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UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF IDAHO

FRIENDS OF THE CLEARWATER *Plaintiff*, v. CHERYL F. PROBERT, in her official capacity as Forest Supervisor of the Nez Perce-Clearwater National Forests; and U.S. FOREST SERVICE *Defendants*.	))))))))))))	No. 3:21-cv-189-CWD **DECLARATION OF DAVID MATTSON**

I, DAVID MATTSON, state and declare as follows:

1. My name is David Mattson. I live in Livingston, Montana. I am personally aware of the matters set forth below, and if called as a witness, I would and could truthfully testify thereto.

2. I am a scientist and retired wildlife management professional with extensive experience in grizzly bear research and conservation spanning four decades. Attached hereto is a 2011 Research Scientist Record, which details my education, training, and experience. My educational background includes a B.S. in Forest Resource Management, a M.S. in Plant Ecology, and a Ph.D. in Wildlife Resources Management from University of Idaho. My dissertation focused on the ecology of grizzly bears in the Greater Yellowstone Ecosystem from 1977 to 1996 (Mattson 2000). During 1979 to 1993 I was a member of the Interagency Grizzly Bear Study Team, a group responsible for long-term monitoring and research of grizzly bears, and was charged with designing and supervising field investigations during 1985 to 1993. My investigations of grizzly bear behavior, habitat relations, demography, and persistence resulted in numerous publications and reports from 1987 to present.

3. My professional positions prior to retirement from the U.S. Geological Survey (USGS) in 2013 included: Research Wildlife Biologist, Leader of the Colorado Plateau Research Station, and Acting Center Director for the Southwest Biological Science Center, all with USGS; Western Field Director of the Massachusetts Institute of Technology-USGS Science Impact Collaborative; Visiting Scholar at the Massachusetts Institute of Technology; Lecturer and Visiting Senior Scientist at the Yale School of Forestry & Environmental Studies.

4. Although my field studies of grizzly bears ended in 1993 and I retired in 2013, my involvement in grizzly bear-related research, management, and education, both regionally and

internationally, has continued to the present. Throughout my career grizzly bear managers and researchers worldwide have consulted me for my expertise. I routinely make public presentations on grizzly bear ecology and conservation, including talks, nationally at the Smithsonian (Washington D.C.) and the American Museum of Natural History (New York, New York), and, regionally, at the Denver Museum of Natural History (Denver, Colorado), the Museum of Wildlife Art (Jackson, Wyoming), and the Museum of the Rockies (Bozeman, Montana).

5. I continue to publish in peer-reviewed publications and technical reports. In 2021, I published "The Grizzly Bear Promised Land: Past Present & Future of Grizzly Bears in the Bitterroot, Clearwater, Salmon & Selway Country" (available at C_006360–456).

6. I resided in and pursued recreational interests in Idaho for 14 years, including in areas proposed for the "End of the World" and "Hungry Ridge" projects. I also worked during 1974 to 1978 as a technician and field supervisor on several research projects in central and northern Idaho, including a collaboration between the United States Forest Service and University of Idaho focused on forest regeneration; an interagency project relating Landsat imagery to forest inventory data; and an inventory of rare and endangered plant species in Hells Canyon and adjacent lower reaches of the Salmon River.

7. To prepare this declaration, I reviewed: the Amended Complaint (ECF No. 12); the End of the World project Decision Notice and Finding of No Significant Impact (A_000001); the Hungry Ridge project Record of Decision (B_000001); the December 16, 2020 U.S. Fish and Wildlife Service "May Be Present" map for grizzly (C_000708); and the grizzly bear Biological Assessment for End of the World (A_000652) and Hungry Ridge (B_024029).

Background on Grizzly Bear in the Nez Perce-Clearwater National Forest

8. Prior to European colonization, thriving grizzly bear populations were likely found throughout all of Idaho except arid lower-elevation shrublands along the Snake River.

C_006363 at Fig. 1 (map of pre-European grizzly bear distribution in Idaho). Despite abundant and diverse bear foods and habitats, grizzly bears virtually disappeared from Idaho within a 120-year period between roughly 1830 and 1950. By 1970, there was no verifiable evidence of grizzly bears living anywhere in Idaho between the Selkirk Mountains in the far north and the Targhee National Forest in the far southeast, despite a peculiar reference to the presence of grizzlies in the Clearwater River drainage in the U.S. Fish and Wildlife Service's 1975 rule that gave ESA protections to the species. 40 Fed. Reg. 31734–36 (Jul. 28, 1975).

9. Recognizing the potential for the vast wildlands of central Idaho to support grizzly bears, the U.S. Fish and Wildlife Service designated the Selway-Bitterroot Wilderness Area and some of its surroundings as the only grizzly bear Recovery Area in the contiguous United States without resident grizzly bears. The Bitterroot Recovery Area was subsequently enlarged to include the Frank Church-River of No Return Wilderness Area during an effort in the late 1990s to reintroduce grizzlies. *See* C_000708 (map, which shows six grizzly recovery areas).

10. The planned reintroduction of grizzly bears to the Bitterroot Recovery Area did not happen, although the redrawn Recovery Area boundaries survived, as did widespread recognition that this region could support a robust population of grizzly bears. There is ample evidence that grizzly bears are recolonizing the area naturally, with the pace of this recolonization quickening during the past 5 years. Verified observations have shown that grizzly bears are making the journey to the Bitterroot Recovery Area and surrounding areas, inclusive of the Nez Perce-Clearwater National Forest, as shown in Figure 1 below. Perhaps most surprising is documented presence of at least one grizzly bear as far south as the breaks of the Salmon River. This is the "White Bird bear", as referred to by the Forest Service in its Biological Assessments for End of the World and Hungry Ridge.

Fig. 1. Grizzly Bear Dispersers & Potential Habitat (*Reproduction of Fig. 12 in "The Grizzly Bear Promised Land" (C_006391))*

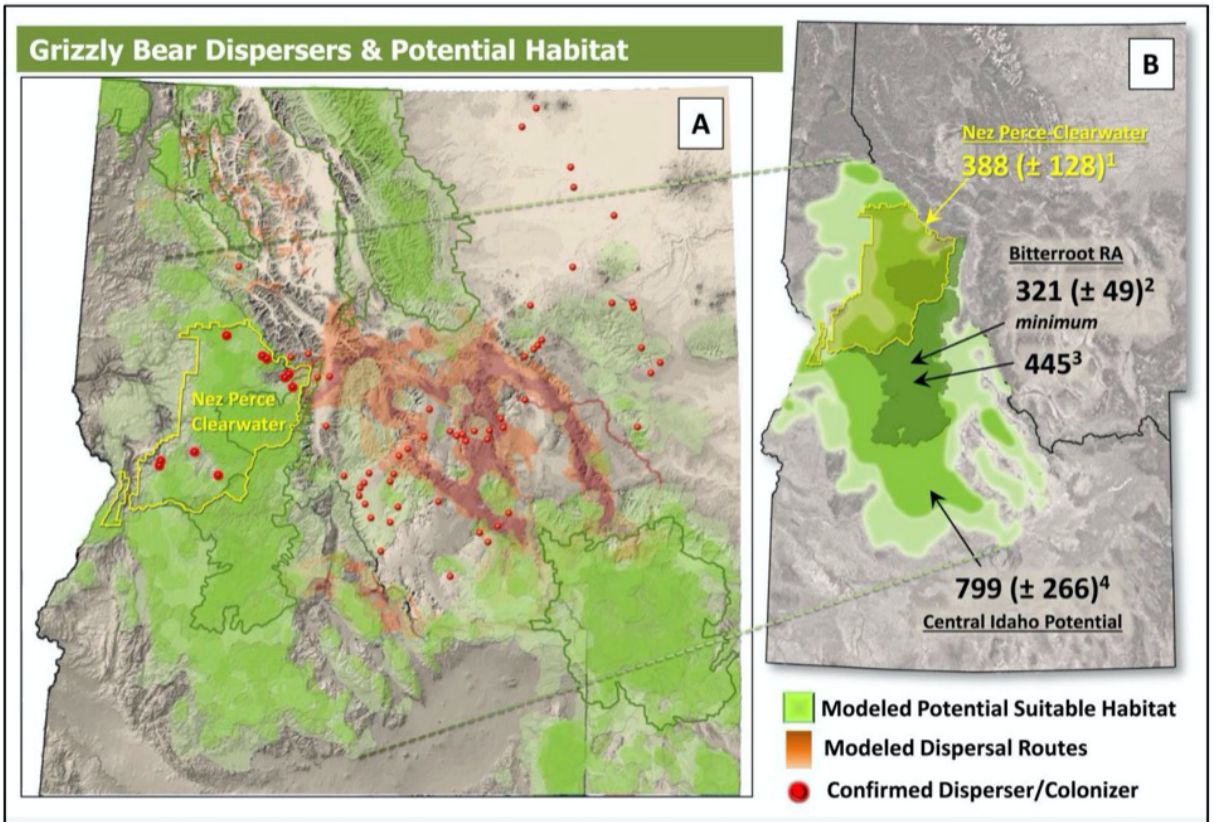

Figure 12. Map (**A**) shows the distribution of potential suitable habitat (in shades of green) and potential dispersal routes (in shades of orange) for grizzly bears in the U.S. Northern Rocky Mountains along with the distribution of dispersing/colonizing grizzly bears documented since 2005 (red dots). Potential suitable habitat is based on models that incorporate habitat productivity and remoteness from humans, with darker green indicating greater replication of results (from Merrill et al. [1999]; Carroll et al. [2001, 2003]; Merrill & Mattson [2003]; Mattson & Merrill [2004]; Merrill [2005]; and Craighead et al. [2005]). Dispersal routes were modeled by Walker & Craighead (1997), Servheen et al. (2001), Proctor et al. (2015), and Peck et al. (2017). Documented locations of dispersers/colonizers are from Groves (1987), Nokkentved (2007), Costello et al. (2014, 2019), Barker (2020), Backus (2020), Phillips (2020), Angelamontana (2020), and Kasworm et al. (2020). Map (**B**) shows estimated potential population sizes for grizzly bears in north-central and central Idaho relative to different delineations. Estimates for the Bitterroot Recovery Area (in darkest green) are from Boyce & Waller (2003)[2] and Mowat et al. (2013)[3]. The estimate for potential suitable habitat in central Idaho by Merrill et al. (1999)[4] was obtained by applying average densities of unexploited grizzly bear populations in interior North America to areas delineated in light-green (low density) and medium-green (moderate density), respectively (from Figure 7). The estimate for the Nez Perce-Clearwater National Forests (in yellow)[1] was obtained using the same methods.

11. All of these dispersers are probably male bears. Of the grizzly bears verified to have been in or near the Nez Perce-Clearwater National Forest, and for which sex is known, all are male. This is not surprising given that the average dispersal distance of young males is five times farther than the average dispersal distance of females, which translates into a considerable time lag between when female and male bears colonize an area. It may be several decades before

female grizzlies colonize central Idaho. Nonetheless, females are almost certain to successfully make this journey provided they survive hazardous encounters with roaded landscapes, big game hunters, unsanitary campgrounds, and poachers, all of which currently occur on the Nez Perce-Clearwater National Forest. *See* C_006409–19.

End of the World, Hungry Ridge, and Grizzly Bears

12. The Biological Assessments for End of the World and Hungry Ridge both concluded that each project will have "no effect" on grizzly bears, and both Biological Assessments list the same reasons to support that conclusion.

13. The Forest Service noted that the Bitterroot is "considered unoccupied by grizzly bears" because there has been no observation of two or more reproductive females, or one female reproducing in two separate years. A_000656. It also noted that the White Bird bear was a male dispersing from 200 miles away, and there "have been no further reports of grizzly bears in the project area or surrounding sub-watersheds, indicating that this was a transient bear and not a residential animal." *Id.*

14. In my professional opinion, even though the Bitterroot Recovery Area is currently categorized as "unoccupied" in official documents, and even though the White Bird bear could have been a transient bear, this does not obviate two basic facts. The White Bird bear may be a resident; and an official designation arrived at for somewhat arcane reasons does not in itself negate on-the-ground conditions, including the possible presence of bears that have not yet been officially documented. Moreover, given the pace at which grizzly bears have been documented during the past 5 years in far-flung parts of central Idaho, I consider it to be highly likely that grizzly bears will pass through or even attempt to take up residence in or near both project areas during the next 10 to 15 years. Increasing grizzly bear populations in other Recovery Areas are

fueling increases in distribution along with increasing numbers of dispersers, with little prospect of this dynamic changing any time soon. The White Bird bear and other colonizing bears are almost certainly a direct result and the harbingers of more bears yet to come.

15. The recent and likely future continued arrival of colonizing grizzly bears on the Nez Perce-Clearwater National Forest is relevant to judging the potential harm of the End of the World and Hungry Ridge projects to grizzlies given that logging operations and related activities are planned to last at least ten years, and potentially longer.

16. In making its "no effect" findings, the Forest Service claimed that bear security would not be reduced because there would be no increase in road density. A_000656. This fails to consider on-the-ground road densities during project implementation. Even though project plans call for decommissioning a number of roads after termination of logging operations, the *in situ* network will likely be considerably expanded relative to baseline conditions during project implementation. Depending on project sequencing, there will almost certainly be local increases in road density and corresponding decreases in bear security for a significant number of years. This matters because grizzly bear deaths are strongly associated with roads and landscapes intensively managed for timber production. Ample scientific research shows a concentration of grizzly bear death near (i.e., within 500 meters of) roads, along with related population level impacts. C_006414–15.

17. The Forest Service failed to consider the prospective impacts on grizzly bears caused by elevated levels of traffic on roads in project area—regardless of any changes in road density. It is estimated that approximately 63,400 round trips will be required to haul logs cut during the End of the World and Hungry Ridge projects. ECF No. 12, ¶ 59; ECF No. 14, ¶ 59. This traffic volume presumably constitutes a very large increase over current forest road traffic,

consisting, moreover, of vehicles with a loud acoustic footprint. There is ample research showing that increased traffic levels and traffic noise result in increased impacts on bears, primarily in the form of displacement (Archibald et al. 1987; Ladle et al. 2018; Lamb et al. 2018; Mace et al. 1999; Martin et al. 2010; Northrup et al. 2012; Parsons et al. 2020, 2021; Proctor et al. 2017; Roever et al. 2010). These impacts and related diminishment in habitat security are prospectively non-trivial.

18. The Forest Service failed to consider the current adequacy of habitat security in areas encompassed by planned project operations. If habitat security is currently not sufficient to provide reasonable assurance that colonizing grizzlies will survive, then there is no room for additional degradation and, moreover, a plausible imperative to improve conditions by reducing road densities relative to current conditions. Road density and habitat security standards are well-defined for grizzly bears in ecosystems such as the Northern Continental Divide and, moreover, well-substantiated by a large body of research summarized by Proctor et al. (2018, 2019). In my professional opinion, an adequate analysis of project impacts on grizzly bears necessarily considers whether existing conditions are adequate to provide reasonable security relative to well-established benchmarks. My analysis of conditions in the End of the World and Hungry Ridge project areas suggests that habitat security is, in fact, considerably deficient relative to accepted management norms and, for that reason, project baselines are deficient as well. C_006416–19.

19. In "The Promised Land," I created seventeen candidate Bear Management Units (BMUs) for the Nez Perce-Clearwater National Forest, each of which approximates the size of a female grizzly bear life range. C_006417 at Fig. 24. End of the World and Hungry Ridge are located in candidate BMU #17 at the southwest corner of the Nez Perce-Clearwater National

Forest. *See id.* I calculated road density and security in each BMU. The results are displayed in Figure 2 below. BMU 17 (where End of the World and Hungry Ridge are located) is the one on the bottom left, which I found to be 36% secure and ranked as "Deficient."

Fig. 2. Road Densities & Security in the Nez Perce-Clearwater National Forests (Reproduction of Fig. 25 in "The Grizzly Bear Promised Land" (C_006418))

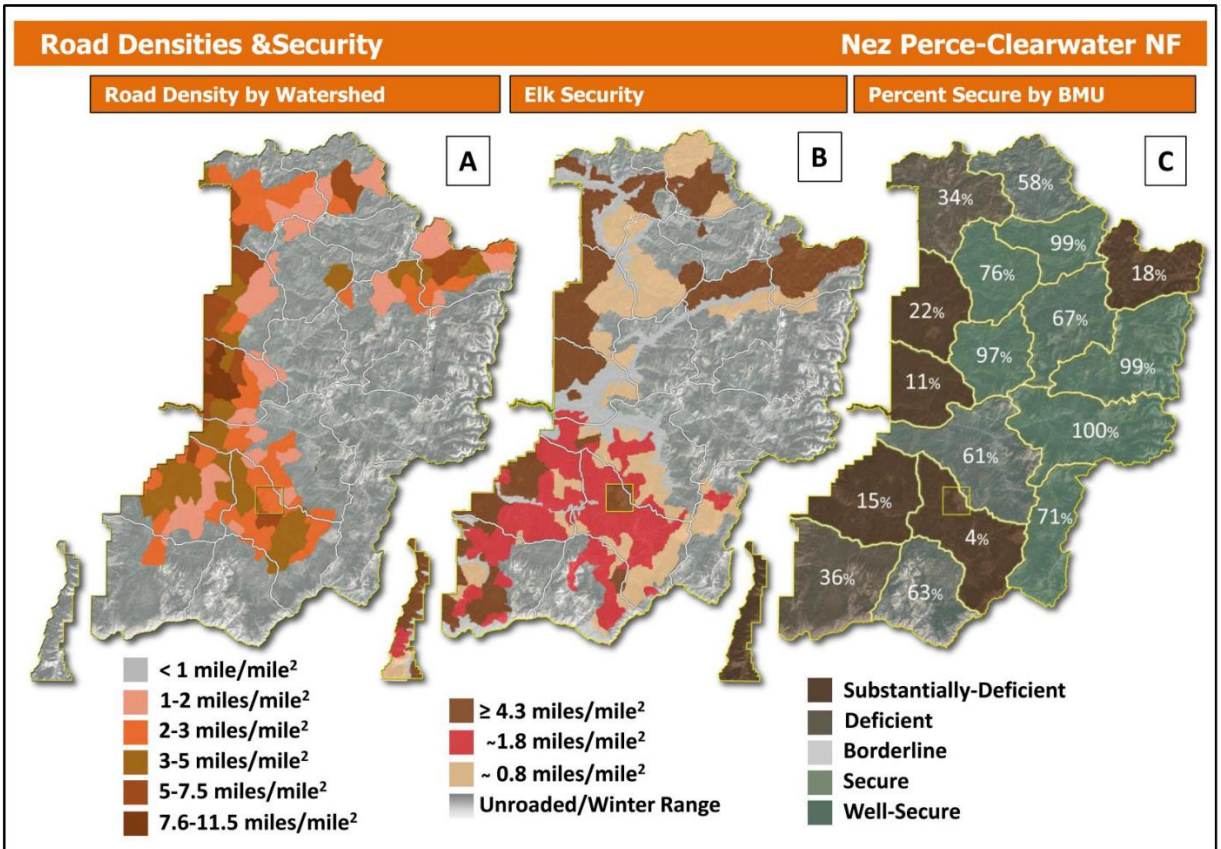

Figure 25. These maps show configurations of habitat security for grizzly bears on the Nez Perce-Clearwater National Forests, with an emphasis on road densities. Map (**A**) shows road densities averaged for sub-watersheds on portions of the Forests contained within the Clearwater River drainage (from the Draft Clearwater Subbasin Assessment [Ecovista et al. 2003]). Map (B) shows elk security areas differentiated by whether management objectives are 25, 50, or 75% security. Colors correspond with approximate road densities associated with each objective. Road densities averaged for the entire analysis areas were 1.1. miles/mile^2 for the North Fork and 0.9 miles/mile^2 for the Lochsa (Nez Perce-Clearwater National Forest 2019: 3.2 3.3-84). When corrected to estimate densities within roaded areas (areas shaded burgundy and beige), average densities were 4.3 miles/mile^2 for the North Fork and 2.9 miles/mile^2 for the Lochsa. Map (**C**) shows provisional Bear Management Units (BMUs) delineated by yellow lines and shaded to identify those that exceeded (dark burgundy) or were likely to exceed (light burgundy) security standards. BMUs were delineated to be around 900 km^{2}in size (based on life range criteria used to delineate BMUs in the Greater Yellowstone Ecosystem [Weaver et al. 1986, Mattson & Knight 1991, Dixon 1997]), follow topographic and drainage boundaries, and, if possible, encompass high-value spring and fall habitat (Weaver et al. [1986]; geospatial configurations are from Figure 24).

20. The Forest Service claims that each project "would not increase the potential for negative interactions with grizzly bears as a result of recreation, livestock, human/grizzly conflicts, or planting of bear attractants." A_000656. Relationships with humans will continue to determine the fate of grizzly bears in the United States. Even with Endangered Species Act protections, 70–90% of adult and adolescent grizzly bear deaths have been caused by humans. C_006409. One key driver of bear deaths is the frequency with which they encounter people. The presence of numerous workers involved in project operations during the next ten plus years, including those who are commuting, building and maintaining roads, harvesting trees, and loading and hauling logs, cumulatively increases the likelihood of potentially hazardous human-grizzly bear encounters that will, at a minimum, almost always result in displacement of the involved bear (Mattson 2019). For these reasons it is my professional opinion that the Forest Service's claim that neither project increases the risk of human/grizzly conflicts is untenable.

21. Directly related to paragraph 20, above, the Biological Assessments conspicuously fail to mention the potential disturbance and related displacement caused by noise, lights, activity, and humans associated with each project, which ultimately can result in long-term alienation of grizzly bears from areas impacted by human activity (as per paragraph 17, above). These projects are massive. End of the World involves logging around 19,000 acres of forest to harvest 144 million board feet of timber, and Hungry Ridge involves logging over 7,000 acres of forest to harvest 173 million board feet of timber. In my professional opinion, these projects would almost certainly disturb and displace any grizzly bear in or near actively harvested areas, likely resulting in longer-term avoidance and habitat alienation.

22. To summarize, while it is not possible to predict exactly when grizzly bears will pass through or attempt to establish residence in or near either project area, I consider it to be

entirely plausible that grizzlies are already present—as evidenced by the White Bird bear. If current trends continue, as I expect they will, the odds that grizzlies will occupy, or attempt to occupy, the project areas will increase during the next decade and beyond. More certainly, I have no doubt that there will be increased risk of human/grizzly bear conflicts and disturbance and displacement of any nearby bears while the End of the World and Hungry Ridge projects are underway.

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

Executed this 29th day of September, 2021, in Livingston, Montana.

David J. Mattson Ph.D.

Literature Cited

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Northrup, J.M., Pitt, J., Muhly, T.B., Stenhouse, G.B., Musiana, M., & Boyce, M.S. (2012). Vehicle Traffic Shapes Grizzly Bear Behavior on a Multiple-Use Landscape. *Journal of Applied Ecology*, 49(5), 1159-1167.

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Roever, C.L., Boyce, M.S., & Stenhouse, G.B. (2010). Grizzly Bear Movements Relative to Roads: Application of Step Selection Functions. *Ecography*, 33, 1113-1122.

RESEARCH SCIENTIST RECORD

NAME: **David J. Mattson**

DATE PREPARED: **15 July 2011**

(9) EDUCATION

Ph.D., 2000, Fish & Wildlife Resources, *Causes and Consequences of Dietary Differences among Yellowstone Grizzly Bears*, University of Idaho (1993-2000)

M.S., 1984, Forest Ecology, *Classification and Environmental Relationships of Wetland Vegetation in Central Yellowstone National Park*, University of Idaho (1980-1984)

B.S., 1979, Forest Resource Management, University of Idaho (1972-1979)

(10) TECHNICAL TRAINING RECEIVED

7. *Leadership 201*, 36 hrs, USGS Leadership Training Program, Sheperdstown, WV, 2007 (Action Learning Scenario Team Leader).

6. *Leadership 101*, 36 hrs, USGS Leadership Training Program, Sheperdstown, WV, 2006.

5. *Leadership Intensive*, 16 hours, USGS Leadership Training Program, Seattle, WA, 2005.

4. *Basics of Working with the News Media*, 16 hours, National Conservation Training Center, 2000.

3. Course on principles and use of geographic information systems, 8 hours, Montana State University, 1991.

2. Course on bear trapping and handling, 20 hours, Yellowstone National Park, 1991.

1. *Buck Brannon Horse Training Clinic*, 18 hours, Yellowstone National Park, 1989.

(11) PROFESSIONAL EXPERIENCE

a. PRESENT ASSIGNMENT

DATES From: 28 February 1997 To: Present

DESCRIPTION OF POSITION

The scientist investigates the ecology and conservation of large carnivores and other animals, including diet, habitat use, movements, and range, and relations between these factors and demography, effects of climate change, relations with humans, methods for evaluating habitat, and the nature and effectiveness of large-carnivore and other natural resources management. This research occurs throughout the United States, emphasizing the southwestern states of Arizona, New Mexico,

Utah, and Nevada, as well as occupied or potential grizzly bear (*Ursus arctos*) habitat in the Rocky Mountains and cougar (*Puma concolor*) habitat elsewhere. For ecological studies the scientist uses data from radio-marked animals, transect- and point-based studies, and remote imagery, using advanced technology such as GPS-satellite linkages and remote thermally-activated cameras. Analytic methods entail innovations in model-building and related statistical techniques, including development of state-of-the-art geospatial models and agent-based approaches. The scientist also uses grounded theory and methods of the policy sciences to analyze conservation and management policies for natural resources. Current research provides managers with insights into dynamics of natural resources management, crucial to improving the design of related policy- and decision-making processes in service of democratic outcomes; information about key factors limiting large-carnivore and other animal populations, with relevance to instituting management needed to conserve nationally and internationally important populations; information to minimize risks posed to humans by large carnivores in areas of co-habitation, thereby minimizing harm to humans and increasing prospects for coexistence; and information on the extent and location of areas capable of supporting extant or prospectively repatriated populations of large carnivores important to the survival of valued species. The scientist works closely with numerous managers and other stakeholders in natural resources management throughout the United States providing advice and technical input on a multitude of issues germane to maximizing beneficial uses of science in service of durable outcomes.

DESCRIPTION & TITLES OF PROJECTS

1. **Cougars of the Colorado Plateau** — 30% of time: This large-scale and logistically and technically complex project addresses the ecology of cougars on and near the southern Colorado Plateau, in northern Arizona, southern Utah, and southeastern Nevada. The project focuses on behaviors of cougars in wild and human-impacted environments, with the goal of generating insight that will allow managers to conserve regional cougar populations and their prey, while providing for human safety. More specifically, the study provides insight into the effects of highways, railroads, urbanized areas, protected areas, and prey concentrations on the behavior and demography of radio-marked cougars, drawing on data from a wide range of biogeophysical conditions. To date, *c.* 70 cougars have been radio-collared and tracked by GPS locations that are downloaded daily via Argos satellites. Locations are visited soon after to build a detailed record of habitat use and predation, including >900 documented kills so far. Information is incorporated into innovative geospatial models that explain human and other habitat effects and predict distributions of cougars and related risks to humans. *The scientist is responsible for all facets of this long-term project, which began in 2002*. The project involves many collaborators and has been funded by numerous supporters, including the U.S. National Park Service, U.S. Department of Energy, Grand Canyon National Park Foundation, USGS Southwest Biological Science Center, USGS Fire Program, and several private foundations. Collaborators have included the National Park Service (Grand Canyon, Zion, and Capitol Reef National Parks), USGS Western Ecological Research Center, USDA Wildlife Services, Arizona Game & Fish Department, NSTec, Northern Arizona University, and the Grand Canyon Trust.

2. **Trophic Ecology of Predators and Prey on the Colorado Plateau** — 25% of time: This newly-initiated study entails the analysis of numerous datasets from across the Colorado Plateau to build integrated models of trophic dynamics, involving vegetation, herbivores, and a top predator. The goal is to create state-of-the-art spatial models of time-series data depicting ecosystem dynamics across trophic levels, which will then be coupled to ensembles of downscaled global circulation model (GCM) projections to forecast future conditions on and near the Colorado Plateau. Explanatory and predictive models of vegetation will use cutting-edge analyses of remotely-sensed imagery. Focal

animals will include mule deer (*Odocoileus heminous*), elk (*Cervus elaphus*), desert bighorn sheep (*Ovis canadensis nelsoni*), and cougars. Hierarchical Bayesian methods will be used to estimate parameters and track uncertainty within and among models, including state-space models of animal movements. *The scientist is Principal Investigator and Leader of this project*, which involves investigators from the University of Maryland, The Max Planck Institute, The Smithsonian, Duke University, Utah State University, and the USGS Western Ecological Research Center. Collaborators so far include Colorado Division of Wildlife, Utah Division of Natural Resources, and Arizona Game & Fish Department. Initiation of this project has been supported by a $2 million grant from the NASA ROSES program, with prospects for leveraging additional funds to support related work.

3. **Natural Resources Policy & Conservation** — 20% of time: This challenging project entails the analysis of natural resources management to foster improved performance of decision-making processes. The scientist has analyzed a number of complex cases throughout the West, including grizzly bear conservation in the Rocky Mountains, cougar management in the Southwest, and management of human-origin waters for wildlife, at scales ranging from specific development proposals to regional social processes. These innovative analyses provide participants and academic observers with critical insights into factors that govern the achievement of policy goals, often by reframing how participants understand their problems, with relevance to improving the design of decision-making processes. Leadership, large-carnivore conservation in North America, and the science-policy-management interface are current foci of attention. The scientist has collaborated with a number of colleagues from Canada and the United States on this program, including internationally-recognized experts in Q-methodology and the policy sciences. *The scientist has held primary responsibility for analysis, for conceptualizing approaches, and for teaching*, including classes at Yale and MIT. The scientist works closely with numerous stakeholders from government, academe, and the private sector to foster high-performance natural resources management. This wide-ranging project was initiated in 1993 and has been funded or otherwise supported by the USGS Southwest Biological Science Center, USGS Forest & Rangeland Ecosystem Science Center, U.S. National Biological Service, Northern Rockies Conservation Cooperative, numerous private foundations, MIT Department of Urban Studies & Planning, and the Yale School of Forestry & Environmental Studies.

4. **Modeling and Projecting Species Ranges** — 10% of time: This thematic project focuses on developing geospatial models of ranges and habitat use by avian, reptile, and amphibian species in the southwestern United States, to inform mitigation and restoration management at multiple scales. The main part of this work has focused on modeling the current ranges of bird and herp species, and coupling these models with ensembles of downscaled regional GCMs to forecast future distributions under climate change. This forecasting project is unique among others of its type by relying on conceptual models that encapsulate current ecological knowledge of modeled species, incorporation of static geophysical effects such as terrain and solar insolation, assiduous tracking of conceptual and quantitative uncertainties arising from sampling processes and numerous analytic decisions, and involvement of a stakeholder advisory group to inform all aspects of design. *The scientist serves as co-Leader of this project, and has played a major role in its overall conceptualization and design*. A $2 million grant from the USGS National Climate Change and Wildlife Science Center (NCCWSC) has supported this work. A related project has focused on modeling finer-scale habitat use by yellow-billed cuckoos (*Coccyzus americanus occidentalis*), which are a threatened species being managed for restoration under the Lower Colorado River Multi-Species Conservation Program. *The scientist helped design and manage this project*, which is supported by a $250 thousand grant from the Bureau of Reclamation.

5. **Ecology of Upland Waters in the Semi-Arid West** — 5% of time: This project addresses the effects of ponded natural and human-origin waters on upland ecosystems of the West. There is a current dearth of information about the ecology of upland waters and the impacts of often dramatically human-altered hydrologic regimes on wildlife in uplands, which this project intends to address. Results of this study will be important to anticipating the consequences of climate change and judging the impacts of water management outside National Parks on Park resources that cross boundaries. Data on water-focused wildlife activity have been collected using state-of-the-art remote cameras as well as sign transects. Wildlife activity is explained in terms of habitat features, activity levels of other species, and availability of water as snow, preformed in vegetation, and in natural or artificial basins. Sub-projects conducted in close collaboration with the National Park Service have focused on natural and artificial water sources paired along boundaries of National Parks in the southern Colorado Plateau, including Walnut Canyon and Wupatki National Monuments. *The scientist supervised all facets of this work beginning in 2003*, including a Master's degree project lasting from 2004-2007. Funding and other support have been provided by the U.S. National Park Service, Western National Parks Association, and the USGS Southwest Biological Science Center.

6. **Modeling Demography and Habitat Suitability for Grizzly Bears** — 5% of time: This project focuses on building robust regional-scale models for assessing the capability of habitat to support large carnivores, with an emphasis on grizzly bears. Such an approach has required coarse filter analysis and the development of metrics that efficiently denote human activity. To provide a frame of reference stable across regions, these metrics have been developed in such a way as to be robust to the vagaries of data specification and resolution. Analyses of grizzly bear habitat capability have been completed for the state of Idaho and for trans-boundary regions including British Columbia, Idaho and Montana. Additional analyses have been undertaken for the Yellowstone-to-Yukon region and for the states of Arizona and New Mexico. Research is currently focused on developing robust measures of habitat productivity and related predictors of bear density that are comparable across regions. *The scientist has been responsible for conceptualizing the approach, statistical analyses, and manuscript preparation*. This project began in 1995 and has been funded or otherwise supported by the U.S. National Biological Service, USGS Forest & Rangeland Ecosystem Science Center, USGS Southwest Biological Science Center, Idaho Cooperative Fish & Wildlife Research Unit, Hornocker Wildlife Institute, Yellowstone-to-Yukon Initiative, The Wilderness Society, and The Wilburforce Foundation.

7. **Diet & Behavior of Grizzly Bears** — 5% of time: This project focuses on explaining diet and habitat use of Yellowstone's grizzly bears to guide conservation of this and other internationally important populations. The scientist elucidates the effects of diet on movements, body size, condition, and fecundity of grizzly bears, with implications for managing to mitigate the impacts of global climate change and invasive non-native species such as blister rust (*Cronartium ribicola*). Data were collected from several-hundred radio-marked animals distributed throughout the Yellowstone ecosystem and during extensive long-duration studies involving transects and random points. Sub-projects have been a basis for models that predict and explain grizzly bear use of individual foods, including spawning cutthroat trout (*Oncorhynchus clarki*), ungulate carrion on winter ranges, whitebark pine (*Pinus albicaulis*) seeds from red squirrel (*Tamiasciurus hudsonicus*) middens, and biscuitroots (*Lomatium cous*). This long-term integrated study, aspects of which began in 1977, has generated a data-set for grizzly bears unparalleled in the world. The project is close to completion, contingent on preparation of several journal manuscripts. *The scientist designed and immediately supervised all facets of ground work for this study beginning in 1984, and was directly involved with data collection, 1979-1992*. Parts of this research constituted three Master's degree projects. Funding has been provided by the U.S. National Park Service, U.S. National Biological

Service, USGS Forest & Rangeland Ecosystem Science Center, and USGS Southwest Biological Science Center.

b. PREVIOUS PROFESSIONAL POSITIONS

Wildlife Biologist, 0486, GS-11, U.S. Department of the Interior, Interagency Grizzly Bear Study Team, University of Idaho Cooperative Park Studies Unit, and USGS Forest & Rangeland Ecosystem Science Center

DATES From: 17 May 1992 To: 10 May 1997

The scientist held primary responsibility for investigating habitat relations of grizzly bears in the Yellowstone ecosystem and investigated grizzly bear demography and conservation.

Wildlife Biologist, 0486, GS-9, U.S. Department of the Interior, Interagency Grizzly Bear Study Team

DATES From: 1 February 1986 To: 16 May 1992

The scientist held primary responsibility for investigating habitat relations of grizzly bears in the Yellowstone ecosystem.

Biological Technician, 0404, GS-7, U.S. Department of the Interior, Interagency Grizzly Bear Study Team

DATES From: 19 May 1984 To: 30 January 1986

The scientist held primary responsibility for fieldwork related to investigations of grizzly bear habitat relations in the Yellowstone ecosystem and collaborated with other team scientists on analysis and reporting of related scientific results.

(12) SIGNIFICANT RESEARCH ACCOMPLISHMENTS

a. & b. RECENT AND OTHER CAREER ACCOMPLISHMENTS

A. The scientist has successfully fostered and led collaboration among cougar researchers and other scientists to address research and management issues that transcend the inferential scope of single study areas or the limited sample sizes of single studies. These issues include functional responses of cougars to the full spectrum of variation in geomorphology, vegetation, prey availabilities, and human impacts; responses to climate; and variation in vital rates with differences in landscape lethality and productivity. The scientist convened and led 6 workshops during the last 8 years expressly designed to foster collaboration and integration among cougar researchers on and near the Colorado Plateau, including a National Park Service-sponsored workshop to synthesize information relevant to human safety management, a workshop that was part of the *10th Biennial Conference of Research on the Colorado Plateau* in Flagstaff, AZ, and another as part of the *17th Annual Meeting of the Wildlife Society* in Snowbird, UT. These workshops and related efforts have borne considerable fruit. Researchers from the National Park Service and two USGS offices have formally integrated their cougar field studies in northern Arizona and southeastern Nevada as a result of the scientist's efforts. Of greater importance, a team led by the scientist was successful in securing a $2 million grant from NASA to model trophically-defined dynamics of vegetation, herbivores, and top predators on the Colorado Plateau. This project

brings modelers, experts in remote sensing, and field researchers together to geospatially analyze numerous datasets for cougars, mule deer, elk, and bighorn sheep from on and near the Colorado Plateau. One product will be the first-ever spatially-explicit model of cougar survival applicable to the entire intermountain West. This product alone will have considerable management relevance.

B. The scientist initiated, designed and found funding for an on-going programmatic study of cougar ecology on the southern Colorado Plateau which has developed into a large-scale regional project. Starting with a widely-recognized but largely unaddressed need to understand the ecology of cougars living near people in predominantly wildlands environments, the scientist has grown a diversely-funded research program that currently encompasses both remote and human-impacted study areas around Flagstaff, AZ, Grand Canyon, Zion, and Capital Reef National Parks, the Arizona Strip, and the Nevada National Security Site and Desert Wildlife Range in southeastern Nevada. Working with Telonics Inc, which billed this project "a guinea pig," the scientist pioneered use of GPS/Argos satellite collars on cougars and parlayed the near real-time data available from satellite transmissions into new insights and new hypotheses regarding predatory behaviors of cougars, which are providing new research directions for this and other projects. Initial products have included pioneering fine-scale maps of predicted seasonal cougar activity for use in managing human impacts and human safety, and, in collaboration with ESRI, a pioneering application of cougar data to development of a software extension to ArcGIS for agent-based modeling. The project has also entailed working with numerous cooperators from the public and private sector. Like virtually all field studies of large mammals, definitive products await completion of this long-term study. Even so, the scientist has so far delivered 48 talks to public, agency, and academic audiences, 38 of which were invited, to increase public awareness and knowledge of cougars and to expedite dissemination of technical information. The scientist has also published four fact sheets, one paper in the *8th Mountain Lion Workshop Proceedings*, and a major progress report which provide peer-reviewed updates on research progress and important findings such as unprecedented predation by cougars on coyotes (*Canis latrans*), rare road crossings controlling for effects of other habitat features, and different life strategies of sex, age, and reproductive classes. The project is viewed as a ground-breaking effort by managers and other researchers, who have used it as a model for subsequent studies in Arizona, Nevada, and Colorado.

C. The scientist has emerged as one of the foremost practitioners of the policy sciences analytic framework applied to natural resources cases. The policy sciences offer a conceptually comprehensive set of tools for understanding the behaviors of people and organizations involved in complex management cases. Compared to other analytic approaches, these tools offer a more efficient and functional way to orient to policy problems and, from that, gain useful insights into social- and decision-making processes organized around the development and implementation of natural resources policies. The goal is to upgrade policy processes to better serve widely-recognized social values such as human dignity and democratic principles. The scientist has integrated knowledge from ethics, organizational behavior, science studies, and social-psychology under the policy sciences framework in service of this end, with application to cases as diverse as the Glen Canyon Dam Adaptive Management Program, USGS Biological Resources Discipline, management of anthropogenic waters in the Southwest, and management of cougars in the West and polar bears in the arctic. The scientist's mastery of the policy sciences has been recognized in many ways, including invitations to instruct seven demanding graduate-level classes (four at Yale, four at MIT, and one at Northern Arizona University), election to the Society for Policy Sciences, prestigious academic appointments at the Yale School of Forestry & Environmental Studies, MIT Department of Urban Studies & Planning, and Northern Arizona University Center for Environmental Sciences & Education, and appointment as Western Field Director for the MIT-USGS Science Impact Collaborative (MUSIC). The scientist has given numerous lectures in professional and academic venues demonstrating policy sciences, 70 all told and 60 since 2000, as well as publishing 16

related articles as book chapters or in journals such as *BioScience*, *Policy Sciences*, *Environmental Science & Policy*, and *Journal of Energy, Natural Resources & Environmental Law*.

D. The scientist has been a pioneer in developing and applying methods for modeling the geospatial distribution and abundance of a wide range of species, including large carnivores, birds, reptiles, and amphibians. Together with a collaborator, the scientist developed methods for assessing broad-scale habitat suitability and meta-population structure for grizzly bears. The approach emphasized human impacts and the use of coarse-scale qualitative and quantitative information to bring systematic analysis to management-relevant issues. The methods were applied to grizzly bear restoration in Idaho, Montana, and the Southwest, to the appraisal of umbrella effects for carnivores in the Rocky Mountains (as reported on by *Science*), and to the appraisal of unoccupied habitat in the Yellowstone region. This team also investigated historical extirpations of grizzly bears in the contiguous U.S., which was reported in *Conservation Biology* and an associated press release by the journal. This research has had significant effects on the framework for managing grizzly bears throughout their range. More recently, the scientist has played a leadership role in teams modeling habitat use and distributions of avi- and herpeto-fauna, funded by major grants from the USGS National Climate Change and Wildlife Science Center and the Bureau of Reclamation. These projects have focused on projecting future distributions under climate change, but employing uniquely sophisticated approaches that were largely conceptualized by the scientist. The scientist has played a major role in communicating the framework of these projects to stakeholders, including USGS leadership and a project Advisory Team. Results of this body of work have been reported in 11 peer reviewed publications and three technical reports, and were part of 20 presentations in technical or other public venues.

E. The scientist has recently developed a research program focused on leadership. This program inquires into the context-specific elements of effective leadership, including the expectations of those being led, and elucidates implications for public order and natural resources governance. This research is relevant to the development of effective leadership in not only natural resources governance, but also in USGS itself. One major result to date has been the identification of multiple narratives regarding "good" or "effective" leadership that are associated with different expectations regarding leader behaviors. These narratives are associated with personality traits and value orientations. To date, results of this program have been reported in one journal article that studied perspectives of leaders on the challenges of an environmental movement at a key moment in its history (the Yellowstone to Yukon Conservation Initiative), as well as in one conference presentation and four seminars.

F. The scientist developed theoretical models that describe and explain relations among human and biological factors affecting the demography of grizzly bears and other large carnivores, with relevance to conservation of imperiled species and populations throughout the world. These models and related analyses identify factors with primary effects on outcomes of interest to society. This holistic framework thereby provides those interested in large-carnivore management with insights that can improve management and facilitate attainment of policy objectives. This research has been reported in 24 talks to scientific societies or in other scientific venues, 29 talks to university classes and seminars, 17 public or other general informational talks, and 14 papers or chapters published in prestigious journals or books. Much of this work was by invitation of organizations such as the Yale School of Forestry & Environmental Studies, University of Michigan, the International Association for Bear Research and Management, the Society for Conservation Biology, Parks Canada, the Royal Zoological Society, the Denver Zoo Conservation Biology Department, the American Museum of Natural History, and the Smithsonian, and has been reported in journals such as *Conservation Biology*, *International Journal of Wilderness*, *Biological Conservation*, *International Conference on Bear Research & Management*, and books such as *Carnivore Conservation*, *Coexisting with Large Carnivores*, and *Predators and People*.

G. Together with a collaborator, the scientist established the importance of behavioral structuring and food availability to explaining death rates of grizzly bears in the Yellowstone region. This was the first time that

behavioral differences had been invoked to explain vital rates for bears. This research entailed demographic modeling of messy radio-telemetry data that advanced the state of knowledge and analytical ability in this field. The approach was demonstrated using grizzly bear data, but has application to any species and radio-telemetry data set. The scientist was responsible for a major part of conceptualizing the general approach and applying it to the grizzly bear data set, whereas the collaborator bore equal responsibility for conceptual development and sole responsibility for programming and specifying the mathematical basis of the model. Results of this effort were published in *Ecology*, included in two presentations at scientific meetings, and featured in reports by the Ecological Society of America and *Science*. The scientist has also substantially contributed to conceptualizing a mathematically explicit theory that incorporates the effects of habituation into a birth- and death-process model, reported in a talk to the Annual Meeting of the Animal Behavior Society. Such a model will help scientists to better appreciate the effects of behavior on demography and to better design future demographic research and analysis. The collaborator bore sole responsibility for specifying the mathematics of this model. A co-authored manuscript is in preparation.

H. Using data from a long-term integrated study, the scientist described and explained in unprecedented depth and detail the diet, habitat use, and foraging behavior of Yellowstone's internationally significant grizzly bear population. He also elucidated relations of their diet to diets of other brown bear populations, implications of diet to seasonal foraging strategies, and implications of dietary variation to research and habitat management. Of relevance to long-term conservation of grizzly bear habitats and conservation-relevant mitigation of conflicts with humans, the scientist also documented July-September as a critical foraging period, the major foods consumed during this time, and the relative and absolute importance to bears of whitebark pine seeds, ungulates, and army cutworm moths (*Euxoa auxiliaris*). This information not only strongly influences management of grizzly bears in the Yellowstone area, as evidenced by frequent citation in numerous management documents, but also, through general conclusions regarding variability of diet and habitat use, the design of research and management worldwide. The level of detail and scope of analysis in this research are unprecedented for bears. Moreover, this research was the first to analyze, in detail, bear behaviors such as geophagy, rubbing, and the consumption of wasps, earthworms, and fungal sporocarps. Results of this research were reported in 19 talks at scientific meetings, in 18 peer-reviewed journal articles, four technical reports, and in more than a dozen invited talks to students, managers, and the interested public.

I. The scientist described the effects of humans and human facilities on grizzly bear habitat use and major causes of human-bear conflicts in the Yellowstone ecosystem using a long-term ecosystem data set collected from several-hundred radio-marked bears. He described the degree and nature of impacts, specific to season, type of year, and type of bear. The scientist also addressed, in detail, the roles of whitebark pine seed crop variation, interspecific interactions, and conditioning to humans in human-bear conflicts and related grizzly bear deaths. Information from these papers continues to provide a seminal foundation for managers understanding human-bear conflicts and the effects of humans and their facilities on bear populations, as well as key to appraising management effectiveness and identifying causes amenable to management intervention. This research has had a major effect on the design of grizzly bear management and research in the Yellowstone ecosystem, as evidenced by references in virtually every document germane to establishing management policies and practices for Yellowstone's grizzly bear population. Results of this research have been reported at two scientific meetings, in three peer-reviewed papers, and in more than a dozen talks to students, managers, and the interested public.

J. The scientist completed a long-term study, designed and directed with two collaborators, that described relations among fire, whitebark pine, red squirrels, and grizzly bears. Whitebark pine seeds are one of the most important foods of Yellowstone's grizzly bears. Results of this study continue to be a basis for management of habitats on National Park Service and U.S. Forest Service lands where bears feed on pine seeds, primarily through attention to red squirrel requirements for mixed-species old growth stands. Given the potential vulnerability of whitebark pine to global climate change, mountain pine beetles (*Dendroctonus ponderosae*), and white pine blister rust (*Cronartium ribicola*), the results of this study are an important basis for anticipating the effects of these agents of change on grizzly bears. This study also clearly demonstrated the nature and degree of human and fire impacts on grizzly bear use of this food, avoiding several of the biases affecting radio-telemetry data. This study additionally demonstrated the benefits of using transect methods to address more refined hypotheses about bear habitat use. Results pertaining to red squirrels and bears were reported in progress reports and five papers presented at scientific

meetings, as well as in three peer-reviewed journal articles, three papers in conference proceedings, and one book chapter. Management implications are summarized in a set of recommendations that were solicited by managers in the Yellowstone ecosystem.

K. The scientist and two collaborators completed a long-term study that provided definitive insight into spring availability and bear use of ungulate carcasses on three ungulate winter ranges in Yellowstone National Park. Meat from carrion is the most important spring food of Yellowstone grizzly bears. Winter ranges in this study spanned conditions represented by the Park, and results provided a basis for identifying critical carcass types, foraging times, and foraging areas for bears; for developing explanatory models of carcass use and depletion; and for understanding relations among black bears (*Ursus americanus*), grizzly bears, and humans. This study provided essential information to managers attempting to mitigate for effects on bears of ungulate sport harvests, management of bison for control of brucellosis, and recently reintroduced wolves. This unique study also demonstrated the efficacy of survey-type studies in addressing hypotheses related to bear use of specific foods and habitat complexes. The scientist was fully responsible for design and direction of this study and collaborated on execution, analysis and reporting of this research. Results were presented in progress reports, a workshop proceedings, a technical report related to wolf reintroduction, and a peer-reviewed journal article.

L. The scientist and a collaborator completed a long-term pioneering study of grizzly bear use of cutthroat trout spawning streams in Yellowstone National Park. Trout were at one time the most important early-summer food of grizzly bears in southern and central parts of the Yellowstone ecosystem. The parameters of heavily used streams, the extent of stream influence on bear movements, the relative consumption of trout by bears, time periods when spawning streams were heavily used, and inter- and intraspecific interactions among black bears, grizzly bears and humans were described and explained. This information is important to and has shaped the management of Yellowstone's grizzly bears because of the large number of bears potentially fishing at spawning streams and because of the increasing effects of drought and non-native lake trout (*Salvelinus namaycush*) on cutthroat trout in Yellowstone Lake. Predation by lake trout has dramatically reduced numbers of cutthroat trout available to Yellowstone grizzly bears. This study established a benchmark for more recent studies attempting to judge impacts of these and other changes in fisheries and habitats. Results were presented at a scientific meeting, in progress reports, and in two peer-reviewed journal articles. The scientist was primarily responsible for design, and collaborated on execution, analysis and reporting of this research.

(13) SCIENTIFIC LEADERSHIP

A. The scientist has been invited to take a significant leadership role in setting strategic science direction for the USGS at the national and Center levels. He is viewed as and routinely sought out to be a leader in this regard on numerous issues within the Southwest Biological Science Center (SBSC). At the national level, he was part of the Science Advisory Group for the USGS Science Strategy Team and Team Leader (Large Mammals & Predators) for the USGS Wildlife Program Five-year Strategic Plan. At the Center level, the scientist has twice served as an invited member of the SBSC Strategic Planning Core Team. These seminal planning efforts occurred shortly after creation of the SBSC and during its current fiscal uncertainties, and have been instrumental in setting the Center's scientific and science management direction. The scientist is also routinely consulted on an informal basis about strategic science issues and directions by Center leadership.

B. The scientist has exercised considerable initiative and leadership in creating venues to foster exchanges among researchers, managers, and traditionally conflicted stakeholders involved with large-carnivore research and management throughout the West, with a focus on grizzly bears and cougars in the Rocky Mountains. For example, these exchanges have occurred in venues designed by the scientist to integrate regional research efforts for cougars (six different workshops during an 8-year period), foster civil exchanges of information and perspectives about cougar management (a special session of the 7th *Biennial Conference of Research on the Colorado Plateau*; resulting in two papers in a book edited by

the scientist), increase knowledge among regional managers about managing for human safety around cougars and black bears (the workshop *Large Carnivores on the Plateau*; resulting in a report to regional managers and scientists during the *6th Biennial Conference of Research on the Colorado Plateau*), and foster discovery of common ground among stakeholders in grizzly bear and cougar management in the Northern U.S. Rocky Mountains (the workshop *Perspectives on Large Carnivore Conservation*; resulting in an article in the journal *Environmental Science & Policy*). These venues have served to enhance the role of science in management through fostering the discovery and building of common ground.

C. The scientist has demonstrated leadership in pursuing professional directions and undertaking organizational analyses directly relevant to enhancing overall performance of the former USGS Biological Resources Discipline (BRD), typically at his own initiative and often entailing professional risk. For example, the scientist recently used Science Center venues to critique the practice of peer review within USGS, our agency's approach to climate change science, and the maladies of scientific management. He also undertook appraisals of the high-profile Glen Canyon Dam Adaptive Management Program (GCDAMP) and of the BRD at his own initiative. Both appraisals were subsequently well-received by those authoritatively involved in GCDAMP and BRD, with prospects of the scientist's continued engagement with and potential contribution to improving the performance of both institutions. In a similar vein, the scientist has worked toward developing a different paradigm of practice for biological sciences within USGS, involving the critique of *status quo* conventions and the promotion of collaboration among scientists, managers and other stakeholders. The scientist's efforts and innovations have resulted in several internal USGS awards (e.g., the *Paradigm Shifter* and *Exploding Head* awards), as well as appointments with the Yale School of Forestry & Environmental Studies and the MIT-USGS Science Impact Collaborative (MUSIC). The scientist was Western Field Director for MUSIC through 2010, with a focus on fostering integrated collaborative science in the Western Region. These leadership efforts are potentially important to the future direction of USGS, and have required that the scientist operate with sophistication and nuance organizationally, exercise considerable vision, and demonstrate a willingness to take professional risks.

D. The scientist has been effective as a leader in developing research programs from scratch on the Colorado Plateau, framed by a "gap analysis" that the scientist undertook soon after his arrival in this region in 1999. This analysis focused on unaddressed research needs and resulted in the development of programs featuring cougar-human relations, cougar-prey relations, and the ecology of upland waters. A seminal aspect of the scientist's approach has been the rational development of needs-based programs rather than the opportunistic pursuit of funds. This particular demonstration of leadership has required effective communication with DOI clients and state-level and private cooperators, the garnering of funds from diverse sources, and the encouragement and inspiration of collaborators and employees to achieve their creative potential and professional vision. Despite an initial dearth of resources, these research programs have grown, especially the program featuring cougar ecology which, to date, has garnered nearly $3 million from numerous governmental and private sources. The scientist's effective internal leadership of science programs was evident in exceptionally high marks received from two "360°" appraisals by peers and employees, one each during 2006 and 2007.

E. The scientist has taken a leadership role at the local level as part of the SBSC Colorado Plateau Research Station (CPRS), both by invitation and initiative. Based on demonstrated abilities, the scientist was designated Chair of the Information Resources Management (IRM) Committee at a time when IRM issues and related personality conflicts were particularly contentious. The scientist also took the initiative to develop an alternative management structure for the CPRS at a time of corrosive friction, for which the scientist received a Star Award. Later, the scientist successfully chaired the *Biennial*

Conference of Research on the Colorado Plateau at a particularly difficult time when institutional support had waned, and insured that this important regional venue for connecting researchers and managers survived to flourish when institutional support reemerged. The scientist received a Star Award for his efforts with the *Biennial Conference*. In a similar vein, the scientist was able to successfully reenergize Client's Day for the *5th Biennial Conference of Research on the Colorado Plateau* within a few months of arriving at a new duty station, for which he received a Star Award, and on another occasion took the initiative to act as 3rd party to negotiate a settlement for access to sensitive data, for which he received a Special Act Service Award. This history of service to CPRS continued when the scientist took on the duties of Station Leader/Liaison, 2008-2011, during which he dealt with a number of sensitive organizational and personnel issues, including renegotiating a 5-year cooperative agreement with Northern Arizona University. The scientist received two Star Awards for this service as Station Leader.

(14) SCIENTIFIC AND PUBLIC SERVICE

a. MEMBERSHIPS IN PROFESSIONAL SOCIETIES

The American Society of Mammalogists
The Society for Conservation Biology
American Association for the Advancement of Science
The Society for Policy Sciences
Wild Felid Research & Management Association

b. TECHNICAL PRESENTATIONS

not including public, classroom, training or information transfer presentations

151. "Effects of conspecifics on habitat selection by grizzly bears in the southwest Yukon, Canada," 2nd author with R. Maraj, C. Cormack Gates, & R.K. McCann at *20th International Conference on Bear Research & Management*, Ottawa, Canada, July 2011.

150. "Sex matters: Dietary strategies of male and female cougars on the southern Colorado Plateau," 2nd author with B. Holton at *10th WAFWA Mountain Lion Workshop*, Bozeman, MT, June 2011.

149. "The discourses of incidents: Cougars on Mt. Elden and in Sabino Canyon, Arizona," 1st author with S. Clark at *10th WAFWA Mountain Lion Workshop*, Bozeman, MT, June 2011.

148. "An explanation of cougar-related behaviors and behavioral intentions among northern Arizona residents," 2nd author with E.J. Ruther at *10th WAFWA Mountain Lion Workshop*, Bozeman, MT, June 2011.

147. "Two paradigms of climate change science: In service of greenhouse politics and pragmatic adaptation," at *2010 USGS Southwest Biological Science Center All Hands Meeting*, Flagstaff, AZ, December 2010. (INVITED)

146. "The many faces of peer review," at *2010 USGS Southwest Biological Science Center All Hands Meeting*, Flagstaff, AZ, December 2010. (INVITED)

145. "Leadership as social relationship: Perspectives on good leadership and implications for social

order," 1st author with S. Clark at *2010 Policy Sciences Annual Institute*, Yale University Law School, New Haven, CT, October 2010.

144. "Scale: Refining the concept in policy sciences," at *2010 Policy Sciences Annual Institute*, Yale University Law School, New Haven, CT, October 2010.

143. "**WORKSHOP**: Opportunities for collaborative mountain lion research in the interior western United States," 1st organizer with M. Wolfe at *17th Annual Conference of The Wildlife Society*, Snowbird, UT, October 2010.

142. "Grizzly bears and pine seeds: Complexity and contingency," 1st author with D. Reinhart at *High-Five Symposium: The Future of High-Elevation Five-Needle White Pines in Western North America*, Missoula, MT, June 2010. (INVITED)

141. "Restoring an extirpated species: Grizzly bears in the Southwest?," at *25th Annual Meeting of the Southwest Region Native American Fish & Wildlife Society*, Scottsdale, AZ, July 2010. (INVITED)

140. "The USGS National Climate Change and Wildlife Science Center," 2nd author with K. Kitchell at *25th Annual Meeting of the Southwest Region Native American Fish & Wildlife Society*, Scottsdale, AZ, July 2010. (INVITED)

139. " Development of mountain lion habitat selection models using ArcGIS Model Builder," 2nd author with T.R. Arundel, B. Holton, K. Ironside, & J. Hart on POSTER for 2009 ESRI International User Conference, San Diego, CA, June 2010.

138. "The status of mountain lion research in the southwestern United States," 2nd author with T.R. Arundel, B. Holton, & K. Ironside on POSTER for 2009 ESRI International User Conference, San Diego, CA, June 2010.

137. "Cougar management on the Colorado Plateau," at *2010 Annual Utah Chapter of the Wildlife Society Meeting*, Moab, UT, March 2010. (INVITED PLENARY)

136. "College and university programs as a policy problem: Integrating knowledge, education, and action for a better world," 4th author with S. Clark, M. Auer, & M. Rutherford at *2009 Policy Sciences Annual Institute*, Boulder, CO, October 2009.

135. "Roots of cougar-related human behaviors and behavioral intentions," 1st author with L. Ruther at *Carnivores 2009*, Denver, CO, November 2009.

134. "The discourse of incidents: Cougars and people on Mt. Elden and in Sabino Canyon," 1st author with S. Clark at *Carnivores 2009*, Denver, CO, November 2009.

133. "Factors affecting risk of puma attacks on humans," 1st author with L. Sweanor & K. Logan on POSTER for *Carnivores 2009*, Denver, CO, November 2009.

132. "PANEL: Mountain lions, people, and policy: Improving our prospects for effective conservation of a keystone predator," Panel member with J. Apker, T. Dunbar, R. Hopkins, G. Koehler, & R. Thompson at *Carnivores 2009*, Denver, CO, November 2009.

131. "**WORKSHOP**: Opportunities for collaborative mountain lion research on and near the Colorado Plateau," at *10th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, October 2009.

130. "No park is an island: Mountain lions on the southern Colorado Plateau," 1st author with B. Holton at*10th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, October 2009. (INVITED)

129. "The social-psychology of dominant frames: 'Thresholds' in natural resources management," at *10th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, October 2009. (INVITED)

128. "We talk about science and traditional knowledge, but are we not really talking about human dignity?," at *10th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, October 2009. (INVITED)

127. "Effects of simulated mountain lion caching on prey-like carcasses," 2nd author with Z. Bischoff-Mattson on POSTER for *10th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, October 2009.

126. "Roots of cougar-related human behaviors and behavioral intentions," 1st author with L. Ruther on POSTER for *10th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, October 2009.

125. "The discourse of incidents: Cougars and people on Mt. Elden and in Sabino Canyon," 1st author with S. Clark on POSTER for *10th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, October 2009.

124. "Predatory behavior of mountain lions on the southern Colorado Plateau," 1st author with B. Holton at *24th Annual Meeting of the Southwest Region of the Native American Fish & Wildlife Society*, Isleta, NM, July 2009.

123. "'For the good of the resource': Nature as a constructed and contested participant" at *2008 Policy Sciences Annual Institute*, University of Colorado, Boulder, CO, October 2008.

122. "The witch craze: Natural resources parable and policy sciences interpretation" at *2008 Policy Sciences Annual Institute*, University of Colorado, Boulder, CO, October 2008.

121. "The virtues of Q methodology in natural resources planning and decision making," 2nd author with N. Sexton, T. Cheng, & J. Clement, at *14th International Symposium on Society & Natural Resources Management*, Burlington, VT, June 2008.

120. "What is the problem?: Some orientation for the Global Climate Change Collaborative (G3C)" at *Inaugural Meeting of the Global Climate Change Collaborative*, Massachusetts Institute of Technology, Cambridge, MA, March 2008.

119. Mattson, D., "Improving professional practice in resource management agencies: Experiences, patterns and possible insights" at *2007 Policy Sciences Annual Institute*, Claremont-McKenna College, Claremont, CA, October 2007.

118. "Conflict over cougars: A window on natural resources governance" at *2007 Policy Sciences Annual Institute*, Claremont-McKenna College, Claremont, CA, October 2007.

117. "Managing for human safety in mountain lion range," 1st author with K. Logan & L. Sweanor at *9th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, October 2007.

116. "PANEL: Future of conservation biology on the Colorado Plateau," 2nd author with E. Grumbine, T. Fleischner, J. Belnap, & E Aumack, at *9th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, October 2007.

115. "USGS science and the 'scientization' of policy: Thoughts from the East Coast," at *USGS Southwest Biological Science Center Annual All-Hands Meeting*, Flagstaff, AZ, February 2008.

114. "A model of a behaviorally-structured wildlife population," 2nd author with C. Pease for *44th Annual Meeting of the Animal Behavior Society*, Burlington, VT, July 2007.

113. "USGS BRD: A modern organization in a post-modern world," for *Seminar series*, USGS Flagstaff Science Center, Flagstaff, AZ, May 2007. (INVITED)

112. "Polar bear conservation policy: Conservation hunting and climate change," 3rd author with D. Clark, D. Lee, S. Clark & M. Freeman for *ArticNet Annual Science Meeting*, Victoria, BC, Canada, December 2006.

111. "Conservation hunting, climate change, and polar bear policy in Nunavut, Canada," 3rd author with D. Clark & D. Lee for *2006 Policy Science Annual Institute*, sponsored by the Society for Policy Sciences, Yale Law School, New Haven, CT, November 2006.

110. "Knowledge integration: An exploration of psychological frames for understanding personality and perspectives in natural resources cases," for *2006 Policy Science Annual Institute*, sponsored by the Society for Policy Sciences, Yale Law School, New Haven, CT, November 2006.

109. "Whitebark pine, grizzly bears and climate change," 2nd author with K. Kendall for *Carnivores 2006*, sponsored by Defenders of Wildlife, St. Petersburg, FL, November 2006. (INVITED)

108. "Upland free water and wildlife: Past, present and future on the Colorado Plateau," 3rd author with B. Holton & J. Hart for *33rd Natural Areas Conference*, sponsored by the Natural Areas Association, Flagstaff, AZ, September 2006.

107. "Lions on the Plateau: A research program for the Colorado Plateau," 2nd author with J. Hart & T. Arundel for *Learning from the Land 2006 Science Symposium*, sponsored by Grand-Staircase Escalante NM, Cedar City, UT, September 2006.

106. "Upland free water: Past, present and future in Grand Staircase-Escalante NM?," 2nd author with J. Hart & B. Holton for *Learning from the Land 2006 Science Symposium*, sponsored by Grand-Staircase Escalante NM, Cedar City, UT, September 2006.

105. "Conflict over carnivores: A window on natural resources governance," for Symposium on Integrative Problem Solving, *20th Annual Meeting of the Society for Conservation Biology*, San Jose, CA, June 2006. (INVITED)

104. "The importance of gatherings," 1st author with M. Johnson for workshop on *Capacity-Building for SCB Chapters in the 21st century, 20th Annual Meeting of the Society for Conservation Biology*, San Jose, CA, June 2006. (INVITED)

103. "Science and politics in high stakes natural resource decisions," Plenary for *Multidisciplinary Approaches to Recovering Caribou in Mountain Ecosystems*, sponsored by the Columbia Mountains Institute, Revelstoke, BC, May 2006. (INVITED)

102. "Cougars of the Colorado Plateau: A multi-park investigation," for *1st Workshop of the Colorado Plateau Mountain Lion Working Group*, sponsored by USGS Southwest Biological Science Center, Flagstaff, AZ, January 2006.

101. "Cougars of the Flagstaff Uplands: Preliminary results 2003-2005," 1st author with J. Hart and T. Arundel for *1st Workshop of the Colorado Plateau Mountain Lion Working Group*, sponsored by USGS Southwest Biological Science Center, Flagstaff, AZ, January 2006.

100. "Human dimensions of mountain lion management: Value orientations and policy preferences of northern Arizona residents," 3rd author with E.J. Ruther & D.M. Ostergren *8th Biennial Conference of Research on the Colorado Plateau*, sponsored by USGS Southwest Biological Science Center, Flagstaff, AZ, November 2005.

99. "Wildlife water developments and the social construction of conservation conflict," 1st author with N. Chambers *8th Biennial Conference of Research on the Colorado Plateau*, sponsored by USGS Southwest Biological Science Center, Flagstaff, AZ, November 2005.

98. "The ecological effects of artificial water sources in a changing hydrologic regime," 2nd author with P.B. Holton for *8th Biennial Conference of Research on the Colorado Plateau*, sponsored by USGS Southwest Biological Science Center, Flagstaff, AZ, November 2005.

97. "Predation by cougars in the Flagstaff Uplands 2003-2005," 1st author with J. Hart & T. Arundel for *8th Biennial Conference of Research on the Colorado Plateau*, sponsored by USGS Southwest Biological Science Center, Flagstaff, AZ, November 2005. .

96. "Conflict over carnivores: A window on natural resources governance," Plenary for conference on *Governance and Decision-Making in Mountain Areas*, sponsored by Parks Canada and The Banff Centre, Banff, AB, Canada, June 2005. (INVITED)

95. "Cougars of the Flagstaff uplands: Cougar-informed spatial frames for analyzing habitat selection," 1st author with T. Arundel & J. Hart, POSTER for *8th Mountain Lion Workshop*, sponsored by the Washington Department of Fish & Wildlife, Leavenworth, WA, May 2005. .

94. "Cougars of the Flagstaff uplands: Results of 2003-2004 predation studies," 1st author with J. Hart & T. Arundel, for *8th Mountain Lion Workshop*, sponsored by the Washington Department of Fish & Wildlife, Leavenworth, WA, May 2005.

93. "Harvesting lessons of inventorying biological resources: Thoughts on design from the Colorado Plateau," 1st author with C. Drost, E. Nowak, T. Persons, M. Johnson, G. Rink, & J. Holmes, for *2005 George Wright Society Biennial Conference on Parks, Protected Areas and Cultural Sites*, sponsored by the George Wright Society, Philadelphia, PA, March 2005. (INVITED)

92. "A multi-park design for investigating cougar-related risks to humans in the Southwest," 1st author with J. Hart, T. Arundel, E. Garding, H.S. Kim, & E. Leslie, for *2005 George Wright Society Biennial Conference on Parks, Protected Areas and Cultural Sites*, sponsored by the George Wright Society, Philadelphia, PA, March 2005.

91. "The psycho-sociology of integrating conservation science and management," for the conference *A Bright Future for Biodiversity Conservation on the Colorado Plateau*, sponsored by the Colorado Plateau Chapter of the Society for Conservation Biology, Prescott College, Prescott, AZ, March 2005.

90. "Perspectives on wildlife, water, and humans in uplands of the Colorado Plateau," 1st author with B. Holton, T. Arundel, & J. Hart, for the *Wildlife Water Development Workshop*, sponsored by the ASU Law School, BLM, US Fish & Wildlife Service, and Arizona Game & Fish Department, Arizona State University Law School, Phoenix, AZ, November 2004.

89. "The right values at the wrong time?: A functional explanation of factors and participant responses," as part of panel on The Yellowstone to Yukon Conservation Initiative, for *2004 Policy Sciences Annual Institute*, sponsored by Society for Policy Sciences, Yale Law School, New Haven, CT, October 2004.

88. "Implementing impact-assessment models in bear management," for an informal workshop with Japanese bear research and management specialists, sponsored by the Japan Ecosystem Conservation Society, Tokyo, Japan, September 2004. (INVITED)

87. "Using habitat evaluation models for conservation design," Plenary for *The International Symposium on Habitat Evaluation*, sponsored by the Japan Ecosystem Conservation Society, Tokyo, Japan, September 2004. (INVITED)

86. "Seeing the elephant: Holistic intelligence for solving wildlife-related problems," for *Interdisciplinary Research and Management in Mountain Areas* conference, sponsored by Parks Canada and the Banff Centre, Banff, AB, September 2004. (INVITED)

85. "Effects of humans and black bears on the post-Pleistocene invasion of grizzly bears," 1st author with S. Herrero for *2004 Ecological Society of America Annual Meeting*, sponsored by the Ecological Society of America, Portland, OR, August 2004. http://abstracts.co.allenpress.com/pweb/esa2004/document/35283. (INVITED)

84. "Values, myths and narrative in conservation," for the conference *Views of the Elephant: Lessons Learned form Personal Experiences in Conservation*, sponsored by the Colorado Plateau Chapter for Conservation Biology, Marble Canyon, AZ, April 2004.

83. "Policy-oriented conservation design," for workshop *Policy-Oriented Conservation Design*, sponsored by the Wilburforce Foundation and Y2Y Conservation Initiative, Pender Island, BC, February 2004. (INVITED)

82. "Consumption of voles and vole food caches by Yellowstone grizzly bears: Exploratory analyses," POSTER for *15th International Conference of Bear Research and Management*, sponsored by the International Bear Association, San Diego, CA, February 2004.

81. "Consumption of pondweed roots by Yellowstone grizzly bears," 1st author with S. Podruzy & M. Haroldson POSTER for *15th International Conference of Bear Research and Management*, sponsored by the International Bear Association, San Diego, CA, February 2004.

80. "Natural landscape features, human-related attractants, and conflict hotspots: A spatial analysis of human-grizzly bear conflicts," 3rd author with S. Wilson, M.J. Madel, J.M. Graham, J.A. Burchfield, & J.M. Belsky for *15th International Conference of Bear Research and Management*, sponsored by the International Bear Association, San Diego, CA, February 2004.

79. "Are black bears a factor in the restoration of North American grizzly bear populations?," 1st author with S. Herrero & T. Merrill for *15th International Conference of Bear Research and Management*, sponsored by the International Bear Association, San Diego, CA, February 2004.

78. "Spatial analysis of puma (*Puma concolor*) habitat use relative to topographic roughness in northern Arizona," 3rd author with T.R. Arundel, S.T. Arundel & J Hart POSTER for *7 th Biennial Conference of Research on the Colorado Plateau*, sponsored by the 7th Biennial Conference Committee, Flagstaff, AZ, November 2003.

77. "A conceptual model and appraisal of research related to interactions between humans and pumas," 1st author with J. Hart & P. Beier for *7th Biennial Conference of Research on the Colorado Plateau*, sponsored by the 7th Biennial Conference Committee, Flagstaff, AZ, November 2003.

76. "Clarification of perspectives and pursuit of the community interest: Carnivore conservation in the Northern Rockies," 4th author with S.R. Brown, K.L. Byrd, T.W. Clark, & M. Rutherford for *2003 Policy Sciences Annual Institute*, sponsored by Society for Policy Sciences, Yale Law School, New Haven, CT, October 2003.

75. "Coefficients of productivity for Yellowstone's grizzly bear habitat," for *Workshop on evaluating the Yellowstone grizzly bear cumulative effects model*, sponsored USGS Interagency Grizzly Bear Study Team, Bozeman, MT, September 2003. (INVITED)

74. "Grizzly bear use of whitebark pine habitats," 1st author with D. Reinhart for *Whitebark Pine Committee 2003 Workshop*, sponsored by the Greater Yellowstone Coordinating Committee, Lake Village, Yellowstone National Park, WY, June 2003. (INVITED)

73. "A conceptual model and appraisal of existing research related to interactions between humans and pumas," 1st author with J. Hart, P. Beier, & J. Millen-Johnson for *7th Mountain Lion Workshop*, sponsored by Wyoming Game & Fish Department and The Wildlife Society, Jackson, WY, May 2003.

72. "Bridging scales, bridging to conservation practice: Grizzly bear science in Y2Y," Plenary for *Making Science, Making Change in Y2Y: Four Years of Research and Collaboration on Ecological Connectivity*, sponsored by the Yellowstone-to-Yukon Conservation Initiative and Wilburforce Foundation, Calgary, AB, May 2003. (INVITED)

71. "The Southern Colorado Plateau Network inventory: Where to from here?," for *Southern Colorado Plateau Network Inventory & Monitoring Workshop*, sponsored by the U.S. National Park Service, Southern Colorado Plateau Network, Farmington, NM, April 2003. (INVITED)

70. "How well do different approaches address rare species, biologically and ecologically?," as speaker and panel member for *Innovations in Species Conservation Symposium: Integrative Approaches to Address Rarity & Risk*, sponsored by the U.S. Forest Service, USGS, and etc., Portland, OR, April 2003. (INVITED)

69. "Why grizzly bears?," for *Central Rockies Ecosystem Grizzly Bear Management Workshop*, sponsored by the Central Rockies Ecosystem Interagency Liaison Group, Radium, BC, April 2003. (INVITED)

68. "Promises and pitfalls of models in science and management," for *Central Rockies Ecosystem Grizzly Bear Management Workshop*, sponsored by the Central Rockies Ecosystem Interagency Liaison Group, Radium, BC, April 2003. (INVITED)

67. "Thoughts on transboundary monitoring and management of grizzly bears," for *Kluane National Park and Reserve Grizzly Bear Symposium*, sponsored by Parks Canada Yukon Field Unit, Haines Junction, Yukon Territory, March 2003. (INVITED)

66. "A model-based appraisal of grizzly bear habitat conditions in northwestern Montana," 1st author with T. Merrill for the *Border Bears Workshop*, sponsored by the National Wildlife Federation and U.S. Fish and Wildlife Service, Sandpoint, ID, December 2002. (INVITED)

65. "Perspectives in grizzly bear conservation: Representations from newspaper and magazine articles," 1st author with S. Wilson for *Carnivores 2002*, sponsored by Defenders of Wildlife, Monterey, CA, November 2002.

64. "Conditions of grizzly bear policy implementation: An inside view," 1st author with T. Clark for *2002 Policy Sciences Annual Institute*, Yale Law School, New Haven, CT, October 2002.

63. "Umbrella effects," 2nd author with T. Merrill for *CERI Meeting on Conservation Area Design*, sponsored by the Craighead Environmental Research Institute, B-Bar Ranch, MT, September 2002.

62. "Conservation of mountain carnivores: Living with mountain carnivores?," for *Ecological and Earth Sciences in Mountain Areas* conference, sponsored by Parks Canada and the Banff Centre, Banff, AB, September 2002. (INVITED)

61. "Restoring an extirpated species: Grizzly bears in the Southwest?," for *Second Annual Meeting of the Southwestern Carnivore Committee*, sponsored by U.S. Fish and Wildlife Service and the Tuner Endangered Species Fund, Grand Canyon National Park, AZ, May 2002.

60. "Restoring an extirpated species: Grizzly bears in the Southwest?," POSTER with T. Merrill for *6th Biennial Conference of Research on the Colorado Plateau*, sponsored by USGS Colorado Plateau Field Station, Flagstaff, AZ, November 2001.

59. "Report from a workshop on the biology and management of pumas and black bears in Colorado Plateau National Parks," 1st author with E. Leslie for *6th Biennial Conference of Research on the Colorado Plateau*, sponsored by USGS Colorado Plateau Field Station, Flagstaff, AZ, November 2001. (INVITED)

58. "A conceptual framework for large carnivore conservation: The case of Yellowstone's grizzly bears," for *First Annual Meeting of the Southwestern Carnivore Committee*, sponsored by the Turner Endangered Species Fund and U.S. Fish and Wildlife Service, Albuquerque, NM, June 2001.

57. "Grizzly bears in the southwest: Some biophysical features of their extirpation and current prospects," for *First Annual Meeting of the Southwestern Carnivore Committee*, sponsored by the Turner Endangered Species Fund and U.S. Fish and Wildlife Service, Albuquerque, NM, June 2001.

56. "The effects of fragmentation, edges and habitat loss on wildlife: A perspective for mountain environments," for conference on *Human Use Management in Mountain Areas*, sponsored by Parks Canada and The Banff Centre, Banff, AB, June 2001. (INVITED)

55. "Consumption of earthworms by Yellowstone grizzly bears," 1st author with M. French & S. French, POSTER for *13th International Conference on Bear Research and Management*, sponsored by the International Association for Bear Research and Management, Jackson, WY, May 2001.

54. "Consumption of fungal sporocarps by Yellowstone grizzly bears," 1st author with S. Podruzny & M. Haroldson, POSTER for *13th International Conference on Bear Research and Management*, sponsored by the International Association for Bear Research and Management, Jackson, WY, May 2001.

53. "Defining habitat suitable for grizzly bears in the Greater Yellowstone Ecosystem," 2nd author with T. Merrill for *13th International Conference on Bear Research and Management*, sponsored by the International Association for Bear Research and Management, Jackson, WY, May 2001.

52. "Conservation of grizzly bears in the northern U.S. Rockies: An explanatory hypothesis," 1st author with T. Clark for *13th International Conference on Bear Research and Management*, sponsored by the International Association for Bear Research and Management, Jackson, WY, May 2001.

51. "Rationality or rationalization?: Science in the grizzly bear policy arena," for *All Hands Meeting*, sponsored by the U.S.G.S. Forest and Rangeland Ecosystem Science Center, Corbett, OR, January 2001. (INVITED)

50. "Social process mapping for large carnivore conservation," for *Managing Human Activities in Ecosystems in the Face of Large Uncertainties*, sponsored by the Science and Environmental Health Network, Missoula, MT, November 2000. (INVITED)

49. "Comparison of terrestrial and aquatic reserve designs: A northwest Montana pilot study," 3rd author with T. Merrill & C. Frissell for *Annual Meeting of the Society for Conservation Biology*, sponsored by the Society for Conservation Biology, Missoula, MT, June 2000.

48. "Access management: Managing people not ecosystems," for *Roads and Zones: Balancing Human Access in Public Lands*, sponsored by the Miistakis Institute for the Rockies, Radium Hot Springs, BC, February 2000.

47. "Use of non-native clover and grass by Yellowstone grizzly bears," 2nd author with D.P. Reinhart & K.A. Gunther, POSTER for *Exotic Organisms in Yellowstone: Native Biodiversity Under Siege*, sponsored by Yellowstone National Park, Mammoth, WY, October 1999.

46. "The effect of exotic species on Yellowstone's grizzly bears," 3rd author with D.P. Reinhart, M. Haroldson, & K.A. Gunther for *Exotic Organisms in Yellowstone: Native Biodiversity Under Siege*, sponsored by Yellowstone National Park, Mammoth, WY, October 1999.

45. "Comprehensive analysis for successful carnivore conservation: A systematic framework for mapping key variables," 2nd author with T. Clark, R. Reading & B. Miller for the *Carnivore Conservation Symposium*, sponsored by the Royal Zoological Society, London, October 1998. (INVITED)

44. "Whitebark pine, red squirrels and grizzly bears," 1st author with K. Kendall & D. Reinhart for the symposium *Restoring Whitebark Pine Ecosystems*, sponsored by the U.S. Forest Service, U.S. Park Service, USGS Biological Resources Division and Society of American Foresters, Missoula, MT, September 1998. (INVITED)

43. "Fire, red squirrels, whitebark pine, and Yellowstone grizzly bears," 3rd author with S. Podruzney & D. Reinhart for *11th International Conference on Bear Research and Management*, Gatlinburg, TN, April 1998.

42. "Use of rub trees by Yellowstone grizzly bears," 2nd author with G. Green & R. Swalley for *11th International Conference on Bear Research and Management*, Gatlinburg, TN, April 1998.

41. "Geophagy by Yellowstone grizzly bears," 1st author with G. Green & R. Swalley, POSTER for *11th International Conference on Bear Research and Management*, Gatlinburg, TN, April 1998.

40. "Landscapes suitable for restoration of grizzly bears in Idaho," for *Annual Meeting of the Idaho Chapter of the Wildlife Society*, Moscow, ID, March 1998. (INVITED)

39. "Grizzly bear conservation in the Greater Yellowstone Ecosystem," for *Workshop on Conservation Problem Solving*, sponsored by the Northern Rockies Conservation Cooperative and U.S. Forest Service, Jackson, WY, September 1997. (INVITED)

38. "Assessing umbrella effects of grizzly bears in Idaho: Applying matrices of habitat sensitivities," 1st author with T. Merrill for *7th Annual Gap Analysis Principal Investigators' Meeting*, Reston, VA, August 1997.

37. "Defining suitable landscapes for reintroduction of grizzly bears in Idaho," 1st author with T. Merrill for *7th Annual Gap Analysis Principal Investigators' Meeting*, Reston, VA, August 1997.

36. "Are grizzly bears an umbrella species for Idaho?," 1st author with T. Merrill, R. Noss, & H. Quigley for *Annual Meeting of the Society for Conservation Biology*, Victoria, BC, June 1997.

35. "Fragmentation and large carnivores: An unconventional view of landscapes," 2nd author with T. Merrill & H. Quigley for the workshop *Landscape Alteration Effects on Fauna in the Americas: Establishing a Basis for Analysis Across Biomes*, sponsored by IAI-AMIGO, Maitencillo, Chile, December 1996. (INVITED)

34. "Extirpations of grizzly bear (*Ursus arctos*) populations: An analysis of historical landscape patterns," 2nd author with T. Merrill for the *Joint Annual Meetings of the Ecological Society of America and the Society for Conservation Biology*, Providence, RI, August 1996.

33. "The Alsek Pass Assessment" and "Interagency grizzly bear management," for *Kluane National Park and Reserve Grizzly Bear Research Project: Project Review and Workshop*, Vancouver, BC, March 1996. (INVITED)

32. "Impacts of the proposed New World Mine on Yellowstone's threatened grizzly bear population," for the World Heritage Committee hearings *Yellowstone National Park: World Heritage Site in Danger Designation*, Mammoth, WY, September 1995. (INVITED)

31. "Demography and behavior of the Yellowstone grizzly bears", 2nd author with C. Pease for *Conference on Greater Yellowstone Predators*, organized by Yellowstone National Park and the Northern Rockies Conservation Cooperative, Mammoth, WY, September 1995.

30. "The strange case of ethics and natural resource agency science," for the Plenary Session *Ethics, Science, and Public Policy*, at the American Institute of Biological Sciences annual meeting, San Diego, CA, August 1995. (INVITED)

29. "Demography and behavior of the Yellowstone grizzly bears," 2nd author with C. Pease for *10th International Conference on Bear Research and Management*, Fairbanks, AK, July 1995.

28. "Diet and morphology of northern bears: Some hypotheses," for *10th International Conference on Bear Research and Management*, Fairbanks, AK, July 1995.

27. "Changing mortality of Yellowstone grizzly bears," for *10th International Conference on Bear Research and Management*, Fairbanks, AK, July 1995.

26. "Assessing cumulative effects of human development on grizzly bears," for *Ecological Outlook Project: Cumulative Effects Assessment and Futures Modelling Workshop,* sponsored by the Banff Bow Valley Study Task Force, Banff, AB, June 1995. (INVITED)

25. "The New World Mine and grizzly bears: A window on ecosystem management," for the symposium *National Parks and Public Land Ecosystems: Meeting the Challenge of Common Boundaries and Conflicting Mandates*, sponsored by the College of Law, University of Utah, Snowbird, UT, April 1995. (INVITED)

24. "Kamchatkan brown bears and *Pinus pumila*," for the workshop *Management of Whitebark Pine Ecosystems — An International and Regional Perspective*, sponsored by the Society of American Foresters, Intermountain Research Station, and Gallatin National Forest, Bozeman, MT, April 1993. (INVITED)

23. "Implementing endangered species policy: Lessons from the Yellowstone grizzly bear recovery effort," for the workshop *Implementing Endangered Species Policy* sponsored by the University of Michigan School of Natural Resources and the Environment, Ann Arbor, MI, January 1993. (INVITED)

22. "Use of road density standards for management of Yellowstone grizzly bear habitat," for a meeting on road density and security area standards for grizzly bear management, sponsored by the Grizzly Bear Recovery Coordinator, Missoula, MT, January 25-26, 1993. (INVITED)

21. "Biology of the Yellowstone grizzly bear," for the symposium *Human-Bear Conflicts*, sponsored by the West Yellowstone Chamber of Commerce, West Yellowstone, MT, October 1992. (INVITED)

20. "Grizzly bear-whitebark pine relationships in North America," for *International Workshop on Stone Pines and their Environment*, sponsored by the Swiss Institute of Forest, Snow & Landscape Research, U.S. Forest Service, and University of Munster, Germany, at St. Moritz, Switzerland, September 1992. (INVITED)

19. "Conservation of the Yellowstone grizzly bear," for the seminar series *Conservation Biology and Public Land Management*, at University of Wyoming, AMK Ranch, Grand Teton National Park, August 1992. (INVITED)

18. "Whitebark pine-grizzly bear associations," for *Whitebark Pine Workshop on New Management Perspectives in the Greater Yellowstone Area*, sponsored by the Gallatin National Forest, U.S. Forest Service Intermountain Research Station, and the Eastern Montana Chapter of the Society of American Foresters, Bozeman, MT, January 1992. (INVITED)

17. "The Yellowstone experience: 'Between a rock and a hard place'," for *Grizzly Bear Management Workshop*, sponsored by the Canadian Parks Service and Friends of Revelstoke National Park, Revelstoke, BC, March 1991. (INVITED)

16. "Sensitivity of grizzly bear population indices to long-term change in habitat support capability," for the symposium *Forever Threatened?*, sponsored by the Wyoming Wildlife Federation, Dubois, WY, June 1990.

15. "Grizzly bears, roads, displacement and mortality: What does the research mean?," for *Grizzly/Wolf Technical Workshop*, sponsored by the National Wildlife Federation, Polebridge, MT, July 1989. (INVITED)

14. "Interactions among red squirrels, grizzly bears, and the whitebark pine cone crop," for the workshop *Review of Research on Whitebark Pine Ecosystems*, sponsored by the U.S. Forest Service, Forest Service Fire Lab, Missoula, MT, March 1989. (INVITED)

13. "Stone pines and bears," 1st author with C. Jonkel for the symposium *Whitebark Pine Ecosystems — Ecology and Management of a High-Mountain Resource*, sponsored by the U.S. Forest Service, National Park Service, Montana State University, and Society of American Foresters, Bozeman, MT, March 1989. (INVITED)

12. "Whitebark pine on the Mount Washburn massif, Yellowstone National Park," 1st author with D. Reinhart for the symposium *Whitebark Pine Ecosystems — Ecology and Management of a High-Mountain Resource*, sponsored by the U.S. Forest Service, National Park Service, Montana State University, and Society of American Foresters, Bozeman, MT, March 1989.

11. "Grizzly bear use of Yellowstone Lake cutthroat trout," 2nd author with D. Reinhart for the *8th International Conference on Bear Research and Management*, sponsored by the International Association for Bear Research and Management, Victoria, BC, February 1989.

10. "Human impacts on bear habitat use," Plenary for the *8th International Conference on Bear Research and Management*, sponsored by the International Association for Bear Research and Management, Victoria, BC, February 1989. (INVITED)

9. "Timbering and roading in grizzly habitat," for *Greater Yellowstone Coalition 1988 Annual Meeting and Scientific Conference*, Lake Lodge, Yellowstone National Park, WY, June 1988. (INVITED)

8. "Dynamics of ungulate carcasses and their use by bears on ungulate winter ranges," 1st author with G. Green & J. Henry for *First Annual Meeting of Research and Monitoring on Yellowstone's Northern Range*, sponsored by the National Park Service, Mammoth, WY, January 1988.

7. "Evaluation of grizzly bear habitat using standard classification systems," 1st author with R. Knight for the symposium *Land Classifications Based on Vegetation — Applications for Resource Management*, sponsored by the University of Idaho, U.S. Forest Service, and State of Idaho, Moscow, ID, February 1987. (INVITED)

6. "Significance of whitebark pine to wildlife," for workshop sponsored by the U.S. Forest Service, Montana State University, Bozeman, MT, February 1987. (INVITED)

5. "Food habits of the Yellowstone grizzly bear," 1st author with B. Blanchard & R. Knight for *7th International Conference on Bear Research and Management*, Williamsburg, VA, February 1986.

4. "The effects of developments and primary roads on grizzly bear habitat use in Yellowstone National Park, Wyoming", 1st author with B. Blanchard & R. Knight for *7th International Conference on Bear Research and Management*, Williamsburg, VA, February 1986.

3. One part of four part presentation, "A cumulative effects model for grizzly bear management in the Yellowstone ecosystem," for *Grizzly Bear Habitat Symposium*, sponsored by the Interagency Grizzly Bear Committee and University of Montana, Missoula, MT, April-May 1985.

2. "Derivation of habitat component values for the Yellowstone grizzly bear," 1st author with R; Knight and B. Blanchard for *Grizzly Bear Habitat Symposium*, sponsored by the Interagency Grizzly Bear Committee and University of Montana, Missoula, MT, April-May 1985.

1. "Classification and environmental relationships of wetland vegetation in Yellowstone National Park, Wyoming," for *55th Annual Meeting of the Northwest Science Association*, Walla Walla College, College Place, WA, March 1982.

c. RENDERING SCIENTIFIC JUDGMENT

External Scientific Review Panels & Consultation since 1992

49. Second-level USGS review of BLM Sonoran Desert and Colorado Plateau Rapid Ecoregional Assessment processes, for BLM National Operations Center, Denver, CO, 2010-present; *expert reviewer*.

48. Advice on and review of protocol for managing pocket gophers in grizzly bear habitat, for P. Durkin of SERA Inc., 2010; *topic expert and expert reviewer*.

47. Invited Participant in scoping meeting for USGS response to BLM Rapid Ecological Assessments, Salt Lake City, UT, January 2010; *topic expert*.

46. Invited Participant in *Manhattan Project II Workshop* to scope research needs related to desert bighorn sheep-mountain lion interactions, Armendaris Ranch, Truth or Consequences, NM, April 2010; *topic expert*.

45. Invited Panel Expert for *Human Dimensions of Carnivore Conservation: Experts Workshop* convened to advise the Florida Wildlife Commission and US Fish & Wildlife Service on new approaches to conserving the Florida panther, January 2010; *topic expert*.

44. Invited Participant in problem-solving workshop *Aboriginal People, Polar Bears, and Human Dignity*, Whitehorse, Yukon Territory, January 2009; *topic expert*.

43. Consultant and collaborator on development of ArcGIS Agent Analyst extension with Kevin Johnston, ESRI, 2008-present. This collaboration involved use of cougar data to motivate a seminal application of Agent Analyst used in an instructional book covering this extension: Johnston, K., ed. (2011). *Getting to Know ArcGIS Agent Analyst*. ESRI Press, Redlands, CA. Applications to cougars comprised the bulk of Chapters 5 & 8 entitled *Moving point agents based on multi criteria decision making* and *Adding complexity to moving discrete point agents over continuous surfaces*. The scientist was offered but turned down authorship on these chapters because of complications entailed by the USGS product review process.

42. Review of and reference for research proposal, "Conservation and management of an isolated remnant population of Moroccan Dorcas gazelles north and west of the Atlas Mountains," to People's Trust for Endangered Species, London, UK, for M. Znari, 2008; *expert reviewer & consultant*.

41. Invited Applicant for *Endangered Species Management Kenya*, US Department of Interior International Technical Assistance Program, 2008; Canceled because of political problems in host country

40. Review of research/handling protocol "Pilot study: Ecology of mountain lions in the badlands of southwestern North Dakota" for J. Austin, USGS Northern Prairie Wildlife Research Center, March 2008; *expert reviewer*.

39. Advice on structure and design of MUSIC and of associated curricula and programs in the MIT Department of Urban Studies & Planning, Environmental Policy & Planning Group for H. Karl, MIT-USGS Science Impact Collaborative–entailing numerous meetings, conversations, white papers, and memos, 2007-2008; *expert consultant*.

38. Advice on collaborative approaches to resolving contentious natural resources issues, for Karen Hardigg, Alaska Forest Program Manager, The Wilderness Society, Anchorage, AK, 2007; *expert consultant.*

37. Review of and advice on "Credit trading framework: Conceptual basis for quantifying credits and debits in the sagebrush ecosystem," for J. Hestbeck, USGS Ft. Collins Science Center, 2007; *expert consultant and reviewer.*

36. Review and other input on proposal to the Natural Resources Conservation Service, Washington Office, regarding "Suggested metric for quantifying a positive zone of influence on grizzly bear habitat from non-lethal deterrent practices" for S. Wilson, Yale School of Forestry & Environmental Studies and Blackfoot Challenge, MT, 2006; *expert consultant*

35. Review of *Cougar Management Guidelines for North America*, for the authors and for Wild Futures, Earth Island Institute, Bainbridge Island, WA, 2004; *expert reviewer*.

34. Review of the *Muskwa-Kechika Wildlife Management Plan* for the Muskwa-Kechika Management Area Advisory Board, Fort St. John, BC, 2004; *expert reviewer*.

33. Review of the draft report *Analysis of Scientific Publications Related to the Florida Panther* for U.S. Fish & Wildlife Service and Florida Fish & Wildlife Commission, 2003; *expert reviewer*.

32. Review of web-served synopses of conservation biology literature and methods for Canadian Information System for the Environment, Environment Canada, 2003; *expert reviewer*.

31. Design and analysis for research program to model distribution of pre-historical Palouse Prairie vegetation in the Hangman Restoration Project area for Coeur d'Alene Tribe, Wildlife Program, Plummer, ID, 2002-present; *scientific advisor*.

30. Design of monitoring program for the U.S. National Park Service, Northern Colorado Plateau Network, Moab, UT, 2002; *scientific advisor*.

29. Methods for biological inventory and monitoring for the U.S. National Park Service, Southern Colorado Plateau Network, Inventory and Monitoring Program, Flagstaff, AZ, 2001-2005; *member of scientific advisory committee*.

28. Evaluation of impacts on large terrestrial vertebrates for alternatives regarding vehicular management in the Salt Creek Drainage of Canyon Lands NP, for U.S. National Park Service, Southeast Utah Group, Moab, UT, 2001; *member of the scientific review panel*.

27. Review of grizzly bear research program in and around Banff NP, for Parks Canada, Banff National Park, Banff, AB, 2001; *evaluated past research and proposed future directions for research and monitoring*.

26. Review of restoration plan for grizzly bear habitat in Jasper National Park (*Jasper National Park Three Valley Confluence Recovery Plan*) for Parks Canada, Jasper, AB, 2001; *expert reviewer*.

25. Review of plan for black bear research in Olympic National Park for USGS Forest & Rangeland Ecosystem Science Center, Corvallis, OR, 2001; *expert reviewer*.

24. Review of final report *A Study of New Mexico Black Bear Ecology with Models for Population Dynamics and Habitat Quality* for the New Mexico Fish & Wildlife Research Unit and New Mexico Department of Game and Fish, Santa Fe, NM, 2001; *expert reviewer*.

23. Review of research proposals for Grand Canyon National Park, Flagstaff, AZ, 2000; *expert reviewer*.

22. Review of *Sky Islands Wildlands Network and Conservation Plan* for The Wildlands Project, Tucson, AZ, 2000; *expert reviewer*.

21. Advice on methods for conservation planning and design for Yellowstone-to-Yukon Conservation Initiative, Canmore, AB, 1999-2005; *member of science advisory committee*.

20. Advice and other input on management standards for whitebark pine and relations among bears, red squirrels and whitebark pine, for U.S. Forest Service and U.S. National Park Service, Yellowstone ecosystem, 1999-present; *member of Yellowstone Ecosystem Whitebark Pine Working Group*.

19. Evaluate strategy for scientific research and conservation planning for Yellowstone-to-Yukon Conservation Initiative, Jasper, AB, 1999; *member of Scientific Advisory Forum*.

18. Provide overview of issues in large carnivore conservation for Canadian Ministry on Canadian Heritage Ecological Integrity Panel, 1999; *invited panel expert for Parks Canada*.

17. Advice on decision process and analysis methods related to conservation planning, for The Wildlife Network and Summerlee Foundation, Bainbridge Island, WA, 1998-present; *member of advisory committee for development of methods for bioregional conservation planning*.

16. Advice on development of an education course for hunters to prevent and respond appropriately to grizzly bear encounters, for Grizzly Bear Education Course Team, Wyoming Outfitters & Guides Association, 1998-2002; *member of steering committee*.

15. Advice on development of models and review of methods and products for World Wildlife Fund Canada and Conservation Biology Institute project: Modeling Carnivore Habitat in the Rocky Mountain Region, 1997-2000; *member of scientific advisory committee*.

14. Advice on development of the cumulative effects analysis process, and revision of methods and update of coefficients for mapped habitat types for Interagency Grizzly Bear Committee, Yellowstone subcommittee, 1997-2001; *member of grizzly bear cumulative effects modeling team for the Yellowstone Ecosystem*.

13. Development and review of grizzly bear research program in Kluane National Park, Yukon, for Canadian Parks Service, Western Region, Winnipeg, MB, 1991-2006; *member of the Kluane Grizzly Bear Study Working Group*.

12. Habitat-based population viability analysis for the East Slopes grizzly bear population in Alberta by the IUCN Conservation Biology Specialists Group (CBSG) and the East Slopes Grizzly Bear Project (ESGBP), University of Calgary, 1999; *scientific expert for the CBSG and ESGBP*.

11. Selection of wildlife projects for funding by Seattle City Light, City of Seattle, WA, 1999; *expert reviewer*.

10. Review of species distribution models for Idaho for the Idaho GAP Analysis project, 1998-1999; *scientific expert*.

9. Evaluation of and advice on methods and interpretation of conservation area design for coastal brown bears in British Columbia, for Round River Conservation Studies, Salt Lake City, UT, 1998; *member of scientific review panel*.

8. Evaluation of Tongass Land Management Plan alternatives for probable impacts on brown bears, for U.S. Forest Service, Tongass National Forest, Juneau, AK, 1996-1997; *member of the Brown Bear Panel*.

7. Advice on methods for impacts assessment and review of Environmental Impact Statement and Biological Assessment for the proposed New World Mine near Cooke City, MT, for U.S. Forest Service, Gallatin National Forest, Gardiner, MT, 1995-1998; *member of the scientific review committee*.

6. Development and review of research on current human impacts in the Bow Valley and participation in a futures modeling exercise for the region, for Secretariat of the Banff Bow Valley Task Force, Banff, AB, 1995-1996; *member of the scientific review committee for the Banff-Bow Valley*.

5. Assessment of the status of the Yellowstone National Park World Heritage Site by the World Heritage Committee, 1995; *expert witness for the US National Park Service*.

4. Assessment of proposed access development along the boundary of Kluane National Park, Yukon, 1994-1995; *scientific advisor for Axys Environmental Consultants and the Canadian Parks Service*.

3. Development of a carnivore conservation strategy for the Canadian and northern United States Rocky Mountains by the World Wildlife Fund, Canada, Toronto, ON, 1993; *scientific advisor*.

2. Assessment of the proposed expansion of the Sunshine Ski area in Banff National Park for Parks Canada, Calgary, AB, 1993; *scientific expert*.

1. Assessment of the proposed Westcastle ski development near Waterton National Park, Canada, for the Natural Resources Conservation Board of Alberta, 1993; *scientific expert for Parks Canada*.

Review of Journal or Book Manuscripts since 1998: The scientist reviewed **51 manuscripts** for the following journals since July of 1998. The number of manuscripts reviewed for each venue is given in parentheses in bold.

Ecology (**4**)
Ecological Applications (**1**)
Behaviour (**1**)

Conservation Biology (**8**; **2 as Assigning Editor**)
Ecography (**1**)
Biological Conservation (**1**)
Journal of Mammalogy (**1**)
Journal of Wildlife Management (**9**)
Wildlife Society Bulletin (**4**)
Restoration Ecology (**1**)
Acta Theriologica (**1**)
Canadian Journal of Zoology (**4**)
Ursus (**5**)
Journal of Forest Ecology & Management (**1**)
Western North American Naturalist (**2**)
Northwest Science (**1**)
USFS General Technical Report Series (**1**)
Proceedings of the 5th Biennial Conference of Research on the Colorado Plateau (**1**)
Proceedings of the 8th Biennial Conference of Research on the Colorado Plateau, University of Arizona Press (**2**)
Proceedings of the 9th Biennial Conference of Research on the Colorado Plateau, University of Arizona Press (**1**)
Desert Bighorn Council Transactions (**1**)

d. LECTURESHIPS AND OTHER ACADEMIC SERVICE

Since 1992 the scientist has instructed **10 semester-long classes or intensives**, 4 at Yale University, 4 at the Massachusetts Institute of Technology, 1 at Northern Arizona University, and 1 at University of Idaho; and given **95 seminars or lectures** in academic venues, primarily graduate classes, but including departmental seminars and undergraduate classes at Yale University, University of Michigan, University of Idaho, Northern Arizona University, University of Montana, Montana State University, Boise State University, Prescott College, and The Yellowstone Institute.

Semester-Long Seminars & Courses since 1992

10. Instructor, *11.972, Elements of Public Interest Leadership*, 24 hrs of class, MIT Department of Urban Studies & Planning, January 2009.

9. Instructor, *11.941 Elements of Environmental Leadership*, 24 hrs of class, MIT Department of Urban Studies & Planning, Spring 2008.

8. Co-Instructor, *11.375 Workshop on Collaborative Adaptive Management*, 40 hrs of class, MIT Department of Urban Studies & Planning, Spring 2008.

7. Co-instructor, *Foundations of Natural Resources Policy* (F&ES 85036), 42 hrs of class, Yale School of Forestry & Environmental Studies, New Haven, CT, January-May 2007

6. Co-instructor, *Society & Natural Resources* (F&ES 83049), 28 hrs of class, Yale School of Forestry & Environmental Studies, New Haven, CT, January-May 2007

5. Co-instructor, *Large Scale Conservation* (F&ES 83037), 42 hrs of class, Yale School of Forestry & Environmental Studies, New Haven, CT, January-May 2007

4. Co-instructor, *Reforming Natural Resources Governance* (IAP 11.959), 40 hrs of class, MIT Department of Urban Studies & Planning, Cambridge, MA, January 2007

3. Instructor, *Interdisciplinary Approaches to Large Carnivore Conservation* (F&ES 30023a), 39 hrs of class, Yale School of Forestry & Environmental Studies, New Haven, CT, September-December 2006

2. Co-Instructor, *The Policy-Science Interface* (ENV 555), 39 hrs of class, Center for Environmental Sciences & Education, Northern Arizona University, Flagstaff, AZ, August-December 2005

1. Instructor, *Senior Seminar: "What role does biology have in natural resources management?"* (WLF495), 13 hrs of class, Department of Fish and Wildlife Resources, University of Idaho, Moscow, August-December 1993

Lectures since 1992

95. "The existential roots of human dignity," *Yale Human Rights and Environment Dialogue*, Yale University, New Haven, CT, January 2011 (INVITED)

94. "Wildlife management in the Southwest: Maladies of scientific management," *Large Scale Conservation* (F&ES 83037b), Yale School of Forestry & Environmental Studies, New Haven, CT, January 2011 (INVITED)

93. "Existentialism," *Society & Natural Resources: Environmental Psychology* (F&ES 83049b), Yale School of Forestry & Environmental Studies, New Haven, CT, January 2011 (INVITED)

92. "The social-psychology of professional practice," *Western Resources Interest Group*, Yale School of Forestry & Environmental Studies, New Haven, CT, January 2011 (INVITED)

91. "Sex matters: The predatory strategies of male and female cougars," *Brigham Young University, Department of Plant & Wildlife Sciences Seminar*, Provo, UT, October 2010 (INVITED)

90. "Promise and pitfalls of models in science and management," *Biological Techniques: Species Distribution Modeling* (BIO 680), Department of Biology, Northern Arizona University, Flagstaff, AZ, September 2010 (INVITED)

80. "Sustainability, human dignity, and professionalism ," *Society & Natural Resources* (F&ES 83049b), Yale School of Forestry & Environmental Studies, New Haven, CT, February 2010 (INVITED)

79. "Florida panthers: The social construction of a conservation problem," *Species & Ecosystem Conservation* (F&ES 33012b), Yale School of Forestry & Environmental Studies, New Haven, CT, February 2010 (INVITED)

78. "Leadership as relation: The led and their theories about good leadership," *Western Resources Interest Group*, Yale School of Forestry & Environmental Studies, New Haven, CT, February 2010 (INVITED)

77. "Mountain lions in ecosystems: Evidence and speculations about effects," *Species & Ecosystem Conservation* (F&ES 33012b) Field Trip, Yale School of Forestry & Environmental Studies, Flagstaff, AZ, March 2010 (INVITED)

76. "Psycho-, social, and political dynamics of cougar management," *Species & Ecosystem Conservation* (F&ES 33012b) Field Trip, Yale School of Forestry & Environmental Studies, Flagstaff, AZ, March 2010 (INVITED)

75. "Psycho-, social, and political dynamics of cougar management," *Wildlife Management* (BIO478), Northern Arizona University, Flagstaff, AZ, October 2009 (INVITED)

74. "Mountain lions in ecosystems: Evidence and speculations about effects," *Wildlife Management* (BIO478), Northern Arizona University, Flagstaff, AZ, October 2009 (INVITED)

73. "The Witch Craze: Parable and policy sciences interpretation," for F&ES seminar *Professionalism & Human Dignity*, Yale School of Forestry & Environmental Studies, New Haven, CT, January 2009 (INVITED)

72. "Personality and perspectives on leadership," for, *Large Scale Conservation: Integrating Science, Management, and Policy* (F&ES 83037b), Yale School of Forestry & Environmental Studies, New Haven, CT, April 2009 (INVITED)

71. "Sustainability, dignity, and professionalism," for F&ES seminar *Professionalism & Human Dignity*, Yale School of Forestry & Environmental Studies, New Haven, CT, April 2009 (INVITED)

70. "Sustainability, dignity, and professionalism," for F&ES seminar *Professionalism & Human Dignity*, Yale School of Forestry & Environmental Studies, New Haven, CT, April 2009 (INVITED)

69. "Professionalism and human dignity: Foundational notions," to *Seminar on Society & Natural Resources* (F&ES 83049b), Yale School of Forestry and Environmental Studies, New Haven, CT, January 2009 (INVITED)

68. "The Glen Canyon Dam AMP: An appraisal," to *Large Scale Conservation* (F&ES 83037b),Yale School of Forestry and Environmental Studies, New Haven, CT, January 2009 (INVITED)

67. "Psycho-, social, and political dynamics of cougar management," to *Foundations of Natural Resources & Management* (F&ES 85036b),Yale School of Forestry and Environmental Studies, New Haven, CT, November 2008 (INVITED)

66. "Psycho-, social, and political dynamics of cougar management," to *Western Resource Group Luncheon Seminar*, Yale School of Forestry and Environmental Studies, New Haven, CT, November 2008 (INVITED)

65. "The witch craze: Parable and policy sciences interpretation," to *Foundations of Natural Resources & Management* (F&ES 85036b), Yale School of Forestry and Environmental Studies, New Haven, CT, November 2008 (INVITED)

64. "Human dignity and natural resources professionalism," to *Seminar on Human Dignity & Natural Resources Professionalism*, Yale School of Forestry & Environmental Studies, January 2008. (INVITED)

63. "Agitators, Theorists & Y2Y: Potential pitfalls of transformational leadership," to *Combined MIT and Yale Seminars on Elements of Environmental Leadership*, MIT Department of Urban Studies & Planning, Cambridge, MA, March 2008. (INVITED)

62. "The once and future Yellowstone grizzly bears," for *Society for Conservation Biology Spring Lecture Series*, Yale School of Forestry and Environmental Studies, New Haven, CT, February 2007 (INVITED)

61. "An introduction to David Mattson," for *Faculty Lunch Seminar*, Yale School of Forestry & Environmental Studies, New Haven, CT, December 2006 (INVITED)

60. "Y2Y conservation area design," for *Conservation Biology* (E&EB 315a/515a), Yale Department of Ecology & Evolutionary Biology, New Haven, CT, November 2006 (INVITED)

59. "Living with fierce creatures: Cougars on the southern Colorado Plateau," for *Environmental Studies Colloquium*, Prescott College, Prescott, AZ, April 2006 (INVITED)

58. "Psycho-sociology of the science-policy interface," for Joint session of *Natural History and Ecology of the Southwest* and *Behavior and Conservation of Mammals*, Prescott College, Prescott, AZ, April 2006 (INVITED)

57. "A personal perspective on change-oriented leadership," for *Large Scale Conservation: Integrating Science, Management & Policy* (F&ES 909), Yale School of Forestry and Environmental Studies, New Haven, CT, April 2006 (INVITED)

56. "Agitators, theorists and Y2Y: Potential pitfalls of transformational leadership," for *Large Scale Conservation: Integrating Science, Management & Policy* (F&ES 909), Yale School of Forestry and Environmental Studies, New Haven, CT, March 2006 (INVITED)

55. "The grizzly bear policy process: 'Conservation is like warfare'," *Species and Ecosystem Conservation* (F&ES 520b), Yale School of Forestry and Environmental Studies, New Haven, CT, October 2005 (INVITED)

54. "Conflict over cougars: A window on the institution of wildlife management," for *Foundations of Natural Resources and Management* (F&ES 891b), Yale School of Forestry and Environmental Studies, New Haven, CT, October 2005 (INVITED)

53. "Professional practice in natural resources research," for *Luncheon Seminar of the Western Natural Resources Interest Group*, Yale School of Forestry and Environmental Studies, New Haven, CT, October 2005 (INVITED)

52. "Agitators, theorists and Y2Y: Potential pitfalls of transformational leadership," for *Large-Scale Conservation: Integrating Science, Management and Policy* (FES 909b), Yale School of Forestry and Environmental Studies, New Haven, CT, March 2005 (INVITED)

51. "The dogma of conservation area design," for *Seminar on Western Natural Resources*, Western Natural Resources Interest Group, Yale School of Forestry and Environmental Studies, New Haven, CT, October 2004 (INVITED)

50. "The grizzly bear policy process: 'Conservation is like warfare'," for *Species and Ecosystem Conservation* (FES 520a), Yale School of Forestry and Environmental Studies, New Haven, CT, October 2004 (INVITED)

49. "Information ecology in grizzly bear management," for the *Environmental Sciences and Policy Graduate Seminar*, Center for Environmental Sciences and Education, Northern Arizona University, Flagstaff, AZ, September 2004 (INVITED)

48. "Cougars on the edge…of Flagstaff," for the *Forestry Seminar Series*, School of Forestry, Northern Arizona University, Flagstaff, AZ, September 2004 (INVITED)

47. "Y2Y and conservation design: Problematic doctrines and an evolving formula," for the graduate seminar *Large-Scale Conservation: Integrating Science, Management, and Policy* (FES 909b), sponsored by the Yale School of Forestry and Environmental Studies, New Haven, CT, February 2004 (INVITED)

46. "Human dimensions of wildlife management," for undergraduate class Wildlife Management (BIO333), Northern Arizona University, Flagstaff, AZ, October 2003 (INVITED)

45. "The practice of grizzly bear conservation," for the *Western Resources Special Interest Group*, Yale School of Forestry and Environmental Studies, New Haven, CT, February 2003 (INVITED)

44. "Values and perspectives in grizzly bear conservation." for graduate class *Foundations of Natural Resources Policy and Management* (F&ES 891), Yale School of Forestry & Environmental Studies, New Haven, CT, February 2003 (INVITED)

43. "'Conservation is like warfare': Phantom common ground in grizzly bear conservation," for seminar *Society & Natural Resources: Sustaining the Common Interest* (F&ES 746), Yale School of Forestry & Environmental Studies, New Haven, CT, February 2003 (INVITED)

42. "Conditions of grizzly bear policy implementation," for graduate class *Species and Ecosystem Conservation* (F&ES 520), Yale School of Forestry and Environmental Studies, New Haven, CT, October 2002 (INVITED)

41. "The Yellowstone grizzly bear: prospects for the future," for the *Western Resources Special Interest Group*, Yale School of Forestry and Environmental Studies, New Haven, CT, October 2002 (INVITED)

40. "Conduct, misconduct and the structure of science," for Dr. Charles van Riper III's graduate lab seminar, Department of Biology, Northern Arizona University, Flagstaff, AZ, April 2002 (INVITED)

39. "Decision processes in grizzly bear conservation," for graduate class *Species and Ecosystem Conservation* (F&ES 520), Yale School of Forestry and Environmental Studies, New Haven, CT, October 2001 (INVITED)

38. "Grizzly bear conservation," for the *Western Resources Special Interest Group*, Yale School of Forestry and Environmental Studies, New Haven, CT, October 2001 (INVITED)

37. "Foraging behavior of Yellowstone grizzly bears," for *Biological Sciences Departmental Seminar Program*, Department of Biological Sciences, Northern Arizona University, Flagstaff, AZ, February 2001 (INVITED)

36. "Grizzly bears in Yellowstone," for *Wildlife Management* class, Bozeman High School, Bozeman, MT, October 2000 (INVITED)

35. "Human dimensions of carnivore management," for *Human Dimensions of Wildlife Management* (WLF520), Department of Fish & Wildlife Resources, University of Idaho, Moscow, ID, March 2000 (INVITED)

34. "Decision processes in grizzly bear conservation," for graduate class *Species and Ecosystem Conservation* (F&ES 520), Yale School of Forestry and Environmental Studies, New Haven, CT, October 1999 (INVITED)

33. "Conservation of Yellowstone's grizzly bears," for graduate/undergraduate class *Conservation Biology*, Department of Biology, Boise State University, Boise, ID, May 1999 (INVITED)

32. "Viability analysis and monitoring techniques for grizzly bears," for undergraduate class *Fish & Wildlife Ecology, Management, & Conservation* (WLF 290), Department of Fish & Wildlife Resources, University of Idaho, Moscow, ID, May 1999 (INVITED)

31. "Professional practice in the grizzly bear arena," for undergraduate *Wildlife Seminar* (FISH 495), Department of Fish & Wildlife Resources, University of Idaho, Moscow, ID, March 1999 (INVITED)

30. "Grizzly bear science and management in the Yellowstone ecosystem," for graduate/undergraduate class *Northwest Environmental Issues* (HIST 404/504), Department of History, University of Idaho, Moscow, ID, March 1999 (INVITED)

29. "Conservation of grizzly bears in Idaho," for graduate class *Conservation Biology* (WLF 440), Department of Fish & Wildlife Resources, University of Idaho, Moscow, ID, May 1998 (INVITED)

28. "Policy analysis of grizzly bear conservation," for graduate class *Species and Ecosystem Conservation* (F&ES 520), Yale School of Forestry and Environmental Studies, New Haven, CT, March 1998 (INVITED)

27. "Human dimensions of grizzly bear science and management," for graduate class *Human Dimensions of Wildlife Management* (WLF 520), Department of Fish & Wildlife Resource, University of Idaho, Moscow, ID, March 1998 (INVITED)

26. "Conservation of Yellowstone's grizzly bears," for *Special Topics Senior Honors Seminar* (WLF 404), Department of Fish & Wildlife Resources, University of Idaho, January 1998 (INVITED)

25. "A contextual basis for methods of science," for the *Department of Philosophy Seminar*, sponsored by the University of Idaho Undergraduate Philosophy Organization, Moscow, ID, November 1997 (INVITED)

24. "The behavioral ecology of Yellowstone's grizzly bears," for undergraduate class *Behavioral Ecology* (WLF 441), Department of Fish & Wildlife Resources, University of Idaho, October 1997 (INVITED)

23. "Grizzly bear habitat relations in the Yellowstone ecosystem," for graduate class *Wildlife Habitat Ecology* (WLF 545), Department of Fish & Wildlife Resources, University of Idaho, September 1997 (INVITED)

22. "Use of demographic indices for monitoring wildlife populations: Grizzly bears as an example," for undergraduate class *Wildlife Management* (WLF 442), Department of Fish & Wildlife Resources, University of Idaho, April 1997 (INVITED)

21. "Policy-relevant science: Grizzly bears in Idaho," for workshop *Interdisciplinary Conservation Science*, sponsored by the Yale Student Chapter of the Society for Conservation Biology, New Haven, CT, April 1997 (INVITED)

20. "Professional practice in endangered species conservation," for graduate class *Natural Resource Policy and Management* (F&ES 891), Yale School of Forestry and Environmental Studies, New Haven, CT, April, 1997 (INVITED)

19. "Human dimensions of grizzly bear science and management," for graduate class *Human Dimensions of Wildlife Management* (WLF 520), Department of Fish & Wildlife Resource, University of Idaho, Moscow, ID, March 1997 (INVITED)

18. "Life histories of North American bears," for graduate class *Large Mammal Ecology* (WLF 544), Department of Fish & Wildlife Resources, University of Idaho, March 1997 (INVITED)

17. "Variation and pattern in the behavior of Yellowstone's grizzly bears," for *Department of Fish & Wildlife Resources Seminar*, University of Idaho, Moscow, ID, January 1997 (INVITED)

16. "The pitfalls of applied research," for undergraduate class *Wildlife Management* (WLF 442), Department of Fish and Wildlife Resources, University of Idaho, Moscow, ID, April 1996 (INVITED)

15. "Professional practice in endangered species conservation," for graduate class *Natural Resource Policy and Management* (F&ES 891), Yale School of Forestry and Environmental Studies, New Haven, CT, March 1996 (INVITED)

14. "Grizzly bear conservation," for graduate class *Species and Ecosystem Conservation* (F&ES 520), Yale School of Forestry and Environmental Studies, New Haven, CT, March 1996 (INVITED)

13. "Grizzly bear conservation," for graduate class *Species and Ecosystem Conservation* (F&ES520), Yale School of Forestry and Environmental Studies, New Haven, CT, March 1995 (INVITED)

12. "Professional practice in endangered species research," for graduate seminar *Society and Natural Resources* (F&ES524), Yale School of Forestry and Environmental Studies, New Haven, CT, March 1995 (INVITED)

11. "Sustaining grizzly bears in the Rocky Mountains," for *Departmental Seminar*, Department of Fish and Wildlife Resources, University of Idaho, Moscow, March 1995 (INVITED)

10. "Grizzly/brown bear ecology," for the graduate class *Large Mammal Ecology* (WLF544), Department of Fish and Wildlife Resources, University of Idaho, Moscow, February 1995 (INVITED)

9. "Calculation of sustainable grizzly bear mortality from unduplicated counts of females with cubs-of-the-year," for the graduate class *Fish and Wildlife Population Analysis* (WLF543), Department of Fish and Wildlife Resources, University of Idaho, Moscow, December 1994 (INVITED)

8. "Natural history of northern bears," for the undergraduate class *Natural History of Mammals* (ZOOL483), Department of Biological Sciences, University of Idaho, Moscow, ID, October 1993 (INVITED)

7. "Conservation of Yellowstone's grizzly bears," for *Conservation Biology Seminar*, Division of Biological Sciences, University of Montana, September 28, 1993 (INVITED)

6. "Grizzly bear habitat selection," for the graduate class *Wildlife Habitat Ecology* (WLF545), Department of Fish and Wildlife Resources, University of Idaho, Moscow, ID, September 20, 1993 (INVITED)

5. "Implementation of the endangered species act: Lessons from the Yellowstone grizzly bear population," for *Graduate Seminar*, Yale School of Forestry and Environmental Studies, New Haven, CT, April 8, 1993 (INVITED)

4. "Biology and management of the Yellowstone grizzly bear," for *Wildlife Forum*, sponsored by the Student Chapter of The Wildlife Society, Montana State University, Bozeman, MT, February 7, 1993 (INVITED)

3. "Lessons for improving endangered species conservation: The Yellowstone grizzly bear population," for the graduate seminar *Lessons for Improving Endangered Species Conservation*, and "Conservation and management of the Yellowstone grizzly," for the School of Natural Resources and Environment, University of Michigan, Ann Arbor, MI, November 1992 (INVITED)

2. "Implementation of grizzly bear research results," for the course *Ecology of Greater Yellowstone*, Yellowstone Institute, Yellowstone National Park, WY, July 1992 (INVITED)

1. "Grizzly bear food habits and habitat use," for the course *Bears: Folklore and Biology*, Yellowstone Institute, Yellowstone National Park, WY, June 1992-93 (2 presentations) (INVITED)

Graduate Student Committees & Interns: Since 1990 the scientist has been Committee Member, Faculty Advisor or Preceptor for **24 students** pursuing Ph.D. or M.S. degrees, Certificates or Special Credits.

20. Co-Committee Chair for Kirsten Ironside**,** *Movements and habitat selection by cougars on the Colorado Plateau*, Ph.D. Program, Department of Biology, Northern Arizona University, 2009-present.

19. Co-Advisor for, Erin Savage, *Mountain lion management in southeastern Arizona: A policy of lethal control*, M.S. Thesis, Yale School of Forestry & Environmental Studies, New Haven, CT, 2008-2010.

18. Advisor for Tanya Rosen, *Social and policy implications of bear reintroductions in Europe: The life and death of brown bear JJ1*, submitted to *Human Dimensions of Wildlife*, Yale School of Forestry & Environmental Studies, New Haven, CT, 2007-2008.

17. Reader for Taijs van Maasakkers, *Environmental restoration in the Atchafalaya Basin: Boundaries and interventions*, Masters of Conservation Planning, MIT Department of Urban Studies & Planning, Cambridge, MA, 2008.

18. Faculty Advisor for Maria Martin Rodriguez-Ovelleiro, Special Credit Project, Yale School of Forestry & Environmental Studies, New Haven, CT, September-December 2006.

17. Faculty Advisor for Avery Anderson, Special Credit Project, Yale School of Forestry & Environmental Studies, New Haven, CT, September-December 2006.

16. Faculty Advisor for Rebecca Watters, Special Credit Project, Yale School of Forestry & Environmental Studies, New Haven, CT, September 2005-December 2006.

15. Co-Chair for Brandon Holton, *Upland free water availability and wildlife*, M.Sc. Thesis, Northern Arizona University, Flagstaff, AZ, 2004-2007.

14. Faculty Advisor for Trevor Streng, *Cougar biology and policy in northern Arizona*, Senior Project, Center for Environmental Sciences and Education, Northern Arizona University, Flagstaff, AZ, 2004-2005.

13. Faculty Advisor for Conservation Ecology Graduate Certificate for Sarah Hartwell, *The African bushmeat crisis: A summary of the problem and its causes*, Conservation Ecology Graduate Certificate Program, Northern Arizona University, Flagstaff, AZ, 2004-2005.

12. Preceptor for Winter Study Project for Margaret Carr and David Allen, *Where the wild things are: A study of cougar response to the presence of humans*, Winter Studies Program (SPEC 99), Williams College, Williamstown, MA, 2004.

11. Committee Member for M.S. program for Suzanne Cardinal, *Home range, movement patterns and habitat use of southwestern willow flycatchers at Roosevelt Lake, Arizona*, Department of Biological Sciences, Northern Arizona University, Flagstaff, AZ, 2003-2005.

10. Committee Member for M.S. program for Mark Weissinger, *Striped skunk (Mephitis mephitis) home range, seasonal and daily movements, and denning ecology in Flagstaff's urban environment*, Department of Biological Sciences, Northern Arizona University, Flagstaff, AZ, 2003-2007.

9. Committee Member for Ph.D. program for Ramona Maraj, *Human land use and grizzlies in southwest Yukon*, Faculty of Environmental Design, University of Calgary, Calgary, AB, 2003-2006. *Two co-authored journal articles in preparation*.

8. Faculty Advisor for Conservation Ecology Graduate Certificate for Matt Clark, *Potential effects of gray wolf reintroduction on the carnivore community of the Grand Canyon ecoregion*, Conservation Ecology Graduate Certificate Program, Northern Arizona University, Flagstaff, AZ, 2003-2004.

7. Faculty Advisor for Conservation Ecology Graduate Certificate for Brandon Holton, *Ecological costs and benefits of artificial water sites, with special emphasis on potential prey traps*, Conservation Ecology Graduate Certificate Program, Northern Arizona University, Flagstaff, AZ, 2003.

6. Committee Member for M.S. program for Elizabeth Ruther, *Conflict & co-habitation: a survey of northern Arizona ponderosa pine ecosystem residents assessing nature views and cougar perceptions*, Environmental Science & Policy, Northern Arizona University, Flagstaff, AZ, 2002-2005. *One co-authored journal article in preparation*.

5. Preceptor for Intern Program for Jesse Millen-Johnson involving field work on a Flagstaff area mountain lion project, Bates College, Lewiston, ME, 2003.

4. *Ex officio* Committee Member for Ph.D. program for Seth Wilson, *Landscape features and attractants that predispose grizzly bears to risk of conflict with humans*, University of Montana, Missoula, MT, 1999-2003. *Two co-authored journal articles*.

3. *Ex officio* Committee Member for Ph.D. program for Kerry Murphy, *Ecology of mountain lions in Yellowstone National Park*, University of Idaho, Moscow, ID, 1993-1997.

2. Principal Agency Advisor for M.S. program for Gerald Green, *Use of spring carrion by bears in Yellowstone National Park*, University of Idaho, Moscow, ID, 1987-1994. *One co-authored journal paper*.

1. Principal Agency Advisor for M.S. program for Daniel Reinhart, *Grizzly bear use on cutthroat trout spawning streams in tributaries of Yellowstone Lake*, Montana State University, Bozeman, MT, 1985-1990. *Two co-authored journal papers*.

Appointments

11. Invited Member of *Large Carnivore Group*, Yale School of Forestry & Environmental Studies, New Haven, CT, 2008-present.

10. Lecturer & Visiting Senior Scientist, *Yale School of Forestry and Environmental Studies*, June 2006-present.

9. Western Field Director, *MIT-USGS Science Impact Collaborative*, Massachusetts Institute of Technology, April 2007-2010.

8. Adjunct Faculty, *Center for Environmental Sciences and Education* and School *of Earth Sciences and Environmental Sustainability*, Northern Arizona University, 2004-present.

7. Federal Agency Representative, Executive Board, *Colorado Plateau Chapter of the Society for Conservation Biology*, 2003-present.

6. Adjunct Faculty, *Department of Biology*, Northern Arizona University, 2002-present.

5. Scholar-in-residence, *MIT-USGS Science Impact Collaborative, MIT Department of Urban Studies and Planning*, June 2007-2008.

4. Associate, *Merriam-Powell Center for Environmental Research*, Northern Arizona University, 2002-present.

3. Steering Committee Member, *Center for Sustainable Environments*, Northern Arizona University, 2002-2004.

2. Co-chair, Arizona Chapter, Southwestern Carnivore Committee, 2002-2004.

1. Faculty Participant, Conservation Ecology Graduate Certificate, Center for Environmental Sciences and Education, Northern Arizona University, 2001-2006.

Conference Planning since 1992

15. Co-organizer, with M. Wolfe, of workshop, "Opportunities for collaborative mountain lion research in the interior western United States," *17th Annual Conference of The Wildlife Society*, Snowbird, UT, January 2010-October 2010

14. Organizer of workshop, "Opportunities for collaborative mountain lion research on and near the Colorado Plateau," *10th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, April 2009-October 2009

13. Program Chair and part of core Planning Committee for *10th Biennial Conference of Research on the Colorado Plateau*, October 2008-October 2009

12. Member of Planning Committee for workshop, *Improving Prospects for Cougar Conservation: Clarifying Goals, Identifying Problems, Seeking Solutions*, Seattle, WA, August-November 2008

11. Member of Planning Committee, *Annual Meeting at Marble Canyon*, sponsored by the Colorado Plateau Chapter of the Society for Conservation Biology, Marble Canyon, AZ, April-August 2006.

10. Member of Interagency Committee for workshop on *Water Developments for Wildlife*, Arizona State University, Tempe, AZ, November 2004, sponsored by numerous stakeholder in the issues of water developments, 2004-2005.

9. Member of Advisory Committee for conference *Governance and Decision-Making in Mountain Areas*, June 2005, Banff, AB, sponsored by The Banff Centre and Parks Canada, 2004-2005.

8. Member of Advisory Committee for workshop on *Faunal Populations and Communities,* Northern Arizona University, Flagstaff, AZ, April 2004, sponsored by NPS Southern Colorado Plateau I&M Network, Flagstaff, AZ, 2004.

7. Member of Conference Committee for *Views of the Elephant: Lessons Learned form Personal Experiences in Conservation*, Marble Canyon, AZ, April 2004, sponsored by the Colorado Plateau Chapter for Conservation Biology, 2004.

6. Advisor for workshop *Policy-Oriented Conservation Design*, Pender Island, BC, February 2004, sponsored by the Wilburforce Foundation and Y2Y Conservation Initiative, 2004.

5. Member of Advisory Committee for workshop *Large-Scale Conservation: Exploring Challenges, Perspectives, and Opportunities in the Y2Y Case*, Yale University, New Haven, CT, April 2004, sponsored by Yale School of Forestry & Environmental Studies, New Haven, CT, and Kent State University, Kent, OH, 2003-2004.

4. Member of Scientific Advisory Committee for *Carnivores 2004* conference, Santa Fe, NM, November 2004, for Defenders of Wildlife, Washington, D.C, 2003-2004.

3. Conference Chair, oversaw all aspects of *7th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, November 2003, 2002-2003.

2. Program Chair, planned and organized program for *6th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, November 2001, 2000-2001.

1. Client's Day Chair, developed and organized Client's Day for *5th Biennial Conference of Research on the Colorado Plateau*, Flagstaff, AZ, November 1999, 1999.

e. TECHNICAL TRAINING & INFORMATION TRANSFER PROVIDED since 1992

45. "Project background and context: Or, what we did and why, and how to interpret and use our results," for *NCCWSC Forecasting Climate Impacts on Wildlife in the Arid Southwest*, Advisory Team meeting, Flagstaff, AZ, June 2011.

44. "Selection of species, conceptual models, model complexity, and approaches for spatially displayed uncertainty in model outcomes," for *NCCWSC Forecasting Climate Impacts on Wildlife in the Arid Southwest*, Advisory Team meeting, Flagstaff, AZ, September 2010.

43. WORKSHOP convened and led to develop study plan and proposal (*Source-sink dynamics of arid-land mammals: Desert bighorn sheep and their predators in southeastern Nevada*) in response to DoD SERDP rfp, Henderson, NV, February 2010.

42. WORKSHOP convened and led to scope research related to loss of whitebark pine in the northern Rocky Mountains and modeling changes in grizzly bear density under global change, Denver Zoo, Denver, CO, February 2010.

41. "Predatory behavior of mountain lions on the southern Colorado Plateau," 1st author with B. Holton, Staff Briefing for the Coconino National Forest, Peaks RS, Flagstaff, AZ, June 2010. (INVITED)

40. "Climate change effects on plant and animal species in the Southwest," for *Flagstaff Science Center Climate Change Workshop*, USGS Flagstaff Science Center, Flagstaff, AZ, May 2010. (INVITED)

39. "NCCWSC project: Forecasting climate impacts on wildlife in the arid Southwest – Module 3," 1st author with et al., for *NCCWSC Forecasting Climate Impacts on Wildlife in the Arid Southwest*, Stakeholder Advisory Group, Phoenix, AZ, April 2010.

38."Thinking outside the box," for *Human Dimensions of Carnivore Conservation: Experts Workshop*, Florida Wildlife Commission and Florida Defenders of Wildlife, White Oak Plantation, FL, January 2010. (INVITED)

37. "USGS mountain lion studies in the interior Southwest," briefing for Sue Hazeltine and Bruce Jones, University of Arizona, Tucson, AZ, December 2009. (INVITED)

36. "NCCWSC project: Forecasting climate impacts on wildlife in the arid Southwest," 1st author with et al., briefing for Sue Hazeltine and Bruce Jones, University of Arizona, Tucson, AZ, December 2009. (INVITED)

35. "Lion research in the Flagstaff area," for *All Regional Staff Meeting, Region II, Arizona Game & Fish Department*, Flagstaff, AZ, October 2009. (INVITED)

34. "Interdisciplinary problem-solving (IPS) skills-upgrading workshop," WORKSHOP for Banff National Park Grizzly Bear IPS Group, Banff, Alberta, October 2009. (INVITED)

33. "Forecasting effects of climate change on focal wildlife species within Sonoran desert and Colorado Plateau ecosystems," for *NCCWSC Forecasting Climate Impacts on Wildlife in the Arid Southwest*, Advisory Team, Flagstaff, AZ, October 2009. (INVITED)

32. "USGS-National Park Service mountain lion studies on the southern Colorado Plateau," 1st author with B. Holton, T. Arundel, K. Ironside, R.V. Ward, & C. Crow, briefing for DOE & USGS Nevada Test Site personnel, Las Vegas, NV, October 2009.

31. "Upland free water on the Colorado Plateau: Past, present, and future?," for USGS Water Resources Discipline, *National Research Program Research Committee Meeting*, Flagstaff, AZ, May 2009. (INVITED)

30. "Mountain lions of Zion NP: 2006-2008," 1st author with J. Hart, T. Arundel, & B. Holton for Staff of Zion National Park, Springdale, UT, May 2009. (INVITED)

29. "Managing for human safety in mountain lion range," 1st author with K. Logan & L. Sweanor for Staff of Zion National Park, Springdale, UT, May 2009. (INVITED)

28. "Living with large fierce creatures: Cougars and humans on the southern Colorado Plateau," 3rd author with T. Arundel & B. Holton for *2008-2009 Flagstaff Leadership Program*, Flagstaff, AZ, May 2009. (INVITED)

27. "Mountain lions in ecosystems: Evidence and speculations about effects," 1st author with B. Holton for workshop on *Landscape-Scale Management Strategies for Wide-Ranging Mammals*, Grand Canyon NP, AZ, June 2009. (INVITED)

26. "USGS BRD: A modern organization in a post-modern world," for *Seminar Series*, USGS Flagstaff Science Center, Flagstaff, AZ, May 2007. (INVITED)

25. "The Glen Canyon Dam Adaptive Management Program: A preliminary appraisal," briefing for the USGS Southwest Biological Science Center Management Team and Grand Canyon Monitoring & Research Center Program Leaders, Flagstaff, AZ, May 2007. (INVITED)

24. "Why Yale? What at Yale?," for *Brown Bag Seminar*, USGS Colorado Plateau Research Station, Flagstaff, AZ, April 2007. (INVITED)

23. "Monitoring wildlife in wilderness," INSTRUCTOR for *Class on Natural and Cultural Monitoring in Wilderness*, sponsored by Arthur Carhart National Wilderness Training Center, Las Vegas, NV, March 2006. (INVITED)

22. "Cougars of the Flagstaff Uplands: Preliminary results 2003-2005," 1st author with J. Hart & T. Arundel for staff of the Flagstaff Area National Monuments, Flagstaff, AZ, March 2006. (INVITED)

21. "Wildlife, water, and humans in uplands of the Southwest," 1st author with M. Miller, briefing for the USGS Western Regional Executives Team, Seattle, WA, February 2006. (INVITED)

20. "Wildlife water developments and the social construction of conservation conflict," for staff of USGS Grand Canyon Monitoring and Research Center, Flagstaff, AZ, February 2006. (INVITED)

19. "Wildlife water developments and the social construction of conservation conflict," 1st author with N. Chambers for staff of the BLM State Office and BLM Phoenix Field Office, Phoenix, AZ, January 2006. (INVITED)

18. *1st Workshop of the Colorado Plateau Mountain Lion Working Group*, ORGANIZER and CONVENER, sponsored by USGS Southwest Biological Science Center, Flagstaff, AZ, January 2006.

17. "Cougars of the Colorado Plateau: A multi-park investigation," 1st author with J. Hart, T. Arundel, R. Stevens, E. Garding, RV Ward, J. Bradybaugh, & E. Leslie for *USGS Southwest Biological Science Center All Hands Meeting*, Flagstaff, AZ, November 2005. (INVITED)

16. "Safety in Red Rock's lion country," for *Safety Meeting*, USFS Coconino NF, Sedona Ranger District, Sedona, AZ, October 2005. (INVITED)

15. "Perspectives on wildlife water developments: An analysis of documents, quotes, and materials from the November 2004 workshop," for Staff of the BLM Phoenix Field Office, sponsored by the Sonoran Institute and the BLM Phoenix Field Office, Phoenix, AZ, June 2005. (INVITED))

14. "Cougars of the Colorado Plateau: A multi-park investigation, Zion National Park and environs," 1st author with J. Hart, T. Arundel, & J. Bradybaugh for Zion NP staff, Zion NP Headquarters, UT, December 2005. (INVITED)

13. "Cougars of the Flagstaff Uplands: An introduction and results of the 2003-2004 field season," 1st author with J. Hart & T. Arundel for *August Staff Meeting, Region 2 Arizona Game & Fish Department*, sponsored by Region 2, Arizona Game & Fish Department, August 2004. (INVITED)

12. "Foraging behavior of Yellowstone's grizzly bears: Consumption of whitebark pine seeds and ungulates," for *2004 State Meeting of the Arizona Wildlife Services Program*, sponsored by USDA Wildlife Services, Hawley Lake, AZ, July 2004. (INVITED)

11. "Cougars of the Flagstaff Uplands: An introduction and results of the 2003-2004 field season," 2nd author with J. Hart & T. Arundel for *2004 State Meeting of the Arizona Wildlife Services Program*, sponsored by USDA Wildlife Services, Hawley Lake, AZ, July 2004. (INVITED)

10. "Y2Y conservation design: A framework for judging the sufficiency of Y2Y science," for *Y2Y Conservation Science and Planning Meeting*, sponsored by the Yellowstone-to-Yukon Conservation Science and Planning Program, Canmore, AB, January 2002. (INVITED)

9. "People, bear science and decision making," for *Grizzly Bear Research and Monitoring in Banff and Other Mountain National Parks: Where Do We Go From Here?*, sponsored by Parks Canada, Banff, AB, March 2001. (INVITED)

8. "Large Carnivores on the Plateau: a Workshop on the Biology and Management of Pumas and Black Bears in Colorado Plateau National Parks," ORGANIZER and CONVENER with E. Leslie for Utah, New Mexico, and Arizona state game and fish agencies and U.S. National Park Service, sponsored by the U.S. National Park Service and USGS, Flagstaff, AZ, March 2001.

7. "Modeling regional habitat suitability for large carnivores," for *Yellowstone-to-Yukon Council Meeting*, sponsored by Y2Y Council, Helena, MT, April 1998. (INVITED)

6. "Cumulative effects model: History, interpretation and future," for Interagency Grizzly Bear Committee Yellowstone Cumulative Effects Modeling Team, Mammoth, WY, June 1997. (INVITED)

5. "Suitability of habitat in the Bitterroot Recovery Area," for *Workshop and Briefing on Grizzly Bear Habitat in the Bitterroot Recovery Area*, sponsored by the Idaho Department of Fish & Wildlife, Boise, ID, May 1997. (INVITED)

4. "Grizzly bear use of ungulates and whitebark pine middens," for *Grizzly Bear Seminar for Yellowstone National Park Staff*, Center for Resources, Mammoth, WY, June 1996. (INVITED)

3. "Grizzly bear science," as part of panel *Journey to Recovery*, for *Summer Meeting of the Interagency Grizzly Bear Committee*, Gardiner, MT, June 1996. (INVITED)

2. "Cumulative effects analysis for the Yellowstone grizzly bear population," for *Cumulative Effects Workshop*, sponsored by Canadian Parks Service, Energy Resources Conservation Board, Natural Resources Conservation Board, Shell Canada Ltd., Alberta Resource Planning Branch, and Environment Council of Alberta, Calgary, AB, March 1993. (INVITED)

1. "Experiences of Yellowstone in Ecosystem Management," for *Kananaskis Workshop for the Ecosystem Management Task Force*, sponsored by Canadian Parks Service, Kananaskis, AB, February 1992. (INVITED)

f. SPECIAL ASSIGNMENTS

15. Member of the *USGS Southwest Biological Science Center Strategic Planning Core Team*, June 2011-present.

14. Chair of *Hiring Committee for GS-13 Landscape Ecologist*, USGS Southwest Biological Science Center, September-November 2010.

13. Member of *USGS Research Grade Evaluation Panels,* Milwaukee, WI, 2010, and for Sasha Reed, USGS Southwest Biological Science Center, February-March 2010.

12. Principal USGS Agent for renewal of 5-year *Memorandum of Understanding* and *Cooperative Agreement* between USGS and Northern Arizona University governing operations of the Colorado Plateau Research Station at Northern Arizona University, 2008-2009.

11. Station Leader/Liaison for USGS Colorado Plateau Research Station, Southwest Biological Science Center, Flagstaff, AZ, 2009-2011.

10. Acting Center Director for USGS Southwest Biological Science Center, Flagstaff, AZ, as requested, 2003-present; *performed routine duties of Center Director in the absence of official Director.*

9. Member of Steering Committee, *Global Climate Change Collaborative (G3C)*, MIT-USGS Science Impact Collaborative, Cambridge, MA, 2007-2008.

8. Member of the *Science Advisory Group* for the *USGS Science Strategy Team*, February-June 2006.

7. Member of *USGS Research Grade Evaluation Panels*, Reno, NV, 2001, and Columbus, OH, 2006.

6. Member of the *USGS Southwest Biological Science Center Strategic Planning Core Team*, November 2005-February 2006.

5. Reporter for *Workforce Planning Break-Out Group 4*, *USGS Southwest Biological Science Center All Hands Meeting*, Flagstaff, AZ, November 2005.

4. Team Leader for *Large Mammals and Predators, USGS Wildlife Program Five Year Strategic Plan*, August 2004-January 2005.

3. Acting Station Leader for USGS Colorado Plateau Research Station, Flagstaff, AZ, as needed 2000-2008; *performed routine duties of Field Station Leader in the absence of official Leader.*

2. Committee Chair, USGS Colorado Plateau Field Station Information Resources Management Committee, 2000-2004; *provided oversight for resolution of IRM issues at the Field Station*.

1. Special Project, Interagency Grizzly Bear Study Team, Bozeman, MT, 1982-1983; *developed procedures for and mapped habitat and cover types on 300,000 acres of National Forest lands delineated by the scientist in core grizzly bear range*.

g. OTHER TECHNICAL ACTIVITIES since 1998, but earlier accomplishments where appropriate

A. By invitation, the scientist advised nationally important programs, reviewed nationally important projects, or participated in advanced disciplinary workshops. He was among a few nationally recognized bear scientists to serve on a review panel for the controversial *Tongass National Forest Land Management Plan*. The scientist was also one of three internationally recognized grizzly bear scientists invited by the IUCN Conservation Biology Specialists Group to serve as an advisor and technical specialist for a population viability workshop in Canada. Also of relevance to Canada, the scientist was engaged to review the controversial and potentially influential *Muskwa-Kechika Wildlife Management Plan*. He was invited as one of the foremost conservation biologists in North America to attend a workshop that reviewed and advanced concepts of regional conservation design and contributed to two chapters of a book that reported the results of this endeavor. The scientist was similarly invited as one the nation's foremost carnivore researchers and conservation biologists to participate in a workshop and serve on an advisory committee for development of a national bioregional conservation planning process. More recently the scientist has been recognized as an authority in the field of cougar research and management, most notably by his engagement to review the authoritative *Cougar Management Guidelines for North America* and the high-profile *Analysis of Scientific Publications for the Florida Panther*, as well as to advise the Florida Panther Recovery Team on methods for public engagement. The scientist has also advised key BLM personnel on BLM's recently constituted Rapid Ecoregional Assessment (REA) program, including reviews of two seminal planning documents for the Colorado Plateau and Sonoran Desert REAs.

B. On the basis of specific requests, 1986-present, the scientist provided substantial technical assistance to numerous Master's and Doctoral-level graduate students in domestic academic institutions such as Yale University, Massachusetts Institute of Technology, Brown University, Northern Arizona University, University of New Mexico, Tufts University, the University of Utah, University of Nevada-Reno, and the University of Georgia, (and more) as well as international universities such as the University of Calgary, Wilfrid Laurier University and the University of Waterloo in Canada, Sinchu University in Japan, the University of León in Spain, and the University of Helsinki in Finland. This assistance was primarily in the form of advice on project design and methods, as well as information about policy analysis and bear and cougar ecology. The assistance served to enhance the quality of academic research programs, built good will between the USGS and academic institutions, and contributed to durable professional relations. This technical assistance was based on the scientist's general knowledge and personal research.

C. On the basis of specific requests, 1992-present, the scientist provided substantial technical assistance to Parks Canada regarding management of grizzly bears in Canada. Some of these grizzly bear populations are of potentially great importance to the future conservation of grizzly bears in the adjacent U.S. This assistance pertained to specific management plans or issues (*e.g.*, proposed expansion of the Westcastle development north of Waterton National Park, expansion of the Sunshine Ski Area west of the Townsite of Banff, and construction of roads near Kluane National Park) and to general management issues such as the implementation of ecosystem management or the assessment of current and foreseeable human impacts on large carnivores in the Bow River Valley of Banff National Park and the Greater Kluane ecoregion in the Yukon. Recently this assistance took the form of leading a skills-enhancement workshop during 2009 for a multi-stakeholder Interdisciplinary Problem-Solving (IPS) group involved in management of grizzly bears in Banff National Park. This technical assistance was based on the scientist's general knowledge and personal research.

D. On the basis of specific requests, the scientist provided substantial technical assistance to educational media and organizations, including *National Geographic*, *National Geographic Television*, *Audubon* magazine, *Encarta Encyclopedia*, *Earth Notes* radio program, the Canadian Broadcasting Corporation, the British Broadcasting Corporation, Public Broadcasting System, National Public Radio, the Center for Image Processing in Education, ABC, CNN, and the Center for International Environmental Law. This assistance took the form of in-depth interviews, fact checking, verification of bear identification in photos, information on bear and cougar ecology, and provision of data or other teaching aids. The scientist's assistance contributed to enhancing the quality of information about bears and cougars reaching the general public through these educational venues. This assistance was based on the scientist's personal research.

E. On the basis of specific requests, 1985-present, the scientist advised and educated numerous private individuals and organizations on the ecology of grizzly bears. This advice was to organizations with commodity interests (*e.g.*, the Targhee Timber Association), organizations with environmental interests (*e.g.*, the Greater Yellowstone Coalition, Western Wildlands, Natural Resources Defense Council), non-partisan groups (*e.g.*, the Henry's Fork Watershed Council), and industry (*e.g.*, Crown Butte Mines). This technical assistance has helped benefit private efforts to conserve bears and cougars or helped to minimize the adverse impacts of human activities on private lands. More importantly, this technical assistance has helped increase the level of scientific knowledge among those in non-governmental capacities who are playing a major role in shaping grizzly bear and cougar management. This technical assistance was based on the scientist's personal research.

F. The scientist closely worked with National Park Service biologists, managers, and planners, as needed, 1999-2009, especially on design, execution and appraisal of the National Inventory and Monitoring (I&M) Program. He was intensively involved with the Northern and Southern Colorado Plateau and Mohave Networks. Advice, at times as invited technical papers, pertained to topics ranging from overall strategic direction and philosophy to details of statistical design. The scientist was co-author of an Inventory Plan that was rated by the NPS National I&M Office as 2nd-best for the entire country and contributed to the Plan rated 1st. The scientist was also involved in appraisal of I&M efforts, including a talk at the George Wright Society Meeting and plans for peer-reviewed journal papers. In 2000 the scientist also provided expert opinion to managers of Canyonlands National Park regarding the impacts of a controversial road. This technical assistance was based on the scientist's general knowledge and personal research.

G. The scientist closely worked with US National Park Service and US Forest Service biologists, managers, and planners, as needed, 1985-2008, on issues related to grizzly bear conservation and ecology. The scientist was engaged in development and review of specific plans pertaining to grizzly bear ecology primarily in the Yellowstone ecosystem (*e.g.*, planning and review of Bear Management Areas, Lake Development Concept Plan, Fishing Bridge Campsite Replacement Plan, various plans for road reconstruction, and others). He frequently

participated in training programs and advised individual District and Sub-district personnel on grizzly bear ecology and management (*e.g.*, regarding specific Bear Management Areas, or bear use of locally important foods such as ungulate carrion). He also assisted in the design of Park Service-sponsored grizzly bear research or monitoring (*e.g.*, as along cutthroat trout spawning streams, on ungulate winter ranges, or of whitebark pine cone production) and, up until 2008, was part of the Yellowstone Ecosystem Whitebark Pine Working Group. This technical assistance was based on the scientist's personal research.

H. On the basis of specific requests, 1986-2008, the scientist provided substantial technical advice to those involved with management and research of brown bears worldwide. This involved the review of research and the revision of manuscripts concerning brown bear conservation in Norway for Dr. Käre Elgmork, the development of a research program regarding the monitoring of brown bear populations in Kamchatka for Igor Revenko, the development of a program to reintroduce brown bears into two areas of France, for the French Bear Group and Dr. Pascal Wick, the development of research in Kluane National Park, Yukon, for Parks Canada, the status of grizzly bears in Yellowstone National Park for the World Heritage Committee, advice to the Japan Ecosystem Conservation Society on restoration of black and brown bear in the Japan, the development of community-based grizzly bear conservation for Steve Primm and Dr. Tim Clark of the Northern Rockies Conservation Cooperative, the development of a conservation plan for black and grizzly bears in the Yukon for Dr. Brian Horejsi, the development, implementation and reporting of habitat research for scientists on the Interagency Grizzly Bear Study Team, the status of grizzly bear habitat in Idaho for the Idaho Department of Fish and Game, and the development of approaches to planning and implementing bear conservation for teams working with the IUCN. The scientist's assistance has enhanced the prestige of U.S. Department of Interior research programs and has aided the general cause of brown bear conservation. This technical assistance was based on the scientist's general knowledge and personal research.

Reports since 1992

21. Mattson, D. (2011). *Research needs and opportunities related to cougars and their prey on Grand Staircase-Escalanate NM (GSENM) and the BLM Kanab District. Parts 1 & 2*. USGS Southwest Biological Science Center, Flagstaff, AZ. 10 pp.

20. Mattson, D. (2011). *Comments on BLM Colorado Plateau Rapid Ecoregional Assessment Final Workplan 1-4-a*. USGS Southwest Biological Science Center, Flagstaff, AZ. 5 pp. (**INVITED** technical report)

19. Johnson, M.J., J.R. Hatten, J.A. Holmes, & **D.J. Mattson**. (2011). *Development of a GIS-based Model of Yellow-Billed Cuckoo Breeding Habitat with the Lower Colorado River Multi-Species Conservation Area, San Pedro River and Verde River, AZ: Project Update.* USGS Southwest Biological Science Center, Flagstaff, AZ.

18. Mattson, D., M.J. Matthew, J.R. Hatten, J.A. Holmes, &T. Arundel. (2010). *Development of a GIS-based Model of Yellow-Billed Cuckoo Breeding Habitat with the Lower Colorado River Multi-Species Conservation Area, San Pedro River and Verde River, AZ: Project Update.* USGS Southwest Biological Science Center, Flagstaff, AZ.

17. Mattson, D. (2010). *Comments on the BLM Colorado Plateau and Sonoran Desert REA Identification of Conservation Elements, Change Agents, and Management Questions*. USGS Southwest Biological Science Center, Flagstaff, AZ. 5 pp. (**INVITED** technical report)

16. Mattson, D.J. (2010). *Cougars of Zion and Capitol Reef: 2006-2008 project update*. USGS Southwest Biological Science Center, Flagstaff, AZ. 19 pp.

15. Mattson, D., & L. Sweanor. (2009). *Report on the workshop: Opportunities for collaborative mountain lion research on and near the Colorado Plateau*. Wild Felid Association, Montrose, CO, and USGS Southwest Biological Science Center, Flagstaff, AZ. 5 pp.

14. Mattson, D. (2008). *Parting thoughts about MUSIC's approach to learning*. MIT-USGS Science Impact Collaborative, Cambridge, MA. 3 pp.

13. Mattson, D. (2008). *MUSIC as a boundary-spanning and social movement organization*. MIT-USGS Science Impact Collaborative, Cambridge, MA. 3 pp.

12. Johnson, M., J. Holmes, **D. Mattson**, L. Thomas, & N. Tancreto. (2004). *Summary of faunal populations and communities workshop April 6-7, 2004, Northern Arizona University, Flagstaff, Arizona NPS, Southern Colorado Plateau I&M Network*. U.S. National Park Service, Southern Colorado Plateau I&M Network, Flagstaff , AZ. 10pp. (INVITED technical white paper)

11. **Mattson, D.J.** (2004). *Some thoughts on evaluating the Yellowstone grizzly bear cumulative effects model*. *For* USGS Interagency Grizzly Bear Study Team, Bozeman, MT. USGS Southwest Biological Science Center, Flagstaff, AZ. 3pp. (INVITED technical white paper)

10. **Mattson, D.J.** (2003). *Thoughts on designing a monitoring program for the Southern Colorado Plateau Network (SCPN) National Park units*. *For* US National Park Service Southern Colorado Plateau Network, Flagstaff, AZ. USGS Southwest Biological Science Center, Flagstaff, AZ. 4pp. (INVITED technical white paper)

9. **Mattson, D.J.** (2003). *"Conservation is like warfare:" Phantom common ground in the grizzly bear case*. *For* Yale School of Forestry & Environmental Studies, Seminar on Society & Natural Resources (F&ES 746). 7pp. (INVITED seminar paper)

8. **Mattson, D.J.** (2002). *An approach to selecting vital signs for the Colorado Plateau National Park Service inventory and monitoring program*. *For* US National Park Service Northern Colorado Plateau Network, Moab, UT. USGS Forest & Rangeland Ecosystem Science Center, Colorado Plateau Field Station. 7pp. (INVITED technical white paper)

7. **Mattson, D.J.** (2001). *Comments on ecological effects of the four-wheel-drive route in Salt Creek, Canyonlands National Park, Utah*. *For* Southeast Utah Group National Parks & Monuments, Moab, UT. USGS Forest & Rangeland Ecosystem Science Center, Colorado Plateau Field Station. 14pp. (INVITED technical report)

6. **Mattson, D.J.** (2000). *Managing whitebark pine for grizzly bears: Preliminary recommendations*. *For* Interagency Grizzly Bear Study Team, Bozeman, MT. USGS Forest & Rangeland Ecosystem Science Center, Colorado Plateau Field Station. 3pp. (INVITED technical report)

5. Drost, C., **D.J. Mattson**, M.J. Johnson, A. Cully, M. Bogan, E. Nowak, T. Persons, J. Spence, K. Thomas, & M. Stuart (2000). *Biological inventory of National Park areas on the southern Colorado Plateau*. *For* US National Park Service Southern Colorado Plateau Network. Colorado Plateau Cooperative Ecosystem Studies Unit and USGS Colorado Plateau Field Station, Flagstaff, AZ. 209pp. (INVITED technical plan; *rated second-best inventory plan nationwide*).

4. **Mattson, D.J.** (1998). *Coefficients of productivity for Yellowstone's grizzly bear habitat*. USGS Forest & Rangeland Ecosystem Science Center, Corvallis, OR. 85pp. (Technical report).

3. **Mattson, D.J.** (1998). *Research problem analysis: Yellowstone's grizzly bear research program*. *For* Interagency Grizzly Bear Study Team, Bozeman, MT. USGS Biological Resources Division, Forest & Rangeland Ecosystem Science Center. 10pp. (INVITED technical paper).

2. **Mattson, D.J.** (1993). *Background and Proposed Standards for Managing Grizzly Bear Habitat Security in the Yellowstone Ecosystem*. U.S. National Biological Survey, University of Idaho Cooperative Park Studies Unit, Moscow. 17pp. (Technical report)

1. Reinhart, D.P. & **D.J. Mattson** (1992). *Grizzly Bear and Black Bear Habitat Use in the Cooke City, Montana, Area, 1990-1991*. U.S. National Park Service, Interagency Grizzly Bear Study Team, Bozeman, MT. 31pp. (Technical report)

Other Significant Technical Assistance since 1998: The scientist provided significant technical assistance to individuals on **more than 80 occasions** since 1998, including individuals from Spain, Greece, Italy, Russia, Japan and Canada, pertaining to a wide range of topics, including the design and execution of research, design of conservation efforts, and review of research or management efforts. These instances of technical assistance involved either (i) substantial written or verbal correspondence [generally >3 lengthy e-mail messages or a total of >1-2 hrs of conversation], (ii) significant (several pages) of written products by the scientist, (iii) hands-on analysis of data, (iv) the conveyance of substantive technical products, or (v) otherwise substantively important technical input. The scientist provided lesser technical assistance on many other occasions. Individuals receiving significant technical assistance were from the following organizations (more than one instance is indicated by a trailing bolded number in parentheses):

Yale School of Forestry & Environmental Studies, New Haven, CT (**10**)
Massachusetts Institute of Technology (**5**)
University of Calgary, Calgary, AB (**4**)
National Geographic, Washington, D.C. (**3**)
USGS Colorado Plateau Field Station, Flagstaff, AZ (**3**)
Interagency Grizzly Bear Study Team, Bozeman, MT (**2**)
Tigress Productions, Bristol, UK (**3**)
Brown University
Oregon State University, Corvalis, OR
Nature Conservancy magazine
Audubon magazine
Encarta Encyclopedia
Canadian Broadcasting Corporation, Toronto, ON
Earth Notes Radio Program, Flagstaff, AZ
Universidad de León, León, Spain
Shinshu University, Matsumoto, Japan
University of Helsinki, Helsinki, Finland
University of Waterloo, Ontario, Canada
Wilfrid Laurier University, Waterloo, ON
Yale School of Management, New Haven, CT
New Mexico State University, Las Cruces, NM
University of Utah, Salt Lake City, UT
Washington State University, Pullman, WA
Kent State University, Kent, OH
Marquette University, Milwaukee, WI
Tufts University, Boston, MA
Montana State University, Bozeman, MT
University of Georgia, Athens, GA
University of New Mexico, Albuquerque, NM
Parks Canada, Banff National Park

Grand Canyon National Park
Yellowstone National Park
US National Park Service, Great Basin National Park and Mojave Network, Ely, NV
US National Park Service, Northern Colorado Plateau Network, Moab, UT
USGS Grand Canyon Monitoring & Research Center, Flagstaff, AZ
USFS Targhee National Forest, St. Anthony, ID
USFS Gallatin National Forest, Gardiner, MT
USGS Western Ecological Research Center, Sausalito, CA
U.S. Fish and Wildlife Service, Helena, MT
Idaho Fish & Game Department, Boise, ID
Blackfoot Challenge, Missoula, MT
The Banff Centre, Banff, AB
American Museum of Natural History, New York, NY
Denver Zoo, Conservation Biology Department, Denver, CO
Royal Society, Biological Sciences, London, U.K.
Y2Y Conservation Initiative, Canmore, AB
The Grand Canyon Trust, Flagstaff, AZ
Turner Endangered Species Fund, Bozeman, MT
Sinapu, Boulder, CO
WildFutures / Earth Island Institute
San Juan Citizen's Alliance
Colorado Grizzly Project
Sierra Club Grizzly Bear Ecosystems Project, Bozeman, MT
The Wilderness Society, Anchorage, AK
World Wildlife Fund & Northern Rockies Conservation Cooperative, Ennis, MT
Round River Conservation Studies, Salt Lake City, UT
Center for Image Processing in Education, Tucson, AZ
Center for Environmental Law, Washington, D.C.
Western Wildlife Environments Consulting, Alberta, AB
Great Divide Nature Interpretation, Lake Louise, AB

(15) OUTREACH AND INFORMATION TRANSFER AND DISSEMINATION

Technical Information Bulletins or Fact Sheets since 1998

4. **Mattson, D.**, J. Hart & T. Arundel (2005). *Kills by cougars in the Flagstaff uplands of northern Arizona, July 2003-February 2005*. USGS Southwest Biological Science Center, Flagstaff, AZ. 1 pp. (Fact sheet/Research Briefing)

3. **Mattson, D.**, T. Arundel, & J. Hart (2005). *Preliminary analysis of habitat selection by cougars in the Flagstaff uplands of northern Arizona*. USGS Southwest Biological Science Center, Flagstaff, AZ. 1 pp. (Fact sheet/Research Briefing)

2. **Mattson, D.J.**, J. Hart & T. Arundel (2004). *Kills by cougars in the Flagstaff Uplands of northern Arizona July 2003-May 2004*. USGS Southwest Biological Science Center, Flagstaff, AZ. 1 pp. (Fact sheet/Research Briefing)

1. **Mattson, D.J.**, J. Hart & T. Arundel (2002). *Cougars of the Flagstaff uplands*. USGS Southwest Biological Science Center, Flagstaff, AZ. 2 pp. (Fact sheet/Research Briefing)

Web Sites since 1998

2. White, L., & **D.J. Mattson** (2001). *Grizzly Bears*.
http://sbsc.wr.usgs.gov/cprs/research/projects/grizzly/grizzly_bears.asp

1. **Mattson, D.J.**, & L. White (2001). *Grizzly Bears in North America*.
http://sbsc.wr.usgs.gov/cprs/research/projects/grizzly/grizzly_na.asp

Invited Public Presentations since 1998

37. "Brother bear, sister bear: Connections between people and bruins," *Lunch Lecture Series*, Arizona State Parks, Riordan Mansion State Park, Flagstaff, AZ, June 2010. (**INVITED**)

36. "Brother bear, sister bear: Cosmic connections between people and bruins," for *2009 Flagstaff Festival of Science*, Flagstaff, AZ, October 2009. (**INVITED**)

35. "Psycho-, social, and political dynamics of cougar management," for *Montana Mountain Lion Workshop*, sponsored by WildEarth Guardians, Bozeman, MT, April 2009. (**INVITED**)

34. "A little about lions and lion habitat in Montana," for *Montana Mountain Lion Workshop*, sponsored by WildEarth Guardians, Bozeman, MT, April 2009. (**INVITED**)

33. "Improving prospects for conserving cougars," for *Workshop on Cougar Conservation*, Dumas Bay Centre, Tacoma, WA, November 2008. (**INVITED**)

32. "Mountain lions of the Flagstaff Uplands," booth for *Science in the Park*, Flagstaff Festival of Science, Flagstaff, AZ, September 2008. (**INVITED**)

31. "State-level wildlife management: With dignity for all," for *2007 Animal Grantmakers' Conference*, Napa, CA, November 2007. (INVITED)

30. "Bears in the backyard: Coexistence and the nature of bruins," for public event sponsored by Jackson Hole Wildlife Foundation and Patagonia, Teton Science School, Jackson, WY, July 2007. (INVITED)

29. "Lions in the mountains: Coexistence and the nature of pumas," for *Summer Speakers Series*, Willow Bend Environmental Center, Flagstaff, AZ, July 2006. (INVITED)

28. "Lions in the mountains: Co-existence and the nature of pumas," for *Summer Speakers Series*, sponsored by Red Rock State Park, Sedona, AZ, June 2006. (INVITED)

27. "Living with large fierce creatures: Cougars and humans on the Southern Colorado Plateau," for *Flagstaff Leadership Program*, sponsored by USGS Flagstaff Science Center, Flagstaff, AZ, May 2006. (INVITED)

26. "Living with fierce creatures: Cougars on the southern Colorado Plateau," for *Environmental Studies Colloquium*, Prescott College, Prescott, AZ, April 2006. (INVITED)

25. "Cougars of the Colorado Plateau: A multi-park investigation, Zion National Park and environs," 1st author with J. Hart, T. Arundel, and J. Bradybaugh for informational public presentation sponsored by Zion NP, Springdale, UT, December 2005. (INVITED)

24. "Cougars of the Flagstaff Uplands," for *Flagstaff Festival of Science, Speakers Series*, Flagstaff, AZ, October 2005. (INVITED)

23. "Cougars of the Flagstaff Uplands," 2nd author with J. Hart for *Community Forest Forum*, sponsored by the Greater Flagstaff Forest Partnership, Flagstaff, AZ, October 2004. (INVITED)

22. "Tools for understanding the dynamics and outcomes of complex conservation cases," for the staff of the Japan Ecosystem Conservation Society, sponsored by the Japan Ecosystem Conservation Society, Tokyo, Japan, September 2004. (INVITED)

21. "Cougars of the Flagstaff Uplands," 2nd author with J. Hart for *Science in the Park*, sponsored by Flagstaff Festival of Science, Flagstaff, AZ, September 2004. (INVITED)

20. "Cougars of the Flagstaff Uplands: An introduction and results of the 2003-2004 field season," 1st author with J. Hart & T. Arundel for *2004 Flagstaff Field Center Open House*, sponsored by the USGS Flagstaff Field Center, July 2004. (INVITED)

19. "From bugs to bison: A grizzly bear's view of the Greater Yellowstone," for the *2004 Yellowstone Grizzly Bear Writer's Workshop*, sponsored by the Natural Resources Defense Council, B-Bar Ranch, MT, May 2004. (INVITED)

18. "Rationality and information psycho-sociology in conservation," for the *Grand Canyon Trust Luncheon Seminar Series*, sponsored by the Grand Canyon Trust, Flagstaff, AZ, March 2004. (INVITED)

17. "Conservation of Yellowstone grizzly bears," for *Rocky Mountain College Annual Speaker Series*, sponsored by Rocky Mountain College, Billings, MT, January 2004. (INVITED)

16. "Cougars of the Flagstaff Uplands," 2nd author with J. Hart for *Science in the Park*, sponsored by Flagstaff Festival of Science, Flagstaff, AZ, September 2003. (INVITED)

15. "Grizzly bears of Greater Yellowstone," for *Greater Yellowstone Coalition 20th Anniversary Annual Meeting*, sponsored by the Greater Yellowstone Coalition, West Yellowstone, MT, June 2003. (INVITED)

14. "Connecting the dots: Bears, numbers, habitat & humans," for the *Natural Resources Defense Council, Grizzly Bear Writer's Workshop*, B-Bar Ranch, MT, May 2003. (INVITED)

13. "Thoughts on transboundary monitoring and management of grizzly bears," for evening public presentation in conjunction with *Kluane National Park and Reserve Grizzly Bear Symposium*, sponsored by Parks Canada, Haines Junction, Yukon Territory, March 2003. (INVITED)

12. "Monitoring cougar movements near the Flagstaff urban interface," POSTER and presentation as 2nd author with J. Hart for *Cougars and Human Safety Trailhead Workshop*, sponsored by the US Forest Service and Arizona Department of Game & Fish, Flagstaff, AZ, December 2002. (INVITED)

11. "Methods for monitoring grizzly bears," for the *Sierra Club Grizzly Bear Ecosystems Project Writer's Workshop*, B-Bar Ranch, MT, May 2002. (INVITED)

10. "Ecology and management of Yellowstone's grizzly bears," for the *Sierra Club Grizzly Bear Ecosystems Project Writer's Workshop*, B-Bar Ranch, MT, May 2002. (INVITED)

9. "From bugs to bison: A grizzly's view of the Greater Yellowstone," for *Jackson Hole Chapter of the Sierra Club Speaker Series*, sponsored by the Jackson Hole Chapter of the Sierra Club, Jackson, WY, May 2001. (INVITED)

8. "Grizzly bears and the beauty of complexity," for the *Predators, People and Places: Finding a Balance*, sponsored by the Predator Conservation Alliance, Mammoth, WY, October 2000. (INVITED)

7. "From bugs to bison: A grizzly's view of the Greater Yellowstone," for the *Mountains and Minds Lecture Series*, sponsored by the Montana State University Big Sky Institute for Science and Natural History, Big Sky, MT, October 2000. (INVITED)

6. "From bugs to bison: A grizzly's view of the Greater Yellowstone," for the *American Museum of Natural History Speaker's Series*, New York, NY, April 2000. (INVITED)

5. "The Conservation of Yellowstone's grizzly bears," for the *Environmental Science and Research Foundation Annual Meeting*, sponsored by the Environmental Science and Research Foundation, Idaho Falls, ID, February 2000. (INVITED)

4. "Yellowstone's grizzly bears," for the *Greater Yellowstone Coalition Annual Meeting*, West Yellowstone, MT, June 1999. (INVITED)

3. "From bugs to bison: A grizzly's view of the Greater Yellowstone," for the *Denver Museum of Natural History Lecture Series*, sponsored by the Denver Zoo and the Sierra Club, Denver, CO, April 1999. (INVITED)

2. "From bugs to bison: A grizzly's view of the Greater Yellowstone," for the *National Zoo Speakers Series*, sponsored by The Smithsonian and the Sierra Club, Washington, D.C., April 1999. (INVITED)

1. "Grizzly bear conservation in the Yellowstone ecosystem," for *Luncheon Seminar*, sponsored by the Endangered Species Coalition and Defender's of Wildlife, Washington, D.C., April 1999. (INVITED)

Media interviews since 1998: Interest in and impact of the scientist's work is indicated by high levels of national and even international media attention. Since July of 1998 the scientist was interviewed on **79 occasions** by journalists representing 54 media venues. Venues are listed below, with numbers in parentheses denoting the number of substantive interviews by each:

Science magazine (**3**)
by Bee Wuerthrich, 2000; *umbrella effects*; "When protecting one species hurts another." *Science* 289: 383, 385.
by Jocelyn Kaiser, 1999; *research reported in an article on grizzly bear demography published by* Ecology.
by Bernice Wuerthrich, 1998; *results of an article in* Biological Conservation *and status of Yellowstone grizzly bear population*.
Ecological Society of America (**1**)
news release on co-authored article about grizzly bear demography in Ecology.
Environmental Review newsletter (**1**)
by Douglas Taylor, 1999; *ecology and management of Yellowstone grizzly bears; featured interview in the August 1999 (Volume **6**[8]) issue*.
Science Times of the New York Times (**3**)
New York Times (**1**)
Los Angeles Times (**5**)
Toronto Globe & Mail (**1**)
Washington Post (**1**)
The Denver Post (**2**)
Salt Lake City Tribune (**1**)
Associated Press (**1**)
USA Today (**2**)
High Country News (**2**)
ABC News (**2**)
CNN (**1**)
National Geographic Television (**3**)
British Broadcasting Corporation, Natural History Unit (**2**)
Public Broadcasting Corporation, *Nature* (**1**)
Canadian Broadcasting Corporation (**1**)
Public Broadcasting System, *Focus West* (**1**)
Economist magazine (**1**)
Time magazine (**2**)
National Geographic magazine (**1**)

Audubon magazine (**2**)
Backpacker magazine (**2**)
Outdoor Life magazine (**1**)
Billings Gazette, Billings, MT (**4**)
Casper Star Tribune, Casper, WY (**1**)
Idaho State Journal, Pocatello, ID (**1**)
Arizona Daily Sun, Flagstaff, AZ (**3**)
The Spokesman-Review, Spokane, WA (**1**)
Idaho Statesman, Boise, ID (**1**)
Mountain Living Magazine, Flagstaff, AZ (**1**)
Helena Independent Record, Helena, MT (**1**)
Idaho Falls Post Register, Idaho Falls, ID (**2**)
Bozeman Chronicle, Bozeman, MT (**1**)
Jackson Hole News & Guide, Jackson, WY (**3**)
Ventura County Star, Ventura, CA (**1**)
Teton Valley Top to Bottom magazine, Jackson, WY (**1**)
Rocky Mountain Outlook, Banff, AB (**1**)
Banff Craig and Canyon, Banff, AB (**1**)
KNAU National Public Radio, Flagstaff, AZ (**1**)
German Public Radio (**1**)
The Animal Show radio show, San Francisco, CA (**1**)
The Saturday Food Chain AM radio show, San Francisco, CA (**1**)
Defenders magazine (**1**)
National Parks & Conservation Association magazine (**1**)
National Wildlife magazine (**1**)
WildFutures/Earth Island Institute, *'On Nature's Terms'* (**1**)
Environmental News Network (**1**)
Wildlife News Archives (**1**)
Greenlines (**1**)
Endangered Species Productions (**1**)
Cascadia Times (**1**)

(16) INVENTIONS, PATENTS HELD

None

(17) HONORS, AWARDS, RECOGNITION, ELECTED MEMBERSHIPS

20. *Exploding Head Award* for "the man who has so many ideas it's amazing his head doesn't explode," USGS Southwest Biological Science Center, December 2010.

19. *Star Award* for superior accomplishments as Research Wildlife Biologist and as Station Liaison for the Colorado Plateau Research Station, September 2010.

18. *Star Award* for superior accomplishments as Station Leader for the Colorado Plateau Research Station, September 2009.

17. *Star Award* for superior accomplishments during special assignments at Yale School of Forestry & Environmental Studies and MIT-USGS Science Impact Collaborative, August 2008.

16. *Paradigm Shifter Award*, USGS Southwest Biological Sciences Center, February 2008.

15. *Star Award* in recognition of service as Acting Station Leader for Colorado Plateau Research Station, August 2006.

14. *Star Award*, for sustained superior performance on a variety of projects and activities outside the normal scope of duties, from USGS Colorado Plateau Research Station, August 2004.

13. *Certificate of Appreciation,* for contributions to the 2004 Western Region Center Directors Meeting, from USGS Colorado Plateau Research Station, July 2004.

12. *Star Award*, for outstanding performance as Chair of the 7th Biennial Conference of Research on the Colorado Plateau, from USGS Colorado Plateau Research Station, November 2003.

11. *Certificate of Appreciation,* for activities in support of the 2003 Flagstaff Festival of Science, from USGS Colorado Plateau Field Station, October 2003.

10. *Rick Hutchinson Outstanding Scientific Research Award*, for outstanding scientific contributions to knowledge of grizzly bears in the Yellowstone Ecosystem, from the Greater Yellowstone Coalition, June 2003.

9. Elected to membership in *The Society for Policy Sciences*, 2001-present.

8. *Star Award*, for development of an alternative management structure for the Colorado Plateau Field Station, from USGS Biological Resources Discipline, 2001.

7. *Star Award*, for outstanding performance as Client's Day Chair for the 5th Biennial Conference of Research on the Colorado Plateau, from USGS Biological Resources Division, 1999.

6. Invitation to participate in "Conversations in the Wild," by The Murie Center, Moose, WY, 1999.

5. *Special Act Service Award*, for acting as 3rd party in negotiations for access to sensitive data to avoid litigation under the FOIA, from USGS Biological Resources Division, 1997.

4. Graduate tuition waived, 1980-1984, University of Idaho.

3. Graduation *summa cum laude*, B.S., 1979, University of Idaho.

2. Undergraduate Teaching Assistantship ($1200), *General Botany*, 1979, College of Biology, University of Idaho.

1. Dean's List 1972-1979 (for semesters attended), College of Forestry, Wildlife & Range Sciences, University of Idaho.

(18) BIBLIOGRAPHY

114. Mattson, D.J., & E.J. Ruther. Accepted. An explanation of puma-related behaviors and behavioral intentions among northern Arizona residents. *Human Dimensions of Wildlife*.

113. Mattson, D., H. Karl. & S. Clark (2011). Values in natural resources management and policy. In press *in* H. Karl, M. Flaxman, J.C. Vargas-Moreno, & P. Lynn-Scarlett (eds.). *Restoring lands: Coordinating science, politics, and action*. Springer, New York, NY.

112. Mattson, D.J. (2011). Snowbird workshop report: More on opportunities for collaborative mountain lion research. *Wild Felid Monitor* 4(2): in press.

111. Mattson, D.J., & S.G. Clark (2011). Human dignity in concept and practice. *Policy Sciences*: Online First.

110. Mattson, D.J., S.G. Clark, K.L. Byrd, S.R. Brown, & B. Robinson (2011). Leaders' perspectives in the Yellowstone to Yukon Conservation Initiative. *Policy Sciences* 44: 103-133.

109. Mattson, D., K. Logan, &L. Sweanor (2011). Factors governing risk of cougar attacks on humans. *Human-Wildlife Interactions* 5(1): 135-158.

108. Clark, S.G., M.B. Rutherford, M.R. Auer, D.N. Cherney, R.L. Wallace, **D.J. Mattson**, D.A. Clark, L. Foote, N. Krogman, P. Wilshusen, & T. Steelman (2011). College and university educational programs as a policy problem (Part 2): Strategies for improvement. *Environmental Management* 47(5): 716-726.

107. Clark, S.G., M.B. Rutherford, M.R. Auer, D.N. Cherney, R.L. Wallace, **D.J. Mattson**, D.A. Clark, L. Foote, N. Krogman, P. Wilshusen, & T. Steelman (2011). College and university educational programs as a policy problem (Part 1): Integrating knowledge, education, and action for a better world? *Environmental Management* 47(5): 701-715.

106. Mattson, D.J., & S.G. Clark (2010). Groups participating in cougar management. Pages 254-259 *in* M. Hornocker & S. Negri (eds). *Cougar: Ecology and conservation*. University of Chicago Press, Chicago, IL.

105. Mattson, D.J., & S.G. Clark (2010). People, politics, and cougar management. Pages 206-220 *in* M. Hornocker & S. Negri (eds). *Cougar: Ecology and conservation*. University of Chicago Press, Chicago, IL.

104. Mattson, D. (2010). Workshop report: Opportunities for collaborative mountain lion research on and near the Colorado Plateau. *Wild Felid Monitor* 3(1): 12-13.

103. Jones, A.L., E. Aumack, J. Balsom, P. Beier, J. Belnap, J. Catlin, T.L. Fleischner, E. Grumbine, **D.J. Mattson**, & C. van Riper III (2010). The legacy and future visions of conservation biology on the Colorado Plateau. Pages 1-20 *in* C. van Riper III, B.F. Wakeling, & T.D. Sisk (eds). *The Colorado Plateau IV: Shaping conservation through science and management*. University of Arizona Press, Tucson, AZ.

102. Peter-Contesse, T.J., S.G. Clark, & **D.J. Mattson** (2010). A workshop on large scale conservation: An exercise in group problem solving and leadership. Pages 127-150 *in* S. Clark, A. Hohl, C. Picard, & D. Newsome (eds.). *Large scale conservation: Integrating science, management, and policy in the common interest*. Yale School of Forestry & Environmental Studies Bulletin 24, New Haven, CT.

101. Hendee, J.C., & **D.J. Mattson** (2009). Wildlife in wilderness: a North American and international perspective. Pages 308-333 in C.P. Dawson & J.C. Hendee, eds. *Wilderness management: stewardship and protection of resources and values. 4th Edition*. Fulcrum Publishing, Golden, Colorado.

100. Rosen, T., R. Watter, & **D. Mattson** (2009). Introducing the Yale Large Carnivore Group. *Wild*

Felid Monitor 2(1): 16.

99. Bischoff-Mattson, Z., & **D. Mattson** (2009). Effects of simulated mountain lion caching on decomposition of ungulate carcasses. *Western North American Naturalist* 69(3): 343-350.

98. Mattson, D.J., & N. Chambers (2009). Human-provided waters for desert wildlife: What is the problem? *Policy Sciences* 42: 113-135.

97. Mattson, D. (2008). Finding common ground with cougars, among ourselves, in cougar management. *Wild Felid Monitor* 1(2): 16-17. (**INVITED**)

96. **Mattson, D.**, & H. Karl (2008). *Values in Natural Resources Policy and Management: A brief introduction*. For MIT-USGS Science Impact Collaborative website. 22 manuscript pp.

95. **Mattson, D.** (2007). The promise of science to serve society. *Northern Rockies Conservation Cooperative News Letter* 20(2): 4. (**INVITED**)

94. **Mattson, D.**, J. Hart, M. Miller & D. Miller (2007). Predation and other behaviors of mountain lions in the Flagstaff Uplands. Pages 31-42 *in* D. Mattson, editor. *Mountain Lions of the Flagstaff Uplands: 2003-2006 Progress Report*. USGS Open-File Report 2007-1062.

93. **Mattson, D.J.**, & T. Merrill (2007). Policy-oriented conservation design. Pages 70-98 *in* M.F. Price, editor. *Mountain Area Research and Management: Integrated Approaches*. Earthscan Press, London, UK. (**INVITED**)

92. **Mattson, D.** (2007). Managing for human safety in mountain lion range. Pages 43-56 *in* D. Mattson, editor. *Mountain Lions of the Flagstaff Uplands: 2003-2006 progress report*. USGS Open-File Report 2007-1062.

91. **Mattson, D.**, editor (2007). *Mountain Lions of the Flagstaff Uplands: 2003-2006 Progress Report*. USGS Open-File Report 2007-1062. http://pubs.usgs.gov/2007/1062

90. Hart, J.V., C. van Riper, III, **D.J. Mattson** & T.R. Arundel (2007). Effects of fenced transportation corridors on pronghorn movements at Petrified Forest National Park, Arizona. Pages 161-185 *in* C. van Riper III & M.K. Sogge, editors. *Colorado Plateau III: Integrating Research and Resources Management for Effective Conservation*. University of Arizona Press, Tucson, AZ.

89. Hart, J., **D. Mattson** & T. Arundel (2007). Background and methods for investigating mountain lions in the Flagstaff Uplands. Pages 6-16 *in* D. Mattson, editor. *Mountain Lions of the Flagstaff Uplands: 2003-2006 Progress Report*. USGS Open-File Report 2007-1062.

88. Arundel, T., **D. Mattson** & J. Hart (2007). Movements and habitat selection by mountain lions in the Flagstaff Uplands. Pages 17-30 *in* D. Mattson, editor. *Mountain Lions of the Flagstaff Uplands: 2003-2006 Progress Report*. USGS Open-File Report 2007-1062.

87. Wilson, S.M., M.J. Madel, **D.J. Mattson**, J.M. Graham, & T. Merrill (2006). Landscape conditions predisposing grizzly bears to conflicts on private agricultural lands in the western USA. *Biological Conservation* 130: 47-59.

86. **Mattson, D.J.**, K.L. Byrd, M.B. Rutherford, S.R. Brown, & T.W. Clark (2006). Finding common ground in large carnivore conservation: Mapping contending perspectives. *Environmental Science and Policy* 9: 392-405.

85. Wilson, S.M., M.J. Madel, **D.J. Mattson**, J.M. Graham, J.A. Burchfield, & J.M. Belsky (2005). Natural landscape features, human-related attractants, and conflict hotspots: A spatial analysis of human-grizzly bear conflicts. *Ursus* 16: 117-129.

84. Van Riper, C., III, & **D.J. Mattson**, editors (2005). *The Colorado Plateau II: Biophysical, Socioeconomic and Cultural Research*. University of Arizona Press, Tucson, AZ.

83. **Mattson, D.J.**, S.R. Podruzny, & M.A. Haroldson (2005). Consumption of pondweed rhizomes by Yellowstone grizzly bears. *Ursus* 16: 41-46.

82. **Mattson, D.J.**, S. Herrero & T. Merrill (2005). Are black bears a factor in the restoration of North American grizzly bear populations? *Ursus* 16: 11-30.

81. **Mattson, D.**, J. Hart, & T. Arundel (2005). Cougar predation in the Flagstaff Uplands: Preliminary results from July 2003-May 2005. Pages 158-169 *in* R. Beausoleil & D. Martorello, editors. *Proceedings of the 8th Mountain Lion Workshop*. Washington Department of Fish & Game, Olympia, WA.

80. **Mattson, D.J.** (2005). *Foraging Behavior of North American Bears*. USGS Southwest Biological Science Center, Flagstaff, AZ. 9 pp. http://sbsc.wr.usgs.gov/cprs/research/projects/grizzly/pdf/FORAGINGBEHAVIOROFNORTHAMERICANBEARS.pdf.

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78. Clark, T.W., & **D.J. Mattson** (2005). Making carnivore management programs more effective: A guide for decision making. Pages 271-276 *in* T.W. Clark, M.B. Rutherford, and D. Casey, editors. *Coexisting with Large Carnivores*. Island Press, Washington, D.C.

77. **Mattson, D.J.**, K. Barber, R. Maw & R. Renkin (2004). *Coefficients of Productivity for Yellowstone's Grizzly Bear Habitat*. U.S. Geological Survey, Biological Resources Discipline Biological Science Report USGS/BRD/BSR-2002-0007. 99pp. http://sbsc.wr.usgs.gov/cprs/research/projects/grizzly/grizzly_yellowstone.asp.

76. **Mattson, D.J.**, & T. Merrill (2004). A model-based appraisal of habitat conditions for grizzly bears in the Cabinet-Yaak region of Montana and Idaho. *Ursus* 15: 78-91.

75. **Mattson, D.J.** (2004). Consumption of pocket gophers and their food caches by grizzly bears. *Journal of Mammalogy* 85: 731-742.

74. **Mattson, D.J.** (2004). Consumption of voles and vole food caches by Yellowstone grizzly bears: exploratory analyses. *Ursus* 15: 218-226.

73. **Mattson, D.J.** (2004). Living with fierce creatures? An overview and models of mammalian carnivore conservation. Pages 151-176 *in* N. Fascione, A. Delach & M. Smith, editors. *Predators and People: From Conflict to Conservation*. Island Press, Washington, D.C. (**INVITED**)

72. Merrill, T., & **D.J. Mattson** (2003). The extent and location of habitat biophysically suitable for grizzly bears in the Yellowstone region. *Ursus* 14: 171-187.

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(19) NOTEWORTHY PUBLICATIONS

5. Mattson, D.J., K.L. Byrd, M.B. Rutherford, S.R. Brown, & T.W. Clark (2006). Finding common ground in large carnivore conservation: Mapping contending perspectives. *Environmental Science and Policy* 9: 392-405.

This paper is noteworthy for several reasons, first, as emblematic of an emerging direction in the scientist's research, and, second, as a definitive and empirical demonstration of common ground among participants conflicted over management of large carnivores in the Northern U.S. Rocky Mountains. It is one of comparatively few examples of Q-methodology applied to natural resources, which is relevant because of recent widespread interest among social scientists in this analytic approach to clarifying human perspectives. Google Scholar *credits this paper with 23 citations.*

4. Mattson, D.J., & T. Merrill (2002). Extirpations of grizzly bears in the contiguous United States, 1850–2000. *Conservation Biology* 16: 1123-1136.

This paper has emerged as a seminal work explaining historic regional extirpations of species. It has been singled out as an instructive paper in academe in addition to being instructive regarding key determinants of persistence for modern-day grizzly bear populations. When published, the paper was featured in a press release by Conservation Biology *and has since been included in* eForum on Biodiversity & Conservation. Google Scholar *credits this paper with 68 citations.*

3. Pease, C.M. & **D.J. Mattson** (1999). Demography of the Yellowstone grizzly bears. *Ecology* 80: 957-975.

This paper is noteworthy as the only which explicitly accounts for behavioral structuring in the demography of a large-mammal population. It also under-girds emerging understanding of demographic drivers for the symbolically and politically important Yellowstone grizzly bear population. When published, the paper was featured in a press release by Ecology *and in an article by* Science *magazine, and is currently credited with 61 citations by* Google Scholar.

2. Mattson, D.J., B.M. Blanchard & R.R. Knight (1992). Yellowstone grizzly bear mortality, human habituation, and whitebark pine seed crops. *Journal of Wildlife Management* 56: 432-442.

This paper was among the first to conclusively document relations between mortality in a bear population and food availability and behavioral tolerance of humans. For this reason it is considered a seminal work on relations of bear demography to bear behavior and is credited with 127 citations by Google Scholar.

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This paper was among the first to report a detailed long-term record of grizzly bear diet, including annual and seasonal variation and implications for bias and design of dietary studies. It is considered the *seminal paper on bear food habits and is credited with 140 citations by* Google Scholar.