Healthy Rivers Citizen Science Program

Brunswick River Report Card 2023 - 2024

REWILDING OUR FLOODPLAINS

POSITIVE CHANGE FOR MARINE LIFE

River Ecology Australia

PCFML Healthy Rivers Citizen Science Program

The Healthy Rivers program assesses the ecological health of the Brunswick River ecosystem by using key indicators to grade designated sites and observe transformations over time.

Integrating information on macroinvertebrates, water quality, and riparian condition we can produce a general assessment of river health. This approach provides a measurement that can be repeated over several years to provide a trend that will indicate whether the river is improving or degrading. By supporting citizen scientists within the Brunswick River community we hope to grow a mindset of stewardship for the care.

In time the Healthy Rivers program will be community-led and comparable to similar programs being developed on other Northern Rivers catchments.

Measuring Catchment Health

Water Quality

Natural processes and human activities can influence water quality. Temperature, dissolved oxygen, pH, turbidity, salinity and other measures can be used to test and understand how to improve water quality.

	Great	Good
pH	6.5 - 8.5	6-6.5 or 8.5-9
EC	<200	200-250
DO	85-110	63-85 or 110-137
NTU	<7	7-7.5
	Fair	**Poor**
pH	5.5-6 or 9-9.5	<5.5 or >9.5
EC	250-300	>300
DO	42-63 or 137-165	<42 or >165
NTU	7.5-9	>9

Riparian Condition

Habitat structure, weeds, vegetation community, accessibility and other indicators measure riparian condition. Expressed as an indexed proportion of functional habitat.

A	B
>70	50-70
C	**D**
20-50	<20

Macroinvertebrates

The abundance and diversity of waterbugs found in both fast flowing riffles and slowly flowing vegetated edges of waterways can help explain the catchment impacts influencing the health of waterways.

Disturbed	High nutrients
Disturbed, lower biodiversity, pollution or harsh physical cond. (small sample?), poor macroinvertebrate communities	Less disturbed sites, high diversity, favourable habitat, less polluted waters, resilient macroinvertebrate communities
Toxic/Chemical	**Pollution or Flow**
High disturbance, low biodiversity, poor habitat quality, very poor macroinvertebrate communities	Disturbed, with high biodiversity, high salinity or nutrient levels (may be natural), macroinvertebrate communities OK

Methods

Our Results are combined from two measurements of all factors for each site. Round one was in Spring 2023 and Round 2 was in Autumn 2024. We have averaged these to provide a measure of river health for the Brunswick River over the summer as a whole. This result represents a single data point and the first measure for the River.

Healthy Rivers Report Card

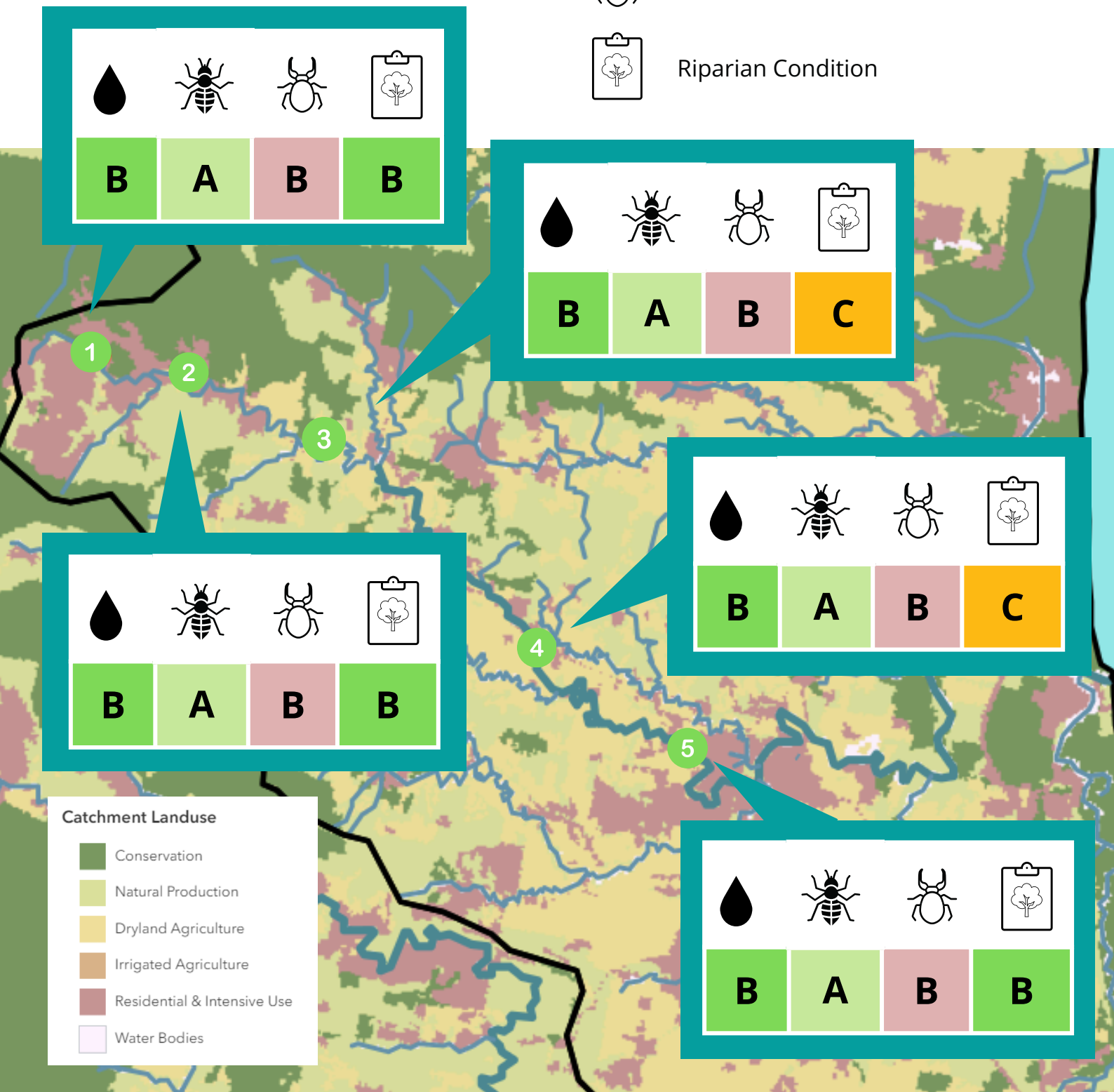
Overall Health Score

C → B

Spring 23 Autumn 24

Key

- Water Quality
- EDGE Macroinvertebrates
- RIFFLE Macroinvertebrates
- Riparian Condition



State of the Brunswick River Catchment

The Brunswick River presents reasonably healthy water quality and river health, with a good representation of macroinvertebrate life forms. The lower numbers of each type of animal however likely result from hi-flow events in the river this year which would have affected colonisation.

Generally, the river indexes of health fall in the 'Fair' to 'good' categories meaning that most indicators are over 50% of what we would expect from a pristine, undisturbed river system.

Over 80 community members participated in our Healthy Rivers Citizen Science Program!

What's next?

The Brunswick River is well positioned for conservation benefits from habitat restoration efforts. Implementing cattle management (restricting riverbank access) and replanting destabilised bank areas would rapidly secure the river from excess sediment load and degradation in the short to medium term (5 – 15 years).

There is a significant opportunity to ensure the river's long-term health, increase climate change resilience for human communities and improve inputs to marine ecosystems from the Brunswick River if consistent and scaled restoration effort is applied as soon as possible.

Want to get involved?

Email: info@pcfml.org.au
www.pcfml.org.au

Acknowledgments

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We have adapted the methodology developed by River Ecology Australia and identification guides from Bellingen Riverwatch, allowing us to compare data across catchments.

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NRCF we help you help others

Ubuntu Foundation

FRRR Foundation for Rural Regional Renewal

NSW GOVERNMENT

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