HJR

32

<TARGET><BILL>HJR 32</BILL><SUBJECT>HJR
32</SUBJECT><COMM>SRES27</COMM></TARGET>

ALASKA STATE LEGISLATURE
REPRESENTATIVE ALAN DICK

HOUSE DISTRICT 6

Alaska State Capitol
Juneau, Alaska 99801
Representative_Alan_Dick@legis.state.ak.us

(907) 465-4527
1-800-491-4527
(907) 465-2197 Fax

"STRONG VALUES IN UNCERTAIN TIMES"

Alatna
Allakaket
Alcan
Aniak
Anvik
Arctic Village
Beaver
Beluga
Bettles
Birch Creek
Boundary
Central
Chalkyitsik
Chandalar
Chandalar Lake
Chicken
Chistochina
Chitina
Chuathbaluk
Circle
Coldfoot Camp
Copper Center
Crooked Creek
Deltana
Dot Lake
Dry Creek
Eagle
Eagle Village
Evansville
Flat
Fort Greely
Fort Yukon
Fortuna Ledge
Gakona
Galena
Georgetown
Grayling
Gulkana
Healy Lake
Holy Cross
Hughes

Huslia
Kaltag
Kennicott
Kenny Lake
Koyukuk
Lake Minchumina
Lime Village
Livengood
Manley Hot Springs
Marshall
McCarthy
McGrath
Medfra
Mentasta Lake
Minto
Nabesna
Nenana
Nikolai
Northway
Nulato
Ophir
Rampart
Red Devil
Ruby
Russian Mission
Shageluk
Slana
Sleetmute
Stevens Village
Stony River
Takotna
Tanacross
Tanana
Tazlina
Telida
Tetlin
Tok
Tonsina
Tyonek
Venetie
Wiseman

MEMORANDUM

To: Senator Paskvan, Co-Chair
Senator Wagoner, Co-Chair
Senate Resources Committee

From: Representative Alan Dick, Sponsor

Date: March 29, 2012

RE: HJR 32 - REMOVE WOOD BISON FROM ENDANGERED LIST

I respectfully request that HJR 32 be scheduled for hearing before the Senate Resources Committee at the earliest possible convenience.

The resolution asks Congress to remove wood bison from protected status under the Endangered Species Act.

Removing them from the list would be the single most important action that could be taken to facilitate their reintroduction and recovery – as it would remove the obstacles that have prevented their reintroduction. It is their status as protected, and the onerous restrictions that accompany them, that have kept them from being released into the wild in Alaska.

For questions related to this bill, please contact my legislative aide, Paul Verhagen at 465-2847.

Alaska State Legislature

Juneau
State Capitol Bldg., Rm. 104
Juneau, AK 99801-1182
Phone (907) 465-4527
Fax (907) 465-2197

Interim
1292 Sadler Way, Ste 328
Fairbanks, AK 99701
Phone (907) 452-3434
Fax (907) 452-3430
Toll-Free (800) 491-4527

Representative Alan Dick

House District 6

Sponsor Statement

HJR 32: Wood Bison

A Resolution urging The United States Congress to remove wood bison from protection under the Endangered Species Act of 1973 and to grant control of wood bison in Alaska to the state.

The Alaska Department of Fish and Game (ADF&G) has been working to re-introduce wood bison into Alaska for many years. Wood bison are listed as an endangered species under the Endangered Species Act. The introduction of an endangered species into the wild brings with it significant restrictions on resource development and felony charges if they are harmed or hunted.

Under certain circumstances waivers of some of these restrictions are available and ADF&G has worked hard to negotiate such waivers. Last year they successfully concluded negotiations with the United States Fish and Wildlife Service (FWS) and were preparing to release them into the wild when FWS notified them that a lawsuit had been filed challenging whether or not a protected species could ever be hunted.

At that time FWS notified ADF&G that it was willing to proceed with the rest of the negotiated agreement but not the hunting provision. ADF&G wisely elected not to proceed until such assurances are guaranteed. Although the hunting issue has since been resolved, in recent years numerous lawsuits, and petitions for injunctive relief, have been filed seeking to overturn already negotiated agreements or prevent new waivers from being approved.

An ever increasing number of these petitions or suits have been successful, thus the certainty of the negotiated rules cannot be guaranteed by the United States Fish and Wildlife Service - which removes the assurance that the waivers are intended to provide. If wood bison are reintroduced into the wild while they remain on the protected list hundreds of thousands of acres (if not more) of interior Alaska could be

added to the over 200 million acres of coastal Alaska that have recently been locked-up by the addition to the list of polar bears and beluga whales alone.

As a result there are only three reasonable responses to the current situation.

1. Work to facilitate their removal from the ESA by asking congress to intervene and remove them from the list as they did recently with the grey wolves in the Lower 48 states.
2. Release them onto an island and allow them to proliferate there until they are removed from protection at which time they could safely be reintroduced onto previously occupied lands.
3. Do not reintroduce wood bison into the wild in Alaska, even with negotiated agreements, as long as they remain on the ESA's threatened or endangered list.

HJR 32 addresses the first response.

ALASKA STATE LEGISLATURE
REPRESENTATIVE ALAN DICK

HOUSE DISTRICT 6

Alaska State Capitol
Juneau, Alaska 99801
Representative_Alan_Dick@legis.state.ak.us

(907) 465-4527
1-800-491-4527
(907) 465-2197 Fax

"STRONG VALUES IN UNCERTAIN TIMES"

Alatna
Allakaket
Alcan
Aniak
Anvik
Arctic Village
Beaver
Beluga
Bettles
Birch Creek
Boundary
Central
Chalkyitsik
Chandalar
Chandalar Lake
Chicken
Chistochina
Chitina
Chuathbaluk
Circle
Coldfoot Camp
Copper Center
Crooked Creek
Deltana
Dot Lake
Dry Creek
Eagle
Eagle Village
Evansville
Flat
Fort Greely
Fort Yukon
Fortuna Ledge
Gakona
Galena
Georgetown
Grayling
Gulkana
Healy Lake
Holy Cross
Hughes

Huslia
Kaltag
Kennicott
Kenny Lake
Koyukuk
Lake Minchumina
Lime Village
Livengood
Manley Hot Springs
Marshall
McCarthy
McGrath
Medfra
Mentasta Lake
Minto
Nabesna
Nenana
Nikolai
Northway
Nulato
Ophir
Rampart
Red Devil
Ruby
Russian Mission
Shageluk
Slana
Sleetmute
Stevens Village
Stony River
Takotna
Tanacross
Tanana
Tazlina
Telida
Tetlin
Tok
Tonsina
Tyonek
Venetie
Wiseman

HJR 32 Summary of Changes Version B to Version X (3.2.12)

- Removed unnecessary "whereas" statements.
  - Ver. B, p.1, lines 8-10,
  - Ver. B, p.2, lines 9-16.

- Distinguished between the State of Alaska and Department of Fish and Game in a few locations.
  - Ver. X, p1, line 10;
  - Ver. X, p3, line 5.

- Changed repeated references to the Endangered Species Act of 1973 to "The Act".
  - Ver. X, p1, lines 6, 14;
  - Ver. X, p.2, lines 13, 17, 21;
  - Ver. X, p.3, line 4.

- Noted that the Alaska Department of Fish and Game has successfully managed Plains bison in Alaska for more than 70 years.
  - Ver. X, p. 2, line 31.

- Added clarifying statements.
  - Ver. X, p.1, lines 11-12, 15;
  - Ver. X, p.2, lines 1, 6-7, 31.

FISCAL NOTE

STATE OF ALASKA
2012 LEGISLATIVE SESSION

Bill Version: **CSHJR 32(RES)**
Fiscal Note Number: **1**
(H) Publish Date: **3/2/12**

Identifier (file name): HJR32-LEG-COU-2-23-12
Title: "Urging the United States Congress to remove wood bison from protection under the Endangered Species Act..."
Sponsor: Representatives Dick, Austerman
Requester: House Resources

Dept. Affected: Legislature
Appropriation: Legislative Council
Allocation: Session Expenses
OMB Component Number: 782

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	FY13 Appropriation Requested	Included in Governor's FY13 Request	Out-Year Cost Estimates				
OPERATING EXPENDITURES	**FY13**	**FY13**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**
Personal Services							
Travel							
Services							
Commodities							
Capital Outlay							
Grants, Benefits							
Miscellaneous							
TOTAL OPERATING	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

FUND SOURCE		(Thousands of Dollars)						
1002	Federal Receipts							
1003	GF Match							
1004	GF							
1005	GF/Prgm (DGF)							
1037	GF/MH (UGF)							
1178	temp code (UGF)							
TOTAL		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

POSITIONS							
Full-time							
Part-time							
Temporary							

CHANGE IN REVENUES							

Estimated SUPPLEMENTAL (FY12) operating costs _____ *(separate supplemental appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY13) costs _____ *(separate capital appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Why this fiscal note differs from previous version (if initial version, please note as such)

Initial Version

Prepared by: Jessica Geary, Finance Manager — Phone: 465-6626
Division: Legislative Affairs Agency — Date/Time: 2/23/12 4:20pm
Approved by: Pamela Varni, Executive Director — Date: 2/23/2012
Legislative Affairs Agency

(Revised 1/17/2012 OMB)

FISCAL NOTE #1

STATE OF ALASKA
2012 LEGISLATIVE SESSION

BILL NO. CSHJR 32(RES)

Analysis

This Legislation has zero fiscal impact on the Legislative Affairs Agency.

Index of Supporting Information for CS HJR 32

1. Overview of the current situation
   Operating on Quicksand – 2 pages
2. Quotes from ADF&G's publication *Wood Bison News* – 2 pages
   Useful information
3. Quotes from ADF&G's publication *Wood Bison News* - 6 pages
   More Details of Wood Bison Situation
4. News Articles
   Congress Removes Wolves from ESA – 3 pages
   Judge allows congress to remove wolves from ESA – 2 pages
5. What's the Cost?
   Private Property versus Public Use – 3 pages
6. An Alternative Perspective on the ESA
   "As a registered Republican in the District of Columbia, I have some experience and a special concern for endangered species". – 3 pages
7. Wolf Recovery
   Political Ecology and Endangered Species (Old but comprehensive discourse) – 25 pages
8. Rebuilding the Ark
   ESA reform - New Perspectives – 5 pages
9. Alaska Department of Fish and Game Support
   Yes, we are supportive of this resolution – 1 page
10. ADF&G *Wood Bison News* - Issue 6
    Most Current Issue – 8 pages

Operating on Quicksand

The wisdom of voluntarily subjecting ourselves to the strings that are attached to bringing in an animal that is *already* on the threatened or endangered list is worth careful consideration.

With the addition of just one animal to the list (the polar bear) our state has already had more land "locked up" than all the land granted to us by the federal government at the time of statehood.

Last year Representative Dick filed HB186 in an effort to prevent the Alaska Department of Fish and Game (Fish and Game) from introducing wood bison into the state without approval by the legislature. Between then and now import things have happened with regards to the Endangered Species Act.

After several states spent years working to get grey wolves removed from the list they found themselves extremely frustrated when one court would rule in their favor and another court would rule the opposite.

Eventually they took their case to congress. In a surprise move, congress intervened and exempted the grey wolf from the Endangered Species Act and made their decision "not subject to review by the courts".

From our perspective a similar action by congress would resolve our problems - the bison could be released into the wild *without* the restrictions that come with the act and they could be managed by our State Department of Fish and Game – just as the plains bison have been successfully managed for over 70 years.

In an effort to urge Congress to intervene on our behalf we are seeking this House Joint Resolution that encourages congress to exempt wood bison from the act.

Representative Dick recently received a letter from Geoff Haskett, Regional Director of the United States Fish and Wildlife Service (Fish and Wildlife Service).

Regional Director Haskett takes issue with some of the statements we've made in the resolution and explains that Fish and Wildlife Service has worked closely with Fish and Game in an effort to release the bison into the wild.

We acknowledge that the Service is diligently working to comply with the rulings from the numerous cases that are making their way through the courts. The ink is barely dry on the last ruling before the next ruling is out! That is the point we are making - Fish and Wildlife Service is constantly chasing a moving target and the situation is only getting worse.

The Endangered Species Act may have been created with the best of intentions by people with a sincere concern for the environment, many of whom are working diligently to accomplish those goals – but today it is also being exploited by litigants whose goals appear to be not so much to protect endangered species or the environment but rather as a means of accomplishing other purposes. The consequences are that group after group brings suit after suit and one after another of the resulting rulings invalidate

agreements that were painstakingly worked out by the stakeholders. This undermines the purpose of the act.

While referring to the wolf issue the Secretary of the Interior, Ken Salazar, said

> "The fact is, after years of lawsuits, wolf de-listing got stuck in unacceptable gridlock, acrimony and dispute. The debate was consuming Fish and Wildlife Service resources that could be spent recovering other species."

We don't lay this issue at the feet of the Fish and Wildlife Service. They have no choice but to respond to the suits that are filed, but it is becoming increasingly clear that there are other forces with other agendas that are at work here. James Thompson from the University of Wyoming is quoted as saying[1]:

> "wolf recovery is [only] a 'stalking horse' for the larger issue of land use change." Even environmentalists have admitted that "on the deepest level the issue of...wolf recovery is not about wolves. [Instead] it is about control of the west" (Askins 1993:5). Simply put, environmental-ists are using wolf recovery and the Endangered Species Act to run ranchers out of the country and to thwart multiple use of public lands. It is also a way for animal-rights and antihunting groups to ban all hunting and use of wildlife. Is this what Congress had in mind when it passed the Endangered Species Act? There is no evidence to even remotely suggest that it is".

In the same letter Regional Director Haskett disagreed with our position that – as a result of litigation, implementation of current law serves to defeat its original purpose.

He offers proof that our assertion is wrong by stating that for over 35 years the ESA has prevented the probable extinction of hundreds of species (a position that many disagree with) – but we are *not* disagreeing with what may have happened in the past. We are pointing out that after many years of working towards the goal there are still no wood bison roaming the wilds of Alaska and, as clearly stated by wood bison biologist Bob Stevenson, in the Department's publication *Wood Bison News*, it *was* because of litigation:

> "recent litigation has raised a question about whether the FWS can allow hunting of a species that are protected under the ESA...The result is that the ESA regulations have been delayed".

Regional Director Haskett states that after extensive communications with the Washington office the service director reached a decision that supports future hunting of wood bison – but that underscores our point that *we are all operating on quicksand*. What if regional director Haskett had not gone to bat for us? And nothing guarantees that his successor will be as accommodating as he is or that even he himself will remain free in the future to be as accommodating as he may have been.

Director Haskett concludes his letter with assurances that the Service is working with the state to designate Alaska's wood bison as a nonessential, experimental population that would provide the state with the assurances that they have requested. But the bottom line is that if wood bison weren't under the "protection" of the Endangered Species Act they would already be wandering the wilds like the plains bison are and there wouldn't be any fear of our lands and resources being locked up. And if there weren't elements working against the assurances that Alaska wants, it would not have taken this many years to get to the point that we're still not there.

---

[1] http://www.independent.org/publications/policy_reports/detail.asp?type=full&id=6

Why are plains bison living in Alaska?

> Plains bison originally lived only in southern Canada and in the lower 48 states. They were introduced to Alaska in 1928, and four herds of plains bison totaling about 900 animals now live in the state. Wood bison would not be released near existing herds of plains bison to maintain the genetic integrity of the subspecies.

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/bison_faq.pdf

Cost to state to hold Wood Bison in captivity:

> It's costing the state about $100,000 per year to house, feed and care for the bison, the state's wood bison biologist, Bob Stephenson at ADF&G in Fairbanks, said.

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/woodbison_news6.pdf

There's nothing else can hold us back:

> "There's nothing else that can hold us back at this point," wildlife planner Randy Rogers with the Alaska Department of Fish and Game in Fairbanks said this week. [August 2010]

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/woodbison_news6.pdf

ESA Regulation Issue Delays Wood Bison Release:

Due to a delay in completing regulations under the Endangered Species Act (ESA) the release of Wood Bison to the wild will be delayed until 2013 or beyond.

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/woodbison_news6.pdf [p. 1]

"The 10(j) rule would designate wood bison in Alaska as a nonessential experimental population, provide protection for other land uses and resource development and allow the state to have the lead role in managing wood bison populations. It would also prevent the designation of critical habitat."

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/woodbison_news6.pdf [p. 1]

...under section 4(d) of the ESA, which would specify the sideboards of state management and allowable "take" of wood bison.

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/woodbison_news6.pdf [p.1]

In Fall 2010 it appeared that the draft regulations would be published in the Federal Register, accomplishing their central purpose of ensuring that releasing a new species onto the landscape would not interfere with other resource development activities. However, these plans hit a snag due to factors not directly related to wood bison, as we explain below.

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/woodbison_news6.pdf [p.1]

One of the key provisions in the draft 4(d) rule was to recognize that once bison populations reached a level that could support a sustainable harvest (about 400 animals), regulated hunting would be allowed based on principles outlined in management plans developed by the state in cooperation with land owners, FWS and other agencies, and other interested parties. ADF&G has always been committed to the principle that the benefits of wood bison restoration including harvest must be shared by local residents, other Alaskans, and eventually visitors to our state.

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/woodbison_news6.pdf [p.2]

However, recent litigation has raised a question about whether the FWS can allow hunting of a species that are protected under the ESA. As a result, FWS recently indicated that at this time they are not prepared to authorize future harvests of populations of listed species (except for certain kinds of "take" otherwise authorized under the ESA) that have been designated as non-essential experimental. In March 2011, FWS informed ADF&G that they could either publish a proposed rule by the end of April 2011 without a provision allowing future hunting, or wait for several months until the issue could be further discussed and hopefully resolved.

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/woodbison_news6.pdf [p.2]

ADF&G decided that the ESA regulations must provide certainty in terms of allowing a future harvest and that the issue is too important to be deferred to a future regulatory process. The result is that the ESA regulations have been delayed.

http://www.adfg.alaska.gov/static/species/speciesinfo/woodbison/pdfs/woodbison_news6.pdf [p.2]

Wood Bison News – Issue Number 1, Winter 2005

The future legal status of wood bison in Alaska was recently clarified following a review by the U.S. Fish and Wildlife Service (FWS). The Alaska Department of Fish and Game also reviewed the issues surrounding the legal status of wood bison and agrees with the conclusion reached by FWS. Wood bison are listed as a threated species by Canada and as a foreign listed species in Canada under the U.S. Endangered Species Act (ESA). Because the species is listed in Canada, certain permits are required to import or export wood bison. In October 2004, the FWS determined that should wood bison be restored to Alaska the ESA would not need to be modified to add the imported population as endangered or threatened and that it does not intend to revise the list to include domestic wood bison populations. This means that wood bison in Alaska would have the same legal status as other resident wildlife and would not be listed as threatened or endangered in the U.S.

ADF&G has been exploring the possibility of restoring wood bison since 1991, in cooperation with various U.S. and Canadian agencies, tribal governments, and public groups.

Wood Bison News - Issue Number 3, Spring 2007

The members of this diverse advisory group showed a willingness to work together to achieve the common objective of returning wood bison to the wild in Alaska.

ADF&G believes that wood bison restoration in Alaska represents an outstanding wildlife conservation opportunity and that wood bison restoration will ultimately provide benefits for local and non-local hunters and wildlife viewing enthusiasts. It is clear that wood bison are compatible with other wildlife species in the state and can play an important role in restoring and maintaining natural processes. The wood bison restoration project also has significance beyond Alaska. Wood bison restoration in Alaska would help to achieve several goals in Canada's Wood Bison Recovery Plan and will contribute to international efforts to restore the ecological role of bison throughout North America.

AWCC has worked closely with ADF&G for several years to develop the capacity to serve as a temporary holding facility for wood bison stock for restoration efforts.

In 2003, the U.S. Fish and Wildlife Service transferred 13 wood bison to AWCC. There are now 22 animals in the wood bison herd, and additional calves are expected this spring. About 65 acres in three separate enclosures have been set aside for wood bison.

Additional wood bison that could be imported from Canada in early 2008.

we hope to import wood bison stock from Canada in winter 2007–08, and complete preparations to release wood bison into the wild by spring 2010 or 2011.

Wood Bison News - Issue Number 4, Winter 2008-09

Last June Alaska's wood bison restoration effort moved closer to the goal of reestablishing wild populations when **53 young wood bison were transported** by truck from Elk Island National Park

(EINP) near Edmonton over 2,000 miles **and released** at their temporary home **at the Alaska Wildlife Conservation Center (AWCC).**

The successful transport is an important milestone in the restoration effort, which had its beginnings in the early 1990s, when Athabascan elders in the Fort Yukon area shared historical accounts describing how bison were an important resource for interior Alaska Natives as recently as a few hundred years ago. It is not often that we have an opportunity to restore an indigenous species to large expanses of high quality habitat in its original range. There is a lot of work left to do, but we are now a big step closer to seeing wood bison, one Athabascan name for which translates as "***big, hefty one on the land***," roaming free again in interior Alaska.

Many people submitted comments emphasizing the importance of both local and non-local hunters having opportunities to share in future harvest of wood bison.

Several comments addressed the status of wood bison under the Endangered Species Act (ESA). Most of these comments emphasized the need for ADF&G to continue to work with the U.S. Fish and Wildlife Service (USFWS) and others to ensure that any risk of wood bison restoration interfering with other resource development is minimized.

There were a significant number of comments that recommended putting wood bison on state lands at Minto Flats where implementation costs would be lower because of road access and which is largely under the control of state land managers and the Alaska Board of Game.

Because there is little to no federal land in the Minto Flats area the Alaska Board of Game will have responsibility for decisions about subsistence use and future harvest allocation.

In 1978, the Committee on the Status of Endangered Wildlife in Canada initially assessed wood bison as endangered. This status was improved to threatened in 1988, thanks to successful recovery actions under the Canada National Wood Bison Recovery Program.

Since 1967, Elk Island has provided disease-free [plains] bison for reintroduction throughout North America. Established as Canada's first wildlife sanctuary in 1906, then declared a national park in 1913, Elk Island is Canada's only entirely-fenced national park. Located less than an hour away from Edmonton, Elk Island National Park protects the wilderness of the aspen parkland, one of the most endangered habitats in Canada. This beautiful oasis is home to herds of free roaming plains bison, wood bison, moose, deer, and elk. Also boasting over 250 species of birds, the park is a bird watcher's paradise.

Both Commissioner Lloyd and Larsen specifically thanked Bob Stephenson for conceiving the concept, working with Athabascan elders to document the presence and use of bison, and continuing efforts to restore the species in Alaska over the past 15 years.

Close to 15 years were required to reach this first step. On June 19th, 53 wood bison bolted out of the livestock vans in which they had spent the previous 50 hours into an enclosed area at the Alaska Wildlife Conservation Center at Portage, Alaska. ***Finally, the wood bison project was REAL!***

Status of Wood Bison Under the Endangered Species Act Revised
By Bob Stephenson

As was explained in the wood bison Environmental Review, the U.S. Fish and Wildlife Service (FWS) made a determination in 2003 that although wood bison are listed as "endangered in Canada" under the Endangered Species Act (ESA), wood bison brought into Alaska would not need to be listed as endangered. In December 2007, during the process of reviewing ADF&G's application for an import permit, the FWS revised this determination. A November 2008 letter from the Director of the FWS states, "The wood bison is listed as endangered wherever found and, as such, would retain its endangered status if introduced into the United States." In this letter the FWS also expressed support for the state's effort to reestablish free-ranging wood bison in Alaska. Because at times in the past

there had been public opposition to proposed reintroductions of endangered species due to concerns about restrictions on other land uses and activities, in 1982 Congress added a provision to the ESA to designate specific reintroduced populations of endangered species as "nonessential experimental populations" (NEPs). This is the provision of the ESA has been used for the reintroduction of wolves into Yellowstone National Park, black-footed ferrets, condors and other species. Under an NEP designation regulatory restrictions can be considerably reduced to make the reintroduction more compatible with other land uses.
ADF&G is working with FWS to designate wood bison in Alaska as an NEP. This will help ensure conservation of wood bison, minimize the potential for regulatory conflicts with other land uses great deal of time and effort to develop that support. However, without it there is no doubt in my mind we would have failed to get this far. There were times during the past decade and a half when the project was "half a bison hair" from being stopped. It is only through the growing and unflinching support of many organizations, agencies, and members of the public that we now have wood bison stock to use in restoring these animals in the wildlands of Alaska.
The essence of my message is a simple "thank you." There are too many individuals and organizations for me to name them in this short piece. But, as they say, you know who you are. Each and every contribution in time, money, or moral support was absolutely critical for the all-important first step of getting wood bison from Canada to Alaska.

While this change in the status of wood bison under the ESA adds to the complexity of the project, in the long run this approach will prevent legal challenges that could be more disruptive to the project and other land uses.

On November 4 and 5 about 18 people participated in a successful effort to move 32 wood bison through the recently completed bison handling facility at AWCC. The handling involved the bison transferred to AWCC in 2003 as well as their offspring.

Wood Bison News - Issue Number 5, Fall 2010

This winter we will initiate planning and prepare for the first release of wood bison in the lower Innoko River area in spring 2012.
A release in 2012 depends on completion of several important tasks.

Concern about possible impacts on other resource development activities due to the Endangered Species Act (ESA). As people who have been following the wood bison project may recall, in 2007 ADF&G proposed to begin planning for the Minto Flats site first. In January 2009 Doyon, Ltd., the regional Native corporation for interior Alaska, distributed a report that outlined their concerns that wood bison reintroduction could result in restrictions on oil and gas or other resource development. The state is also concerned about potential effects on resource development due to the ESA and wants to proceed with wood bison reintroduction in the most cautious and prudent manner possible to ensure that other resource development activities are not impeded. As a result, the Governor's Office asked ADF&G to work with the Alaska Department of Natural Resources (DNR) to evaluate the potential for other resource development at the three sites being considered for wood bison restoration and other areas to determine where wood bison could be reintroduced with the least risk to other resource development

Doyon is actively exploring for oil and gas on Yukon Flats and Minto Flats. There is also a proposal to construct a natural gas pipeline from the North Slope to Anchorage and one possible route would cross the eastern edge of Minto Flats. DNR is proposing to move forward with the Nenana-Totchaket agricultural project west of Nenana and is concerned that if wood bison are reintroduced on Minto Flats it might result in conflicts with agriculture similar to those involving the Delta plains bison herd. There is less potential for oil and gas or mineral deposits and no major resource developments proposed at the present time within the lower

Innoko wood bison area. The proposed Donlin Creek mine is located about 30 miles southeast of potential wood bison habitat; however the prospect is located in hilly terrain where wood bison are not likely to go.

At AWCC there are about 40 cows old enough to have calves and eleven bulls old enough to breed.

At AWCC, we currently have 6 five-year-old bulls and 5 ten-year-old bulls.

There are now 80-some wood bison at AWCC and Mike tends to them every day.

Wood bison are currently listed as "endangered" under the ESA, but the two regulations that will be proposed later this year would change this status. One is a special rule that will designate wood bison in Alaska as a "nonessential experimental population," or NEP, under section 10(j) of the ESA, and then specify how they will be managed. The special rule is designed to promote the conservation of wood bison and ensure that other land uses and natural resource development projects are not impeded by complications related to the ESA. Critical habitat cannot be designated with a NEP designation in place, The special rule will also allow "incidental take" so that if wood bison are harmed or killed during resource development or other lawful activities, enforcement actions will not be taken. FWS is also reevaluating the current ESA listing as endangered and may change the status of wood bison to "threatened" throughout their range, or possibly remove wood bison from the list of endangered species. The proposed rules are likely to be published in late 2010. Once public comments have been evaluated, final rules will be published, and FWS hopes to finalize the NEP designation late next summer.

Bison cannot be released until the NEP designation is in place, and an Environmental Assessment (EA) has been completed according to the requirements of the National Environmental Policy Act. The EA will be available for public comment at the same time as the proposal to designate wood bison in Alaska as a NEP.

The State of Alaska will not reintroduce wood bison until regulations are in (Continued from page 9) place that will prevent adverse effects on other resource development activities that are important to Alaska's economy.

The testing program includes the bison imported from Elk Island National Park (EINP) Canada in June 2008 ("2008 group"), the bison which had been transferred to AWCC by the U.S. Fish and Wildlife Service in 2003 ("2003 group"), as well as all offspring that have been born at AWCC.

The first handling in Alaska was conducted in November 2008 and involved only the 32 bison in the 2003 group.

In February 2010 we conducted the third health testing operation. This handling was more challenging. The entire herd of about 80 bison had to be handled twice in less than a week to conduct the USDA certified "caudal fold" test for TB.

Births and Deaths Thirty nine calves have been born since wood bison first arrived at AWCC in 2003. We have not encountered any infectious disease issues other than parasites, but there have been 16 mortalities, with 11 of those since March 2009. While we can determine the cause of some deaths (e.g., traumatic injuries such as fighting or goring from other bison), in other cases the cause of death is not entirely clear. (39 births minus 16 deaths leaves an increase of 23 over the total number imported).

Wood Bison News - Issue Number 6, Summer 2011

Due to a delay in competing regulations under the ESA the release of wood bison into the wild will be delayed until 2013 or beyond.

The 10(J) rule would designate wood bison in Alaska as a non-essential experimental population, provide protection for other land uses, and resource development and allow the state to have the lead role in managing wood bison populations. It would also prevent the designation as critical habitat. This would be accompanied by a special rule, under section 4(d) of the ESA,… would specify the allowable take of wood bison.
(paraphrased: This negotiated section required that once the herd reaches 400 animals that the state could allow hunting by local residents, other residents and eventually visiting hunters - as a management tool.)

However recent litigation has raised a question about whether the FWS can allow hunting of species that are protected under the ESA. (page 2)

NOTE: This is an example of why we are concerned. ADF&G can negotiate an absolutely perfect agreement with FWS under the 10(J) or 4(D) sections but anyone with enough money (like the numerous environmental interests) can file a law suit and a federal judge somewhere, who has nothing to do with Alaska, can rule that the agreement is invalid.

ADF&G decided that the ESA regulations must provide certainty in terms of allowing a future harvest and that the issue is too important to be deferred to a future regulatory process. The result is that the ESA regulations have been delayed. The first release cannot be implemented in 2012 as planned and will have to be delayed until 2013.

NOTE: Given the above how can ADF&G expect certainty when lawsuits can and are being filed regularly and are resulting in regular changes to how the ESA is implemented? The only certainty that we have is that a present there are no wood

bison in the wild in Alaska. Unless and until wood bison are removed from the ESA lists (and all resulting litigation is resolved) we should not release wood bison into the wild in Alaska.

Our herd at AWCC is a healthy growing herd with 102 bison. This spring 18 calves were born. …We grew concerned when five animals died between January and April.

There is a page in this issue that explains the action of the finance subcommittee relating to wood bison and Representative Dicks bill – HB 186 and how it could affect the release of wood bison into the wild.

The point has arrived when many people are wondering why we would even consider proceeding with such a project for the sake of a hundred head of wood bison when so much is at stake with doing so.

It is clear that the intention of the environmental groups is to lock up all of Alaska through whatever means are available to them. After successfully locking up hundreds of millions of acres along our coasts by means of the Polar Bears, Beluga Whales, etc. they have now turned their efforts to get Plains Bison onto the threatened or endangered list which would then result in locking up many thousands of more acres in the Delta, Farewell, and Copper River portions of the Interior. And if the state is foolish enough to put Wood Bison on the Ground in the Lower Yukon massive amounts of additional acreage could be locked up in that part of the interior as well.

The New York Times

April 12, 2011

Congress, in a First, Removes an Animal From the Endangered Species List

By **FELICITY BARRINGER** and **JOHN M. BRODER**

Congress for the first time is directly intervening in the Endangered Species List and removing an animal from it, establishing a precedent for political influence over the list that has outraged environmental groups.

A rider to the Congressional budget measure agreed to last weekend dictates that wolves in Montana and Idaho be taken off the endangered species list and managed instead by state wildlife agencies, which is in direct opposition to a federal judge's recent decision forbidding the Interior Department to take such an action.

While the language on the Rocky Mountain wolves was a tiny item in budgetary terms, environmental groups said it set an unnerving precedent by letting Congress, rather than a science-based federal agency, remove endangered species protections.

The rider is the first known instance of Congress' directly intervening in the list. While Congress overrode the protections extended to a tiny Tennessee fish called the snail darter about two decades ago, it did so by authorizing the construction of a dam that had originally been tabled to protect the fish. In that case, Congress did not overturn scientists' findings about the fish's viability.

There are myriad restrictions and budget cuts for environmental initiatives in the proposed budget. Most appeared modest compared to the more drastic cutbacks in the original House budget. Federal agencies were still working through the extensive and complex list provided by Congress on Tuesday, trying to determine what their impact might be.

Among the cuts were $49 million from programs relating to climate change, $438 million from programs supporting energy efficiency and renewable energy, $638 million from environmental cleanup efforts by the Defense Department and $997 million from revolving funds through which the Environmental Protection Agency provides money for local water treatment and pollution cleanup programs.

The budget rider on the wolves, backed by two Western legislators — Senator Jon Tester, Democrat of Montana, and Representative Mike Simpson, Republican of Idaho — requires the Interior Department to adopt its earlier plan,

removing wolves from the endangered list in those two states because it deemed that the states' management plans, which include hunts of the animals, were acceptable.

The rider also precluded judicial review of this provision.

The wolf issue has great political resonance among the ranchers and hunters of Montana. The first group is concerned about livestock; the second about declines in elk and moose herds. Senator Tester is up for re-election in 2012.

The fact that the department is being required to do what it had originally intended to do did not take the edge off arguments from environmental advocates that Congress had crossed a crucial line.

Michael T. Leahy, the Rocky Mountain region director for the group Defenders of Wildlife, said in an interview Tuesday, "Now, anytime anybody has an issue with an endangered species, they are going to run to Congress and try to get the same treatment the anti-wolf people have gotten."

A spokeswoman for Interior Department said it would have no comment on the budget rider.

State officials want the population culled because of the threat wolves pose to elk, moose and deer. Ron Aasheim, a spokesman for the Montana Department of Fish, Wildlife and Parks, said Tuesday, "We need to be able to manage them as a state to balance them with other wildlife and landowner impacts pertinent to livestock."

The two sides had recently reached a proposed settlement of a federal lawsuit brought by environmental groups against the Fish and Wildlife Service and Idaho and Montana officials. But the judge, Donald W. Molloy, rejected the settlement.

Ken Salazar, the interior secretary, declined to comment on how all the proposed cuts would affect operations at his department. He did note that the agency responsible for regulating offshore oil and gas development would get an increase in money, allowing it to hire dozens of new inspectors, scientists and other officials.

Interior Department officials would not discuss the bill's elimination of a program to expand wilderness areas in the West, a program prized by Mr. Salazar but bitterly opposed by many lawmakers from the region who argue that it will limit development of natural resources, hunting and recreational uses of public lands.

The National Park Service and the Fish and Wildlife Service take relatively modest cuts.

Conservation programs at the Department of Agriculture will be reduced by $800 million, while the agency's Environmental Quality Incentives Program will be cut by $350 million, essentially ending its financing for the rest of the fiscal year, officials said.

An E.P.A. spokesman, Brendan Gilfillan, said agency staff members were reviewing the spending measure. "We will have more details when that review is complete," he said.

Justin Gillis contributed reporting from New York.

http://www.nytimes.com/2011/04/13/us/politics/13wolves.html?_r=1&ref=us&pagewanted=print

Thursday, August 04, 2011

Montana judge allows Congress to remove wolves from endangered species list

Julia Zebley at 10:46 AM ET

[JURIST] A judge for the US District Court for the District of Montana [official website] ruled [order, PDF] Wednesday that Congress' removal of the Northern Rocky Mountain Wolf [Yellowstone Insider backgrounder] from the Endangered Species Act (ESA) [materials], not through amending it but through attaching a "wolf rider" to an appropriations bill, was legal. As a result, state hunting quotas to control the wolf population will be allowed in Idaho, Montana, Oregon, Washington and Utah. Judge Donald Malloy, citing a similar Ninth Circuit ruling as binding, declared the move lawful, if not distasteful:

This case presents difficult questions for me. The way in which Congress acted in trying to achieve a debatable policy change by attaching a rider to the Department of Defense and Full-Year Continuing Appropriations Act of 2011 is a tearing away, an undermining, and a disrespect for the fundamental idea of the rule of law. The principle behind the rule of law is to provide a mechanism and process to guide and constrain the government's exercise of power. Political decisions derive their legitimacy from the proper function of the political process within the constraints of limited government, guided by a constitutional structure that acknowledges the importance of the doctrine of Separation of Powers. That legitimacy is enhanced by a meaningful, predictable, and transparent process.

Plaintiffs in the suit, the Center for Biological Diversity [advocacy website] were disappointed [press release] in the outcome: "Although wolf numbers have risen, the job of wolf recovery in the northern Rocky Mountains is far from complete." The Interior Department [official website] also released a statement [text] on Wednesday stating that the wolf recovery plan was a success and hunting can begin anew.

Controversy began over the Northern Rocky Mountains Wolf in 2009, when US Fish and Wildlife Services [official website] removed [federal registrar notice, PDF] them from the ESA, after a controversial Interior Department memo was published that several animals should be taken off the list despite their numbers not being at a sustainable level. However, Fish and Wildlife Services only gave control of the wolf population to state governments in Montana and Idaho, restricting the wolves in Wyoming under Federal guidelines. In August 2010, Judge Malloy ruled that it was improper to remove restrictions in one jurisdiction and not another, and put the wolves back on the ESA entirely. In response, the "wolf rider" was

attached to the Department of Defense and Full-Year Continuing Appropriation Act of 2011 [materials] bill, which became law in April. This reissued the previous rule, including the restrictions for hunting in Wyoming

A Reprint from *Tierra Grande*, the Real Estate Center Journal

What's the Cost?
Private Property, Public Use

By Charles E. Gilliland

Currently, many property owners and environmentalists are locked in a controversy about the need for compensation when environmental regulations limit property uses. Essentially this disagreement results from divergent concepts of the nature of private property rights. This article explores these two views, outlines the fundamental difference between them and explains why compensating owners may provide a superior result when compared with a purely regulatory approach.

Traditional View

The implementation of various environmental laws, but most notably the Endangered Species Act, has created a confrontation between property owners on one side and environmentalists and government agencies on the other. This dispute centers on rival concepts of the basic nature of private property rights that ultimately focuses on the methods used to finance environmental preservation. The traditional view of private property is founded on the belief that individuals have a right to gain the fruits of their labors. By combining their industry with land, individuals create wealth and thus are inherently justified in claiming exclusive rights to the property they own.

Responding to this belief, the founding fathers incorporated protection for private property in the Bill of Rights by barring government's taking private property for public purposes without compensating the owners. The goal is to leave a property owner economically whole when a public taking becomes necessary and to have the public share the cost of a public project.

Protected by this Fifth Amendment guarantee, owners have the incentive to pursue the wisest use of their property guided by the preferences and mores of society. Personal gain from increasing values leads owners to produce the goods that are in demand. As a result, property owners generally conserve and care for their property rather than exploit or destroy it recklessly. Without these guarantees, individuals have few incentives to conserve resources.

Two centuries of American development have institutionalized the eminent domain process to provide just compensation for public takings of private property. When roads, dams, floodways and other public projects require private property, owners receive monetary or in-kind settlements that reflect the market value of their properties prior to the taking. Creation of national wildlife refuges on private lands resulted in compensation to owners. As national parks and national forests expanded, owners were compensated with cash or land. Although owners sometimes feel short-changed, the eminent domain process has served well to transfer property to public projects while leaving the previous owners economically intact.

Providing for preservation of endangered species and wetlands appears to fit this time-honored tradition. In creating the Aransas Wildlife Refuge that serves as home to the whooping crane, for example, the government purchased and permanently set aside an area for the endangered species. This process left private property owners' wealth unchanged and provided a home for the threatened creatures. Similar preserves could be acquired for more recently identified endangered species.

Alternative Perspective

For several reasons, proponents of environmental preservation reject the idea of compensating owners for losses resulting from regulations. The Endangered Species Act regards all threatened creatures as deserving equal protection. Species such as the pacific yew may hold secrets for treating cancer and provide valuable service to countless generations. Accumulating these benefits indicates an enormous value for such a specie. Because no one knows which specie harbors this kind of potential use, all species, including non-descript beetles, blind salamanders, prairie chickens and pandas, are equal under the act. Thus, the benefit of salvaging each endangered specie is assumed to be infinite.

Since the act was adopted, the numbers of species classified as endangered have multiplied. Currently, U.S. Fish and Wildlife Service lists 632 endangered species in the United States (January 1994). The public budget simply cannot stretch far enough to purchase a home for them all. Requiring compensation to property owners would necessitate choosing which species can be preserved within budget constraints. Current law, however, does not contain a mechanism for making such choices.

Another view of property rights eliminates the need to compensate current owners for restrictions on property uses. Under this doctrine, nonowners have a stake in the way owners manage properties; current owners then are stewards temporarily entrusted with the property to preserve it for the public and for future generations. From this perspective, property is not a justified claim but rather an entitlement granted to individuals by the public stakeholders.

Property ownership then becomes similar to a driver's license, which can be revoked or modified at any time. Owners–or licensees–can pursue only those activities that have been approved by licensing authority. In other words, any land use not previously approved by the

government conceivably could be prohibited unless the government first grants permission. Government could even bar previously allowed uses as societal values change.

These differing views have collided as agencies have fashioned regulations to accomplish the objectives of various environmental laws. For example, the Endangered Species Act makes it a crime to "take" an endangered creature, be it bald eagle or beetle. The act further defines *take* to include harassment of the creature in question, and the U.S. Fish and Wildlife Service has extended the law to cover modification of habitat even when the endangered creatures are not present. These actions have forbidden many previous property management practices such as removing cedar, building fences or even driving a tractor near the endangered animals.

The celebrated cases of the spotted owl in the Northwest and red-cockaded woodpecker in the South illustrate the effects of this kind of regulation. In another widely known case, the act precluded California homeowners from plowing firebreaks around homes near Los Angeles because the area contained habitat for an endangered kangaroo rat. As a result, several homes that could have escaped destruction burned to the ground when wildfires swept through southern California. Similar cases have been documented throughout Texas and the nation. Property rights advocates believe that such regulations restrict entire areas of privately owned land to use as endangered species habitat. Advocates of the alternate view believe the regulations simply preserve endangered resources without changing property rights.

To Take or Not To Take

Many landowners and property rights advocates view these regulations as a serious abrogation of their property rights. They reason that such regulations clearly preclude or severely restrict profitable uses of their land and, in effect, take their property without just compensation. They retain the obligations of property owners but no longer reap the benefits. Few, if any, potential buyers want property with such restrictions in place. Because of this decrease in demand, the market value of their holdings has markedly diminished. The regulations have provided a good to society, namely preservation of endangered species, while imposing the cost on selected property owners.

Advocates of the entitlement view of property insist that a "taking" has not occurred. Rather, they believe, the actions instituting the regulations reflect a change in social values that places a premium on preserving the rapidly diminishing biodiversity of the earth. Under this system, owners can still use their property as they choose if the use does not transgress these new societal norms. Property owners have not lost the right to use their property in another fashion, these advocates contend, because they never really had that right in the first place. This kind of regulation is similar to the adoption of zoning without grandfathering; the regulations are simply adjusting behavior to the new social climate. This view holds that compensation should not be required.

The new societal norms reflected by this view see private habitat modification as an enormous cost to this and succeeding generations. By prohibiting any modification, the government keeps current owners from imposing those costs. From this perspective, the action is much like barring landowners from dumping pollutants on others.

On the other hand, private owners of land with endangered species habitat have managed their property in a manner that has sustained habitat. Because there has been no mechanism to pay them for that activity, these owners have provided this benefit to society without compensation.

Battleground

Battles surrounding property rights issues currently are being fought in the courts, in congress and in the court of public opinion with much of the controversy focusing on just compensation issues. In 1960, the Supreme Court ruled in the case of *Armstrong vs U.S.* that the costs of providing public goods should not be imposed on selected individuals. Consequently, if preservation of endangered species is a public good, the cost of preservation should be spread to all beneficiaries. Dealing with regulatory impact on land values in the *Lucas* case, the U.S. Supreme Court ruled that new regulations destroying all or substantially all of the economic value of an owner's property require compensation to that owner. Now the *Dolan* case, argued before the U.S. Supreme Court in March 1994, has the potential to further clarify the circumstances when regulation requires compensation.

Meanwhile, environmentalists are urging congress to renew the endangered species act with its current provisions intact. In response, some property owners have organized to protect private property rights. Property rights advocates are pushing for legislation that specifies when regulation becomes a "taking" requiring compensation. Further, these groups are lobbying to amend environmental acts to require compensation when regulations become burdensome. Finally, property rights advocates believe that all environmental legislation should require reasonable cost-benefit analyses before regulations are imposed.

Search for Cooperation

Although this struggle appears to affect only selected property owners, the outcome has broad implications. First, restricting property use may cause values to fall. Second, if owners are not compensated for declines, their net worth will fall, reducing their ability to participate in economic activity. Even with reimbursement, the value of property-based assets will decline. Lenders have begun to express concern about this potential new source of risk. Because of the prospect of value losses, lenders may reject these properties as security for loans, leading to reduced borrowing power among property owners. Third, declining values on affected properties may reduce tax bases and force local taxing jurisdictions to raise tax revenues from the remaining pool of value. And finally, government actions that seem to so readily restrict control of property because of endangered species lessens the certainty of everyone's property rights.

The regulatory approach taken on this issue excludes private property owners from active participation in the solution. In fact, property owners are also part of the public with unique opportunities to contribute to the solution. The current approach to these property owners ignores the potentially powerful influence of compensation in pursuit of environmental goals.

Precedents for reaching a cooperative solution exist. Faced with continuing erosion on fragile lands throughout the country, environmentalists, agricultural policy administrators and farmers and ranchers cooperated to establish the Conservation Reserve Program (CRP). The CRP made soil conservation, an environmental good, a priority for landowners by providing direct payments to owners or operators. The program consisted of a ten-year lease agreement between farmers and the government during which the farmer returned highly erodable cropland to grass with no grazing taking place. Between 1986 and 1992, more than 36 million acres were enrolled in this program, preserving an average of 19 tons of soil per acre per year. In this case, landowners were enlisted as partners in the drive to reduce soil erosion.

Compensation may further contribute to the solution because it imposes discipline on all sides in the decision-making process. Studies demonstrate that individuals respond one way when choosing between costly alternatives for which they bear no cost and another way when the choice requires money from them. Not surprisingly, individuals consume more of a good when someone else pays for it than they do when acquisition requires a personal sacrifice.

When individuals can opt for endangered species preservation without defraying part of the cost, they will likely opt for preservation at all cost. Further, without compensation, landowners have the incentive to adopt management practices that discourage endangered species from entering their land and to limit the amount of available habitat. Without lease payments, it is unlikely that CRP could have produced the more than 375,000 individual contracts that it elicited.

As history has demonstrated, governments can redefine the bundle of rights held by property owners. However, our traditional regard for property owners' rights have made compensation the norm, and owners are unlikely to surrender the use of their property without compensation or a prolonged struggle. Perhaps a more cooperative approach based on recognizing current owners' contributions to the drive to restore endangered species would achieve the desired results at a minimum cost. Because of the large numbers of species and extent of their habitat, compensating owners could be so costly that the public would not support blanket preservation. If budget constraints preclude outright purchases, perhaps leases similar to the CRP contracts could be devised or government could fashion a tax credit for owners who promote habitat production.

Given the potential pitfalls of the current course, a search for alternatives based on eliciting cooperation may yield a more effective method of achieving the objectives of environmental legislation. Without cooperation, the goal of environmental preservation will be subject to a continuing series of legal and political battles.

Dr. Gilliland is an associate research economist with the Real Estate Center at Texas A&M University.

REAL ESTATE CENTER

Tierra Grande (ISSN 1070-0234), formerly *Real Estate Center Journal*, is published quarterly by the Real Estate Center at Texas A&M University, College Station, Texas 77843-2115.

Subscriptions are free to real estate brokers who provide their name, address, telephone and license numbers to Department JS at the address given. Other subscribers, $25 per year. **Views expressed** are those of the authors and do not imply endorsement by the Real Estate Center, the College of Business Administration and Graduate School of Business, or Texas A&M University.

An Alternative Perspective on the Endangered Species Act

by William A. Niskanen

William A. Niskanen is Chairman of the Cato Institute.

Smithsonian Earth Day Conference on Biodiversity, Washington, D.C.

William A. Niskanen is Chairman of the Cato Institute.Smithsonian Earth Day Conference on Biodiversity, Washington, D.C.

Added to *cato.org* on April 21, 1995

This article appeared on cato.org *on April 21, 1995.*

As a registered Republican in the District of Columbia, I have some experience and a special concern for endangered species. My brief remarks tonight are best summarized as follows:

> Long live the Endangered Species Act of 1969.

As you may know, the first general federal measure to protect endangered species was approved in 1966. That act authorized the Secretary of Interior to identify species of native fish and wildlife threatened with extinction and to purchase habitat for their protection and preservation, and directed all federal agencies to protect these species and preserve their habitats "insofar as is practicable and consistent with [the agencies] primary purposes."

The 1969 act maintained the general structure of the 1966 act but expanded the authority to purchase land, broadened the potentially protected species to include invertebrates, and authorized the Secretary of Interior to list foreign species threatened with worldwide extinction and banned the importation of these species except for narrow scientific purposes. So far, so good. That was a law that we could live with.

The general structure of the law, however, was changed substantially by the Endangered Species Act of 1973, with minor amendments in later years. Two provisions of the 1973 act were probably desirable by themselves. The scope of protected organisms was broadened to include threatened species, endangered subspecies, and regional populations. And the limit on spending from the Land and Water Conservation Fund that could be used to purchase habitat was removed. These changes acknowledged that the choice of which organisms to protect and how much to spend to maintain their habitat are basically political decisions that should not be subject to arbitrary scientific or fiscal restraints.

Section 4 requires that species be listed "without reference to possible economic or other impacts." In a 1978 case, the Supreme Court interpreted this language to conclude that "the value of endangered species is incalculable", a listed species must be protected "whatever the cost", and that the language of the act "admits no exception." Such language, in effect, prevents a political decision about whether it is worthwhile to protect a specific organism.

Section 7 prohibits any action by a federal agency that would jeopardize a listed species or substantially modify its habitat. The most important of other federal activities, apparently, is subordinate to the interests of the least significant rat, roach, or weed on the endangered species list.

Section 9 states that no person may "take" a listed organism, where "to take" has been defined to include "acts to annoy it to such an extent as to significantly disrupt essential behavior patterns." This section is outrageous in at least four dimensions:

- This section turns our constitutional protections against government taking of private property upside down. In effect, this section expropriates any listed organism and its habitat without any of the three constitutional tests of due process, public use, or just compensation. Any private action that interferes with this newly asserted government right, then, is considered a taking and the basis for a penalty.
- This section is grossly unjust, by imposing the cost of a national or global public good on the owners of specific properties, rather than some national tax base.
- The power to take private property without compensation leads to inflated demands by those most concerned about biodiversity, because the demand for increasing the list of endangered organisms is not limited by the value of alternative uses of federal revenues.
- This power leads to counterproductive behavior by the owners of private property, who have a strong motiive to destroy the habitat of organisms before they are listed or determined to be on their property.

Given these major sections of the Endangered Species Act of 1973, one should not be surprised that by its history of rapidly increasing costs and few apparent benefits. As with most regulations the costs to government, estimated at $290 million in 1992, are only the tip of the iceberg. The total cost of the recovery plan for a single species can run into billions. The accumulation of reports of the effects on individual property owners should be sufficient witness to the injustice of the distribution of the private costs.

Most of the political pressure to date has been to increase the protected list, and the Fish and Wildlife Service has responded at an accelerating rate--adding 26 species a year through 1989, 68 species a year from 1990 through 1993, and 72 in the first half of 1994. The Service is now considering 400 additional listings by October 1996.

By several measures, however, the benefits of this act are small. A total of 21 species have been removed from the protected list--7 were declared extinct, 12 due to incorrect listing, one due to the ban on DDT prior to the act, and one unexplained recovery. The status of those species on the protected list is no more encouraging. Of the 711 species on the protected list in September 1992, the status of 10 percent were improving, 28 percent were stable, 33 percent were declining, the status of 27 percent were unknown, and 2 percent were thought to be extinct. Less than 60 percent of the listed species had a recovery plan and of these, more than 80 percent had not achieved half of the objectives in their plan. One wonders what purpose is served by further additions to the protected list when the success rate has been so low to date. Faced by this same record, however, supporters of this act seem to conclude that "When at first you don't succeed, redouble your effort."

Federal endangered species legislation must be substantially restructured. Current law would lead to a progressive restriction on other federal activities and private land use, a spreading revolt of small property owners and local governments, and slower economic growth--without any reason to expect an improved record of protecting endangered species. The basic features of an Endangered Species Act that would be effective, efficient, just, and constitutional, I suggest, are the following:

- Return to the basic structure of the 1969 act or, at a minimum, deleting sections 4, 7, and 9 from the 1973 act.
- Broaden the Land and Water Conservation Fund to include any federal subsidies or purchase of easements to preserve wetlands and historic properties as well as the habitat for endangered species. The allocation of funds among these several objectives would be based on a periodic political decision. This would put several environmental constituencies in competition with each other to make the case to Congress and the administration to spend more for their specific objective.
- Endow this fund with the net federal revenues from offshore oil and gas leases, the Alaska Natural Wildlife Reserve, and the sale of federal land. This would give the environmental constituencies a stake in the economic value of these properties and encourage a reallocation of land from uses with low relative environmental values to uses with higher relative environmental values.

One effect of an Endangered Species Act with these basic features would be to restore the role of politics on the decisions about how much to spend on various environmental activities and on the balance between the protection of endangered species and other federal activities. These political decisions would be informed by scientific, economic, and moral considerations but would not be subordinate to any one of these dimensions. I am prepared to acknowledge that the value of protecting any one endangered species is incalculable but it is not infinite, so the institutional challenge is to structure and inform the political choice--not to replace it.

One other effect is to limit the demands per biodiversity by how much of other environmental values one is prepared to forego to protect a specific species. At present, the demands for additional listing are nominally limited only by five dubious scientific criteria but are effectively driven by the political pressure from environmental groups.

A most important third effect is to reward property owners for maintaining or creating habitat for endangered species rather than penalizing them for a failure to do so. This would transform the incentives of property owners from counterproductive behavior to cooperative behavior and eliminate the gross injustice of forcing them to pay most of the cost of a national public good.

In conclusion, as my remarks should have made clear, I value biodiversity but it is not my only value. The endangered species that I most value are men and women who have the freedom to choose among the several conditions they value. And our challenge is to design institutions and decision processes in which these choices are most compatible with the value of others.

Again, long live the endangered species act of 1969.

And I wish that I had a comparable solution to protect the threatened taxpayers and endangered Republicans in the District of Columbia.

Thank you for your attention.

Wolf Recovery, Political Ecology and Endangered Species

January 2, 1996
by **Charles E. Kay**

Table of Contents

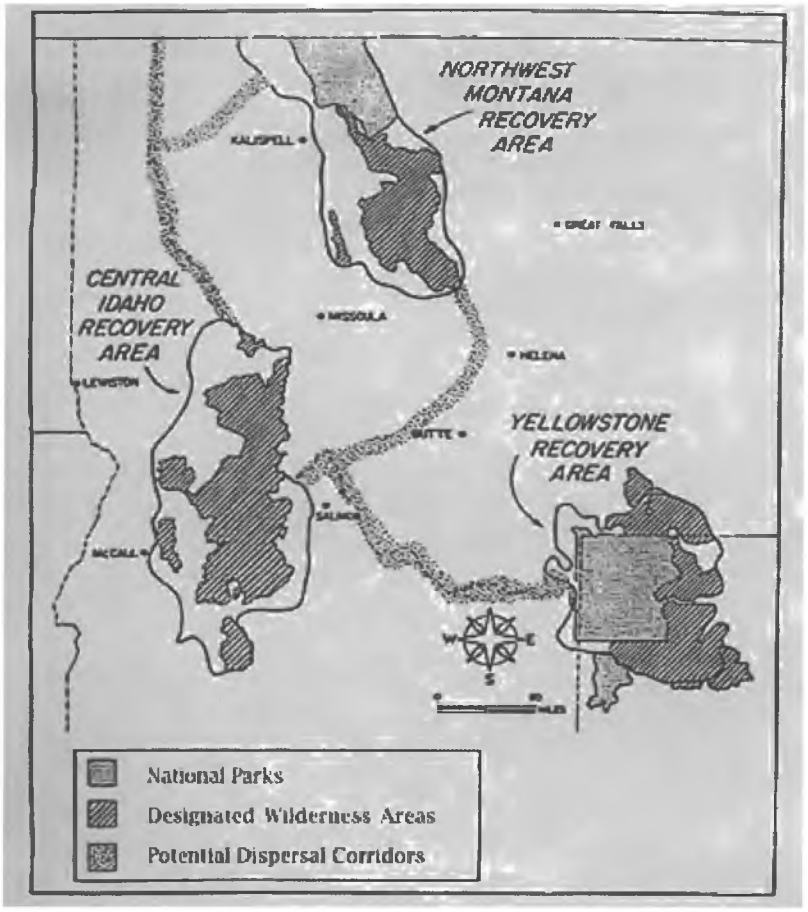
The federal government and environmental groups who would like to see wolves returned to the West under protection of the Endangered Species Act (ESA) claim that the public supports wolf recovery, and that science is on their side. The former director of the National Park Service, for instance, was quoted as saying that "there is little scientific basis for most objections being raised to wolf reintroduction" (Fischer 1987:30). Others contend that "half-truths and misrepresentation of facts continue to thwart" (Miller 1988:5) wolf recovery, and Defenders of Wildlife has said that people who oppose wolf reintroduction are "aggressively anti-science" (Neal 1992:A8). Are wolf proponents right? Or are there aspects of this issue that they have purposefully overlooked?

I am committed neither to having wolves in the West nor to keeping them out. I am committed, though, to science being used responsibly in policy debates, something I have not yet seen with wolf recovery. My analysis indicates that the federal government and other wolf advocates have taken liberties with the truth, with science, and with the Endangered Species Act.

NUMBER OF WOLVES

Far and away the most important aspect of the wolf debate is how many wolves we are talking about 100? 300? Or 2,000? The number of wolves is central to any discussion of whether predation will limit ungulate numbers, whether hunting might have to be curtailed or eliminated, and how much livestock depredation might occur. When Defenders of Wildlife first began to lobby for wolf reintroduction, they talked of "35 to 45 wolves" in all of Yellowstone Park (Randall 1981:31). This was echoed by an early National Park Service (1975:5) report, which said, "the final numbers [of wolves] that would winter within the park and be compatible with other interests on adjoining lands are expected to range between 30 and 40 wolves." Now plans call for 10 wolf packs totaling approximately 100 wolves in Yellowstone.

In 1987, the U.S. Fish and Wildlife Service finalized its recovery plan for wolves in the northern Rocky Mountains as mandated by the Endangered Species Act. Besides Yellowstone, the plan addresses wolf recovery in northwest Montana and central Idaho (see Figure 1). According to that document, if a minimum of 10 wolf packs breed in any one recovery area for three successive years, the wolves in that area are to be downlisted from endangered to threatened status. When at least 10 breeding pairs have been maintained for at least three successive years in all three recovery areas, wolves are to be completely removed from the Endangered Species List. While the wolf is listed as either threatened or endangered, hunting and trapping are not to be permitted except by agents of the federal government who may remove individual wolves that prey on livestock (U.S. Fish and Wildlife Service 1987).



[**Figure 1.** Northern Rocky Mountain wolf recovery areas. This map is from the U.S. Fish and Wildlife Service's (1987) wolf recovery plan and shows how that agency has misled the public from the very start. Note that all the wolf dispersal corridors follow the Continental Divide or other mountaintops. Wolves, however, generally disperse in early spring, when those areas are all deep with snow, and they invariably disperse down valleys where there is little or no snow. This was well known before the U.S. Fish and Wildlife Service developed its wolf recovery plan, so the agency evidently lied when it developed this figure. Western valleys, after all, are mostly private land, and ranchers are worried that wolves will prey on their livestock. So if you are trying to promote wolf recovery, which is what the U.S. Fish and Wildlife Service has been doing, then the last place you want to tell the public wolves will be dispersing is through those people's backyards. By claiming that wolves would disperse along high mountain chains that are, for the most part, uninhabited and in public ownership, the U.S. Fish and Wildlife Service hoped to reduce public opposition to wolf reintroduction. Where wolves from Canada have naturally recolonized northwest Montana, those animals have not only dispersed along valley bottoms, but denned there as well.]

Government and environmental wolf advocates have assumed that breeding packs would contain, on average, 10 wolves. This implies that each recovery area would be downlisted from endangered to threatened at approximately 100 wolves. At 100 wolves in each of the three recovery areas, or 300 total wolves, the species would be removed from the endangered list. According to the U.S. Fish and Wildlife Service (1987:19), "the goal of 10 breeding pairs in each of three recovery areas was established after extensive literature review and consultation with a number of U.S. and Canadian biologists/wolf researchers," but the agency published none of that evidence. So how did the government actually arrive at these figures? And are they realistic?—that is, do they meet ESA requirements?

To find out, I filed an official Freedom of Information Act request with the U.S. Fish and Wildlife Service (Buterbaugh 1991). In reply, the agency admitted that it had "not contracted or undertaken any studies which deal with minimum viable populations of the Northern Rocky Mountain wolf," and added that "there are no records in the files of our Denver Regional Office or the Cheyenne Fish and

Wildlife Enhancement Office referencing any specific materials [which were] used in determining recovery numbers for the Northern Rocky Mountain wolf." I brought this to the attention of noted conservation biologist Dr. Michael Soule, who said, "My guess is that the 10-pack number is more a political than a biological threshold."

Because the U.S. Fish and Wildlife Service developed its recovery goals of 10 wolf packs and 100 wolves in each area with little, or no, supporting scientific evidence, all the government's recent wolf recovery reports, population models, and studies regarding possible impacts on big-game hunting are arbitrary and capricious. They represent not science but a masterful job of deception.

To meet the legal mandate of the Endangered Species Act and biological requirements for minimum viable population size, 1,500 to 2,000 wolves as one interbreeding population will be required (see Figure 2). Although the science of determining minimum viable population size is still developing, numbers alone are not the only criteria (Soule 1987). Genetic variation must also be considered. Maintaining genetic variability is important because inbreeding has serious consequences for the long-term health of any population. Restrictive mating systems, where a few individuals do the majority of breeding, greatly reduce a population's effective size.

Assume, for instance, that you have 10 breeding packs totaling 100 wolves. Since the alpha male and female are usually the only breeding individuals in each pack, a hypothetical population of 100 wolves in 10 packs has an effective breeding size of only 20 individuals per generation. To maintain genetic variation sufficient to cope with environmental uncertainty, and to guard against natural catastrophes, it is necessary to maintain populations of at least 1,500 to 2,000 individuals (Woodruff 1989; Thomas 1990). A Canadian study recommended a minimum of 1,450 wolves (Dueck 1990), and a recent U.S. study called for 2,000 (Dietz 1993).

Based on their arguments for large minimum viable populations in a host of other species—the northern spotted owl and the grizzly bear being the best-known examples—it is difficult to believe that environmental groups have not voiced similar concerns over wolf recovery goals in the West. After a federal court ruled that 2,180 pairs of, or approximately 4,500, spotted owls were necessary to meet ESA requirements (Boyce and Irwin 1990:134) and environmentalists sued demanding 2,000 grizzlies, why would only 300 wolves be enough? It appears that the 100-wolf recovery figures are little more than an elaborate confidence game orchestrated by the federal agencies and others.

The government proposed 100 wolves in each area, knowing that the numbers would not be enough to meet ESA requirements of minimum viable population size, and environmental groups did not object, knowing that 300 wolves would raise less political opposition than 1,500 to 2,000 wolves. Wolves arrive and increase to 300. The government moves to delist. Environmentalists sue and win. The wolf population is allowed to reach 1,500 or more. Environmentalists are happy, the federal agencies are happy, and the public realizes—too late—what has happened.

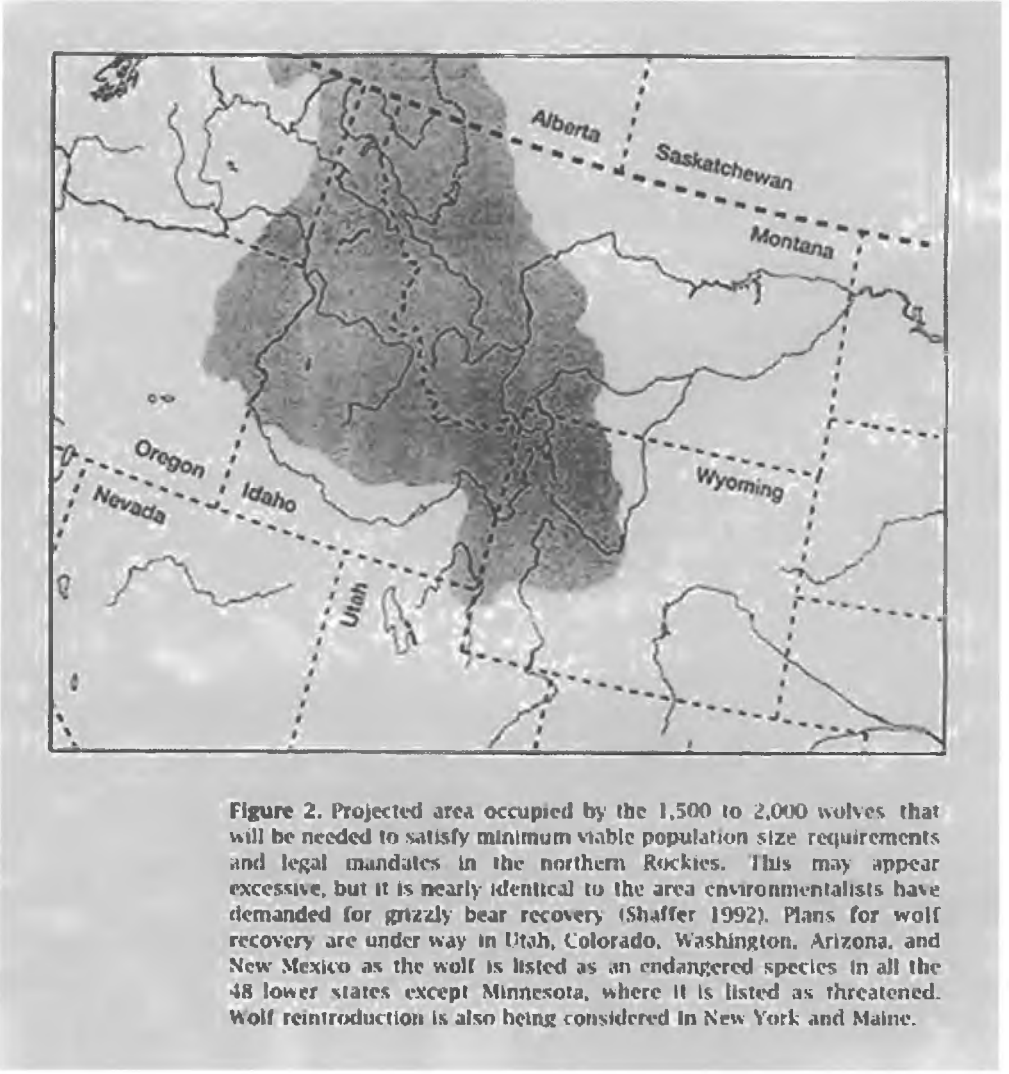


Figure 2. Projected area occupied by the 1,500 to 2,000 wolves that will be needed to satisfy minimum viable population size requirements and legal mandates in the northern Rockies. This may appear excessive, but it is nearly identical to the area environmentalists have demanded for grizzly bear recovery (Shaffer 1992). Plans for wolf recovery are under way in Utah, Colorado, Washington, Arizona, and New Mexico as the wolf is listed as an endangered species in all the 48 lower states except Minnesota, where it is listed as threatened. Wolf reintroduction is also being considered in New York and Maine.

[**Figure 2.** Projected area occupied by the 1,500 to 2,000 wolves that will be needed to satisfy minimum viable population size requirements and legal mandates in the northern Rockies. This may appear excessive, but it is nearly identical to the area environmentalists have demanded for grizzly bear recovery (Shaffer 1992). Plans for wolf recovery are under way in Utah, Colorado, Washington, Arizona, and New Mexico as the wolf is listed as an endangered species in all the 48 lower states except Minnesota, where it is listed as threatened. Wolf reintroduction is also being considered in New York and Maine.]

Minnesota provides an example of how the federal courts might rule on the legal question of what wolf population size will be required before that species can be delisted in the northern Rockies. In the early 1980s, an estimated 1,200 to 1,500 wolves occupied 13 to 17 million acres in Minnesota. At that time, the U.S. Fish and Wildlife Service proposed transferring wolf management authority to the state. This would have allowed wolves to be taken by hunters and trappers. In essence, though not in fact, the government moved to delist the wolf. The federal agencies were immediately sued by a consortium of 14 environmental groups led by Sierra Club and Defenders of Wildlife (Woodsum 1984).

In granting the plaintiff's request to prevent wolves from being returned to state management, the judge noted that the Endangered Species Act allows regulated taking (i.e., public hunting and trapping) only in the "extraordinary case where population pressures within an ecosystem cannot be otherwise relieved" (Sierra Club v. Clark, 577 F. Supp. 783, 1984; Defenders of Wildlife 1984). Based on this ruling, federal or state officials must be able to establish, by a preponderance of evidence, that

wolf population pressure in an ecosystem is so extraordinary as to warrant public hunting and trapping. Given the limited resources of the state and federal agencies and the biology of the species, it will be virtually impossible ever to meet the bur-den of proof established by the court under the Endangered Species Act. If 1,200 to 1,500 wolves were not enough to return that species to state management in Minnesota, it appears doubtful that 100 animals in each of three separate areas would be sufficient to delist wolves in the northern Rockies. There are now more than 2,000 wolves in Minnesota, yet the U.S. Fish and Wild-life Service still has not returned wolf management to the state.

There is also the additional problem of linkage. Wolves in Minnesota have now clearly surpassed the number needed to remove that species from the Endangered Species List (Harrison 1991), yet the U.S. Fish and Wildlife Service has no plans to delist the eastern timber wolf because wolf populations in the neighboring states of Wisconsin and Michigan are far short of the goals established under the Eastern Timber Wolf Recovery Plan (U.S. Fish and Wildlife Service 1978; Harrison 1991). Delisting the wolf in one area, Minnesota, is linked to wolf numbers in two adjacent states, so despite reaching the recovery goal in Minnesota, that wolf population will not be returned to state management, will not be subjected to hunting or trapping, will continue to increase, and will continue to expand its range throughout Minnesota and adjacent states. Wolves have already been reported in both North and South Dakota (Licht and Fritts 1994).

In fact, no one knows if the wolf population in Minnesota will ever be delisted. Wolves have been transplanted into Wisconsin and Michigan, but those animals, as well as natural migrants, have been killed by local residents. If the illegal killings continue and if those acts prevent wolf numbers in Wisconsin and Michigan from increasing, the wolf population in Minnesota will never be removed from the Endangered Species List under the present recovery plan. Even if there were 5,000 wolves in Minnesota, under current regulations, the species would not be delisted. This holds one state hostage to what happens in other areas.

A similar situation could develop in the northern Rockies. Remember that under the approved recovery plan, once wolves in any one of the three recovery areas reach 10 breeding packs (approximately 100 wolves) for three consecutive years, the population in that area will be downlisted from endangered to threatened status. That population, though, will remain under federal control, and hunting or trapping of wolves by the public will not be permitted. Only when all three areas simultaneously reach their recovery goals will the species be removed from the Endangered Species List and management returned to the states.

Assume that wolves are transplanted into or naturally reach central Idaho and Yellowstone (this has already occurred—see below). Say the wolves in Yellowstone reach their recovery goal of 100 animals and that the wolves already in northwest Montana do the same, but for whatever reason the wolves in central Idaho do not. Under this scenario and the present recovery plan, wolves in Yellowstone and Montana would remain under federal control, and those populations would be allowed to grow and expand their range. Even if there were 1,000 wolves in Yellowstone and another 1,000 in Montana, that species would remain on the Endangered Species List unless there were also at least 100 wolves in central Idaho. Sound far-fetched? Not at all. Remember, it is now happening with the eastern timber wolf.

Based on legal precedents and biological requirements for minimum viable populations, it is unlikely that published wolf recovery goals will withstand legal scrutiny or be upheld by the courts. Instead of about 300 total wolves, biology and legal precedents mandate 1,500 to 2,000 wolves as a continuous interbreeding population throughout the better part of Idaho, most of western Montana, much of western Wyoming, and perhaps even parts of eastern Oregon and Washington (see Figure 2). Needless to say, 1,500 to 2,000 wolves will have a much greater impact on ungulate numbers, hunting opportunities, and livestock operations than that projected in government reports. Since wolf populations can increase at 50 percent or more each year, and since wolves are known to disperse up to 200 miles or more, wolves will quickly repopulate the entire West.

It must also be remembered that the wolf is listed as an endangered or threatened species in all the 48 lower states and that plans are under way for wolf recovery in Utah, Colorado (Bennett 1994),

Arizona, and New Mexico. Washington state may already have more wolves than Montana. Wolf reintroductions are being considered for New York and Maine (Van Ballenberghe 1992), and the red wolf has already been released in the Southeast. Under the present Endangered Species Act, wolves must be restored to every state with suitable habitat; at least, that is how the act is being interpreted by environmental organizations.

When I (Kay 1993) first published this analysis of wolf recovery population goals, I was roundly condemned by the U. S. Fish and Wildlife Service. Subsequent events, however, support the analysis I have just presented. Montana and Idaho, for instance, recently issued draft plans for when wolf recovery will be turned over to state managers (Rachael 1995, Ream 1995). Both documents claim that 20 wolf packs are needed in each area before hunting and trapping will be allowed. Thus, they have effectively doubled the number of wolves needed to meet ESA requirements with as minimum of public review and without benefit of a supplemental EIS. Moreover, one environmental group has announced its opposition to delisting wolves in Montana, Idaho, and Wyoming until wolves are also fully recovered in Colorado (Anonymous 1995).

DO WOLVES LIMIT UNGULATE NUMBERS?

During the late 1800s and well into the mid-1900s, it was universally believed that predation in general, and wolf predation in particular, had a devastating impact on ungulate numbers. Wolves were considered such "a decided menace to the herds of elk, deer, mountain sheep [bighorns], and antelope" that the Park Service "exterminated" the wolf from Yellowstone by 1930 (Weaver 1978:9). Similar campaigns of eradication were common across North America. Public opinion, though, began to change during the 1950s and 1960s. Today wolves are seen by many as an integral part of the "balance of nature." According to this view, wolves rid the game herds of the sick, the old, and the unfit, so wolf predation actually benefits ungulate prey by preserving the health of the herds (Wilderness Society 1987:12; Glick et al. 1991:72; Thompson 1991).

These same people believe that wolves regulate their own numbers through social means, primarily territoriality, and therefore do not overutilize their ungulate prey (National Park Service and Fish and Wildlife Service 1990a:21, 1990b:1-57; Williams 1990:38). A corollary view is that wolf predation results in compensatory survival and natality in ungulate populations (National Park Service and Fish and Wildlife Service 1990b:3-42). According to this scenario, ungulate populations are food limited, and wolf predation, by removing some animals from the population, increases the food supply for the remaining ungulates. Since those animals are then better fed, they die less frequently and increase their birthrate, offsetting the effects of wolf predation. Scientific studies, however, have shown this logic to be an inappropriate representation of ungulate predator-prey systems.

Recent research in Alaska, as well as British Columbia, Yukon, Alberta, and other Canadian provinces, indicates that wolves and other carnivores limit ungulates more often than not (Seip 1989a, 1989b, 1991, 1992a, 1992b; Messier 1989a, 1989b, 1991, 1994; Bergerud 1990, 1992; Ballard 1991, 1992; Gasaway et al. 1992; Carbyn et al. 1993; Dale et al. 1994; Hatter and Janz 1994). These studies can be summarized as follows. (1) In many situations, wolves and other predators limit ungulate populations below the level set by food resources; that is, ungulates are not resource limited or "naturally regulated," and any compensatory response of the ungulate population to predators is not enough to offset predation losses. (2) Human predation and carnivore predation on ungulate populations are additive, not compensatory. (3) If grizzly or black bears are present, they often prey heavily on newborn and, to a lesser degree, adult ungulates. Wolf and bear predation are additive, not compensatory, and together they can have a major impact on ungulate numbers. In some areas, grizzlies kill more ungulates than wolves (Gasaway et al. 1992). (4) If ungulate populations have been reduced by severe weather, human hunting, or other causes, wolves and other predators can drive ungulate numbers even lower and maintain them at that level. This condition is commonly called a predator pit, and there is no field evidence that ungulates can escape from a predator pit even if hunting is banned, unless wolves and other predators are reduced by direct management actions, that is, predator control.

As Alaskan biologists have noted, "prey [ungulate] populations can reach extremely low densities under natural conditions, contrary to the 'balance of nature' concept" (Gasaway et al. 1983:6). Today, ungulate populations across most of Canada and Alaska are being kept at low levels by the combined actions of carnivorous predators even in areas where the ungulates are not hunted, such as in national parks.

It must be remembered that wolves limit ungulate numbers by reducing recruitment and increasing adult mortality, not by killing off all the game, instances of surplus killing notwithstanding. Take a hypothetical population of 100 adult female ungulates (for this analysis, we need not worry about the male segment of the herd). In any given year, a number of adult females die from natural causes, disease, or predation. When expressed as a percentage, this is termed the adult female mortality rate. In that same year, a number of calves or fawns are born, but those young also face disease, accidents, and predation, and only a few survive their first year of life to join the adult population. This is called the recruitment rate. For a stable population, recruitment must balance adult mortality. If recruitment is less than adult mortality, the population will decline, and if it is greater, numbers will increase (Bergerud 1990, 1992).

Research has shown that wolves and other predators prey most heavily on young-of-the-year, which lowers the recruitment rate of the prey populations. Predators also kill a few prime-age adults. By increasing adult female mortality and at the same time lowering recruitment, predators can cause ungulate populations to decline. Stabilizing recruitment for caribou is about 15 female yearlings per 100 cows. Caribou herds with few predators have recruitment rates of 20 to 40 per 100 cows, which allows those populations to increase, while caribou herds subject to heavy predation have recruitment rates of 10 or less (Bergerud 1990, 1992). So predation causes ungulate populations to gradually decline over time—wolves do not normally wipe out game herds in a single year or two.

This is what happened in Canada and Alaska (Seip 1989b). During the 1950s and 1960s, when wolf control was widespread and effective, game herds grew and the north country became known as a hunter's paradise. Government wolf control ended by 1970, and predator populations began to expand, but it took 10 years or longer before significant declines were seen in game herds. In Wood Buffalo National Park, for instance, there were approximately 12,000 bison when wolf control was terminated; today there are fewer than 3,500, and the population is still dropping. Wolf predation of calves has been identified as the primary factor responsible for that decline as the bison are not hunted (Carbyn et al. 1993).

Recent research has also demonstrated that multi-ungulate species systems, such as exist in Yellowstone and throughout the West, are actually less resilient than simpler predator-prey systems. Ungulate species vary in their susceptibility to wolf predation, and "wolves may limit the numbers of a more vulner-able, less abundant prey species [such as deer, bighorn sheep, or ante-lope] when wolf numbers are set by a less vulnerable, more abundant prey species," such as elk, moose, or bison (National Park Service and Fish and Wildlife Service 1990b:4-6). It has also been shown that wolves with access to alternative foods, such as that available at garbage dumps, maintain higher populations and reduce ungulate numbers to lower levels than would be possible if they did not have those other food sources (Crete et al. 1981). This is why bear predation can have a major impact on ungulate populations. Because the number of bears is determined primarily by vegetal foods, bears can take ungulates down to low levels without having an adverse effect on bear numbers.

Prior to European settlement in British Columbia, moose were virtually absent and woodland caribou were the most common ungulate. Wolves were rare because they were tied to den sites during the breeding season and therefore could not follow migrating caribou. Today, moose have spread throughout the province, permitting wolves to increase as they now have an alternative source of food. Those wolves, though, prey heavily on the more vulnerable caribou whenever the latter can be located. This has led to the widespread decline of woodland caribou in British Columbia. That is to say, caribou have declined because of the addition of moose to the predator-prey system (Bergerud et al. 1984; Bergerud and Elliot 1986; Seip 1989a, 1992a).

A similar situation may develop in Yellowstone and other wolf recovery areas where large elk populations could permit wolves to take smaller ungulate species, such as deer, to very low levels. In northern British Columbia, wolves caused a sub-stantial decline in the most vulnerable ungulate species and then switched to the next most vulnerable ungulate until it also declined. The wolves cascaded down the list of available ungulate species from the most vulnerable to the least vulnerable until all ungulate populations had been substantially reduced (Elliot 1989). Across Canada and Alaska, moose and caribou populations not subject to heavy predation have densities 10 times greater than populations where carnivore numbers are high (Bergerud 1990, 1992; see Table 1).

In its rush to wolf recovery, the U.S. Fish and Wildlife Service has tried to downplay the impacts wolves will have on western ungulate populations. While the agency has acknowledged that "wolves can play a role in depressing ungulate populations," it claims that "such conditions are not the norm in North America" (National Park Service and Fish and Wildlife Service 1990b:1-57). There is little evidence, however, in the original Alaskan and Canadian research studies to support this contention. The opposite appears to be more the norm; that is, predation depresses ungulate populations even when humans are allowed to kill predators.

The National Park Service and the Fish and Wildlife Service (1990a, 1990b, 1990c) also appear to have biased the computer codes on the two wolf-ungulate models they commissioned to support wolf recovery—those models predict that wolf recovery will have little impact on ungulate populations or sport hunting. In written testimony presented to the congressionally mandated wolf management committee, Dr. Robert Taylor, a noted modeler and predation expert, said in reference to one of the agencies' models that he was "forced to conclude that this is a wholly unacceptable effort. It relies on datasets of questionable utility...it employs obsolete simulation approaches, and it reflects inadequate attention to uncertainty in assumptions and parameters. Perhaps more serious, I do not see how it can be much improved."

Caribou population	Predation intensity	Mean caribou density (no./mi2)
Predators absent	None	19.30
Migratory herds	Moderate	2.80
Mountain herds	High	0.39
Eastern-forest herds	Extreme	0.08

[**Table 1.** The impact of carnivore predation on caribou populations in North America. In eastern Canadian forests where caribou have no effective antipredator strategy, wolves can take caribou populations to very low levels, especially in areas where wolves have alternative prey such as white-tailed deer. By dispersing to high-elevation areas to calve, mountain caribou avoid some of the effects of wolf predation, but wolves still have a significant impact on those herds. By migrating long distances, caribou can avoid most impacts of carnivore predation, but those populations still have lower densities than herds without predators. Long-distance migrations primarily evolved as a strategy to avoid predation, not as a strategy to secure additional food (Bergerud 1990, 1992; Seip 1991; Crete and Huot 1993:2295). Mean caribou densities from Seip (1991:47).]

While Taylor found that the other model (Boyce 1992) "contain[ed] some elements of a useful model for the YNP wolf-elk situation," he nevertheless added that it "falls short, however, in several aspects." According to Taylor, "the model is conceived in such simplistic terms that it cannot, at best, be expected to provide much more than a gross approximation to what will happen [if wolves are reintroduced because] it misrepresents the predatory impact of wolves and their internal population dynamics....The sensitivity analysis is inadequate, considering that many of the parameter values are mere guesses....The net effect of these problems is that none of the conclusions [on probable wolf-ungulate interactions] can be justified at this time." Since his testimony, Taylor obtained the computer codes for this model, made a single, yet reasonable, change to one of the model's assumptions of how wolves interact with their ungulate prey, and found that the model's output was drastically different from what has been published by the agencies; that is, the model is not robust.

Since the agencies modeled only the impact of 100 wolves in each of the three recovery areas, not 1,500 to 2,000 interbreeding wolves, since the models themselves are suspect, and since the agencies have not addressed the additive impacts of bear or mountain lion predation, the conclusion that wolves will have insignificant impacts on ungulate populations is not warranted and cannot be sustained. If these factors had been properly considered in a more realistic model, there is little doubt that the results would have been vastly different and would not have supported agency wolf recovery claims.

Environmentalists, however, like to cite Michigan's Isle Royale National Park as an example of a place where where large numbers of moose and wolves live in harmony (Mech 1970; Peterson 1977, 1995; Peterson et al. 1984; Peterson and Page 1988; McLaren and Peterson 1994). They also cite Isle Royale as proof that wolves have no effect on ungulate numbers. This, though, is incorrect because Isle Royale is not representative of predator-prey systems in the rest of North America. Moose densities on Isle Royale are 10 times higher than anywhere else in Canada where moose are subject to carnivore predation (Messier 1994). There are three major rea-sons for this difference.

First, of all North American ungulates, moose is the most difficult species for wolves to kill. If they have a choice, wolves will usually kill any ungulate besides moose. So the impact of wolves on Isle Royale's moose is less than if other ungulates inhabited the island. On islands off the Alaskan coast, for instance, introduced wolves killed off all the black-tailed deer (Merriam 1964; Klein 1970).

Second, there are no bears on Isle Royale. Again, this is not comparable to mainland situations; as noted above, it is generally the combined effect of wolf and bear predation that limits ungulate populations. In other words, where black and/or grizzly bears are common, as in the western parts of the United States and western Canada, the Isle Royale situation simply does not apply.

Third, as an island in Lake Superior, there is no immigration of wolves to Isle Royale. Moose first colonized the island in the 1920s, and a single pair of wolves arrived during the 1950s, but since that time no other wolves have reached the island (Wayne et al. 1991; Peterson 1995). Lake Superior seldom freezes, and Isle Royale is 20 miles from the mainland. Without immigration, when wolf numbers fall as the most vulnerable moose are killed off, the moose population rebounds faster than the wolves can recover. This allows the moose to "get ahead" of the wolves, something that does not happen in other areas. On the mainland, lone wolves and dispersing animals quickly reoccupy any area vacated by other wolves. This keeps wolf numbers high and allows those predators to exert a significant influence on their prey.

Finally, wolves and moose on Isle Royale do not represent some idyllic "balance of nature"; instead, that national park exhibits many signs of ecological degradation. Overgrazing has eliminated most understory shrubs and aquatic plants that moose prefer (Murie 1934; Hansen et al. 1973; Krefting 1974; Aho and Jordan 1979), and moose overbrowsing is so severe that even common tree species are declining (Brandner 1986; Risenhoover and Maass 1987; Brander et al. 1990; McLaren and Peterson 1994). By eliminating deciduous trees such as aspen, and at the same time promoting the dominance of unpalatable species such as spruce, moose have changed not only plant species composition but soil chemistry and soil fertility as well (Pastor et al. 1987, 1988, 1993; McInnes et al. 1992; Pastor and Naiman 1992). Clearly, moose overbrowsing has altered the eco-system over the entire island. Archaeologically and historically, there is no evidence that moose inhabited Isle Royale before the 1900s. Any moose that reached the island in pre-Columbian times would soon have fallen prey to Native Americans who, at least seasonally, inhabited Isle Royale (Kay 1994).

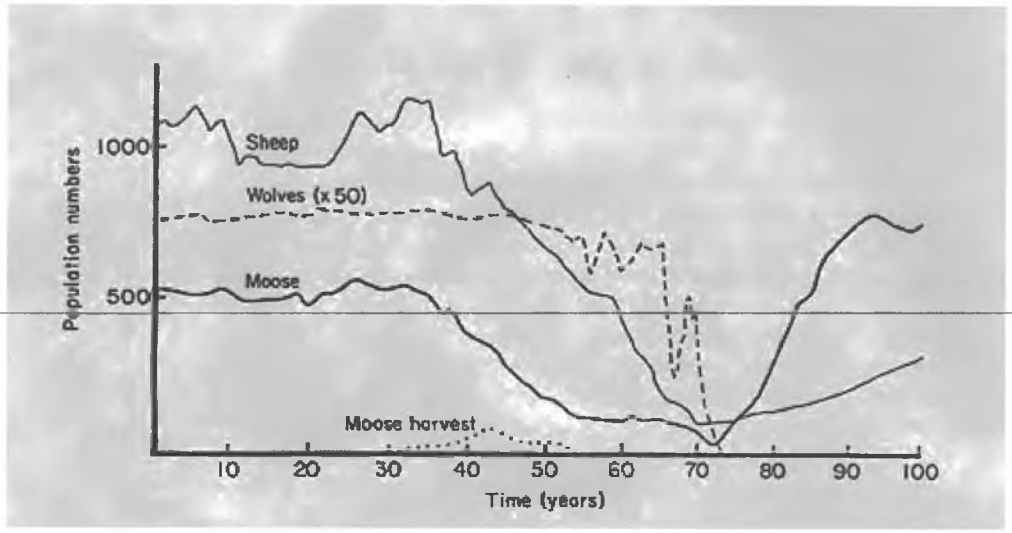
DO PREDATORS LIMIT HUNTING OPPORTUNITIES?

Sport hunting is a multibillion-dollar industry in the West (Loomis et al. 1985; Donnelly and Nelson 1986; Sorg and Nelson 1986; Duffield 1988). Not only is hunting important to economies in the area, but it is also a deeply held social tradition. So it is not surprising that many people have expressed concern about the impact wolf predation will have on western big-game herds and hunting opportunities. Groups who advocate wolf recovery, however, such as the National Parks and Conservation Association, contend that "fears over wolf impact on big-game hunting...are unfounded"

(Miller 1988:6). And according to government reports "sport hunting for any big-game species need not be eliminated or reduced just because wolves are restored" (National Park Service and Fish and Wildlife Service 1990a, 1990b:4-77 to 4-78, 1990c:6). This simply is not true, especially given the thousands of wolves that may ultimately come to inhabit the West.

With few exceptions, big-game guides and outfitters remain in business only if they can locate old-age male ungulates (i.e., trophy elk, trophy deer, etc.) for their paying clientele. Many local sports hunters also seek trophy animals. Fish and game departments in Wyoming, Montana, and Idaho are already under intense public pressure to improve the "quality" of big-game herds by managing for older-age males (Wildlife Division 1985; Montana Dept. of Fish, Wildlife, and Parks 1986). The departments have all instituted regulations that reduce male mortality so that their game herds will contain a greater proportion of older-age males. That hunters favor male ungulates is no secret. Even when either-sex permits are issued, hunters take an overwhelming preponderance of males.

Although it is commonly acknowledged that wolves and other carnivores normally kill a disproportionate number of young-of-the-year and old animals, few people realize that predators also take a disproportionate number of males. In one Minnesota study, over 70 percent of wolf-killed white-tailed deer were males, primarily older males (Mech and Frenzel 1971:41). Thus, there is little question that wolves and sport hunters would compete for many of the same animals. With a large population of wolves, fewer old-age male ungulates will be available to sports hunters. As in the case of Wood Buffalo National Park, wolves alone can completely eliminate any "surplus" ungulates that would otherwise be available for human consumption.



[**Figure 3.** Model of Alaskan wolf-ungulate interactions simulated under circumstances in which human harvest of moose triggered a decline in both predator and prey. Without hunting, wolf, moose, and Dall sheep numbers are low, but relatively stable. The addition of a small amount of human moose harvest, though, destabilizes the entire system. Even after hunting is halted, wolves continue to drive the moose population downward. The wolves then switch to Dall sheep and drive those numbers down as well. In this simulation, wolves go extinct before they can kill the few remaining ungulates, allowing prey populations to recover. Grizzly bear predation on newborn moose calves—and to a lesser extent, on adult moose—is also important in this system, but that factor was not modeled separately. Instead, grizzly predation was included in calculation of moose survival rates internal to the model. In this simulation, hunters removed less than 8 percent of the moose population annually, which is not an excessive harvest rate for systems without wolves, yet the moose population still declined. This illustrates the additive nature of wolf and human predation. In areas of Europe where predators are absent, hunters kill more than 50 percent of the fall moose population each year without any long-term decline in moose numbers. Adapted from Haber (1977) and Walters et al. (1981).]

The combined effect of sport hunting and wolf predation on a common ungulate prey can be seen in a computer simulation model developed for Alaska. Without hunting, wolf, moose, and Dall sheep numbers are low, but relatively stable. The addition of a small amount of human moose harvest, though, destabilizes the entire system (see Figure 3). Even after hunting is halted, wolves continue to

drive the moose population downward. The wolves then switch to Dall sheep and drive those numbers down as well. In this simulation, wolves go extinct before they can kill the few remaining ungulates, allowing prey populations to recover. This model was developed by wolf advocate Gordon Haber, and he uses it to call for a reduction of, or a ban on, sport hunting. According to Dr. Haber, ungulate populations subjected to wolf-bear predation can, at best, maintain a human harvest rate of only 6 to 7 percent, not the 20 to 30 percent common throughout areas of North America where wolves are absent (Warrick 1992).

The relationship of predators, ungulates, and hunting on a larger scale can be seen in a comparison of British Columbia with Sweden and Finland. Both areas are roughly the same size and contain approximately equal amounts of moose habitat. Yet during the 1980s, the overwinter moose population in Sweden-Finland numbered around 400,000 animals and was increasing, while the overwinter moose population in British Columbia numbered around 240,000 and was declining even though habitat was not limiting. Hunters in Sweden and Finland killed nearly 230,000 moose a year, whereas hunters in British Columbia har-vested only 12,000 to 14,000 animals per year (Child et al. 1991).

Although habitat conditions do vary, the overriding difference in the two systems is a virtual absence of predators in the Scandinavian countries. Wolves and bears are rare throughout Sweden and Finland, while wolves, grizzlies, black bears, and mountain lions are common in most of British Columbia. The effect of predation on hunting is seen when hunter harvest is compared to the size of overwinter moose populations. In Sweden-Finland, hunter harvest was 57 percent of the precalving moose population (Cedarlund and Sand 1991) while it was only 5 percent in British Columbia—an 11-fold difference. This suggests that unchecked predation by a combination of carnivores can reduce hunting opportunities by at least a factor of 10.

Simulation models of ungulate populations in eastern Idaho and along the East Front portion of northwest Montana's wolf recovery area indicate that where hunter mortality balances recruitment in stable ungulate populations, the addition of wolves will cause the game herds to decline. Those studies conclude that "the presence of wolves means that hunter harvest will likely [have to] be confined to male [ungulates] most of the time" (Peek and Vales 1989; National Park Service and Fish and Wildlife Service 1990b:3-164). In other words, antlerless seasons will have to be eliminated for many western ungulate herds because most of those populations are already subject to high levels of human harvest. So even if you are just a meat hunter, your hunting opportunities will decline precipitously as wolf populations expand to their full potential.

WOLF CONTROL

In its Northern Rocky Mountain Wolf Recovery Plan, the U.S. Fish and Wildlife Service (1987:33) claimed that "if predation on big-game herds is determined to be in significant conflict with management objectives of a state wildlife agency, wolf control that would not jeopardize wolf recovery would be considered." Other federal agencies have suggested that wolves may have to be killed "to control excessive predation on ungulates" (National Park Service and Fish and Wildlife Service 1990a:3). As one government report put it, "because some populations of prey [ungulates] that may be used by wolves are already harvested [by hunters] at near maximum sustained yield...it may indeed become biologically prudent to reduce wolf populations in some areas" (National Park Service and Fish and Wildlife Service 1990b:1-58). Is wolf control, though, a viable option? After reviewing the available evidence, I am forced to conclude that the federal government and other wolf advocates have mentioned wolf control only to placate sport hunters and to gain acceptance for wolf recovery, not as a statement of fact within the realm of even remote possibility.

Experience in Canada suggests that certain environmental groups will never allow wolves to be killed so that hunters can harvest more ungulates. Debate over British Columbia plans to experimentally reduce the number of wolves to see if ungulate populations would increase has been, to say the least, extremely political, protracted, and divisive (Archibald et al. 1991). In Alberta, ensuing controversy has prevented most wolf control (Gunson 1992). A spokesman for the 150,000-member Canadian Wildlife Federation declared that "wolf control should never be considered unless a prey [ungulate]

population is truly endangered, and the problem should always include a [total] ban on hunting" (Haley 1984).

Even in Alaska, where there are approximately 7,000 wolves, intense opposition, including several legal challenges, has effectively stopped the state's wolf control program. A recent proposal by the Big Game Board to kill 300 wolves to increase moose availability for subsistence and sport hunters was met with vocal objections orchestrated primarily by outside animal-rights organizations. Under a threatened international boycott of the state's tourist industry, Alaska's governor tabled plans for wolf control (Williams 1993).

Experience also suggests that opposition to wolf control is seldom ultimately based on scientific evidence, but rather on ethical and moral concerns (Clarkson 1989). Speaking on behalf of the World Wildlife Fund Canada, Monte Hummel (1989:140–42) asked, "Let's assume for the sake of argument that...in a politically neutral environment it can be scientifically shown that wolves are indeed the primary limiting factor on a given prey population, which incidentally I personally do believe to be true in many cases....Is it ethically justifiable to manipulate wild [wolf] populations to ensure that human predation [hunting] can be maximized?" The answer, he indicated, was no. A recent Canadian opinion poll found that 90 percent of the people surveyed were opposed to "killing of wolves to provide more big game for the hunting community" (Hoffos 1987:55).

Given these precedents, there can be little doubt that a wolf control program anywhere in the West would be subjected to intense scrutiny by the national media and the federal courts. The ensuing battle would pit sport hunters, ranchers, and others against antihunting and animal-rights groups from across the nation and around the world. Given the depth of emotions elicited in the past, the battle would be a political bloodbath. All parties in the western wolf debate should fully understand that wolf control, and especially wolf control to increase ungulate numbers for hunters, is unlikely to be allowed by the court of national public opinion, even if it were permitted by judicial courts. This, of course, assumes that wolves would somehow lose their endangered-species protection, for there is not a court in the land that would allow wolf control as long as that animal remains on the Endangered Species List.

It should also be realized that the wolf's impact on ungulate herds is really not a scientific issue with most wolf advocates. Their desire to have large numbers of wolves is based on value judgments (see below). As one person noted, "The wolf is almost a religious symbol to these people" (Dawson 1988). There is nothing wrong with value judgments. I object, however, when those arguments are shrouded in scientific cloth and the Endangered Species Act.

LIVESTOCK PREDATION

Most opposition to wolf recovery has come from livestock interests and their political allies. Even if wolves are somehow limited to only 100 animals in Yellowstone Park, approximately 20 to 40 wolves would disperse to surrounding areas each year, a fact whose significance has not been lost on ranchers bordering the park. In Montana, where wolves are naturally recolonizing the northern Rockies, individual wolves have moved "over 300 miles in just a few days" (Turner 1991) and one wolf was killed approximately 500 airline miles from where it was born (Pletscher et al. 1991; Ream et al. 1991). Even in areas with established wolf populations, wolves commonly disperse 30 to 100 miles, and dispersing wolves occasionally travel 400 to 500 miles. Stockmen are worried not only about how many of their sheep and cattle wolves may kill, but also about the costs associated with changing their management practices to accommodate wolves.

To alleviate these concerns, the U.S. Fish and Wildlife Service has developed interim wolf control plans for its northern Rocky Mountain recovery areas, including Yellowstone. According to those documents, wolves that prey on livestock will be killed or otherwise removed at the federal government's expense. The "control plans are based on the concept of wolf control to enhance propagation or survival of the species. Control of problem wolves is expected to reduce the hostility towards wolves that would result in illegal killing....[B]y removing the few wolves that kill livestock and [thereby] enhancing the survival chances of non-offending wolves, the FWS believes its control program will actually contribute to the

recovery of the wolf in the Northern Rocky Mountains" (National Park Service and Fish and Wildlife Service 1990b:1-29).

The federal agencies have also produced evidence showing that actual livestock depredations have been remarkably low in Minnesota, Alberta, and British Columbia (Fritts et al. 1992). Livestock operators, however, have questioned the applicability of those data to the western United States. They point out that the situations may not be comparable because the topography is different, ungulates make longer seasonal migrations, and colonizing wolves may behave differently than established populations, and besides, wolves in Canada can be shot on sight; that is, those wolves are not protected by the Endangered Species Act. Experience with Montana's naturally recovering wolves tends to support their concerns.

Most ungulates in the northern Rockies winter at low elevations near private lands and domestic livestock. Wolves would have to winter in those same areas, and they would probably also den there because pups are born early in the spring while most ungulates are still on their winter ranges. The ungulates, however, usually migrate to higher-elevation summering areas before wolf pups can leave their dens. This would place breeding wolves with high food demands in areas with few wild ungulates but abundant livestock. These circumstances may force wolves to prey on livestock to support their growing young.

This appears to be what has happened in Montana. For whatever reason, wolves outside of the Glacier National Park–North Fork of the Flathead area, where there are few livestock, have all denned in valley bottoms in relatively close proximity to humans. They have not stayed in wilderness areas. To date, nearly every one of those wolf packs has eventually turned to livestock and has had to be controlled. Based on the pattern observed in Montana, reintroduced wolves may cause a number of problems for neighboring ranchers. Within a week or so after wolves were transplanted to central Idaho in early 1995 (see below), one of those animals had already turned to killing livestock (Burns 1995). When wolves eventually reduce game populations (see above), the wolves will then be forced to kill even more livestock.

In Canada and Minnesota, the government compensates ranchers when they can prove that wolves killed their livestock, but this is not true in the western states. The federal government has no wolf compensation program, nor do state agencies; thus, wolf-killed livestock is another example of the government taking private property under the Endangered Species Act without compensation. In response to these concerns and in an effort to enhance wolf recovery by preventing "the development of a shoot-on-sight mentality," Defenders of Wildlife raised $100,000 to compensate ranchers for animals that will be lost to wolves. Those claims, though, must first be verified by federal agents or local officials (Fischer 1989, 1995). While this has been hailed by most wolf advocates as a good-faith effort on their part, it has been soundly criticized by the radical environmental group Earth First!, which sees Defenders' compensation program as another sub-sidy to ranchers. It believes wolves have "earned their right to be here merely by being native to North America. Earth First! favors a ram-it-down-their-throat approach" (Skeele 1991).

For their part, many ranchers are not entirely pleased with Defenders' compensation program, claiming that they are not raising animals to feed to wolves or other predators. Other ranchers have pointed out that Defenders will compensate them only for the market value of their dead livestock. For instance, if a wolf-killed cow had a market value of $600, the rancher would be given a check for that amount. The ranchers, on the other hand, claim that it actually costs them more than $600 to replace that cow. They point out that there are time costs and other expenses involved in (1) finding the kill, (2) getting a government agent to verify the kill, and (3) obtaining a replacement animal from a distant market and transporting it back to the ranch.

My personal experience with insurance suggests that the ranchers' position has some merit. When I first heard this argument, I must admit, I did not give it much thought—until I was robbed. While conducting research in Yellowstone, someone cut the back out of my tent and stole all my camping equipment. First I had to report the theft and have the sheriff fill out a report (verify the kill); then I had to deal repeatedly with my insurance company before receiving compensation; and finally I had to

replace all the lost equipment. Not only was my regular work schedule interrupted, for which I received no compensation, but I also spent the better part of two days finding and buying replacement equipment. The nearest town of any was 80 miles away, which would also be true if one had to buy livestock at auction. All in all, this experience convinced me that livestock interests have raised a valid point that should be given due consideration. Moreover, there is also a major problem in proving that missing livestock were actually killed by wolves.

Although some have viewed Defenders' compensation program as an innovative free-market approach to endangered species preservation, others claim it is only a public relations ploy designed to promote wolf introductions. As opponents note, Defenders has said that it will pay for verified livestock losses only as long as wolves are on the Endangered Species List (Fischer 1995). So when wolf populations become high and livestock losses increase, Defenders will no longer compensate ranchers. In addition, since Defenders' program has no force in law (Fischer 1995), it can be terminated at any time even if wolves are still on the Endangered Species List.

The federal agencies have stated that when wolf "depredations on livestock occur, control actions are imperative" and that offending animals will be dealt with "quickly and effectively" (National Park Service and Fish and Wildlife Service 1990b:1-55). The Park Service has stated that "wolves will be easy prey for trappers if killing them should become necessary" (Wise 1987). Experience in Montana, however, suggests that it may be difficult and expensive to control offending animals. When a pack of six wolves killed livestock on the Blackfeet Indian Reservation, government trappers were summoned to remove the offending animals. By its own admission, the federal government spent $41,000 on that wolf control effort, yet all the wolves were never killed (Dawson 1988). Another source put the total, "all costs considered," at perhaps $100,000 (Jonkel 1987).

In at least one case in Montana, members of the Wolf Action Group, an offshoot of Earth First!, attempted to disrupt government efforts to trap a wolf that had killed livestock near Kalispel (U.S. Fish and Wildlife Service 1991:14). Since wolves are very sensitive to human disturbances, all one has to do to defeat wolf control is to leave human scent on or near government traps, that is, urinate on them. If it becomes common practice for individuals or certain groups to interfere with government trappers, the offending wolves will be much more difficult to catch. Groups such as PETA (People for the Ethical Treatment of Animals) who oppose all hunting and killing of wildlife, have advised members to go into the field and physically prevent animals from being killed. If even a small, but dedicated, number of people decide that all killing of wolves should be prevented, the gov-ernment's claim that depredating wolves will be "quickly" re-moved may not be realized. In addition, some of the more radical environmental groups have suggested that they may sue to stop all wolf control. They contend that even killing depredating wolves is unlawful under the Endangered Species Act (Goble 1992).

WHY SHOULD WOLVES BE REINTRODUCED TO YELLOWSTONE?

During the early 1970s, the Park Service began to manage Yellowstone Park under a program called "natural regulation," where nature is allowed to take its course with minimal human interference. Without exception, environmentalists have been widely enthusiastic about "natural regulation." The same people who wholeheartedly are behind "natural regulation" also contend that wolves are needed, according to former Utah Congressman Wayne Owens, "to restore a balance to Yellowstone National Park. The wolf is the only missing piece" (Fischer 1988:17). "A principal predator is missing....[T]o have a large population of ungulates without such a predator in the system is not natural. It's an absence that has ecological significance" (Cauble 1986:24). When asked if they felt that wolves could help "maintain balanced wildlife populations" in Yellowstone, 91 per-cent of those interviewed said yes (MacNaught 1987:519). And others contend that Yellowstone is "a fairly intact ecosystem, except for the wolf. It's the missing link" (Schneider 1981:8).

Some have gone so far as to claim that in the absence of wolves, Yellowstone's elk and other ungulates have overpopulated the park and overgrazed the range. Speaking for Defenders of Wildlife, Dick Randall (1980:189) said, "The solution to a good part of the [elk] overpopulation problem comes softly on four feet, weighs about a hundred pounds, believes strongly in the family virtues, and has

been absent from Yellowstone for about the same length of time the elk problem has plagued park officials. Of course: the grey wolf." Thomas Miller (1988:7) of the National Parks and Conservation Association added that "the benefits from restoration of the wolf to its native Yellowstone include prevention of habitat deterioration and overpopulation by ungulates." In recent testimony before Congress, even Secretary of the Interior Bruce Babbitt contended that wolves are needed to control Yellowstone's soaring elk population.

Not only are claims that wolves would lower ungulate populations and restore a balance with the plant communities logically inconsistent with assertions that wolves would not limit ungulates or hunting opportunities (see above), but proponents of reintroduction, who all support "natural regulation," apparently do not realize that their concept of the wolf's place in the natural scheme of things is contrary to one of the major assumptions of the "natural regulation" paradigm. According to "natural regulation," predation is an assisting, but nonessential, adjunct to the regulation of ungulate populations. Ungulates are limited by resources (food). If wolves were present, they would kill only the animals slated by nature to die from other causes, primarily starvation, so, wolves would not lower Yellowstone's ungulate populations (Kay 1990).

The Park Service has never said that wolves must be restored to Yellowstone to prevent elk and other ungulate numbers from becoming so large that those herbivores would overuse their range. So if you believe that wolves need to be reintroduced in Yellowstone to restore a "balance of nature," control ungulate numbers, or prevent range abuse, logic dictates that you also have to be opposed to "natural regulation." You cannot have it both ways.

Moreover, claims that wolves need to be restored because "every species that was in the park when white men first came to the region is still there, except one [the wolf]" (Dawidoff 1992:40) are also racist, as are similar claims about restoring the wolf as the system's top predator. Native Americans were the ultimate keystone predator, not wolves, and Native Americans once structured Yellowstone and other ecosystems (Kay 1994, 1995). If environmentalists really want to restore Yellowstone's preemi-nent predator, then they should be lobbying for the return of the park to Native Americans. Instead, by inference, they denigrate native peoples as primitive starving savages, or worse, as original poor conservationists.

HISTORICAL DISTRIBUTION AND ABUNDANCE OF WOLVES IN YELLOWSTONE

The plan to reintroduce wolves in Yellowstone is predicated, in part, on the premise that large numbers of wolves inhabited that ecosystem before the Park Service eliminated them from the park (Askins 1992; Wright 1992:144-45). According to some, "[wolves] were a relatively common sight in Yellowstone when it was declared the nation's first national park in 1872" (Anonymous 1987). Dick Randall (1980:188), of Defenders of Wildlife, claimed that "when trappers and explorers reported on the Yellowstone region in the mid-1800s, they sang [of] a land teeming with bison, elk, mule deer, bighorn sheep, and antelope. The great carnivores—grey wolf, grizzly bear, and mountain lion—flourished."

As part of my scientific research in the Yellowstone Ecosystem, I conducted a continuous-time analysis of journals left by early explorers, systematically recording all observations of ungulates and other large mammals, including wolves. Between 1835 and 1876, 20 different expeditions spent a total of 765 days traveling through the Yellowstone Ecosystem on foot or horseback, yet no one reported seeing or killing even a single wolf. Wolf sign, primarily howling, was reported on only three occasions. Since these early observers lacked scientific training, they easily could have mistaken coyote howls or other animal calls for wolves. Besides, when these journals were written, even trained scientists called coyotes wolves or prairie wolves. There certainly is no evidence in historical journals which even remotely sug-gests that large numbers of wolves were common in Yellowstone during the 1835–1876 period (Kay in press).

Other records indicate that wolves were also not particularly common after Yellowstone Park was established. During the late 1800s and early 1900s, few observations were recorded of wolves in the park. "Wolves inhabited the area in unknown but seemingly low densities" (U.S. Fish and Wildlife

Service 1987:1). From 1914 to 1926, when the Park Service was actively working to eradicate wolves from Yellowstone, they killed 136 wolves. This may seem like a lot, but it included only 56 adults over a 13-year interval. Park Service records also suggest that during this time there were, at most, only four wolf packs in the park, and possibly only two (Weaver 1978:11). So, available information does not support the belief that large numbers of wolves inhabited Yellowstone at any point in recorded history. There is no support for the belief that restoring 10 wolf packs to the park would reestablish "natural" conditions. In fact, the data suggest that wolves were always rare in Yellowstone. Native hunting was so intense that historical and pre-Columbian ungu-late populations were very low, which, in turn, accounts for the relative scarcity of carnivorous species such as wolves (Kay 1994, 1995, in press).

THE ENVIRONMENTAL IMPACT STATEMENT

In June 1993, the U.S. Fish and Wildlife Service released its draft Environmental Impact Statement (EIS) for wolf recovery in the northern Rockies. After a series of public hearings and after accepting written comments, the agency issued its final EIS in April 1994. It received over 160,000 comments on the draft EIS, the most ever received under the Endangered Species Act. Public comments ran 2 to 1 in favor of restoring wolves to the northern Rockies. Under the agency's preferred alternative, naturally recolonizing wolves in northwest Montana were given full ESA protection. In Yellowstone and central Idaho, though, the agency proposed to reintroduce wolves as nonessential experimental populations. This was done to deflect local criticism and to allow ranchers more latitude in shooting wolves caught in the act of killing livestock on private land (U.S. Fish and Wildlife Service 1994, Fischer 1995).

As of early 1995, at least two different lawsuits had been filed to block wolf recovery, but the federal courts refused to grant the plaintiffs injunctive relief. Thus, the U.S. Fish and Wildlife Service, with the consent of the Alberta provincial government, began capturing wolves in Canada. So far, over a dozen wolves have been released in central Idaho (termed a hard release) while Yellowstone's wolves were held in three large fenced enclosures on the park's northern range. This is termed a soft release, and it is hoped that this will encourage the wolves to remain in the park.

Some wolves released in Yellowstone quickly left the park and at least three have been shot in violation of the ESA. Other Yellowstone wolves killed livestock and at least one domestic dog in the park. Wolves released into central Idaho have also wandered widely and killed livestock. Nevertheless, as this is being written (early 1996), the U.S. Fish and Wildlife Service is capturing more Canadian wolves for release in Idaho and Yellowstone

The U.S. Fish and Wildlife Service has admitted that wolf recovery will cost at least $12 million, but that figure may be low, and it certainly does not reflect the costs of full wolf recovery in the West. Nevertheless, this still comes to $40,000 per wolf and is an enormous expense for a species that is not biologically endangered. After all, there are an estimated 60,000 wolves in Canada (Theberge 1991), 2,000 in Minnesota (Harrison 1991), and another 7,000 in Alaska (Van Ballenberghe 1992). Wolves are on the Endangered Species List only because the ESA protects subspecies and populations as well as species.

Noted Montana biologist Dr. Charles Jonkel (1987) has raised an interesting question regarding wolves. He has wondered if the money and political capital being spent to reintroduce wolves into Yellowstone and central Idaho might not be better spent on preserving wolves and wolf habitat in other parts of North America. How much time and money will be spent to put 100 or so wolves in Yellowstone? Dr. Jonkel has suggested that those same efforts, if redirected, could perhaps save thousands of wolves in other areas—places where wolves presently exist, but where development threatens their continued survival.

Others have suggested that funds expended on wolf recovery might be better spent on truly rare animals such as whooping cranes, black-footed ferrets, or other globally endangered species. Testifying before the U.S. Senate Committee on Energy and Natural Resources, Kay Kool (1990), former Director of the Montana Department of Fish, Wildlife, and Parks, noted that "the attention and

resources focused on the wolf compete with and drain the limited federal dollars and energy needed to keep truly endangered species from extinction."

The U.S. Fish and Wildlife Service claims that it needs billions of dollars to carry out its mandate under the Endangered Species Act. Currently about $100 million is being spent annually by state and federal agencies to protect endangered species. Over one-half of that total, though, goes to less than 2 percent of the species listed as threatened or endangered. Instead of spending its budget on the animals and plants most in need of protection, the agencies spend their funds on "charismatic megafauna" such as grizzly bears and wolves (Mann and Plummer 1993; Dwyer et al. 1995: 738-739). This may garner the agencies public support, but it does little to pro-tect the majority of endangered species. With so many other species in much greater need, it is easy to see why many conservationists consider wolf recovery an inappro-priate use of government funds. But then, wolf recovery has very little to do with wolves.

HIDDEN AGENDAS

As University of Wyoming geography professor James Thompson (1993:165) recently noted, "wolf recovery is [only] a 'stalking horse' for the larger issue of land use change." Even environmentalists have admitted that "on the deepest level the issue of...wolf recovery is not about wolves. [Instead] it is about control of the west" (Askins 1993:5). Simply put, environmental-ists are using wolf recovery and the Endangered Species Act to run ranchers out of the country and to thwart multiple use of public lands. It is also a way for animal-rights and antihunting groups to ban all hunting and use of wildlife. Is this what Congress had in mind when it passed the Endangered Species Act? There is no evidence to even remotely suggest that it is.

EPILOGUE

Alaskan and Canadian wildlife agencies are concerned that wolf advocates may unwittingly be helping to destroy wildlife habitat, wilderness, and eventually wolves themselves (Gasaway 1989:134). In British Columbia, expanding wolf populations have decimated game herds to the point that today there are fewer hunters in the province, which translates into less public support when wildlife officials have tried to oppose development projects (Hatter and Janz 1994). Black-tailed deer on Vancouver Island, for instance, need old-growth forest to survive during winters—forests that are worth millions of dollars if they are logged. With few deer left to protect, the B.C. government has been reluctant to curtail logging. The same is true in Alaska's coastal forests. More wolves = fewer deer = less public support for wildlife = more clear-cuts.

After reviewing the northern Rockies wolf recovery plan, biologists from the University of Idaho concluded that "in the presence of wolves, more intensive monitoring of both predator and prey will be needed" (Peek and Vales 1989; National Park Service and Fish and Wildlife Service 1990b:3-164). This increased responsibility and its associated costs will fall to western state fish and game agencies, which are funded solely from hunting-license sales and federal excise taxes on sporting goods, not general fund appropriations. When wolves eventually decimate ungulate herds, hunting will have to be curtailed, so revenues available to the state wildlife agencies will fall precipitously. Who then will pay for the needed monitoring, and, for that matter, wildlife management in general? Sportsmen, after all, are the ones who have done the most to nurture and protect the West's wildlife populations, not environmentalists. Wolf recovery is a bad idea whose time has apparently come—unless, of course, the Endangered Species Act can be changed.

REFERNECES

Aho, R. W., & P. A. Jordan. (1979). Production of aquatic macro-phytes and its utilization by moose on Isle Royale National Park. In R. M. Linn (Ed.), *Proceedings of the First Conference on Scientific Research in National Parks*. pp. 341-348. USDI National Park Service Transactions and Proceedings Series No. 5.

Anonymous. (1987, February 11). Gray wolves may again howl in Yellowstone. *Logan Herald Journal*.

Anonymous. (1995, November 24). Delisting could hurt wolf recovery, advocate claims. *Casper Star Tribune*, Casper, Wyo., p. B1.

Archibald, W. R., Janz, D., & Atkinson, K. (1991). Wolf control: A management dilemma. Trans. N.A. Wild. and Nat. Res. Conf., 56, 497-511.

Askins, R. (1992). View of the Wolf Fund. Wyoming Wildlife, 56(1), 14-17.

Askins, R. (1993, Winter-Spring). From the director. The Wolf Fund, pp. 1, 4-5.

Ballard, W. B. (1991). Management of predators and their prey: The Alaskan experience. *Trans. N.A. Wildl. and Nat. Res. Conf.*, 56, 527-538.

Ballard, W. B. (1992). Bear predation on moose: A review of recent North American studies and their implications. *Alces*, Supplement 1, 162-176.

Bennett, L. E. (1994). Colorado gray wolf recovery: A biological feasibility study—Final report—31 March 1994. Unpublished Contract report from the University of Wyoming Fish and Wildlife Cooperative Research Unit to the U.S. Fish and Wildlife Service, Denver, Colo.

Bergerud, A. T. (1990). Rareness as an anti-predator strategy to reduce predation risk. Transactions of 19th I.U.G.B. Congress. Proceedings held September 1989. Trondheim, Norway. Vol. 1. *Population Dynamics*. pp. 15-25.

Bergerud, A. T. (1992). Rareness as an antipredator strategy to reduce predation risk for moose and caribou. In D. M. McCullough, and R. Barrett (Eds.), *Wildlife 2001: Populations*. pp. 1008-1021. New York: Elsevier Applied Science.

Bergerud, A. T., H. E. Butler, & D. R. Miller, (1984). Antipredator tactics of calving caribou: Dispersion in mountains. *Can. J. Zool.*, 62, 1566-1575.

Bergerud, A. T., & J. P. Elliot, (1986). Dynamics of caribou and wolves in northern British Columbia. *Can. J. Zool.*, 64, 1515-1529.

Boyce, M. S. (1992). Wolf recovery for Yellowstone National Park: A simulation model. In D. M. McCullough & R. Barrett (Eds.), *Wildlife 2001: Populations*. pp. 123-138. New York: Elsevier Applied Science.

Boyce, M. S., & L. L. Irwin. (1990). Viable populations of spotted owls for management of old growth forests in the Pacific Northwest. In R. S. Mitchell, C. J. Shevick, & D. J. Leopold (Eds.), *Ecosystem management: Rare species and significant habitats*. pp. 133-135. Albany, New York: New York State Museum.

Brandner, T. A. (1986). Density dependent effects of moose herbivory on balsam fir in Isle Royale National Park, Michigan. M.S. Thesis, Michigan Technological University, Houghton, MI.

Brandner, T. A., R. O. Peterson, & K. L. Risenhoover. (1990). Balsam fir on Isle Royale: Effects of moose herbivory and population density. *Ecology*, 71, 155-164.

Burns, C. (1995). From freedom to FedEx: Wolf B13 killed. *High Country News*, 27(3), 5.

Buterbaugh, G. L. (1991). Freedom of Information Act Request in response to correspondence from Randy T. Simmons, Director, Institute of Political Economy, Utah State University, Logan. July 18, pp. 2+ attachments.

Carbyn, L. N., S. M. Oosenbrug, & D. W. Anions, (1993). *Wolves, bison, and the dynamics related to the Peace-Athabasca Delta in Canada's Wood Buffalo National Park*. Edmonton, AB: University of Alberta. Circumpolar Research Series 4.

Cauble, C. (1986). Return of the native: The Park Service calls for reintroduction of Yellowstone's missing predator...the wolf. *National Parks Magazine*, 60(7-8), 24-29.

Cederlund, G. N., & H. K. J. Sand, (1991). Population dynamics and yield of a moose population without predators. *Alces*, 27, 31-40.

American's wilderness heritage (pp. 231-264). New Haven, Conn.: Yale University Press.

Child, K. N., S. P. Barry, & P. A. Aitken, (1991). Moose mortality on highways and railways in British Columbia. *Alces*, 27, 41-49.

Clarkson, P. L. (1989). *Wolf management: An evaluation and recommendations*. M.S. Thesis, Faculty of Environmental Design. Calgary, AB: University of Calgary.

Crete, M., & Huot, J. (1993). Regulation of a large herd of migratory caribou: Summer nutrition affects calf growth and body reserves of dams. *Can. J. Zool.*, 71, 2291-2296.

Crete, M., R. J. Taylor, & P. A. Jordan, (1981). Simulating conditions for the regulation of a moose population by wolves. *Ecol. Modelling*, 12, 245-252.

Dale, B. W., L. G. Adams, & R. T. Bowyer, (1994). Functional response of wolves preying on barren-ground caribou in a multiple-prey ecosystem. *J. Animal Ecol.*, 63, 644-652.

Dawidoff, N. (1992). One for the wolves. *Audubon*, 94(4), 38-45.

Dawson, P. (1988, January 4). Montana wool growers say that the wolf is at their door. *High Country News*, 4.

Defenders of Wildlife. (1984). In favor of the wolf—In Minnesota, Federal Judge Lord rules state trapping plans illegal. *Defenders*, 59(2), 10-15.

Dietz, M. S. (1993). *Initial investigation of potentially suitable locations for wolf reintroduction*. Environmental Studies Department, University of Montana, Missoula. An unpublished report funded by the Predator Project, Bozeman, Mont.

Donnelly, D. M. & L. J. Nelson, (1986). *Net economic value of deer hunting in Idaho*. U.S. For. Ser. Resource Bull. RM-13.

Dueck, H. A. (1990). *Carnivore conservation and interagency cooperation: A proposal for the Canadian Rockies*. Calgary, Alberta: M.S. Thesis, University of Calgary.

Duffield, J. (1988). *The net economic value of elk hunting in Montana*. Heland, Mont.: Montana Dep. Fish, Wildlife, and Parks.

Dwyer, L. E., Murphy, D. D., & Ehrlich, P. R. (1995). Property rights case law and the challenge to the Endangered Species Act. *Conservation Biology*, 9, 725-741.

Elliot, J. P. (1989). Wolves and ungulates in British Columbia's northeast. *In Wolf-prey dynamics and management*. pp. 97-123. Wildlife Branch, British Columbia Ministry of Environment, Victoria, B.C. Wildlife Working Report WR-40.

Fischer, H. (1987). Deep freeze for wolf recovery? *Defenders*, 62(6), 29-33.

Fischer, H. (1988). Wolves for Yellowstone? *Defenders*, 63(2), 16-17.

Fischer, H. (1989). Restoring the wolf: Defenders launches a compensation fund. *Defenders*, 61(1), 9, 36.

Fischer, H. (1995). *Wolf wars*. Helena, Mont.: Falcon Press Publishing

Fritts, S. H., W. J. Paul, L. D. Mech, & D. P. Scott, (1992). *Trends and management of wolf-livestock conflicts in Minnesota*. U.S. Fish and Wildlife Service Resource Pub. 181.

Gasaway, W. (1989). Management of complex predator-prey systems in Alaska. In *Wolf-prey dynamics and management*. pp. 124-135. Wildlife Branch, British Columbia Ministry of Environment, Victoria. *Wildlife Working Report* WR-40.

Gasaway, W. C., R. D. Boertje, D. V. Grangaard, D. G. Kellyhouse, R. O. Stephenson, & D. G. Larsen. (1992). The role of predation in limiting moose at low densities in Alaska and Yukon and implications for conservation. *Wildl. Monogr.*, 120, 1-59.

Gasaway, W. C., R. O. Stephenson, & J. L. Davis, (1983). Wolf-prey relationships in interior Alaska. *Alaska Dep. of Fish and Game Wildl. Tech. Bull.*, 6.

Glick, D., M. Carr, & B. Harting. (1991). *An environmental profile of the Greater Yellowstone Ecosystem*. Bozeman, Mont.: Greater Yellowstone Coalition.

Goble, D. D. (1992). Of wolves and welfare ranching. *The Harvard Environmental Law Review*, 16, 101-127.

Gunson, J. R. (1992). Historical and present management of wolves in Alberta. *Wildl. Soc. Bull.*, 20, 330-339.

Haber, G. C. (1977). *Socio-ecological dynamics of wolves and prey in a subarctic ecosystem*. (Doctoral Dissertation, University of British Columbia, Vancouver, BC).

Haley, D. (1984). Strife in Peace River country: Can protests silence British Columbia's anti-wolf guns? *Defenders*, 59(3), 33-37.

Hansen, H. L., L. W. Krefting, & V. Kurmis. (1973). *The forest of Isle Royale in relation to fire history and wildlife*. Univ. Minn. Agr. Exp. Sta. Tech. Bull. 294.

Harrison, W. F. (1991). Letter from William F. Harrison, Acting Chief, Division of Endangered Species, U.S. Fish and Wildlife Service, Twin Cities Minnesota to Randy T. Simmons, Director, Institute of Political Economy, Utah State University, Logan, June 27.

Hatter, I. W. & D. W. Janz, (1994). Apparent demographic changes in black-tailed deer associated with wolf control on northern Vancouver Island. *Can. J. Zool.*, 72, 878-884.

Hoffos, R. (1987). *Wolf management in British Columbia: The public controversy*. British Columbia Ministry of Environment and Parks, Wildlife Branch. Wildlife Bull. B-52.

Hummel, M. (1989). The IUCN/WWF perspective on wolf conservation. In *Wolf-prey dynamics and management*. pp. 136-142. Wildlife Branch, British Columbia Ministry of Environment, Victoria, BC. Wildlife Working Report WR-40.

Jonkel, C. (1987). One helluva animal! *High Country News*, 19(22), 15.

Kay, C. E. (1990). Yellowstone's northern elk herd: A critical evaluation of the "natural regulation" paradigm. Ph.D. Dissertation, Utah State University, Logan, Utah.

Kay, C. E. (1993, August). Wolves in the West: What the government does not want you to know about wolf recovery. *Petersen's Hunting*, 34-37, 106.

Kay, C. E. (1994). Aboriginal overkill: The role of Native Americans in structuring western ecosystems. *Human Nature*, 5, 359-398.

Kay, C. E. (1995). Aboriginal overkill and native burning: Implications for modern ecosystem management. *Western J. of Applied Forestry* 10:121-126.

Kay, C. E. (In press). An alternative interpretation of the historical evidence relating to the abundance of wolves in the Yellowstone Ecosystem. In Carbyn, L. N., S. H. Fritts, and D. R. Seip. *Ecology and conservation of wolves in a changing world*. Canadian Circumpolar Institute, Edmonton, Alberta.

Klein, D. R. (1970). Food selection by North American deer and their response to overutilization of preferred plant species. In A. Watson (Ed.), *Animal populations in relation to their food resources* (pp. 25-46). Oxford, UK: Blackwell Scientific Pub.

Kool, K. L. (1990, September 19). Testimony by director of the Montana Department of Fish, Wildlife, and Parks before U.S. Senate Committee on Energy and Natural Resources regarding the Northern Rocky Mountain Gray Wolf Restoration Act of 1990—S.2674.

Krefting, L. W. (1974). *The ecology of Isle Royale moose*. Univ. Minn. Agr. Exp. Sta. Tech. Bull. 297.

Licht, D. S. & S. H. Fritts, (1994). Gray wolf (*Canis lupus*) occurrences in the Dakotas. *Am. Midl. Nat.*, 132, 74-81.

Loomis, J. B., Donnelly, D. M., Sorg, C. F. & Oldenburg, L. (1985). *Net economic value of hunting unique species in Idaho: Bighorn sheep, mountain goat, and antelope*. U.S. For. Ser. Resource Bull. RM-10.

Mann, C. C. & Plummer, M. L. (1993). The high cost of biodiversity. *Science*, 260, 1868-1871.

MacNaught, D. A. (1987). Wolves in Yellowstone?—park visitors respond. *Wildl. Soc. Bull.*, 15, 518-521.

McInnes, P. F., Naiman, R. J., Pastor, J. & Cohen, Y. (1992). Effects of moose browsing on vegetation and litter of the boreal forest, Isle Royale, Michigan, *U.S.A. Ecology*, 73, 2059-2075.

McLaren, B. E. & Peterson, R. O. (1994). Wolves, moose, and the tree rings on Isle Royale. *Science*, 266, 1555-1558.

Mech, L. D. (1970). The wolf: The ecology and behavior of an endangered species. Garden City, NY: Natural History Press.

Mech, L. D. & Frenzel, L. D. (1971). An analysis of the age, sex, and condition of deer killed by wolves in northeastern Minnesota. In *Ecological studies of the timber wolf in northeastern Minnesota*. pp. 35-51. *U.S. For. Ser. Res. Paper* NC-52.

Merriam, H. R. (1964). The wolves of Coronation Island. *Proc. Alaska Sci. Conf.*, 15, 27-32.

Messier, F. (1989a). Towards understanding the relationship between wolf predation and moose density in southwestern Quebec. In *Wolf-prey dynamics and management. Wildlife Branch, British Columbia Ministry of Environment*, Victoria, BC (pp. 13-25). Wildlife Working Report WR-40.

Messier, F. (1989b). Effect of bison population changes on wolf-prey dynamics in and around Wood Buffalo National Park. Report prepared on behalf of Federal Environmental Assessment Review Office, Environment Canada and Northern Diseased Bison Environmental Assessment Panel. Oct. 5.

Messier, F. (1991). The significance of limiting and regulating factors on the demography of moose and white-tailed deer. *J. Animal Ecol.*, 60, 377-393.

Messier, F. (1994). Ungulate population models with predation: A case study with the North American moose. *Ecology*, 75, 478-488.

Miller, T. (1988). Wyoming wolves? "Yes!". *Wyo. Wildl.*, 52(3), 4-7.

Montana Department of Fish, Wildlife, and Parks. (1986). Big bucks and big bulls: A status report. *Montana Outdoors*, 17(6), 32-37.

Murie, A. (1934). The moose of Isle Royale. University of Michigan Museum of Zoology Misc. Pub. 25.

National Park Service. (1975). Environmental assessment: Restoring a viable wolf population in Yellowstone National Park. Rocky Mountain Regional Office, Denver, Colo. Draft dated Aug. 7.

National Park Service and Fish and Wildlife Service. (1990a). Wolves for Yellowstone? A report to the United States Congress. Vol. 1. Executive summary.

National Park Service and Fish and Wildlife Service. (1990b). Wolves for Yellowstone? A report to the United States Congress. Vol. 2. Research and analysis.

National Park Service and Fish and Wildlife Service. (1990c). Yellowstone wolf questions - a digest. Extracts from, Wolves for Yellowstone? A report to the United States Congress. Yellowstone National Park, WY. YELL-560.

Neal, D. (1992, June 13). Wolf workshop sparks protest. *Casper Star-Tribune*, Casper, WY. pp. A1, A8.

Pastor, J. & R. J. Naiman. (1992). Selective foraging and ecosystem processes in boreal forests. *Amer. Nat.*, 139, 690-705.

Pastor, J., R. J. Naiman, & B. Dewey, (1987). A hypothesis of the effects of moose and beaver foraging on soil carbon and nitrogen cycles, Isle Royale. *Alces*, 23, 107-124.

Pastor, J., R. J. Naiman, , B. Dewey, & P. McInnes. (1988). Moose, microbes, and the boreal forest. *Bioscience*, 38, 770-776.

Pastor, J., B. Dewey, R. J. Naiman, P. F. McInnes, & Y. Cohen. (1993). Moose browsing and soil fertility in the boreal forests of Isle Royale National Park. *Ecology*, 74, 467-480.

Peek, J. M. & Vales, D. J. (1989). Projecting the effects of wolf predation on elk and mule deer in the East Front portion of the northwest Montana wolf recovery area. Dept. of Fish and Wildlife Resources, University of Idaho, Moscow. Report to the U.S. Fish and Wildlife Service, Helena, Mont.

Peterson, R. O. (1977). Wolf ecology and prey relationships on Isle Royale. *National Park Service Sci. Monogr.*, 11.

Peterson, R. O. & R. E. Page, (1988). The rise and fall of Isle Royale wolves, 1975–1986. *J. Mamm.*, 69, 89-99.

Peterson, R. O., R. E. Page, & K. M. Dodge, (1984). Wolves, moose, and the allometry of population cycles. *Science*, 224, 1350-1352.

Pletscher, D. H., R. R. Ream, R. Demarchi, W. G. Brewster, & E. E. Bangs, (1991). Managing wolf and ungulate populations in an international ecosystem. *Trans. N.A. Wildl. and Nat. Res. Conf.*, 56, 539-549.

Rachael, J. (1995). *Idaho wolf recovery and management plan: Planning period 1995-2005*. Idaho Department of Fish and Game, Boise, Id. January draft.

Randall, D. (1980). Wolves for Yellowstone: Experts say "yes," though cautiously, to re-introduction. *Defenders*, 55(3), 188-190.

Randall, D. (1981). Yellowstone wolves: Re-introduction has scientists' support; remaining hurdles are legal, logistical. *Defenders*, 56(1), 30-31.

Ream, R. (1995). *Montana wolf recovery and management plan: Montana Fish, Wildlife, and Parks--1995*. Montana Department of Fish, Wildlife, and Parks, Helena, Mont. October review draft.

Ream, R. R., M. W. Fairchild, D. K. Boyd, & D. H. Pletscher. (1991). Population dynamics and home range changes in a colonizing wolf populations. In K. B. Keiter, & M. S. Boyce (Eds.), *The Greater Yellowstone Ecosystem: Redefining America's wilderness heritage* (pp. 349-366). New Haven, CT: Yale University Press.

Risenhoover, K. L. & S. A. Maass. (1987). The influence of moose on the composition and structure of Isle Royale forests. *Can. J. For. Res.*, 17, 357-364.

Schneider, B. (1981). The return of the wolf. *National Parks Magazine*, 55(7-8), 7-13.

Seip, D. R. (Ed.). (1989a). *Proceedings wolf-prey dynamics and management.* Wildlife Working Report WR-40. Victoria, BC: Wildlife Branch, British Columbia Ministry of Environment.

Seip, D. R. (1989b). Caribou-moose-wolf interactions in central British Columbia. In *Wolf-prey dynamics and management* (pp. 57-69). Wildlife Branch, British Columbia Ministry of Environment, Victoria, B.C. Wildlife Working Report WR-40.

Seip, D. R. (1991). Predation and caribou populations. *Rangifer* (Special Issue), 7, 46-52.

Seip, D. R. (1992a). Factors limiting woodland caribou populations and their interrelationships with wolves and moose in southeastern British Columbia. *Can. J. Zool.*, 70, 1494-1503.

Seip, D. R. (1992b). Wolf control and the management of ungulate populations. In D. M. McDullough & R. Barrett (Eds.), *Wildlife 2001: Populations* (pp. 331-340). New York: Elsevier Applied Science

Shaffer, M. L. (1992). Keeping the grizzly bear in the American West: A strategy for real recovery. Washington, DC: The Wilderness Society.

Skeele, T. (1991). Why subsidize the recovery of the wolf? *High Country News*, 23(6), 16.

Sorg, C. F. & Nelson, L. J. (1986). *New economic value of elk hunting in Idaho*. U.S. For. Ser. Resource Bull. RM-12.

Soule, M. E. (Ed.). (1987). *Viable populations for conservation*. New York: Cambridge University Press, NY.

Theberge, J. B. (1991). Ecological classifications, status, and management of the Gray Wolf, *Canis lupus*, in Canada. *Canadian Field-Naturalist*, 105, 459-463.

Thomas, C.D. (1990). What do real population dynamics tell us about minimum viable population sizes? *Conservation Biology*, 4, 324-327.

Thompson, J. (1991, December 5). That's not a vicious monster; that's a wolf. *Casper Star-Tribune*, Casper, WY, p. A8.

Thompson, J. G. (1993). Addressing the human dimensions of wolf reintroduction: Anexample using estimates of livestock depredation and costs of compensation. *Society and Natural Resources*, 6, 165-179.

Turner, J. F. (1991, January 5). Wolves and Wyoming high country. *Casper Star-Tribune*, Casper, WY.

U.S. Fish and Wildlife Service. (1978). Recovery plan for the eastern timber wolf. U.S. Fish and Wildlife Service, North Central Regional Office, Twin Cities, MN. U.S. Government Printing Office:1978-768-723.

U.S. Fish and Wildlife Service. (1987). *Northern Rocky Mountain wolf recovery plan*. Denver, Colo: U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. (1991). Annual report of the Montana Interagency Wolf Working Group. U.S. Fish and Wildlife Service, Helena, Mont. U.S. Government Printing Office: 1991—574-956/74956.

U.S. Fish and Wildlife Service. (1994). The reintroduction of gray wolves to Yellowstone National Park and Central Idaho, Final Environmental Impact Statement. Helena, Mont.: U.S. Fish and Wildlife Service.

Van Ballenberghe, V. (1992). Conservation and management of gray wolves in the USA: Status, trends, and future directions. In D. M. McCullough, & R. Barrett (Eds.), *Wildlife 2001: Populations* (pp. 1141-1149). New York: Elsevier Applied Science.

Walters, C. J., M. Stocker, & G. C. Haber (1981). Simulation and optimization models for a wolf-ungulate system. In C. W. Fowler & T. D. Smith (Eds.), *Dynamics of large mammal populations* (pp. 317-337). New York: John Wiley and Sons.

Warrick, D. M. (1992). Wildlife scientist interview: Dr. Gordon Haber. *Wolves and Related Canids*, 5(1), 16-21.

Wayne, R. K., N. Lehman, D. Girman, P. J. P. Gogan, D. A. Gilbert, K. Hansen, R. O. Peterson, U. S. Seal, A. Eisenhawer, L. D. Mech, & R. J. Krumenaker (1991). Conservation genetics of the endangered Isle Royale gray wolf. *Conserv. Biol.*, 5, 41-51.

Weaver, J. (1978). The wolves of Yellowstone. U.S. National Park Service Natural Resources Rep. 14.

Wilderness Society. (1987). *Management directions for the national forests of the Greater Yellowstone Ecosystem*. Washington, DC: The Wilderness Society.

Wildlife Division. (1985). *Antlered elk and deer management in Montana: Past trends and current status*. Montana Dept. Fish, Wildlife, and Parks, Helena, Mont. Special report for the Fish and Game Commission.

Williams, T. (1990). Waiting for wolves to howl in Yellowstone. *Audubon*, 92(6), 32-41.

Williams, T. (1993). Alaska's war on wolves. *Audubon*, 95(3), 44-50.

Wilson, E. O. (1992). *The Diversity of Life*. W.W. Norton & Co. Ltd.

Wise, J. J. (1987, December 11). Wolves. *Logan Herald Journal*, Logan, Utah, pp. 11-12.

Woodruff, D. S. (1989). The problems of conserving genes and species. In D. Western & M. Pearl (Eds.), *Conservation for the twenty-first century* (pp. 76-88). New York: Oxford University Press.

Woodsum, K. (1984). Crisis in wolf country--Minnesota wants to revive sport trapping of wolves, posing a threat to the last major wolf population south of Canada. *Defenders*, 59(1), 20-27.

Wright, R. G. (1992). *Wildlife research and management in the national parks*. Urbana, Ill: University of Illinois Press.

Charles E. Kay has a Ph.D. in wildlife ecology and is adjunct professor of political science at Utah State University and a Research Fellow for the Independent Institute.

List of all Policy Reports

Book Reviews

Rebuilding the Ark: New Perspectives on Endangered Species Act Reform

Jonathan H. Adler, Editor

*Reviewed by James S. Burling**

In 2005, Congressman Richard Pombo engineered the passage of the most sweeping reform of the Endangered Species Act (ESA) since it was passed in 1973. HR 3824 would have required more workable habitat restoration and better peer review science for listings. Most intriguingly, it contained a compensation mechanism that would have rewarded landowners for maintaining endangered species habitats rather than the current practice of punishing landowners with a massive devaluation of their land values. While it passed the House with bipartisan support, it failed in the Republican-controlled Senate. To thank Representative Pombo for his efforts, the environmental community labeled Pombo an "eco-thug" and flooded his district with attack ads and volunteers in order to ensure his defeat at the 2006 election.

In many segments of the environmental community, the notion of touching the ESA is akin to skinning baby harp seals alive. So it is with some boldness that Jonathan Adler, a Professor of Law and Director of the Center for Business Law and Regulation at Case Western Reserve University School of Law, has pulled together a collection of essays centered around proposals to reform the ESA.

Why reform the ESA? After all, it has been around for decades, and several industries, most notably in the Pacific Northwest and California's central valley, have complained that it has been used as a tool to their destruction. The Act also supports a cottage industry of environmental lawyers—both those in favor of returning the earth to Gaia by any means necessary and those who have a more anthropocentric world view. But aside from these dubious accomplishments, has it actually saved any species? Is it doing more harm than good for plants and animals it is supposed to protect? Do we actually have a clue what the real state of most threatened and endangered species is? Is whatever good it is doing worth the "at any cost" mandate of the Act.[1] Is there a better way?

The essays in this volume attempt to answer these questions, especially the last one. Sadly, we really do not know the answers to most of these questions. Whether the ESA has saved any species may depend on what we mean by "saved." Has the ESA allowed the "recovery" of a meaningful number, or at least a nonzero number, of species? Or has it prevented the slide of species into the abyss of extinction? By the recovery standard, most acknowledge that the ESA hasn't done much. But the ESA's defenders posit that it has met the "slide into the abyss" standard—though this is more through supposition than any hard evidence. After all, we don't have a spare Earth handy to test the efficacy of the ESA against the parallel universe Earth that lacks an ESA.

On whether the ESA does any *harm* to endangered and threatened species, there have always been whispered, but for obvious reasons, largely unverified tales of landowners who deal with their endangered species "problem" with the "shoot, shovel, and shut-up" trifecta. But there are more plausible, and documented, stories of landowners "preplanning" for the arrival of endangered species by rendering land unfit for nonhuman habitation. Owners of Southern pine plantations are thought to be harvesting trees early and before the trees are mature enough to develop cavities that red-cockaded woodpeckers are wont to interpret to be an "open house" invitation.

As to whether we even know enough about the state of most species, the answer is clearly not because the science is incomplete and access to much of America's land is restricted. Various levels of government own over one-half of the nation's land mass, where access by government biologists is reasonably easy. But, for now, that leaves one-half of the nation's land mass—and habitat—in private hands. And those private hands are not very keen on inviting NGO and government biologists onto their property to look for species that are or might become endangered—after all, a positive finding could ultimately sterilize the use and value of the land. More importantly, if we are to be serious about protecting species, then protecting them on private land is essential. But landowners are reluctant to cooperate so long as that means drastic and uncompensated reductions in the use and value of their land.

So, what to do? The nine essays in this compilation each focus on a different problem and a potential solution. While in agreement that the current regime is lacking in its efficacy, the range of solutions is diverse. Ranging from tax relief to free market reforms and to more workable regulatory programs, the common theme of most of the essays is that there must be a better way than regulatory fear and loathing to encourage landowners to preserve and even improve habitats for endangered species.

Northwestern Professor David Dana suggests we improve the process of creating Habitat Conservation Plans (HCPs). HCPs began as a reform from the Clinton Administration that sought landowner cooperation in preserving ecosystems for multiple species in exchange for regulatory certainty. It was then, and remains today, a creative interpretation of the ESA, and any major changes will need statutory authorization. Large-scale HCPs have often been beset with political controversy as multiple landowners have sought to protect their interests, sometimes at the expense of other landowners. Dana's primary criticism of the current HCP process is that the process is less than transparent and there is no standard or reliable measurement of success or even compliance. Congress should, Dana contends, at a minimum mandate a complete database on existing HCPs, mandate the collection of meaningful information, and mandate compliance reporting. Next there should be mandatory review by a scientific advisory board. He proposes that in order to encourage landowners to agree to meaningful biological goals, we should institute an insurance program to protect against a "conservation-failure." Finally,

* *James S. Burling is the Director of Litigation for Pacific Legal Foundation based in Sacramento, California. For more, see www.pacificlegal.org.*

where a smaller scale program is needed, Dana suggests conservation banking could be a more viable alternative. What Dana does not address, is whether the HCP process, existing or as imagined, will provide enough incentives for landowners to voluntarily and readily enter into the process. It is one thing to "encourage" landowners to join because of a fear that the heavy hand of government could become heavier; it is another to actually provide enough incentives so that landowners will actually desire to join HCPs.

Texas A&M Professor of Wildlife Neal Wilkins picks up on the need to provide more landowner incentives. He points to the example of landowners in Texas who may wish to contribute to efforts to preserve the lesser prairie chicken, but may have reservations because of an ongoing boom in wind farms. Reforms could include more in the way of "recovery crediting" wherein landowners who make positive contributions to a species' recovery can be rewarded by landowners who need to affect other habitat. Land use lawyers are quite familiar with the concept of transferable development credits—including the fact that many of them are little more than glorified shell games where some landowners are required to compensate others for takings that might otherwise be assessed to government. If recovery crediting is to be a meaningful reform, it will need to avoid the skepticism engendered by TDR programs.

Wilkins has some additional innovative suggestions. In order to foster more landowners' cooperation with information gathering, he suggests that enforcement functions of government be separated from the science, monitoring, and recovery duties. He also suggests that NGO third parties be authorized to work with private landowners. While not all landowners trust the NGOs, they may well trust some NGOs more than government agents. Other reforms Wilkins proposes are more in the way of market-based conservation programs and more defined recovery goals when species are listed.

In the wake of the Tellico Dam controversy, the ESA was amended to allow for a so-called cabinet level "God Squad" to grant exemptions and "incidental-take permits" to allow for some activities to proceed, even if they might impact an endangered species. Pennsylvania State law professor Jamison Colburn characterizes these amendments, designed to add some flexibility in the ESA, as "notorious," as is pretty much anything that requires meaningful consideration of costs. Colburn suggests instead some alteration in our understandings of the line between permits and property. However, it is uncertain that Colburn's ideas will readily translate into policy prescriptions (assuming that were a desirable outcome) in an essay replete with sentences like, "Yet, even supposing unprecedented computational or coordinative breakthroughs were to make globally scaled cognition practicable, we will still face the normative frictions generated when political power is limited by a polity's democratic traditions and geographic boundaries."[2] Not only is the rhetoric obtuse, but the suggestion leaking through these words—that to save species we must transcend democracy and national sovereignty—is not likely to gain traction in the near term.

Another commonly used mechanism for enlisting landowners' cooperation in species protection is through tax-deductible donations of conservation easements. But there well may be an inefficient allocation of resources with this practice. To a rancher, losing the ability to use 100 acres through a conservation easement may have the same economic consequences whether the habitat is extraordinarily valuable to a critter or simply of marginal biological utility. And because the economic consequences are the same, the government's tax expenditure in allowing the deduction will be the same. In other words, the rancher writes off the same amount in each case. While a receiving entity will be happy to take both marginal and valuable habitat, should government pay the same amount for both?

Emory University School of Law Professor Jonathan Remy Nash has a better idea: "[T]he value of the donation of a conservation easement [should be] based not upon the economic value of the donated easement but rather upon the value of the easement to the ecosystem."[3] This would skew the incentives such that landowners may have added incentive to improve habitat in order to increase its value *to the landowner*. Shoot, shovel, and shut-up could be replaced by restore, improve, and donate. While Nash admits that the valuation of land from economic utility to ecosystem utility may be difficult, it should not prove to be impossible. As with any new proposal, Nash also admits that it may be difficult to craft a program that isn't too costly or that doesn't have unintended consequences.

Unasked and unanswered by Nash is the related vexing and somewhat philosophical question of how much land should ultimately be encumbered. We are entering a brave new world where the utility of vast holdings of land are being stripped from the fee in perpetuity (for to be tax-deductible, easements must be perpetual). While Nash's proposal makes great sense in terms of better targeting government tax expenditures, and it beats the notion that oppressive land use regulation is the best way to achieve ecosystem preservation, it leaves unanswered what the final destination of this journey ought to be. How much land can the nation afford to remove forever from productive use? Further, the common law has always been resistant to attempts of one generation to control the resources of future generations. Will this attempt fare any better?

Today in the Central Valley of California there is a new water war. In the Klamath Basin there has been a water war for over a decade. Unlike previous water wars between ranchers and farmers, or between rural and urban interests, this one is between fish and people. Or, perhaps more accurately, there is war between people who value fish for ecological and commercial purposes and people who value water more for urban and agricultural purposes. Unlike prior water wars fought with guns or *Chinatown* intrigue, this one is being fought with biological opinions and lawsuits. Professor James Huffman at Lewis and Clark Law School understands well the difficulties of creating positive ecosystem incentives among water users who, at present, are feeling rather put upon. And the challenges of water rights, creatures of state law (some would say archaic state laws) but respected by federal law and, more importantly, protected by the federal constitution, is fiendishly complex.

There are several water-rights based challenges to the implementation of the ESA being litigated now in the courts. Huffman argues that the Takings Clause is the most substantial challenge, but that "a strong takings clause does not necessarily

obstruct achievement of the species protection objectives of the ESA."[4] This is not because, Huffman argues, property rights in water are or ought to be malleable (meaning capable as some argue of being defined out of existence). Instead, Huffman suggests, there needs to be *better* understanding of water rights, an understanding that allows greater marketability—such as with water transfers and a greater ability to allocate water to conservation purposes without risking the loss of rights under the regime of "use it or lose it" that is common in many Western states. Huffman concludes that the magnitude of the water wars can be reduced—at least from "all-out warfare to isolated skirmishes—if both sides take a more practical and less principled approach."[5] So long as there is weather—and too much rain falls in one place and not enough in another—people will fight over water. Huffman is optimistic that out of today's controversy we will reach an accommodation that will serve both fish and man; let us hope he is right.

Science and politics are like the East and West. Rudyard Kipling once wrote of the East and West that "never the twain shall meet." But like the East and West in modern times, science and politics are inextricably entwined. The biological sciences are used to justify what are essentially political land use questions. And politics are used to determine whether science is "junk" or gold-plated and peer-reviewed. But because the stakes are so high, both landowners and species advocates have tremendous incentive to ensure that science falls their way. Science also has its limitations. We can only know so much given our current state of knowledge and availability of resources to put into science. In his short piece on science and the ESA, economic consultant Brian Mannix puts a face on the extraordinary burden being placed on science to answer essentially unanswerable questions. For example, EPA has an obligation to consider the impacts of pesticide registrations on endangered species that could "provide *millions* of potential obligations to consult with the [federal regulatory] Services—each, based on experience, taking as much as ten years."[6] Mannix has a few suggestions to get us out of this mess, first and foremost of which is to distinguish between science and policy. In other words, make the ESA more like the National Environmental Policy Act, which demands an analysis of the impacts of a federal action—but does not mandate what should be done with that information. Thus the result of an environmental impact statement is to give federal agencies an option to change course, not to determine the course. The same would be the case in Mannix's new ESA. While eminently sensible and practical, Mannix's proposal to change the basic structure of the ESA may be about forty years too late. No one in Congress wants to be the next Richard Pombo.

It has become an article of faith with many that planet Earth is entering an unprecedented epoch of warming and we must act, and act quickly, to reverse anthropogenic global warming. How this can be achieved without putting an end to Western civilization (and Eastern civilization as well) is anybody's guess. But one way that will not work according to Florida State School of Law Professor J.B. Ruhl is a full-court press played by team ESA. Ruhl has no doubt that the crisis is real, but plenty of doubt that the ESA provides a workable solution. As he puts it, over the years the ESA has proven to be the pit bull of environmental statutes. But when it comes to global warming, he says this pit bull won't fly. Yes, Ruhl says, global warming will have a profound and largely devastating effect on species around the world. But the legal tools of the ESA were simply never designed to shut down emissions of carbon dioxide.

Some of the inherent flaws in using the ESA to combat global warming are being fought tooth and claw with the polar bear listing. The Fish and Wildlife Service listed the bear as threatened because of the potential impact warming will have on sea ice, which the bear uses for summer foraging. Logically, any federal action in any part of the United States that causes an emission of a greenhouse gas could now be made subject to the "consultation" requirement of the ESA with the whole panoply of action-stopping consequences. But that, to the chagrin of the ESA lawyers, was a bridge too far for the Bush II Administration, and it issued a ruling that the listing could *not* be used to trigger consultations in any state but Alaska. But to prove Ruhl's point about the limitations of the ESA, this was not simply a product of the so-called anti-environment Bush Administration. When given a chance to reverse, President Obama did no such thing.

As Ruhl puts it, the stop-carbon "mitigation litigation charge is leading the ESA away from its central mission of conserving ecosystems."[7] Its mission is suited well enough for "what is happening on the ground and in the water . . . rather than being concerned with what is happening in the troposphere."[8] The ESA could be modified, Ruhl suggests, to play a more meaningful and realistic role in combating the effects of climate change. These would include a specific category of listing for climate-threatened species and replacing the goal of species recovery with one of assisting the transition to a warmer climate—recognizing that some species may do better at the expense of others during the transition. But unlike the ESA of the past, which Ruhl calls "both noble and arrogant," he suggests instead that "the ESA must become noble and humble if it is to have any chance of helping species through the era of climate change."

Michael De Alessi, currently a post-doc scholar at Stanford who has long experience in environmental policy battles, concludes this book with a look at the interrelationship between the ESA and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Evolved from a conservation effort at the turn of the last century designed to protect megafauna from decimation through unrestricted poaching and trade, CITES restricts or prohibits trade in species from around the globe. But it is not an all-or-nothing proposition. As De Alessi notes, there have been some great successes where CITES has allowed the commercial utilization of species on the brink such as the Nile crocodile and African elephants. Commercial ranching of these species has brought their numbers back from the brink. Of course, this is not a panacea. The replacement of natural ecosystems with ranches is not the end goal, but can serve as a placeholder while ecosystems are restored.

But the ESA has the ability to list any species anywhere in the world. And the federal agencies sometimes do. But is this useful to the species? De Alessi thinks not. While a

listing may stop trade into the United States, and it may, in theory, discourage agencies from funding habitat-harming infrastructure projects, a listing under the ESA has no legal effect outside our borders. But it can hurt species. De Alessi notes that there once used to be 100,000 green sea turtles being ranched on the Cayman Islands for export to Europe. But after they were listed, it became illegal to transship them through the United States, once a necessary step to reach Europe. The farm is no more, having been replaced by a small, government-run eco-tourist operation with far fewer turtles.

There are other examples. As De Alessi points out, once a species is listed export licenses will be denied unless it can be proven that a commercial operation will *enhance* a species. This standard has stopped captive breeders of three African antelope species which are endangered in their native ranges. The ESA does nothing to protect foreign species or habitat, De Alessi contends. Without providing native villages a legal economic incentive to coexist with endangered fauna, especially valuable fauna like black rhinos, villagers might as well poach them. After all, it is hard to instill an environmental ethic in people who are many miles south of the poverty line.

Professor Adler has done a marvelous job collecting the essays in this book. Some are provocative, some are practical, and all are necessary to the debate about where we should go next with the protection of threatened and endangered species. The status quo has been played out. If the protection of species is to advance, the rules of the game need to be changed. And we'd better start recognizing that so long as a substantial percentage of habitat is on private land, landowners need to be encouraged rather than bludgeoned into working for the betterment of species.

Endnotes

1 Tennessee Valley Authority v. Hill, 437 U.S. 153 (1978).

2 Pg. 100.

3 Pg. 123-24.

4 Pg. 143.

5 Pg. 159.

6 Pg. 168-69.

7 Pg. 191.

8 *Id.*

From: Fleener, Craig L (DFG)
To: Paul Verhagen
Subject: RE: HJR 32
Date: Tuesday, February 21, 2012 12:21:20 PM

Paul,

Yes, we are supportive of this resolution.
One modification to recommend, I missed it last time.
On page 3 Line 14 (change the word "remove" to exempt).
This would be permanent.

Craig L. Fleener
Deputy Commissioner - Game
Alaska Department of Fish and Game
333 Raspberry Road
Anchorage, Alaska 99518
907-267-2228 (W)
907-687-6406 (C)

From: Paul Verhagen [mailto:Paul_Verhagen@legis.state.ak.us]
Sent: Friday, February 17, 2012 8:16 AM
To: Fleener, Craig L (DFG)
Subject: RE: HJR 32

Hi Craig,

Here it is. Thanks for your help!

Paul

From: Fleener, Craig L (DFG) [mailto:craig.fleener@alaska.gov]
Sent: Thursday, February 16, 2012 12:02 PM
To: Paul Verhagen
Subject: HJR 32

Paul,

Would you please e-mail me the cleaned up copy of HJR32 that Rep. Dick intend to send up?
I need to brief our staff on the Resolution so I can get you an answer.

Thanks,

Craig L. Fleener
Deputy Commissioner - Game
Alaska Department of Fish and Game
333 Raspberry Road
Anchorage, Alaska 99518
907-267-2228 (W)
907-687-6406 (C)

WOOD BISON NEWS

Drawing courtesy of Wes Olson

Issue Number 6, Summer 2011

ESA Regulation Issue Delays Wood Bison Release

By Bob Stephenson, Wood Bison Biologist

In the fall 2010 issue of the *Wood Bison News* we announced that spring 2012 would be the target date to release wood bison in the Innoko area. Now, due to a delay in completing regulations under the Endangered Species Act (ESA) the release of wood bison to the wild will be delayed until 2013 or beyond. The final federal regulations have to be in place before wood bison can be released.

Photo by Doug Lindstrand

As many supporters of the wood bison project know, ADF&G has worked closely with the U.S. Fish and Wildlife Service (FWS) during the last two years to develop a rule under section 10(j) of the ESA. The 10(j) rule would designate wood bison in Alaska as a nonessential experimental population, provide protections for other land uses and resource development and allow the state to have the lead role in managing wood bison populations. It would also prevent the designation of critical habitat. This would be accompanied by a special rule, under section 4(d) of the ESA, which would specify the sideboards of state management and allowable "take" of wood bison. In fall 2010 it appeared that the draft regulations would be published in the Federal Register, accomplishing their central purpose of ensuring that releasing a new species onto the landscape would not interfere with other resource development activities. However, these plans hit a snag due to factors not directly related to wood bison, as we explain below.

One of the key provisions in the draft 4(d) rule was to recognize that once bison populations reached a level that could support a sustainable harvest (about 400 animals), regulated hunting would be allowed based on principles outlined in management plans developed by the state in cooperation with land-

(Continued on page 2)

Inside This Issue:

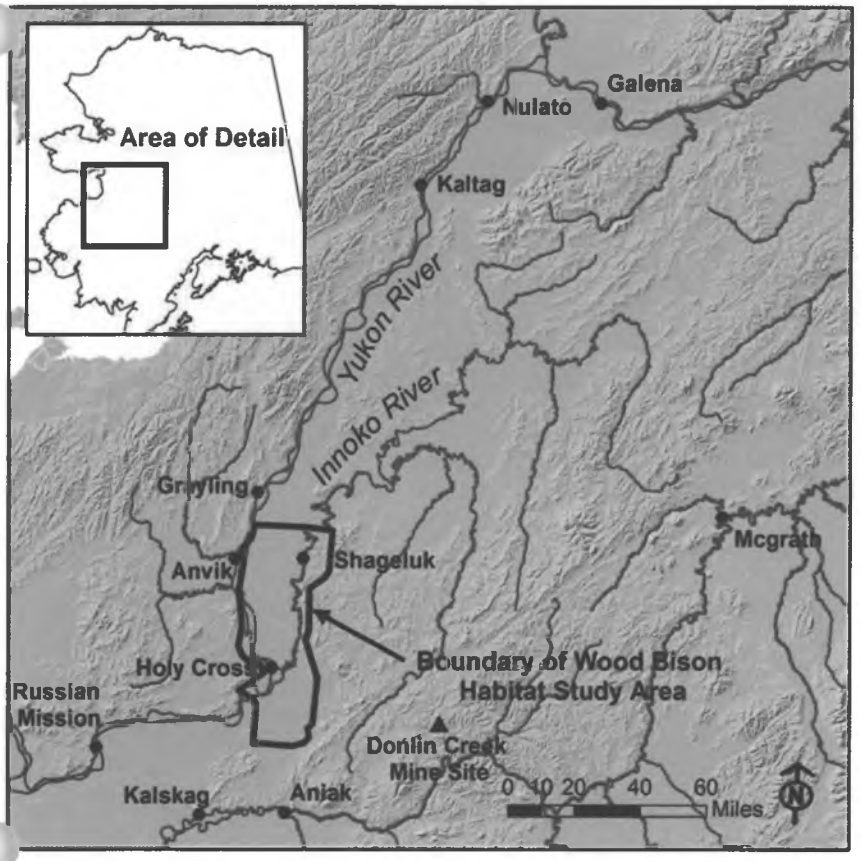
(Continued from page 1)

owners, FWS and other agencies, and other interested parties. ADF&G has always been committed to the principle that the benefits of wood bison restoration, including harvest, must be shared by local residents, other Alaskans and eventually visitors to our state.

However, recent litigation has raised a question about whether the FWS can allow hunting of species that are protected under the ESA. As a result, FWS recently indicated that at this time they are not prepared to authorize future harvests of populations of listed species (except for certain kinds of "take" otherwise authorized under the ESA) that have been designated as non-essential experimental. In March 2011, FWS informed ADF&G that they could either publish a proposed rule by the end of April 2011 without a provision allowing future hunting, or wait for several months until the issue could be further discussed and hopefully resolved. ADF&G decided that the ESA regulations must provide certainty in terms of allowing a future harvest and that the issue is too important to be deferred to a future federal regulatory process. The result is that the ESA regulations have been delayed. The first release cannot be implemented in 2012 as planned, and will have to be delayed until 2013. ADF&G will do its best to resolve this issue as soon as possible, so that the wood bison restoration effort can move ahead.

> *"It is our continued hope that we will be able to resolve this issue and release wood bison onto the Alaskan landscape in the near future."*
>
> *Acting Deputy Commissioner, Doug Vincent-Lang*

FWS has indicated that they are willing to continue to explore options to resolve the issues related to the future hunting of wood bison, but it appears this will take some time. FWS has also committed to provide $200,000 to help offset the additional costs of maintaining a larger number of wood bison for longer than we had planned at the Alaska Wildlife Conservation Center. Project supporters appreciate this contribution, and hope the harvest issue is resolved as soon as possible.



Map showing first proposed release site. Release has been delayed until at least 2013.

Herd Health Update

By Rita St. Louis, Assistant Planner

Our herd at AWCC is a healthy growing herd with 102 bison. This spring 18 calves were born. As with any confined herd of animals, ours has some nutrition and parasite challenges, some of which are unique to bison. We grew concerned when five animals died between January and April. Reasons for the deaths were not completely known, but nutrition, parasites, and certain trace mineral deficiencies seemed to be a common denominator. So in April 2011 we retained an expert consultant, Dr. Gerald Parsons - who is a large animal veterinarian and has a herd of plains bison himself - to advise us. Dr. Parsons said our problems were not uncommon in confined bison herds, and he offered suggestions to remedy the situation. Following his advice, our veterinarians, Dr. Kimberlee Beckmen and Dr. Bob Gerlach, and AWCC's Mike Miller have readjusted the parasite medications and feed that our bison get. For example, some of the medication is sprinkled over the top of grain in the form of pellets. The larger bison get first shot at the grain, so they get the most medication but need it the least. Getting a uniform dosage for all of the bison is not a simple matter. To help solve this, Dr. Parsons recommended using more grain feeders, including some that are on wheels and can be moved to different enclosures. Another recommendation was to change medications periodically so the organisms do not develop an immunity to one medication. Also following his advice, more supplemental grain will be fed. Acquiring the extra grain has taken time. Special thanks goes to Steve Mendive, from AWCC, who has spent many hours researching special bison formula and possible donations from some vendors for the grain supplement.

Keeping a bison herd of this size in captivity requires a continuous learning process, and we constantly discover better ways of doing things. Overall our herd is doing well, and we are looking forward to their release.

Photo by Doug Lindstrand

Bison eating first green grass of spring. After a winter of being confined into smaller pastures, and eating hay and grain, the bison regain weight in the spring and summer on the rich grasses grown at AWCC.

Photo by Doug Lindstrand

Mother bison tending her new calf, born this spring at AWCC

Thank You and Best Wishes from Randy Rogers

To my many friends dedicated to wood bison conservation:

This summer I will be retiring from my work as a Wildlife Planner for ADF&G. I feel very fortunate to have had the opportunity to work on the Alaska wood bison restoration project and with the many individuals and organizations that are involved in this outstanding wildlife conservation initiative. I hope to be able to contribute to the project in other ways and look forward to the day when wood bison are again roaming free in our state.

Randy Rogers holding the skull of a large wood bison

There are too many people and organizations that deserve recognition for their contributions to the wood bison project to all be mentioned here. I have to start by thanking Bob Stephenson who had the original vision for wood bison restoration in Alaska and has been my mentor and partner for the past several years. It took a while for Bob to "train me up," but we have worked closely together to meet one challenge after another to keep the project moving forward. It has truly been a pleasure working with Mike Miller and the Alaska Wildlife Conservation Center. They have worked tirelessly on behalf of wood bison conservation and always bring a 100% "can-do" attitude to any measure needed for the health and well-being of the wood bison. Carlile Transportation Systems has been simply incredible with their continued donations amounting to tens of thousands of dollars by transporting hay to AWCC. And speaking of hay, University of Alaska has donated many bales of hay for the bison at production cost. Norman Harris stated, "*Thank you for allowing the University of Alaska Fairbanks to participate in this project that will benefit all Alaskans specifically, and all people in the United States generally.*" Safari Club International and their Alaska and Kenai Peninsula chapters paid for many of the wood bison facilities at AWCC, and they have offered legal advice and political support. The Turner Foundation provided funding that enabled ADF&G to import wood bison from Canada and move the project from a dream to a reality. Finally, ADF&G Regional Supervisor David James is the unsung hero who has worked behind the scenes to provide the management support and coordination with our headquarters that has been vital to the project.

I have enjoyed working with residents of the Yukon Flats, the Minto Flats, and the lower Yukon and Innoko River area, as well as numerous people involved in state fish and game advisory committees and the federal subsistence councils. Paul Williams, Sr. from Beaver has been an inspiration and a long-standing advocate for restoring wood bison on the Yukon Flats. Ron Silas led the effort to consider restoring wood bison on Minto Flats. Arnold Hamilton and the Tanana Chiefs Conference Lower Yukon Sub-Region have shown unwav-

ering support for wood bison restoration in the lower Yukon/Innoko area for the past several years, and I hope they see wood bison on the landscape in the near future. The support and involvement of local residents, wildlife conservation organizations and other Alaska residents are crucial to the future success of the wood bison project.

In the end though, it's all about the bison. Wood bison are truly magnificent creatures that belong on the Alaskan landscape and deserve the chance to flourish in their natural habitat once again.

In the end though, it's all about the bison. Wood bison are truly magnificent creatures that belong on the Alaskan landscape and deserve the chance to flourish in their natural habitat once again. After the wood bison herds are established and have grown people will be able to enjoy their presence and reap the benefits for many generations to come.

In January 2008, at the end of the wood bison round-up at Elk Island National Park, I was standing in a corral with Archie Handel, Park Warden, and the young wood bison selected for import to Alaska. I made a promise to those bison that we would find them a new home in the wild lands of Alaska, where they could live and prosper. Let's all continue working to fulfill that promise and the vision for wood bison restoration that so many Alaskans and others have shared for nearly two decades.

Thank you my friends and best regards, Randy

Legislative Action Affecting the Wood Bison Project

By Ben Mulligan, Special Assistant to the Commissioner

As part of the process for establishing the 2012 fiscal year operating budget, the House and Senate Finance Committees included language intended to affect the wood bison project in two ways. To import any more wood bison or to relocate the existing herd to another part of the state, the Department would first have to obtain a signed letter from the appropriate federal agencies stating that wood bison will not be considered threatened, endangered, or any other protective status in Alaska, now, or at any time in the future. Furthermore the Department would have to obtain approval from the legislature to import or relocate wood bison in the state. This intent language applies only to the fiscal year from July 1, 2011 to June 30, 2012.

In addition to the language in the budget, Representative Alan Dick (R-Stony River) introduced House Bill 186. House Bill 186 is similar to part of the operating budget intent language and requires the Department to receive approval from the Alaska State Legislature before importing anymore wood bison into Alaska or relocating wood bison to a new area within Alaska. Following hearings in early April the House Resources Committee voted to advance HB 186 to the full House of Representatives for further consideration. However, time in the legislative session ran out and no action was taken by the full House. The bill could come up for further consideration in the House of Representatives next year. No companion legislation has been proposed in the Senate.

Tom Seaton, New Wood Bison Biologist On Board

This summer we have another wood bison biologist on board. Tom Seaton, who has been Assistant Area Biologist for the Fairbanks area, was selected for that position. Those of us who work with Tom and with wood bison feel really fortunate.

Tom Seaton, the new wood bison biologist. In this photo, Tom is conducting a moose browse survey.

Tom comes with a unique skill set to make him the ideal person for the job. Foremost, Tom is a top-notch biologist who has worked extensively with all game and furbearer species in Interior Alaska. He developed a moose browse survey method that is being used statewide to evaluate habitat use. Tom is the chief pilot for Region III, which is good, because it is important to have a pilot as the wood bison biologist. Tom said one of his early tasks is to become familiar with the scientific literature on bison biology and to learn the "institutional knowledge" from the folks at Fish and Game. Of course Bob Stephenson will be sharing his extensive knowledge to get Tom up to speed. Finally, Tom is not a stranger to wood bison. He was one of the two lead handlers at the most recent wood bison health screening events.

Doug Lindstrand, Photographer and Supporter

Most of the best photos you have seen in our *Wood Bison News* and other publications were taken by Doug Lindstrand, a freelance artist/ photographer who has lived in Alaska since 1970. Doug is well-known for his Alaska books such as *Alaska Sketchbook* and *Wild Alaska*. He also publishes prints, cards and various other books on art and wildlife. Doug has generously allowed us use of his photos of wood bison to enhance or bring attention to the wood bison restoration project. Doug can be seen photographing at AWCC about any time of year and in all weather conditions. He donates his photographs because of the true importance of this project. He said, *"We are seldom given the opportunity and honor of reintroducing a species back into its rightful homeland and that it is the shared hope of many that this majestic animal will soon once again roam free and grace the wilds of this unique State of Alaska."*

We greatly appreciate Doug, his beautiful photographs, his absolute generosity, and his support of the wood bison project.

Doug Lindstrand takes photos during the entire year in all weather conditions.

Alaska Department of Fish and Game
Division of Wildlife Conservation
1300 College Road
Fairbanks, AK 99701-1551

Photo by Doug Lindstrand

Photo by Doug Lindstrand

Wood Bison Contact information:

Bob Stephenson, Wood bison biologist bob.stephenson@alaska.gov 459-7236
Tom Seaton, Wood bison biologist Tom.seaton@alaska.gov 459-7235
Rita St. Louis, Assistant Planner rita.stlouis@alaska.gov 459-7345
or
Fax 459-7332 This information is on the web at
http://www.adfg.alaska.gov/index.cfm?adfg=woodbison.resources