1.12 Buffers for nitrogen

Most nitrogen (N) is lost to surface water through overland flow and to groundwater by leaching of nitrate (NO₃). Plant uptake of N generally does not result in permanent removal as N is eventually returned to the soil upon death and decay of plants unless harvested (see section 1.26).

Denitrification is the primary process for permanently removing N with a buffer. In denitrification, anaerobic bacteria transform nitrate to nitrogen gas (N₂) which is released into the atmosphere. Below are some key site characteristics that promote effective denitrification with buffers.

Key design considerations

- Soils should be rich in organic matter, often provided by decaying plant material.
- Soils need to be wet or hydric.
- Soils should have moderate to high permeability to encourage infiltration and yet should be poorly drained to have anaerobic conditions. Deep coarse sands or gravel may allow dispersion to deeper groundwaters before denitrification occurs.
- Low temperatures and acidic soils will inhibit denitrification.
- See section 1.19 for buffer width recommendations for surface N runoff.
- See section 1.15 for shallow groundwater flow.
1.12 References


1.12 Water Quality


1.12 Water Quality


1.12 Water Quality


1.12 Water Quality
The text contains multiple references to scientific articles and studies on the topic of riparian systems and water quality. Here is a list of the references:


1.12 Water Quality


1.12 Water Quality
1.12 Water Quality
1.12 Water Quality


1.12 Water Quality