



**Independent Environmental
Monitoring Agency**

Wildlife Effects Monitoring Program

**Review of Ekati's 2007 Environmental Monitoring And
Management Programs**

3 December 2008



What is the WEMP?

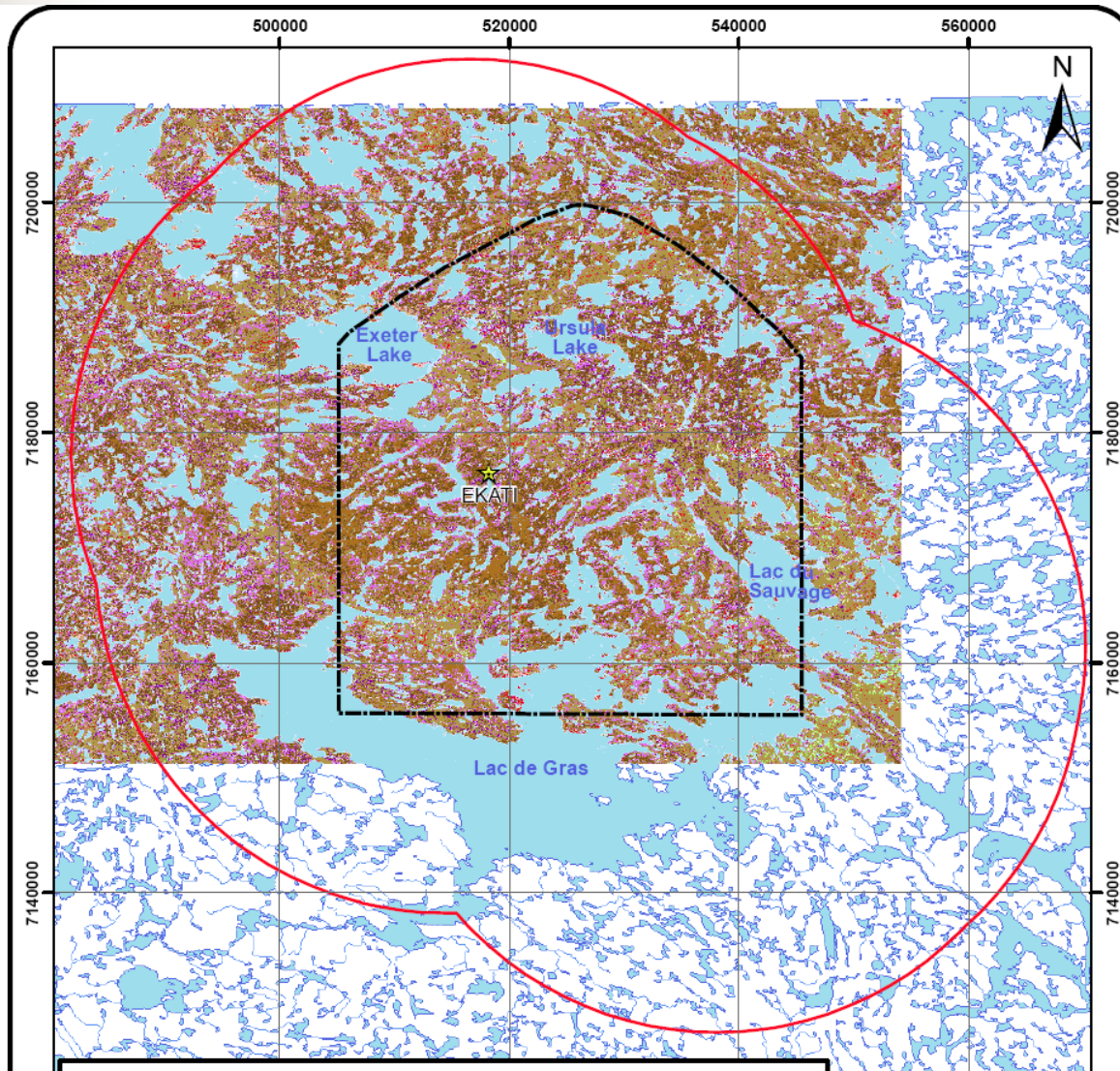
- It monitors and documents impacts on wildlife and habitat of greatest importance and concern, and assesses the effectiveness of the mitigation and management efforts
- Monitoring is conducted through aerial and land-based techniques
- Results can change mitigation measures
- Traditional knowledge plays a role in the WEMP; e.g., placement and monitoring of caribou crossings of roads



Highlights 2007

- Caribou have a greater probability of being observed as distance from the mine infrastructure increases
- Wolverine incidents continued to decline due to better management by BHPB
- A more robust technique to address mine impacts to grizzly bears is needed

WEMP study area



11th year of
WEMP

Main area
1,600 km²

Caribou area
6,300 km²

Figure from 2007
WEMP



Some of the effects on wildlife BHPB tracks

- Vehicle and Aircraft Collisions – rare; 10 in 2007
- Landfill and waste management problems, to reduce attractiveness to wildlife – fewer wolverine incidences
- Wildlife deaths and accidents at the mine – 13 in 2007
- Mine footprint increased by 7 hectares to 2,036 hectares



How are impacts reduced?

- Wildlife awareness training is given
- Animals have right-of-way on roads
- Roads have speed limits
- All sightings of wildlife are reported
- Roads are closed when there are lots of caribou around
- Caribou are removed from airstrip (Inokhok, electric fence)
- Improved waste management practices



Waste management practices

- Great effort to reduce wildlife attractants at the landfill since 2004
- Considerable decrease in wildlife observations at landfills
- Large reduction of wolverine incidents at the mine (none in 2006 or 2007)
- We continue to commend BHPB for these efforts



What animals are monitored?

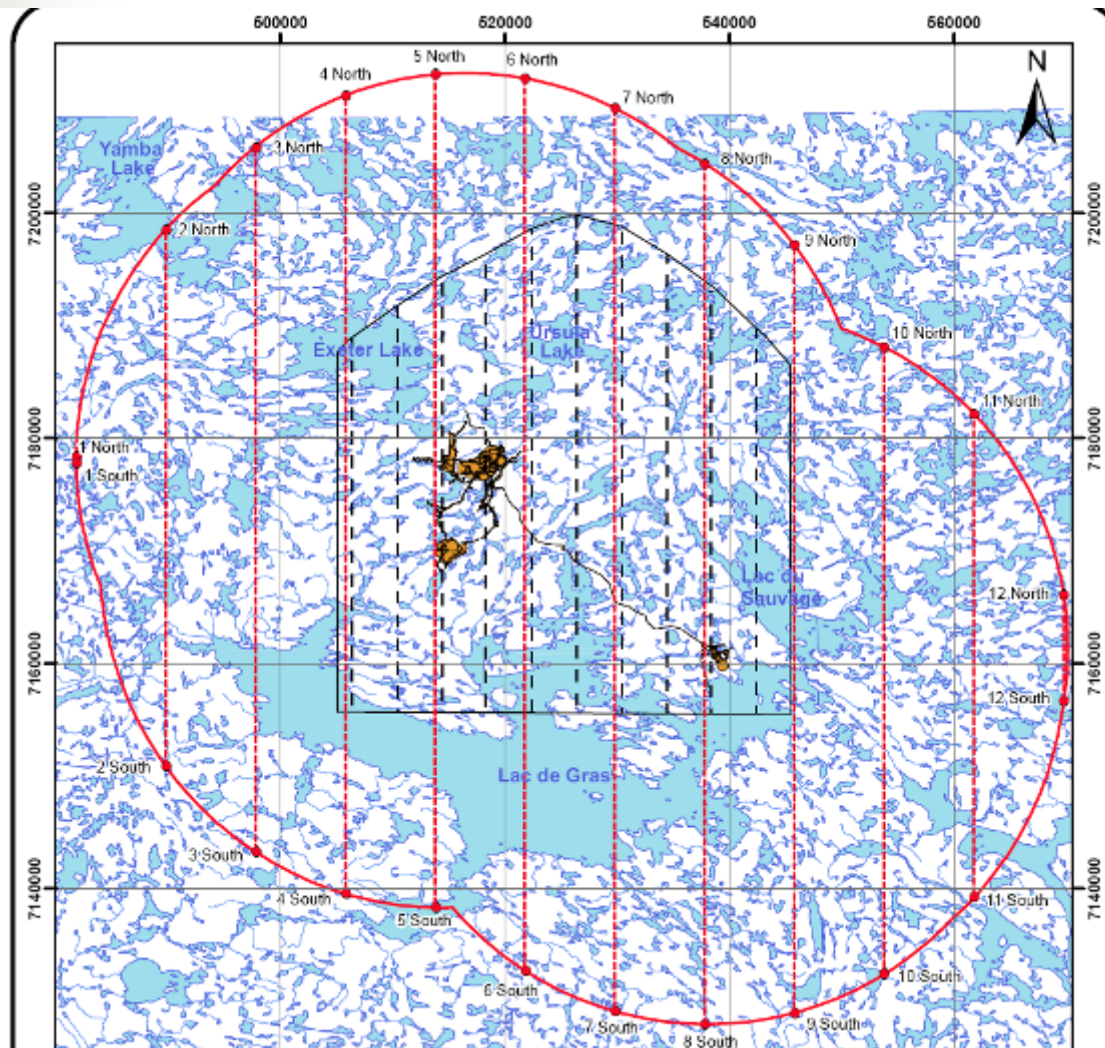
- Caribou
- Grizzly bear
- Wolves
- Wolverine
- Upland Breeding Birds and Falcons
- And their habitats

Caribou



Photo: A. Gunn

Caribou surveys



Caribou survey
area expanded
in 2006

5,951 caribou
counted in 2007

Some caribou
seen during
winter (unusual)

Diavik not
participating

Figure from 2007
WEMP

Caribou groups
seen Jul-Oct
2007

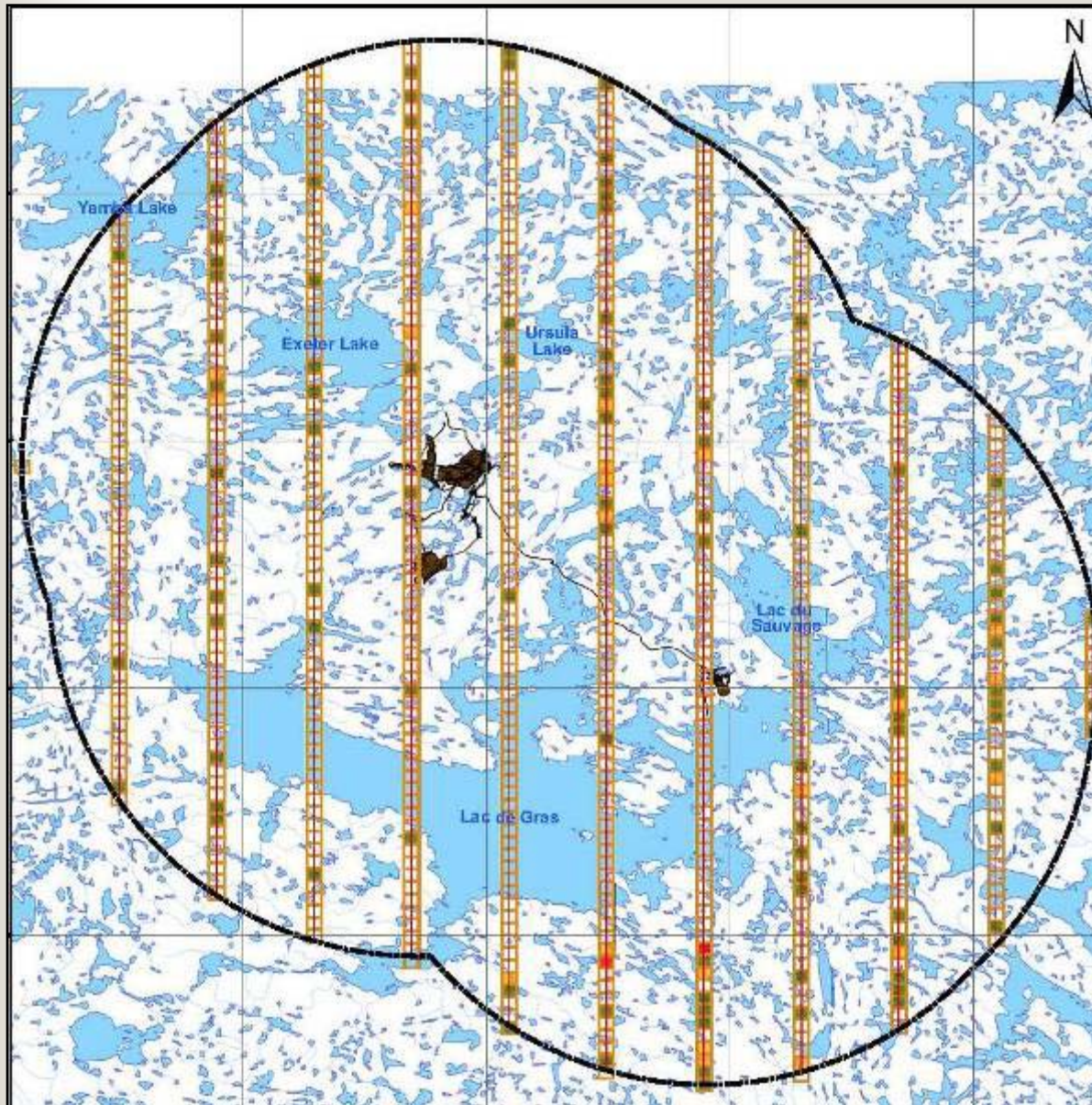


Figure from 2007
WEMP

Caribou and the mine

- Several studies have shown that caribou tend to avoid mine development
- Groups with young tend to show greatest avoidance
- Previous research suggests some influence may be seen out to ~20 km
- Influence of mines will be re-examined this winter



Photo: K. Poole



Other Caribou Research

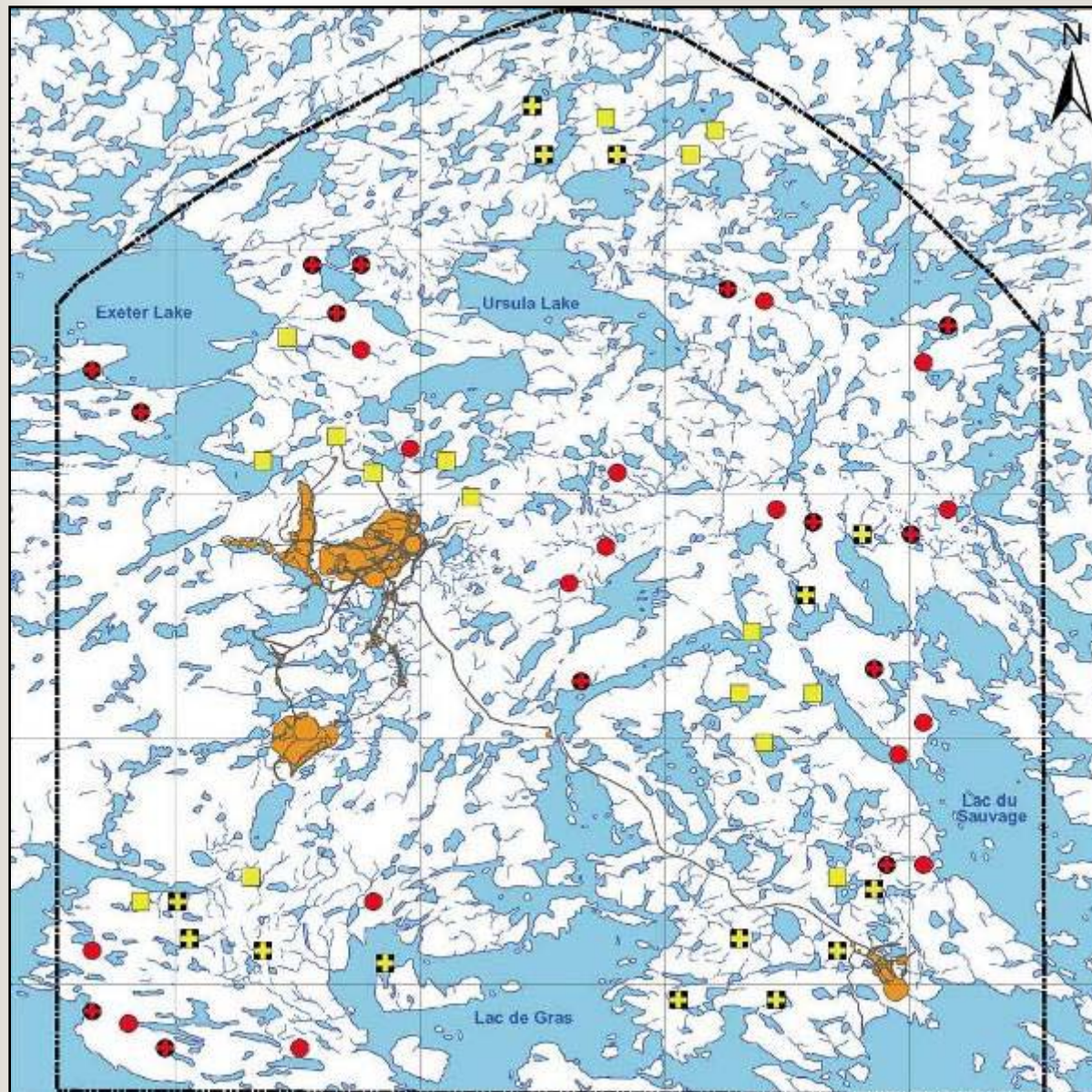
- Behaviour – Activity Budgets (**sample size too low in 2007**) and Response to Stressors (**response increased with closer distance, nursery groups, and larger stressors**)
- Distribution relative to roads – vehicle encounters (**roads used more than adjacent areas**)
- Road permeability (how easily caribou move across a road – physical, behavioural barriers)
- **ENR planning to count the Bathurst in 2009; possibly the Ahiak**

Grizzly bear

- 48 observations; 9 required deterrents
- Main monitoring is through bear sign plots in riparian and wetland areas
- We consider this a poor way to determine the influence of the mine on grizzly bear
- We suggest that DNA inventory might provide a better handle on population trend and the influence of the mine



Photo:
K. Poole



Grizzly bear
veg plots
sampled in 2007

Sedge wetland
(spring) and
riparian
(summer)

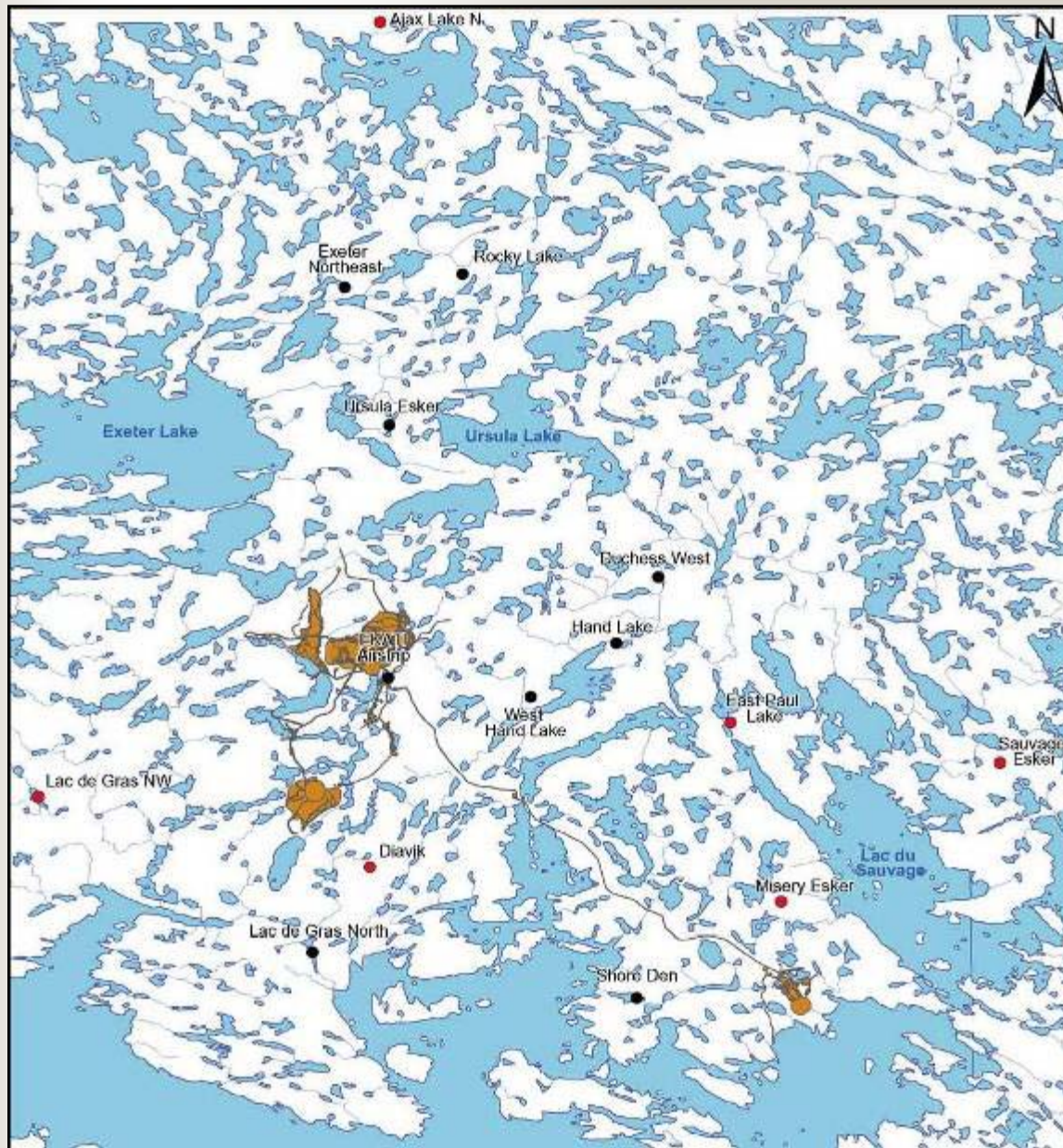
Figure from 2007
WEMP

Wolves

- 34 observations; 0 required deterrents
- Den site surveys with ENR
- 6 occupied den sites – 12 historic sites not surveyed



Photo: D. Smith



Wolf dens
occupied (red
dots) and not
surveyed (black
dots), 2007

No pups
produced

Figure from 2007
WEMP

Wolverine



Photo: K. Fink

- Large reduction in wolverine observations: 128 in 2005 to 9 in 2007; 0 incidents
- Likely related to reduction in waste at landfill, and improvements under building structures
- **We continue to commend BHPB for these efforts**
- No snow track counts conducted in 2007 – **track counts of limited value in our opinion**

Wolverine DNA study 2005 & 2006

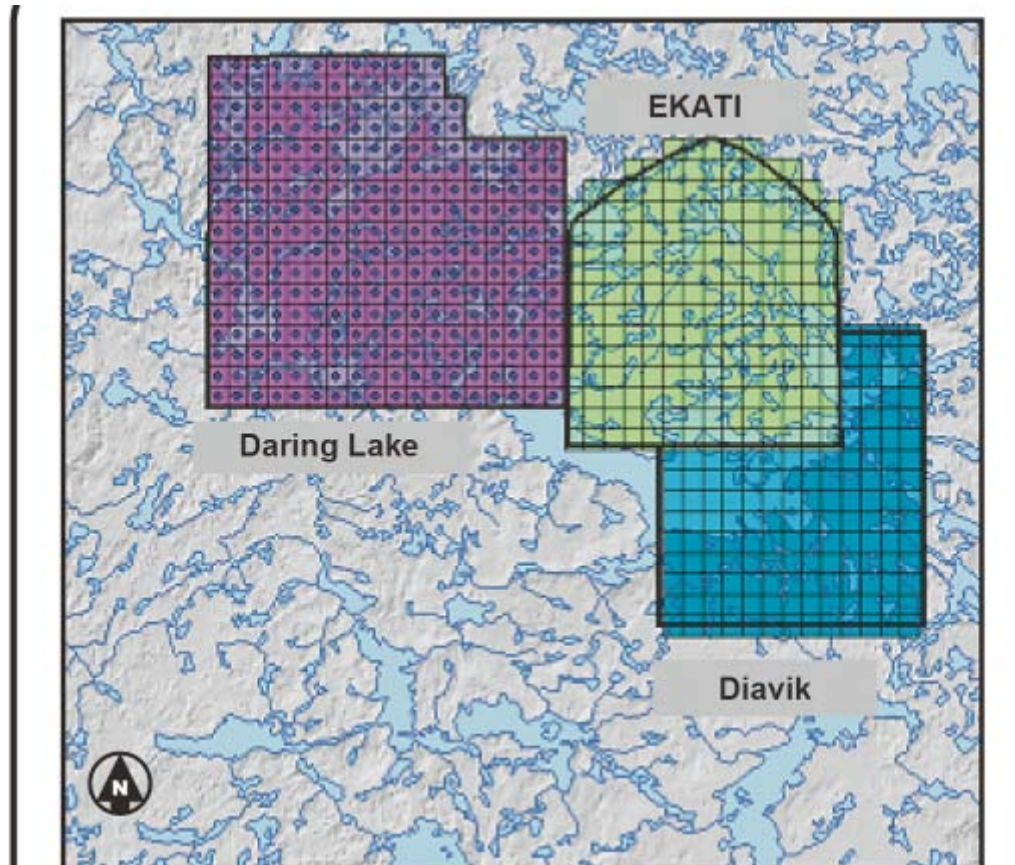


Figure from
2006 WEMP

Results released:
reliable population and range estimates

Birds



Photo: K. Poole

- Upland breeding bird counts continued – some changes observed
 - We suggest every 2nd year
- Raptor surveys (with ENR)
- Peregrine falcon production low (poor weather)



IEMA conclusions

- WEMP generally well done
 - Thorough, with examination of trends over time
- Excellent efforts at waste management
 - Reduction in wolverine incidents
- Expansion of caribou survey area
 - Included Diavik in distance from infrastructure analysis



IEMA recommendations

- Why caribou are avoiding the mine should be examined (dust on vegetation?)
- Wolverine DNA monitoring should be continued in 2009: trend analysis
- An alternative to grizzly bear habitat plots should be considered
- BHPB should conduct full occupancy and productivity surveys of known wolf den sites
- Regional caribou monitoring adaptations - cumulative effects concern (ENR lead)