

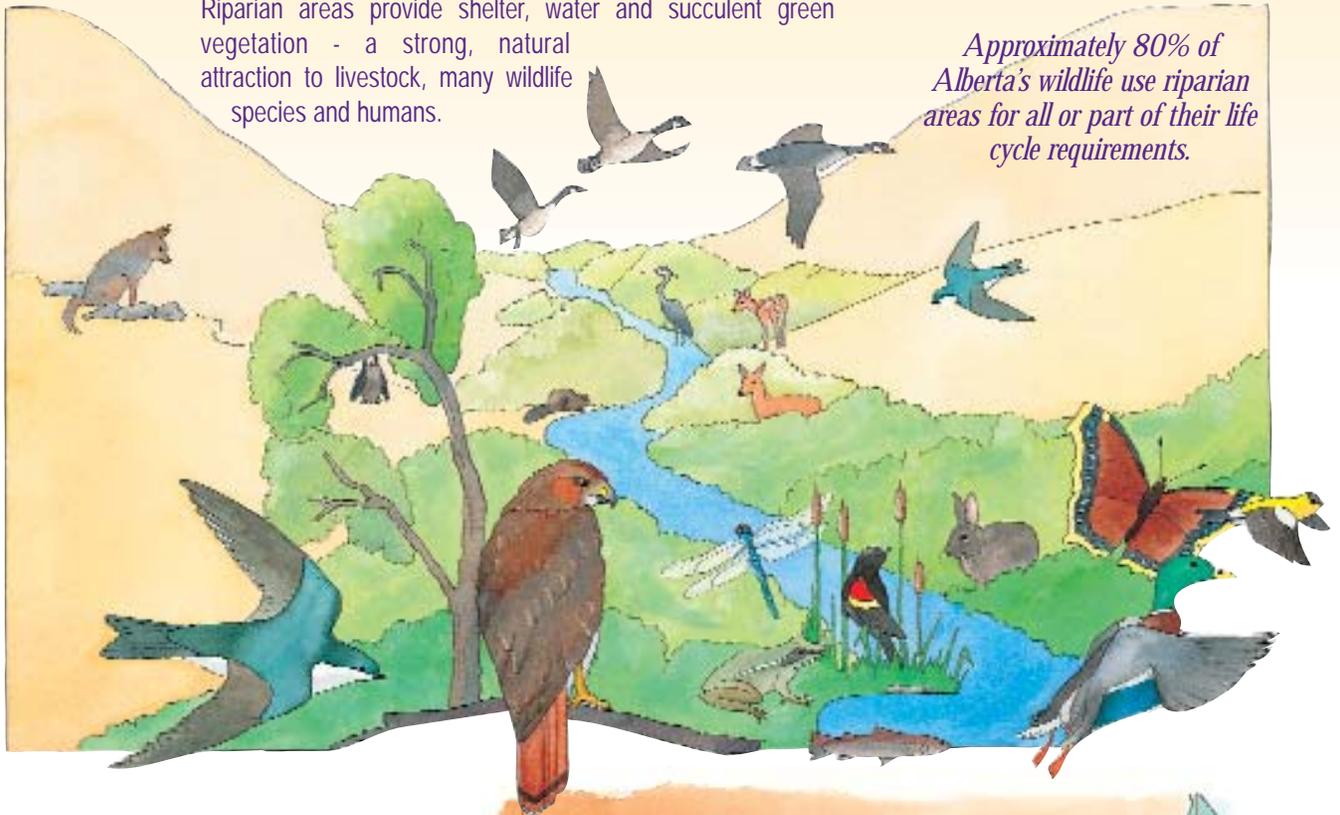
Riparian Areas

A Magnet for Livestock and Wildlife

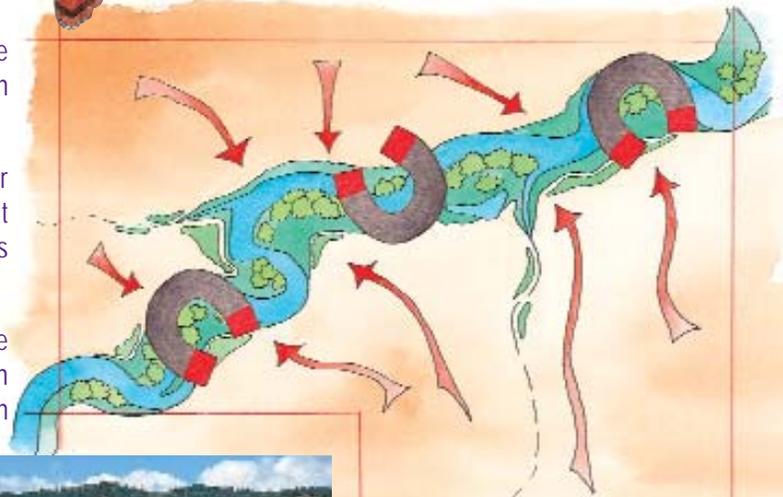
Life in the Green Zone

Riparian areas provide shelter, water and succulent green vegetation - a strong, natural attraction to livestock, many wildlife species and humans.

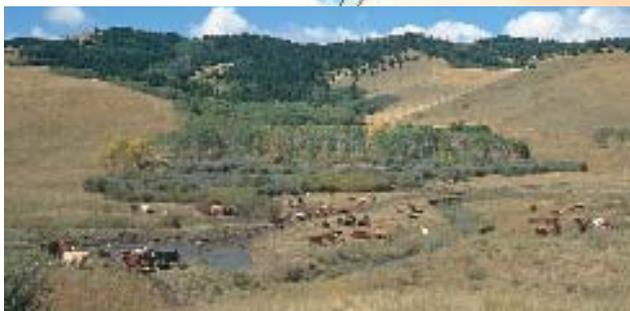
Approximately 80% of Alberta's wildlife use riparian areas for all or part of their life cycle requirements.



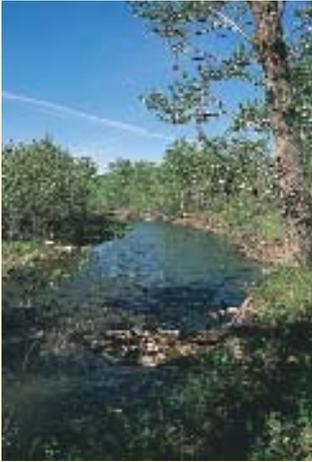
- ◆ During dry periods, the normal difference between upland forage and riparian vegetation is magnified even more.
- ◆ Riparian areas are attractive places for wildlife, humans and livestock; that attraction increases as upland areas become drier.
- ◆ Riparian areas are essential wildlife corridors, travel routes, connectors between different habitats and stop-overs on migration.



Arrows show the magnetic influence of riparian areas on wildlife and livestock distribution.



Well-managed Riparian Area:



The riparian area has layers of shrubs and trees, of all ages, plus a dense growth of deep-rooted grasses, forbs and sedges. Stream channels are narrow and deep; fish and other aquatic animals find many homes in these channels. Wildlife is attracted to the diversity of habitats for nesting and foraging. Livestock find abundant forage, water and shelter.



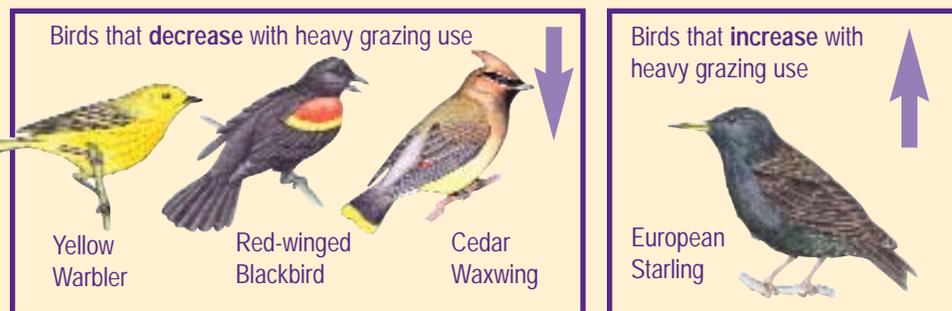
Poorly-managed Riparian Area:



Too much use of the streamside or lakeshore alters or eliminates vegetation, the glue of riparian areas. Stream channels become wider and shallower, the water warmer and species like trout disappear. When the remaining mature trees die, few, if any, younger ones replace them. The site becomes drier, resembling upland areas. Wildlife find fewer places to live, and forage and shelter for livestock declines.



Heavy grazing, over many years, can remove the lower layers of vegetation, especially younger trees and the shrub component, which form key habitat for birds and other wildlife. That's why native bird populations are 2 - 3 times higher in healthy riparian areas compared to heavily grazed riparian pastures. Careful grazing management provides shelter for wildlife and livestock.



Response of some bird species to heavy grazing (from a summary of six Alberta and Saskatchewan studies).

Fish - Riparian Life of Another Type

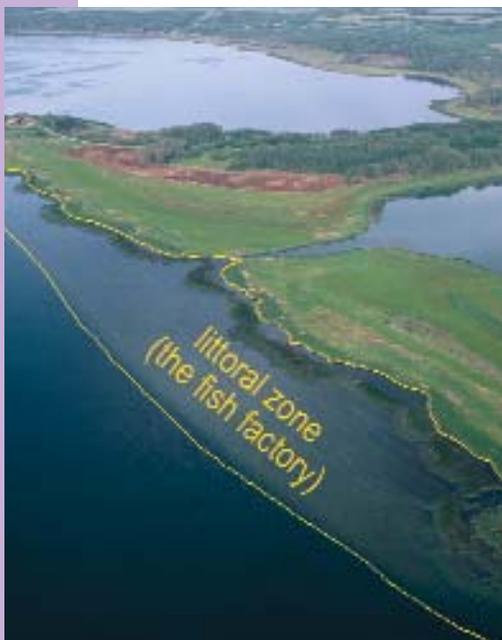
Fish and other aquatic creatures have a unique relationship with riparian areas. One of the reasons riparian zones are under a microscope is the effect that unmanaged livestock grazing and other land uses can have on fish habitat. Here are some useful things to know about the relationship between fish, other aquatic animals and the riparian area:

- ◆ Streambanks and shorelines provide habitat "edge" with high diversity. Fish live on the edge of streams and make more use of the edge than the middle of the channel. In lakes, the shallow water zone where sunlight can penetrate to the substrate is the area of highest productivity and the area used most by fish. In emergent and submerged vegetation fish find cover, food and places to spawn and rear. Instream cover, especially big wood, helps control water velocities so fish don't constantly fight the current.
- ◆ Fish habitat can include intermittent drainages that have water in the channel or over the shoreline for a short time during spring runoff. Some fish species use these riparian areas for spawning; the eggs incubate and hatch before water levels drop.
- ◆ The vegetation canopy on banks and over stream channels shades water in the summer and reduces the temperature. In winter the canopy insulates streams, reduces ice build-up and provides better overwinter survival of fish.

- ◆ Vegetation captures and binds sediment that otherwise would settle on food producing areas, fish spawning and rearing sites or in pools, reducing winter survival space. Riparian vegetation also traps nutrients which can be too much of a good thing. High nutrient loads lead to algae blooms which peak and quickly crash, using up dissolved oxygen. Fish kills often follow.
- ◆ A healthy riparian area collects, stores and releases water to maintain stream flow and lake levels. It's a simple formula; no water - no fish.
- ◆ Fish are indicators of the degree of health in their world and ours. Trout have the highest requirements for water temperature, dissolved oxygen and physical habitat. They have low tolerance for changes, especially in temperature and sediment. If trout are replaced by northern pike, or pike by white suckers, it suggests a dramatic change in habitat. If the trend continues, white suckers, one of the most tolerant fish of degraded habitat, will disappear. It may be very difficult to restore fish populations in some systems until we take a watershed approach to resolving issues around riparian health, water quality and water quantity.

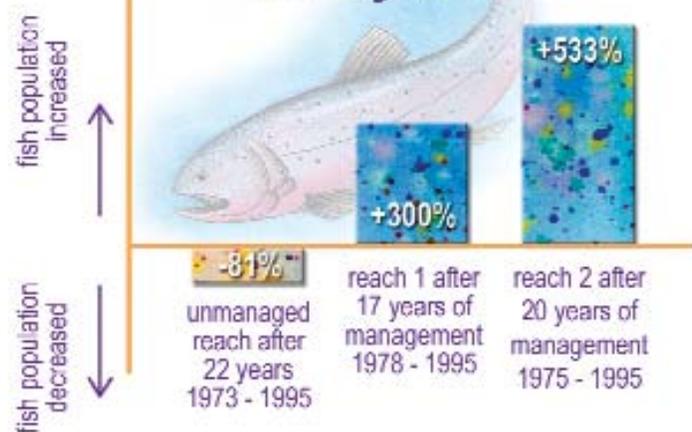


Sediment is a normal product of erosion but many land uses greatly accelerate the amount of sediment delivered to the aquatic system. Healthy riparian areas can buffer the impacts of sediment on aquatic inhabitants.



The shallow water area where sunlight penetrates to the lake bottom, is called the "littoral" zone and is the "fish factory".

Trout Population Changes



When riparian areas on the North Raven River were protected and managed, trout populations responded to habitat opportunities. Reaches of the stream that are not managed show substantial declines in fish populations from 1973 to 1995. Healthy riparian areas produce habitat for fish.