Use of UAV's for EGILAT

Te Uru Rākau
Forestry New Zealand

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Forests Act 1949

- Applies to New Zealand Indigenous Forests – NOT exotic Plantations
- Purpose is to promote sustainable forest management of Indigenous Forests
- Controls on Harvesting, Milling and Export of Indigenous Timber
- Implemented by Indigenous Forestry Team of Te Uru Rakau.

Illegal Logging in New Zealand Indigenous Forests

- High demand for Rimu timber, $1,600 USD/$m^3$, 1 tree = $8,0000 USD
- High valve enables helicopter harvesting
- Challenges in auditing permits harvested by helicopter
- Challenges in finding illegal helicopter harvest sites
- Chartered helicopters used to detect activity, but too expense for routine use

Unmanned Aerial Vehicle (UAV) or ‘Drone’

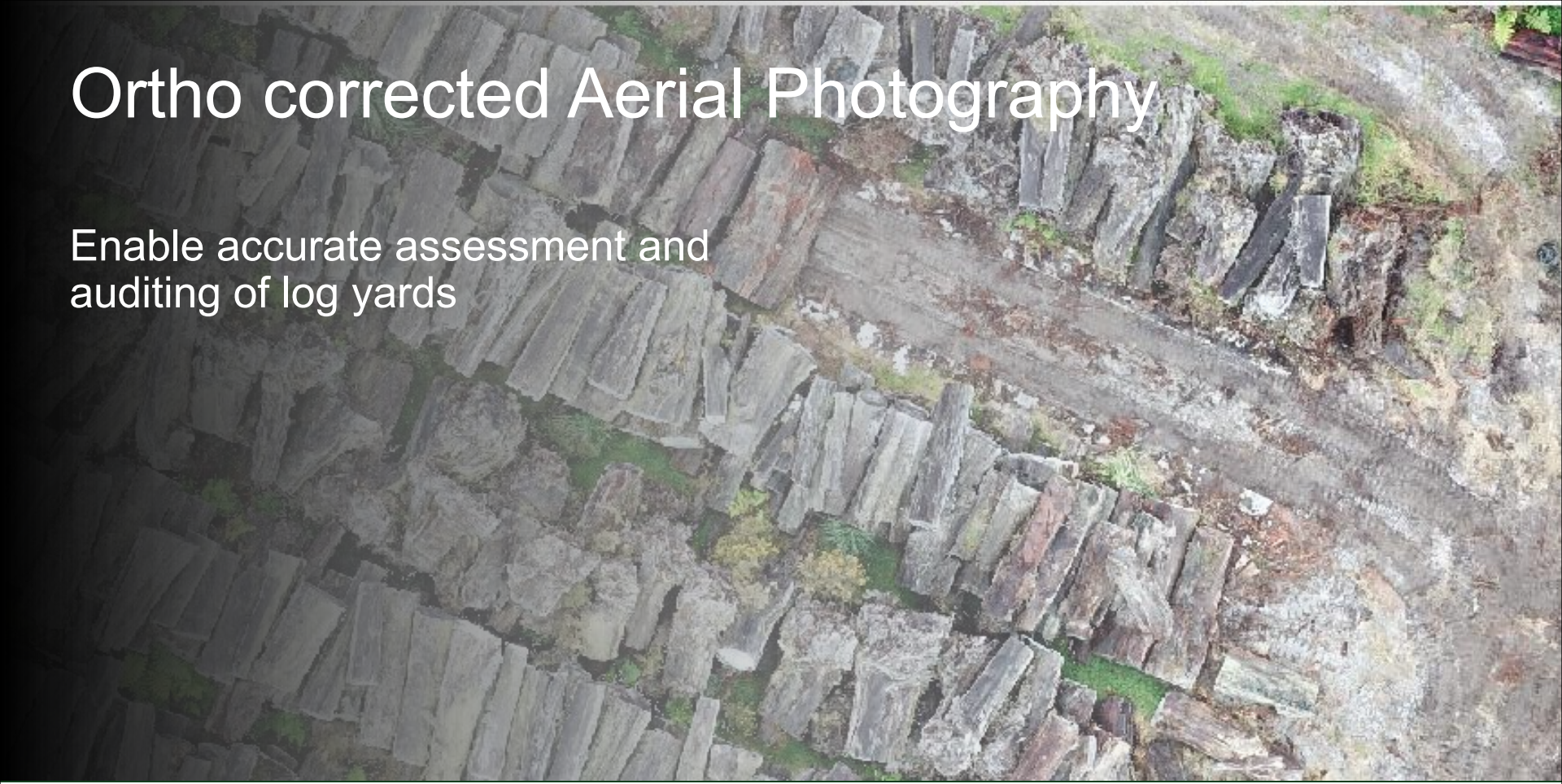
- Inexpensive consumer level UAV’s ($2,000 USD for each UAV Kit.
- Piloted by trained Forestry Officers (1 week training at aviation college)
- DJI Mavic – 0.8 kg, 25 minute flight time, 12 megapixel camera
- Backpack portable

(UAV) or ‘Drone’ Uses

- Aerial perspective , a 120 m high mobile viewing platform.
- Aerial orthophoto’s for forest assessments /inventory and record baseline for future comparison.
- Detect harvest sites in forest areas for routine monitoring and where illegal logging is suspected.

Ortho corrected Aerial Photography

Enable accurate assessment and auditing of log yards



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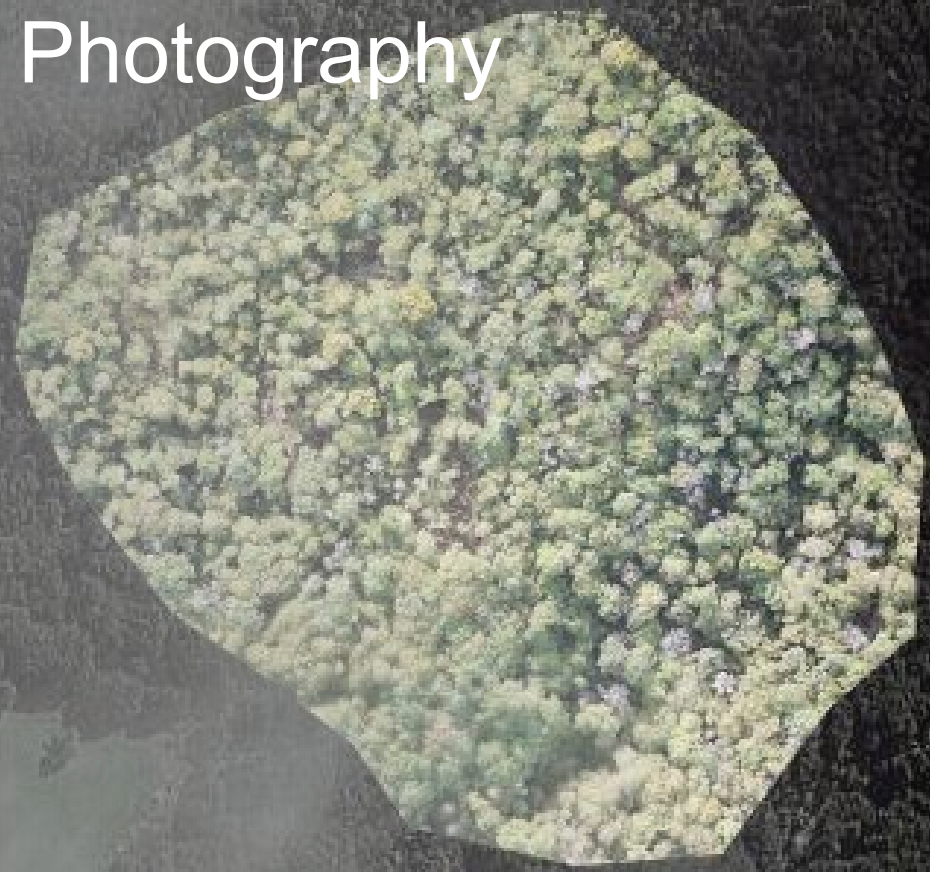
Ortho corrected Aerial Photography



1. High resolution, real time images.
2. Ability to count specific trees
3. Baseline to compare future forest operations against
4. Ability to detect helicopter harvest sites.

Ortho corrected Aerial Photography

1. Ability to count specific trees
2. Ability to detect helicopter harvest sites.

Limitations

1. Initial detection of sites of interest by other means required.
2. Too limited in range for surveillance of large area, Crewed aircraft still required for large areas.
3. Deployment limited to specific landholding of interest.
    1. Pilot must maintain sight of the craft –range <500 meters
    2. Landowner notification of ‘search’ required on entry under Search & Surveillance Act.

Conclusions

UAV's are an additional tool to provide monitoring of small areas that would otherwise not be thoroughly inspected.

- Cost effective Aerial viewing platform
- Provide mapping of small forest areas
  - Forest assessment/ Resource baseline
  - Audits
  - Detect illegal harvest sites
- Range limitations for small craft 500 m / 50 ha