

Restoring riverbanks for habitat and threatened species in a changing climate

Brush Sauropus
Phyllanthus microcladus

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Brunswick Valley Landcare Inc



STORIES to inspire and give you hope

Brunswick Valley Landcare Saving Our Species in Mullumbimby by Bola Allen



The Office of Environment and Heritage has asked Brunswick Valley Landcare to locate and protect a small, little-known shrub, Brush saropus, *Phyllanthus microcladus*. This endangered species only occurs in a few isolated NSW locations in the Tweed, Brunswick, Wilson and Richmond valleys, with an outlying population near Grafton. It is usually found on the banks of rivers and streams in rainforest and can grow to approx. 2m in height.

Our Brush saropus sleuths, Dave Rawlins and Jane Wickers, have been active in finding previously unmapped stands and recording the sites on a map. Wherever possible they will carry out weed control work to protect the shrub and, in some situations, will hand-weed around a Brush saropus stand to encourage new seedlings to emerge.

Some facts about Brush saropus are yet to be discovered. For example, we don't know how the small and inconspicuous flowers are pollinated, although in the Mullumbimby area fruit (a round smooth capsule about 3mm long hanging on a long thin stalk) is formed and seedlings emerge around the original shrub to form a dense clump. Therefore, we know the flowers are pollinated but

not which pollinator is responsible.

If you live in the Mullumbimby area and think you may have Brush saropus on your property please contact Jane Wickers email: janeawickers@gmail.com.

Be aware, Brush saropus may be mistaken for small leaf privet as it has a similar growth habit and appearance. For a great description you can visit Plantnet <http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Phyllanthus-microcladus>

To find out more you can visit the DEH Website <http://www.environment.nsw.gov.au/threatenedSpeciesApp/profile.aspx?id=10624>

Biology – What's special about Phyllanthus?



Greg Tansey



Steve Fitzgerald

NSW Biodiversity and
Conservation Act -
Endangered



S & A Pearson



M Fagg



Implementation of Saving our Species Action for Brush Sauropus Phyllanthus microcladus

Project Objectives

5-year SOS Project 2017 were to:

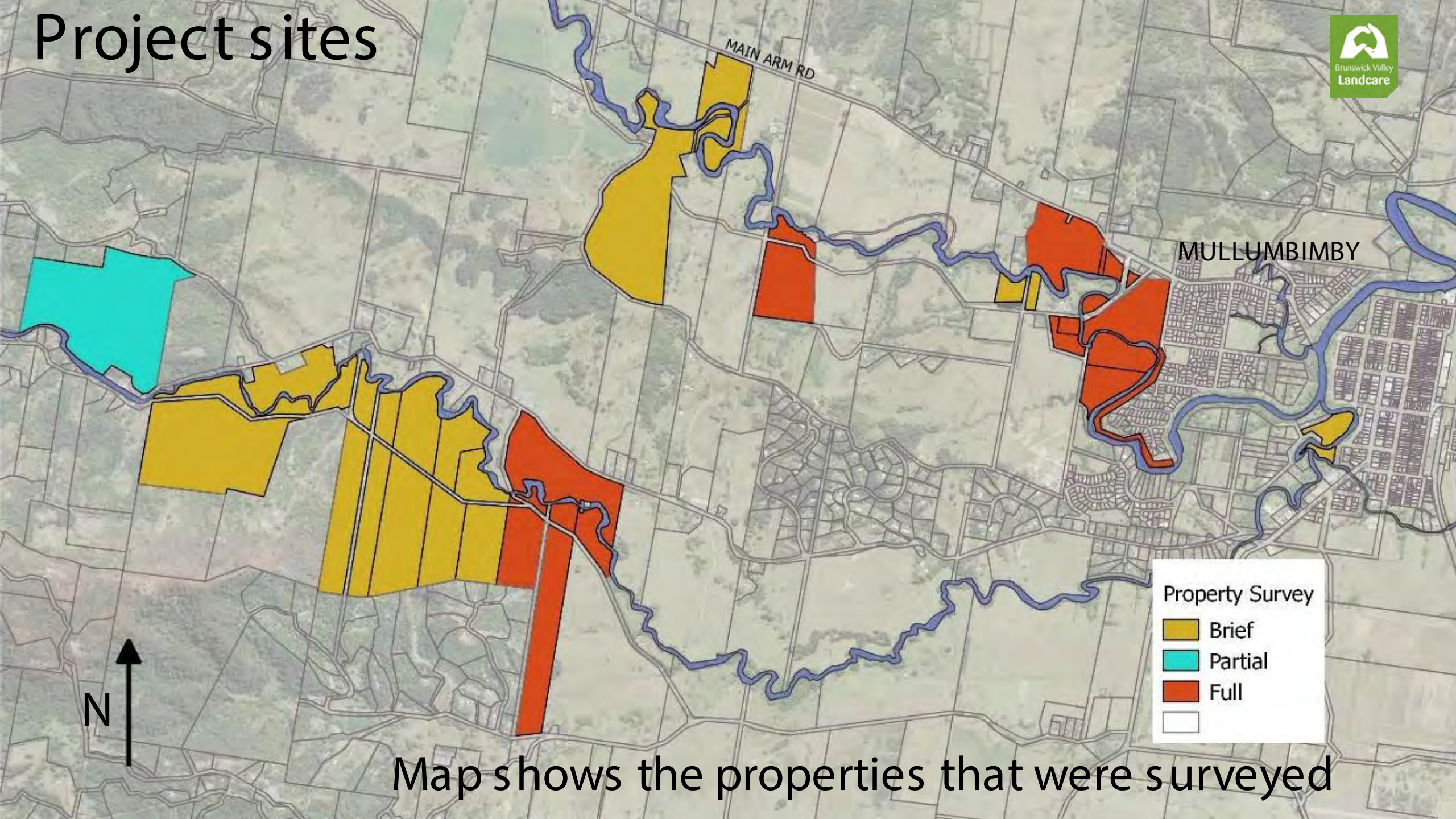
- Monitor – abundance and condition
- Find new populations
- Reduce weed densities
- Collect seeds
- Planting for buffer zones
- Protect from threats - grazing and disturbance

Project Sites

- Brunswick River riparian zone and surrounding areas along Mullumbimby Creek

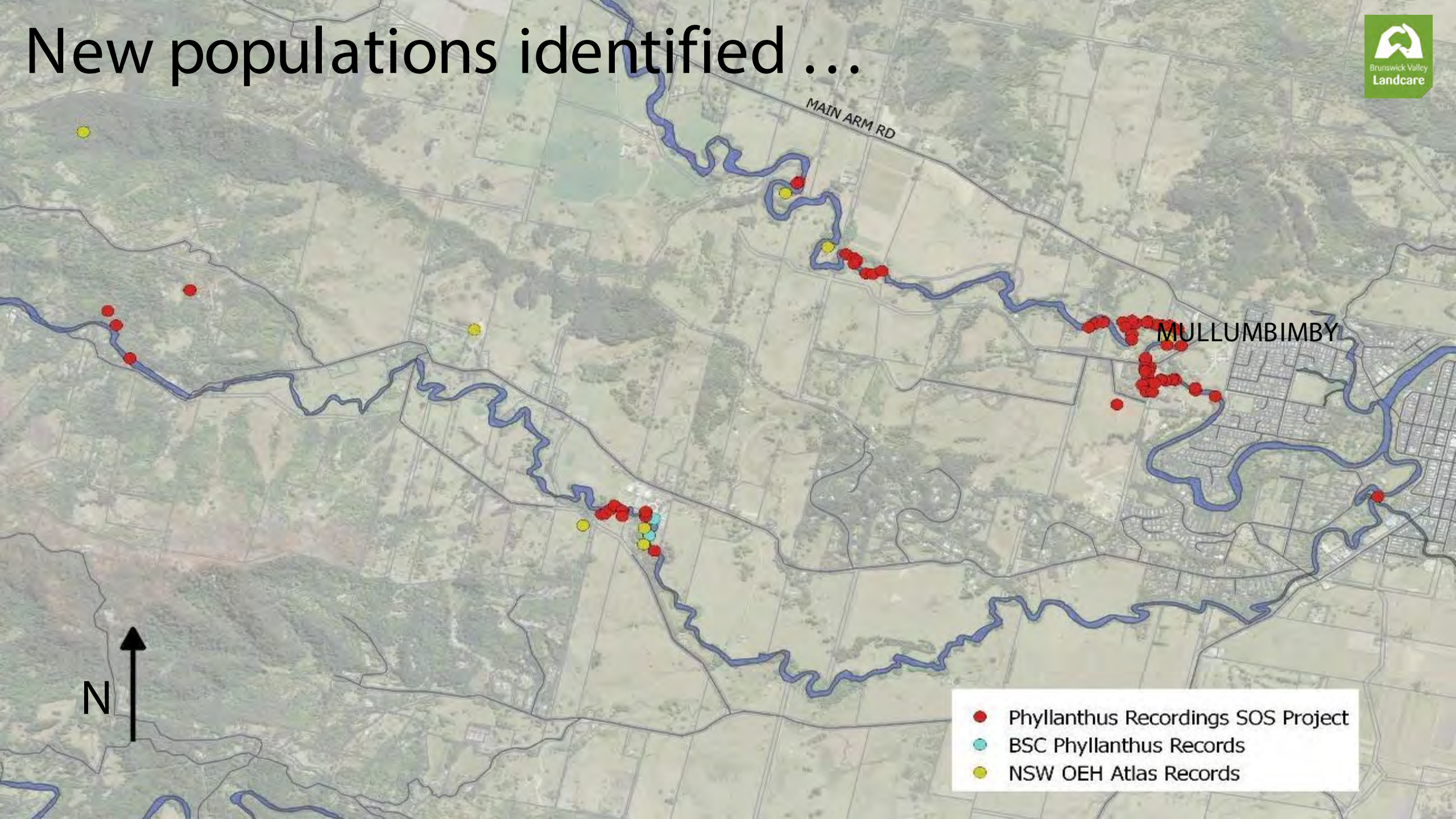


Project sites



Map shows the properties that were surveyed

New populations identified ...



Reference community – subtropical rainforest

- The restoration approach -
 identify a reference community
- Gallery rainforest / subtropical rainforest
- Fresh to brackish water
- *Waterhousia floribunda*, *Lomandra hystrix*
 alliance
- Develop site action plans to address
 threats like grazing...



Actions to restore Phyllanthus habitat

- Stem injecting Coral Trees, Privet and other large weeds but retaining strategic Camphor Laurel canopy for shade.
- Treating environmental weeds such as Cats Claw Creeper, Ochna, Morning Glory, Green Cestrum, Madeira Vine, Silver-leaved Desmodium and Lantana.
- Hand weeding around existing Phyllanthus microcladus to create bare soil for successful recruitment.



Monitoring

- Number of plants $> 1\text{m}$
- Number of plants $10\text{cm} - 1\text{m}$
- Number of plants $< 10\text{cm}$
- Height of tallest plant
- Number of fruiting/flowering plants
- Number of dead plants
- Evidence of recruitment
- Disturbance



Phyllanthus individual counts and height measure

Height Class	Height range	# of individuals
M1	> 1m	1109
M2	10cm – 1m	1038
J	< 10cm	396

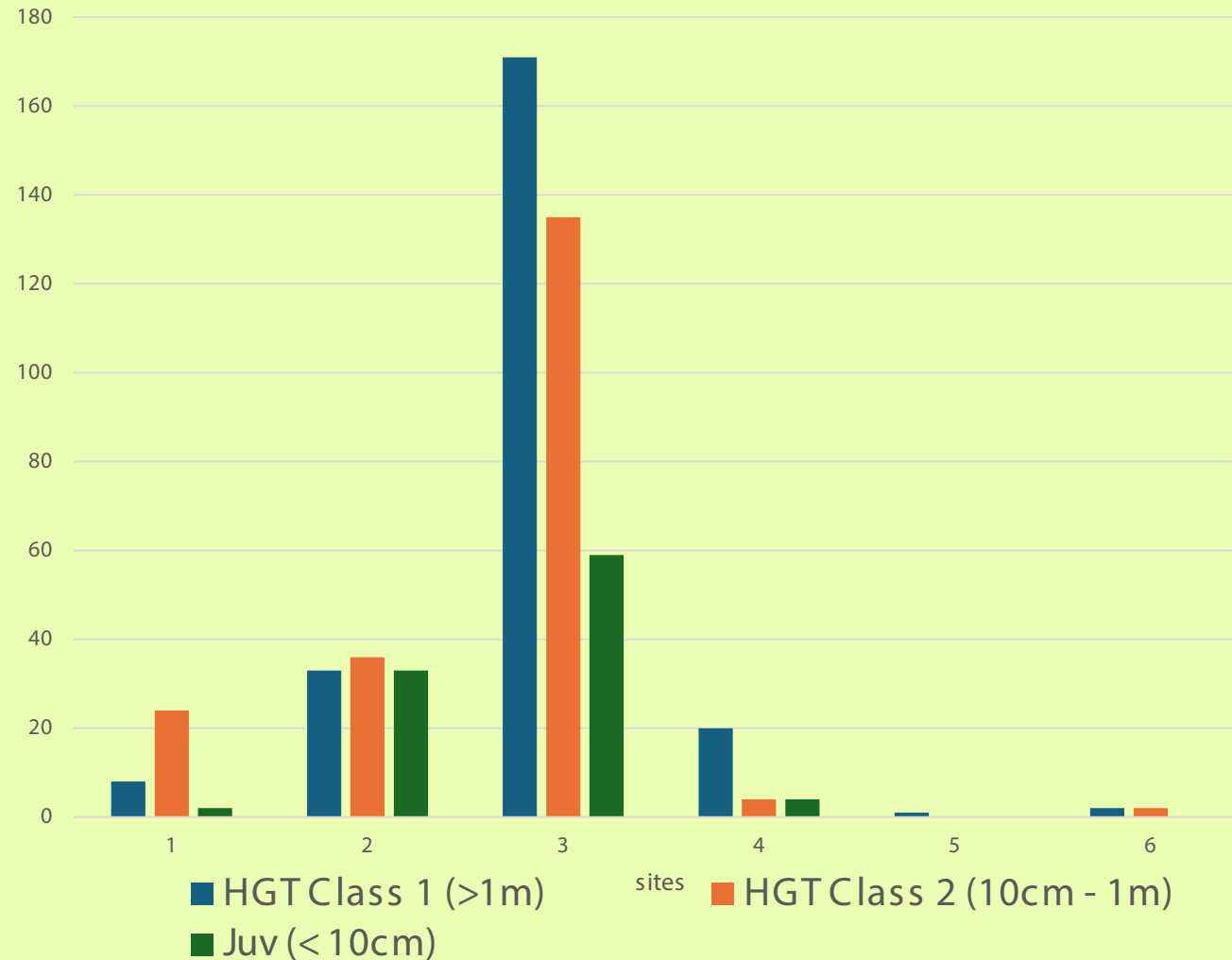
The tallest plant recorded was 2.4m






Photo: 2.4m Phyllanthus plant on Schultz property on Brunswick River March 2018.
NB: Plantnet records max height at 30cm



Monitoring

Individual counts and height measures



	23 April 2018	11 June 2020	7 June 2021
PP 1- looking east			
	Small-leaved Privet competing with Phyllanthus	Small leaved Privet and other weeds removed, bare soil to allow recruitment of Phyllanthus.	Phyllanthus has increased in height and looking very healthy
PP2- looking west			
Threats	low impact cattle grazing		

Conclusions

- Phyllanthus is healthy with new growth flushes, flowering, fruiting and all plants have gained in height.
- Weeds reduced leaving areas for Phyllanthus to seed.
- Control of Night flowering jasmine *Cestrum nocturnum*, Madeira Vine *Anredera cordifolia* and Cats Claw *Dolichandra unguis-cati*.
- Significant natural regeneration on the site including *Lomandra hystrix*, Blue Quandong and Maidens Blush.
- Evidence of Phyllanthus recruitment on 3 sites and interestingly in tree hollow on 2 sites.
- They are remarkably resilient – reshooting after grazing, slashing, or being covered in flood debris.



Loss of habitat still a factor

The key sources

- Bank erosion from flood events.
- Flood debris
- Trampling by cattle on private properties.
- Trampling and increased erosion from human and dog access at public land sites.
- WEEDS!
- Routine agricultural activities:
- Green waste dumping.
- Slashing of the *Phyllanthus* to encourage grass growth for agriculture.



Future for Phyllanthus

- Overall, BVL restoration work has saved the species from local extinction.
- But flooding can have serious consequences for riparian species.
- 2022 flood was devastating in Mullumbimby.
- Original 5-year project still going....
- Acknowledge the commitment and skills of local Landcare.

