

## BROKEN PROMISE #8

# Impacts to Wildlife



Grizzly bears at Prudhoe Bay oilfield garbage dump.

Joel Sartore

## The Promise

Oil development takes place in harmony with healthy wildlife populations.

## The Reality

Oil and gas exploration and development harm wildlife and habitat.

Decades of research supports the conclusion that oil and gas development in Arctic Alaska has negative impacts on wildlife and habitat. As early as 1987, the Department of Interior studied potential impacts of oil development on the coastal plain of the Arctic National Wildlife Refuge (Arctic Refuge) and concluded there would be major impacts to the Porcupine Caribou Herd, muskox, water quality and quantity.<sup>1</sup> These conclusions were reiterated in a 1995 science review conducted by the U.S. Fish and Wildlife Service.<sup>2</sup> In 2002, U.S Geological Survey biologists released a report based on 12 years of studies that further substantiated the potential impacts of oil development in the Arctic Refuge on the Porcupine Caribou Herd, and other animals.<sup>3</sup> A year later, the National Academy of Sciences released a major study looking beyond the Arctic Refuge and documenting cumulative impacts of oil development on wildlife across an extensive area of Alaska's North Slope, including offshore areas.<sup>4</sup>

These studies make clear that oil and gas development negatively impacts wildlife through direct mortality and displacement, reduced reproductive rates, and better conditions for predators. Furthermore, significant effects to wildlife and habitat will accumulate as industry expands.<sup>5</sup> To suggest that wildlife and oil development can safely coexist not only ignores the prevailing science, but ignores the additional impacts of climate change, which alone could push wildlife beyond thresholds of survival.

### Caribou

Oil development proponents often support their assertion that industrial activity on Alaska's North Slope does no harm to wildlife by pointing to the Central Arctic Caribou Herd, whose calving grounds overlap with the Prudhoe Bay industrial complex. The herd has increased in size since about the time that North Slope development began.

- ▷ Wildlife, including caribou, are negatively impacted by oil development.
- ▷ Impacts to wildlife are direct, but also indirect as a result of impacts to habitat.
- ▷ Impacts from oil development are accumulating, and contributing to climate change, which further stresses wildlife.

**"Animals have been affected by industrial activities on the North Slope....It [is] unlikely that most disturbed wildlife habitat on the North Slope will ever be restored."**<sup>6</sup>

National Academy of Sciences, 2003



But many factors can affect the growth or decline of caribou numbers,<sup>7</sup> and focusing just on numbers, or one herd, fails to tell the whole story. In fact, decades of studies of the five different caribou herds in the Arctic show that:

- Caribou numbers have decreased in developed areas on the North Slope suggesting that they avoid developed areas, especially for calving and during summer months.<sup>8</sup>
- Caribou numbers have been found to decline exponentially as the density of roads increases.<sup>9</sup>
- Larger groups (100 or more caribou) have difficulty crossing roads and pipelines.<sup>10</sup>
- When caribou cows are displaced from preferred calving areas, their calves are smaller at birth and may not grow as fast or survive as well.<sup>11</sup>
- Caribou calves born in an area west of Prudhoe Bay that has seen increasing development since the late 1980s weighed less and were slightly smaller than calves studied in an area east of Prudhoe Bay that is mostly undeveloped.<sup>12</sup>
- Even small changes can have profound effects on caribou populations.<sup>13</sup>

For the Porcupine caribou, a 4.6% reduction in calf survival would be enough to stall the herd's growth.<sup>14</sup> Scientists predict that any development in caribou calving grounds would displace caribou and impact calf survival.<sup>15</sup>

## Bears, birds, and other wildlife

In addition to caribou, pictures of bears, foxes, and birds near oil fields are often misrepresented as evidence that wildlife can thrive in the midst of oil development. The real story such pictures tell is not so pleasant.

- Mortality rates for bears feeding on garbage in the oil fields are higher than for bears feeding on natural foods in an undisturbed habitat. Future development will result in destruction of additional grizzly bear habitat,<sup>16</sup> and increased defensive shooting of bears by humans.<sup>17</sup>
- Oil development activities have disturbed polar bears from maternity dens.<sup>18</sup> With sea ice loss, more polar bears are expected to den onshore,<sup>19</sup> thus increasing the likelihood of human-bear interactions and impacts similar to those observed with grizzly bears.
- Fox populations can increase when they establish dens near human settlements. Foxes prey on eggs, and artificially high fox numbers can in turn impact bird chick birth rates.<sup>20</sup>
- Nesting success of spectacled eiders is much lower in the oil fields than in other areas.<sup>21</sup>
- Important wetland habitat for birds has been filled by gravel.<sup>22</sup>
- Roads displace and interfere with wildlife movements, and kill animals in their path.<sup>23</sup>
- Birds are killed by powerlines and other infrastructure.<sup>24</sup>



Wayne Todd



U.S. Fish and Wildlife Service



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## Marine life

Offshore development impacts to wildlife can be even more serious. Seismic testing produces sonic shockwaves that can interfere with the way marine mammals communicate and detect prey. In extreme cases seismic testing can damage hearing and even cause death of marine species.<sup>25</sup> Also, both incremental oil spills and catastrophic ones pose threats to seafloor benthic life, fish, walrus, seals, whales, seabirds, and potentially also coastal wildlife.<sup>26</sup> As one example, scientists estimate that if an oil spill were to occur from the Northstar oil field in the Beaufort sea, as many as 70 polar bears could be oiled.<sup>27</sup>

## Future development

These and many other impacts to wildlife continue to accumulate on Alaska's North Slope. As drilling proponents press to expand operations offshore, both marine and terrestrial species will face increased impacts from seismic testing, air, land, and marine

traffic, and the industrial infrastructure required to support oil development. Oil and gas development not only puts species at risk, but also affects the livelihoods of local people who depend on these animals for food, cultural traditions, and income.



National Oceanic and Atmospheric Administration

<sup>1</sup> U.S. Department of the Interior. 1987. Arctic National Wildlife Refuge Coastal Plain Resource Assessment: Report and Recommendation to the Congress of the United States and Final Legislative Environmental Impact Statement. P. 166.

<sup>2</sup> U.S. Fish and Wildlife Service. (1995). A preliminary review of the Arctic National Wildlife Refuge, Alaska coastal plain resource assessment: report and recommendation to the Congress of the United States and final legislative environmental impact statement.

<sup>3</sup> D.C. Douglas, P.E. Reynolds, and E.B. Rhode, editors. 2002. Arctic Refuge Coastal Plain Terrestrial Wildlife Research Summaries. Biological Science Report. U.S. Geological Survey, Biological Resources Division, Biological Science Report USGS/BRD/BSR-2002-0001.

<sup>4</sup> National Research Council. 2003. Cumulative environmental effects of oil and gas activities on Alaska's North Slope. National Academies Press. P. 148, 158.

<sup>5</sup> Ibid.

<sup>6</sup> National Research Council. 2003. pp. 157-158.

<sup>7</sup> Harper, Patti. (2007, June). Caribou calves and oil development: do they mix? Alaska Department of Fish and Game. Online article retrieved from: [http://www.wildlifeneews.alaska.gov/index.cfm?adfg=wildlife\\_news.view\\_article&articles\\_id=298&issue\\_id=51](http://www.wildlifeneews.alaska.gov/index.cfm?adfg=wildlife_news.view_article&articles_id=298&issue_id=51).

<sup>8</sup> Cameron, R.D., W.T. Smith, R.G. White, and B. Griffith. 2002. The Central Arctic Caribou Herd. Pp. 38-45 in: U.S. Geological Survey, Arctic Refuge Coastal Plain Terrestrial Wildlife Research Summaries. Biological Science Report USGS/BRD/BSR-2002-0001. P.38.

<sup>9</sup> Ibid. p. 40.

<sup>10</sup> Smith, W. T., and R. D. Cameron. 1985. Reactions of large groups of caribou to a pipeline corridor on the arctic coastal plain of Alaska. *Arctic*. 38:53-57

<sup>11</sup> Arthur, S. M. and P. A. Del Vecchio. (2007). Effects of oil field development on calf production and survival in the central arctic herd. Alaska Department of Fish and Game. Interim research technical report. Project 3.46. Juneau, Alaska. Retrieved from: [http://www.wildlife.alaska.gov/pubs/techpubs/research\\_pdfs/ca-oil\\_irtr.pdf](http://www.wildlife.alaska.gov/pubs/techpubs/research_pdfs/ca-oil_irtr.pdf).

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> Griffith, B., D.C. Douglas, N.E. Walsh, D.D. Young, T.R. McCabe, D.E. Russell, R.G. White, R.D. Cameron, and K.R. Whitten. 2002. The Porcupine Caribou herd. Pp. 8-37 in: U.S. Geological Survey, Arctic Refuge Coastal Plain Terrestrial Wildlife Research Summaries. Biological Science Report USGS/BRD/BSR-2002-0001. P. 34.

<sup>15</sup> Ibid.

<sup>16</sup> National Research Council. 2003. P. 118; 157.

<sup>17</sup> Shideler, R. and J. Hechtel. 2000. Grizzly bear. Chapter 6 in: J. C. Truett and S. R. Johnson (eds.) The natural history of an arctic oil field. Development and the biota. Academic Press, San Diego. 422 pp.

<sup>18</sup> National Research Council. 2003. P. 157.

<sup>19</sup> A. S. Fischbach, S.C. Amstrup and D. C. Douglas. Landward and eastward shift of Alaskan polar bear denning associated with recent sea ice changes. *Polar Biology*. 30:1395-1405.

<sup>20</sup> National Research Council. 2003. P. 119-123; 157-158.

<sup>21</sup> Ibid. p 121-122.

<sup>22</sup> Ibid. p. 119.

<sup>23</sup> Ibid. P. 77.

<sup>24</sup> Minerals Management Service. Liberty Development and Production Plan. OCS EIS/EA. MMS 2007-054. Sec. 3.3.8.5.

<sup>25</sup> Boesh, Donald F. and Rabalais, Nancy N. Long-term effects of offshore oil and gas development. Oxford: Taylor and Francis group. Cited in Toxic Legacy: Long-term effects of offshore oil on wildlife and public health. [Oceans.org/climate](http://oceans.org/climate).

<sup>26</sup> Currie, D.R. and L. Isaacs. 2005. Impact of exploratory offshore drilling on benthic communities in the Minerva gas field, Port Campbell, Australia. *Marine Environmental Research*. 59:3, 217-233.

<sup>27</sup> Amstrup, S.C., G.M. Durner, T.L. McDonald, and W.R. Johnson. 2006. Estimating potential effects of hypothetical oil spills on polar bears. Unpublished report. U.S. Geological Survey, Alaska Science Center, Anchorage, Alaska. P. 56. [http://alaska.usgs.gov/science/biology/polar\\_bears/contaminants.html](http://alaska.usgs.gov/science/biology/polar_bears/contaminants.html)