

Using a drone to identify a giant herb.

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Leading the way in Agriculture and Rural Research, Education and Consulting

(Heracleum mantegazzianum)

Forms dense stands

3~5 m tall

Can self pollinate and
produces 20k~100k
seeds per plant.

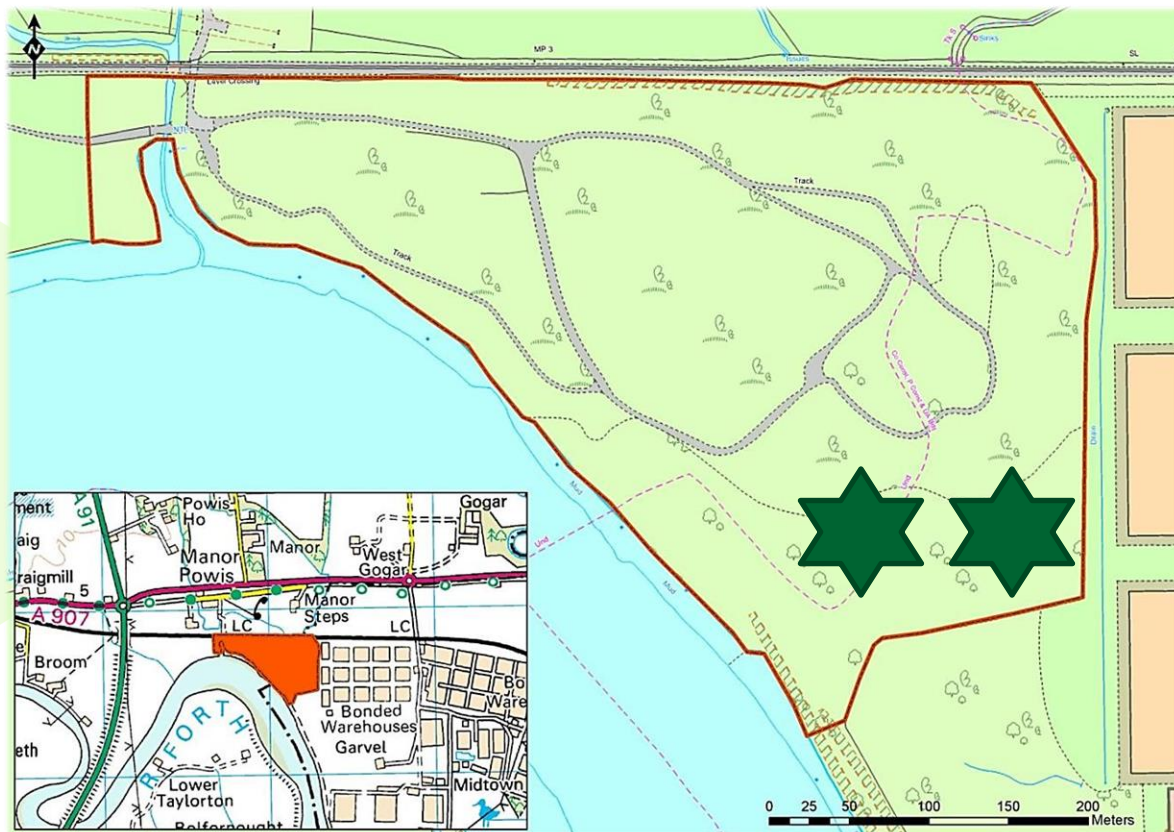
~1 m wide leaves



Seeds can stay dormant
for up to 7 years.

The study site and aims

- ❖ Manor Powis Bing, a brown field site that was previously a coal mine bing, then a tip and finally a 4x4 training circuit.
- ❖ The aim is to identify the area covered by giant hogweed and to estimate the amount of seeds created.
- ❖ There are currently two 100m records in the NBN gateway, both from a survey in 1995!



*(The Manor Powis Bing study site, ~18 ha;
Contains Ordnance Survey data © Crown copyright
and database right 2016)*

Data creation workflow



(The colleges Vulcan Octocopter that was used to collect the data. Two flights were required to cover the entire 18 ha site)

Data collected using a twin camera setup (RGB and near infra-red)



RAW imagery converted to TIF and geo-tagged



TIF imagery processed using photogrammetry software



RGB and near infra-red orthomosaics produced



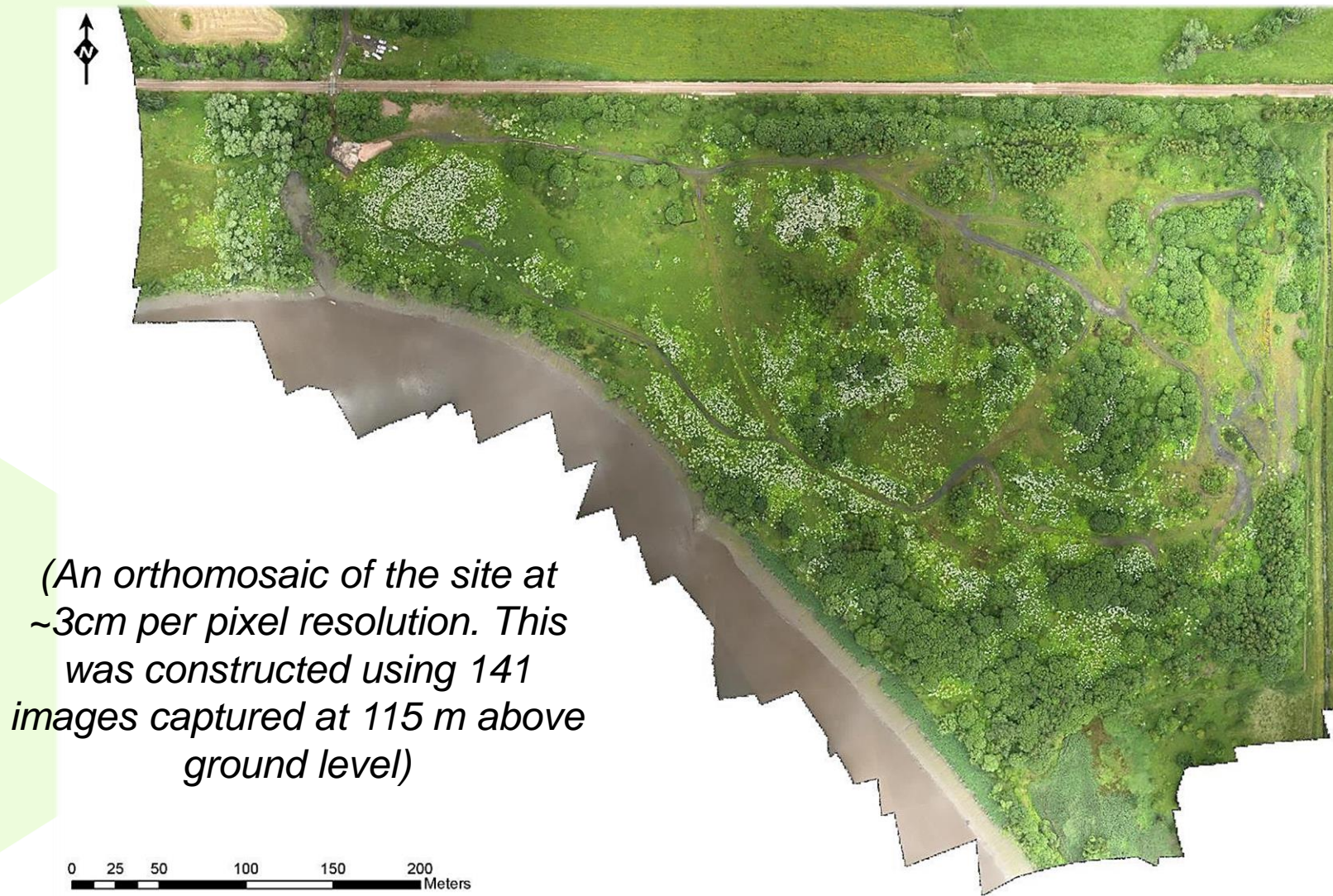
4 Band orthomosaic created

Elevation & surface models produced

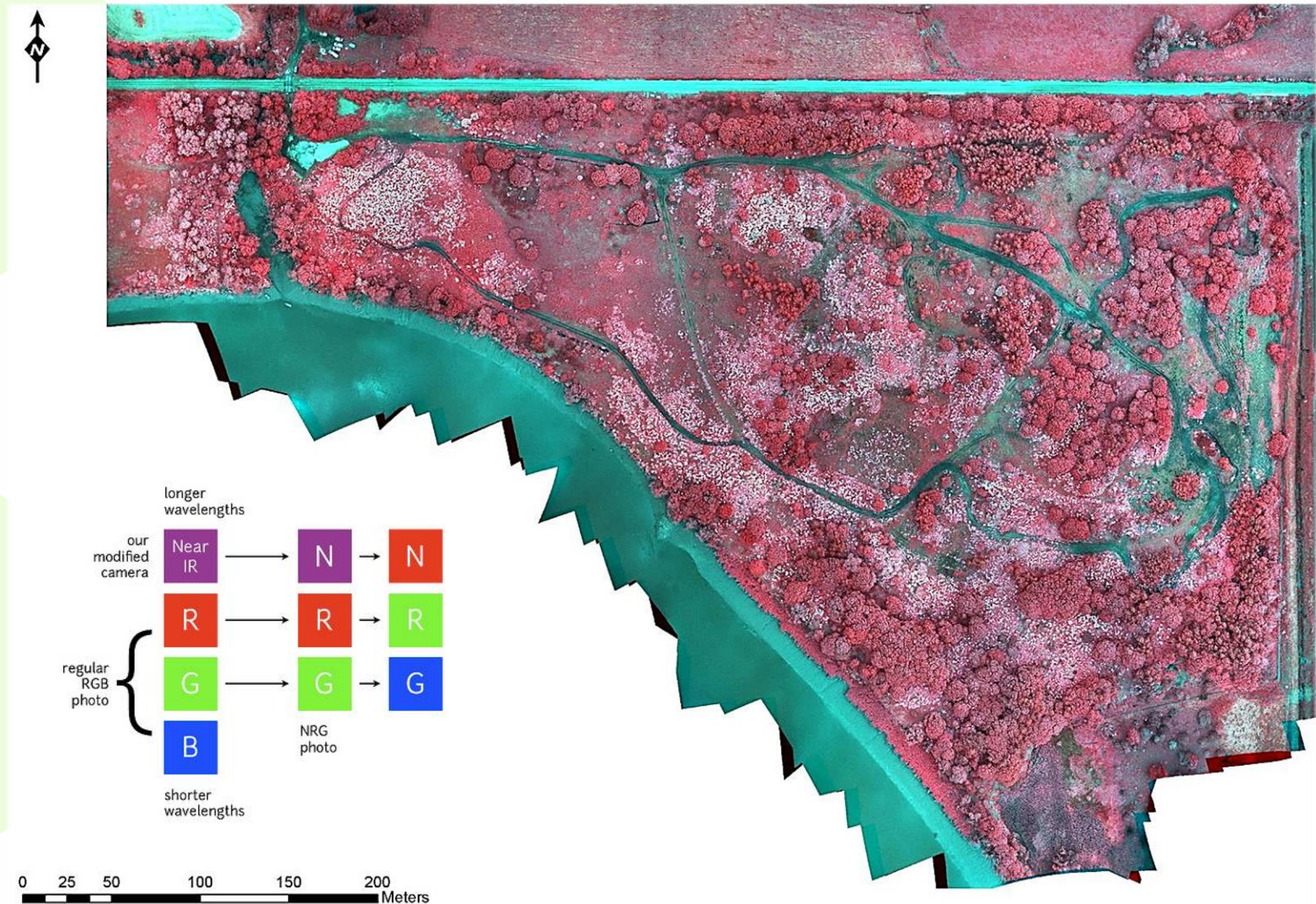


Vegetation height model created

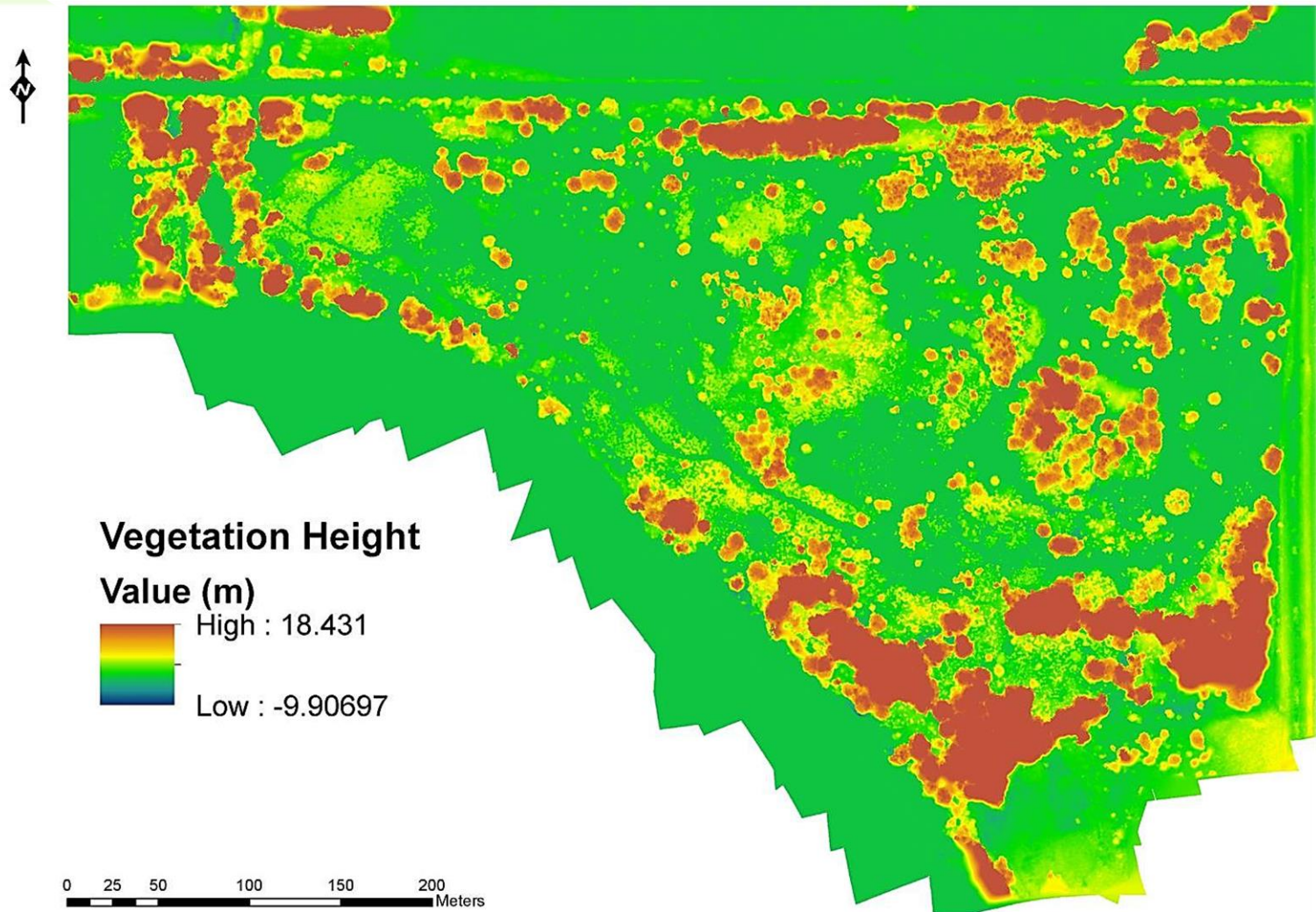
True Colour Orthomosaic



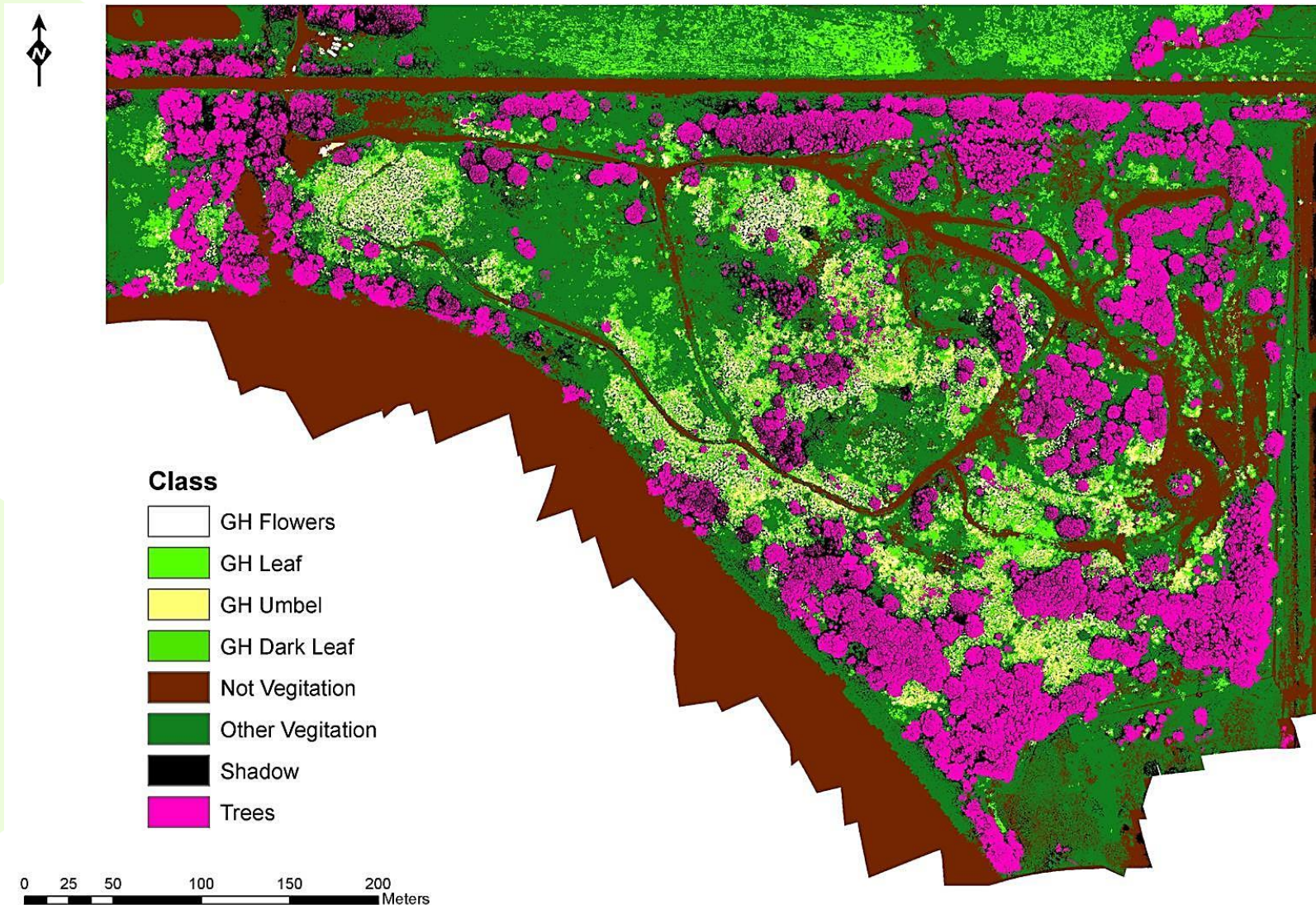
False Colour Orthomosaic



Vegetation Height Model

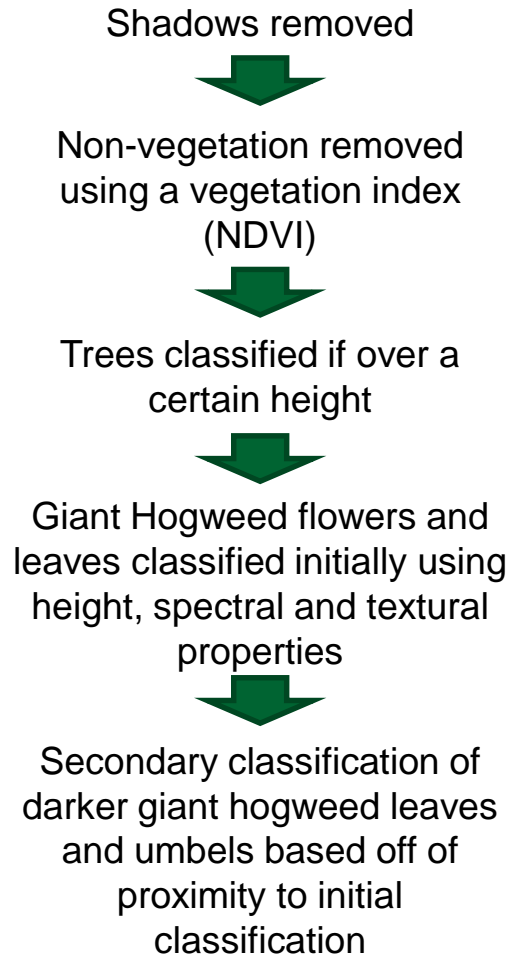


Classification result so far



Classification workflow

- ❖ Classification was achieved using the Object Based Image Analysis (OBIA) software called InterImage.
- ❖ 255 Randomly placed 1x1 meter plots were visually checked for the presence of Giant Hogweed in order to identify classification accuracy.
- ❖ A total accuracy of 88% was achieved, with an agreement of 71% using Cohen's kappa (indicating a substantial agreement).
- ❖ There are still some classification issues to resolve and seed source is yet to be estimated.



Any questions?

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