



Metallic Mining in Wisconsin

Senate Mining Committee
September 18, 2012

Ann Coakley, Director
Bureau of Waste and Materials Management

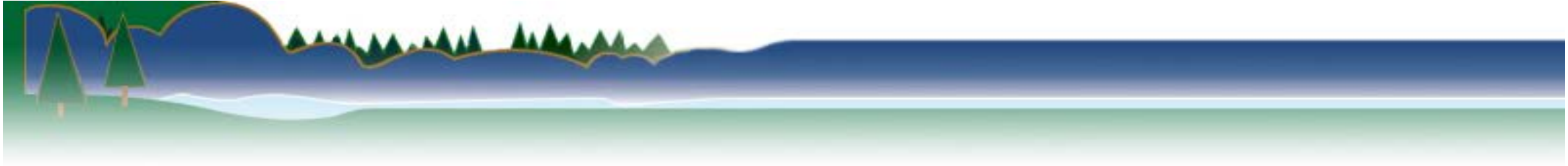




Mining in Wisconsin

- Wisconsin Mining Program
- Metallic Mineral Deposits
- Ferrous and Non-Ferrous Minerals
- Potential Required Permits

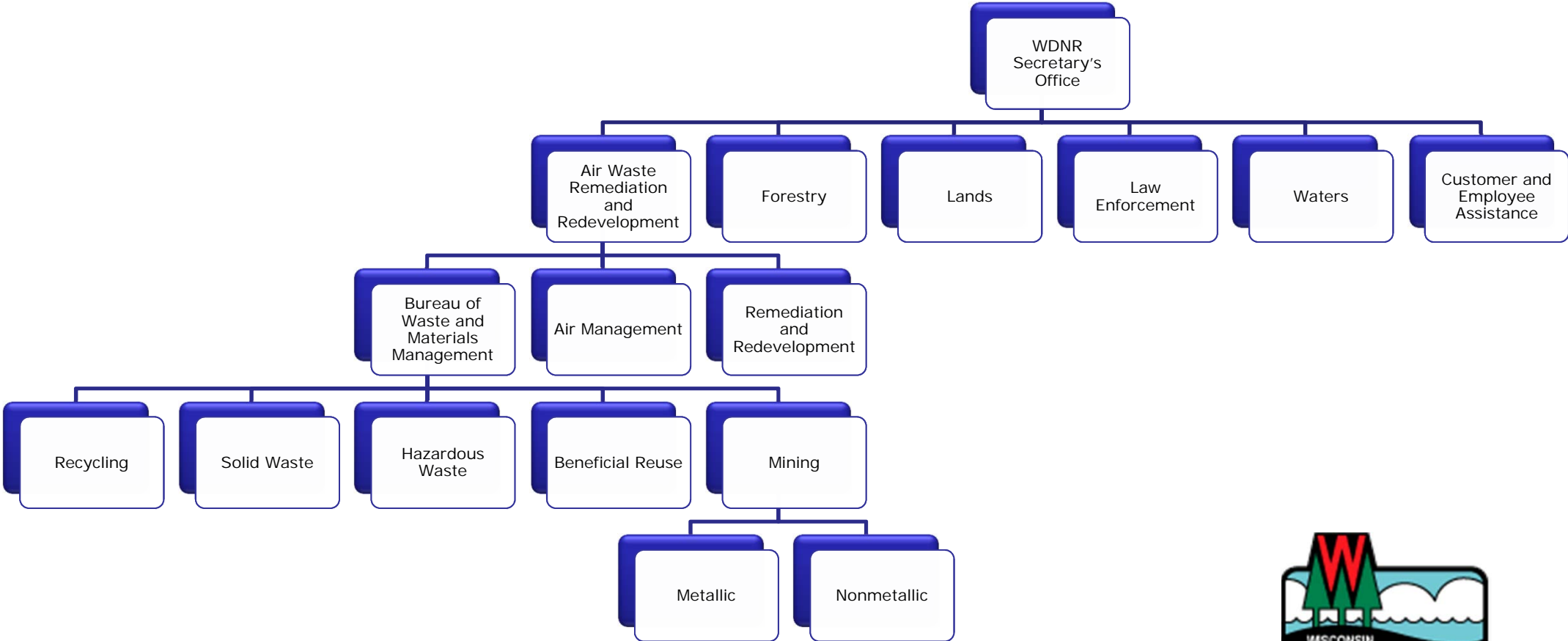




Wisconsin Mining Program



Wisconsin Mining Program





Wisconsin Mining Program

- Current Metallic Mining Staff
 - Waste & Materials Management Director Ann Coakley
 - Hazardous Waste & Mining Section Chief Ed Lynch
 - Mining Coordinator Phil Fauble
 - Mining Specialist Tom Portle

 - Many other support staff in several programs.
 - Water - Environmental Analysis
 - Land - Air
- Mining is complex, and we assign our best technical staff to review permit applications.
- The metallic mining program is currently unfunded.



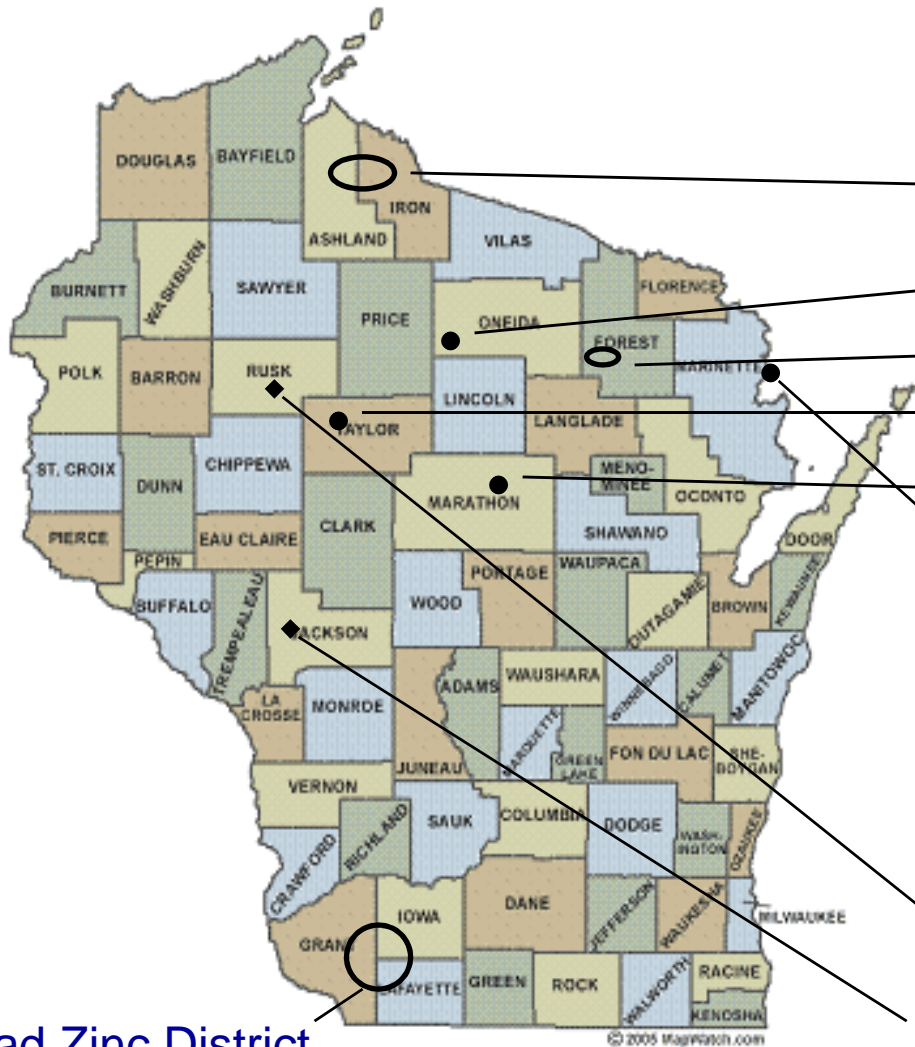


Metallic Mineral Deposits

1. Deposit Locations, Characteristics, Status
2. Flambeau Mine Overview
3. Reclaimed Jackson County Iron Mine



Major Metallic Mineral Deposits



- Gogebic Deposit
- Lynne Deposit
- Crandon Deposit
- Bend Deposit
- Reef Deposit
- Michigan Back 40

• Lead Zinc District

• Closed Flambeau Mine

• Closed Jackson County Iron Mine





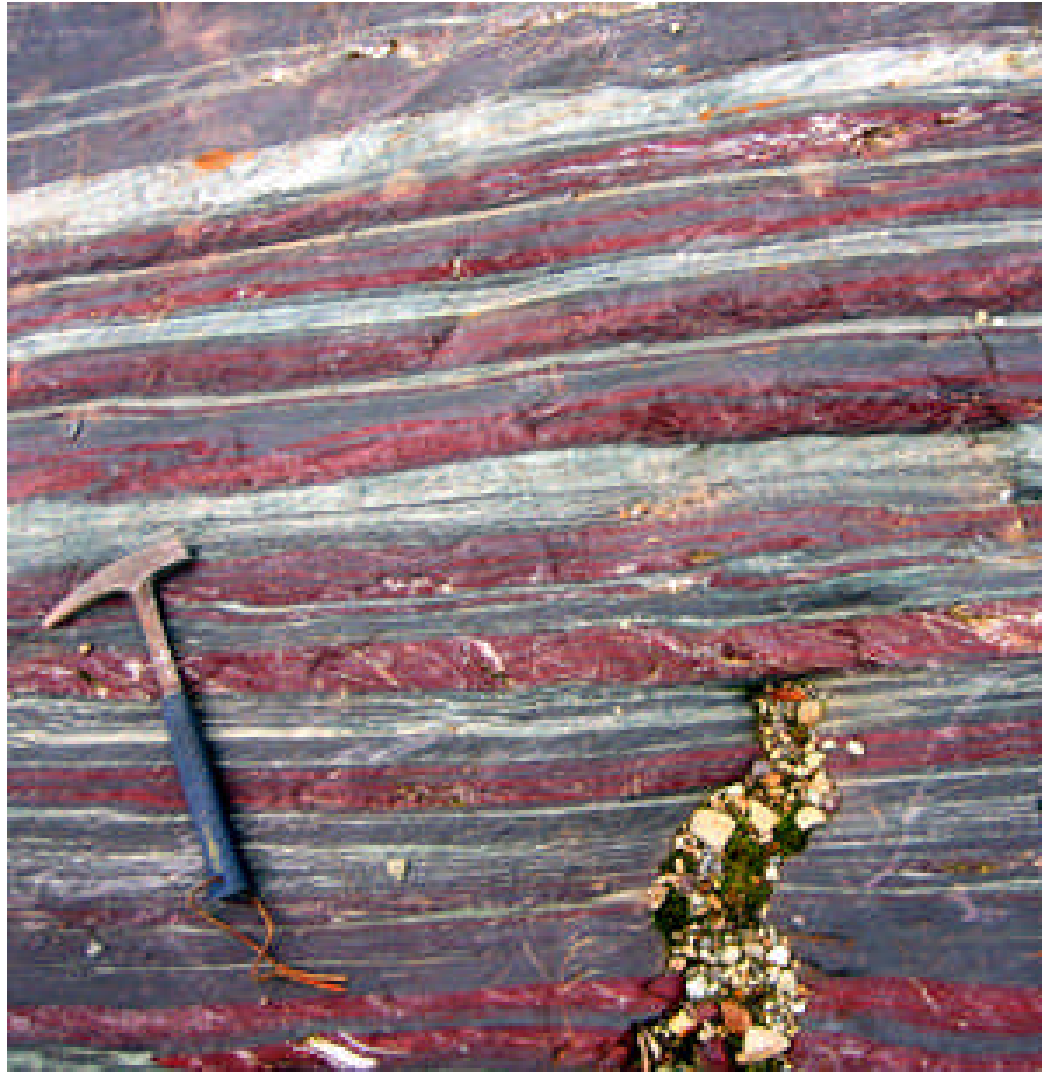
Gogebic Deposit, Iron and Ashland Counties

- Large iron deposit—magnetite.
- U.S. Steel
 - Extensively drilled in the 1950s and 1970s.
 - Decided to focus on the Mesabi Range in MN.
 - Sold the land and mineral rights in 1990s.
- The Deposit
 - Is steeply dipping (~60 %).
 - Contains 20-30 % iron.
 - Is 20+ miles long.
- Status
 - Exploration license issued Spring 2011.
 - Mining company withdrew their license in March 2012.
 - Drilling would have been to ~1200 feet.



Banded Iron Formation

Gray: Iron
White: Chert
Red: Jasper



Hematite Ore



Gogebic Deposit, Iron and Ashland Counties

Taconite

- Iron ore is ground into a fine powder.
- Magnetite is separated from waste rock using water and strong magnets.
- Powdered iron is combined with a binder.
- Mixture is rolled into pellets.
- Pellets fired at a very high temperatures to harden and make them durable.
- Pellets transported to steel mills.
- Waste rock and tailings are disposed of on-site.





Lynne Deposit, Oneida County

- Deposit was found in 1990.
- Located on forestry land owned by Oneida County.
- Primarily zinc with lead and silver (minor gold and copper).
- Deposit estimated to be approximately **5.8 million tons**.
- The Oneida County Board recently decided not to allow exploring or mining this deposit.





Crandon Deposit, Forest County

- Zinc, copper, lead, gold, silver.
- Discovered by Exxon in 1976.
- Would have been an underground mine with approximately 550 acres of surface processing and disposal areas.
 - Ore deposit is 4,900' long, 2,200' deep and 100' wide.
- Estimated 55 million tons of ore.
- Estimated site life of 34 years.
- Two unsuccessful attempts at permitting (1980 – 1986 and 1994 – 2003).
- Site purchased by Chippewa and Potawatomi Tribes in 2003.
- All activity has been terminated.





Bend Deposit, Taylor County

- Located on Federal Property in Chequamegon National Forest.
- Discovered in 1986.
- Estimated **3.7 million tons** of sulfide ore.
- Copper with significant gold and minor silver and zinc.
- Status
 - Extensively explored, most recently in 2012.
 - Mining company is working with the BLM through the USFS superintendent.





Reef Deposit, Marathon County

- Substantial gold reserves in scattered, shallow weathered sulfide rocks.
- Area east of Wausau in Town of Easton.
- Gold exploration shaft developed in the 1920s, with additional drilling in 1967 and 1987.
- If developed, would likely be a surface mine.
- Status
 - Options on the mineral and surface rights acquired by a mining company in 2011.
 - Most recently explored in 2011.
 - Drilling to ~200 feet.

