MINI-CASSIA CHAMBER of COMMERCE
20th ANNIVERSARY 1993 2013
Two Counties... One Community

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June 24, 2013

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Bureau of Land Management
Gateway West Project
P.O. Box 20879
Cheyenne, WY 83003

RE: Final EIS Comments

Dear Project Manager:

The Mini-Cassia Chamber of Commerce Ag Committee met on May 23, 2013 to discuss the Gateway West Transmission Line Project.

We are concerned that the BLM is not giving due consideration to the negative impacts on the agricultural private property.

The following is the Cassia County Ordinance:

Electrical Transmission Corridors. Major electrical transmission lines come from power plants located outside of the county and from the Minidoka Dam-Lake Walcott Generation site. Several cooperatives distribute power throughout the County, such as Raft River Electric and United Electric.

Cassia County will correlate with neighboring counties, local utilities and interested citizens to develop transmission corridors through Cassia County. Cassia County recognizes that there is a need for improvement and enhancement of the power transmission grid. Based upon this recognition, the County will be proactive in determining its destiny with regard to siting transmission facilities in and through the County. The County will also fully access and seek to assert its rights to coordinate with federal and state land management agencies to assure that local plans and interests are protected in utilization and management activities of federal lands for such corridors. These transmission corridors will be determined based upon a number of pertinent factors including, but not necessarily limited to: minimization of impact upon residence and existing residential development; and minimization of impact upon irrigated cropland, confined animal feeding operations, environmentally sensitive areas, wetlands, housing developments, etc. The County shall also consider national reserves in determining corridors. Essentially, it is the policy of the County that those uses benefitting the general public should be sited on public land as much as possible. (Amended 10-05-2009, Ordinance 2009-10-01).

Overall, we feel the ESA downplays the cumulative impact on private property and agricultural uses while at the same time significantly overstating the cumulative effect on something like "cultural resources." The BLM does recognize, on Pages 2-206 that there are "other past, present and foreseeable future projects including additional transmission lines which make the cumulative effects also significant." It appears the BLM has not sufficiently studied the cumulative impact on private land uses and agriculture.

We would ask you to please consider the plan recommended by Cassia County contained on Gateway West Transmission Line Final ESA **Table 2.4-1, Segment 7, Alternative 7K.** This is contained in Chapter 2-Alternatives p.2-36.

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When possible, we feel transmission lines should be placed on public lands because they are for public use. We feel it is unfair for the private property owners to bear the burden when there are other alternatives.

Thanks you for allowing us to express our concerns.

Sincerely,

John A. Stevenson

John A. "Bert" Stevenson
Chairman, Mini-Cassia Chamber of Commerce
Ag Committee

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Memorandum

To: Gateway West Task Force, GOAL, Inc., Move It!, Cassia County Commissioners, Power County Commissioners

From: Douglas J. Balfour

Date: June 28, 2013

RE: Final EIS Comments

We have prepared and submitted the attached 16 pages of comments on the Gateway West EIS. A few of the Task Force members have individually commented as well.

I have sent the comments to the local print media and sent the Press Releases to the local television stations, both in Burley and Twin Falls as well as in Pocatello and American Falls.

Thanks to everyone for their help. We will now see what the BLM will do.

Doug

Douglas J. Balfour, Chartered
230 W. Lewis
P.O. Box 490
Pocatello, ID 83204-0490
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Fax: 208-233-0319
Email: dbal0680@gmail.com

June 28, 2013

Walt George
BLM
Gateway West Project Manager
US Department of Interior
Wyoming State Office
PO Box 1828
Cheyenne, WY 82003-1828

RE: Gateway West Comments

Dear Walt,

Attached you will find comments submitted on behalf of Power County, Idaho, the Power County Citizen's Task Force, Cassia County, Idaho, and the Cassia County Citizen's Task Force, Move It!. Please consider these comments for the Gateway West EIS.

In addition, throughout this process we have submitted other comments. By this reference we incorporate these comments. We did not feel it necessary to repeat them as they are already in the record and the entities' objections should be noted.

If I can provide other information, or if you have any problem with the form of these comments, please notify me.

Very truly yours,

Doug Balfour

DOUGLAS J. BALFOUR

DJB/jay
Enclosures
cc: Task Forces

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June 28, 2013

FINAL EIS COMMENTS

By Douglas J. Balfour for Power County Citizens' Task Force, Cassia County Citizens' Task Force, Move It!, and G.O.A.L., Inc., Power County Board of County Commissioners, Cassia County Board of County Commissioners
Gateway West Transmission Line Project

COMMENT 1.

Page ES-13

The Power County and Cassia County preferred route, Alternative 5E is criticized in the EIS as it would not meet the WECC separation criteria (1500 feet) from existing lines that the Proponent established as part of the project's Purpose and Need. The EIS does note that it would have fewer visual effects, would avoid potential disturbance to nesting raptors, and would affect less agricultural ground. It would also cross within 1,000 feet of 8 fewer residences.

Power and Cassia Counties do not agree that any separation criteria have been established. The EIS itself notes WECC has recently lowered its separation criteria to 250 feet. The Wyoming Governor's Conference called for a 260 foot separation. Idaho Power is holding on to the old separation criteria because that is what was in effect at the time they planned the project. Power and Cassia Counties reject the assertion that the Proponent established anything as part of the project's Ppurpose and Nneed. That was not any sort of proceeding which invited or received any commentary or scrutiny. Power County and Cassia County do not agree that its purpose and need have been established through this process. WECC itself says that the separation criteria have to be flexible and analyzed in terms of common sense experience and consideration of the situation involved. As an example, one of the most widely mentioned reasons for separation criteria is wildfires.

Alternative 5E largely crosses green fields, irrigated agricultural land and the Snake River. Wildfires are not an issue in that area and, in anyone's memory there has never been a wildfire in that area. Similarly, WECC concerns about vandalism or airplanes dragging lines are not a conceivable problem in this area. Applying a strict rule without ample analysis of the specifics involved is nonsensical. This is particularly true when the citing authority has adopted 5E as the only allowable

route. Power County and Cassia County request that the BLM fully endorse Alternative 5E and eliminate any negative comments about WECC separation criteria.

COMMENT 2.

ES-15

On that page there is a discussion of why Alterative 7K, endorsed by Power County and Cassia County, was not a preferred route. The discussion does note that Alternative 7K would cross less private land. There was a concern on crossing sage grouse habitat, which can be resolved. It was noted that the 7K was not supported by the Proponents due to higher costs, presumably because of length. It was also noted that it may impact visitors to the City of Rocks.

Alternative 7K was specially prepared to avoid the City of Rocks, and in fact is approximately 2 miles from the closest exterior boundary of the City of Rocks. The BLM's own VRM guidelines do not consider passing within 2 miles to be a problem. This is particularly true when the BLM VRM guidelines would allow visual impacts on private land much closer than 2 miles. It is noted that 7K would cross less farmland and pass within 1,000' feet of fewer residences.

As to higher costs, the BLM's preferred alternative is substantially longer than the Proponents' proposal, 12 miles. It does not seem to have bothered the BLM to increase the length of Segment 7 to avoid public land at a greater cost to the private land. The BLM did not comment that its lengthening Segment 7 by 12 miles would increase construction costs substantially. That seemed acceptable to serve BLM purposes of avoiding public land. However it is inconsistent to dismiss the local government and landowners' preferred route because it will involve higher costs for construction.

The same is true for the BLM's preferred alternative for Segment 5; it is much longer than either the Proponent's route or the County's preferred route.

The Governor's Task Force on sage grouse would allow infrastructure in the sage grouse habitat crossed by 7K, under many circumstances. Mitigation would and should be required of the Proponents for any interference in sage grouse habitat in this area, however, it is allowed under the Governor's designations. There is no Core or Prime Habitat impacted by 7K.

COMMENT 3.

ES-18 & 2929

Under the "No Action" alternative the BLM concludes that the demand for electricity and especially renewable energy would continue to grow in the Proponents' service territories. It also notes that the demand for transmission services identified by the Proponents would not be met, without the construction of Gateway West through Idaho. Neither of these arguments are true for Idaho Power or the segments within the State of Idaho. The Idaho Power 2011 Integrated Resource Plan (IRP) does not forecast any increased demand for electricity or renewable energy, that cannot be met through existing resources. Similarly there is not identified demand for transmission services that

would justify the Idaho segments. See also comment 4. The IRP projects that with the completion of the Boardman to Hemmingway line, Idaho Power will be able to meet its anticipated load for the next ten (10) years. For the ten years after that, 2021 – 2030, only one of the ten planning scenarios uses Gateway West as a potential source of additional power. The other nine have other sources. It is also noteworthy that green power such as solar and wind is currently not competitive in a cost analysis. Combining this with the current concerns about upgrading and remodeling the Jim Bridger plant, which would require a substantial expenditure to meet current Clean Air Act requirements, should further indicate that Gateway West is not needed for Idaho Power.

The Jim Bridger Plant is currently in the middle of an adverse and contentious argument in the Wyoming Public Services Commission. Jim Bridger is aging rapidly, and the owners of the plant have proposed a remodeling and a rebuilding. The Wyoming Public Services Commission has heard testimony from many rate payers groups that the cost of renewing Jim Bridger, with the cost of replacing the old coal-fired power plant technology with new and cleaner technology to meet Clean Air Act standards would make the power non-competitive with power rates. Many have testified that this could impact the need for the Gateway West project if the Jim Bridger coal plant is not renewed. It is not expected that this process in the Wyoming Public Services commission will be complete. This uncertainty further lessens the explained need for Gateway West.

The "no action" alternative needs to be seriously analyzed. Developments since the beginning of this process hasve shown that the "no action" alternative is probably the best option.

In explaining the "No Action" alternative, the BLM indicates that not building Gateway West could potentially have detrimental socio-economic impacts, with negative impacts to existing businesses and economic activities. Certainly that is very true if Gateway West is built, as it will have negative socio-economic impacts and negative impacts to existing businesses and economic activities in these counties and as explained in the economic analysis at 3.4-42.

COMMENT 4.

EIS Page 1.1

The BLM concludes that Gateway West is principally necessary to serve the Proponents' customers. That is not true for Idaho Power, and the IRP analysis proves that. As noted on Page 1-14, Idaho Power customer needs are largely met in the foreseeable 10 year period with the Boardman to Hemmingway project. Further on Page 1-15 itthe EIS notes that even in a longer out period, 2021- 2030, most of the scenarios in the selected scenario portfolios in the IRP do not project a need for Gateway West Transmission capacity. 1In fact, the Idaho Power County IRP specifically states, for the planning period of 2021 - 2030 "Although the resources in the preferred portfolio for the second 10-year period were analyzed without the addition of the Gateway West Transmission project, Idaho Power plans to continue permitting the Gateway West project because of uncertainty associated with the location of resources planned so far in the future and the long lead time required to permit high voltage transmission projects." IRP at P. 123.

Thus, as Idaho Power is specifically saying, they do not plan on needing any power from Gateway West until possibly after the year 2030.

For that reason it makes no sense to ignore such issues as the quickly developing buried line technology or even to press forward with Gateway West before the BLM's own sage grouse plan is finalized. However, the BLM defaults to Idaho Power's beliefs that it is prudent to continue to pursue the Gateway West project in case there is a future need. This is pure speculation, which is shown to be very costly to rate payers and damaging to the economies of Power and Cassia Counties.

COMMENT 5.

EIS Page 1-16

The EIS notes that Idaho Power is taking a lesser role in this project and there is no defined role for Idaho Power in Gateway West, as of December 2012. Again, to pursue this project at expense to rate payers and effected land owners, with such an uncertain future and speculation is not consistent with the BLM requirements or the requirements of an Environmental Impact Statement. The "no action" alternative would make much more sense at this point.

COMMENT 6.

EIS Page 1-18

Under Purpose and Need, the Idaho Power plans on filing for cost recovery of the building costs of building Gateway through a PUC rate case, which means that Idaho Power customers will be paying their share of this 2 billion dollar project, without any benefit to Idaho Power customers.

COMMENT 7.

EIS Page 1-21

This section involves WECC Separation Criteria. Again, the BLM falls back to an old, discredited example or common mode failures, including "a snagged shield wire from one line being dragged into the adjacent line, an aircraft flying into more than 1one line and smoke from a fire."Id. We have previously commented that WECC itself has criticized these common mode failures, noting that they should not be the basis for a separation criteria. The WECC separation criteria drafting team specifically, in revising the criteria, noted that the possibility of an airplane dragging the conductor from one circuit to another circuit on a separate tower "is an extremely low probability event and practically impossible. Designing a system for this very low probability event by treating the two circuits as if they are on the same tower is not appropriate." FEIS Appendix L-1.

For some reason the BLM indicates it has nothing to do with WECC separation criteria and accepts the Proponent's version without investigation. It is not proper for the BLM to defer to the Proponent's own, flawed interpretation which is totally inconsistent with the actual criteria.

The BLM in the EIS notes that the 1,500 foot separation criteria has been substantially revised, and in fact, has gone down to 250 feet. Despite this fact, the BLM has chosen not to re-analyze many of the Proponent's arguments for the wide spread separation that were based upon the old criteria. The BLM essentially states that it is too late to go back and revisit that. It is obvious that having this broad separation criteria impacts substantially more private land and essentially condemns it without justification or reason. Given the fact that construction of any Idaho segments of Gateway West are at least 5 years away, and probably substantially longer, it is not good planning to look backwards and use old, outdated analyses. This section and statement needs to be revised, to reflect modern analysis, and some common sense.

COMMENT 8.

EIS Page 1-22.

The WECC also notes that utilities are expected to use their history of experience and prudent judgment to ensure reliability, and not rely upon strict rules. Even Idaho Power on this page notes that common corridor outage must consider undue impact to the environment and surrounding areas. This is further evidence that the BLM needs to, independently, analyze the Proponent's claim of a need for separation.

COMMENT 9.

EIS Page I-23.

The Proponents note that they received approval for the project based upon the old 1,500 foot separation criteria, and apparently they do not want to go back and reroute under the new separation criteria.

The EIS also notes that the Wyoming Infrastructure Authority commissioned a study which concluded that minimum separation distance should be 260 feet. Fire, high winds, tornadoes and lightening are to be considered. Tornadoes are not a threat in Idaho and the possibility of fire creating smoke and shorting out adjacent lines can not be shown to be a problem.

In any case the BLM adopts the old, outdated and illogical 1,500 foot criteria the Proponents urged without substantial analysis. Power County and Cassia County request the BLM fulfill its requirement and independently and officially analyze the WECC separation criteria in light of revisions and updates as noted above.

COMMENT 10.

EIS Page 1-24

The purpose of the Gateway West Project is then shifted to a different form, and not so much as meeting Idaho Power's service needs but to be part of the transmission grid. This change substantially modifies the "Ppurpose and Nneed" of the project and severely impacts the decision of the BLM to shift the line onto private land. If the BLM wants the line, because the federal government wants to upgrade the transmission grid, then public land should carry the substantial burden of that line. The federal government needs to work in conjunction with its various entities

to resolve issues such as Visual Resource Management and sage grouse habitat and place the line primarily on federal land. With pressure from Washington D.C., this project has been put on a fast track, and the BLM has taken the unfair position that they will govern the location of the line on private property. The fact that Idaho is 63% federal land, and yet Segments 7 and 5 are 80% on private land is completely inconsistent with the new purpose for the Gateway West Project.

COMMENT 11.

EIS Page 2-45

The BLM alternative for Segment 5 is 18 miles longer than the proposed route and crosses 19 more miles of private land. The BLM chose that route, placing the route 80% on private land to avoid impacts to public land values. This is contrary to County law, and specifically contrary to Power County and Cassia County Ordinances concerning transmission line corridors. It makes no sense to intentionally avoid the Counties' well- conceived and negotiated preferred routes, say "this is the little bit of public land that can be crossed by the transmission lines and it is now up to the Counties to connect those public corridors."

COMMENT 12.

EIS Page 2-47

The BLM notes that the County's alternative Segment 7K is 35miles longer than the BLM's preferred route and therefore the BLM would not select it. The BLM's preferred route is 12 miles longer than the Proponents preferred route for Segment 7 and 18 miles longer than the Proponents' route for Segment 5. This is an inconsistent application of this objection.

COMMENT 13.

EIS Page 2-66.

This page discusses alternative 5C, which is the only route allowed by Power County through Ordinance. Alternative 5C would have the least impact in every aspect the BLM is supposed to analyze including generalgentile terrain, less visual impact and less environmental impact. The BLM apparently did not endorse this alternative because the Fort HallShoshone-Bannock Tribal Business Council voted to not allow the project through the Reservation.

If governmental is approval is required prior to an analysis being conducted, the BLM preferred alternative for Segment 5 and the BLM preferred alternative for Segment 7 has route have been rejected by Power County and Cassia County, which the BLM acknowledges has siting authority through the county on non-federal land. Therefore the BLM cannot select a preferred alternative other than the ones approved by the Counties, who are the legal siting authority.

The BLM cannot have it both ways, , refuse to endorse an alternative because one governmental agency has rejected it and yet adopt an alternative that another governmental agency has rejected.

COMMENT 14.

EIS Page 2-68

Mention is made that I-84 creates an East-West corridor and was considered. That is not the case. The only consideration was a very short stretch of I-84. I-84 would be a very natural corridor for the transmission system, and would be particularly appropriate for underground lines. Given the fact that the purpose for this line is not to serve Idaho Power customers, but to simply serve as a highway for the transmission grid, this matter should be remanded for new planning and an analysis conducted which would allow underground line following I-84 across Southern Idaho.

COMMENT 15.

EIS Page 2-129

Power and Cassia County, among others, requested that the BLM independently analyze buried transmission lines as an underground alternative. The BLM surreptitiously ignored that request and just allowed the Proponents to prepare a response, which BLM adopted.

It is clear that the Proponents are opposed to burying the lines because they have never buried lines and they are more familiar with overhead lines. Furthermore the Proponents firmly believe that overhead lines are cheaper and the Proponents are not particularly concerned about the impact of overhead lines to either private or public land. As the Counties noted in detail, buried line technology is rapidly evolving and becoming a very common form of power transmission. Rather than analyze this evolving technology, the BLM has allowed it to be ignored.

As the BLM noted, burying transmission lines would eliminate many of the visual impacts and would reduce the susceptibility of the system to weather and fire hazards. It also clearly would eliminate any concern about sage grouse habitat, which concern is apparently two-fold,: that ravens will roost on the lines and prey on sage grouse, and that the sage grouse will run into the structures.

Instead of analyzing the possibility of burying the lines, the BLM just deferred to the Proponents' position.

This is completely contrary to the requirements of the BLM's own Greater Sage-Grouse Interim Management Policies and Procedures Instruction Memorandum (IM), Page 3, which require the BLM to consider burying power lines in sage grouse habitat. It is clear that burying the line in sage grouse habitat would eliminate the sage grouse objection to the Countyie's' preferred route 7K. As the BLM is required by those policies and procedures to analyze buried lines in sage grouse habitat, the failure of the BLM to do that in this case, renders the EIS fatally flawed. See BLM Instruction Memorandum number 2012-043.

The Proponents similarly dismissed HVDC underground lines, without the analysis required for an Environmental Impact Statement. The BLM cannot simply allow the Proponents to refuse to analyze viable alternatives, it is the job of the BLM to independently analyze those possibilities.

COMMENT 16.

EIS Page 2-189

The Table 2.8-4 is length and landownership comparisons for the BLM preferred route, the Proponents' preferred route and the other alternatives. Power County and Cassia Counties' preferred alternative for Segment 5 shows some interesting figures. Segments 5C and 5E total 31.3 miles. The Proponents' proposal touted 55.7 miles. The BLM preferred segment is 73.3 miles. Thus the BLM's preferred route is approximately 18 miles longer than the proposed segment and 42 miles longer than Power County's preferred segment. The BLM's preferred segment is 80% on private land. Even the Idaho Power proposal is not as bad; 69% on private land. The BLM modifications to the preferred route were solely for BLM preferences on public land. However, the fact that the BLM's chosen route impacts greatly more private land, working agricultural land, seems to be no consideration for the BLM. The BLM is only interested in the public land without considering that where the route leaves public land, by necessity, it goes onto private land.

COMMENT 17.

EIS Page 2-193

Again the BLM preferred segment is 12 miles longer than the Proponent's segment. Power and Cassia Counties' preferred Alternative 7K is 30 miles longer than the Proponent's segment and 18 miles longer than the BLM preferred segment. Again the BLM preferred route is 80% on private land which is again greater than the Proponents' proposal which is at 72% private land. The counties' preferred alternative is 37% on private land which is the same proportion of private to public land as the entire State of Idaho. The BLM and the Proponents have largely touted the fact that the overall route will be approximately 50% on private land and 50% on public land. However, the BLM is intentionally targeting Power and Cassia Counties by requiring them to carry the brunt of the private land burden in some of the most valuable, productive and important agricultural land in the entire state. This could be devastating to the private economies of Power and Cassia County.

COMMENT 18.

EIS Page 3.2-53- Figure 3.2-3

This map shows alternative 7K to be 2 miles away from the outer boundary of the City of Rocks National Reserve. This is important, because on several occasions throughout the EIS, 7K is rejected by the BLM because it might be visible from the City of Rocks. This again, is an inconsistent application of visual resources.

COMMENT 19.

EIS Page 3.2-147

This page contains the conclusions concerning the BLM's preferred route. They note that the visual impacts of the preferred route would be moderate to high impact to residences in the Rockland and Arbon Valley. The BLM proudly notes that the preferred route is 12 miles longer than the proposed route, but will cross mostly private land and less Idaho State land in the proposed route. It also notes that the preferred route will be located closer to more residential viewers than the proposed route. What all this means is that residents viewing the transmission towers on the preferred route are not given the same consideration as being able to see the towers from public land. What this attitude ignores is the fact that transmission lines on private land are just as visible from adjacent public

lands as they are from adjacent private land. Public land and private land do not exist apart from the other in Southern Idaho. They are adjacent and interwoven. They do not exist independently of each other.

COMMENT 20.

EIS Page 3.2-148

Notes that our alternative 7K, due to its increased length as well as its proximity to the City of Rocks will have higher visual impacts than the other routes. The BLM ignores the fact that placing the project 80% on private lands will have much higher visual impact to the people who lives on those private lands and who have to see and try to live around the project on a daily basis.

COMMENT 21.

EIS Page 3.4-42

Schneider's economic analysis of the impact upon agriculture begins at this page and runs through 3.4-48. The conclusion of the BLM is that the economic impacts upon private industry would be something for negotiation with the Proponents during the easement acquisition process. This ignores the reality of eminent domain law in Idaho.

COMMENT 22.

EIS Page 3.11-12

On this comment the BLM notes that the Governor of Idaho issued an Executive Order to establish an Idaho sage grouse task force. The Governor's alternative Sage Grouse Task Force management plan was completed in September 2012, and is an alternative possibly to be adopted by the BLM's sage grouse planning strategy. The BLM notes that routes involving Segments 1, 2, 3 and 4, are consistent with the Wyoming Governor's Executive Order. No such comparable concurrence was given to the Idaho segments. In fact the BLM's discussion of sage grouse impact is inconsistent with Idaho's sage grouse task force maps and recommendations.

The BLM EIS notes that the BLM's national policy will not be made final for some years. That is no reason to not have the BLM routes in compliance with the Idaho Governor's Eexecutive Oorder, which this EIS isthey are not. As, in fact, construction of the segments, at the earliest, will not be until 2018, there is no reason to ignore the Idaho habitat maps, which the BLM alternatives do. Alternative 7K would not be inconsistent with the Idaho Governor's Executive Order, contrary to the BLM's findings.

COMMENT 23.

EIS Page 3.5

The BLM is required to analyze potential impacts from a Preferred Route under the Environmental Justice Requirement 3.5. On 3.5-6, it is noted that both Power County and Cassia County's percent of population below the official poverty level is higher than the national average. On Page 3.5-10 it is understood that the impact of the Preferred Route will impact agricultural operations which will

have a disproportionate effect on minority and low income farm workers. The EIS then defers to Section 3.18 as the analysis of the economic impact upon agriculture.

The BLM should specifically analyze the negative impact this line will have upon the agricultural economics of the land impacted, and its related impact upon the farm workers who work that land. It is simple common sense that if you hurt the agricultural economies of Power and Cassia Counties, and reduce the number of farms, that will have a disproportionate impact upon the minority and low income farm workers. Placing the line 80% upon private, agricultural land in these counties by definition will harm that private land, make agricultural activities less economical and take land out of production.

COMMENT 24.

EIS Page 3.18.2.1

On Page 3.18-12 the "No Action" alternative is discussed. Apparently in that analysis the only reason for not adopting the "No Action" alternative is that the demand for electricity is projected to continue to grow in the Proponent's service territories. Similarly the BLM reports that there will be increased transmission demand.

As previously discussed and thoroughly analyzed in the Section discussing the Idaho Power Integrated Resource Plan, these BLM assumptions are faulty. See Comment on ES-18 & 29 above. Given the fact that there is no foreseeable increased demand for electricity that makes this project necessary, and given the detrimental impact to existing economies and business, the "No Action" alternative should be adopted by the BLM.

COMMENT 25.

EIS Page 3.18-21

On that Page the BLM noted that the Power County Gateway Citizens' Task Force presented concern about agricultural guidance systems receiving interference from the proposed transmission line. In fact, the Power County Task Force gave specific examples to this occurring under current, smaller transmission lines. The BLM relied upon studies from the years 2000 and 2001 to dispute the experience of the Power County Task Force. The Power County and Cassia County Task Forces do not believe that 12 and 11 year old studies reflect the modern realities of automated irrigation and equipment guidance systems. The BLM should require the Proponents to conduct a modern analysis with up to date information. The Power County and Cassia County Task Forces did not make up their concerns, they have experienced them personally. For the BLM to dismiss those based upon old studies is inappropriate. GPS technology has evolved greatly since 2001.

COMMENT 26.

EIS 2.8.5, Page 2-191.

In the BLM announcement to release the final Environmental Impact Statement, April 2013, BLM described key routing issues considered in developing the BLM's preferred alternatives. The description for the BLM preferred alternative for Segment 7 twice mentioned avoiding "preliminary

priority sage-grouse habitat." In fact it appears the major rationale for rejection of Power and Cassia County's preferred alternative for Segment 7 was additional length and crossing BLM identified preliminary priority sage-grouse habitat. Power and Cassia County dispute this conclusion.

Pursuant to Idaho Executive Order 2012-02, Idaho Governor Butch Otter established an Idaho Sage-Grouse Task Force. That task force issued recommendations which were accepted by the Governor. The Gateway West EIS issued a Sage Grouse Addendum in June 2012, which stated "the [Idaho] task force's recommendations would be incorporated into the final EIS if approved by the Governor prior to the publication of the EIS." Sage Grouse Addendum, Page 7.

The Governor's Task Force issued its recommendations June 15, 2012. Those recommendations were incorporated into the FEDERAL ALTERANTIVE OF GOVERNOR C.L. BUTCH OTTER FOR GREATER SAGE-GROUSE MANAGEMENT IN IDAHO, SEPTEMBER 5, 2012.

Despite the promise of the BLM in the Sage Grouse Addendum, the BLM, in the Gateway EIS, has completely ignored and contradicted the Idaho Sage Grouse management plan.

A review of the Idaho Task Force Sage-Grouse maps show that Power and Cassia Counties' proposed alternative route 7K would not cross any "Core" habitat (CHZ) but would cross some "Important" habitat (IHZ). The Idaho habitat maps show that Core habitat contains approximately 75% of male sage grouse while Important habitat contains approximately 20% of male sage grouse. "General" habitat contains very few sage grouse.

This is important, as under Governor Otter's task force report, "management within the IHZ [Important] permits a greater degree of flexibility to develop new infrastructure projects than does the CHZ [Core] [sic IHZ]." Page 10

Specifically the Governor's Task Force report allows for limited infrastructure development in IHZ, under several circumstances, which include micro-siting, demonstration of a high value benefit to the State of Idaho, appropriate mitigation and other analyses. See Task Force Report, Page 14-15. See also Governor Otter's Federal Alternative, September 5, 2012.

In this case the BLM has chosen to totally ignore the Idaho Governor's Executive Order, contrary to the promise made by the BLM in the Sage Grouse Addendum. Alternative 7K was rejected, out of hand, by the BLM because of BLM interim guidelines concerning sage grouse. No consideration was given to the Idaho Sage-Grouse Task Force findings or the Idaho sage-grouse habitat map, which differs greatly from that of the BLM. Governor Otter's Federal Alternative incorporates the Task Forces' habitat designation and habitat maps. The BLM's unilateral dismissal of Alternative 7K for sage grouse reasons is contrary to Idaho law, the Idaho Governor's Executive Order, and county law. Power County and Cassia County request the BLM properly analyze Alternative 7K in compliance with the Idaho Governor's executive Order and Sage-Grouse Task Force Recommendations. The counties submit that such an analysis will eliminate the BLM's sage grouse

objection to 7K.

The BLM's preferred alternative route for Segment 9, in fact, crosses what has been identified by Governor Otter's Task Force as Important habitat. Segment 9 also crosses substantial General habitat.

Power and Cassia Counties' proposed Segment 7, similarly crosses a small amount of Important habitat and some General habitat. However, under the Governor's Task Force Report, some intrusions into Important habitat is allowed for infrastructure such as transmission towers, under certain circumstances. The BLM has taken advantage of that ability in Segment 9, but has denied Power and Cassia Counties' requests to put Segment 7 on similar standing.

According to Table 8-7, the BLM preferred Segment 9 is 171.4 miles long, of which 153.5 miles are BLM land. Only 13.4 miles of that preferred segment is private land.

One of the BLM's objections to Power and Cassia Counties proposed Segment 7 was that it placed the line 63% on public land. BLM's preferred Alternative 9 is 90% on BLM land alone. That objection for Power County and Cassia County are not consistent with the BLM's attitude in other parts of the EIS.

Owyhee County is seriously important sage grouse habitat. The BLM has allowed the line to cross public lands in Important sage grouse habitat in its preferred alternative for Segment 9, but has not treated Power County and Cassia Counties' proposed Segment 7 with the same standard.

The Bureau of Land Management is currently preparing a Sage Grouse strategy for Idaho and Southwest Montana. The Unedited Internal Administrative Draft has been circulated among Cooperating Agencies.

The BLM would be well served to delay making preferred alternatives for Segments 5 and 7 until that project is completed, perhaps sometime in 2014. Time is not of the essence in the Gateway West project and the UIADEIS contains far different analysis concerning sage grouse than the Interim guidelines the BLM has used for Gateway.

The BLM has chosen preferred alternatives for Segments 5 and 7 which force the transmission line 80% onto private property. The main reason for this is sage grouse. However, the more modern thinking is that, through a variety of measures, transmission line impacts to sage grouse can be minimized. It was previously noted that the BLM's own Interim guidelines suggested burying transmission lines in sage grouse habitat. That requirement is being carried forward in the Sage Grouse Task Force Draft.

In addition, research suggests that anti perch devices can be placed upon transmission towers to reduce or eliminate predator perches. The possibility of raven predation, and ravens perching on

transmission towers was cited as part of the reason the BLM rejected suggested alternatives which would transverse sage grouse habitat.

Specific sage grouse management Guidelines submitted by the Idaho Department of Fish & Game, the Washington Department of Fish & Wildlife, the Bureau of Land Management, and the Colorado Division of Wildlife, published in the Wildlife Society Bulletin, suggested both non perching design features on lines as well as burying power lines in sage grouse habitat is a viable solution to those problems. Connelly, et al., 2000 Wildlife Society Bulletin 28(4): 967- 985.

The Connelly study also noted that relatively high raven populations may decrease sage grouse nests success, but rigorous field studies using radio telemetry do not support this hypothesis.

It seems that the BLM in addressing proposed alternative 7K, has attempted to take the easy way out, and push the line onto public land so that they do not have to study the true impact of transmission lines on public land. They have taken assumptions and accepted them as accurate without proper analysis. The BLM has overemphasized possible negative impacts such as predation without proper analysis, and as an excuse to claim they are helpless to comply with Power County and Cassia County law. Presuming, without proper analysis that transmission lines have a negative impact upon sage grouse is not proper, given the fact that this Environmental Impact Statement has been pending for many years. Power and Cassia County have frequently requested the BLM conduct a proper analysis and not just blindly accept these presumptions, which resulted in the BLM's decision.

The most important and definitive analysis of the relationship between sage grouse and high voltage transmission lines has been pursued by eminent sage grouse experts from the University of Nevada-Reno. Dynamics of Greater Sage-Grouse Populations in Response to Transmission Lines in Central Nevada, Dan Nonne, Eric Blomberg, James Sedinger, Department of Natural Resources and Environmental Sciences, University of Nevada-Reno, February 2013. (Nonne)

In Fall 2003 Sierra Pacific Power Company (now N.E. Energy) began construction of a 345 kilovolt transmission line between Falcon and Gondor, Nevada. Construction was completed in the Spring of 2004 and the line was energized in May. The line is 290 kilometers long and has 735 towers. The line runs through the middle of Eureka County's prime sage grouse habitat.

Although this is a preliminary analysis, it is based upon ten years of actual surveying, study and analysis on the Falcon to Gondor transmission line in Nevada. That preliminary analysis, based upon this thorough study, shows that there is no negative effect on sage grouse that could be explained by proximity to a transmission line. This is a very important finding, not only because of the nature of the study, but it's determination that the location of a transmission line in primary sage grouse habitat is irrelevant to male survival, male movement, female survival, pre-fledging chick survival, and nest survival.

A copy of the published manuscript is attached to this comment.

In February of 2013 Nonne published a progress report on year 10 of the monitoring and analysis of sage grouse demographics in Eureka County, Nevada. The Nonne analysis is very thorough. They banded 1,381 sage grouse during the 9 years and have radio collared 288 sage grouse, in addition to the bands. They monitored 427 nests and captured and marked 349 chicks and recaptured 92 of the marked chicks at one month of age.

In all situations and occasions, proximity to the Falcon to Gondor transmission line was irrelevant to any impact on sage grouse. The Nonne analysis understood the thesis that utility lines can provide perches for aviation predators. Nonne's analysis found that prior studies on the impact of utility lines in sage grouse leks did not answer many questions or account for confounding factors.

This is an important study, which is not yet complete, but should be considered the most important study for purposes of Gateway West.

The BLM should not allow potentially false or disproved theories to create the impact that is known will occur if the line runs through agricultural land, rather than public land.

COMMENT 27.

EIS Page 3.18-24

This section of the EIS discusses the problems with crop dusting and transmission lines. The section notes that the Power County Task Force provided substantial evidence concerning problems created by transmission lines. The report notes, on 3.18-25, that Idaho Power has several hundred miles of high voltage transmission lines in Power and Cassia County. Members of the Power County Task Force provided direct testimony that they had witnessed fatal aviation accidents on their property due to crop dusters coming into contact with transmission lines.

Amazingly, on 3.18-24 the EIS indicates that crop dusting pilots could fly under the lines. Did the BLM receive testimony or information from crop dusting pilots that they would be willing to aerially apply agricultural chemicals by flying under 500,000 volt electric lines? All of the information provided to the BLM is contrary to this statement.

This type of minimizing the impact of the project on agricultural is not supported by any indication that pilots would apply chemicals by flying under the lines.

The Environmental Impact analysis itself shows that aerial application is not possible near power lines. Appendix K, Page 10 shows that Schneider Consulting Services took a survey that indicated a buffer zone would be necessary of up to 100 feet on each side of a power line. Thus, 100 feet on each side of a power line would be a "no fly" zone and thus, aerial application would not be possible.

The Schneider analysis in Appendix K, also discusses ground application and the damage that

causes. However, there are times of the year when ground application is simply impossible, the field is to wet or grown. In such a case, fungicide applications would not be possible and an entire crop could be lost.

As Schneider notes, many times there can be a late occurring plant disease, such as late blight, stripe rust or insects which can be very destructive. Schneider noted that "Ground spraying would be considered in lieu of aerial spraying, but may not be possible on short notice due to the field being too wet, particularly under wheel line systems." Thus, the EIS statement that aerial applicators could fly under the power lines is rejected by the actual survey of aerial applicators as referenced in Appendix K.

This is just another verification of the reasons not to force the line onto private agricultural land.

COMMENT 28.

EIS Section 2.9.1, Page 2-206

The EIS makes the comment that "Gateway West, by itself would have minor adverse impacts to private land uses or to agriculture with the degree of impact varying by alternative." Unfortunately the BLM has chosen the most impactful alternative, which unnecessarily and substantially increases the adverse effects to private land uses and agriculture. The BLM preferred alternative for Gateway West, for Segments 5 and 7, crosses 160.9 miles of private land. Power County has identified at least 175 separate parcels and 81 land owners impacted, crossed by the proposed route in Power County alone. The farmers impacted, as shown by the Schneider study (EIS153.4-42), do not believe these impacts to be minor.

On the same page, the BLM concludes that Gateway West, by itself, would have "significant adverse effects on some cultural resources." Saying that Gateway West would have minor adverse effects to private land uses, but then increasing the impact to significant adverse effects on cultural resources is inappropriate and does not give the proper weight to realistic review of the impacts. The BLM preferred alternative for segments 5 and 7 are 80% on private land.

The agricultural economic impact analysis conducted by Schneider Consulting Services, Appendix K to the EIS contradicts the above BLM conclusion. In summary, Schneider stated "Construction of power lines in agricultural areas causes a tremendous amount of disruption to producers on whose property the lines are constructed." Appendix K, Page 13.

Overall, the EIS downplays the cumulative impact on private property and agricultural uses while at the same time significantly overstating the cumulative effect on something like "cultural resources." The BLM does recognize, on Page 2-206 that there are "other past, present and foreseeable future projects including additional transmission lines which make the cumulative effects also significant."

The BLM notes that there are several "proposed transmission lines" in the area. The BLM lists

MSTI, and several other proposed routes, but does not list all of the routes that have been suggested or proposed. The Chinook transmission line proposal would largely follow Gateway West through Power and Cassia Counties. The Northern Lights project would have a substantial impact upon Power County agriculture. Compounding the Gateway West project by locating another one or two transmission lines along the same route, but 1,500 feet apart, could very well render that agricultural land of no use. Federal government programs such as the CRP program could be eliminated by the presence of numerous transmission lines.

Power and Cassia Counties submit that the BLM has not sufficiently studied the cumulative impact upon private land uses and agriculture.

Again the Schneider Analysis recognizes this fact. "The addition of another power line to the existing matrix would compound the problems landowners already face. This would particularly be true with aerial spraying, which would be very significant in some cases." Appendix K at Page 13.

From: Gateway BLM
Sent: Tuesday, July 02, 2013 11:03 AM
To: Gateway BLM
Subject: FW: Final EIS Comments by Power & Cassia Counties - addendum
Attachments: BLM Final EIS comments.pdf; Nonne Sage Grouse Report.pdf

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From: George, Walter [mailto:wgeorge@blm.gov]
Sent: Tuesday, July 02, 2013 7:43 AM
To: Joe Iozzi; Kerri Franklin
Subject: Fwd: Final EIS Comments by Power & Cassia Counties - addendum

This goes with the Cassia/Power County Comments submitted on Friday from Doug Balfour's office.

---------- Forwarded message ----------
From: <dbalsecr@gmail.com>
Date: Mon, Jul 1, 2013 at 11:08 AM
Subject: Final EIS Comments by Power & Cassia Counties - addendum
To: George Walt <wgeorge@blm.gov>

I was remiss in attaching the Nonne study that was referenced in our comments. It is attached. I apologize for the inconvenience.

For your convenience, I am also attaching our comments again so you have it all in once place.

PLEASE SEE ATTACHED.....

Julie Yeates
Secretary to Douglas J. Balfour
(208) 233-0680
(208) 233-0319 (fax)
This communication, including any attachment, contains information that may be confidential and/or privileged, and is intended solely for the entity or individual to whom it is addressed. If you are not the intended recipient, you should delete this message and are hereby notified that any disclosure, copying, or distribution of this message is strictly prohibited. If you receive this email in error, please contact the sender immediately either by return email or at #(208) 233-0680.

Dynamics of Greater Sage-grouse (*Centrocercus urophasianus*) Populations in Response to Transmission Lines in Central Nevada

Progress Report: Year 10

February 2013

Dan Nonne, Erik Blomberg, James Sedinger

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University of Nevada – Reno

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Reno, NV 89512

ABSTRACT We monitored greater sage-grouse (*Centrocercus urophasianus*) associated with 13 breeding leks to characterize demographic processes in a ~6500 km^2 area in Eureka County, Nevada. The long-term goal of this ten-year study is to assess the impact of NV Energy's Falcon-Gondor transmission line on sage grouse population dynamics. We used mark-recapture, lek observations, nest & brood monitoring, vegetation sampling, and radio telemetry to estimate key demographic parameters. We have banded a total of 1381 unique sage grouse during the nine years of the study. Additionally, we have radio-collared 225 female and 63 male sage-grouse during this time. We have also monitored 427 nests, of which 138 were successful. From 2009-2012, we captured and marked 349 chicks at hatch and recaptured 92 of the marked chicks at approximately one month of age.

Revised estimates of daily nest survival continued to be low (0.95 ±0.003 SE), which result in a nest survival estimate for the entire nesting period (37 days) of 0.16 (± 0.007 SE). Model results suggested a substantial amount of heterogeneity in nest survival estimates between females originally radio collared during the spring on leks and females radio collared during the late summer in brood rearing habitat. Although preliminary, these results may indicate a potential negative effect of fitting females with radio collars during the late summer when individuals are on average in poor body condition. We also found a significant negative effect of flushing a female from her nest (β = -0.17) on daily nest survival, however the effect of occasionally flushing a female on overall nest survival was insignificant. Additionally, we found a weak positive effect of observers visiting nests on daily nest survival.

We found strong support for a correlation between annual pre-fledging chick survival estimates and spring climate conditions, such as accumulated spring precipitation (β = 0.30). Overall chick survival to 45 days ranged from a high of 0.42 (±0.04 SE) in 2005 to a low of

0.099 (±0.03 SE) in 2007. Model results supported a positive influence of nest site elevation (β = 0.13) on early chick survival. Additionally, an interaction (β = 0.46) between the average distance a brood moved per day (β = -1.90) and May precipitation (β = 0.30) suggested that during years in which habitat conditions required larger brood movements, the cost of movement on chick survival were greater than in years of optimal habitat conditions.

We developed a novel approach for estimating female nesting propensity that accounts for sources of error due to imperfect detection of sage-grouse nests and female mortality during the nesting season. Annual estimates of nesting propensities of 1st nests ranged from 0.52 (± 0.02 SE) to 0.92 (± 0.01 SE), and annual re-nesting probabilities ranged from 0.14 (± 0.03 SE) to 0.40 (± 0.02 SE). Model results supported a quadratic effect of minimum hen age on nesting propensity (Hen age: β = 0.21, Hen age^2: β = -0.07), which estimated juvenile nesting propensity at 0.47 (± 0.01 SE) and estimated nesting propensity peaked at 0.86 (± 0.05 SE) at five years of age.

We included 376 radio-collared sage-grouse in an analysis of cause-specific mortality, and investigated 87 mortality events. Predation was the major source of mortality, and accounted for 89% of all mortalities during the study. During the nesting season, mortality by raptor and mammal predation was relatively equal, resulting in cumulative risks of 0.10 (95% CI = 0.05 to 0.16) and 0.08 (95% CI = 0.03 to 0.13), respectively. In the fall, the cumulative risk of mammal predation was greater ($M_{(mam)}$ 0.12; 95% CI = 0.04 to 0.19) than that of raptors ($M_{(rap)}$ = 0.05; 95% CI = 0.00 to 0.10) or human harvest ($M_{(hunt)}$ = 0.02; 95% CI = 0.0 to 0.06). During both seasons we observed relatively few additional sources of mortality (e.g. collision) and observed no instances of disease-related mortality (e.g. West Nile Virus).

We modified four analyses to investigate the influence of distance from the Falcon-Gondor transmission line on various demographic rates (nest survival, female survival, male survival, and pre-fledging chick survival). In the nest survival analyses, distance from Falcon-Gondor was not supported in model results, and its parameter estimate was not significant (β= 0.03 ± 0.07 SE). In the pre-fledging chick survival analyses, distance from the Falcon-Gondor transmission line was supported in model results and the parameter estimate was significant (β = -0.21 95% C.I. -0.42 - -0.12). However, the negative influence of distance from the Falcon-Gondor transmission line suggests that early chick survival was higher if the brood was located closer to the transmission line, which may potentially be confounded with differences in pre-fledging chick survival between the Roberts and Cortez populations. In the female survival analyses, we did not find support for an influence of nest distance from the Falcon-Gondor transmission line on spring, fall, or annual survival. In the male survival analyses, model results supported an interaction (β = -0.17) between the amount of wildfire footprint surrounding a lek (β = -0.13) and the distance of the lek from the Falcon-Gondor transmission line (β = -0.10) on survival of males. However, this interaction suggests that annual survival for males is higher for males that attend leks closer to the transmission line. This interaction was most likely driven by extremely low survival of males at the Horse Creek lek, which had the largest amount of wildfire scarring, and, coincidentally, was located the furthest from the Falcon-Gondor transmission line. In the male lek movement analysis, we found no support for an influence of the Falcon-Gondor transmission line on male movement rates between leks (β = -0.090 95% C.I. -0.875 – 0.693). We caution that many of the results we present have not been subjected to peer review and should be considered preliminary.

INTRODUCTION

Sage-grouse populations have declined range-wide since the mid 1960's, with some states showing stabilizing trends in the past two decades (Connelly et al. 2004). Sage-grouse are an obligate of sagebrush with both adults and young using this vegetation for food and shelter throughout the year and subsisting solely on it during the winter months (Beck 1977, Dalke et al. 1963, Wallestad et al. 1975). Human disruption of the sagebrush biome has contributed to approximately 530,000 square kilometers of sagebrush steppe habitat loss (Crawford et al. 2004, Connelly et al. 2004, Dalke et al. 1963). Given the amount of sagebrush steppe lost and sage-grouse dependency on sagebrush, it is believed that the loss and degradation of habitat is an important cause of population decline (Connelly et al. 2000a).

Elevated structures, such as utility lines can provide perches for avian predators that are higher than those supplied by local vegetation and topography (Ellis 1984, Braun 1998). The only post-hoc study of the impact of utility lines on sage-grouse suggested general lower lek attendance at leks closer to utility lines, but was unable to account for confounding factors that may have influenced both utility line placement and sage-grouse populations (Hall and Haney 1997). It is hypothesized that avian predators of sage grouse adults (raptors) and nests (corvids) may use utility poles and towers to increase their hunting efficiency, in turn reducing adult survival or nest success and triggering population declines in nearby leks (Hall and Haney 1997, Alstatt 1995). Alternatively, the perceived threat of predation associated with utility lines may cause sage-grouse to avoid utility lines, leading to sage-grouse abandonment of leks, nest sites, and brood rearing areas near utility lines (Hall and Haney 1997, Braun 1998). Recent indirect evidence supports an avoidance hypothesis, in that lek locations have been found to have the

least long range visibility in combination with greatest short range visibility that local topography will allow (Aspbury et al. 2004). In short, male sage-grouse may be choosing lek locations that maximize their visibility to female grouse near a lek, while reducing long range visibility to predators (Aspbury et al. 2004).

In fall 2003 Sierra Pacific Power Company (now NV Energy) began construction of a 345 kilovolt transmission line between Falcon and Gondor, Nevada (FG line) (Bureau of Land Management 2001). Construction of the FG line was completed in the spring of 2004 and was energized in May of that year. The FG line is approximately 290 km long and has 735 towers that vary in height from 23 to 40 m, depending on topography. The FG line runs through the middle of Eureka County's prime sage grouse habitat (M. Podborny, NDOW, personal communication).

OBJECTIVES

The goal of this study is to assess impacts of the FG line on population dynamics of greater sage-grouse in the region. The basic study design calls for estimation of key demographic parameters (male lek attendance over time, movement between leks, adult survival rates, nest success, brood survival, recruitment, and population size) as a function of distance from the line. Under the hypothesis that the line negatively affects local sage-grouse, we expect demographic responses to the line to be greatest for leks and/or individuals nearest the line. Distance from line will be directly incorporated into models of demographic parameters to assess this hypothesis. For parameters in which we hypothesize a time delayed response (e.g., adult survival following an increase in raptors) the appropriate analysis includes a time by distance interaction. Thus, though it may not be immediate, we expect (under the hypothesis of an impact of line) a greater decline in adult survival for leks near the line than for leks distant from the line.

To this end, several leks at varying distances from the FG line were chosen to be monitored for ten years. At each of these leks a regime of capture-mark-recapture and observations throughout the strutting season was initiated. We also radio tagged a sample of hens captured each year and followed these hens throughout the breeding, nesting, and brood-rearing seasons. From 2005-2011, we used a combination of Passive Integrated Transponder (PIT) tags and patagial tags to permanently mark sage grouse chicks. Also in 2005, we began what has become an annual fall trap with Nevada Department of Wildlife (NDOW) to increase number of radio-tagged individuals in the population, hunter band returns and number of radio tagged young.

STUDY AREA

The study site is located in east central Nevada within Eureka County (Fig. 1). It is bounded by the Cortez and Simpson Park Mountains to the west and the Diamond and Sulphur Spring Mountains to the East. This area includes Denay, Pine, Kobeh, Diamond, Horse Creek, Grass, and Garden valleys. The study area encompasses approximately 6500 km^2 of sagebrush steppe and pinyon-juniper mountain ranges with many ephemeral streams. Sage-grouse utilize two main sagebrush communities in the study area. At low elevations (< ~7000 ft), a Wyoming big sagebrush (*A. tridentata wyomingensis*) community is dominant, with pockets of black sagebeush (*A. nova*) and basin big sagebrush (*A. tridentata tridentata*), as well as rubber rabbitbrush (*Chrysothamnus nauseosus*), greasewood (*Sarcobatus vermiculatus*), and some scattered Utah juniper (*Juniperus osteosperma*). At higher elevations (> ~7000 ft), a mixed mountain big sagebrush (*A. tridentata vaseyana*)/low sagebrush (*Artemisia arbuscula*) community is most prevalent, with some intermixed common snowberry (*Symphoricarpos albus*), western serviceberry (*Amelanchier alnifolia*), and bitterbrush (*Purshia tridentata*). Large

expanses of singleleaf pinyon (*Pinus monophylla*)/Utah Juniper forest are also common in the study area and in many cases are found mid-elevation between the two sagebrush communities. Common annual and perennial forbs include phlox (*Phlox* spp.), cateyes (*Cryptantha* spp.), tansy mustard (*Descurainia pinnata*), bur buttercup (*Ceratocephala testiculata*), woolystar (*Eriastrum* spp.), lupine (*Lupinus* spp.), desert parsley (*Lomatium* spp.), and desert buckwheat (*Eriogonum* spp.). Grasses consist of blue grass (*Poa* spp.), cheatgrass (*Bromus tectorum*), crested wheat (*Agropyron cristatum*), indian rice grass (*Achnatherum hymenoides*), and squirrel tail (*Elymus elymoides*). Sage-grouse were generally associated with 2 distinct populations centered on Roberts Creek Mountain and the Cortez Mountain Range. Movements of sage-grouse between these two populations appear to be relatively infrequent.

The study area includes 120 km of the FG line and focuses on thirteen active leks at various distances from the FG line (Fig. 1). Five of these leks have been monitored by NDOW and Bureau of Land Management (BLM) for the past thirty years. Long term data show male lek attendance at these leks has been declining since the early ‘70s with some signs of stabilization in the late ‘90s (Fig. 2).

METHODS

Field Methods

Mark Recapture - The predominant trapping method used to capture adult sage grouse was night spotlighting (Giesen et al. 1982). We used a high candlepower spotlight to disorient birds while a dip net was placed over them, with white noise generated throughout to mask researcher movement. Binoculars and eyeshine were used to increase the distance at which birds are detected (Wakkinen et al. 1992). To supply power for the spotlight and white noise we used either an ATV or a portable generator strapped to a backpack frame. Small diameter mesh

(Giesen et al. 1982) or rubber netting was used to decrease damage to plumage. We tried other methods, such as ground mounted rocket nets (Giesen et al. 1982) and walk-in traps (Schroeder et al. 1991), but these methods were not as successful.

During the breeding season, we captured individuals on each study lek and surrounding area approximately once a week. During the late summer/early fall trap, known brood rearing areas and ridges were scouted one week before the capture, and then intensively trapped for three nights during the new moon in August or September. Upon capture, birds were aged, sexed, weighed, and a series of morphological measurements were taken (length of 1st primary, 5th primary, wing chord, tarsus, foot, and number of tail feathers). Each bird was banded with a National Band and Tag metal band, size 16 for males and 14 for females (Walsh 2002), and all adults and those young that were large enough were banded with a colored plastic band engraved with three character alpha-numeric code for re-sighting during lek observations. All hens captured during the lekking season and a subset of hens captured during the fall trap were fitted with a radio collar. A subset of males were radio tagged in both spring and fall. We used radios from Advanced Telemetry Systems, model number A4060. Each radio weighed approximately 22 g, had a battery life of 383-766 days, and a range of 1-5 miles depending on terrain.

Lek Observations - We monitored 10 leks in 2003, 11 leks in 2004 & 2005 12 leks in 2006 & 2007, and 13 leks in 2008-2012, within 20 km of the transmission line. Six leks were within 5 km of the FG line and seven leks were greater than 5 km away. Leks were selected by evaluating previously collected data from BLM and the NDOW. Precise locations of monitored study leks are shown in Figure 1. Each study lek was observed approximately once a week throughout the breeding season, March through May. Observers arrived on the leks 1/2 hour before first light, and remained until strutting activity ceased or birds disbursed (Walsh 2002). During these

periods, researchers monitored leks from mobile blinds with high-powered (15x60) spotting scopes and binoculars. We occasionally included a mobile observation tower to facilitate band reading where terrain permitted and vegetation characteristics required it. In 2011, we placed trail cameras on leks to generate additional band reads. We counted the number of males and females, marked and unmarked, on leks every 30 minutes during each observation period. We also recorded individual band codes (resights) and behavioral interactions with potential predators. For lek disturbances, bird behavior, time, number of birds affected, and type of predator/disturbance were recorded.

Radio Telemetry **-** During the nesting season (late March to mid June) we attempted to locate each hen at least once weekly either visually or by triangulation. Nesting hens were monitored twice weekly, and hens with broods were monitored once a week until 45 days post hatch (Schroeder 1997). Following nest failure hens were returned to the breeding season regime above. If a nest failed after strutting ceased the hen was monitored for survival approximately once a week. After all radio-collared hens had fledged their young or failed, they were monitored approximately once a month using fixed-wing aircraft until the next breeding season. In 2008, 2009, and 2010, all birds were monitored more intensively from August – October to document patterns in fall mortality (further description and results in Blomberg et al. 2010).

Nest Monitoring & Vegetation Sampling **-** Upon locating a nesting hen, a visual check point at least twenty meters away was marked with a cairn of rocks or local debris and a GPS point recorded. If environmental conditions were favorable (no storm on the horizon and no predators seen nearby) the hen was approached and flushed from the nest. Size of clutch was recorded, eggs were floated to determine stage of incubation, and each egg's length & width was measured. Age of each nest was estimated using egg float data, assuming incubation began with

laying of the last egg and one egg was laid every 1.3 days (average laying time per egg [Dalke et al. 1963]). Within 24 hours the nest was checked again from a distance to confirm the hen's return. Nest monitoring followed a twice weekly regime until hatch or failure. A nest was determined successful/hatched if the hen was located nearby with chicks or if at least one egg was present with crown removed and/or the shell membrane was present and detached.

Vegetation was measured at each nest site within 3 days of hatch, or on the predicted hatch date for failed nests. We placed two perpendicular 10 m transects centered at the nest and recorded the percent shrub cover for each meter along the transect (Gregg 1994). In addition, five 20 X 50 cm Daubenmire plots were placed along each transect, where percent cover of grass and forbs was estimated and all plants were measured and identified to species. The same data collected for the Daubenmire plots were also collected for the m^2 area around the nest bowl (Sveum 1998). These same vegetation measurements are also made at 24 random points, located throughout the study area each year.

Brood Trapping, Monitoring, & Vegetation - Within three days of hatch broods were trapped and processed (Crawford and Gregg 2001). Like Crawford and Gregg (2001) we found hens to still be brooding their young during the hours before dawn within 2 to 3 days after hatch. Hens were flushed and the young were gathered by hand and placed in a cloth sack, which was then placed inside a researcher's jacket to maintain chick body temperature. Processing involved weighing the individual chicks, measuring their tarsus, foot, and length of bill to back of the head, as well as uniquely marking each individual (Carver et al. 1999, Becker et al. 1997). In 2005 and 2006 we used passive integrated transponder (PIT) tags. In 2007 we included patagial wing tags (#1 fish fingerling tags), and double marked all chicks with one PIT and one wing tag. In 2008 we completely shifted to using only patagial wing tags in both wings, and continued this

practice through 2011. After processing, chicks were placed in another cloth sack which was also placed inside a researcher's jacket and checked periodically to determine condition. Once processing was completed, the entire brood was released together and researchers moved away from the brood in the direction opposite where the hen was last heard or seen. Throughout processing the brood the hen's position was periodically determined via radio or visual check, and we remained in the area long enough to confirm reassociation of the hen and chicks.

After capture, broods were checked once a week, hens were flushed and chicks counted to determine fledging and survival rates. In 2008, we modified brood check procedures to increase the precision of our brood count estimates. From initial capture to ~ 30 days of age, each brood was flushed weekly during the early morning while the chicks were still congregated near the hen. Following 30 days, chicks were counted while roosting at night using a spotlight and binoculars/spotting scope. We continued to collect a daytime location once a week for vegetation monitoring, however lower importance was placed on obtaining a mid-day flush count. Each daytime location was recorded using a GPS and we returned in 3-6 days to measure vegetation. Vegetation measurements were the same as those for 10 m nest transects. In addition to the vegetation measurements, we placed 5 pit traps filled with nontoxic glycerin glycol along one of the transect lines to assess arthropod densities (Crawford and Gregg 2001).

In 2009 we began recapturing chicks at ~ 28 days of age to measure growth rates and collect feather samples for stable isotope analysis, and in 2011 we began additional recaptures of chicks at ~ 45 days and ~80 days of age to calculate more precise estimates of chick survival. We located broods at night using the hen's radio signal, and attempted to capture as many chicks from the brood as possible using our normal spotlighting techniques as described above. Captured chicks were identified by their patagial tags, weighed, and measures of head, foot,

tarsus, and wing chord were taken. On the 28 day recapture occasion, we collected feathers from the secondary, lower, mid and upper covert, scapular, and back feather tracts for stable isotope analysis. On the 80 day recapture occasion, female chicks that were large enough were equipped with an 11-gram radio-transmitter.

Raptor/Corvid Surveys - Three transects were located along the FG line in the north, central, and southern portions of the study area. The northern transect had 9 points, the central had 9 points, and the southern had 5 points. We attempted to survey each transect once every 10 days. Starting times (1 hr after sunrise or at 13:00 hrs) and starting direction (north or south) were alternated. Surveys were not conducted if there was precipitation, fog, or if wind speeds exceeded 19 km/hr. Observers spent 10 minutes at each point, identified all raptor and corvid species, number of individuals, activity (perched or flying), location if perched (power line, deterrent, fence, etc), and whether it was within ¼ mile of the line or beyond.

Quantitative Analyses

For 2012 we've conducted demographic analyses in Program MARK (White and Burnham 1999) using data from our marked individuals to answer specific research questions regarding various sage-grouse life history stages. We will discuss the specific MARK models briefly, and then focus on each individual life stage analysis.

General modeling approach **–** All demographic analyses were based on competing general linear models using an information theoretic approach to model selection (Burnham and Anderson 2002). We evaluated support for explanatory covariates based on their inclusion in competitive models (ΔAIC <3.0), and their β coefficients and associated estimates of variance. All covariates were z-standardized (mean = 0.0, standard deviation = 1.0).

Female analyses - From our female radio-telemetry data, we used known-fate and cumulative incidence function models to estimate probabilities of weekly survival and cause-specific mortalities (avian or mammal) during periods of higher mortality (spring and fall).

We also used our female telemetry data to construct a multistate analysis, which estimates the probability of transitioning to a defined state based on previous status and explanatory covariates. We developed a novel multistate approach that uses repeated visitations of individuals in observable states to estimate female breeding propensity; the probability a female initiates a nest or second nest. We used our nest monitoring data to estimate daily nest survival probabilities and evaluate the influence of ecological covariates on nest success. Using weekly counts of chicks associated with our radio-collared hens, we conducted a Lukac's young survival analysis to quantify survival rates of chicks from hatch to 45 days. The Lukac's models estimate period survival rates based on repeated counts of young present with marked adults, where detection probability is explicitly incorporated using variation in counts through time.

Nest survival

For 2012, we revised two nest survival analyses. First, the full 10 year dataset was used to investigate the influence of disturbance, vegetation, spatial, temporal and demographic covariates on nest survival. Temporal covariates included year and day, an index of annual raven abundance, population, season trapped, and Julian date of nest initiation. Demographic covariates included hen age, nest attempt, and clutch size. Nest vegetation covariates included percent cover within nest meter^2, average forb height within nest meter^2, average grass height within nest meter^2, average forb height within Daubenmire plots, average grass height within Daubenmire plots, percent shrub cover on the 10m transects, percent sagebrush cover on the 10m transects, and percent non sagebrush shrub cover along 10m transects. Spatial covariates,

measured as total area (ha) within 1km of the nest, included wildfire footprint, pinyon-juniper forest, all sagebrush habitat, Wyoming sagebrush habitat, and mountain sagebrush habitat. We also included nest site elevation, distance to the nearest road, and distance to the Falcon-Gondor power line as spatial covariates. Vegetative spatial covariates were generated from the Southwest Regional GAP database, The NDOW wildfire data layer, a roads data layer, and a data layer that delineated Falcon-Gondor. Secondly, we used nest data from 2005-2012 to evaluate observer impacts on nest survival. We modeled effects of both general nest visitation and flushing females from the nest using time-varying covariates to evaluate the influence of each potential visitor impact on nest survival. These covariates allowed for independent estimates of daily nest survival on occasions where a nest was not visited by an observer and on occasions following nest visitation or flushing of a female from a nest.

We used a systematic procedure for building competing models of daily nest survival across covariate types and spatial scales. First, we ran a series of basic models that only considered variation in temporal structure, and the most competitive of these models was used as the basis for subsequent models. Single covariates were then added to the best time model, and were retained and further combined into more complex models when 85% confidence intervals of covariate parameter coefficients (β) did not overlap 0.0. We also considered interactions between individual covariates, and retained them when model fit improved compared to models that did not contain the interaction term. After all other model structures were considered, we included visitation and flushed from nest covariates to evaluate the potential impact of observers on nest survival.

Chick survival to 45 days

We revised our chick survival analysis using the Lukac's module to estimate survival of young from marked adults. We used flush count data collected from 2005-2012 to estimate chick survival from hatch until approximately 45 days. For 2012, we developed time-varying covariates that represented estimates of daily changes in a brood's location and elevation to investigate the effect of brood movement patterns. Additionally, we developed a time-varying covariate that represented the Euclidian distance of a brood from the Falcon-Gondor transmission line to investigate the influence of transmission lines on brood survival. We also considered hen age, nest site elevation, hatch date of the nest, and population (Roberts or Cortez) as covariates in model selection.

Nesting propensity

We used multistate models in Program MARK to estimate the probability of nest initiation and nest failure. This analysis allowed us to estimate the proportion of females that nested each year while accounting for the fact that we could not detect every nest. Encounter histories for these models were generated from repeated observations of radio-marked females during the nesting season from 2003-2012. The encounter history was comprised of 30 two-day intervals which approximately corresponded with the nesting season (the beginning of April until the end of May). We censored individuals from the analysis after either mortality or nest success to minimize the number of states needed to efficiently run our analysis. Individuals that were censored contributed to parameter estimates until the interval their nest hatched or the female died.

Each female was classified in one of three states, not nesting (A), first nest attempt (B), and re-nest attempt (C), each time she was observed. The multistate framework allowed us to estimate transitions (ψ) between and within the various 'nesting' states. For example, the

transition A-B was the probability of an individual initiating a nest during a specified interval, and the transition B-A was the probability of a nest failing during a specified interval. A direct transition from B-C was constrained to be zero, as a female had to transition to back to A before transitioning to C. Transitions from C-B were also constrained to zero for logical reasons. We modeled transition parameters to allow for variation between years and bi-weekly variation within years. Interval estimates of the probability of transitioning from not nesting to nesting were used to estimate the overall female nesting propensity for each year (i.e. the proportion of females that attempted to nest in a given year). Minimum age of the female was considered as an individual covariate on detection and transition parameters.

Female seasonal mortality.

We conducted two separate analyses as part of this research; a known-fate survival analysis (Sandercock 2006), to evaluate sources of individual and temporal variation in weekly survival, and a cumulative incidence function model (Heisey and Patterson 2006) to assess the relative risk of cause-specific sources of mortality. We conducted both analyses because the former allowed us greater flexibility in evaluating sources of variation in mortality rates (1 – Survival), whereas the later allowed us to directly compare relative risks among competing sources of mortality. Because of the large gap between the nesting and fall seasons (1 June – 14 August), and because of varying years of data availability, we conducted separate analyses for each season.

We first summarized live/dead signals into seven-day encounter histories for each season, and estimated survival rates during these weekly intervals using the known fate module of Program MARK (White and Burnham 1999). We tested for potential sources of variation in survival using competing general linear models, in which we incorporated varying temporal and

individual effects on weekly survival. Modeled temporal effects included annual, weekly, and bi-weekly variation, as well as models where we considered linear and quadratic trends on weekly survival. Individual effects included individual age (subadult, <1 year old; adult, >1 year old) and sex (male vs. female; fall only). We also considered an interaction effect between age and sex in the fall analysis.

For the spring season, we wanted to evaluate whether females experienced greater mortality risk while incubating eggs compared to periods when they were not known to be sitting on a nest. This question is somewhat complicated, however, because females that survived an entire interval had inherently longer time to be detected on a nest, which may have introduced a confounding source of variation. For this reason, we only considered the effect of nesting status in interval t on survival during interval $t+1$, and including nesting status as a time-varying individual covariate.

We hypothesized that the timing of raptor migration may influence mortality in our system during the fall (Robinson et al. 2009). We obtained raptor migration data from HawkWatch International (www.hawkwatch.org) for their Raptor Migration site in the Goshute Mountains, located at a similar latitude and approximately 175 km east of our study site. These data consisted of daily counts of individual raptors, by species, and were collected by HawkWatch personnel between 15 August and 5 November each year. For this analysis we considered migration timing for all raptors, all *Accipiter* spp., all *Buteo* spp., and golden eagles only. We first adjusted raw counts to correct for daily variation in the number of observers or total hours of observation in a given day. We used the GENMOD procedure with a specified Poisson distribution in SAS (SAS Institute, Cary, NY) to regress the daily count for each raptor group on the number of observers and total hours of observation recorded for that day. We calculated

daily residual scores for each species or species group based on these regressions, and used these values as corrected estimates of daily passage rates. To evaluate correlations between timing of raptor migration and sage-grouse survival, we calculated mean weekly passage rates for each raptor group, and used these values as weekly group covariates in our survival analysis. In this way, we were able to test for potential effects of timing (within year) and magnitude (among year) of raptor passage rates on sage-grouse survival. Finally, we also examined the possibility of reduced survival during the 15-day sage-grouse hunting season by evaluating models where survival was constrained to be different during weekly intervals that overlapped the hunting season.

In each analysis we evaluated support for individual and temporal covariates by comparing them to an intercept-only null model (i.e., no meaningful variation in weekly survival) using an information theoretic approach (Burnham and Anderson 2002). We considered any model within 2.0 ΔAIC_c of the best model to be competitive, but also assumed those models which did not outcompete the null model did not explain meaningful variation in weekly survival rates. We present model-averaged survival estimates ± SE, and report parameter coefficients (β) along with 85% confidence intervals (Arnold 2010), and considered covariate effects to be meaningful when 85% confidence intervals did not overlap 0.0.

Our second objective was to evaluate the relative risk to sage-grouse from differing sources of mortality (e.g., mammal vs. raptor predation). Heisey and Fuller (1985) developed a modified Kaplan-Meier approach to estimating cause-specific mortality risk in a staggered entry design. In our study individuals entered the sample in staggered intervals, and the timing of different sources of mortality was not evenly distributed across the sample interval (Fig. 1), so our data were appropriate for a staggered entry approach. We used the R (CRAN; http://cran.r-

project.org/) package wild1 to estimate non-parametric cumulative incidence functions, which describe the cumulative risk of cause-specific sources of mortality (e.g. human harvest), $M(k)$, during successive study intervals (Heisey and Patterson 2006). This approach allowed us to also estimate the cumulative risk of mortality, $M(t)$, which was simply the sum of each individual risk function, including mortalities that could not be attributed to a specific cause. We note that this cumulative mortality risk should be equivalent to overall fall survival probability based on known-fate estimates, that is $M(t) \sim 1 - \Phi_{(\text{fall})}$, although we expected slight differences due to variation among the analytical methods. We calculated cumulative incidence functions for each weekly interval, and assessed risk individually for mammalian predation, raptor predation, and mortality associated with human harvest (fall only). During each season, we also included a final unknown catch-all category to account for mortalities where cause could not be established. Although these instances represented a relatively small proportion of total mortalities during our study, it allowed for $M(t)$ to more accurately reflect the overall survival of our sample.

Male lek fidelity - We used multistrata robust design models in Program MARK to estimate the probability that a male sage-grouse moves from one lek to another lek from one year to another. Multistrate robust design models allow for the estimation of transition parameters, in addition to 'true' detection and apparent survival. We used a two-state multistrata design in which the states represented an individual being detected on the same lek during occasion(t+n) then on occasion(t), or that an individual was detected on a different lek during occasion(t+n) then on occasion(t). These transition parameters allowed us to estimate the annual probability that a male would move to a new lek, after accounting for both survival and detection. The encounter history for these models were generated from the full male capture-mark-recapture data collected from 2003-2012. Covariates included in model design included population, as well

as time varying covariates that represented minimum age of a male in a given year, distance from a male's current lek to the Falcon-Gondor transmission line, amount of wildfire scarring around a male's lek, the elevation of a male's lek, and male and female high lek counts for a male's lek.

Transmission line analyses – We included distance to the Falcon-Gondor transmission line as a covariate in various analyses to document potential influence of transmission lines on multiple life history stages for male and female sage-grouse. For this report, we used known fate, nest survival, Lukac's young survival, multistrate robust design, and Cormack-Jolly-Seber models to estimate the influence of transmission lines on female survival, nest success, chick survival, and male survival.

RESULTS

Field Results

Banding - During spring trapping we have banded a total of 1116 sage grouse (891 males and 225 females) over ten years of the project (Table 1). During fall trapping, we banded 264 sage-grouse (155 females, 96 males, and 13 unknown gender chicks) over 7 years. Including multiple captures of the same individual within the same year included, we have captured a total of 1785 sage grouse over ten years of this study.

Lek Observations - We conducted 107 total lek observations during the 2012 breeding season. The total number of males observed across all leks continued to show signs of stabilization (Table 2). We observed increased male attendance on 6 leks (Dome House, Lone Mountain, Kobeh, Horse Creek, Pony Express, Quartz Road), and decreased male attendance on 6 leks (Big Pole, Buckhorn, Gable Canyon, Henderson Pass, Modarelli, Pinefield). We observed no males strutting on Camp lek for the third straight year. In 2012, we generated 135 total resights of 42

unique individuals. Total resights of color-banded individuals by year are summarized in Table 1.

Raptor Surveys - In the ten years of the study we conducted 212 raptor surveys for a total of 1620 individual point counts. The average number per point for each of the most common raptor species has remained relatively stable over the study (Table 3). The average numbers of common ravens seen per point increased dramatically between 2003 and 2007, declined drastically during 2008 to the second lowest level since the project was initiated, and have again increased over the past 4 years to near 2007 levels (Fig 3). A similar trend in common ravens sightings at sage grouse leks was also observed (Fig. 3).

Nest monitoring – We discovered and monitored 427 nests from 249 unique females from 2003-2012, of which 138 nests from 116 unique females were successful. We classified 355 of the nests at first nests, 66 as second nests, and 6 as third nest attempts. Adults initiated 312 of the nests, juveniles initiated 96, and 19 nests were from females of unknown age. Additional information regarding annual nesting summary statistics can be found in Table 4.

Brood/Chick Monitoring - We captured and marked 120, 122, 110, and 97 unique individual chicks from 2009-2012, respectively, and recaptured 14, 26, 27, and 25 of them at approximately 28 days of age. In 2012, we recaptured two adult male sage-grouse that were originally marked with a patagium wing marker at hatch. One male that was recaptured as an adult at the Dome House lek was originally marked in 2010 as a chick. His mother was captured at Dome House and in 2010 nested approximately 1.5 km from the dome house lek. The other male was recaptured as an adult at Quartz Road and was originally marked in 2008 as a chick. His mother was originally captured at Horse Creek and nested approximately 3.6 km from the Quartz Road lek in 2008, and in 2009-2010 she bred at Quartz Road.

Radio Telemetry & Known Fate - A total of 225 females and 63 males have been radio collared during the spring over the study. During the fall (in collaboration with NDOW) we have radio collared 140 females of which 83 have been adult birds (>1 year old) and 76 have been young of the year (YOY) hens. We have also radioed 16 YOY males during the fall. The number of females monitored per year and breeding rates are summarized in Table 5.

Quantitative Analyses

Nest Success - Overall model-averaged daily nest survival for the study area was 0.955 (± 0.003 SE) with an overall probability of nest success based on a 37-day nesting period of 0.186 (± 0.009 SE). Top model structures included positive effects of clutch size (β = 0.270, 95% CI = 0.113 — 0.426), coverage of non-sagebrush shrubs within 100 m^2 of the nest (β = 0.148, 95% CI = -0.022 to 0.317), population (β = 0.139, 95% CI = 0.003 to 0.274), nest initiation date (β = 0.076, 95% CI = -0.074 to 0.226), and forb cover (β = 0.209, 95% CI = 0.048 to 0.375) (Table 6) In addition, we found negative effects of the season the hen was trapped (β = -0.092, 95% CI= -0.240 to 0.057), total hectares of wildfire-impacted area within a 1 km radius of the nest (β = -0.243, 95% CI = -0.389 to -0.098), minimum hen age (β = -0.131, 95% CI = -0.265 to 0.003), and percent of habitat classified as sagebrush within 5 km of a nest (β = -0.178, 95% CI = -0.329 to -0.026) (Table 6, Fig 4). We found support for interactions between non-sagebrush cover and season trapped (β = -0.193, 95% CI = -0.329 to –0.055), forb cover and season trapped (β = 0.242, 95% CI = 0.064 to 0.420), clutch size and minimum hen age (β = 0.141, 95% CI = 0.003 to 0.279). Inclusion of the distance from the Falcon-Gondor transmission line covariate did not improve model fit and its parameter estimate was not significant (β= 0.03 ± 0.07 SE), which suggests that distance from Falcon-Gondor is not influencing nest survival.

The interaction between clutch size and minimum hen age (Fig. 5) suggested that younger females were more successful than older females when incubating smaller clutches; however older females were more successful than younger females when incubating larger clutches. This interaction may support a trade-off between body condition and overall nest survival. Younger females, which are arguably in poorer body condition than older females, that expend less energy during egg laying may be in better condition during incubation than younger females that laid larger clutches. Whereas, small clutch sizes from older females could be indicative of females in very poor body condition. Furthermore, adult females that lay large clutches may have the nutrient reserves to not only lay a large clutch, but to successfully incubate it.

The interactions between season a female was trapped and non-sagebrush shrub cover (Fig. 6), and percent forb cover (Fig. 7) suggests variability in the relationship between habitat and nest survival between the spring and fall caught groups. Currently, the mechanism for why spring and fall caught birds are responding differently to habitat conditions is not clear. However, the variation may be correlated with spatial autocorrelation between the spring and fall caught samples, which support the hypothesis that spring-caught females are more likely to nest closer to other spring-caught females than a fall-caught female, and vice versa for fall-caught females ($p < 0.05$).

Additionally, we found support for a positive effect for visiting a nest during laying or incubation ($\beta = 0.193$, 95% CI = -0.052 to 0.438) and a negative effect of flushing a female from a nest during the laying period ($\beta = -0.249$, 95% CI = -0.508 to 0.111), but no support for a negative effect for flushing a female from a nest during incubation ($\beta = 0.010$, 95% CI = -0.172 to 0.152) (Table 7). Model results suggested a lower daily survival rate for the day following flushing a hen from a nest during the laying phase (0.930 ± 0.019 SE) compared to the daily nest

survival estimate on a day a hen was not flushed (0.969 ± 0.012 SE). However, there was not a substantial difference between overall nest survival probabilities between nests where the female was not flushed and nests that were occasionally flushed (Fig. 8). Additionally, the positive influence of nest visitation did not result in a substantial increase in overall nest survival as the number of observer visits increased (Fig. 9). We acknowledge that the positive influence of visiting a nest may be confounded because nests that survive longer are on average visited more. Our results suggest that our methodology of nest visitation or occasionally flushing a female did not bias our estimates of nest success.

Chick Survival – Model-averaged results supported a large amount of annual variation in pre-fledging chick survival (Fig. 10). Overall chick survival to 45 days ranged from a high of 0.421 (±0.040 SE) in 2005 to a low of 0.099 (±0.026 SE) in 2007. Model results supported a positive influence of nest site elevation (β = 0.132, 95% C.I. -0.040 – 0.304) on early chick survival as well as negative influences of brood movement (β = -1.901 95% C.I. -2.50 – 1.302) and distance from the Falcon-Gondor transmission line (β = -0.207 95% C.I. -0.415 - -0.124) (Table 8). The negative influence of brood movement on chick survival was more apparent on younger chicks, however all broods experienced low chick survival when average daily movements exceeded 400m (Fig. 11). The negative influence of distance from the Falcon-Gondor transmission line suggests that early chick survival is higher if the brood is located closer to the transmission line (Fig. 12). This effect may be an artifact of differences in early chick survival between the Roberts Creek and Cortez mountain populations. Broods affiliated with the Roberts Creek were on average closer to the transmission line, and had generally higher chick survival than broods affiliated with the Cortez Mountains, which are located further away from the transmission line.

Model results supported a very strong positive relationship between spring precipitation and early chick survival (Fig. 13). Previous analyses suggest that the negative effects of drought on chick survival was compounded by broods moving further during dry years to get to brood-rearing habitat than it wet years, which also increased mortality (Fig. 14). Broods are most likely required to undertake longer movements due to the loss or degradation of low elevation brood habitat, which forces females to move their broods to higher elevation habitats. The overall impacts of degradation of low elevation habitat may be that chick production is only sufficient to increase population size during wetter than average years.

Female seasonal mortality **-** We monitored 203 unique female sage-grouse during the nesting season between 2008 and 2012, and 132 unique female and 41 unique male sage-grouse during the fall between 2008 and 2010. Of the unique individuals we monitored, 74 were classified as subadults during one nesting season, and 26 were classified as subadults during one fall season. During our study we investigated 87 mortalities of radio-marked sage-grouse. The most common source of mortality was predation, which accounted for 89 % (N=77) of all mortalities (Fig. 15). During the nesting season, we classified 24 predation events as mammalian, 18 predations as raptor, and four predations for which we could not determine predator type. During the fall, we classified 18 predation events as mammalian and nine predation events as raptor, and could not determine the type of predator for three additional predation events. Hunters legally harvested and reported two female and two male sage-grouse during the fall, and an additional female was determined through necropsy to have been shot and not recovered during the hunting season. We classified five additional fall mortalities as unknown, two of which were not recovered quickly enough to establish cause of death, but evidence at the mortality site was consistent with either predation or scavenging. One additional bird was

recovered with broken neck vertebra, and may have collided with a nearby (~20 m) barbed-wire fence. Finally, we observed a female sage-grouse that was unable to fly on 2 October 2009, and recovered her dead and partially predated/scavenged four days later before the mortality sensor on her collar had switched to a dead signal (i.e., <8 hours post-death). Because we had observed this female in a live but compromised state prior to being predated, we classified her cause of mortality as unknown rather than predation. Sufficient tissue remained for this female and four additional sage-grouse for West Nile Virus testing at the Oregon State University Veterinary Diagnostic Laboratory, and each of these tests returned negative results.

Results of known-fate analysis showed support for effects of year and individual age on weekly survival during the nesting season (Table 9). We found support for a positive age effect on weekly survival (β = 0.29; 85% CI = 0.09 to 0.43), suggesting adults had higher weekly survival (φ = 0.99 ± 0.01) compared to subadults in their first breeding season (φ = 0.98 ± 0.01). Model selection results also suggested annual variation in weekly survival rates, which ranged from a low of 0.96 ± 0.02 in 2008, to a high of 0.98 ± 0.01 in 2012. We found no evidence for an effect of nesting status on weekly survival rates, and no support for within-year temporal variation in weekly survival (Table 9). Based on model-averaged parameter estimates, the overall probability of a female sage-grouse surviving the 8-week nesting season was 0.79 ± 0.01.

Competitive models in our fall survival analysis included effects of age and a linear weekly trend (Table 10). We found substantial support for a positive age effect on weekly survival (β=0.83; 85% CI = 0.21 to 1.45), which suggested average weekly survival was higher for adults (φ = 0.98 ± 0.03) compared to hatch-year birds (φ = 0.95 ± 0.04). Model results also provided suggestive evidence for a positive temporal trend on weekly survival (β=0.09; 85% CI = 0.01 to 0.17), however a model that did not contain the weekly trend was also competitive (ΔAIC_c =

0.37). In general model selection results suggested relatively low variation in weekly survival within the fall period, as indicated by inclusion of the intercept-only null model in the competitive model set (ΔAICc = 1.21), and a relatively small amount of variation between minimum and maximum weekly survival estimates within the fall period. Model-averaged estimates of weekly survival ranged from 0.97 ± 0.01 to 0.98 ± 0.01, and the overall probability of a sage-grouse surviving the 10-week fall period was 0.79 ± 0.03. We found no support for an effect of raptor migration timing on weekly survival rates for any raptor species group we considered, and found no support for reduced weekly survival during the hunting season (Table 10).

During the nesting season, predation risk was similar between raptor and mammalian predators. The cumulative risk of mammal predation during the entire 8 week study interval was 0.10 (95% CI = 0.05 to 0.16), whereas the cumulative risk of raptor predation was 0.08 (95% CI = 0.03 to 0.13). We found no evidence for variation in timing of these two competing mortality risks, and both appeared evenly distributed across the spring nesting period (Fig. 16). The cumulative risk of mortality during the entire nesting season, including sources of unidentified mortality, was 0.21 (95% CI = 0.16 to 0.26), which was consistent with our known-fate survival estimates for the same period (φ = 0.79; 95% CI = 0.77 to 0.81).

Predation by mammals represented the largest mortality risk to sage-grouse during the fall; cumulative hazard functions estimated the risk of mammal predation during the entire 11-week study interval as 0.12 (95% CI = 0.04 to 0.19), and risk of mammalian predation was proportionally higher during the early portion of the season (Fig. 15). The second greatest risk of known mortality was predation by raptors, with a cumulative risk of 0.05 (95% CI = 0.00 to 0.10). In contrast to mammal predation, risk of predation by raptors was generally evenly spread

across the fall season (Fig. 15). Risk of human harvest was lower than either forms of predation risk ($M_{(hunt)}$ = 0.02; 95% CI = 0.0 to 0.06), and occurred in conjunction with the annual sage-grouse hunting season (Fig. 16). After accounting for sources of unidentified mortality, the cumulative risk of mortality during the entire fall season was 0.23 (95% CI = 0.17 to 0.29), which was consistent with our estimate of cumulative survival based on the known-fate analysis (φ = 0.79; 95% CI = 0.73 to 0.85).

Nesting Propensity - Model results supported annual variation in both probabilities of nesting and re-nesting (Table 11). Annual estimates of nesting propensities of 1st nests ranged from 0.52 (± 0.02 SE) to 0.92 (± 0.01 SE), and annual re-nesting probabilities ranged from 0.14 (± 0.03 SE) to 0.40 (± 0.02 SE) (Fig. 17). Additionally, the annual variation in female nesting propensity estimates mirrored previous analyses that reported estimates of male lek attendance (Fig. 18), which were generated from different datasets. The similarity between the female nesting propensity and male lek attendance suggests that annual variation in certain environmental conditions (e.g. precipitation, population density) is influencing breeding propensities for both sexes. Model results supported a significant quadratic effect of minimum hen age on nesting propensity (Hen age: β = 0.206 95% C.I. 0.078 – 0.334; Hen age^2: β = -0.073 95% C.I. -0.143 – -0.002). This interaction suggested that juvenile females (Nesting propensity: 0.47 ± 0.01 SE) were significantly less likely to attempt a nest in a given year than adults, and that nesting propensity tapered off and peaked at 5 years of age (Nesting propensity: 0.86 ± 0.05 SE) (Fig. 19).

Previous nest initiation rates within the sage-grouse literature have been reported as apparent nesting propensities (see summaries in Connelly et al. 2011 and Taylor et al. 2012). Like apparent nest survival estimates (Rotella et al. 2000, Jehle et al. 2004), apparent nesting

propensity estimates are biased due to both imperfect detection and misclassification. Additionally, estimates of apparent nest survival and apparent nesting propensity are correlated with each other within individual studies (Fig. 20). This correlation is most likely driven by variation in observer effort which influences nest misclassifications. For example, under a certain nest searching protocol, a female that initiates a nest and fails before detection will be misclassified as a non-breeder in apparent nesting propensity frameworks, however under more complete observer search effort scenario, that nest will be detected and correctly classified as a failed nest. Therefore, a negative correlation exists between the number of nests found and the number of nests successful. Additionally, apparent nest survival and nesting propensity estimates are essentially reporting the same source of bias, however in opposite directions. From a management perspective this is a concern, as reporting estimates of apparent nest survival and nesting propensity together cannot parse what is driving problematic reproductive rates. For example, low quality nesting habitat would influence nest survival but have minimal impact of female body condition, which is correlated with nest initiation, conversely low quality winter habitat influences female body condition, but its effect on nest success may be negligible.

Nesting Female Survival: Transmission line – Model results supported our previous known fate analyses of female sage-grouse (Blomberg et al. *in press*) (Table 12). Model results did not support annual variation in female survival, but continued to support seasonal variation in which spring and fall were periods of significantly higher mortality (Fig 21). We did not find support for an influence of nest distance from the Falcon-Gondor transmission line on spring, fall, or annual survival (Table 12).

Male Survival: Transmission line – Top model structures supported our previous male survival analyses (Blomberg et al. 2012b, Nonne et al. *in revision*) (Table 13). Model results supported

annual variation in male survival that was constrained with summer temperatures (Fig 22). Model results also supported an interaction (β = -0.166 95% C.I. -0.320 – -0.012) between the amount of wildfire footprint surrounding a lek (β = -0.132 95% C.I. -0.375 – 0.112) and the distance of the lek from the Falcon-Gondor transmission line (β = -0.103 95% C.I. -0.429 – 0.222) on survival of males (Fig 23). This interaction suggests that the variation in annual survival is not a result of a lek's distance from the transmission line, but is driven by extremely low survival of males at the Horse Creek lek, which has the largest amount of wildfire scarring, and, coincidentally, located the furthest from the Falcon-Gondor transmission line.

Male Lek Fidelity: Transmission line – Top model structures supported previous male analyses for both male survival (Blomberg et al. 2012b) and detection (Nonne et al. *in revision*) (Table 14). Model results estimated the annual probability for a male to move from a lek in one year to different lek in a subsequent year was 0.028 (± 0.009 SE), which suggests an extremely high amount of lek fidelity within male sage-grouse in Eureka County. We did not find support for an influence of distance from current lek to the Falcon-Gondor transmission line in either model support or parameter estimates (β = -0.090 95% C.I. -0.875 – 0.693) (Fig. 24), which suggests that a lek's distance from the Falcon-Gondor transmission line is not influencing movements of males between leks.

CONCLUSIONS

The sage-grouse population with Eureka County continues to show signs of stabilization and a slow recovery since the onset of drought in 2007. Recruitment of young individuals into the adult population was the second highest over the course of the study in 2011 due to favorable brood rearing conditions. However estimates of population size remained constant due to either

high adult mortality during the fall of 2011 or low male lek attendance rates during the spring 2012, during which climate conditions were similar to those in 2007 where males attended leks at very low rates. The inability for the population to substantially increase in response to favorable climate conditions in 2011 is indicative that substantial population gains may require successive years of favorable conditions. However, current climate projections for the western United States predict more frequent drought conditions (Solomon et al. 2007), which may affect future population trends of sage-grouse in the Great Basin.

The revised and new analyses we prepared for this report continued to document that annual variation numerous demographic rates were strongly correlated with climatic variation. Spring precipitation, which was strongly correlated with pre-fledging chick survival and potentially correlated with female nesting propensity, is most likely influencing these vital rates by altering the amount of primary plant production during a given year. It is also likely that greater spring precipitation also functionally increases the amount of available brood rearing habitat in low elevation areas, which are more susceptible to temporary degradation due to drought conditions. Additionally, a more complicated pattern was observed in the female nesting propensity analysis. Years of low nest initiation rates occurred during years of low spring precipitation but high population densities (e.g. 2006 and 2007), however in years with low spring precipitation and low population densities (e.g. 2009 and 2012), estimates of nest initiation rates were comparable to years with high spring precipitation and either low or high population densities. A similar pattern was also observed in the male lek attendance analysis (Blomberg et al. 2012), which suggests that both genders are making breeding decisions based on environmental conditions that are influenced by both climate and density.

Predation was the largest source of mortality for adult sage-grouse during our study. During the fall we found risk of predation by mammals to be greater than that of raptors, whereas during the nesting season the two predation risks were more equivalent. In contrast we found relatively little evidence to support high levels of other sources of mortality during either season. Our estimates of cumulative hazard risk for harvest-related mortality can be viewed as analogous to an overall harvest mortality rate for this population, and include both harvest and crippling loss of shot sage-grouse. This harvest rate estimate (2%) falls well below harvest levels that have been demonstrated as compensatory for sage-grouse in other systems and we suggest current harvest rates do not adversely impact sage-grouse populations in Eureka County.

Our new approach for modeling female nesting propensity alleviates concerns of underestimating nest initiation rates due to potential sampling biases. This methodology has the potential to improve the ability for researchers to estimate nesting propensity for sage-grouse and many other avian species. Because our methodology relaxes the assumption that breeding and non-breeding individuals need to be spatially distinct, it allows researchers to estimate nesting propensities for non-migratory birds. However, because this methodology requires a fair amount of repeated observations, data must be collected from either a radio marked individuals, or using visual marks in cases where individuals are either highly visible or extremely philopatric.

Transmission Line Analysis

Our preliminary analyses investigating the potential impacts from the Falcon-Gondor transmission line suggested no negative effects on demographic rates (i.e., male survival and movement, female survival, pre-fledging chick survival, and nest survival) that could be explained by an individual's proximity to the transmission line. Our overall goal for the

transmission line analyses is to answer two basic questions in the most complete manner possible. First, we plan to continue to investigate the influence of distance to Falcon-Gondor on numerous sage-grouse demographics. And second, we plan to investigate the influence of the Falcon-Gondor transmission line on habitat use. The habitat use portion of this analysis will use resource selection functions in a GIS framework to investigate if habitat proximal to the transmission line is used less by sage-grouse during various life stages than similar habitat located further away from the transmission line, given availability of each. We plan to finish both portions of this analysis within the next year, and concentrate on publishing the findings in a monograph-style journal.

PUBLISHED MANUSCRIPTS AND THOSE CURRENTLY IN REVIEW

We have published the following manuscripts in peer-reviewed journals since the inception of the Falcon-Gondor project:

Atamian, M. T., and J. S. Sedinger. 2010. Balanced sex ratio at hatch in a greater sage-grouse (*Centrocercus urophasianus*) population. Auk 127: 16-22.

Atamian, M. T., J. S. Sedinger, J. S. Heaton, and E. J. Blomberg. 2010. Landscape Level Assessment of Brood Rearing Habitat for Greater Sage-grouse in East-Central Nevada. Journal of Wildlife Management 74:1533-1543.

Blomberg, E. J., J. S. Sedinger, D. V. Nonne., and M.T. Atamian. *In press*. Seasonal reproductive costs contribute to reduced survival of female greater sage-grouse. Journal of Avian Biology 00:000-000. http://onlinelibrary.wiley.com/doi/10.1111/j.1600-048X.2012.00013.x/abstract

Blomberg, Erik J., James S. Sedinger, Michael T. Atamian, and Daniel V. Nonne. 2012. Characteristics of climate and landscape disturbance influence the dynamics of greater sage-grouse populations. Ecosphere 3:art55 . http://dx.doi.org/10.1890/ES11-00304.1

We also currently have a number of manuscripts in review or revision, and pre-prints are available upon request:

Blomberg, E. J., J. S. Sedinger, D. V. Nonne., and M.T. Atamian. *In revision*. The influence of breeding propensity on population indices of greater sage-grouse. Journal of Wildlife Management 00:000-000.

Blomberg, E. J., P. L. Wollf, and J. S. Sedinger. *In revision*. Geographic variation in liver metal concentrations of greater sage-grouse. Journal of Fish and Wildlife Management 00:000-000.

Blomberg, E. J., S. R. Poulson, J. S. Sedinger, and D. N. Nonne. *In revision*. Using feather stable isotopes (δ15N, δ13C) to reconstruct a dietary time series in pre-fledging greater sage-grouse. Auk 00:000-000.

Nonne, D. N., E. J. Blomberg, J. S. Sedinger, and M. T. Atamian. *In review*. The effects of radio-collars on male sage-grouse survival and lekking behavior. Condor 00:000-000.

Blomberg, E. J., D. V. Nonne., J. S. Sedinger, M. L. Casazza,and P. S. Coates. *In review*. Variation in seasonal cause-specific mortality of greater sage-grouse. Wildlife Biology 00:000-000.

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Table 1. Number of males captured, recaptured, and resighted during spring trapping. Number of unique individuals is shown in parentheses.

Year	New Captures	Recaptures	Resights	Collared Males
2003	146	26(20)	12(11)	7
2004	106	43(36)	41(26)	5
2005	104	55(48)	37(25)	1
2006	134	37(35)	56(35)	1
2007	113	37(30)	34(12)	4
2008	62	30(26)	91(45)	14
2009	46	50(34)	59(23)	9
2010	50	35(31)	109(33)	22
2011	63	44(30)	107(42)	23
2012	68	13(12)	135(40)	8
Total	**824**	**370**	**681**	**63***

* Does not account for unique individuals monitored across study years.

Table 2. Highest single day lek attendance for each lek by sex and year.

Males

Lek	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Big Pole	13	16	20	19	11	21	22	25	13	2
Buckhorn	23	39	40	48	21	10	11	7	3	1
Camp	8	12	9	9	7	5	4	0	0	0
Dome House	15	17	28	47	22	23	12	17	9	12
Gable Canyon	18	21	30	23	12	19	19	7	12	11
Horse Creek	43	61	40	31	17	15	4	8	8	17
Henderson Pass						27	16	7	8	7
Kobeh	14	10	12	54	6	7	6	9	14	15
Lone Mountain	32	33	50	63	56	34	22	17	30	41
Modarelli Mine	11	9	23	47	17	23	16	19	28	21
Pinefield	36	37	49	67	34	27	22	29	30	25
Pony Express	14	11	15	15	10	6	8	0	11	21
Quartz Road				34	11	22	20	36	27	33
Total	**227**	**266**	**316**	**423***	**224**	**212***	**182**	**181**	**193**	**206**

Females

Lek	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Big Pole	2	6	2	6	0	5	0	0	4	1
Buckhorn	12	3	5	24	6	7	6	4	2	0
Camp	0	0	1	4	3	2	1	1	0	0
Dome House	1	5	4	5	3	8	5	1	2	2
Gable Canyon	3	6	2	3	1	2	2	1	1	2
Horse Creek	22	28	4	4	1	6	2	1	0	4
Henderson Pass						8	6	3	3	3
Kobeh	5	3	2	4	1	1	2	7	1	4
Lone Mountain	3	7	17	11	14	12	6	2	10	13
Modarelli Mine	1	8	2	2	4	9	3	3	5	5
Pinefield	5	7	13	18	8	8	2	3	3	3
Pony Express	1	1	1	6	3	1	0	0	2	5
Quartz Road				2	2	2	3	8	18	9
Total	**55**	**74**	**53**	**87***	**46**	**69***	**38**	**34**	**51**	**51**

*Does not include increase associated with the addition of new study lek

Table 3. Average number per point of the most common raptor and corvid species seen across all three transects combined, during the months of March, April, and May.

Species	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Common Raven	0.87	0.41	1.03	1.93	2.7	0.79	1.32	1.49	2.52	2.53
American Kestrel	0.1	0.17	0.1	0.19	0.03	0.14	0.21	0.08	0.1	0.09
Golden Eagle	0.12	0.05	0.02	0.07	0.14	0.03	0.07	0.08	0.05	0.1
Ferruginous Hawk	0.05	0.01	0.03	0.05	0.02	0.03	0.07	0	0.03	0.05
Red-tailed Hawk	0.05	0.02	0.04	0.06	0.02	0.08	0.1	0.06	0.18	0.13
Swainson's Hawk	0.04	0	0.01	0.03	0	0.01	0	0	0	0
Northern Harrier	0.03	0.01	0.04	0.03	0	0.01	0.06	0.01	0.05	0.03
Prairie Falcon	0	0	0.01	0.01	0	0.01	0.02	0	0	0
Rough-legged Hawk	0.01	0.01	0	0.01	0.05	0	0.05	0.01	0	0.01
Total Points Surveyed	201	329	144	159	88	185	161	152	110	91

Table 5. Number of radioed females and female reproductive statistics by year.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
# of Radioed Hens	15	21	32	61	71	45	66	75	67	73
# of Hens Nested	11	16	30	45	30	32	51	61	51	48
# of Hens Failed 1st	6	9	22	25	21	26	15	46	35	33
# of Hens Renest	1	4	8	1	1	8	17	18	9	5
# Hatch	5	7	12	20	10	7	20	20	18	19
# With Brood at 45 Days			9	11	3	5	9	10	10	6

Table 4. Nest summary statistics by year.

	Total Nests	Number of 1st nests	Number of re-nests	Average clutch size	Average Initiation date	Average minimum age
2003	12	11	1	6.75	117.00	1.42
2004	18	14	4	7.33	103.06	1.94
2005	36	28	8	7.61	110.61	1.83
2006	41	40	1	7.41	111.27	2.10
2007	26	25	1	7.23	105.19	2.23
2008	38	31	7	7.05	110.42	2.26
2009	62	45	17	7.30	113.62	2.21
2010	79	62	17	7.49	111.11	2.46
2011	58	50	8	7.51	107.39	2.05
2012	54	49	5	7.08	103.76	2.13

Table 6. Performance of nest survival models of female sage-grouse nests in Eureka County, NV

Model[a]	ΔAICc	AICc Wi.	No. Par	Dev.
{S(Linear+Sea+CS²+ID+NS+WF+Elev+AS(NS*Sea)(CS*Sea)(ID*Sea)(Elev*AS))}	0.00	0.16	14	1481.20
{S(Linear+Sea+CS+ID+NS+WF+Elev+AS(NS*Sea)(CS*Sea)(ID*Sea)(Elev*AS))}	0.25	0.14	13	1483.46
{S(Linear+Sea+CS+ID+NS+WF+AS(NS*Sea)(CS*Sea)(ID*Sea))}	0.62	0.12	11	1487.84
{S(Linear+Sea+CS+ID+NS+WF+Prec+Elev+AS(NS*Sea)(CS*Sea)(ID*Sea)(Elev*AS))}	0.93	0.10	14	1482.13
{S(Linear+Sea+CS²+ID+NS+WF+DG+Elev+AS(NS*Sea)(CS*Sea)(ID*Sea)(Elev*AS))}	1.25	0.09	15	1480.44
{S(Linear+Sea+CS²+ID+NS+WF+RD+Elev+AS(NS*Sea)(CS*Sea)(ID*Sea)(Elev*AS)}	1.32	0.08	15	1480.51
{S(Linear+Sea+CS²+ID²+NS+WF+Elev+AS(NS*Sea)(CS*Sea)(ID*Sea)(Elev*AS))}	2.00	0.06	15	1481.19
{S(Linear+Sea+CS+ID+NS+WF+Att+AS(NS*Sea)(CS*Sea)(Att*Sea))}	2.45	0.05	12	1487.67
{S(Linear+Sea+CS²+ID+NS+WF+RD+Elev+AS+FG(NS*Sea)(CS*Sea)(ID*Sea)(Elev*AS)(RD*FG))}	2.87	0.04	17	1478.03
{S(Linear+Sea+CS+ID+NS+WF+Att+AS(NS*Sea)(CS*Sea)(Att*Sea)(ID*Sea))}	3.69	0.03	13	1486.90
.	.	.	.	.
.	.	.	.	.
{S(Linear+Sea+CS+NS+WF+AS)}	8.35	0.00	7	1503.60
.	.	.	.	.
.	.	.	.	.
{S(Linear+Sea+CS+ID+NS+WF+AS+FG)}	9.37	0.00	9	1500.61
.	.	.	.	.
{S(Year+Linear+Sea+CS+ID+NS+WF+AS)}	17.16	0.00	17	1492.32
.	.	.	.	.
{S(.)}	60.83	0.00	1	1568.11
.	.	.	.	.
{S(Year)}	70.12	0.00	10	1559.35

[a] Model selection notation follows Burnham and Anderson (2002). Sea = Season trapped; CS = clutch size; NS = percent non-sagebrush cover within 100m² of nest; Elev = nest site elevation; RD = distance from nearest road; FG = distance from Falcon-Gondor; DG = average grass height within 100m² of nest; ID= Julian day nest was initiated; Pop = Roberts/Cortez; AS = amount of habitat classified as sagebrush within 1 km of nest; WF = amount of habitat burned within 1 km of nest; Att = nest attempt; linear = 7 day linear trend; (.) denotes constancy; Year denotes full annual variation; Prec denotes constraint on year based on accumulated spring precipitation.

Table 7. Performance of nest survival models investigating the influence of observers on nest success of female sage-grouse in Eureka County, NV

Model [a]	ΔAICc	AICc Wi.	No. Par	Dev.
{S(Base+Sea*NS+CS*CS+CS*Sea+ID*sea)}	0.00	0.20	15	1412.48
{S(Base+Sea*NS+CS*CS+CS*Sea+ID*Sea+Flush*Sea)}	0.59	0.15	16	1411.05
{S(Base+Sea*NS+CS*Sea+ID*Sea}	0.90	0.13	14	1415.38
{S(Base+Sea*NS+ID*Sea}	1.31	0.10	13	1417.81
{S(Base+Sea*NS}	2.24	0.06	12	1420.75
{S(Linear+Sea+CS+ID+NS+WF+Elev+AS+Visit+Flush)}*	3.22	0.04	11	1423.74
{S(Base+CS*Sea+Pop*Flush}	4.93	0.02	13	1421.42
{S(Base+Week*Flush)}	5.70	0.01	11	1426.22
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
{S(.) PIM}	37.79	0.00	1	1478.36

[a] Model selection notation follows Burnham and Anderson (2002). * denotes base model

Sea = Season trapped; CS = clutch size; NS = percent non-sagebrush cover within 100m² of nest; Elev = nest site elevation; ID= Julian day nest was initiated; Pop = Roberts/Cortez; AS = amount of habitat classified as sagebrush within 1 km of nest; WF = amount of habitat burned within 1 km of nest; Att = nest attempt; linear = 7 day linear trend; (.) denotes constancy; Flush = time varying covariate differentiating between occasions a hen was flushed from a nest from occasions where the hen was not flushed; Visit = time varying covariate differentiating between occasions a nest was visited from occasions where the nest was not visited.

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Table 8. Performance of Lucak's Young Survival from Marked Adults models for pre-fledgling sage-grouse chicks in Eureka County, NV

Model[a]	ΔAICc	AICc Wi.	No. Par	Dev.
{S(Prec+Week+Nest+Move+ΔFGDist)p(Quad+Method)}	0.00	0.35	14	2030.31
{S(Year+Week+Nest+Move+ΔFGDist)p(Quad+Method)}	0.82	0.23	20	2018.07
{S(Prec+Week+Nest+Move*ΔFGDist)p(Quad+Method)}	2.12	0.12	15	2030.28
{S(Prec+Week+Move*ΔFGDist)p(Quad+Method)}	2.28	0.11	14	2032.59
{S(Prec+Week+Pop+Move*ΔFGDist)p(Quad+Method)}	3.27	0.07	15	2031.43
{S(Prec+Week+Pop+Move*ΔFGDist)p(Quad+Method)}	3.45	0.06	15	2031.60
{S(Prec+Week+Nest+Move*ΔFGDist)p(Quad+Method)}	4.04	0.05	15	2032.19
{S(Prec+Week+Move*ΔFGDist)p(Quad+Method)}	18.74	0.00	14	2049.04
{S(Prec+Week+Move)p(Quad+Method)}	20.06	0.00	12	2054.64
{S(Prec+Week+Move)p(Quad+Method)}	32.43	0.00	12	2067.00
{S(Prec+Week+Nest*ΔFGDist)p(Quad+Method)}	55.13	0.00	14	2085.44
{S(Prec+Week+NestElev)p(Quad+Method)}	57.09	0.00	12	2091.66
{S(Prec+Week+ΔElev*ΔFGDist)p(Quad+Method)}	62.16	0.00	14	2092.46
{S(Prec+Week+ΔFGDist)p(Quad+Method)}	62.26	0.00	12	2096.83
{S(Prec+Week+Pop*ΔFGDist)p(Quad+Method)}	62.50	0.00	14	2092.81
{S(Prec+Week+Pop)p(Quad+Method)}	68.82	0.00	12	2103.39
{S(Base)p(Quad+Method)}	76.22	0.00	11	2112.91
{S(Prec+Week+Age)p(Quad+Method)}	76.58	0.00	12	2111.16
{S(Prec+Week+ΔElev)p(Quad+Method)}	77.76	0.00	12	2112.33

[a] Model selection notation follows Burnham and Anderson (2002). Prec = yearly spring accumulated spring precipitation; Year = full annual variation; Week = weekly variation within a year; Nest = nest site elevation of brood; Move = time varying covariate denoting average daily movement rate; ΔFGDist = time varying covariate denoting change in broods distance from the Falcon-Gondor transmission line; ΔElev = time varying covariate denoting weekly change in elevation; Pop = Roberts/Cortez; Age = hen age; Method denotes variation in timing of brood checks; Quad = quadratic trend.

Table 9. Model selection results for competing known-fate models of female sage-grouse weekly survival during the spring nesting season (April 1 – May 31) in Eureka County, NV, based on radio-telemetry data collected between 2008 and 2012.

Model[a]	ΔAICc	w_i	K	Deviance
Year + Age	0.00	0.35	6	467.89
Age	2.27	0.11	2	478.20
Year	2.60	0.09	5	472.50
Null	2.78	0.09	1	480.71
Weekly Trend	3.09	0.07	2	479.02
Year + Weekly Trend	3.21	0.07	6	471.10
Year + (Weekly Trend)^2	3.70	0.05	7	469.58
(Weekly Trend)^2	3.90	0.05	3	477.83
Year + Nest	4.27	0.04	6	472.16
Nest	4.45	0.04	2	480.38
BiWeek	6.20	0.02	4	478.12
Year + BiWeek	6.24	0.02	8	470.10
Year + Week	10.44	0.00	13	464.19
Week	10.53	0.00	9	472.38

[a] Model selection notation follows Burnham and Anderson (2002). Age = subadult (<1 year of age) vs. adult (>1 year of age). Sex = male vs. female. BiWeek = Weekly intervals grouped into sequential 2-week periods. Weekly Trend = a linear trend applied across 1-week intervals. Nest = weekly nesting status (observed on a nest vs. not observed on a nest).

Table 10. Model selection results for competing known-fate models of female sage-grouse weekly survival during the fall season (August 15 – October 31) in Eureka County, NV, based on radio-telemetry data collected between 2008 and 2010.

Model[a]	ΔAICc	w_i	K	Deviance
Age + Weekly Trend	0.00	0.17	3	382.48
Age	0.37	0.15	2	384.86
Null	1.21	0.10	1	387.70
Weekly Trend	1.23	0.09	2	385.71
Age + Year + Weekly Trend	1.41	0.09	5	379.86
Fall	1.94	0.07	2	386.43
$(\text{Weekly Trend})^2$	3.11	0.04	3	385.58
Golden Eagle	3.12	0.04	2	387.61
Buteo spp.	3.15	0.03	2	387.63
Sex	3.17	0.03	2	387.66
Total Raptor	3.18	0.03	2	387.67
Accipiter spp.	3.19	0.03	2	387.68
Sex + Weekly Trend	3.20	0.03	3	385.68
Hunt	3.21	0.03	2	387.69
Year	3.57	0.03	3	386.05
Year + Weekly Trend	3.68	0.03	4	384.15
Year + Hunt	5.56	0.01	4	386.03
Year + $(\text{Weekly Trend})^2$	5.61	0.01	5	384.06
Sex + Year + Weekly Trend	5.67	0.01	5	384.13

BiWeek	6.92	0.01	5	385.37
Year + BiWeek	9.42	0.00	7	383.84

[a] Model selection notation follows Burnham and Anderson (2002). Age = subadult (<1 year of age) vs. adult (>1 year of age). Sex = male vs. female. BiWeek = Weekly intervals grouped into sequential 2-week periods. Weekly Trend = a linear trend applied across 1-week intervals. Total Raptor = Weekly passage rate of all raptors recorded at the Goshute Mountain Raptor Migration site, after correcting for daily number of observers and total hours of observation. *Buteo* spp., *Accipiter* spp., and Golden Eagle models represented weekly passage rates for each of these raptor species groups. Hunt = survival was modelled independently for hunting season and non-hunting intervals.

Table 11. Performance of multistate models for estimating nesting propensity of female sage-grouse in Eureka County, NV.

Model [a]	Δ AIC$_c$	AIC$_c$ wi.	No. Par.	Dev.
{φ(.) pA(Year)B,C(Year) ψ AB(Year+week+minage²) AC(Year+week+minage²) BA,CA(Month)}	0.00	0.71	30	19050.03
{φ(.) pA(Year)B,C(Year) ψ AB(Year+week+minage²) AC(Year+week+minage²) BA,CA(week)}	3.77	0.11	32	19049.74
{φ(.) pA(Year)B,C(Year) ψ AB(Year+week+minage²) AC(Year+week+minage²) BA,CA(10DT)}	4.36	0.08	30	19054.39
{φ(.) pA(Year)B,C(Year) ψ AB(Year+week+minage²+PDSI$_{(t-1)}$*minage) AC(Year+week+minage²+PDSI$_{(t-1)}$*minage)) BA,CA(week)}	5.74	0.04	33	19049.67
{φ(.) pA(Year)B,C(Year) ψ AB(Year+week+minage) AC(Year+week+minage) BA,CA(week)}	6.29	0.03	31	19054.29
{φ(.) pA(Year)B,C(Year) ψ AB(Year+week+minage) AC(Year+week+minage) BA,CA(week+minage)}	7.96	0.01	32	19053.93
{φ(.) pA(Year)B,C(Year) ψ AB(PDSI$_{(t-1)}$+week+minage²) AC(PDSI$_{(t-1)}$week+minage²) BA,CA(week)}	8.29	0.01	24	19070.49
{φ(.) pA(Year)B,C(Year) ψ AB(Year+week) AC(Year+week) BA,CA(week)}	10.17	0.00	30	19060.21
{φ(.) pA(Year)B,C(Year) ψ AB(PDSI$_{(t-1)}$+week*minage²) AC(PDSI$_{(t-1)}$week*minage²) BA,CA(week)}	10.22	0.00	25	19070.40
{φ(.) pA(Year)B,C(Year) ψ AB(Year+week+minage²) AC(week+minage²) BA,CA(Month)}	19.58	0.00	21	19087.85
{φ(.) pA(Year)B,C(Year) ψ AB(MayPrec+MayPrec²+week) AC(MayPrec+MayPrec²+week) BA,CA(week)}	20.98	0.00	23	19085.21
{φ(.) pA(Year)B,C(Year) ψ AB(May*April+week) AC(May*April+week) BA,CA(week)}	26.53	0.00	24	19088.73
{φ(.) pA(Year)B,C(Year) ψ AB(PRECIInt+week) AC(PRECInT+week) BA,CA(week)}	28.67	0.00	24	19090.87
{φ(.) pA(.)B,C(.) ψ AB(.) AC(.) BA,CA(.)}	291.52	0.00	6	19390.00

[a] Model selection notation follows Burnham and Anderson (2002). ψAB denotes probability of attempting 1st nest; ψAC denotes probability of re-nesting; ψBA, ψCA denote probabilities of nest failure; Year = full annual variation; week = weekly variation within year; minage = minimum age of hen, PDSI$_{(t-1)}$ = drought conditions year prior; May = May precipitation; April = April precipitation; (.) denotes constancy.

Table 12. Performance of known-fates models for estimating survival of female sage-grouse in Eureka County, NV.

Model [a]	ΔAICc	AICc Wi.	No. Par	Dev.
{S(Month)}	0.00	0.14	10	1047.56
{S(Sea)}	0.52	0.11	5	1058.14
{S(Month+Age)}	0.68	0.10	11	1046.22
{S(Month+Pop)}	0.97	0.09	11	1046.51
{S(Temp(year)+Month)}	1.30	0.07	11	1046.84
{S(Month+FG(fall))}	1.41	0.07	11	1046.95
{S(WF+Month)}	1.69	0.06	11	1047.23
{S(Month+FG(nest))}	1.76	0.06	11	1047.30
{S(Month+Age+Pop)}	1.79	0.06	12	1045.31
{S(Month+FG)}	1.79	0.06	11	1047.33
{S(MonthFG(Mar-May))}	1.96	0.05	11	1047.49
(Month+Age+FG(nest)	2.42	0.04	12	1045.94
{S(Month+Age+FG)}	2.47	0.04	12	1045.98
{S(Month+Pop*FG)}	3.03	0.03	13	1044.53
{S(Month+FG*Age)}	3.10	0.03	13	1044.60
{S(year+Month}	12.94	0.00	19	1042.28
S(Year+Month+Pop)	14.09	0.00	20	1041.39

[a] Model selection notation follows Burnham and Anderson (2002). Month denotes monthly variation in survival; Sea denotes seasonal variation in survival (i.e. spring, summer, fall); Age = Hen age; Pop = Roberts/Cortez; WF = amount of habitat classified as burned within 1km of lek of capture; Temp = index of annual summer temperature; FG = distance from lek of capture to the Falcon-Gondor transmission line.

Table 13. Performance of CJS models for estimating survival of male sage-grouse in Eureka County, NV.

Model[a]	ΔAICc	AICc Wi.	No. Par	Dev.
{S(Temp+WF*FG) P(N+WF) }	0.00	0.46	8	1794.25
{S(Temp+WF+FG) P(N+WF) }	2.34	0.14	7	1798.62
{S(Temp+WF) P(N+WF+FG)}	2.37	0.14	7	1798.65
{S(Temp+WF+FG) P(N+WF+FG)}	2.84	0.11	8	1797.09
{S(Temp+WF+Pop) P(N+WF+FG)}	3.83	0.07	8	1798.08
{S(Temp+WF) P(N+WF)}	4.46	0.05	6	1802.77
{S(Cubic+WF+FG) P(N+WF+FG)}	7.55	0.01	10	1797.73
{S(Cubic+WF+FG) P(Temp+WF+FG)}	10.25	0.00	16	1788.12
{S(Cubic+WF+FG) P(Temp+WF+FG+Age)}	10.63	0.00	17	1786.44
{S(Temp+Pop+FG) P(N+WF+FG)}	10.81	0.00	8	1805.06
{S(Temp+WF+FG) P(Temp+WF+FG)}	15.49	0.00	19	1787.16
{S(Temp+WF+FG) P(Temp+WF+FG+Age)}	15.96	0.00	20	1785.55
{S(Temp+WF+FG+Pop) P(Temp+WF+FG)}	16.28	0.00	20	1785.87
{S(Temp+WF+FG*Pop) P(Temp+WF+FG)}	16.63	0.00	21	1784.14
{S(Temp+WF) P(Temp+WF)}	18.57	0.00	17	1794.38
{S(Temp) P(Temp)}	41.05	0.00	15	1820.98
{S(.)P(.)}	66.50	0.00	2	1872.88

[a] Model selection notation follows Burnham and Anderson (2002). Age = male age class; Pop = Roberts/Cortez; WF = amount of habitat classified as burned within 1km of lek of capture; Temp = index of annual summer temperature; N denotes constraint of population density; FG = distance from lek of capture to the Falcon-Gondor transmission line: (.) denotes constancy.

Table 14. Performance of multistrata robust design models for estimating the probability of male sage-grouse movement between leks in Eureka County, NV.

Model	ΔAICc	w_i	No. Par.	Dev.
{S(temp+wf) PsiAB(Cmale)PsiBA(.)p~c(Year+Month+age+pop)}	0.00	0.47	20	4511.71
{S(temp+wf) PsiAB(rain+CMale)PsiBA(.)p~c(Year+Month+age+pop)}	1.09	0.27	21	4510.74
{S(temp+wf) PsiAB(Cfemale)PsiBA(.)p~c(Year+Month+age+pop)}	3.00	0.11	20	4514.71
{S(temp+wf) PsiAB(rain)PsiBA(.)p~c(Year+Month+age+pop)}	3.12	0.10	20	4514.83
{S(temp) PsiAB(Cmale)PsiBA(.)p~c(Year+Month+age+pop)}	6.87	0.02	19	4520.64
{S(temp+wf) PsiAB(year)PsiBA(.)p~c(Year+Month+age+pop)}	7.49	0.01	22	4515.08
{S(temp+elev) PsiAB(Cfemale)PsiBA(.)p~c(Year+Month+age+pop)}	10.63	0.00	20	4522.33
{S(temp) PsiAB(.)PsiBA(.)p~c(Year+Month+age+pop)}	11.39	0.00	18	4527.21
{S(temp+FG) PsiAB(Cfemale)PsiBA(.)p~c(Year+Month+age+pop)}	11.92	0.00	20	4523.63
{S(temp) PsiAB(WF)PsiBA(.)p~c(Year+Month+age+pop)}	12.56	0.00	19	4526.33
{S(temp) PsiAB(Age)PsiBA(.)p~c(Year+Month+age+pop)}	13.34	0.00	19	4527.10
{S(temp) PsiAB(Elev)PsiBA(.)p~c(Year+Month+age+pop)}	13.35	0.00	19	4527.11
{S(temp) PsiAB(FG)PsiBA(.)p~c(Year+Month+age+pop)}	13.39	0.00	19	4527.16
{S(temp+pop) Psi(.)p~c(Year+Month+age)}	50.40	0.00	17	4568.27
{S(temp) Psi(.)p~c(Year+Month+age)}	50.62	0.00	16	4570.54
{S(temp) Psi(pop)p~c(Year+Month+age)}	51.65	0.00	17	4569.52
{S(temp) Psi(.)p~c(Year+Month)}	61.06	0.00	15	4583.03
{S(.) Psi(.)p~c(Year+Month)}	65.62	0.00	14	4589.63
{S(.) PsiA(.)PsiB(.) p(.)c(.)}	86.30	0.00	5	4628.55

[a] Model selection notation follows Burnham and Anderson (2002). Age = time varying covariate denoting minimum male age; Pop = Roberts/Cortez; WF = amount of habitat classified as burned within 1km of lek of capture; Temp = index of annual summer temperature; Cmale = high male lek count for associated lek in the current year; male = high male lek count for assocuiate lek during previous year; Cfemale = high female lek count in the current year; female = high female lek count during previous year; elev = time varying covariate denoting elevation of lek associated with in a given year; FG = time varying covariate denoting distance from lek currently associated with to the Falcon-Gondor transmission line; Year = year; month = denotes separation between early and late portions of the breeding season; rain = yearly estimate of accumulated spring precipitation; (.) denotes constancy.

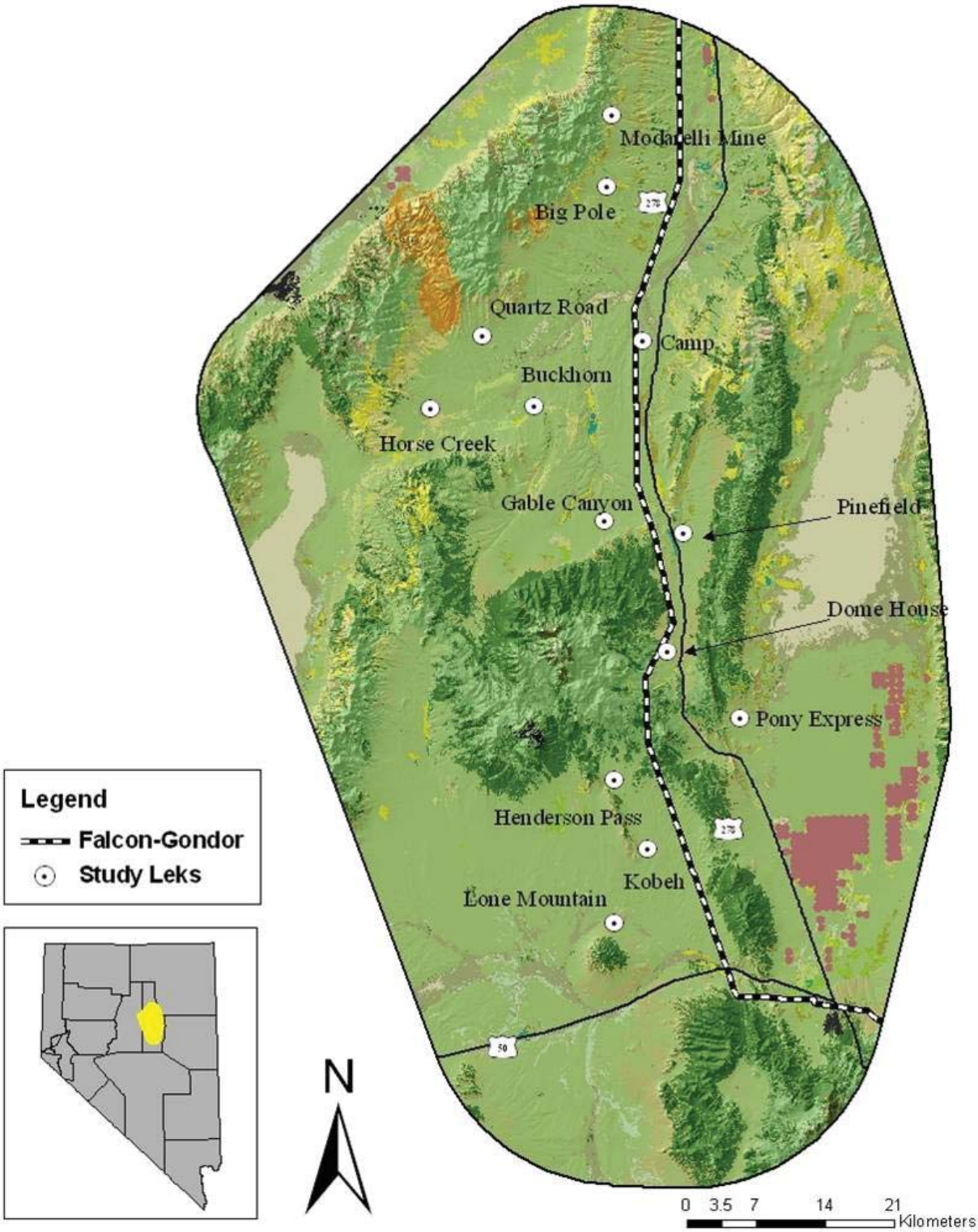

Figure 1. Lek locations in Study area.

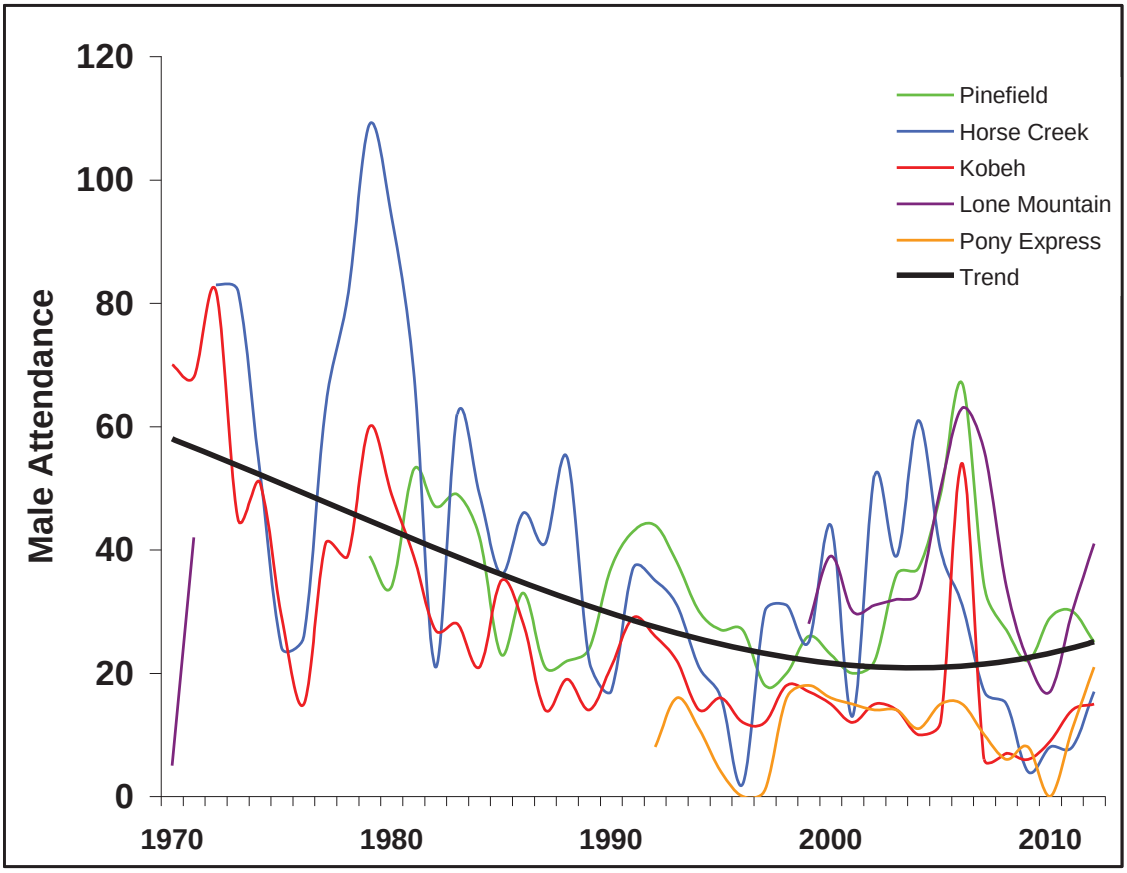

Figure 2. Long term trends in male attendance for 5 NDOW trend leks used in this study.

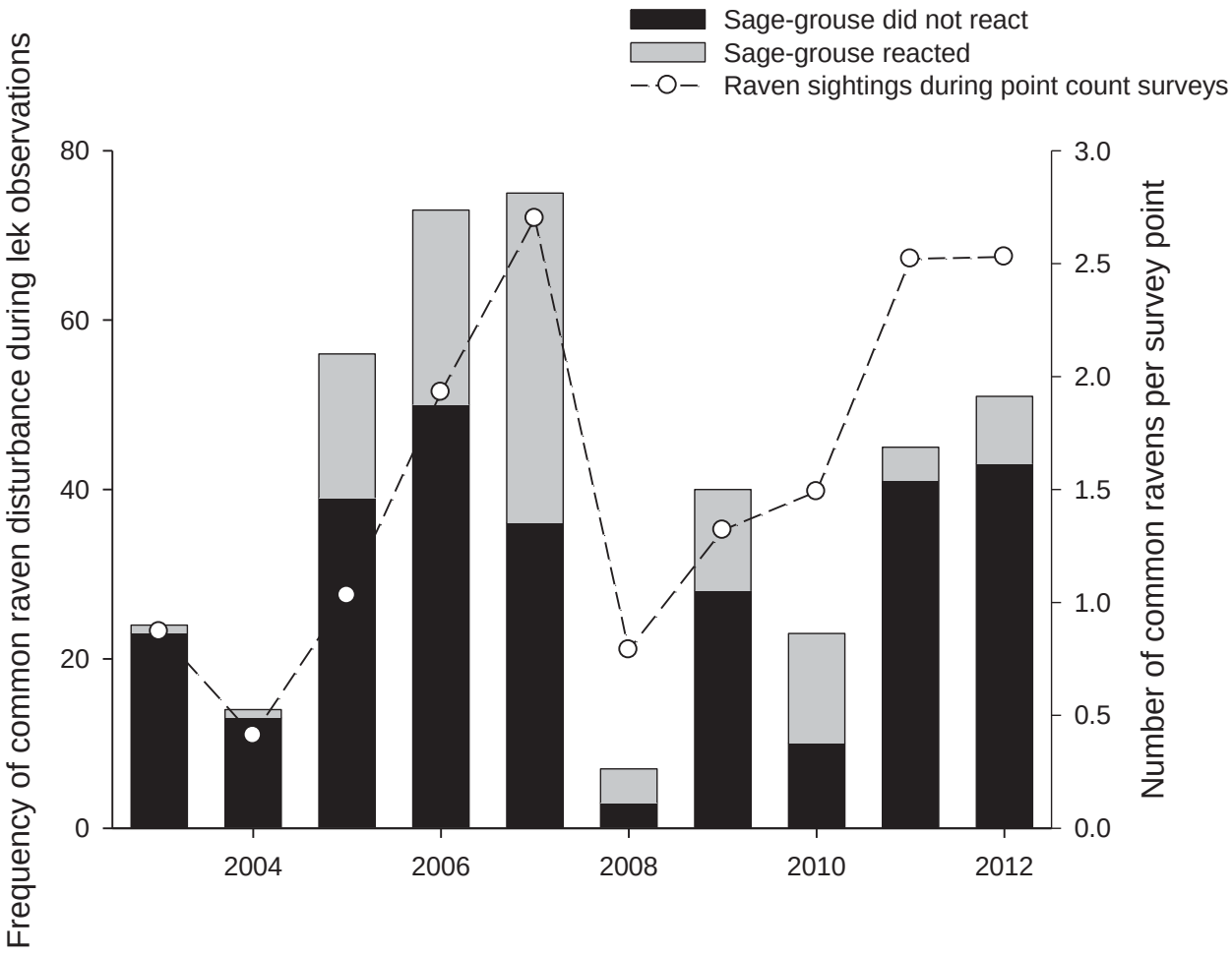

Figure 3. Indices of Common Raven abundance during lek observations and point count surveys in Eureka County, Nevada from 2003-2012. Point count surveys (dashed line with open circles) sightings were recorded along 3 transects. The black and grey bars represent sightings of Common Ravens at Greater Sage-Grouse leks and the apparent reaction to the disturbance. Common Ravens were considered to have elicited a reaction from the sage grouse if any males ceased strutting activities or if any sage grouse (male or female) ducked down, hid, or flushed.

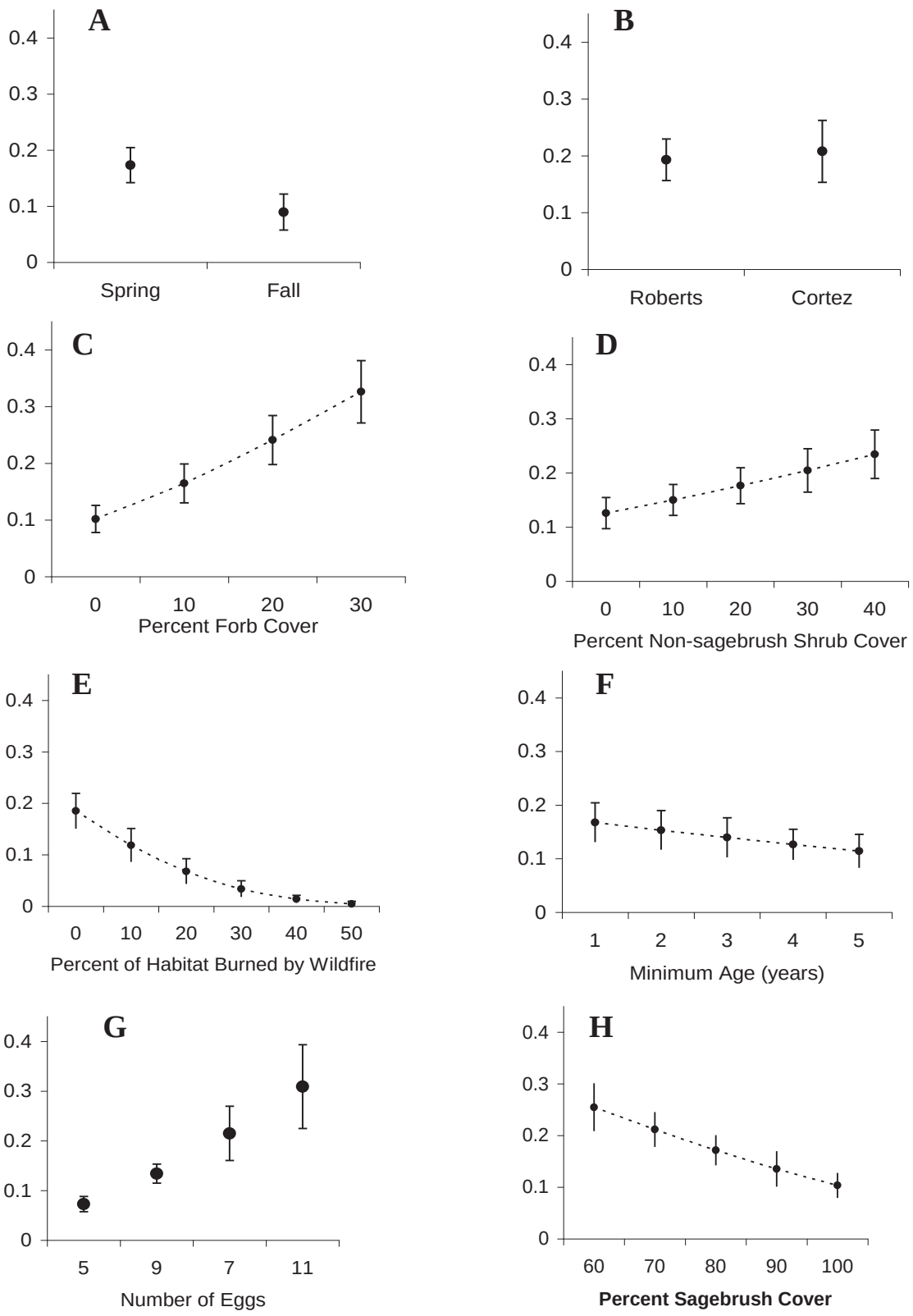
A
0.4
0.3
0.2
0.1
0
Spring
Fall
B
Roberts
Cortez
C
0
10
20
30
Percent Forb Cover
D
40
Percent Non-sagebrush Shrub Cover
E
50
Percent of Habitat Burned by Wildfire
F
1
2
3
4
5
Minimum Age (years)
G
5
9
7
11
Number of Eggs
H
60
70
80
90
100
Percent Sagebrush Cover

Figure 4. The additive effects of the various covariates in the top nest survival model structures in Eureka County, NV. Top model structures consisted of A) Season hen was trapped; B) Population; C) Percent forb cover; D) Percent Non-sagebrush shrub cover within 100m^2 of nest; E) Percent of habitat burned by wildfire within 5 km of nest; F) Minimum hen age; G) clutch size; and H) Percent of habitat classified as sagebrush within 5 km of nest. Error bars represent standard errors.

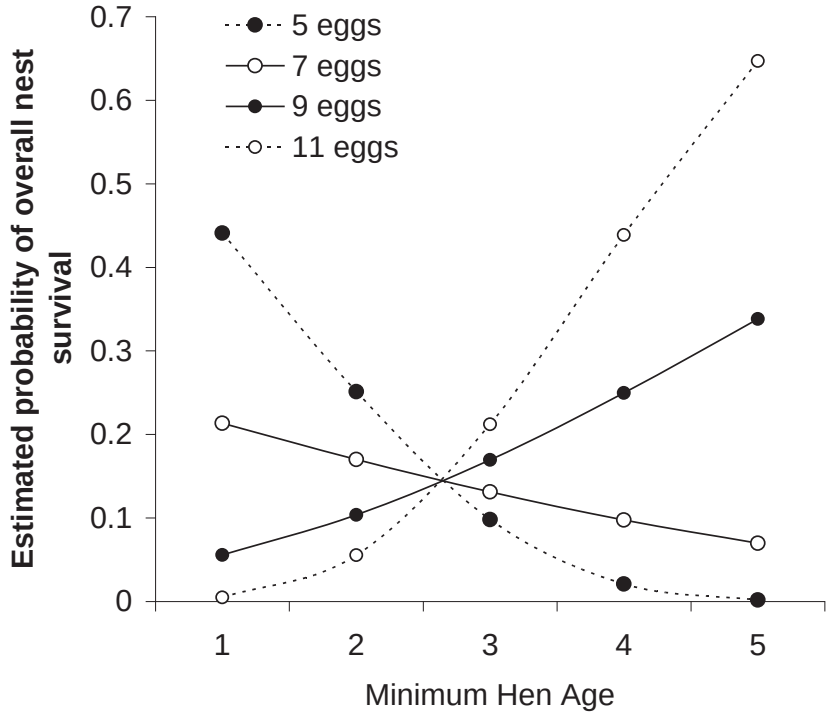

Figure 5. The relationship between minimum hen age and clutch size of the nest on overall nest survival (to 37 days) in Eureka County, NV.

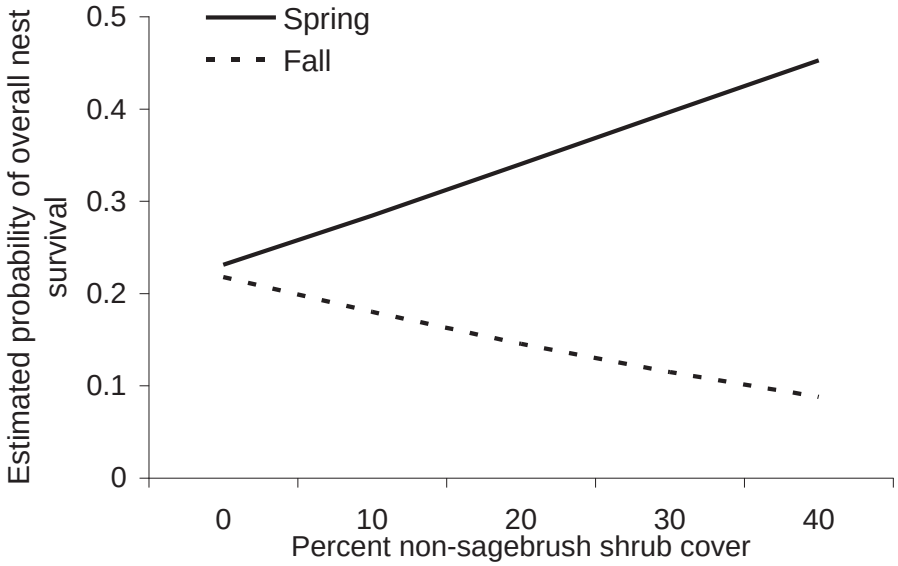

Figure 6. The relationship between non-sagebrush shrub cover within 100m^2 of the nest and the season hen was trapped the nest on overall nest survival (to 37 days) in Eureka County, NV.

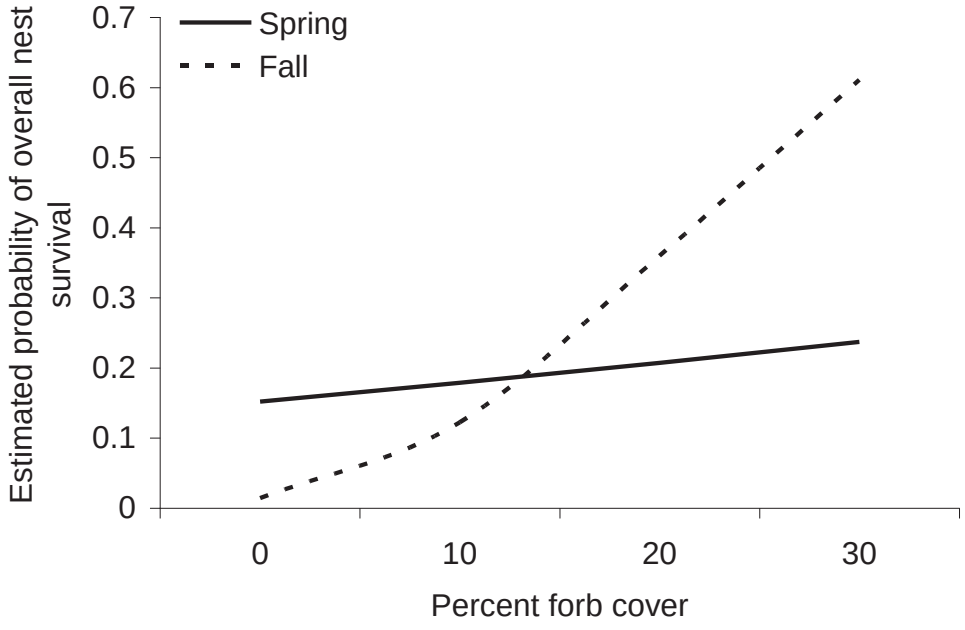

Figure 7. The relationship between percent forb cover within 100m^2 of the nest and the season hen was trapped the nest on overall nest survival (to 37 days) in Eureka County, NV.

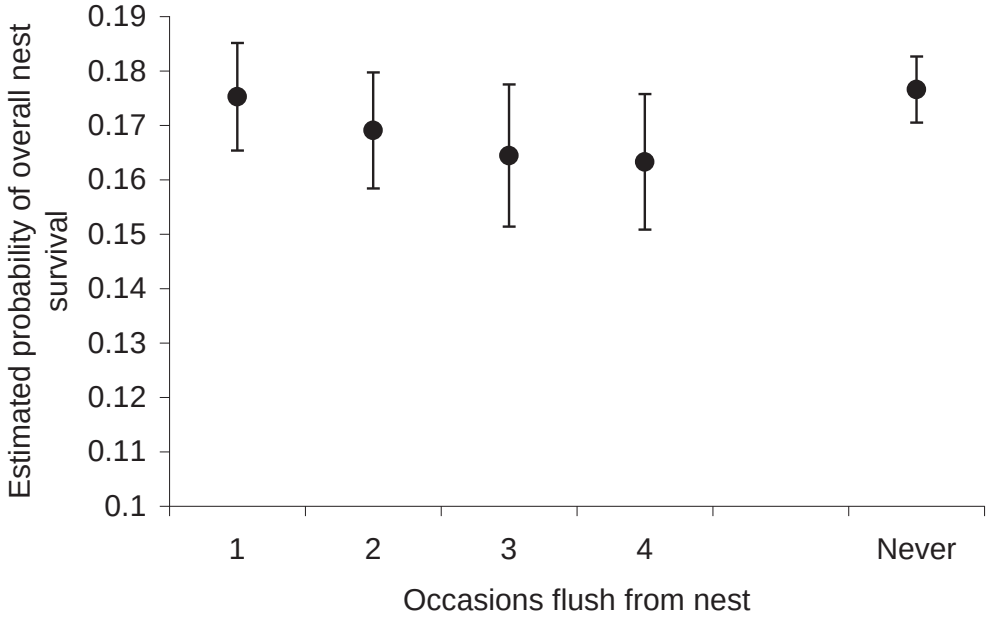

Figure 8. The effect repeated flushing of a female from the nest on overall nest survival (until 37 days) in Eureka County, NV. Error bars represent standard error.

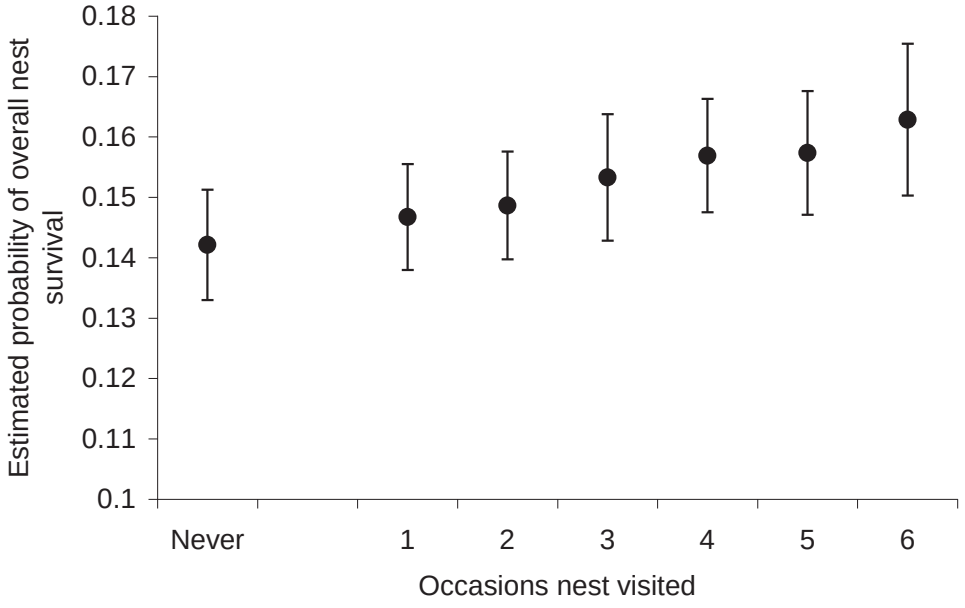

Figure 9. The effect repeated visitation of a female on the nest on overall nest survival (until 37 days) in Eureka County, NV. Error bars represent standard error.

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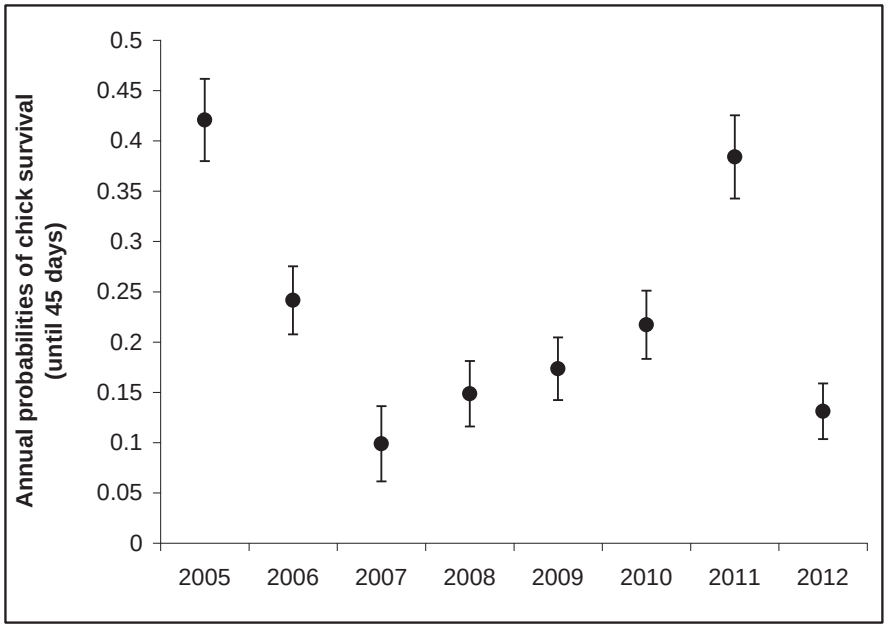

Figure 10. Variation in annual probabilities of pre-fledging sage-grouse chick survival in Eureka County, NV. Error bars represent standard errors.

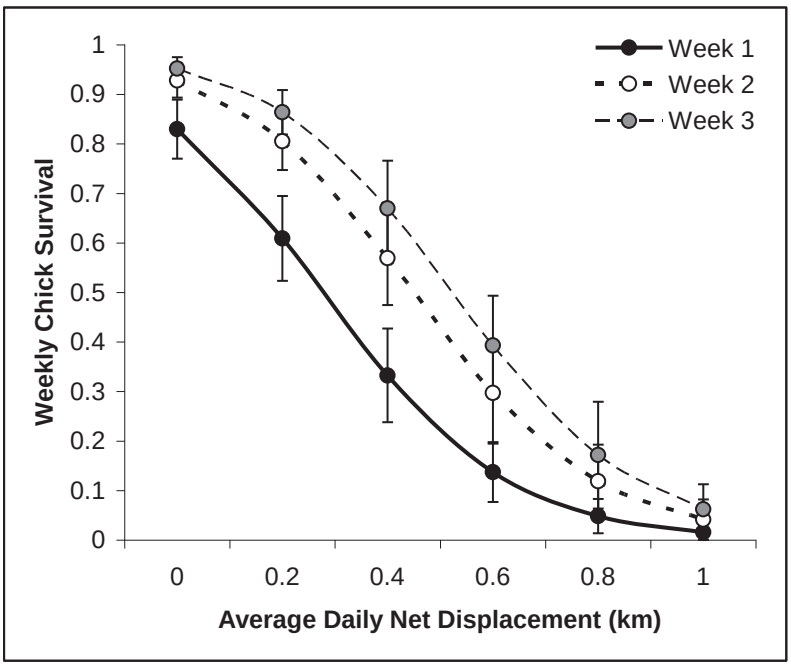

Figure 11. The relationship between variation in brood movement distances and weekly survival probabilities of pre-fledging sage-grouse chicks in Eureka County, NV. Error bars represent standard errors.

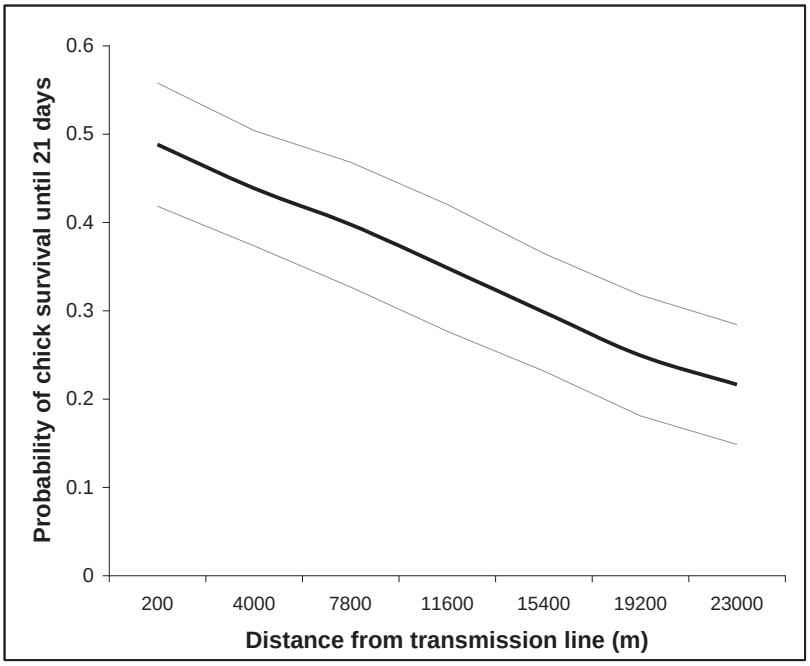

Figure 12. The relationship between early pre-fledging sage-grouse chick survival and distance from the Falcon-Gondor transmission line. Error lines represent standard errors.

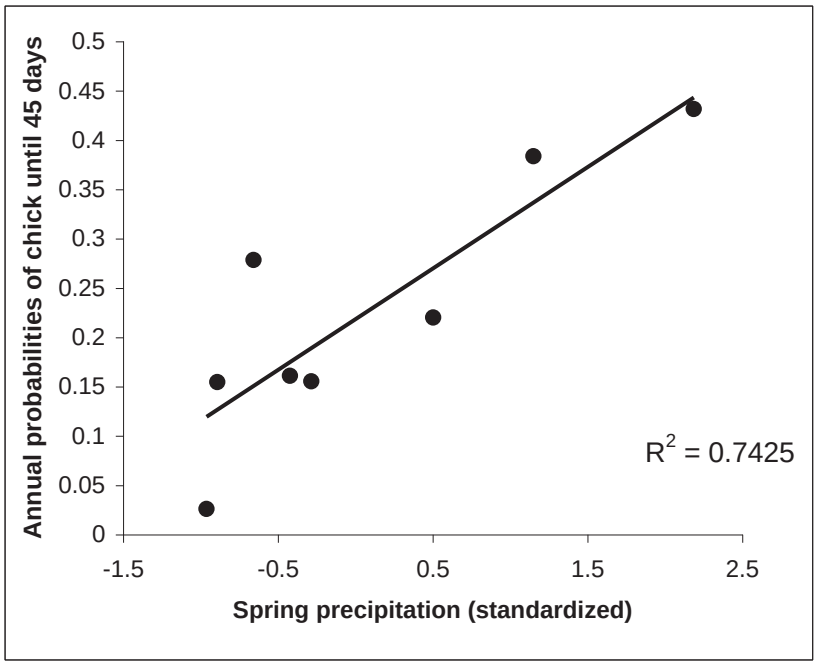

Figure 13. Correlation between annual pre-fledging sage-grouse chick survival and annual spring accumulated precipitation expressed as z-standardized values.

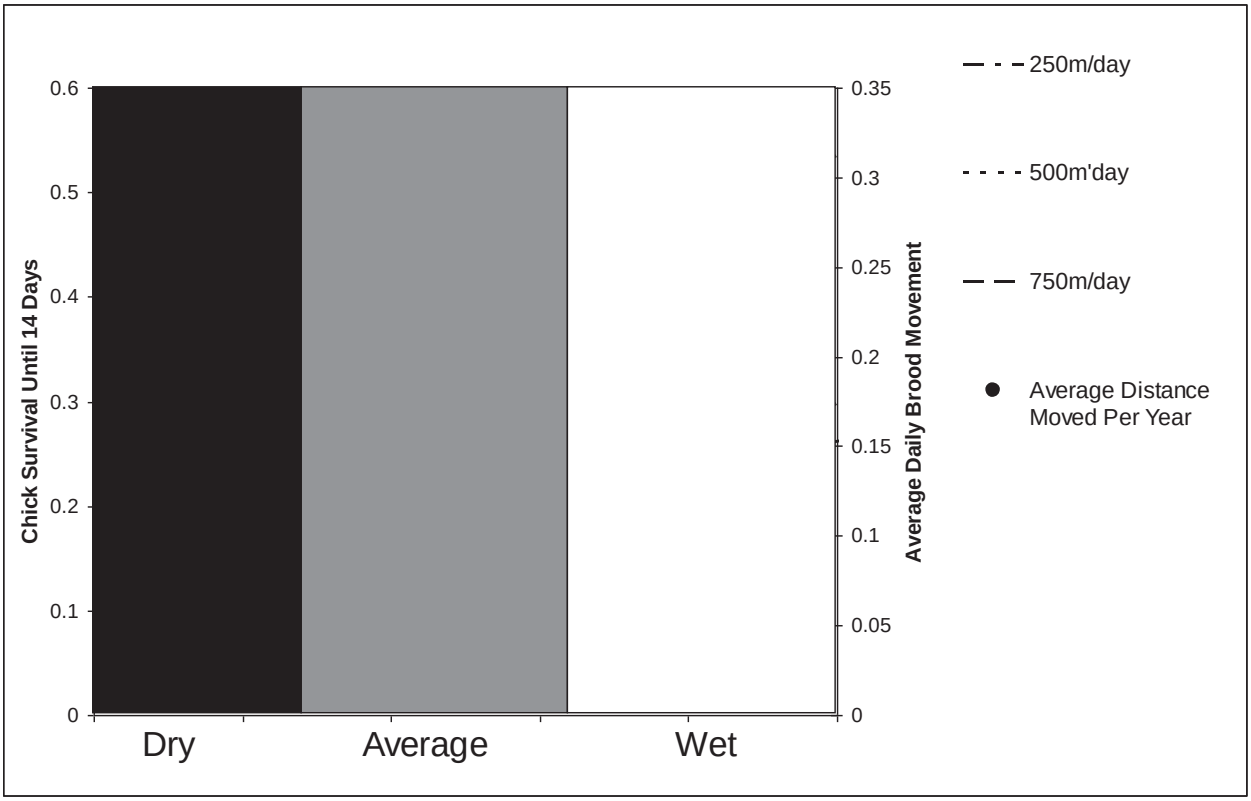

Figure 14. The influence of variation in brood movement rates and drought conditions on early pre-fledging sage-grouse chick survival estimates. The solid circles and corresponding trend line (solid black line) represent the realized annual average movement rates for monitored sage-grouse broods in Eureka County. Dry, average, and wet were arbitrary distinctions of drought conditions estimated by Palmer's drought severity index (PDSI).

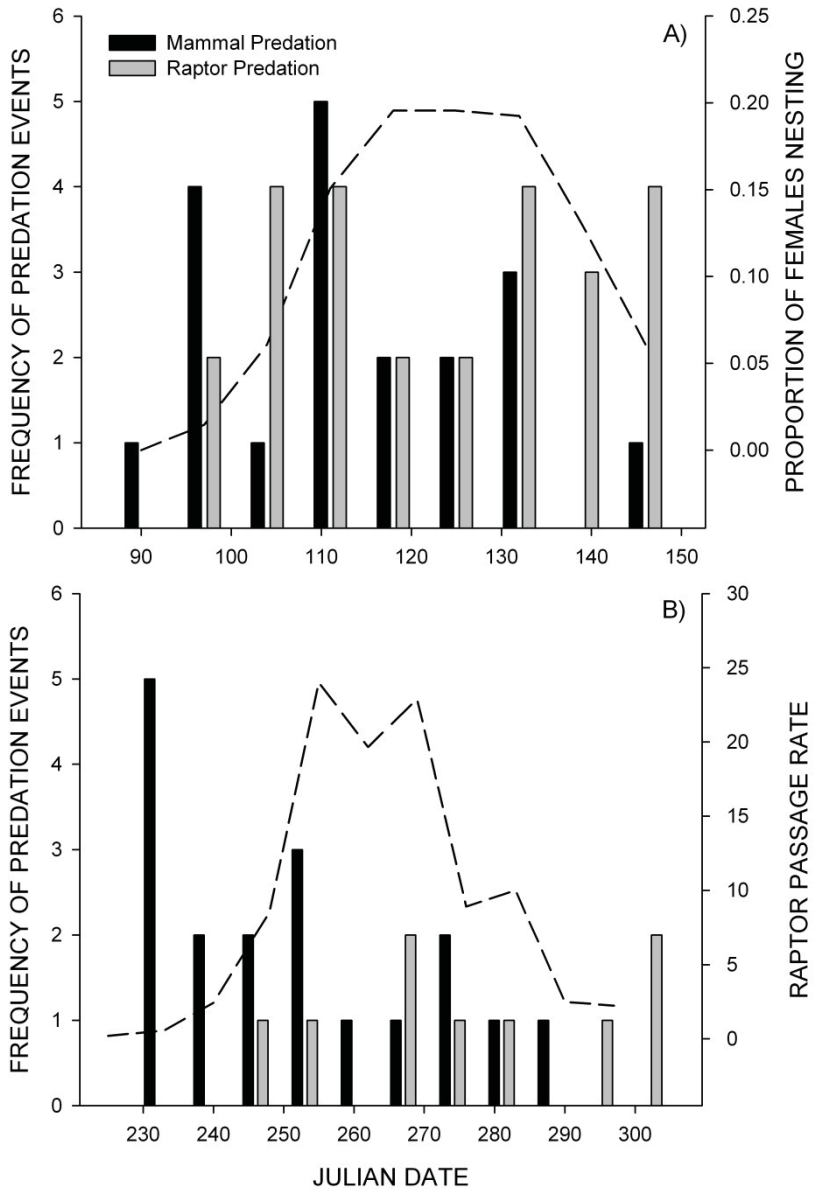

Figure 15. Distribution of sage-grouse predation events by predator type during the nesting (A) and fall (B) periods in Eureka County, NV. The proportion of radio-marked females known to be on a nest (A) and the timing of annual raptor migration (B) are identified by dashed lines and secondary y-axes. Raptor migration timing was estimated using data from the HawkWatch International Raptor Migration Study Site in the Goshute Mountains, located approximately 175 km east of our study site. Julian date 90 = 29 March and Julian date 230 = 16 August.

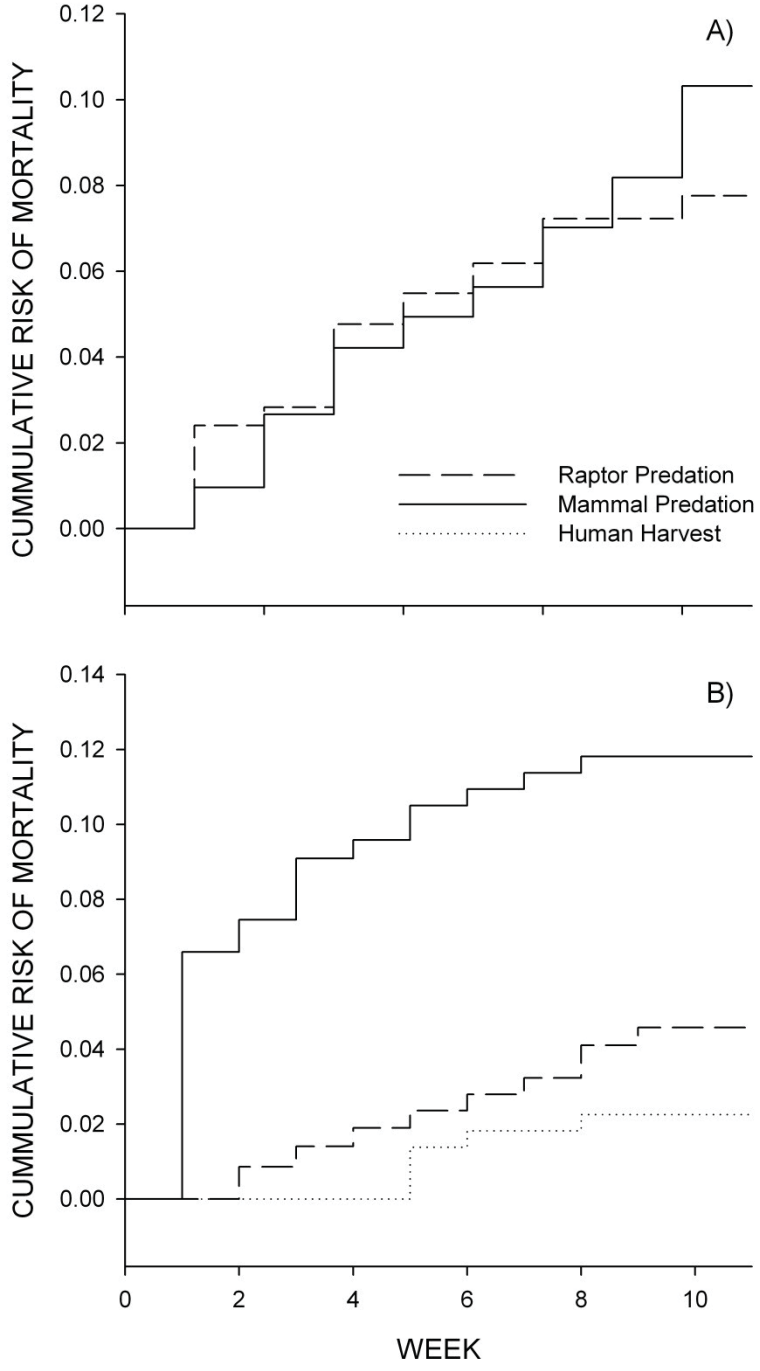

Figure 16. Cumulative incidence functions for competing risks of sage-grouse mortality during the nesting (A) and fall (B) periods in Eureka County, NV. Human harvest only occurred during the fall. Week 1 began on 1 April during the nesting season and on 15 August during the fall

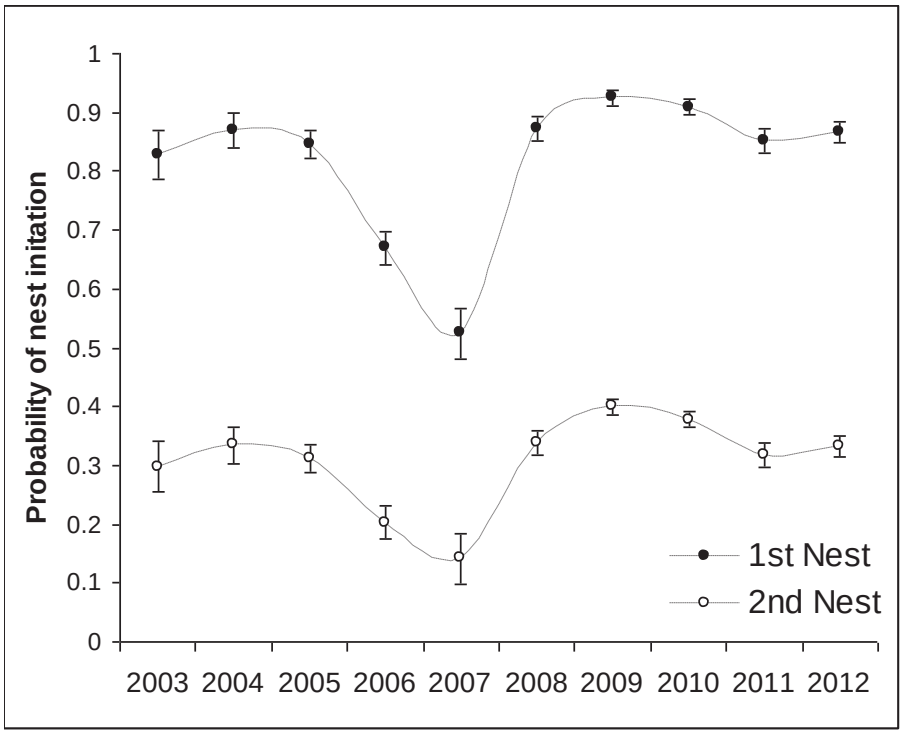

Figure 17. Probabilities of annual nesting (solid circle) and re-nesting (open circles) propensity for female sage-grouse estimated from multistate models. Error bars represent standard errors.

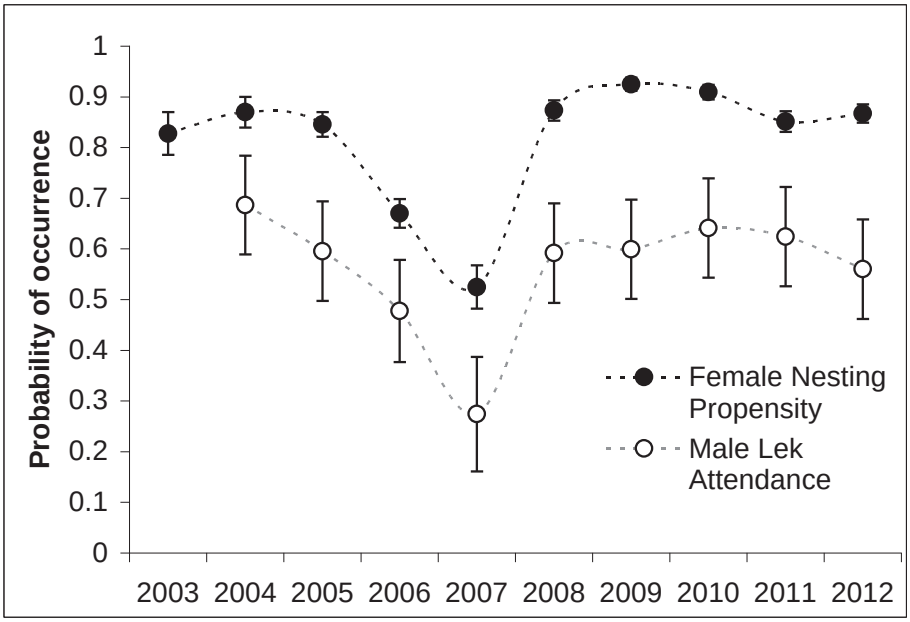

Figure 18. Probabilities of annual nesting propensity for female sage-grouse estimated from multistate models (solid circles) and probabilities of male lek attendance (open circles) estimated from robust design models. Error bars represent standard errors.

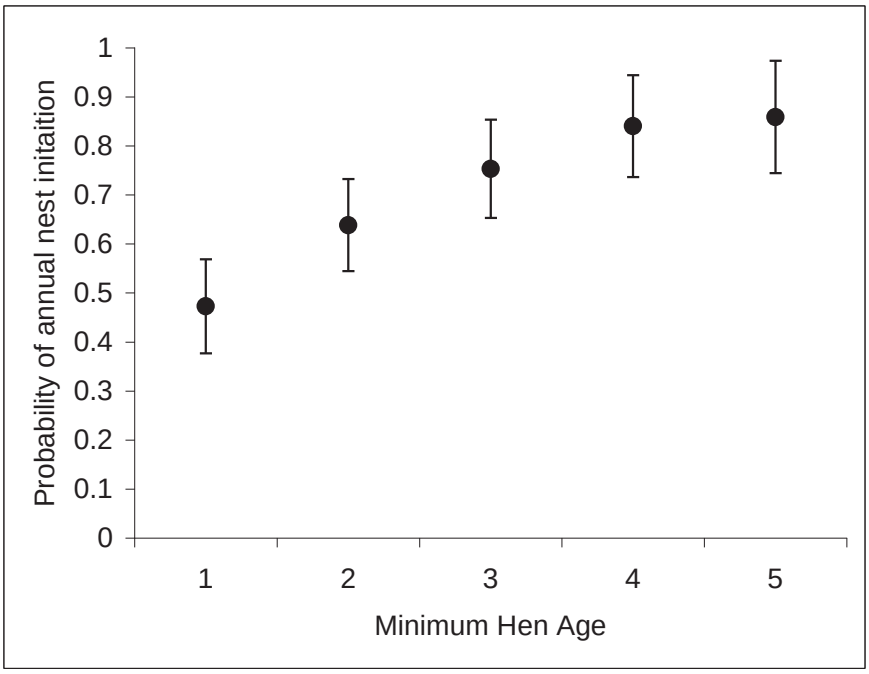

Figure 19. Variation in probabilities of nest initiation related to minimum age of the female. Error bars represent standard errors.

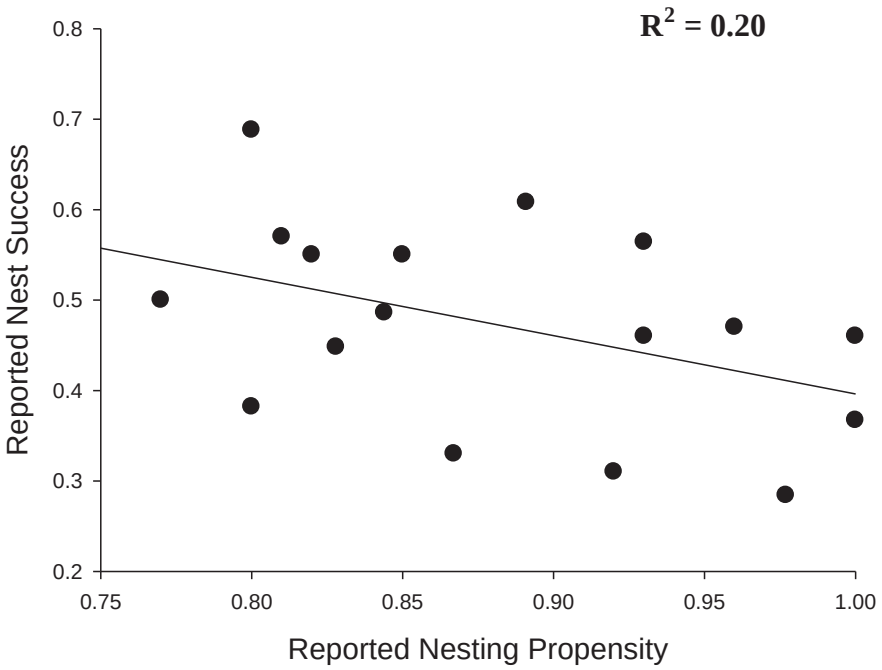

Figure 20. Observed correlation between reported estimates of apparent nesting propensity and reported estimates of apparent nest success from numerous studies across the range of greater sage-grouse. Data were compiled from summary tables published in Connelly et al. 2011 and the appendix of Taylor et al. 2012. Data points represent unique studies with a minimum of 60 nests monitored over a variable period of time.

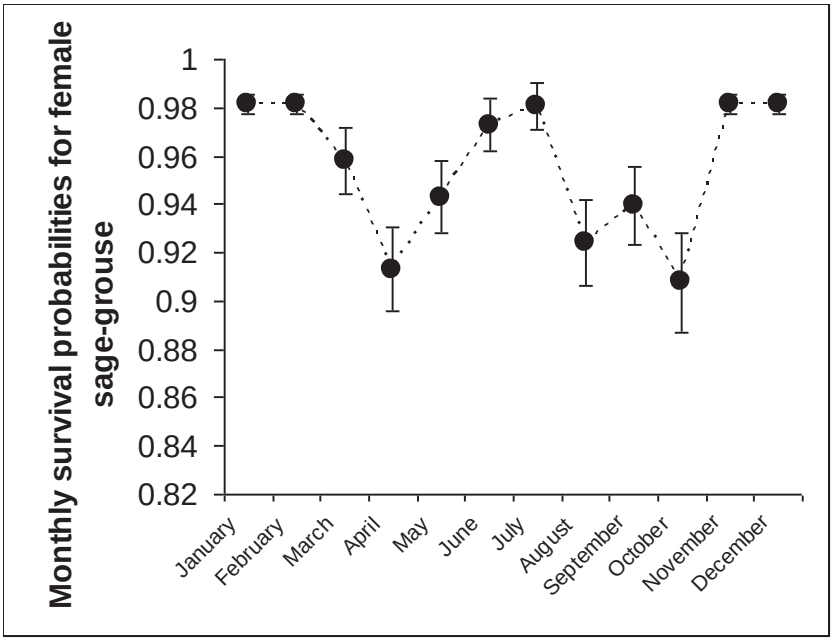
Monthly survival probabilities for female sage-grouse
1
0.98
0.96
0.94
0.92
0.9
0.88
0.86
0.84
0.82
January
February
March
April
May
June
July
August
September
October
November
December

Figure 21. Monthly variation in survival probabilities of female sage-grouse. Error bars represent standard errors.

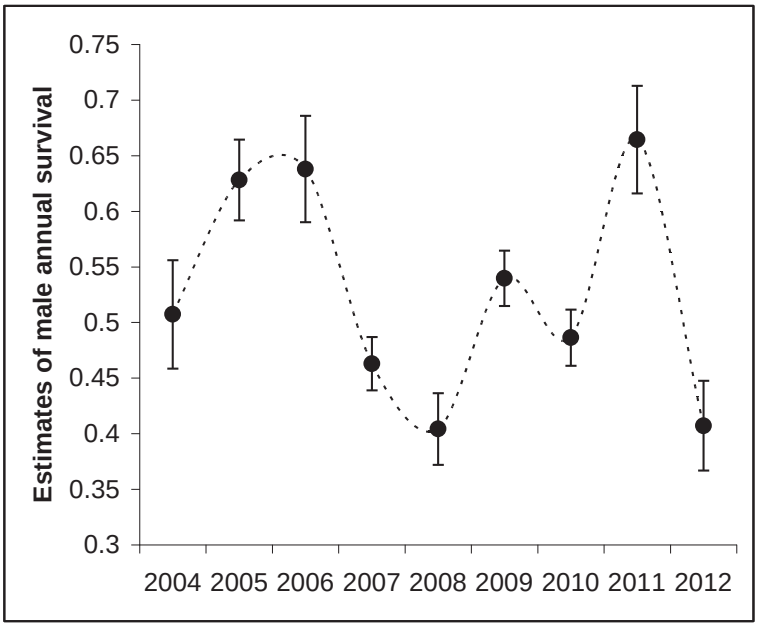

Figure 22. Annual variation in survival probabilities of male sage-grouse. Error bars represent standard errors.

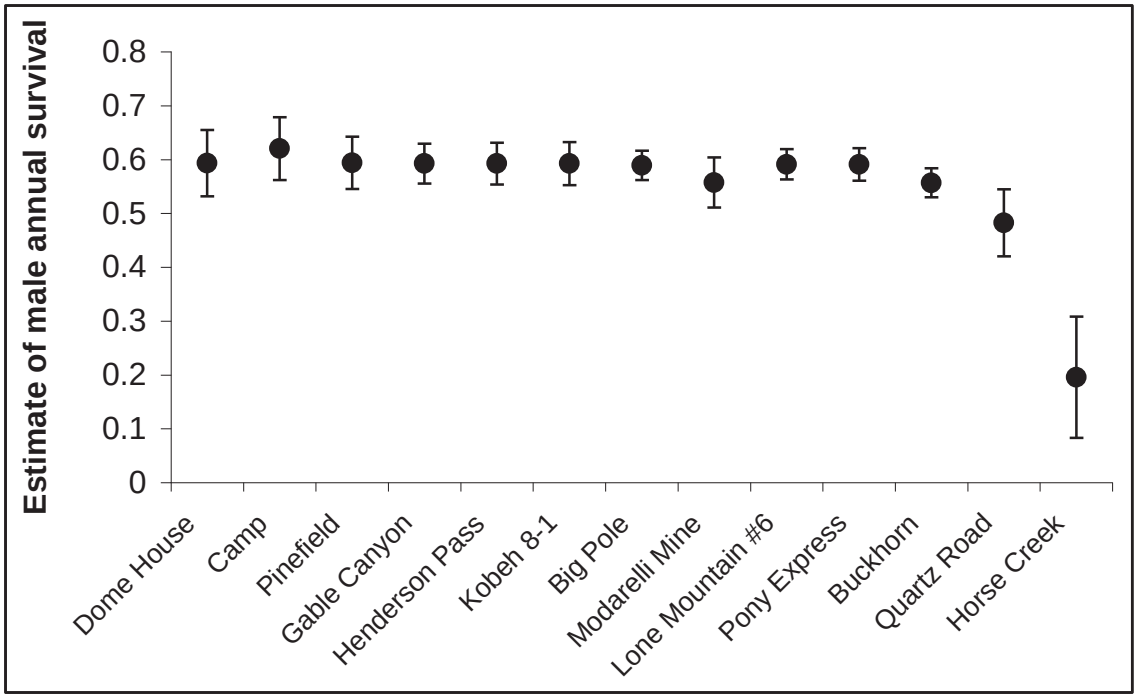

Figure 23. Interaction between a lek's distance from Falcon-Gondor transmission line and amount of habitat classified as wildfire scar within 1 km of the lek on annual estimates of male sage-grouse survival associated with a lek. Leks are organized on the x-axis from closest (left most) to furthest (right most) from the Falcon-Gondor transmission line. Error bars represent standard errors. The Horse Creek lek had the greatest wildfire impact of leks we studied.

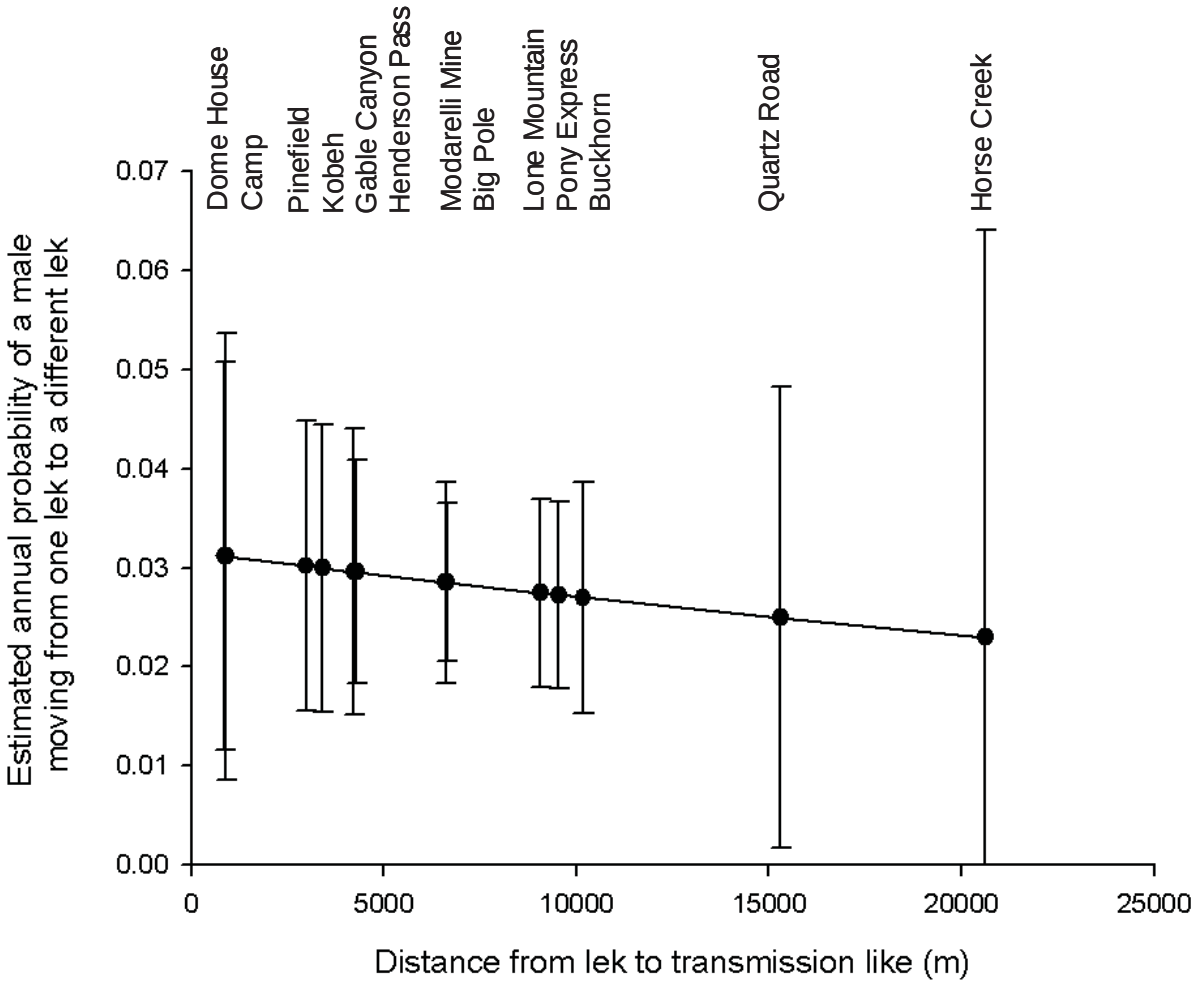

Figure 24. The influence of a lek's distance from Falcon-Gondor transmission line on the probability that a male sage-grouse will move to a different lek. Leks are organized on the x-axis from closest (left most) to furthest (right most) from the Falcon-Gondor transmission line. Error bars represent standard errors.

From: jmclain@blm.gov on behalf of Gateway_West_Trans_Line, BLM_WY [blm_wy_gateway_west_trans_line@blm.gov]
Sent: Thursday, February 14, 2013 12:50 PM
To: blm@gwcomment.com
Subject: Fwd: FW: Prairie Falcon Audubon, Inc Addendum to Gateway Sage-Grouse Addendum Comments
Attachments: Attachment 1 PFA Gateway Addendum EIS Draft Comments (final).pdf; Attachment 2 Importance of IBA_GatewayWest_9.10.12.pdf

From: Kenneth Harris [mailto:sjharris@cableone.net]
Sent: Tuesday, September 11, 2012 3:56 PM
To: BLM_WY_Gateway_West_Trans_Line
Subject: Prairie Falcon Audubon, Inc Addendum to Gateway Sage-Grouse Addendum Comments

Prairie Falcon Audubon, Inc.

September 11,2012

Prairie Falcon Audubon, Inc.

Conservation Chairperson

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Kimberly, Idaho 83341

2randells@randellrj.myrf.net

Project Manager

Gateway West Transmission Project EIS

Bureau of land Management

P.O. Box 20879

Cheyenne, Wyoming 82003

Via US Postal and email: Gateway_West_WYMail@blm.gov

Re: Prairie Falcon Audubon's promised Addendum to the Draft Environmental Impact Statement for the Gateway West Transmission Line Project. Effects of the Proposed Project on Greater Sage Grouse 2012

Dear Project Manager,

In our comments sent on August 2, 2012, we stated that an addendum would be submitted after the close of the comment period and that it be accepted as part of our comments (see attachment 1 pg. 7).

We hereby submit the following addendum; a letter from National Audubon Society on the importance of the IBA program (attachment 2).

The attached Audubon letter supports the recent U.S. Fish and Wildlife Service Conservation Objectives Team's (COT) draft report. The COT stresses the importance of supporting healthy populations of Sage-grouse through the amelioration of their habitat and connectivity between populations. We stress again that Gateway's alternative routes in Idaho, including the southern split from Populus to Cedar Hill to Hemingway are in and around Priority Habitats as well as the areas connecting them. This is unacceptable to Prairie Falcon Audubon for the sake of healthy public lands and wildlife.

Sincerely,

Julie Randell

Conservation Chairperson

Prairie Falcon Audubon, Inc.

August 2, 2012

Prairie Falcon Audubon, Inc.
Conservation Chairperson
3952 North 3600 East
Kimberly, Idaho 83341

Project Manager
Gateway West Transmission Project EIS
Bureau of land Management
P.O. Box 20879
Cheyenne, Wyoming 82003

Via US Postal and email <Gateway_West_WYMail@blm.gov>

Re: Addendum to the Draft Environmental Impact Statement for the Gateway West Transmission Line Project. Effects of the Proposed Project on Greater Sage Grouse 2012

Dear Walter George,

The supporters and members of Prairie Falcon Audubon have a vested interest in Idaho's public lands. We use the areas that would be impacted by the siting and construction of the Gateway transmission line for birding, hiking, and other recreational, scientific, and aesthetic pursuits. In view of our interests, we feel compelled to comment on the above mentioned DEIS Addendum.

Prairie Falcon Audubon (PFA) recognizes that new energy developments are important for our energy future. However, any energy project must be sited in a way that does not harm species or their habitat, including ours. Our views are in alignment with the Nation Audubon mission statement.

> *"National Audubon's mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity."*

Summary: PFA strongly opposes all of the alternative routes proposed in the DEIS Addendum south of the Snake River in Idaho, including the split route connecting through the proposed Cedar Hill substation to be sited in a Global Important Bird Area (IBA). The South Hills IBA (see maps – APPENDIX A and APPENDIX B) has been designated to be of global significance because it holds significant numbers of Greater Sage-grouse, a globally threatened species, because it holds significant populations of narrow endemics and species with very limited distribution, and because it supports exceptionally large numbers of migrating and congregating species.

We are very concerned that the DEIS Addendum acknowledges potential adverse direct, indirect, and cumulative impacts and yet draws the conclusion that because of purpose and need, the project should proceed despite the severity of these impacts. We find this is unacceptable.

We still do not have a clear and definitive explanation from BLM, or the project proponents, for use of any of the senseless alternative routes through critical Sage-grouse and other sage-steppe obligate species' habitat in southern Idaho, including the South Hills Global IBA and possibly, the Raft River/Curlew Valley Global IBA. We are guessing that these routes may hook into wind farms, e.g. Simplot's near Rogerson, Idaho, as well as other future projects that could be deadly to birds, including Sage-grouse, and encourage a web of harmful power lines throughout key/priority habitat. Wind farms located on or near remote public lands have now been shown to be costly to the public and for the most part inefficient.

We are deeply concerned and alarmed that BLM and the project proponents are ignoring the importance of National Audubon's IBAs in selecting alternative routes both in Wyoming and Idaho.

We believe it's the obligation of BLM to protect and manage Sage-grouse habitat under the Federal Land Policy and Management Act of 1976 (FLPMA). FLPMA mandates that BLM public lands shall be managed “for multiple use and sustained yield,” and to prevent “unnecessary or undue degradation” of public lands. BLM is not mandated to, or responsible for, meeting the needs or desires of private interests. In addition, the Special Status Species Policy mandates that BLM “shall ensure that actions authorized, funded or carried out by BLM do not contribute to the need for the species to become listed” (BLM Manual 6841.06C). The EIS must comply with BLM's sensitive species policy.

Though the DEIS Addendum goes into great detail about mitigating the negative impacts of the project, we believe “mitigation by avoidance” to be the best plan in all key/priority Sage-grouse habitat. These important areas are for the most part irreplaceable. Disturbed areas within key/priority habitat should be restored and not used to develop infrastructure. As stated in BLM's Best Management Practices (BMPs), “Place new utility developments, power lines, pipelines, etc. in existing utility or transportation corridors”.

Comments and Concerns:

USFWS states: “Evidence suggests that habitat fragmentation and destruction across much of the species' [Greater Sage-grouse] range has contributed to significant population declines over the past century.” (USFWS “Endangered Species” page summary of the 2010 “warranted but precluded” finding)

Agriculture, grazing, **infrastructure**, and energy development all contribute to the fragmentation, damage and loss of Sage-grouse habitat and are the main reasons for Greater Sage-grouse decline. The USFWS specifically identified power lines as adversely impacting Sage-grouse and its habitat.

Infrastructure was also cited by the Idaho Governor’s Sage-grouse Task Force as one the main reasons for the decline of the Sage-grouse. Yet BLM continues to support projects such as this one without clearly making a stand and protecting Sage-grouse and its habitat. Why?

As acknowledged in the DEIS Addendum, the proposed alternative routes will have a direct impact while adding to the devastating cumulative effects of overgrazing in almost all of the areas of the alternative routes in southern Idaho.

PFA believes livestock grazing (overgrazing) is the number one issue facing Greater Sage-grouse conservation in Idaho. Overgrazing contributes to huge losses of Sage-grouse and other sagebrush obligate species, due to loss and degradation of native habitat and important watersheds. Below is an excerpt from PFA's scoping comments to BLM's Sage-grouse Planning Strategy.

> When PFA refers to the word “overgrazing”, we are talking about the impacts of grazing on public land over a long period of time, one hundred years or more in most cases. During most of that time period of that time, there was not adequate monitoring and oversight by BLM, USFS, and State Lands Commission, agencies that were set up specifically to protect public land.
>
> Below is a list of impacts PFA members have observed and documented over the last twenty or more years (in the Burley BLM Field Office and the Sawtooth National Forest, Minidoka Ranger District and now, Jarbidge BLM Field Office). These are concerns we have for sage steppe habitat overgrazed by livestock on public land. We are not all scientists or biologists, but we have worked to learn as much as we can about issues and impacts by livestock as well as properly functioning ecosystems.

Grazing in sage-steppe habitat causes:

- Soil erosion and compaction (we believe in most cases, the degree of severity is limited only by topography);
- Loss of mesic and riparian areas;
- Loss of riparian vegetation and bank integrity;
- Gulley and wash formation;
- Lowering of the water table;
- Dysfunctional watersheds;
- Invasive weeds and grasses;
- Loss of mosses and biotic soils;
- Loss of native vegetation such as forbs, shrubs, trees, and grasses;
- Loss of ground cover, including little or no litter in many areas;
- Trampling of nesting and brooding areas of ground nesting birds including Sage-grouse
- Little or no understory in many areas;
- Over-utilized crested-wheat seedings;
- Plant pedestalling, surrounding bare ground, and exposed roots;
- Large areas of open and connecting bare ground;
- Large “sacrifice” areas near streams, springs, seeps, and water developments (improvements?);
- Stagnant water in impoundments, troughs, etc. that may harbor mosquitos and thus West Nile Virus;
- Loss of water quality, silt and pollution (introduction of livestock feces and urine);
- Fencing unfriendly to wildlife, netting and many strand fencing still found on BLM and US Forest lands;
- Loss of native habitat to wildfire and encouraging repeated fire cycle;
- Loss of reseeded areas, burns and vegetation treatment projects by allowing livestock back before plants have sufficient growth to survive (two full years or less);
- Grazing in early spring, late winter, prolonged wet seasons, and year round;
- Insufficient cover for wildlife;
- Frequent aerial gunning (observed and documented by PFA members in Burley F.O.);
- Failure to rehabilitate pipelines and burns (invasive weeds, grasses and bare ground).

We have also observed and documented many of the adverse impacts from infrastructure and roads through Sage-grouse habitat sited in this DEIS Addendum, e.g. the introduction of invasive weeds and grasses in disturbed areas with continued grazing even with reseeding and restoration.

As stated above, our concerns about vegetation treatments and burns are valid, as we have observed and documented what happens after treatments when grazing is allowed back at two years or sooner. We believe BLM and the USFS must not allow grazing until after a much longer period of time, five to ten years. This allows for a more permanent restoration to counter invasive grasses, weeds and wildfire and saves taxpayers' dollars.

We are deeply concerned and alarmed that BLM and the project proponents are ignoring the importance of National Audubon's IBAs in selecting alternative routes both in Wyoming and Idaho. “Audubon’s Important Bird Areas Program is part of a global effort to identify and conserve areas vital to birds and other biodiversity. It engages Audubon staff, chapter members and other volunteers to identify, monitor and steward critical habitat areas in and around their communities”(IBAs and the Sagebrush Initiative - Letter from Audubon pending)

If this project is located in, surrounding, or going through IBAs it would be very counterproductive to ensuring the protection of sage-steppe that is globally recognized for the protection of avian species such as Sage-grouse. The alternative routes around and through the South Hill IBA could result in

fragmentation and loss of connectivity with surrounding populations east and west, e.g. Browns Bench, China Mountain, and south in northern Utah and Nevada.

We believe BLM's preliminary and to a greater degree, Idaho Governor's task force maps trivialize and minimize the importance of Sage-grouse habitat in central and eastern Idaho. Their current lek-based habitat maps do not realistically depict Idaho's Sage-grouse habitat. It fragments habitat and reduces connectivity amplifying impacts such as new development, and leaves out important intact sagebrush areas important to Sage-grouse and other sagebrush-dependent species.

On the maps in the DEIS Addendum it is not clear to us where the existing transmission lines or the existing corridors are located.

Allowing use of any of the alternative routes south of the Snake River in southern Idaho could realistically result in a significant loss of Idaho's Sage-grouse as well as sagebrush-steppe obligate species and key/priority sage grouse habitat through greater fragmentation and the loss of connectivity.

Again, the Special Status Species Policy mandates that BLM “shall ensure that actions authorized, funded or carried out by BLM do not contribute to the need for the species to become listed” (BLM Manual 6841.06C).

In Conclusion, the DEIS Addendum acknowledges direct, indirect, and cumulative impacts to Greater Sage-grouse, but at the same time draws the conclusion that because of purpose and need, the project should proceed despite the severity of these impacts. It also promotes the use of tactics such as off-site mitigation and if need be alter and/or amend current BLM RMPs and Forest Plans, such as the Kemmerer RMP, to fit the project's need instead of protecting wildlife habitat. This is unacceptable to us

If this project is allowed to use the alternative routes throughout key/priority habitat including IBAs it sets a precedent for new routes for other transmission lines, oil and gas and even water export.

This coupled with what we see as a total disregard for the negative cumulative impacts such as overgrazing already along (all) alternative routes and an unwillingness to wait for the final National Greater Sage-grouse Planning Strategy to complete their EIS, leads us to believe the proponents are not interested at all in saving Sage-grouse or its habitat.

The only routes through Idaho on the DEIS Addendum map that make any sense to us are the ones **NORTH** of the Snake River crossing near Melba to Hemingway.

Prairie Falcon Audubon requests that Project proponents be made to follow BLM's own *Best Management Practices(BMPs), “*Place new utility developments, powerlines, pipelines, etc. in existing utility or transportation corridors” with few exceptions to protect important sage-steppe habitat for Sage-grouse and ultimately ourselves.

Sincerely,
Julie Randell

Conservation Chairperson

PS, We ask that two forthcoming addendums, to be submitted after the close of the comment period, be accepted as a part of these comments.

Audubon

September 10, 2012

Walter E. George
Bureau of Land Management
Gateway West Project
PO Box 20879
Cheyenne, WY 82003
Email: Gateway_West_WYMail@blm.gov; Walt_George@blm.gov

RE: Follow-up to Prairie Falcon Audubon Chapter Formal Comments on the Gateway West Transmission Line Sage-grouse HEA – Additional Information on *Important Bird Areas* and *Audubon's Sagebrush Ecosystem Initiative, and New Scientific Reports*

Dear Mr. George:

The supporters and members of Prairie Falcon Audubon Chapter, Audubon Rockies, and National Audubon Society, all have a vested interest in Idaho and Wyoming's public lands. These areas provide important habitat to many avian species of concern and invaluable recreational habitat to our members. We have individually submitted comments in the past to the proposed Gateway West transmission line's Draft Environmental Impact Statement (October 2011) and the Sage-grouse Habitat Equivalency Analysis Addendum (August 2012).

Per the notation in the Prairie Falcon Chapter's HEA comments, please consider this the National Audubon Society's (and Audubon Rockies, the Rocky Mountain regional office) letter explaining the *Important Bird Areas* program and the *Sagebrush Ecosystem Initiative*. While we recognize that the Final Environmental Impact Statement is due to be released in late November 2012, we believe the value of the area's wildlife resources that could be impacted by this proposed high voltage transmission line warrant the BLM's serious consideration of this information.

I. Important Bird Areas Reflect Critical Avian Habitat

Important Bird Areas ("IBAs") are part of an international program to identify priority areas where threatened, restricted-range, biome-restricted and congregatory birds occur. In the United States, this program is managed by the National Audubon Society. A site is recognized as an IBA only if it meets certain criteria, which are internationally agreed, standardized, quantitative and scientifically defensible. Scientists identify locations that provide essential habitat to one or more species of birds during some portion of the year (nesting areas, crucial migration stop-over sites, or wintering grounds). The selection of IBAs has been a particularly effective way of identifying conservation priorities. **The identification of such critical habitats is an important consideration in generation and transmission development, as these areas should be avoided due to their ecological value.**

To that end, the influential Western Electricity Coordinating Council's ("WECC") Environmental Data Task Force ("EDTF") ultimately included Important Bird Areas as a preferred data set when evaluating potential transmission alternatives. According to the EDTF, "high voltage transmission lines have a relatively small direct footprint on the ground; however, large interstate transmission lines can also indirectly and

cumulatively impact wildlife, cultural and historical features and water resources" (WECC 2011)[1]. Thus, "the anticipated benefit of incorporating environmental and cultural information upfront in the transmission planning process is to reduce the potential for conflict with these resources during subsequent siting, permitting, and constructions" (WECC 2011).

Additionally, the National Audubon Society works with national and international partners to further the value of IBAs. The *North American Bird Conservation Initiative* (NABCI) is an attempt to coordinate bird conservation efforts throughout the US, Canada, and Mexico. The IBA Program contributes to this initiative by identifying the most important sites at which to implement large-scale conservation efforts to ensure the protection of all bird species in all habitats.

II. Sagebrush Ecosystem Initiative

The sagebrush ecosystem, once covering vast stretches of western North America, has experienced new pressures over the past century. Due to human activities, less than half of the formerly rich sagebrush landscape remains today. These pressures impact a wide range of species that are dependent on this unique habitat – 297 bird species, 87 species of mammals, and 63 fish species. Among the most recognizable are the world-class populations of sage-grouse, mule deer, elk, and pronghorn antelope.

Audubon has set in motion the *Sagebrush Ecosystem Initiative* (SEI) in order to help conserve the sagebrush ecosystem. Specifically, we are focusing initial conservation efforts on the Greater sage-grouse, a keystone species and an indicator of overall ecosystem health. A biologically-based roadmap for grouse conservation will provide the tools necessary for successful conservation in the entire region and result in benefits to an entire ecosystem.

The overall goal of the SEI is to maintain and enhance populations and distribution of Sage-Grouse by protecting and improving sagebrush habitats and ecosystems that sustain these populations, thus conserving a wide range of wildlife species that depend on the sagebrush ecosystem. The overarching framework of the SEI is <u>science-based conservation</u>, identification and mitigation of threats to the sagebrush ecosystem and Sage-Grouse populations, coupled with <u>policy</u> and <u>education</u>. The SEI is a long-term, ecosystem-wide effort that will ensure collaborative conservation efforts are implemented across jurisdictional boundaries.

III. Science-Based Decisions – Using New Sage-grouse Documents

As an organization that is grounded by science-based conservation, we are taking this opportunity to highlight two new reports pertaining to Greater Sage-grouse conservation. The first is the new scientific findings and recommendations set forth in the document titled, "***A Report on National Greater Sage-Grouse Conservation Measures***" produced by the **BLM's Sage-grouse National Technical Team** and dated December 21, 2011 (Technical Team Report)[2]. We strongly request that the BLM analysis in the FEIS consider the scientific recommendations of the Technical Team Report.

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[1] Western Electricity Coordinating Council (WECC). 2011. Final Report of the Environmental Data Task Force: Environmental Recommendations for Transmission Planning. http://www.wecc.biz/committees/BOD/TEPPC/SPSG/EDTF/Shared%20Documents/Environmental_Recommendations_for_Transmission_Planning/Final_Recommendations_Report/Environmental%20Recommendations%20for%20Transmission%20Planning%20-%20Revised%2005-27-2011.pdf

2

http://www.blm.gov/pgdata/etc/medialib/blm/co/programs/wildlife.Par.73607.File.dat/GrSG%20Tech%20Team%20Report.pdf

It is well recognized that Wyoming is the strong-hold for Greater sage-grouse and the sagebrush landscape, on which the species completely depends, and that Idaho contains critical populations of this candidate species. The BLM's own *Regional Breeding Density Map*[3], which Audubon was involved in its creation, also identifies the areas potentially impacted by Gateway West as very important to sage-grouse. Decisions made pertaining to the construction of Gateway West, and specifically the routing locations, will be critical for the recovery of the species.

Extensive research has shown the negative impacts of human activities and infrastructure development on sage-grouse populations. These impacts include change in habitat use patterns (use of lower quality habitats), avoidance, increase in invasive species, death due to collision and electrocution, habitat fragmentation, cumulative impacts, and creation of travel routes for land predators. Furthermore, researchers have documented a correlation between human footprint and sage-grouse persistence and performance in altered landscapes, providing important insights into impacts of anthropogenic changes in landscape (Aldridge 2000, Braun et al. 2002, Holloran 2005, Naugle et al. 2010). Much of this research is compiled, referenced and relied on by the NTT Report.

The second report was released in late August 2012 by the U.S. Fish and Wildlife Service. This report was designed to help guide the efforts of the States and other partners to conserve Greater Sage-grouse with a landscape-level strategy that will benefit the species while maintaining a robust economy in the West. The report, "***Sage-Grouse Conservation Objectives Draft Report*** [4]" prepared by state and federal scientists and sage-grouse experts, used the latest scientific information to (1) identify the conservation status of the sage-grouse, (2) the nature of the threats facing the species, and (3) objectives to ensure its long-term conservation. The Sage-Grouse Conservation Objectives Team recommended "that impacts be avoided to the maximum extent possible … to sustain the functional value of the PAC impacted" (Priority Areas for Conservation, page 32). Furthermore, as the area in question in Wyoming is identified as having C4 populations, the Team states that "plans should have the objective of maintaining C4 populations" where they exist (page 32). The Idaho populations are listed as C1, C3, and C4 - populations at greater risk than the Wyoming portion. This report and recommendations need to be included in the FEIS, as this high-voltage transmission line project will influence sage-grouse at a regional and landscape-scale.

We thank you for your time and look forward to future opportunities to discuss the Gateway West transmission line.

Respectfully submitted,

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[3] http://www.blm.gov/wo/st/en/prog/more/fish__wildlife_and/sage-grouse-conservation/bird_density.print.html

[4] http://www.fws.gov/mountain-prairie/species/birds/sagegrouse/20120803ConservationObjectivesTeamDraftReport.pdf

From: jmclain@blm.gov on behalf of Gateway_West_Trans_Line, BLM_WY
To: blm@gwcomment.com
Subject: Fwd: Emailing: PFA Gateway FEIS Comments June 28, 2013
Date: Monday, July 01, 2013 10:24:50 AM
Attachments: PFA Gateway FEIS Comments June 28, 2013.pdf

---------- Forwarded message ----------
From: **Julie Randell** <2randells@randellrj.myrf.net>
Date: Fri, Jun 28, 2013 at 6:51 AM
Subject: Emailing: PFA Gateway FEIS Comments June 28, 2013
To: Walt George <Gateway_West_WYMail@blm.gov>, Sarah Harris <SHarris@csi.edu>, Jim Prunty <ravens80@cableone.net>

Dear Mr. George, attached is Prairie Falcon Audubon's Gateway FEIS Comments.

Sincerely,
Julie Randell, Conservation Chairperson

Prairie Falcon Audubon, Inc.

June 28, 2013

"National Audubon's mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity."

Julie Randell
Conservation Chairperson
3952 North 3600 East
Kimberly, Idaho 83341
(208) 423-4268
2randells@randellrj.myrf.net

Walt George
Project Manager
Bureau of Land Management
Wyoming State Office
P.O. Box 20879
Cheyenne, WY 82003
Gateway_West_WYMail@blm.gov

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- FEIS does not adequately address ongoing threats to the project area such as livestock overgrazing and invasive grasses and weeds, etc. The proposed project would only increase these impacts, these amendments would significantly downgrade protections to important natural resources such as visual, wildlife, and special designated areas .

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- The proponents were aware that this area was designated as a ACEC and eligible WSA, As stated in the FEIS,

  > "No amendment for this area was proposed in the Draft EIS because it was thought that crossing the WSR at the proposed location would not be consistent with WSR management goals. ***An alternative crossing of the river (Alternative 9C) would avoid the eligible WSR and the ACEC*** *(emphasis added)***.** The alignment for Segment 9 was adjusted to cross just north of the road crossing at Lilly Grade and adjacent to an existing distribution line. ***The Burley FO has stated that the WSR classification at this location is Recreational"and this crossing would not have a negative effect on the outstandingly remarkable values (ORVs) for that classification.*** (emphasis added)

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- *Interested public was not given this information; there was already a route laid out in the DEIS .* A route change should be given to the public *before* the final EIS. This does not follow NEPA.

- We couldn't find the above mentioned alternative 9c on the BLM's interactive project map, because the map doesn't show any of this part of the project. Why?

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- When given the chance to go through or around a area designated for protection. BLM Burley FO manager and proponents chose to go through it without public input or regard. Why?

- "Congress mandated the designation of ACECs through the Federal Land Policy and Management Act (FLPMA) to manage areas containing truly unique and significant resource values" and "WSAs are managed to a "non-impairment" standard that excludes surface disturbing activities and permanent structures that would diminish the areas' natural character..." "ACEC designations highlight significant resources or hazards where special management measures are needed to prevent irreparable damage. "
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  > 3.7.1 **Purpose and Need to Amend the Twin Falls MFP**
  > The Project's Preferred Route 9 and Route Alternatives 9A and 9B would cross through areas managed by the Twin Falls MFP. **The route locations were selected** to comply with WECC requirements and **to protect significant resources to the greatest extent feasible. These include, but are not limited to, TES species, sensitive lands, cultural resources, and visual resources"**(emphasis added).

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3.8 Jarbidge RMP FEIS F.1-37:

Again, We are very disappointed and alarmed that BLM F.O. management and proponents arbitrarily decided without public knowledge, input, or regard; ***to change the route, in segment 9, and take the line along rim of and across the Salmon Falls Creek Canyon at Lily Grade.*** We believe this is highly unethical, not in accordance with NEPA, and possibly illegal.

Both sides of the canyon are ACECs and both the Burley and Jarbidge RMP gives explicit direction on how the they should be managed.

The canyon itself is also *managed as an ACEC, Outstanding Natural Area, eligible WSR, and SRMA.*

As stated in FEIS "the RMP decisions that are proposed to be amended relate to cultural and visual resources". How will these resources can be mitigated? We believe they can't be.
To us, it is only in the best interest of the proponents to allow these amendments to Jarbidge and Burley's RMPS.

This route change is senseless and unnecessary, and can essentially cause irreparable harm natural resources in these designated areas because there are other alternatives already considered across degraded lands.

Closing:

In regards to route change in the Twin Falls MFP after the DEIS, *the public was left out of the decision making process,* is not in accordance with NEPA and is unethical, and possibly illegal.

We believe the change is unnecessary and harmful as the area is designated for protection under FLPMA, as proponents are aware of and had an publicly known alternative already in place. We ask, what will BLM do to remedy this situation ?

In view of the the many reasons stated above we ask BLM to not grant the amendments and to keep the Gateway Transmission Line to the designated energy corridors with little exception.

Instead of allowing private interests to destroy public lands piecemeal, we would also ask BLM to vigorously protect their Field Offices" RMPs that protect and regulate for true *sustainable* multiple use of our natural resources on public lands now and in the future,

Sincerely,
Julie Randell
Chapter Conservation Chairperson

ENTERED
10/015

Prairie Falcon Audubon, Inc.

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3.8 Jarbidge RMP FEIS F.1-37:

Again, We are very disappointed and alarmed that BLM F.O. management and proponents arbitrarily decided without public knowledge, input, or regard; *to change the route, in segment 9, and take the line along rim of and across the Salmon Falls Creek Canyon at Lily Grade.* We believe this is highly unethical, not in accordance with NEPA, and possibly illegal.

Both sides of the canyon are ACECs and both the Burley and Jarbidge RMP gives explicit direction on how the they should be managed.

The canyon itself is also *managed as an ACEC, Outstanding Natural Area, eligible WSR, and SRMA.*

As stated in FEIS "the RMP decisions that are proposed to be amended relate to cultural and visual resources". How will these resources can be mitigated? We believe they can't be.
To us, it is only in the best interest of the proponents to allow these amendments to Jarbidge and Burley's RMPS.

This route change is senseless and unnecessary, and can essentially cause irreparable harm natural resources in these designated areas because there are other alternatives already considered across degraded lands.

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Closing:

In regards to route change in the Twin Falls MFP after the DEIS, *the public was left out of the decision making process*, is not in accordance with NEPA and is unethical, and possibly illegal.

We believe the change is unnecessary and harmful as the area is designated for protection under FLPMA, as proponents are aware of and had an publicly known alternative already in place. We ask, what will BLM do to remedy this situation ?

In view of the the many reasons stated above we ask BLM to not grant the amendments and to keep the Gateway Transmission Line to the designated energy corridors with little exception.

Instead of allowing private interests to destroy public lands piecemeal, we would also ask BLM to vigorously protect their Field Offices" RMPs that protect and regulate for true *sustainable* multiple use of our natural resources on public lands now and in the future,

Sincerely,
Julie Randell
Chapter Conservation Chairperson

Julie Randell

2013 JUL -1 AM 10:00
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BLM
CHEYENNE WYOMING

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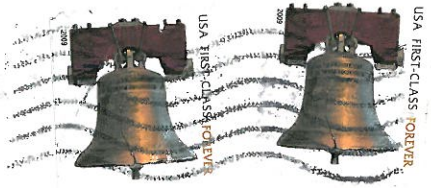
Prairie Falcon Audubon Inc.
3952 North 3600 East
Kimberly, Idaho 83341

BOISE ID 837
28 JUN 2013 PM 2 L



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ENTERED
5/10/1

Walt George
Gateway Trans. Line Project Manager
Bureau of Land Management
Wyoming State Office
P.O. Box 20879
Cheyenne, WY 82003

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From: jmclain@blm.gov on behalf of Gateway_West_Trans_Line, BLM_WY
To: blm@gwcomment.com
Subject: Fwd: Gateway West Transmission Line Project
Date: Tuesday, April 02, 2013 9:45:41 AM
Attachments: 7sallyjewell.docx

---------- Forwarded message ----------
From: **Leah Osborn** <bluewind@me.com>
Date: Mon, Apr 1, 2013 at 6:57 PM
Subject: Gateway West Transmission Line Project
To: steve_black@ios.doi.gov, jfincher@blm.gov, sellis@blm.gov, Gateway_West_WYMail@blm.gov, Stephen Hartgen <shartgen@house.idaho.gov>, Bert Brackett <bbrackett@senate.idaho.gov>, john.chatburn@oer.idaho.gov, Paul Kjellander <paul.kjellander@oer.idaho.gov>, Bryan Ricker <Bryan_Ricker@crapo.senate.gov>, Owyhee County Desmond <OCNRCDIR@aol.com>, Frank Bachman <fcbachman@copper.net>

March 28, 2013

Dear Ms Jewell,

Congratulations on your nomination of Secretary of Interior! We anticipate your confirmation. We are also anticipating the imminent release of the Final Environmental Impact Study (FEIS) for the Gateway West Transmission Line Project (GWTLP). We realize you will have to hit the floor running regarding a decision. We are the residents of Ada, Canyon and Owyhee Counties.

In 2006 Idaho Power proposed two 500 kV lines.

- One line paralleling the existing 500 kV PacifiCorp line in the Snake River Birds of Prey National Conservation Area (SRBOP NCA).
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We did not become aware of the above or the Gateway West Transmission Line Project until spring, 2009. In April /May 2009 we began to organize after learning about Segment 8 and Segment 9 of the GWTLP. Residents of Kuna and Melba formed a diverse group and bore the expense of hiring Environmental Conservation Services, Inc. (Segment 8 Task Force). Residents of Owyhee County formed the Owyhee County Task Force (OCTF aka Segment 9). The OCTF is fortunate to have local resident Karen Steenhof, a former BLM and USGS raptor biologist, as a member. Boise District Office BLM (BDO BLM), Idaho Power Engineers, Tetra Tech and local elected officials were in attendance at the meetings

of both groups. These groups worked over the summer of 2009 to develop alternatives to Idaho Powers proposed Segment 8 and Segment 9. Their mission: to diminish the impact of the GWTLP on private property. It must be noted that only 17% of Owyhee County is privately owned. Thus, the OCTF required that the GWTLP not impact private property without the consent of the landowner. Representatives from Segment 8 attended the OCTF meetings. Representatives from the OCTF attended Task Force meetings held in our adjoining counties ensuring our alternatives lined up and the needs of all Idaho residents were being met. Due to the geographical location of Segment 9 the OCTF also cooperated with the United States Air Force and affected Shoshone Paiute Tribes. Our local state representatives, 1st Congressional District and Governor were continually apprised as to the activities of both groups.

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Rosey Thomas from BDO BLM insisted on Alternative 9E at the June 18th 2009 OCTF meeting. She was adamant that the OCTF submit 2 alternatives. The citizens of Owyhee County have objected to 9E from its inception. 9E would be blight on the Owyhee Front. 9E is in Sage Grouse habitat.

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Segment 9, Segment 9E and altered Segment 9E (the BLM's preferred alternative) are in Sage-Grouse habitat. June 2012 the BLM released the Addendum to the DEIS for the GWTPL "Effects of the Proposed Project on Greater Sage-Grouse" (please reference).

October 12th 2012, The Wilderness Society, Idaho Conservation League, The Nature Conservancy in Idaho and Conservation Lands Conservation Foundation submitted the following correspondence to Mr. Walt George:

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found the Greater Sage-Grouse warrants protection under the Endangered Species Act and has committed to a final listing decision in 2015.

PPH, as identified in BLM's Greater Sage–Grouse Interim Management Policies and Procedures, IM 2012-043(12/27/2011), "compromises areas that have been identified as having the highest conservation value to maintaining sustainable Greater Sage–Grouse populations" that "have been identified by the BLM in coordination with respective state and wildlife agencies".

IM 2012-043 requires additional procedures for pending ROW applications that would affect more than 1 linear mile of Sage Grouse habitat. **Segment 9E would have nearly fifty times that level of impact**. These procedures include a high level interagency review process for any ROW project that would fail to "cumulatively maintain or enhance Sage Grouse habitat".

Allowing development of a large transmission line through this landscape could result in harmful, and potentially irreversible impacts to important Greater Sage Grouse habitat, both by damaging Sage Grouse habitat through the construction and maintenance of power lines and by providing "perches" for raptors and other birds of prey to more easily prey on Sage Grouse."

August 9th 2012 Ms. Karen Steenhof, a conservationist and one of the biologists who studied the effects of the PP&L (now PacifiCorp) 500 kV line, submitted the following correspondence to Mr. Carl Rountree, Director, NLCS:

"A new transmission line in Owyhee County (9E) would attract raptors and ravens and could lead to increased predation on declining Greater sage-grouse populations. Golden Eagles prey on adult Sage Grouse, and Common Ravens are a major predator of Sage Grouse eggs. Recently, Idaho State University (ISU) biologists have noted a dramatic increase in the predation of Sage Grouse by ravens. Where there are more ravens, nesting female Sage Grouse stay on their nests much longer, leaving less often. Less time foraging may cause "substantial physiological distress" on the Sage Grouse. It would be better to attract raptors and ravens to cheatgrass areas in the NCA where they feed on ground squirrels than to shrubsteppe areas inhabited by sage-grouse in Owyhee County

In 1981, less than a year after Secretary of the Interior Cecil Andrus withdrew 482,000 acres of public land to protect birds of prey nesting in the Snake River Canyon in southwestern Idaho, Pacific Power and Light Company (PP&L: now PacifiCorp) began construction of a 500-kV transmission line across what is now the Morley Nelson Snake River Birds of Prey National Conservation Area (NCA). Raptor Expert Morley Nelson assisted PP&L with routing the line so it would not adversely affect raptors and with designing platforms for transmission towers that would encourage raptor nesting (Nelson 1976, Nelson and Nelson 1982).

From 1981 through 1989, Bureau of Land Management (BLM) and PP&L biologists monitored the response of raptors and ravens to the transmission line (Engel et al. 1992, Steenhof et al. 1993). They found that the 500-kV transmission line within the NCA enhanced opportunities for raptor perching, nesting, and roosting. Unlike smaller distribution lines, large transmission lines do not present an electrocution hazard for large birds because the wires are too far apart for raptor wings to contact more than one wire at a time. Collision with transmission lines does not appear to be an issue for birds of prey in desert environments. Raptors and ravens were

attracted to the 500-kV line, and productivity of hawks and eagles nesting on transmission towers was as good as and sometimes better than that of those nesting in the canyon. In some cases, transmission line towers provided more secure nesting substrate than natural nesting sites. By 1989, 8 pairs of Golden Eagles, 11 pairs of Ferruginous Hawks, 33 pairs of Red-tailed Hawks, and 81 pairs of ravens were nesting on the transmission line between Midpoint, Idaho and Summer Lake, Oregon (Steenhof et al. 1993). In addition, biologists documented 13 communal night roosts of Common Ravens on the transmission line, including one roost on transmission line towers within the NCA with more than 2100 ravens, one of the largest raven communal roosts ever documented in the world (Engel et al. 1992). Ravens used the roosts from spring to autumn, and as many as 700 roosted on a single tower."

The summer of 2009, in addition to developing alternatives to the GWTLP, members of the OCTF researched the inception of the GWTLP and posthumously discovered the following:

In 2005 President George Bush signed the Energy Act. Section 368 mandates the establishment of Right-of-Way (ROW) energy corridors on **Federal** land.

Energy Policy Act of 2005 (Enrolled as Agreed to or Passed by Both House and Senate)
SEC. 368. ENERGY RIGHT-OF-WAY CORRIDORS ON FEDERAL LAND.
(a) Western States- Not later than 2 years after the date of enactment of this Act, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Defense, the Secretary of Energy, and the Secretary of the Interior (in this section referred to collectively as 'the Secretaries'), in consultation with the Federal Energy Regulatory Commission, **States**, tribal or **local units of governments** as appropriate, affected utility industries, and **other interested persons**, shall consult with each other and shall—

(1) designate, under their respective authorities, corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on **Federal land** in the eleven contiguous Western States (as defined in section 103(o) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1702(o));
(2) perform any environmental reviews that may be required to complete the designation of such corridors; and
(3) **incorporate** the designated corridors into the relevant agency land use and resource management plans or equivalent plans.

August 29th 2008 the Scoping Report was released for the GWTLP prepared for the BLM by Tetra Tech. The West Wide Energy (WWE) corridor is sited on 18.4 miles of **private land**, 1.1 miles of State land and only 37.6 miles of Federal land; section 9 GWTLP, Owyhee County.

September 2008 the SRBOP NCA Resource Management Plan (RMP) and Record of Decision were adopted **prohibiting new transmission lines** in the SRBOP.

The BLM's announcement of their preferred alternatives for segment 8 and 9 for the GWTLP prompted members of the OCTF back into research mode and we present the following:

1) **NCA Enabling Legislation (Public Law 103-64- August 4th1993) SRBOP NCA**

This legislation provides for continued and future use for grazing, continued military use (the Orchard Training Center), and continued and **future** use of hydroelectric generation and **transmission.** The Law goes on to stipulate that **the NCA has been adequately studied and is not suitable for Wilderness.**

2) The National Landscape Conservation System was established "in order to conserve, protect and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations." **National Landscape Conservation Act, 16U.S.C. 7202(a)(2009).**

Secretarial Order 3308 speaks to the management of the Conservation Lands, stating "BLM shall ensure that the components of the NLCS are managed to protect the values for which they were designated, including, where appropriate, prohibiting uses that are in conflict with those values." The 15-Year Strategy for the Conservation Lands reinforces this by stating the "conservation, protection, and restoration of the NLCS values is the highest priority in NLCS planning and management, consistent with the designating legislation or presidential proclamation." Conservation Lands Strategy at 8.

Recent BLM **policy** guidance specifically addresses the management of BLM-managed national monuments and NCAs and **creates a presumption** that BLM will not approve any new ROWs in these areas. Specifically the manual provides:

> 5. To the greatest extent possible, subject to applicable law, the BLM should through land use planning and project-level processes and decisions, avoid designating or authorizing use of transportation or utility corridors within NLCS units.
>
> To that end, and consistent with applicable law, when developing or revising land use plans addressing NLCS units, the BLM will consider:
>
> a. designating the NLCS unit as an exclusion or avoidance area;
>
> b. not designating any new transportation or utility corridors within the NLCS unit if the BLM determines that the corridor would be incompatible with the designating authority or the purposes for which the NLCS unit was designated; and
>
> c. relocating any existing designated transportation and utility corridors outside the NLCS unit.

BLM Manual 6100, 1.6J(5).

3) 2009 lawsuit filed in **U.S. District Court for the Northern District of**

California against the Department of Interior et al. reached a settlement agreement on July 3rd, 2012.

SETTLEMENT AGREEMENT

Plaintiffs The Wilderness Society, BARK, Center for Biological Diversity, Defenders of Wildlife, Great Old Broads for Wilderness, Klamath-

Siskiyou Wildlands Center, National Parks Conservation Association, National Trust for Historic Preservation, Natural Resources Defense Council, Oregon Natural Desert Association, Sierra Club, Southern Utah Wilderness Alliance, Western Resource Advocates, Western Watersheds Project, and County of San Miguel, Colorado ("Plaintiffs"), and Federal Defendants United States Department of the Interior ("DOI"), Kenneth L. Salazar, Secretary of the Interior; United States Bureau of Land Management ("BLM");Robert Abbey, Director, BLM; United States Department of Agriculture; Tom Vilsack, Secretary of Agriculture; United States Forest Service ("FS");Tom Tidwell, Chief of the Forest Service; United States Department of Energy("DOE");and Steven Chu, Secretary of Energy ("Defendants")(collectively the "Parties").

This 20-page agreement provides for "addressing periodic corridor reviews".

"The objectives of these settlement provisions are to ensure that future revision, deletion, or addition to the system of corridors designated pursuant to section

368 of EP Act consider the following general principles: location of corridors in

favorable landscapes, facilitation of renewable energy projects where feasible, avoidance of environmentally sensitive areas to the maximum extent practicable, **diminution of the proliferation of dispersed rights-of-way ("ROWs")** crossing the landscape, and improvement of the long-term benefits of reliable and safe energy transmission. In addition, revisions, deletions, or additions to section 368 corridors are to be made through an **open and transparent process incorporating consultation and robust opportunities for engagement by tribes, states, local governments, and other interested parties."**

Interested Stakeholders from Segment 8 and Segment 9 present the following comments in summary:

1. We have established that the citizens and local governments were left out of the processes of adopting a Land Use Management Plan for the SRBOP NCA and for the scoping process for the GWTLP and WWE corridor.

2. It is our contention the scoping processes for the WWE corridor and the Land Use Management Plan for the SRBOP NCA are in violation of Section 368 of the 2005 Energy Act on the following premises:

- Exclusion of local government and public input.

- Unduly sited on private land sparing the abundantly available Federal land.

- Not including this corridor into the SRBOP RMP, following existing transmission lines (ROWs), as defined in section103 (o) of FLPMA of 1976.

3. From 2009 to present, citizens and local government have been actively engaged, cooperating with all other effected agencies/groups; developing alternatives, providing ample comment and have been in compliance with the NEPA process et all deadlines.

4 2009: Idaho Power's proposed route for Segment 8 paralleled the existing 500kv line in the SRBOP.

February 2012: The BDO BLM's preferred alternative for Segment 9 paralleled the existing 138kV line in the SRBOP.

5. The existing ROW's for transmission lines in the Treasure Valley **<u>are in</u>** the SRBOP. The existing 500 kV line in the SRBOP NCA (the line Segment 8 proposes to parallel) is the only 500 kV line (ROW) in Owyhee County.

6. Science does not support the GWTLP, or the WWE corridor, to be sited in Idaho Power's proposed Segment 9 or BLM's preferred Alternative 9E.

7. Science supports the siting of the GWTLP in the SRBOP NCA. It is our contention Segment 8 and Segment 9 would not be "incompatible" with the existing transmission lines currently located in the SRBOP NCA.

8. The BLM's preferred alternative's for Segment 8 and Segment 9 will not be accepted by the residents or elected officials of Ada, Canyon and Owyhee Counties, due to the impact on private property.

9. It is our contention that **<u>Public Law 103-64</u>** was **<u>never</u>** intended to prohibit **<u>future</u>** lines into the SRBOP NCA.

10. The BLM was legally bound to: FLMPA, NEPA, the 2005 Energy Act (section 368) and Public Law 103-64 at the time they adopted the SRBOP NCA RMP and sited the WWE corridor (2008). We contend applying a 2009 Law (National Landscape Conservation System Act) as justification for agency actions prior to the existence of said Law is legally indefensible.

11. The NLCS (BLM) have selected their preferred alternatives based on BLM **<u>policy</u>**.

12. **Laws trump policy.**

13. U.S. District Court for the Northern District of California has established the 2005 Energy Act ET Section 368 as **<u>Law</u>**. The Department of Interior is now held to a Settlement Agreement.

It is the prayer of the residents of Ada, Canyon and Owyhee Counties that Segment 8 and Segment 9 of the GWTLP will be sited in the SRBOP NCA in the FEIS.

Respectfully,

The Owyhee County Task Force

Frank Bachman, Chairman

OCTF members

Robyn Thompson

Ernie Breuer

Leah Osborn

March 28, 2013

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August 9th 2012 Ms. Karen Steenhof, a conservationist and one of the biologists who studied the effects of the PP&L (now PacifiCorp) 500 kV line, submitted the following correspondence to Mr. Carl Rountree, Director, NLCS:

"A new transmission line in Owyhee County (9E) would attract raptors and ravens and could lead to increased predation on declining Greater sage-grouse populations. Golden Eagles prey on adult Sage Grouse, and Common Ravens are a major predator of Sage Grouse eggs. Recently, Idaho State University (ISU) biologists have noted a dramatic increase in the predation of Sage Grouse by ravens. Where there are more ravens, nesting female Sage Grouse stay on their nests much longer, leaving less often. Less time foraging may cause "substantial physiological distress" on the Sage Grouse. It would be better to attract raptors and ravens to cheatgrass areas in the NCA where they feed on ground squirrels than to shrubsteppe areas inhabited by sage-grouse in Owyhee County

In 1981, less than a year after Secretary of the Interior Cecil Andrus withdrew 482,000 acres of public land to protect birds of prey nesting in the Snake River Canyon in southwestern Idaho, Pacific Power and Light Company (PP&L: now PacifiCorp) began construction of a 500-kV transmission line across what is now the Morley Nelson Snake River Birds of Prey National Conservation Area (NCA). Raptor Expert Morley Nelson assisted PP&L with routing the line so it would not adversely affect raptors and with designing platforms for transmission towers that would encourage raptor nesting (Nelson 1976, Nelson and Nelson 1982).

From 1981 through 1989, Bureau of Land Management (BLM) and PP&L biologists monitored the response of raptors and ravens to the transmission line (Engel et al. 1992, Steenhof et al. 1993). They found that the 500-kV transmission line within the NCA enhanced opportunities for raptor perching, nesting, and roosting. Unlike smaller distribution lines, large transmission lines do not present an electrocution hazard for large birds because the wires are too far apart for raptor wings to contact more than one wire at a time. Collision with transmission lines does not appear to be an issue for birds of prey in desert environments. Raptors and ravens were attracted to the 500-kV line, and productivity of hawks and eagles nesting on transmission towers was as good as and sometimes better than that of those nesting in the canyon. In some cases, transmission line towers provided more secure nesting substrate than natural nesting sites. By 1989, 8 pairs of Golden Eagles, 11 pairs of Ferruginous Hawks, 33 pairs of Red-tailed Hawks, and 81 pairs of ravens were nesting on the transmission line between Midpoint, Idaho and Summer Lake, Oregon (Steenhof et al. 1993). In addition, biologists documented 13 communal night roosts of Common Ravens on the transmission line, including one roost on transmission line towers within the NCA with more than 2100 ravens, one of the largest raven communal roosts ever documented in the world (Engel et al. 1992). Ravens used the roosts from spring to autumn, and as many as 700 roosted on a single tower."

The summer of 2009, in addition to developing alternatives to the GWTLP, members of the OCTF researched the inception of the GWTLP and posthumously discovered the following:

In 2005 President George Bush signed the Energy Act. Section 368 mandates the establishment of Right-of-Way (ROW) energy corridors on **Federal** land.

Energy Policy Act of 2005 (Enrolled as Agreed to or Passed by Both House and Senate)
SEC. 368. ENERGY RIGHT-OF-WAY CORRIDORS ON FEDERAL LAND.

(a) Western States- Not later than 2 years after the date of enactment of this Act, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Defense, the Secretary of Energy, and the Secretary of the Interior (in this section referred to collectively as 'the Secretaries'), in consultation with the Federal Energy Regulatory Commission, **States**, tribal or **local units of governments** as appropriate, affected utility industries, and **other interested persons**, shall consult with each other and shall—

(1) designate, under their respective authorities, corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on **Federal land** in the eleven contiguous Western States (as defined in section 103(o) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1702(o));

(2) perform any environmental reviews that may be required to complete the designation of such corridors; and

(3) **incorporate** the designated corridors into the relevant agency land use and resource management plans or equivalent plans.

August 29th 2008 the Scoping Report was released for the GWTLP prepared for the BLM by Tetra Tech. The West Wide Energy (WWE) corridor is sited on 18.4 miles of **private land**, 1.1 miles of State land and only 37.6 miles of Federal land; section 9 GWTLP, Owyhee County.

September 2008 the SRBOP NCA Resource Management Plan (RMP) and Record of Decision were adopted **prohibiting new transmission lines** in the SRBOP.

The BLM's announcement of their preferred alternatives for segment 8 and 9 for the GWTLP prompted members of the OCTF back into research mode and we present the following:

1) **NCA Enabling Legislation (Public Law 103-64- August 4th1993) SRBOP NCA**
This legislation provides for continued and future use for grazing, continued military use (the Orchard Training Center), and continued and **future** use of hydroelectric generation and **transmission.** The Law goes on to stipulate that **the NCA has been adequately studied and is not suitable for Wilderness.**

2) The National Landscape Conservation System was established "in order to conserve, protect and restore nationally significant landscapes that have outstanding cultural, ecological, and scientific values for the benefit of current and future generations."
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Secretarial Order 3308 speaks to the management of the Conservation Lands, stating "BLM shall ensure that the components of the NLCS are managed to protect the values for which they were designated, including, where appropriate, prohibiting uses that are in conflict with those values." The 15-Year Strategy for the Conservation Lands reinforces this by stating the "conservation, protection, and restoration of the NLCS values is the highest priority in NLCS planning and management, consistent with the designating legislation or presidential proclamation." Conservation Lands Strategy at 8.

Recent BLM **policy** guidance specifically addresses the management of BLM-managed national monuments and NCAs and **creates a presumption** that BLM will not approve any new ROWs in these areas. Specifically the manual provides:

> 5. To the greatest extent possible, subject to applicable law, the BLM should through land use planning and project-level processes and decisions, avoid designating or authorizing use of transportation or utility corridors within NLCS units.
>
> To that end, and consistent with applicable law, when developing or revising land use plans addressing NLCS units, the BLM will consider:
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> a. designating the NLCS unit as an exclusion or avoidance area;
> b. not designating any new transportation or utility corridors within the NLCS unit if the BLM determines that the corridor would be incompatible with the designating authority or the purposes for which the NLCS unit was designated; and
> c. relocating any existing designated transportation and utility corridors outside the NLCS unit.

BLM Manual 6100, 1.6J(5).

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SETTLEMENT AGREEMENT

Plaintiffs The Wilderness Society, BARK, Center for Biological Diversity, Defenders of Wildlife, Great Old Broads for Wilderness, Klamath-
Siskiyou Wildlands Center, National Parks Conservation Association, National Trust for Historic Preservation, Natural Resources Defense Council, Oregon Natural Desert Association, Sierra Club, Southern Utah Wilderness Alliance, Western Resource Advocates, Western Watersheds Project, and County of San Miguel, Colorado ("Plaintiffs"), and Federal Defendants United States Department of the Interior ("DOI"), Kenneth L. Salazar, Secretary of the Interior; United States Bureau of Land Management ("BLM");Robert Abbey, Director, BLM; United States Department of Agriculture; Tom Vilsack, Secretary of Agriculture; United States Forest Service ("FS");Tom Tidwell, Chief of the Forest Service; United States Department of Energy("DOE");and Steven Chu, Secretary of Energy ("Defendants")(collectively the "Parties").

This 20-page agreement provides for "addressing periodic corridor reviews". "The objectives of these settlement provisions are to ensure that future revision, deletion, or addition to the system of corridors designated pursuant to section 368 of EP Act consider the following general principles: location of corridors in favorable landscapes, facilitation of renewable energy projects where feasible, avoidance of environmentally sensitive areas to the maximum extent practicable, **diminution of the proliferation of dispersed rights-of-way ("ROWs")** crossing the

landscape, and improvement of the long-term benefits of reliable and safe energy transmission. In addition, revisions, deletions, or additions to section 368 corridors are to be made through an **open and transparent process incorporating consultation and robust opportunities for engagement by tribes, states, local governments, and other interested parties."**

Interested Stakeholders from Segment 8 and Segment 9 present the following comments in summary:

1. We have established that the citizens and local governments were left out of the processes of adopting a Land Use Management Plan for the SRBOP NCA and for the scoping process for the GWTLP and WWE corridor.
2. It is our contention the scoping processes for the WWE corridor and the Land Use Management Plan for the SRBOP NCA are in violation of Section 368 of the 2005 Energy Act on the following premises:
   - Exclusion of local government and public input.
   - Unduly sited on private land sparing the abundantly available Federal land.
   - Not including this corridor into the SRBOP RMP, following existing transmission lines (ROWs), as defined in section103 (o) of FLPMA of 1976.
3. From 2009 to present, citizens and local government have been actively engaged, cooperating with all other effected agencies/groups; developing alternatives, providing ample comment and have been in compliance with the NEPA process et all deadlines.
4 2009: Idaho Power's proposed route for Segment 8 paralleled the existing 500kv line in the SRBOP.
   February 2012: The BDO BLM's preferred alternative for Segment 9 paralleled the existing 138kV line in the SRBOP.
5. The existing ROW's for transmission lines in the Treasure Valley **<u>are in</u>** the SRBOP. The existing 500 kV line in the SRBOP NCA (the line Segment 8 proposes to parallel) is the only 500 kV line (ROW) in Owyhee County.
6. Science does not support the GWTLP, or the WWE corridor, to be sited in Idaho Power's proposed Segment 9 or BLM's preferred Alternative 9E.
7. Science supports the siting of the GWTLP in the SRBOP NCA. It is our contention Segment 8 and Segment 9 would not be "incompatible" with the existing transmission lines currently located in the SRBOP NCA.
8. The BLM's preferred alternative's for Segment 8 and Segment 9 will not be accepted by the residents or elected officials of Ada, Canyon and Owyhee Counties, due to the impact on private property.
9. It is our contention that **<u>Public Law 103-64</u>** was **<u>never</u>** intended to prohibit **<u>future</u>** lines into the SRBOP NCA.
10. The BLM was legally bound to: FLMPA, NEPA, the 2005 Energy Act (section 368) and Public Law 103-64 at the time they adopted the SRBOP NCA RMP and sited the WWE corridor (2008). We contend applying a 2009 Law (National Landscape Conservation System Act) as justification for agency actions prior to the existence of said Law is legally indefensible.

11. The NLCS (BLM) have selected their preferred alternatives based on BLM **policy**.
12. **Laws trump policy.**
13. U.S. District Court for the Northern District of California has established the 2005 Energy Act ET Section 368 as **Law**. The Department of Interior is now held to a Settlement Agreement.

It is the prayer of the residents of Ada, Canyon and Owyhee Counties that Segment 8 and Segment 9 of the GWTLP will be sited in the SRBOP NCA in the FEIS.

Respectfully,
The Owyhee County Task Force
Frank Bachman, Chairman

OCTF members
Robyn Thompson
Ernie Breuer
Leah Osborn

From: jmclain@blm.gov on behalf of Gateway_West_Trans_Line, BLM_WY
To: blm@gwcomment.com
Subject: 17467 Fwd: GWW, Segment 9, Alternatives 9D and 9E
Date: Monday, July 01, 2013 10:31:37 AM

---------- Forwarded message ----------
From: **Leah Osborn** <bluewind@me.com>
Date: Thu, Jun 27, 2013 at 6:39 PM
Subject: GWW, Segment 9, Alternatives 9D and 9E
To: Gateway_West_WYMail@blm.gov

June 27th 2013

Leah Osborn

16837 Bates Creek

Oreana, Idaho

83650

bluewind@me.com

I am writing in support of Segment 9D of the Gateway West Transmission Line in Owyhee County Idaho.. I do not support the BLM's Preferred Alternative 9E.

As a member of the Owyhee County Task Force I submit this letter that we sent to Sally Jewell, Secretary of the Interior.

Thank you for allowing me to comment.

Leah Osborn

March 28, 2013

Dear Ms Jewell,

Congratulations on your nomination of Secretary of Interior! We anticipate your confirmation. We are also anticipating the imminent release of the Final Environmental Impact Study (FEIS) for the Gateway West Transmission Line Project (GWTLP). We realize you will have to hit the floor running regarding a decision. We are the residents of Ada, Canyon and Owyhee Counties.

In 2006 Idaho Power proposed two 500 kV lines.

· One line paralleling the existing 500 kV PacifiCorp line in the Snake River Birds of Prey National Conservation Area (SRBOP NCA).

· The other paralleling the existing 138 kV Idaho Power line in the SRBOP.

We did not become aware of the above or the Gateway West Transmission Line Project until spring, 2009. In April /May 2009 we began to organize after learning about Segment 8 and Segment 9 of the GWTLP. Residents of Kuna and Melba formed a diverse group and bore the expense of hiring Environmental Conservation Services, Inc. (Segment 8 Task Force). Residents of Owyhee County formed the Owyhee County Task Force (OCTF aka Segment 9). The OCTF is fortunate to have local resident Karen Steenhof, a former BLM and USGS raptor biologist, as a member. Boise District Office BLM (BDO BLM), Idaho Power Engineers, Tetra Tech and local elected officials were in attendance at the meetings of both groups. These groups worked over the summer of 2009 to develop alternatives to Idaho Powers proposed Segment 8 and Segment 9. Their mission: to diminish the impact of the GWTLP on private property. It must be noted that only 17% of Owyhee County is privately owned. Thus, the OCTF required that the GWTLP not impact private property without the consent of the landowner. Representatives from Segment 8 attended the OCTF meetings. Representatives from the OCTF attended Task Force meetings held in our adjoining counties ensuring our alternatives lined up and the needs of all Idaho residents were being met. Due to the geographical location of Segment 9 the OCTF also cooperated with the United States Air Force and affected Shoshone Paiute Tribes. Our local state representatives, 1st Congressional District and Governor were continually apprised as to the activities of both groups.

Both groups met the September 4th, 2009 BLM deadline and submitted alternative proposals into the Draft Environmental Impact Study (DEIS) for the GWTLP. The Segment 8 alternative proposal parallels the **existing** PacifiCorp 500 kV line in the SRBOP NCA. The Owyhee County Commissioners (OCC) submitted two alternatives for proposed Segment 9.

1) 9D: paralleling the **existing** 138kV Idaho Power line in the SRBOP. This was the only proposal accepted by the OCC and citizens of Owyhee County.

2) 9E: the southern proposal, was not accepted by the OCC and citizens of Owyhee County.

Rosey Thomas from BDO BLM insisted on Alternative 9E at the June 18th 2009 OCTF meeting. She was adamant that the OCTF submit 2 alternatives. The citizens of

Owyhee County have objected to 9E from its inception. 9E would be blight on the Owyhee Front. 9E is in Sage Grouse habitat.

November 12th 2009 Idaho Power held a public meeting in Kuna, Idaho. We learned at that meeting that Idaho Power had changed their proposed route for Segment 8: to parallel the existing 500kV line in the SRBOP. Segment 9 remained as proposed, on private land in the West Wide Energy (WWE) corridor. The OCC and OCTF members continued to meet with the BDO BLM in an attempt to discern their dissatisfaction with Alternative 9D.

June 2011 the DEIS for GWTLP was released. Volume 1b Ch 3.18- 18 thru 3.18-25 contains data supplied by Cassia and Power Counties detailing the hindrances GWTLP will have on farming operations and crop production. This data also applies to Kuna, Melba and Owyhee County. Owyhee County's economy is 74% agriculturally based. We refer you to 3.18-38 thru 3.18-40 referencing Segment 8: documenting the negative effects a 500 kV line would have on prime farmland, livestock grazing, crop production and dairy farms. Pgs. 3.18-40 thru 3.18-42 address these topics for Segment 9.

We found the chapters on visual resources, cultural resources, socio-economics, environmental justice and electrical environment range from inadequate to inaccurate. Hundreds of pages of research and comment on Segments 8 and 9 were submitted to Mr. Walt George by the October 28th 2011 deadline. **The BLM did not designate preferred alternatives in the 3,150 page DEIS.**

January 13th, 2012 President Obama sent the Interagency Rapid Response Team for Transmission to Boise, Idaho. The Mayor of Kuna, the OCC and OCTF were in attendance. We shared the information contained in this letter with the Administrators of the nine Federal Agencies.

February 2012, the BDO BLM sent a map to the OCC recommending changes to 9D. The BDO BLM changes to 9D were accepted by our OCC at the February 27th, 2012 coordination meeting. The BDO BLM was now identifying 9D as their preferred alternative. Finally we achieved a hard earned, 100% consensus from groups including: Owyhee County citizens, OCTF, OCC, Idaho State Representatives, Governor Butch Otter, the 1st Congressional District, Idaho Power and the BDO BLM.

April 2012 Walt George, Steve Ellis and Donald Simpson traveled to Washington DC to bring Idaho Power's proposed route for Segment 8 and the BDO BLM's preferred route for Segment 9 "across the finish line". An e-mail dated April27th, 2012 from Cecil Werven, BDO BLM, to Karen Steenhof divulged information from the briefing in Washington DC that: "the Washington office wants NO transmission lines in the NCA because it would establish a bad precedent for the NLCS".

September 2012 the BLM released their preferred alternatives for Segment 8 and Segment 9.

The BLM's preferred alternative for Segment 8 is Idaho Power's 2009 proposed route, which places it back onto private property. This sent task force members and landowners scrambling to discern where and how the process had failed them and rallying for support to ultimately have this line sited to parallel the existing 500kV line in the SRBOP NCA.

The BLM's preferred alternative for Segment 9 is Alternative 9E. The caveat is that the route has been altered at the SE edge of Oreana and now crosses private property that does not have the consent of the affected land owners.

October 2012 the OCC learned that they had not been, and would not be issued a copy of the Administrative FEIS for GWTLP. Idaho's Governor Butch Otter extended the services of Idaho's Department Administrator, John Chatburn. Mr. Chatburn submitted Owyhee County's comments via the Governor's office. Bear in mind our comments were made without the advantage of reviewing the Administrative FEIS.

Segment 9, Segment 9E and altered Segment 9E (the BLM's preferred alternative) are in Sage-Grouse habitat. June 2012 the BLM released the Addendum to the DEIS for the GWTPL "Effects of the Proposed Project on Greater Sage-Grouse" (please reference).

October 12th 2012, The Wilderness Society, Idaho Conservation League, The Nature Conservancy in Idaho and Conservation Lands Conservation Foundation submitted the following correspondence to Mr. Walt George:

"BLM's alternative route 9E would pass through identified Preliminary Priority Habitat (PPH) for the Greater Sage-Grouse. Currently, the U.S. Fish and Wildlife Service has found the Greater Sage-Grouse warrants protection under the Endangered Species Act and has committed to a final listing decision in 2015.

PPH, as identified in BLM's Greater Sage–Grouse Interim Management Policies and Procedures, IM 2012-043(12/27/2011), "compromises areas that have been identified as having the highest conservation value to maintaining sustainable Greater Sage–Grouse populations" that "have been identified by the BLM in coordination with respective state and wildlife agencies".

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2. It is our contention the scoping processes for the WWE corridor and the Land Use Management Plan for the SRBOP NCA are in violation of Section 368 of the 2005 Energy Act on the following premises:

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8. The BLM's preferred alternative's for Segment 8 and Segment 9 will not be accepted by the residents or elected officials of Ada, Canyon and Owyhee Counties, due to the impact on private property.

9. It is our contention that **Public Law 103-64** was **never** intended to prohibit **future** lines into the SRBOP NCA.

10. The BLM was legally bound to: FLMPA, NEPA, the 2005 Energy Act (section 368) and Public Law 103-64 at the time they adopted the SRBOP NCA RMP and sited the WWE corridor (2008). We contend applying a 2009 Law (National Landscape Conservation System Act) as justification for agency actions prior to the existence of said Law is legally indefensible.

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12. **Laws trump policy.**

13. U.S. District Court for the Northern District of California has established the 2005 Energy Act ET Section 368 as **Law**. The Department of Interior is now held to a Settlement Agreement.

It is the prayer of the residents of Ada, Canyon and Owyhee Counties that Segment 8 and Segment 9 of the GWTLP will be sited in the SRBOP NCA in the FEIS.

Respectfully,

The Owyhee County Task Force

Frank Bachman, Chairman

OCTF members

Robyn Thompson

Ernie Breuer

Leah Osborn

From: jmclain@blm.gov on behalf of Gateway_West_Trans_Line, BLM_WY
To: blm@gwcomment.com
Subject: Fwd: Gateway West Transmission Line Comments
Date: Thursday, June 27, 2013 10:09:38 AM

---------- Forwarded message ----------
From: **John W Richard** <lazyvqtcircle@frontier.com>
Date: Wed, Jun 26, 2013 at 10:02 PM
Subject: Gateway West Transmission Line Comments
To: "Gateway_West_WYMail@blm.gov" <Gateway_West_WYMail@blm.gov>

15 E Wyoming Ave.
• PO Box 1197 • Homedale, Idaho 83628 • 208-337-4041

June 20, 2013

Bureau of Land Management

Gateway West Transmission Line Project FEIS

PO Box 20879

Cheyenne, WY 82003

Dear Mr. George:

On behalf of the 737 families who are members of the Owyhee County Farm Bureau, we are pleased to provide the following comments regarding the Gateway West Transmission Line Project (GWTLP) Final Environmental Impact Statement (FEIS).

The FEIS is an extremely complex and lengthy document. It is a difficult task for professionals who deal with these documents regularly to wade through the data and make specific, meaningful comments. It is even more difficult, if not impossible, for ordinary citizens who are not familiar with the process and the technical aspects of a FEIS to analyze it sufficiently and prepare meaningful comments in a 60 day time period; particularly when they are busy earning a living and caring for their families. Therefore, we respectfully **request that the comment period be extended for an additional ninety (90) days** to allow those who are most affected by the potential route to have a better opportunity to fully review the document and provide input on the FEIS.

Our members understand that the Bureau Land Management (BLM) only has the authority to select the transmission line routes on federal land. However, when the BLM grants right-of-ways on federally managed land, its decisions necessarily dictate, to a large degree, the location of the transmission lines on private property. This is particularly challenging when the BLM and other federal agencies are not consistent in the application of their own rules, regulation and guidance, as is the case with BLM's Preferred Alternative in several different

segments across the state. Landowners do not have a clear understanding of what to expect as projects move forward.

Clearly, residents of Owyhee County were shocked and upset when three years of collaboration and consensus building were thrown out the window by bureaucrats in Washington DC who decided they knew best about where the lines should be drawn than the people who live and work here in Idaho. The local consensus alternative 9D avoided crossing private land except where the landowners were willing to allow the power companies to purchase a right-of-way. This is a very important aspect that has been brushed aside in the BLM's analysis. Since only 17% of Owyhee County is privately owned, each and every time private property is negatively impacted it directly affects the local economy.

The BLM's own analysis is contradictory and appears to be based on achieving particular results rather than on science and/or their own regulations. Throughout the FEIS, the BLM consistently seeks to avoid impacts in Sage Grouse habitat, until it comes to segment 9, where it suddenly reverses course and places the preferred alternative, 9E straight through Preliminary Priority Habitat for Sage Grouse. This is clearly done in an effort to prevent the project from crossing the Morley Nelson Snake River Birds of Prey National Conservation Area (SRBOP), even though all locally interested parties, including the Idaho State Director of the BLM had concluded that alternative 9D was the best alternative.

Route 9D is an advantage to the SRBOP raptor populations, as shown in the BLM's own studies conducted from 1981 to 1989. These studies conclusively proved that transmission lines provided enhanced opportunities for raptors to perch, nest and roost and the productivity of hawks and eagles nesting on transmission towers was as good, and in some cases better, than those nesting in natural environments. (Engel et al. 1992; Steenhof et al. 1993)

Our members also favor alternative 9D as the route with the least impact on Sage Grouse, which we are working very closely with the Governor's Sage Grouse task force to protect, along with other stakeholders, so as to avoid it becoming a listed species under the Endangered Species Act.

Siting the GWTLP through areas identified by Governor Otter's sage grouse task force as sage grouse habitat clearly flies in the face of the BLM's stated goal of avoiding sage grouse habitat. Recently, Karen Steenhof, one of the biologists hired by BLM to study the effects of transmission lines through the SRBOP, has recently submitted to Carl Rountree, Director of NLCS the following comments: "A new transmission line in Owyhee County (9E) would attract raptors and ravens and could lead to increased predation on declining Greater sage-grouse populations. Golden eagles prey on adult Sage Grouse, and Common Ravens are a major predator of Sage Grouse eggs. Recently, Idaho State University (ISU) biologists have noted a dramatic increase in the predation of Sage Grouse by ravens. Where there are more ravens, nesting female Sage Grouse stay on their nests much longer, leaving less often. Less time foraging may casue "substantial physiological distress" on the Sage Grouse. It would be better to attract raptors and ravens to cheatgrass areas in the NCA where they feed on ground squirrels than to the shrubsteppe areas inhabited by sage-grouse in Owyhee

County."

Clearly, there are sound biological reasons to avoid routing the GWTLP following the BLM's preferred route 9E, while there are also compelling biological as well as local economic and property-rights reasons to return to alternative 9D. Alternative 9D is supported by local landowners, sportsmen, Idaho state agencies, conservation groups, local elected officials, community leaders, interested citizens, state and local BLM offices, and other federal agencies. All of whom participated in a three year collaborative process that determined by consensus the routes that everybody felt would be in the best interest of local landowners, the local economy and both the wildlife and resources involved.

We respectfully **request that the consensus alternative, alternative 9D, be selected** by the BLM as the preferred route for the Gateway West Transmission Line Project.

Thank you for the opportunity to comment,

Sincerely,

John Richard, President

Owyhee County Farm Bureau

OWYHEE COUNTY
FARM BUREAU
15 E Wyoming Ave. • PO Box 1197 • Homedale, Idaho 83628 • 208-337-4041

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June 20, 2013

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DOI-BLM
CHEYENNE WYOMING

Bureau of Land Management
Gateway West Transmission Line Project FEIS
PO Box 20879
Cheyenne, WY 82003

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Thank you for the opportunity to comment,

Sincerely,

2013 JUL -1 AM 10:00
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CHEYENNE WYOMING

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John Richard, President
Owyhee County Farm Bureau

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2013 JUL -1 AM 10:00
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CHEYENNE WYOMING

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Owyhee County Farm Bureau
John W. Richard, President
8933 St Hwy 78
Marsing, ID 83639-8206

BOISE ID 837

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USA
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Bureau of Land Management
Gateway West Project
PO Box 20879
Cheyenne, WY 82003

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82003+7018

OWYHEE INITIATIVE

November 6, 2012

Via electronic mail and U.S. mail

Secretary Salazar
Department of the Interior
1849 C Street, N.W.
Washington DC 20240

Dear Secretary Salazar,

On behalf of the Owyhee Initiative Board of Directors, I am writing to highlight our concerns with the potential impacts of the preferred alternative routes for the Gateway West Transmission line in Owyhee County, Idaho and to recommend a path forward to properly siting this route.

The Owyhee Initiative (OI) is a collaborative group consisting of national, regional, and local stakeholders working to promote the ecological and economic health within Idaho's Owyhee County. We note that the Omnibus Bill of 2009 included both the Owyhee Initiative Implementation Act and the National Landscape Conservation System Act. Aspects of both are relevant to Owyhee Initiative Board of Directors.

Finding an acceptable route for the Gateway West Transmission Line requires BLM to carefully consider multiple issues ranging from sage-grouse conservation to private property interests and consistency with the new National Conservation Area guidelines.

We believe that a further discussion is needed on how to design an acceptable alternative before the project proceeds. We recommend that the BLM temporarily pause the permitting process and convene a collaborative effort to address these concerns. We believe that this additional time will ensure that the Gateway West Transmission Line is properly sited and that the impacts are properly avoided, minimized and mitigated.

Sincerely,
Brenda Richards
Brenda Richards,
Chair, Owyhee Initiative Board of Directors

cc: Jim Fincher
Patricia Roller
Walt George

Steve Ellis
Carl Roundtree
Mike Pool
Governor Otter
Senator Crapo
Senator Risch
Representative Simpson
Representative Labrador

The voting members of the Owyhee Initiative Board of Directors include:

- *Owyhee Cattlemen's Association*
- *Owyhee County Soil and Water Conservation Districts*
- *Owyhee Farm Bureau*
- *Owyhee Borderlands Trust, Inc.*
- *The Nature Conservancy*
- *The Wilderness Society*
- *The Idaho Chapter, Wild Sheep Foundation*
- *Idaho Conservation League*
- *Back Country Horsemen of Idaho*
- *Sierra Club*
- *Idaho Rivers United*
- *Idaho Outfitters and Guides Association*
- *Southwestern Idaho Desert Racing Association*

The Owyhee County Board of Commissioners and the Shoshone-Paiute Tribes are non-voting delegates to the Owyhee Initiative Board of Directors.