



Remote Sensing – An Overview

Paul Brown – GI Remote Sensing Scientist
Fera Science Ltd. UK

Fera Science Ltd.

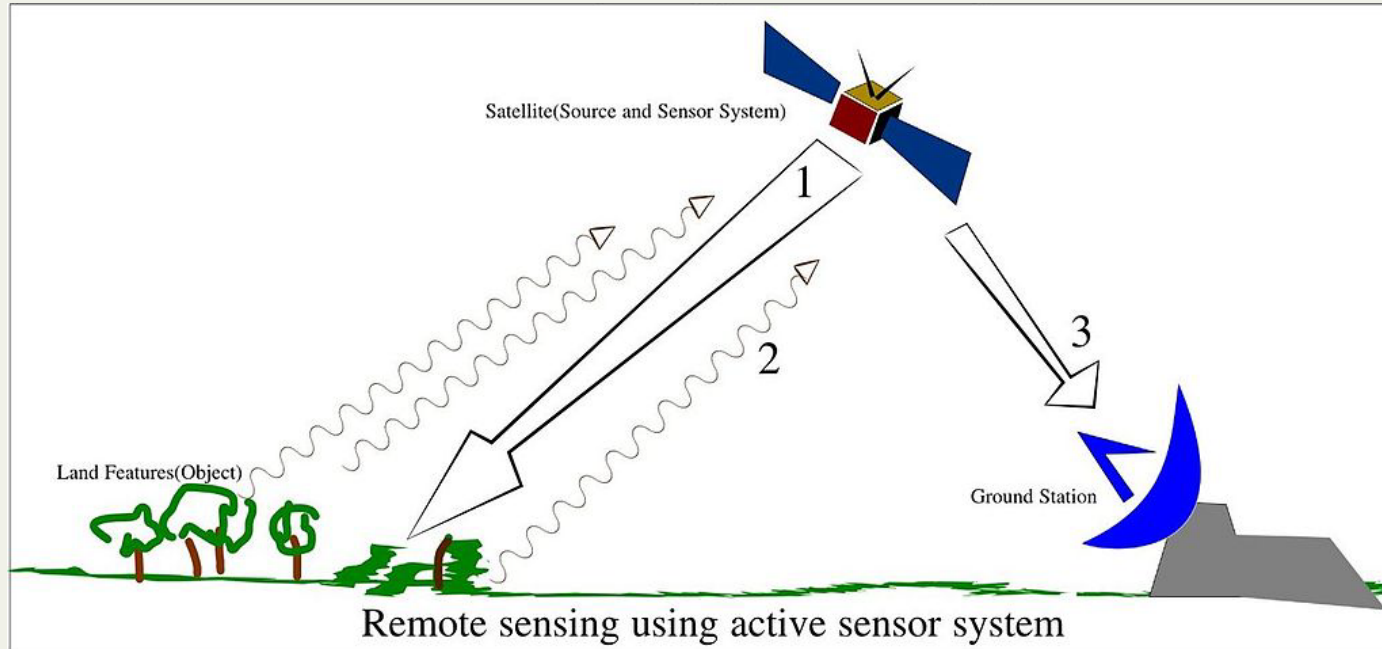
Joint Venture between Capita and the UK Government Department
for Environment Food & Rural Affairs



What is Remote Sensing?



“Remote sensing is the acquisition of information about an object, area or phenomenon without physical contact”

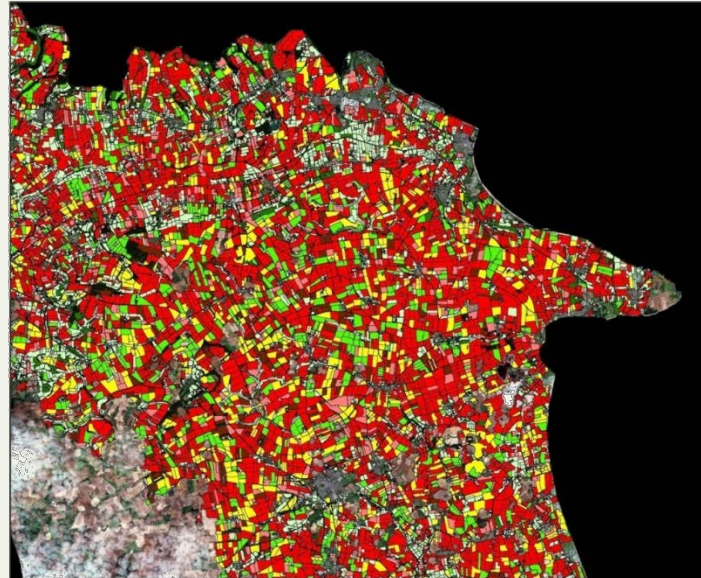


Where is Remote Sensing used?



Remotely sensed data, often captured as images, can then be analysed to extract additional, valuable data, benefitting services such as:

- Disaster Control
- Security
- Land Management
- Agriculture
- Forestry



Platforms and Sensors



Case Study - Inspection targeting

Tree Species Classification - Host Species Target Mapping

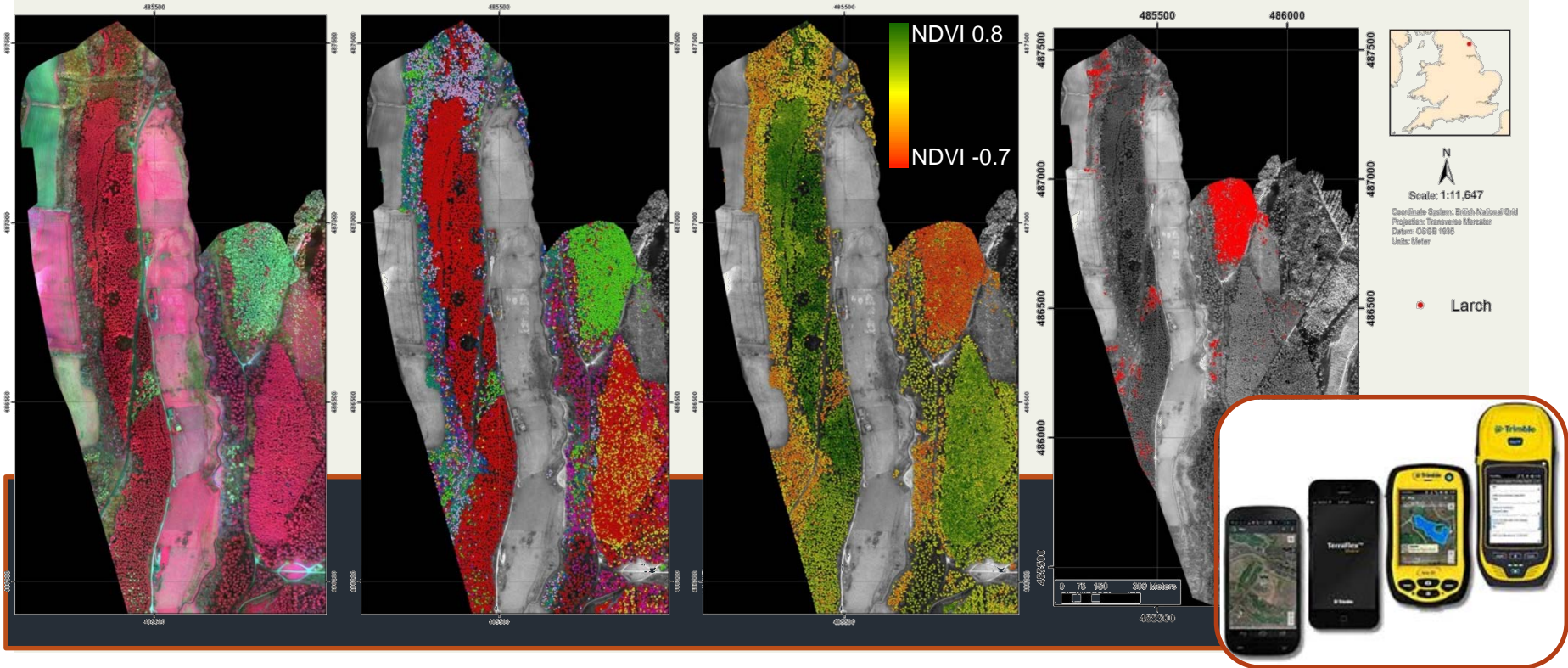


UAV Image

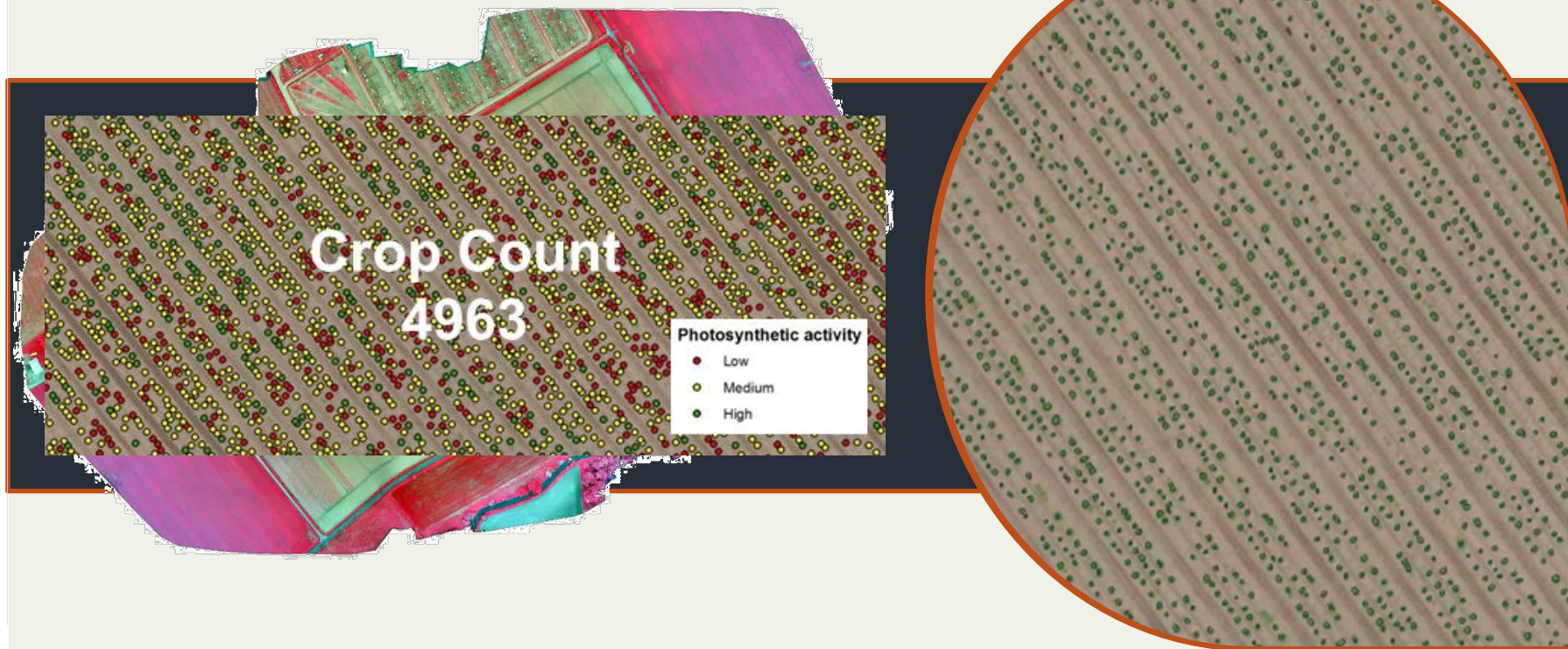
Species Classification

Tree Health

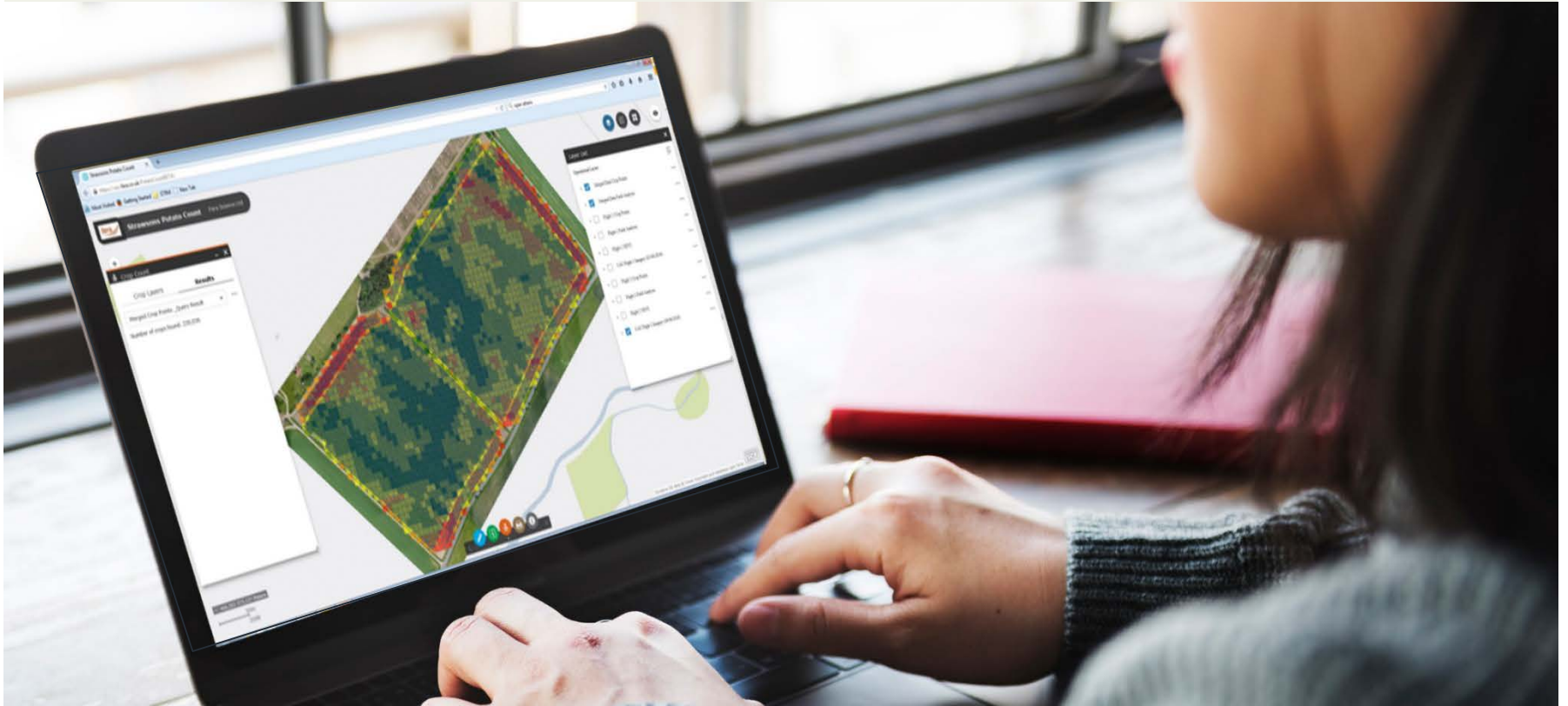
Target Map



Case Study - Automatic Crop Counts and Health Analysis



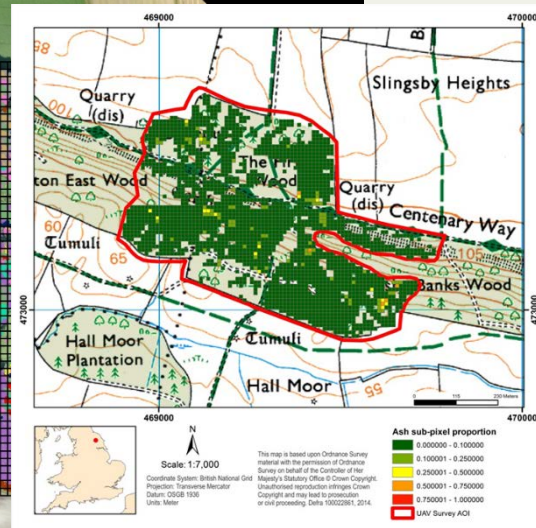
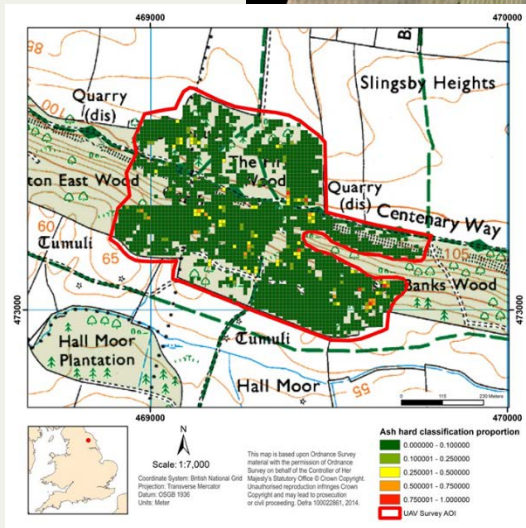
Web App Data Delivery



Upscaling - Drone Training Satellite



Lasb



Proportion from UAV Data

Random Forest Prediction

Remote Sensing in Plant Health



- The Research and Operational Gap

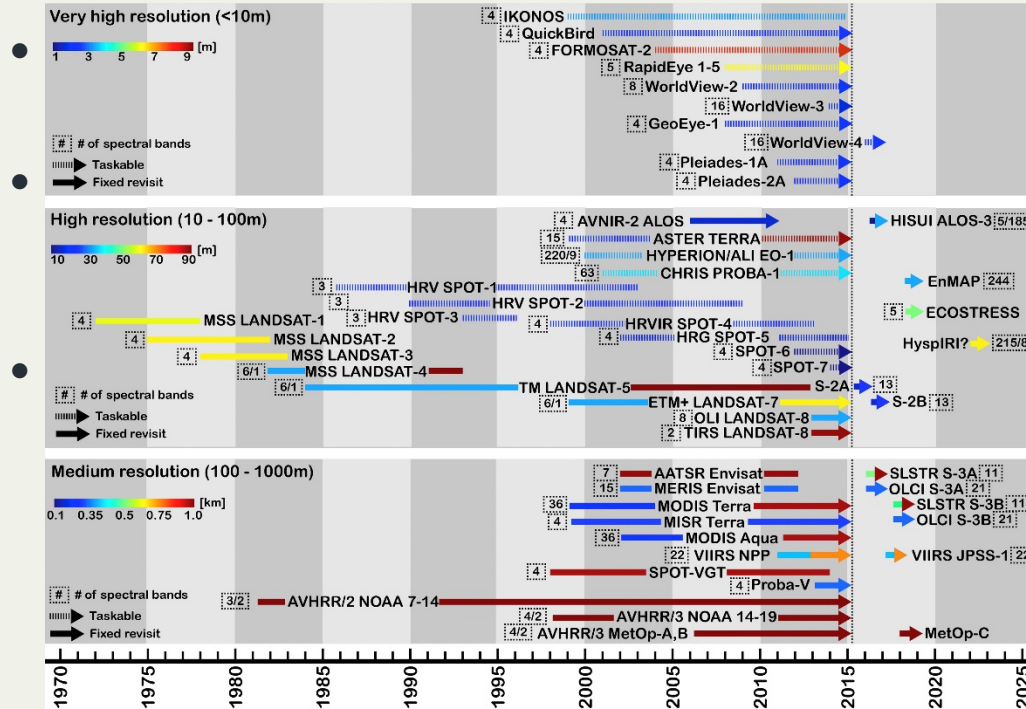
“Remotely sensing has been promising a lot for years but is yet to deliver”

- Globally remotely sensed data is being used considerably in the Classification of species and the study of plant health.
- Multiple studies have been conducted and identified how useful remote sensing can be for plant health
- These are often bespoke or proof of concept/pilot studies.
- Only a small number of these have bridged the research to operational gap.

Remote Sensing in Plant Health



- Bridging The Research and Operational Gap



Timeline of satellite sensors relevant for remote sensing of vegetation on developing methods spectral areas that can be more readily available series of satellites (part

Source: Houborg, Fisher and Skidmore 2015

Era of Plant Health Remote Sensing



- Entering a golden era of plant health remote sensing
 - New Technology
 - Data availability
 - Processing power
 - Analysis algorithms
 - Machine learning

