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

DEFENDERS OF WILDLIFE, NATURAL)	
RESOURCES DEFENSE COUNCIL,)	
SIERRA CLUB, HUMANE SOCIETY OF THE)	
UNITED STATES, CENTER FOR BIOLOGICAL)	Case No. cv-08-56-M-DWM
DIVERSITY, JACKSON HOLE)	
CONSERVATION ALLIANCE, FRIENDS OF)	
THE CLEARWATER, ALLIANCE FOR THE)	
WILD ROCKIES, OREGON WILD, CASCADIA)	
WILDLANDS PROJECT, WESTERN)	
WATERSHEDS PROJECT, and WILDLANDS)	
PROJECT,)	DECLARATION OF
)	DOUGLAS W. SMITH, PH.D.
)	
Plaintiffs,)	
)	
v.)	
)	
)	
H. DALE HALL, U.S. Fish and Wildlife Service)	
Director; DIRK KEMPTHORNE, Secretary of the)	
Interior; and the UNITED STATES FISH AND)	

WILDLIFE SERVICE,)
)
 Defendants.)
)
)
)
)

I, Dr. Douglas Smith, do hereby declare as follows:

I. BACKGROUND

1. I received a B.S degree in Wildlife Biology from the University of Idaho in 1985, a M.S. Degree in Biology from Michigan Technological University in 1988, and a Ph.D. in Ecology, Evolution, and Conservation Biology from the University of Nevada, Reno in 1997. I am an employee of the National Park Service (NPS) and have been with the Yellowstone National Park (YNP) wolf program since its inception. I was hired specifically to reintroduce, manage, and study wolves in YNP. From 1994-1999, I monitored wolves in the greater Yellowstone area (GYA). After 1999 the USFWS or States tracked and managed wolves external to YNP. I began work on the Yellowstone Wolf Project as the Project Biologist; in 1997 I assumed duties of Project Leader, a position I have held continuously since that time. My curriculum vitae (CV) is attached as Exhibit A to this declaration.

2. I have been involved with wolf research since 1979 and the YNP wolf job is my fourth position dealing with wolves. My employment history with wolves is as follows: 1) 1979, Wolf Park, Indiana, captive wolf research program, 2) 1979-1992, seasonal work, Isle Royale National Park wolf-moose research, 3) 1983, seasonal work, northeastern Minnesota wolf research, and 4) 1994-present YNP wolf program. I have published numerous peer-reviewed journal articles, book chapters, reports, and popular

articles on wolves both in YNP and the surrounding area. I have recently published with co-authors a scientific paper on genetic viability of wolves in YNP (see CV, VonHoldt et al. 2007)

3. I supervise a team of employees assigned to track, manage and study wolves in YNP. I have personally tracked radio collared wolves in the GYA for >2,000 hours from aircraft since 1994 and for several hundred hours from the ground. I have closely followed all radio collared wolves entering the GYA from 1995-1999. In addition, I have sporadically followed radio collared wolves entering the GYA from 1999 through the present. I have intensively followed all radio collared wolves in YNP from 1995-present. I have personally captured with tranquilizing darts >250 wolves and been part of every wolf capture (>350 wolves) event in YNP since program inception. I am intimately familiar with all wolf packs that have formed or become extinct in YNP and also movements of the individual radio-collared wolves and packs.

4. The purpose of this declaration is to respond to plaintiffs' allegations of irreparable injury in their Memorandum in Support of Motion for Preliminary Injunction and to the Declaration of Robert Wayne. My declaration addresses plaintiffs' assertions that delisting irreparably harms wolf packs, the Northern Rocky Mountain (NRM) wolf population, and the ability of members of Plaintiff organizations to view and enjoy wolves in the wild. I have also reviewed the Final Rule published at the time of delisting and approve of and support this document justifying termination of federal management for wolves in the NRM.

II. DISCUSSION

5. In 2001 I was assigned to analyze data from all three wolf recovery areas (central Idaho, northwest Montana, GYA) on wolf survival and cause specific mortality. I finished this wolf survival analysis in 2008. The analysis includes data from every radio collared wolf (total sample = 711) from Idaho, Montana, and Wyoming from 1982-2004 and includes 363 wolf mortalities. Since 2004 I have maintained the survival database on all radio collared wolves in the 3 recovery areas.

The results of the wolf survival analysis indicate that the wolf population is not in danger of extinction and is viable. Overall the annual survival rate is 66% for pups, 71% for yearlings, and 82% for adults, which is within the bounds of a healthy sustainable population. It is generally recognized that populations with a mortality rate (the inverse of survival rate) of <30% are sustainable and not in danger of extinction. The NRM population is within those bounds.

6. Further, about 70% of the mortality for the NRM population – prior to delisting -- was due to anthropogenic causes, and the leading cause was, and has long been, legal killing due to conflicts with livestock. Therefore, the population has already experienced significant mortality, yet it did not jeopardize the viability or continued growth of the population (the NRM population has grown each year 1995-2007). Given the NRM population's demonstrated resilience and continued growth in the presence of an already significant level of pre-delisting predator control actions, the transfer of management authority to the States and even the prospect of increased mortality under the approved state management plans, would not jeopardize the viability or continued growth of the NRM population, in my opinion.

7. I co-authored a scientific paper, and Dr. Robert Wayne was also a co-author on that paper, on the genetic viability of the wolf population (VonHoldt et al. 2007) that included data from 1995-2004; it did not include data from 2005-2008. It made predictions about the future genetic viability of the YNP wolf population based on a modeling exercise with fairly restrictive assumptions. As stated, and based on those assumptions, the predicted scenario indicates a loss of heterozygosity and an increase in the inbreeding coefficient. As an example of what could happen given these assumptions, I agree with the results as stated in the paper. However, these assumptions are only an example of what could happen given these particular set of conditions, or in a worst case situation and should only be given consideration in light of the conditions of the model. The YNP wolf population is not as isolated, nor is it as small, and migration is not one way making modeled results valid only for this restrictive scenario, a rather unlikely outcome given data since 2004. Therefore, future predictions based on 1995-2004 data and possible future genetic viability based on models with specific assumptions should be treated as speculative and as only one possibility and in our example, a worst case scenario.

Further, the paper indicated the current excellent genetic condition of the population, genetic diversity equal to large, wild populations of wolves in northern Canada and low levels of inbreeding. In fact we showed that wolves choose very carefully their mates and avoid breeding with close relatives (e.g., inbreeding avoidance) which should act to preserve genetic diversity well into the future even if mate choices

become limiting, and there is no reason to believe that they will (there are >450 wolves in the GYA).

There were sampling issues with our analysis that could affect not only the results of the paper, but also affect any future predictions. For example, we were only able to gather samples from about 30% of the wolves that existed in YNP, this left a large number of wolves unsampled and therefore their status and geneology was unknown. Some of these wolves could have immigrated from outside the GYA. As such, any statements the paper makes about genetic viability or future predictions should be taken in the context that most wolves in the population were not sampled. This not only affects the accuracy of the current paper, but calls into question any future predictions because the patterns documented now may not hold into the future. Also, the paper does not consider ecological factors. Should the mortality rate of any sex or age class increase in the future, ecological theory has shown that other segments of the population may compensate for these mortalities. For example, should some wolf pups die due to genetic problems, other wolves that may have died due to other causes (e.g., starvation, disease, etc) could survive. This is called compensatory mortality and has been documented for wolves.

8. Another important consideration is that no population viability analysis (PVA) has been formerly conducted. PVA's usually predict the future health of the population and without such an exercise being completed statements about the future are speculative and based on one's opinion.

9. Comparisons to other wolf populations may be informative to predict the future of YNP wolves, but these comparisons must somewhat resemble YNP. Documented genetic effects in the Scandinavian wolf population due to isolation and small population size do not resemble YNP (Liberg et al. 2005. *Severe inbreeding in a wild wolf (Canis lupus) population*. Biology Letters). The level of isolation to Scandinavian wolf population is much greater than to GYA wolves, and the Scandinavian population was and is much smaller than the GYA population which exceeds 450 not 170 as stated in the lawsuit. The Scandinavian population was <100 wolves for 15 years and now only numbers ~120 wolves which affects genetic viability to a much greater degree than the GYA population that was only <100 wolves for about 3 years and then grew large very rapidly. Also, the Scandinavian population began with just 2-3 wolves, while the GYA population began with 41, again not comparable and the genetic impacts and conclusions between these two scenarios are entirely different.

Further our population is not totally isolated. We have documented at least 2 wolves moving into the GYA (both from Idaho), one that moved from the GYA to near Boise, Idaho that bred, another that dispersed from YNP to near Denver, CO, another from YNP that dispersed to near Morgan, UT, and finally one other that made it to near Helena, MT. Also, and it is worth stressing again, these are known movements, most wolves are not radio collared. This clearly indicates that wolves have the capability to move around between recovery areas enabling connectivity and reducing isolation; a situation not at all similar to the Scandinavian situation.

10. I also disagree with the Plaintiff's broad statement that the killing of individual wolves irreparably harm's entire wolf packs. I was co-author on another scientific peer-reviewed paper about the loss of breeding individuals in wolf packs (Brainard et al. 2008. *The effects of breeder loss on wolves*, The Journal of Wildlife Management 72(1):89-98). We concluded that the outcome of such events was variable and dependent on many factors; in some cases there was a small effect (no pack displacement or loss of breeding opportunity), and in other cases the pack dissolved and/or did not breed the following year. I have much more detailed knowledge of wolves in YNP that was not used in the publication of this paper and we found that breeder loss from packs was fairly common and that in most situations the wolf packs were able to adapt and adjust to the loss of these breeding individuals, unless the pack was small. When other animals than breeders are considered, we found that in virtually all cases there was no affect on the viability of the pack when one of these other wolves was lost. For example, we found that YNP wolves kill each other at a high rate (this is the leading cause of mortality for YNP wolves) and that they nearly always adjust to the removal of lost pack members. In fact in one extreme case in October 2007 both breeding wolves (e.g., alphas) were killed by a neighboring pack and the remaining wolves survived and appear to be breeding (e.g., denning) in 2008.

11. Finally, to the extent that Plaintiff's are concerned about diminished ability to see and hear wolves in the wild. YNP is one of the best places in the world to observe wolves in the wild. Most wild wolf viewing takes place in YNP and many people and organizations lead tours to YNP to see wolves. Delisting of wolves will not affect the

protection level or management of wolves and therefore not affect wolf viewing in any way.

III. CONCLUSION

In short, my scientific research and intimate involvement with wolf management since 1994 in the NRM do not support the plaintiff's claims that the NRM wolf population will be irreparably harmed post-delisting. Specifically, research led by me directly evaluated the mortality and survival rate of NRM wolves and on both counts we did not find the population in danger of extinction or was it negatively affected by federal management actions. This finding, along with continued annual population growth in all three recovery areas, clearly indicates that the federal mandate of a restored population has been achieved and that threats to the population have been removed. Further, I have published with coauthors on the genetic viability of the Yellowstone National Park wolf population, a population contended to be genetically isolated, and found genetic diversity to be high and inbreeding low. Further, my tracking of wolves in the greater Yellowstone area since the inception of the program indicates a level of wolf movement consistent with the idea that greater Yellowstone wolves are connected with wolves from the other NRM population. Also, my research and other work with collaborators on wolf pack dynamics and the loss of individual wolves from packs indicates a certain amount of resilience to the mortality of some individuals. Lastly, most wild wolf observation occurs inside Yellowstone National Park and delisting will not affect these viewing opportunities. Therefore, I fully support delisting of the NRM wolf population as I believe the population is biologically viable, and this is the correct action given policy and statements made to the public throughout this entire process. The goal has been achieved, and as promised, it is time to move on.

Pursuant to 28 U.S.C. § 1746, I hereby declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge information and belief.

Executed on May 8, 2008 at Mammoth Hot Springs, WY.

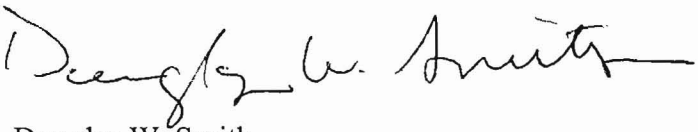
By: 
Douglas W. Smith

Exhibit A: CURRICULUM VITAE for DOUGLAS W. SMITH

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Wolf Project
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Yellowstone National Park, WY 82190
doug_smith@nps.gov

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EDUCATION

1997 *Ph.D., University of Nevada, Reno*
Program in Ecology, Evolution, and Conservation Biology
Dissertation: Dispersal Strategies and Cooperative Breeding in Beavers
Advisor: Dr. Stephen Jenkins

1988 *M.S., Michigan Technological University, Biology*
Thesis: Natural Winter Body Temperature Fluctuations in the Beaver
(*Castor canadensis*).
Advisor: Dr. Rolf Peterson

1985 *B.S., University of Idaho, Wildlife Biology*
Advisor: Dr. James Peek

EXPERIENCE

1997-Present *Project Leader, Yellowstone Wolf Project*
Yellowstone National Park (YNP), WY, MT, ID
-Responsible for research and management of wolves within YNP
-Assist U.S. Fish and Wildlife Service with wolf recovery outside YNP
-Supervision of 8-12 (varies by season) employees
-Responsible for helicopter capture and handling of 30-35 wolves/year
-Certified helicopter gunner (>250 wolf captures); supervised >350 captures

- Certified Helicopter Manager –ACE Training current in 2007
- 3 wildlife handling and immobilization classes
- 200 hrs/year aerial radio telemetry
- Manage budget of \$425,000/year
- 70-75 public and scientific presentations/year
- Interviews with media
- Data analysis, write technical and peer reviewed scientific publications
- Appointed to technical committee for wolf management in state of Montana and Oregon; assist Wyoming with wolf management plan
- Consultant to Iberian wolf studies in Portugal
- Member IUCN Reintroduction Specialist Group
- Affiliate Professor Montana State University (MSU)
- Reviewer for various scientific journals and proposals

1994-1997

Biologist, Yellowstone Wolf Project

Yellowstone National Park, WY, MT, ID

- Husbandry of wolves in remote pens before release into wild
- Monitoring of wolves from air and ground
- Wild & captive capture and handling of wolves
- Principal author of wolf research plan for entire Yellowstone recovery effort
- Supervision of six employees; public speaking, reporter interviews: radio, television, newspaper, magazine
- Data analysis, publication writing
- Interagency cooperation

1990-1994

Ph.D. Research, University of Nevada, Reno

Dispersal Strategies and Cooperative Breeding in Beavers

Voyageurs National Park, Minnesota

- Second phase of eleven-year research project on beavers in Voyageurs National Park, Minnesota
- Live-trapping and radio implanting of beavers
- Forest transects, aquatic vegetation photography, and pond measurements to determine beaver habitat quality
- DNA fingerprinting

Fall 1990

Consultant, Beaver Research and Management

1992, 1994

Isle Royale National Park, Michigan

1996, 1998, 2002

- Aerial population census of park beaver population
- Habitat evaluation and some beaver live-trapping
- Evaluation of beaver-wolf relationship, including work with researchers involved with long-term studies of wolves and moose

Winter 1983
& 1994

Research Assistant, Wolf-Moose Research
Isle Royale National Park, Michigan

- Aerial tracking of wolves with & without radio collars
- Aerial census of moose
- Retrieval of wolf-killed moose
- Bone inventory

1988-1990

*Research Associate, Michigan Technological University
Apostle Islands National Lakeshore, Wisconsin*

- Studied beaver ecology in Apostle Islands National Lakeshore, Wisconsin
- Formulated beaver management plan with Park staff
- Conducted three aerial population censuses of beavers
- Consultation on beaver management ongoing and aerial censusing continues at three year intervals

Summers
1986-1991

*Research Assistant, Wolf-Moose Research, Isle
Royale National Park, Michigan*

- Wolf-moose radio tracking, bone collection of wolf killed moose, orienteering, and data tabulation
- Wolf howling surveys
- Summer 1986 responsible for all field operations, supervision of graduate students, and coordination with National Park Service in absence of the principal investigator Rolf Peterson

Fall 1987

*Research Associate, Michigan Technological University
Grand Portage National Monument, Minnesota*

- Studied beaver population ecology and made management recommendations for Grand Portage National Monument, Minnesota

1984-1988

*Research Assistant, Michigan Technological University
Voyageurs National Park, Minnesota*

- First phase of long-term research on beavers
- Studied the effects of unnatural water drawdowns in winter on beaver behavior in Voyageurs National Park, Minnesota
- Simultaneously gathered data for Master's Thesis on beaver thermoregulation.
- Assisted in writing Park management plan for beavers
- Consultant for beaver management
- Other duties: muskrat & otter trapping and tracking

Summer 1984

*Field Technician, U.S. Forest Service, Alaska
Chugach National Forest, Alaska*

- Responsible for planning and conducting breeding bird surveys and population censuses of birds in Chugach National Forest
- Assisted with moose habitat surveys

- Spring 1983 *Field Technician, U.S. Fish and Wildlife Service, Wolf-Deer Research Project, Ely, Minnesota*
-Capture, handling, and radio instrumentation of white-tailed deer
-Radio tracking of wolves and deer
-Wolf sign surveys
-Wolf capture and handling
- Summer 1982 *Field Assistant, University of Idaho, Pronghorn Antelope Research, National Bison Range, Montana*
-Captured and tagged antelope fawns
-Observed and recorded behavioral data on marked fawns and adults
- Summers 1979-1981 *Field Assistant, Wolf-Moose Research, Isle Royale National Park, Michigan*
-Monitored wolves via howling contacts
-Retrieved wolf-killed moose
-Responsible for preservation and storage of moose bones
-Data tabulation, wildlife observation orienteering, and wilderness travel
- Spring 1979 *Volunteer, Captive Wolf Research, Wolf Park, Indiana*
-Hand rearing wolf pups
-Behavioral observation of captive wolves

TEACHING EXPERIENCE

- 2001 - Present *Yellowstone Institute*
-Taught 3 day classes on wolves and beavers
- 1996-Present *Affiliate Professor, Montana State University*
- 1992-1994 *Biology Instructor, University of Nevada, Reno*
Summers
-Developed a previously untaught class in Field Mammalogy
-Stressed the study of mammals in the field with an accompanying lecture reviewing mammalogy
- 1992-1994 *Teaching Assistant, University of Nevada, Reno*
Spring
Assist teaching the class Desert-Montane Ecosystems
-Responsible for mammal portion of the class
-Lecture and field trips

- 1991-1994 *Guest Lecturer Mammalogy, University of Nevada, Reno*
-Substitute lecturer for Mammalogy course: topics include dispersal, cooperative breeding, & mating systems
- 1991-1994
Sept.-Oct. *Earthwatch Principal Investigator*
-Led groups of 6-8 people for ten days in the field to study beavers in Voyageurs National Park, Minnesota
-75 students of all ages and backgrounds for the last three autumns
-Responsibilities include teaching ecology, animal behavior, and field techniques to study beavers
- 1988-1994 *Earthwatch Leader*
-Led groups of 5 people on week long expeditions to study wolf-moose ecology on Isle Royale
-Responsible for instruction and safety of 90 volunteers to date
- 1987 *Teaching Assistant, Michigan Technological University*
-Taught General Botany Labs
-Responsibilities included lab lecture, preparation and grading of lab quizzes, and lab practical exams

HONORS AND AWARDS

- 2007 Defenders of Wildlife *Spirit of Defenders Award for Science*
- 2007 North American Wildlife Foundation – Wolf Park
Erich Klinghammer Award – Outstanding contribution to wolf conservation and research
- 2006 2005 Montana Book Award for *Decade of the Wolf*
- 2005 National Outdoor Leadership School (NOLS)
Outstanding Alumni Award
- 2005 University of Idaho
Celebration Natural Resources Award
Outstanding work in wolf restoration and recovery and dedication to the field of wildlife biology
- 2003 National Park Service
Director's Award for Natural Resource Management
Outstanding Employee in Natural Resources for the National Park Service Nationwide (357 areas)
- 2003 National Park Service

Outstanding Natural Resource Employee for the Year for Intermountain Region of National Park Service (90 parks)

- 2003 Yellowstone National Park
Award for Outstanding Performance in Wolf Research & Management (\$500)
- 2002 U.S. Forest Service
Excellence in Presentations Each Year to the Interagency Carnivore Class
James Claar, Program Coordinator
- 2001 Wolf Recovery Foundation & Defenders of Wildlife
Alpha Award for outstanding performance in the Rocky Mountain region in wolf recovery
- 2000 Yellowstone National Park
Star Award for outstanding performance in wolf recovery (\$1000)
- 1999 Yellowstone National Park
Safety Award (Time Off)
- 1998 Yellowstone National Park
On the Spot Award for Outstanding performance supervising & managing wolf capture (\$300)
- 1995 Yellowstone National Park
Quality Step Increase for Outstanding Performance in Wolf Reintroduction in YNP
- 1991-1994 Welder Wildlife Foundation Fellowship.
Full financial support for Ph.D.

PUBLICATIONS

- Brainard, S.M., H.Andren, E.E. Bangs, E. H. Bradley, J.A. Fontaine, W. Hall, Y. Iliopoulos, M.D. Jimenez, E.A. Jozwiak, O. Liberg, C.M. Mack, T.J. Meier, C.C. Niemeyer, H.C. Pedersen, H. Sand, R.N. Schultz, D.W. Smith, P. Wabakken, A.P. Wydeven. 2008. The effects of breeder loss on wolves. *Journal of Wildlife Management* 72:89-98.
- VonHoldt, B.M., D.R. Stahler, D.W. Smith, D.A. Earl, J.P. Pollinger, and R.K. Wayne. 2008. The genealogy and genetic viability of reintroduced Yellowstone grey wolves. *Molecular Ecology* 17:252-274.
- Kauffman, M.J., N. Varley, D.W. Smith, D.R. Stahler, D.R. MacNulty, and M.S. Boyce. 2007.

- Landscape heterogeneity shapes predation in a newly restored predator-prey system. *Ecology Letters* 10: 1-11.
- MacNulty, D.R., L.D. Mech, D.W. Smith. 2007. A proposed ethogram of large-carnivore predatory behavior, exemplified by the wolf. *Journal of Mammalogy* 88:595-605
- Forester, J.D., A.R. Ives, M.G. Turner, D.P. Anderson, D. Fortin, H.L. Beyer, D.W. Smith, and M.S. Boyce. 2007. State-space models link elk movement patterns to landscape characteristics in Yellowstone National Park. *Ecological Monographs* 77:285-299.
- Stahler, D.R., D.W. Smith, D.S. Guernsey. 2006. Foraging and feeding ecology of the gray wolf (*Canis lupus*): Lessons from Yellowstone National Park, Wyoming, USA. *Journal of Nutrition* 136:1923-1926.
- Wright, G.J., R.O. Peterson, D.W. Smith, T.O. Lemke. 2006. Selection of northern Yellowstone elk by gray wolves and hunters. *Journal of Wildlife Management* 70: 1070-1078.
- Oakleaf, J.K., D.L. Murray, J.R. Oakleaf, E.E. Bangs, C.M. Mack, D.W. Smith, J.A. Fontaine, M.D. Jimenez, T.J. Meier, C.C. Niemeyer. 2006. Habitat selection by recolonizing wolves in the northern Rocky Mountains of the United States. *Journal of Wildlife Management* 70(2):554-563.
- Bradley, E.H., D.H. Pletscher, E.E. Bangs, K.E. Kunkel, D.W. Smith, C.M. Mack, T.J. Meier, J.A. Fontaine, C.C. Niemeyer, and M.D. Jimenez. 2005. Evaluating wolf translocation as a nonlethal method to reduce livestock conflicts in the northwestern United States. *Conservation Biology* 19:1498-1508.
- Mao, J.S., M.S. Boyce, D.W. Smith, F.J. Singer, D.J. Vales, J.M. Vore and E.M. Merrill. 2005. Habitat selection by elk before and after wolf reintroduction in Yellowstone National Park. *Journal of Wildlife Management* 69(4):1691-1707
- Vucetich, J.A., D.W. Smith and D.R. Stahler. 2005. Influence of harvest, climate, and wolf predation on Yellowstone elk, 1961-2004. *Oikos* 111: 259-270.
- Bangs, E., M. Jimenez, C. Niemeyer, T. Meier, V. Asher, J. Fontaine, M. Collinge, L. Handegard, R. Krischke, D. Smith, and C. Mack. 2005. Livestock guarding dogs and wolves in the northern Rocky Mountains of the United States. *Carnivore Damage Prevention News* 8: 32-39.
- Fortin, D., H.L. Beyer, M.S. Boyce, D.W. Smith, T. Duchesne, J.S. Mao. 2005. Wolves influence elk movements: Behavior shapes a trophic cascade in Yellowstone National Park. *Ecology* 86:1320-1330.
- Bangs, E.E., J. Fontaine, T. Meier, C. Niemeyer, M. Jimenez, D. Smith, C. Mack, V. Asher, L. Handegard, M. Collinge, R. Krischke, C. Sime, S. Nadeau, and D. Moody. 2004.

- Restoration and conflict management of the gray wolf in Montana, Idaho, and Wyoming. Transactions of the 69th North American Wildlife and Natural Resources Conference, Wildlife Management Institute, pgs. 89-105.
- Mech, L.D., R.T. McIntyre, and D.W. Smith. 2004. Unusual behavior by bison, *Bison bison*, toward elk, *Cervus elaphus*, and wolves, *Canis lupus*. Canadian Field-Naturalist 118:115-118.
- Gunther, K.A. and D.W. Smith. 2004. Interactions between wolves and female grizzly bears with cubs in Yellowstone National Park. Ursus 15:232-238.
- Smith, D.W., T.D. Drummer, K.M. Murphy, D.S. Guernsey, S.B. Evans. 2004. Winter prey selection and estimation of wolf kill rates in Yellowstone National Park, 1995-2000. Journal of Wildlife Management 68:153-166.
- Smith, D.W., R.O. Peterson, D. Houston. 2003. Yellowstone after wolves. BioScience 53: 330-340.
- Ruth, T.K., D.W. Smith, M.A. Haroldson, P.C. Buotte, C.C. Schwartz, H.B. Quigley, S. Cherry, K.M. Murphy, D. Tyers and K. Frey. 2003. Large-carnivore response to recreational big-game hunting along the Yellowstone National Park and Absaroka-Beartooth Wilderness boundary. Wildlife Society Bulletin 31:1150-1161.
- Wilmers, C.C., R.L. Crabtree, D.W. Smith, K.M. Murphy and W.M. Getz. 2003. Trophic facilitation by introduced top predators: grey wolf subsidies to scavengers in Yellowstone National Park. Journal of Animal Ecology 72:909-916.
- Wilmers, C.C., D.R. Stahler, R.L. Crabtree, D.W. Smith, and W.M. Getz. 2003. Resource dispersion and consumer dominance: scavenging at wolf- and hunter-killed carcasses in Greater Yellowstone, USA. Ecology Letters 6:996-1003.
- Eberhardt, L.L., R.A. Garrott, D.W. Smith, P.J. White, and R.O. Peterson. 2003. Assessing the impact of wolves on ungulate prey. Ecological Applications 13:776-783
- Creel, S., G. Spong, J.L. Sands, J. Rotella, J. Ziegle, L. Joe, K. Murphy, D. Smith. 2003. Population size estimation in Yellowstone wolves with error-prone noninvasive microsatellite genotypes. Molecular Ecology
- Consolo Murphy, S. and D.W. Smith. 2002. Documenting trends in Yellowstone's beaver population: A comparison of aerial and ground surveys in the Yellowstone Lake Basin. Pages 172-178 in R.J. Anderson and D. Harmon, editors. Yellowstone Lake: Hotbed of chaos or reservoir of resilience? Proceedings of the 6th Biennial Scientific Conference on the Greater Yellowstone Ecosystem.
- Carroll, C., M.K. Phillips, N.H. Schumaker, D.W. Smith. 2002. Impacts of landscape change on

- wolf restoration success: Planning a reintroduction program using static and dynamic spatial models. *Conservation Biology* 17:1-15.
- Gipson, P.S., E.E. Bangs, T.N. Bailey, D.K. Boyd, H. Dean Cluff, D.W. Smith, and M.D. Jimenez. 2002. Color patterns among wolves in western North America. *Wildlife Society Bulletin* 30:821-830.
- Peterson, R.O., A.K. Jacobs, T.D. Drummer, L.D. Mech, and D.W. Smith. 2002. Leadership behavior in relation to dominance and reproductive status in gray wolves, *Canis lupus*. *Canadian Journal of Zoology* 80:1405-1412.
- Stahler, D.R., B. Heinrich, and D.W. Smith. 2002. Common ravens, *Corvus corax*, preferentially associate with gray wolves, *Canis lupus*, as a foraging strategy in winter. *Animal Behavior* 64:283-290.
- Stahler, D.R., D.W. Smith, and R. Landis. 2002. The acceptance of a new breeding male into a wild wolf pack. *Canadian Journal of Zoology* 80:360-365.
- MacNulty, D. R., N. Varley, and D.W. Smith. 2001. Grizzly bear, *Ursus arctos*, usurps bison calf, *Bison bison*, captured by wolves, *Canis lupus*, in Yellowstone National Park. *Canadian Field-Naturalist* 115:495-498.
- Bangs, E., J. Fontaine, M. Jimenez, T. Meier, C. Niemeyer, D. Smith, K. Murphy, D. Guernsey, L. Handegard, M. Collinge, R. Krischke, J. Shivik, C. Mack, I. Babcock, V. Asher, and D. Domenici. 2001. Gray wolf restoration in the northwestern United States. *Endangered Species Update* 18(4):147-152
- Ripple, W. J., E. J. Larsen, R.A. Renkin, and D.W. Smith. 2001. Trophic cascades among wolves, elk and aspen on Yellowstone National Park's northern range. *Biological Conservation* 102:227-234.
- Mech, L.D., D.W. Smith, K.M. Murphy, D.R. MacNulty. 2001. Winter severity and wolf predation on a formerly wolf-free elk herd. *Journal of Wildlife Management* 65:998-1003.
- Smith, D. W, K.M. Murphy, S. Monger. 2001. Killing of a Bison (*Bison bison*)calf, by a wolf (*Canis lupus*), and four Coyotes (*Canis latrans*), in Yellowstone National Park. *Canadian Field-Naturalist*. 115(2):343-345.
- Smith, D.W., L.D. Mech, M. Meagher, W.E. Clark, R. Jaffe, M.K. Phillips, and J.A. Mack. 2000. Wolf-bison interactions in Yellowstone National Park. *Journal of Mammalogy* 81(4):1128-1135.
- Phillips, M.K. and D.W. Smith. 1998. Gray wolves and private landowners in the Greater Yellowstone Area. *Transactions of 63rd North American Wildlife and Natural Resources*

Conference. pp.443-450.

Bangs, E.E., S.H. Fritts, J.A. Fontaine, D.W. Smith, K.M. Murphy, C.M. Mack, and C.C. Niemeyer. 1998. Status of gray wolf restoration in Montana, Idaho, and Wyoming. *Wildlife Society Bulletin* 26:785-798.

Smith, D.W. and S. H. Jenkins. 1997. Seasonal change in mass and tail size of northern beavers. *Journal of Mammalogy* 78:869-876.

Mech, L.D., M.K. Phillips, D.W. Smith, and T.J. Kreeger. 1996. Denning behavior of non-gravid wolves. *Canadian Field-Naturalist* 110:343-345.

Smith, D., D. Trauba, R. Anderson, and R. Peterson. 1994. Black bear predation on beavers on an island in Lake Superior. *American Midland Naturalist* 132:248-255.

Smith, D., T. Drummer, and R. Peterson. 1994. Studies of beaver activity and body temperature: a historical perspective. *Canadian Journal of Zoology* 72:572-574.

Smith, D., R. Peterson, T. Drummer, and D. Sheputis. 1991. Over-winter activity and body temperature patterns in northern beavers. *Canadian Journal of Zoology* 69:2178-2182.

Smith, D. and R. Peterson. 1991. Behavior of beaver in lakes with varying water levels in northern Minnesota. *Environmental Management* 15(3):395-401.

BOOKS

Smith, D.W. and G. Ferguson. 2005. *Decade of the wolf: Returning the wild to Yellowstone*. Lyons Press, Guilford, CT, 212 pp.

Phillips, M. and D.W. Smith. 1996. *The wolves of Yellowstone*. Voyageur Press, Stillwater, MN, 128 pp.

BOOK CHAPTERS

Bangs, E.E. and D.W. Smith. In Press. Re-introduction of the gray wolf into Yellowstone National Park and central Idaho. IUCN Reintroduction Specialist Group.

Smith, D.W., D.R. Stahler, and M.S. Becker. In press. Wolf recolonization of the Madison headwaters area in Yellowstone. Pages 000-000 in R.A. Garrott & P.J. White editors. *Large Mammal Ecology in Central Yellowstone*. Elsevier Academic Press-Terrestrial Ecology Series.

Hebblewhite, M. and D.W. Smith. In press. Wolf community ecology: Ecosystem effects of recovering wolves in Banff and Yellowstone National Parks. Pages 000-000 in M. Musiani, L. Boitani, and P. Paquet, editors. *The world of wolves: new perspectives on*

ecology, behavior and policy. University of Calgary Press

- Smith, D.W. and E.E. Bangs. In press. Reintroduction of wolves to Yellowstone National Park: History, values and ecosystem restoration. Pgs 000-000 *in* M. Hayward and M. Somers, editors. Reintroduction of Top-order Predators. Blackwell Scientific
- Smith, D.W. 2007. Wolf and human conflicts: A long, bad history. Pages 402-409 *in* M. Bekoff, editor. Encyclopedia of human-animal relationships. Greenwood Press, Westport, CT.
- Smith, D.W., D. Stahler, D. Guernsey, and E. Bangs. 2006. Wolf restoration in Yellowstone National Park. Pgs. 242-254 *in* D.R. McCullough, K. Kaji, and M. Yamanaka (eds.), Wildlife in Shiretoko and Yellowstone National Parks: Lessons in Wildlife Conservation from Two World Heritage Sites. Shiretoko Nature Foundation, Hokkaido, Japan.
- Campbell, B.H., B. Altman, E.E. Bangs, D.W. Smith, B. Csuti, D.W. Hays, F. Slavens, K. Slavens, C. Schultz, and R.W. Butler. 2006. Restoring wildlife populations. Pgs 351-373 *in* Restoring the Pacific Northwest: The art and science of ecological restoration in Cascadia. Editors, D. Apostol and M. Sinclair. Island Press, Washington, D.C.
- Bangs, E.E., J.A. Fontaine, M.D. Jimenez, T.J. Meier, E.H. Bradley, C.C Niemeyer, D.W. Smith, C.M. Mack, V. Asher, and J.K. Oakleaf. 2005. Managing wolf-human conflict in the northwestern United States. Pgs. 340-356 *in* People and Wildlife: Conflict or coexistence? Editors, R. Woodroff, S. Thirgood, and A. Rabinowitz. Cambridge University Press.
- Berger, J. and D.W. Smith. 2005. Restoring functionality in Yellowstone with recovering carnivores: Gains and uncertainties. Pgs. 100-109 *in* Large carnivores and biodiversity conservation. Editors, J.C. Ray, K.H. Redford, R.S. Steneck and J. Berger. Island Press, Washington D.C.
- Smith, D.W. 2004. Wolf behavior: Learning to live in life or death situations. In: Encyclopedia of Animal Behavior, ed., Marc Bekoff, Greenwood Press, Westport, CT, pgs 1181-1185.
- Smith, D.W. 2004. The wolf in fairy tales. In: Encyclopedia of Animal Behavior, ed., Marc Bekoff, Greenwood Press, Westport, CT, pgs 39-40.
- Ballard, W.B., L.N. Carbyn, and D.W. Smith. 2003. Wolf interactions with non-prey. Pages 259-271 *in* L.D. Mech and L. Boitani, editors. Wolves: Ecology, behavior, and conservation. University of Chicago Press.
- Fritts, S.H., C.M. Mack, D.W. Smith, K.M. Murphy, M.K. Phillips, M.D. Jimenez, E.E. Bangs, J.A. Fontaine, C.C. Niemeyer, W.G. Brewster, and T.J. Kaminski. 2001. Outcomes of hard and soft releases of wolves in central Idaho and the Greater Yellowstone Area. Pages 125-147 *in* D.S. Maehr, R.F. Noss, and J.L. Larkin, editors. Large Mammal restoration: Ecological and sociological challenges for the 21st century. Island Press,

Washington, D.C.

Smith, D. and M. Phillips. 2000. Northern Rocky Mountain wolf (*Canis lupus nubilus*). Pp. 219-223, in *Endangered Animals: A Reference Guide to Conflicting Issues* (R.P. Reading and B. Miller, eds.). Greenwood Press, Westport, CT, 383pp.

Smith, D., W. Brewster, and E. Bangs. 1999. Wolves in the Greater Yellowstone Ecosystem: Restoration of a top carnivore in a complex management environment. Pp. 103-125, in *Carnivores in Ecosystems: The Yellowstone Experience* (T. Clark, A.P. Curlee, S. Minta, and P. Kareiva, eds.). Yale University Press, New Haven and London, 429pp.

Jenkins, S. and D. Smith. 1999. Beaver, *Castor canadensis*. Pp. 548–552, in *The Smithsonian Book of North American Mammals* (D. Wilson and S. Ruff, eds.). Smithsonian Institution Press, Washington, D.C., 750pp.

Kallemeyn, L., M. Reiser, D. Smith, and J. Thurber. 1988. Effects of regulated lake levels on the aquatic ecosystem of Voyageurs National Park. In: *Interdisciplinary Approaches to Freshwater Wetlands Research*, ed. D. Wilcox. Mich. State Univ. Press, E. Lansing, MI. p. 133-146.

REVIEWS

Smith, D.W. 2006. Living with Large Carnivores. *BioScience* 56:848-849.

Smith, D.W. 2005. Mixed messages about opportunistic carnivores. *Conservation Biology* 19:1676-1678.

Smith, D. W. 2002. Wolves and Human Communities: Biology, Politics, and Ethics. *Journal of Mammalogy* 83:915-918.

Bishop, N.A. and D.W. Smith. 1998. Wolf country: A review and personal commentary. *Wildlife Society Bulletin*. 26:993-996.

TECHNICAL REPORTS

Smith, D.W., D.R. Stahler, D.S. Guernsey, M. Metz, A. Nelson, E. Albers, and R. McIntyre. 2007. *Yellowstone Wolf Project: Annual Report 2006*. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming, YCR-2007-01.

Bangs, E., M. Jimenez, C. Niemeyer, J. Fontaine, M. Collinge, R. Krsichke, L. Handegard, J. Shivik, C. Sime, S. Nadeau, C. Mack. D.W. Smith, V. Asher, S. Stone. 2006. Non-lethal and lethal tools to manage wolf-livestock conflict in the Northwestern United States. *Proceedings of the 22nd Vertebrate Pest Conference*, University of California, Davis, 7-16.

- Smith, D.W., D.R. Stahler, and D.S. Guernsey. 2006. Yellowstone Wolf Project: Annual Report, 2005. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming, YCR-2006-04.
- Smith, D.W., D.R. Stahler, and D.S. Guernsey. 2005. Yellowstone Wolf Project: Annual Report, 2004. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming, YCR-2005-02.
- MacNulty, D. and D. Smith. 2004. Bison foraging response to the risk of wolf predation in a spatially heterogeneous winter environment: a preliminary assessment. University of Wyoming, National Park Service Research Center, 28th Annual Report, edited by H. Harlow & M. Harlow.
- Smith, D.W., D.R. Stahler, and D.S. Guernsey. 2004. Yellowstone Wolf Project: Annual Report, 2003. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming, YCR-NR-2004-04.
- Smith, D.W., D.R. Stahler, and D.S. Guernsey. 2003. Yellowstone Wolf Project: Annual Report, 2002. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming, YCR-NR-2003-04.
- Stahler, D.R., D.W. Smith, R. McIntyre, E. West, B. Phillips, B. Chan, M. Ross, J. Knuth Folts, D. Chalfant, and B. Suderman. 2003. Managing wolves and humans in Lamar Valley: A final report on the Druid road project 2003. YNP report 9pp.
- Smith, D.W., and D.S. Guernsey. 2002. Yellowstone Wolf Project: Annual report, 2001. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, Wyoming, YCR-NR-2002-04.
- Smith, D.W., R. McIntyre, E. Cleere, G. Plumb, B. Phillips, B. Chan, M. Ross, J. Knuth Folts, D. Chalfant, and B. Suderman. 2001. Managing wolves and humans in Lamar Valley: A final report on the Druid road project 2001. YNP report 7pp.
- Smith, D.W., K.M. Murphy, and D.S. Guernsey. 2001. The Yellowstone Wolf Project: Annual Report, 2000. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, YCR-NR-2000-01. 14pp.
- Smith, D.W. 2001. Beaver Survey Yellowstone National Park 1999. Yellowstone Center for Resources. 11pp.
- Smith, D.W., K.M. Murphy, R. McIntyre, T. Zieber, G. Plumb, B. Phillips, B. Chan, J. Knuth Folts, D. Chalfant, and B. Suderman. 2000. Managing wolves and humans in Lamar Valley: A final report on the Druid road project 2000. YNP report, 5pp.

- Smith, D.W., K.M. Murphy, and D.S. Guernsey. 2000. The Yellowstone Wolf Project: Annual Report, 1999. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, YCR-NR-2000-01. 14pp.
- Smith, D.W., K.M. Murphy, and D.S. Guernsey. 1999. The Yellowstone Wolf Project Annual Report. Yellowstone Center for Resources, YCR-NR-99-1. 14pp.
- Smith, D.W. 1998. Beaver Survey Yellowstone National Park 1998. Yellowstone Center for Resources. 11pp.
- Smith, D.W. 1998. The Yellowstone Wolf Project Annual Report. Yellowstone Center for Resources, YCR-NR-98-2. 20pp.
- Phillips, M.K. and D.W. Smith. 1997. The Yellowstone Wolf Project: 1995- 1996 Biennial Report. Yellowstone Center for Resources, YCR-NR-97-4. 24pp.
- Smith, D.W., S.C. Murphy, M.K. Phillips, and R.C. Crabtree. 1997. Beaver survey Yellowstone National Park 1996. Yellowstone Center for Resources, YCR-NR-97-1. 8pp.
- Smith, D. and R. Peterson. 1991. Beaver ecology in Apostle Islands National Lakeshore. Final report submitted to USNPS. 130pp.
- Smith, D. and R. Peterson. 1988. Effects of regulated lake levels on beaver in Voyageurs National Park, Minnesota. U.S. Dept. of Interior, National Park Service, Research/Resources Management Report MWR-11. 84pp.
- Smith, D. and R. Peterson. 1987. A survey of beaver ecology in Grand Portage National Monument, Minnesota. Contract #CA6000-7-8022. Final report submitted to USNPS. 44pp.

POPULAR ARTICLES

- Smith, D.W. 2006. Re-introduction of gray wolves to Yellowstone National Park, USA. Re-Introduction News: Newsletter of the Re-introduction Specialist Group of IUCN's Species Survival Commission (SSC) ISSN 1560-3709: Vol. 26:29-31.
- Wondrak Biel, A. and D.W. Smith. 2006. Diseases investigated as possible cause of wolf decline. The Buffalo Chip: Resource Management Newsletter. February/March: 1-3.
- Ferguson, G. and D.W. Smith. 2005. A decade of wolves in Yellowstone. Montana Magazine (May-June):16-22.
- Wondrak Biel, A. and D.W. Smith. 2005. Yellowstone wolf found near Denver. NPS Natural Resource Year in Review – 2004. National Park Service, U.S Department of the Interior,

Washington D.C., ISSN 1544-5429.

Smith, D.W. 2005. Ten years of Yellowstone wolves, 1995-2005. *Yellowstone Science* 13(1): 7-33.

White, P.J., D.W. Smith, J.W. Duffield, M. Jimenez, T. McEneaney, G. Plumb. 2005. Yellowstone after wolves: Environmental Impact Statement predictions and ten-year appraisals. *Yellowstone Science* 13(1):34-41.

Smith, D.W. 2005. Ten years of Yellowstone wolves 1995-2005. *Points West Magazine*, Buffalo Bill Historical Center, Spring:3-6.

Smith, D.W. 2005. The predator and prey battle. *Points West Magazine*, Buffalo Bill Historical Center, Spring:7.

Bishop, N.A. and D.W. Smith. 2003. The survivors. *International Wolf* 13: 4-7.

Smith, D. 2002. Yukon passion: Paddling down the Wind and Peel Rivers. *Nastawgan: Quarterly Journal of the Wilderness Canoe Association* 29 (4):1-5.

Smith, D. W. 2002. Wolf #7: The passing of a matriarch. *Yellowstone Science* 10:18-19.

Smith, D.W. 2002. Wolf Pack Leadership: Doug Smith explores the issue in Yellowstone and Isle Royale. *Howlings: The Central Rockies Wolf Project* 11(2):10-12.

Smith, D.W. and R. McIntyre. 2002. Wolf pack size: How did the Druid Peak pack get to be so big? *International Wolf* 12(1):4-7.

Smith, D. W. 2001. Wildlife Art: Does it make a difference for wolves? *Wildlife Art*. 20(6):102-105.

Smith, D.W., R.J. Anderson, and J. Mao. 2001. Wolf restoration in Yellowstone successful beyond expectations. *Natural Resource Year in Review*, National Park Service, U.S. Department of Interior, Washington, D.C.

McIntyre, R. and D.W. Smith. 2000. The death of a Queen: Yellowstone mutiny ends tyrannical rule over Druid pack. *International Wolf* 10(4):8-11.

Smith, D.W. and K.M. Murphy. 2000. The wolves of Yellowstone. *Southeastern Wildlife Magazine*.

Smith, D.W. 1999. Wolf re-introduction in Yellowstone National Park, USA. *Re-Introduction News*. Newsletter of the Re-Introduction specialist Group of IUCN's Species Survival Commission (SSC) ISSN 1560-3709: Vol. 18:3-5.

- Smith, D.W. 1999. The North American wolf today. *International Wolf*, 9:14-16.
- Smith, D.W. 1998. Radio collaring wolves. *The Yellowstone Wolf Tracker*, 1:3.
- Smith, D.W. 1997. A wolf tracker in the sky. *The Yellowstone Wolf Tracker*, 1:4.
- Smith, D.W. 1997. Naming wolf packs. *The Yellowstone Wolf Tracker*, 1:6.
- Smith, D.W. 1996. Life with the Yellowstone wolves. *Wolf! Magazine*, 14:11-12.
- Smith, D.W. 1996. Wolf Park provides stepping stone to Yellowstone. *Wolf Park News*, 23:4.
- Smith, D.W. 1995. The founder wolves. *International Wolf*, 5:18.
- Smith, D.W. 1995. Adjusting to new sights, smells and sounds--in captivity. *International Wolf*, 5:20.
- Smith, D.W. 1992. Beaver ecology. *The Boundary Waters Journal*, Winter:52-56.

SELECTED PRESENTATIONS

- Smith, D.W. 2006. Wolf community ecology: A Yellowstone case study. The Wildlife Society 13th Annual Conference, Anchorage, Alaska.
- Smith, D.W. 2005. Ten years of Yellowstone wolves. American Museum of Natural History, New York City & National Geographic Society Headquarters, Washington D.C., Cleveland Museum of Natural History, Cleveland, Ohio, and Houston Zoo, Houston, Texas.
- Smith, D.W., D. Murray, E. Bangs, C. Mack, J. Oakleaf, J. Fontaine, D. Boyd, M. Jimenez, D. Pletscher, C. Niemeyer, and T. Meier. 2004. Survival of colonizing wolves in the northern Rocky Mountains of the United States. The Wildlife Society 11th Annual Conference, Calgary, Alberta, Canada.
- Smith, D.W., R. Renkin, D. Stahler, D. MacNulty, W. Ripple, R. Beschta, and E. Larsen. 2004. Wolf-elk-vegetation interactions: wolf reintroduction triggers a trophic cascade in Yellowstone National Park. The Wildlife Society 11th Annual Conference, Calgary, Alberta, Canada.
- Smith, D.W. 2004. Wolf-prey interactions in Yellowstone National Park, 1995-2004. Montana Chapter of The Wildlife Society Meetings, Bozeman, Montana.
- Smith, D.W., T. Drummer, K. Murphy, and D. Guernsey. 2003. Wolf-prey interactions in Yellowstone National Park. World Wolf Congress, Banff, Alberta, Canada.

- Smith, D.W. 2003. Will wolves kill all the elk? Comparisons to Isle Royale, Denali NP, Alaska, and Minnesota. Greater Yellowstone Coalition's 20th Anniversary Meeting. West Yellowstone, Montana.
- Smith, D.W. 2002. The wolves of Yellowstone. 2nd International Symposium on Canids: Behavior and Conservation. Cologne, Germany.
- Smith, D.W. 2002. Wolves, wilderness, and direct experience. Sigurd Olson Environmental Institute, 30th Anniversary Conference, Ashland, Wisconsin.
- Smith, D.W., T.D. Drummer, K.M. Murphy. 2002. Wolf-prey interactions in Yellowstone National Park. Wildlife Society Meeting, Bismarck. ND.
- Smith, D.W., T.D. Drummer, K.M. Murphy, S.B. Evans. 2001. Estimating wolf kill rates in Yellowstone National Park. American Society of Mammalogists Annual Meeting, Univ. of Montana, Missoula, MT.
- Smith, D., K. Murphy, W.G. Brewster, M.K. Phillips, and M. Jimenez. 2000. The Yellowstone wolves. Beyond 2000: Realities of Global Wolf Restoration. International Wolf Center Conference, Duluth, MN.
- Smith, D. and K. Murphy. 2000. Wolf kill rates and biodiversity in Yellowstone National Park. Conservation Biology Meeting, Univ. of Montana, Missoula, MT.
- Smith, D. 1999. The Yellowstone wolves: the first four years. Conservation Biology Meetings, Univ. of Maryland, Frostburg, MD.
- Smith, D. 1998. Wolf-Human Conflicts. Center for Environmental Research and Conservation, Columbia University, New York, New York.
- Smith, D. and M. Phillips. 1996. Interactions of wolves and other wildlife in Yellowstone National Park. Wolves of America Conference, Defenders of Wildlife, Albany, N.Y.
- Smith, D. and M. Phillips. 1995. Movements and food habits of gray wolves released in Yellowstone National Park. Yellowstone National Park Predator Conference, Mammoth Hot Springs, WY.
- Smith, D. 1995-2006. Wolf restoration in Yellowstone. Given in professional capacity 70-80/year.
- Smith, D. 1994. Beavers of the Lake States. Shedd Aquarium, Chicago, Illinois.
- Smith, D. 1993. Research in the National Parks. Earthwatch Annual Conference, Boston, Mass.
- Smith, D. 1992. Interpreting the composition of beaver families. American Society of

Mammalogists, Salt Lake City, Utah.

Smith, D. 1990. Overwinter activity and body temperature patterns in northern beavers. 52nd Midwest Fish and Wildlife Conference, Minneapolis, Minnesota.

Smith, D. and R. Peterson. 1989. Beaver ecology in the Apostle Islands National Lakeshore. Eleventh Apostle Islands Research Conference, Bayfield, Wisconsin.

Smith, D. 1989. Population ecology of beavers with unnatural water drawdowns in Voyageurs National Park, Minnesota, USA. Invited Speaker, Fifth International Theriological Congress, Third International Beaver Symposium, Rome, Italy.

Smith, D. 1987. Effects of winter water drawdowns on beavers in Voyageurs National Park, Minnesota. 49th Midwest Fish and Wildlife Conference, Milwaukee, Wisconsin.

Smith, D. 1987. Physical measurements and winter behavior of beaver in three environments of Voyageurs National Park, Minnesota. Fifth Midwest Furbearer Workshop, Whitewater, Minnesota.

Smith, D. and R. Peterson. 1985. Natural hypothermia in overwintering beaver. Fourth International Theriological Congress, Second International Beaver Symposium, Edmonton, Alberta.

Approximately 70-75 professional and popular presentations are given/year along with 50-55 interviews/year to all forms of media. I have participated in four National Geographic (NG) and two British Broadcasting Channel (BBC) specials as well as interviews for National Public Radio and network television (ABC, NBC, CBS, ESPN, MTV and numerous local stations).

GRANTS AND CONTRACTS

2006-2011 National Science Foundation (NSF) Five Year Grant, \$450,000 – Long Term Research in Environmental Biology (LTREB) – DEB-0613730

1995-Present Assist Yellowstone Park Foundation with fundraising for Wolf Project, approximately \$300,000/year by 2005

1991-94 Earthwatch, \$10,000 per year.

1992-93 Midwest Region, National Park Service, \$5,000 per year.

1992 American Society of Mammalogists, \$500.

1992 Theodore Roosevelt Fund, American Museum of Natural History, \$500.

1992 University of Nevada, Reno Teaching Grant, \$500.

1991 Voyageurs National Park, \$1,600

1991 Progressive Insurance Company, \$5,000.

1988 Apostle Islands National Lakeshore, \$30,000

1987 Grand Portage National Monument, \$5,000

1985 Voyageurs National Park, \$20,000

PROFESSIONAL SOCIETIES

Member IUCN Re-introduction Specialist Group of Species Survival Commission (SSC), American Society of Mammalogists, The Wildlife Society, Society for Conservation Biology.

Reviewer for Oikos, BioScience, Journal of Mammalogy, American Midland Naturalist, Journal of Wildlife Management, Wildlife Society Bulletin, Conservation Biology, Environmental Management, University of Chicago Press, Springer-Verlag, Oklahoma University Press.