

SECTION 8 | MINING OPERATIONS

253. This section describes the economic impacts to mining activities in the study area. This section is divided into five parts: 1) a summary of impacts to the mining industry related to lynx conservation; 2) a description of methods and assumptions applied in the analysis; 3) an overview of the economic importance of the mining industry in those states containing the study area, including locations of existing and potential future mines; 4) a discussion of pre-designation economic impacts; and 5) detailed discussion of mining operations that may be affected by critical habitat for the lynx.
254. Cleared lands do not contain the primary constituent elements of lynx habitat as defined in the Proposed Rule.¹⁸⁸ Existing surface mines are therefore not included in the study area; thus, this analysis focuses on expansions of existing mines and development of new mines.

8.1 SUMMARY OF POTENTIAL IMPACTS TO MINING ACTIVITIES

255. Forecast impacts to mining activities from 2006 to 2025 include:

Post designation impacts in areas proposed for designation

- Undiscounted: \$430,000
- Present value applying a seven percent discount rate: \$403,000 (annualized \$38,000)
- Present value applying a three percent discount rate: \$418,000 (annualized \$28,100)

256. Exhibit 8-1 presents a summary of pre- and post-designation economic impacts to mining activities related to lynx conservation. Except for the administrative costs of consultation, no mining projects outside of Minnesota have historically been impacted by lynx conservation. Total pre-designation costs of lynx conservation efforts are estimated to have ranged from \$85,000 to \$140,000 for winter track surveys at the planned NorthMet Mine in Unit 2.
257. Minimizing surface disturbance and conducting lynx monitoring and research are identified as the primary conservation needs of the lynx related to mining activities. Future surface mining expansion and development projects have only been identified within Unit 2; specifically, three new or expanded mining projects are forecast to occur

¹⁸⁸ U.S. Fish and Wildlife Service, Proposed Designation of Critical Habitat for the Contiguous United State Distinct Population Segment of the Canada Lynx, 70 FR 68294, November 9, 2005.

on leased lands of Superior National Forest in Unit 2. This analysis quantifies post-designation impacts of lynx conservation to these mining projects as described in Exhibit 8-1.

258. While no other future mining developments or expansions were identified in other units, this analysis characterizes the current mining industry in these geographic areas. Specifically, the study area includes sand and gravel mining operations (450 identified in Unit 2, five in Unit 1, and one in Unit 3). These existing operations are not included in the proposed critical habitat according to the Proposed Rule as they lack the primary constituent elements to support the lynx. These sites disturb a relatively small surface area, zero to 50 acres, and are more readily reclaimed than large-scale open pit mines.¹⁸⁹ Additionally, these types of mines are not specifically identified in the Proposed Rule or the LCAS as a threat, and therefore no guidance is provided regarding how lynx conservation may be incorporated. While past consultations have occurred on sand and gravel mining activities, they did not result in any conservation efforts for the species. This analysis therefore includes information on the sand and gravel mining industry across the study area, but does not quantify impacts to the industry.
259. The primary uncertainty in this analysis stems from the limited information on the types of conservation efforts the Service may recommend or other conservation actions that may be undertaken following designation. Conservation efforts such as surveys, monitoring, and re-siting stockpiles to minimize surface disturbance are quantified in this analysis as described in Exhibit 8-1.

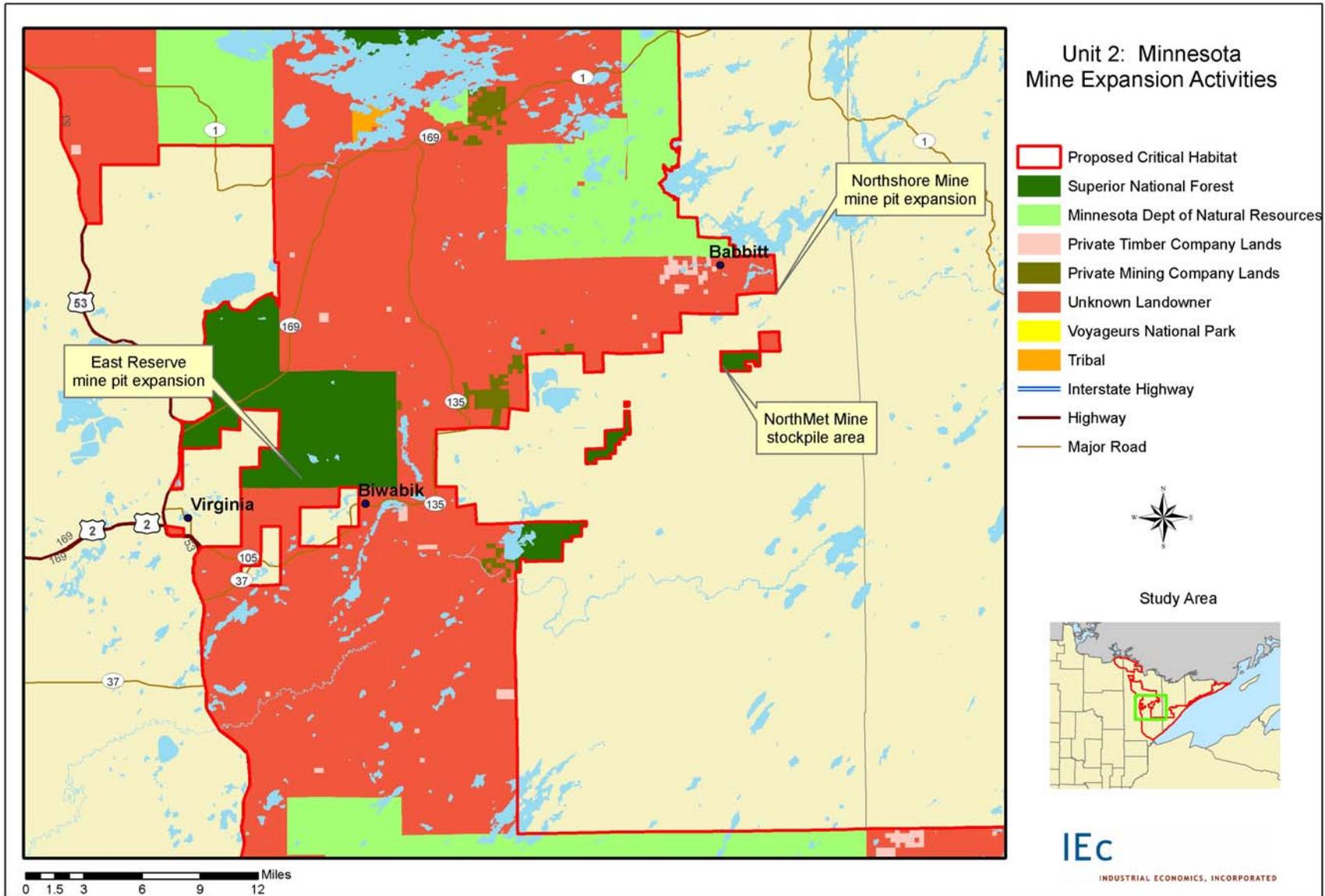
EXHIBIT 8-1. SUMMARY OF POST-DESIGNATION IMPACTS TO MINING ACTIVITIES

PROJECT*	POST-DESIGNATION IMPACTS				
	UNDISCOUNTED	PRESENT VALUE (7%)	PRESENT VALUE (3%)	ANNUALIZED (7%)	ANNUALIZED (3%)
NorthMet Mine	\$40,000	\$37,400	\$38,800	\$3,530	\$2,610
East Reserve Mine	\$375,000	\$350,000	\$364,000	\$33,100	\$24,500
Habitat Fragmentation Study (for multiple mining projects)	\$15,000	\$15,000	\$15,000	\$1,400	\$1,000
Total	\$430,000	\$403,000	\$418,000	\$38,000	\$28,100
Note: Impacts summarized in this table do not include the value of forecast new mining pits, but represent the impacts of lynx conservation efforts associated with these projects.					
* All projects are located in the Superior National Forest subunit of critical habitat Unit 2.					

¹⁸⁹ Personal communication with Ryan Harris, MT DEQ Energy Minerals Bureau, Reclamation Specialist, February 28, 2006 and with Mark Stebbins, Maine DEP Pit and Quarry Coordinator, March 6, 2006.

260. Two of the three forecast projects in Minnesota involve expansions of mine pits into the study area. The LCAS does not describe how pit mining operations may be modified for the benefit of the lynx or offer information on a threshold level of surface disturbance that may introduce a conservation threat for the lynx. As a result, this analysis is unable to determine whether impacts outside of the direct costs of lynx conservation efforts described in Exhibit 8-1 are likely, or to define the expected magnitude of these impacts should they occur. To allow for an understanding of the economic activities that could be at risk if modifications to these projects are required, this analysis provides data on the location of mining activities, as well as on the economic value of these operations. Specifically, these two future pits, East Reserve Mine and Northshore Mine, are located in the Superior National Forest subunit; the estimated values of these mines to the mining companies are \$819 million and \$45 million respectively.

EXHIBIT 8-2. MINES LOCATED IN UNIT 2



8.2 METHODS AND ASSUMPTIONS

261. The LCAS and Proposed Rule identify mining activities as a potential threat to the lynx and its habitat. The LCAS states: "(m)ining may directly impact habitat and can promote recreational activities into certain areas, possibly influencing the distribution of lynx and other predators."¹⁹⁰ Mines create a surface footprint through open pits, stockpiles, tailings basins, or access roads. Existing surface mines that fall into this category are, however, not proposed critical habitat and are not included in this analysis.
262. This analysis focuses on expansions of existing mines and developments of new mines as mining activities that may be impacted by lynx conservation in the future.
263. Because mining activities have not been impacted by lynx conservation in the past, this analysis uses the LCAS as the best available information regarding how mining activities may be modified for the benefit of the lynx and its habitat. In cases where mine expansions are planned, the LCAS stipulates consideration of lynx conservation:
- If activities are proposed in lynx habitat, develop stipulations for limitations on the timing of activities and surface use and occupancy at the leasing stage.
 - Minimize snow compaction when authorizing and monitoring developments. Encourage remote monitoring of sites that are located in lynx habitat, so that they do not have to be visited daily.
 - Develop a reclamation plan (e.g., road reclamation and vegetation rehabilitation) for abandoned well sites and closed mines to restore suitable habitat for lynx.
 - Close newly constructed roads (built to access mines or leases) in lynx habitat to public access during project activities. Upon project completion, reclaim or obliterate these roads.¹⁹¹
264. The limited consultation history and general nature of these conservation recommendations makes it difficult to determine with precision the project modifications that may be undertaken at mine sites for the benefit of the lynx. As a result, this analysis considers the four types of conservation guidelines described in the LCAS as follows:
- **Develop stipulations for limiting timing of activities and surface use.** This analysis identifies portions of mining operations that may be relocated outside of critical habitat to minimize surface disturbance, such as stockpiles, and quantifies the costs of land acquisition to relocate these sites. The mining pits themselves are not movable, however, as they must occur where the iron ore deposits exist. This analysis therefore provides information on the value of the deposits that are planned for extraction for context; the full value of the projects is not assumed to be lost and is therefore not included in the total estimated impacts.
 - **Species monitoring of project sites.** This analysis quantifies species and habitat studies associated with the mining projects within the study area.

¹⁹⁰ Ruediger, Bill, et al. 2000, p. 28.

¹⁹¹ *Ibid*, p. 86.

- **Reclamation of abandoned mines.** Since before the listing of the lynx, regulations have existed in each state containing proposed critical habitat that mandate the reclamation of mine sites post-production.¹⁹² Absent information about how reclamation of these sites may be changed for the benefit of the lynx, this analysis does not assume reclamation activities will be impacted by lynx conservation.
- **Closing mining roads to the public.** None of the mine projects within the study area allow for public access. This LCAS conservation recommendation is therefore not expected to impact mining projects.

265. The locations of mine and mineral deposits relative to the study area were identified using geographic data from multiple sources: the USGS Mineral Resources Data System (MRDS),¹⁹³ state geographic data, and communications with state geologists. State geologists noted that the MRDS was outdated in each state and did not accurately characterize the locations of mines and deposits. Additional state-specific data were therefore consulted to identify mining operations across the study area.

8.3 ECONOMIC PROFILE OF POTENTIALLY AFFECTED MINING INDUSTRIES

266. Active mines exist in Units 1, 2, and 3. Small scale stone quarries and gravel pits are the predominant mining activity across the study area, with the exception of large, open pit metal mines in Minnesota.

8.3.1 UNIT 1: MAINE

267. All active mining operations in the study area are small-scale crushed stone quarries and sand and gravel pits. Currently, approximately 40 sand and gravel pits and two stone quarries are actively operating within the study area.¹⁹⁴ Gravel pits are 25 acres, on average, while the typical size of a quarry is 10-15 acres.¹⁹⁵ Most sites are on private, dry land that has been cleared expressly for the intent of mining operations.¹⁹⁶ Approximately 20 to 25 new gravel pits open each year in Maine, along with roughly five new quarries. The estimated value of Maine's construction sand and gravel and crushed

¹⁹² The following regulations govern mine reclamation in the four units in this analysis: Maine Statutes Title 38 Ch 3 § 490, accessed at <http://janus.state.me.us/legis/statutes/38/title38sec490.html>; Minnesota Rule 6130.36, accessed at <http://www.revisor.leg.state.mn.us/arule/6130/3600.html>; Montana Code Annotated 2005 Title 82 Ch 4 Reclamation, accessed at http://data.opi.state.mt.us/bills/mca_toc/82_4_3.htm; and Revised Code of Washington, Title 78 Ch 4 § 091 Surface Mining, accessed at <http://apps.leg.wa.gov/RCW/default.aspx?cite=78.44.091>.

¹⁹³ U.S. Geological Survey, 2005, Mineral Resources Data System, 2006. This database contains the information previously provided in the Mineral Resource Data System of USGS and the Mineral Availability System/Mineral Industry Locator System (MAS/MILS) of the U.S. Bureau of Mines, which is now part of USGS.

¹⁹⁴ Mining permit data provided by Maine Geological Survey and Maine Department of Environmental Protection.

¹⁹⁵ Personal communication with Mark Stebbins, Maine DEP Pit and Quarry Coordinator, March 6, 2006.

¹⁹⁶ *Ibid.*

stone production was approximately \$65 million in 2003.¹⁹⁷ The majority of new mining activity takes place in southern Maine outside of the study area.

8.3.2 UNIT 2: MINNESOTA

268. The estimated value of Minnesota's non-fuel mineral production in 2003 was \$1.23 billion, which ranked 11th in the United States.¹⁹⁸ Iron ore pellet production makes up the majority, 79 percent, of this production. The state ranks first as the producer of iron ore, accounting for 78 percent of the total domestic iron ore shipment in 2003.¹⁹⁹ Minnesota's iron ore mining industry primarily extracts taconite, a low-grade iron ore, which is processed into taconite pellets for steel production.²⁰⁰ All current taconite mining and exploration in the state occurs in the Mesabi Range, which extends in a narrow band, approximately 90 miles across from Grand Rapids in Itasca County to Babbitt in St. Louis County. Approximately one-third of the Mesabi Range, at the eastern end, is located either within or adjacent to the study area in Unit 2.
269. The six existing taconite producing mines in Minnesota employed 3,130 workers and produced 41.3 million tons of usable crude ore in 2004.²⁰¹ Taconite mines contribute approximately \$100 million annually in state tax revenue.²⁰²
270. Two taconite mines currently operate on lands that partially overlap with the study area in Superior National Forest in Unit 2: the Laurentian Mine, operated by Mittal Steel; and the Northshore Mine, operated by Northshore Mining Company, a subsidiary of Cleveland Cliffs. These mines had a production capacity in 2004 of 2.8 and 4.7 million metric tons, respectively, representing 6.8 and 11.4 percent of the taconite industry in the state.²⁰³ The production value of the Laurentian and Northshore operations in 2004 was \$106 million and \$178 million, respectively.²⁰⁴
271. The iron ore industry in Minnesota has been strong in recent years. As highlighted in Exhibit 8-3, the price per metric ton of iron ore has risen sharply since 2001, driven by the increased global demand for construction steel.²⁰⁵ Sustained demand and the

¹⁹⁷ Maine Geological Survey/U.S. Geological Survey, "The Mineral Industry of Maine," U.S. Geological Survey Minerals Yearbook, 2003, minerals.usgs.gov/minerals/pubs/state/me.html.

¹⁹⁸ Minnesota DNR Division of Lands and Minerals/U.S. Geological Survey, "The Mineral Industry of Minnesota," U.S. Geological Survey Minerals Yearbook, 2003, minerals.usgs.gov/minerals/pubs/state/mn.html.

¹⁹⁹ *Ibid.*

²⁰⁰ Minnesota DNR website, accessed at <http://www.dnr.state.mn.us/education/geology/digging/taconite.html>.

²⁰¹ Jorgenson, John. U.S. Geological Survey Mineral Commodity Summary: Iron Ore, 2004. http://minerals.usgs.gov/minerals/pubs/commodity/iron_ore.

²⁰² Personal communication with Dennis Martin, Senior Geologist, MNDNR Division of Lands and Minerals between February 17 and April 6, 2006.

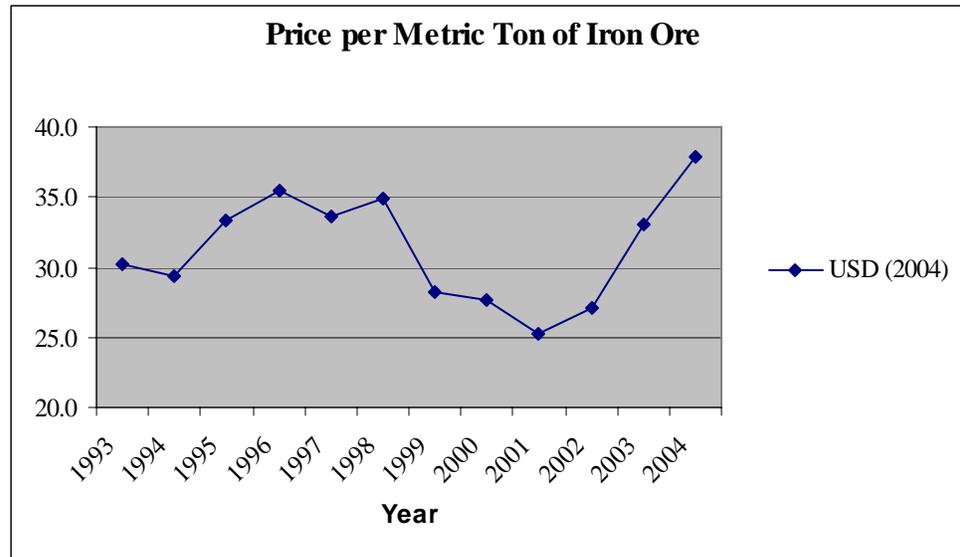
²⁰³ Iron Mining Association of Minnesota. Production capacity information, http://www.taconite.org/who_we_are/producing.html, February 22, 2006.

²⁰⁴ Production values calculated by multiplying 2004 company production capacity times 2004 commodity price of iron ore.

²⁰⁵ Jorgenson, John. U.S. Geological Survey Mineral Commodity Summary: Iron Ore, 2004. http://minerals.usgs.gov/minerals/pubs/commodity/iron_ore.

development of new steel production plants in the Great Lakes area that utilize innovative processing technology are expected to lead to an expansion in the domestic taconite mining industry.²⁰⁶

EXHIBIT 8-3. HISTORICAL PRICE OF IRON ORE IN MINNESOTA²⁰⁷



272. Additionally, small scale mining operations exist in Unit 2. Sand and gravel pits and crushed stone operations are actively producing in the study area.²⁰⁸ One peat operation is currently active. The State leases approximately 11,750 acres within the study area for mineral development, however, no mines are currently active or expected on State lands during the time period of this analysis.²⁰⁹

8.3.3 UNIT 3: NORTHERN ROCKY MOUNTAINS

273. All active mining operations in the potential lynx critical habitat area in Unit 3 are small-scale crushed stone quarries, sand and gravel pits, or placer mines operating on private lands.²¹⁰ Many of these operations qualify as "small mines" according to the Small Miners Exclusion Provision of the Metal Mines Reclamation Act. Plum Creek Timber Company is the largest quarry permittee in the study area, holding several permits for stone quarries on company lands in the Kalispell area that it leases to smaller operators.²¹¹

²⁰⁶ *Ibid.*

²⁰⁷ Jorgenson, John. U.S. Geological Survey Mineral Commodity Summary: Iron Ore, 2004. http://minerals.usgs.gov/minerals/pubs/commodity/iron_ore. Prices inflated using 2004 Consumer Price Index.

²⁰⁸ Personal communication with Dennis Martin, Senior Geologist, MNDNR Division of Lands and Minerals between February 17 and April 6, 2006.

²⁰⁹ Geographic data on active state minerals leases provided by Minnesota DNR, Division of Lands and Minerals, updated in March 2006.

²¹⁰ Personal communication with Ryan Harris, MT DEQ Energy Minerals Bureau, Reclamation Specialist, February 28, 2006.

²¹¹ *Ibid.*

One of these is for a roughly 50 acre site, while the rest are considerably smaller. Several small quarries operate in the southern portion of the study area.²¹²

274. The estimated value of Montana's non-fuel mineral production in 2003 was \$492 million, which ranked 26th in the U.S.²¹³ The last mine permit in the state for a major metals mine was issued in 1989.²¹⁴

8.3.4 UNIT 4: NORTH CASCADES

275. No active mining operations were identified within Unit 4.

8.4 PRE-DESIGNATION ECONOMIC IMPACTS ON MINING ACTIVITIES

276. Since the listing of the lynx in 2000, the Service has conducted four formal and nine informal consultations regarding mining projects in states containing proposed critical habitat that considered the lynx. Minnesota had the most consultations (nine), followed by Washington (three), and Montana (one).
277. Only one consultation resulted in conservation efforts for the lynx, an informal consultation concerning the NorthMet Mine near Babbitt in 2005. The NorthMet project is planned by the PolyMet Mining Corporation. The planned development of open pit mines producing primarily copper and nickel will take place on 3,000 acres, including 1,100 acres of wetlands and waters, and would be completed over 20 years. As a result of consultation, the Service recommended that PolyMet conduct a study of species' population density in this area. PolyMet conducted a track survey in the winter of 2005-2006 at a cost of \$70,000 (2005 dollars).²¹⁵ Additionally, PolyMet conducted a lynx survey previous to the NorthMet project in winter 2000, at an estimated present value cost between \$15,000 and \$70,000 (2000 dollars).²¹⁶

8.5 POST-DESIGNATION ECONOMIC IMPACTS ON MINING ACTIVITIES

278. This analysis is principally concerned with the planned expansions and new developments of mining operations in the study area. How development of mine pits could be modified to be conservative of the lynx is uncertain, as relocation is not a viable alternative. Absent information on project modifications, this analysis reports the full

²¹² *Ibid.*

²¹³ Minnesota DNR Division of Lands and Minerals/U.S. Geological Survey, "The Mineral Industry of Minnesota," U.S. Geological Survey Minerals Yearbook, 2003, minerals.usgs.gov/minerals/pubs/state/mn.html.

²¹⁴ Personal communication with Robin McCulloch, Associate Research Engineer, Montana Bureau of Mines and Geology, February 14, 2006.

²¹⁵ Personal communication with Jim Scott, Assistant Project Manager, PolyMet Mining Corp. between March 7 and March 16, 2006.

²¹⁶ PolyMet Assistant Project Manager Jim Scott was unable to cite costs for the winter track survey conducted in 2000. Therefore, this analysis bases a low end cost estimate on the cost of the planned habitat fragmentation survey, per information provided by John Ahlness, District Engineer, USACE Regulatory Branch in St. Paul, Minnesota between March 1 and 2, 2006. The high end estimate is the cost of the track survey PolyMet conducted in 2005-2006.

value of these mining expansions.²¹⁷ These projects occur on leased lands within Superior National Forest in Unit 2.

8.5.1 UNIT 1: MAINE

279. Currently no metal mines are active in Unit 1. The greatest mineral potential in Unit 1 are the gold deposits found near Bald Mountain in Aroostook County west of Caribou. Blackhawk, a Toronto-based mining company, leased Bald Mountain for exploratory purposes and applied for a mining permit in the late 1990s. Due to a decline in the price of gold, Blackhawk withdrew its permit application.²¹⁸ No other mining company has explored development of this site in the past five to six years.

8.5.2 UNIT 2: MINNESOTA

280. Three mining companies in Unit 2 have projects planned within the study area for the lynx: PolyMet Mining Corp., Northshore Mining Company, and Mittal Steel. The planned projects are relatively shallow open pit mines.

Potential Impacts to NorthMet Mine

281. NorthMet Mine, which is being developed for copper and nickel extraction, is not currently operational. PolyMet Mining Corp. expects the permitting process to be completed by mid to late 2007, with a projected mine opening date in late 2008.²¹⁹ The mine site is located almost entirely between two non-contiguous areas of proposed critical habitat. Approximately 40 acres within proposed critical habitat is planned as a stockpile site.²²⁰ Additionally, PolyMet plans to widen an existing haul road to a width of 200 feet.²²¹ A small section of this road, approximately one mile in length, passes through proposed critical habitat. Whether this road widening will require lynx conservation efforts is uncertain as plan details are not available. The planned mining expansion area is located within the Superior National Forest subunit of the study area.
282. To relocate the stockpile site, PolyMet would be forced to acquire equivalent acreage outside of the study area, at an estimated cost of \$1,000 per acre.²²² This analysis assumes that this land acquisition cost would be borne in 2007, the year prior to the opening of NorthMet Mine.

Northshore Mine

283. Northshore Mining Company is in the process of obtaining a permit from the U.S. Army Corps of Engineers (USACE) to expand an existing taconite mine pit by filling a 20 acre

²¹⁷ Expansion values based on figures provided by the mining companies. Information to independently verify these values is unavailable.

²¹⁸ Personal communication with Robert Marvinney, Director and Senior Geologist, Maine Geological Survey, March 3, 2006.

²¹⁹ Personal communication with Jim Scott, Assistant Project Manager, PolyMet Mining Corp. between March 7 and March 16, 2006.

²²⁰ *Ibid.*

²²¹ *Ibid.*

²²² *Ibid.*

wetlands area.²²³ Based on the current dollar value for taconite pellets, the expected return of the project to Northshore is estimated at \$2.25 million per acre.²²⁴ The value to Northshore of extracting taconite from the 20 acre portion of the mine pit in the study area is therefore \$45 million.

Potential Impacts to East Reserve

284. Mittal Steel plans to develop the East Reserve taconite deposit, located adjacent to the currently active Laurentian Mine within the Minorca Mine complex. The East Reserve is located almost entirely within the study area in the Superior National Forest subunit. Mittal Steel owns and leases portions of the planned expansion area.²²⁵ The Manager of Safety and Environment stated that if Mittal does not carry out this expansion, the Laurentian Mine will shut down in five to six years.²²⁶ If the project receives approval, the East Reserve Mine will be able to produce for 20 years and the Laurentian Mine for another nine to ten years.
285. The East Reserve site consists of planned mine pits, haul roads, and stockpiles. This analysis quantifies the cost to Mittal Steel of relocating the stockpiles to a site outside of the study area to minimize surface disturbance. The planned footprint of the stockpiles is 375 acres.²²⁷ To relocate the stockpile site, Mittal would need to acquire equivalent acreage outside of the study area, at an estimated cost of \$1,000 per acre.²²⁸ This analysis assumes that this land acquisition cost would be borne in 2007, the year in which the East Reserve is planned to begin production.
286. The planned footprint of mining pits at the East Reserve site is 364 acres.²²⁹ Assuming the value of the taconite deposit at the East Reserve site is comparable to the taconite deposit at the Northshore site, the value of the 364 acre mine is expected to be approximately \$819 million (\$2.25 million per acre). Communication with Northshore indicates that if the deposits were not developed, it would cost Mittal Steel \$60 per metric ton to import taconite pellets for their steel production operations.²³⁰ The production capacity of the East Reserve is estimated to be 48.4 million metric tons.²³¹

²²³ Personal communication with Dave Skolaskinski, District Manager on Environmental Affairs and Mark Buckley, Area Manager of Technical Services, of Northshore Mining Company between March 6 and April 5, 2006.

²²⁴ *Ibid.*

²²⁵ Personal communication with Gus Josephson, Manager of Safety and Environment, Mittal Steel, March 7, 2006.

²²⁶ *Ibid.*

²²⁷ Ispat Inland East Reserve Scoping Environmental Assessment Worksheet, May 2005, p. 5.

http://files.dnr.state.mn.us/input/environmentalreview/eastreserve/scoping_eaw.pdf

²²⁸ Personal communication with Jim Scott, Assistant Project Manager, PolyMet Mining Corp. between March 7 and March 16, 2006.

²²⁹ Personal communication with Gus Josephson, Manager of Safety and Environment, Mittal Steel, March 7, 2006.

²³⁰ Personal communication with Jim Scott, Assistant Project Manager, PolyMet Mining Corp. between March 7 and March 16, 2006.

²³¹ Production planning estimates provided by Jim Scott, Assistant Project Manager of PolyMet Mining Corp., assuming a 20 year lifespan of the East Reserve Mine.

Habitat Fragmentation Study

287. Three mining companies with mine sites in the Mesabi Range plan to contribute funds to a wildlife habitat fragmentation and wildlife migration corridor cumulative impact assessment in 2006. The \$15,000 cost of the study will be equally shared by PolyMet Mining Company, Mittal Steel and Minnesota Steel.²³²

Other Mining Projects

288. Two processing plants plan to begin operations near the town of Biwabik on lands adjacent to the study area. These are operated by Mesabi Nugget, which plans to develop the world's first commercial iron nugget plant, and by PolyMet Mining, which acquired portions of the former Cliffs Erie ore processing facilities.²³³ The land footprint of these plant sites does not overlap the study area. Mesabi Nugget, which has fully obtained permits for the facility and begun the construction process, has no current plans to expand the site beyond the planned footprint.²³⁴ PolyMet has no plans to expand the footprint of the existing Cliffs Erie plant site over the next twenty years.²³⁵
289. Northshore Mining Company pumps tailings from its processing plant in Silver Bay to Mile Post 7 Tailings Basin. This basin, which has a current footprint of between three and four square miles, is located entirely within the study area.²³⁶ The basin is expanding in a continuous and linear manner into the surrounding forested hillsides. The tailings basin was studied in the EIS published in 1977 and Northshore holds a permit for the full expansion of the site. The footprint of the basin will increase by approximately one square mile over the next 50 to 70 years. Future wetlands permitting is not likely for another 25 years. In the absence of this facility, tailings would most likely need to be pumped to South Dakota, the cost of which would be prohibitive.²³⁷
290. United Taconite, like Northshore Mining Company, is also a subsidiary of Cleveland Cliffs operating on lands near the study area. United Taconite has long range plans to develop an ore deposit southeast of the town of Virginia within the study area in an area bounded by Highway 53 to the west, Highway 105 to the north, and Highway 37 to the south. This site has already experienced development pressures and so is unlikely to contain the PCEs for lynx.²³⁸ Additionally, the time frame and specific plans for this project are unknown.

²³² Personal communication with Jon Ahlness, District Engineer, USACE Regulatory Branch in St. Paul, MN, March 2, 2006. Minnesota Steel is developing a mine site near the town of Naushwauk, approximately 20 miles west of the study area.

²³³ Executive Summary on Mesabi Nugget website accessed at <http://mesabinugget.com/execsummary/> on March 16, 2006.

²³⁴ Personal communication with Larry Lehtinen, President, Mesabi Nugget, LLC, March 20, 2006.

²³⁵ Personal communication with Jim Scott, Assistant Project Manager, PolyMet Mining Corp. between March 7 and March 16, 2006.

²³⁶ Personal communication with Dave Skolaskinski, District Manager on Environmental Affairs and Mark Buckley, Area Manager of Technical Services, of Northshore Mining Company between March 6 and April 5, 2006

²³⁷ *Ibid.*

²³⁸ *Ibid.*

8.5.3 UNIT 3: NORTHERN ROCKY MOUNTAINS

291. Currently no metal mines are active in Unit 3. Two-thirds of the proposed critical habitat area, predominantly in the northern portion, lack mineral potential.²³⁹ Copper deposits exist in the southern portion of the study area along State Highway 200.²⁴⁰

8.5.4 UNIT 4: NORTH CASCADES

292. No metal mines are currently active in Unit 4.²⁴¹ The eastern portion of the study area in Washington is a prospective mining area for silver and copper.²⁴² Ample sand and gravel deposits exist in both the state-owned lands and private inholdings in the Loomis area. Private inholdings on Loomis Block lands have patented mining claims.²⁴³ No new expansions or developments were identified, however. The western portion of the unit has a low potential for mining development due to the inaccessibility of the terrain.

²³⁹ Personal communication with Robin McCulloch, Associate Research Engineer, Montana Bureau of Mines and Geology, February 14, 2006.

²⁴⁰ *Ibid.*

²⁴¹ Personal communication with Dave Norman, WADNR Assistant State Geologist, February 15, 2006.

²⁴² Personal communication with Teodora Minkova, WADNR Ecologist, February 8, 2006.

²⁴³ Personal communication with Scott Fisher, WADNR Regional Biologist, February 13, 2006.