

The Importance of Wetlands

Over the last 200 years or so, the number of wetlands in New Zealand has been reduced by over 90%. Along with this has been a significant depletion of a vast diversity of plants and animals. This is due to urban expansion and the pressure to increase agriculture production. In today's environment wetlands can play a critical role in the intensifying farm system, by improving water quality and acting as a water storage and flow regulator.

A wetland can be a coastal estuary or lagoon, a freshwater lagoon, a braided river, a swamp or marsh, a high mountain bog or a large stock water dam. Often they are just the border between dryland and open water, or boggy areas where water collects. Some wetlands are temporarily wet, drying out between tides, rainfall or floods, and others are permanently wet.

Probably the most distinctive feature for identifying the areas of wetland; is that in their natural state they are characterized by plants and animals that are specially adapted to living in wet conditions. Well known plants such as raupo, sedges, rushes, kahikatea and mangroves, and animals such as duck, swan, pukeko, heron, shag, frogs, dragon flies and eels are all associated with wetlands.

Wetlands are important for New Zealand farming systems for the following reasons:

1. Water quality

Biological, chemical and physical processes occurring in wetlands all alter water quality as water flows through it. Flow rates are slowed down which allow sediment particles to settle out improving water clarity. Plant surfaces (leaves, stems and roots) offer sites for microbial activity provide for filtration and absorption and add oxygen to water. The absorption and removal of nutrients, particularly nitrogen and phosphate from farming systems provides the greatest benefit for water quality. These improvements in water quality that wetlands can achieve, has led to utilizing natural and artificial wetlands as a cost effective option for treatment of wastewater.

2. Water storage and flow regulator

Wetlands are nature's sponge during storm events. The storage capacity of a wetland will detain floodwater with the peak flows and water levels downstream evening out as it is slowly released from the area.

The slow release of water from a wetland maintains stream flows and ground water levels during summer or periods of drought. Plants such as sphagnum moss can absorb up to 26 times their own weight of water; peat can absorb up to 10 times, which during dry periods the water is then slowly released.

3. Aesthetic value

Wetlands can also provide landscape and scenery values, food production, information for science and education, recreation and tourism opportunities. Wetlands provide a diversity of vegetation and wildlife in the area, and are a food source for animals passing through the area. Many enjoy the benefit of wetlands over duck shooting season, and utilize the food source from both fish and birdlife provided from the wetland species. Wetlands provide a range of recreational activities for all ages, as well as providing educational opportunities.

Wetland management

Managing these wet areas is dependent on the objectives for the wetland. If for example, the objective is to attract water fowl, the aim would be to provide a mix of open water, cover vegetation and food sources. These will all vary depending on the species of waterfowl and the time of the year you wish to attract them. If the objective is to protect a threatened plant or animal species or a particular type of wetland, the aim maybe to keep things the way they are. If the objective is for nutrient stripping, the aim will be to ensure the right sorts of plants are present and the water flow rate through the areas is appropriate.

Often the first recommendation for enhancing a wetland, irrespective of its objectives, is to fence it off and protect the vegetation. Grazing around wetland margins has several disadvantages and advantages. The disadvantages are:

- Erosion of the banks at the waters edge
- The trampling of soft ground

- The discharge of high concentrations of nutrients (urine & dung) directly into the water
- The trampling of whitebait spawning areas
- The introduction of unwanted plants
- The removal of desirable vegetation (i.e. vegetation providing habitats for wildlife, nesting sites and cover for birds, and spawning sites for fish)

The advantages are:

- The maintenance of open areas for waterfowl, waders and human activity
- The control of unwanted or dominating plants.

There are many organizations out there that are only too happy to advise, develop and manage wetland areas. Some organizations such as QEII Trust, Fish & Game and Ducks Unlimited may be able to help with funding for protection and enhancement.

Wetlands are a great asset for intensive farming systems of today. They will provide you with many on and off site benefits. They are great for enhancing water quality by nutrient stripping and filtering sediment and are excellent at regulating storm flows. Wetlands also create areas that have great recreational opportunities and provide diversity on the farm.