

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA**

<b>COUNTY OF SAN MIGUEL,</b>	)	CV _____
<b>COLORADO,</b>	)	
333 West Colorado Avenue, 3rd Floor	)	
Telluride, Colorado 81435,	)	
	)	
<b>SAGEBRUSH SEA CAMPAIGN,</b>	)	
2224 W. Palomino Drive	)	
Chandler, Arizona 85224,	)	
	)	
<b>CENTER FOR NATIVE ECOSYSTEMS,</b>	)	
1536 Wynkoop, Suite 301	)	
Denver, Colorado 80202,	)	
	)	
<b>FOREST GUARDIANS,</b>	)	<b>COMPLAINT FOR DECLARATORY</b>
312 Montezuma Avenue, Suite A	)	<b>AND INJUNCTIVE RELIEF under the</b>
Santa Fe, New Mexico 87501,	)	<b>ESA and the APA</b>
	)	
<b>THE LARCH COMPANY,</b>	)	
1213 Iowa Street	)	
Ashland, Oregon 97520,	)	
	)	
<b>SINAPU,</b>	)	
4990 Pearl East Circle, Suite 301	)	
Boulder, Colorado 80301,	)	
	)	
<b>CENTER FOR BIOLOGICAL</b>	)	
<b>DIVERSITY,</b>	)	
917 SW Oak Street, Suite 413	)	
Portland, Oregon 97205,	)	
	)	
<b>PUBLIC EMPLOYEES FOR</b>	)	
<b>ENVIRONMENTAL RESPONSIBILITY,</b>	)	
2000 P Street, NW, Suite 240	)	
Washington, DC 20036,	)	
	)	
<b>BLACK CANYON AUDUBON SOCIETY,</b>	)	
28478 Highway 92	)	
Hotchkiss, Colorado 81419,	)	
	)	
<b>SHEEP MOUNTAIN ALLIANCE,</b>	)	
218 B West Colorado Avenue, No. 17	)	
Telluride, Colorado 81435,	)	

Plaintiffs, )  
 )  
 v. )  
 )  
**JULIE MACDONALD**, in her )  
 official capacity as Deputy Assistant Secretary )  
 for Fish and Wildlife and Parks in the )  
 US Department of the Interior )  
 Interior Building )  
 1849 C Street, NW )  
 Washington, DC 20240, )  
 )  
**DIRK A. KEMPTHORNE**, in his )  
 official capacity as Secretary of the )  
 Department of the Interior, )  
 US Department of the Interior )  
 Interior Building )  
 1849 C Street, NW )  
 Washington, DC 20240, )  
 )  
 and )  
 )  
**H. DALE HALL**, in his official capacity )  
 as Director of the United States Fish and )  
 Wildlife Service, an agency of the )  
 Department of the Interior, )  
 US Fish and Wildlife Service )  
 US Department of the Interior )  
 1849 C Street NW, Room 3012 )  
 Washington, DC 20240, )  
 )  
 Defendants. )  
 \_\_\_\_\_ )

**STATEMENT OF THE CASE**

1. By this citizen suit under the Endangered Species Act, 16 U.S.C. § 1531, *et seq.* (“ESA” or “Act”), plaintiffs – a Colorado county and nine non-profit conservation, birding and government accountability organizations committed to the conservation and recovery of Gunnison sage-grouse – challenge defendants’ April 18, 2006 determination that listing

Gunnison sage-grouse as “endangered” or “threatened” under the ESA is “not warranted.” 74 Fed. Reg. 19954 (Apr. 18, 2006) (“Listing Determination”).

2. Plaintiffs bring this action pursuant to the citizen suit provision of the ESA, 16 U.S.C. § 1540(g)(1)(C), and the judicial review provisions of the Administrative Procedure Act (“APA”), 5 U.S.C. §§ 702, 706, against defendants Julie A. MacDonald, in her official capacity as Deputy Assistant Secretary of the Department of the Interior for Fish and Wildlife and Parks; Dirk A. Kempthorne, in his official capacity as Secretary of the Department of the Interior (“Secretary”); and H. Dale Hall, in his official capacity as U.S. Fish and Wildlife Service (“FWS”) Director, for violations of the ESA, §§ 1531 *et seq.*, and the APA, 5 U.S.C. §§ 701 *et seq.*

3. Plaintiffs seek declaratory relief for defendants’ violations of the ESA and APA as described in this Complaint. Plaintiffs also seek an Order setting aside defendants’ “not warranted” ESA Listing Determination for Gunnison sage-grouse, and an injunction remanding to the FWS to issue proposed and final listing and critical habitat determinations for Gunnison sage-grouse consistent with the requirements of the Act and this Court’s direction.

4. Pursuant to Local Rule 40.5, plaintiffs file this action as “related” to *American Lands Alliance, et al. v. Norton, et al.*, Civ. No. 00-2339 (D.D.C.) (RBW), and *American Lands Alliance, et al. v. Norton, et al.*, Civ. No. 04-0434 (D.D.C.) (RBW), because this action involves common issues of fact and grows out of the same events and transactions as those prior actions.

5. Should plaintiffs prevail on the merits, they will seek an award of costs and attorney fees pursuant to the ESA, 16 U.S.C. § 1540(g)(4), and/or the Equal Access to Justice Act (“EAJA”), 28 U.S.C. § 2412(d).

**JURISDICTION AND VENUE**

6. This Court has jurisdiction over this action pursuant to the citizen suit provisions of the ESA. 16 U.S.C. §§ 1540(g)(1), 1540(g)(2)(C). The Court also has jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1346, because this action involves the United States as a defendant and arises under the laws of the United States, including the ESA and the APA. The requested relief is proper under 16 U.S.C. § 1540(g)(1); 28 U.S.C. §§ 2201, 2202, 1361; and 5 U.S.C. §§ 704, 705, 706.

7. In compliance with 16 U.S.C. § 1540(g)(2)(C), plaintiffs gave notice to defendants Kempthorne and Hall of plaintiffs' intent to file suit under the ESA for the violations described in this complaint. The letters which comprise plaintiffs' notice are attached to this Complaint as Exhibits A and B. The violations complained of in the notices are continuing and have not been remedied.

8. Venue is proper in this Court pursuant to 16 U.S.C. § 1540(g)(3)(A) and 28 U.S.C. § 1391(e). The principal offices of the Deputy Assistant Secretary, Secretary, FWS, FWS Director, and the Department of Interior are located in the District of Columbia.

**PARTIES**

9. Plaintiff San Miguel County is a statutory county pursuant to Title 30 of the Colorado Revised Statutes. As home of the Telluride Ski Resort and other popular tourist destinations, San Miguel County expends hundreds of thousands of dollars every year for the protection of natural resource, aesthetic, and recreational values of the lands and wildlife within the County. San Miguel County also relies heavily on the regional tourism industry, which encompasses the complete current range of Gunnison sage-grouse. The plight of Gunnison sage-grouse has garnered significant regional and national attention, which has resulted in a general

awareness that San Miguel County may, in the near future, provide one less reason for tourists to visit. San Miguel County has, for the past several years, proactively addressed the plight of Gunnison sage-grouse through multiple means, including: (a) participating in the development and implementation of the Gunnison Sage-grouse Rangewide Conservation Plan; (b) exercising the county's authority to regulate land use to protect land from activities that would cause material danger to significant wildlife habitat and would endanger wildlife species, C.R.S. § 29-20-104(1)(b); (c) implementing regulations in Section 5-4 of the San Miguel County Land Use Code requiring compliance with the standards for Areas and Activities of Local and State Interest pursuant to C.R.S. § 24-65.1-101 *et seq.* for any development proposed within existing Gunnison sage-grouse habitat; and (d) implementing policies in Section 2-16 of the San Miguel County Land Use Code requiring protection, enhancement, and preservation of Gunnison sage-grouse populations and their habitats. Accordingly, the not warranted decision will harm San Miguel County's tourism industry, which will directly decrease the county's tax revenues. The decrease in tax revenues will result in an impaired ability to protect the attributes that draw tourists to the area as well as an impaired ability to provide for the health, safety, and welfare of the citizens of San Miguel County in an effective manner. Additionally, the decision will significantly impair San Miguel County's ability to enforce state laws and county regulations relating to the protection of wildlife and wildlife habitat.

10. Plaintiff Sagebrush Sea Campaign is a regional conservation organization that was initiated by American Lands Alliance, the lead plaintiff in the two prior, related lawsuits regarding Gunnison sage-grouse. The Sagebrush Sea Campaign is now sponsored by Forest Guardians, another plaintiff in this lawsuit. The Sagebrush Sea Campaign focuses public attention and conservation resources on protecting and restoring the vast sagebrush-steppe

landscape in the American West. The Sagebrush Sea Campaign participates in public planning processes, advocates for natural resource protection, and uses education, research, legislation, and litigation to conserve and restore sagebrush-steppe ecosystems and wildlife for present and future generations, including Gunnison sage-grouse, the subject of this lawsuit. The Sagebrush Sea Campaign has recreational, scientific, educational, aesthetic, and other interests in protecting remaining sagebrush-steppe habitat and the species that depend on it, including Gunnison sage-grouse.

11. Plaintiff Center for Native Ecosystems (“CNE”) is dedicated to the recovery of native ecosystems in the Greater Southern Rocky Mountains, and to the restoration of the wild habitat in which all species flourish. CNE has approximately 160 members, with the majority residing in Colorado. CNE’s members and staff use and enjoy the lands that provide habitat for Gunnison sage-grouse for recreational, scientific, educational, aesthetic, and other purposes. While using and enjoying these lands, CNE’s members and staff enjoy viewing the sage-grouse. CNE and its staff and members have recreational, scientific, educational, aesthetic, and other interests in protecting Gunnison sage-grouse and its habitat.

12. Plaintiff Forest Guardians is dedicated to the preservation and restoration of native wildlands and wildlife in the American Southwest through fundamental reform of public policies and practices. Forest Guardians has approximately 1,650 members, including members in Colorado. Forest Guardians’ staff and members use and enjoy the lands that provide habitat for Gunnison sage-grouse for recreational, scientific, educational, aesthetic, and other purposes. While using and enjoying these lands, Forest Guardians’ staff and members enjoy viewing Gunnison sage-grouse. Forest Guardians participates in public planning processes, including filing administrative challenges of oil and gas leasing and livestock grazing where those land

uses adversely impact Gunnison sage-grouse, the subject of this lawsuit. Forest Guardians and its staff and members have recreational, scientific, educational, aesthetic, and other interests in protecting Gunnison sage-grouse and its habitat.

13. Plaintiff The Larch Company (“TLC”) is a for-profit, Oregon limited liability company whose mission is conservation in the public interest. TLC staff provide written materials, speeches, and consultation to non-profit organizations on a variety of environmental issues. All profits of TLC are donated to non-profit conservation organizations. TLC has published a book, *Oregon Desert Wilderness: 70 Hikes*, which features greater sage-grouse in Oregon. TLC intends to publish other articles and books on sage-grouse, including the Gunnison species. The possible extinction of Gunnison sage-grouse is contrary to that goal. TLC and its staff have recreational, scientific, educational, aesthetic, and other interests in protecting the biological diversity of desert ecosystems, including species such as Gunnison sage-grouse.

14. Plaintiff Sinapu, named after the Ute word for wolves, is dedicated to the recovery of native carnivores in the Southern Rocky Mountains, and to the restoration of the wild habitat in which all species flourish. Sinapu has approximately 1,000 members, with the majority residing in Colorado. Sinapu’s members use and enjoy the lands that provide habitat for Gunnison sage-grouse for recreational, scientific, educational, aesthetic, and other purposes. While using and enjoying these lands, Sinapu’s members enjoy viewing Gunnison sage-grouse. Sinapu and its staff and members have recreational, scientific, educational, aesthetic, and other interests in protecting Gunnison sage-grouse and its habitat.

15. Plaintiff Center for Biological Diversity (“Center”) is a non-profit conservation organization that protects endangered species and wild places through science, policy, education, and environmental law. The Center has over 14,000 members, many of whom reside in the

Interior Mountain West and Colorado, where Gunnison sage-grouse is found. The Center's staff and members have ongoing interests in protecting the native birds of the Interior Mountain West, including Gunnison sage-grouse, and use and enjoy the lands that provide habitat for this species for recreation, observation, research, restoration projects, aesthetic enjoyment, and other scientific and educational activities, and plan to continue to do so in the future. While using and enjoying these lands, the Center's members and staff enjoy viewing these species, and, thus, the Center and its staff and members have recreational, scientific, educational, aesthetic, and other interests in protecting Gunnison sage-grouse and its habitat.

16. Plaintiff Public Employees for Environmental Responsibility ("PEER") is a national, non-profit organization that represents public employees who are working to protect, preserve, and restore native ecosystems in the western United States. Thus, any local, state or federal actions, or inactions, that interfere with recovery of threatened or endangered species or their habitat undermines the work and employment of PEER members. PEER has approximately 300-400 members who reside in the American West, including Colorado. Plaintiff PEER brings this action on behalf of itself and its adversely affected members. PEER's members are particularly concerned about the protection and recovery of Gunnison sage-grouse because of its importance to native western sagebrush ecosystems. Members of PEER frequently use and enjoy the deserts and grasslands of the West, including the areas that comprise the historic and current range of Gunnison sage-grouse, for wildlife viewing and recreational, scientific, educational, aesthetic, and other activities, and will continue to do so in the future. PEER and its members have a substantial interest in this matter and are adversely affected and aggrieved by defendants' failure to comply with the ESA and the APA. The requested relief will redress PEER's and its members' injuries.



17. Plaintiff Black Canyon Audubon Society (“Black Canyon Audubon”) has almost 300 members and works on conservation issues in Ouray, Delta, Montrose, Gunnison, Hinsdale, and San Miguel counties in Colorado. Black Canyon Audubon was the first conservation organization in the nation to support protection for Gunnison sage-grouse and has participated in multiple federal land management planning processes that affect the species. The chapter also helped to craft two local conservation plans for Gunnison sage-grouse. Members have remained active participants of the local working groups and have provided comments and feedback on the rangewide conservation plan for the sage-grouse. Black Canyon Audubon has been active in environmental education for the grouse for many years, including by sponsoring numerous talks and radio shows to educate the public about the species. Black Canyon Audubon and its members have recreational, scientific, educational, aesthetic, and other interests in protecting Gunnison sage-grouse and its habitat.

18. Plaintiff Sheep Mountain Alliance is a grassroots citizens’ organization dedicated to the preservation and protection of the natural environment and unique quality of life in the greater Telluride region in Colorado. Sheep Mountain Alliance participates in federal land management planning processes, advocates conservation of species and open space, and educates the public about oil and gas issues in the region. Sheep Mountain Alliance and its staff and members have recreational, scientific, educational, aesthetic, and other interests in protecting Gunnison sage-grouse and its habitat.

19. Plaintiffs’ members and staff rely on FWS to comply fully with all provisions of the ESA, including the Section 4 listing and critical habitat designation requirements, which insure that species warranting protection as either threatened or endangered, as demonstrated by the best available scientific data, promptly receive such protected status.

20. FWS's decision not to list Gunnison sage-grouse as endangered or threatened and designate critical habitat as appropriate under the Act furthers endangers the species and prevents recovery of Gunnison sage-grouse and its habitat by preventing the implementation of protective measures for the species and its habitat. As a result, the recreational, scientific, educational, aesthetic, and other interests of plaintiffs have been, are being, and, unless the relief requested is granted, will continue to be adversely affected and injured by FWS's failure to comply with the ESA. These are actual, concrete injuries caused by defendants' failure to comply with mandatory duties under the ESA and the APA. Plaintiffs have no adequate remedy at law and the injuries would be redressed by the relief sought.

21. Plaintiffs' members and staff spend time in areas adversely affected by FWS's violations of the ESA. Plaintiffs' members and staff intend to continue to use and enjoy, on a frequent and ongoing basis, the habitat adversely affected by FWS's failure to list Gunnison sage-grouse and designate critical habitat as appropriate under the Act.

22. Defendant Julie MacDonald is Deputy Assistant Secretary for Fish and Wildlife and Parks in the Department of the Interior and is sued in her official capacity. Deputy Assistant Secretary MacDonald, a political appointee, delayed and then reversed the decision made by FWS biologists and regional field staff to issue a proposed rule to list Gunnison sage-grouse under the ESA.

23. Defendant Dirk A. Kempthorne is the Secretary of the Interior and is sued in his official capacity. The Secretary of the Interior has the ultimate responsibility for implementing the ESA with respect to non-marine species, including the decision at issue in this case. 16 U.S.C. § 1532(15).

24. Defendant H. Dale Hall is the Director of FWS, which is an agency of the Department of the Interior. The Secretary has delegated day-to-day responsibility for implementing the ESA with respect to non-marine species to FWS. 50 C.F.R. § 402.01(b). H. Dale Hall is sued in his official capacity.

**SUMMARY OF FACTS AND GENERAL ALLEGATIONS**  
**Gunnison Sage-grouse**

25. The sage-grouse is a brownish-gray bird known for its unique mating ritual and colorful yellow, white, and black features on male birds.

26. In 1977, Dr. Clait Braun, who was then a Research Wildlife Scientist with the Colorado Division of Wildlife (“CDO”), noticed that sage-grouse wings collected in the Gunnison Basin of southwestern Colorado were smaller than sage-grouse wings collected in northern Colorado. Over the following two decades, Dr. Braun and others studied the morphological and genetic differences between sage-grouse populations. Those differences were discovered to be significant, and in 2000 the American Ornithologists’ Union formally determined that sage-grouse in southwestern Colorado – *i.e.*, Gunnison sage-grouse (*Centrocercus minimus*) – comprise a distinct species from greater sage-grouse (*Centrocercus urophasianus*).

27. In 1995, Dr. Braun determined that the historic range of Gunnison sage-grouse likely included southwestern Colorado, southwestern Kansas, northwestern Oklahoma, northern New Mexico, northeastern Arizona, and southeastern Utah.

28. Gunnison sage-grouse rely on a variety of sagebrush habitats throughout the year. During the spring breeding season, males display on “leks” (*i.e.*, strutting grounds), which are open areas with good visibility and acoustics. After breeding, females select nest sites in the

vicinity of leks and in relatively tall and dense stands of sagebrush with residual grass and forbs that provide additional hiding cover. As chicks mature through the summer, hens typically move their broods to wet meadow areas that retain succulent forbs and insects and contain tall grasses for hiding and foraging. In fall, sage-grouse rely on upland areas that have at least 20 percent sagebrush cover and green forbs. During winter, when snow cover is extensive and deep, sage-grouse forage in tall sagebrush in valleys and lower flat areas, and roost in shorter sagebrush along ridge tops.

29. Because sage-grouse derive food, shelter, and cover from sagebrush and are dependent on sagebrush-steppe habitat for survival, sage-grouse are indicator species for the health of sagebrush-steppe ecosystems, including other species that rely on such ecosystems.

30. The current range of Gunnison sage-grouse is about 8.5 percent of its historic range, according to FWS estimates of the species' historic and current ranges.

31. There are six to eight "populations" of Gunnison sage-grouse remaining in Colorado and Utah, totaling between 3,000-6,000 birds. At an estimated 4,700 birds, only the Gunnison Basin population contains more than 450 birds. In 2004, CDOW estimated that the rangewide Gunnison sage-grouse population declined between 42 and 90 percent over the last 50 years.

32. Chief factors for the decline of Gunnison sage-grouse include habitat loss, fragmentation, and degradation from numerous human activities, including urban development, road and utility corridors, fences, energy development, conversion of native habitat to agriculture, domestic livestock grazing, fire suppression, off-road vehicles, and the alteration and degradation of riparian areas and wetlands. These threats to Gunnison sage-grouse and its habitat are continuing.

33. In March 2006, citing habitat loss and degradation from urban development, resource extraction, and agricultural activities, the National Audubon Society identified Gunnison sage-grouse as one of the nation's ten most endangered birds.

34. Gunnison sage-grouse is further threatened by West Nile Virus ("WNV"), which been detected throughout the species' range. Studies have documented WNV-related mortalities of greater sage-grouse, and show that sage-grouse succumb to the disease in high proportions.

### **The Endangered Species Act**

35. Congress enacted the ESA in 1973 "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of [such species]." 16 U.S.C. § 1531(b). The Supreme Court has expressly noted that the ESA is "the most comprehensive legislation for the preservation of endangered species enacted by any nation" and that the "plain intent of Congress in enacting th[e] statute was to halt and reverse the trend toward species extinction, whatever the cost." *Tennessee Valley Auth. v. Hill*, 437 U.S. 153, 180, 184 (1978).

36. The ESA protects species listed under the Act as "endangered" or "threatened" in several ways. The Act: (1) requires FWS to develop and implement a recovery plan for listed species, 16 U.S.C. § 1533(f); (2) requires all federal agencies to carry out their programs for the conserve listed species and to avoid jeopardy to the continued existence of listed species, 16 U.S.C. § 1536(a)(1), (a)(2); and (3) forbids anyone from "taking" listed species by any means, except where authorized. 16 U.S.C. §§ 1538, 1539, 1532(19); 50 C.F.R. § 17.31.

37. To receive the Act's protections, a species must first be "listed" as endangered or threatened. "Endangered species" are species "in danger of extinction throughout all or a significant part of [their] range." 16 U.S.C. § 1532(6). "Threatened species" are those species

that are likely to become endangered within the foreseeable future. 16 U.S.C. § 1532(20).

38. Section 4 of the Act imposes a non-discretionary duty requiring FWS to list a species as endangered or threatened if any one of five statutory factors are met:

- (A) the present or threatened destruction, modification, or curtailment of its habitat or range;
- (B) overutilization for commercial, recreational, scientific, or educational purposes;
- (C) disease or predation;
- (D) the inadequacy of existing regulatory mechanisms; and
- (E) other natural or manmade factors affecting its continued existence.

16 U.S.C. § 1533(a)(1). In addition, the Act requires FWS to make listing decisions “solely on the basis of the best scientific and commercial data available.” 16 U.S.C. § 1533(b)(1)(A).

39. The ESA provides two methods by which a species may be “listed” under the Act and thereby afforded its protections. First, a species may be listed internally – *i.e.*, at the Secretary’s own initiative. 16 U.S.C. § 1533(a). Second, the public may submit a petition to the Secretary to list a species. 16 U.S.C. § 1533(b)(3). The petition must contain, *inter alia*, detailed information and documentation regarding the status of the species and the threats to its survival. 50 C.F.R. § 424.14. This second method is informally called the “petition” process.

40. When FWS receives a petition to list a species submitted by the public, within 90 days of receiving the petition, to the maximum extent practicable, FWS must determine whether the petition presents substantial scientific or commercial information indicating that a listing “may be warranted.” 16 U.S.C. § 1533(b)(3)(A). If FWS finds that listing is “not warranted,” the petition process concludes, and such a finding is immediately subject to judicial review. 16 U.S.C. § 1533(b)(3)(C)(ii).

41. If FWS finds that a petition submitted by the public presents substantial scientific or commercial information indicating that a listing “may be warranted,” FWS must commence a

12-month review of the petition and other relevant information. 16 U.S.C. §§ 1533(b)(3)(A),(B). A “may be warranted” determination must be published in the *Federal Register*, and FWS must conduct a “status review” and solicit public comments for consideration in its final decision. 16 U.S.C. § 1533(b)(3)(A).

42. At the close of the 12-month status review period, FWS must determine whether the petitioned action is: (i) “not warranted”; (ii) “warranted”; or (iii) “warranted but precluded” by higher listing priorities. 16 U.S.C. § 1533(b)(3)(B).

43. If FWS determines at the 12-month stage that a listing is “not warranted,” it must promptly publish that determination in the *Federal Register*, and that is the end of the process. 16 U.S.C. § 1533(b)(3)(B)(i). FWS’s “not warranted” 12-month finding is subject to judicial review. 16 U.S.C. § 1533(b)(3)(C)(ii).

44. If FWS determines that a listing is “warranted,” it must promptly publish a proposed rule in the *Federal Register*, 16 U.S.C. § 1533(b)(3)(B)(ii), and, within one year of publishing the proposed rule, publish a final rule listing the species or withdraw the proposed rule. 16 U.S.C. §§ 1533(b)(6)(A). A final regulation designating “critical habitat” of an endangered or threatened species must be published “concurrently with the final regulation implementing the determination that such species is endangered or threatened[.]” *Id.* at § 1533(b)(6)(C). The ESA defines “critical habitat” as habitat that is “essential to the conservation of the species,” §§ 1532(5)(A)(i), (A)(ii), with “conservation” in turn defined as the use of methods necessary to bring listed species “to the point at which the measures provided pursuant to this chapter are no longer necessary.” *Id.* at § 1532(3).

45. If FWS determines that listing a particular species is “warranted but precluded,” the Secretary must publish a finding in the *Federal Register* that demonstrates that: (1) listing is

“precluded by pending proposals to determine whether any species is an endangered species or a threatened species”; and (2) “expeditious progress is being made to add qualified species to either of the lists.” 16 U.S.C. § 1533(b)(3)(B)(iii). Species that are designated as “warranted but precluded” are placed on the FWS’s “candidate” list. *See* 64 Fed. Reg. 57534, 57536 (Oct. 25, 1999). Candidate species receive none of the substantive protections that are afforded to listed species under the ESA. 50 C.F.R. § 424.15(b).

**Litigation Concerning Petition to List Gunnison Sage-grouse Under ESA,  
And FWS’s Prior Position That Gunnison Sage-grouse Warrants ESA Listing**

46. On January 25, 2000, plaintiffs submitted a petition to the Secretary to list Gunnison sage-grouse as endangered under the ESA. *Webb, et al., Status Review and Petition to List the Gunnison Sage-grouse (Centrocercus minimus)* (Jan. 25, 2000) (“Petition”). The Petition described significant declines in Gunnison sage-grouse population and range due to numerous threats. The Secretary assigned the Petition to FWS’s Mountain-Prairie Regional office in Colorado.

47. On February 24, 2000, Ralph O. Morgenweck, Regional Director of the FWS Mountain-Prairie Region, responded in writing and informed petitioners that, on January 19, 2000 – or, within a week before the agency received the Petition – FWS internally designated Gunnison sage-grouse as a candidate species by relying on provisions in the agency’s “Petition Management Guidance” (“PMG”) Policy, which was later enjoined on a nationwide basis by this Court. FWS later contended in litigation before this Court that its designation of Gunnison sage-grouse as a candidate species served as the “functional equivalent” of a “warranted but precluded” finding under Section 4(b)(3)(B) of the ESA. Thus, relying on the PMG and its



internal candidate designation for Gunnison sage-grouse, FWS did not publish a 90-day finding in the *Federal Register* or otherwise respond to the Petition.

48. In March 2000, FWS issued the first of several “Candidate and Listing Priority Assignment” forms for Gunnison sage-grouse, in which the agency recognized that Gunnison sage-grouse is threatened by ongoing habitat loss, fragmentation, and degradation caused by numerous human activities, and that existing regulatory mechanisms are inadequate to protect against habitat loss. FWS concluded that listing Gunnison sage-grouse under the ESA was “warranted,” and assigned the species a “Listing Priority Number” (“LPN”) of “5,” which meant that threats to the grouse are of a “high” magnitude, but that listing was “non-imminent.”

49. On November 19, 2000, the petitioners filed a Complaint in U.S. District Court for the District of Columbia that challenged FWS’s failure to issue a 90-day finding on the Petition as required by Section 4(b)(3)(A) of the ESA. *See American Lands Alliance, et al. v. Norton, et al.*, Civ. No. 00-2339 (RBW) (“*ALA v. Norton I*”).

50. Approximately six weeks after petitioners filed their Complaint, FWS published in the *Federal Register* a “Notice of Candidate Designation,” in which FWS again acknowledged that Gunnison sage-grouse is threatened with extinction due to habitat loss, fragmentation, and degradation due to numerous human activities, that existing conservation efforts are inadequate to reverse the habitat loss or its effects, and that the species warrants listing under the ESA. *Notice of Designation of the Gunnison Sage Grouse as a Candidate Species*, 65 Fed. Reg. 82310, 82311 (Dec. 28, 2000).

51. In June 2002, FWS published a “Candidate Notice of Review” (“CNOR”), which is a list of all ESA candidate species. 67 Fed. Reg. 40657 (June 13, 2002). The CNOR included information on Gunnison sage-grouse. *Id.* at 40666-67. In the CNOR, FWS again

acknowledged that the species' current range has been significantly reduced from its historic range by direct habitat loss, fragmentation, and degradation from numerous ongoing threats, that these threats are of "high magnitude," and that the species warrants listing under the ESA. *Id.* FWS maintained a LPN of "5" for Gunnison sage-grouse. *Id.* at 40667.

52. In connection with the 2002 CNOR, FWS prepared a Candidate and Listing Priority Assignment Form, which included additional information regarding the status of Gunnison sage-grouse. In that document, FWS acknowledged that state and federal regulatory agencies do not have sufficient authority to protect against habitat loss, particularly on private lands. FWS also recognized that voluntary conservation efforts may be ineffective and are dependent on uncertain funding. FWS further acknowledged that the threats to the species are "still occurring" or "have the potential to occur."

53. In *ALA v. Norton I*, on January 30, 2003, the District Court for the District of Columbia held that FWS's failure to make 90-day and 12-month findings on the Gunnison sage-grouse Petition, by relying on the PMG Policy, violated Section 4(b)(3) of the ESA. *American Lands Alliance, et al. v. Norton, et al.*, 242 F. Supp. 2d 1, 11 (D.D.C. 2003). The Court ordered FWS to issue a 12-month finding on the Petition. *Id.*

54. In February 2003, FWS prepared an updated Candidate and Listing Priority Assignment Form, in which FWS acknowledged that since the 1950s and 1960s there has been a "true" and "certain" decline in the species in the Gunnison Basin, where the largest population occurs. In addition, FWS reiterated that state and federal agencies lack the necessary authority to protect against ongoing habitat loss, particularly on private lands, and that voluntary conservation efforts may be ineffective and uncertain. FWS concluded that despite conservation efforts, Gunnison sage-grouse is threatened with extinction and warrants listing under the ESA.

55. In *ALA v. Norton I*, on March 17, 2003, defendants asked the Court to reconsider its January 30, 2003 ruling. On May 13, 2003, the Court vacated its Order in part, and stated that plaintiffs must challenge FWS's 12-month warranted but precluded finding in a separate action.

56. On March 17, 2004, plaintiffs filed a Complaint before the D.C. District Court, and challenged defendants' warranted but precluded finding for Gunnison sage-grouse as contrary to the ESA and APA. *American Lands Alliance, et al. v. Norton, et al.*, Civ. No. 04-0434 (D.D.C.) (RBW) ("*ALA v. Norton II*"). The Complaint was filed as "related" to *ALA v. Norton I* pursuant to Local Rule 40.5.

57. On May 4, 2004, FWS published an updated CNOR. 69 Fed. Reg. 24876 (May 4, 2004). FWS reiterated that the Gunnison sage-grouse range has been reduced to less than 25 percent of its historic range due to habitat loss, fragmentation, and degradation from numerous human activities. *Id.* at 24881. FWS also stated that threats to Gunnison sage-grouse have increased due to drought-related effects to the habitat and effects to chick survival and recruitment, and relaxation of restrictions on land use in Gunnison County, which harbors the only large population of the species. *Id.* In light of the increased threat to Gunnison sage-grouse, FWS elevated the grouse's LPN from a "5" to a "2." *Id.* A listing priority of "2" means that threats to the species are of a "high" magnitude, and that listing is "imminent." 48 Fed. Reg. 43098, 43102 (Sept. 21, 1983).

58. In the 2004 CNOR, FWS acknowledged that the Gunnison Basin population of Gunnison sage-grouse is "the only large population of the bird." 69 Fed. Reg. at 24881. At the same time, FWS recognized that the Gunnison Basin population is being subjected to "ongoing high magnitude threats." *Id.*

59. In *ALA v. Norton II*, plaintiffs amended their Complaint on May 28, 2004. A few weeks later, in *ALA v. Norton I*, the Court enjoined the agency's implementation and reliance on the PMG Policy on a permanent, nationwide basis. *ALA v. Norton I*, Order (June 2, 2004) at 6-7.

60. On May 11, 2005, FWS published an updated CNOR. 70 Fed. Reg. 24870 (May 11, 2005). FWS reiterated that the species' range has been reduced to less than 25 percent of its historic range due to habitat loss, fragmentation, and degradation from numerous human activities. *Id.* at 24893. FWS stated that "[g]iven ongoing and potential individual and cumulative threats, we are leaving the listing priority at a 2 at this time." *Id.*

61. In the 2005 CNOR, FWS stated that it was at that time funding a proposed listing determination for Gunnison sage-grouse, which the agency characterized as a "high priority listing action." *Id.* at 24888.

62. Between May 2005 and December 2005, FWS biologists and other personnel in Colorado, with the assistance of other regional and FWS field staff, prepared several drafts of a proposed rule to list Gunnison sage-grouse as "endangered" under the ESA. As required by the ESA, FWS also drafted and mapped proposed "critical habitat" designations concurrently with the proposed listing rule. In drafting these proposed rules, FWS acknowledged that threats to Gunnison sage-grouse are high for virtually all populations, and that these threats endanger Gunnison sage-grouse throughout all and a significant portion of its range.

63. In *ALA v. Norton II*, on November 14, 2005, the parties filed a stipulated settlement agreement with the Court that required defendants to publish a listing determination for Gunnison sage-grouse on or before March 31, 2006. The agreement further specified that if FWS determined that listing was warranted, the agency would also submit for publication a

proposed rule on the same date, and publish a final listing determination on or before March 31, 2007.

64. In December 2005, after several drafts of a proposed rule had been prepared, and following a directive from defendant MacDonald and other DOI officials in Washington, D.C., FWS drastically reversed course and began to draft a “not warranted” listing determination for Gunnison sage-grouse under the ESA. FWS staff then produced several drafts of the “not warranted” listing determination between January 2006 and April 2006.

65. On April 18, 2006 – two and a half weeks past the deadline for issuing a listing determination as provided in the parties’ settlement agreement – defendants published the “not warranted” listing determination that is at issue in this action.

#### **The “Not Warranted” Listing Determination**

66. In the Listing Determination, FWS did not determine, define, describe, or otherwise ascertain what “endangered” status for Gunnison sage-grouse means, or evaluate and discuss in the finding whether the species is likely to decline to that level in the foreseeable future. *See generally* 74 Fed. Reg. 19954 (Apr. 18, 2006).

67. In the Listing Determination, FWS acknowledged that the range of Gunnison sage-grouse has declined substantially from its historic extent, and that the species’ habitat is expected to continue to decline in the foreseeable future. *Id.* at 19957.

68. In the Listing Determination, FWS estimated that Gunnison sage-grouse’s historic range totaled approximately 21,376 square miles, and that its current range is approximately 1,822 square miles. *Id.* Based on these estimates, the current range of the species is approximately 8.5 percent of its historic range. However, in the Listing Determination, FWS

estimated that the Gunnison sage-grouse's current range is approximately 25 percent of its historic range. *Id.*

69. In the Listing Determination, FWS concluded that "most of the habitat loss, and by inference population decline, occurred prior to 1958," and that the species' total population has remained stable since 1957. *Id.* at 19961. Based on these assumptions, FWS concluded that the population is likely to remain stable in the future. *Id.* In reaching these assumptions and conclusions, FWS relied almost exclusively on a 2005 report by E.O. Garton. *See generally id.*

70. Of six peer reviewers who assessed the Garton report, five reviewers – including two biometricians uniquely qualified to assess its findings – alerted FWS to important flaws in its analysis. Four of the reviewers found that large parts of the analysis were weak or supported by unsound data, and a fifth reviewer determined that it was based on the "major assumption" that "factors that have driven variability in rates of change in the past will remain the same in the future." Despite these concerns, FWS concluded that the Garton report "constitutes the best currently available information."

**CLAIM FOR RELIEF**  
**ESA – FAILURE TO MAKE LISTING DETERMINATION ON THE BASIS OF THE  
BEST SCIENTIFIC DATA AVAILABLE**

71. Plaintiffs incorporate herein by reference paragraphs 1-70.

72. When making listing determinations under the ESA, FWS must rely solely on the best scientific and commercial data available. 16 U.S.C. § 1533(b)(1)(A).

73. In the negative Listing Determination, FWS failed to rely on the best scientific and commercial data available by, *inter alia*:

a. discounting information and its own prior conclusions that ongoing threats to Gunnison sage-grouse endanger the species throughout all and a significant portion of its

range;

- b. relying on a flawed population trend analysis;
- c. misrepresenting the historic and current range of the species;
- d. failing to explain its conclusion that three Gunnison sage-grouse groups or populations do not comprise a significant portion of the species' range;
- e. concluding that three Gunnison sage-grouse groups and/or populations do not comprise a significant portion of the species' range; and
- f. concluding, without substantiation, that the species is not endangered or threatened throughout a significant portion of its range.

74. FWS failed to rely on the best scientific and commercial data available, and violated the ESA's requirements for a 12-month listing determination. 16 U.S.C. § 1533(b)(3). Consequently, FWS's Gunnison sage-grouse Listing Determination was and is arbitrary, capricious, an abuse of discretion, and otherwise not in accordance with the ESA within the meaning of the APA. 5 U.S.C. § 706(2); 16 U.S.C. § 1533(b)(1)(A).

#### **PRAYER FOR RELIEF**

WHEREFORE, Plaintiffs respectfully request that the Court:

- A. Declare that FWS's "not warranted" finding on the Petition to list Gunnison sage-grouse as threatened or endangered violates Section 4(b)(3)(A) of the ESA.
- B. Declare that FWS's "not warranted" finding on the Petition to list Gunnison sage-grouse as threatened or endangered under the ESA is arbitrary, capricious, an abuse of discretion, not in accordance with law, without observance of procedure required by law, and/or constitutes agency action unlawfully withheld under section 706 of the APA.
- C. Issue an Order setting aside FWS' "not warranted" finding for Gunnison sage-

grouse.

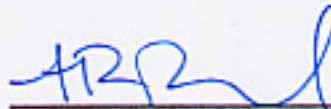
D. Remand to FWS to issue new proposed and final listing and critical habitat determinations for Gunnison sage-grouse consistent with the requirements of the ESA and with this Court's order.

E. Based on evidence and arguments to be presented in this challenge, order FWS to issue an emergency rule, pursuant to Section 4(b)(7) of the ESA, immediately listing Gunnison sage-grouse as "endangered" under the ESA, pending the agency's completion of normal listing procedures and rulemaking.

F. Award plaintiffs their reasonable fees, costs, and expenses, including attorneys fees, associated with this litigation pursuant to the ESA, 16 U.S.C. § 1540(g)(4), and EAJA, 28 U.S.C. § 2412(d)(1)(A).

G. Grant such additional and further relief as plaintiffs may request or this Court may deem just and appropriate.

Respectfully submitted,

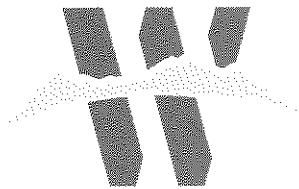


Amy R. Atwood (D.C. Bar No. 470258)  
atwood@westernlaw.org  
Western Environmental Law Center  
1216 Lincoln Street  
Eugene, Oregon 97401  
(541) 485-2471 (telephone)  
(541) 485-2457 (facsimile)

Attorney for Plaintiffs

DATED: November 13, 2006





**Northwest**  
1216 Lincoln Street  
Eugene, Oregon 97401  
541 485-2471  
fax 485-2457  
eugene@westernlaw.org

**Southwest**  
P.O. Box 1507  
Taos, New Mexico 87571  
505 751-0351  
fax 751-1775  
taos@westernlaw.org

**Rocky Mountains**  
679 E. 2nd Avenue, Suite 11B  
Durango, Colorado 81301  
970 385-6941  
fax 385-6804  
durango@westernlaw.org

www.westernlaw.org

## Western Environmental Law Center

### VIA FACSIMILE AND CERTIFIED MAIL RETURN RECEIPT REQUESTED

Mitch King, Regional Director, Region 6  
U.S. Fish & Wildlife Service  
PO Box 25486  
Denver, CO 80025  
Fax: 303-236-8295

H. Dale Hall, Director  
U.S. Fish & Wildlife Service  
1849 "C" St., NW  
Mail Stop 3256 MIB  
Washington D.C. 20240  
Fax: 202-208-6965

Dirk Kempthorne, Secretary  
U.S. Department of the Interior  
1849 "C" St., NW  
Washington, D.C. 20240  
Fax: 202-208-6950

**Re: Notice of Intent to Sue Over Violations of Section  
4 of the Endangered Species Act; Illegal Not  
Warranted Finding on the Petition to List the  
Gunnison Sage Grouse**

On behalf of Sagebrush Sea Campaign, Center for Native Ecosystems, Forest Guardians, The Larch Company, Sinapu, and Center for Biological Diversity, by this letter I am serving 60 days notice of intent to sue the Fish and Wildlife Service ("FWS") for violations of the Endangered Species Act, 16 U.S.C. §§1531-1544 ("ESA"). On April 18, 2006, FWS made a "not warranted" determination of whether to list the Gunnison sage-grouse under the ESA. 71 Fed. Reg. 19954 (Apr. 18, 2006). This not warranted finding violates the ESA and is arbitrary, capricious, and in violation of the Administrative Procedure Act, 5 U.S.C. §706 *et. seq.*

**FWS' DECISION NOT TO LIST THE GUNNISON SAGE GROUSE WAS NOT BASED ON THE BEST AVAILABLE SCIENCE**

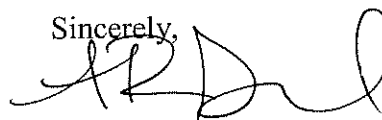
FWS' determination is inconsistent with the ESA's requirement that species be listed based on the best available science. The ESA requires FWS to make all listing determinations solely on the basis of the "best scientific and commercial data available." 16 U.S.C. §1533(b)(1)(A). Economic, political, or any other non-biological issues may not properly be considered. *See, e.g., Northern Spotted Owl v. Hodel*, 716 F. Supp. 479, 480 (W.D. Wash. 1988). The data cited in the petition and the weight of evidence before the agency at the time of its decision conclusively shows the Gunnison sage grouse must be listed by FWS under this criteria. FWS' 12-month finding published on April 18, 2006 does not do so.

**FWS' DECISION NOT TO LIST THE GUNNISON SAGE GROUSE WAS INCONSISTENT WITH THE FIVE FACTOR ANALYSIS REQUIRED BY THE ESA**

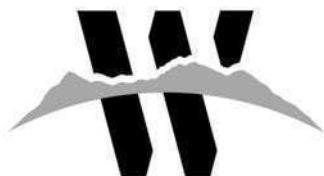
FWS is required to determine, based solely on the basis of the best scientific and commercial data available, whether the Gunnison sage-grouse is endangered or threatened because of any of the following factors: (1) the present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, recreational, scientific or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting its continued existence. 16 U.S.C. §1533(a)(1) and 1533(b). The petition conclusively showed that all five factors are imperiling the Gunnison sage-grouse. FWS' 12-month decision is thus illegal and must be corrected.

If FWS does not act within 60 days to correct the above violations, Sagebrush Sea Campaign, *et al.* plan to pursue legal action. An appropriate remedy would be to issue a proposed rule to list the Gunnison sage grouse as endangered and simultaneously publish a proposed rule to designate critical habitat for the species. If you have any questions, or would like to discuss this matter further, please contact me at (541) 485-2471, ext. 105.

Sincerely,



Amy R. Atwood  
Western Environmental Law Center



**Northwest**  
1216 Lincoln Street  
Eugene, Oregon 97401  
541 485-2471  
fax 485-2457  
eugene@westernlaw.org

**Southwest**  
P.O. Box 1507  
Taos, New Mexico 87571  
505 751-0351  
fax 751-1775  
taos@westernlaw.org

**Rocky Mountains**  
679 E. 2nd Avenue, Suite 11B  
Durango, Colorado 81301  
970 385-6941  
fax 385-6804  
durango@westernlaw.org

www.westernlaw.org

## Western Environmental Law Center

Defending the West Wildlands, Water, and Western Communities

June 5, 2006

**VIA ELECTRONIC AND CERTIFIED MAIL -- RETURN RECEIPT REQUESTED**

Dirk Kempthorne, Secretary  
dirk.kempthorne@usdoj.gov  
U.S. Department of the Interior  
18th and C Streets NW  
Washington, D.C. 20240

Mitch King, Regional Director, Region 6  
mitch.king@fws.gov  
U.S. Fish & Wildlife Service  
P.O. Box 25486  
Denver, CO 80025

H. Dale Hall, Director  
dale.hall@fws.gov  
U.S. Fish & Wildlife Service  
1849 C Street NW  
Mail Stop 3256 MIB  
Washington D.C. 20240

James Maysonett, Trial Attorney  
james.a.maysonett@usdoj.gov  
Wildlife & Marine Resources Section  
Environment & Natural Resources Division  
U.S. Department of Justice  
P.O. Box 7369  
Ben Franklin Station  
Washington, D.C. 20044-7369

Al Pfister  
al\_pfister@fws.gov  
U.S. Fish & Wildlife Service  
U.S. Ecological Services  
764 Horizon Drive, Building B  
Grand Junction, CO 81506-3946

Terry Ireland  
terry\_ireland@fws.gov  
U.S. Fish & Wildlife Service  
U.S. Ecological Services  
764 Horizon Drive, Building B  
Grand Junction, CO 81506-3946

Re: **Supplemental Notice of Intent to Sue under the Citizen Suit Provision of the Endangered Species Act for Violations of Section 4 In Connection With the Gunnison Sage-Grouse**

**Secretary Kempthorne, Regional Director King, Director Hall, Mr. Maysonett, Mr. Pfister, and Mr. Ireland:**

On behalf of the Sagebrush Sea Campaign, Center for Native Ecosystems, Forest Guardians, Sinapu, The Larch Company, Center for Biological Diversity, Public Employees for Environmental Responsibility, and the County of San Miguel, Colorado (“notifiers”), and

Letter from Atwood to Kempthorne, *et al.*  
Supplemental Notice of Intent to Sue Under the ESA  
In Connection With the Gunnison Sage-Grouse  
June 5, 2006

Page 1 of 13

Western Environmental Law Center  
1216 Lincoln Street  
Eugene, Oregon 97401  
541-485-2471

pursuant to the citizen suit provision of the Endangered Species Act, 16 U.S.C. § 1540(g), I am writing to inform you of notifiers' intent to sue the U.S. Department of the Interior ("DOI"), DOI Secretary Dirk Kempthorne, the U.S. Fish and Wildlife Service ("FWS"), and FWS Director H. Dale Hall for violations of the Endangered Species Act, 16 U.S.C. § 1531, *et seq.* ("ESA" or "Act"), in connection with FWS's April 18, 2006 "not warranted" determination ("Listing Determination") of whether to list the Gunnison sage-grouse under the ESA.

This notice supplements the Notice of Intent to Sue sent to you on April 18, 2006, which informed the agencies that the not warranted decision violates the ESA's requirement that these decisions must be based on the best scientific and commercial data available, and that the decision is inconsistent with the five factor analysis required by the ESA. These and additional violations are explained below.

### BACKGROUND

By this decision, FWS again seeks to avoid protection under the ESA of the Gunnison sage-grouse, a species that has become so rare due to development, excessive cattle grazing, and habitat fragmentation that it was recently named one of ten most endangered birds in the United States according in a report by the National Audubon Society. National Audubon Society, *America's Top Ten Most Endangered Birds* (March 2006).

For over six years, FWS has: (1) relied on an illegal policy to avoid responding to the petition to list the Gunnison sage-grouse under the Act, *see, e.g., ALA v. Norton*, 242 F.Supp.2d 1 (D.D.C. 2003); *ALA v. Norton*, 360 F.Supp.2d 1 (D.D.C. 2003); *CBD v. Norton*, 254 F.3d 833 (9th Cir. 2001); (2) failed to make "expeditious progress" to list the grouse and hundreds of other candidate species, despite many courts' questioning the government's use of "Candidate Notice of Review" ("CNOR") to make "warranted but precluded" determinations under section 4(b)(3)(b)(iii) of the ESA, *see, e.g., ALA v. Norton*, No. 00-2339, slip op. (May 13, 2003) (RBW); *CBD v. Norton*, 254 F.3d 833, 838 (9th Cir. 2001); *CBD v. Norton*, 2004 WL 1406325 (D.Or. June 21, 2004); *CBD v. FWS*, 350 F.Supp.2d 23 (D.D.C. 2004); *California Native Plant Soc'y v. Norton*, No. 03-1540, slip op. (D.D.C. Mar. 25, 2005) (JR); (3) refused to list Gunnison sage-grouse, despite the agency's own admissions that the grouse is extremely imperiled and that West Nile virus could have potentially devastating consequences for the bird; and (4) most recently, issued the "not warranted" decision, which, as explained below, fails to assess whether the bird is "threatened" or "endangered" under the ESA, minimizes or ignores the best scientific data available, fails to consider threats to Gunnison sage-grouse throughout all or a significant portion of its range, and fails to adequately assess, individually or in accumulation, the many threats to the grouse – even in areas where FWS believes the species will persist over the long-term. 71 Fed. Reg. 19954 (Apr. 18, 2006) ("List. Det."). In addition, by removing even the possibility of ESA protection, *see id.* at 19982 (removing grouse from candidate species list), FWS's not warranted determination will likely lead to increased threats to the grouse over the long-term, such as development, oil and gas drilling, and grazing on both private and Bureau of Land Management lands, *see, e.g., Daily Sentinel* (Apr. 15, 2006), and undermine support for conservation efforts by local working groups such as those efforts by the San Miguel Basin Gunnison Sage-grouse Working Group.

FWS's decision is strikingly similar to many prior decisions not to add imperiled species to the endangered and threatened species lists – including many analogous decisions that courts have overturned. *See, e.g., Nat'l Wildlife Fed'n v. Norton*, 386 F. Supp. 2d 553, 566 (D. Vt. 2005); *Defenders of Wildlife v. Secretary, U.S. Dep't of the Interior*, 254 F. Supp. 2d 1156, 1168 (D. Or. 2005); *Western Watersheds Project v. Foss*, 2005 WL 2002473 (D. Idaho Aug. 19, 2005); *CBD v. Lohn*, 296 F. Supp. 2d 1223, 1242-43 (W.D. Wash. 2003); *Defenders of Wildlife v. Norton*, 239 F. Supp. 2d 9 (D.D.C. 2002), *vacated on other grounds*, 89 Fed. Appx. 273 (D.C. Cir. 2004); *Defenders of Wildlife v. Norton*, 258 F.3d 1136, 1145 (9th Cir. 2001); *ONRC v. Daley*, 6 F.Supp.2d 1139 (D. Or. 1998). As with those cases, here FWS has failed to “give the benefit of the doubt to the species,” *CBD v. Norton*, 411 F.Supp.2d 1271, 1276 n.6 (D.N.M. 2005), or to “err on the side of caution, when the best available scientific data indicate[s] that extinction of the [species] [i]s likely to be complete within the next 100 years,” and, instead, has “plac[ed] ‘the risk of failure squarely on the species.’” *WWP* at 18 (quoting *ONRC*, 6 F.Supp.2d at 1161). FWS's decision is arbitrary, capricious, an abuse of discretion, and not in accordance with section 4 of the ESA, 5 U.S.C. § 702(2), and must be reversed to avoid (yet) more litigation over FWS's failure to faithfully implement one of the nation's bedrock environmental laws.

## DISCUSSION

### **I. FWS Failed To Define What It Means For The Grouse To Be “Endangered” or Whether The Grouse Is Likely To Reach That Level Within the Foreseeable Future, And, Thus, Failed To Assess Whether The Grouse Is Endangered or Threatened Under The ESA.**

The ESA requires the Secretary to evaluate whether a species is “endangered” or “threatened.” 16 U.S.C. § 1533(a)(1). A species is “endangered” if it is “in danger of extinction throughout all or a significant portion of its range[.]” 16 U.S.C. § 1532(6). A species is “threatened” if it is “likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.” 16 U.S.C. § 1532(20).

In making the Listing Determination, FWS never defined what it means for the Gunnison sage-grouse to be “endangered,” and, thus, could not evaluate whether the grouse is likely to decline to that level within the “foreseeable future.”<sup>1</sup> Instead, FWS simply concluded that the species is neither endangered nor threatened within its current range. By failing to determine what endangered status for the Gunnison sage-grouse means, and, thus, whether the grouse is likely to decline to that level within the foreseeable future, the agency failed to assess whether the grouse is *endangered or threatened* under the ESA. This is arbitrary, capricious, an abuse of discretion, and not in accordance with Section 4 of the Act. *See, e.g., Western Watersheds Project* at \*16-17 (FWS acted arbitrarily and capriciously when it failed to define “foreseeable future” in context of Slickspot peppergrass); *see also ONRC v. Daley*, 6 F.Supp.2d at 1152 (agency must “determine, based upon a rational analysis of the factors set forth in the ESA, and

<sup>1</sup> Although the agency defined “foreseeable future” in the case of the Gunnison sage-grouse to be between 30 and 100 years, based on ten grouse generations and two sagebrush regeneration cycles, *see* List. Det. at 19962, FWS never determined what it means for the grouse to be “endangered” or whether the bird is likely to decline to that level within the foreseeable future.

in light of the current regulatory measure, that the [species] is not likely to become endangered in the foreseeable future”).

**II. FWS's Conclusion That Areas Occupied by Three Gunnison Sage-grouse Groups or Populations Do Not Comprise a Significant Portion of the Species' Range Was Arbitrary, Capricious, an Abuse of Discretion, and Not in Accordance with the ESA.**

The ESA requires FWS to consider whether a species is endangered or threatened in all or a “significant portion of its range.” 16 U.S.C. § 1533(a)(1). In the Listing Determination, after conceding that the Cerro Summit-Cimarron-Sims Mesa, Poncha Pass, and Dove Creek (Monticello) populations (collectively “CPD”) “have a high probability of extirpation in the foreseeable future,” List. Det. at 19982, FWS concluded that these populations “do not comprise a significant portion of the Gunnison sage-grouse range” and, on that basis, decided not to evaluate the threats to those populations. List. Det. at 19962.<sup>2</sup>

The Ninth Circuit Court of Appeals has held that where “it is on the record apparent that the area in which the [species] is expected to survive is much smaller than its historical range, the Secretary *must at least explain her conclusion* that the area in which the species can no longer live is not a ‘significant portion of its range.’” *Defenders of Wildlife v. Norton*, 258 F.3d 1136, 1145 (9th Cir. 2001); *id.* (citing *Asarco, Inc. v. EPA*, 616 F.2d 1153, 1159 (9th Cir. 1980) (“A satisfactory explanation of agency action is essential for adequate judicial review, because the focus of judicial review is not on the wisdom of the agency’s decision, but on whether the process employed by the agency to reach its decision took into consideration all the relevant factors”)); *see also CBD v. Lohn*, 296 F. Supp. 2d 1223, 1242-43 (W.D. Wash. 2003) (remanding to NMFS for consideration of whether species is in danger throughout a significant portion of its range).

There is no dispute that the area in which Gunnison sage-grouse is expected to survive is much smaller than its historical range. As FWS admitted, a “substantial amount of sagebrush habitat within the range” has been lost. List. Det. at 19957; *see also id.* (estimating historic range at 21,376 square miles, while the current range covers 1,822 square miles). Yet, FWS simply concluded that the CPD populations “do not comprise a significant portion of the Gunnison sage-grouse range.” *Id.* While FWS suggested that it reached this conclusion because the CPD populations “have a high probability of extinction in the foreseeable future,” *id.* at 19982, and alluded that this is due to their “small and isolated” status, *id.*, this does not explain the conclusion that the populations do not comprise a significant portion of the grouse’s range, particularly when federal courts interpret the phrase differently. *Compare, e.g., Defenders of Wildlife v. Norton*, 239 F.Supp.2d 9, (D.D.C. 2002) (interpreting “significant” based on dictionary definition to mean “a noticeably or measurably large *amount*”) (quotation omitted) (emphasis added) *with CBD v. Norton*, 411 F.Supp.2d 1271, 1281 (D.N.M. 2005) (phrase requires FWS to focus on the “biological significance of the lost range, not its raw size”). Accordingly, it was arbitrary, capricious, an abuse of discretion, and contrary to Section 4 of the

<sup>2</sup> According to the Listing Determination, the CPD populations total approximately 40-485 birds that occupy 85,400 acres. *See* List Det. at 19959-60.

ESA for FWS to summarily conclude, without adequate explanation, that these populations do not comprise a significant portion of the grouse's range. *Defenders of Wildlife*, 258 F.3d at 1145.

In *Defenders* the Ninth Circuit determined that “a species can be extinct ‘throughout . . . a significant portion of its range’ if there are major geographical areas in which it is no longer viable but once was.” *Defenders*, 258 F.3d at 1145. That is clearly the case here, whether the measure is the grouse's historic or current range. The species now persists in only 8.5 percent of its former range, and FWS believes that only the Gunnison Basin population is currently viable in the long term.

Courts have rejected FWS's prior attempts to interpret the phrase “significant portion of its range” to mean “an amount of habitat loss such that total extinction is likely in the near future.” See *Defenders*, 258 F.3d at 1143-44; *id.* (“this reading does not comport with other terms of the statute”); see also, e.g., *Defenders of Wildlife v. Norton*, 239 F. Supp. 2d 9, 19 (D.D.C. 2002), *vacated on other grounds*, 89 Fed. Appx. 273 (D.C. Cir. 2004) (“FWS's exclusive focus on one region where the [species] is more prevalent, despite its historic presence in three additional regions, is contrary to the expansive protection intended by the ESA”); *Defenders of Wildlife v. Secretary, U.S. Dep't of the Interior*, 254 F. Supp. 2d 1156, 1168 (D. Or. 2005) (FWS's “conclusion that the viability of two core populations . . . makes all other portions of the [species'] historical or current range insignificant and unworthy of stringent protection is contrary to . . . the ESA”); *Nat'l Wildlife Fed'n v. Norton*, 386 F. Supp. 2d 553, 566 (D. Vt. 2005) (FWS's conclusion that “all other portions of the [species'] historical or current range outside of the core . . . populations” were “insignificant and unworthy of stringent protection” was “contrary to the plain meaning of the ESA phrase ‘significant portion of its range,’ and, therefore, is an arbitrary and capricious application of the ESA”). Yet, that is precisely the standard that was applied by the agency here. See List. Det. at 19962, 19982 (stating that because CPD populations are “small” and “isolated” and “high probability of extirpation within the foreseeable future,” they do not comprise a significant portion of the species' range).<sup>3</sup>

FWS's conclusion that these populations are not significant was arbitrary, capricious, an abuse of discretion, and not in accordance with section 4 of the ESA.

### **III. FWS Did Not Rely on the Best Scientific Data as Required by Section 4(b)(1)(A) of the ESA.**

The ESA provides that a species may be deemed endangered or threatened based on one or more of the five factors described in section 4(a)(1) of the Act. These factors are:

<sup>3</sup> FWS's dismissal of the CPD populations as insignificant also violates the principles set forth by a New Mexico District Court, which determined that, when considering whether a species is in danger throughout all or a significant portion of its range, FWS must focus on the “biological significance of the lost range.” See *CBD v. Norton*, 411 F. Supp. 2d 1271, 1281 (D.N.M. 2005). The CPD populations are “biologically significant” to the species as a whole, because geneticists have found that “low levels of genetic diversity found in Gunnison sage-grouse . . . should be of conservation concern.” Oyler-McCance *et al.* (2005) at 636. Maintaining genetic diversity and peripheral populations are basic precepts to conservation and recovery of sensitive species; the loss of the CPD populations could negatively affect the survival of the Gunnison sage-grouse as a whole.

- (A) The present or threatened destruction, modification, or curtailment of the species' habitat or range;
- (B) Overutilization of the species for commercial, recreational, scientific, or educational purposes;
- (C) Disease or predation affecting the species;
- (D) The inadequacy of existing regulatory mechanisms to protect the species; and
- (E) Other natural or manmade factors affecting the species' continued existence.

16 U.S.C. § 1533(a). In addition, FWS must make listing determinations “solely on the basis of the best scientific and commercial data available.” 16 U.S.C. § 1533(b)(1)(A).

Since 2000, FWS has acknowledged the myriad threats to Gunnison sage-grouse that exist throughout the species' range, that these threats are of “high” significance, and that the species “warrants” listing under the Act. *See, e.g.*, Notice of Candidate Designation, 65 Fed. Reg. 82310 (Dec. 28, 2000); Candidate and Listing Priority Assignment Form (Mar. 11, 2004) (the “magnitude of the threats is high” and that “[i]ndividual and cumulative impacts of these threats, along with numerous lower-magnitude threats, on these small, highly fragmented populations, lead to concern for the future of the species”). In the Listing Determination, however, FWS abandoned these admissions. In making the not warranted determination for the grouse, the agency failed to adhere to the ESA's requirement that FWS must base listing determinations on the “best scientific and commercial data available.” *See* 16 U.S.C. § 1533(b).

#### **A. FWS Relied on a Flawed Gunnison Sage-grouse Population Trend Analysis.**

In making the Listing Determination, FWS substantially relied on “Gunnison Sage-grouse Population Trend Analysis: Final Report of Statistical Analysis” by E.O. Garton. To the surprise of Gunnison sage-grouse experts and contrary to other data – indeed, no credible source has ever contended that the species' total population has not declined in recent decades – Garton concluded that total Gunnison sage-grouse population numbers are “stable” and have been “neither increasing nor decreasing” since 1957. Garton at 4; *see also* List. Det. at 19961 (the Garton report reached the same conclusion based on data from 1997-2005). However, as explained below, FWS's reliance on the Garton report to make this and several other crucial conclusions regarding the Gunnison sage-grouse was fundamentally flawed.

To begin with, FWS's conclusion that population trends have been “stable” since the 1950s directly conflicts with FWS's own, prior admissions that several populations have a “high probability” of extirpation in the coming years. *See, e.g.*, List. Det. at 19982 (stating that the CPD populations have a “high probability of extirpation within the foreseeable future”). Yet, FWS fails to explain its radical change in position. *See ONRC*, 6 F.Supp.2d at 1157 (“An agency has an obligation to explain such a change in position.”) (citing *General Elec. Co. v. U.S. Dep't of Commerce*, 128 F.3d 767, 775 (D.C.Cir.1997)).<sup>4</sup>

<sup>4</sup> If it is true, as FWS claims, that the CPD populations are highly likely to go extinct, then it was arbitrary for FWS to conclude that populations are stable enough that listing is not warranted. Either the grouse is in decline, or it is

<p>Letter from Atwood to Kempthorne, <i>et al.</i>  Supplemental Notice of Intent to Sue Under the ESA  In Connection With the Gunnison Sage-Grouse  June 5, 2006</p>	<p>Western Environmental Law Center  1216 Lincoln Street  Eugene, Oregon 97401  541-485-2471</p>
---	--

Page 6 of 13



Indeed, with respect to both long-term and more recent data sets, the weight of existing scientific data contradicts any conclusion that the rangewide Gunnison sage-grouse population has been or is “steady.” For example, the Colorado Division of Wildlife (“CDOW”) analyzed population data and estimated that *the Gunnison sage-grouse rangewide population has declined between 42-90 percent over the past 50 years*. RCP at 45-46. Yet, FWS failed to consider this and other information that shows Gunnison sage-grouse populations are in steep decline – such as information submitted to the agency in 2004 by C.E. Braun, which calculated that the species declined 25 percent between 1999 and 2004 alone. See Braun, Gunnison Sage-Grouse: Population Status (2004) (“Pop. Status”).

In addition, Garton used a questionable methodology to assess the Gunnison sage-grouse long term population trend. The author used total male sage-grouse counted on leks each spring as an index of total population size (a common index for estimating total sage-grouse populations) and constrained the total males count for any pair of years to only active leks that were used by grouse and surveyed in both years. In this way, the Garton analysis was not biased by how many leks were counted each year, the number of which varied over the 50 year data collection period based agency resources and volunteer counting efforts. Garton then used total males counted in successive years to estimate the rate of population change between each pair of years and concluded that, although the total Gunnison sage-grouse population fluctuated from year to year, the total population has remained relatively stable since 1957.

Multiple reviewers identified a fatal flaw in this methodology. As sage-grouse populations decline, so do the number of active leks. But the loss of active leks was not captured in the Garton report because it only analyzed counts from active leks that were counted in successive years. As a result, as one reviewer stated, “leks that went extinct during the [50 year] data collection period would be left out of the analysis after extinction occurred” and “would not be counted when birds no longer were available to be counted.” White (2006). The effect of this is that the decline in both population and available habitat for Gunnison sage-grouse would be ignored, and, therefore, “the analysis presented is far too optimistic.” *Id.*

The failure of the Garton report to account for the declining number of active leks is evident. For example, Garton states “[e]stimating a trend from the population index based on leks counted in the Glade Park/Pinyon Mesa region suggests that this population has increased at a mean rate close to 10% per year since 1995.” Garton at 6. But such a conclusion ignores the fact that Gunnison sage-grouse *disappeared* from Glade Park in about 1998 and only occasional stragglers may be found in the area today. Braun, Pop. Status. Similarly, Garton states that the remaining Gunnison sage-grouse at Pinon Mesa present a “stable population trend” Garton at 6, but Braun contends Gunnison sage-grouse at Pinon Mesa are likely to become extirpated as their habitat continues to be lost and degraded. Braun, Pop. Status. The Pinon Mesa population is not one of the three “sacrifice populations” that FWS expects to become extirpated in the foreseeable

---

not, but FWS cannot have it one way in one portion of its determination, and reach an opposing conclusion in another. In addition, FWS’s decision not to list the Gunnison sage-grouse will, if not reversed by the agency or a federal court, likely contribute to the further decline of the species. On the other hand, listing the grouse would “compel those changes needed to save these species from extinction.” *ONRC*, 6 F.Supp.2d at 1152; *see also id.* (“A listing decision is intended to cause . . . significant changes.”).

future, but according to Dr. Braun, it is still highly likely that this population will go extinct as well. *Id.* But FWS never addresses this in the Listing Determination.

The Garton report also predicts that Gunnison sage-grouse will not experience significant population declines rangewide in the future – but, as FWS admits, this prediction is based on the unrealistic assumption that habitat condition and availability will remain stable over time. List. Det. at 19962 (“one would have to assume that habitat availability over time would remain stable in order to conclude that Gunnison sage-grouse numbers are unlikely to experience a substantial decline in the future”). FWS acknowledged this erroneous assumption in its final rule, but still claimed the Garton analysis to be the “best currently available information,” *id.*, and relied on the report throughout the Listing Determination to depreciate the importance of a multitude of existing and future threats to Gunnison sage-grouse.

Finally, Garton suggests that Gunnison sage-grouse is a density-dependent species – *i.e.*, that the number of sage-grouse in a population is limited by the size of available habitat – and, accordingly, used density-dependent models to explain past population trends and predict future population trends for Gunnison sage-grouse. *See* Garton at 4-5. FWS accepted the density-dependent explication of population trends in the Listing Determination. List. Det. at 19962. Yet, the discussion of density-dependence is irrelevant for Gunnison sage-grouse and blurs the issue of habitat area versus habitat quality. Density-dependence is particularly not an issue for small populations of Gunnison sage-grouse, as the Garton report admits, Garton at 5, and if habitat was improved (*e.g.*, if threats were eliminated from the landscape), both population and sage-grouse density would likely increase.

FWS was made aware of the many problems with the Garton report prior to completing its Listing Determination. *See* Naugle (2006), White (2006), Howe (2006), Sedinger (2006), Anonymous (2006) (Attachments A-E). Five scientists, including two population biometricians uniquely qualified to assess its findings, reviewed the report and alerted the agency to important flaws in the analysis. Four of the reviewers found that large parts of the analysis were weak or supported by unsound data – including the two population biometricians, who found the entire analysis to be inappropriate – and even the fifth reviewer, who supported the analysis, observed that that FWS’s conclusion that Gunnison sage-grouse have a low probability of declining to low abundances in the future is based on the “major assumption” that “factors that have driven variability in rates of change in the past will remain the same in the future.” *See* Naugle (2006) (Attachment A). FWS’s response was to mischaracterize these concerns. *See, e.g.*, List. Det. at 19962 (inaccurately characterizing the written reviews as “three generally favorable towards the [Garton] report and its conclusions and two expressing concerns regarding limitations in the data sets, assumptions and/or analyses”). It is not clear that Dr. Garton received complete information, including records of lost or inactive leks, from FWS or CDOW to incorporate into his study. In any event, as another reviewer concluded, the Garton report is “not credible and should be set aside.” Anonymous 2006 (Attachment E).

Because the Garton report was central to FWS’s Listing Determination, the agency’s not warranted finding must be vacated and reversed. As explained above, by relying on the Garton report, the agency “relied on factors which Congress has not intended it to consider, entirely failed to consider . . . important aspect[s] of the problem, offered an explanation for its decision

that runs counter to the evidence before the agency, [and] is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Motor Vehicle Mfrs. Ass’n v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

**B. FWS Misrepresented the Historic and Current Range of Gunnison Sage-Grouse to Diminish the Extent of the Species Decline and the Threats that Confront It.**

Citing the RCP, FWS reported that the historic range of Gunnison sage-grouse is estimated at 21,376 square miles, while the current range covers 1,822 square miles. List. Det. at 19957. However, as Braun has argued, it is simply not possible that some local Gunnison sage-grouse populations use such large habitat areas as claimed in the RCP. For example, the RCP estimates that the Dove Creek population, which Braun estimates at less than 10 birds, *see* Braun, Comments on “Gunnison Sage-grouse Rangewide Conservation Plan-Draft” (2004), occupies a huge area covering 26,907 acres. *See* RCP at 256.<sup>5</sup> The RCP estimates the Poncha Pass population occupies 14,781 acres, RCP at 256, when the total area actually used is less than 8,000 acres. *See* Braun, Comments on “Gunnison Sage-grouse Rangewide Conservation Plan-Draft” (2004). The effect of FWS adopting these inflated acreages is that it allows the agency to claim that the effects of threats to Gunnison sage-grouse are partially ameliorated by the supposedly vast areas occupied by Gunnison sage-grouse.

In addition, FWS claims that most historic range was lost before 1958 – which conveniently correlates with Garton’s finding that the Gunnison sage-grouse population has stabilized since 1958. However, the agency also acknowledged (citing Oyler-McCance *et al.* (2001)) that Gunnison sage-grouse range declined 20 percent (601 square miles) between 1958 and 1993 alone. List. Det. at 19957. FWS thus implies this 20 percent habitat loss over the past 50 years is insignificant. *See id.* Yet, it is difficult to understand how *any* loss of habitat could be “insignificant” for a species that only occurs on 8.5 percent of its historic range. *See* List. Det. at 19957 (Gunnison sage-grouse occupies 1,822 sq. mi. of historic range of 21,376, or ~8.5 percent).

The agency also confuses the issue of historic range entirely by stating that “only a portion of the historical range would have been occupied at any one time.” *Id.* This leads to the erroneous conclusion that small Gunnison sage-grouse populations have migrated throughout the species’ historic range over time, rather than a larger population occupying the entire historic range at once. Such a flawed characterization of the grouse’s basic biology is arbitrary and capricious, and not supported by the best available scientific information, not to mention probably completely new to most experts on Gunnison sage-grouse.

---

<sup>5</sup> Land ownership at Dove Creek is 87 percent privately owned and 13 percent public lands managed by the Bureau of Land Management. List. Det. at 19959, Table 1. The large percentage of private land at Dove Creek, where habitat fragmentation and degradation are common, makes it even less likely that the Dove Creek Gunnison sage-grouse population use all of the area reported in the RCP.

**C. In Defiance of Its Duty to Conserve Imperiled Species, FWS Decided to “Sacrifice” Populations of Gunnison Sage-grouse to Extirpation, to the Detriment of the Species.**

As stated above, FWS predicts that the CPD populations will become extirpated under current management. Thus, “[o]ut of an abundance of caution,” FWS “chose” “not to rely on the Cero Summit-Cimarron-Sims Mesa and Poncha Pass populations, and the Dove Creek subpopulation of the Monticello-Dove Creek population for the long-term conservation of the species because of their small, isolated status.” List. Det. at 19962.

The overall population trend for Gunnison sage-grouse has been downward for decades as one population after another has gone extinct. This trend shows no sign of reversing anytime soon. In 2004, Braun informed FWS that six of eight populations are in “immediate danger of extinction.” Braun, Pop. Status.<sup>6</sup> The RCP also acknowledged that some satellite populations may become extirpated. RCP at 257-301. Gunnison sage-grouse have already gone extinct in five counties in Colorado and one in Utah since 1990. They survive now in only six counties in Colorado and one county in Utah.

Yet, geneticists have found Gunnison sage-grouse lack genetic diversity and stated that “low levels of genetic diversity found in Gunnison sage-grouse . . . should be of conservation concern.” Oyler-McCance et al. (2005) at 636. In addition to “monitoring and maintaining genetic diversity,” the scientists identify “preventing future habitat loss and fragmentation, enhancing existing sagebrush communities, and restoring sagebrush communities that have been converted [to other uses]” as important conservation activities to conserve and restore – and reconnect – Gunnison sage-grouse populations. Oyler-McCance et al. at 636. The loss of the CPD populations could negatively affect the survival of the species as a whole.

More importantly, FWS ignores the fact that other populations (*e.g.*, Pinyon Mesa) may also become extirpated *as a result of* the species being removed from the list of candidate species. Indeed, a listing under the ESA would “compel those changes needed to save these species from extinction.” *ONRC*, 6 F.Supp.2d at 1152; *see also id.* (“A listing decision is intended to cause . . . significant changes.”). Not listing the grouse, however, will contribute to the species’ further decline by allowing increased threats over the long term and lessening support for conservation efforts.<sup>7</sup>

FWS’s failure to apply the five listing criteria to the CPD populations was arbitrary, capricious, an abuse of discretion, and “contrary to the expansive protection intended by the ESA.” *See Defenders of Wildlife v. Norton*, 239 F.Supp.2d at 19; *see also Defenders of Wildlife v. Sec’y, U.S. Dept. of the Interior*, 354 F.Supp.2d at 1172 (arbitrary and capricious for FWS to

<sup>6</sup> Braun identifies eight local populations outside the Gunnison Basin as Dry Creek/Miramonte, Crawford, Dove Creek, Glade Park/Pinyon Mesa, Cimarron, Poncha Pass, Sims Mesa, and Monticello (UT). *See, e.g.*, Pop. Status.

<sup>7</sup> Designation as a Candidate Species at least reminded the public, agencies, and landowners of the sensitive status of Gunnison sage-grouse and may have contributed to support for conservation of sagebrush habitats (*see Leigh 2006*), and other conservation efforts.

downlist wolf in major geographic areas “without assessing the threats to the wolf by applying the statutorily mandated listing factors”).

**D. FWS Underestimated Current and Future Threats to Gunnison Sage-Grouse.**

As stated above, FWS must consider whether a species is endangered or threatened pursuant to five statutory criteria. However, after adopting Garton’s conclusion that the Gunnison sage-grouse population is stable and erroneous estimates of total occupied habitat, FWS minimized threats to Gunnison sage-grouse by suggesting that, since populations have been stable since 1958, various threats to the grouse – which have been acknowledged by CDOW, Braun, Young, and virtually every other expert that has considered the species’ status, including, until now, FWS – no longer threaten Gunnison sage-grouse with extinction. List. Det. at 19962-82. The agency avoided careful analysis of these threats, or where it did acknowledge them, the agency then ignored the inevitable impacts that result. For instance, regarding human population growth and housing development, FWS admits that human population growth and development is “occurring in all populations” and is “projected to do so over the next 2 decades – yet, FWS somehow concludes that “projected human population densities in all sage-grouse populations are low and do not appear to pose a significant threat.” *Id.* at 19965-66. With respect to West Nile virus, which could have devastating effects on Gunnison sage-grouse – studies show that a high proportion of greater sage-grouse, once infected, developed no antibodies, *see* Naugle (2004); Naugle (2005) – FWS simply concluded that “the data available to date suggest that it is not a significant threat to Gunnison sage-grouse.” List. Det. at 19974. However, this analysis completely ignores the potential impact of WNV on isolated populations of Gunnison sage-grouse. Particularly where high proportions of infected greater sage-grouse, the species’ closest cousin, succumbed to WNV, FWS should have fully considered the impact of the disease on Gunnison sage-grouse and the long-term survival of the species.

In addition, FWS relies on the Garton report to dismiss some threats to Gunnison sage-grouse out of hand. For example, there is the agency’s treatment of habitat fragmentation from agricultural conversion – *i.e.*, “[t]he arrangement of these converted lands has contributed to habitat fragmentation in these areas, although it is not negatively influencing sage-grouse numbers . . . (Garton 2005).” List. Det. at 19963. With respect to livestock grazing, FWS states that “[t]he Gunnison Basin population has been stable over time . . . (Garton 2005), suggesting that grazing is not negatively affecting the population in this area.” List. Det. at 19970. Concerning inadequate regulatory mechanisms, FWS states that “[i]n light of the fact that implementation of the aforementioned laws, regulations, and policies has not resulted in a decline within recent timeframes, as analyzed by Garton (2005) . . . we have concluded that inadequacy of existing regulatory mechanisms does not threaten or endanger the sage-grouse . . .” *Id.* at 19979. However, in light of the problems with Garton’s conclusions regarding Gunnison sage-grouse populations discussed above, FWS should have, at a minimum, independently evaluated the effects of habitat fragmentation, livestock grazing, and inadequate regulatory mechanisms on the species.

Indeed, the best scientific data available shows that these factors do indeed threaten Gunnison sage-grouse populations, and have contributed to the loss of over 91.5 percent of its

historic range. Yet, as a matter of routine, FWS first reviewed the scientific information on each threat, and then ignored the conclusions that flow from the research.

For example, in considering livestock grazing, FWS acknowledged that “reduction of grass heights due to livestock grazing of grouse nesting and brood-rearing habitat negatively affects nesting success” for Gunnison sage-grouse, reduces food availability for grouse, reduces grass cover that opens the sagebrush canopy and exposes grouse and nests to increased predation, negatively affects rangeland hydrology, increases soil erosion, and spreads invasive weeds. List. Det. at 19969. Despite these threats, the agency inexplicably then concluded that “the impacts [of livestock grazing] on sage-grouse are not clear,” *id.* at 19968, and that there “is insufficient data that demonstrates grazing is a threat to [Gunnison sage-grouse].” *Id.* at 19970. The agency similarly “played stupid” on the impacts of oil and gas drilling, roads, invasive species and other threats to Gunnison sage-grouse. *See generally id.* at 19962-82.

Finally, FWS failed to consider the *cumulative* effects of all threats to Gunnison sage-grouse to the species. For example, while the agency explained away the individual effects of livestock grazing, fire, invasive species, roads, and pinyon-juniper on sage-grouse, the Listing Determination did not assess the cause-effect relationship among these different threats or the negative cumulative affects that result. Research shows that grazing degrades sagebrush habitats, introduces invasive species into sagebrush-steppe, and allows for pinyon-juniper to invade sagebrush basins. Similarly, invasive species follow roads into sagebrush habitats, including unimproved and two-track roads that support grazing and oil and gas drilling operations. Invasive species, especially cheatgrass, are highly flammable and lead to increased wildfire in sagebrush, which can destroy critical sage-grouse winter habitat. FWS acknowledged these individual land uses and threats will continue in Gunnison sage-grouse range, but failed to address the inevitable, cyclical cumulative impacts of these threats to the species.

### CONCLUSION

In light all of the above, the Sagebrush Sea Campaign, Center for Native Ecosystems, Forest Guardians, Sinapu, The Larch Company, Center for Biological Diversity, Public Employees for Environmental Responsibility, and the County of San Miguel, Colorado intend to file suit in federal district court to enforce the aforementioned violations of the Endangered Species Act and the Administrative Procedure Act. Notifiers may forego litigation should FWS revoke the not warranted finding for the Gunnison sage-grouse and list the grouse as threatened or endangered under the ESA.

If you have any questions, wish to meet to discuss this matter, please contact me at 541-485-2471, ext. 105.

Sincerely,



Amy R. Atwood  
Western Environmental Law Center

**VIA ELECTRONIC MAIL ONLY:**

Mark Salvo  
mark@sagebrushsea.org  
Sagebrush Sea Campaign

Andy Kerr  
andykerr@andykerr.net  
The Larch Company, LLC

Rob Edward  
rob@sinapu.org  
Sinapu

Noah Greenwald  
ngreenwald@biologicaldiversity.org  
Center for Biological Diversity

Jacob Smith  
jacob@nativeecosystems.org  
Center for Native Ecosystems

Nicole Rosmarino  
nrosmarino@fguardians.org  
Forest Guardians

Jeff Ruch  
jruch@peer.org  
Public Employees for Environmental  
Responsibility

Steven Zwick  
stevenz@sanmiguelcounty.org  
County of San Miguel, Colorado

**Attachment A**

19 March 2006

David Naugle, PhD  
Wildlife Biology Program  
University of Montana  
32 Campus Drive  
Missoula, MT 59812

U.S. Fish and Wildlife Service  
Wyoming Ecological Services Field Office  
Cheyenne, Wyoming

RE: Review of Garton report on Gunnison sage-grouse population trend analysis

Dear Review Committee,

Please let the following comments serve as my review of the final report entitled, "Gunnison Sage-Grouse Population Trend Analysis" by E. O. Garton. Please note during appraisal of this review that I am not a population ecologist; rather, my expertise is primarily in habitat and disease issues as they relate to sage-grouse. Perhaps my review can add breadth to the reviews provided by two very competent population ecologists that have worked less than I on galliforms in general.

Overall, I believe that the author used the best possible analyses given the constraints of the count data that are available for this small population. I also believe that the author identified the critical issues and limiting factors inherent in the dataset and tailored his analyses to focus on these issues. Lastly, I agree with the main conclusion of this report that this population is "stable, but variable in the rate of population change".

This report is a classic example of the constraints that one encounters when analyzing highly variable datasets from small populations. The potential double-counting of males in 2005 is a special problem because the density-independent model is so sensitive to the first and last counts in the dataset. The author states that potential approaches that could have eliminated or minimized potential bias associated with 2005 counts were impossible to complete within the short time-span available to complete the assessment. Those approaches should be stated so that readers understand the potential for additional analyses.

The reader would benefit from an understanding of constraints when analyzing this dataset as they relate to sage-grouse biology. Linking sage-grouse biology to population ecology would provide context for the reader to understand why particular analyses were selected. The author has incorporated biology for species into analyses, but I don't think that this is apparent to a diversity of readers. First, the highest count of males at a lek in a



year was used in analyses because a higher proportion of second-year males attend a lek for the first time late in the season. But unless the reader knew the influence that behavior of second-year males has on count data, they might question why process variation (i.e., real population change) was not separated from sampling variation (i.e., observer bias). Second, the reader needs to know that typical protocols for collecting count data (i.e., 3-4 counts by a single observer each year) do not allow for the separation of process sampling variation.

I appreciated how the author conducted analyses with and without the 2005 count data to show how this one year completely changes the interpretation. I also liked how analyses were conducted on short (1995-2005) and long (1957-2005) timeframes to show a consistent interpretation of the data despite increases in counting effort and associated decrease in measurement error. This approach also shows readers how increased counting effort can tighten confidence intervals by decreasing sampling variance. Had the original interpretation of “variable and stable population” instead been “variable and declining”, I would have suggested that the author run additional PVA analyses to evaluate the influence of sampling variation because poor count data can mask real changes in populations by swamping process variation. However, use of the density-dependent model and a conclusion of “stable and variable population” make this unnecessary.

Combining reduced variability in rates of change (1995-2005) with the estimated density-dependence produced a low probability (<1%) of the population declining to low abundances in the future. Readers should note that the major assumption in this prediction (as stated) is that factors that have driven variability in rates of change in the past will remain the same in the future. The challenge for the review committee will be to evaluate stability of habitats upon which this population depends and to account for new stressors that could act to modify the variability in current rates of change.

Thanks for the chance to comment.

David Naugle (electronic signature via email)

White -- March 14, 2006

1 of 3

Comments by Gary C. White on "Gunnison Sage-grouse Population Trend Analysis" authored by E. O. Garton.

Clearly the author spent considerable time developing this report. However there are a number of inappropriate analyses that cast doubt on the conclusions of this report. An overriding theme with these problems is lack of attention, explanation, and consistency in relation to data integrity and assumptions underlying modeling approaches. Lek counts are unfortunately not the same as a census of the population. Because of the unreliability of lek counts, the results in Garton's assessment are flawed for the following reasons.

1. Garton used only the leks counted in both years  $t$  and  $t + 1$  to estimate  $\lambda_t$ . As a result, leks that went extinct during the data collection period would be left out of the analysis after extinction occurred. That is, these leks would not be counted when birds no longer were available to be counted. The effect of this censoring is to ignore the decline in available habitat of this species. Therefore, the analysis presented is far too optimistic.
2. Garton's analysis uses the Dennis and Taper (1994) methodology that has been shown to be sensitive to sampling errors in the population estimates by Shenk et al. (1998). Shenk et al. (1998) demonstrated that increasing the sampling variance of the population estimates increases the probability of detecting density dependence even when the underlying population is strictly density independent. The reason for this counter-intuitive behavior of the estimator is because the populations appear to be bouncing around some mean value due to just sampling variation, but which is interpreted as density dependence and returning to the carrying capacity by this estimator. Even Dennis and Taper (1994) noticed this behavior, based on a quote from their abstract: "The new test appears robust against sampling or measurement error in the observations. In fact, under certain types of error the power of the new test is actually increased." The second sentence in this direct quote illustrates the problem that the authors failed to recognize when this technique was published, and demonstrates that they simulated data with enough sampling variance to cause improper detection of density dependence.

Unfortunately, the lek count data used by Garton include tremendous amounts of sampling variation, and all of the gyrations to explain the 2005 counts just substantiate this claim. Therefore the evaluation of density dependence with these data is inappropriate because the large sampling variation will almost certainly result in the conclusion of density dependence.

3. As discussed above, population analyses are based on lek counts, an index of population size of males with considerable sampling variation. Note that lek counts are not a "census", i.e., a census is a complete count, and a single lek count is hardly a complete count of all birds using the lek. There is a lack of attention to this sampling variation as well as the assumptions underlying the modeling approaches. As a result, the analysis technique of Dennis et al. (1991) used to provide a population viability analysis (PVA) is inappropriate for these data because the model of Dennis et al. (1991) assumes that actual

White -- March 14, 2006

2 of 3

population sizes are available, measured without error. That is, the sequence of population sizes required by the model must be the true population size, not an index with a large sampling variance. The effect of the large sampling variance will be to bias the estimates of  $\sigma^2$  high, greater than the actual process variance of the population growth process. As a result, the probability of extinction will be biased high, and hence a “sky is falling” conclusion will be reached incorrectly. The magnitude of the sampling variance is difficult to assess given the lack of replicate counts of leks. That is, even though leks are counted on multiple occasions, these counts are not true replicates because the time of day and day of the season all affect the count (Walsh 2002). One assumption would be to assume the counts are Poisson distributed, with the variance of the count equal to the count. However, typically in ecological counts, a Poisson assumption has been shown to underestimate the true variance, so that typically the variance of the count is 2 to 3 times the count. This level of sampling variance will have considerable impact the results of this analysis, and thus invalidates the use of the Dennis et al. (1991) approach.

As a side note, the terse description of the methods in Garton’s document include numerous errors, presumably typographic, and his description of his methodology is inadequate without thorough reading of the original literature to understand what I think Garton actually did. Use of an undocumented software package does not lend credibility to his results.

4. The Dennis et al. (1991) model also assumes that there is no serial correlation in the population estimates. However, greater sage-grouse populations are considerably driven by weather, and annual weather patterns are serially correlated. As an example, periods of drought consist of multiple years of below-average rainfall, eventually followed by multiple years of above-average rainfall. The magnitude of this assumption violation should be assessed through examination of the serial correlations of the residuals from this model, as recommended by Dennis et al. (1991), page 122. Because of the induced correlation of using the same lek counts in both the numerator of  $\lambda_t$  and in the denominator of  $\lambda_{t+1}$ , I would expect a strong negative serial correlation.
5. Likewise, the residuals from the Dennis et al. (1991) procedure should be evaluated to see how closely they meet the assumption of normality, as assumed by the statistical procedure used to estimate population viability. Procedures for evaluation the assumptions of the statistical technique are discussed on page 122 of Dennis et al. (1991).

In conclusion, the results reported by Garton are unsupported by his analysis because of critical violations of the assumptions of the methods used to evaluate the lek counts.

#### Literature Cited

Dennis, B., P. L. Munholland, and J. M. Scott. 1991. Estimation of growth and extinction parameters for endangered species. *Ecological Monographs* 61:115–143.

White -- March 14, 2006

3 of 3

Dennis, B., and M. L. Taper. 1994. Density-dependence in time-series observations of natural-populations -- estimation and testing. *Ecological Monographs* 64:205–224.

Shenk, T. M., G. C. White, and K. P. Burnham. 1998. Sampling-variance effects on detecting density dependence from temporal trends in natural populations. *Ecological Monographs* 86:445–463.

Walsh, D. P. 2002. Population estimation techniques for greater sage-grouse. M. S. Thesis, Colorado State University, Fort Collins, Colorado, USA.

Walsh, D. P., G. C. White, T. E. Remington, and D. C. Bowden. 2004. Evaluation of the lek count index for greater sage-grouse. *Wildlife Society Bulletin* 32: 56–68.

## Attachment C

### Frank P. Howe comments on:

#### **Gunnison Sage-grouse Population Trend Analysis: Final Report of Statistical Analysis by E.O. Garton 15 November 2005**

I provide some editorial comments regarding presentation of Dr. Garton's results in the attached (track-changes) document. I focused on content and approach and provide comments on those aspects below.

In general, I find the approach to the trend analysis acceptable. The use of finite and instantaneous rates of change are appropriate as are the comparisons of density-dependent and density-independent models. It was not possible for me to evaluate the use of a parametric bootstrap on minimum population size given that it was not thoroughly described in this document and the cited document (Garton et al. in review) was not available.

My criticisms do not revolve around any inadequacies in the trend analysis; instead they focus on the huge variability in the data and the lack of discussion on how this variation impacts interpretation of the analysis results. Also, the connection between maximum male lek counts and the overall Gunnison Sage-grouse population is an underlying assumption of this analysis; however, this index has never been substantiated.

1) Variation in the data. The amount of variation is extremely large over the several decades of data collection. Much of this is due to small samples sizes (i.e., numbers of leks) early on. This results in very large standard deviations of the instantaneous rate of change. Even when ignoring the early (poor sample size years) there is still considerable variance. In fact, variation in lek counts just in the last two years of the survey point out the difficulty of using males/lek as an index to sage-grouse populations. Much of the analytical effort was spent including or excluding 2005 data and the differing results indicate the difficulty in doing this type of analysis with messy data. Do we believe the 2004-based analysis or the 2005-based analysis? If the 2005 data was so high because of late snow, should we look at snow melt as a covariate in the analysis?

2) Discussion of the influence of high variance on trend analysis results. Variances and Standard deviations are clearly presented for instantaneous rate of change in the tables of results. However, they are not presented for lambda or in the figures. Standard deviations or 95% confidence intervals should be included in tables and on figures to make interpretation more straightforward. I would also like to see a straightforward discussion in the text of how the large variability might affect the interpretation of results. For example, I might feel some comfort in that  $\lambda = 0.999$  and mean rate of change per year is only -0.08 for the last 10 years in the Crawford Basin. However, inclusion of confidence intervals around these values might be more enlightening (if less comforting).

3) Relationship of males on leks to entire population. There may be no relationship of males on leks to the total population which effectively negates this trend analysis. Alternatively, variation in the relationship of the index to the population (e.g., when there are more males there are fewer females) could substantially affect the results. The connection between the index needs to be substantiated or another index needs to be developed. Making this connection will be a relatively long-term though necessary undertaking. Given that this information is not currently available and is critical to the management of this rare and probably declining species, I recommend that immediate actions be taken to establish the relationship between males/lek and population size or development of a reliable, substantiated index to or estimation of sage-grouse population size.

In summary, I feel the approach and analyses are acceptable but the index is poorly validated (the relationship of the index to the population is not known) and highly variable. The first problem may violate the underlying assumption of the analysis and the second makes interpretation of the analysis extremely difficult.

How do you fix the problems? Unfortunately, the fixes are not simple. First the relationship between the index and the population needs to be substantiated. Once determined, the correlation of males/lek to overall population can be used to modify the trend analysis. Variation in the variables might be addressed by including covariates in the analysis (e.g., timing of snowmelt). This may require less on-the-ground data collection than substantiating the index but will require extensive *a priori* thought to avoid a fishing expedition. Dr. Garton alluded to his suggestions for minimizing bias associated with the index. While these could not be incorporated into the analysis given the imposed time frame, it would be enlightening to know what these suggestions are.

Thank you for the opportunity to comment. If you have any questions, please feel free to contact me at 801-538-4764 or [frankhowe@utah.gov](mailto:frankhowe@utah.gov).

## Attachment D

### REVIEW OF GUNNISON SAGE-GROUSE POPULATION TREND ANALYSIS FINAL REPORT OF STATISTICAL ANALYSIS. E. O. GARTON

Dr. Garton analyzed 50+ years of lek counts conducted by the Colorado Division of Wildlife. The statistical methods he used (Dennis et al. 1991, Dennis and Taper 1994) appropriately address an important concern with time series data—autocorrelation of errors. That is, residuals from the fit of statistical models to the data that are adjacent in time are likely to be more similar to each other than residuals that are separated in time. Assessment of the importance of density dependent population trajectories is also important because the existence of density dependence tends to buffer population change and reduce probability of extinction, relative to models lacking density dependence. Therefore, detection of density dependence in population trajectories indicates more robust populations, reducing conservation concern. Therefore, I believe the analyses presented are robust and reliable.

I have one concern that is potentially important. The sample of leks in all areas that was sampled over several decades declined substantially (Tables 2-6). One interpretation of these trends in sample size is that number of leks in the area declined. Thus, while males per lek stabilized in most areas number of leks may have declined. A crude index of population size can be calculated from the product of number of leks in the area times males per lek. (I note that this is only an index because males counted per lek is not an estimate of the actual number of males associated with each lek.). Declines in either males per lek or number of leks could indicate population decline. Dr. Garton has analyzed males per lek, which is not generally declining at present. The only indication of trend in number of leks is in the size of the sample of leks on which males were counted. This number appears to have declined. I stress that size of the sample of leks is not an estimate of the number of leks present. Nevertheless, trend in size of the sample could indicate population decline and is of concern to me. I recommend that decline in number of leks sampled requires further explanation. There may be an alternative explanation for decline in the size of the sample of leks, but such alternatives cannot be evaluated from the data presented. Unfortunately, at present no state has a survey program designed to estimate the number of leks in the state, which is necessary to fully understand the trend in numbers of sage grouse. Staff of the Colorado Division of Wildlife may, however, be able to explain variation in number of leks surveyed and they should be consulted on this issue.

I noted a couple of minor issues. I believe there is a typo in the equation on page 3. Probability of extinction should be  $e^{-2\mu x/\sigma^2}$  for  $\mu > 1.0$  rather than  $< 1.0$  as it is currently written. I also believe it would be helpful to provide a little more detail from Dennis et al. (1991) describing methods used in the analysis. I read both of the Dennis papers cited in the report but it would be helpful if some of this detail were provided in the report. I suspect all of the important material could be provided in a paragraph or two. I am also somewhat skeptical of the explanation of high lek counts in 2005. There is no way to confirm the hypothesis of double counting of some males without individually marked males. This is not, however, a critical point as Dr. Garton analyzed data both using and excluding this questionable point and his analyses of males per lek was, therefore, conservative.

**Attachment E**

02/23/2006 01:09 PM

To: Al\_Pfister@fws.gov

Cc:

Subject: Gunnison sage-grouse trend analysis review

\*\*\*\*\*

Review of E.O. Garton: "Gunnison sage-grouse population trend analysis

AUTHOR'S NAME AND AFFILIATION WITHHELD BY THE FISH AND WILDLIFE SERVICE AT THE REQUEST OF THE AUTHOR

I have reviewed this report as though it were a scientific journal article, and therefore split my comments into those that should not be seen by the author and those that could be if you care to pass them on. If you do so, please do not reveal my identity.

\*\*\*\*\*

Confidential comments to the USFWS

COMMENTS WITHHELD BY THE FISH & WILDLIFE SERVICE AT THE REQUEST OF THE AUTHOR

\*\*\*\*\*

Comments for the author:

Overview:

This document reports a set of analyses that (i) attempts to reconstruct past population trends in sub-populations of Gunnison sage grouse (henceforth GUSG) from historic lek count data, (ii) draws inferences about whether populations are stable, increasing or declining, and (iii) attempts to assess the likelihood of extinction using PVA. The author concludes that GUSG populations are stable and not in imminent danger of extinction. Because this conclusion has either reassuring or alarming implications depending on ones' assessment of the conservation status of GUSG based on other evidence it deserves to be carefully evaluated. My assessment (detailed below) is that the conclusions are not credible and should be set aside.

Specific comments:

1. How population trends "data" were generated

Normally, population trend analysis is based on a time series of counts taken in a standard manner (e.g. from a specific area) over successive years. In the case of sage- grouse the counts would be of males at leks. The author uses lek count data, but does not use actual count time series. Instead, he calculates a rate of change in population size ( $\lambda$ ) between successive years using whatever set of leks was counted in both years. He then assumes an ending value of 100 males and uses the  $\lambda$  values to iteratively compute the number of males in the previous year and so on back



to the beginning of the lek counts. I understand that he has adopted this procedure because variability in sampling effort over time makes it impossible compare total male counts across years. However, it is not a good solution for multiple reasons.

First, because each lambda estimate has an attached error, the sampling error in the population estimate gets larger and larger the further back in time you go. At some point the estimates will be so uncertain as to be completely uninformative (simulation-based confidence intervals would be needed to establish when). Although Garton acknowledges that the lambdas are estimated with error, he does not acknowledge this consequence. Second, his approach cannot capture the full range of variation in population growth rates for the following reason. A lek can only be counted in successive years if it is present in both. However, smaller leks are not present every year in datasets from lekking grouse (including Greater and Gunnison sage-grouse) with which I am familiar. In particular, as populations decline, the smallest leks disappear and lek size declines at the remaining sites (disproportionately so in the case of the largest leks); conversely as a population increases smaller leks reappear and mean lek size increases. Because he requires a lek to be present in 2 successive years to enter the lambda estimate, Garton's method does not capture changes in population size resulting from lek appearance and disappearance. Third, were leks to disappear permanently, e.g. through habitat destruction or degradation as may have happened in some parts of GUSG range, the loss of this population segment would not be detectable using Garton's method. In this case, the method would underestimate a persistent population decline, undermining Garton's assertion that it is unbiased.

Do these problems mean that his approach is misleading? I am inclined to think so, but the real test would be to compare the back-projections with real time series based on complete lek counts within a fixed study area. There must be some area or set of "focal leks" in the Gunnison basin that has been monitored consistently enough to generate such a dataset, at least for the period since 1995 when many more leks were monitored. Without confirmation that the back projected "data" accurately predicts changes in actual lek count time series, it is difficult to have much confidence in any subsequent analysis.

## 2. Trend line model fitting

The author fits two kinds of time-trend models to the "time series". One (density independent model), is simply a linear trend. The other fits a simple logistic density dependent model. It is not entirely clear what question(s) Garton is trying to answer here. If the question is, did the population decline from time A to time B, then a linear model is the appropriate way to go, but simple regression would be both more transparent and produce a better fit to the data than the "density independent" model does in several of the datasets analyzed.

While I see the point of trying to detect density dependence, the point of fitting a simple logistic model to a long time series escapes me. Real populations change in size due to a combination of density-dependent and independent effects, but population ecologists know that the equilibrium

population size around which a population is regulated fluctuates over time (there are convincing examples of this in the avian population literature). Consequently, it makes no biological sense to fit a model that assumes that a population is regulated around a single equilibrium size (that this is assumed is revealed by the simple logistic form of the fitted curves). Moreover it is no surprise that Garton then vacuously concludes that GUSG populations are stable long term: his fitted model assumes it already!

Two additional points are troubling.

First, the author complains that the linear models he is fitting are sensitive to initial and final population size values (p4, para 2) and in some cases he arbitrarily includes or excludes starting or ending values that apparently do not fit his preconceptions of what a population is doing (e.g. p4 para 4 ; p6, San Miguel basin). The later case is revealing, since it converts an apparently steep population decline into a flat trend, consistent with his overall conclusion of population stability. If the method is so sensitive to deletion of single data point, the only reasonable conclusion is that whether the population was stable or declining cannot be robustly determined. Arbitrarily picking one of two possible outcomes is spin, not science.

Second, although GUSG are divided among several spatially isolated areas with little if any interchange (revealed by recent genetic marker studies), for some analyses data from different areas are combined and treated as a single population. This is highly misleading. We need to know what is happening in each isolated area because with current levels of isolation their population dynamics (and fates) will be essentially independent. An analysis that merges birds across different area is biologically meaningless.

### 3. PVA

PVA analysis is not my specialty, so I will leave it to others to evaluate this in detail. However, a couple of points made previously apply here. The single equilibrium assumption of the fitted density dependent models will tend to make the population appear more robust to perturbations in a PVA than it would be in real life. I'm not arguing that there won't be density dependence - there will - but the population size around which this operates will fluctuate and this matters. Second, because sub-populations have independent dynamics, a PVA on a combined "count" is not useful. Separate analyses are needed for each population fragment.

\*\*\*\*\*

end of review