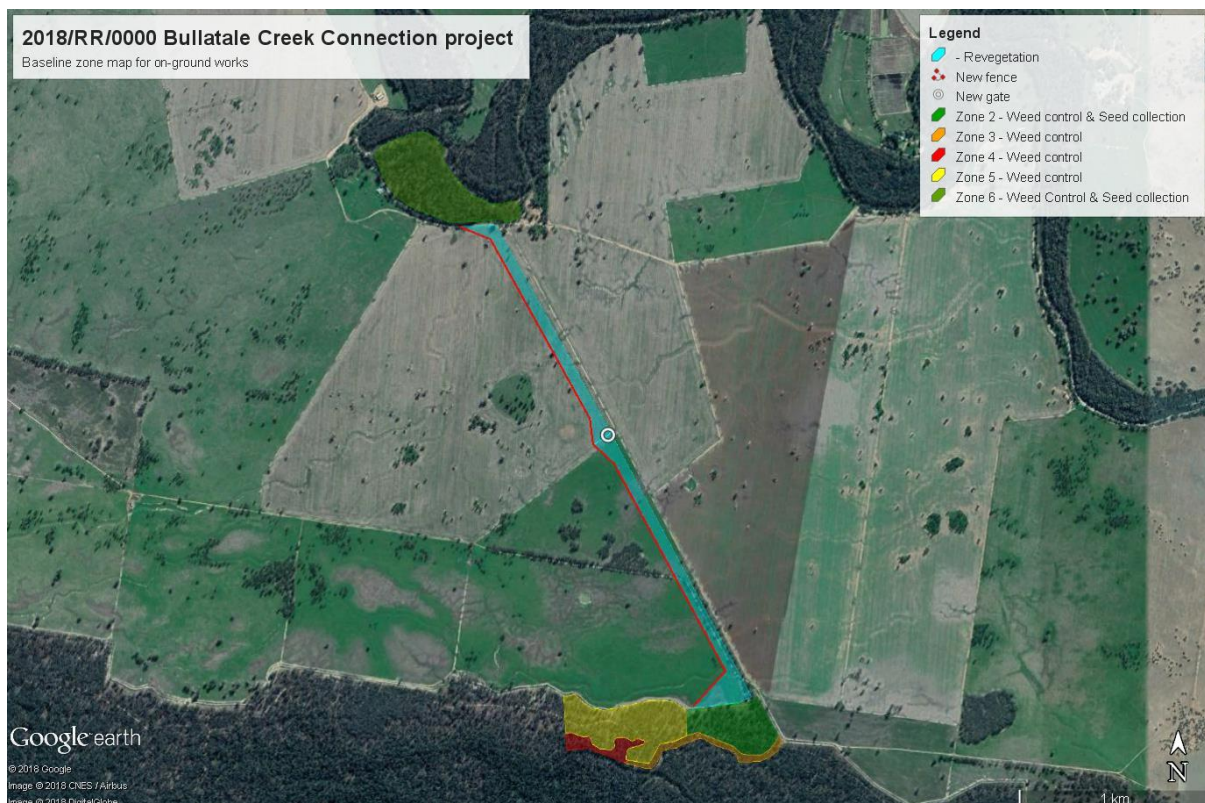


Guide to monitoring NSW Environmental Trust grants using mapping



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Guide to mapping for monitoring Environmental Trust grants

This document provides guidance to grantees on how to prepare maps that may be used to guide on-ground works and monitor site condition. The content sets out a minimum standard of map required as part of your monitoring activities.

The Trust acknowledges that our grantees include a wide range of groups and organisations from both government and the community, with varying levels of capacity, expertise and resources. Likewise, there are also a number of technical options available for map creation accessible to applicants, for example, Geographic Information System (GIS) software such as ArcMap and MapInfo. While **applicants may utilise any option available** to create their maps, (e.g. GIS software), **all maps produced must comply with the minimum content requirements outlined in this document.**

To assist grantees who may not have proprietary GIS software available to them, this guide includes detailed advice on how to use the freely available Google Earth Pro to develop your maps.

This guideline includes the following:

- An overview of the relevant functions contained in Google Maps Pro to create your maps;
- How to create polygons (areas) and lines to define areas for project sites / work zones;
- How to apply relevant colour coding to show activity types and current condition of your project sites / zones;
- How to add key features to a map and measure key parameters using available functions e.g. distance, area;
- How to insert a map title and legend, scale and north arrow;
- How to save your final project map(s), and;
- How to export a .kml/.kmz file.
- An example of a completed baseline map

For information on downloading and accessing Google Earth Pro, refer to the [Guide to Developing Application Maps](#).

Why are maps required?

The main benefits of creating customised maps for ecological restoration / rehabilitation projects are that they:

- Assist to identify and divide your project site(s) up in to discrete management zones (based upon site factors) to plan on-ground works and coordinate efficient delivery of the project;
- Assist the accurate measurement of scale and spatial impact (footprint) of projects;
- Provide the Trust with a clear understanding of the landscapes where projects are being implemented, baseline conditions of sites and temporal transitions to an improved state as a result of the works being funded.

What are the minimum standards required by the Trust?

For ecological restoration projects it is expected that grantees will provide maps that show the baseline condition of their project site(s) and zone(s). Multiple maps are likely to be required to clearly show the project area in sufficient detail. Thereafter, these maps may be updated annually as part of progress / final reports.

NOTE: Maps are to be digitally produced (i.e. they should not be hand-drawn).

The content included within the example on page 16 should be considered as the **minimum** standard all applicants are to adhere to, regardless of the mapping software used. Note that each map includes a scale, legend, title and north arrow.

Please note that failure to prepare and submit baseline maps (prepared prior to project commencement) and thereafter annual status maps (with your progress reports) that do not comply with the **minimum** mapping standards may result in your funding instalments being withheld.

If you require assistance at any stage, please contact
Environmental Trust grant administration staff on
(02) 8837 6093

Step by Step Instructions

1. Open Google Earth Pro
2. Zoom to the project site and adjust / move the screen to show the area you want to map
3. Add polygons for each of your project sites / zones
4. Develop your 'baseline map' showing the pre-work site condition and expected activity based on the prescribed colour codes
5. Continue to add polygons (areas), lines and points show activities for all of your project sites / work zones.
6. Export the image as a static map
7. Save your project site scale map
8. Save your project layers to their own folder within Google Earth Pro
9. Save the electronic map file to be able to email (optional)

Step 1. Open Google Earth Pro

Please refer to the [Guide to developing maps for Environmental Trust grant application](#) for further information on:

- Downloading and installing Google Earth Pro
- Accessing Google Earth Pro on your computer
- Downloading and installing NSW Globe layers
- Basic operation of the Google Earth Pro program to assist with locating the project site(s)

NOTE: Grantees who used Google Earth Pro to produce the maps for their original application will be able to advance their existing maps and spatial features (points, lines, polygons) using this Guideline. The original spatial features should automatically appear in a folder (saved by the applicant) under the 'Places' window.

Step 2. Zoom to the project site and adjust / move the screen to show the area you wish to mark / highlight within your maps.

Google Earth Pro

File Edit View Tools Add Help

Search

Search Google Address / Lot / POI / Property Suburb

Search

ex: 37.407229, -122.107162

Get Directions History

Places

- My Places
- Temporary Places

Layers

- Primary Database
- The new Google Earth
- Borders and Labels
- Places
- Photos
- Roads
- 3D Buildings
- Ocean
- Weather
- Gallery
- Global Awareness
- More
- Terrain
- globe.six.nsw.gov.au/nswglobe/

In this example, we will focus on a weed control and revegetation project in the Riverina region. The project is seeking to establish connectivity between Murray Valley National Park and Bullatale Creek and to improve the condition of the vegetation to which the corridors will connect.

Image © 2018 CNES / Airbus
© 2018 Google
Image © 2018 CNES / Airbus
Image © 2018 DigitalGlobe

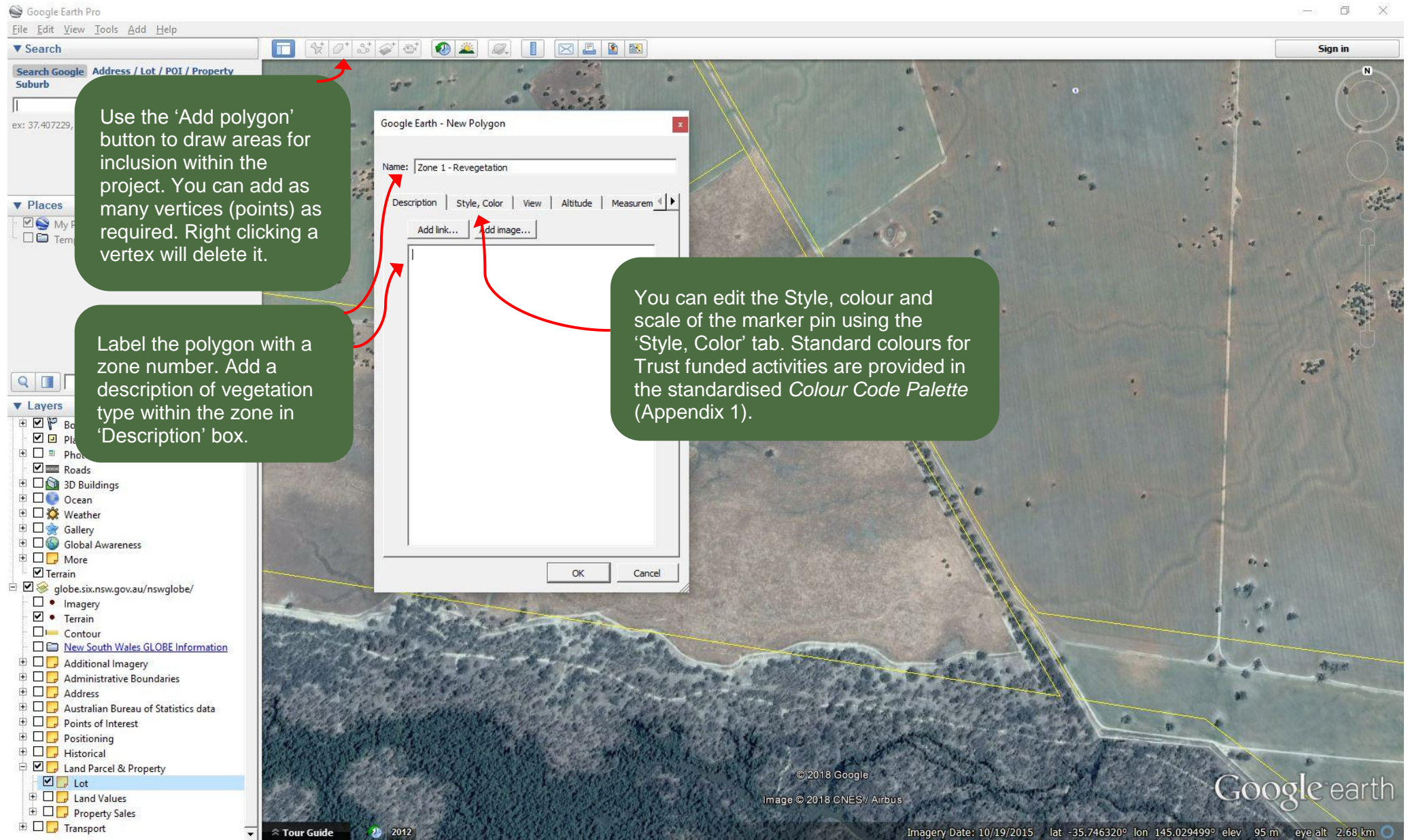
Google earth

Imagery Date: 3/7/2017 lat -35.635155° lon 145.175845° elev 98 m eye alt 68.01 km

Step 2. (Continued)

The screenshot displays the Google Earth Pro interface. The main map area shows a satellite view of a rural landscape with several large, irregularly shaped parcels outlined in yellow. The interface includes a search bar at the top left, a toolbar with various navigation and tool icons, and a 'Layers' panel on the left side. The 'Layers' panel is expanded to show the 'Land Parcel & Property' layer, which is highlighted in blue. Within this layer, the 'Lot' sublayer is also selected. A green callout box with a white border and a red arrow pointing to the yellow lot boundaries contains the text: "Selecting the Land Parcel & Property layer and the Lot sublayer within the 'NSW globe' layer package will display lot boundaries." The bottom status bar shows the imagery date as 10/19/2015 and coordinates: lat -35.739840° lon 145.020259° elev 94 m eye alt 5.49 km.

Step 3. Add polygons for each of your project sites / zones



Step 4. Develop your 'baseline map' showing the pre-work site condition and expected activity based on the prescribed colour codes

Google Earth Pro

File Edit View Tools Add Help

Search

Search Google Address / Lot / POI / Property Suburb

Search

ex: 37.407229, -122.107162

Get Directions History

Places

- Zone 1 - Revegetation
Parkinson property = 7.1Ha
- Zone 1 A - Revegetation
Thorle property = 8.15Ha
5,500 tubestock @ 1 per 15m2
- Zone 2 - Weed control
0-25% African boxthorn
- Zone 3 - Weed control
50-75% African boxthorn & Blackberry
- Zone 4 - Weed control
75-100% African boxthorn & Blackberry
- Zone 5 - Weed control
25-50% African boxthorn
- Zone 6 - Weed control
0-25% African boxthorn

Temporary Places

Layers

- Primary Database
- The new Google Earth
- Borders and Labels
- Places
- Photos
- Roads
- 3D Buildings
- Ocean
- Weather
- Gallery
- Global Awareness
- More
- Terrain
- globe.six.nsw.gov.au/nswglobe/
- Imagery
- Terrain
- Contour
- New South Wales GLOBE Information
- Additional Imagery
- Administrative Boundaries
- Address

Google Earth - Edit Polygon

Name: Zone 1 - Revegetation

Description | Style, Color | View | Altitude | Measurements

Add link... Add image...

Parkinson property = 7.1Ha
5,000 tubestock @ 1 per 15m2

OK Cancel

In this example, a corridor has been drawn to show a proposed revegetation area.

Pressing "OK" in the dialogue box will save the created point to 'My places'.

The area of the polygon will be shown in the 'Measurements' tab.

©2018 Google
Image © 2018 CNES / Airbus

Google earth

Imagery Date: 10/19/2015 lat -35.745290° lon 145.029270° elev 95 m eye.alt 2.24 km

Step 5. Continue to add polygons (areas), lines and points show activities for all of your project sites / work zones.

Continue drawing polygons until your work zones have all been added.

To edit an existing polygon, right click the polygon and select 'Properties'. You can add vertices, edit the description, colour, name, etc. at any time.

Weed control zones and baseline density of the primary target weeds are shown here in this example

The screenshot shows the Google Earth Pro interface with a map of a rural area. The 'Places' panel on the left lists several zones: 'Zone 1 - Revegetation' (7.1Ha), 'Zone 1 A - Revegetation' (8.15Ha), 'Zone 2 - Weed control' (0-25% African boxthorn), 'Zone 3 - Weed control' (50-75% African boxthorn & Blackberry), 'Zone 4 - Weed control' (75-100% African boxthorn & Blackberry), 'Zone 5 - Weed control' (25-50% African boxthorn), and 'Zone 6 - Weed control' (0-25% African boxthorn). The 'Layers' panel shows various map layers, including 'Primary Database', 'The new Google Earth', 'Borders and Labels', 'Places', 'Photos', 'Roads', '3D Buildings', 'Ocean', 'Weather', 'Gallery', 'Global Awareness', 'More', 'Terrain', and 'globe.six.nsw.gov.au/nswglobe/'. The map shows several colored polygons: a large green polygon, a blue polygon, a yellow polygon, and a red polygon. Red arrows point from the callout boxes to these polygons. The status bar at the bottom shows 'Imagery Date: 10/19/2015', 'lat -35.738589°', 'lon 145.023740°', 'elev 94 m', and 'eye alt 6.47 km'.

Step 5 (continued).

Right clicking a polygon, selecting 'Properties' and then 'Measurements' will allow you to determine the size of your site/zones/features and if completed during the application process, will assist with estimation of budget.

Google Earth - Edit Polygon

Name: Zone 5 - Weed control

Property	Value	Unit
Perimeter:	2.1	Kilometers
Area:	13.6	Hectares

OK Cancel

Image © 2018 CNES / Airbus
© 2018 Google

Google earth

Imagery Date: 10/19/2015 lat -35.751693° lon 145.032091° elev 103 m eye alt 2.86 km

Step 6. Export the image as a static map

The screenshot displays the Google Earth Pro interface with a map of a rural area. The map is overlaid with several colored zones: Zone 1 (light blue), Zone 1 A (medium blue), Zone 2 (green), Zone 3 (orange), Zone 4 (red), Zone 5 (yellow), and Zone 6 (dark green). The interface includes a search bar, a 'Places' list on the left, and a 'Layers' list at the bottom left. A 'Save Image...' button is visible in the top toolbar. A 'Legend' box is open on the right side of the map, listing the zones with their corresponding colors. A scale bar and a north arrow are located in the bottom right corner of the map area.

Callout 1: Click on the 'Untitled Map' box to enter a title and description.

Callout 2: Use the 'Save Image' button to generate a title, legend, scale and north arrow.

Callout 3: Click on the 'Legend' box to edit its contents. The listed order will be alphabetical.

Callout 4: A scale and North arrow will be automatically added.

Map Legend:

- Zone 1 - Revegetation
- Zone 1 A - Revegetation
- Zone 2 - Weed control
- Zone 3 - Weed control
- Zone 4 - Weed control
- Zone 5 - Weed control
- Zone 6 - Weed Control

Places List:

- My Places
- Zone 1 - Revegetation (Parkinson property = 7.1Ha)
- Zone 1 A - Revegetation (Thorle property = 8.15Ha, 5,500 tubestock @ 1 per 15m2)
- Zone 2 - Weed control (0-25% African boxthorn)
- Zone 3 - Weed control (50-75% African boxthorn & Blackberry)
- Zone 4 - Weed control (75-100% African boxthorn & Blackberry)
- Zone 5 - Weed control (25-50% African boxthorn)
- Zone 6 - Weed Control (0-25% Blackberry)

Layers List:

- Primary Database
- The new Google Earth
- Borders and Labels
- Places
- Photos
- Roads
- 3D Buildings
- Ocean
- Weather
- Gallery
- Global Awareness
- More
- Terrain

Step 7. Save your project site scale map.

The screenshot displays the Google Earth Pro interface. The main map area shows an aerial view of a project site with several colored zones: Zone 1 (light blue), Zone 1A (cyan), Zone 2 (green), Zone 3 (orange), Zone 4 (red), Zone 5 (yellow), and Zone 6 (dark green). A white title box at the top of the map reads "2018/RR/0000 Bullatale Creek Connection project" and "Zone map for on-ground works". A red arrow points from this title box to the "Save Image" button in the top toolbar. A green callout box with white text says: "When you have added a map title and edited the legend contents, select the 'Save Image' button." The left sidebar shows the "Places" panel with a list of zones and their descriptions, and the "Layers" panel with various map settings. The bottom left corner shows the Google Earth logo and copyright information. The bottom right corner features a north arrow and a 1 km scale bar.

2018/RR/0000 Bullatale Creek Connection project
Zone map for on-ground works

When you have added a map title and edited the legend contents, select the 'Save Image' button.

Legend

- Zone 1 - Revegetation
- Zone 1 A - Revegetation
- Zone 2 - Weed control
- Zone 3 - Weed control
- Zone 4 - Weed control
- Zone 5 - Weed control
- Zone 6 - Weed Control

Google earth
© 2018 Google
Image © 2018 CNES / Airbus

1 km

Step 7 (continued)

Google Earth Pro

File Edit View Tools Add Help

Search

Search

Map Options Resolution: Current (1374x914) Save Image...

2018/RR/0000 Bullatale Creek Connection project
Baseline zone map for on-ground works

Legend

- Zone 1 - Revegetation
- Zone 1 A - Revegetation
- Zone 2 - Weed control
- Zone 3 - Weed control
- Zone 4 - Weed control
- Zone 5 - Weed control
- Zone 6 - Weed Control

Save As

This PC

Organize

This PC

- Desktop
- Documents
- Downloads
- Music
- Pictures
- Videos
- OSDisk (C:)
- Group (\\coffsfp02.dec.int) (N:)
- Spatial (\\coffsfp02.dec.int) (P:)
- main (\\coffsfp02.dec.int) (S:)
- hardys (\\coffsfp02.dec.int\user) (L)
- Network

File name: 2018RR0000 Baseline Zone map

Save as type: JPEG Image (*.jpg)

Save Cancel

Save your map to your hard drive. The file type will automatically save as a 'jpeg' file.

Google earth

© 2018, Google
Image © 2018 CNES/ Airbus

1 km

Step 8 - Save your project layers to their own folder within Google Earth Pro

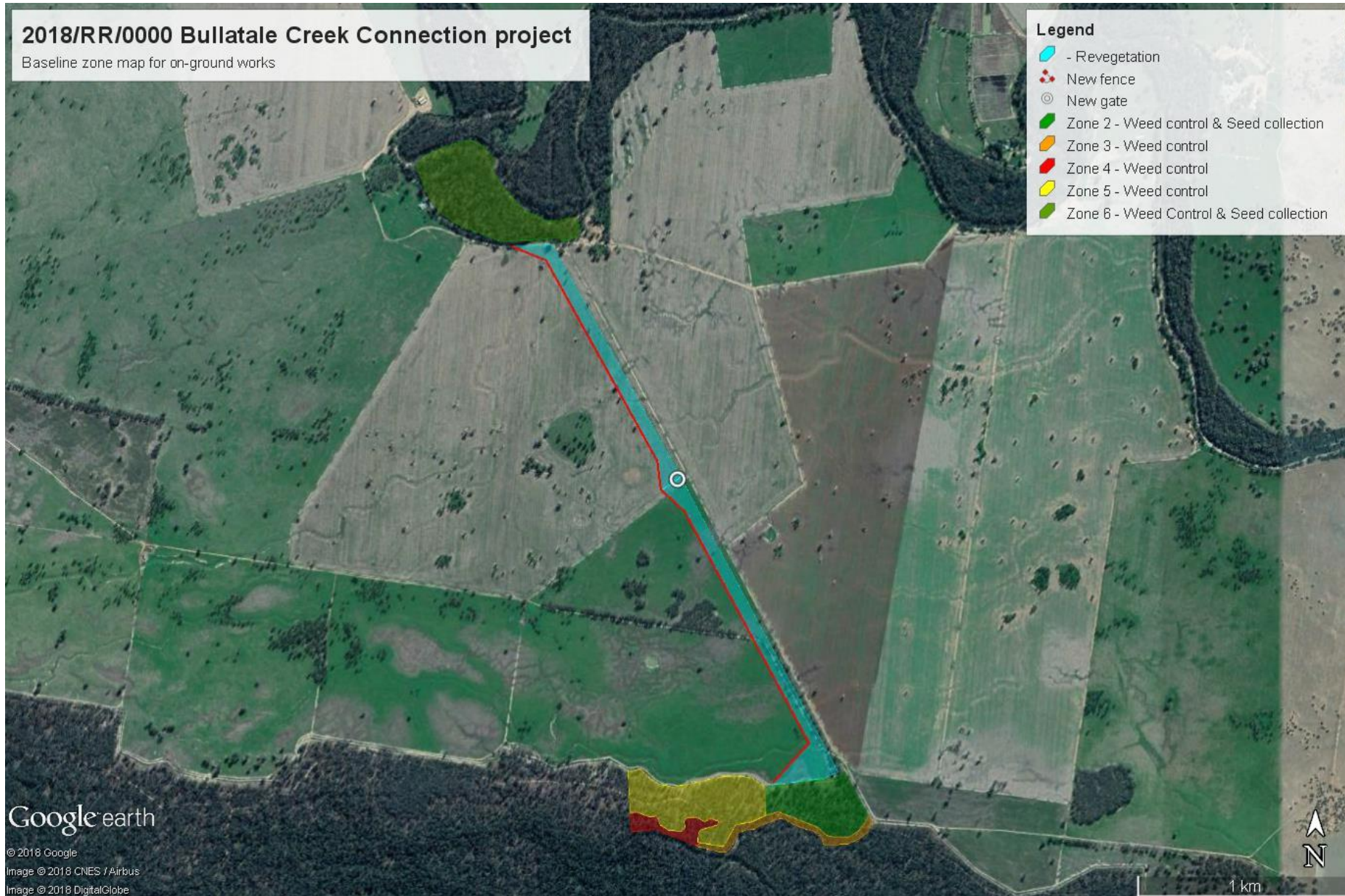
The screenshot displays the Google Earth Pro interface. On the left, the 'Places' panel shows a folder named 'My Places' containing several project zones: 'Zone 1 - Revegetation', 'Zone 1 A - Revegetation', 'Zone 2 - Weed control', 'Zone 3 - Weed control', 'Zone 4 - Weed control', 'Zone 5 - Weed control', and 'Zone 6 - Weed Control'. A new folder, '2018/RR/0000 Bulltale Creek Connection ...', is highlighted. The 'Layers' panel on the bottom left shows various map layers like 'Primary Database', 'The new Google Earth', 'Borders and Labels', 'Places', 'Photos', 'Roads', '3D Buildings', 'Ocean', 'Weather', 'Gallery', 'Global Awareness', 'More', and 'Terrain'. The main map area shows an aerial view of a landscape with a blue water feature and several colored polygons representing project zones. A 'Google Earth - Edit Folder' dialog box is open in the center, with the 'Name' field containing '2018/RR/0000 Bulltale Creek Connection project'. A green callout box with white text provides instructions: 'Right click on the 'My Places' icon, select 'Add' then 'Folder' and give it a name. You can also add a description if desired. Drag and drop all your project features (points, polygons and lines) to this folder for later reference. These will be available under My Places the next time you open Google Earth Pro.' The dialog box also has 'Description' and 'View' tabs, 'Add link...' and 'Add image...' buttons, and 'OK' and 'Cancel' buttons at the bottom.

Step 9 (optional) - Save the electronic map file to be able to email










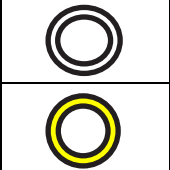
Right click on the saved folder under 'My Places'. Select 'Save Place As...'. Give the file a name and save it to your hard drive. The file type will automatically save as a '.kmz' file. Once saved, you can attach the file within an email as you would any other attachment and email to another user who can then view and edit the contents on their computer using Google Earth Pro. Alternatively, you can right click and select "Email" to send via gmail or Outlook, however, this will not save the file to your hard drive.

Save the file name in the following format.
 "Project reference #_Map type_Date"
 E.g. 2018RR0000_BaselineMap_010618

Appendix 1 - Example of exported baseline condition map



Appendix 2 - Standardised Mapping Colour Code Palette for Environmental Trust projects

	Site condition good (e.g. 0-10% weed cover)
	Site condition average (e.g. 11-40% weed cover)
	Site condition poor (e.g. 41-75% weed cover)
	Site condition terrible (e.g. 76-100% weed cover)
	Revegetation area proposed
	Revegetation area complete
	Fence proposed
	Fence complete
	Project feature (e.g. ET funded stock watering trough) proposed
	Project feature (e.g. ET funded stock watering trough) complete