Monitoring of Forest Resources Using Low-cost Satellite Images and Cloud Processing Engine

Digitalisaatio työpaja

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Indufor ...forest intelligence

Advances in Approach & Technologies

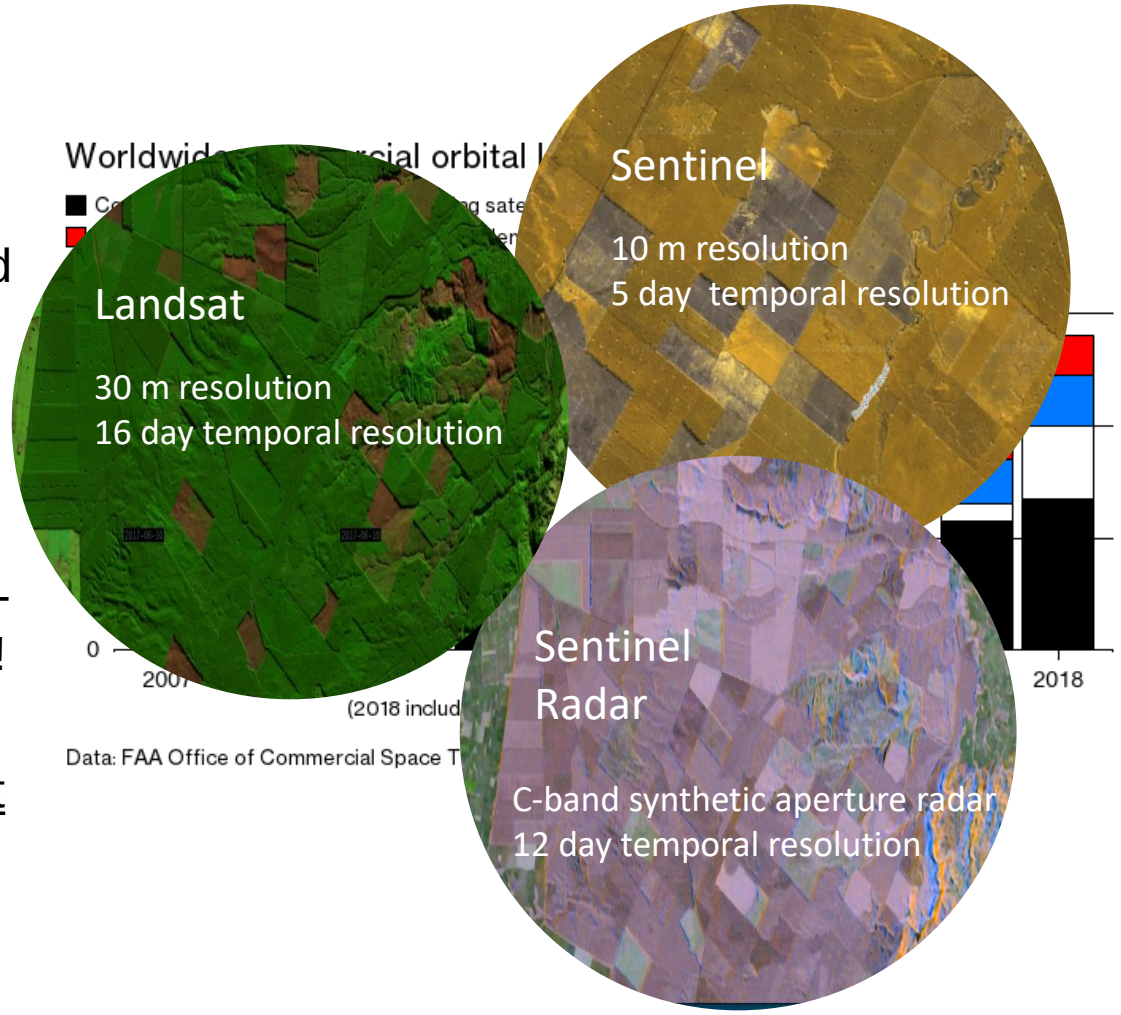
More EO data:

Since 2015 the number of Earth Observation (EO) satellites has increased significantly. The same location can now be imaged multiple times per month. This trend is expected to continue into 2018 and beyond…

Cloud Processing Engine

Cloud processing platform holds the EO datasets and allows real-time processing and analysis. Advantage is that it reduces need to download and pre-process data -> More time to spend on analysis and developing tools!

Combined these enable <u>continuous or frequent monitoring of plantation and environmental resources at affordable cost</u>



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Indufor's Continuous Plantation Monitoring System (CPMS)

The CPMS is a monitoring tool initially designed to assist planning managers to more efficiently allocate field resources.

It uses frequent satellite image observations and the cloud processing environment.

As an input takes GIS layers and from that builds a series of models that can be used to provide routine monitoring.

The CPMS system is designed to provide analysis ready data that integrates into common GIS packages.

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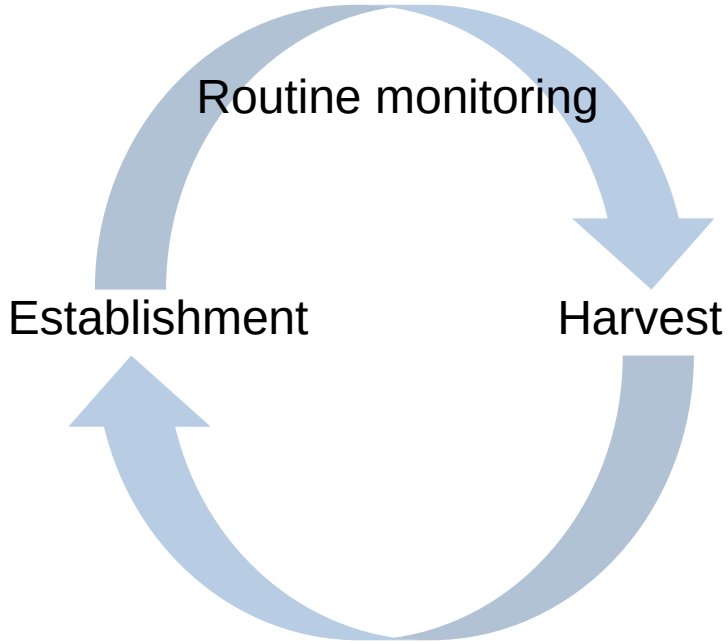
Monitoring throughout the rotation

1. Damage events (fire, wind, snow)
2. Forest health monitoring
3. Encroachment monitoring
4. Monitoring forest operations (weeding, thinning, pruning)

1. Monitoring of establishment success.
2. Indexing and mapping plantation performance



Progressive forest harvest monitoring and mapping.

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Monitoring Crop Development

What the Canopy Index identifies?

The Canopy Index model is a way to benchmark plantation development and detect change.

The routine produces a colour-coded index which is divided into four classes. The index ranges from green to red. Red values represent the lowest index values.

Used to Monitor Crop Development

- Identification of failed areas
- Stratification of areas development
- Canopy health

The example tracks a fast growing eucalypt stand for 8 month period.

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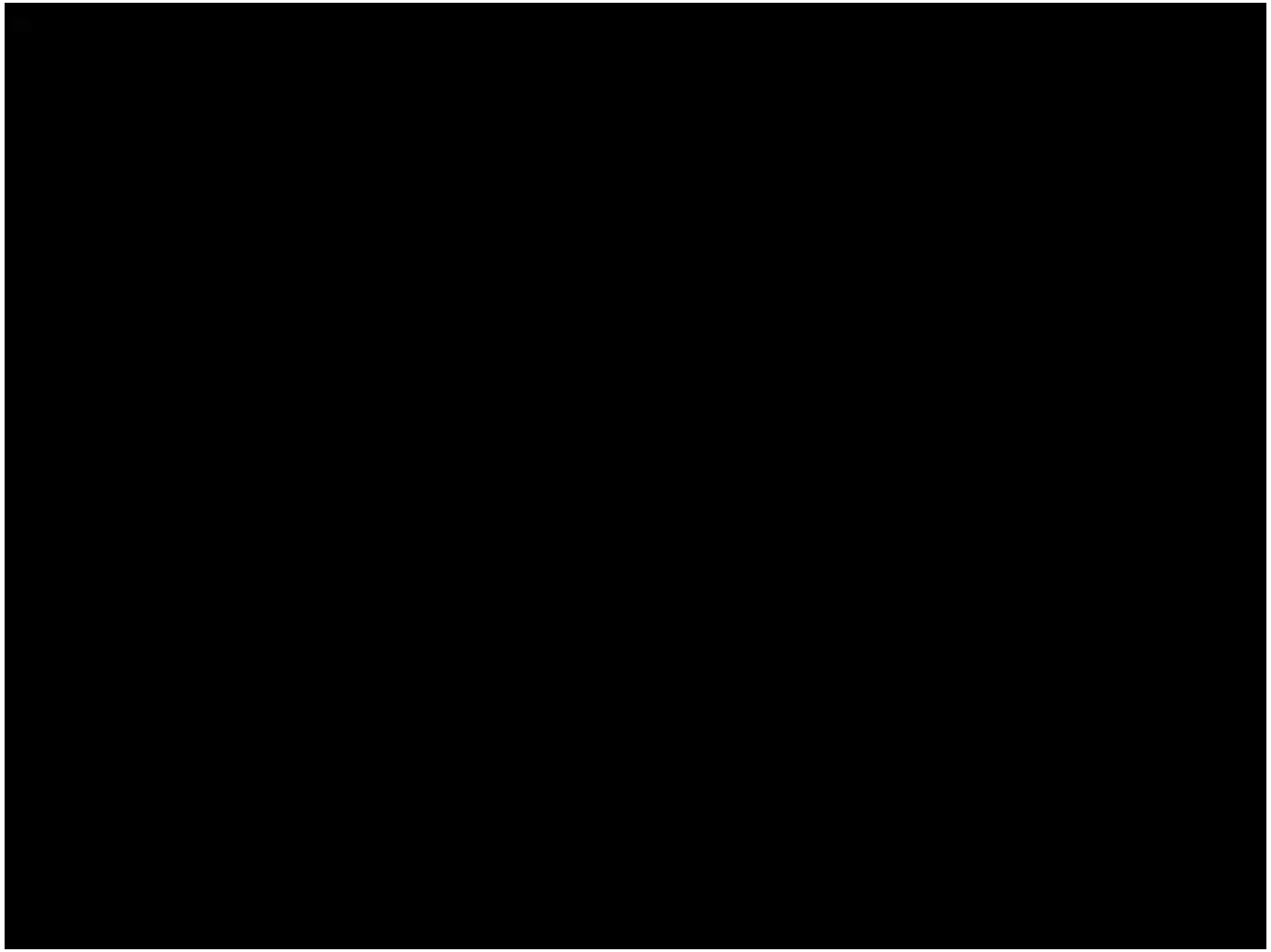
Forest Harvest Updates

The harvest detection routine uses multiple images.

Running at a pixel level to detect harvesting and map its extent.

The example shows the progression so you can work out % completion.

The results are checked, clipped to boundaries and attributed in a consistent manner to allow easy integration into existing GIS systems.



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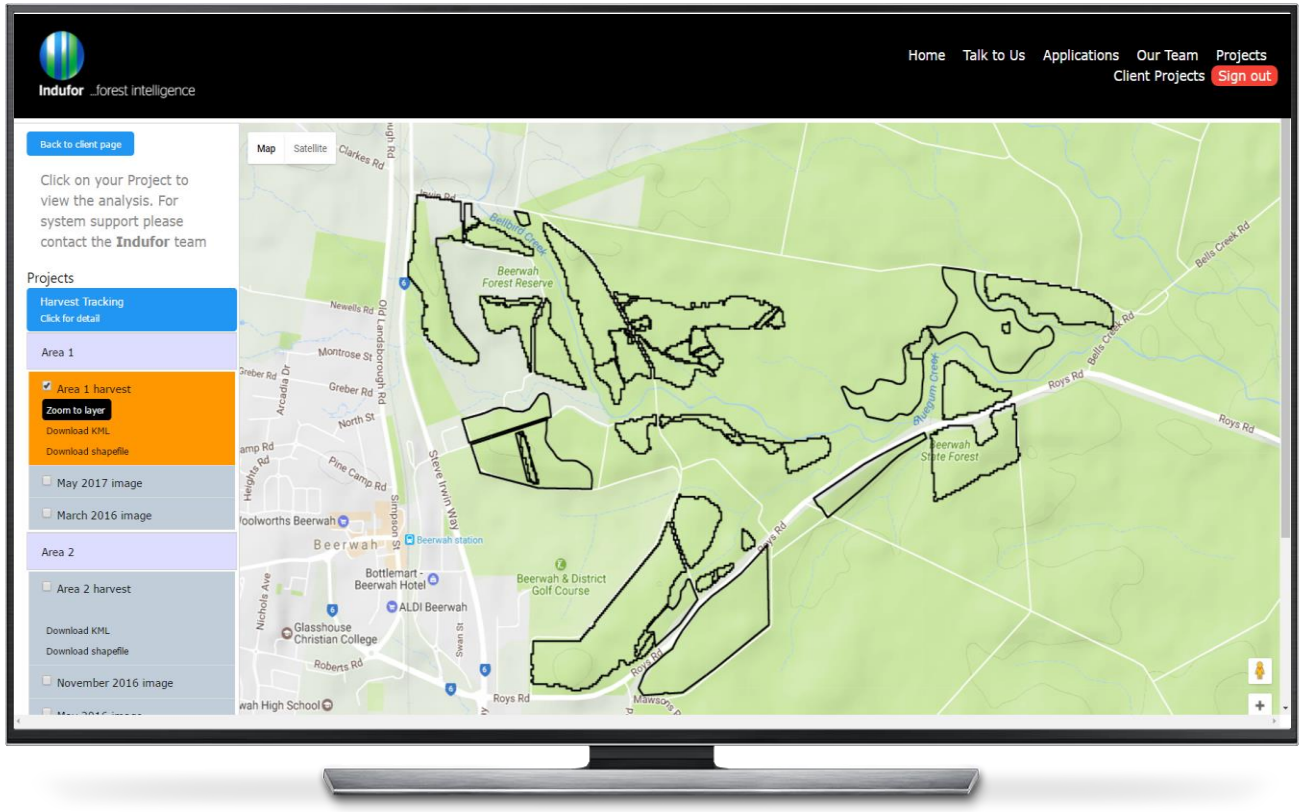
Delivery Platform

Data Viewer and Access

All data is stored securely on our web portal and is managed by Indufor. We provide our clients with:

- Individual accounts for secure data access.
- An interactive web viewer to visualise and query data without the need of an external GIS platform.
- Analysis ready data, provided in familiar GIS formats to seamlessly integrate with (your) existing systems.
- Associated satellite images supporting each change or detection.

User: sample.data@indufor-ap.com
Password: indufor2017



Your delivered projects

Project Name	Delivery Date	Job status	Forest Location	Monitoring type	Monitor Frequency	View KML	Deliverables
Harvest Tracking	2017-06-05	In Flight	Queensland	Change	Monthly	View KML	Download Deliverables

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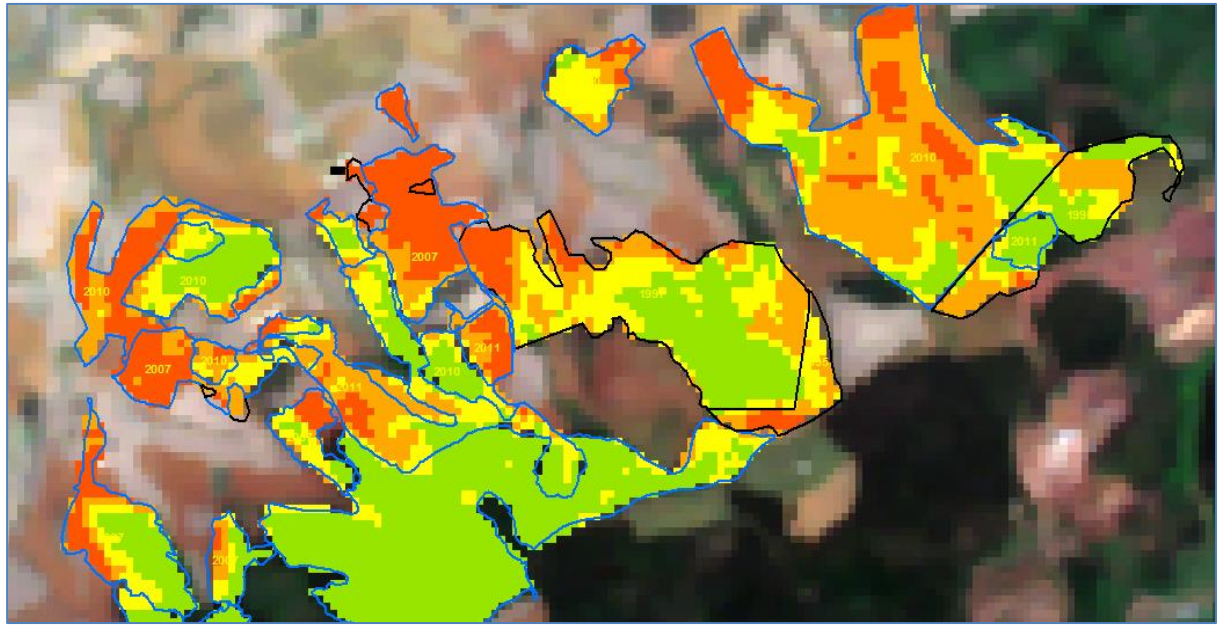
Example: Forest Encroachment

Google Earth Image – 2016-10-09

In this example forest plantations are being progressively encroached. The plantation areas are near to the public roads and converted to cropland.



Indufor Canopy Index – 2016-12-02

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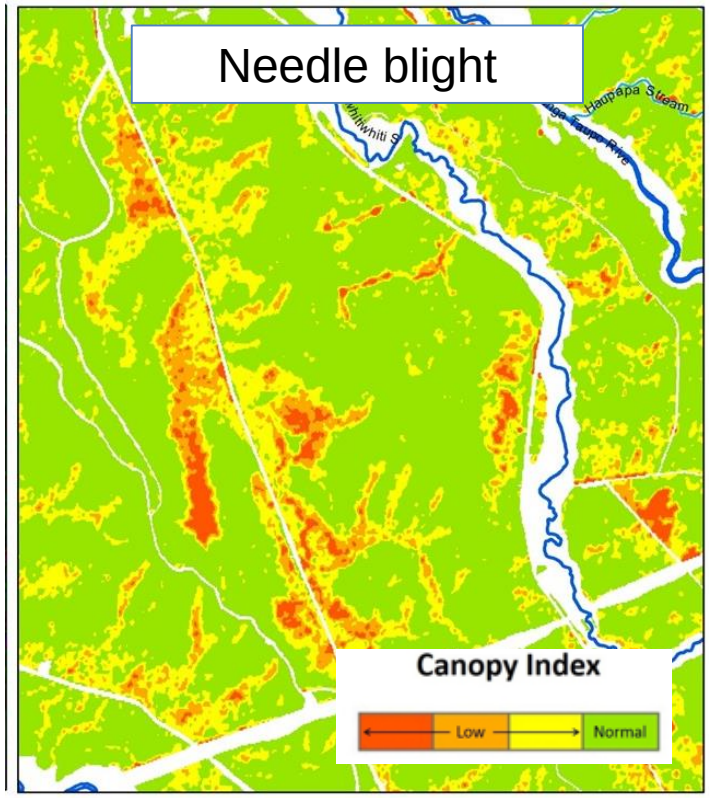
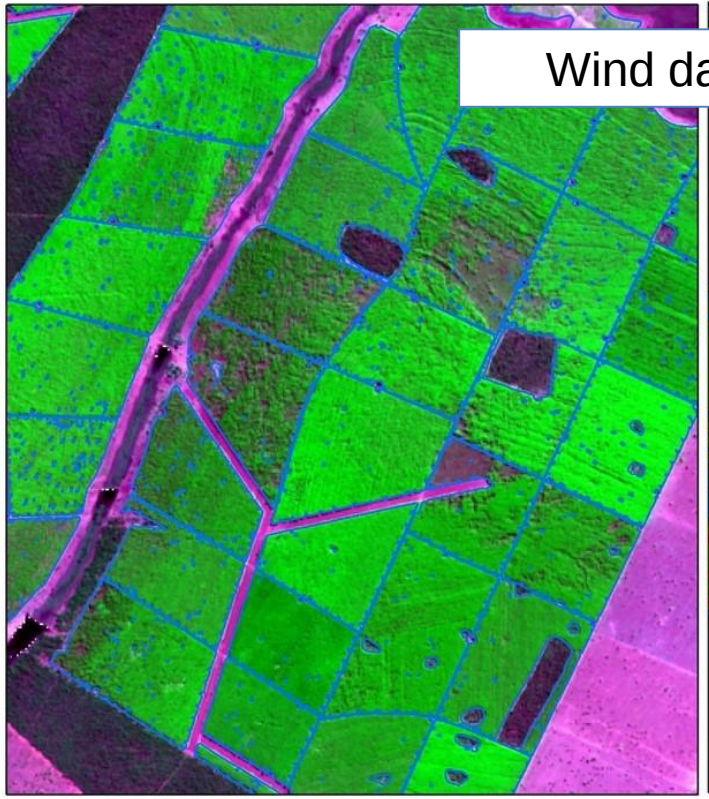
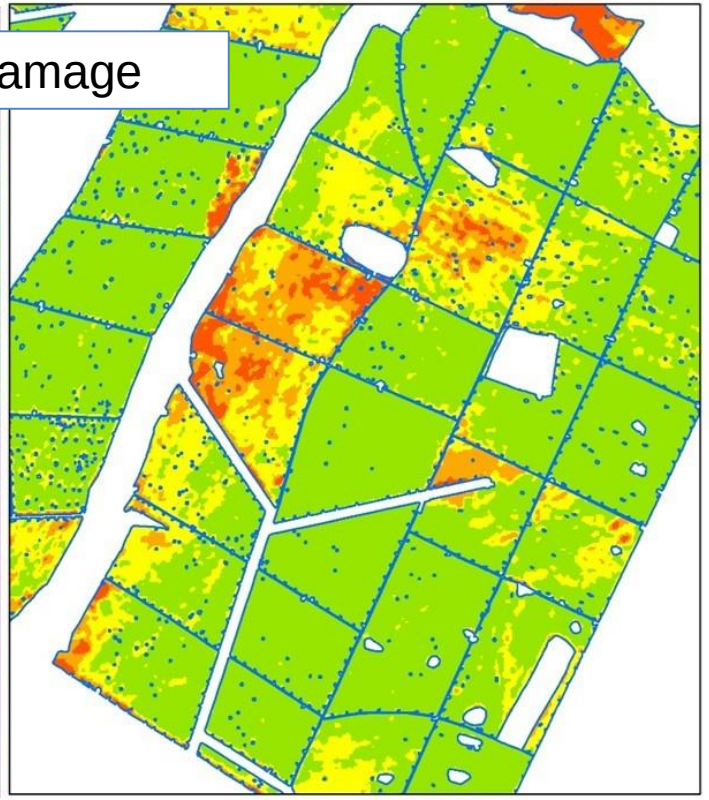
Example: Routine Plantation Monitoring







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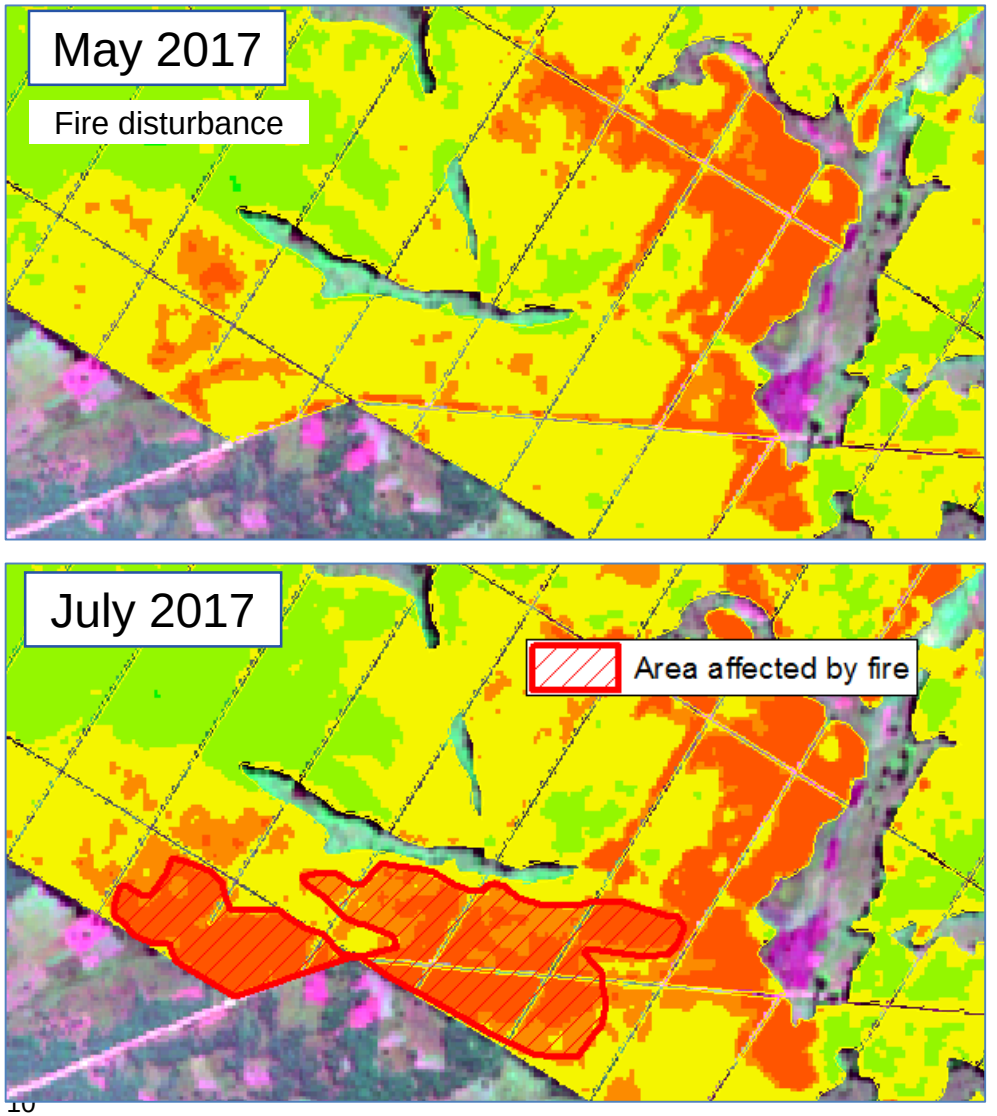
Example: Monthly Monitoring of Fire

Detection and mapping of plantation fires between two months. Each month the algorithm is run to identify new losses. These are mapped and added to the GIS.



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