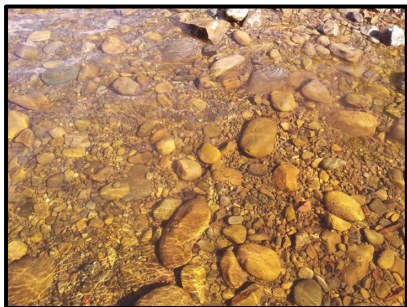# Tools and technology to support community based environmental monitoring and impact assessment

And they're all free.

Duane Wilkins

Geospatial Team
Department of Conservation
duwilkins@doc.govt.nz | maps.doc.govt.nz
https://nz.linkedin.com/in/duanewilkins

Department of Conservation
Te Papa Atawhai

Geo is like a Pizza

- Think Google Earth made with Pizza
- GIS is the only way to relate disparate datasets, you do this using geographically lined up over lays
- What's on your slice of Pizza?
- It's seldom about a printed map.
- It doesn't need to be expensive, almost everything you'll see next is free.
- Start small, something is always better than nothing.
- Questions you can answer with GIS, How far, how many, what type, and what if we did this, removed that, added this.
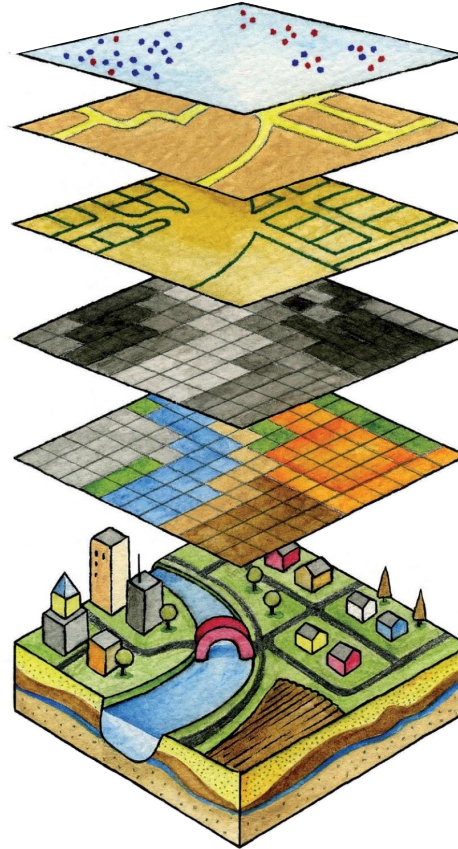
This is the pepperoni pizza cake. I have never wanted anything more in my life.
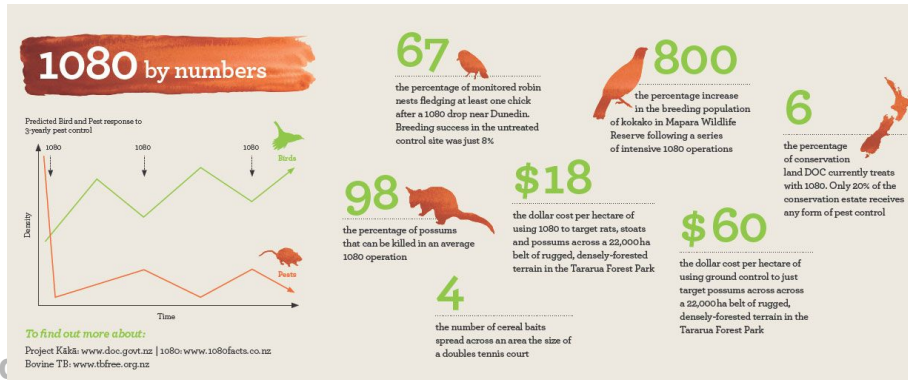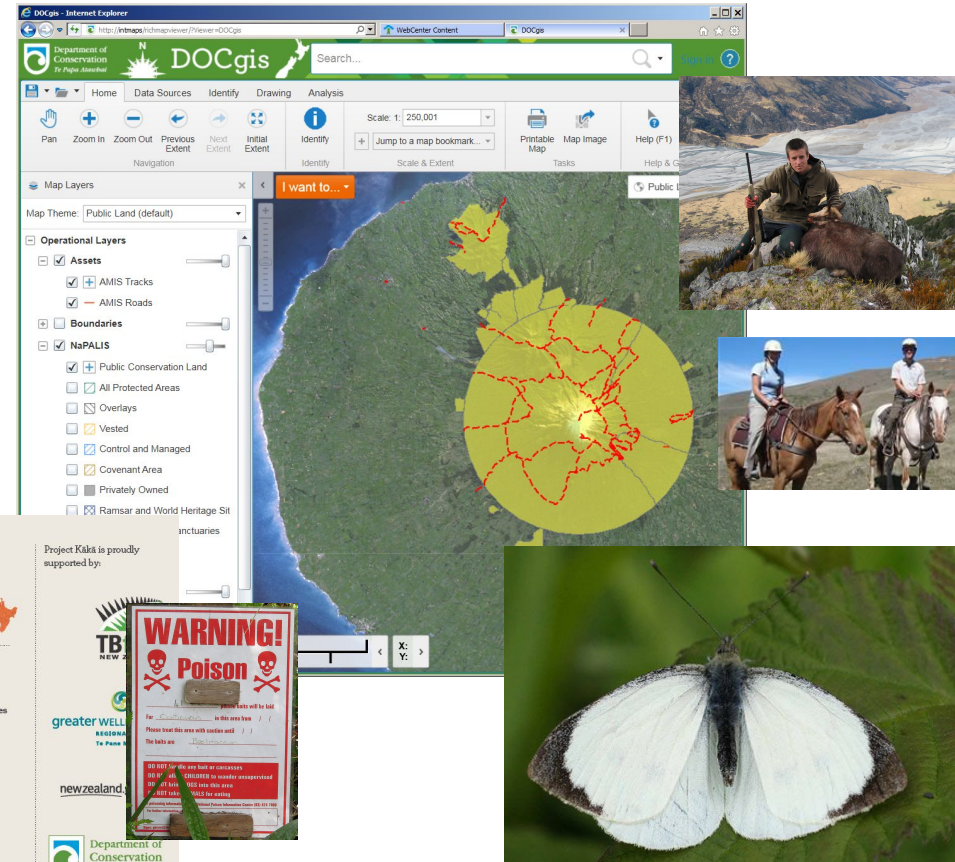
goo.gl/1wFZBJ

GIS IA & Monitoring Support @ DOC

Self Help Tools and mapping services eg:

- Battle for our Birds Aerial 1080 Operations consents & monitoring
- Pest Mgmt, Traps, WARO, Pesticide Summaries and Hunting blocks
- Permissions/Concessions mapping
- Record of Fire & Great White Butterfly

MyTracks

- My Tracks lets you record your path, speed, distance, and elevation.
- View live GPS capture data.
- Annotate your path with text and photos while you record.
- Photographs include direction and bearing placement.
- Export your tracks to Google Drive, Google Spreadsheets, or external storage.
- Works Offline
- Track Example

goo.gl/1wFZBJ
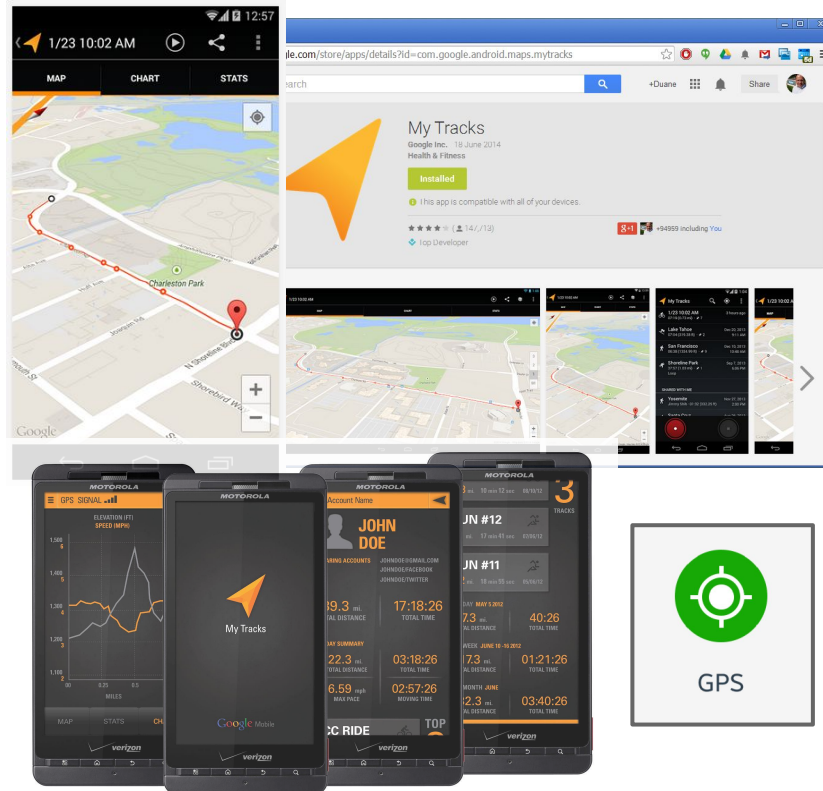
PDF Maps

- Show GPS position over a map
- Measure distances and areas
- Load your own Geospatial PDF
- Enables data capture offline
- Full LINZ Topo 50k maps available for free online
- Generate your own data schema and validate location over a custom PDF Map or Georeferenced Brochure PDF.
- Create & Capture new attribute fields on mobile device in the field on the fly.

goo.gl/1wFZBJ

Kobotoolbox
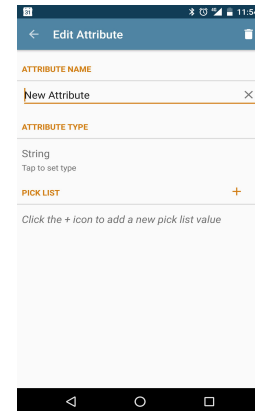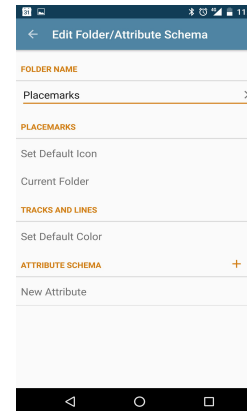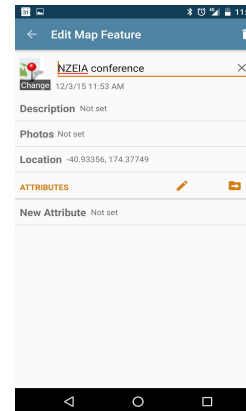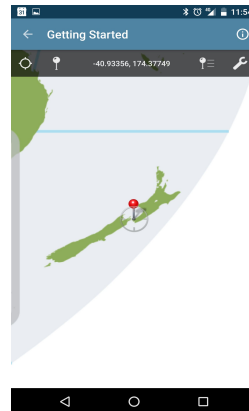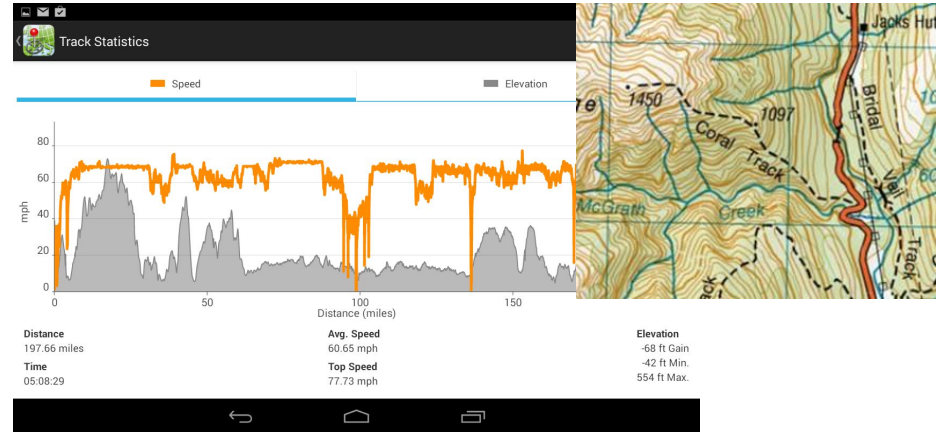
BUILD FORMS AND REUSE EXISTING QUESTIONS

- Easily create survey forms intuitively - WYSIWYG.
- Store recurring questions in your library or share them with colleagues.

COLLECT DATA

- Quickly and reliably collect survey data on Android, iOS, and many other devices, online or offline, and with complex skip logic.

ANALYZE AND MANAGE DATA

- Inspect your data moments after it was collected - or download it for advanced analysis in other software in Excel, CSV, KML, and other formats.

goo.gl/1wFZBJ

MyMaps

- You can create custom maps collaboratively to share online with Google My Maps - can be nicely embedded within a website.
- Works on Desktop and Mobile seamlessly, with user/role based privacy - Private, editor's, view with link only, and public.
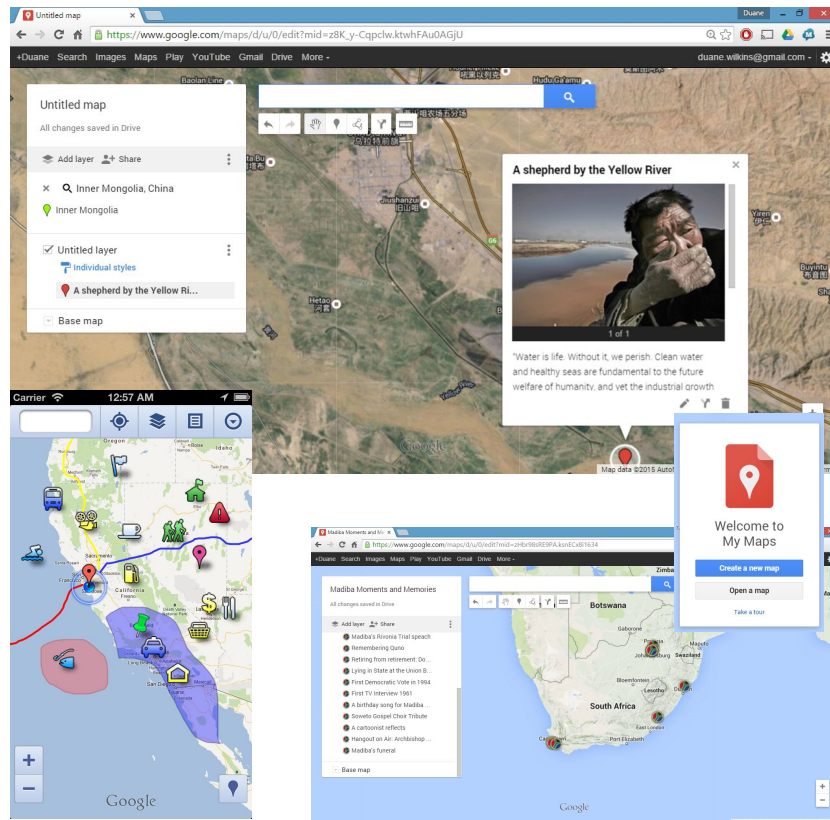- Export to KML for Google Earth 3D
- Import from Excel and KML
- Tutorial http://www.google.co.nz/earth/outreach/tutorials/mapseng_lite.html

TourBuilder

- TourBuilder helps you craft and share a story including text, maps, photos and videos.
- Tour Builder is a new way to show people the places you've visited and the experiences you had along the way using Google Earth. It lets you pick the locations right on the map, add in photos, text, and video, and then share your creation.
- https://www.google.com/earth/outreach/tutorials/tourbuilder.html
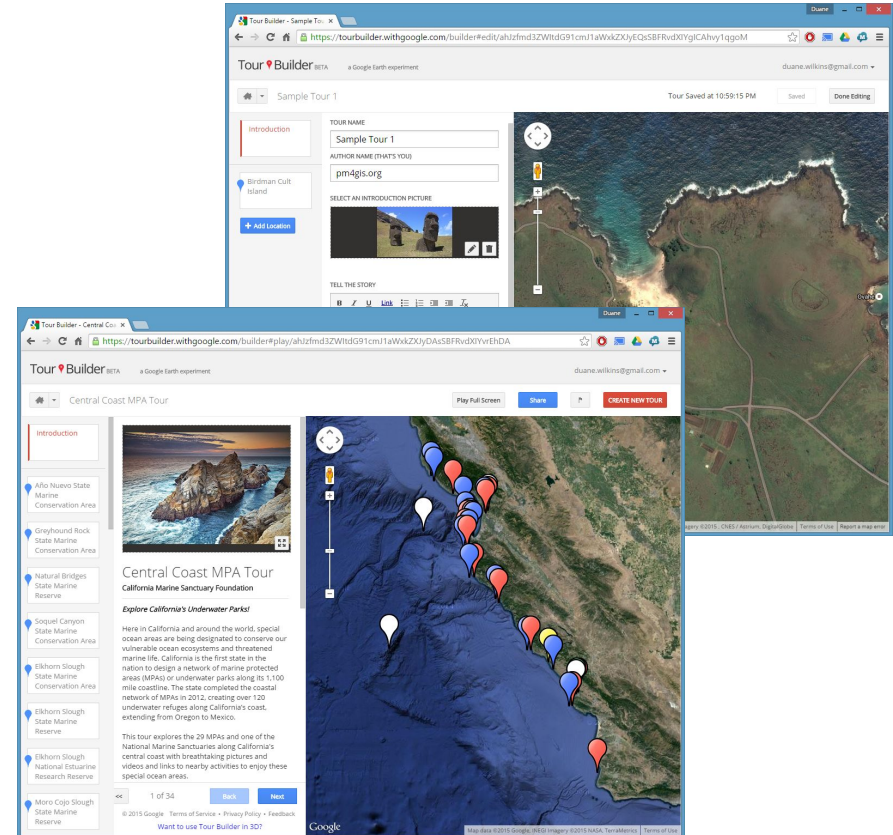
Google Earth Pro

- Google Earth Pro is now free for all.
- Create your own Point, Line and Polygons in 3D, including streetview.
- Create flythroughs, export to video, share tours with others.
- Works **offline** using Cached imagery and on mobile
- Search for locations
- Visualize your GPS tracks and share
- Go back in time with historical imagery
- Tutorials: https://www.google.com/earth/learn/
- 3 Billion downloads
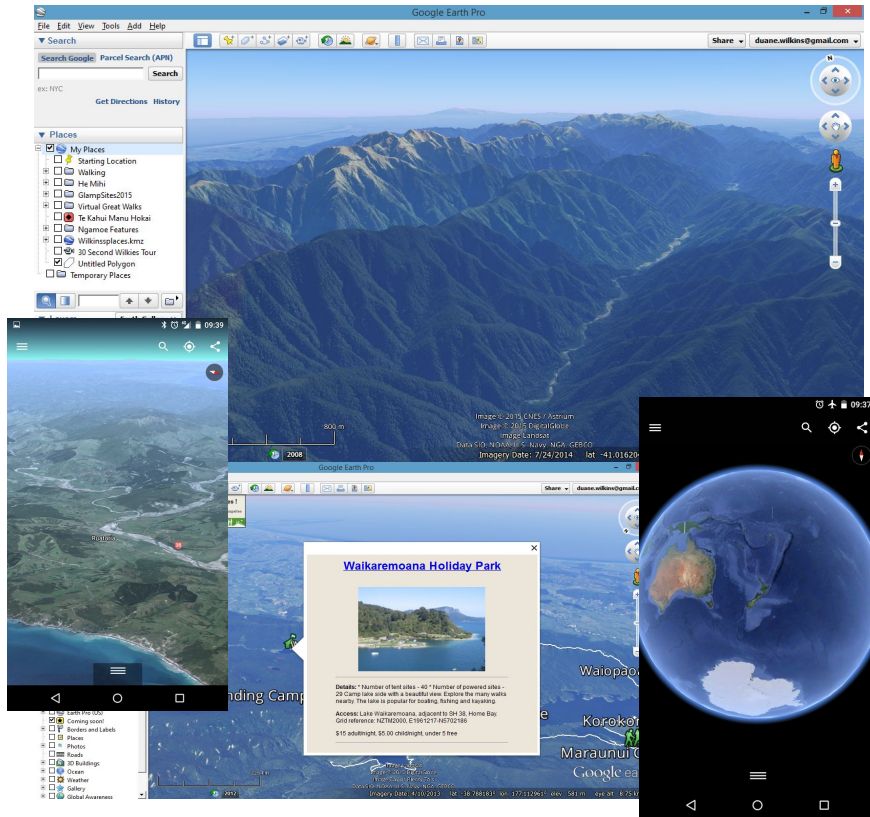
PhotoSpheres

- 3D PhotoSpheres, up down, all around, just like Street View
- Can be made public, or kept private or even just offline storage.
- The photo sphere camera mode on your Android phone makes it easy to capture a series of photos and automatically turn them into a seamless 360º experience.
- You can also turn your DSLR camera panoramas into photo spheres.
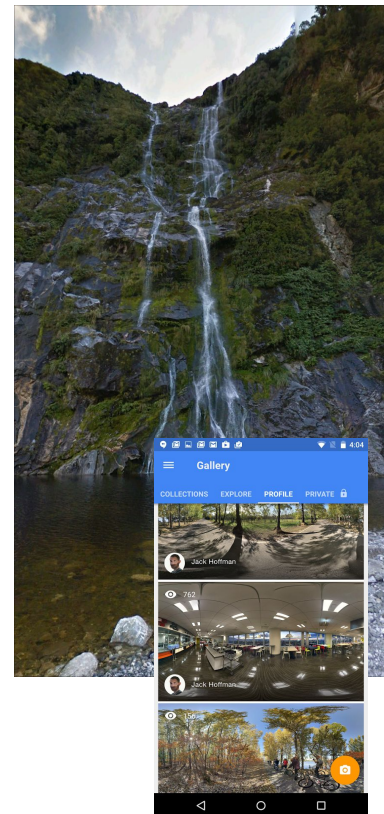- Share and embed via Google+ posts.
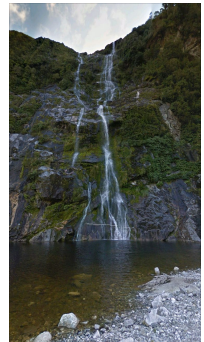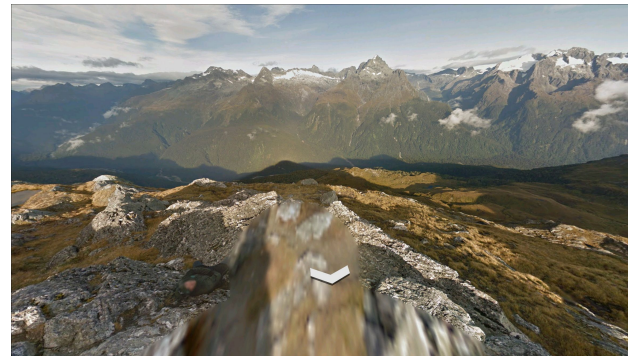
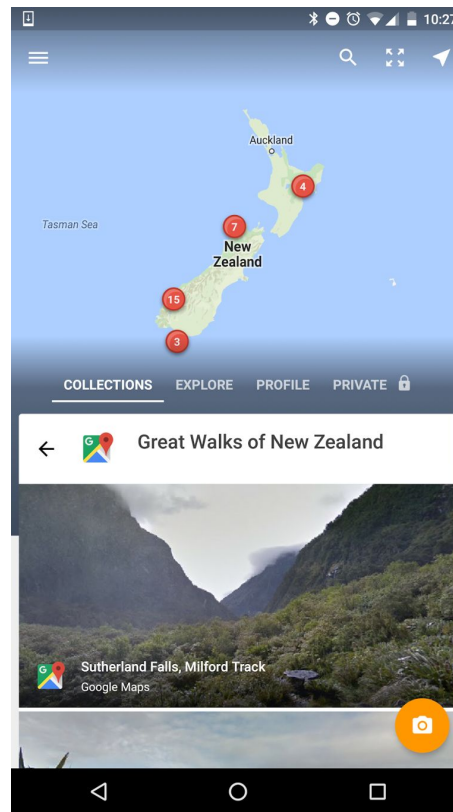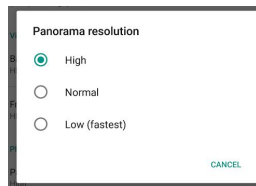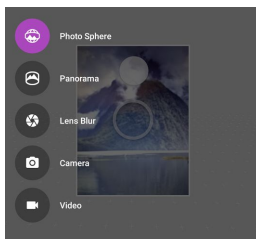# Streetview
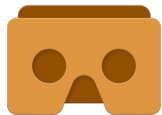
- Explore all of Street View (including contributions from others)
- Manage your private photo spheres
- Immerse yourself in photospheres with Cardboard mode
- Use your phone's camera (no camera accessories required)
- Connect to a spherical camera
- Share to Google Maps as immersive photo spheres

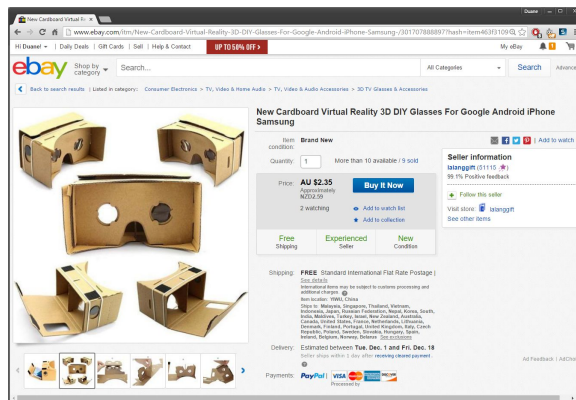# **Cardboard**

- **3D Earth**: Fly where your fancy takes you on Google Earth.
- **Tour Guide**: Visit Versailles with a local guide.
- **My Videos:** Watch your videos on a massive screen.
- **Exhibit**: Examine cultural artifacts from every angle.
- **Streetview**: explore the world in 3D
- **Youtube** - View an increasing range of surround 360 Video.

Picasa

- One of the best image managers available including location, editing, synchronisation, and adding descriptions to photos.
- Locate, move and plot photos on a map, then view in other apps like Google Earth
- Puts a GPS XY into the photo itself.
- Manage your photos in albums, upload and host by Google Photos.
- Private, Shared with friends or Public.
- Dowload: https://picasa.google.com/
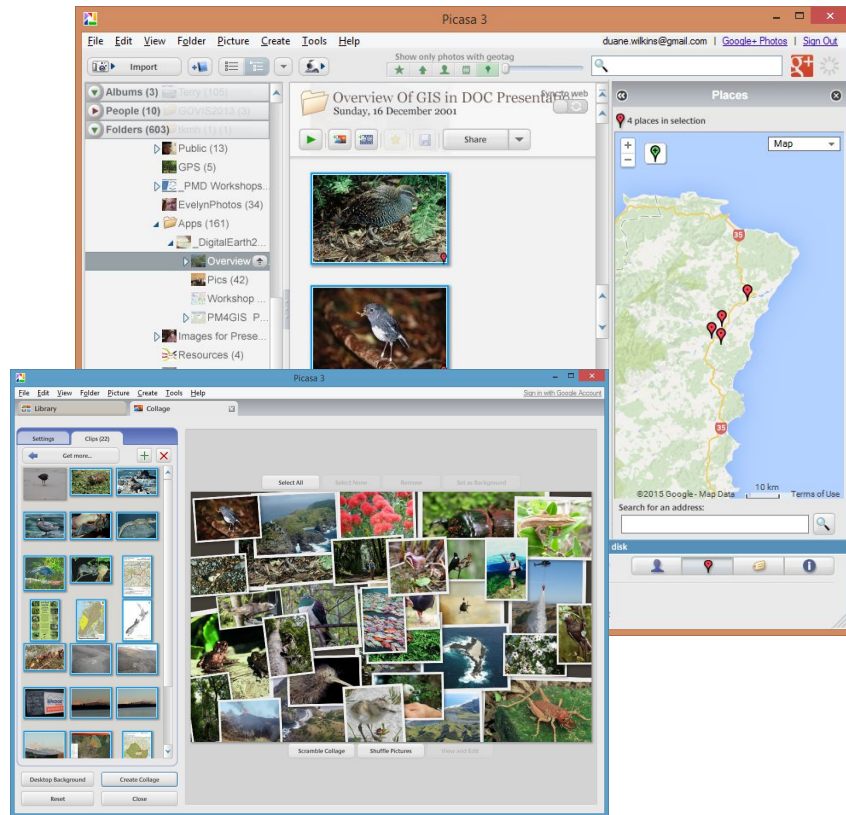
Google Sites

- Free forever, standard website
- Multiple editors
- No coding required, integrates with standard features like video, <iframes> embedded maps, photospheres, RSS, CSS, restricted access or group only access.
- WYSIWYG editor, and html code editing.
- search for Environment River Patrol Aotearoa.
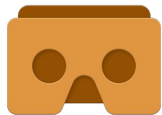- Can be integrated with a domain at no additional cost
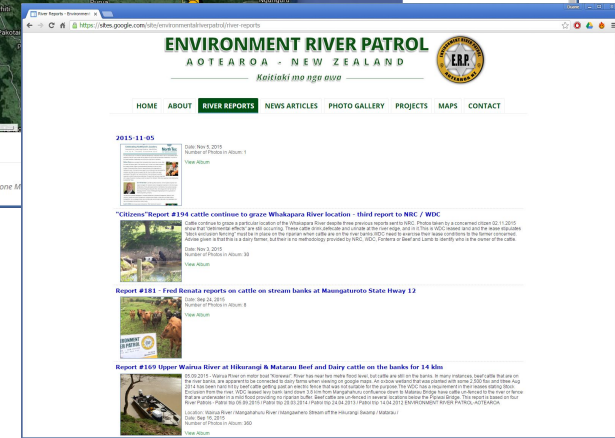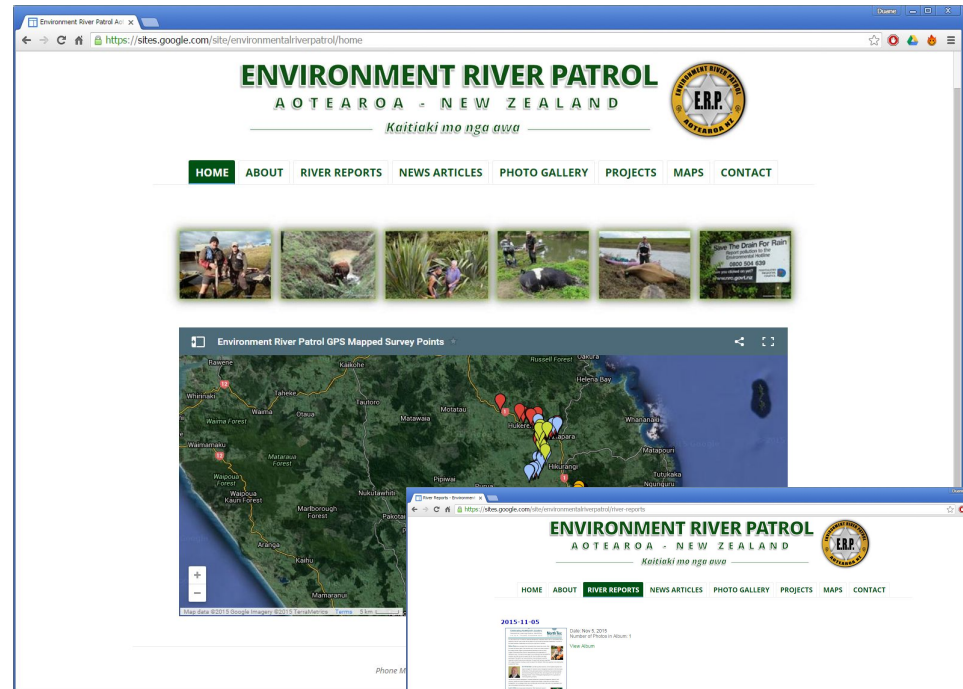
Ricoh Theta 360

- Full 360 x 360 degrees Photo and HD Video
- Instant photo, 8 seconds to transfer.
- The only affordable camera that Connects and posts immediately within Streetview
- Remote preview and adjustment from any Smartphone
- Can be attached to drones with kindling and sellotape upside down

RICOH

3 Geeks in Ruatoria
For the Hikurangi Takiwa Trust

Ian Ruru
Drone Nerd

Duane Wilkins
DoC
Google Map Ninja

Steven Silverman
Ex-NASA
now in charge
of Google
Trekker Streetview

MISSION: Rig a Ricoh ThetaS 360 degree video camera to a drone
& film sites of significance

@Pohatukura
#TiekiTeTakiwa

Nikon P900

- Onboard GPS that works
- 16mpx
- Long lasting battery
- Aimed at advanced Snap and Shooters with a wide range of useful shooting modes
- Stereo video
- Fast focus
- 24 - **2000** mm 35m Equivalent.

Two Photos taken standing in the same spot

Two Photos taken standing in the same spot

Tools and technology to support community based environmental monitoring and impact assessment

goo.gl/1wFZBJ

Duane Wilkins

Geospatial Team
Department of Conservation
duwilkins@doc.govt.nz | maps.doc.govt.nz
https://nz.linkedin.com/in/duanewilkins

Department of Conservation
Te Papa Atawhai