

Waterways and Wetlands

Waterways and wetlands include the creeks, drainage lines, ephemeral wetlands and swamps found in the valleys and floodplains in Nillumbik.

All the main waterways in Nillumbik rise in Kinglake National Park. Diamond Creek, Arthurs Creek and Watsons Creek form the main channels and each has many small feeder tributaries. This creek system is a major source of water for the Yarra River and, with the Plenty River, forms the southern and parts of the western boundary of the Shire.

Many swamps and wetlands were converted to pasture in the past, but a few natural swamps remain and others have been recreated.

Why waterways and wetlands are important

Waterways act as arteries through our landscape, carrying life-giving water from the slopes of the Kinglake Range to the Yarra River. Along with wetlands, swamps and bogs, they provide essential habitat and support myriad plants and animals, particularly in dry times, and supply our groundwater reserves.

Wurundjeri Traditional Owners have a strong spiritual connection to Nillumbik's waterways and wetlands. Our local community today depends on waterways and wetlands for stock water and irrigation, and for many they are important places to relax and enjoy nature.

Sugarloaf Reservoir in Christmas Hills supplies the northern, western and central suburbs of Melbourne with high-quality drinking water. The condition of Nillumbik's waterways is an indicator of the health of their catchments and our broader natural environment.





What healthy waterways and wetlands look like

Healthy creeks and wetlands have clear to tannin-stained water, and a natural flow regime with seasonal flooding and drying. They run between stable banks under the shade of gums, native shrubs, rushes, ferns and grasses.

In deeper, slow-moving water, submerged rocks and logs, and aquatic plants like Water Ribbon create shelter and food for native fish and other animals, including the larval stage of many insects. Stream-side vegetation adds leaf litter and organic debris to the system, providing energy that supports the aquatic food webs. Platypus and Rakali feed in the creek or along the banks. Native blackfish, galaxias, eels and crayfish abound in the creek itself, and can migrate up and down the stream as needed to meet their respective breeding requirements. Healthy wetlands have a range of water depths, are fringed by natives rushes and sedges, and are not overly shaded by taller vegetation.

Shallower parts naturally dry out in summer and deeper parts support a mix of emergent water plants. There is abundant food, shelter and breeding areas for native tortoises, frogs, fish and water bugs. Ducks, grebes, cormorants, herons and egrets feed on the frogs and aquatic animals. Dragonflies and damselflies dance across the water in warmer months, and bats and swallows skim the surface to drink. In the evening flocks of birds descend to drink.

The rare Southern Toadlet favours small, ephemeral ponds, while the Growling Grass Frog prefers deeper wetlands.

The threats to our waterways and wetlands

Lack of knowledge, skills & resources

Land owners lucky enough to have waterways or wetlands on their land may not be aware of the importance of protecting fringing native vegetation, keeping stock out of creek-lines and natural soaks, and removing trees such as willows and other weeds.

Farm dams and water extraction

Farm dams and extraction of water (including groundwater) reduce creek volumes and flows. This can lead to higher water temperatures which have lower oxygen levels and reduce the creek's capacity to sustain life. It also reduces deep water refuges needed by larger animals such as native fish and platypus.

Clearing or lack of streamside vegetation

The loss of, or insufficient, stream-side vegetation elevates water temperatures and reduces oxygen levels, adversely affecting aquatic species. It also increases bank instability and erosion, and means fewer leaves and woody debris are shed into the water depriving aquatic species of food and shelter.

What we can do to keep them healthy

Build skills, share information and provide resources

- Equip land owners with the knowledge and skills to protect stream banks and control weed species.
- Provide incentives and support for riparian and dam re-vegetation, stock-exclusion fencing and off-stream troughs for stock.
- Increase community understanding of the potential impacts of farm dams and over extraction of water.

Reduce extraction and manage the impact of dams

- Monitor and regulate commercial extraction and building of new dams.
- Provide financial incentives for the removal of dams that are no longer needed, or conversion to 'leaky dams'.

Protect and/or replace streamside vegetation

- Replant indigenous species along and beyond the creek banks to restore a wide corridor of streamside vegetation.
- Use fences to protect the plantings where stock are present.
- Vegetate farm dams with wetland plants so they can be a substitute for lost wetlands and provide habitat for a number of wetland species.

The threats to our waterways and wetlands

High flows, sediment and nutrient runoff

During storms and heavy rain, surface runoff can carry high loads of soil and litter into waterways and wetlands from unsealed roads, compacted soils and areas disturbed by earthworks, over-grazing and clearing. It can also cause excessive erosion of gullies and stream banks.

This sediment smothers water plants, and clouds the water creating a light- and oxygen-poor environment unsuitable to many plants and animals.

Fertilisers in excess of crop or pasture needs can wash into creeks and wetlands and cause deoxygenation and toxic algal blooms.

Access of hard-hoofed stock and pest animals

When hard-hoofed animals such as cattle, sheep and Sambar deer can directly access streams or wetlands, they trample stream banks and stream-side vegetation. Sambar deer also create mud wallows and graze heavily on native shrubs, particularly along the creek corridors.

Invasion by woody, herbaceous and aquatic weeds

The roots of woody weeds such as Willow and Poplar clog the stream bed, and their leaves rot quickly reducing oxygen in the water. Weeds in the riparian zone, such as Blackberry, Angled Onion, Watsonia, and Wandering Tradescantia can readily out compete native species. Aquatic weeds such as Parrots Feather and Water Hyacinth can choke wetlands and pools.

What we can do to keep them healthy

Reduce sediment and nutrient runoff and protect creeks from storm runoff

- Re-vegetate stream banks with indigenous riparian species to create a wide vegetation corridor that can slow surface flows, increase infiltration, and trap silt and nutrients before they reach the creek or wetland.
- Plant indigenous shrubs and grasses thickly along unsealed tracks and roads that are near creeks and wetlands to trap or divert storm water and its load of silt.
- On adjacent farmland, maintain good groundcover and match fertiliser use to crop needs to reduce contaminants entering the waterway.
- Treat and manage areas of active soil erosion.
- Minimise the use of impervious surface treatments in the catchments
- Use swales and retarding basins to slow flows coming off areas with high levels of impervious surfacing

Prevent access by stock and deer

- Use exclusion fencing and off-stream watering points to water stock, and use fencing to block strategic routes and access points for deer.
- Take a collaborative approach across public and private land to managing deer numbers and impact.

Minimise the impact of invasive weeds

- Focus control efforts for woody and herbaceous weeds where they threaten the higher quality reaches of the creek system, especially the upper reaches of the catchment.
- Aim to eradicate any new invasions of high threat aquatic weeds and prioritise other areas as resources allow.
- Use education and incentives to support weed control by property owners, and regulation to help manage weed issues on unoccupied properties.