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CARIBOU AND OIL DEVELOPMENT ON THE NORTH SLOPE

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(Note: This testimony does not reflect an official ADF&G position)

Each caribou herd has its own, discrete calving area. Other seasonal habitats for caribou tend to be widespread, but the combined features of scarce predators and high quality forage that characterize calving areas usually occur together on only a small portion of a herd's overall range. Therefore calving grounds are considered to be critical habitats. Prudhoe Bay and other operating oilfields on the North Slope are within the calving grounds of the Central Arctic Herd. This herd was quite small (only about 5,000) when oil development first started in the mid-1970s (Cameron and Whitten 1979), but impacts from development were soon noted. Calving within the Prudhoe Field had already largely ceased by the time oil first began flowing south (Whitten and Cameron 1985). The dense network of pipelines, roads, oil wells, and production facilities at Prudhoe Bay also blocked mid-summer movements of caribou along the arctic coast (Whitten and Cameron 1983). Cow and calf caribou avoided the Trans Alaska Pipeline Corridor (Cameron et al. 1979) but continued to cross it successfully from late summer through spring, when calves

were older and the herd was south of the intensely developed oilfields (Whitten and Cameron 1983).

In spite of these impacts, the Central Arctic Herd thrived during the early years of oil development and grew to about 14,000 by 1983. By the time development expanded into the Kuparuk area during the 1980s, the petroleum industry had begun to consolidate facilities so that the newer oilfields disturbed less space. Also, some pipelines were raised higher above ground and separated from roads with heavy traffic. These new designs allowed caribou to move more freely than at Prudhoe Bay, and caribou continued to use the Kuparuk and Milne Pt. Oilfields. Nevertheless, caribou with newborn calves avoided developed areas, even when there was little traffic (Dau and Cameron 1986, Cameron et al. 1992). Over time, the Kuparuk and Milne Fields became more heavily developed, and caribou used them less and less (Cameron et al. 1992; Smith et al. 1994).

By the late 1980s, growth of the Central Arctic Herd slowed, and the population stabilized at about 23,000. Harsh climatic conditions, including severe winters and dry summer growing seasons, stressed caribou throughout much of Alaska during the early 1990s. Central Arctic caribou that spent more time in or near the oilfields gained less weight during the summer growing season and had lower pregnancy rates and lower calf survival that other members of the herd that seldom encountered development (Cameron 1995). Avoidance of roads and pipelines during calving was thought to be causing abandonment of preferred habitats and overuse undisturbed habitats (Nelleman and Cameron, 1996, 1998). Chronic disruption of summer movements also exacerbated exposure of caribou to insect pests. The Central Arctic Herd declined to 18,000 in 1993 and then grew slowly to about 20,000 in 1995.

By the late 1990s, the ever expanding oilfields were displacing even more caribou during calving. Forage quality on newly occupied calving grounds south and west of the oilfields was lower than in the former oilfield calving area (Wolfe 2000). Nevertheless, favorable weather once again prevailed in the range of the Central Arctic Herd. Calf productivity and survival recovered and the Central Arctic Herd once again increased rapidly, reaching 27,000 in the year 2000.

The United States Congress continues to debate expansion of North Slope oil development onto the coastal plain of the Arctic National Wildlife Refuge. The potential lease area within the Arctic Refuge lies within the calving grounds of the Porcupine Caribou Herd. This large, migratory herd moves between the U.S. and Canada and is vital to the traditional subsistence cultures of numerous Native villages in both countries. Over the past 25 years, the Porcupine Herd has fluctuated between about 100,000 and 180,000 animals, with the current population about 120,000.

Porcupine Herd caribou are much more concentrated on their calving grounds than the smaller Central Arctic Herd. Although calving has occurred historically over a fairly large area of the North Slope in Alaska and the Yukon Territory, most calves are usually born in a smaller region that encompasses most of the area being considered for oil development

(Fancy and Whitten 1991). During late June and early July, essentially all cows and calves and many bulls of the Porcupine Herd use the potential development area every year.

Even during periods of relatively mild climatic conditions, Porcupine Herd caribou have tended to have somewhat lower calf production and adult survival rates than most other caribou herds. In contrast, calf survival in the Porcupine Herd has generally been very high when females have been able to calve on the traditional calving area that includes the potential oil lease area (Fancy and Whitten 1991, Whitten et al. 1992). As with other caribou calving areas, rapid, nutritious plant growth often occurs in this area during calving (USGS/BRD, unpubl.), and the coastal plain is also relatively free of predators. Calf survival has been lower when late snowmelt forced Porcupine Herd caribou to calve in nearby mountains and foothills where wolves, grizzly bears, and golden eagles abound (Whitten et a. 1992). Viabilty of the Porcupine Herd population depends on the high calf survival rates experienced on the Coastal Plain.

Studies in the Prudhoe Bay and Kuparuk oilfields show that larger groups (100 or more caribou) have difficulty crossing roads and pipes (Smith and Cameron 1985). Porcupine Herd caribou normally occur in much larger groups than Central Arctic Herd caribou. Groups of several thousand caribou occur throughout the summer in the Porcupine Herd, and from mid-June through July group sizes in the tens of thousands are common.

In summary, development of the Prudhoe Bay oilfield displaced caribou and disrupted their movements. Similar long-term displacement now appears to be occurring elsewhere, even in the "state-of-the-art" Kuparuk and Milne Pt. Oilfields. When climate has been generally favorable, the Central Arctic Herd has been able to hold its own and even increase, in spite of displacement from some of its favored habitats. In times of environmental stress, however, Central Arctic caribou that regularly used the oilfields fared poorly relative to other members of the herd that used areas away from development. The entire population then declined. Mitigation measures that appeared to work fairly well in the early stages of North Slope oilfield development may thus become less effective as more and more of the Central Arctic Herd's preferred habitats are developed and more caribou are concentrated on the habitats that remain accessible.

We cannot be certain that even current state-of-the-art mitigation measures will guarantee access to critical habitats for the larger, more densely aggregated Porcupine Herd. Environmental resources at risk in development the Arctic National Wildlife Refuge are considerable. The Porcupine Herd far exceeds the Central Arctic Herd in importance as a regional subsistence resource. Preferred coastal plain habitats in the Arctic Refuge are much narrower (10-40 miles wide) than in the range of the Central Arctic Herd (100-150 miles wide). Disturbance has so far only displaced Central Arctic caribou to other coastal plain habitats with few predators. If similar spatial displacement were to occur in the Arctic Refuge, however, caribou would be driven to foothills and mountains with more abundant predators and/or lower quality forage. Consequently, the Porcupine Herd might not fare as well as the Central Arctic Herd apparently did during the early years of Prudhoe Bay development. The Porcupine Herd could experience adverse population level impacts from development even during periods of mild weather. Any impacts that

would cause a long-term decline in calf survival could lower average population size over time, with serious consequences for many residents in both Canada and the U.S.

Considering of the importance of the Porcupine Caribou Herd to indigenous people in United States and Canada, and the high likelihood that petroleum leasing and development would cause long-term harm to those caribou, 21 arctic caribou biologists from the US and Canada signed a letter to former President Clinton urging permanent protection of the Porcupine Herd calving grounds from development. Over 500 prominent North American scientists signed a letter to President Bush urging protection of the Arctic Refuge Coastal Plain to safeguard caribou and other natural resource values. Protection of the Coastal Plain has also been endorsed by the Alaska Chapter of The Wildlife Society, the American Society of Mammalogists, and the Cooper Ornithological Union. Copies of the letters and resolutions are attached. I urge Congress to heed the advice of these eminent wildlife biologists and ecologists and not allow petroleum development on the Arctic Refuge Coastal Plain.

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