



Extreme rainfall events in February & March, 2022, led to devastating flooding and landslides throughout the Northern Rivers region of NSW.

This case study showcases how drone-based biotechnology, paired with strong local partnerships, supported the restoration of landslide sites.



METHODOLOGY

Drone planting provided efficient seed delivery in dangerous and hard-to-access places.

Number of landholders	146
Number of landslides	52
Native species used	48
Pods planted	601,315
Total area planted	36ha
Active monitoring sites	6



RESULTS

Table 1: Vegetation coverage at Site SF averaged 9.2% when podding occurred in June, 2023. Vegetation coverage had increased to 52.7% by February, 2024.

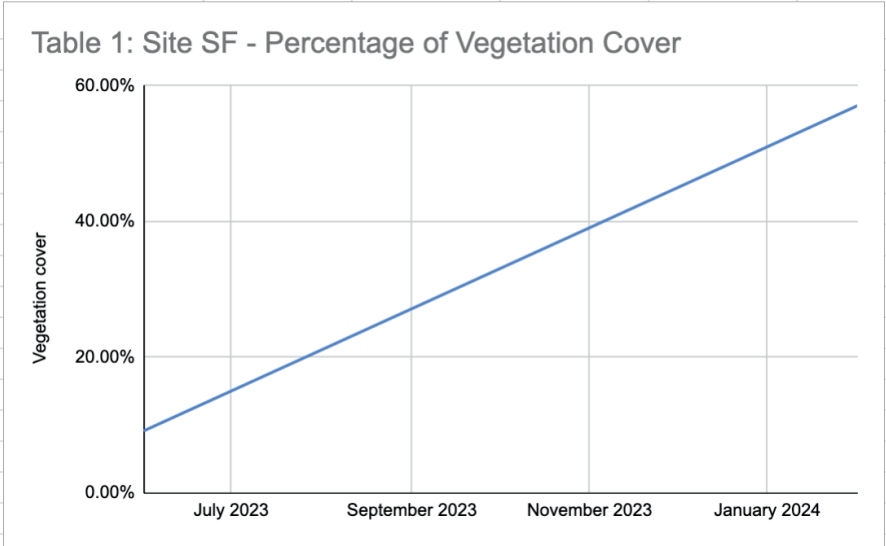
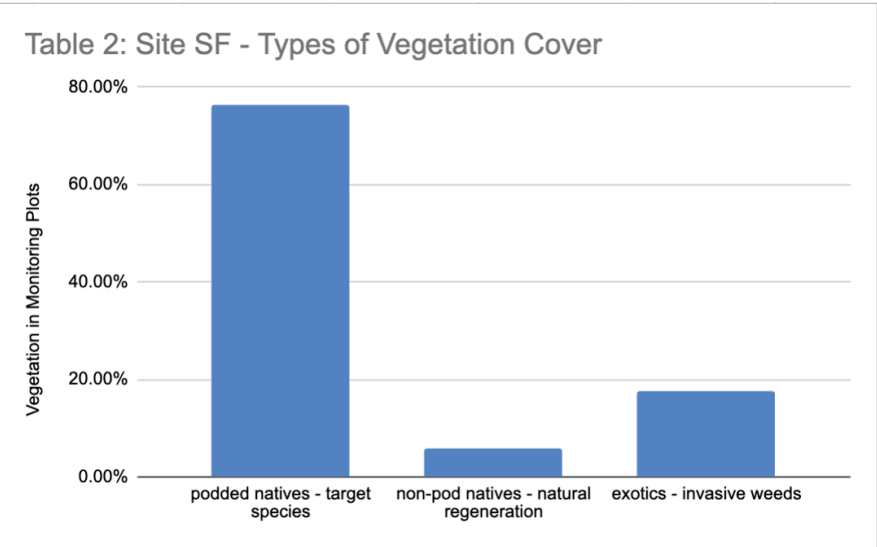


Table 2: Vegetation cover at Site SF in February 2024 consisted of; 76.5% native podded species, 5.9% non-podded natives and 17.6% weed species.



'Site SF': February 2024, 8 months after drone planting. Looking uphill at podded natives including; *Acacia melanoxylon*, *Eucalyptus robusta*, *Lophostemon confertus*, *Kennedia rubicunda* and *Juncus usitatus*.

CONCLUSION

Follow-up weeding significantly boosted pod seedling survival, reinforcing the importance of post-planting care.

- The most successful sites shared common features:
- High landholder engagement
 - ongoing maintenance support
 - strong community collaboration.

Drone-based planting offers a scalable solution, but successful ecological restoration is deeply human. It requires time, flexibility, and embedded community relationships.

As natural disasters increase, integrating technology with local knowledge, community capacity, and adaptive strategies will be essential for resilient, biodiversity-rich landscapes.

