Nos. 11-35661, 11-35670 [consolidated cases]

ORAL ARGUMENT SCHEDULED FOR NOVEMBER 8, 2011

IN THE UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

ALLIANCE FOR THE WILD ROCKIES, et al., *Plaintiffs-Appellants*,
v.
KEN SALAZAR, Secretary of the Interior, et al., *Defendants-Appellees*,
and
ROCKY MOUNTAIN ELK FOUNDATION, INC., et al.,
Intervenors-Appellees,
and
SAFARI CLUB INTERNATIONAL, et al., *Intervenors-Appellees*,
and
MONTANA FARM BUREAU, et al., *Intervenors-Appellees*.

CENTER FOR BIOLOGICAL DIVERSITY, et al., *Plaintiffs-Appellants*,
v.
KEN SALAZAR, Secretary of the Interior, et al., *Defendants-Appellees*,
and
ROCKY MOUNTAIN ELK FOUNDATION, INC., et al.,
Intervenors-Appellees,
and
SAFARI CLUB INTERNATIONAL, et al., *Intervenors-Appellees*,
and
MONTANA FARM BUREAU, et al., *Intervenors-Appellees*.

On Appeal from the U.S. District Court for the District of Montana

PLAINTIFFS – APPELLANTS' EMERGENCY MOTION UNDER CIRCUIT RULE 27-3(a) FOR INJUNCTION PENDING APPEAL

RELIEF REQUESTED WITHIN 21 DAYS: BEFORE NOVEMBER 7, 2011

James Jay Tutchton
Tutchton Law Office LLC
6439 E. Maplewood Ave.
Centennial, CO 80111
(720) 301-3843

Rebecca Kay Smith
Public Interest Defense Center P.C.
PO Box 7584
Missoula, MT 59807
(406) 531-8133

ATTORNEYS FOR PLAINTIFFS – APPELLANTS

CIRCUIT RULE 27-3 CERTIFICATE

Pursuant to Ninth Circuit Rule 27-3(a) Movants certify that to avoid irreparable harm, injunctive relief is needed in less than 21 days. Movants' appeal asserts that Endangered Species Act ("ESA"), 16 U.S.C. §§ 1531 *et seq.*, protection has been removed for all Gray Wolves in the Northern Rocky Mountain Gray Wolf Distinct Population Segment outside of Wyoming, an area which includes the States of Idaho and Montana, by virtue of an unconstitutional act of Congress, Section 1713 of H.R. 1473, the Department of Defense and Full Year Continuing Appropriations Act of 2011. P.L. 112-10 § 1713, 125 Stat. 38 (April 15, 2011) (hereinafter "Section 1713"). The State of Idaho commenced a wolf-hunting season throughout the State beginning on August 30, 2011. *See* Ex. 3 at 2. Idaho's wolf-hunting season will run until December 31, 2011, March 31, 2012, or June 30, 2012 depending on the specific hunting area concerned. *Id*. The State of Montana commenced a wolf hunting season beginning with an archery season on September 3, 2011, and a backcountry rifle season shortly thereafter, on September 15, 2011. *See* Ex. 4 at 1. Montana's general rifle hunting season for wolves will begin on October 22, 2011 and run until December 31, 2011. *Id*. But for Section 1713, these wolf-hunting seasons could not legally take place.

On August 13, 2011, Movants previously sought emergency relief enjoining these wolf-hunting seasons before they began. Dkt. 6-1. On August 25, 2011, the Court denied Movants' initial request for emergency relief without prejudice and stated it was subject to renewal in front of the panel that will hear the merits of this appeal. Dkt. 23. Oral argument on merits of this appeal is set for November 8, 2011. Dkt. 40-1. Accordingly, this Motion should be forwarded to the panel that is hearing the merits of this appeal rather than the motions panel.

Wolf hunting is now underway in both Idaho and Montana. Thus, Movants' interests are already being subjected to irreparable harm. Additionally, Movants assert that the number of wolves killed in these states is about to dramatically increase causing them further irreparable harm. Already approximately 216 wolves have been killed in Idaho and Montana in 2011 – largely as a result of the removal of ESA protection. As of October 13, 2011, recreational hunters had killed approximately 53 wolves in Idaho. Ex. 5, ¶ 4. Between January 1, 2011 and September 30, 2011 an additional 81 wolves were killed in Idaho by state and federal control actions, legal protection of pets and livestock, illegal killing, and unknown causes. *Id*. ¶ 5. As of October 14, 2011, recreational archery and backcountry hunters had killed 11 wolves in Montana. *Id*. ¶ 7.

Additionally, so far in 2011 an additional 71 wolves were killed in Montana by state and federal agents, legal and illegal kills, and vehicle and train collisions. *Id*. ¶ 8.

Movants contend that the number of wolves killed by recreational hunters in both Idaho and Montana is about to dramatically increase. General "big game" (Deer & Elk) rifle hunting season, including a general rifle season on wolves, opens in Montana on October 22, 2011. *Id*. ¶ 10. In Idaho the majority of big game hunting zones opened for rifle hunting on October 10th or 15th. *Id*. Accordingly, there will soon be many more hunters in the field using more effective equipment (rifles as opposed to archery equipment). *Id*. Additionally, as snowfall increases, it will soon become easier for hunters to track and find wolves. *Id*. Idaho has issued approximately 25,500 wolf-hunting permits. *Id*. ¶ 6. Montana has issued approximately 11,401 wolf-hunting permits. *Id*. ¶ 9. At the end of 2010, the U.S. Fish and Wildlife Service estimated that there were 705 wolves in Idaho and 566 wolves in Montana. Ex. 6 at 7. As detailed in the Garrity Declaration, Ex. 5, ¶¶ 4, 5, 7 & 8, thus far in 2011 at least 216 wolves have been killed in Idaho and Montana. In sum, nearly 37,000 humans are, or soon will be, attempting to kill slightly more than 1,000 remaining wolves in Idaho and Montana – using more effective equipment and operating in more

favorable hunting conditions than have existed thus far in the wolf-hunting season.

Accordingly, Movants' interests in protecting both individual Gray Wolves in Idaho and Montana and the Gray Wolf population in the Northern Rocky Mountain Gray Wolf Distinct Population Segment outside of Wyoming are suffering, and are about to suffer further, irreparable injury. *See* Ex. 5, ¶¶ 11-12.

In keeping with Circuit Rule 27-3(a)(1) Movants notified counsel for all parties, as detailed below, of their intent to file the present motion via e-mail on October 13, 2011. Counsel for the Defendants – Appellees, Ken Salazar, Dan Ashe, and U.S. Fish and Wildlife Service; counsel for Defendants-Intervenors – Appellees, Montana Farm Bureau Federation, Idaho Farm Bureau Federation, and Mountain States Legal Foundation; counsel for Defendants-Intervenors – Appellees, Rocky Mountain Elk Foundation, Inc., Arizona Sportsmen for Wildlife, Big Game Forever, LLC, Idaho Sportsmen for Fish & Wildlife, Montana Sportsmen for Fish & Wildlife, The Mule Deer Foundation, Sportsmen for Fish & Wildlife, and The Wild Sheep Foundation; and counsel for Defendants-Intervenors – Appellees, Safari Club International and National Rifle Association of America all indicated that they oppose the present motion for emergency

relief. Counsel for Plaintiffs – Appellants Center for Biological Diversity and Cascadia Wildlands indicated they take no position on the present motion for emergency relief. Counsel for Plaintiff – Appellant Western Watersheds Project indicated they do not object to the present motion for emergency relief.

Additionally, on October 14, 2011 Movants' counsel notified the Clerk of the Court by calling the Motions Unit and discussing this Motion with an attorney on duty. As required by Circuit Rule 27-3(a)(2) this Motion is filed electronically through the CM/ECF system.

In keeping with Circuit Rule 27-3(a)(3)(i) the telephone numbers, e-mail addresses, and office addresses of the attorneys for the parties are as follows:

Counsel for Plaintiffs – Appellants
Alliance for the Wild Rockies, Friends of the Clearwater, and
WildEarth Guardians

James Jay Tutchton
Tutchton Law Office, LLC
6439 E. Maplewood Ave.
Centennial, CO 80111
(720) 301-3843
jtutchtontlo@gmail.com

Rebecca Kay Smith
Public Interest Defense Center, P.C.
PO Box 7584
Missoula, MT 59807
(406) 531-8133

publicdefense@gmail.com

Counsel for Defendants – Appellees
Ken Salazar, Dan Ashe, and U.S. Fish and Wildlife Service

David C. Shilton
David Gunter
Appellate Section, Environmental and Natural Resources Division,
U.S. Department of Justice
PO Box 23795
Washington, DC 20036
(202) 514-5580
david.shilton@usdoj.gov
david.gunter@usdoj.gov

Counsel for Defendants-Intervenors – Appellees
Montana Farm Bureau Federation, Idaho Farm Bureau Federation, and Mountain States Legal Foundation

Steven J. Lechner
J. Scott Detamore
Mountain States Legal Foundation
2596 South Lewis Way
Lakewood, CO 80227
(303) 292-2021
lechner@mountainstateslegal.com
detamore@mountainstateslegal.com

Counsel for Defendants-Intervenors – Appellees
Rocky Mountain Elk Foundation, Inc., Arizona Sportsmen for Wildlife, Big Game Forever, LLC, Idaho Sportsmen for Fish & Wildlife, Montana Sportsmen for Fish & Wildlife, The Mule Deer Foundation, Sportsmen for Fish & Wildlife, and The Wild Sheep Foundation

Ted B. Lyon
Ted B. Lyon & Associates
Town East Tower, Suite 525
18601 Lyndon B. Johnson FWY
Mesquite, TX 75150
(972) 279-6754

tblyon@tedlyon.com

Counsel for Defendants-Intervenors – Appellees
Safari Club International and National Rifle Association of America

Anna M. Seidman
Douglas S. Burdin
Safari Club International
501 2nd Street NE
Washington, DC 20002
(202) 543-8733
aseidman@safariclub.org
dburdin@safariclub.org

Christopher Conte
11250 Waples Mill Road
Fairfax, Virginia 22030
(703) 267-1166
cconte@nrahq.org

Counsel for Plaintiffs – Appellants
Center for Biological Diversity and Cascadia Wildlands

Amy R. Atwood
Center for Biological Diversity
P.O. Box 11374
Portland, OR 97211
(503) 283-5474
atwood@biologicaldiversity.org

Collette Adkins Giese
Center for Biological Diversity
P.O. Box 339
Circle Pines, MN 55014-0339
(651) 955-3821
cadkinsgiese@biologicaldiversity.org

Counsel for Plaintiff – Appellant
Western Watersheds Project

Thomas J. Woodbury
Forest Defense
P.O. Box 7681
Missoula, MT 59807
(406) 728-5631
tom@westernwatersheds.org

Summer Nelson
Western Watersheds Project
P.O. Box 7681
Missoula, MT 59807
(406) 830-3099
summer@westernwatersheds.org

The requirements of Circuit Rule 27-3(a)(3)(ii) & (iii) have been discussed above.

Pursuant to Circuit Rule 27-3(a)(4) Movants state that preliminary injunctive relief was available in the District Court. However, before Movants sought preliminary injunctive relief below, the District Court set the case for expedited summary judgment briefing on a timeline essentially consistent with that that which would have governed a motion for preliminary injunctive relief. Movants lost on the merits at summary judgment. *See* Exhibits 1 (District Court Order) & 2 (Judgment). Because the District Court determined it had to rule against Movants on the merits, Movants can no longer show a likelihood of success on the merits or raise serious legal questions going to the merits in the District Court. *See* Exhibit 1 at 6 ("If I were not constrained by what I believe is binding precedent from

the Ninth Circuit, and on-point precedent from other circuits, I would hold Section 1713 is unconstitutional because it violates the Separation of Powers doctrine articulated by the Supreme Court in U.S. v. Klein, 80 U.S. 128 (1871).").

Accordingly, injunctive relief is no longer realistically available in the District Court because it is "impracticable" or futile within the meaning of F.R.A.P. 8(a)(2)(A)(i). Several courts have found it impracticable to seek an injunction in the district court before making such a request from the court of appeals on analogous facts. *See e.g. Walker v. Lockhart*, 678 F.2d 68, 70 (8th Cir. 1982)(proper to seek an injunction pending appeal from the court of appeals without first applying to the district court because the decision on the merits by the district court suggested that it would not grant relief). *See also McClendon v. City of Albuquerque*, 79 F.3d 1014, 1020 (10th Cir. 1996)(Paul Kelly Jr. J. in chambers), *stay vacated due to mootness of case*, 100 F.3d 863 (10th Cir. 1996); *Wright & Miller, et al.*, 16A Fed. Prac. & Proc. Juris. § 3954 (4th Ed.) n.39 (collecting cases).

Moreover, in the present case, further evidence that moving the District Court for an injunction before proceeding in the Court of Appeals was impracticable and futile is supplied by the District Court's denial of an analogous request for a preliminary injunction of the wolf hunts in Montana

and Idaho in a predecessor case in which the Alliance for the Wild Rockies and Friends of the Clearwater were movants. *Defenders of Wildlife v. Salazar*, 2009 WL 8162144, *4-5 (D. Mont. 2009). Though Movants' believe the District Court's legal analysis in that instance was in error, the Court's prior ruling further substantiates the Movants' claim that moving the District Court for a similar injunction here was impracticable and futile.

All Movants' arguments as to the serious legal questions raised by this Motion and their appeal were presented to the District Court at summary judgment. *See* Exhibit 1. Therefore, this Motion should neither be remanded nor denied for failure to raise all grounds advanced in support of this Motion below.

Dated this 17th day of October 2011.

S/ James J. Tutchton
James Jay Tutchton
Tutchton Law Office LLC
6439 E. Maplewood Ave.
Centennial, CO 80111
(720) 301-3843
jtutchtontlo@gmail.com

Rebecca Kay Smith
Public Interest Defense Center P.C.
PO Box 7584
Missoula, MT 59807
(406) 531-8133
publicdefense@gmail.com

CORPORATE DISCLOSURE STATEMENT

Pursuant to F.R.A.P. 26.1, Appellants, Alliance for the Wild Rockies, a Montana nonprofit corporation, Friends of the Clearwater, an Idaho nonprofit corporation, and WildEarth Guardians, a New Mexico nonprofit corporation, hereby state, by the through their attorneys, that they have no parent companies, subsidiaries, or affiliates that have issued shares to the public.

Dated this 17th day of October 2011.

S/ James Jay Tutchton

James Jay Tutchton
Tutchton Law Office LLC
6439 E. Maplewood Ave.
Centennial, CO 80111
(720) 301-3843
jtutchtontlo@gmail.com

Rebecca Kay Smith
Public Interest Defense Center P.C.
PO Box 7584
Missoula, MT 59807
(406) 531-8133
publicdefense@gmail.com

I. EMERGENCY MOTION

Pursuant to Ninth Circuit Rule 27-3(a), Plaintiffs – Appellants, Alliance for the Wild Rockies, Friends of the Clearwater, and WildEarth Guardians (collectively "the Alliance") respectfully move this Court to enjoin the operation of Section 1713 until its constitutionality can be fully adjudicated. The Alliance further respectfully moves this Court to enjoin the operation of the regulation issued by Defendants – Appellees, 76 Fed. Reg. 25590 (May 5, 2011), under the direction contained in Section 1713 until the constitutionality of Section 1713 can be fully adjudicated.

II. ARGUMENT IN SUPPORT

A. INTRODUCTION

In April 2009, Defendants - Appellees (collectively "FWS") issued a final rule (the "2009 Rule") which removed ESA protections for all wolves living in the Northern Rocky Mountain Gray Wolf Distinct Population Segment outside of Wyoming. *See* Ex. 1 (District Court Order appealed from) at 1-2, *citing* 74 Fed. Reg. 15213 *et seq*. Multiple conservation organizations challenged the 2009 Rule as having been issued in violation of the ESA.[1] The District Court held the 2009 rule violated the ESA by protecting a listed species only across part of its range, and vacated the

[1] Two of the present Movants, Alliance for the Wild Rockies and Friends of the Clearwater challenged the 2009 Rule.

unlawful Rule. *Defenders of Wildlife v. Salazar*, 729 F. Supp. 2d 1207, 1228 (D. Mont. 2010). *See also* Ex. 1 (District Court Order) at 2. FWS, Idaho, Montana, and three sets of Defendant-Intervenors appealed the District Court's ruling in *Defenders of Wildlife*. Ex. 1 at 2. These appeals remain pending.[2]

During the pendency of the appeals resulting from the District Court's ruling in *Defenders of Wildlife*, Congress passed and the President signed Section 1713 into law. Section 1713 states in its entirety:

> Before the end of the 60-day period beginning on the date of enactment of this Act, the Secretary of the Interior shall reissue the final rule published on April 2, 2009 (74 Fed. Reg. 15213 et seq.) without regard to any other provision of statute or regulation that applies to issuance of such rule. Such reissuance (including this section) shall not be subject to judicial review and shall not abrogate or otherwise have any effect on the order and judgment issued by the United States District Court for the District of Wyoming in Case Numbers 09-CV-118J and 09-CV-138J on November 18, 2010.

Pursuant to the congressional direction in Section 1713, FWS reissued the 2009 Rule previously vacated and set aside by the District Court in *Defenders of Wildlife*, in a new Federal Register publication, 76 Fed. Reg. 25590 (hereinafter the "2011 Rule").

Because Section 1713 directed FWS to re-issue the 2009 Rule the District Court held to violate the ESA in *Defenders of Wildlife* unchanged as

[2] Ninth Circuit Appeal Numbers: 10-35885; 10-35886; 10-35894; 10-35897; 10-35898; and 10-35926.

the 2011 Rule, without amending the ESA in any detectable manner, the Alliance sued alleging Congress had acted in violation of the constitutional separation of powers doctrine by merely directing the outcome of the pending appeals in *Defenders of Wildlife* without amending the underlying substantive law. The Alliance based its suit on *U.S. v. Klein*, 80 U.S. 128 (1871), in which the Supreme Court held that when Congress passes a law directing the judiciary to reach a particular outcome in a pending case under existing law and does not amend the existing law, Congress exceeds its constitutional authority and treads on the judiciary's authority to construe the law.

The District Court agreed with the Alliance that Section 1713 violates the separation of powers doctrine articulated by the Supreme Court in *Klein*. However, the District Court further held that this Circuits' interpretation of *Robertson v. Seattle Audubon Society*, 503 U.S. 429 (1992), constrained its ability to rule for the Alliance and thus entered summary judgment for FWS.

> If I were not constrained by what I believe is binding precedent from the Ninth Circuit, and on-point precedent from other circuits, I would hold Section 1713 is unconstitutional because it violates the Separation of Powers doctrine articulated by the Supreme Court in U.S. v. Klein, 80 U.S. 128 (1871). However, our Circuit has interpreted Robertson v. Seattle Audubon Society, 503 U.S. 429 (1992), to hold that so long as Congress uses words "without regard to any other provision of statute or regulation that applies," or something similar, then the doctrine of constitutional avoidance requires the court to impose a saving interpretation provided the statute can be

fairly interpreted to render it constitutional.

Ex. 1 at 6-7.

In light of the District Court's exceptionally strong reluctance to rule for FWS and its apparent conclusion that this Circuit has misinterpreted or extended *Robertson* too far, so as to eviscerate *Klein* and thus the constitutional separation of powers doctrine, the Alliance believes that its appeal raises "serious legal questions" on the merits. *Lopez v. Heckler*, 713 F.2d 1432, 1435 (9th Cir. 1983). The Alliance further believes that because, at base, its appeal involves compliance with both the Constitution and the ESA that "the balance of hardships tips sharply in [its] favor." *Id*. Accordingly, as argued below, the Alliance satisfies the test for an injunction pending the resolution of its appeal on the merits.

B. BACKGROUND

The Alliance's constitutional challenge to Section 1713 hinges on the interpretation of the separation of powers doctrine. The separation of powers doctrine, setting apart the executive, legislative, and judicial functions of government is one of the basic "checks and balances" contained in the Constitution. As Chief Justice Marshall wrote nearly two hundred years ago, "[t]he difference between the departments undoubtedly is, that the legislature makes, the executive executes, and the judicial construes the

law." *Wayman v. Southard*, 23 U.S. 1 (1825). *See also Marbury v. Madison*, 5 U.S. 137 (1803) (establishing authority of judicial branch, including authority to overrule acts of Congress). "Time and again" the Supreme Court has affirmed "the importance in our constitutional scheme of the separation of governmental powers into the three coordinate branches." *Morrison v. Olson*, 487 U.S. 654, 693 (1988).

Defending the Constitution in *The Federalist Papers*, James Madison wrote: "[t]he accumulation of all powers legislative, executive and judiciary in the same hands, whether of one, a few or many, and whether hereditary, self-appointive, or elective, may justly be pronounced the very definition of tyranny." *The Federalist No. 47* at 324 (J. Cooke ed. 1961) (J. Madison)).

In particular, the Framers were concerned with the expansion of legislative power at the expense of the judiciary. This fear arose from direct experience during the Confederation of States that preceded the constitutional convention: "One abuse that was prevalent during the Confederation was the exercise of judicial power by the state legislatures." *INS v. Chadha*, 462 U.S. 919, 961-63 (1983) (Powell, J., concurring) (noting contemporaneous records of legislatures exercising the judicial power). Accordingly, in light of this experience, the Supreme Court views the "system of separated powers and checks and balances [adopted by the

Framers as] 'a self-executing safeguard against the encroachment or aggrandizement of one branch at the expense of another.'" *Morrison*, 487 U.S. at 693, *quoting Buckley v. Valeo*, 424 U.S. 1, 122 (1976).

Two early decisions of the Supreme Court, *State of Pennsylvania v. The Wheeling and Belmont Bridge Company*, 59 U.S. 421 (1855) and *United States v. Klein*, 80 U.S. 128 (1871) establish the limits the separation of powers doctrine imposes on Congress' ability to direct the court's interpretation and application of the law to the facts in particular cases. Considered together, *Klein* and *Wheeling Bridge* stand for the proposition that Congress cannot direct the outcome of a pending litigation by instructing the courts how to interpret and apply the existing law to the specific pending claims. Such an effort involves Congress in the adjudication of cases under Article III, a role forbidden to it by the separation of powers doctrine.

More than a century after *Klein*, the Supreme Court returned to its analysis of the relevant aspects of the separation of powers doctrine in *Robertson v. Seattle Audubon Society*, 503 U.S. 429 (1992). In *Robertson* the Supreme Court upheld the "Northwest Timber Compromise," Section 318 of the Department of the Interior and Related Agencies appropriations Act of 1990, against a separation of powers challenge. Subsection

318(b)(6)(A) of this Act provided:

> [T]he Congress hereby determines and directs that management of areas according to subsections (b)(3) and (b)(5) of this section on the thirteen national forests in Oregon and Washington and Bureau of Land Management lands in western Oregon known to contain northern spotted owls is adequate consideration for the purpose of meeting the statutory requirements that are the basis for the consolidated cases captioned [identifying the conservations groups' litigation by case name and docket number].

See Robertson, 503 U.S. at 434-35.

The Supreme Court held that Section 318 did not run afoul of *Klein*, as the Ninth Circuit had previously found, by reasoning that "subsection (b)(6)(A) compelled changes in law, not findings or results under old law" because "under subsection (b)(6)(A), the agencies could satisfy their MBTA [Migratory Bird Treaty Act] obligations in either of two ways: by managing their lands so as neither to 'kill' nor 'take' any northern spotted owl within the meaning of § 2 [of the MBTA, 16 U.S.C. § 703], or by managing their lands so as not to violate the prohibitions of subsections (b)(3) and (b)(5) [of Section 318 of the Act]." *Id*. at 438. The Supreme Court thus reversed the Ninth Circuit, not based on any contrary interpretation of *Klein*, but on the ground that the challenged Act amended the underlying statute and was thus constitutional.

The Supreme Court further illuminated the space between *Klein* and *Robertson* in *Plaut v. Spendthrift Farms, Inc.*, 514 U.S. 211 (1995).

"Whatever the precise scope of Klein … later decisions have made clear that its prohibition does not take hold when Congress 'amend[s] applicable law.'" *Plaut*, 514 U.S. at 218, *citing Robertson*, 503 U.S. at 441. *Plaut* thus firmly sets forth the principle that a statute that amends applicable law, even if it is meant to determine the outcome of pending litigation, does not violate the separation of powers doctrine. As *Plaut* recognizes, *Robertson* does not moot *Klein's* holding, but provides that Congress amends applicable law when it creates a new method to satisfy the existing statutory requirements, i.e. when "compliance with certain *new law* constituted compliance with certain old law." *Robertson*, 503 U.S. at 440 (emphasis added).

In *Ecology Center v. Castaneda*, this Court subsequently examined the space between *Robertson* and *Klein* on facts similar to those at issue in *Robertson*. 426 F.3d 1144, 1147-48 (9th Cir. 2005). *Ecology Center* began with an injunction issued by same District Court Judge who authored the opinion appealed from in the present case. In *Ecology Center*, the District Court enjoined certain timber sales because the Forest Service had failed to document the existence of a minimum of 10% old growth habitat at elevations below 5,500 feet on a forest-wide basis in the Kootenai National Forest as required by the Kootenai National Forest Plan. *Id*. at 1146. During the pendency of the case Congress enacted a new law that changed

the applicable old-growth retention standard from one requiring the retention of 10% old growth on a forest-wide basis to one requiring the retention of 10% old growth in the specific project areas. *Id*. at 1147. The District Court subsequently rejected the Ecology Center's argument that new law violated the separation of powers doctrine holding "Congress has not impermissibly directed findings … by the terms of [the new law], this Court could still, somehow, find there wasn't 10% [old growth] on an area and prevent the [timber] sales … Congress has changed the underlying law." *Id*. at 1147-48. This Circuit agreed, holding the new Act changed the underlying law because it did not "direct particular findings of fact or the application of old or new law to fact" but still left to the District Court the role of determining whether the new criteria were met. *Id*. at 1148.

> This test remains that used by the Ninth Circuit:
>
> > It has long been recognized that Congress may not prescribe rules of decision to the Judicial Department of the government in cases pending before it. […] Whatever the precise scope of Klein, however, later decisions have made clear that its prohibition does not take hold when Congress amends applicable law. […] Thus, if a statute compels changes in the law, not findings or results under old law, it merely amends the underlying law, and is therefore not subject to a Klein challenge. […]

Ileto v. Glock, Inc., 565 F.3d 1126, 1139 (9th Cir. 2009) (internal citations and quotations omitted).

As the Ninth Circuit candidly acknowledged after its reversal by the Supreme Court in *Robertson*, "Robertson indicates a high degree of judicial tolerance for an act of Congress that is intended to affect litigation *so long as it changes the underlying substantive law in any detectable way*." *Gray v. First Winthrop Corp.*, 989 F.2d 1564, 1569-70 (9th Cir. 1993) (emphasis added). In the present situation, as argued below, it is the absence of any such "detectable" change in the "underlying substantive law" that renders Section 1713 unconstitutional and renders this case unlike either *Robertson* or *Ecology Center*.

C. STANDARD OF REVIEW

Though this case presents constitutional issues, in terms of applying the standard for an injunction pending appeal it is appropriate to focus on the underlying statute at issue, the ESA. As a general matter, constitutional issues are reviewed de novo. *Berry v. Department of Social Services*, 447 F.3d 642, 648 (9th Cir. 2006). Challenges to the constitutionality of a federal statute or regulation are also reviewed de novo. *Doe v. Rumsfeld*, 435 F.3d 980, 984 (9th Cir. 2006). *See also Ecology Center v. Castaneda*, 426 F.3d 1144, 1147 (9th Cir. 2005) (separation of powers challenge to constitutionality of statute reviewed de novo).

The standard of review for an injunction pending appeal is essentially the same as that applied to a motion for a preliminary injunction. *Lopez*, 713 F.2d at 1435. In this Circuit,

> serious questions going to the merits[] and a balance of hardships that tips sharply towards the plaintiff can support issuance of a preliminary injunction, so long as the plaintiff also shows that there is a likelihood of irreparable injury and that the injunction is in the public interest.

Alliance for the Wild Rockies v. Cottrell, 632 F.3d 1127, 1135 (9th Cir. 2011).

However, in cases involving the ESA, both the Supreme Court and the Ninth Circuit have consistently held that Congress has already determined that both the equities and the public interest weigh in favor of preliminary injunctive relief. In *Weinberger v. Romero-Barcelo*, the Supreme Court noted that requests for injunctions under the ESA were not subject to the traditional equitable discretion afforded to requests for injunctive relief under the Clean Water Act:

> In *TVA v. Hill*, we held that Congress had foreclosed the exercise of the usual discretion possessed by a court of equity. There, we thought that "[o]ne would be hard pressed to find a statutory provision whose terms were any plainer" than that before us. [citation omitted] … The purpose and language of the statute limited the remedies available to the District Court; only an injunction could vindicate the objectives of the Act.

465 U.S. 305, 313-14 (1982).

This Circuit follows the Supreme Court's direction:

> Congress has spoken in the plainest of words, making it abundantly clear that the balance has been struck in favor of affording endangered species the highest of priorities, thereby adopting a policy which it described as "institutionalized caution." … the balance of hardships and the public interest tip heavily in favor of endangered species. [citation omitted]. We may not use equity's scales to strike a different balance.

Sierra Club v. Marsh, 816 F.2d 1376, 1383 (9th Cir. 1987). In *Marsh*, this Circuit held that a plaintiff is entitled to an injunction if the defendant has violated a substantive or procedural provision of the ESA. 816 F.2d at 1383-84; *see also Thomas v. Peterson*, 753 F.2d 754, 764 (1985) ("Given a substantial procedural violation of the ESA in connection with a federal project, the remedy must be an injunction of the project pending compliance with the ESA").

This Circuit has also held that in cases alleging a "take" (including hunting or killing) of a member of a protected species in violation of the ESA, the standard for injunctive relief is that the plaintiff must simply show that prospective harm is likely. *Forest Conservation Council v. Rosboro Lumber Co.*, 50 F.3d 781, 786 (9th Cir. 1995); *National Wildlife Federation v. Burlington Northern R.R., Inc.*, 23 F.3d 1508, 1512 (9th Cir. 1994). A plaintiff in a case alleging the illegal take of members of a protected species does not need to show certainty of future harm, nor does it need to show a threat of extinction from the challenged activity, before an injunction will be

granted. *National Wildlife*, 23 F.3d at 1512 n.8. Prospective harm may be shown if the challenged activity will cause "significant impairment of the species' breeding or feeding habits and … prevents, or possibly, retards, recovery of the species." *Id*. at 1513.

D. ARGUMENT

1. Serious Legal Questions Are Raised by this Appeal

As discussed above, in this case the District Court stated that it would like to hold Section 1713 unconstitutional under *Klein*. Exhibit 1 at 6. The District Court further stated,

> 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.

Ex. 1 at 3.

However, the District Court declined to rule for the Alliance based solely on its view of how this Circuit has interpreted *Robertson*. Ex. 1 at 6. In particular, the District Court felt constrained by cases such as *Consejo de Desarrollo Economico de Mexicali*, 482 F.3d, 1157, 1168-69 (9th Cir. 2007), in which this Circuit found language such as "[n]otwithstanding any other

provision of law" sufficient to work a change in underlying substantive law. *See* Ex. 1 at 15. The District Court was obviously frustrated that this Circuit has found such "notwithstanding" or "without regard to any other provision of statute or regulation" language to operate "as a talisman that *ipso facto* sweeps aside Separation of Powers concerns." Ex. 1 at 18. The District Court's frustration arises from an apparent belief that this Circuit has gone beyond *Robertson* and prior precedents like *Ecology Center* and inappropriately chipped away *Klein* and the separation of powers doctrine.

The District Court is correct. In *Robertson*, the Supreme Court held that "subsection (b)(6)(A) [of the challenged legislation] compelled changes in law, not findings or results under old law" because "under subsection (b)(6)(A), the agencies could satisfy their MBTA [Migratory Bird Treaty Act] obligations in either of two ways: by managing their lands so as neither to 'kill' nor 'take' any northern spotted owl within the meaning of § 2 [of the MBTA, 16 U.S.C. § 703], or by managing their lands so as not to violate the prohibitions of subsections (b)(3) and (b)(5) [of Section 318 of the Appropriations Act]." 503 U.S. at 438. The referenced subsections, (b)(3) and (b)(5), clearly indicated detectable changes in underlying law. 503 U.S. at 434 n.1.

Similarly, in *Ecology Center*, the challenged act changed the applicable old-growth retention standard from one requiring the retention of 10% old growth on a forest-wide basis to one requiring the retention of 10% old growth in the specific project areas. 426 F.3d at 1147. Thus in both *Robertson* and *Ecology Center*, Congress clearly made detectable changes in the underlying law.

Here there are no such detectable changes in underlying law. Section 1713 does not compel changes in law. Instead it attempts to compel results under old law – that the 2009 Rule previously stuck down by the District Court, as contrary to the ESA should be returned to force as *an identical* 2011 Rule. As the District Court observed this is a direct violation of the separation of powers doctrine. Accordingly, the Alliance believes its appeal raises serious legal questions as to: (a) whether Section 1713 violates the separation of powers doctrine; (b) whether the planned killing of hundreds of wolves in the next few months violate the ESA; (c) whether the District Court properly interpreted *Consejo de Desarrollo Economico de Mexicali* as expanding the reach of *Robertson* in all subsequent cases; and (d) if the District Court's interpretation of cases like *Consejo* was correct, whether that expansion, which allows reviewing courts to rely on "talismanic" language to invent or hypothesize what changes in underlying law Congress

intended, rather than search for actual, detectable changes in underlying law, is proper.

2. The Balance of Hardships and the Public Interest Tip Sharply in Appellants' Favor

As explained above, in a case such as this where the fundamental issue is compliance with the ESA, the Supreme Court has held that "Congress [] foreclosed the exercise of the usual discretion possessed by a court of equity … only an injunction could vindicate the objectives of the [ESA]." *Weinberger*, 465 U.S. at 313-14. *See also Biodiversity Legal Foundation v. Badgley*, 309 F.3d 1166, 1177 (9th Cir. 2002) ("the balance of hardships and the public interest tip heavily in favor of endangered species"). Indeed, as this Court has stated, because "the balance of hardships and the public interest tip heavily in favor of endangered species," it "may not use equity's scales to strike a different balance." *Marsh*, 816 F.2d at 1383.

3. The Killing of Hundreds of Wolves is Irreparable Harm

A plaintiff challenging the "take" or killing of members of a species protected by the ESA need not show certainty of future harm or a threat of extinction before an injunction will be granted. *National Wildlife*, 23 F.3d at 1512 n.8. Prospective harm sufficient to grant an injunction exists if there will be "significant impairment of the species' breeding or feeding habits" or

impacts that might "prevent[], or possibly, retard[], recovery of the species." *Id*. at 1513. Where, as here, the failure to grant preliminary injunctive relief, will result in the death of half the individual members of a protected species, this is not a debatable issue.

Wolf hunting began on August 30th in Idaho and on September 3rd in Montana. Ex. 3 & 4. Idaho has not set a quota for the number of wolves that may be taken during this hunting season. Ex. 3. At the beginning of 2011, Idaho had 705 wolves according to FWS. *See* Ex. 6 at 7. 134 wolves have been killed in Idaho thus far in 2011. *See* Ex. 5, ¶¶ 4 & 5. Idaho has issued 25,500 hunting permits to kill its remaining wolves. Ex. 5, ¶ 6. Idaho also has planned a wolf-trapping season. Ex. 3. Hunters in Idaho are required to report wolf kills within 72 hours to the State, ostensibly to avoid reducing the population below 150 wolves, although such a proposition is speculative given the large number of hunters potentially in the field and the 72-hour lag time. At the beginning of 2011, Montana had 566 wolves according to FWS. Ex. 6 at 7. 82 wolves have been killed in Montana thus far in 2011. *See* Ex. 5, ¶¶ 7 & 8. Montana has sold 11,401 wolf-hunting licenses to kill a quota of 220 wolves. *See* Ex. 5, ¶ 9 (11,401 licenses) & Ex. 4 (quota of 220 wolves).

In sum, freed of the requirements of the ESA by Section 1713, Idaho and Montana have authorized the killing of at least 775 wolves (assuming Idaho's estimated population of 705 wolves is reduced to 150 and that 220 wolves will be killed in Montana). The entire population of wolves in the Northern Rocky Mountain Distinct Population Segment, including Wyoming and those portions of Washington, Oregon & Utah also included in the Distinct Population Segment, was estimated by FWS at 1,651 in 2010. Ex. 6 at 2. It is undisputable that hundreds of wolves in Montana and Idaho will die during this hunting season, approximately half of the total wolf population in the Northern Rockies including the surrounding states, and that Montana and Idaho have issued tens of thousands more wolf-hunting licenses – than the total number of wolves that exist in these states.

The above facts are certainly sufficient to show "significant impairment of the species' breeding or feeding habits" or impacts that might "prevent[], or possibly, retard[], recovery of the species." *National Wildlife*, 23 F.3d at 1513. Any contention by FWS that a "recovered" population of wolves will remain in Idaho and Montana (150 wolves in Idaho and Montana's 2010 population of 566 less the quota of 220 and less additional mortality, *see* Ex. 5, at ¶ 8) within the meaning of the ESA is a false assumption that has never been subjected to judicial scrutiny because the

District Court enjoined FWS' initial delisting rule on alternative grounds in *Defenders of Wildlife*, 729 F.Supp.2d at 1228. Recent independent, peer-reviewed scientific studies reject the conclusion that a "recovered" population of wolves existed in the Northern Rockies even prior to the current hunting season. *See e.g. Bergstrom, et al., The Northern Rocky Mountain Gray Wolf Is Not Yet Recovered*, BioScience, Vol. 59, No. 11 at 991-999 (December 2009)(copy attached as Ex. 7). Additionally, a recent scientific study from Montana State University concludes that a "sustainable harvest" of wolves from the Northern Rocky Mountains must be lower than that allowed under Idaho and Montana's current hunting regime. *Creel & Rotella, Meta-Analysis of Relationships between Human Offtake, Total Mortality and Population Dynamics of Gray Wolves (Canius lupus)*, PLoS One, Vol. 5, Issue 9 (September 2010) at 6 (copy attached as Ex. 8).

The philosophy behind granting an injunction pending appeal is to preserve the status quo so that irreparable harm that might occur in violation of law does not occur before a favorable appellate decision can be granted.

> … the court of appeals' preliminary decisions as to whether to grant injunctive relief *pendente lite*, including stays, is determinative of the ultimate outcome of the litigation. In such cases, judges must be particular sensitive to the practical consequences of their initial action or inaction, not only because of the effect on the transactions involved, but because of the need to ensure that the court does not inadvertently lose its ability to enforce an important Congressional mandate.

Kettle Range Conservation Group v. U.S. Bureau of Land Management, 150 F.3d 1083, 1087-88 (9th Cir. 1998) (Reinhardt, J., concurring). This is particularly true in the present case. If this Court does not grant preliminary injunctive relief wolf hunting seasons in Idaho and Montana will continue and hundreds of wolves the Alliance contends should be protected from hunting under the ESA will die as a result. Moreover, because the number of wolf hunting licenses issued by Montana and Idaho (nearly 37,000) far outnumbers the actual population of wolves in these States, estimated by the FWS at 1,271 at the beginning of 2011 (and ignoring the 216 wolves killed to date in those states, *see* Ex. 5, ¶¶ 4, 5, 7 & 8), there is a possibility that the current hunting season could eliminate the entire population before these States close their wolf-hunting seasons or this Court is able to rule on the merits. This Court can neither return dead wolves to life, nor remedy the injuries the Alliance will have suffered, even if it is ultimately successful in its appeal. *See* Ex. 5 ¶¶ 11, 12. Accordingly, the Alliance will suffer irreparable harm if an injunction is not granted during the pendency of this appeal.

E. CONCLUSION

For all of the reasons set forth above, the Alliance respectfully requests this Court grant the present Motion for emergency relief.

Respectfully submitted this 17th day of October 2011.

S/ James Jay Tutchton
James Jay Tutchton
TUTCHTON LAW OFFICE, LLC

Rebecca K. Smith
PUBLIC INTEREST DEFENSE CENTER, P.C.

Attorneys for Appellants

STATEMENT OF RELATED CASES

This case is potentially related to pending appeals of the District Court's denial of motions to intervene filed in the proceedings below. Ninth Circuit appeal numbers: 11-35552; 11-35568; and 11-35636. Additionally, this case is potentially related to pending appeals challenging the District Court's decision in *Defenders of Wildlife* that the 2009 Rule delisting a portion of the Northern Rocky Mountains Gray Wolf District Population Segment violated the Endangered Species Act. Ninth Circuit Appeal numbers: 10-35885; 10-35886; 10-35894; 10-35897; 10-35898; and 10-35926.

CERTIFICATE OF COMPLIANCE

I certify that pursuant to F.R.A.P. 27(d)(2), and F.R.A.P. 32(a)(5) and (a)(6), the foregoing motion and argument in support is proportionately spaced, has a typeface of 14 points, and does not exceed 20 pages, excluding the cover, certificate required by Circuit Rule 27-3, corporate disclosure statement, statement of related cases, certificates of compliance and service, and accompanying documents authorized under F.R.A.P. 27(a)(2)(B).

S/ James Jay Tutchton
James Jay Tutchton

CERTIFICATE OF SERVICE

I hereby certify that on October 17, 2011, I electronically filed the foregoing Motion with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit using the appellate CM/ECF system.

I further certify that all participants in this case are registered CM/ECF users will be served by the appellate CM/ECF system.

S/ James Jay Tutchton
James Jay Tutchton

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MONTANA
MISSOULA DIVISION

ALLIANCE FOR THE WILD ROCKIES, et al.

Plaintiff,

vs.

KEN SALAZAR, et al.,

Defendants.

CENTER FOR BIOLOGICAL DIVERSITY,

Plaintiff,

vs.

KEN SALAZAR, et al.,

Defendants.

CV 11-70-M-DWM
CV 11-71-M-DWM

ORDER

I. Introduction

In April 2009, the United States Fish and Wildlife Service issued a final rule ("2009 Rule") that removed Endangered Species Act ("ESA"), 16 U.S.C. § 1531 et seq., protections from the Northern Rocky Mountain Gray Wolf Distinct

Population Segment in all areas outside of Wyoming. 74 Fed. Reg. 15213 et seq. Under the 2009 Rule, wolves found in Wyoming were the only wolves in the distinct population segment that received protection under the ESA. The Rule violated the ESA by protecting a listed species only across part of its range, and this Court vacated the unlawful Rule as invalid. Defenders of Wildlife v. Salazar, 729 F. Supp. 2d 1207, 1228 (D. Mont. 2010). Federal Defendants, Idaho, Montana, and three sets of Defendant Intervenors appealed this Court's ruling.

While the appeals were pending, Congress passed and the President signed H.R. 1473, the Department of Defense and Full Year Continuing Appropriations Act of 2011. Section 1713 of this Act directs the Service to reissue the 2009 Rule this Court vacated:

> Before the end of the 60-day period beginning on the date of enactment of this Act, the Secretary of the Interior shall reissue the final rule published on April 2, 2009 (74 Fed. Reg. 15213 et seq.) without regard to any other provision of statute or regulation that applies to issuance of such rule. Such reissuance (including this section) shall not be subject to judicial review and shall not abrogate or otherwise have any effect on the order and judgment issued by the United States District Court for the District of Wyoming in Case Numbers 09-CV-118J and 09-CV-138J on November 18, 2010.

P.L. 112-10 § 1713, 125 Stat. 38 (April 15, 2011). On May 5, 2011, pursuant to the congressional direction in Section 1713, Federal Defendants reissued the 2009 delisting rule.

Two groups of Plaintiffs filled suit challenging the constitutionality of Section 1713. The actions were consolidated, and before the Court are cross motions for summary judgment.

The issues in this case cannot be resolved without considering the rule of law. 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.

In this case Defendants argue—unpersuasively—that Congress balanced the conflicting public interests and policies to resolve a difficult issue. I do not see what Congress did in the same light. Inserting environmental policy changes into appropriations bills may be politically expedient, but it transgresses the process envisioned by the Constitution by avoiding the very debate on issues of political

importance said to provide legitimacy. Policy changes of questionable political viability, such as occurred here, can be forced using insider tactics without debate by attaching riders to legislation that must be passed.

However, the rule of law does not apply only to Congress; it also applies equally to the courts. The courts are supposed to apply the laws that Congress has enacted. Judges cannot make new law or write laws when those that are written by Congress are unclear or ambiguous. The Separation of Powers requires us to discern the difference between arguments of policy and arguments of principle. It is the function of Congress to pursue arguments of policy and to adopt legislation or programs fostered by recognizable political determinations. It is the function of the courts to consider arguments of principle in order to enforce a statute, even if the statute itself stems from an altered policy. This distinction holds true even when the legislative process employed involves legislative prestidigitation.

For the rule of law to function uniformly, each branch of government must recognize and acknowledge the function of the others. Fairness is dethroned and confusion is crowned queen when the laws enacted pursuant to established public policy are rendered inapplicable on an *ad hoc* basis. The rule of law demands regularity and predictability. The law must be generally applicable, and it must be clear. Prior decisions of superior courts bind the lower courts, the government and

the public because each owes a fidelity to the process. The law should be ascertainable, predictable, consistent, and like cases should be treated alike. This means that courts are generally bound by precedent and the concept of *stare decisis*, *et non quieta movere*, translated as "to stand by things decided, and not to disturb settled issues." Conceptually, policy is forward looking, providing notice of what the political decision is, while arguments concerning enacted laws are generally backward looking, relying on existing authorities to find the meaning of the law.

One of the reasons this case is so difficult stems from the confluence of these ideas in the conflict that needs to be decided here. In its capacity as the body charged with setting public policy Congress enacted the ESA. The policy reflected in that determination was to establish a conservation ethic for those non-human animal and plant species that are at risk of extinction. The purpose of the Act is to conserve at-risk species and the ecosystems upon which they depend. The law protects imperiled species, without regard to the popularity of the animal or plant. It does not just protect species when politically convenient. In acknowledging the political justification of the ESA President Richard Nixon said when signing the Act into law:

Nothing is more priceless and more worthy of preservation than the

> rich array of animal life with which our country has been blessed. It is a many-faceted treasure, of value to scholars, scientists, and nature lovers alike, and it forms a vital part of the heritage we all share as Americans.

President Nixon's Statement on Signing the Endangered Species Act of 1973, 374 Pub. Papers 1027, 1027–1028 (Dec. 28, 1973).

Section 1713 sacrifices the spirit of the ESA to appease a vocal political faction, but the wisdom of that choice is not now before this Court. The question presented by this lawsuit, challenging the constitutionality of Section 1713 of the Department of Defense and Full-Year Continuing Appropriations Act of 2011, is whether the rider constitutes a detectable change in the law.

If I were not constrained by what I believe is binding precedent from the Ninth Circuit, and on-point precedent from other circuits, I would hold Section 1713 is unconstitutional because it violates the Separation of Powers doctrine articulated by the Supreme Court in U.S. v. Klein, 80 U.S. 128 (1871). However, our Circuit has interpreted Robertson v. Seattle Audubon Society, 503 U.S. 429 (1992), to hold that so long as Congress uses the words "without regard to any other provision of statute or regulation that applies," or something similar, then the doctrine of constitutional avoidance requires the court to impose a saving interpretation provided the statute can be fairly interpreted to render it

constitutional.

There are two ways of interpreting Section 1713. One holds that Congress did not change the underlying law but simply required the Secretary of the Interior to enforce a regulation determined by a court to be in violation of the ESA, 16 U.S.C. § 1532(16). The other way to look at Section 1713 is to hold Congress left Defenders of Wildlife v. Salazar, 729 F. Supp. 2d 1207 (D. Mont. 2010) intact, and left the ESA untouched except as to a discrete agency action. Under this view, Congress changed the law and precluded judicial review only with respect to the re-issuance of the 2009 Rule. No other part of the ESA or its application has been altered, changed or amended. The argument in support of the latter view is troublesome because it leaves open the question of whether the court is left to apply its ordinary rules to new circumstances created by the Act, or whether the Act simply directs the court in the application of law without regard to the existing statutes of the ESA. See 16 U.S.C. § 1532(16); Defenders of Wildlife v. Salazar, 729 F. Supp. 2d 1207, 1228 (D. Mont. 2010).

Nonetheless, the case law requires me to adopt the latter interpretation. Therefore I find Section 1713 can be read as a change in the law to the extent that it exempts the Northern Rocky Mountain Gray Wolf Distinct Population Segment from the range concerns as articulated in the ESA. In arriving at this

determination it is necessary to infer Section 1713 is limited in its application to the re-issuance of the 2009 Rule.

II. Analysis

The Ninth Circuit instructs that "[t]he constitutional principle of Separation of Powers is violated where (1) Congress has impermissibly directed certain findings in pending litigation, without changing any underlying law, or (2) a challenged statute is independently unconstitutional on other grounds." Consejo de Desarrollo Economico de Mexicali v. U.S., 482 F.3d 1157, 1170 (9th Cir. 2007). Plaintiffs allege the challenged rider violates the Separation of Powers doctrine because it was designed to moot a pending case, Defenders of Wildlife v. Salazar, without amending the ESA.[1]

The doctrine of the Separation of Powers derives from the tripartite structure of government set out in the United States Constitution. Nearly two hundred years ago Chief Justice Marshall wrote "[t]he difference between the

---

[1] Plaintiffs challenge Section 1713 under both prongs. They also allege Section 1713 is unconstitutional to the extent it prohibits judicial review of a constitutional challenge. See Webster v. Doe, 486 U.S. 592, 603 (1988) (holding serious constitutional questions arise if a federal statute were construed to deny any judicial forum for a colorable constitutional claim). But Defendants do not argue the judicial review prohibitions in Section 1713 preclude review of the Plaintiffs' constitutional challenge. Considering Defendants' position and that limitations of jurisdiction are to be construed narrowly to avoid constitutional problems, See Johnson v. Robison, 415 U.S. 361, 367 (1974), the challenged section does not unconstitutionally preclude review of constitutional challenges.

departments undoubtedly is, that the legislature makes, the executive executes, and the judiciary construes the law." Wayman v. Southard, 23 U.S. 1, **22 (1825). Defending the Constitution in The Federalist Papers, James Madison described the Separation of Powers as essential to free government: "[t]he accumulation of all powers legislative, executive and judiciary in the same hands, whether of one, a few or many, and whether hereditary, self-appointive, or elective, may justly be pronounced the very definition of tyranny." Federalist No. 47 at 324 (J. Cooke ed. 1961) (J. Madison). The Supreme Court "consistently has given voice to, and has reaffirmed, the central judgment of the Framers of the Constitution that, within our political scheme, the separation of governmental powers into three coordinate Branches is essential to the preservation of liberty." Mistretta v. U.S., 488 U.S. 361, 380 (1989). As for the judicial branch the Supreme Court has explained that the "[f]ramers crafted this charter of the judicial department with an expressed understanding that it gives the Federal Judiciary the power, not merely to rule on cases, but to decide them, subject to review only by superior courts in the Article III hierarchy . . . ." Plaut v. Spendthrift Farm, 514 U.S. 211, 218–219 (1995).

When reviewing legislation alleged to improperly encroach on the Article III branch's jurisdiction, the question is how separate is separate. As the branch responsible for creating law, Congress also has the ability to manipulate the

statutes that courts interpret and apply. When Congress changes the law, the action can impact pending litigation. While a certain amount of commingling of power exists among the branches, the Separation of Powers "is a prophylactic device, establishing high walls and clear distinctions because low walls and vague distinctions will not be judicially defensible in the heat of interbranch conflict." Id. at 239. The Supreme Court's holdings in U.S. v. Klein, 80 U.S. 128 (1871), and Robertson v. Seattle Audubon Society 503 U.S. 429 (1990), provide a framework to identify when the legislative branch unconstitutionally infringes upon the judicial power.

The Supreme Court in Klein held Congress unconstitutionally violated the Separation of Powers doctrine by directing the Court to make a factual finding regarding the probative weight of a presidential pardon. Klein, 80 U.S. at 146–147 (1871). The case arose out of a claim for reimbursement of property seized during the civil war. Id. at 132. A federal statute provided that individuals who were loyal to the Union could recover compensation for seized property. The Court of Claims found a property owner had given no aid or comfort to the rebellion and that even if he had, his acceptance of a presidential pardon qualified him under the statute to recover under the act. The government appealed to the Supreme Court. Id.

Wanting to deny pardoned southerners the benefits of the statute, Congress attached a rider to an appropriations bill. Id. at 133. The rider directed courts to view acceptance of a pardon as conclusive proof of disloyalty to the federal government. Id. at 133–134. In addition, when a claimant prevailed in a compensation claim by proving loyalty by presidential pardon, the rider directed a reviewing court to remand for dismissal based on lack of jurisdiction. Id. Essentially, under the rider, cases like Klein could be reviewed only to reverse successful claims of pardoned property owners.

In holding the rider unconstitutional, the Klein Court distinguished the case from Pennsylvania v. Wheeling & Belmont Bridge Co., 59 U.S. 421 (1855). Wheeling Bridge involved the characterization of two bridges that a court held to be nuisances and obstructions to navigation. Subsequent legislation declared the bridges to be post roads that were lawful structures notwithstanding contrary law. Reviewing the legislation, the Supreme Court rejected Separation of Powers challenges and held Congress appropriately altered the legal nature of bridges by modifying the substantive law. Id. at 432. The Court in Klein distinguished Wheeling Bridge by explaining "no arbitrary rule of decision was prescribed in [Wheeling Bridge], but the court was left to apply its ordinary rules to the new circumstances created by the act." Klein, 80 U.S. at 147. No new circumstances

were created in Klein. Instead, the court was "forbidden to give effect to evidence which, in its own judgment, such evidence should have [.]" Id.

More than a century later the Supreme Court in Seattle Audubon Society v. Robertson reviewed a case where, like Klein, the plaintiffs alleged Congress violated the Separation of Powers. Seattle Audubon Society challenged logging policies alleged to afford inadequate protection to the northern spotted owl. Id. at 432. The district court issued a preliminary injunction that enjoined planned timber sales. Congress responded by enacting legislation known as the Northwest Timber Compromise. Id. at 433. The legislation identified pending cases and directed that the statutory requirements in those cases were met so long as new management standards created in the compromise were satisfied.

> [T]he Congress hereby determines and directs that management of areas according to subsections (b)(3) and (b)(5) of this section on the thirteen national forests in Oregon and Washington and Bureau of Land Management lands in western Oregon known to contain northern spotted owls is adequate consideration for the purpose of meeting the statutory requirements that are the basis for the consolidated cases captioned Seattle Audubon Society et al., v. F. Dale Robertson, Civil No. 89-160 and Washington Contract Loggers Assoc. et al., v. F. Dale Robertson, Civil No. 89-99 (order granting preliminary injunction) and the case Portland Audubon Society et al., v. Manuel Lujan, Jr., Civil No. 87-1160-FR.

Id. at 434–435. Based on the new legislation, the district court vacated the preliminary injunction. Id. at 436. Arguing that Congress impermissibly directed

results in pending litigation without changing the underlying law, several environmental groups challenged the constitutionality of the Northwest Timber Compromise.

The Supreme Court reviewed the case, and although it did not expand upon the scope of the holding in Klein, it held no Separation of Powers problem existed because the challenged subsection "compelled changes in law, not findings or results under old law." Id. at 438. As Justice Thomas explained:

> the agencies could satisfy their MBTA obligations in either of two ways: by managing their lands so as neither to "kill" nor "take" any northern spotted owl within the meaning of § 2 [of the MBTA, 16 U.S.C. § 703], or by managing their lands so as not to violate the prohibitions of subsections (b)(3) and (b)(5).

Id. By replacing the legal standards underlying the two original challenges, Congress avoided infringing upon the judicial branch. Id. at 440. Notably in Robertson, the changed law preserved the conservation ethic that is the policy foundation of the ESA.

Since Robertson, courts have interpreted Klein to mean Congress cannot direct results in pending litigation without changing the underlying law. Consejo de Desarrollo Economico de Mexicali, 482 F.3d at 1170; Ecology Center v. Castaneda, 426 F.3d 1144, 1147–1148 (9th Cir. 2005).

Federal Defendants cite Stop H-3 Association v. Dole for the proposition

that exempting an action from environmental statutes is a change in the law that puts to rest concerns that Congress arrogated the judicial branch's power. 870 F.2d 1419, 1425 (9th Cir. 1989). There, prolonged litigation over a highway construction project prompted Congress to pass a rider that relieved the highway project from environmental prerequisites in the Department of Transportation Act.[2] Id. at 1423. The Ninth Circuit held the "clear intent and effect" of the statute was to exempt the project from certain environmental requirements. Id. at 1425. The legislation in Stop H-3 changed the law because it "did not leave the underlying statute intact (as to the H-3 project)." Seattle Audubon Socy. v. Robertson, 914 F.2d 1311, 1316 (9th Cir. 1990), rev'd on other grounds, 503 U.S. 429 (1992).

A fair reading of Klein and Robertson suggests that Congress can involve itself in pending litigation under limited circumstances. Structurally the doctrine

---

[2]The challenged section in Stop H-3 required:

> (a) The Secretary of Transportation shall approve the construction of Interstate Highway H-3 . . ., and such construction shall proceed to completion notwithstanding section 138 of title 23 and section 303 of title 489, United States Code [i.e. section 4(f)].
>
> (b) Notwithstanding section 102 of this joint resolution the provisions of subsection (a) shall constitute permanent law.

Stop H-3 Assn., 870 F.2d at 1425.

of Separation of Powers is still viable, but in my view it is violated when there is an effort to change a political policy by resolution that is not clear, does not identify what law is specifically being changed, does not state what rules apply in the future, and is inconsistent with the underlying political purposes of the law that is being changed. Our Circuit has not seen Klein or Robertson this way.

According to Ninth Circuit case law, Congress can exempt a project from environmental prerequisites by implication. Consejo de Desarrollo Economico de Mexicali, 482 F.3d at 1168–1169. In Consejo de Desarrollo Economico de Mexicali, Congress directed that "[n]otwithstanding any other provision of law" a canal lining project should proceed without delay. Id. at 1167. The statute did not name a specific law that was amended. But the court held that when Congress directs an action "notwithstanding any other provision of law" a change in the law can be gleaned by identifying statutes that would prevent the action from proceeding. Id. at 1168–1169. The Ninth Circuit concluded that the "notwithstanding" phrase exempted the project from four environmental statutes that would delay implementation of the project. Id. at 1169. The D.C. Circuit has also held similar statutory language that altered pending litigation can survive a Separation of Powers challenge. Natl. Coal. to Save our Mall v. Norton, 269 F.3d 1092, 1097 (D.C. Cir. 2001) (upholding, over Separation of Powers challenge,

statute that insulated from judicial review the directive to construct the World War II memorial notwithstanding contrary law).

Defendants here argue Section 1713 amended law by implication. By directing the Secretary of the Interior to reissue the delisting rule "without regard to any other provision of statute or regulation," they argue the rider amended any statute that would prevent its issuance. The heart of the debate turns on whether Congress can insert into its directive a nonspecific phrase that by itself sweeps aside concerns that Congress is infringing upon the judicial power.[3]

When laws are amended by implication, questions can remain regarding how the law was changed.[4] The political process requires Congress to take stances

---

[3]In part, Plaintiffs support their legal argument by citing legislative history and extra congressional remarks made by the drafters of Section 1713. When interpreting a statute, a court looks first to the statute's plain language. Ileto v. Glock, Inc., 565 F.3d 1126, 133 (9th Cir. 2009). Only if the language is ambiguous will the court look beyond words in the statute. Id. Here the statute is clear in its directive to issue the rule without regard to conflicting law. Even if the language was ambiguous, the legislative history and extra-record remarks provide limited probative value. The remarks of the one legislator who commented on the rider is afforded little weight because he opposed the legislation. See Brock v. Writers Guild of Am. W., Inc., 762 F.2d 1349, 1356 (9th Cir. 1985). Extra record remarks also would provide limited help in divining congressional intent because "contemporaneous remarks of a single legislator who sponsors a bill are not controlling in analyzing legislative history." Consumer Prod. Safety Commn. v. GTE Sylvania. Inc., 447 U.S. 102, 118 (1980).

[4]Justice Scalia recently criticized Congress' use of nonspecific language when he wrote, "Fuzzy, leave-the-details-to-be-sorted-out-by-the-courts legislation is attractive to the Congressman who wants credit for addressing a national problem but does not have the time (or perhaps the votes) to grapple with the nitty-gritty." Sykes v. U.S., 131 S.Ct. 2267, 2288 (2011) (Scalia J., dissenting).

on issues. It is not the role of the judiciary to write the law. In my view, the Ninth Circuit's deference to Congress threatens the Separation of Powers; nonspecific magic words should not sweep aside constitutional concerns.

Repeals by implication are disfavored. Tenn. Valley Auth. v. Hill, 437 U.S. 153, 189 (1978). But a practice that is disfavored is not necessarily prohibited. "A court should invalidate a statutory provision only for the most compelling constitutional reasons." Gray v. First Winthrop Corp., 989 F.2d 156, 1567 (9th Cir. 1993) (quotations omitted). Accordingly, when two possible interpretations of a statute exist, one unconstitutional and the other valid, a court must adopt the one that saves the act. Robertson, 503 U.S. at 441.

Here, like in Consejo, the legislation fails to name a law that would be amended. But the language of the rider can be construed to amend the ESA because the directive states the 2009 Rule should be reissued "without regard to any other provision of statute or regulation." The 2009 Rule violated the ESA by protecting a listed species across only part of its range and was accordingly invalidated. Defenders of Wildlife, 729 F. Supp. 2d at 1228. Because the 2009 Rule was invalidated, the re-issuance of the Rule pursuant to congressional directive, by implication amended the ESA as to this particular delisting. In other words, the ESA is no longer intact as to the re-issuance of the 2009 Rule.

While this Court previously found the 2009 Rule is an illegal solution to a difficult biological issue, under Ninth Circuit law a constitutional reading of Congress's directive to reissue the Rule is possible. The language "without regard to any other provision of statute or regulation" operates as a talisman that *ipso facto* sweeps aside Separation of Powers concerns. See Consejo de Desarrollo Economico de Mexicali, 482 F.3d at 1168–1169. Accordingly,

IT IS HEREBY ORDERED that Plaintiffs' motions for summary judgment (dkt ## 26 & 27) are DENIED and Federal Defendants' cross motion for summary judgment (dkt # 52) is GRANTED.

The Clerk of Court is directed to enter judgment in favor of Federal Defendants and against the Plaintiffs and to close the case file.

Dated this 3rd day of August, 2011.

Donald W. Molloy, District Judge
United States District Court

UNITED STATES DISTRICT COURT

DISTRICT OF MONTANA

MISSOULA DIVISION

ALLIANCE FOR THE WILD ROCKIES, et al., Plaintiffs, v. KEN SALAZAR, et al., Defendants.	CV 11-70-M-DWM CV 11-71-M-DWM (consolidated)
CENTER FOR BIOLOGICAL DIVERSITY, et al., Plaintiffs, v. KEN SALAZAR, et al., Defendants.	JUDGMENT IN A CIVIL CASE

☐ **Jury Verdict.** This action came before the Court for a trial by jury. The issues have been tried and the jury has rendered its verdict.

X **Decision by Court.** This action came before the Court for bench trial, hearing, or determination on the record. A decision has been rendered.

IT IS ORDERED AND ADJUDGED

that judgment is entered in favor of Federal Defendants and against the Plaintiffs in accordance with the Order of today's date.

Dated this 3rd day of August, 2011.

PATRICK E. DUFFY, CLERK

By: /s/ A.S. Goodwin
Deputy Clerk

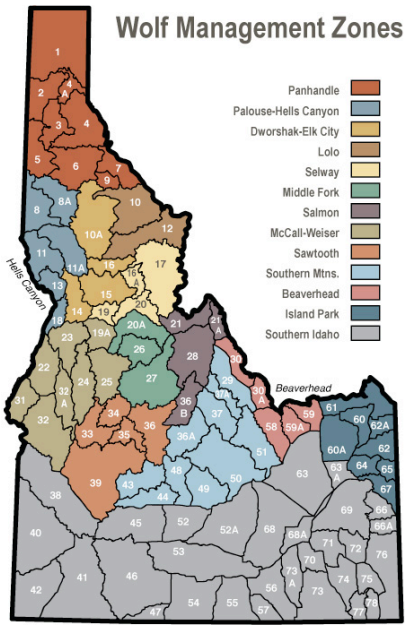
Thursday, August 11, 2011

Wolf Seasons - 2011-2012

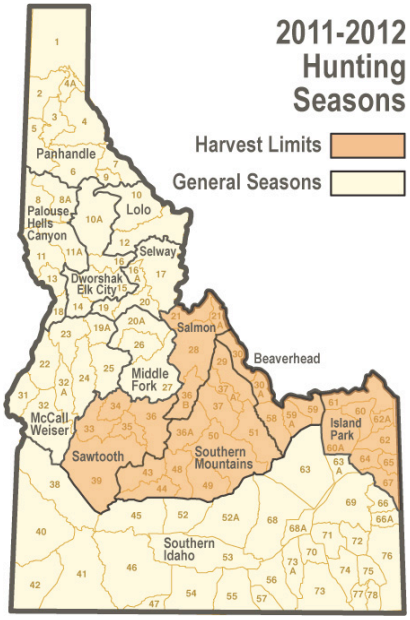
On July 28, 2011, the Idaho Fish and Game Commission set wolf hunting and trapping seasons based on Idaho Fish and Game proposals and public input.

- The primary objective is to use hunting and trapping as a means to reduce the statewide wolf population to a level that is sustainable, meets federal recovery goals, and reduces conflicts statewide.
- Specific proposals seek to maximize wolf harvest opportunities where wolf conflicts are the greatest.
- Mandatory harvest reporting provides valuable information for ongoing monitoring and future season adjustments.

Wolf Season Key Points / Questions & Answers



Wolf Hunting Season



The Idaho Fish and Game Commission set wolf hunting seasons throughout most of the state ranging from August 30, 2011 to March 31, 2012, in 13 wolf management zones.

Harvest limits were set in the Salmon, Southern Mountain, Beaverhead, Island Park and Sawtooth Zones, where hunting proved effective in more open country and additional wolf mortality occurs from control actions to resolve ongoing livestock depredations.

In 2009, hunters met harvest limits in these zones except in the Sawtooth Zone, which was 90 percent achieved. The commission set higher harvest limits for these zones for the upcoming hunting season to reduce continued conflict with livestock.

Recent research confirms wolves are dispersing throughout the northern Rocky Mountains, and Idaho wolves are breeding with populations in other states and vice versa. Nevertheless, the commission set a closing date of December 31 for the Beaverhead and Island Park Zones, which closes hunting prior to the peak snowmobile season in Island Park and corresponds to the closing dates in Montana. These zones are late winter/spring dispersal areas between Yellowstone Park and other wolf populations in Montana and Wyoming.

The Fish and Game Commission did not set specific harvest limits in the Panhandle, Lolo, Selway and Middle Fork Zones because of documented impacts to elk and other prey species. Terrain or access is difficult in these areas and hunters did not reach harvest limits in the Panhandle, Lolo, and Selway Zones in 2009. Fish and Game isn't proposing specific harvest limits in the Palouse-Hells Canyon, Dworshak-Elk City, McCall-Weiser, and Southern Idaho Zones because of high conflict potential with livestock and other domestic animals.

Fish and Game uses a similar strategy for black bears and mountain lions, which have

long been under state management. In general, both populations are thriving in Idaho.

Hunters will be required to report wolf harvests within 72 hours and bring harvested wolves to Fish and Game to confirm gender, approximate age, kill location and other information. In 2009, less than one-percent of hunters who purchased an Idaho wolf tag were successful. To increase harvest rates in 2011, Fish and Game will allow electronic calls and increase the annual bag limit to two wolves for hunters.

2011-2012 Wolf Hunting Season:

- Standard hunting season dates statewide: Aug 30 - Mar 31, except for Aug 30 - Dec 31 in Island Park and Beaverhead wolf management zones and Aug 30 - June 30 in Lolo and Selway zones.
- Hunters may buy 2 tags per calendar year.
- Bag limit: No person may take more than one wolf per legal tag in his or her possession.
- Wolf seasons are Any-Weapon seasons.
- Electronic calls may be used statewide.
- Wolves may be taken incidentally during fall bear baiting.
- Reduced-price nonresident wolf tags ($31.75) statewide.
- Hunters must report killing a wolf within 72 hours. Hunters must present skull and hide to IDFG office within 10 days.
- The wolf season closes when the harvest limit for that zone is reached or the season closing date, whichever comes first.

Wolf Hunting Seasons

Zone (Hunting Units)	Season Dates	Harvest Limit	Notes
Panhandle (1, 2, 3, 4, 4A, 5, 6, 7, 9)	Aug 30 - Mar 31		
Palouse-Hells Canyon (8, 8A, 11, 11A, 13, 18)	Aug 30 - Mar 31		
Lolo (10, 12)	Aug 30 - June 30		
Dworshak-Elk City (10A, 14, 15, 16)	Aug 30 - Mar 31		
Selway (16A, 17, 19, 20)	Aug 30 - June 30		
Middle Fork (20A, 26, 27)	Aug 30 - Mar 31		
Salmon (21, 21A, 28, 36B)	Aug 30 - Mar 31	40	
McCall-Weiser (19A, 22, 23, 24, 25, 31, 32, 32A)	Aug 30 - Mar 31		Motorized hunting restrictions apply in some units. Please see Page 70 of the big game brochure.
Sawtooth (33, 34, 35, 36, 39)	Aug 30 - Mar 31	60	
Southern Mountains (29, 36A, 37, 37A, 43, 44, 48, 49, 50, 51)	Aug 30 - Mar 31	25	Motorized hunting restrictions apply in some units. Please see Page 70 of the big game brochure.
Beaverhead (30, 30A, 58, 59, 59A)	Aug 30 - Dec 31	10	Motorized hunting restrictions apply in some units. Please see Page 70 of the big game brochure.
Island Park (60, 60A, 61, 62, 62A, 64, 65, 67)	Aug 30 - Dec 31	30	Motorized hunting restrictions apply in some units. Please see Page 70 of the big game brochure.
Southern Idaho (38, 40, 41, 42, 45, 46, 47, 52, 52A, 53, 54, 55, 56, 57, 63, 63A, 66, 66A, 68, 68A, 69, 70, 71, 72, 73, 73A, 74, 75, 76, 77, 78	Aug 30 - Mar 31		Motorized hunting restrictions apply in some units. Please see Page 70 of the big game brochure.

2011-2012 Wolf Trapping Season

Based on hunter success in 2009 and the inability of hunting pressure to manage wolves across most of their range in North America, the Fish and Game Commission set a trapping season from November 15 through March 31 in all or some of the Panhandle, Lolo, Dworshak-Elk City, Selway and Middle Fork Zones.

These include areas where access is limited, terrain is difficult, but where wolves are having significant impacts on other big game animals or approaching isolated communities such as Elk City.

Fish and Game will evaluate Idaho trapper participation, catch rates, gear effectiveness, incidental take and potential conflicts with other uses.

With support of the Idaho Trappers Association, state regulations require wolf-specific training before trapping for wolves, reporting requirements, and restrictions on the types of traps used. The commission set an annual bag limit of five wolves for trapping.

Goals
A goal of wildlife managers is to reduce wildlife related conflicts with people, domestic animals, and other wildlife. Conflicts can occur where bears, wolves and mountain lions threaten people or domestic animals or suppress other game populations. They can occur where beavers and raccoons cause property damage, or where elk and deer eat too many crops.

We recognize that public views on wolf hunting and trapping range from those who strongly oppose any harvest of wolves to those who strongly oppose any wolves in Idaho. Neither view can be accommodated under federal or state law.

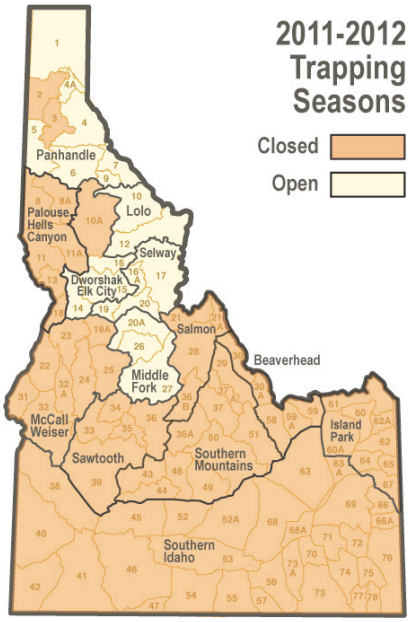
To continue to meet federal delisting criteria, Fish and Game will manage for at least

150 wolves and 15 breeding pairs of wolves in Idaho. Given harvest experience in Idaho, Montana, Alaska and Canadian provinces, it is highly unlikely that a single hunting and trapping season could reduce Idaho's wolf numbers to a level that would compromise our ability to meet recovery goals. Idaho currently has more than 1,000 wolves.

Wolf Harvest and Population Monitoring
Fish and Game biologists will closely track harvest through mandatory reports and check in. Wolf populations are closely monitored using radio telemetry (70-80 wolves are currently wearing active radio collars) to determine a minimum estimate of packs, breeding pairs and total wolves.

The Fish and Game Commission will review the number and distribution of wolf harvest at its November and January meetings. Biologists may brief the Commission at any time if other sources of wolf mortality significantly increase, or if mid-winter population estimates indicate concerns. Fish and Game will also evaluate and initiate any control actions if needed based on continued conflict potential and low public harvest.

Fish and Game will make up-to-date zone-based harvest information available to the public via the Fish and Game website.



2011-2012 Wolf Trapping Season:

- Trapping season dates: November 15 - March 31.
- Trappers may buy up to 3 tags with trapping license for use in those zones with an open trapping season in addition to 2 tags purchased for hunting;
  un-used tags from hunting season (up to 2) may also be used to tag trapped wolves.
- Bag limit: No person may take more than one wolf per legal tag in his or her possession.
- Methods of take: Both snares and foothold traps w/ jaw spread not to exceed 9 inches are legal during wolf trapping season.
- Tags purchased for trapping may be used to take wolves through hunting where and when the wolf trapping season is open.
- Baiting regulations for trapping wolves are consistent with regulations for furbearers.
- Mandatory trapping education class required before purchasing tags for wolf trapping.
- 72 hour trap check requirement, same as for furbearer trapping.
- Reduced price nonresident wolf tags ($31.75) statewide.
- Mandatory report within 72 hours of kill; mandatory check within 10 days.

Wolf Trapping Seasons

Zone (Hunting Units)	Trapping Season Dates	Notes
Panhandle (1, 2, 3, 4, 4A, 5, 6, 7, 9)	Nov 15 - Mar 31	Trapping season open in Units 1, 4, 4A, 5, 6, 7, 9. Units 2 and 3 CLOSED.
Palouse-Hells Canyon (8, 8A, 11, 11A, 13, 18)	CLOSED	
Lolo (10, 12)	Nov 15 - Mar 31	
Dworshak-Elk City (10A, 14, 15, 16)	Nov 15 - Mar 31	Trapping season open in Units 14, 15, 16 only. Unit 10A CLOSED.
Selway (16A, 17, 19, 20)	Nov 15 - Mar 31	
Middle Fork (20A, 26, 27)	Nov 15 - Mar 31	
Salmon (21, 21A, 28, 36B)	CLOSED	
McCall-Weiser (19A, 22, 23, 24, 25, 31, 32, 32A)	CLOSED	
Sawtooth (33, 34, 35, 36, 39)	CLOSED	
Southern Mountains (29, 36A, 37, 37A, 43, 44, 48, 49, 50, 51)	CLOSED	
Beaverhead (30, 30A, 58, 59, 59A)	CLOSED	
Island Park (60, 60A, 61, 62, 62A, 64, 65, 67)	CLOSED	
Southern Idaho (38, 40, 41, 42, 45, 46, 47, 52, 52A, 53, 54, 55, 56, 57, 63, 63A, 66, 66A, 68, 68A, 69, 70, 71, 72, 73, 73A, 74, 75, 76, 77, 78	CLOSED	

Last Updated: August 10, 2011
Top of page

Wolf Hunting Guide

Montana's wolf-hunting licenses will go on sale August 8, 2011. Licenses—$19 for residents and $350 for nonresidents—will be valid within 14 specifically defined wolf management units. Hunters must obtain permission to hunt on private lands.

Wolf Management Units & Quotas

- Northwestern and central Montana have nine WMUs with a total quota of 123 wolves
- Western Montana has two WMUs with a total quota of 54 wolves
- Southwestern Montana has a total quota of 43 wolves
- Two of Montana's 14 WMUs—WMU 400 and 390 respectively—stretch across the northeastern and southeastern portions of the state to the North Dakota border

Wolf Hunting Season Dates

- Early Season Backcountry Archery: Sept. 3-14
- Early Season Backcountry Rifle: Sept. 15-Dec. 31
- General Season Archery: Sept. 3-Oct. 16
- General Season Rifle: Oct. 22-Dec. 31
- The hunting season will close in a specific WMU when the quota is reached
- If a WMU's quota isn't met, the wolf-hunting season could be extended in that area to run through Dec. 31
- Wolf hunting regulations are available here and from most FWP license providers

Check back soon for more details.

Nos. 11-35661, 11-35670

[consolidated cases]

IN THE UNITED STATES CIRCUIT COURT OF APPEALS
FOR THE NINTH CIRCUIT

ALLIANCE FOR THE WILD ROCKIES, et al., Plaintiffs-Appellants,
v.
KEN SALAZAR, in his official capacity as United States Secretary of the Interior, et al., Defendants - Appellees

---

CENTER FOR BIOLOGICAL DIVERSITY, et al., Plaintiffs-Appellants,
v.
KEN SALAZAR, in his official capacity as United States Secretary of the Interior, et al., Defendants - Appellees

---

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MONTANA

DECLARATION OF MICHAEL GARRITY

REBECCA KAY SMITH
Public Interest Defense Center, P.C.
P.O. Box 7584
Missoula, MT 59807
Tel: (406) 531-8133

JAMES JAY TUTCHTON
Tutchton Law Office LLC
6439 E. Maplewood Ave.
Centennial, CO 80111
Tel: (720) 301-3843

ATTORNEYS FOR APPELLANTS ALLIANCE FOR THE WILD ROCKIES, ET AL.

I, Michael Garrity, declare as follows:

1. I am the Executive Director of Appellant Alliance for the Wild Rockies (Alliance).

2. I make this declaration in support of Appellants' Renewed Motion for Injunction Pending Appeal.

3. I make the statements in this declaration based upon my personal knowledge. I am competent to testify to the matters stated herein.

4. As of October 13, 2011, the State of Idaho Fish and Game reported that 53 wolves had been killed by hunters in Idaho.

5. Additionally, 81 other wolves have been killed in Idaho from Jan 1, 2011 - September 30, 2011 by state and federal control actions, illegal kills, legal protection of pets and livestock, illegal kills and unknown reasons.

6. As of October 14, 2011, the State of Idaho Fish and Game had sold 25,500 wolf hunting permits.

7. As of October 14, 2011 the State of Montana Fish, Wildlife, and Parks Department reported that 11 wolves have been killed by hunters in Montana.

8. Additionally, 71 other wolves have been killed in Montana in 2011by state and/or federal control actions, legal and illegal kills by humans, and vehicle and train kills.

9. As of October 10, 2011, the State of Montana Fish, Wildlife, and Parks Department had sold 11,401 wolf hunting permits.

10. In Montana, big game (elk and deer) rifle hunting season opens on October 22, 2011. The general rifle season on wolves also opens on October 22, 2011. In Idaho, the majority of elk and deer zones open for rifle hunting around October 10 or October 15, 2011. Thus, within the next few weeks, the numbers of wolves shot by hunters will accelerate due to the higher likelihood of wolf-human interactions (more hunters in the field during big game season) and the easier method of killing wolves (rifles as opposed to archery equipment). Moreover, once the snow begins to fall, wolves will be

be easier to track and find. Thus, wolf kill numbers will also accelerate due to snowfall in the coming months.

11. Already my and Alliance's members' interests have suffered irreparable harm by the exterminations of individual wolves and the disruptions of the strict social hierarchy of individual wolf packs, such as removal of alpha males and females from dependent wolf packs. Our members will continue to suffer irreparable harm for each individual wolf killed and wolf pack disrupted, especially in the numerous areas across Montana and Idaho where our members visit and live with the hope of viewing and studying healthy, socially intact wolf packs.

12. I, and Alliance's members and staff, are also concerned about the viability of the gray wolf population in Montana and Idaho. The peer-reviewed, published scientific research predicts that the current Montana and Idaho wolf hunting and extermination levels are not sustainable. Our members will further suffer irreparable harm because wolf's viability as a species in the United States will be threatened if the wolf populations in Montana and Idaho are reduced to the levels currently authorized by Montana and Idaho.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed this 14th Day of October, 2011.

Michael Garrity
Executive Director, Alliance for the Wild Rockies

Rocky Mountain Wolf Recovery
2010 Interagency Annual Report

A cooperative effort by the U.S. Fish and Wildlife Service, Montana Fish, Wildlife & Parks, Nez Perce Tribe, National Park Service, Blackfeet Nation, Confederated Salish and Kootenai Tribes, Wind River Tribes, Washington Department of Wildlife, Oregon Department of Wildlife, Utah Department of Natural Resources, and USDA Wildlife Services

MFWP Photo by Liz Bradley

This cooperative annual report presents information on the status, distribution and management of the Northern Rocky Mountain wolf population from January 1, 2010 to December 31, 2010. It is also available at:

http://westerngraywolf.fws.gov/annualreports.htm

Suggested Citation: U.S. Fish and Wildlife Service, Montana Fish, Wildlife & Parks, Nez Perce Tribe, National Park Service, Blackfeet Nation, Confederated Salish and Kootenai Tribes, Wind River Tribes, Washington Department of Wildlife, Oregon Department of Wildlife, Utah Department of Natural Resources, and USDA Wildlife Services. 2011. Rocky Mountain Wolf Recovery 2010 Interagency Annual Report. C.A. Sime and E. E. Bangs, eds. USFWS, Ecological Services, 585 Shepard Way, Helena, Montana. 59601.

Note to Readers:

The 2010 Interagency Annual Report is comprised of separate sections, one each for the individual annual reports from the state of Montana, the Nez Perce Tribe for Idaho, federal agencies for Wyoming and Yellowstone National Park combined, and the overall U.S. Fish and Wildlife Service Northern Rockies Wolf Recovery Program. This makes for some degree of overlap and duplication between sections. Despite producing individual annual reports by state in this modified structure, the public can still access information about gray wolves in the northern Rocky Mountains in a single, comprehensive report or by individual state.

You can download the Interagency Report in its entirety and cite the Interagency Report as suggested on the cover. Alternatively, you may download a state report or section of the Interagency Report and cite it individually as noted on the cover page of each individual report, respectively. I hope you find this format useful.

Thank you,

Ed Bangs
U.S. Fish and Wildlife Service Northern Rockies Wolf Recovery Program Coordinator

Abstract- The 2010 wolf population within the Northern Rocky Mountain Distinct Population Segment (Idaho, Montana, Wyoming, eastern one-third of Washington and Oregon, and a small part of north central Utah)(NRM DPS; Fig. 1) is roughly the same as it was in 2009 with at least 1,651 wolves in 244 packs, and 111 breeding pairs. Wolf packs and especially breeding pairs largely remain within the core recovery areas, but breeding pairs were again confirmed in eastern WA and OR. Agency control, hunting, other causes of mortality, and the natural territorial behavior of wolves appeared to maintain the wolf population at about 2009 levels. While breeding pairs and pack numbers were virtually identical, total numbers were down from an estimate at least 1,733 wolves in 2009 to at least 1,651 wolves in 2010. The apparent decline was solely due to a lower minimum population estimate in ID. Private and state agencies paid $453,741 in compensation for wolf-damage to livestock in 2010 the same level as in 2009. Confirmed cattle death losses in 2010 (199) were virtually the same as in 2009 (193). However, confirmed sheep (249) and dog losses (2) in 2010 were much lower than in 2009 (749 and 24 respectively). In 2010 slightly fewer problem wolves were controlled (includes agency and legal private take) (260) than in 2009 (272). In 2010 MT removed 141 wolves by agency control; ID removed 78 by agency control and another 48 by public hunting; and in WY, 40 wolves were removed by agency control. No wolves were removed by agency control in OR or WA. A lone depredating wolf was killed by agency control in UT. In 2010 Federal agencies spent $4,566,000 for wolf management. Wolves became delisted May 4, 2009, but on August 5, 2010 a federal court order put wolves in the NRM DPS back on the list of endangered species.

INTERAGENCY REPORT TABLE OF CONTENTS

NORTHERN ROCKIES LIST OF TABLES

NORTHERN ROCKIES LIST OF FIGURES

NORTHERN ROCKIES BACKGROUND

Gray wolf populations were extirpated from the western U.S. by the 1930s. Subsequently, wolves from Canada occasionally dispersed south into Montana and Idaho but failed to survive long enough to reproduce. Eventually, public attitudes toward predators changed and wolves received legal protection with the passage of the Endangered Species Act (ESA) in 1973. Wolves began to successfully recolonize northwest Montana (NW MT) in the early 1980s. By 1995, there were 6 wolf packs in northwest Montana. In 1995 and 1996, 66 wolves from southwestern Canada were reintroduced to Yellowstone National Park (YNP) (31 wolves) and central Idaho (CID) (35 wolves). From 1989-2001, we also relocated wolves 117 times to reduce conflicts with livestock, including moving wolves among different recovery areas. This included 10 wolf pups from NW MT whose pack was involved in chronic livestock depredation were relocated to YNP. They were released from their holding pen in spring 1997.

The NRM DPS (Montana, Idaho, and Wyoming, the eastern one-third of Washington and Oregon, and a small part of north central Utah) contains 3 core recovery areas: the NWMT (Figs. 1, 2) includes northern Montana and the northern Idaho panhandle; the Greater Yellowstone Area (GYA) (Figs. 1, 3) includes Wyoming and adjacent parts of Idaho and Montana; the CID (Figs. 1, 4) includes central Idaho and adjacent parts of southwest Montana. Wolf packs were also documented adjacent to CID in eastern Oregon and Washington for the second time in 2010 (Tables 6 & 7). Wolves in the NRM DPS were relisted by court order in 2010. Wolves in Montana are managed by Montana Fish, Wildlife and Parks (MFWP). Wolves in Idaho were managed by Idaho Department of Fish and Game (IDFG) until October 2010 and are now being managed by the U.S. Fish and Wildlife Service (USFWS) with assistance from the Nez Perce Tribe (NPT). Tribes manage wolves on their tribal reservations. Wolves in Wyoming continue to be managed by the USFWS. The USFWS assists the Washington Department of Wildlife, the Oregon Department of Wildlife, and Utah Department of Natural Resources to manage wolves in their states.

NORTHERN ROCKIES WOLF SUMMARY 2010

Abstract- The 2010 wolf population within the Northern Rocky Mountain Distinct Population Segment (Idaho, Montana, Wyoming, eastern one-third of Washington and Oregon, and a small part of north central Utah)(NRM DPS; Fig. 1) is roughly the same as it was in 2009 with at least 1,651 wolves in 244 packs, and 111 breeding pairs. Wolf packs and especially breeding pairs largely remain within the core recovery areas, but breeding pairs were again confirmed in eastern WA and OR. Agency control, hunting, other causes of mortality, and the natural territorial behavior of wolves appeared to maintain the wolf population at about 2009 levels. While breeding pairs and pack numbers were virtually identical, total numbers were down from an estimate at least 1,733 wolves in 2009 to at least 1,651 wolves in 2010. The apparent decline was solely due to a lower minimum population estimate in ID. Private and state agencies paid $453,741 in compensation for wolf-damage to livestock in 2010 the same level as in 2009. Confirmed cattle death losses in 2010 (199) were virtually the same as in 2009 (193). However, confirmed sheep (249) and dog losses (2) in 2010 were much lower than in 2009 (749 and 24 respectively). In 2010 slightly fewer problem wolves were controlled (includes agency and legal

private take) (260) than in 2009 (272). In 2010 MT removed 141 wolves by agency control; ID removed 78 by agency control and another 48 by public hunting; and in WY, 40 wolves were removed by agency control. No wolves were removed by agency control in OR or WA. A lone depredating wolf was killed by agency control in UT. In 2010 Federal agencies spent $4,566,000 for wolf management. Wolves became delisted May 4, 2009, but on August 5, 2010 a federal court order put wolves in the NRM DPS back on the list of endangered species.

Wolf Population- Estimating the size of the NRM DPS wolf population became less precise as it grew larger and our monitoring effort remained constant. However, our minimum estimate of the NRM DPS wolf population it is still a very accurate compared to most estimates of wildlife population density and distribution in North America. The NRM DPS wolf population in 2010 was estimated to be about what it was in 2009. In 2010 wolf numbers in the states of MT, WY, WA, and OR increased slightly (~9%) from 2009 levels but the 2010 Idaho estimate was about 20% lower than 2009. Pack and breeding pair estimates in 2010 were the same as in 2009. We suspect the difference in wolf numbers in ID was partly due to loss of radio-collared wolves and reduced monitoring effort in the inaccessible rugged forested mountainous terrain in central ID Wilderness areas. In addition to our wolf monitoring data, other indices of wolf population abundance, such as livestock damage, percentage of packs depredating, agency control, and site-specific research suggested the overall wolf population in 2010 was not higher than 2009 levels.

On December 31, 2010 the gray wolf population in NRM DPS was estimated to have at least 1,651 wolves in 244 wolf packs, and 111 breeding pairs, similar to the estimates in 2009 (1,733 wolves; 242 packs; and 115 breeding pairs). The overall distribution of the NRM DPS wolf packs also was similar (Figure 1). At the end of 2010 we estimated there were at least 374 wolves in the Northwest Montana Recovery Area (NWMT), 501 in the Greater Yellowstone Recovery Area (GYA), and 739 in the Central Idaho Recovery Area CID)(Figure 1, Table 4a). Within the NRM DPS by state boundaries, there were an estimated minimum of 566 wolves in Montana, 343 in Wyoming, 705 in Idaho (Table 4b). Sixteen wolves were in eastern Washington and 21 in eastern Oregon (Tables 6 & 7). Only 1 pack was located adjacent to the NRM DPS (Twisp, WA) and it did not raise pups in 2010. Of approximately 244 packs (groups of 2 or more wolves with territories inside the NRM DPS persisting until Dec. 31, 2010), 111 packs met the definition of "breeding pair," (packs containing at least one adult male and one adult female and 2 or more pups on December 31) (Tables 4a, 4b). Minimum recovery goals (an equitably distributed wolf population that contained at least 300 wolves and 30 breeding pairs in Montana, in Idaho, and in Wyoming for at least 3 successive years) have been exceeded in the NRM DPS every year since 2002 (Table 4b).

Wolf Packs- The NRM DPS had 244 confirmed wolf packs at the end of 2010. Pack size in the NRM DPS averages less than 7 wolves at the end of the year. Montana had 118 wolf packs present at some point in 2010 but 13 packs (11% of all packs present in 2010) were no longer thought to exist by the end of 2010 (Table 1). In WY, 45 packs were present but 3 (7%) were gone by end of 2010 (Table 2). In ID, 87 wolf packs were present but 14 (16%) were gone by end of 2010 (Table 3). Agency control was likely responsible for (48%) of all the packs in the NRM DPS that did not persist. However, about one half of the packs that were recorded as not persisting in ID in 2010 were simply not confirmed due to the difficulty of monitoring wolves in

the central ID Wilderness. All packs in WA and OR persisted into the end of 2010. No packs were documented in UT (Table 6).

Wolf Depredations- In 2010 wolf depredation was about the same on cattle, decreased on sheep and dogs, and increased on other types livestock compared to 2009. Wolves in the NRM DPS subsist mainly on elk, white-tailed deer, mule deer, and moose, but livestock are also attacked. Although depredation results in a comparatively small proportion of all livestock losses in the NRM DPS, wolf damage can be significant to some livestock producers in the areas with wolves. Confirmed livestock depredations by wolves in 2010 were down from 2009 levels but included 199 cattle, 249 sheep, 2 dogs, and 15 other livestock (2 llamas, 6 goats, 4 horse, 4 miniature horses, and a domestic bison)(Tables 5 & 6). Approximately 64 out of 260 NRM DPS wolf packs (outside of YNP) that existed in 2010 (25%) were involved in at least one confirmed livestock or pet depredation down from the 2009 estimate of 32% of packs outside of YNP being involved in at least one depredation.

Agency Control of Problem Wolves- Lethal control of problem wolves (includes by agencies and legal take by private citizens in defense of private property) in 2010 (260) was 4% lower than 2009 (272) levels. Agency control in Montana removed the largest and Idaho the smallest proportion of their wolf population in 2010. For strictly comparative purposes we estimated the absolute minimum number of wolves alive in 2010 by combining the at least 1,651 wolves alive on Dec 31, and by adding all known wolf mortality (260 by agency control, 48 by hunting, and 86 by all other known causes (illegal, accidental, and natural which are all obviously under-reported and do not include mortality of young pups). This absolute minimum estimated population of 2,045 wolves at some point during 2010 [MT (746), ID (849), WY (412), WA (16), OR (21), UT (1)] was only used to compare the relative rates of wolf removal between states and by cause. A total of 259 wolves (13% of the minimum NRM DPS population) were removed by agency control in 2010 (141 in Montana, 40 in Wyoming, 78 in Idaho) (Table 5b). In 2010 agency authorized control (which included legal take by private citizens in defense of their private property- 16 in MT, 13 in ID, and 0 in WY- Table 1) removed 18% of the estimated minimum wolf population in MT; 10% in WY; 9% in ID.

Public Hunting of Wolves- Fair-chase hunting removed a maximum of 2% of the minimum estimated 2010 NRM DPS wolf population. ID extended a fall 2009 fair-chase hunting season into early 2010 (Jan 1- March 31) and 48 wolves were harvested. Hunting removed a maximum of 6% of Idaho's minimum estimated wolf population in 2010. ID and MT both took steps to prepare for a fall 2010 hunting season. However, the seasons were canceled due to the court order wolf relisting on August 5, 2010.

Human-caused Wolf Mortality by State and Cause- MT had the highest documented rate of human-caused mortality on wolves and Wyoming the lowest. In 2010 all documented human-caused mortality (agency authorized control, hunting, and other human-caused) removed 179 wolves in MT, 142 in ID, and 56 in WY. This meant 24% of the estimated minimum wolf population in MT, 17% in ID, and 13% in WY was known to be killed by people in 2010. In addition, past research on radio-collared NRM DPS wolves from 1984-2004 (Murray et al. 2010; Smith et al. 2010) indicated roughly 26% of adult-sized wolves died annually (80% of all morality was caused by humans) and the population still grew >20% annually. On average about

10 of them were killed by agency control, 10 by illegal killing, 3 were killed accidentally by people (mainly vehicle collisions) and 3 by natural causes (mainly wolf-to-wolf conflict and disease/parasites, which, because of fewer prey, caused the natural decline of wolves in YNP in 2008).

Wolf Funding- The cost of wolf management in the NRM DPS increased in Federal Fiscal Year 2010 (Oct 1, 2009-Sept 30, 2010). Federal agencies spent $4,556,000, including $1,103,000 spent by USDA WS to investigate reports of suspected wolf damage and to control problem wolves. In 2010, $453,741 was paid by private and state compensation programs for confirmed, probable, and likely livestock damage caused by NRM DPS wolves, a very similar amount to that paid in 2009 ($457,785). In 2010, $96,097 in compensation for wolf damage was paid in MT, $270,263 in ID, $82,186 in WY, $4,335 in OR, $463 in WA, and $397 in UT. In FY 2011, an estimated $4,765,000 in federal funding will be spent for wolf management in the NRM DPS.

Table 1. Wolves legally killed by private citizens in defense of private property**, either in the act of depredating or under shoot on sight permits from Jan. 1995 through December 2010 or under state defense of property laws when wolves were delisted from May 2, 2009 to August 5, 2010.

Year	# WY	# ID	# MT
1995-2000	0	0	2
2001	0	0	0
2002	0	0	1
2003	2	0	0
2004	2	0	0
2005	1	3	7
2006	1	7	2
2007	0	7	7
2008	0	14	7
2009	0	6	14
2010	0	13	16
Total	6	50	56

**Footnote- Defense of Property regulations for legal take of problem wolves by private citizens only applied in the experimental population areas in southern Montana, Idaho south of the panhandle, and all Wyoming beginning in January 1995. The experimental population regulations for defense of property were liberalized in January 2005 and again in January 2008 for states and tribes with Service-approved wolf management plans. Only citizens in the experimental population areas of Montana, Idaho, and the Wind River Tribal Reservation in Wyoming could take advantage of those more liberal regulations to defend private property from wolf depredation.

Wolf Population Recovery- By every biological measure the NRM DPS wolf population is fully recovered. Resident packs appear to saturate suitable habitat in the core recovery areas and dispersing wolves routinely travel between them and Canada and successfully breed. Consequently, genetic diversity in the NRM DPS is very high and will almost certainly be

maintained solely by natural dispersal at a population size less than half of current levels (vonHoldt et al. 2010). The 3 subpopulations function as a single large NRM DPS meta-population (Figure 1). In addition, the NRM DPS is simply a 400-mile southern extension of a vast western Canadian wolf population that by itself contains over 12,000 wolves. Lone dispersing wolves continue to routinely travel beyond the core recovery areas and a few even go outside the NRM DPS.

Data collected in 2010 about wolf distribution, numbers, packs, and breeding pairs; livestock depredation, compensation, and wolf control; and apparent declines in prey populations in the most remote areas in the NRM DPS that have the lowest rate of livestock conflict and the longest history of pack persistence (YNP and central Idaho Wilderness), suggest the NRM DPS wolf population maybe stabilizing or even starting a slow decline to some as yet undetermined lower equilibrium based on natural carrying capacity in suitable habitat and human social tolerance.

Numerous research projects are underway examining: wolf population dynamics, predator-prey interactions, wolf interactions with other wildlife species, wolf diseases and parasites, possible wolf-caused trophic cascades, wolf/elk interactions on elk winter feed-grounds, and livestock depredation by wolves. Numerous scientific papers were published about wolves in the NRM DPS (see literature cited).

State, tribal, and USFWS management will maintain a fully recovered wolf population in the NRM DPS while attempting to reduce conflict. Delisting the NRM wolf population would allow implementation of a more efficient, sustainable, and cost-effective wildlife conservation model, but has been difficult to achieve. However, regardless of which agencies manage the wolf population, controversy is likely to remain high because of the strong symbolism that humans ascribe to wolves.

Contacts:

Ed Bangs, USFWS Wolf Recovery Coordinator, 406-449-5225 x204
Mike Jimenez- USFWS Project Leader for Wyoming Wolf Management, 307-330-5631
Steve Duke- USFWS, Asst. Field Supervisor Boise ID, 208-378-5345
Curt Mack- Nez Perce Tribe, (Idaho), 208-634-1061
Doug Smith, Yellowstone National Park, 307-344-2242
Lauri Hanauska-Brown- Montana FWP, 406-444-5209
Harriet Allen– Washington DFW, Endangered Species Manager, 360-902-2694
Russ Morgan- Wolf Coordinator, Oregon DFW, 541-963-2138
Kevin Bunnell, Utah DNR, 801-538-4758

The Northern Rocky Mountain Gray Wolf Is Not Yet Recovered

BRADLEY J. BERGSTROM, SACHA VIGNIERI, STEVEN R. SHEFFIELD, WES SECHREST, AND ANNE A. CARLSON

Without seeking independent scientific review, Interior Secretary Ken Salazar recently approved a 14 January 2009 Bush administration rule to remove endangered species protection from the northern Rocky Mountain (NRM) Distinct Population Segment (DPS) of gray wolves less than 14 years after their reintroduction to Idaho and Wyoming. The "delisting" rule does not adequately address lack of genetic connectivity between Yellowstone wolf packs and other NRM populations, for which reason a federal court overturned the 2008 predecessor of the rule. The US Fish and Wildlife Service defies its own policies by delisting the Idaho and Montana portions of the DPS while Wyoming wolves remain endangered. Criteria for this delisting are inconsistent with prior delistings of recovered birds and mammals. New scientific understanding of species recovery argues for a higher delisting threshold for the NRM gray wolf metapopulation. Finally, we argue that ecosystem recovery should be a recovery criterion for this unique keystone predator.

Keywords: northern Rocky Mountain gray wolf, Endangered Species Act, US Fish and Wildlife Service, genetic connectivity, population viability analysis

Barack Obama, president of the United States, has promised to let scientific facts, unclouded by politics or ideology, guide his administration's environmental policy decisions. As scientists, we applaud this promise. We believe that Interior Secretary Salazar broke that promise, however, with his 6 March 2009 endorsement—without further independent scientific review—of a politically motivated Bush administration decision to remove protection for an endangered species. Since its preplanning stages in the 1980s, the 1995–1996 reintroduction of the extirpated gray wolf (*Canis lupus*) in Yellowstone National Park (YNP) and parts of Idaho, and its subsequent recolonization of surrounding ecosystems within a portion of the northern Rocky Mountain (NRM) Distinct Population Segment (DPS), has been embroiled in regional and state politics, with powerful special interests opposing the return of this native species. In this article we make the case that the current delisting rule for the NRM gray wolf is premature and inadequate because it (a) is not based on the best available science, (b) is insufficient for maintaining a viable metapopulation, (c) violates the policies of the US Fish and Wildlife Service (USFWS) on DPSs, and (d) does not address deficiencies in state management plans that leave wolf populations at risk.

A brief history of the restoration and delisting of the NRM gray wolf

In the 1970s, 40 years after wolves were extirpated in the western United States, naturally dispersing gray wolves from Canada began to colonize northwestern Montana. These populations were immediately protected under the 1973 Endangered Species Act (ESA; 16 U.S.C. 1531–1544, 87 Stat. 884), joining those in northeastern Minnesota as the only extant gray wolves in the contiguous United States. Over the next decade, widespread public support for reintroducing the only native large mammal missing from America's first national park induced the USFWS to develop a plan to reintroduce gray wolves to YNP. Because wolf reintroduction was strongly opposed by some powerful public-lands user groups—primarily those with interests in ranching and hunting—and by state legislators in the region, the USFWS's proposal included liberal lethal control measures and designation of these wolves as a "non-essential experimental population." In 1987, in order to facilitate acceptance of wolf reintroduction amid strong opposition, the USFWS set recovery goals of only 10 packs (or breeding pairs) and 100 animals in each of the three states surrounding YNP. These numbers were based not on scientific data or population

BioScience 59: 991–999. ISSN 0006-3568, electronic ISSN 1525-3244. doi:10.1525/bio.2009.59.11.11

viability analysis but on the "opinions of recovery team members" (USFWS 1987, 2009a). The numbers were subsequently "validated" by a 1992 questionnaire sent to biologists asking whether 10 breeding pairs sustained for three consecutive years in a state constituted "a viable population" (EIS 1994).

Once reintroduced into central Idaho and YNP in 1995–1996, wolves expanded quickly into vast areas of federal land in the Greater Yellowstone Ecosystem (GYE) with large populations of ungulate prey; YNP alone had more than 19,000 elk (*Cervus elaphus*) at one census prior to wolf reintroduction (Smith et al. 2003). By 2001, the gray wolf population of Wyoming, Montana, and Idaho had grown to 550, of which 80 were in the naturally colonized area of northwestern Montana. Five years later, the NRM population had grown to 1300; nearly half of the wolves were in central Idaho (USFWS 2009b), where a single, contiguous, roadless expanse of 13,000 square kilometers (km^2)—an area larger than the GYE—forms the core of the federal public lands comprising 63 percent of Idaho.

By the end of 2008, the USFWS (2009a) claimed that the NRM wolf population had exceeded minimum recovery goals (300 wolves, overall, in the 250,000 km^2 core recovery area, which is a fraction of the area of the NRM DPS) for nine consecutive years, and now exceeded minimum goals fivefold. In this claim, the USFWS shifted the original goalposts of 10 pairs per state sustained for three years (see above); in fact, the northwestern Montana population first reached this minimum in 2007. The lack of rigorous scientific analysis supporting the original population thresholds was not considered in this conclusion, nor was the equally important original goal of genetic connectivity among subpopulations—"The importance of movement of individuals between sub-populations cannot be overemphasized" (EIS 1994, p. 42)—which had not been achieved between the isolated YNP wolf packs and the rest of the DPS (VonHoldt et al. 2008). Without demonstrating the presence of genetic exchange among subpopulations in the putative DPS (a requirement for metapopulation function and prevention of isolation effects; Hedrick 1996), the USFWS had no legal or biological claim that the DPS was validly defined for delisting under the ESA.

The Bush administration delisted the NRM gray wolf in March 2008, but the US District Court in Montana reinstated ESA protections in July 2008 (*Defenders of Wildlife v. Hall*, 565 F. Supp. 2d 1160 [D. Mont. 2008]), declaring the delisting rule illegal under the ESA and the 1994 Wolf Recovery Plan written by the USFWS. The judge emphasized that genetic connectivity had not been reestablished. On 14 October 2008, the federal court approved the USWFS request to vacate the delisting rule and remanded it to the USFWS for further consideration. The USFWS then proposed a nearly identical rule on 14 January 2009. Minimum recovery goals had increased, arbitrarily, to 15 packs and 150 animals in each of the three states (USFWS 2009a). Secretary Salazar, surprisingly, after a month in office and on the advice of USFWS acting director Rowan W. Gould, published the final delisting rule without seeking public comment or an independent scientific review of it, despite some modifications to the Bush administration–era plan. The final delisting rule became effective 4 May 2009 (USFWS 2009a).

Politics trumps science in arbitrary definition of DPS

The USFWS is disregarding much current scientific research, and its own precedents, in its rush under Secretary Salazar to delist the gray wolf in Idaho and Montana, while admitting that wolves in the Wyoming portion of the DPS are not recovered. Political pressure to control and even reduce current wolf populations is strong in all three states. The USFWS feels it has a solid case for rejecting only Wyoming's wolf management plan, but in a 2004 letter the agency itself ruled as illegal the option of proceeding with a partial delisting before the entire DPS was recovered. The Wyoming management plan allows wolves to be shot on sight in most of the state outside national parks, a practice the USFWS has concluded will put wolves at risk of extirpation in Wyoming. Besides being biologically indefensible, using political boundaries both to define a DPS and to subdivide it for delisting has been ruled illegal in previous court cases (*Defenders of Wildlife v. Secretary, US Department of Interior*, 354 F. Supp. 2d 1156 [D. Oreg. 2005]); moreover, it violates the USFWS's own precept that DPS boundaries be "supported by sound biological principles." An unintended consequence of the sudden change in status across state lines will most likely be the shooting of "protected" wolves from Wyoming, and indeed from the YNP, as soon as they cross into Idaho or Montana (see box 1). Protected dispersal corridors are not explicitly defined in this rule, either for the protection of Wyoming wolves or for the facilitatation of genetic exchange, which the USFWS acknowledges is vital for the long-term viability of wolf populations (USFWS 2009a).

In announcing the delisting rule, Secretary Salazar stated that Idaho and Montana should not be "punished" for Wyoming's failure to produce a viable wolf management plan (Schneider 2009), which implies, of course, that hosting an endangered species living mostly on federal public lands in the northern Rockies is forced punishment on a state. The governors and state congressional delegations from Idaho and Montana hailed the decision and praised Salazar; Wyoming's reaction was a comparatively restrained show of displeasure at their continuing so-called punishment.

Delisting rule ignores the lack of genetic connectivity

The court ruled that the Bush administration's 2008 delisting plan was biologically indefensible: Plaintiffs had proved that the YNP population was genetically isolated and would suffer decline as a result of inbreeding, and the USFWS acknowledged the point (*Defenders of Wildlife v. Hall*). Recent studies suggest that extinction risk from inbreeding depression and the loss of genetic diversity generally has been underestimated in recovery planning (Frankham 2005). The 2009 delisting rule for the gray wolf differs from its predecessor in two respects: (1) Wyoming has been excluded from the

delisting, and (2) the USFWS proposes to facilitate genetic exchange among isolated populations through vehicular transport of wolves around the DPS (USFWS 2009a). It is biologically indefensible to argue that a species is recovered when its persistence requires such extensive and ongoing human intervention ("human-assisted migration management," in USFWS [2009a] terms). Perhaps more important, recent genetic studies of highly structured metapopulations of gray wolves have shown that adaptation to local ecosystems occurs (Musiani et al. 2007), that dispersal may be limited by climate and habitat (Geffen at al. 2004), and that prey specialization can restrict gene flow (Carmichael et al. 2007). Thus, it is vital that wolves make their own "dispersal decisions"; that is, a natural preselection of suitable migrants is necessary to maintain a proper balance between gene flow and local adaptation.

Box 1. Sound management? Idaho may reduce wolf population by 40 percent in first year.

On 17 August 2009, the Idaho Fish and Game Commission voted 4–3 to set "conservative" harvest limits of 220 wolves for the 2009 hunting season; three commissioners voted to set the quota at 430 wolves (*Idaho Mountain Express and Guide*, 19 August 2009). At the same time, the commission agreed to an eventual reduction to 518 wolves, using methods in addition to hunter harvest. In 2008, 153 wolves were known to have died in Idaho, 108 from lethal control actions (Idaho Progress Report 2008, USFWS 2009a). If a similar number of deaths in 2009 were added to the 220 harvested, 373 wolves could die in Idaho in 2009, which, if the population growth rate were the same as the previous year's (10 percent), would mean a 40 percent population reduction in one year. The commission said it will reconsider its 2009 harvest quotas at its November meeting.

The state of Montana set a 2009 harvest quota of 75 wolves. At the time this article went to press, a lawsuit to overturn the NRM delisting, filed by 14 conservation groups, was pending. An injunction filed by those groups to halt the Idaho and Montana harvests was rejected by the federal district court on 8 September 2009, but in the ruling Judge Molloy implied that the plaintiffs might prevail in their overall suit. He wrote: "The service has distinguished a natural population of wolves based on a political line, not the best available science. That, by definition, seems arbitrary and capricious" (*New York Times*, 10 September 2009).

The fallacy of assuming that Wyoming wolves remain protected, given the lack of buffer zones around Yellowstone National Park in state wolf hunts, came into sharp focus this autumn. An early hunt in Montana's Absaroka-Beartooth Wilderness just north of Yellowstone resulted in the deaths of 6 members of the "Cottonwood Pack," which was central to a long-term study of one of the last remaining unharvested gray wolf populations, and whose territory was 95 percent inside park boundaries. These wolves took only wild prey. On 3 October 2009, the radio-collared alpha female of that pack, who had provided crucial data for five of her seven years of life, was killed by a hunter (Morrell 2009).

Nascent success of wolf restoration may be stalled to placate grazing interests

The premature delisting decision and the definition of the delisted DPS along boundaries of political convenience, which include vast areas of suitable habitat (Carroll et al. 2006) currently unoccupied by wolves (figure 1), run counter to the stated purpose of the ESA: "to provide a means whereby the ecosystems upon which endangered species... depend may be conserved." The success of NRM wolf reintroduction to date is a triumph and a credit to USFWS and state and National Park Service biologists, but the serious compromises to the initial recovery plan and goals, including liberal lethal control and "non-essential experimental status," were made not on the basis of scientific evidence of species recovery but rather on the politics of livestock ranching. The argument that a healthy wolf population will cause significant loss of livestock is not supported when the numbers are examined.

Across the three-state NRM region in 2008, biologists documented that wolves killed 214 cattle, 355 sheep, 28 goats, 21 llamas, 10 horses, and 14 dogs; but the same year, a single severe storm killed more than 1200 calves and lambs (USFWS 2009a). A recent study found that only 3 percent of all livestock losses in the northern Rockies were due to all native predators combined (Van Camp 2003). Worldwide, livestock losses to wild canids generally total less than 2 percent of all losses in a given year, regardless of canid population densities (Alderton and Tanner 1994). Records compiled by the

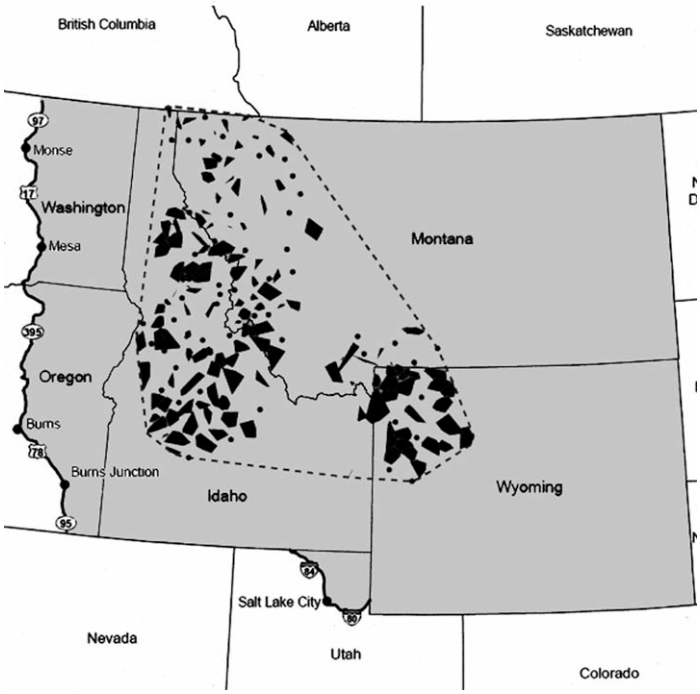


Figure 1. Boundaries of the Northern Rocky Mountain Distinct Population Segment (NRM DPS) as identified in the April 2009 delisting rule for the gray wolf (gray shading); distribution map of existing wolf packs as of 2007 (dark polygons); and location of core recovery area (dashed line) as published in the* Federal Register *(USFWS 2009b).

Montana Department of Livestock show that in 2002, Montana's 108 wolves caused less than 0.000008 percent of total livestock losses in the state (including weather, disease, and other causes; Van Camp 2003). In Idaho in 2001, 10 cattle and 54 to 62 sheep were killed by wolves, whereas 2600 cattle and 11,600 sheep were killed by other predators—60 percent of the latter being coyotes (*Canis latrans*) and 9 percent being domestic dogs (*Canis lupus familiaris*), compared with about 0.005 percent killed by wolves (Van Camp 2003).

In fact, domestic dogs commit substantially more depredation on livestock than wolves in many parts of the world where they co-occur (Francis 2004). Wolves in YNP (Berger et al. 2008) and elsewhere (Fuller and Keith 1981) have been shown to suppress coyote populations and increase the relative proportion of carrion in coyote diets, so it is quite plausible that reducing wolf densities could trigger mesopredator release (Crooks and Soulé 1999, Prugh et al. 2009) and actually increase overall depredation of livestock by coyotes.

The cost to federal and state agencies to investigate NRM wolf killings and to destroy 246 suspect wolves in 2008 was about $1 million. From the start of wolf recovery programs in the region through July 2009, a compensation program funded largely by Defenders of Wildlife has awarded livestock owners $1,341,558 in restitution for wolf depredation (USFWS 2009a). In a recent survey, roughly equal majorities of ranchers identified themselves as "very concerned" about both wolf depredation and transmittal of brucellosis to their stock from wild elk (Stronena et al. 2007). This divided concern reveals an unmet need for public education in wildlife management—wolves, which preferentially prey on old and diseased elk (Wright et al. 2006), are in fact strong allies in controlling ungulate disease.

Idaho's equivocal goals for the gray wolf. Epitomizing antiwolf ideology, the Idaho legislature in the 1980s prohibited state involvement in the reintroduction of wolves, and in 2001 resolved to eradicate wolves from the state. Idaho governor Butch Otter proclaimed his desire to kill the first wolf when the species became delisted in his state (Brown and Flesher 2009). Idaho now has 846 of the 1645 wolves in the NRM DPS (table 4b in USFWS 2009a [2008 Interagency Annual Report]); the Idaho Department of Fish and Game (IDFG) recently revised its management plan from maintaining 104 wolves to a new "target" population of 500 (it is unclear whether "target" implies average, minimum, or maximum; nor is it clear whether the target applies to a winter census, which would be conservative). Montana has committed to a target wolf population of 400, and the USFWS itself promises to maintain, at minimum, 300 wolves in Wyoming (USFWS 2009a). Salazar's decision to uphold the Bush administration's delisting of the NRM gray wolf will entrust the conservation of more than half the recovering population of wolves to the state of Idaho, whose legislature and chief executive oppose the very principle of wolf restoration. Despite Idaho and Montana's newly promised target populations of several hundred individuals, each state must maintain only 150 wolves in 15 packs to forestall USFWS relisting under the ESA. When the Bush administration first delisted the NRM gray wolf DPS in March 2008, 100 wolves were slaughtered in 112 days (USFWS 2009a [2008 Interagency Annual Report]); should the current harvest scenario follow suit—as is likely—the current populations will decline to the minimal limits within three years (see box 1).

Recovery goals should be updated with new science and data

Recent genetic studies have estimated that 380,000 gray wolves populated the western contiguous United States and Mexico before European settlement (Leonard et al. 2005). By 1930, western US gray wolves had been extirpated, resulting in a 50 percent loss of genetic diversity (Leonard et al. 2005) from pre-extirpation levels. Thus, western wolves have been declared recovered with a population that is less than 1 percent of its original size, and with drastically depleted genetic diversity. This loss of genetic variation is essentially permanent and may in itself reduce the adaptability and viability of the newly founded DPS, even more so if it remains too small to function as a metapopulation. Genetic diversity was never considered in the original recovery goals, which is a significant failure even if it is twice as high as we now know it to be (see Frankham 2005). In light of this new evidence and to avoid further loss of genetic diversity, updated recovery goals should be based on an explicit calculation of the current population's effective population size (N_e, or the number of individuals contributing to the gene pool—which must consider minimum number of breeding pairs, spatial dispersion, dispersal and other factors, and can be a small fraction of the census population; Hedrick 1996).

Whether populations are reduced to the legal minimum of 300 wolves in Idaho and Montana or to 900, as those states now promise (including the Wyoming wolves under USFWS management, the legal minimum would be 600 and the promised minimum 1200), we maintain that both the initial recovery goals and the goals of the state management plans are unrealistically low for full recovery, which must include reintegration of wolf populations into ecosystems across the region.

Culling this recovering population will put it at demographic risk. Although 1600 wolves may possibly allow adequate connectivity and genetic exchange to sustain the metapopulation, the population numbers proposed under Idaho and Montana's management plans do not. The best-case scenario is the loss of nearly half the population—a substantial population bottleneck (Hedrick 1996). Furthermore, the pack structure of wolves, which in general is one breeding pair per family group, means that the N_e is considerably fewer than the census number. The unregulated harvests allowed under the proposed management plans will disrupt pack structure, which can lead to inbreeding (VonHoldt et al. 2008) and the loss of dispersing individuals, thus further minimizing connectivity and gene flow.

These genetic and structural factors alone could eventually cause the decline of the NRM population, but the wolf-culling levels proposed by Idaho and Montana will directly cause an even more rapid, unsustainable decline. We conducted simple population viability analyses with the program Vortex (Lacy 1993), using the approximate NRM population sizes (1500 in NRM, 150 in YNP), proposed best-case harvest levels (600 animals across the management unit without regard to sex or age of animals taken), and well-documented gray wolf natural history (single litter, mean of six pups per year; Mech 1974). We varied several parameters (age distribution, breeding pool, total percentage of breeding wolves, dispersal survival, age at mortality, and percentage dispersing between NRM and YNP), from realistic and conservative values to extremely liberal (in terms of facilitating persistence) and unrealistic values. In 100 percent of 10,000 simulations for all conditions, the population declined, effectively, to extinction (i.e., 100 individuals, a size well below the 450 at which the DPS would need to be relisted) in less than 10 years.

An ecosystem recovery cascade has begun but will not be sustained. More than two-thirds of the NRM DPS is uninhabited by gray wolves (figure 1). Calling for higher recovery goals and recovery over a larger area within the DPS is justified not only because the wolf population is neither genetically nor demographically viable under state management plans but also because the trophic cascade triggered by successful reestablishment of the top predator has already proved to restore degraded ecosystems. In YNP, the reintroduction of wolves has led to restoration of riparian habitat and beaver-pond communities (Ripple and Beschta 2003), aspen forests (Ripple and Beschta 2007), and songbird assemblages (Berger et al. 2001). The recolonization of gray wolves in Banff, Canada, produced similar ecosystem benefits (Hebblewhite et al. 2005), and such benefits have been attributed to other mammalian carnivores worldwide. Further, gray wolves have been shown to buffer the effects of climate change, specifically on carrion availability in YNP (Wilmers and Getz 2005).

These restoration effects were seen in YNP ecosystems when the wolf population reached its "ecologically effective" density (Soulé et al. 2005) of 16 per 1000 km^2 throughout the park's 8980 km^2 (Ripple and Beschta 2004), although the density of wolves in prime habitats of YNP's northern range had already reached 50 per 1000 km^2 by 2002 (Smith et al. 2003). The current density of wolves throughout the NRM DPS is about 5.5 wolves per 1000 km^2 (Carroll et al. 2006); if reduced to 150 in each of three states, it would be 1.6 per 1000 km^2. In contrast, Minnesota's postdelisting management plan precludes hunting and trapping for at least five years after delisting and calls for a minimum wolf population of 1600, which is 18 wolves per 1000 km^2 (MDNR 2001). A similar density of wolves, well-distributed across 277,377 km^2 of suitable habitat in the NRM DPS (Carroll et al. 2006), would equal a metapopulation exceeding 17,000. This does not include some suitable habitat in areas of Oregon, Washington, Utah, and Colorado that are outside the arbitrarily drawn DPS boundaries. Utah and Colorado alone could support an estimated 1600 wolves (Carroll et al. 2006).

The ESA's stated purpose is ecosystem conservation, and evidence is plentiful that restoration of this once-extirpated keystone predator is effecting ecosystem recovery in the NRM DPS. We believe that the wolf management plans put forth by Idaho and Montana will so deplete the numbers of gray wolves that they will no longer be able to serve as an ecologically effective keystone predator. Soulé and colleagues (2005) recommend that ecological effectiveness be made one criterion for recovery planning and argue that the authority to do so resides within the ESA. Carroll and colleagues (2006) argue that the gray wolf, which has been shown to exert strong top-down controls within ecosystems, is an ideal candidate for use of this criterion. We agree, and we further emphasize that determining ecologically effective densities is a much more scientifically robust method for establishing recovery goals than is opinion polling of recovery team members, the starting point for the USFWS's 1987 recovery plan.

If the NRM gray wolf loses ESA protection permanently and harvesting reduces the population to minimum legal levels, it will very likely decline rapidly to the point where it will, by federal law, require relisting. This will result in a genetically depleted, small, and ineffective population in terms of ecosystem function. Recovery of such a population then will require a substantial and unnecessary additional expense—the federal government has already spent an estimated $30 million for gray wolf recovery efforts in the NRM DPS (USFWS 2009a).

Misguided concern for ungulate populations also drives aggressive state wolf management

There is no biological basis for declaring the NRM wolf DPS recovered, nor is there a wildlife management justification for the scale of the culling proposed by the states following delisting. Statistics from the IDFG show that wolves account for less than 10 percent of elk deaths in Idaho (much less than the number killed by hunters), that hunter harvest rates of elk were higher in 2005 than they were before wolf reintroduction, that elk mortality due to wolf predation is mostly replaceable, and that elk populations generally are at or above management goals, requiring cow harvest in some units (Wright et al. 2006, IDFG 2007). An IDFG press release in February 2009 reiterated that elk herd numbers had reached or were above management objectives in 26 of 29 hunting districts in Idaho. Further, the idea that wolf control will actually increase adult prey populations remains scientifically unproven. A review of this question completed by the National Academy of Science's Commission on Life Sciences concluded that several specific criteria had to be met for wolf control to affect adult prey populations (NRC 1997). Importantly, one of these was that wolves had to be the dominant predator on all stages of the life cycle of the prey species. In a three-year (2004–2006) study of elk calf mortality in northern Yellowstone, where wolves are particularly

abundant, grizzly bears (*Ursus arctos horribilis*) and black bears (*Ursus americanus*) accounted for 58 to 60 percent of calf deaths, whereas wolves accounted for 14 to 17 percent (Barber-Meyer et al. 2008).

Minnesota wolves appear closer to being recovered

The USFWS also removed the western Great Lakes DPS of the gray wolf from the endangered species list in 2009. We see this DPS—where the amount of federal lands and public-lands grazing is a small fraction of that of the NRM—as a mature analogy to the NRM gray wolf. More than 35 years of protection under the federal ESA allowed the initial population of 350 wolves in Minnesota to increase and disperse to Michigan and Wisconsin, reestablishing sustainable populations in those two states; the regional population of nearly 4000 wolves is much better connected with populations in Canada than is the NRM metapopulation. Reestablishment was a slow and gradual process, taking nearly three times as long as the NRM wolves have been given to disperse across a much larger area (MDNR 2001). Allowing time for natural dispersal to reestablish breeding populations of NRM gray wolves in significant portions of Utah and Colorado, which still lack breeding wolves, or in Oregon, which recorded its first breeding pair in 2009, as well as a broader distribution in Wyoming, Idaho, Washington, and Montana, would enhance natural gene flow and increase the likelihood of long-term recovery of the NRM DPS. Even if that effort is successful, in the western United States the gray wolf will still occupy only a fraction of its historic range (figure 2), with a population two orders of magnitude below historic levels (Leonard et al. 2005).

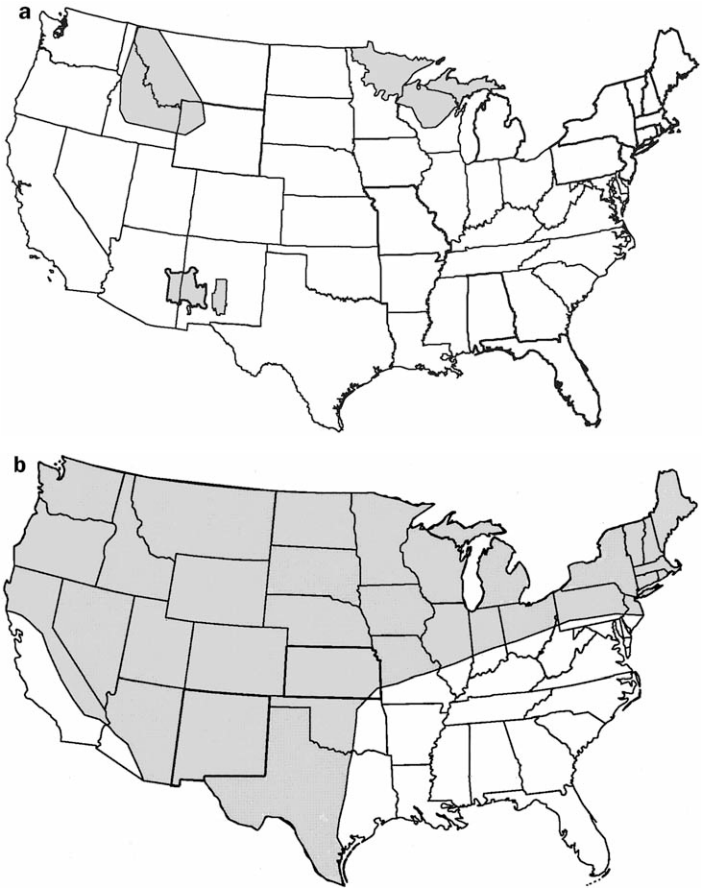


Figure 2. (a) Current distribution of three populations of gray wolf (Northern Rocky Mountain, NRM; and in clockwise order, Western Great Lakes and Mexican gray wolf) (*Canis lupus baileyi*) in the contiguous United States. Source: USFWS (2009b). (b) Original distribution of the gray wolf (*Canis lupus*) in the contiguous United States. Source: USFWS (2009b).

What has recovery looked like for other species?

Before the gray wolf delistings, only nine North American species of mammals and birds had been delisted as a result of recovery (table 1; USFWS 2009b). In these delisting cases, the recovered taxa (or DPSs) had achieved one or both of the following: (1) a minimum population of 1000 breeding pairs, or (2) an increasing or stable population well distributed across the majority of the original range of the species. At least six of these delisted species met both criteria. In contrast, the NRM gray wolf will have been recovered over only about 6 percent of its original range (or 26 percent of the DPS area; table 1; figures 1, 2a, 2b). The USFWS (2009a) claims that the currently unoccupied portion of the DPS area lacks enough suitable habitat to support pack persistence—an assertion Carroll and colleagues (2006) dispute—and thus will not be managed to allow wolf colonization. Aggressive wolf control in these areas will make it unlikely that suitable habitat beyond the DPS boundaries will be colonized.

Extrapolating from data on YNP wolf packs showing that there were only six breeding pairs for 124 wolves (NPS 2008), the current NRM metapopulation could have as few as 77 breeding pairs. The USFWS claims there are "about 100 breeding pairs" in the NRM (USFWS 2009a [press release, 14 January 2009]), but extrapolation from the YNP example suggests that even if the states (and the USFWS, in its management of wolves in Wyoming) maintain the targets they promise, there may be as few as 58 breeding pairs following delisting. Of course, only if the NRM gray wolf metapopulation drops below 450 individuals—which could mean as few as 22 breeding pairs—will the requirement for relisting be triggered.

None of the previously delisted species has been subjected to any significant level of purposeful population reduction; in fact, harvest will be allowed for only one of these delisted species (grizzly bear), and that harvest allowance is not expected to reduce the population size (IGBST 2005; see footnote a on table 1). In contrast, we fully expect that the NRM gray wolf population will be substantially reduced from its current level, especially in Idaho. Most of the species delisted before 2007 have increased considerably since delisting (e.g., a several-fold increase in the North American

Table 1. Mammals and birds delisted as a result of recovery.

Species	Taxon delisted	Year	Numbers at time of delisting	Extent of original range occupied	Populations or subspecies still listed as threatened or endangered
Brown pelican (*Pelecanus occidentalis*)	Atlantic and East Gulf coastal populations	1985	17,000 bp	Nearly all	Pacific and western Gulf coast populations[a]
Gray whale (*Eschrichtius robustus*)	Eastern Pacific DPS	1944	Fewer than 17,000 individuals	Nearly all	Western Pacific population
Arctic peregrine falcon (*Falco peregrinus tundrius*)	Subspecies	1944	190 bp	Majority	American peregrine falcon subspecies
American peregrine falcon (*Falco peregrinus amatus*)	Subspecies	1999	1000 bp	Majority	None in North America
Aleutian Canada goose (*Branta canadensis leucopareia*)	Subspecies	2001	Fewer than 20,000 individuals	Nearly all	None
Columbian white-tailed deer (*Odocoileus virginianus leucurus*)	Douglas County, Oregon, DPS	2003	5000 individuals	Nearly all	Columbia River DPS
Grizzly bear (*Ursus arctos horribilis*)	Yellowstone DPS	2007[b]	500 individuals	68%	Other lower 48 populations
Bald eagle (*Haliaeetus leucocephalus*)	Lower 48 populations	2007	About 10,000 bp	Nearly all	Sonoran Desert DPS relisted
Virginia northern flying squirrel (*Glaucomys sabrinus fuscus*)	Narrowly endemic subspecies	2008	Unspecified	Less than 85%	*Glaucomys sabrinus coloratus* subspecies
Gray wolf (*Canis lupus*)	Western Great Lakes DPS	2009	About 4000 individuals	About 30% DPS	Outside DPS boundaries
Gray wolf (*Canis lupus*)	NRM DPS	2009	About 1600 individuals	About 26% DPS; 6% region[c]	Outside DPS boundaries

bp, breeding pairs; DPS, distinct population segment.

a. On 12 November 2009, the Department of the Interior announced it would delist these populations of brown pelican.

b. On 21 September 2009, Federal District Court Judge Donald Molloy overturned the 2007 delisting, citing insufficient state protections and failure of the USFWS to adequately consider the decline of whitebark pine, a key winter food for grizzlies (*Idaho Statesman*, 22 September 2009).

c. The 250,000-square-kilometer core recovery area (CRA) = 26 percent of DPS (land area of Wyoming, Idaho, and Montana, plus portions of Washington, Oregon, and Utah); DPS = 23 percent (CRA = 6 percent) of land area of the US states west of the 97th parallel originally inhabited by non-Mexican subspecies of *Canis lupus* (excludes New Mexico and Arizona).

peregrine falcon population; USFWS 2009b). Meeting the two criteria stated above (a minimum of 1000 breeding pairs and a stable population over most of the original range) was not a coincidence for most of the nine delisted species but was actually a legal requirement of the ESA, which defines as endangered "any species which is in danger of extinction throughout all or a significant portion of its range." A threatened species is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Therefore, by law, a species must no longer be at risk of becoming endangered across a significant part—much less a majority—of its range before it can be considered recovered and delisted (Vucetich et al. 2006). In the case of the NRM gray wolf, the state and federal plans have the explicit goal of preventing colonization of areas outside the core gray wolf recovery zone, which certainly equates to a "significant portion of its range" (figures 1, 2b). Given that American society has deemed such a loss unacceptable, as evidenced by the unanimous passage of the ESA by the US Senate in 1973, it has been argued that achieving restoration across a minority of a species' range does not pass the normative test for delisting, regardless of the results of population viability analyses or other scientific data (Vucetich et al. 2006).

Restoring science to its rightful role in environmental policy. In summary, despite the Obama administration's stated intention to ensure the inclusion of science in policy decisions, it appears that in the decision to delist the NRM gray wolf, the USFWS and the new Interior secretary have ignored the best and latest available science, as well as the legal letter and spirit of the ESA. The documented, politically motivated suppression of science in many US government agencies, especially in the USFWS (UCS 2005), should dictate that all decisions made over the last eight years be subject to intense, independent scientific review. In this specific case, there has been no new evidence presented that runs counter to recent court decisions (*Defenders of Wildlife v. Hall*). The administration has not sufficiently reviewed the delisting rule, which is based overwhelmingly on biased state plans and an outdated and inadequate federal plan, claiming that gray wolf recovery has been and will continue to be sufficient. The complex life history, ecology, and important functional role of wolves within the NRM ecosystem preclude a rushed decision on the basis of poor science. Indeed, the ESA requires that a species be restored to its native role within its ecosystems. The United States should provide global leadership in supporting the effective conservation and restoration of native large mammal species, starting with the GYE, one of the

few remaining areas in the world with an intact historical species assemblage and, hence, an intact ecosystem (Morrison et al. 2007). Under this flawed delisting plan, the current status of the NRM gray wolf, both biologically and legally, clearly does not meet the definition of recovery and must be rescinded if President Obama is to keep his promise on science-based environmental policy.

Acknowledgments

The ideas in this article were generated, in part, through discussions among members of the Conservation Committee, American Society of Mammalogists. Bob Wayne and Ed Bangs provided information on gray wolf research and delisting. Jennifer Leonard provided valuable information and input. Bob Wayne, Suzanne Stone, and two anonymous reviewers helped improve the manuscript.

References cited

Alderton D, Tanner B. 1994. Foxes, Wolves and Wild Dogs of the World. Blanford Press.

Barber-Meyer SM, Mech LD, White PJ. 2008. Elk calf survival and mortality following wolf restoration to Yellowstone National Park. Wildlife Monographs 169: 1–30.

Berger J, Stacey PB, Bellis L, Johnson MP. 2001. A mammalian predator-prey imbalance: Grizzly bear and wolf extinction affect avian Neotropical migrants. Ecological Applications 11: 947–960.

Berger KM, Gese EM, Berger J. 2008. Indirect effects and traditional trophic cascades: A test involving wolves, coyotes, and pronghorn. Ecology 89: 818–819.

Brown M, Flesher J. 2009. Salazar OKs wolf removal from endangered species list. Idaho Statesman 6 March 2009. (9 October 2009; *www.westernwolves.org/index.php/news/32/59/salazar-oks-wolf-removal-from-endangered-species-list*)

Carmichael LE, Krizan J, Nagy JA, Fuglei E, Dumond M, Johnson D, Veitch A, Berteaux D, Strobeck C. 2007. Historical and ecological determinants of genetic structure in Arctic canids. Molecular Ecology 16: 3466–3483.

Carroll C, Phillips MK, Lopez-Gonzales CA, Schumaker NH. 2006. Defining recovery goals and strategies for endangered species: The wolf as a case study. BioScience 56: 25–37.

Crooks KR, Soulé ME. 1999. Mesopredator release and avifaunal extinctions in a fragmented system. Nature 400: 563–566.

[EIS] EIS [Environmental Impact Statement]Team Wolf Scientist and Northern Rocky Mountain Wolf Recovery Coordinator. 1994. Memorandum regarding a viable wolf population in the Northern Rocky Mountains, appendix 9 to Final Environmental Impact Statement: The Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho, U.S. Department of the Interior Fish and Wildlife Service. (14 October 2009; *www.fws.gov/mountain-prairie/species/mammals/wolf/EIS_1994.pdf*)

Francis M. 2004. Livestock Depredation by Wolves. Wildlife Damage Management, Internet Center for Rocky Mountain Wolf Recovery, Annual Reports. (14 October 2009; *http://digitalcommons.unl.edu/wolfrecovery/16*)

Frankham R. 2005. Genetics and extinction. Biological Conservation 126: 131–140.

Fuller TK, Keith LB. 1981. Non-overlapping ranges of coyotes and wolves in northeastern Alberta. Journal of Mammalogy 62: 403–405.

Geffen E, Anderson MJ, Wayne RK. 2004. Climate and habitat barriers to dispersal in the highly mobile grey wolf. Molecular Ecology 13: 2481–2490.

Hedrick PW. 1996. Genetics of metapopulations: Aspects of a comprehensive perspective. Pages 29–52 in McCullough DR, ed. Metapopulations and Wildlife Conservation. Island Press.

Hebblewhite M, White CA, Nietvelt CG, McKenzie JA, Hurd TE, Fryxell JM, Bayley SE, Paquet PC. 2005. Human activity mediates a trophic cascade caused by wolves. Ecology 86: 2135–2144.

[IDFG] Idaho Fish and Game Department. 2007. Elk PR report, Project W-170-R-31. Progress Report. IDFG.

[IGBST] Interagency Grizzly Bear Study Team. 2005. Reassessing Methods to Estimate Population Size and Sustainable Mortality Limits for the Yellowstone Grizzly Bear. IGBST, US Geological Survey, Northern Rocky Mountain Science Center, Montana State University.

Lacy R. 1993. VORTEX: A computer simulation model for population viability analysis. Wildlife Research 20: 45–65.

Leonard JA, Vila C, Wayne RK. 2005. Legacy lost: Genetic variability and population size of extirpated US grey wolves (*Canis lupus*). Molecular Ecology 14: 9–17.

[MDNR] Minnesota Department of Natural Resources. 2001. Minnesota Wolf Management Plan. Division of Wildlife, MDNR.

Mech D. 1974. *Canis lupus.* Mammalian Species 37: 1–6.

Morrell V. 2009. Research wolves of Yellowstone killed in hunt. Science 326: 506–507.

Morrison JC, Sechrest W, Dinerstein E, Wilcove DS, Lamoreux JF. 2007. Persistence of large mammal faunas as indicators of global human impacts. Journal of Mammalogy 88: 1363–1380.

Musiani M, Leonard JA, Cluff HD, Gates C, Mariani S, Paquet PC, Vilas C, Wayne RK. 2007. Differentiation of tundra/taiga and boreal coniferous forest wolves: Genetics, coat colour and association with migratory caribou. Molecular Ecology 16: 4149–4170.

[NPS] National Park Service. 2008. Wolf Restoration Status Report. (16 April 2009; *www.nps.gov/yell/naturescience/wolves.htm*)

[NRC] National Research Council. 1997. Wolves, Bears, and Their Prey in Alaska: Biological and Social Challenges in Wildlife Management. National Academy Press.

Prugh LR, Stoner CJ, Epps CW, Bean WT, Ripple WJ, Laliberte AS, Brashares JS. 2009. The rise of the mesopredator. BioScience 59: 779–791.

Ripple WJ, Beschta RL. 2003. Wolf reintroduction, predation risk, and cottonwood recovery in Yellowstone National Park. Forest Ecology and Management 184: 299–313.

———. 2004. Wolves and the ecology of fear: Can predation risk structure ecosystems? BioScience 54: 755–766.

———. 2007. Restoring Yellowstone's aspens with wolves. Biological Conservation 138: 514–519.

Schneider B. 2009. Salazar approves wolf delisting. New West Travel and Outdoors, 6 March. (14 October 2009; *www.newwest.net/topic/article/salazar_approves_wolf_delisting/C41/L41/*)

Smith DW, Peterson RO, Houston DB. 2003. Yellowstone after wolves. BioScience 53: 330–340.

Soulé ME, Estes JA, Miller B, Honnold DL. 2005. Strongly interacting species: Conservation policy, management, and ethics. BioScience 55: 168–176.

Stronena AV, Brook RK, Paquet PC, Mclachlan S. 2007. Farmer attitudes toward wolves: Implications for the role of predators in managing disease. Biological Conservation 135: 1–10.

[UCS] Union of Concerned Scientists. 2005. US Fish and Wildlife Service Survey Summary. (14 October 2009; *www.ucsusa.org/assets/documents/scientific_integrity/fws_survey_summary_1.pdf*)

[USFWS] US Fish and Wildlife Service. 1987. Northern Rocky Mountain Wolf Recovery Plan. USFWS. (22 October 2009; *www.fws.gov/mountain-prairie/species/mammals/wolf/NorthernRockyMountainWolfRecoveryPlan.pdf*)

———. 2009a. Final Rule to Identify the Northern Rocky Mountain Population of Gray Wolf as a Distinct Population Segment and to Revise the List of Endangered and Threatened Wildlife. (14 October 2009; *www.fws.gov/mountain%2Dprairie/species/mammals/wolf/*)

———. 2009b. Threatened and Endangered Species System: Delisting Report. Environmental Conservation Online System. (14 October 2009; *http://ecos.fws.gov/tess_public/DelistingReport.do*)

Van Camp R. 2003. Lethal Controls: The Fate of Wolves of the Northern Rockies. Alliance for the Wild Rockies. (14 October 2009; *www.wildrockiesalliance.org*)

VonHoldt BM, Stahler DR, Smith DW, Earl DA, Pollinger JP, Wayne RK. 2008. The genealogy and genetic viability of reintroduced Yellowstone grey wolves. Molecular Ecology 17: 252–274.

Vucetich JA, Nelson MP, Phillips MK. 2006. The normative dimension and legal meaning of endangered and recovery in the US Endangered Species Act. Conservation Biology 20: 1383–1390.

Wilmers CC, Getz WM. 2005. Gray wolves as climate change buffers in Yellowstone. PLoS Biology 3: 571–576.

Wright GJ, Peterson RO, Smith DW, Lemke TO. 2006. Selection of northern Yellowstone elk by gray wolves and hunters. Journal of Wildlife Management 70: 1070–1078.

Bradley J. Bergstrom (bergstrm@valdosta.edu) is a professor in the Department of Biology at Valdosta State University in Valdosta, Georgia, and chair of the Conservation Committee of the American Society of Mammalogists. Sacha Vignieri is a postdoctoral researcher in the Department of Organismic and Evolutionary Biology at Harvard University in Cambridge, Massachusetts. Steven R. Sheffield is an assistant professor in the Department of Natural Sciences at Bowie State University in Bowie, Maryland, and adjunct professor in the College of Natural Resources at Virginia Tech. Wes Sechrest is chief scientist at Global Wildlife Conservation in San Francisco. Anne A. Carlson was the Northern Rockies wolf campaign coordinator for Defenders of Wildlife in Bozeman, Montana; she now works for the Wilderness Society.

OPEN ACCESS Freely available online PLoS one

Meta-Analysis of Relationships between Human Offtake, Total Mortality and Population Dynamics of Gray Wolves (*Canis lupus*)

Scott Creel*, **Jay J. Rotella**

Department of Ecology, Montana State University, Bozeman, Montana, United States of America

Abstract

Following the growth and geographic expansion of wolf (*Canis lupus*) populations reintroduced to Yellowstone National Park and central Idaho in 1995–1996, Rocky Mountain wolves were removed from the endangered species list in May 2009. Idaho and Montana immediately established hunting seasons with quotas equaling 20% of the regional wolf population. Combining hunting with predator control, 37.1% of Montana and Idaho wolves were killed in the year of delisting. Hunting and predator control are well-established methods to broaden societal acceptance of large carnivores, but it is unprecedented for a species to move so rapidly from protection under the Endangered Species Act to heavy direct harvest, and it is important to use all available data to assess the likely consequences of these changes in policy. For wolves, it is widely argued that human offtake has little effect on total mortality rates, so that a harvest of 28–50% per year can be sustained. Using previously published data from 21 North American wolf populations, we related total annual mortality and population growth to annual human offtake. Contrary to current conventional wisdom, there was a strong association between human offtake and total mortality rates across North American wolf populations. Human offtake was associated with a strongly additive or super-additive increase in total mortality. Population growth declined as human offtake increased, even at low rates of offtake. Finally, wolf populations declined with harvests substantially lower than the thresholds identified in current state and federal policies. These results should help to inform management of Rocky Mountain wolves.

Citation: Creel S, Rotella JJ (2010) Meta-Analysis of Relationships between Human Offtake, Total Mortality and Population Dynamics of Gray Wolves (*Canis lupus*). PLoS ONE 5(9): e12918. doi:10.1371/journal.pone.0012918

Editor: Geoffrey Clayton Trussell, Northeastern University, United States of America

Received April 30, 2010; **Accepted** August 22, 2010; **Published** September 29, 2010

Funding: This work was funded by the National Science Foundation. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Competing Interests: The authors have declared that no competing interests exist.

* E-mail: screel@montana.edu

Introduction

Status of US Wolf Populations

Following their extirpation by direct harvesting across most of the United States, gray wolves (*Canis lupus*) were among the 14 mammals originally listed by the U.S. Fish and Wildlife Service under the Endangered Species Preservation Act of 1966. This legal protection was renewed under the Endangered Species Act of 1973, and wolves are now considered endangered in 16 states. Following steady growth of the wolf population of the Western Great Lakes region, this population segment was down-listed to threatened status in 1978. A proposal for delisting in Minnesota and Michigan was initiated in 2000 and remains under legal appeal. Following reintroduction into Yellowstone National Park and central Idaho in 1995–1996, wolves in the Northern Rocky Mountains Recovery Area grew to a minimum of 1,645 wolves at the end of 2008 [1]. This population segment (including all or parts of Idaho, Montana, Oregon, Utah, Washington, Wyoming) was delisted in 2009 [2], a decision that also remains under appeal. Legal authority for wolf management passed from the US Fish and Wildlife Service to state agencies in this region, and public hunting seasons were initiated in Idaho and Montana, with quotas of 255 (220+35 within the Nez Perce Tribal Treaty Area) and 75 wolves, respectively [3–6]. These quotas represent an annual harvest of 20% of the regional population. Quotas were filled in 7 of 12 Idaho regions with a total harvest of 188 wolves. Montana's wolf season closed after 23 days with the quota 96% filled. Together with wolves killed in predator control operations (145 in Montana and 93 in Idaho), humans killed 44% of Montana's wolves and 37.1% of the two-state population in 2009. In March 2010, Montana liberalized its policy for control of wolves that prey on livestock, no longer requiring confirmation by state wildlife officials before wolves near livestock carcasses are trapped or shot. In July 2010, Montana increased the public hunting quota by a factor of 2.5, from 75 to 186 wolves. Idaho is now considering similar changes to wolf management policy.

Predator control and sport hunting are well-established tools to manage large carnivores and broaden societal acceptance of wolves, but to our knowledge it is unprecedented for a species to move this rapidly from highly protected to heavily-hunted, and it remains important to quantitatively assess the probable consequences of these policies as carefully as possible (regardless of the intended outcome). In general, stakeholders calling for reductions in wolf numbers are concerned about three issues: livestock losses, effects on ungulates (particularly elk) and human safety. In 2008 and 2009, Northern Rocky Mountain wolves were responsible for an average of 203 confirmed kills of cattle (from a population of approximately 5.9 million cattle) and 538 confirmed kills of sheep,

or 0.8 cows/wolf pack/year and 2.2 sheep/wolf pack/year [1]. Elk numbers in some areas have declined in parallel with wolf recolonization, particularly in locations with locally high wolf density such as portions of the Greater Yellowstone Ecosystem [7,8], though elk numbers have remained stable or increased in many other areas during the period of wolf recovery [9]. For example, 60% of Montana elk management units were above target population density in 2002, despite liberalized hunting regulations [9]. Wolves have not killed or physically injured people in the Northern Rocky Mountains (NRM) since reintroduction. Current state policies for NRM wolf management focus mainly on providing hunting opportunity, reducing population sizes, and maintaining populations large enough to avoid reclassification as endangered [3–6]. Analysis of the relationship between harvest, survival rates and population growth is useful if these objectives (or broader objectives related to predator conservation and ecosystem function) are to be met.

Here, we use previously published data [1,10] from 21 North American wolf populations (including the recently delisted wolves of the Northern Rocky Mountains) to evaluate relationships between human offtake, mortality and population growth of wolves, and consider the implications for policy.

Human Offtake and Total Mortality in Wolves

Mortality due to hunting can increase a population's total death rate (additive mortality) or be compensated by density-dependent reductions in non-harvest mortality factors, thus having little effect on overall mortality (compensatory mortality). Williams et al. [11] and Lebreton [12] provide excellent reviews of compensatory and additive mortality. Formally, harvest mortality is fully additive when the regression of total mortality on harvest rate [with slope $=\hat{\beta}$ and intercept $=\hat{m}(0)$] yields $\frac{\hat{\beta}}{1-\hat{m}(0)}=1$. When $\frac{\hat{\beta}}{1-\hat{m}(0)}=0$, a harvest is fully compensatory [up to a threshold harvest $=\hat{m}(0)$, the rate of mortality with no harvest]. A harvest is partially additive when $0<\frac{\hat{\beta}}{1-\hat{m}(0)}<1$, and super-additive when $\frac{\hat{\beta}}{1-\hat{m}(0)}>1$. A super-additive harvest increases total mortality beyond the effect of direct killing itself, through social disruption or the loss of dependent offspring.

It is widely argued that human-caused wolf mortality is mainly compensatory, with little effect on wolf dynamics until a large proportion of the population is harvested. Haight et al. [13] summarized that "natural mortality decreases when a wolf population is harvested" and "sustainable harvest rates of 30%–50% have been estimated for free ranging populations" (p. 850). Mech [14] stated that "most human-caused mortality is compensatory" (p.74). In the most comprehensive prior analysis of this question, Fuller et al. [10] concurred that "the principle of compensation operates in wolf populations" (p. 185). Using data from 18 wolf populations, Fuller et al. regressed total mortality on human-caused mortality, and concluded that human-caused mortality was largely compensatory. However, the slope ($\hat{\beta}=0.73$) and intercept ($\hat{m}(0)=0.20$) they reported yield $\frac{\hat{\beta}}{1-\hat{m}(0)}=0.91$, indicating that human harvest was almost fully additive. Thus, there is reason to reconsider the inference that human-caused wolf mortality is primarily compensatory.

Methods

We tested relationships between the rates of population growth, total mortality and human-caused mortality. To assemble data we began with the 18 populations examined by Fuller et al. [10] in their comprehensive 2003 review. For consistency in the data examined across studies, we used the values that Fuller et al. tabulated (see their Table 6.8) from prior single-population studies, and we retained their decision to divide the data from one population (Isle Royale) into two subsets, based on changes in long-term population trajectory. We tabulated data from United States Fish and Wildlife Service annual reports [1] for wolves in the three segments of the Northern Rocky Mountains (NRM) Recovery Area (Greater Yellowstone, $N=11$ years, 1998–2008; Central Idaho, $N=8$ years, 2001–2008, Northwest Montana, $N=10$ years, 1999–2008). Changes across years in the method of tabulating data in USFWS annual reports yielded different sample sizes for the three segments of the NRM metapopulation. Finally, we used Google Scholar and Scopus to search on the keywords 'wolf' and '*Canis lupus*', and for the names of all of the authors of studies tabulated by Fuller et al [10] (their Table 6.8). This search yielded no additional studies with the requisite data. Collectively, these procedures yielded 48 estimates of population growth, harvest rate and total mortality rate from 21 populations (19 estimates as in Fuller et al.'s [10] Table 6.8, and 29 estimates for NRM wolves from USFWS annual reports through 2009 [1]).

Our analyses test two basic hypotheses. First, was total mortality affected by human offtake, and if so, what was the form of the relationship? Second, was the population growth rate (λ) affected by human offtake, and if so, what was the form of the relationship? To test the relationship of harvest to population growth, we evaluated a set of *a priori* models using Akaike's Information Criterion corrected for sample size (AICc). To test the relationship of harvest to mortality (which was approximately binomially distributed), we used quasi-AICc (QAICc) values, with variances adjusted for over-dispersion using the estimated value of c-hat from a quasi-binomial model with a linear link function, and taking the number of population means ($N=48$) as the sample size to avoid pseudo-replication. Annual reports from the USFWS [1] allowed us to tabulate data from NRM populations as annual means. Data from other populations were multi-year means (following Fuller et al. [10]). We weighted each estimate by sample size to account for variation in the amount of information and the precision of each estimate, and we show the standard error (whiskers) of each population estimate (point) in Figures 1 & 2. Below, we discuss the possible effects of sampling error on the inferences from these models.

Tables 1–3 identify and describe the set of *a priori* models for each analysis. Briefly, each analysis included a set of plausible generalized linear and nonlinear (e.g., breakpoint and general additive models) relationships and tested for regional differences in slopes and intercepts. In each model set, the linear models formalized the hypothesis that human offtake causes additive changes in the rate of survival or population growth, and the breakpoint and general additive models formalized the hypothesis that the effects of offtake are partially or completely compensated. Both model sets included an intercept-only model, to evaluate the explanatory power of the best-supported models in comparison to a null hypothesis of no relationship between harvest and the dependent variable.

From the perspective of collating data for meta-analysis, we did not suspect that reporting bias against 'negative' results would be an important issue for the publication of data on rates of harvest, total mortality or population growth, because most of the original studies were descriptive in nature, and for the Northern Rockies, raw data were reported in a standardized fashion in annual reports. For most of the original studies, it is likely that some wolves were killed illegally and not reported. Because illegal killing

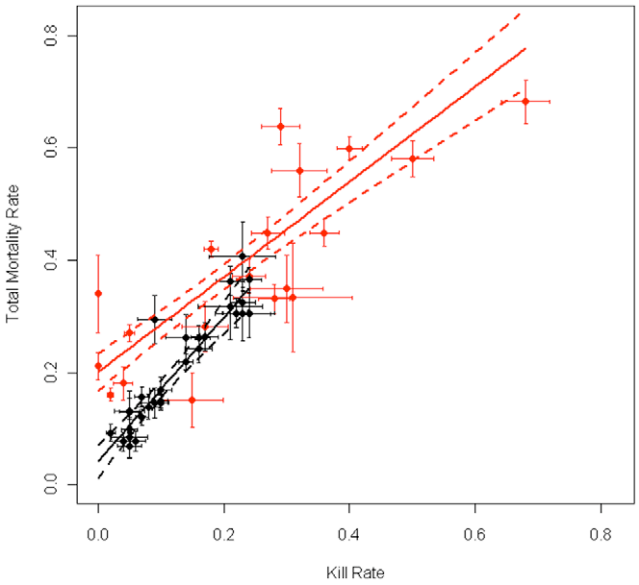


Figure 1. The relationship between total annual mortality and human offtake for wolves in the Northern Rocky Mountains Recovery Area (black) and other populations (red). Points are annual means for the Northern Rocky Mountains data, and multi-year means for other populations. The bars on each point show one standard error. The relationships shown are from the best-supported model in Table 1, a linear relationship with separate slopes and intercepts for the two subsets of data. Dashed lines show 95% confidence bands, accounting for overdispersion by multiplying the variance by the inflation factor (c-hat) from the best-supported model.
doi:10.1371/journal.pone.0012918.g001

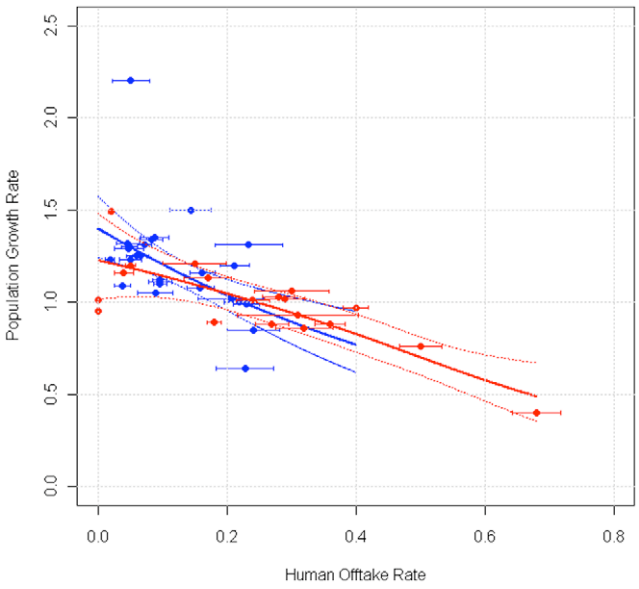


Figure 2. The relationship between population growth (λ) and annual human offtake for wolves in the Northern Rocky Mountains Recovery Area and other populations. Points show annual means for the Northern Rocky Mountains (blue), and multi-year means for other populations (red). Bars show one standard error. Because three models were similarly supported by the data (Table 3), solid lines show the model-averaged function based on all models with Akaike weights ≥0.01. Dashed lines show 95% confidence bands for the model-averaged functions. Blue: Northern Rocky Mountains. Red: Other populations.
doi:10.1371/journal.pone.0012918.g002

cannot be quantified, our analyses are based on reported offtake (which is a rational basis for management decisions about wolf harvest quotas). For data from NRM populations [1], we included 'missing' radiocollared animals (but not known dispersers) in the number of total deaths. With this method, any undetected illegal killing of a radiocollared wolf would contribute to the estimated total mortality rate but not to the estimated human killing rate. However, the number of missing wolves was a small proportion (typically 5–10%) of known mortality, and large carnivores go missing for reasons other than illegal killing (e.g., failure of VHF transmitters, long distance dispersal, natural mortality with transmitter damage). For non-NRM populations, methods of monitoring varied, so the extent and direction of biases due to unreported illegal killing is unknown. Issues related to unreported harvesting and the dynamics of wolves merit further study.

Results and Discussion

Human Offtake and the Annual Mortality Rate

There is a strong association between human offtake and total mortality rate across North American wolf populations. The best-supported model of the relationship between total mortality and human caused mortality was linear, with slopes that differed for wolves in the NRM and elsewhere (Table 1). Human-caused mortality has been lower for NRM wolves than in most other populations (Fig. 1) but has exceeded 20% killed in some years through predator control, while under Endangered Species Act regulations. From the best model (Fig. 1), $\frac{\hat{\beta}}{1-\hat{m}(0)}$ was 1.34 for NRM wolves (96% CI: 1.11 to 1.56, after inflating variances to account for estimated overdispersion) and 1.06 (95% CI: 0.92 to 1.20, again adjusted for overdispersion) for other populations (Table 2). These results suggest that mortality due to humans was not compensatory but highly additive or even super-additive. Super-additivity might be expected from the consequences of breeder mortality in wolves [15]. In a study of 10 populations, pup survival declined with decreasing pack size, 38% of packs disbanded following loss of a breeder, and only 47% of packs that lost a breeder reproduced in the subsequent year (9% reproduced after loss of both breeders) [15]. These consequences of social disruption are sufficiently large to compound the direct effect of mortality due to hunting, particularly when packs are small, so that a high proportion of adults are breeders. In 2008, 120 (69%) of 173 packs in the NRM held 4 or fewer adults [1], so that randomly killed adults would have ≥50% probability of being breeders. If these mechanisms do underlie super-additivity, the full effects of harvesting might not be manifest until the following year (or longer).

Models of compensatory mortality predict that the total mortality rate is initially constant as harvest increases, and then begins to rise above a threshold harvest rate equal to $\hat{m}(0)$. Contrary to this prediction, models with a change in slope (breakpoint and general additive models) did not fit the data well as linear models (Table 1). A general additive model fit only slightly worse than the linear model (Table 1), but its curvature was slight, and in the direction opposite that predicted by a model of compensatory mortality. These results provide further evidence that human-caused mortality was additive rather than compensatory. Finally, harvest can only be compensatory (in the sense of 'competing risks') when the rate of offtake is less than or equal to the rate of mortality in the absence of harvest, $\hat{m}(0)$, but mortality rates in the absence of harvest are low for wolves (as for most long-lived large mammals). Using estimates from the best model (Table 2), $\hat{m}(0)$ was 0.04±0.015 (SE) for the NRM and

Table 1. (A) Comparison of models of the relationship between total annual mortality and human-caused mortality for wolves in North America.

Model description[1]	Log Likelihood	K[2]	QAICc[3]	ΔQAICc	ω[4]
i. Regional intercept & slopes	−225.13	5	122.31	0.00	0.69
ii. Gen additive model by region	−212.17	9.02	123.88	1.57	0.31
iii. Breakpoint model by region	−310.69	5	164.99	42.68	0.00
iv. Common intercept & slope	−354.55	3	182.87	60.56	0.00
v. Common breakpoint model	−378.79	3	194.96	72.65	0.00
vi. Single intercept only	−965.62	2	485.70	363.40	0.00

[1]Expanded model descriptions:
(i) Generalized linear model (binomial errors with identity link) that allowed different slopes and intercepts for the relationship between total mortality and human offtake for two regions (wolves in the Northern Rocky Mountains (NRM) recovery area and wolves in previously-studied populations),
(ii) General additive model that allowed regional differences, fit in the 'mgcv' package of R with cross-validation used to determine the optimum amount of smoothing. GAM models allow curvilinear functions if the data support curvature.
(iii) Generalized linear model (binomial errors with identity link) that allowed the slope to change at a breakpoint and allowed regional differences,
(iv) Generalized linear model (binomial errors with identity link) with no regional effect.
(v) Generalized linear model (binomial errors with identity link) that allowed the slope to change at a breakpoint with no regional effect,
(vi) Constant total mortality (no effect of human offtake on total mortality).
[2]Number of parameters in the model (non-integer values are expected for general additive models).
[3]*QAICc calculated using c-hat = 4, the estimated overdispersion value obtained from a quasi-binomial model and using the number of mortality rates ($N = 48$) as the sample size.
[4]Akaike model weight.
doi:10.1371/journal.pone.0012918.t001

0.20±0.017 for other populations, so there was little scope for harvest mortality to be compensatory, especially for NRM wolves.

A recent re-analysis of the data for non-NRM populations [16] also concluded that 'human take does not share a compensatory interaction with natural mortality', because natural mortality did not decline with increasing human offtake. A recent analysis of the correlates of mortality in a large sample of radiocollared NRM wolves [17] reported that human killing accounted for a minimum of 54% of wolf mortality between 1982 and 2004, but did not directly test the relationship between human offtake and total mortality.

In studies that examine responses to harvest at a relatively small spatial scale, immigration can compensate for mortality due to harvest [10,16]. However, this mechanism is fundamentally different than compensatory reductions in non-harvest mortality, because compensatory immigration simply involves movement of individuals onto a study site from locations off of the study site.

Table 2. Intercepts and regression coefficients from the best model of total mortality as a function of human-caused mortality in North American wolf populations (see Table 1 for model selection using QAICc scores).

Parameter	Estimate	Std. Error	Lower 95% C.L.	Upper 95% C.L.
Intercept $\hat{m}(0)$				
Northern Rocky Mountains	0.041	0.015	0.011	0.071
Other Populations	0.200	0.017	0.167	0.234
Slope $\hat{\beta}$				
Northern Rocky Mountains	1.285	0.127	1.036	1.534
Other Populations	0.849	0.069	0.714	0.983

This is a generalized linear model (binomial errors, identity link) with a linear relationship between total mortality and human-caused mortality, and regional differences in the parameters of this relationship.
doi:10.1371/journal.pone.0012918.t002

When we consider the dynamics of the entire population, this movement does not truly compensate for harvest mortality, because gains in one pack are offset by losses in another. Indeed, if dispersing wolves have lower rates of survival than pack-living wolves (as in other social carnivores [18]), then an increase in dispersal would further reduce mean survival for the population as a whole, rather than compensating.

Human Offtake and Wolf Population Growth Rates

Given that mortality due to hunting was strongly additive or super-additive, we tested the effect of harvest on population growth rates, an analysis that incorporates the possibility that reproduction might increase to offset human-caused mortality. The literature on wolf harvesting includes many estimates of the proportion of a wolf population that must be killed to reduce wolf numbers. These studies often conclude that a harvest of 28%–50% of a wolf population is required to make a population decline. For example, Mech (2001) stated that "wolf populations can sustain annual winter harvest rates of 28%–47%" (p. 74), and "it is important for all to recognize that a moderate to large kill of wolves from the general population will have little limiting or reducing effect on the population" (p. 75) [14]. Adams et al. [16] concluded that "population trends were not correlated with annual human take ≤29%" (p. 1). With respect to policy, the 2003 delisting decision by the USFWS [2] stated that "the levels of documented human-caused mortality in the Northern Rocky Mountains have not, at this time, been significant enough to cause declines in the wolf population *or to slow overall wolf population growth*" (p. 15851, emphasis added). Mirroring these conclusions, state management plans for NRM wolf populations [3,5] state that "wolf populations can apparently withstand human-caused mortality of 28%–50% without declining" (Idaho) and "wolf populations can apparently withstand human-caused mortality rates of 28%–35% without declining" (Montana). Why the state policies identify different upper limits is not clear, but the policies concur that harvests up to 35% are sustainable. The federal policy goes further, stating that human offtake has not slowed population growth in NRM wolves.

Table 3. Comparison of models of the relationship between annual population growth and human-caused mortality for wolves in North America.

Model description[1]	Log Likelihood	K[2]	R[2]adj[3]	ΔAICc	ω[4]
i. General additive model by region	20.63	6.15	0.59	0.00	0.63
ii. Common intercept & slope	15.92	3	0.53	1.40	0.31
iii. Regional intercept & slopes	16.64	5	0.52	4.91	0.05
iv. Regional intercepts, no slopes	2.29	3	0.14	28.66	0.00
v. Single intercept only	−1.51	2	0.00	33.96	0.00

[1]Expanded model descriptions:
(i) General additive model (GAM) that allowed regional differences, fit in the 'mgcv' package of R with cross-validation used to determine the optimum amount of smoothing. GAM models allow curvilinear functions if the data support curvature.
(ii) General linear model (normal errors with log link) with no regional effect on slope and intercept.
(iii) General linear model (normal errors with log link) that allowed regional differences in the slope and intercept.
(iv) Constant total mortality (no effect of human offtake on total mortality), with regional differences.
(v) Constant total mortality (no effect of human offtake on total mortality).
[2]Number of parameters in the model (non-integer values are expected for general additive models).
[3]The coefficient of determination (R^2) adjusted for degrees of freedom.
[4]Akaike model weight.
doi:10.1371/journal.pone.0012918.t003

We evaluated these statements using information theory to compare models of population growth (λ) as a function of human harvest, for NRM wolves and other populations (Table 3). All models supported by the data (Table 3) showed that population growth declined across all observed levels of human-caused mortality, which included low levels (Fig. 2). Because three models had reasonable support from the data (Table 3), we used model averaging (Figs. 2 & 3) to estimate the maximum offtake expected to yield $\lambda \geq 1$. For NRM wolves, the maximum stable offtake was 0.224 (model-averaged 95% CI: 0.177–0.335). For other populations, the maximum stable offtake was 0.245 (model-averaged 95% CI: 0.149–0.343). These estimates coincide well with the simple observation that NRM wolf populations have declined three times in the past decade, in each case with human harvests of 23%–24% (Fig 2). Better understanding of harvest effects can help managers achieve population goals. In July 2010, the Montana Fish Wildlife and Parks Commission approved an increase in the wolf harvest from 75 to 186 wolves. On the basis of internal analysis, the Montana Department of Fish Wildlife & Parks predicted that this harvest would, in combination with predator control killing continuing at past levels, cause a 13% decrease in wolf numbers. A harvest of 186 wolves together with 145 killed through predator control would yield a total offtake of 331 wolves, or 63% of the Montana population (which was estimated to number 524 at the end of 2009). The data in Fig 2 suggest that a direct killing rate of 0.63 would typically produce a decline substantially greater than 13%.

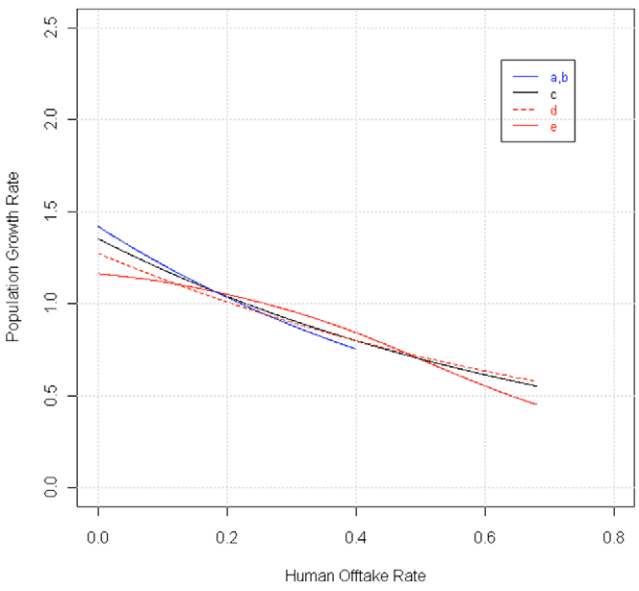


Figure 3. The individual models that were averaged to produce the functions in Figure 2 were highly congruent in their estimates of the offtake that yields λ = 1. a,b: GLM and GAM for Northern Rockies (these models were identical), c: GLM for all data combined, d,e: GLM and GAM for other populations.
doi:10.1371/journal.pone.0012918.g003

Because wolf populations in the Northern Rocky Mountains have grown since reintroduction, we tested whether growth slowed as population sizes increased. Overall, the NRM population has increased 15-fold over the past 15 years, providing unusually broad scope to test for density-dependent changes in the growth rate. Despite this, population growth was not detectably related to population size in the Northern Rocky Mountains ($\hat{\beta} = -0.06 \pm 0.15$ S.E., Wald statistic = 0.19, P = 0.66), and a model of linear density dependence was 5.5 AICc units worse than a model of linear harvesting effects on population growth. Density-dependence underlies compensation, so these observations reinforce the expectation that harvesting is not likely to increase reproduction or decrease natural mortality by reducing competition for resources, within the range of wolf densities seen to date. Although the data to date do not reveal clear density dependence, simply inspecting the growth curve gives some indication that NRM population growth may have slowed since 2007 [1]. If so, a reduced growth rate might indicate the incipient emergence of density dependent growth driven by resource competition. Contrary to this hypothesis, the survival of radiocollared NRM wolves increased with population density [17], rather than decreasing as would be expected with density dependent growth. Slower growth since 2007 could also be due to increased offtake by humans, if the rate of offtake is positively related to population density ($\hat{\beta} = 0.08 \pm 0.05$ S.E., Wald statistic = 2.69, P = 0.10). Between 1982 and 2004, human killing accounted for a minimum of 54% of total mortality for radiocollared NRM wolves [17],

revealing that human offtake was more strongly limiting than all other factors combined, at least with respect to survival. (Anthropogenic effects are a dominant limiting factor for many large carnivores, world-wide.) If human offtake holds wolves at densities below the region's ecological carrying capacity, then it is plausible that density dependence will remain weak or equivocal.

Our analysis is based on comparison of multiple populations, rather than changes through time in a single population. Prior studies of human harvesting and its effect on wolf dynamics [10,16] were also based on comparison across populations, so the differences in our inferences are not due to this distinction. Comparisons across populations have a broader scope of inference than single-population studies, but correlations across populations can be affected by uncontrolled heterogeneity among sites. By including models that allowed different slopes and intercepts for NRM wolves and other populations, we incorporated heterogeneity to the degree possible with the data in hand. We encourage further research to test whether human offtake still appears to be largely additive or super-additive with hierarchical models that more completely account for differences among populations.

Our results confirm that wolf populations can grow while being harvested. However, point estimates for the maximum offtake rate associated with stable wolf populations are below the thresholds identified by recent state wolf management plans. Moreover, sustainable harvest is probably lower than our estimates, for two reasons. First, our models are based on deterministic estimates of population growth, which typically over-estimate true stochastic growth rates [19]. Second, estimated human offtake has an associated variance in these data (Fig. 2), and the effect of variance in an independent variable is to bias a regression's slope toward zero. For these reasons, we encourage further work on this topic, especially analysis with direct data on the survival of known individuals.

The management of wolves is controversial, and recent experience in the Rocky Mountains shows that any policy will face opposition from at least one constituency. Different stakeholders desire different numbers of wolves on the landscape. In structured decision-making it is important to isolate ecological analysis that considers the likely outcome of a policy from the discussion that considers whether or not that outcome is desirable [20]. Here, we have attempted to correct several broad misconceptions about the quantitative relationships between harvest intensity, mortality and population growth rates of wolves. The meta-analysis suggests that the effect of human-caused mortality on wolf dynamics is greater than suggested by current management plans (see references [21,22] for similar recent inferences about the role of human offtake in the dynamics of large felids including African lions, *Panthera leo*, and North American cougars, *Panthera concolor*). These results should help to inform wolf management, in conjunction with other important considerations about the interactions of wolves with ungulate prey, livestock, people, and ecosystems.

Conclusions

In summary, it appears that: (1) Wolves can be harvested sustainably within limits. (2) Examined across populations, human killing of wolves is generally not compensatory, as has been widely argued. Management policies should not assume that an increase in human-caused mortality will be offset by a decline in natural mortality. (3) Rather, the effect of harvesting on wolf mortality appears highly additive to super-additive. Evidence for super-additive mortality is stronger for wolves in the recently-delisted Northern Rocky Mountains Recover Area, which often live in small packs. (4) Estimated sustainable harvest levels from this meta-analysis are lower than current Northern Rocky Mountain management plans suggest, and lower than the 2009 rate of offtake for the Northern Rockies. While some wolf populations might maintain constant population size at the harvest intensities considered sustainable by current state management plans, our results suggest that such harvests will generally cause wolf populations to decline. (5) The relationship of population growth rates to killing rates suggest that a proposed 2.5-fold increase in wolf harvest for 2010 is likely to reduce population size by a greater amount than management policy statements for Montana have stated. (6) The effects of harvesting on population growth may not be fully manifest in one year. These results should help with the development of policies for the management of wolves, particularly newly-delisted wolf populations in the Northern Rocky Mountains. The basic point that harvest mortality cannot be highly compensatory via substitution of mortality under conditions of low natural mortality (as in most long-lived species [12]) should be clearly expressed in policies for the management of large carnivores. Finally, these results highlight the ongoing need to fully incorporate quantitative analysis of available data in the development of conservation and management policies.

Acknowledgments

We respectfully acknowledge the extensive field work conducted by all of the original studies of wolf mortality and population dynamics whose published data contributed to this meta-analysis.

Author Contributions

Conceived and designed the experiments: SC. Performed the experiments: SC. Analyzed the data: SC JJR. Wrote the paper: SC JJR.

References

1. US Fish and Wildlife Service (2009) Rocky Mountain Wolf Recovery 2008 Interagency Annual Report. 1-362. USFWS Rocky Mountain Gray Wolf Website (accessed 2010) http://www.fws.gov/mountain-prairie/species/mammals/wolf/annualrpt09/index.html.
2. US Fish and Wildlife Service (2009) Final Rule To Identify the Northern Rocky Mountain Population of Gray Wolf as a Distinct Population Segment and To Revise the List of Endangered and Threatened Wildlife. Federal Register 74: 15123–15188.
3. Montana Department of Fish Wildlife and Parks (2003) Montana Gray Wolf Conservation and Management Plan. Helena: Montana Fish Wildlife and Parks. 420 p.
4. Montana Department of Fish, Wildlife and Parks (2009) 2009 Montana Hunting Regulations: Wolf. Helena: Montana Fish Wildlife and Parks. 4 p.
5. Idaho Legislative Wolf Oversight Committee (2002) Idaho Wolf Conservation and Management Plan. Boise: Idaho Fish and Game. 85 p.
6. Idaho Department of Fish and Game (2009) 2009 Wolf Hunting Seasons and Rules. Boise: Idaho Fish and Game. 4 p.
7. Creel S, Christianson D, Liley S, Winnie J (2007) Effects of predation risk on reproductive physiology and demography in elk. Science 315: 960.
8. Hebblewhite M, Pletscher D, Paquet P (2002) Elk population dynamics in areas with and without predation by recolonizing wolves in Banff National Park, Alberta. Can J Zool 80: 789–799.
9. Hamlin K (2005) Montana Final Elk Management Plan. Helena: Montana Fish Wildlife & Parks. 397 p.
10. Fuller TK, Mech LD, Cochrane JF (2003) Wolf population dynamics. In: Mech LD, Boitani L, eds. Wolves: Behavior, Ecology and Conservation. Chicago: University of Chicago Press.
11. Williams BK, Nichols JD, Conroy MJ (2002) Analysis and Management of Animal Populations. London: Academic Press. 817 p.
12. Lebreton J-D (2005) Dynamical and statistical models for exploited populations. Aust and New Zealand J Stat 47: 49–63.
13. Haight RG, Travis LE, Nimerfro K, Mech LD (2002) Computer simulations of wolf removal strategies for animal damage control. Wildl Soc Bull 30: 844–852.

14. Mech LD (2001) Managing Minnesota's recovered wolves. Wildl Soc Bull 29: 70–77.
15. Brainerd SM, Andren H, Bangs EE, Bradley EE, Fontaine JA, et al. (2008) The effects of breeder loss on wolves. J Wildl Manage 72: 89–98.
16. Adams LG, Stephenson RO, Dale BW, Ahgook RT, Demma DJ (2008) Population dynamics and harvest characteristics of wolves in the central Brooks Range, Alaska. Wildl Monogr 170: 1–25.
17. Smith DW, Bangs EE, Oakleaf JK, Mack C, Fontaine J, et al. (2010) Survival of colonizing wolves in the northern Rocky Mountains of the United States, 1982–2004. J Wildl Manage 74: 620–634.
18. Creel S, Creel NM (2002) The African Wild Dog: Behavior, Ecology and Conservation. Princeton: Princeton University Press. 341 p.
19. Morris WF, Doak DF (2002) Quantitative Conservation Biology. Sunderland: Sinauer. 480 p.
20. Martin J, Runge MC, Nichols JD, Lubow BC, Kendall WL (2009) Structured decision making as a conceptual framework to identify thresholds for conservation and management. Ecol Appl 19: 1079–1090.
21. Packer C, Brink H, Kissul BM, Maliti H, Kushnir H, et al. (2010) Effects of trophy hunting on lion and leopard populations in Tanzania. Cons Biol (advanced online). DOI 10.1111/j.1525-1739.2010.01576.x.
22. Packer C, Kosmala M, Cooley HS, Brink H, Pintea L, et al. (2009) Sport hunting, predator control and conservation of large carnivores. PLoS ONE 4: e5941. DOI: 10.1371/journal.pone.0005941.