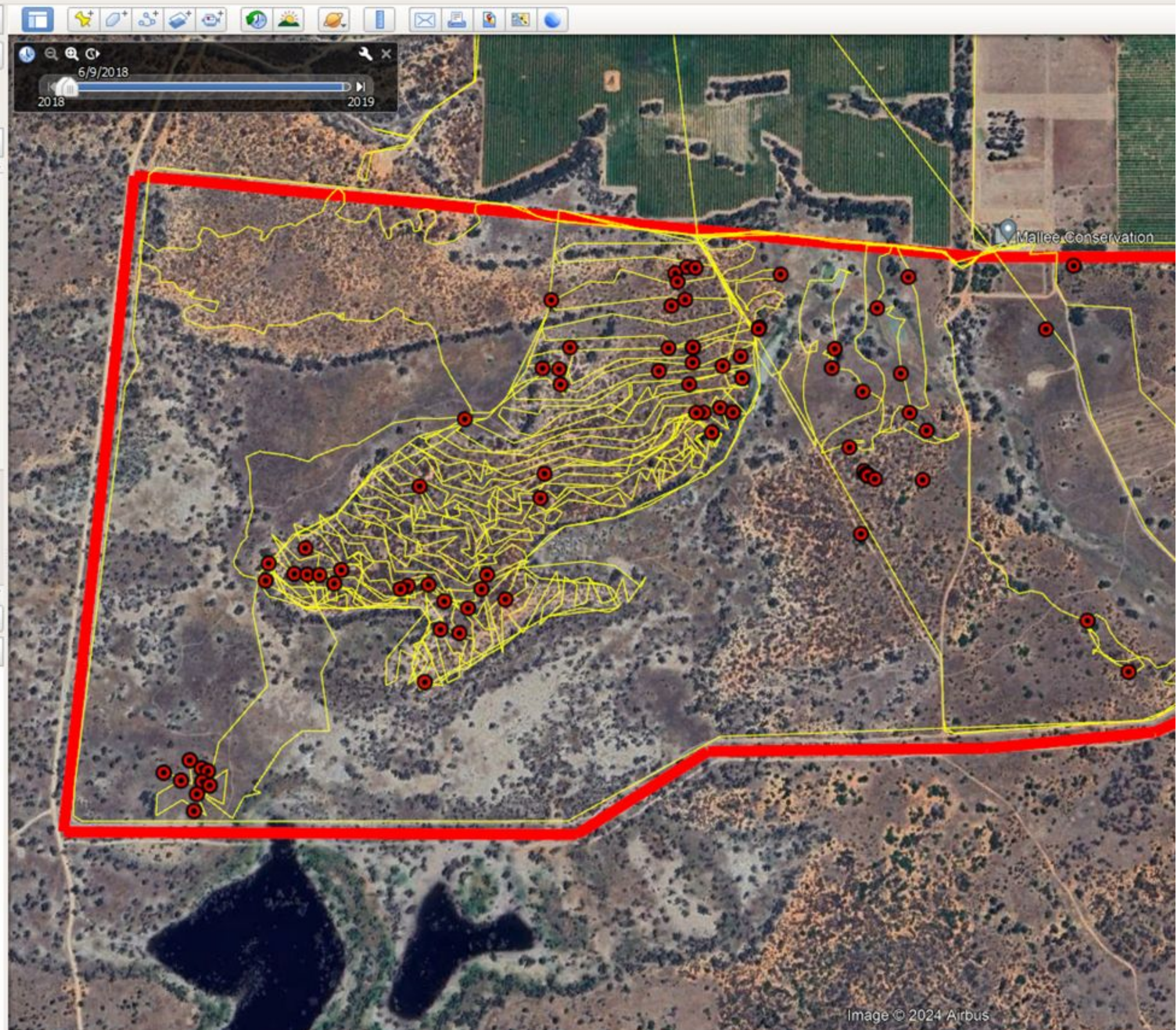
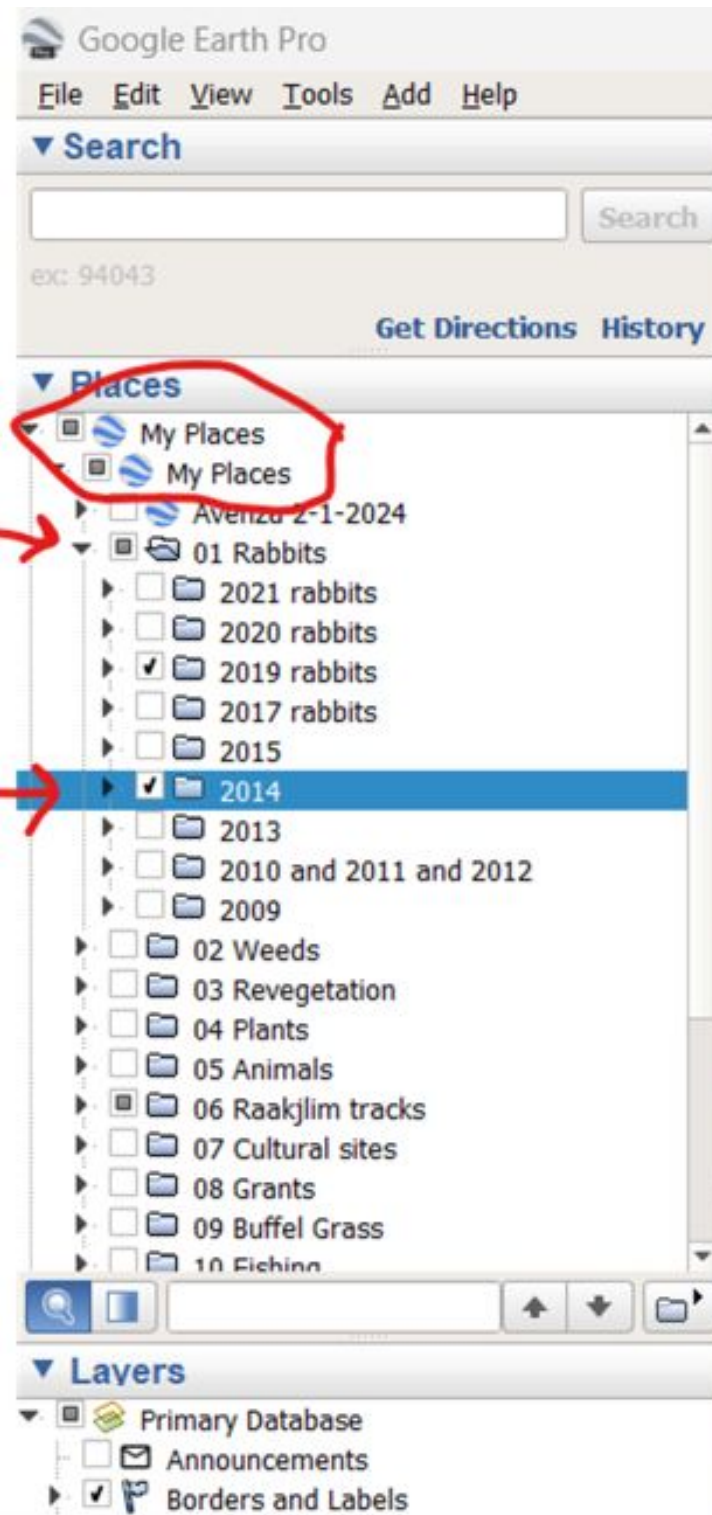


# Google Earth

Organise location data into folders

View:

- Waypoints
- Track logs
- Areas

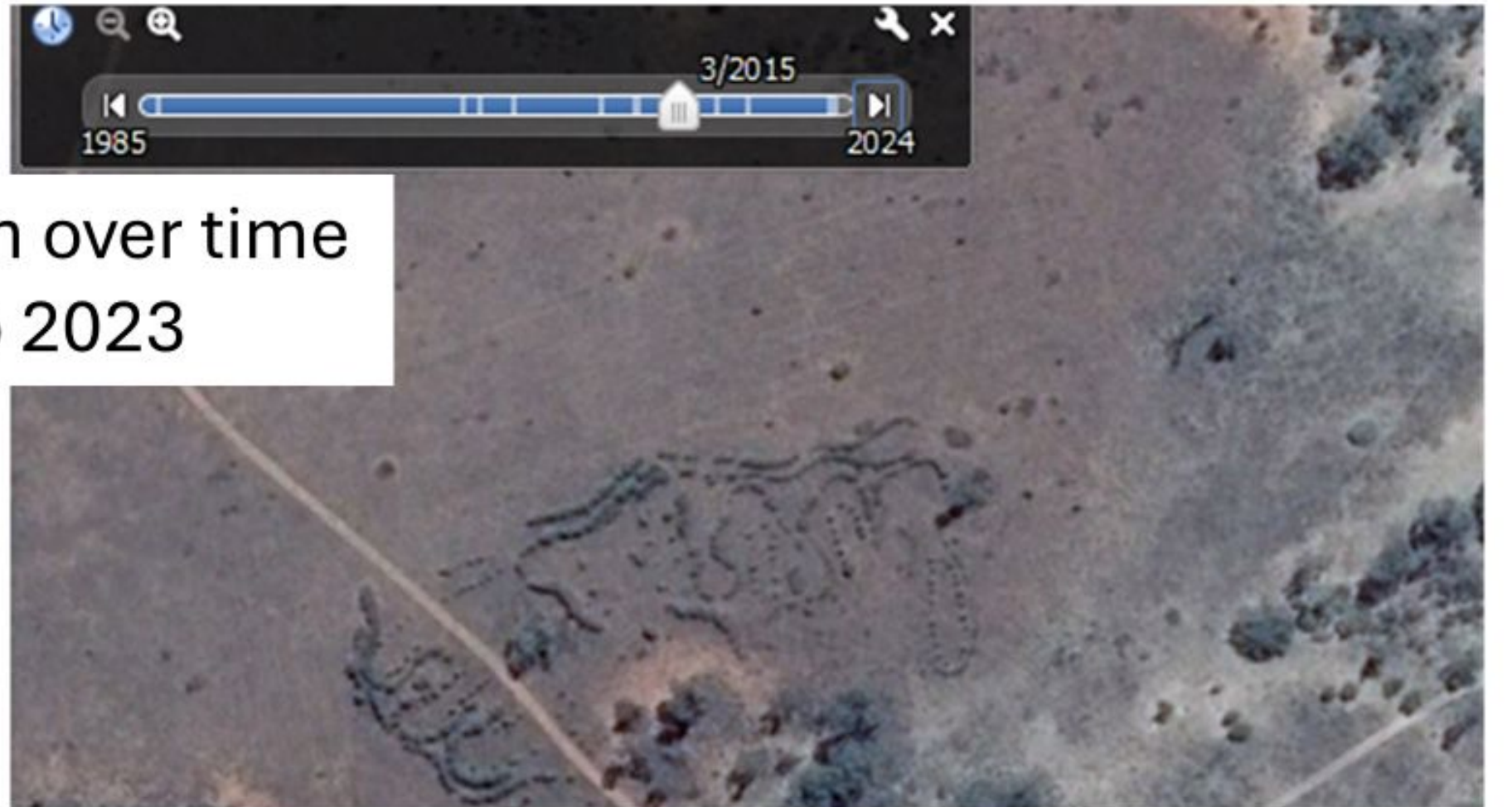
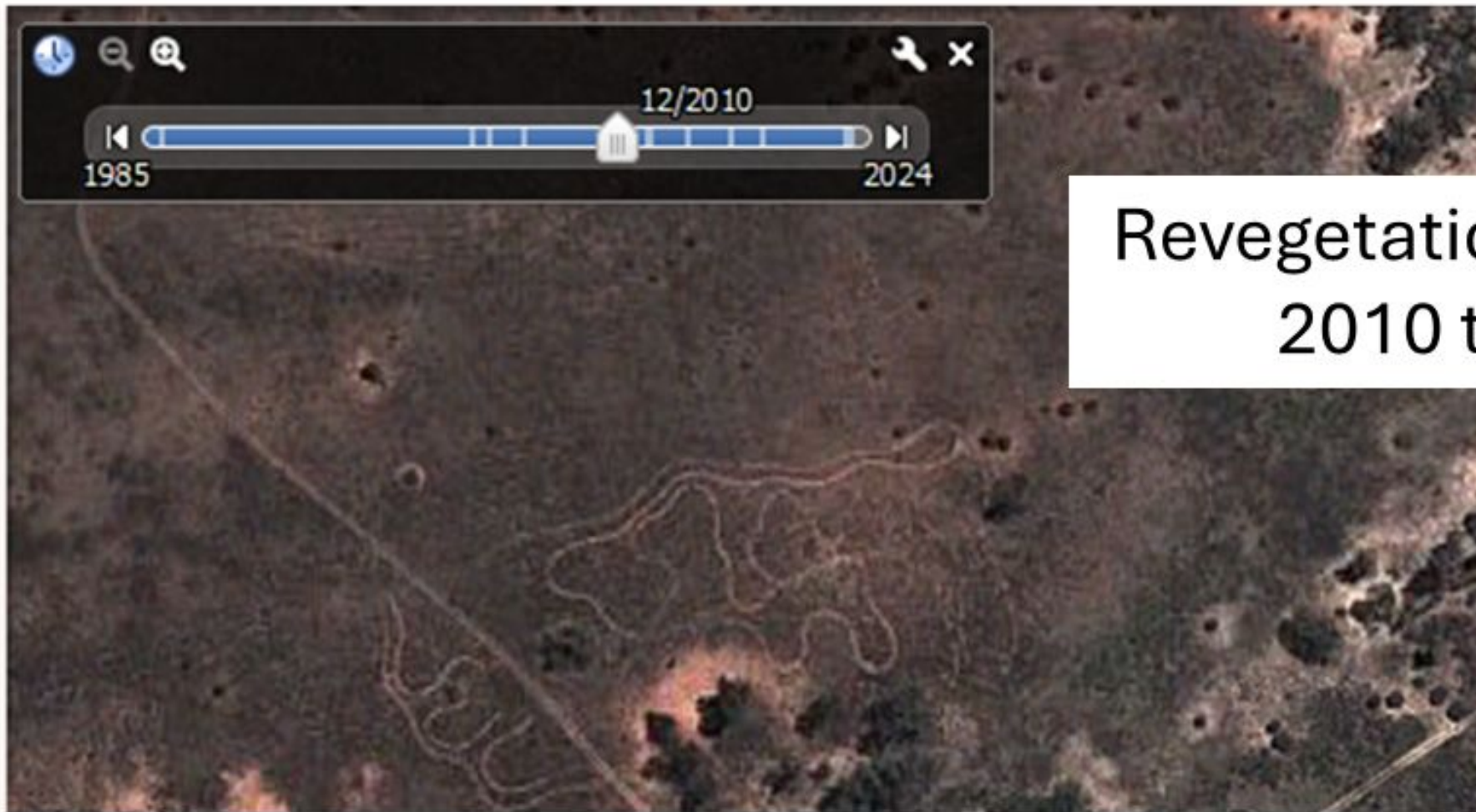


Google Earth

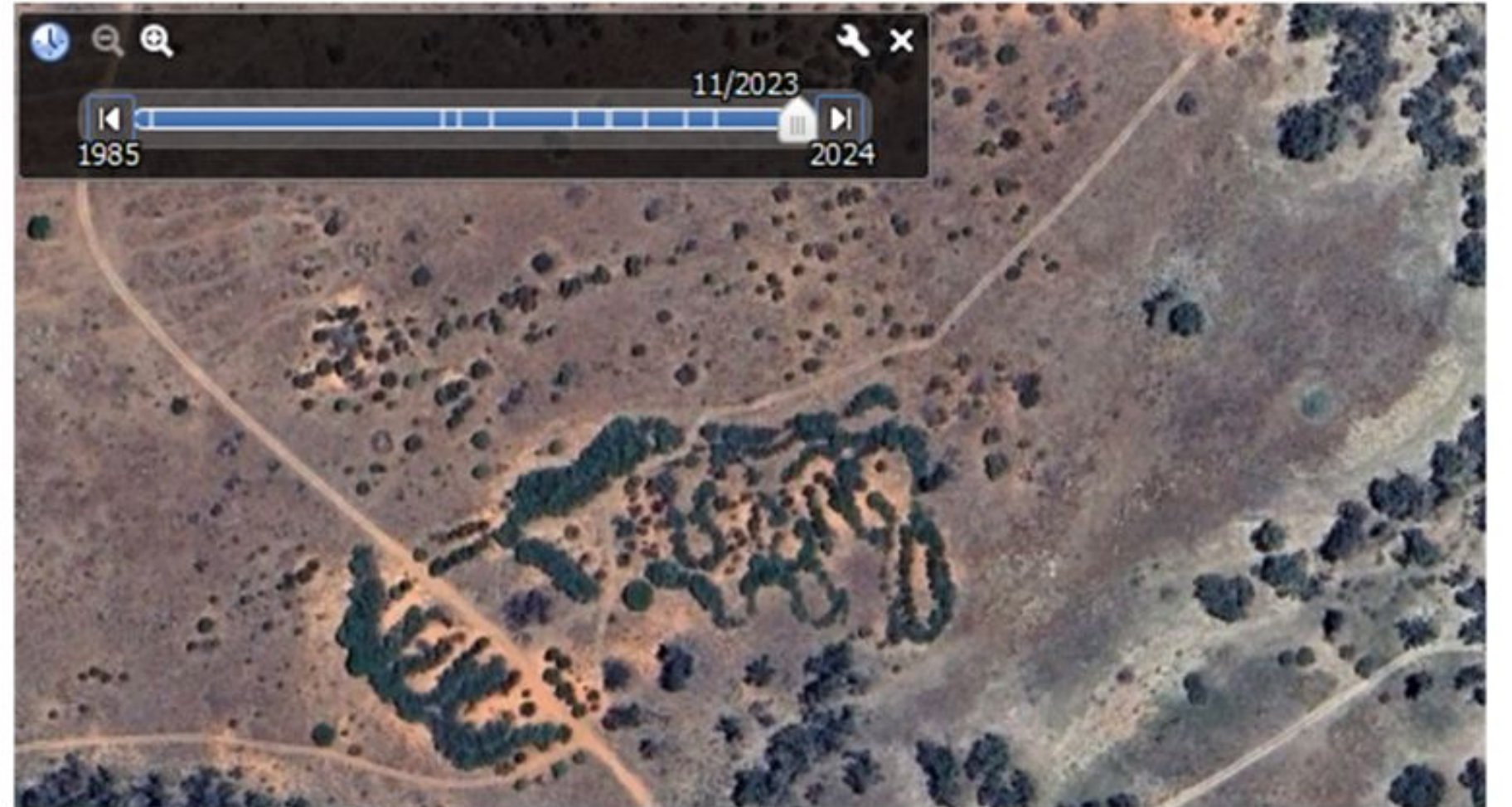
Computer program

<https://earth.google.com/>





Revegetation over time  
2010 to 2023





# Avenza Maps

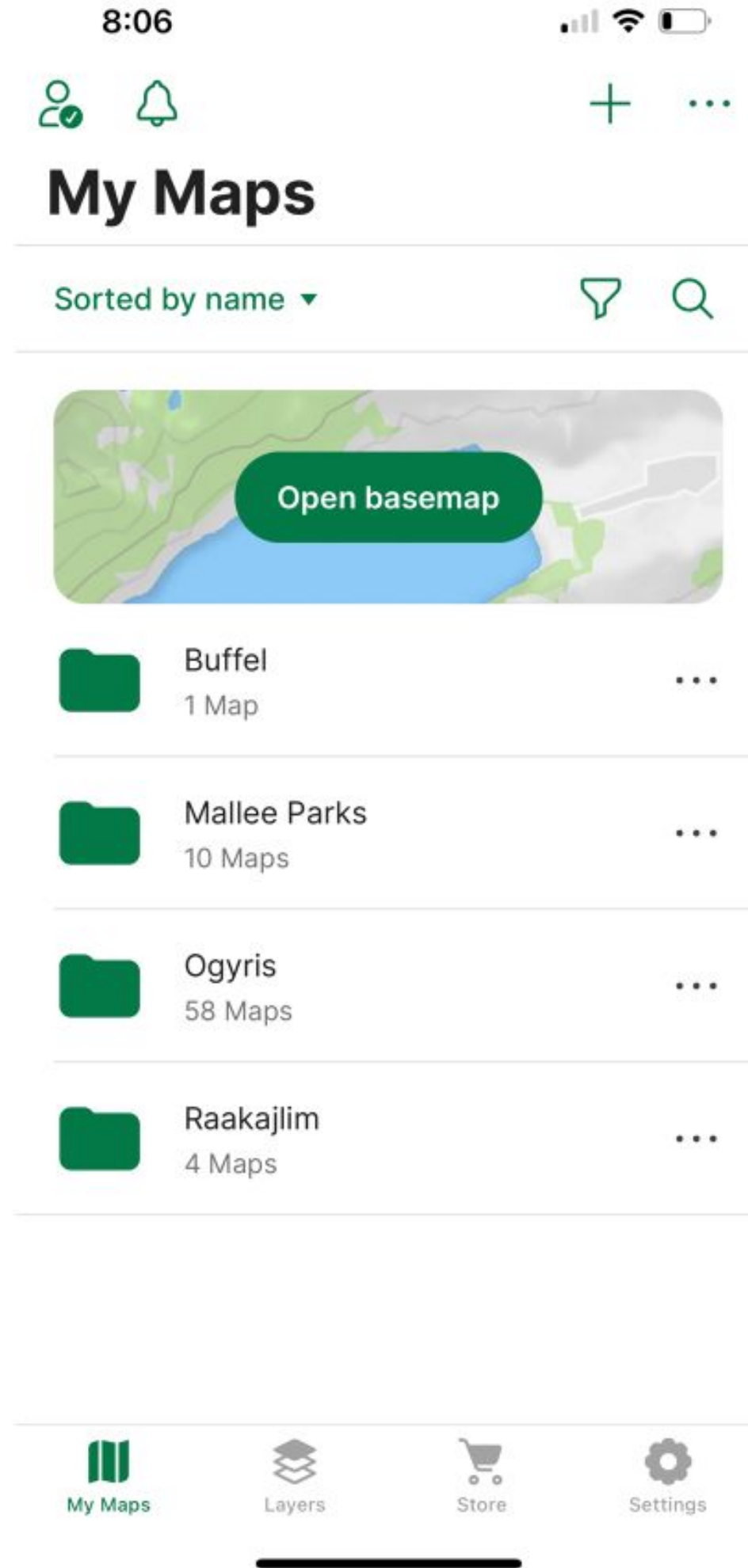
Collect data straight onto a map

Or view data on a map

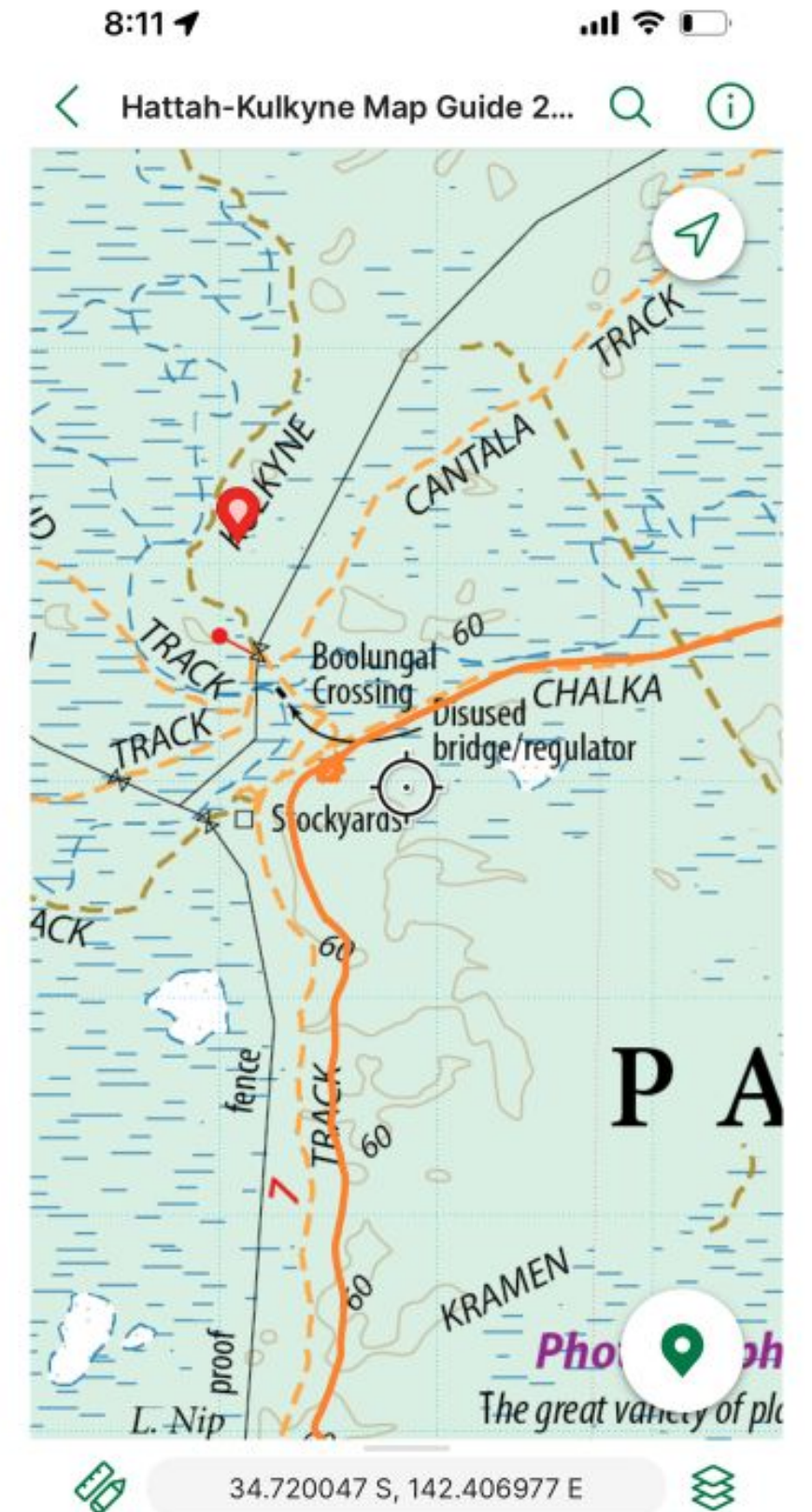
Free or paid maps from the store or upload your own (3)



<https://store.avenza.com/>



Paid map from store \$4.00





8:09



Site21Survey



34.584812 S, 142.391640 E



Up to 3 custom maps free

Blue dot is your location

Collect onto a layer:

- Waypoints
- Track logs
- Areas



RaakajlimAerial\_A3L

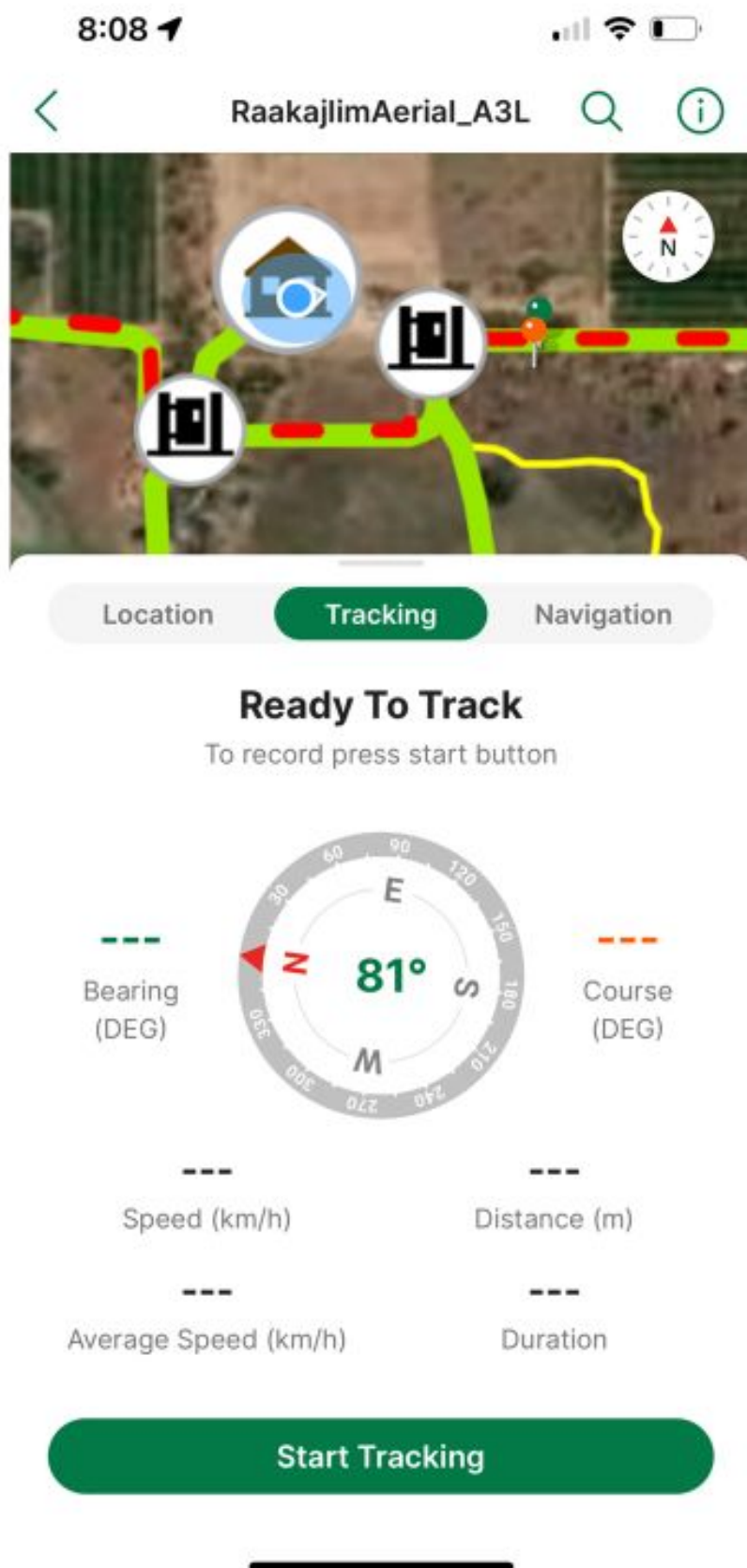


34.584092 S, 142.396977 E

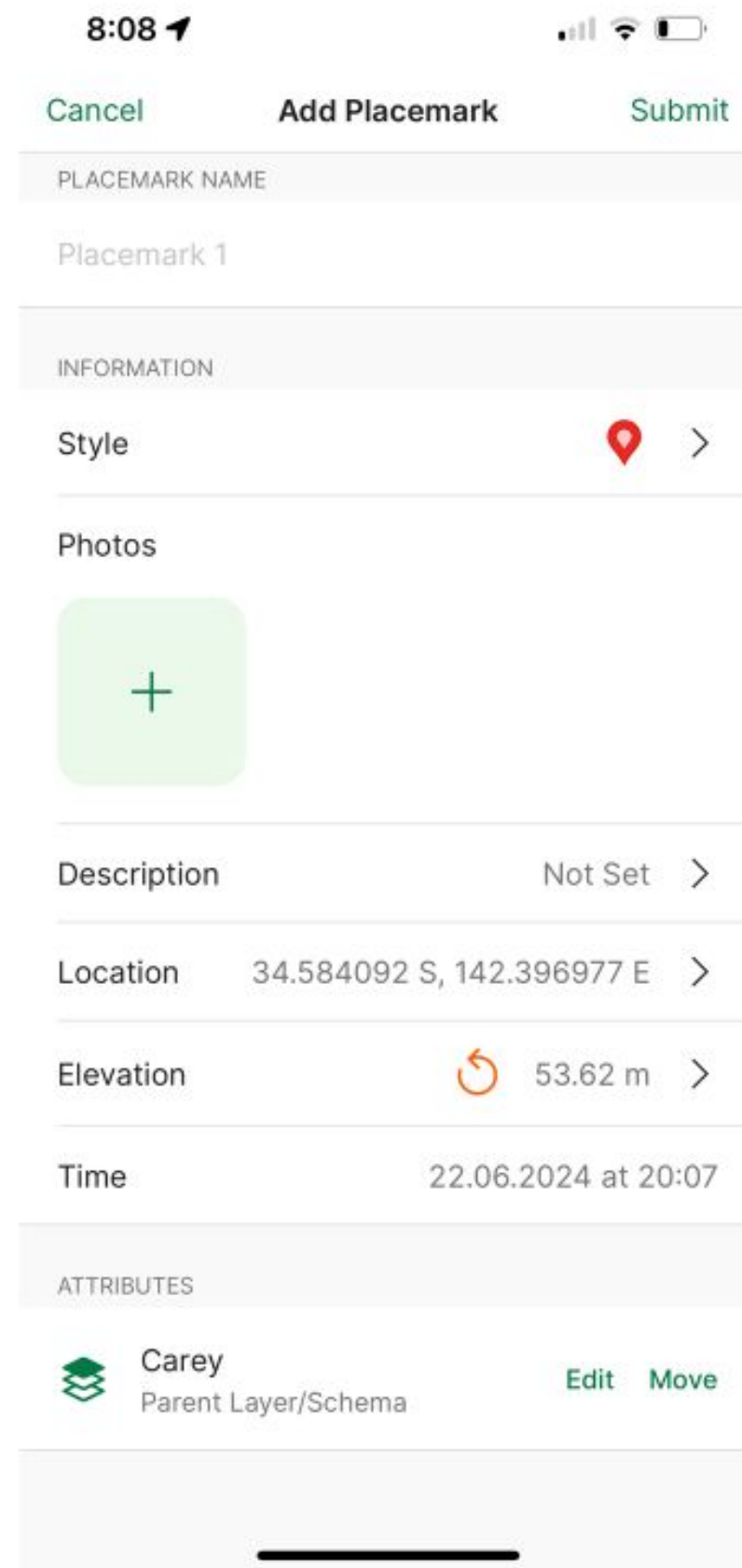




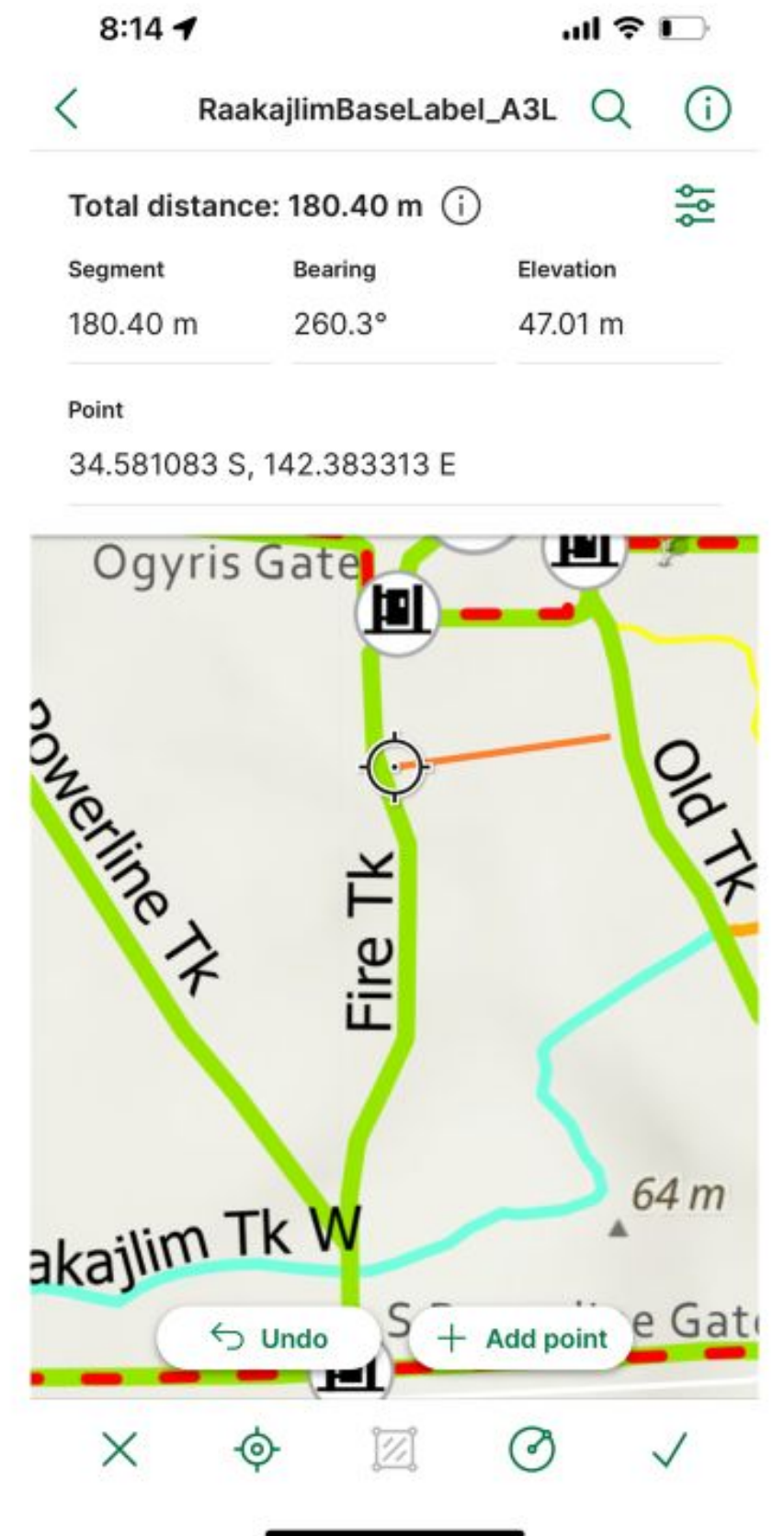
## Record a track log (breadcrumbs)



## Add placemark (point location)



## Measure lines and areas





# Collecting location data on your property



## EpiCollect5

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## Avenza Maps

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# BirdNET – bird call ID

- An artificial neural network developed by an international team of researchers that can identify bird calls ~3,000 species so far.
- [BirdNET Sound ID – The easiest way to identify birds by sound. \(cornell.edu\)](#)
- Three main user options
  - **BirdNET App** – record on phone and upload to free App. Needs a data connection.
  - **BirdWeather PUC** – US\$249 purpose built acoustic monitoring that links to BirdNET via App or Web. <https://www.birdweather.com/>
  - **BirdNET on Raspberry Pi** – Offers more user modification/control than the PUC. The BirdNET platform is free, the Pi + peripherals works out a little cheaper than the PUC.
- Both PUC and Pi can upload continuously in real time if a WIFI network is available. They can also work remotely and write to an SD card and will upload once in WIFI range. Power via USB-C, batteries, or charge pack.





11:46 4G

LIVE

Last Update: 24 Jun 2024 at 11:45:13 AM

mapbox

PUC-2527

USB-C 4.85V

SD Card 5% Used

Sound Pressure Level 52.8 db

Species Today 6

Detections Today 103

Last Detection 24 Jun 2024 11:17:06 AM

Status Environ... Light Motion

11:46 4G

Detected Species

Today (6) Week (6) All (78)

- Spotted Pardalote 12600 Detections  
Last heard: 24 Jun 2024 at 10:47:24 AM
- Sulphur-crested Cockatoo 11428 Detections  
Last heard: 24 Jun 2024 at 11:17:06 AM
- Australian Magpie 6530 Detections  
Last heard: 24 Jun 2024 at 10:12:36 AM
- Silvereeye 6454 Detections  
Last heard: 22 Jun 2024 at 1:28:25 PM
- Superb Fairywren 5300 Detections  
Last heard: 23 Jun 2024 at 5:11:06 PM
- Striated Pardalote 2366 Detections  
Last heard: 23 Jun 2024 at 12:53:10 PM
- Pied Currawong 2297 Detections  
Last heard: 16 Jun 2024 at 5:14:37 PM
- Long-billed Corella 1508 Detections  
Last heard: 22 Jun 2024 at 5:27:11 PM
- Laughing Kookaburra 1319 Detections  
Last heard: 18 Jun 2024 at 5:47:01 PM

11:47 4G

Spotted Pardalote  
*Pardalotus punctatus*

12600 detections  
Today at 10:47:24 AM

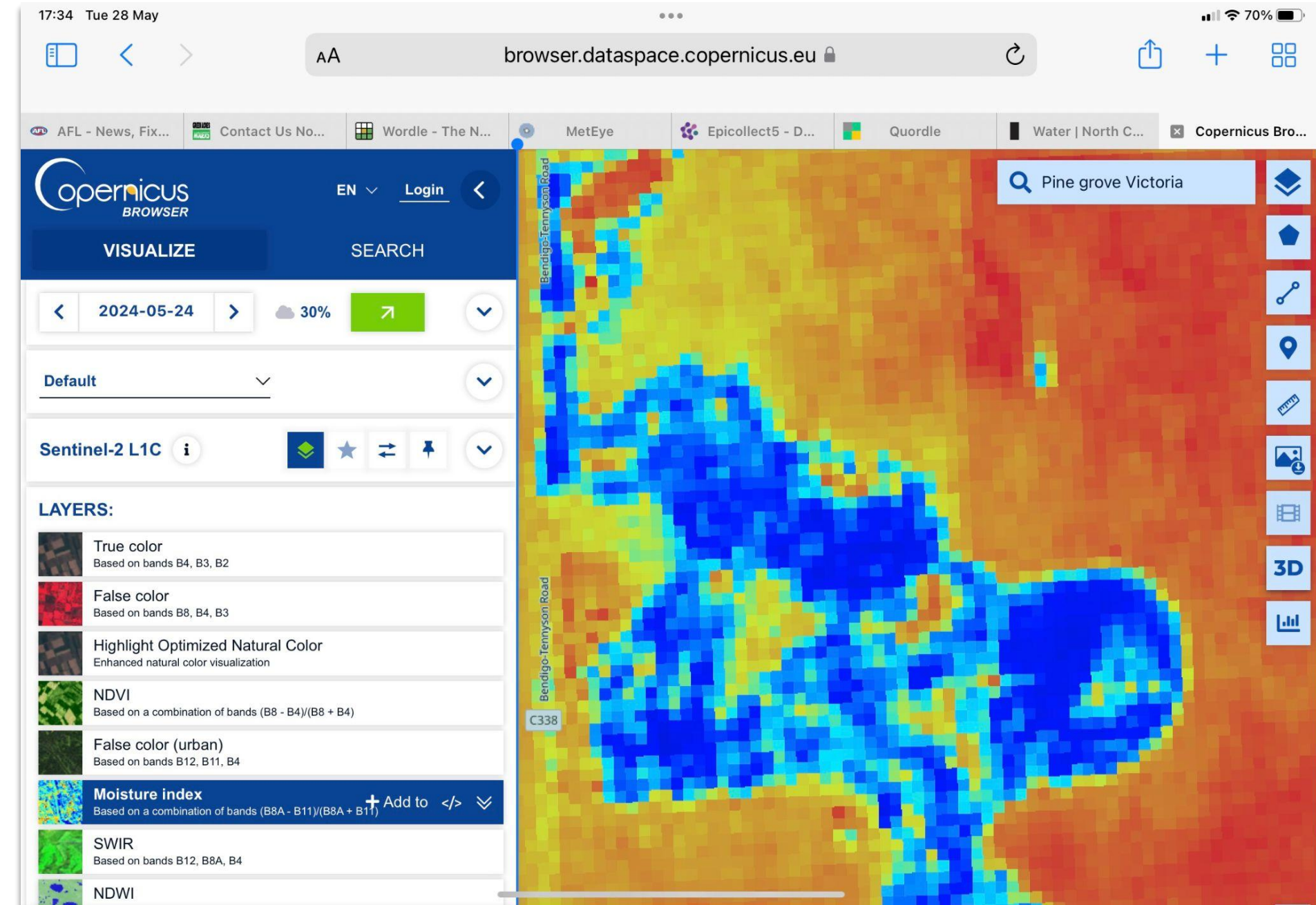
Timestamp	Confidence	Probability	Score
2024/06/24 10:47:20 AM	86%	33%	8.2
2024/06/24 10:45:03 AM	74%	33%	7.8
2024/06/24 10:20:59 AM	98%	33%	8.4
2024/06/24 9:56:20 AM	79%	33%	8.0





# Copernicus Browser

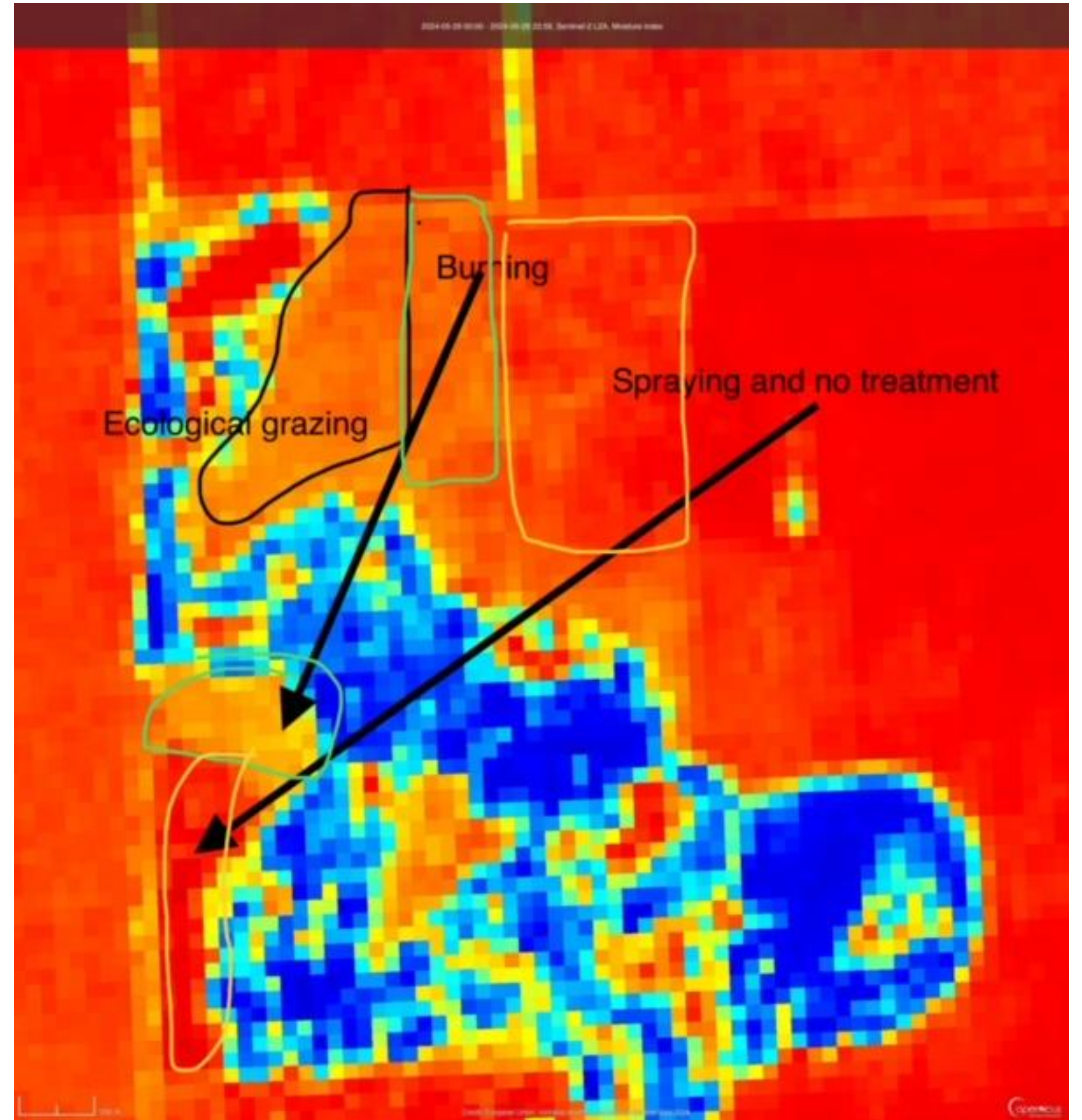
- For browsing and analysing satellite images
- Previously called Sentinel Playground
- <https://browser.dataspace.copernicus.eu>
- Free! Use anonymously or create login.
- Useful on a landscape scale e.g. flood, fire, drought.
- New satellite images every 5 days
- Historical imagery from 2016.





# Copernicus Browser

- Moisture content layer can show impact of different management actions e.g. burning, spraying, grazing.





# Macro lens and microscopes

- A range of macro lenses are available for smartphones.
- Entry level - Apexel 12x - 24x Magnifier Macro lens, \$20-\$30 online. Suits most phones.
- Great for invertebrates, small structures like tiny flowers or fungi gills.
- Easy to use and great for species ID.
- Limitations - depth of field at 24X is very narrow - hard to get into focus.





# Macro lens and microscopes

- Examples:





# Macro lens and microscopes

- Examples:





# Macro lens and microscopes

- Stereo microscopes - great for more detailed study at home.  
Price : Entry level \$400. Excellent focus with stereo.  
Where to buy: Educational and scientific supplies.
- Digital microscopes - plug in easy to use and can photograph images.





# Which torch reigns supreme?

- Different uses e.g. pest control, monitoring/observation, photography.
- Headlamps vs handheld
- Coloured LED vs colour filters
  - White - better for colour observation
  - Red - less visible to animals
  - Green - more range
- Brands: Wolf Eyes, Olight, LED Lenser, Z Vision.



Thanks for joining us!

Ideas for future “Hot Topic” webinars are welcome.

