



August 1-3, Foundation University, Dumaguete

PISTA NG MAPA

open data & software • free maps • community • talks • workshops



KAART



DIY IMAGERY COLLECTION FOR MAPPING



UAV / RPAS / UAS

- UAV – Unmanned Aerial Vehicle
- RPAS – Remotely Piloted Aircraft System
- UAS – Unmanned Aircraft System
- An aircraft system that may be remotely controlled or flown autonomously through software controlled flight plans in their embedded systems working in conjunction with GPS (Global Positioning System).

Two main types of Drone:

- **Fixed-Wing Aircraft**

- For covering larger areas in a single autonomous flight



eBee by Sensefly

Two main types of Drone:

Multirotor – Quadcopter

- Best for monitoring and charting smaller areas and fly at lower altitudes for high resolution images.



DJI INSPIRE 1

Why use drones?

- Drones offer quick, easy and cost-effective aerial imagery, on demand. With drones, we can survey and map areas with thick vegetation and lack of satellite data coverage due to cloud cover especially in high altitude locations. Drones can quickly process the data gathered.

Drone Application and Uses



Journalism, Filming and Aerial Photography



Disaster Management



<https://www.digitalstreetsa.com/drones-will-support-future-fire-disaster-management/>

Search and Rescue

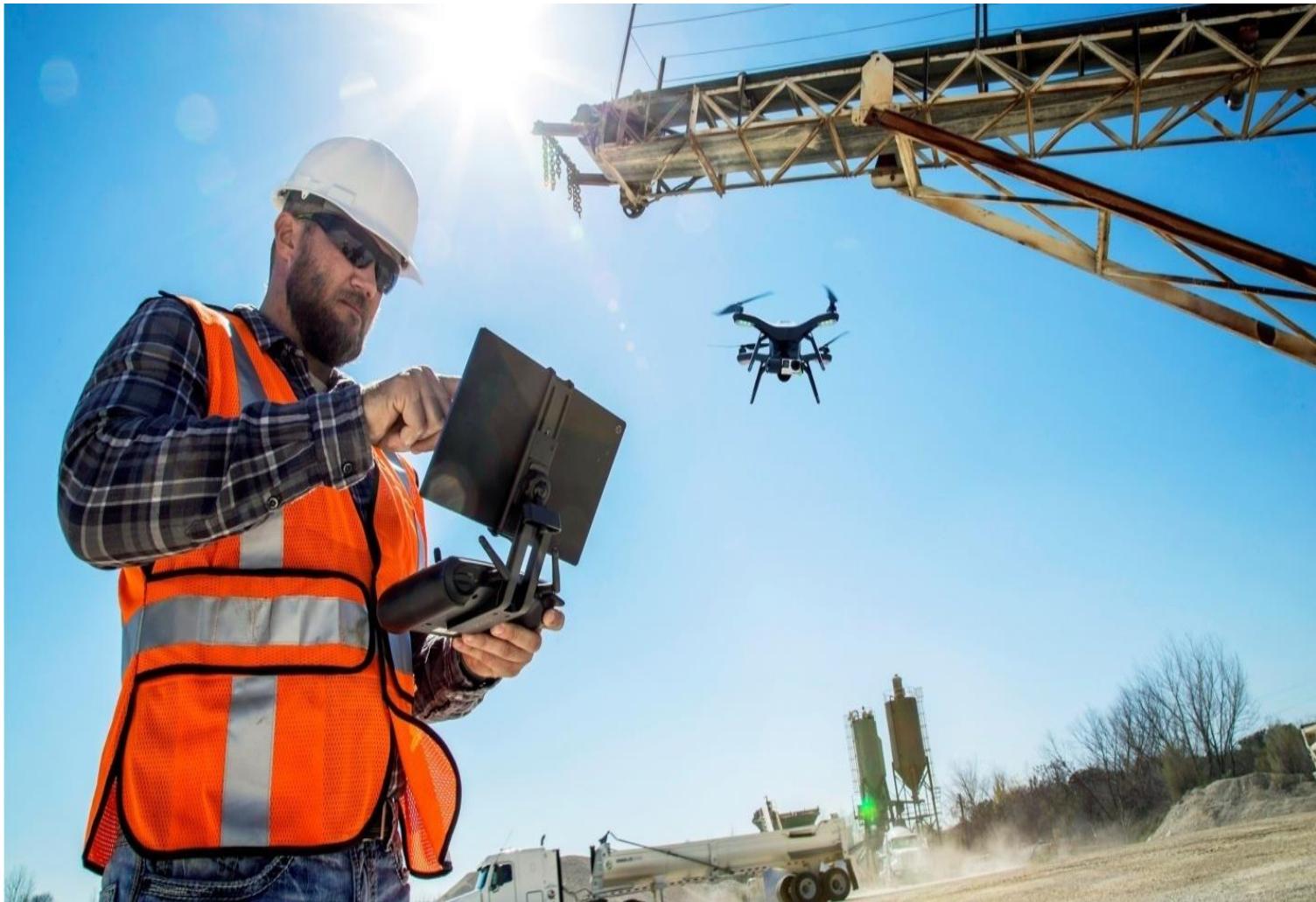


Structural Safety Inspections



<http://futureaerial.com/inspecting-superstructures-the-qe2-bridge/>

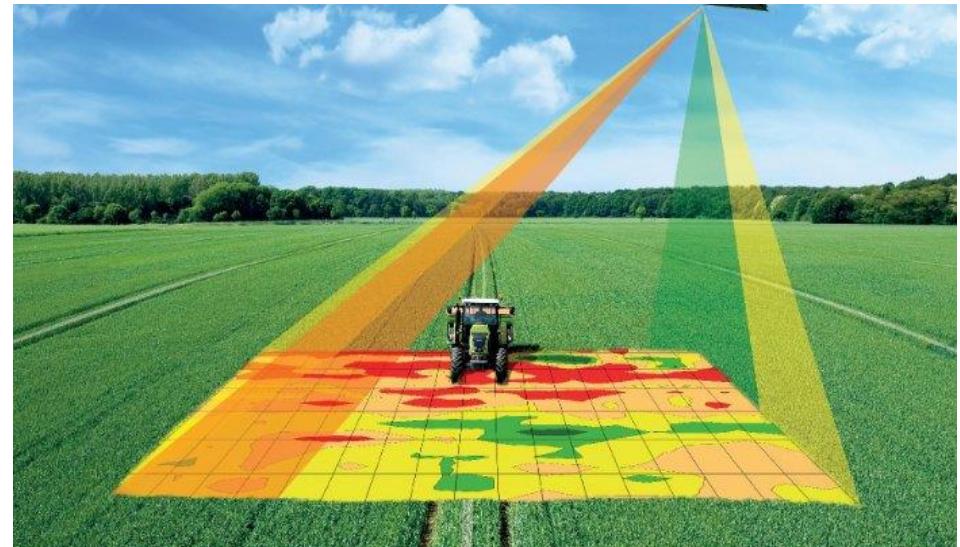
Construction Sites Survey



<http://fortune.com/2016/09/13/commercial-drone-construction-industry/>

Precision Agriculture

- Species identification
- Plant/tree counting
- Growth/coverage monitoring
- Plant health analysis
- Pesticide application



<https://www.dronecommunity.biz/3-ways-drones-agriculture/>

Wildlife Monitoring



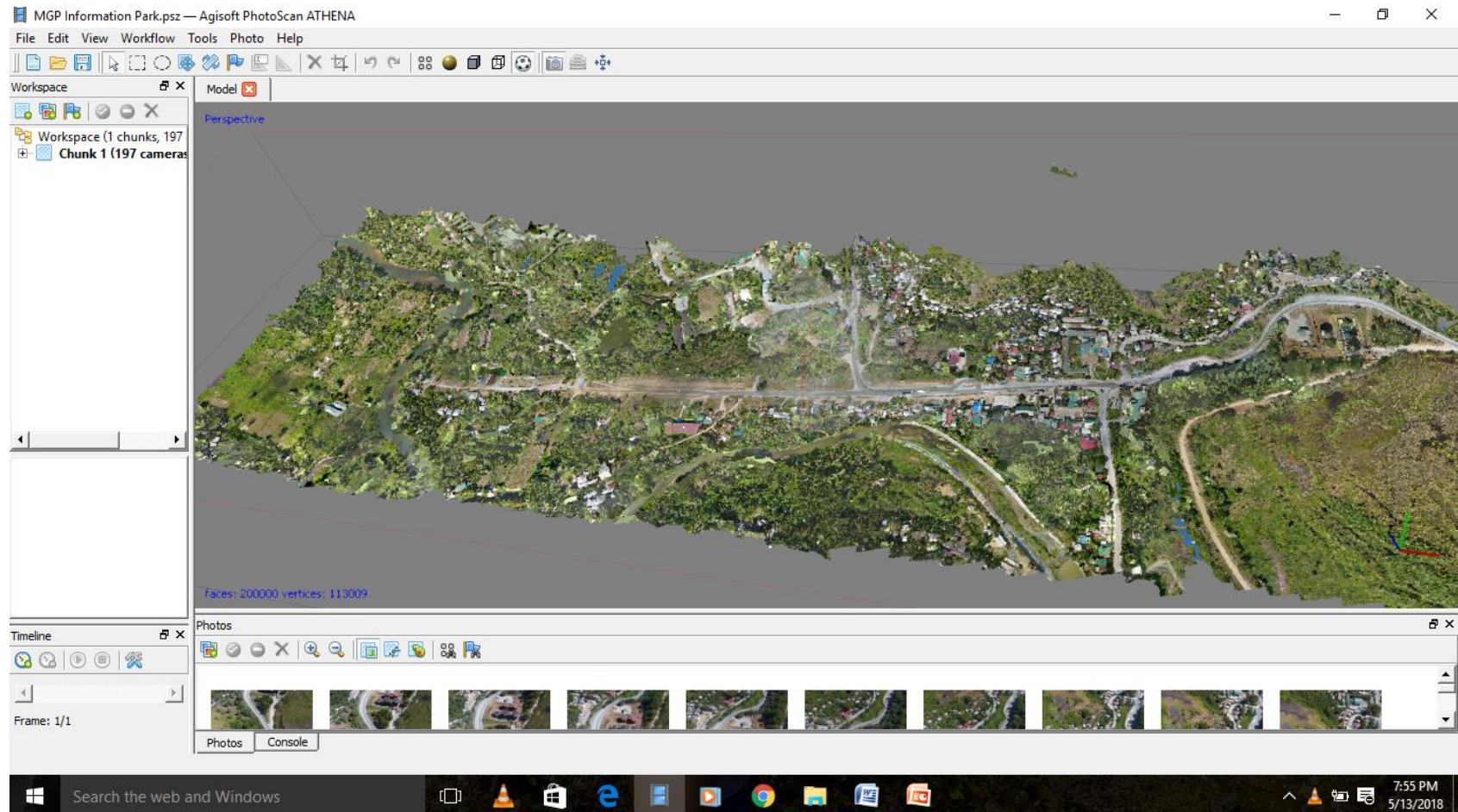
<https://projectconservation.org/drones-eye-view/>

Law-Enforcement



<https://www.forensics.co.ug/services/intelligent-law-enforcement-systems/>

Geographic Mapping



HARDWARE PREPARATIONS



Pre-flight Checklist

- Check that you have your micro SD card inserted.
- Mobile device (used for the monitor) is charged.
- Make sure the transmitter battery is charged.
- Make sure the drone batteries are charged.
- Make sure the battery is inserted securely.
- Make sure each propeller is secured before flight.

Pre-flight Checklist

- Check that there are no loose parts on the drone.
- Turn on the transmitter first before the aircraft.
- Calibrate compass and get satellite lock, wait until it finishes.
- Make sure there is enough room for takeoff and flight.
- Back away 3 or 4 steps (or to a safe distance).
- Face the drone the entire time.

Software Preparations



Flying Safely

- Always do pre-flight check-ups.
 - DO the pre-flight checklist
 - DO NOT fly your aircraft if there is at least one item unchecked.
- Be aware of your surroundings. Be sure to check for obstructions.
- In a mountain setting, locate the highest vantage point possible within the fly zone. Take off from there if possible.
- Don't fly in high wind velocity or in the rain.

Flying Safely

- Check for territorial birds that may possibly attack your drone in-flight.
- ALWAYS, always fly within your Visual Line of Sight (VLOS)
- Read your aircraft manual. Take basic flight lessons and learn to fly safely. Know your aircraft and be aware of the CAAP guidelines and regulations. Read PCAR 11.11.
- Do not fly under the influence of drugs and/or alcohol.

WEBODM

WebODM

Drone Mapping Software

Generate maps, point clouds, DEMs and 3D models from aerial images.

Runs on your computer, even offline. No monthly fees.

 Live Demo

 Download



Features



Orthomosaics

Georeferenced, orthorectified maps.



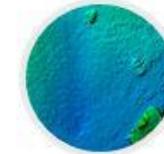
3D Models

3D models and point clouds in a variety of formats.



Export

High resolution GeoTIFF, PNG, LAS, OBJ formats.



Elevation Models

Easily generate georeferenced DSMs/DTMs.



Measurements

Make volume and area measurements with ease.



Rebrand

Choose a logo and color scheme that matches your organization.



Ground Control Points

Create and use GCPs for additional accuracy.



Share

Easily share your maps and 3D models.

WEBODM Lightning

https://webodm.net

80% ⌂ ⌚ ⌟

WebODM Lightning Pricing API Tools Contact Dashboard My Account

DRONE AND UAV MAPPING SOFTWARE

Create maps, 3D models and point clouds from aerial images. Integrate with applications using our open API.

Orthophoto **Surface Model**

Tung Petro

Mtafutaji Trade

+ -

500 m
1000 ft

-8.20276 : 39.31405

OSM Digitize 3D

Map data: © Google Maps

Open Dashboard **Logout**

Coming soon! Process up to 30,000 images with [Storm](#).

The only open cloud platform for processing aerial imagery from drones and UAVs

WEBODM Lightning

- Create an account: email & password
- Upload survey images for cloud processing
- Download Results
- Use in QGIS
- Use in Openstreetmap ID Editor, JOSM
- Share in OpenAerialMap: <https://openaerialmap.org/>
- UAV4Geo Software Grant

OpenAerialMap



[Explore imagery](#) [Documentation](#) [About](#) [Blog](#)

The open collection of aerial imagery.

OpenAerialMap is an open service to provide access to a commons of openly licensed imagery and map layer services. Download or contribute imagery to the growing commons of openly licensed imagery.

[Start Exploring](#)

[Watch the Video](#)

DRONE SURVEY CASE STUDIES

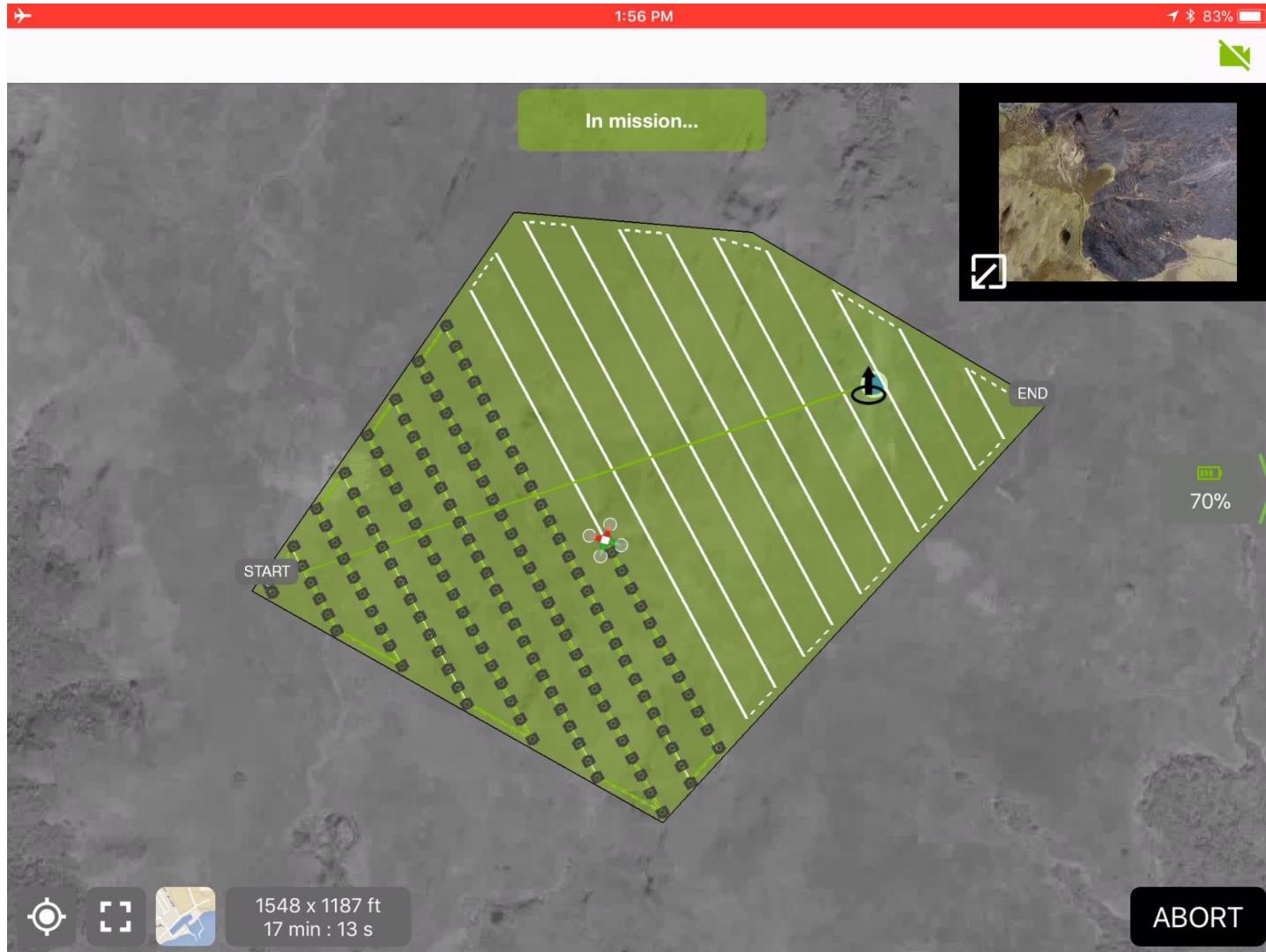
- Mt. Pulag National Park
- Arroceros Forest Park
- Lupang Arenda Community Mapping
- Foundation University Campus

Mt. Pulag National Park Grassland Fire Survey

Mission flight = 349 images

Flight Altitude = 150 feet

Flying time = 18 minutes Distance covered = 4.4 km



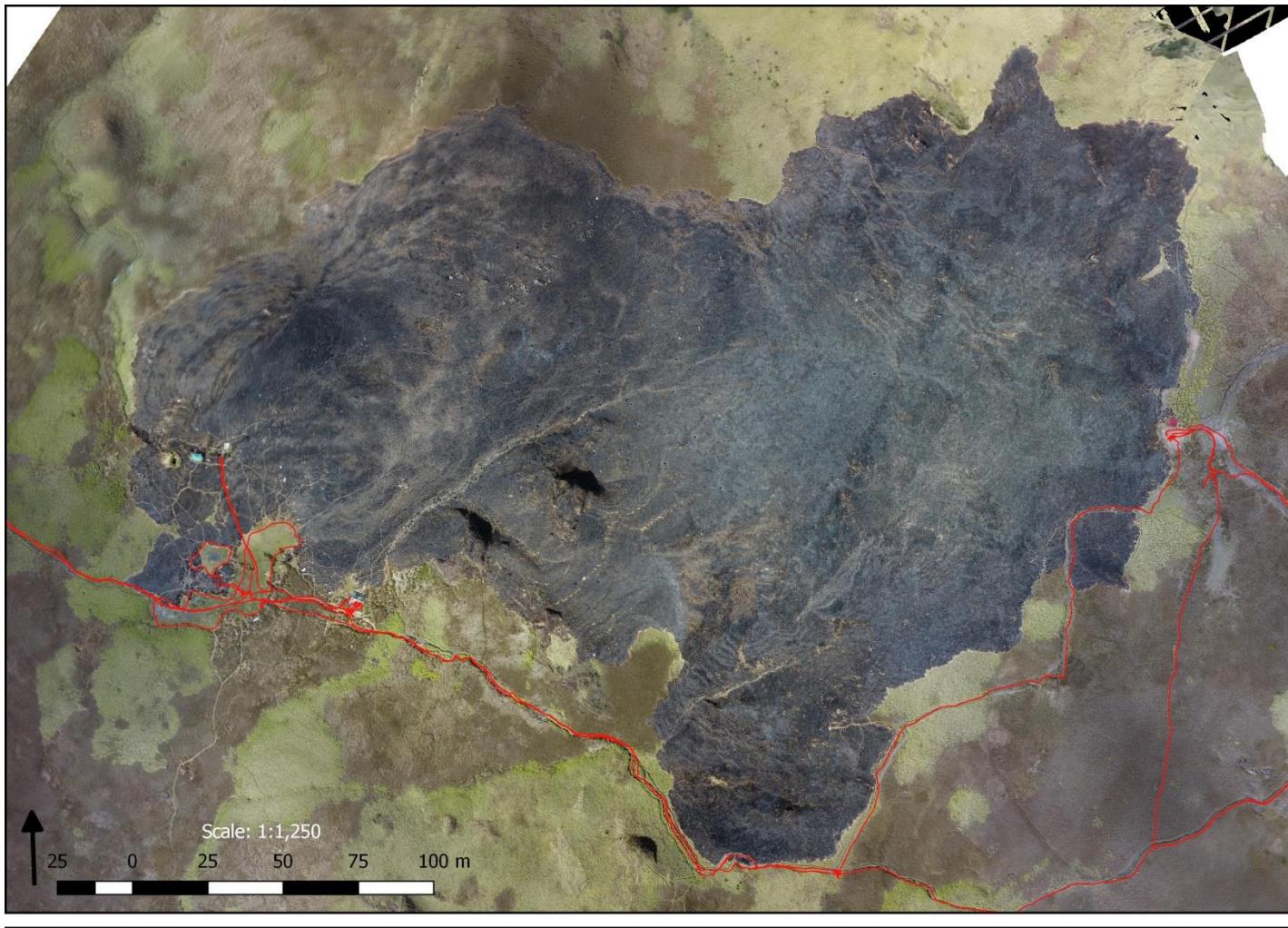
Drone Aerial Image (1/349)



Actual Pixels



Ortho-mosaic image of the burned area (Approximately 5.82 hectares)



OpenAerialMap

File Edit View History Bookmarks Tools Help

OpenAerialMap Browser x +

https://map.openaerialmap.org/#/120.89806079864502,16.59713000224743,17/user/5a928bc22553e600

Most Visited Getting Started Close

OpenAerialMap

Mt. Pulag National Park Burned Area

UPLOADED BY Leonard Soriano

Display as TMS Thumbnail

Open in iD editor | JOSM

Leaflet | © Mapbox © OpenStreetMap | Report an issue with this map

11:14 PM
5/18/2018

https://map.openaerialmap.org/#/120.89806079864502,16.59713000224743,17/user/5a928bc22553e600ce5ace8
/5a9d4b935a9ef7cb5da1de2a?_k=9ybt6c

OpenStreetMap (OSM)

OpenStreetMap

Edit History Export

GPS Traces User Diaries Copyright Help About banito_pinoy

Edit feature

Point Line Area Save

Path

All fields

Name Akiki Trail

Surface dirt

Width (Meters) Unknown

Structure Bridge

View on openstreetmap.org

100 ft

Edits by HaonHiAki, schadow1, Man77, and 5 others | 2.8.2

The screenshot shows the OpenStreetMap editing interface. At the top, there's a navigation bar with 'Edit' (highlighted in green), 'History', 'Export', 'GPS Traces', 'User Diaries', 'Copyright', 'Help', 'About', and a user profile 'banito_pinoy'. Below the bar is a toolbar with icons for 'Point', 'Line' (selected), and 'Area'. A modal window titled 'Edit feature' is open, showing a 'Path' entry and a list of 'All fields'. The fields include 'Name' (Akiki Trail), 'Surface' (dirt), 'Width (Meters)' (Unknown), and 'Structure' (Bridge selected). On the right is a map view showing a red dashed line representing the trail being edited, which starts from a blue line and follows a path through a green and brown terrain. A scale bar at the bottom indicates a distance of 100 ft. At the bottom of the screen, there's a footer with links to 'View on openstreetmap.org' and version information '2.8.2'.

Arroceros Forest Park



Arroceros Forest Park



UPLOADED BY
Leonard Soriano



 Display as

TMS Thumbnail

 [Open in](#)

iD editor | IOSM

 Copy image URL

TMS | WMTS

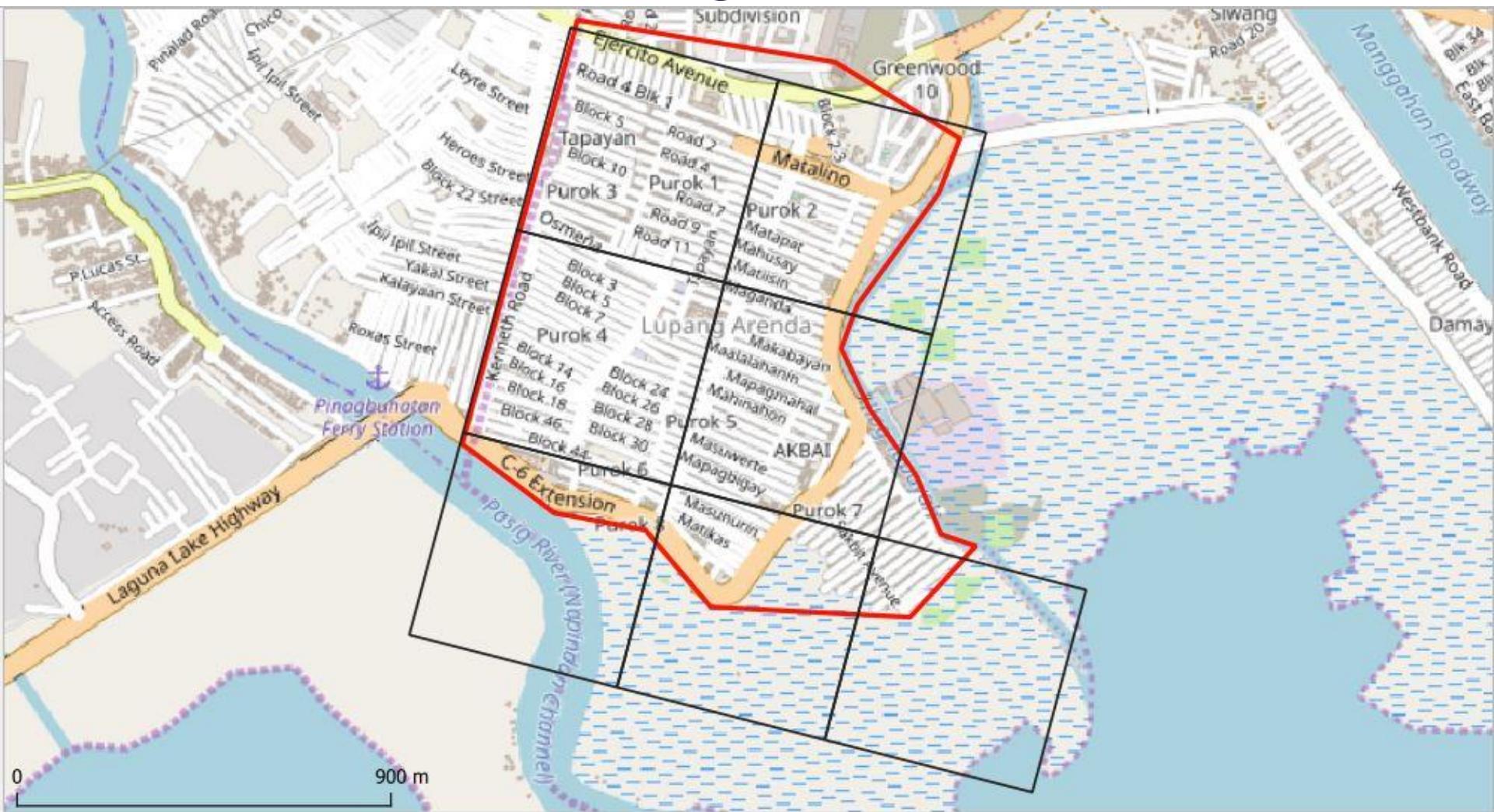
A detailed satellite map of Pasig City, Philippines, showing the Pasig River Estuary-Sanctuary and surrounding urban areas. The map includes labels for MacArthur Bridge, Padre Burgos Avenue, Quintin Paredes, and various landmarks like ASEAN Gardens and the Golden Mosque. A world map is visible in the bottom right corner.

https://map.openaerialmap.org/#/120.98193347454071,14.59435053656079,17/square/132303122000100/5b90f92da0d7280005fab355?_k=2hq7pe

Lupang Arenda Mapping Party



Lupang Arenda



Lupang Arenda



Lupang Arenda Ortho Image 6



This screenshot shows an aerial orthophoto of the Lupang Arenda area. The image is centered over a densely populated residential area with numerous small houses and buildings. A major road or highway cuts through the center of the image, with several lanes and some construction or maintenance activity visible. To the right, there are larger, more modern-looking structures, possibly industrial or institutional buildings. The background features a mix of green spaces and other urban areas. The map includes a search bar at the top with the placeholder "Search location or coordinates", and various navigation and zoom controls. A "Sign In" button is located in the top right corner.

UPLOADED BY

Leonard Soriano



Display as
TMS Thumbnail

Open in iD editor | JOSM

Copy image URL TMS | WMTS

DATE 2019-07-07

Leaflet | © Mapbox © OpenStreetMap | Report an issue with this map

WebODM Software

- WebODM Installer (Windows): <https://drive.google.com/open?id=1ZfLEmjRo8nGFvdf-qeuC3lYJxXVEzNJg>
- WebODM Installer (Mac): <https://drive.google.com/open?id=1pQwkGhlVge563Qh87RwdUN1xHT9dMRBX>
- WebODM Installer (Native Ubuntu): https://drive.google.com/open?id=1I1N9P_1IPcD2Zo62sPLpvxwgZT9UmND0
- OpenDroneMap: The Missing Guide (Draft): <https://drive.google.com/open?id=197mNYXxf1W9xFi8XGra7jYBpLZh1SGVy>

MARAMING SALAMAT!

Ian Gongona

apgongona@gmail.com

Leonard G. Soriano

banito_pinoy@yahoo.com