

Our Waterway Health

2022/23



Our Waterways

The Nepean River and Wianamatta South Creek are the two main waterways in the Camden Local Government Area (LGA). These iconic waterways, and the creeks that feed into them, support wildlife, recreation, green spaces, urban areas and even the local economy. Both waterways and their catchments drain to the Hawkesbury River, over 40 kilometres away.

The transformation of rural land into urban areas with hard surfaces (roofs, footpaths, driveways and roads) means less rainwater is absorbed into the ground. During rain events, the increased volume of fast-moving urban runoff (stormwater) collects pollutants from these surfaces and carries them into stormwater drains and eventually our local waterways.

Many people aren't aware that stormwater is collected separately to sewage, which means that it's not usually treated before entering waterways. This is why it's so important to keep pollutants out of our stormwater drains.

During World Rivers Day celebrations, Council asked the community what you love about your local waterway, and we received passionate answers, including a "safe walking track with so many birds and views" and "a beautiful place to sit back and relax".

Our waterways are an important part of the community and ecosystems of Camden, and together we can see them thrive.

This artwork celebrates the strength, unity, community, and teamwork shared between the Dharawal, Dharug and Gundungurra people to care for Country in and around Camden and along the Nepean River.

Artist: Melissa Barton

Camden Council acknowledges the Dharawal Peoples as the Traditional Custodians of our lands and waterways, and also recognises the Dharug and Gundungurra Nations. We pay our respects to Elders past, present and emerging and to all Aboriginal and Torres Strait Islander Peoples on these lands.



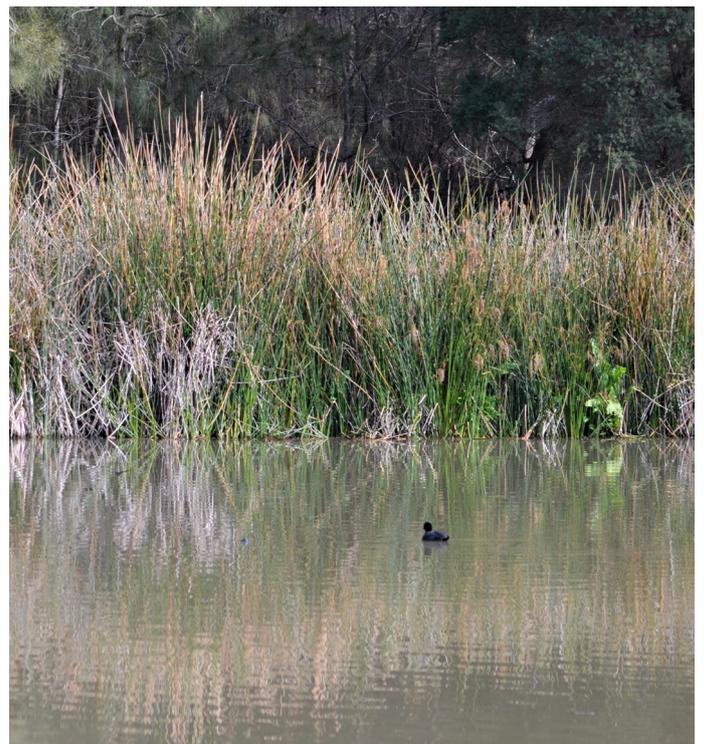
Projects in the flow

Council is committed to protecting our natural environment by improving the health of our waterways. We are working towards this through a variety of on-ground projects, data collection, asset maintenance and management, and education.

Update on Harrington Park Floating Wetland

In 2020, Council installed a floating wetland raft in Harrington Park Wetlands to help remove nutrients, sediment, heavy metals and some hydrocarbons from stormwater. The floating wetland raft was planted with native wetland plants that also provide habitat to aquatic wildlife. These works were funded by the Australian Government's Communities Environment Program and can be seen at the end of Dillon Court, Harrington Park.

Through regular water quality testing at the Harrington Park Wetlands over three years, the site has seen total phosphorous levels stabilise and total nitrogen levels reduce. The wetland plants on the floating wetland raft continue to thrive, provide habitat to wildlife, and improve on the quality of water in Narellan Creek.





Sediment and erosion control

Erosion and sediment can degrade the water quality and health of local waterways, so it is essential that control measures are effectively used to help prevent sediment and debris from leaving development sites and entering stormwater drains and our waterways.

During 2022/23, Council undertook 1,990 inspections of the sediment and erosion control measures at 1,280 building sites within the Camden LGA. As a result, 858 formal warning letters were issued for site improvements to builders and developers.

Stormwater assets

Rainwater that runs off driveways, roads, roofs, car parks, footpaths and gardens is known as stormwater. Council uses Water Sensitive Urban Design (WSUD) to improve water quality and control water quantity before it reaches our waterways.

In 2022/23 Council took ownership of eight new gross pollutant traps (GPTs) bringing the total to 332 across the LGA, and now maintains 130 basins to detain and filter stormwater.

Council maintains 809 kilometres of stormwater pipes across the LGA. That's the same distance as Sydney to Tweed Heads



Waterway Walks

There are three Waterway Walks in the LGA that take you on a self-guided tour of the natural and constructed features that help keep our waterways clean and healthy.

You can find a Waterway Walk at:

- Kolombo Creek, Oran Park;
- Narellan Creek, Harrington Park; and
- Narellan Creek, Mount Annan.

There are also bingo cards for each Waterway Walk that make the walk an even more engaging experience for you and your family.

All three Waterway Walks and bingo cards can be downloaded off the Camden Council [website](http://www.camden.nsw.gov.au).

Want in on a secret? An extra special Waterway Walk is on its way!

WSUD Operational Guidelines

To better understand stormwater treatment measures and provide clarity for Council and the community on how these should be maintained, Council developed the Water Sensitive Urban Design (WSUD) Operational Guidelines.

This document identifies the twelve main types of WSUD treatment assets and helps our teams responsible for Council's parks, street sweeping and reserves to maintain these important assets.

If you have a rainwater tank or other stormwater asset, this document will also help guide you on how to best operate it.

You can view the document on Council's [website](#).



Platypus monitoring

Council's Platypus environmental DNA (eDNA) Monitoring Program for the Nepean River and its tributaries, will continue after disappointing post-flood results in February 2023. Council is looking to the next round of sampling results to detect the presence of platypus in our waterways.

If you see a platypus, please report your sighting by contacting Council or the Australian Platypus Conservancy.

Platypus cover their eyes and ears when they swim underwater, so they use receptors on their bill to detect and catch food.

Bushcare

Bushcare is a great way to make a difference to the local environment. Camden Council staff participate in a monthly Bushcare event with activities including:

- Weed removal;
- Planting native species; and
- Removing litter from bushland and creek lines.

With seven Bushcare groups working in the Camden LGA, community members can also get involved by volunteering to help maintain our bushland sites and reserves.

Check out Camden's [website](#) for more information and to register your interest.



Bushcare volunteers contributed over 1,200 hours to restoring local bushland between July 2022 and June 2023.

Priority weeds program

Council manages aquatic weeds throughout the Camden LGA, working with landholders and neighbouring councils to protect the Nepean River and local waterways.

Aquatic weeds have the ability to cover waterbodies, suffocate native vegetation and negatively impact water quality, so it is important to report any aquatic weed sightings to Council.

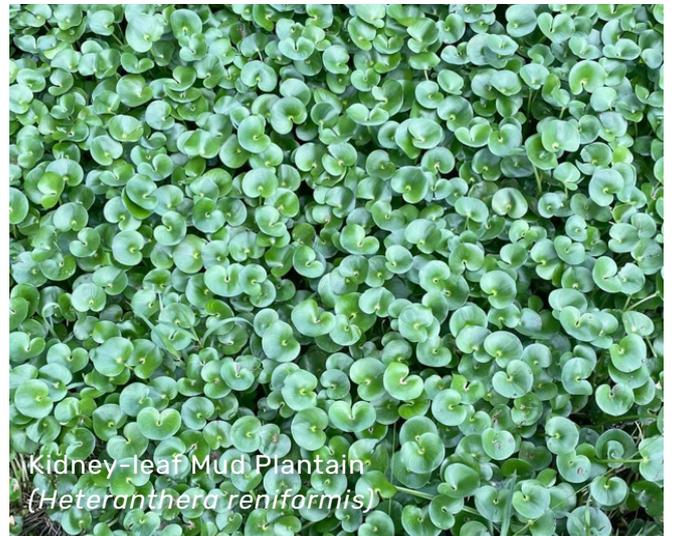
27.5 hectares and 134 kilometres of aquatic areas such as rivers, creeks, lakes and dams on both private and public land were inspected in 2022/23. These inspections targeted priority aquatic weeds such as Alligator Weed, Frogbit, Kidney-leaf Mud Plantain, Ludwigia, and Salvinia.



Salvinia
(*Salvinia molesta*)

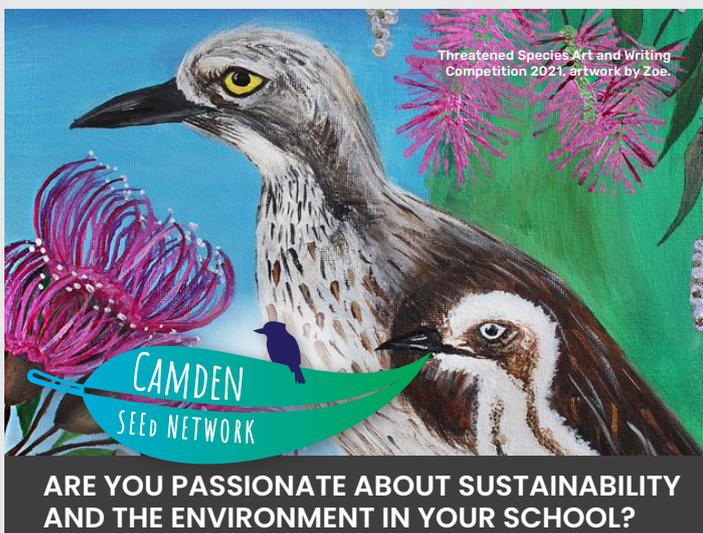


Alligator Weed
(*Alternanthera philoxeroides*)



Kidney-leaf Mud Plantain
(*Heteranthera reniformis*)

468 site inspections were undertaken at public and private properties from small residential lots through to agricultural land. Surveillance of 247 kilometres of high-risk vector pathways such as roads and waterways was completed during the program in 2022/23.



Camden SEED Network

The Camden Sustainability and Environmental Educators (SEED) Network is a forum for primary and secondary school educators in the Camden Local Government Area to connect, share knowledge, resources, opportunities and inspire others around sustainability issues, including stormwater.

Visit our [website](#) to explore the full list of school resources and see the dates for the Camden SEED Network meetings held during each school term.



Projects in the creekline

Council is actively working to improve our waterways and associated stormwater drainage systems. These projects will deliver on-ground improvements, assist with data collection, asset maintenance and management, and engage and educate our community.



Nepean River bank stabilisation at Ferguson's Land

The Nepean River was significantly impacted by flooding in 2022 and resulted in a loss of native vegetation, bank erosion, and a high nutrient load entering our waterways.

Sydney Water, in partnership with Council, started on the restoration of a 200-metre section of the riverbank at Ferguson's Land. The restoration will prevent excess nutrients from entering the river, while the installation of natural stabilisation structures will prevent damage to the bank by future floods. Woody weeds at the site will also be replaced with native River-Flat Eucalypt Forest (RFEF).

These works were led by the NSW Government Soil Conservation Service and incorporated diverted waste materials provided by the Transport for NSW M12 project. The project stabilisation works and native planting was completed in November 2023.

Recent LiDAR measurements show that more than 7,000m³ of sediment was lost from the Ferguson's Land site during May 2022 to July 2023 due to flooding and erosion; that's enough to fill 23,248 bathtubs full of dirt.

Nepean River Bass habitat at Spring Farm

Council recently completed works on the Nepean River to install fish habitat and erosion control structures to promote the increase in population and passage of native Australian Bass.

Some cool facts:

- Around 80 tonnes of salvaged rock and over 40 hardwood timber logs were installed as fish habitat and erosion control. These materials were sourced from the Transport for NSW M12 project and provided a great opportunity to effectively reuse waste for best practice river restoration;
- The fish habitat structures also provide stability to the river bank toe and improve hydraulic diversity; and
- Over 700 native groundcovers, shrubs and canopy species, unique to RFEF, were used to help stabilise the bank and provide habitat.

This project was assisted by NSW Department of Primary Industries Fisheries' Recreational Fishing Trust's "Habitat Action Grant Program", which is financed from funds generated through collection of the recreation fishing licence fee in NSW.

The full project works will be completed by December 2023.



River-Flat Eucalypt Forest (RFEF) is recognised as an Endangered Ecological Community which can be found across coastal floodplains and river flats in NSW and Victoria. There is now less than 30% of the original area remaining due to land clearing and the impacts of weeds and pest animals.



Creek restoration at Elizabeth Macarthur Reserve

Council has partnered with Sydney Water and Downer BMD Joint Venture to remove weeds and restore native vegetation along the creekline in Elizabeth Macarthur Reserve.

Woody weed removal took place using a mechanical tritter in June 2023, with the material mulched and left in place on the bank to prevent erosion and the regrowth of weeds. The site was then prepared for planting of 3,000 native grasses, shrubs and trees to restore the original pre-European plant community of RFEF.

Bringelly Reserve Riparian Improvement Works

Bringelly Reserve includes open space, a creek tributary and environmentally sensitive land where the remnant native vegetation comprises of RFEF.

The Reserve is within, and part of, the Upper Wianamatta South Creek Floodplain which discharges stormwater north to the Transport for NSW drainage channel at Bringelly Road.

The Reserve was overgrown with woody weeds as well as the sporadic accumulation of debris and organic material in the creek line which may have been contributing to the inundation of adjoining properties during high intensity rain events.

A contractor was engaged to remove woody weeds and sediment from the creek line to improve the environmental sustainability of the site. Planting of the banks will be undertaken to provide further soil stability.



Narellan Creek Water Quality Improvement Project

Through a Deed of Agreement with Sydney Water, Council received \$200,000 to undertake works to improve the water quality and amenity of the Narellan Creek Water Quality Management System.

The key existing water quality feature in the Narellan Creek catchment is the Harrington Park Lake system which was built in the late 1990's. Additional lake systems were constructed in the early 2000's which completed the Narellan Creek Water Quality Management System.

Consultants have reviewed water quality issues, catchment threats and hot spots that are contributing to current poor water quality and have identified and recommended actions to improve water quality in the Harrington Park Lake system. The focus of short term actions is to reduce observed water quality impacts, whilst the long term actions are targeted at sustaining a long term improvement in water quality.

This independent report is being considered with short term actions to be prioritised for implementation in the coming year.

NSW Public Spaces Legacy Program

The NSW Public Spaces Legacy Program (PSLP) is a significant investment in high quality public open space. In May 2021, Council was awarded \$5.1 million through this grant program to deliver an almost 4.3 kilometre extension to the current recreational pathway network to connect the Nepean River to Camden's main street via Camden Town Farm, Ferguson's Land, and the Bicentennial Equestrian Park.

Council has completed the design and consultation phases of the project and are currently delivering a range of works expected to be completed by December 2023.



Threatened Species Art and Writing Competition 2023 - Highly Commended
"Blue-billed Duck" artwork by Addison



Projects in the pipeline

Some of Council’s projects are in their initial stages and are being developed into high quality projects. These projects will deliver water quality improvements and increased amenity to the Camden community.

Nepean River Bank Restoration Project

The banks of the Nepean River were significantly impacted by flooding in March, April and July 2022, as well as in March 2021 and February 2020.

These eroding banks are encroaching on some public assets, such as the Nepean River Cycleway and Rotary Cowpasture Reserve.

With funding from the NSW Environmental Trust Restoration and Rehabilitation grant program, Council will be stabilising sections of the river bank.

This will include restoration of RFEF through woody weed control, and revegetation with native species, including the Critically Endangered species Camden White Gum (*Eucalyptus benthamii*).



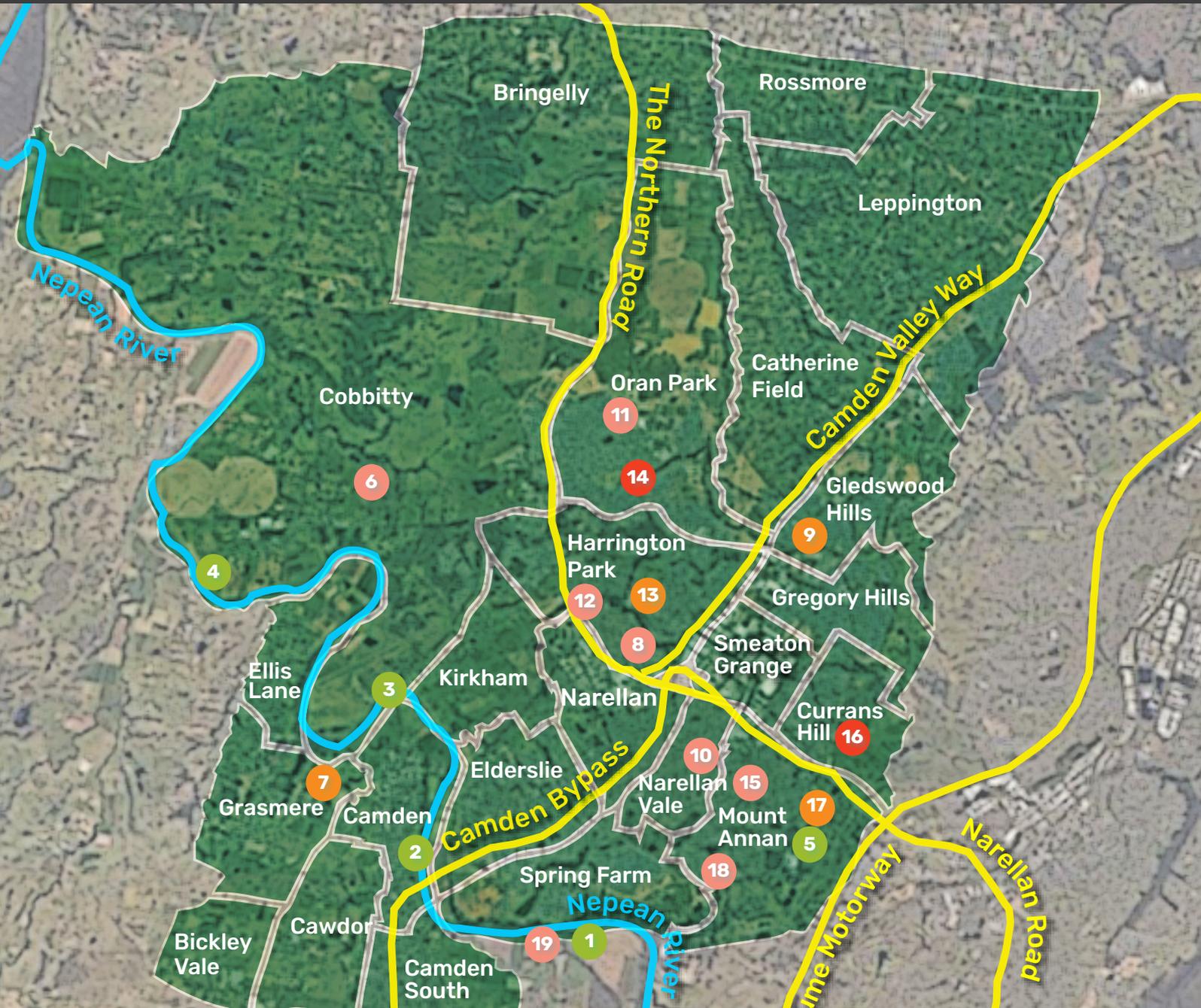
As the Nepean River supports a wide diversity of plants, animals, threatened ecological communities and threatened plant species, it is a key biodiversity corridor in the Camden LGA. The completion of the project will also have a community engagement program and an event to celebrate World Rivers Day 2024.

LEGEND

-  Waterway
-  Major road
-  Monitoring site

What does an A (excellent) grade waterway look like?
 A waterway in excellent condition is within water quality guidelines almost all the time, has a rich and dense native vegetated riparian corridor and hosts pollution sensitive water bugs. Often these waterways are not impacted by stormwater, modified land use or urban development and are found in pristine environments, like national parks.
 With the impacts of recent flooding and increasing urban development, it is important to protect our waterways by limiting our impact on stormwater quality.

Council generally advises against primary contact (e.g. swimming) with water from our waterways due to water quality variability from the surrounding urban environment.



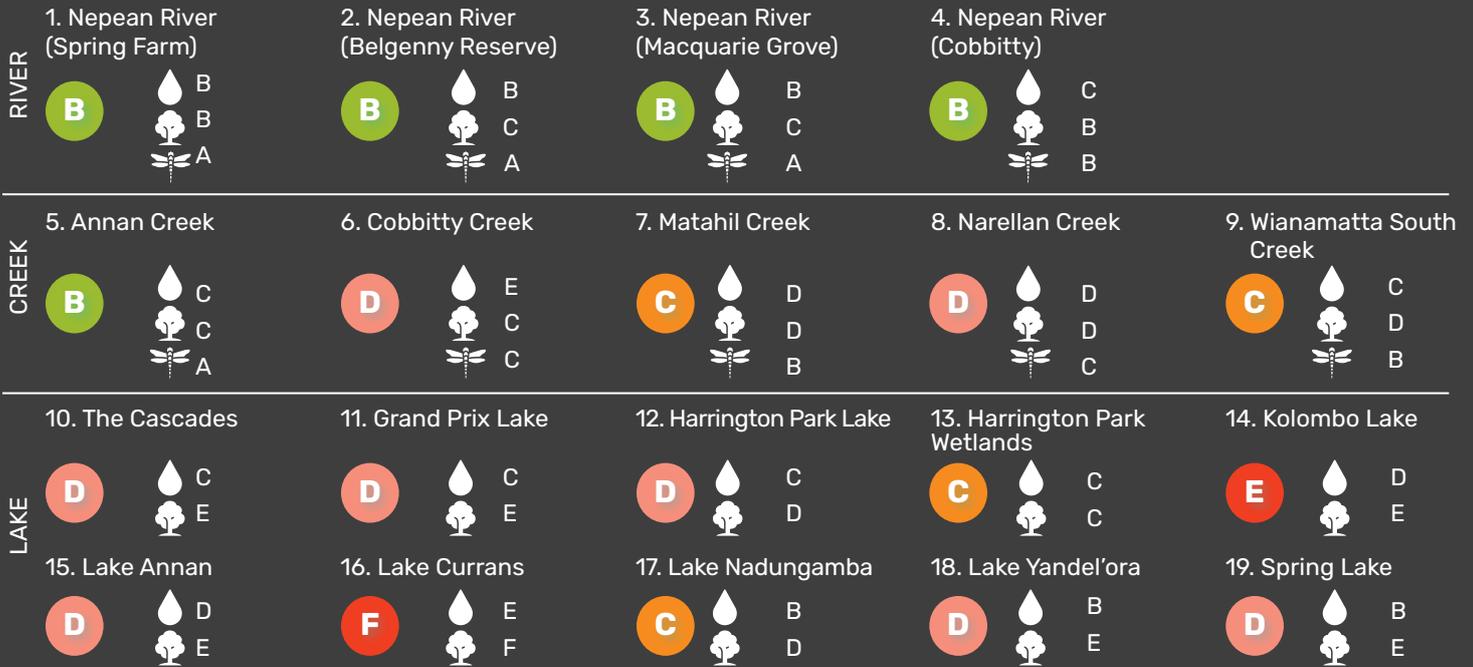
Why have the grades changed from last year?

This year's waterway results show improvements over last year in our priority natural waterways. All four Nepean River sites received an overall waterway health grade of B (good), with improvement in the Nepean River, Macquarie Grove site. There was also improved grades from Poor in 2021/22 to Fair this year for Matahil Creek and Wianamatta South Creek.

There have been less extreme rainfall events when compared to the previous three years which has provided reprieve and

time for stream banks and riparian vegetation to recover. This year's smaller rain events have allowed the flow of cleaner water, effectively "flushing" our waterways and promoting some natural recovery including the return of pollution sensitive water bugs.

Council's waterway projects are also supporting ongoing recovery of the Nepean River and tributaries following flood events in recent history, and work will continue to improve the health of waterways in the Camden LGA.



Waterway health grades

The waterway health grades are an average of these parameters:

Water quality

This grading is based on the physical, chemical and microbiological characteristics of the water in our waterways such as nutrients, pH, salinity, turbidity, dissolved oxygen and bacteria.

Riparian health

A healthy riparian area is important to waterway health as it provides shade and bank stability, as well as habitat for land and aquatic animals. The riparian health grading is a measure of the level of disturbance and the habitat potential of the riparian area.

Water bugs

Water bugs (or aquatic macroinvertebrates) are the small creatures that live in our waterways. The amount and type of water bugs can tell us how healthy a waterway is. This is only measured at the river and creek sites.

| | | |
|-------------|-----------|---|
| A | Excellent | A waterway in excellent condition has water quality parameters within guidelines almost all of the time. The riparian area is rich and dense in native vegetation and pollution sensitive water bugs are present. |
| B | Good | A waterway in good condition has water quality parameters within guidelines most of the time. The riparian area has native vegetation with scattered weed growth and some pollution sensitive water bugs are absent. |
| C | Fair | A waterway in fair condition has water quality parameters within guidelines some of the time. The riparian area lacks native vegetation and likely has weeds and turfed areas. The water bugs present are pollution tolerant. |
| D | Poor | A waterway in poor condition has water quality parameters within guidelines half of the time. The riparian area lacks native vegetation, likely has weeds and turfed areas and is close to urban areas. The water bugs lack diversity and are pollution tolerant. |
| E, F | Degraded | A waterway in a degraded condition has water quality parameters outside guidelines most of the time. The riparian area is heavily degraded with weed species, turf and urban areas and the limited water bugs are pollution tolerant. |



Nepean River biodiversity corridor

The Nepean River flows 29 kilometres through the Camden LGA and is a biodiversity corridor that supports a wide diversity of plants, animals, threatened ecological communities, and threatened plant species.

While much of the pre-European native vegetation within the Camden area has been altered due to development and agriculture, this important corridor connects larger habitat patches, allowing for the movement of native plants and animals that cannot easily move through urban environments.

Council aims to improve the biodiversity values of the corridor and manage remnant vegetation on public lands, however the majority of vegetation is located on private land. Council developed the *Caring for the Nepean River: A guide for the Camden Community* to help local land holders understand what they can do to protect the integrity of the river corridor for aquatic and terrestrial animals and plants.

Did you know?

Biodiversity surveys carried out in April 2020 identified two threatened plant species in the Nepean River Corridor, the Camden White Gum (*Eucalyptus benthamii*), and Brown Pomaderris (*Pomaderris brunnea*). Eight threatened animal species were also sighted in the corridor, including the Critically Endangered Swift Parrot (*Lathamus discolor*).





Powerful Owl (*Ninox strenua*)

Inhabiting woodlands and forests, during the day these predators can be found roosting in sheltered trees in areas along the Nepean River while at night they hunt for small marsupials and birds.

Powerful Owls are listed as a Vulnerable species in NSW and continue to experience impacts from habitat fragmentation, land clearing and predation by dogs, cats and foxes.

The Powerful Owl Project by Birdlife Australia aims to monitor owl populations and inform conservation efforts to protect this magnificent species.

Bare-nosed Wombat (*Vombatus ursinus*)

As the largest burrowing herbivores in the world, wombats are known as ecosystem engineers because they dig and turn over soil, modifying the landscape to create their burrows and look for food.

Wombats are found within riparian areas throughout the Camden LGA and can often be spotted at dawn and dusk foraging for food. Due to urban expansion wombats are frequently involved in vehicle strikes and are also at a greater risk of exposure to an infectious disease called mange. If you come across an injured or distressed wombat, please contact your local wildlife rescue group.





We can all help improve local water quality by making small changes in our everyday lives that protect our beautiful waterways. Take the Be the Solution to Stormwater Pollution pledge and commit to five changes that make a positive impact on stormwater quality.

| Garden | Home | Neighbourhood |
|--|--|---|
| <ul style="list-style-type: none"> Sweep up leaves and grass clippings and place in the green bin or compost; | <ul style="list-style-type: none"> Refuse and reduce single use items; | <ul style="list-style-type: none"> Report illegal dumping and building sites without sediment controls to Council; |
| <ul style="list-style-type: none"> Limit fertiliser and pesticide use; | <ul style="list-style-type: none"> Put rubbish in the bin; | <ul style="list-style-type: none"> Don't be a tosser and put rubbish in the bin; |
| <ul style="list-style-type: none"> Wash your car on the lawn or at a designated car wash station; | <ul style="list-style-type: none"> Safely dispose of household chemicals; and | <ul style="list-style-type: none"> Be a responsible pet owner and pick up after your dog; |
| <ul style="list-style-type: none"> Keep your soil, sediment and mulch on site; | <ul style="list-style-type: none"> Install a rainwater tank. | <ul style="list-style-type: none"> Carefully dispose of fishing lines and hooks; and |
| <ul style="list-style-type: none"> Plant native plants and retain trees and other vegetation; and | | <ul style="list-style-type: none"> Don't feed the wildlife. |
| <ul style="list-style-type: none"> Minimise the amount of hard surfaces such as pavers and concrete. | | |



BE THE SOLUTION TO STORMWATER POLLUTION

WILL YOU BE PART OF THE SOLUTION?



Scan me!

To take the Pledge, scan the QR code or go to camden.nsw.gov.au and search 'Be the Solution to Stormwater Pollution'.



On cover: A variety of wetland plants at Wetlands Reserve, Camden.

