ISSUE 8

Should the Arctic National Wildlife Refuge Be Opened to Oil Drilling?

YES: **Dwight R. Lee**, from "To Drill or Not to Drill: Let the Environmentalists Decide," *The Independent Review* (Fall 2001)

NO: **Katherine Balpataky**, from "Protectors of the Herd," *Canadian Wildlife* (Fall 2003)

ISSUE SUMMARY

YES: Professor of economics Dwight R. Lee argues that the economic and other benefits of Arctic National Wildlife Refuge (ANWR) oil are so great that even environmentalists should agree to permit drilling—and they probably would if they stood to benefit directly.

NO: Katherine Balpataky argues that cost-benefit analyses do not support the case for drilling in the ANWR and that the damage done by drilling both to the environment and to the traditional values of the indigenous people, the Gwich'in, cannot be tolerated.

The birth of environmental consciousness in the United States was marked by two strong, opposing views. Late in the nineteenth century, John Muir (1838–1914) called for the preservation of natural wilderness, untouched by human activities. At about the same time, Gifford Pinchot (1865–1946) became a strong voice for conservation (not to be confused with preservation; Gifford's conservation allowed the use of nature but in such a way that it was not destroyed; his aim was "the greatest good of the greatest number in the long run"). Both views agree that nature has value; however, they disagree on the form of that value. The preservationist says that nature has value in its own right and has a right to be left alone, neither developed with houses and roads nor exploited with farms, dams, mines, and oil wells. The conservationist says that nature's value lies chiefly in the benefits it provides to human beings.

The first national parks date back to the 1870s. Parks and the national forests are managed for "multiple use" on the premise that wildlife protection, recreation, timber cutting, and even oil drilling and mining can coexist. The first "primitive areas," where all development is barred, were created by

the U.S. Forest Service in the 1920s. However, pressure from commercial interests (the timber and mining industries, among others) led to the reclassification of many such areas and their opening to exploitation. In 1964 the Federal Wilderness Act provided a mechanism for designating "wilderness" areas, defined as areas "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." Since then it has become clear that pesticides and other man-made chemicals are found everywhere on earth, drifting on winds and ocean currents and traveling in migrant birds even to areas without obvious human presence. Humans might not be present in these places, but their effects are. And commercial interests are just as interested in the wealth that may be extracted from these areas as they ever were. There is continual pressure to expand commercial use of national forests and parks and to open wilderness areas to exploitation.

The Arctic National Wildlife Refuge (ANWR) provides a good illustration. It is not a "wilderness" area, for it was designated a wildlife preserve in 1960 and enlarged and renamed in 1980 with the proviso that its coastal plain be evaluated for its potential value in terms of oil and gas production. In 1987 the Department of the Interior recommended that the coastal plain be opened for oil and gas exploration. In 1995 Congress approved doing so, but President Bill Clinton vetoed the legislation. In 2001, after California experienced electrical blackouts, President George W. Bush declared that opening the ANWR to oil exploitation was essential to national energy security but could not muster enough votes in Congress to make it happen. In 2003, an attempt to link the need for Arctic oil to the war in Iraq failed in the Senate. Early in 2004, the Bush administration proposed once more to open the ANWR to oil drilling, but the outcome was by no means certain. See "Bush Budget Calls for Oil Drilling in Alaska Refuge" Reuters (February 4, 2004) (available at `http://www.planetark.com/dailynewsstory.cfm/newsid/23687/story.htm`).

Strict preservationists still remain, but the debate over protecting wilderness areas generally centers on economic arguments. In the following selections, Dwight R. Lee argues that the economic and other benefits of Arctic National Wildlife Refuge oil are so great that drilling should be permitted. Katherine Balpataky argues that drilling in the ANWR is not cost effective and that to the indigenous people, the Gwich'in, the ANWR is a rich homeland that will only be destroyed by exploitation.

Dwight R. Lee

YES

To Drill or Not to Drill

High prices of gasoline and heating oil have made drilling for oil in Alaska's Arctic National Wildlife Refuge (ANWR) an important issue. ANWR is the largest of Alaska's sixteen national wildlife refuges, containing 19.6 million acres. It also contains significant deposits of petroleum. The question is, Should oil companies be allowed to drill for that petroleum?

The case for drilling is straightforward. Alaskan oil would help to reduce U.S. dependence on foreign sources subject to disruptions caused by the volatile politics of the Middle East. Also, most of the infrastructure necessary for transporting the oil from nearby Prudhoe Bay to major U.S. markets is already in place. Furthermore, because of the experience gained at Prudhoe Bay, much has already been learned about how to mitigate the risks of recovering oil in the Arctic environment.

No one denies the environmental risks of drilling for oil in ANWR. No matter how careful the oil companies are, accidents that damage the environment at least temporarily might happen. Environmental groups consider such risks unacceptable; they argue that the value of the wilderness and natural beauty that would be spoiled by drilling in ANWR far exceeds the value of the oil that would be recovered. For example, the National Audubon Society characterizes opening ANWR to oil drilling as a threat "that will destroy the integrity" of the refuge (see statement at `www.audubon.org/campaign/refuge`).

So, which is more valuable, drilling for oil in ANWR or protecting it as an untouched wilderness and wildlife refuge? Are the benefits of the additional oil really less than the costs of bearing the environmental risks of recovering that oil? Obviously, answering this question with great confidence is difficult because the answer depends on subjective values. Just how do we compare the convenience value of using more petroleum with the almost spiritual value of maintaining the "integrity" of a remote and pristine wilderness area? Although such comparisons are difficult, we should recognize that they can be made. Indeed, we make them all the time.

We constantly make decisions that sacrifice environmental values for what many consider more mundane values, such as comfort, convenience, and material well-being. There is nothing wrong with making such sacrifices because up to some point the additional benefits we realize from sacrificing a little more environmental "integrity" are worth more than the necessary sacrifice. Ideally, we would somehow acquire the information necessary to determine where that point is and then motivate people with different perspectives and preferences to respond appropriately to that information.

Achieving this ideal is not as utopian as it might seem; in fact, such an achievement has been reached in situations very similar to the one at issue in ANWR. In this article, I discuss cases in which the appropriate sacrifice of wilderness protection for petroleum production has been responsibly determined and harmoniously implemented. Based on this discussion, I conclude that we should let the Audubon Society decide whether to allow drilling in ANWR. That conclusion may seem to recommend a foregone decision on the issue because the society has already said that drilling for oil in ANWR is unacceptable. But actions speak louder than words, and under certain conditions I am willing to accept the actions of environmental groups such as the Audubon Society as the best evidence of how they truly prefer to answer the question, To drill or not to drill in ANWR?

Private Property Changes One's Perspective

What a difference private property makes when it comes to managing multiuse resources. When people make decisions about the use of property they own, they take into account many more alternatives than they do when advocating decisions about the use of property owned by others. This straightforward principle explains why environmental groups' statements about oil drilling in ANWR (and in other publicly owned areas) and their actions in wildlife areas they own are two very different things.

For example, the Audubon Society owns the Rainey Wildlife Sanctuary, a 26,000-acre preserve in Louisiana that provides a home for fish, shrimp, crab, deer, ducks, and wading birds, and is a resting and feeding stopover for more than 100,000 migrating snow geese each year. By all accounts, it is a beautiful wilderness area and provides exactly the type of wildlife habitat that the Audubon Society seeks to preserve. But, as elsewhere in our world of scarcity, the use of the Rainey Sanctuary as a wildlife preserve competes with other valuable uses.

Besides being ideally suited for wildlife, the sanctuary contains commercially valuable reserves of natural gas and oil, which attracted the attention of energy companies when they were discovered in the 1940s. Clearly, the interests served by fossil fuels do not have high priority for the Audubon Society. No doubt, the society regards additional petroleum use as a social problem rather than a social benefit. Of course, most people have different priorities: they place a much higher value on keeping down the cost of energy than they do on bird-watching and on protecting what many regard as little more than mosquito-breeding swamps. One might suppose that members of the Audubon Society have no reason to consider such "anti-environmental" values when deciding how to use their own land. Because the society owns the Rainey Sanctuary, it can ignore interests antithetical to its own and refuse to allow drilling. Yet, precisely because the society owns

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the land, it has been willing to accommodate the interests of those whose priorities are different and has allowed thirty-seven wells to pump gas and oil from the Rainey Sanctuary. In return, it has received royalties of more than $25 million.

One should not conclude that the Audubon Society has acted hypocritically by putting crass monetary considerations above its stated concerns for protecting wilderness and wildlife. In a wider context, one sees that because of its ownership of the Rainey Sanctuary, the Audubon Society is part of an extensive network of market communication and cooperation that allows it to do a better job of promoting its objectives by helping others promote theirs. Consumers communicate the value they receive from additional gas and oil to petroleum companies through the prices they willingly pay for those products, and this communication is transmitted to owners of oil-producing land through the prices the companies are willing to pay to drill on that land. Money really does "talk" when it takes the form of market prices. The money offered for drilling rights in the Rainey Sanctuary can be viewed as the most effective way for millions of people to tell the Audubon Society how much they value the gas and oil its property can provide.

By responding to the price communication from consumers and by allowing the drilling, the Audubon Society has not sacrificed its environmental values in some debased lust for lucre. Instead, allowing the drilling has served to reaffirm and promote those values in a way that helps others, many of whom have different values, achieve their own purposes. Because of private ownership, the valuations of others for the oil and gas in the Rainey Sanctuary create an opportunity for the Audubon Society to purchase additional sanctuaries to be preserved as habitats for the wildlife it values. So the society has a strong incentive to consider the benefits as well as the costs of drilling on its property. Certainly, environmental risks exist, and the society considers them, but if also responsibly weighs the costs of those risks against the benefits as measured by the income derived from drilling. Obviously, the Audubon Society appraises the benefits from drilling as greater than the costs, and it acts in accordance with that appraisal.

Cooperation Between Bird-Watchers and Hot-Rodders

The advantage of private ownership is not just that it allows people with different interests to interact in mutually beneficial ways. It also creates harmony between those whose interests would otherwise be antagonistic. For example, most members of the Audubon Society surely see the large sport utility vehicles and high-powered cars encouraged by abundant petroleum supplies as environmentally harmful. That perception, along with the environmental risks associated with oil recovery, helps explain why the Audubon Society vehemently opposes drilling for oil in the ANWR as well as in the continental shelves in the Atlantic, the Pacific, and the Gulf of Mexico. Although oil companies promise to take extraordinary precautions to prevent oil spills when drilling in these

areas, the Audubon Society's position is no off-shore drilling, none. One might expect to find Audubon Society members completely unsympathetic with hot-rodding enthusiasts, NASCAR racing fans, and drivers of Chevy Suburbans. Yet, as we have seen, by allowing drilling for gas and oil in the Rainey Sanctuary, the society is accommodating the interests of those with gas-guzzling lifestyles, risking the "integrity" of its prized wildlife sanctuary to make more gasoline available to those whose energy consumption it verbally condemns as excessive.

The incentives provided by private property and market prices not only motivate the Audubon Society to cooperate with NASCAR racing fans, but also motivate those racing enthusiasts to cooperate with the Audubon Society. Imagine the reaction you would get if you went to a stock-car race and tried to convince the spectators to skip the race and go bird-watching instead. Be prepared for some beer bottles tossed your way. Yet by purchasing tickets to their favorite sport, racing fans contribute to the purchase of gasoline that allows the Audubon Society to obtain additional wildlife habitat and to promote bird-watching. Many members of the Audubon Society may feel contempt for racing fans, and most racing fans may laugh at bird-watchers, but because of private property and market prices, they nevertheless act to promote one another's interests.

The Audubon Society is not the only environmental group that, because of the incentives of private ownership, promotes its environmental objectives by serving the interests of those with different objectives. The Nature Conservancy accepts land and monetary contributions for the purpose of maintaining natural areas for wildlife habitat and ecological preservation. It currently owns thousands of acres and has a well-deserved reputation for preventing development in environmentally sensitive areas. Because it owns the land, it has also a strong incentive to use that land wisely to achieve its objectives, which sometimes means recognizing the value of developing the land.

For example, soon after the Wisconsin chapter received title to 40 acres of beach-front land on St. Croix in the Virgin Islands, it was offered a much larger parcel of land in northern Wisconsin in exchange for its beach land. The Wisconsin chapter made this trade (with some covenants on development of the beach land) because owning the Wisconsin land allowed it to protect an entire watershed containing endangered plants that it considered of greater environmental value than what was sacrificed by allowing the beach to be developed.

Thanks to a gift from the Mobil Oil Company, the Nature Conservancy of Texas owns the Galveston Bay Prairie Preserve in Texas City, a 2,263-acre refuge that is home to the Attwater's prairie chicken, a highly endangered species (once numbering almost a million, its population had fallen to fewer than ten by the early 1990s). The conservancy has entered into an agreement with Galveston Bay Resources of Houston and Aspects Resources, LLC, of Denver to drill for oil and natural gas in the preserve. Clearly some risks attend oil drilling in the habitat of a fragile endangered species, and the conservancy has considered them, but it considers the gains sufficient to justify bearing the risks. According to Ray Johnson, East County program manager for the Nature Conservancy of Texas. "We believe this could provide a tremendous opportunity to raise funds to acquire additional

habitat for the Attwater's prairie chicken, one of the most threatened birds in North America." Obviously the primary concern is to protect the endangered species, but the demand for gas and oil is helping achieve that objective. Johnson is quick to point out, "We have taken every precaution to minimize the impact of the drilling on the prairie chickens and to ensure their continued health and safety."

Back to ANWR

Without private ownership, the incentive to take a balanced and accommodating view toward competing land-use values disappears. So, it is hardly surprising that the Audubon Society and other major environmental groups categorically oppose drilling in ANWR. Because ANWR is publicly owned, the environmental groups have no incentive to take into account the benefits of drilling. The Audubon Society does not capture any of the benefits if drilling is allowed, as it does at the Rainey Sanctuary; in ANWR, it sacrifices nothing if drilling is prevented. In opposing drilling in ANWR, despite the fact that the precautions to be taken there would be greater than those required of companies operating in the Rainey Sanctuary, the Audubon Society is completely unaccountable for the sacrificed value of the recoverable petroleum.

Obviously, my recommendation to "let the environmentalists decide" whether to allow oil to be recovered from ANWR makes no sense if they are not accountable for any of the costs (sacrificed benefits) of preventing drilling. I am confident, however, that environmentalists would immediately see the advantages of drilling in ANWR if they were responsible for both the costs and the benefits of that drilling. As a thought experiment about how incentives work, imagine that a consortium of environmental organizations is given veto power over drilling, but is also given a portion (say, 10 percent) of what energy companies are willing to pay for the right to recover oil in ANWR. These organizations could capture tens of millions of dollars by giving their permission to drill. Suddenly the opportunity to realize important environmental objectives by favorably considering the benefits others gain from more energy consumption would come into sharp focus. The environmentalists might easily conclude that although ANWR is an "environmental treasure," other environmental treasures in other parts of the country (or the world) are even more valuable; moreover, with just a portion of the petroleum value of the ANWR, efforts might be made to reduce the risks to other natural habitats, more than compensating for the risks to the Arctic wilderness associated with recovering that value.

Some people who are deeply concerned with protecting the environment see the concentration on "saving" ANWR from any development as misguided even without a vested claim on the oil wealth it contains. For example, according to Craig Medred, the outdoor writer for the *Anchorage Daily News* and a self-described "development-phobic wilderness lover,"

> That people would fight to keep the scar of clearcut logging from the spectacular and productive rain-forests of Southeast Alaska is easily understandable to a shopper in Seattle or a farmer in Nebraska. That people would argue against sinking a few holes through the surface of a frozen wasteland, however, can prove more than a little baffling even to development-phobic, wilderness lovers like me. Truth be known, I'd trade the preservation rights to any 100 acres on the [ANWR] slope for similar rights to any acre of central California wetlands.... It would seem of far more environmental concern that Alaska's ducks and geese have a place to winter in overcrowded, overdeveloped California than that California's ducks and geese have a place to breed each summer in uncrowded and undeveloped Alaska.
>
> —(1996, C1)

Even a small share of the petroleum wealth in ANWR would dramatically reverse the trade-off Medred is willing to make because it would allow environmental groups to afford easily a hundred acres of central California wetlands in exchange for what they would receive for each acre of ANWR released to drilling.

We need not agree with Medred's characterization of the ANWR as "a frozen wasteland" to suspect that environmentalists are overstating the environmental amenities that drilling would put at risk. With the incentives provided by private property, environmental groups would quickly reevaluate the costs of drilling in wilderness refuges and soften their rhetoric about how drilling would "destroy the integrity" of these places. Such hyperbolic rhetoric is to be expected when drilling is being considered on public land because environmentalists can go to the bank with it. It is easier to get contributions by depicting decisions about oil drilling on public land as righteous crusades against evil corporations out to destroy our priceless environment for short-run profit than it is to work toward minimizing drilling costs to accommodate better the interests of others. Environmentalists are concerned about protecting wildlife and wilderness areas in which they have ownership interest, but the debate over any threat from drilling and development in those areas is far more productive and less acrimonious than in the case of ANWR and other publicly owned wilderness areas.

The evidence is overwhelming that the risks of oil drilling to the arctic environment are far less than commonly claimed. The experience gained in Prudhoe Bay has both demonstrated and increased the oil companies' ability to recover oil while leaving a "light footprint" on arctic tundra and wildlife. Oil-recovery operations are now sited on gravel pads providing foundations that protect the underlying permafrost. Instead of using pits to contain the residual mud and other waste from drilling, techniques are now available for pumping the waste back into the well in ways that help maintain well pressure and reduce the risks of spills on the tundra. Improvements in arctic road construction have eliminated the need for the gravel access roads used in the development of the Prudhoe Bay oil fields. Roads are now made from ocean water pumped onto the tundra, where it freezes to form a road surface. Such roads melt without a trace during the short summers. The oversize rubber tires used on the roads further minimize any impact on the land.

Improvements in technology now permit horizontal drilling to recover oil that is far from directly below the wellhead. This technique reduces further the already small amount of land directly affected by drilling operations. Of

the more than 19 million acres contained in ANWR, almost 18 million acres have been set aside by Congress–somewhat more than 8 million as wilderness and 9.5 million as wildlife refuge. Oil companies estimate that only 2,000 acres would be needed to develop the coastal plain.

This carefully conducted and closely confined activity hardly sounds like a sufficient threat to justify the rhetoric of a righteous crusade to prevent the destruction of ANWR, so the environmentalists warn of a detrimental effect on arctic wildlife that cannot be gauged by the limited acreage directly affected. Given the experience at Prudhoe Bay, however, such warnings are difficult to take seriously. The oil companies have gone to great lengths and spent tens of millions of dollars to reduce any harm to the fish, fowl, and mammals that live and breed on Alaska's North Slope. The protections they have provided for wildlife at Prudhoe Bay have been every bit as serious and effective as those the Audubon Society and the Nature Conservancy find acceptable in the Rainey Sanctuary and the Galveston Bay Prairie Preserve. As the numbers of various wildlife species show, many have thrived better since the drilling than they did before.

Before drilling began at Prudhoe Bay, a good deal of concern was expressed about its effect on caribou herds. As with many wildlife species, the population of the caribou on Alaska's North Slope fluctuates (often substantially) from year to year for completely natural reasons, so it is difficult to determine with confidence the effect of development on the caribou population. It is noteworthy, however, that the caribou population in the area around Prudhoe Bay has increased greatly since that oil field was developed, from approximately 3,000 to a high of some 23,400.... Some argue that the increase has occurred because the caribou's natural predators have avoided the area–some of these predators are shot, whereas the caribou are not. But even if this argument explains some or even all of the increase in the population, the increase still casts doubt on claims that the drilling threatens the caribou. Nor has it been shown that the viability of any other species has been genuinely threatened by oil drilling at Prudhoe Bay.

Caribou Versus Humans

Although consistency in government policy may be too much to hope for, it is interesting to contrast the federal government's refusal to open ANWR with some of its other oil-related policies. While opposing drilling in ANWR, ostensibly because we should not put caribou and other Alaskan wildlife at risk for the sake of getting more petroleum, we are exposing humans to far greater risks because of federal policies motivated by concern over petroleum supplies.

For example, the United States maintains a military presence in the Middle East in large part because of the petroleum reserves there. It is doubtful that the U.S. government would have mounted a large military action and sacrificed American lives to prevent Iraq from taking over the tiny sheikdom of Kuwait except to allay the threat to a major oil supplier. Nor would the United States have lost the nineteen military personnel in the barracks blown up in Saudi Arabia in 1996 or the seventeen killed onboard the USS Cole in a Yemeni harbor in

2000. I am not arguing against maintaining a military presence in the Middle East, but if it is worthwhile to sacrifice Americans' lives to protect oil supplies in the Middle East, is it not worthwhile to take a small (perhaps nonexistent) risk of sacrificing the lives of a few caribou to recover oil in Alaska?

Domestic energy policy also entails the sacrifice of human lives for oil. To save gasoline, the federal government imposes Corporate Average Fuel Economy (CAFE) standards on automobile producers. These standards now require all new cars to average 27.5 miles per gallon and new light trucks to average 20.5 miles per gallon. The one thing that is not controversial about the CAFE standards is that they cost lives by inducing manufacturers to reduce the weight of vehicles. Even Ralph Nader has acknowledged that "larger cars are safer–there is more bulk to protect the occupant." An interesting question is, How many lives might be saved by using more (ANWR) oil and driving heavier cars rather than using less oil and driving lighter, more dangerous cars?

It has been estimated that increasing the average weight of passenger cars by 100 pounds would reduce U.S. highway fatalities by 200 a year. By determining how much additional gas would be consumed each year if all passenger cars were 100 pounds heavier, and then estimating how much gas might be recovered from ANWR oil, we can arrive at a rough estimate of how many human lives potentially might be saved by that oil. To make this estimate, I first used data for the technical specifications of fifty-four randomly selected 2001 model passenger cars to obtain a simple regression of car weight on miles per gallon. This regression equation indicates that every additional 100 pounds decreases mileage by 0.85 miles per gallon. So 200 lives a year could be saved by relaxing the CAFE standards to allow a 0.85 miles per gallon reduction in the average mileage of passenger cars. How much gasoline would be required to compensate for this decrease of average mileage? Some 135 million passenger cars are currently in use, being driven roughly 10,000 miles per year on average (1994–95 data from U.S. Bureau of the Census 1997, 843). Assuming these vehicles travel 24 miles per gallon on average, the annual consumption of gasoline by passenger cars is 56.25 billion gallons (= 135 million × 10,000/24). If instead of an average of 24 miles per gallon the average were reduced to 23.15 miles per gallon, the annual consumption of gasoline by passenger cars would be 58.32 billion gallons (= 135 million × 10,000/23.15). So, 200 lives could be saved annually by an extra 2.07 billion gallons of gas. It is estimated that ANWR contains from 3 to 16 billion barrels of recoverable petroleum. Let us take the midpoint in this estimated range, or 9.5 billion barrels. Given that on average each barrel of petroleum is refined into 19.5 gallons of gasoline, the ANWR oil could be turned into 185.25 billion additional gallons of gas, or enough to save 200 lives a year for almost ninety years (185.25/2.07 = 89.5). Hence, in total almost 18,000 lives could be saved by opening up ANWR to drilling and using the fuel made available to compensate for increasing the weight of passenger cars.

I claim no great precision for this estimate. There may be less petroleum in ANWR than the midpoint estimate indicates, and the study I have relied on may have overestimated the number of lives saved by heavier passenger cars. Still, any reasonable estimate will lead to the conclusion that preventing the

recovery of ANWR oil and its use in heavier passenger cars entails the loss of thousands of lives on the highways. Are we willing to bear such a cost in order to avoid the risks, if any, to ANWR and its caribou?

Conclusion

I am not recommending that ANWR actually be given to some consortium of environmental groups. In thinking about whether to drill for oil in ANWR, however, it is instructive to consider seriously what such a group would do if it owned ANWR and therefore bore the costs as well as enjoyed the benefits of preventing drilling. Those costs are measured by what people are willing to pay for the additional comfort, convenience, and safety that could be derived from the use of ANWR oil. Unfortunately, without the price communication that is possible only by means of private property and voluntary exchange, we cannot be sure what those costs are or how private owners would evaluate either the costs or the benefits of preventing drilling in ANWR. However, the willingness of environmental groups such as the Audubon Society and the Nature Conservancy to allow drilling for oil an environmentally sensitive land they own suggests strongly that their adamant verbal opposition to drilling in ANWR is a poor reflection of what they would do if they owned even a small fraction of the ANWR territory containing oil.

NO

Katherine Balpataky

Protectors of the Herd

When Norma Kassi was a young girl, she spent hours sitting by a small lake near Old Crow Flats, 73 kilometres north of the Arctic Circle, listening to her grandfather recount stories of her people and the wildlife that inhabited the lands around them. She remembers watching in awe as flocks of blackpoll warblers, arctic terns, and other migrants arrived each spring to mate on the Yukon's most valuable wetlands. It was this place and through her grandfather's teachings that her appreciation for the natural world took form. "I was taught the science of our environment—from the smallest of insects and plankton in the waters to the biggest of mammals and predators—and how they govern us," says Kassi.

She also learned about the integral connection between her people and the Porcupine caribou—a herd of 130,000 named for its semi-annual migration to the coastal plains of the Arctic National Wildlife Refuge (ANWR) during which it crosses the Porcupine River. For thousands of generations, the Vuntut Gwich'in peoples of northeastern Alaska and northwestern Canada have depended on the Porcupine herd. Their traditional knowledge states that every *vadzaih* (caribou) has a bit of *ezi* (human heart) in it and every human has a bit of vadzaih heart. Thus the life of the caribou and the Gwich'in Nation are historically intertwined.

Yet Kassi's grandfather understood that one day their world would change. "[He] told me many times, 'You have light skin, and one day you will be speaking to many white people. You will speak their language,'" she says. "And I guess that has been my destiny so far."

Since the discovery of oil at Prudhoe Bay in 1967, ANWR has been at the apex of an ongoing battle that pits oil corporations against native peoples and conservationists. Those in favour of opening up the coastal plains for development state that it will create more than 170,000 jobs and that there are 16 billion barrels of oil waiting to be tapped. The oil—deep beneath the surface of ANWR—has tempted every new American president and member of congress. Time and time again new bills and budget acts with provisions for drilling have been put forward.

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Many cost-benefit studies have shown, however, that the resources required to extract the oil are too great to make drilling worthwhile. Other studies, such as a report released in March by the National Research Council, show that the effects of oil development on the North Slope—an area that creeps into the refuge—have been accumulating for more than three decades. The report states that migration patterns of bowheads, reproductive success of birds, and geographical distribution of the Porcupine caribou herd have all been affected.

To Kassi, the report is a warning that her family, her culture, and everything she has ever known is in jeopardy. "What is sacred about these lands is that we live near the calving grounds. During times of famine, we travel those areas, but we never step into the sacred calving grounds," says Kassi. If they were to open up the Arctic National Wildlife Refuge, it would be [to us] like going into a hospital nursery and tearing that apart. We will do everything in our power to stop that, because it means our life."

Kassi has spent the past 10 years working with groups such as the World Wildlife Fund, the Alaska Wilderness League, and the Caribou Commons Project (CCP) to raise awareness about the importance of the refuge. The CCP produces multimedia presentations that combine Gwich'in stories handed down from generation to generation with footage by photographer Ken Madsen and sounds of the refuge set to music by Matthew Lien in order to educate the public about the incredible biodiversity of the arctic plains and the slick politics that threaten it. "The music, Norma speaking, and Ken's photos really give you an emotional attachment—and that's what's missing from this debate," says Peter Mather, Arctic Coordinator for CCP. "The oil industry and the government like to reduce the issue to a simple black-and-white argument. But this place—once you see it or feel it, understand it—it goes beyond facts," he says.

As we sit in a small coffee shop in Sainte-Anne de Bellevue, on Montreal's west island, I sense that Kassi is tired. After a full day at McGill University on a panel discussing problems related to indigenous health, the environment, and the lack of resources and trained workers in remote reserves, her fatigue is understandable. But when she explains how her work frequently takes her away from her 82-year-old mother and her four sons—'notably' her youngest, Yudii, who is only 11—I realize it is the constant battles that have worn her down. Her work—all unpaid—requires much travel. Moreover, with each victory comes another critical fork in the road. Each piece of legislation is another potential crisis requiring the fast mobilization of voters to lobby government in order to sway the vote.

Listening to Kassi tell me about the land on which she lives, I am captivated by her manner of storytelling. Lowering her head, she seems to leave the room, as if she is drawing on some greater flow of knowledge that circles far beyond the hustle and bustle of this modern café.

"She's very spiritual about it," says Lien. "Kassi goes somewhere and speaks from a place—you can tell there is a power there, she is tapping into her ancestors and her culture. It's more than just one person speaking."

Although CCP was the brainchild of Lien and Madsen, Kassi brings a spiritual component to the focus and the strength of their work. Since 1992, the two men have been producing visual concerts inspired by their expeditions into the wilderness. And in 1997, they decided to make ANWR the sole focus of their work. While they were busy recruiting sound and light technicians, publicists, musicians, and other collaborators, the Gwich'in Nation was also making plans to address the situation.

For the first time in 100 years, the chiefs called a meeting and more than 500 Gwich'in people from 88 villages attended. The elders elected six representatives whose life mission would be to share their traditional knowledge with the rest of the world and to make it known that an intrusion into the caribou's birthing grounds was also a human-rights issue. Kassi was one of the six. As partial fulfillment of her commitment, she became an active member of any non-governmental organization that would support her, including CCP. "Norma represents a culture that is the refuge. There is no separating the two. Their spirituality, identity, and sense of past, present, and future are tied to the caribou," says Lien. "Norma is able to put that into words."

The CCP set its show in motion, flying to cities such as Victoria, Vancouver, Winnipeg, Saskatoon, and Washington. The trips were intended to cover as much ground as possible, especially to areas where government representatives were in favour of drilling.

Then in the spring of 2002, Madsen and Lien came up with the idea of a trek to Washington, D.C. The original inspiration was to start a *Forrest Gump* phenomenon—to walk from ANWR to Washington, collecting followers along the way. But they realized that a large leg of the trip would be through areas inaccessible to media. Instead, Madsen, Lien, and U.S. Project Coordinator Tim Leach opted to start three separate cycling journeys—spanning a total of more than 12,800 kilometres—from Sarasota, Seattle, and Kansas City to Washington. The trek was modified to expedite travel through small communities, enabling the trio to present slide shows along the way. They arrived in Washington in mid-November, just after the U.S. Senate elections.

The bicycle trek garnered a lot of media attention and captured the interest of thousands of people who otherwise might not have attended the slide presentations. At the same time, Kassi, along with two other Gwich'in activists, won the prestigious Goldman award—the world's largest prize program honouring grassroots environmentalists—adding further momentum to the tour.

Despite all these efforts, many oil-development supporters in Washington have remained firm in their convictions. The greatest slap in the face came after Gale Norton, Secretary of the Interior, visited ANWR and heard presentations from schoolchildren who told her why this land is special to them. On Norton's return, she told the American public that ANWR is a barren wasteland. Moreover, President [George W.] Bush on one occasion encouraged people to visit ANWR to see it for themselves—presumably so that visitors would determine that it's not worth all the fuss. Ironically, comments such as those of Norton and Bush have helped conservation efforts by bringing them into the spotlight.

"You have people like Gale Norton, Secretary of the Interior, saying that it's just a great white nothingness. It's an outright lie," says Lien. "When the caribou are coming in over the mountain passes to congregate, you're witnessing this peculiar miracle–like the hand of a mysterious, invisible clock that sweeps across the land. At the same time, the tundra is finally losing the last of its snow coating, and within a couple of days, this explosion of wildflowers takes off across the tundra and the mountainscapes that have never been glaciated ... Then, in 10 days or so, 40,000 calves are born, and all of a sudden this place is just teeming with all this life."

Lien channels his fire by using samples of Bush's see-it-for-yourself speech in songs about the refuge. The group continues to create new material, because previous experience has taught them that victories for the refuge are usually short-lived.

Last March [2003], for example, the United States Senate voted 52 (including 8 Republicans) to 48 to keep the refuge closed to energy exploration. But less than six months later, the Bush administration told Congress that opening up ANWR for drilling would be back on the agenda in its new energy bill. The news sparked criticism from all sides–Gwich'in people, conservation organizations, and Senate Democrats, who promised to filibuster any legislation that would give oil companies access to the Alaskan wilderness. Then, almost as quickly as the ANWR media storm began, it vanished when in late October, the House and Senate Republicans failed to reach a compromise on energy tax credits and incentives, effectively shelving the energy bill for the time being.

So where does that leave ANWR? "[Clearly] for us to win, we need to get 60 votes within the Senate to protect this area," says Peter Mather. "I do see an end to this issue, but I don't know which way it's going to go. This issue has been coming up for 15 years." And with an issue like ANWR, you need lose only one battle and the war is lost. However, such people as Kassi, Mather, Madsen, and Lien will not let that happen quietly. Like the bulls that lead the Porcupine caribou to the sacred ground of regeneration, they will continue marching along the only path they know.

POSTSCRIPT

Should the Arctic National Wildlife Refuge Be Opened to Oil Drilling?

Those who see in nature only values that can be expressed in human terms are well represented by Jonah Goldberg, who, in "Ugh, Wilderness! The Horror of 'ANWR,' the American Elite's Favorite Hellhole," *National Review* (August 6, 2001), describes the ANWR as so bleak and desolate that development can only improve it. On the other hand, Adam Kolton, testifying before the House Committee on Resources on July 11, 2001, in opposition to the National Energy Security Act of 2001 (NESA), presented the coastal plain as "the site of one of our continent's most awe-inspiring wildlife spectacles" and, thus, deserving of protection from exploitation. Kennan Ward, in *The Last Wilderness: Arctic National Wildlife Refuge* (Wildlight Press, 2001), describes a realm where human impact is still minimal and wilderness endures. John G. Mitchell, in "Oil Field or Sanctuary?" *National Geographic* (August 2001), is more balanced in his appraisal but sides with Amory B. Lovins and L. Hunter Lovins, "Fool's Gold in Alaska" *Foreign Affairs*, (July/August 2001), concluding that better alternatives to developing the ANWR exist.

The House of Representatives approved the NESA in August 2001. The bill then stalled in the Senate, with pro-drilling senators attempting to woo votes with such measures as promising to use oil revenues to pay pension benefits for steelworkers. Their efforts failed in April 2002, when the bill was defeated and a competing energy bill took the lead. This alternative bill, introduced in December 2001 and sponsored by Senate Majority Leader Tom Daschle (Dsouth Dakota) and Senator Jeff Bingaman (D-New Mexico), does not allow for oil exploration in the ANWR.

In "ANWR Oil: An Alternative to War Over Oil," *American Enterprise* (June 2002), Walter J. Hickle, former U.S. secretary of the interior and twice the governor of Alaska, writes, "[T]he issue is not going to go away. Given our continuing precarious dependence on overseas oil suppliers ranging from Saddam Hussein to the Saudis to Venezuela's Castro-clone Hugo Chavez, sensible Americans will continue to press Congress in the months and years ahead to unlock America's great Arctic energy storehouse."

Similar debate has centered on mineral exploitation in the American Southwest. President Clinton created the Grand Staircase-Escalante National Monument by executive order to protect an important part of Utah's remaining wilderness, but opposition remains. See T. H. Watkins, *The Redrock Chronicles: Saving Wild Utah* (Johns Hopkins University Press, 2000). For a survey of the wilderness system created by the 1964 Wilderness Act, see John G. Mitchell

and Peter Essick, "Wilderness: America's Land Apart," *National Geographic* (November 1998). Indeed, the Bush administration has continued to propose opening the ANWR to oil drilling, most recently in the 2005 budget proposal put before Congress early in 2004. In addition, in January 2004, Interior Secretary Gale Norton approved a plan to open a large portion of Alaska's North Slope, just west of the ANWR, to oil drilling. Given the rapid rise in gasoline prices in spring 2004, these plans may prevail.

ISSUE 9

Should Society Act Now to Forestall Global Warming?

YES: George Marshall and Mark Lynas, from "Why We Don't Give a Damn," *New Statesman* (December 2003)

NO: Stephen Goode, from "Singer Cool on Global Warming," *Insight on the News* (April 27, 2004)

ISSUE SUMMARY

YES: George Marshall and Mark Lynas argue that despite a remarkable level of agreement that the threat of global warming is real, human psychology keeps us "in denial." But survival demands that we escape denial and seek more positive action.

NO: Long-time anti-global warming spokesman Fred Singer argues in an interview by Stephen Goode that global warming just is not happening in any significant way and if it were, it would—judging from the past—be good for humanity.

Scientists have known for more than a century that carbon dioxide and other "greenhouse gases" (including water vapor, methane, and chlorofluorocarbons) help prevent heat from escaping the earth's atmosphere. In fact, it is this "greenhouse effect" that keeps the earth warm enough to support life. Yet there can be too much of a good thing. Ever since the dawn of the industrial age, humans have been burning vast quantities of fossil fuels, releasing the carbon they contain as carbon dioxide. Because of this, some estimate that by the year 2050, the amount of carbon dioxide in the air will be double what it was in 1850. By 1982 an increase was apparent. Less than a decade later, many researchers were saying that the climate had already begun to warm. Now there is a strong consensus that the global climate is warming and will continue to warm. There is less agreement on just how much it will warm or what the impact of the warming will be on human (and other) life. See Spencer R. Weart, "The Discovery of the Risk of Global Warming," *Physics Today* (January 1997).

The debate has been heated. The June 1992 issue of *The Bulletin of the Atomic Scientists* carries two articles on the possible consequences of the greenhouse effect. In "Global Warming: The Worst Case," Jeremy Leggett

TAKING SIDES

Clashing Views on Controversial

Environmental Issues

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Preface

Most fields of academic study evolve over time. Some evolve in turmoil, for they deal with issues of political, social, and economic concern. That is, they involve controversy.

It is the mission of the *Taking Sides* series to capture current, ongoing controversies and make the opposing sides available to students. This book focuses on environmental issues, from the philosophical to the practical. It does not pretend to cover all such issues, for not all provoke controversy or provoke it in suitable fashion. But there is never any shortage of issues that can be expressed as pairs of opposing essays that make their positions clearly and understandably.

The basic technique—presenting an issue as a pair of opposing essays—has risks. Students often display a tendency to remember best those essays that agree with the attitudes they bring to the discussion. They also want to know what the "right" answers are, and it can be difficult for teachers to refrain from taking a side or from revealing their own attitudes. Should teachers so refrain? Some do, though rarely so successfully that students cannot see through the attempt. Some do not, but of course they must still cover the spectrum of opinion if they wish to do justice to the scientific method and the complexity of an issue.

For any *Taking Sides* volume, the issues are always phrased as yes/no questions. Which answer—yes or no—is the correct answer? Perhaps neither. Perhaps both. Perhaps we will not be able to tell for another century. Students should read, think about, and discuss the readings and then come to their own conclusions without letting my or their instructor's opinions dictate theirs. The additional readings mentioned in the introductions and postscripts should prove helpful.

For each issue in this book, an *introduction* provides historical background and a brief description of the debate. The *postscript* that follows each pair of readings offers recent contributions to the debate, additional references, and sometimes a hint of future directions. *On the Internet* page that accompanies each part opener provides Internet site addresses (URLs) that should prove useful as starting points for further research.

Changes to this edition This eleventh edition of *Taking Sides: Clashing Views on Controversial Environmental Issues* contains 38 sections arranged in pro and con pairs to form 19 issues. About half of this book consists of new material. Two issues, *Will Hydrogen Replace Fossil Fuels for Cars?* (Issue 10), and *Should Existing Power Plants Be Required to Install State-of-the-Art Pollution Controls?* (Issue 11), were added for the 2004 partial revision. There are two completely new issues: *Is It Time to Revive Nuclear Power?* (Issue 12) and *Are Marine Reserves Needed to Protect Global Fisheries?* (Issue 15). In addition, for eleven of the issues retained from the previous edition, one or both of the