



Remote sensing as a habitat mapping tool



Today's presentation



Photo by NASA on Unsplash

- ❖ Advantages
- ❖ NCAP data acquisition
- ❖ Next steps
- ❖ Future analyses

Benefits of Remote Sensing

- ❖ Inaccessible areas
- ❖ View data from different angle
- ❖ Distribution of habitat
- ❖ Habitat area estimates



Photo by James Sullivan on Unsplash

Spottitt Data

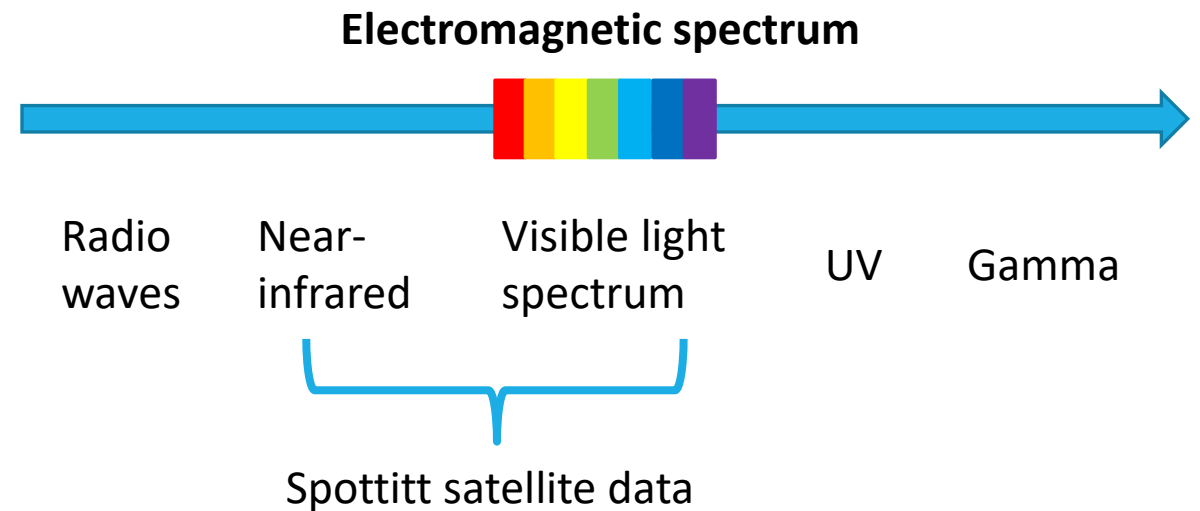
- ❖ Spottitt – image processing
- ❖ Airbus satellite system
- ❖ 50cm pixel resolution



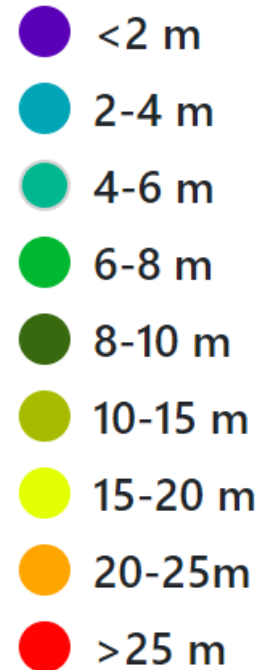
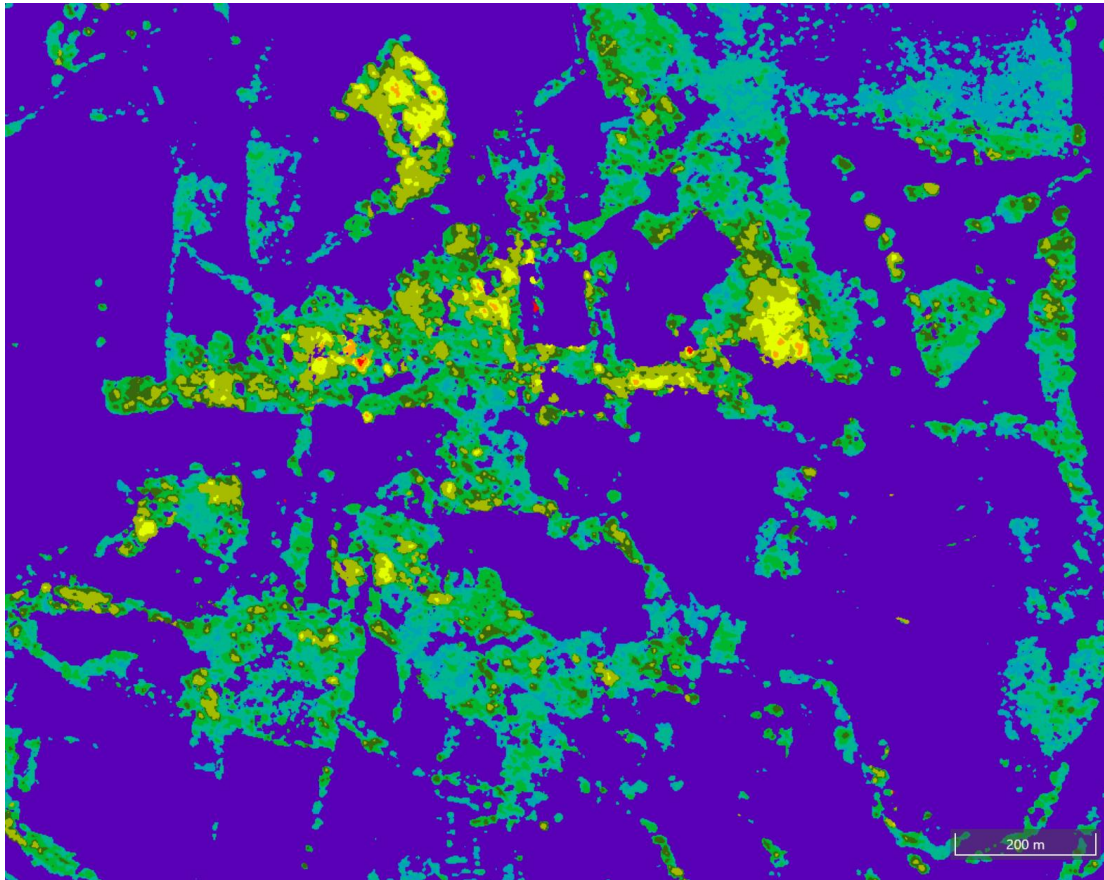
Data layers – Raw satellite imagery



- ❖ 4 spectral regions – Red, Green, Blue, Near-infrared

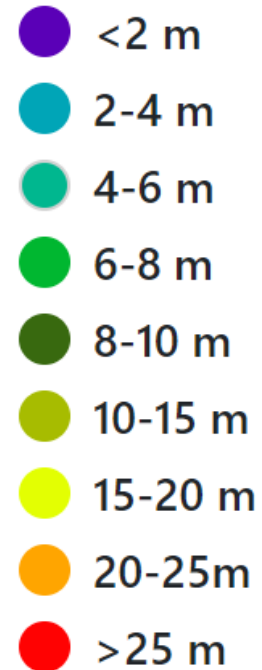
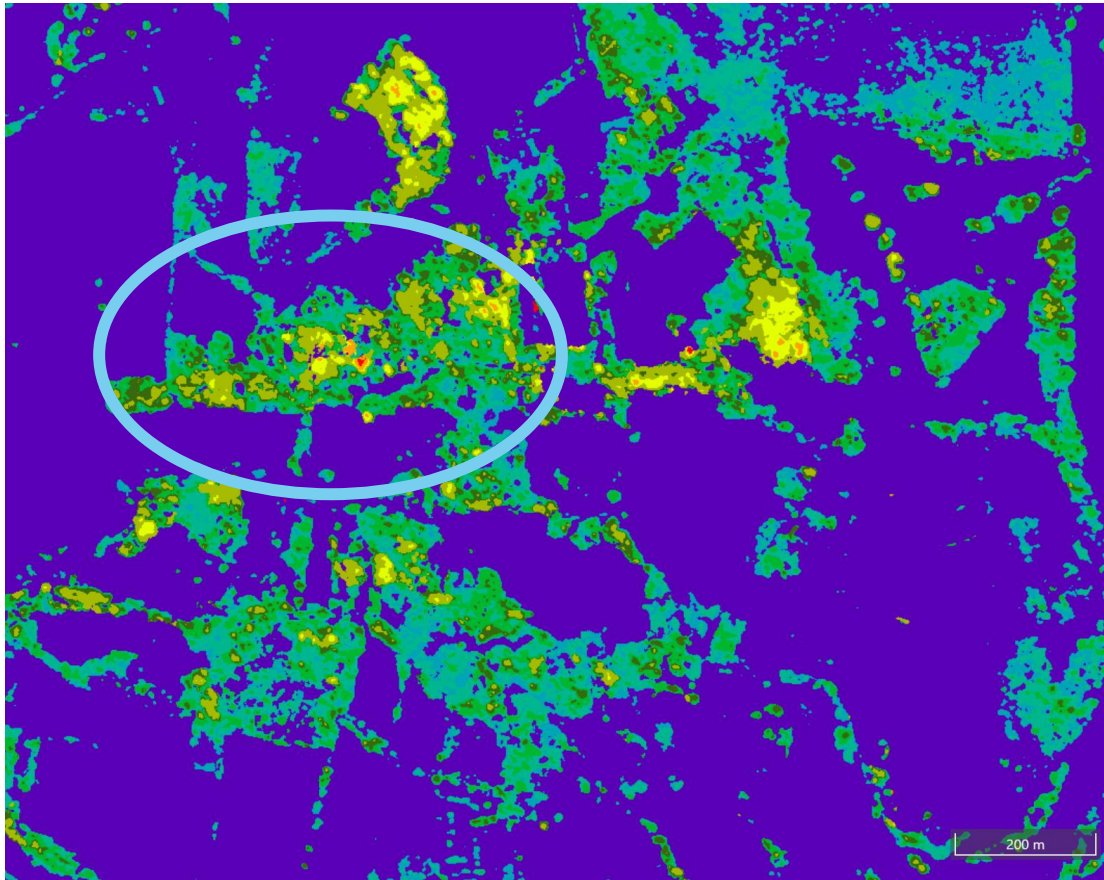


Data layers - Height



- ❖ Spottitt height layer
- ❖ Brandon Marsh Warwickshire Wildlife Trust Reserve
- ❖ Tall trees!

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Data layers - NDVI

- ❖ Normalised Difference Vegetation Index
- ❖ Indicator of vegetation health
- ❖ Ratio between near infra-red and red
 - ❖ $(NIR - R) / NIR + R$



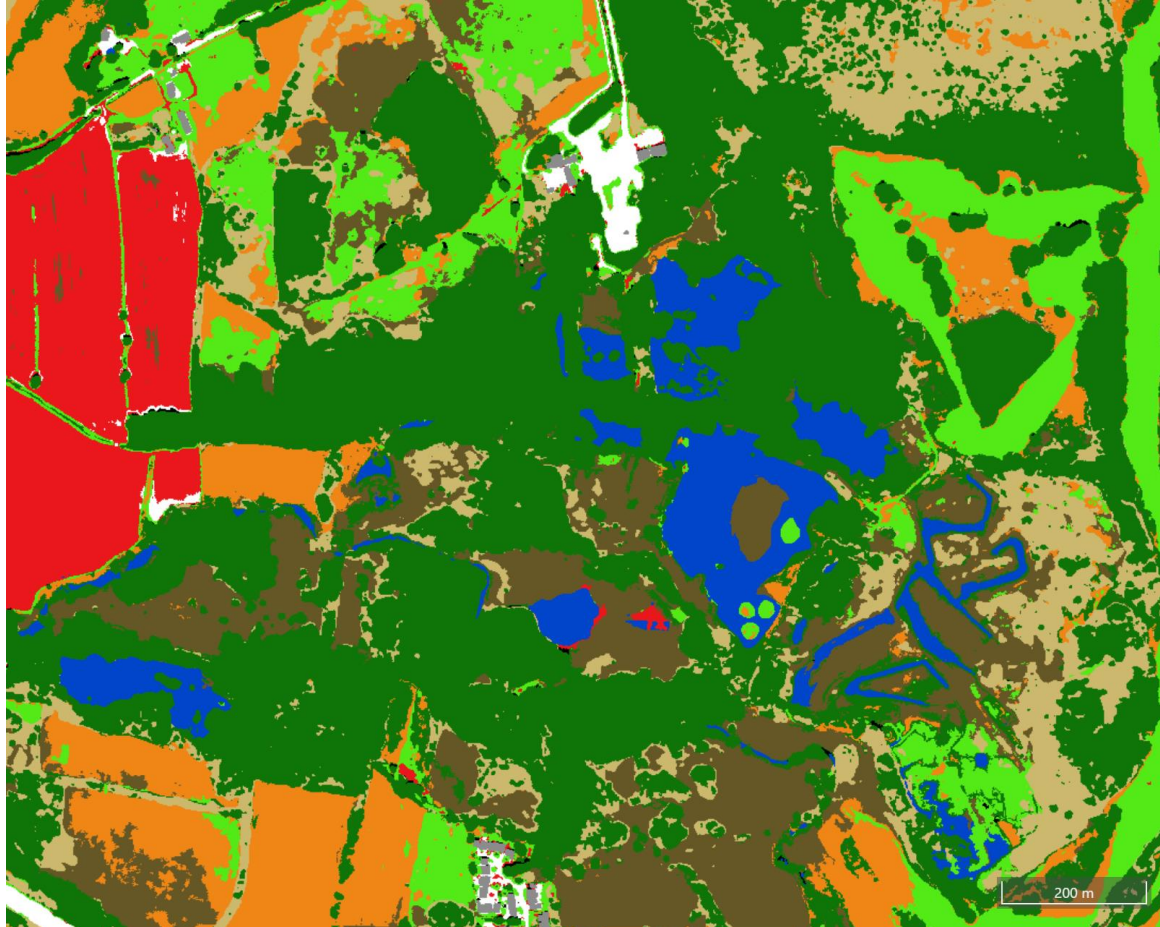
Data layers - classification

- ❖ Algorithm trained & applied
- ❖ Broad habitats – UKHab Level 2

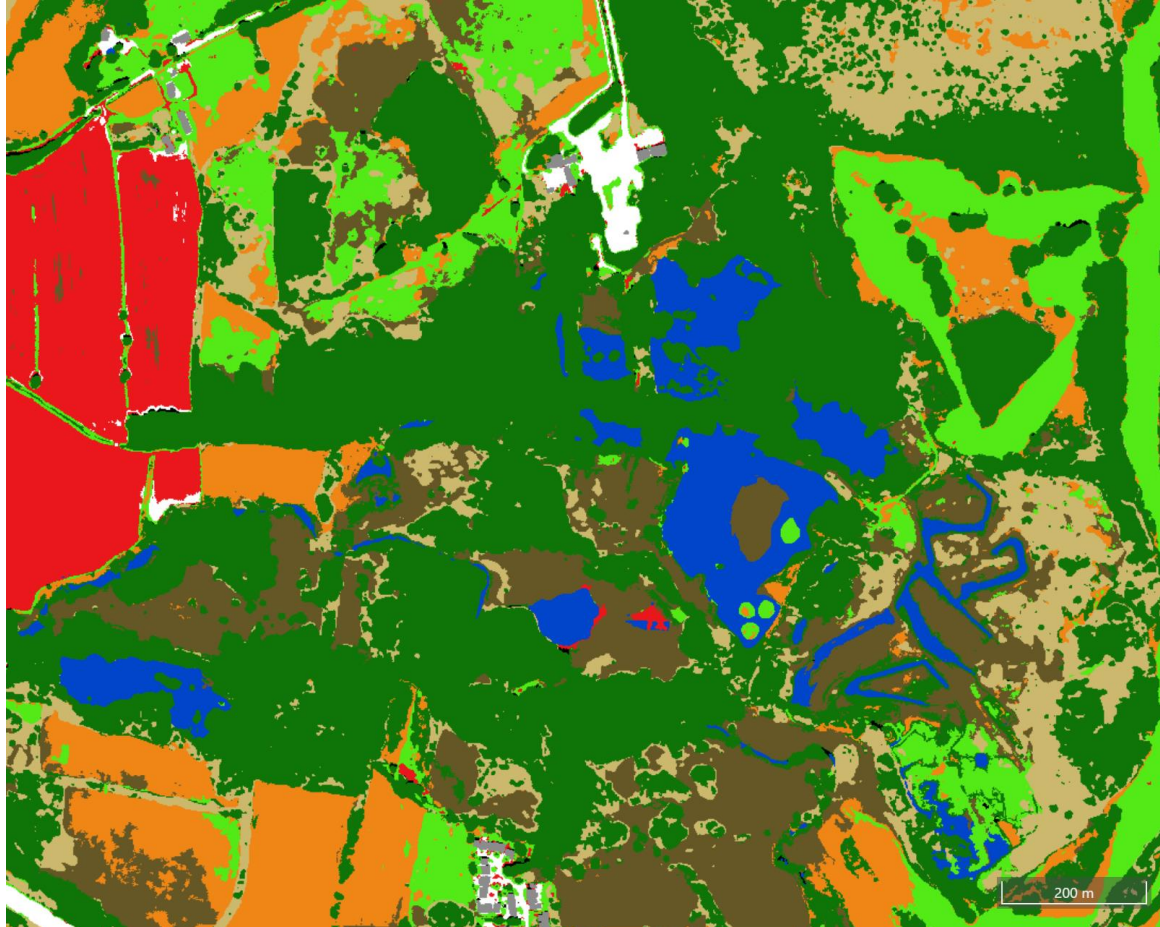
- Deciduous Woodland and Forest
- Sparsely Vegetated Land
- Grassland
- Urban
- Cropland
- High Density Grassland/Vegetation



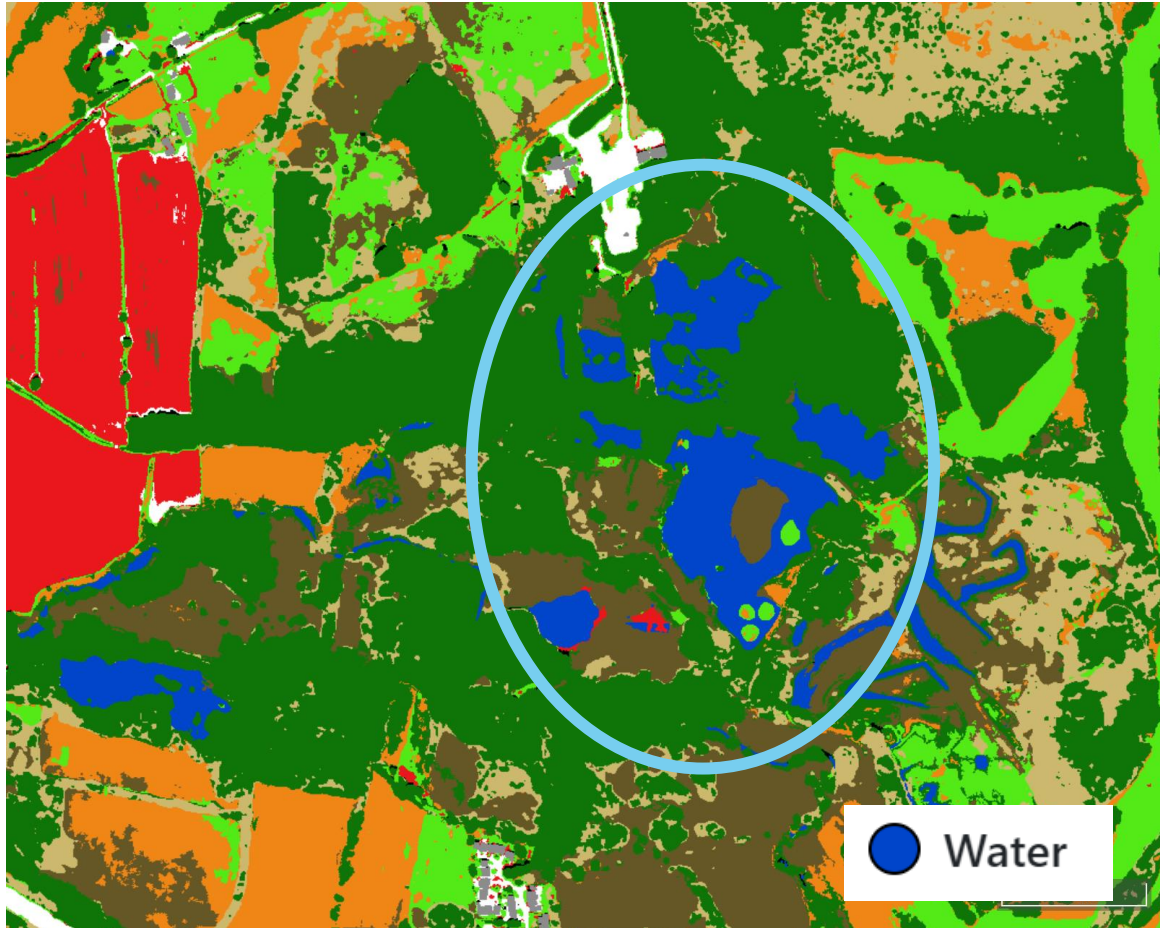
Imagery Example



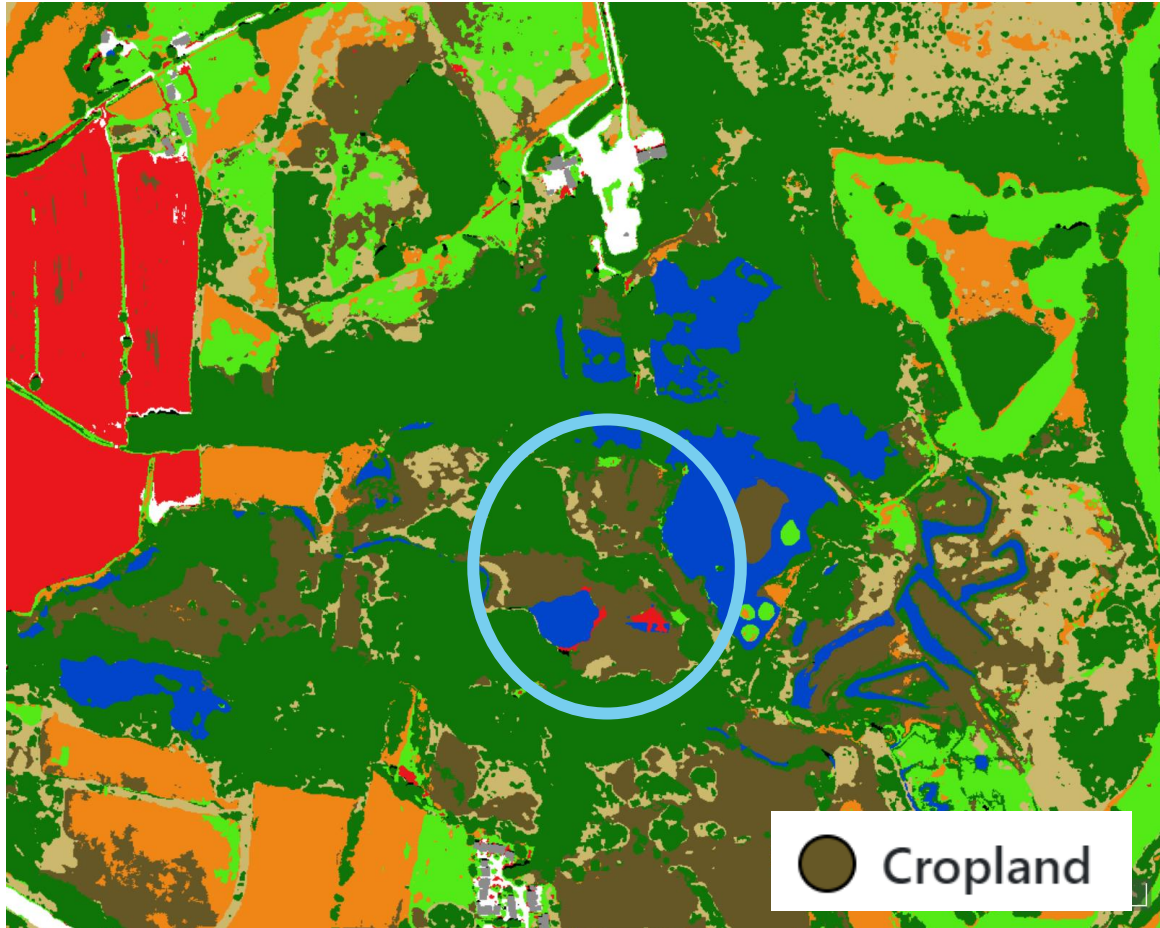
Imagery Example



Imagery Example



Imagery Example



Accuracy Assessment

- ❖ How well are different habitats being allocated the correct category in the classification?



Photo by Sam Knight on Unsplash

Pilot Accuracy Assessment

- ❖ 200 points per habitat category
- ❖ OS Mastermap, composite satellite imagery and NCAP phase 1 data
- ❖ Percentage of correctly classified sampling points



Pilot Results

Woodland

92.96%

Water

99.00%

Urban

92.50%

Buildings

99.00%

Grassland

?

Cropland

?

**Heath and
Scrub**

?

**Sparse
Vegetated Land**

?

**High Density
Grassland/ Vegetation**

?

Possible Analyses?



Photo by Dan Blackburn on Unsplash

- ❖ Map of broad habitats – refine further?
- ❖ Individual trees?
- ❖ Woodland age – successional growth?
- ❖ Spatial models, e.g. connectivity?



Thank you for listening!

- Spottitt
- All of our project partners
 - Coventry City Council - North Warwickshire Borough Council - Nuneaton and Bedworth Borough Council - Rugby Borough Council - Solihull Metropolitan Council - Stratford-on-Avon District Council - Warwick District Council - Warwickshire County Council
- Warwickshire County Council & Warwickshire Wildlife Trust

Any other questions contact: sarahbarnsley@warwickshire.gov.uk