Machine learning helps to map gamba grass from space

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Mapping gamba grass is essential to stopping its spread

Gamba grass (*Andropogon gayanus*, Fig. 1) is an introduced pasture grass, spreading through tropical savannas of northern Australia, with detrimental ecosystem consequences, including increased fire frequency and intensity.

To monitor and manage the spread of gamba grass, a scalable solution for mapping its distribution over large areas is required.

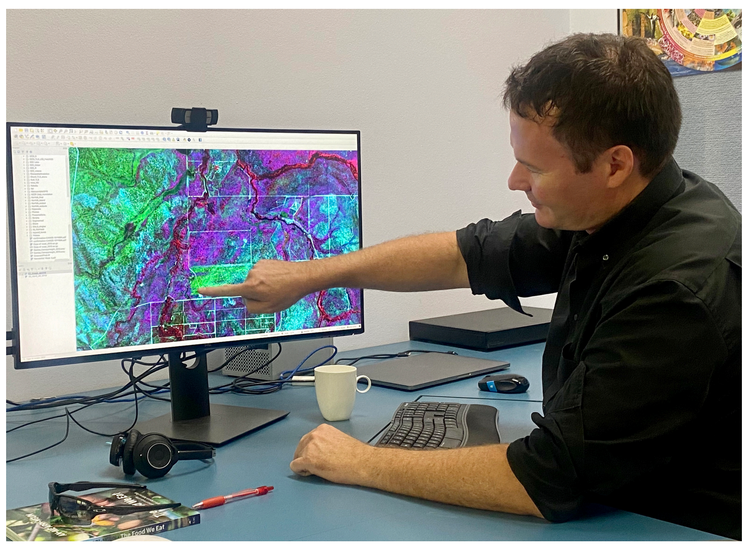
Aim: to test the suitability of very high-resolution satellite imagery to map gamba grass presence.

Figure 1. Gamba grass can grow to 5 m tall and lead to increased fire frequency and intensity.

Very high-resolution satellite imagery was used

The WorldView-3 satellite was commissioned to capture very high-resolution imagery across 16 spectral bands for an area of 205 km^2 in the Northern Territory, an area of dense gamba grass infestation.

Field data was used to 'train' a machine learning model to detect gamba grass from very WorldView-3 satellite imagery.



Researcher Shaun Levick, CSIRO.

Gamba grass was successfully mapped from space

- WorldView-3 satellite imagery significantly improved the detection of gamba grass
- gamba grass was mapped from space with an accuracy of up to 91%
- this method is scalable to larger areas as it relies exclusively on readily accessible very high-resolution satellite imagery.

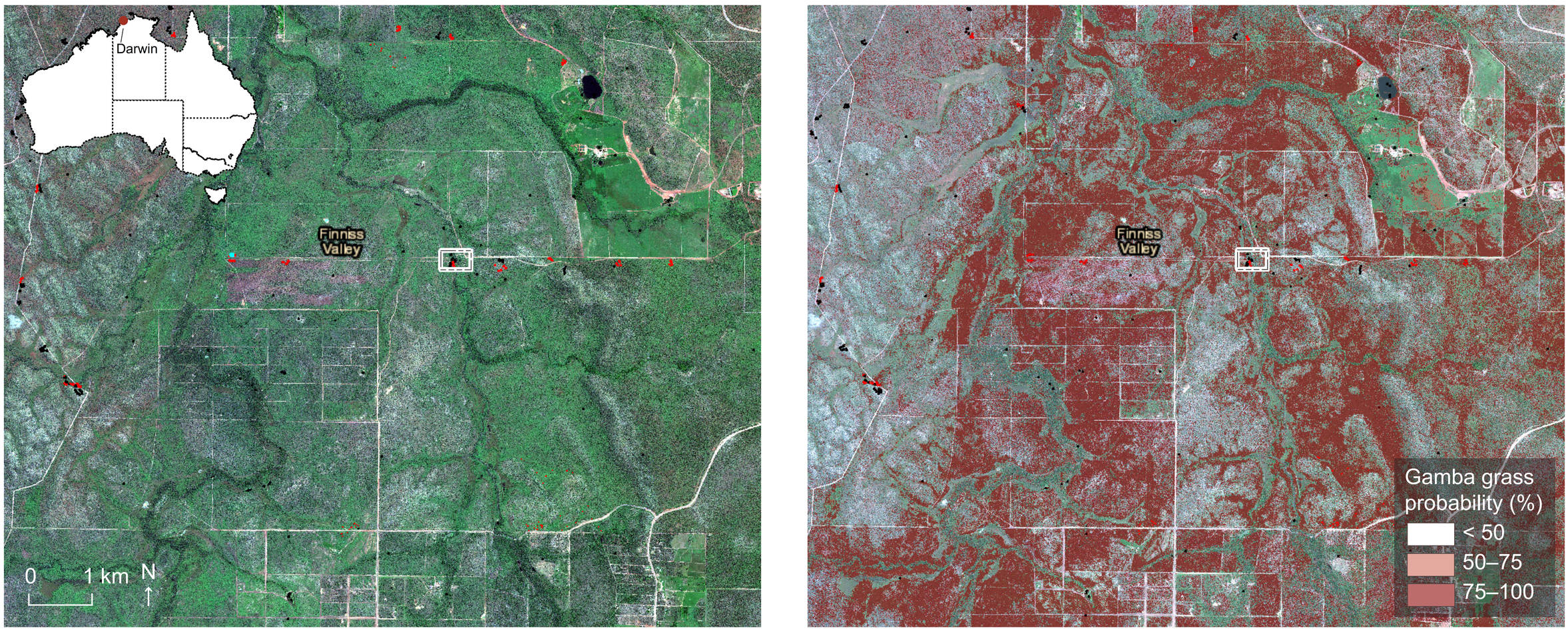


Figure 2. Left: WorldView-3 image of the area of interest in true-colour. Right: map showing gamba grass presence probability at 0.3 m resolution.

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Further information

The project page can be found at nespnorthern.edu.au

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