

Flambeau Mine Rusk County, Wisconsin, US



The wetland area at Flambeau is now teaming with wildlife.

The journey

The Flambeau mine deposit was a relatively small – but exceptionally rich – ore body, with a concentration of 10% copper. It was discovered alongside the Flambeau River outside Ladysmith in 1969, and yet it was another 24 years before mining began.

The original permit application in the 1970's was unsuccessful. The operation would have mined a larger portion of the deposit and required more infrastructure, but also proposed a smaller reclamation effort.

The project was revived in 1986 with significant changes to the original plans, both in terms of scale of infrastructure and reclamation plans. Only the rich section of the ore body was to be mined and the crushed ore was to be transported to mills outside of Wisconsin for processing. The permit application went through many iterations, with both the company's ambitions and Wisconsin state mining law evolving throughout the process.

Flambeau demonstrates how a significant mining project, operating under some of the country's toughest mining laws, has honoured its pledges to explore, mine and rehabilitate in an environmentally and socially responsible manner. The reclaimed mine site is now a mixture of thriving woodland, grassland and wetland areas, open to the public at all times.

The Flambeau mine site before, during and after mining:
a) 1991,
b) 1996 and
c) 2011



a)



b)



c)

After many hearings, meetings, and protests, a Local Agreement was negotiated between the company, the community and local government, and signed in 1988. Eleven permits were eventually approved and signed in January 1991, with several further delays due to environmental concerns. The permits contained more than 200 conditions requiring additional monitoring and operational safeguards. Operations began in earnest in 1993 and continued through to 1997 when the permitted mining was completed.

Flambeau was the first mine in Wisconsin to be approved and operated under the state's stringent and comprehensive mining laws. During the four years it operated the mine produced 181,000 tons of copper, 334 ounces of gold and 3.3 million ounces of silver. Flambeau Mining Company, a wholly owned subsidiary of Kennecott Minerals, which is in turn, a wholly owned subsidiary of Rio Tinto, operated the mine. The open pit mine was about 35 acres in a 181 acre site. In addition to the site, the Flambeau Mining Company holds a further 1920 acres.

Whilst the mine was operating, over 100,000 visitors visited the site, making it the most popular tourist destination in Rusk County.

The transformation

The 181 acre mine site is now a recreational resource for the community and its visitors. Flambeau is open to the public all year round providing opportunities for hiking, biking, bird watching, snowshoeing, cross country skiing, fishing, picnicking, fitness events, school field trips and geocaching.

The plans for reclaiming the mine site were part of the initial permitting process and had to be approved by Wisconsin State regulators and local communities. Their preference for the open pit mine was to backfill it, which began almost immediately after the operations ceased. Surface contouring and return of the topsoil was completed in 1998, and this was followed by a year seeding and planting hundreds of native plant species. A Certificate of Completion for the majority of the site was issued in 2007 and the reclaimed landscape continues to be maintained as it matures.

The site now has prairie, woodland and wetland habitats, and is home to hundreds of species of plants and animals. It has four miles of hiking and recreational trails within the reclaimed area and equestrian trails run along the Flambeau River on Rio Tinto land adjacent to the site.

At the request of local governments, 32 acres of the site were set aside for industrial use and leased to the Ladysmith Community Industrial Development Corporation (LCIDC) on a long term basis. Buildings in this area have been modified by LCIDC and the City of Ladysmith and subleased to the Wisconsin Department of Natural Resources and a local public utility company (Xcel Energy). There is also an equestrian trailer parking area on this parcel of land. Most of the railway spur built by Flambeau has been retained and is being used by companies leasing land in the Rusk County Forest Industry Park – land formerly owned by Flambeau, adjacent to the mine site.

The former Visitor Centre at the mine was relocated to Ladysmith where it continues to tell the story of the Flambeau Mine.



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Highlights

The reclamation project met the high standards of Wisconsin's modern mining laws and kept its promises to the community.

Flambeau Mining Company and local governments have collaborated to ensure local communities can make the most of the economic opportunities available throughout the mine's lifecycle. A recent study shows about \$11 million in tax and other payments from the project came back to local communities.

The Flambeau River, which flows alongside the site, is an important recreation, tourism, fishing and wildlife habitat resource. It is viewed as a 'crown jewel' of Wisconsin's many waterways, and its protection at every stage – from construction, through production and reclamation – was fundamental to the success of the project. Long-term monitoring both upstream and downstream shows the river to be clean and healthy.

The reclaimed site supports a rich biodiversity: Monarch butterfly.

Bird watching events are popular at Flambeau.



Seventy-nine percent of the plants on the reclaimed site are native. School children and other community groups were involved in collecting native seeds, and growing and planting the plants.

Before and during mining, the Company made a guarantee that drinking water would remain safe. Testing shows conclusively that ground water quality surrounding the site is as good as it was before mining.

Flambeau Mining Company's responsible mining and reclamation efforts have been recognised by the mining industry, Federal Government, and State and local business organisations. Accolades include:

- Northwest Mining Association's Environmental Excellence Award in 2001;
- US Department of Labor Bureau of Land Management's Hardrock Mineral Award for Community Outreach and Economic Security in 2003;
- Wisconsin Manufacturers & Commerce's Business Friend of the Environment Award in 2007;
- Greater Ladysmith Area Chamber of Commerce's Green Award in 2007.

City officials credit the mine with creating an economic miracle for the local community. Tax revenue from the mine stimulated economic development in Rusk County where the unemployment rate had fallen from 15.3% just prior to the mine opening to 4.0% in October 1996. A study by the City of Ladysmith showed more than 450 jobs were created or retained because of the Flambeau Mine. With the more recent global financial crisis, the county has seen unemployment increase once more but the economic development that resulted from the mining taxes and payments has been credited with buffering the impacts of the crisis.

In developing the pioneering Local Agreement together, partnerships between the mining company and the City of Ladysmith, Rusk County, and Town of Grant were formed and these grew in strength during the lifecycle of the mine. Further partnerships between a regional planning commission, a power utility, and various federal and state granting agencies have since developed.

The Red-winged Blackbird is one of the many wetland bird species found nesting in the constructed wetlands.

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The prairie grasslands abound with native grasses and wildflowers such as the Yellow Coneflower.



Lessons learnt

- Invest time and resources in maintaining relationships with the key stakeholders. When shaping the future of Flambeau, there was an unprecedented proactive collaboration with the local community, local government and state regulators. Strong partnerships and financial support enabled successful economic development projects that benefitted the local residents.
- It is important to observe the intrinsic value of the land. For example, significant financial gain could have been realised by Flambeau if they had sold the river front area of the property. Instead, the ability of the public to use the area for recreational purposes preserves the area and maintains the riverbank stability – as well as preserving the picturesque views of the shoreline from the water.
- Always consider the long term sustainability impacts of a decision. When Flambeau sought to modify the original Reclamation Plan to leave some mining buildings in place for use by the local community, environmental groups requested that the water treatment facility be dismantled after mine closure. At a cost of nearly \$2 million to develop, this state of the art facility had the potential for reuse by another business, but did not come to pass.
- There are many advantages to having a closure plan before the mine opens. One small illustration of this is that during the mining phase, there was a temporary nursery growing trees for the reclamation phase.
- The Closure Plan must have an exit strategy. The Local Agreement stipulated that the site is returned to nature, with opportunities for passive recreation, but did not specify how it was going to be managed long term. The reclamation plans were very well understood but the long term plans for the future of the site was not so well visualised.

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- Communication is critical. By continuing to monitor the site, the Flambeau staff are able to reassure the community that the site remains safe and the integrity of the reclamation is preserved.

Our Vision

We aim to ensure that our legacy sites are made safe, that all problem areas are addressed cost-effectively, and that there is a sustainable socio-economic future for the community together with a minimised aftercare burden.
