



mes/mpa

Update

Published by the MES and MPA programs at The Evergreen State College

Letter from the Editors

LEAPIN' LIZARDS! This is the last Update of the year. Allen is out a great job, and Peter is ready for a vacation. Our many thanks to last year's editor and often-contributor Anna Bachmann - her experience and help were greatly appreciated.

Thanks also to Eli Sterling who submitted many an interesting and sometimes provocative article. Thanks as well to Carol Simila-Dickinson, Bonita Evans, Lucia Harrison, the fine people in the Evergreen Print Shop, Judy Huntley for the mailing labels, and everyone who submitted articles and graphics. For those we have forgotten, please accept our warm appreciation.

This issue is a big one to close the year. Sam Watson has an article about human rights and the environment, Eli Sterling continues the theme with an interview he did with a representative of the Amazonia indigenous peoples and their plight with oil development on their land, and Allen includes a brief article about caribou and the petroleum industry in Alaska. Finally, Anna says she is throwing a few curves our way in her last article.

Have a great summer. Allen will be doing river surveys in the Olympic Mountains all summer for the University of Washington. Peter will be around Olympia, pushing paper and hopefully finding the time for a little sailing.



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Oil and the Amazon: An Interview with Leonardo Viteri

by Eli Sterling



Recently I had both the pleasure and the honor to interview Leonardo Viteri, an Indian of the Quicha Nation (also known as the Runa) located in the Amazon rainforest of eastern Ecuador. Leonardo is a representative of CONAIE (Confederation of Indigenous Nationalities of Ecuador) and is the director of the social and policy studies at the Ecuadorian Indian College in Quito. As ambassador, educator and organizer, Leonardo is deeply respected among Amazonian tribes for his efforts to demarcate, legalize and develop indigenous land management borders within Ecuador.

Our exchange addressed several compelling issues, but the most startling was the extreme cultural and environmental degradation willingly created by our own country's oil companies in the Amazonian region of Ecuador. For Leonardo and his people the issue is urgent. For me there is the promise to convey his message when ever possible. What follows below is a portion of our conversation.

E: You mentioned that in Ecuador alone, there are more than 23 oil companies drilling on lands that the indigenous nations have mapped out and reclaimed as their own. You also say that the practices of the oil companies have been very destructive. Are any of these oil companies from the United States?

L: Yes. Your company Texaco is creating the most ecological damage. Arco, Unocal and Conoco, which is a subsidiary of Dupont, are also our greatest oppressors. There are also companies from Canada, Brazil and Argentina. The entire area which we have delineated as our land has been parceled out to the oil companies.

E: To be honest, I am surprised that oil companies from the United States have chosen to be so destructive. When Arco and Texaco talk about drilling in Alaska or along our Pacific Coast, they clearly state they are concerned about environmental impacts as well as impacts upon the communities.

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Rachel Carson Forum

by Anna Bachmann, MES/GSA Coordinator

On Wednesday, May 22nd, MES students put on the Second Annual Rachel Carson Environmental Forum. The forum is oriented towards environmental issues but it is also a cultural event. An afternoon workshop, "Building Alliances: Breaking Barriers of Race and Class," set the tone for the evening topic, "Race, Poverty & Environmental Justice."

Speaker, Victor Lewis, founder of Environmentalists Against Racism and editor of "Race, Poverty & the Environment," had a very basic message, a message many environmentalists are still ignoring. Why aren't people of color joining the ranks of environmental groups? "Because they are busy!" Lewis says. "Disenfranchised communities are profoundly concerned with their physical environments, but they have never had the luxury of separating "environmental" problems from the complex of other issues confronting them. They are bound by necessity to address the total webwork of threats to their communities in a holistic fashion."

Thanks Are in Order!

For the past two years we have run the Rachel Carson Environmental Forum as an MES program event organized completely by students. Without the care and dedication of a lot of people this event could not take place. Most prominent in their contribution have been the members of the Rachel Carson Planning Committee.

Thanks go to **Cynthia Pratt** and **Dave Catterson** for all their advertising work, **Birdie Davenport** for posters, flyers and an all-around helping hand, **Eli Sterling** for music and vision, **Ione Claggett** for her work on information tables, **Charles Howell** and **Chris Russo** for filming, **Jim Franklin** for the Rachel Carson Seminar, and **Jim LaSpina** for set-up.

Thanks also to **Allen Pleus** for design and newsletter help, **Carolyn Jensen** for mailings, **Kathleen Toensjost**, **Shane Peterson**, **Toni Higgs**, **Gary Cooper**, **Craig Graber**, **Maryrose Livingston**, **Donna Norris**, **J.C. Armbruster** and **Nordica Holochuck** for posterizing, **Bonita Evans**, **Jane Lorenzo** and **Peggy Davenport** for their in office support and to **Ralph Murphy**, the Director of the MES Program, for all his good sense and levity.

Special thanks should go to **Jacinta McKoy**, who is a wealth of information and good ideas, alumni **Denny Wilkens** for his much needed donation of \$100, the **Evergreen Foundation** for their grant of \$330, the **Olympia Sustaining Fund** for their grant of \$100 and the student groups of **UMOJA**, **Women of Color** and **Mecha**, who each gave \$50 to the event. A final, belated thanks goes to **Ginna Correa** for bringing flowers to last year's Forum.

How can environmentalists acknowledge the needs of the disenfranchised? First by expanding their definitions to appreciate how human beings are part of the ecosystem. Urban Ecology is as fitting a field of study as that of the ecology of the wilderness. We can no longer ignore the biological and social habitats of cities, rural communities or even industrial area.

In addition, environmentalists must begin to contribute to the important work that is already being done by the many civic, church and civil rights groups in these communities. These groups are dealing with broad and comprehensive issues, from housing to pollution, public health to education. Instead of asking people of color to narrow their scope by jumping on the environmental bandwagon, perhaps environmentalists should broaden their vision and recognize that they need to organize *with* people of color and the poor instead of segregating environmental and social issues.

If you are interested in receiving "Race, Poverty & the Environment," a newsletter for social and environmental justice, write to: RPE, Earth Island Institute, 300 Broadway, San Francisco, CA 94133-3312. See you next year at the 3rd Annual Rachel Carson Environmental Forum!

The Importance of Being Active

by Anna Bachmann

The last newsletter of the year deserves the last two cents of the MES/GSA coordinator and I'm here to pay in full. It's been a long, wonderful, hard and challenging year for the MES graduate students at Evergreen. PEEP, PER, WAR & Quant Methods. We've all learn a lot.

But there is one lessons that has refused to stick with me. I've turned it over and over in my mind and I still can't come to terms with it.

"I'm being active just by participating in this program."

Sorry, I just don't agree. There is nothing wrong in coming here to learn and get your degree but don't claim that by doing so you are making a difference. William Shedd once said, "A ship in harbor is safe, but that is not what ships are built for."

Being a student at Evergreen, whether you are MES, MPA, graduate or undergraduate is akin to building the ship. We take classes, do the reading assignments and interact with the students and the faculty to generate new knowledge, but it is not until we "go out" and make use of that knowledge, hopefully to the betterment of our community and ourselves, that we are actually doing something.

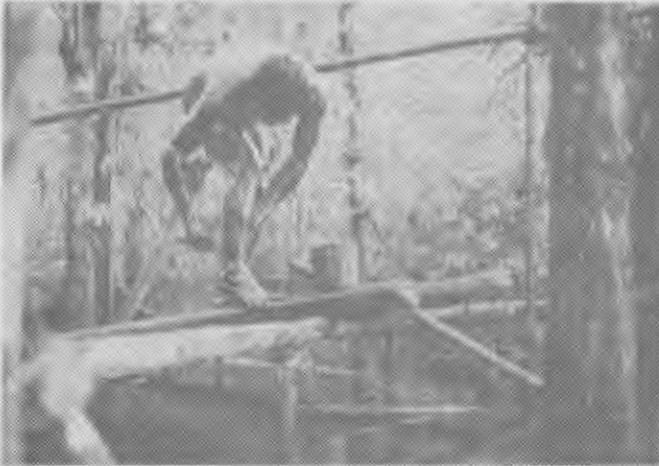
Education is at best a promise (at worst, in my opinion, an avenue towards a degree and another rung up the latter) but it is certainly not a statement or a show of action. I'd welcome your comments (as always, you know where to find me.)



Oil and the Amazon (from front page)

L: In our area the oil companies use the least expensive and the most destructive techniques to look for and exploit the oil reserves. They don't have any concrete plans for helping the area. They dump anywhere because they figure that this is a no-man's land. Oil spills have completely contaminated our watersheds and many of our children, unborn children and old people are dying as a result of the contamination of the water. How can we speak up against these horrible oil spills.

It has become our responsibility to clean them up. The only help they've given us is to send us plastic bags to put the tar and contaminated fish in. We use our bare hands and rudimentary methods to clean up the mess without any financial support. After the work cleaning up the oil we are so covered with thick tar and oil that the only thin we can use to clean ourselves is gasoline. So much gasoline has been used that it is provoking some serious illnesses.



E: *Your struggle to stop the destruction by the oil companies must be extraordinarily difficult.*

L: Yes. The struggle has been so hard for us that we have found it necessary to go to the people and organizations of other countries and ask them to intervene. In the name of first world civilization, we have become victims of this so called modernization. Yes, we are having a difficult struggle. Our leaders are being assassinated.

E: *That is what is I have heard but I have never fully understood why. I was also told that since you have been in the United States another one of your leaders has been killed.*

L: Yes, the fourth leader to be assassinated in 6 months was killed at the hands of paramilitary forces that were sent by the oil companies in cooperation with the government.

E: *You mean oil companies have control of the military?*

L: Two petroleum companies, Arco and Conoco, have been militarized and the government has sent military forces in to the most populous areas to divide the people, distract them and keep them from organizing.

E: *What are some of the other problems that you are facing?*

L: First, the opening of more the 1000 km of roads have allowed colonization to occur. The worst conduct that they are doing is to cover the roads with thousands of barrels of oil to keep the dust down. We have so much rain in our area that the oil is washed into the rivers so they dump on thousands of more barrels. The most important waterways and lakes are being spoiled and many species of fish are in danger of extinction.

Along with the roads have come logging companies to take the trees and we've been hard pressed by the colonial cities that have supported these companies and also by unscrupulous tourist companies. The government's project of progress have destroyed the wide variety of vegetation and at this time, 48% of the Amazon region we claim as our home has been destroyed, contaminated and colonized. 340,000 hectares (850,000 acres) are destroyed every year in Ecuador.

Even our national park lands haven't been held sacred. They've been taking them for petroleum exploration. Ecuador is the leader in ecological destruction.

E: *It is so difficult for people in the United States to appreciate cultures in other countries. We have even seen this recently with our war in the middle east. People agree to war because they say you can't change history. Yet these people only define history in terms of geo-political power structures, not in the contributions of culture. Have you found people willing to listen to you?*

L: It's a difficult task because we are only now beginning to learn how to talk to different peoples. We'd like to show the world that these ecological problems and problems of human beings are not just ours: they are universal. We are human beings just like people in other areas, we are people with a history, with traditions and customs, hopes, dreams and plans for the future and we are a people given the problem of finding an alternative to the future that now faces us. We've been organizing for 30 years and for 30 years we've been trying to create a dialogue with the government but they won't talk to us. This is a worry for everyone in the entire world for in just 15 short years the entire area will be destroyed.



Human Rights

The Dreaded Variable in the Environmental Equation

by Samuel L. Watson

The phrase "Human Rights" is a melody seldom heard from the environmentalist encampment. Historically, pro-environment impulses have left unattended the question of Human Rights in their advocacy for the cause of Nature. Coincidentally, the few somewhat pristine areas left in our planet also constitute the habitat of aboriginal peoples with certain basic needs. In the case of our continent: the Arctic, the Canadian Northern Territories, the Amazon, and other smaller enclaves scattered throughout the Americas.

"Historically, pro-environment impulses have left unattended the question of Human Rights in their advocacy for the cause of Nature."

The issues, to say the least, are complex. From the Arctic to the austral regions of Patagonia, Modernity encroaches on the natural patterns, pressuring eco-systems and native habitats. The few approaches that consider those at the receiving end of "development" or "environmental reform," seem unable to step outside of Convention. The discourse on all sides, continues to be tainted by the language of ethno-centrism and cultural-centrism. The use of words like development, economic integration, training, education, national park, natural reserve, progress, wilderness, etc. testify to the fact.

The situation in the Amazon, the more familiar issue to me, is disastrous. Colonizers, transnationals, timber barons, environmentalists, and governments, seem involved in a dance where everybody is too busy twirling to their own tune, unable to listen to each other, or to the pied piper himself, the native peoples. The Amazonian Indian Organizations continue to experience difficulty in having their message of Human Rights heard by their logical allies, the environmentalists. Strangely enough, environmental advocates, much alike the establishment that they confront, do not yet seem to speak the language of Human Rights.

To bring the issue closer to home, the recent controversy involving Old Growth Forest in the Northwest, and the future of the Spotted Owl as a species, shamefully exposed this character flaw. The noise of trees falling in the forest proved too loud a calling, for environmental advocates to hear the unpopular, but *legitimate*, plight of the timber workers. Although the specifics are still up for argument, the facts remain. Significant numbers of the human species were threatened in their ability to satisfy their basic needs, while environmentalists did their best to achieve goals while drowning consideration.

It was not until the late eighties that environmentalists had to do a double take, when frustrated Amazonian Native Leaders decided to take the Environmental Movement by the shoulder straps and shake it awake. The dialogue went something like this: "Listen," the Indians said, "what you call virgin jungle, is not virgin at all. We have been living here for centuries, we transformed it, and mastered our responsibilities in the

relationship; the jungle thrived under our hand, and we thrived along with it. We lived in harmony while the people in your world forgot the meaning of the word."

The environmentalists went "Huh. . .?" eyes wide open. Then the Indians said, "You are helping these governments form reserves out of our homeland, where our children play, where we get our food and fuel. Now they tell us what to do, how, and when to do it. We are at the mercy of the state, who manages the reserves. They can decide to sell timber and petroleum rights at will. This is messing things up because, you see, neither you nor the state know the first thing about this jungle which is our garden. We don't like to be told how to live our lives, how to manage our world by people who are destroying theirs. We don't care for developers, colonizers, scientists, or tourists who come to our home *uninvited*."

This caught the attention of some environmentalists who stepped back and said "Huh. . .?" for a second time. Now that the Indians had their attention they went on to blurt out the first lesson: "You have to become our allies and recognize that this is primarily a question of *Human Rights*. You environmentalists need to learn how to make that connection." In spite of the fact that the environmental movement had rescued Native American Mythology to build up its own cultural mystique, now that the Indians were talking to them for the first time, they heard, but still did not listened well.

Some are learning though, but not enough. Too many of us, including most of the more powerful environmental organizations continue buying nature-equity to form parks and reserves; funding projects through eco-tourism and/or through the graces of the private, for-profit, sector; and in general getting involved in environmental issues that are primarily issues of Native-Peoples Human-Rights, without consulting with or listening to these native peoples. The question arises, How can we expect to accomplish the right thing if we don't do the thing right?

"...environmentalism as an outcome of a lifestyle of leisure is an annoying handicap when it comes down to accepting other realities...."

The reality of environmentalism as an outcome of a lifestyle of leisure is an annoying handicap when it comes down to accepting other realities and views on equally valid terms. Environmental awareness cannot be flaunted as virtue or wisdom because it is neither. The modern world that we have built in our insatiable search for solace, does not make our reality any better than that of others. Comfort and security do not spell "better," nor do they endow Modernity with spirit or meaning outside of that which is or *is not* contained in the inert material things that Modernity produces. Other ways of life may not provide as much solace to our fears, but perhaps they are *more edifying* to the human being and to the environment in ways that we may yet be unable to grasp.

Conservation and Preservation as the ruling modern environmental ideologies, seem to impede leisure-society environmentalism from articulating new paradigms creatively. Intensely focused behind our goal-oriented lenses, most of us are incapable of producing an educated definition of what are

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Human Rights (from page 4)

"Human Rights," even though it is our basic needs that are at stake at the root of our struggle for a healthier planet. I contend that a simple improvement on this point would uncover a nobler cornerstone for our environmental pursuits, than the fears and sentimentality that vitiate our efforts and polarize the dialogue between us and other social interests (read forces).

Superficially, the concept of "Human Rights" seems elementary: The right or set of rights to satisfy basic human needs; at minimum, the physical requirements of life. The attentive mind, however, will sense that the implications are legion. To speak of "rights" should evoke broader and deeper ideas that embrace concepts of freedom; concepts of participation in a shared natural, social, political, and economic environment; concepts of ability to carry out certain activities within these spheres; and concepts of affectation and infringement upon this context, at the expense or gain of one another; to name a few.

rejects the idea that national or international politics must be defined exclusively or near exclusively by the behavior of states, or international organizations of states (ie. United Nations, etc.) (Claude, *Human Rights in the World Community*).

In their book "Human Rights in the World Community," Claude and Weston explain that Human Rights might be understood as "code language for a number of different, ever expanding, ever accelerating, initiatives: (a) an attack upon the concept of state sovereignty as traditionally conceived; (b) a goal-setting agenda for global policy; (c) a standard for assessing national behavior and therefore for judging political legitimacy; and (d) a spirited movement of concerned private individuals and groups that transcends political boundaries (an increasingly significant factor in international relations)." A highly subversive framework, as I perceive it, and yet when we speak of human needs *we transcend political barriers and appeal to individuals throughout the breath of the political spectrum.*

"A "basic human needs" approach to environmental issues must include the prerequisites of self-reliance, and therefore of self-determination, and of effective political and economic participation to insure the physical requirements of life as perceived by all those concerned."

It does get complex once we begin our critical dissection. Let's make it more immediate and relevant. A "basic-human-needs" approach to environmental issues must include the prerequisites of self-reliance, and therefore of self-determination, and of effective political and economic participation to insure the physical requirements of life *as perceived by all those concerned.* Any "basic-human-needs" approach must represent an honest and earnest effort to establish practical priorities for the implementation of Human Rights *which will be acceptable across cultures* (Crahan, *Human Rights and Basic Needs in the Americas*).

Thus, cross-cultural consensus becomes the priority, sovereign to so called "national priorities," and/or of any state, intergovernmental agency (on international issues), or inter-agency agendas, to include those of environmental agencies. Additionally, the chances of reaching consensus around an issue are enhanced considerably once all parties to the dialogue recognize the boundaries of each others Human Rights; To include a recognition of the Other as a human being in equal standing.

Underlying the above, is the implication that environmental issues can *ultimately be effectively resolved only through the efforts of popular or grass roots organizations, by the people themselves, in people-to-people engagements, and not through legislation alone.* The presence of legislation, under most conditions, testifies to an unresolved conflict between two or more social interests (read forces), and possibly, even probably, to a violation of someone's Human Rights. Counter-laws and law breakers come as part and parcel of legislation and other coercive measures, while the conflict that they attempt to resolve remains condemned to reappear--in the future--under some other guise. I hope that we are beginning to get the picture of a framework that attempts to be all inclusive, unrepressive, participatory, and empowering. A Human Rights/Basic Needs approach emphasizes the significance of non-state actors and

Can we accomplish our tasks if we ignore the question of our, and others, basic needs? I venture a rotund No. At present population levels, the total consequential value of our actions seems to reach further than the simple sum of its parts, magnified by the power [and waste] of Modern Technology and the lifestyles that it originates. For fairly obvious reasons, we must now grow into an adulthood where we become our brother's keeper, and where we can maturely accept our brother as our own keeper on equal terms, and not those outlined by the politics of power.

Under this light, the concept of self-determination takes on a new meaning which cannot ignore the obligations that arise from coexistence. I taste ominous responsibilities and expectations on all sides of this perpetual dialogue/relationship between Human and Human, and between Human and World, which we can neither escape, nor ignore except at our own peril. We are then left with the only positive choice of taking it all up, committing to it by increments, deeper as we grow.

Some with a more biocentric outlook may argue that these ideas reflect an anthropocentric bias. Not so. The reason why I promote a basic-human-needs approach is not because I am overly concerned for the future of humans as a species. I suspect that we are not indispensable to the continuance of Life on the planet, that perhaps without us Life could thrive under better conditions. Yet, so long as we remain on Earth, in significant numbers, we are charged with the responsibility of maintaining the Dialogue on Life's (read Nature's) behalf, a condition that we ourselves have created and which we now must master for all of Nature's sake, including humans.

If our livelihood is imperiled, If we are persecuted, if we have empty stomachs, if we don't learn from each other how to understand the other somewhat better, if we must wear a gas mask on the streets, if we spill oil in our rivers and oceans, if we cut down our forests, if we must sleep in bomb shelters, if

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Human Rights (from page 5)

we spend precious time devising ways to kill more effectively, if we sacrifice our ancient myths for the counterfeit of a healthy economy, or if we overrun other cultures with our own, *the Dialogue will confuse more than it will illuminate, the Relationship will destroy more than it will edify.*

To carry on healthy dialogues, to develop healthy relationships, the parties must also be healthy and unburdened by externalities that must and can, otherwise, be resolved. In the case of environmental issues, these "externalities" should be considered an intrinsic part of the issue *as unfulfilled Human Rights.* We can argue on the realm of Human Rights with hard cold facts, building trust and healing the relationship as we uplift it to this level. No need to spin our wheels arguing morality or ethics. Better yet, no need for smoking guns that on the long run set us all back.

The rewards of expanding our framework accordingly, of seeking and accepting what is to be found outside of the Conventional, may lay in the discovery of an equation with the subversive potential for Passive Revolution. Ingeniously enough, I suspect that in developing such a framework, we might find a beacon inextinguishable by the turpitude and ignorance of the Sleeper and the Taker, of the War-Monger and the Profit-Seeker.

Sam Watson, a native of Lima, Peru, is in the process of writing his thesis for graduation from the MES program. Questions about the content of this article can be directed to:

Sam Watson
Box 7093
Olympia, WA 98507

Oil and the Amazon (from page 4)

E. *And do you have hope?*

L: I have a request. We are asking people to write letters protesting this persecution so that it will stop. We absolutely want Arco, Conoco and Unocal out of our national parks and the lands of our tribal nations. No compromise. We also need financial aid to support our legal work and defend our lands.



Please write, call, or send telexes to ARCO, and President Rodrigo Borja of Ecuador protesting this situation and expressing your solidarity with the Indian people of Ecuador.

President Rodrigo Borja
Palacio Nacional
Quito, Ecuador
Telex: 393-223-75 PREREPED or
393-222-01 PREREPED EDL.M.Cook

Atlantic-Richfield Co.
515 S Flower
Los Angeles, CA 90071
Phone: (213) 486-3511 or 486-2049

SAB Recommendations

The Student Advisory Board met on May 18th and discussed issues concerning MES electives. The Board made the following recommendations:

1) The Board designed a possible two-year elective course sequence (assuming 3 electives each quarter).

	FALL	WINTER	SPRING	SUMMER
Year 1	P E L	P E Ec	P E Pl	wildcards
Year 2	P E C	P E Ec	P E Pl	wildcards

Legend:

P = Policy E = Ecology/Natural Science*
Ec = Economics L = Law/Ethics Pl = Planning
C = Culture/Gender/World Studies

*The program should strive for a two year rotation of electives.

2) The Board would like to see continued a strong emphasis in Environmental History in PEEP and a stronger emphasis in Culture/Gender studies in PER.

3) The Board recommends that the catalogs to other Environmental Studies programs in Washington State should be ordered by the program on a regular basis and made available to students in the MES lounge with instructions on how to enroll in other programs and transfer credits to Evergreen.

4) The Board recommends that the program provide a better explanation of the Group and Independent contract to in-coming students during orientation and provide as much aid as they can to smoothing out the process.

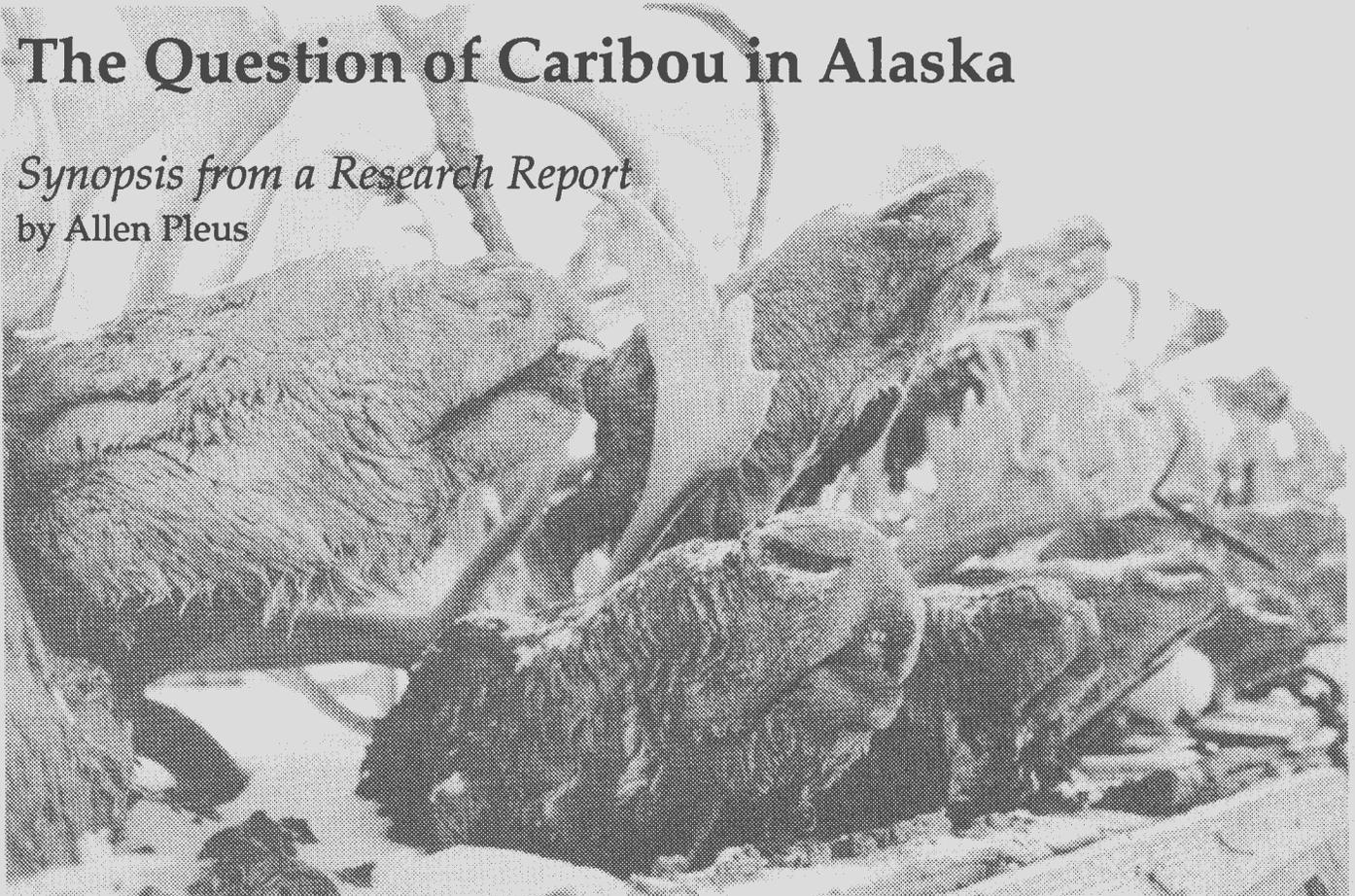
5) The Board also recommends that the program should try to make available more Teaching Assistant positions in the undergraduate classes. Both undergraduates and graduates would benefit and these TA positions can be credit-earning positions where salary is unavailable.

(J.C. Armbruster volunteered to act as the start-up chair for next fall. If you are interested in serving on the board next year please contact J.C.)

The Question of Caribou in Alaska

Synopsis from a Research Report

by Allen Pleus



"The phases of the caribou annual cycle, and the specific concerns applicable to each, cannot be viewed in isolation, but rather an interdependent sequence of events."

- Alaskan wildlife biologist R.D.Cameron.

The accumulation of barren-ground caribou research over the past 20 years from the Prudhoe Bay region documents that oil and gas development has disrupted the Central Arctic Herd's (CAH) distribution and movement patterns. It shows that access to sufficient calving and insect relief habitat, critical for herd productivity, is threatened by continued local and especially by proposed regional petroleum development.

The Prudhoe Bay region sets the precedent as the first industrial activity in the world to develop on barren-ground caribou calving habitat. What this means is that the Central Arctic Herd has become the test case for creating baseline data on the compatibility of Arctic petroleum development and caribou viability.

Throughout the literature I have reviewed, the definition of compatibility or co-adaptation (below) remains unclear. The assumption is that the petroleum industry seeks a relationship with wildlife which weights human needs on a scale with long-term environmental requirements. But the research shows that the CAH is being managed for numbers without regard to the

long-term needs of the surrounding environment. Canadian caribou biologist A.T.Bergerud, supporting petroleum development in testimony before the U.S. Senate states,

"The CAH next to the Porcupine herd of course has a tremendous amount of development... pipes and feeder lines and so forth, and that herd has prospered; increasing from some 3,000 to 15,000 during the development. I think that's the acid case that shows that caribou can co-adapt to this."

Central Arctic Herd productivity and population are the buzz-words of intense debate. The assertion is that an increasing population equals productivity and that equals a healthy herd. What I found the research showed is that larger caribou groups have decreasing success crossing petroleum infrastructure to access habitat. It also shows that larger herds require greater mobility and space while at the same time petroleum infrastructure keeps expanding and the carrying capacity of the range remains unknown. The last point is especially important in view of recent evidence indicating high calf mortality and a decline in CAH population.

The key to caribou productivity in the Arctic is mobility and this requires vast amounts of range. It is the caribou's natural defense against predators and pests and it maximizes

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Question of Caribou (from page 7)

their energy budgets with inland protection from harsh winters and high-quality coastal forage during the summers for rebuilding body reserves. The annual caribou migration has evolved over centuries and their ecological strategies of long-term survival have many hypotheses.

The caribou's long-term health is primarily threatened by the avoidance of petroleum infrastructure by the highly sensitive parturient (calf-bearing) and postpartum (post-calving) female groups. They are the least successful at crossing linear structures (i.e., roadways, pipelines, and other physical structures) and are consequently the easiest to displace from their habitat. The result is that the greatest concentrations of calving groups require the largest habitat devoid of disturbance. Subsequently, overall access and use of calving habitat in the Prudhoe Bay region has been reduced and in places of highest infrastructure density, research shows that no significant calving has occurred for the past 16 years.

Central Arctic Herd Population Theories

"In actuality, there is a potentially infinite universe of manners in which human activity can influence animal populations and merely demonstrating that one factor is not operative does not negate the influence of the remainder of possible factors. In other words, the only way in which population responses can be shown not to be influenced by disturbance is to study population dynamics."

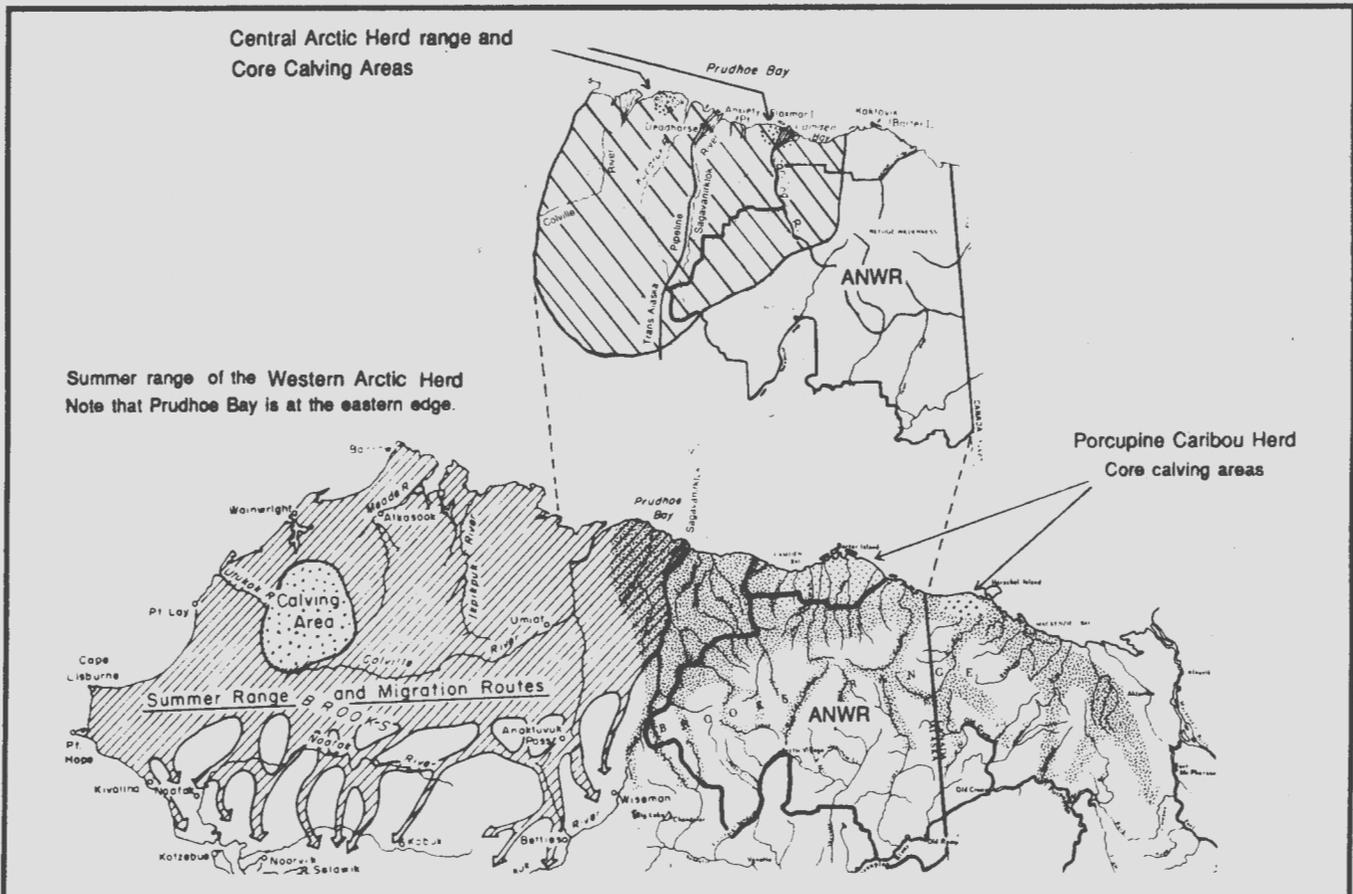
- Canadian wildlife biologist A.T. Bergerud.

Let's explore the productivity/health equation further. The productivity of the barren-ground species of caribou and population increase in the Central Arctic Herd have many theories. Information relating to population counts of the CAH are sparse and full of gaps. This is due to manipulation of the caribou's primary predator, difficulties in completing an accurate herd census, favorable environmental factors during the period of development, gaps in immigration and emigration assessment, and continually expanding impacts by petroleum infrastructure.

Biologists attribute the primary reason for the increase in CAH productivity since 1976 to legal and illegal harvest of wolves and adult mortality decreasing by implementation of hunting controls. They cite research which considered wolves "common" on the Central range prior to 1977 with reports of at least three active wolf packs using the area. This coincides with another report which documented the beginning of excellent productivity and survival to yearling age of CAH caribou. By 1979, reports indicate that wolf populations reduced to "two to three individuals."

If population figures are the bottom line, then accurate censuses must be taken. Taking a census of caribou in the arctic is an extremely difficult task. The windows of opportunity are typically only a few days out of each year due to weather and yearly migration patterns affecting prime concentrations of post-calving aggregations. Most years since 1977, population estimates have been based upon extrapolated population growth

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Question of Caribou (from page 8)

of 7-13%. 1983 was the last successful census to date. Even though it has been a high priority to complete another one since 1986, all attempts have been unsuccessful. True population figures, it turns out, are educated guesses based on complex and often unknown factors.

The severity of climate and pests are significant factors to population health and records show that there have been no documented overall harsh winters or summers and overall insect activity has been low to moderate in the Central Arctic range since Prudhoe's development. Also, initial hunter/subsistence pressures from access along the Dalton Hwy in 1974 declined to low levels after implementation of regulations in 1976 and are not considered a significant factor to current productivity.

The theory of population fluctuations by immigration/emigration of the Western Arctic and Porcupine herds has been suggested in the late 1950s and early 1970s. Biologists have reported migrations during the summer post-calving and overwinter seasons, where both the Western Arctic (WAH) and the Porcupine Caribou Herds (PCH) are known to use CAH range. They speculate that there has been immigration into the Central Arctic Herd range from the WAH and PCH since development of the Prudhoe oilfields and they also expect greater influxes of caribou as the WAH continues to grow and expand, but they cited no evidence. The question of whether large influxes of caribou (such as in the past) from neighbor herds are avoiding mixing because of development remains unanswered.

The petroleum industry often boasts that "since development" of the Prudhoe Bay oil reserves in the mid-70s, the population of the Central Arctic Herd has increased more than 3-fold. "Development" for the petroleum industry is when oil actually starts pumping out of the wells for transport to refineries. What they leave off is the part about exploration activities during the mid-60s, discovery in 1968, and intense development since. Not surprisingly, they leave out the part about the history of caribou in the region.

During the late 1950s, the greatest use by caribou of this region was recorded, but the lack of specific demographic data leaves the relevance of this congregation of 100,000 - 150,000 caribou highly speculative. A synthesis of summer and fall caribou surveys of the region reported 26-30,000 caribou in 1969 and 1970 followed by a dramatic decline to only 2,500 by 1972. The assumption is that the 1970-72 decline is a direct response to a dramatic decline in the Western Arctic Herd which was caused by overharvest and high wolf predation. Yet their research does not address whether the CAH's dramatic decline was a result of natural emigration, mortality, or the coincidence of the petroleum discovery in 1968 and consequent rapid infrastructure development causing avoidance of the region.

The period of the early to mid-1970s also marks the beginning of caribou impact mitigation research and development of baseline data by wildlife biologists. Research on the impacts to wild caribou until this time are almost non-existent and those caribou in the Central Arctic region were thought to be "offshoots from the Porcupine and Western Arctic herds". Distribution and movement studies during this period are based upon research conducted on wild and domestic reindeer in Scandinavia.

Calving and Insect Relief Habitat

"From a natural selection point of view, it is illogical that female caribou in relatively poor [typical overwinter] condition would undertake early spring migration to such areas if no net advantages were to be realized."

- Alaskan wildlife biologist R.D. Cameron

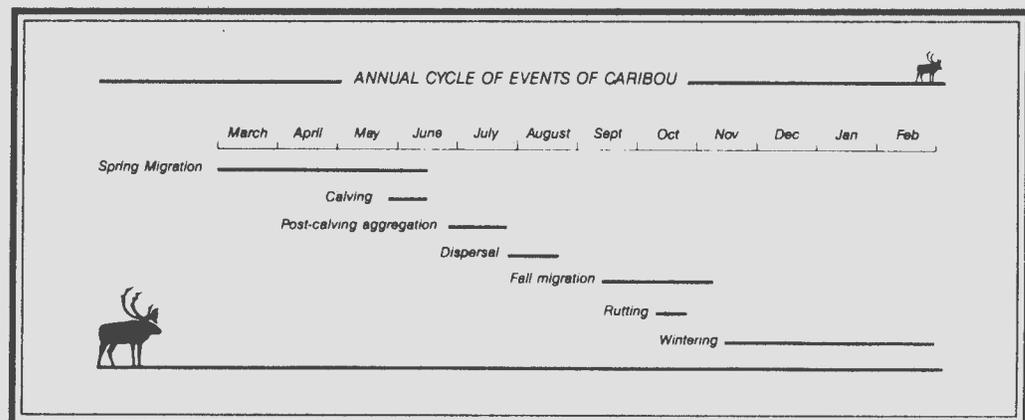
The petroleum industry often uses the approach that infrastructure and other development impacts to caribou distribution and movement occur only during a short 6-8 week period. What is left off of this statement is that those weeks between late-May and late-July are the critical times of caribou calving and insect relief habitat use. It is an intense, stress-filled period which can make or break herd productivity.

The selection of calving grounds in late May to early June is extremely important to the herd's productivity and "core" sites are recognized in both the Central Arctic and Porcupine Caribou Herd ranges. The general consensus of wildlife biologists is that a core calving area is the culmination of evolutionary processes based upon the sensitivity of parturient (calf-bearing) and postpartum (post-calving female) caribou to disturbance. The core calving grounds for all Arctic caribou herds are defined by all or most of these attributes: Lack of predators, early snowmelt, forage advantages, and proximity to insect-relief areas.

Post-calving aggregation commences the latter half of June and early July when groups of mostly cows and calves join near the coast. The groups with calves form some of the largest populations of the year at this time. Bull groups also arrive and this marks the beginning of the insect relief season.

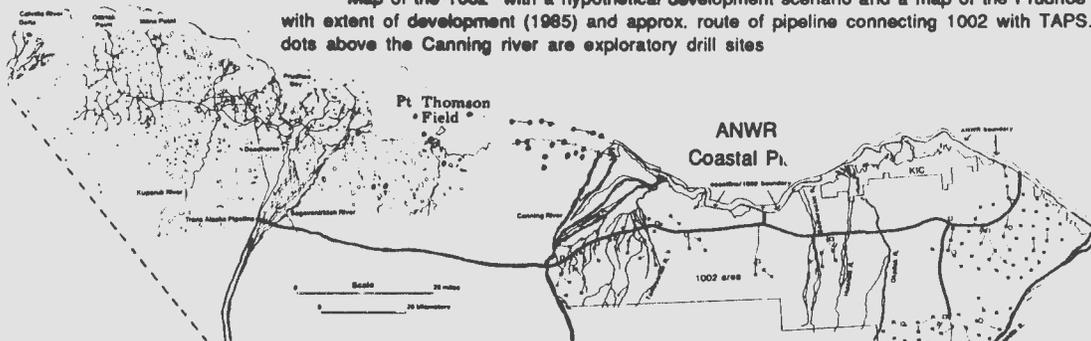
The intensity and effects upon caribou of insect harassment and their drive to seek relief can directly limit mobility and range. Increasing severity of insect harassment increases the

(see page 10)



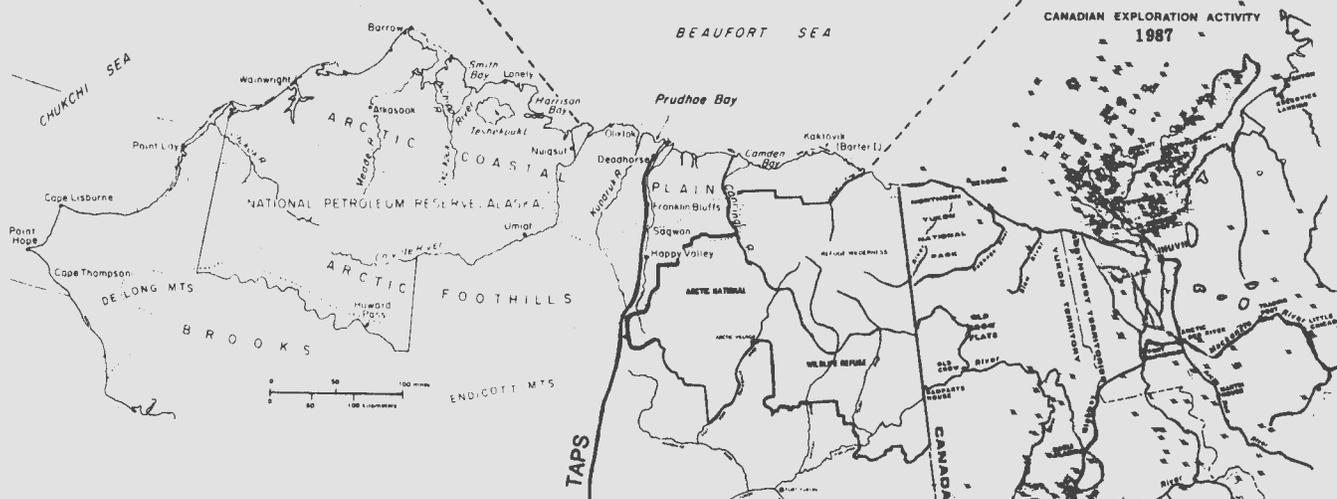
Question of Caribou (from page 8)

Map of the 1002 with a hypothetical development scenario and a map of the Prudhoe Bay area with extent of development (1985) and approx. route of pipeline connecting 1002 with TAPS. Note: the dots above the Canning river are exploratory drill sites



The Prudhoe Bay area oil and gas development is a rapidly expanding, multi-industry enterprise. Historical development of the area has been a hopscotch of individual companies expanding in relation to market prices of crude oil. Development of this area was without a master plan and resulted in frequent redundancy with little consolidation of support and production facilities (Cameron 1983).

Petroleum Development: Current and Proposed



frequency and speed of individual caribou and group movement and this affects energy intake opportunities (foraging or nursing calves). This period continues the delicate balance of energy costs and gains with maximum net energy retention. Summer is the only time for caribou to replenish optimal body reserves with energy resources which enhance individual survival and herd productivity.

The first phase of insect activity is the emergence of mosquitoes in late June. The warmer the air temperature and the less the wind speed creates the greatest insect activity. Mosquito-harassed caribou seek relief by forming large groups (fewer mosquitoes per caribou) and head north or northeasterly into the prevailing winds until they reach the coast or river deltas where they stay until insect activity declines. With lower temperatures and/or higher winds, mosquito activity abates and the caribou groups fragment and immediately return inland to seek high-quality forage. When mosquito activity increases, the caribou will regroup and return to the coastal/delta regions. Normal fluctuations of insect activity cause common cyclical movement during this period.

In late July mosquitoes die off and the second phase begins when oestrid flies, mainly warble flies and nose bots become the dominant insect pest for the caribou. This marks the beginning of dispersement for the large groups and diminishing mosquito-induced oscillatory north-south movements. Attacking oestrid flies cause random movements by the caribou herds. Common reactions of severe harassment are standing rigid or running wildly. By mid- to late August insect activity declines and caribou form smaller groups heading south, away from the coastal petroleum infrastructure and toward their wintering areas in the Brooks Range.

Summary

The fact that the Central Arctic Herd's population has increased since the mid-70s until the late-80s has promoted an image that development in the Prudhoe Bay region has maintained the natural integrity of the caribou's productivity. The evidence shows that traditional calving and insect relief

(see page 11)

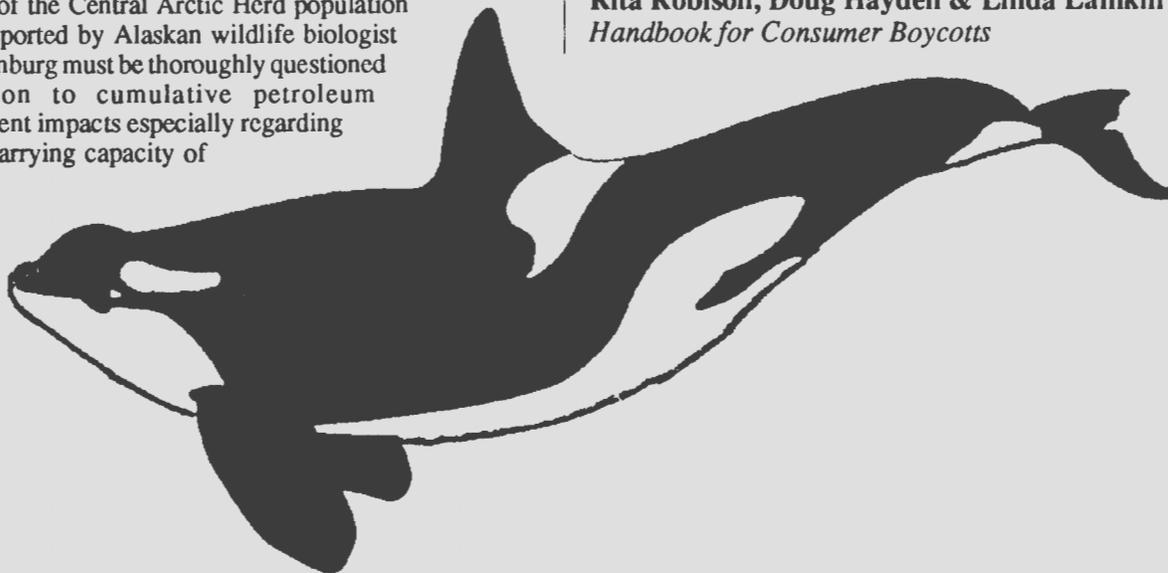
Question of Caribou (from page 8)

habitats have been lost and are continually fragmented under expanding development until it is no longer functional. Manipulation of ecosystem balances can and have caused short-term and site-specific fluctuations, but long-term effects remain speculative.

The majority of CAH research focuses upon site-specific physical and evolutionary barriers to habitat access. The nature of this type of research lends itself to isolating a problem which has many intrinsic and extrinsic factors. Cumulative effects such as scale and speed of infrastructure development, immigration/emigration, and predator population manipulation are not sufficiently addressed as to their roles in barren-ground caribou productivity.

The development of speculated oil and gas reserves on the 1002 ("ten-o-two") Coastal Plain of the Arctic National Wildlife Refuge cannot be separated from the viability of the Central Arctic Herd. CAH caribou access to eastern habitat range could be substantially cut off as construction of a pipeline/road corridor will be necessary to connect the Coastal Plain with the Prudhoe Bay Trans-Alaskan Pipeline System (TAPS). In the CAH research, Congressional testimony and documentaries reviewed on petroleum development of the 1002, there are no references to this potential impact to the CAH. The concerns raised have focused only upon impacts to the Porcupine herd, in effect isolating the two developments. Research reviewed shows that the Central Arctic Coastal Plain ecosystem is intimately interconnected with surrounding regions through the mixing of herds and range use.

Special attention needs to address the indicator that a rapidly increasing caribou population often indicates poor ecosystem health - in this case, the evidence points towards predator control and favorable climate/insect conditions. The population dynamics of the Central Arctic Herd cannot be assessed on the short-term scale. The health of an ecosystem is at stake for this entire arctic region and oil development in prime habitat can only spell trouble for the caribou and other species of their community. In this light, the recent evidence of the Central Arctic Herd population decline reported by Alaskan wildlife biologist Pat Valkenburg must be thoroughly questioned in relation to cumulative petroleum development impacts especially regarding reduced carrying capacity of range.



MPA Applications

The following projects are being completed this Spring. The subjects listed may not be the exact project title, but reflect the work being done.

Robert Press – *Washington State Investment Board & Socially Responsible Investing*

Jennifer Priddy – *Implimentation Costs of Federal Programs*

Marilyn First – *Regulating the Placement of Foreign Exchange Students in Washington State*

Jim Moseback, Hoai Nguyen, Robert Mayer & Peter Svoboda – *High-Speed Ground Transportation in Washington State: Implementation Roadblocks*

Luanna Austin & Barbara Williamson – *Farmland Preservation in Thurston County*

Gail Stewart & Judy Hennessey – *State Authorization of Medical Rehabilitation*

Bob Whitener, Linda Hughes & Terry Crabtree – *Career Theory for Women and Women of Color: Evidence and Practice*

Kathy Emmett & Dinah Day – *Waste Reduction and Recycling: Procurement Policy for Washington Government*

Akira Yoshida – *Educational Reform: US & Japan*

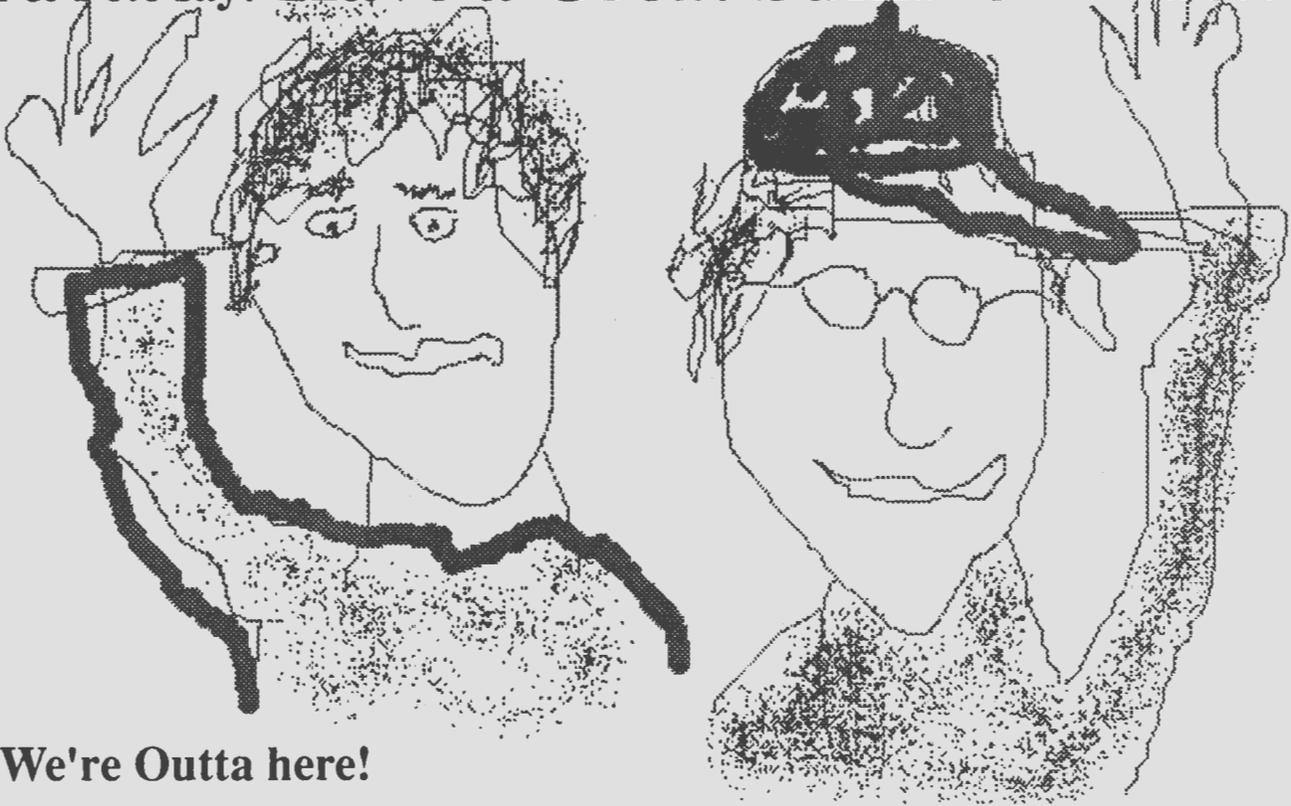
Donna Copeland – *Legitimacy & Neighborhood Government*

Chris Yates – *Performance Evaluation of Community College Administrators*

Toni Murray – *Human Resource Management in the Washington State Department of Natural Resources*

Rita Robison, Doug Hayden & Linda Lamkin – *A Handbook for Consumer Boycotts*

Al & Pete say: **Have a Great Summer Kids!!**



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