

Iron Creek Riparian Health Inventory Monitoring 2006

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Key Points

- The Iron Creek Watershed Improvement Society is the first stewardship group in central Alberta to monitor riparian health on a watershed basis.
- Riparian health inventories were initially conducted on 30 sites along Iron Creek in Flagstaff County in 2001 by Cows and Fish.
- Riparian health inventories were re-conducted on 29 of the 30 original sites in 2006.
- The overall riparian health score improved from 66.2% to 67.1% for the 29 polygons inventoried in 2001 and 2006 which rates the riparian areas as healthy (or functioning) but with problems.
- 23 Flagstaff County landowners participated in the riparian health monitoring project.
- Approximately 28 km of creek distance was assessed each year.

Body

The Iron Creek Watershed Improvement Society (ICWIS) is a non-profit group made up of farmers, ranchers and other community members from the Iron Creek watershed. The society formed in 2000 in response to growing interest and concern regarding the health of the Iron Creek watershed. The ICWIS strives to raise awareness about the importance, health and function of the local watershed and promote the agricultural, environmental and financial benefits derived from proper management techniques in riparian areas.

Riparian areas are the lush, productive, green zones adjacent to rivers, lakes, sloughs and creeks. When in good condition or healthy, riparian areas trap sediment, store water and provide forage and shelter for livestock and wildlife. The health of a riparian area can be measured by assessing parameters such as the abundance of native plant communities, stability of streambanks and variety of ages of trees and shrubs. Monitoring riparian health measures the progress of community and individual effort to address riparian land use issues. Once a site has been inventoried two or more times, we can start to see trends and recognise where changes are occurring. To further measure and understand trend (improving, declining or staying the same) monitoring should be repeated in subsequent years. The ICWIS initiative to measure the health of Iron Creek over time shows residents how natural variation (such as drought), management actions or choices, extension programs, and economic impacts (such as BSE) may influence the health of Iron Creek.

In 2001, the ICWIS contracted Cows and Fish to complete riparian health inventories on 30 sites along Iron Creek with financial assistance from the Ag & Food Council's Community Riparian Program. Utilizing dollars obtained from Agriculture and Agri-Food Canada's Greencover Canada Technical Assistance program, the ICWIS was able to again contract Cows and Fish to reassess 29 of the 30 sites in 2006. Additional funding and support for this project was provided by the ICWIS, Flagstaff County, Alberta Environmentally Sustainable Agriculture Program (AESAP), individual landowners, and Cows and Fish in both years. Of the 23 participating landowners in 2001, 22 agreed to take part in the monitoring project in 2006, providing a picture of health and condition for 28 km of the creek at a five-year interval. The change in overall health for the creek was evaluated based on the 29 revisited sites (Table 1) along with changes to specific indicators (parameters) of riparian health (Figure 1).

Table 1. Riparian Health Evaluation Results for Iron Creek (29 sites).

	2001	2006
Healthy	10% (3/29)	13% (4/29)
Healthy with Problems	53% (16/29)	47% (14/29)
Unhealthy	37% (10/29)	40% (11/29)

The results for Iron Creek mirror a trend for riparian areas across Alberta inventoried by Cows and Fish between 1998 and 2005 - 21% are healthy, 51% are healthy with problems and 28% are unhealthy.

The riparian health evaluation protocols used by Cows and Fish rate riparian areas into three categories derived from a percentage score. *Healthy* riparian areas score 80-100% and are performing all ecological functions which makes the riparian area resilient, stable and able to provide a suite of ecological benefits and values, such as improving water quality, storing water and providing habitat for fish and wildlife. Riparian areas that are *healthy but with problems* score 60-79% and have many functions being performed but some signs of stress are apparent. For example, the creek may not be as effective at filtering and buffering water, trapping sediment and providing abundant forage for wildlife and livestock and may be vulnerable to erosion. *Unhealthy* riparian areas score less than 60% and most riparian functions are impaired, severely stressed or have been lost. These sites are less resilient and are highly unstable.

The average riparian health for Iron Creek fits into the *healthy but with problems* category for both 2001 and 2006. A minor increase in overall health was noted within the Iron Creek watershed, with the average health for all sites increasing from 66.2% in 2001 to 67.1% in 2006. As compared to 2001, in 2006, 7 of 29 sites moved up a health category and 6 of 29 sites moved down a health category. The maximum increase in health for any one site was 21%!

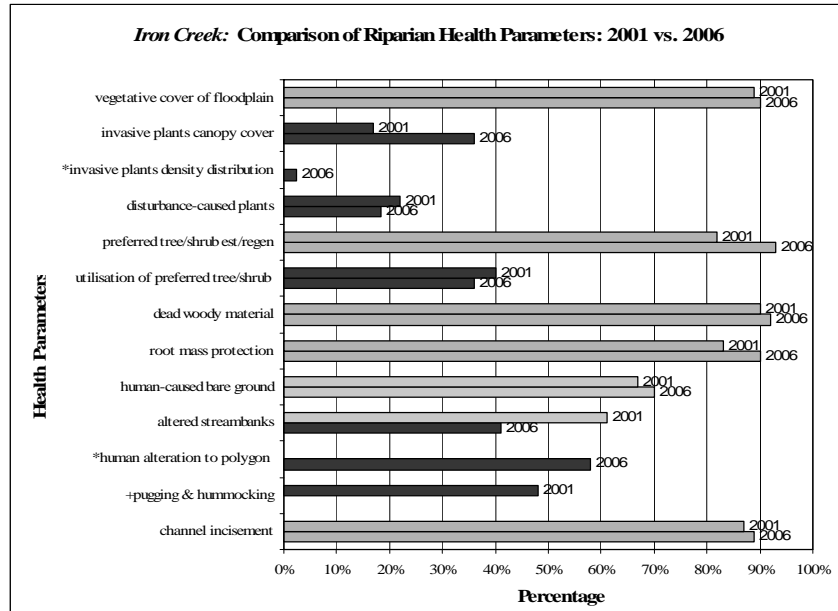


Figure 1. Breakdown of riparian health results for the 11 parameters assessed for the Iron Creek project area in 2001 and 2006.

* Comparable data for this parameter was not collected in 2001.

+ Comparable data for this parameter was not collected in 2006.

Areas that improved in health:

- Overall vegetative cover of the riparian area increased since 2001.
- Human-caused bare ground decreased overall throughout the project area since 2001. The amount of human-caused bare ground decreased in 7 of 29 sites, increased in 3 of 29 sites and remained the same in 19 of 29 sites.
- In 2001, 15 of 29 sites had exceptional deep, binding root mass along streambanks with greater than 85% of streambank length covered by plant species with deep, binding root masses (e.g. willow, sedges, red-osier dogwood). In 2006, a total of 22 of 29 sites had greater than 85% of streambank length had deep, binding root mass.

Areas that did not improve in health:

- The same two invasive plant species remain prevalent in both 2001 and 2006 – Canada thistle & perennial sow thistle
- In nearly half of the inventoried sites (14 of 29), the amount of structural alterations to streambanks increased between 2001 and 2006. In 5 of 29 sites, the amount of structurally altered streambanks decreased from 2001 to 2006 and in 10 of 29 sites, the amount remained the same.

In addition to the riparian health monitoring, two other projects were undertaken by the ICWIS with funding from the Greencover Canada Technical Assistance program. A *Showcase Tour* was held where participating landowners toured several sites on Iron Creek. Each site demonstrated a particular land management practice such as exclusion fencing or timing of grazing which resulted in an increase in riparian health over the 5 year interval. Information summarizing the riparian health results has also

been sent out to watershed residents, both urban and rural, in the form of an *Iron Creek Report Card*. These are just two examples of how the ICWIS continues to promote stewardship within their watershed and extend valuable information to their neighbours.

Conclusion

The ICWIS's riparian monitoring project was a significant milestone for both the community-based group and the organizations and agencies involved in the work. The ICWIS was the first stewardship group in central Alberta to monitor riparian health on a watershed basis. Though average increases in health were minor, overall riparian health remained stable over the 5 year period. This can be attributed to individual management decisions and the possible influence of stewardship extension programs in the area. Given the severe drought conditions experienced during this 5 year interval and the livestock market fluctuations experienced due to events such as BSE, possible declines in health due to natural variation and economic impacts could have been more evident. The landowners participating in the project should be commended for their efforts!

This data is essential to landowners and residents of the Iron Creek watershed to improve their understanding of the changes in health of riparian areas over time. This information also provides an understanding of the possible links between riparian health and climatic, social and political influences. Using this knowledge, and the application of sound land management principles, the Iron Creek watershed should continue to see improvements in health over time.

References

Hansen, Paul L., William H. Thompson, et al. 2006. Alberta Lotic Wetland Inventory Form User Manual. Cows and Fish. 22 pp.

Hansen, Paul L., William H. Thompson, et al. 2006. Alberta Lotic Wetland Inventory Form. Cows and Fish. 10 pp

Spicer-Rawe, Kelsey, et al. 2007. Iron Creek Riparian Health Inventory Final Report. Cows and Fish. 46 pp.