



**GUNNISON
COUNTY**

**Gunnison County, CO
Community Development Office**

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To: Gunnison Basin Sage-grouse Strategic Committee Members

From: Misty Castillo

Date: June 09, 2025

**Included in your packet for the Gunnison Basin Sage-Grouse
Strategic Committee Meeting:**

June 18th Agenda

May 21st Draft Minutes

Memo from Gunnison County Attorney Regarding HPT

Gunnison County LUR Sec 11-106: Protection of Wildlife Habitat
Areas

Parcel/Acreage Changes for HPT Update (Table Form)

HPT Update Presentation

Bibliography for HPT Update

GUNNISON BASIN SAGE-GROUSE STRATEGIC COMMITTEE
REGULAR MEETING AGENDA

DATE: Wednesday, June 18, 2025

PLACE: Planning Commission Meeting Room, Blackstock Government Center OR via Zoom meeting, Meeting ID: 859 9849 7601 (see Teleconference Information below)

1. 10:00am
 - Call Regular Meeting to Order; Determination of Quorum; Verify Public Notice of Meeting
 - Approval of May 21, 2025 Meeting Minutes
 - Agenda Approval for June 18, 2025 agenda

2. 10:15am
 - Committee Member Reports/Updates

2. 10:30am
 - HPT Minority Report and Discussion

4. 12:00pm
 - Public Comments

5. 12:05
 - Future Meeting

6. 12:10
 - Adjourn

NOTE: This agenda is subject to change, including the addition of items up to 24 hours in advance or the deletion of items at any time. All times are approximate. Regular Meetings, Public Hearings, and Special Meetings are recorded and **ACTION MAY BE TAKEN ON ANY ITEM**. Work Sessions are not recorded and formal action cannot be taken. Two or more Gunnison County Commissioners may attend this meeting. For further information, contact the County Administration at 641-0248. If special accommodations are necessary per ADA, contact 641-0248 or TTY 641-3061 prior to the meeting.

Topic: Gunnison Basin Sage-Grouse Strategic Committee

Time: 10:00 AM Mountain Time (US and Canada)

Every month on the Third Wed, until Dec 17, 2025, 10 occurrence(s)

Please download and import the following iCalendar (.ics) files to your calendar system.

Monthly: <https://gunnisoncounty-org.zoom.us/meeting/tZApde2upz8jGNMaYbBDHpBuBMmm8Gs3YgJQ/ics?icsToken=DGZ0lioIl85m5wUu8wAALAAAALtnJX1fp7nWI-bgIR7Yrs40cen9OR2cgdKCG3FNcQmWn-qURisB8-AQfzdCvM78l4oNdG1lp9czYytuUDAwMDAwMQ&meetingMasterEventId=iRakBkJDTGGH4DonS6cJBA>

Join Zoom Meeting

<https://gunnisoncounty-org.zoom.us/j/84424694927?pwd=34Dj2PPHgy1aMAghpjDz6SZFE68xZj.1>

Meeting ID: 844 2469 4927

Passcode: 693807

One tap mobile

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- +1 669 444 9171 US
- +1 669 900 6833 US (San Jose)
- +1 253 205 0468 US
- +1 689 278 1000 US
- +1 301 715 8592 US (Washington DC)
- +1 305 224 1968 US
- +1 309 205 3325 US
- +1 312 626 6799 US (Chicago)
- +1 360 209 5623 US
- +1 386 347 5053 US
- +1 507 473 4847 US
- +1 564 217 2000 US
- +1 646 876 9923 US (New York)
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Meeting ID: 844 2469 4927

Passcode: 693807

Find your local number: <https://gunnisoncounty-org.zoom.us/j/kczu4lQpy>

**GUNNISON BASIN SAGE-GROUSE STRATEGIC COMMITTEE
MEETING MINUTES
May 21 2025**

The May 21, 2025 Gunnison Basin Sage-grouse Strategic Committee meeting was conducted in the Gunnison County Blackstock Government Center, 2nd floor meeting room, located at 221 N. Wisconsin #D, Gunnison, CO, 81230. The meeting was also available on Zoom.

Committee Members Present:

Voting Members:

Kathy Griffin, Colorado Parks and Wildlife (CPW)
Liz Smith, Vice-Chairperson, Gunnison County Board of County Commissioners (BOCC)
Sue Navy, High County Conservation Advocates (HCCA)
Dayle Funka, U.S. Forest Service (USFS)
Peter Caloger, Public At-Large
Sarah Elzay, Gunnison County Cheatgrass Coordinator
Andy Stokes, Bureau of Land Management (BLM)
Jessica Frey, National Park Service (NPS)
Paul Mowery, Stockgrowers
Tim Kuegler,
Angela Trnka, US Fish and Wildlife Service (USFWS)

Non-Voting Members

Brandon Diamond, CPW
Matthew Vasquez, USFS

Others in the Audience:

Miranda Middleton, CPW
John Scott, Private Consultant
Aleshia Rummel, NPS
Matt Holloran, BLM
Mike Pelletier, Gunnison County
Marcella Tarantino, Bird Conservancy of the Rockies
Dan Olsen, Natural Resource Conservation Service
Liam Duggan, USFS

Staff Members Present:

Misty Castillo, Gunnison County Community and Economic Development Department
Others present as listed in text.

CALL TO ORDER: Chairperson Griffin called the May 21, 2025, meeting of the Gunnison Basin Sage-grouse Strategic Committee to order at 10:06 AM.

DETERMINATION OF QUORUM: Griffin confirmed that a quorum was present.

AGENDA APPROVAL: Moved: by Navy and seconded by Caloger to approve the May 21, 2025, agenda as amended. Motion carried unanimously.

APPROVAL OF MEETING MINUTES: Moved: by Smith and seconded by Navy to approve the April 16, 2025, meeting minutes as amended. Motion carried unanimously.

COMMITTEE MEMBER COMMENTS / REPORTS

Smith, cheatgrass pull day occurring on May 31st.

Stokes, wildlife intern started this week. The BLM road closures for Gunnison sage grouse have ended and all gates are now open.

Mowery, tail end of calving season and branding.

Middleton, lek counts are finished. Over 80 leks were counted with approximately 450 different counts taking place over the last two months. Visted four potential new leks during count season. At two of these new leks grouse were found at least once during visits. One historic lek had three male grouse and one female grouse. All data from this season is still being processed so no official count numbers are available yet. The first count period seemed to have the highest male count.

Diamond, three individual wolves have been in Gunnison County. Currently there are no wolves present in the county.

Navy, HCCA has over half a dozen stewardship projects for their 2025 agenda. All these projects are posted on HCCA's website. They will also be sent out in HCCA's coming newsletters.

Frey, field season is in full swing for NPS. Seasonal crew is large this season.

Olsen, NRCS has lost about 1/3 of staff statewide. Many engineers were lost. Due to engineer losses, NRCS is focusing implementing non-engineering practices such as ecological practices.

Funka, field season has started for USFS. No USFS seasonals were able to be hired for this field season (except for fire crew seasonals). Lots of work have been done on Gunnison sage grouse monitoring, wolf mitigation measures, and wet meadow restoration. Due to low snowpack, USFS will be keeping a close eye on water distribution across their landscape. There could be a strong monsoon season.

Vasquez, Liam Duggan will be leading sage grouse monitoring on USFS land. Working on a story about wet meadow restoration in the Gunnison National Forest, this is nearing completion.

Kuegler, Hartman Rocks Cleanup Day occurred on May 3rd. About 125 people showed up for this event. Back Country Hunters and Anglers had an event this past weekend and removed over seven miles of old fence across BLM land. This weekend is the big Hartman Rocks mountain bike race, over 700 people will be in attending.

Trnka, wet meadow work is underway with Upper Gunnison Water Conservancy District. The prioritization restoration sagebrush ecosystem tool (PRESET) from USGS is still being worked on and USGS will be reaching out to volunteers to review this tool. Please remember to enter conservation projects into the USGS conservation efforts database (CED). The USFWS sagebrush ecosystem team has recently been focusing on invasive annual grasses. A scientific paper has been published from this work and several tools are being developed. The raven subcommittee met on April 30th. The meeting focused on raven mitigation techniques. Trnka also met with Terry Holcomb who works on the recovery of desert tortoise in Nevada and Utah. Terry has used raven mitigation techniques to reduce raven populations and shared her work with Trnka.

Elzay, cheatgrass pull day is on May 31st. The cheatgrass subcommittee will be meeting this afternoon. There will be a presentation on cheatgrass treatment techniques.

Diamond, Back Country Hunters and Anglers had a good turnout for their annual Colorado Public Lands Dat in Gunnison. Over 160 people registered. Projects included fence removal, wet meadow restoration work, and cheatgrass mapping/pulling.

Griffin, Kathy Brodhead from BLM wanted to let the committee know that she had new kiosks and informational signs mad for several of the Gunnison BLM motorized closure gates. Kiosks and signs were made in 2023. Recently the Gunnison Wildlife Association received National Forest Foundation (NFF) funds to install these kiosks and signs. The NFF wants to make sure that Gunnison sage grouse strategic committee supports this project.

Navy, requested that the kiosks not be too tall so that they do not create a perching area for grouse predators (ravens, falcons, etc.). Kuegler, mentioned that proper sign placement is important.

Navy makes motion that this committee approve this new BLM signage. Seconded by Smith. The motion approved unanimously by committee.

HABIAT PRIORITIZATION TOOL (HPT) UPDATE

Smith provided her thoughts on the HPT update and commentary from the Gunnison County attorney regarding the county’s role in conserving Gunnison sage grouse and their habitat. In Gunnison County’s Land Use Resolution Section 11-106A2 (pg.210) states that the county will “preclude the need to up list or minimize the impact of listing of Gunnison sage-grouse as candidate species”. Since Gunnison sage grouse has been listed as federally threatened, the county now works to prevent the species from being uplisted to endangered. Smith expressed that the update needs to be balanced with both scientific and political considerations.

Griffin noted that in the technical subcommittee is tasked with using the best available science to address a question/project, such as the HPT update. The technical subcommittee conveys their findings to the strategic committee. The strategic committee then takes all aspects (science, social, political, etc) into consideration before making a decision. The strategic committee decision is then presented to the Gunnison County Board of County Commissioners for final approval.

Rummel presented on the HPT, the Gunnison County sage grouse building review process, and proposed technical subcommittee’s HPT updates. Please visit the Gunnison Basin Sage-Grouse Strategic Committee webpage for access to this presentation (<https://www.gunnisoncounty.org/187/Gunnison-Basin-Sage-Grouse-Strategic-Com>).

- Presentation overview
 - The land use review process is the primary use of the HPT. The HPT helps determine which parcels are in important grouse habitat.
 - The HPT weighs positive habitat attributes against negative impacts.
 - Proposed HPT updates.
 - Spatial data for soils, roads, lek status/shape.
 - Score updates for historic leks, irrigated meadows, and a buffer from 0.6 to 1.0 miles.
 - Changes to Tier 1/Tier 2 acreage and parcels.
 - Minimal changes to acreage included in HPT shifting from Tier 2 to Tier 1.
 - Net loss in parcels overall in Tier 1.

Pelletier commented on the potential impacts that the HPT update could have on future conservation easements in the Gunnison Basin.

PUBLIC COMMENTS

None.

FUTURE MEETINGS: Future meetings will occur in the Gunnison County Blackstock Government Center, 2nd floor meeting room and by Zoom online meetings, unless changed for a specific reason.

07-17-25	10-12	Regular Meeting	Blackstock; 221 N. Wisconsin 2 nd floor meeting room
08-20-25	10-12	Regular Meeting	Blackstock; 221 N. Wisconsin 2 nd floor meeting room
09-17-25	10-12	Regular Meeting	Blackstock; 221 N. Wisconsin 2 nd floor meeting room
10-15-25	10-12	Regular Meeting	Blackstock; 221 N. Wisconsin 2 nd floor meeting room
11-19-25	10-12	Regular Meeting	Blackstock; 221 N. Wisconsin 2 nd floor meeting room
12-17-25	10-12	Regular Meeting	Blackstock; 221 N. Wisconsin 2 nd floor meeting room

ADJOURN: The May 21, 2025, meeting of the Gunnison Basin Sage-grouse Strategic Committee adjourned at 12:30 PM.
Minutes Prepared By: Ben Prior, Gunnison Conservation District

DRAFT

Memo from Gunnison County Attorney Regarding HPT



Cathie Pagano, Assistant County Manager
Gunnison County Community & Economic Development Department

Phone: (970) 641-0360
Email: planning@gunnisoncounty.org
Website: www.GunnisonCounty.org

From: Cathie Pagano, Assistant County Manager for Community & Economic Development and Matthew Hoyt, Gunnison County Attorney
To: Sage Grouse Strategic Committee
Date: May 30, 2025
Re: Habitat Prioritization Tool Revision and Adoption

This memo is intended to provide clarification to the Gunnison Sage-grouse Strategic Committee as they consider updates to the Habitat Prioritization Tool. My office administers the Gunnison County *Land Use Resolution* and incorporates recommendations from the Gunnison Conservation District wildlife biologist and Colorado Parks and Wildlife staff into conditions for permit approvals. The County has discretion on what recommendations are included as conditions of permit approval.

Gunnison County Land Use Resolution Standards

The Gunnison County [Land Use Resolution](#), Section 2-102: *Definitions*, defines Gunnison Sage-grouse habitat as:

“Areas that are mapped as habitat for Sage-grouse as defined by the Gunnison Basin Gunnison Sage-grouse Habitat Prioritization Tool (Gunnison Basin Sage-grouse Strategic Committee 2012), as may be amended by the Gunnison Basin Sage-grouse Strategic Committee, with final approval by the Gunnison County Board of County Commissioners.”

Thus, the Sage-grouse Strategic Committee (the Committee) may make a recommendation of revisions to the habitat prioritization tool (HPT) to the Board of County Commissioners who will make the final decision on adoption of the revisions and updated tool. I can help facilitate that process and scheduling.

As the Committee considers updates to the HPT please keep in mind the standards adopted in the Gunnison County *Land Use Resolution* (LUR). Section 11-106: *Protection of Wildlife Habitat Areas A.2* states this Section (Section 11-106) is designed to:

“1. SUSTAIN AND ENHANCE EXISTING POPULATIONS OF GUNNISON SAGE-GROUSE. Sustain and enhance survival of the Gunnison Sage-grouse.

2. PRECLUDE THE NEED TO UP-LIST OR MINIMIZE THE IMPACT OF LISTING OF GUNNISON SAGEGROUSE AS CANDIDATE SPECIES. Help implement an effective strategy to minimize the impact of listing of the Gunnison Sage-grouse as a candidate for endangered status pursuant to

the Endangered Species Act of 1973, or at a minimum, demonstrate the intent of Gunnison County to preserve and protect habitat that will lessen the impact if listing does occur.”

Gunnison Sage-Grouse Strategic Committee Organizational Guidelines

Additionally, the Gunnison Sage-grouse Strategic Committee organizational guidelines identify the following Committee purposes:

“To implement programs and strategies which will aid in the preservation of the Gunnison Sage-grouse. This will involve coordination with the Bureau of Land Management, U. S. Forest Service, the Colorado Parks and Wildlife, US Fish and Wildlife Service, National Park Service, Natural Resources Conservation Service, Range Wide Conservation Committee and private land owners...

To assist in the review of the Gunnison County Land Use Resolution to advise as to what revisions need to be made to further protect Sage-grouse Habitat.”

Legal Standards

Gunnison County’s regulatory authority is limited to land use and potential impacts of development to wildlife. The Committee’s review of and recommendations regarding the HPT, therefore, must be mindful of the requirements and limitations of the LUR, and also the limitations on County authority as compared to the authorities and roles of the United States government with regard to species such as the Gunnison Sage-grouse.

The goals of the HPT include:

- To minimize unnecessary burdens on private landowners.
- To provide land use predictability and transparency through data-based mapping.
- To reduce the risk or severity of future federal listing impacts by demonstrating local engagement.

Responsibility for Species Protection Lies with Federal Agencies:

- The U.S. Fish & Wildlife Service holds the legal authority and mandate to manage species protection under the Endangered Species Act.
- The County’s role is cooperative and facilitative, not regulatory, in regard to wildlife conservation outcomes.

The Status of the Species in Question. The “Gunnison sage-grouse (*Centrocercus minimus*), a bird species from southwestern Colorado and southeastern Utah[.]” See 79 FR 69192, 69193, 79 FR 69192.

- The U.S. Fish & Wildlife Service (“FWS”) listed the species as threatened under the Endangered Species Act of 1973, 16 U.S.C. §1531 *et seq.*, on November 14, 2014. See 79 FR 69192, 69193, 79 FR 69192.
- Gunnison County, along with the Gunnison County Stockgrowers Association, challenged in multiple and years-long litigation matters, FWS’s listing decision. See, e.g., *generally Center for Biological Diversity v. U.S. Fish & Wildlife*, No. 1:15-cv-286 (D. Colo.). One of the arguments made by the County was that the Conservation Agreement with FWS, which included the HPT, was not adequately considered by FWS in its listing decision. See, e.g., *Intervenors’ Br. No. 1:15-cv-286 (D. Colo.) (Doc. No. 147) (filed Aug. 2, 2017) at 16, n. 4)*

- Such efforts ultimately proved unsuccessful. *See, e.g., Colorado v. United States Fish & Wildlife Serv.*, 362 F. Supp. 3d 951, 989 (D. Colo. 2018) (“[T]he Court finds that the Service’s decision to list the Gunnison sage-grouse as threatened and designate land as its critical habitat was not arbitrary, capricious, an abuse of discretion, without observance of the required procedures, or otherwise contrary to law. Both determinations are therefore AFFIRMED.”). Thus, a reasonable conclusion includes that the Federal courts were unconvinced that the HPT had or should have had any discernable or material effect on FWS’s Endangered Species Act assessment on the Gunnison sage-Grouse.
- On July 26, 2024, FWS issued its five-year review of the Gunnison sage-Grouse listing, concluding that the grouse remains a threatened species. *See Status Review (July 26, 2024)* at 8. Although the Review makes passing reference to this Committee, it makes no reference to the HPT, citing instead to the Committee’s cheatgrass treatments and wet meadow restoration as assisting the viability of the species. *See id.* at 5. Thus, one could conclude that FWS does not see the HPT as having a discernable effect on the listing of or protections regarding the species.

Standard for updating the HPT:

Any proposed updates must meet the following threshold:

- Justification must be expressly and demonstrably tied to land use impacts, expressly taking into account the factors listed in the LUR, particularly Section 11-106.
- Changes should reflect measurable, practical implications for permitting, zoning, or landowner decisions.
- Scientific rationale and support is both necessary and critical—any change to the HPT must be grounded in science and how it informs land use decisions. Given the multi-factor approach of the LUR, it further must be balanced with appropriate land use, agricultural and other public policy implications if community support and buy-in erodes. Moreover, the apparent fact that neither the Federal courts nor FWS have cited or relied upon the HPT as necessary, or even important, to protect the species could reduce the County’s ability to protect and defend any changes to the HPT in litigation. *See, e.g., N. N.M. Stockman’s Ass’n v. United States Fish & Wildlife Serv.*, 494 F. Supp. 3d 850, 1004 (D.N.M. 2020) (applying regulatory takings analysis to cattle grazing restrictions related to Endangered Species Act protections).

Gunnison County remains a committed partner in collaborative conservation and the County must ensure the tools and regulations remain within the bounds of the County’s land use authority and do not duplicate or substitute federal enforcement roles. Further, such tools must comply with the LUR multi-factor requirements, *e.g.*, LUR Section 11-106.

Please feel free to reach out with any questions or concerns. Thank you.

Gunnison County LUR Sec 11-106
Protection of Wildlife Habitat Areas

- G. WARNING AND DISCLAIMER.** As a condition of approval of the proposed land use change, the applicant shall sign the following warning and disclaimer that shall be included on the Final Plat of a subdivision, or within the applicable recorded document that approves the Land Use Change Permit:

**WARNING AND DISCLAIMER OF WILDFIRE HAZARDS
AFFECTING USE AND OCCUPANCY OF THIS PROPERTY**

"I/We _____ (owner(s) of property) on behalf of myself/ourselves and all successors, heirs and assigns, hereby acknowledge having been informed by Gunnison County of the existence of wildfire hazard areas that may affect the use and occupancy of the property, and any improvements thereto. I/We acknowledge that the County's approval of this land use change does not guarantee the safety of the property, or in any way imply that areas outside of the designated hazard areas will be free from hazards and hereby agrees to indemnify, defend and save harmless the County, its agents, officers and employees from and against any and all liability, expense including defense costs and legal fees, and claims for damages of any nature whatsoever, including bodily injury, death, personal injury, or property damage arising from or connected with any activity related to these hazards, including any suits, liability, or expense."

- H. OWNERS SHALL BE RESPONSIBLE.** Property owners who develop in, or have access through, areas subject to wildfire hazards shall be required to construct, implement, maintain, monitor, improve and bear the cost of their development's proportionate share of all reasonable measures necessary to mitigate any wildfire-related hazard created by such development.

SECTION 11-106: PROTECTION OF WILDLIFE HABITAT AREAS

- A. PURPOSE.** The natural and scenic resources in Gunnison County, including wildlife, are essential components of the County's economic base and help to establish the rural character of the County. Tourists visit and recreate in Gunnison County because of the quality of these natural resources, including the abundance of wildlife species found in the area. These resources are also a basic element of the quality of life for residents of Gunnison County. The standards in this Section are intended to protect sensitive wildlife habitat areas, to protect biological field research, and to ensure that wildlife remains a part of Gunnison County's natural environment for generations to come. In addition, this Section is designed to:

- 1. SUSTAIN AND ENHANCE EXISTING POPULATIONS OF GUNNISON SAGE-GROUSE.** Sustain and enhance survival of the Gunnison Sage-grouse.
- 2. PRECLUDE THE NEED TO UP LIST, OR MINIMIZE THE IMPACT OF LISTING OF GUNNISON SAGE-GROUSE AS CANDIDATE SPECIES.** Help implement an effective strategy to minimize the impact of listing of the Gunnison Sage-grouse as a candidate for endangered status pursuant to the Endangered Species Act of 1973, or at a minimum, demonstrate the intent of Gunnison County to preserve and protect habitat that will lessen the impact if listing does occur.

- B. APPLICABILITY.** All applications for Land Use Change Permits, including Building Permits, On-Site Wastewater Treatment System Permits, Gunnison County Access Permits, Gunnison County Reclamation Permits, and Land Use Change Permits shall be processed subject to the individual requirements of this Section, and assessed to determine if the location of the proposed activity is within the sensitive wildlife habitat areas designated on the maps referenced in *Section 11-106: C.: Maps Used to Identify Sensitive Wildlife Habitats*.

- 1. DEVELOPMENT ON INDIVIDUAL LOTS, WITHIN A BUILDING ENVELOPE, IN SUBDIVISIONS APPROVED BY GUNNISON COUNTY.** If a building envelope on individual lots in subdivisions approved by Gunnison County that was designated on an approved plat, recorded in the Office of the Gunnison County Clerk and Recorder, and is located in Tier 1 Sage-grouse habitat, the building envelope shall be relocated to avoid or minimize impacts to Gunnison Sage-grouse or their habitat, to the maximum extent feasible. This requirement is general in nature and applicable to property subject to land use regulation by Gunnison County. If it is determined that relocation of the building envelope is necessary to avoid or minimize impacts to Gunnison Sage-grouse or their habitat, the process to relocate the building envelope shall be handled as an administrative review by the Community Development Department.

- C. MAPS USED TO IDENTIFY SENSITIVE AND CRITICAL WILDLIFE HABITATS.** The general reference maps used to identify locations of sensitive wildlife habitats. Because maps depicting wildlife habitat are general in nature, and because animal distribution is fluid and animal populations are dynamic, the maps shall be used as "guides" or "red-flags."

- 1. COLORADO DIVISION OF PARKS AND WILDLIFE MAPS.** The Colorado Wildlife Species Map Viewer available on the Colorado Division of Parks and Wildlife website,

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- 2. GUNNISON COUNTY MAPS.** The Gunnison County *Gunnison Sage-grouse Habitat Map*. The purpose of this map is to place a landowner on notice that a parcel may contain important Sage-grouse habitat areas.
- D. INITIAL SITE-SPECIFIC ANALYSIS REQUIRED FOR ACTIVITY PROPOSED ON A PARCEL THAT IS WHOLLY OR PARTIALLY WITHIN GUNNISON SAGE-GROUSE HABITAT.** As part of the applicable required permit application review process, the Gunnison County Wildlife Conservation Coordinator, in consultation with the Colorado Division of Parks and Wildlife, shall conduct an initial site-specific analysis of development that is proposed on a parcel that is wholly or partially within Gunnison Sage-grouse habitat.
- E. APPLICATIONS FOR LAND USE CHANGE PERMITS, BUILDING PERMITS, ACCESS PERMITS, ON-SITE WASTEWATER TREATMENT SYSTEM PERMITS AND GUNNISON COUNTY RECLAMATION PERMITS ON A PARCEL THAT IS WHOLLY OR PARTIALLY WITHIN GUNNISON SAGE-GROUSE HABITAT.** Development located on a parcel that is wholly or partially within Gunnison Sage-grouse habitat that requires a Building Permit, Access Permit, an On-Site Wastewater Treatment System Permit, or a Gunnison County Reclamation Permit.
- 1. LOCATION WITHIN GUNNISON SAGE-GROUSE TIER 1 HABITAT.** All applications for Land Use Change Permits, Building Permits, Access Permits and On-Site Wastewater Treatment System Permits and Gunnison County Reclamation Permits shall be reviewed by the Gunnison County Wildlife Conservation Coordinator and shall require consultation with the Colorado Division of Parks and Wildlife.
 - 2. LOCATION WITHIN GUNNISON SAGE-GROUSE TIER 2 HABITAT.** All applications for Land Use Change Permits, Building Permits, Access Permits, On-Site Wastewater Treatment System Permits and Gunnison County Reclamation Permits shall be reviewed by the Gunnison County Wildlife Conservation Coordinator and may require consultation with the Colorado Division of Parks and Wildlife.
 - 3. PRE-APPLICATION CONFERENCE.** Owner(s) of land may request a pre-application conference with Gunnison County staff to review Gunnison Sage-grouse issues that reasonably may arise from an application pursuant to this Section. Upon receipt of such request, Gunnison County staff, and as available a representative of the Colorado Division of Parks and Wildlife, will meet with the owner(s) to review such issues and to identify potential solutions. The Community Development Department will coordinate the conference. Gunnison County shall consider the advice of applicant's wildlife biologist/ecologist or a similar qualified expert.
 - 4. REFERRAL TO GUNNISON COUNTY WILDLIFE CONSERVATION COORDINATOR AND ON-SITE CONSULTATION.** The Community Development Department and the Public Works Department shall forward a copy of the application(s) to the Gunnison County Wildlife Conservation Coordinator. The Gunnison County Wildlife Conservation Coordinator shall determine the habitat type and whether an on-site consultation is required. If an on-site consultation is required the Gunnison County Wildlife Conservation Coordinator shall coordinate and schedule an on-site consultation with the applicant and/or applicant's representative, the Community Development Department, Public Works Department and a representative from the Division of Parks and Wildlife. The purpose of the on-site consultation shall include location of any habitat, identification of site-specific data to inform the review process, and identification of potential mitigation of Sage-grouse related issues..
 - a. TIMELINE FOR REVIEW.** The County shall request that the Colorado Division of Parks and Wildlife submit comments about the application within 21 days after the on-site consultation; when comments are not provided within that time by the Division, the County shall proceed to complete the permit process without those comments.
- F. REVIEW, REFERRAL TO COLORADO DIVISION OF PARKS AND WILDLIFE OF MINOR AND MAJOR IMPACT PROJECT APPLICATIONS.** The Community Development Department shall refer Land Use Change Permit applications for Minor or Major Impact projects to the local office of the Colorado Division of Parks and Wildlife for that agency's review and comments to make use of the expertise and judgment of that agency in the protection of sensitive wildlife habitat, and its recommendations, if any, to reduce or eliminate adverse impacts to sensitive wildlife habitat and species that may result from proposed development. It is intended that the Division of Parks and Wildlife will review the application and participate in on-site consultations and provide timely comments to the Community Development Department that identify actions and/or recommendations to reduce or eliminate adverse impacts to wildlife.
- 1. MINOR IMPACT PROJECTS.** The Department shall submit a copy of the Minor Impact project application to the Division pursuant to *Section 6-106: E: Request for Review by Other Agencies or Departments*, with a written request that the Division review the application and identify in a written response whether or not the parcel on which the land use change is proposed is located within sensitive wildlife habitat, and issues that it believes appropriate to be addressed during the permitting process. Based upon the Division's knowledge of a specific site, the Division may also recommend that a wildlife habitat analysis be conducted, pursuant to *Section 11-106:*
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F.4.: Wildlife Habitat Analysis of Minor Impact or Major Impact Projects, which shall be required to be submitted by the applicant before a public hearing is scheduled on the Minor Impact project application.

2. **MAJOR IMPACT PROJECTS.** The Department shall submit a copy of the Preliminary Plan for a Major Impact project application to the Division pursuant to *Section 7-302: C: Review and Comment by Review Agencies*, with a written request that the Division review the application and identify in a written response whether or not the parcel on which the land use change is proposed is located within sensitive wildlife habitat and issues that it believes appropriate to be addressed during the permitting process. If the parcel is located within sensitive wildlife habitat, a wildlife habitat analysis conducted pursuant to *Section 11-106: F.4.: Wildlife Habitat Analysis* shall be submitted by the applicant before the public hearing on the Preliminary Plan is scheduled.
3. **PRE-APPLICATION CONFERENCE FOR MINOR OR MAJOR IMPACT PROJECTS LOCATED ON A PARCEL WHOLLY OR PARTIALLY WITHIN GUNNISON SAGE-GROUSE HABITAT.** A Pre-Application Conference is required for any Minor or Major Impact project located wholly or partially on a parcel within Gunnison Sage-grouse habitat.
4. **WILDLIFE HABITAT ANALYSIS OF MINOR IMPACT OR MAJOR IMPACT PROJECTS.** If Colorado Division of Parks and Wildlife comments indicate that the proposed land use change for a Minor Impact or Major Impact project is within sensitive wildlife habitat, the applicant shall be required to submit a site-specific wildlife habitat analysis. The analysis shall evaluate the relevant physical features of the property, shall make a site-specific determination of the locations of wildlife habitat on the property, and shall describe how the proposed development will comply with *Section 11-106: G.: General Standards for Development in Sensitive Wildlife Habitat Areas*. The analysis shall be prepared by a wildlife biologist/ecologist or similar qualified expert in consultation with the Colorado Division of Parks and Wildlife. It shall be submitted with the Preliminary Plan application for a Major Impact project, or before the public hearing is scheduled on a Minor Impact project, and shall contain the following:
 - a. **MAP.** A map of the property shall be submitted, depicting the activity patterns of the wildlife using the sensitive wildlife habitat, identifying, where relevant, migration routes, travel corridors or patterns, nesting, feeding, watering and production areas, and any critical connections or relationships with habitat adjoining, but outside of, the project site. The map shall also identify whether the land immediately surrounding the proposed land use change is privately owned or is public land owned by the U.S. Forest Service, U.S. Bureau of Land Management, Colorado Division of Parks and Wildlife, or other similar agency.
 - b. **REPORT.** A report shall be submitted that describes the activity patterns of the wildlife using the habitat, using a scientifically valid time period. It will also identify any species that use the property that are listed by the U.S. Department of the Interior or the State of Colorado as endangered, threatened, or are species of special concern.
 1. **EVALUATE IMPACTS.** The report shall evaluate the potential impacts of the proposed land use change on the sensitive wildlife habitat and the species using that habitat, including whether it could be a threat to the viability of the species, cause a reduction in the diversity of wildlife species in the county, or change the status of its federal or state listing. The report shall identify the types of potential impacts that are anticipated (including stress due to human presence, interference with reproduction, change of migration routes, etc.) and the time periods (spring, summer, fall, winter, year-round, etc.) during which wildlife are expected to be affected by the proposed land use change.
 2. **CUMULATIVE IMPACTS.** The report addressing any Major Impact project (and any proposed land use change classified as a Minor Impact project that the Planning Commission determines requires such evaluation) shall also evaluate the cumulative impacts on wildlife habitat beyond the project site. The report shall also address whether the cumulative impacts of the proposed land use change when added to the past and present impacts of other land use changes, will eliminate, reduce, or fragment wildlife habitat in the county to the extent that the viability of an individual species is threatened or the diversity of species found in the county is reduced, or the population of a species in the impact area will be significantly reduced.
 3. **MITIGATION PLAN.** The report shall include a wildlife habitat mitigation plan that describes how the proposed development will comply with *Section 11-106: G.: General Standards for Development in Wildlife Habitat Areas*, providing detail regarding the avoidance, mitigation, and enhancement techniques, monitoring and performance criteria that will be employed.
- G. **GENERAL STANDARDS FOR DEVELOPMENT IN SENSITIVE WILDLIFE HABITAT AREAS.** All development shall comply with the following standards when it is located on lands designated as sensitive wildlife habitat, including but not limited to parcels located partially or wholly in habitat areas delineated on the Gunnison County *Gunnison*

Sage-grouse Habitat Map, and all lands determined to be sensitive wildlife habitat pursuant to Section 11-106: B: *Applicability*.

1. **MITIGATION OF ADVERSE IMPACTS TO SENSITIVE HABITAT.** A proposed land use change must mitigate adverse impacts it causes to lands determined to be sensitive wildlife habitat including but not limited to Gunnison Sage-grouse habitat. Proposed land use changes that are found to have a significant net adverse impact that cannot be mitigated upon sensitive wildlife habitat, shall be denied.
 - a. **CONSIDERATION OF BENEFICIAL EFFORTS.** Gunnison County shall consider, and affirmatively recognize as mitigation in the permitting process, conservation easements/covenants (and similar mechanisms), and documented management agreements/programs accomplished, or to be accomplished, in coordination with the Colorado Division of Parks and Wildlife or other agencies (such as the Natural Resources Conservation Service or the U.S. Fish and Wildlife Service) that are beneficial to sensitive wildlife habitat. Each case will be reviewed on an individual basis to determine if the easement, covenant or deed restriction satisfies all of these standards.
 1. **TERMS OF EASEMENT ARE PERPETUAL AND SATISFACTORY TO COUNTY.** The terms of the existing easement, covenant or deed restriction are perpetual and acceptable to the County.
 2. **PRESERVED LANDS PROVIDE SENSITIVE WILDLIFE HABITAT.** That both the preserved land provides sensitive wildlife habitat, and the restrictions imposed by the pertinent easement, covenant or deed restriction are sufficient to justify the determination that adverse impacts have been substantially or wholly mitigated by such preservation.
 3. **ADDITIONAL BENEFITS SUBSTANTIALLY OR WHOLLY MITIGATE ADVERSE IMPACTS.** Additional preservation efforts substantially or wholly mitigate adverse impacts to sensitive wildlife habitat.
2. **IRRIGATION DITCHES.** Pursuant to Colorado law, owners of irrigation ditches have the right to maintain irrigation ditches, headgates and other diversion structures. Gunnison County shall not require mitigation that will interfere with the right of ditch owners to maintain ditches, headgates or other diversion structures.
3. **MITIGATION TECHNIQUES.** Mitigation techniques to protect wildlife species that the County determines may be impacted by a proposed land use change on lands identified in Section 11-106: B: *Applicability*, including, but not limited to:
 - a. **LIMITATIONS.** Requirements to avoid sensitive wildlife habitat during seasons the wildlife species use the habitat. When appropriate, the proposal shall include techniques to minimize human intrusion, including, but not limited to:
 1. **BUFFERS.** Visual and sound buffers to screen structures and activity areas from habitat areas through effective use of topography, vegetation, and similar measures.
 2. **LIMITATIONS OF HUMAN ACTIVITIES DURING SENSITIVE TIME PERIODS.** Seasonal avoidance limitations on, or stoppages of intrusive human activities during sensitive time periods, including limiting construction activities and recreational uses during sensitive time periods such as elk migration, elk calving or when sage grouse mating, nesting or brood rearing is occurring on parcels located partially or wholly in habitat areas delineated on the Gunnison County *Gunnison Sage-grouse Habitat Map*.
 3. **LOCATIONAL CONTROLS.** Controls on the location of development, so it does not force wildlife to use new migration corridors, or expose wildlife to significantly increased predation, interaction with vehicles, intense human activity, or more severe topography or climate, or encircle wildlife habitat with development.
 - b. **WATERING AREAS.** Measures to avoid disturbance of waterholes, springs, seepages, marshes, stream beds, stream banks, wetlands, streamside vegetation, ponds, and watering areas to the maximum extent feasible. Catchment basins may be required to prevent stream siltation.
 - c. **HABITAT COMPENSATION.** Requirements to develop additional habitat, or to acquire and permanently protect existing habitat to compensate for habitat that is lost to development, in the form of ongoing on-site or off-site wildlife habitat enhancement. Enhancement is the process of increasing wildlife carrying capacity on undeveloped habitat and may include prescribed burns, seeding, brush cutting, and fertilization, as determined to be appropriate by the County, based on the advice of the Colorado Division of Parks and Wildlife or other technical experts.

- d. **DOMESTIC ANIMAL CONTROLS.** Controls on domestic animals within or near areas of sensitive wildlife habitat. Dogs may be prohibited within one-half mile of elk, deer, and bighorn sheep critical winter ranges and winter concentration areas. The number of cats and dogs allowed in a development may also be limited.
1. **DOGS AND CATS PROHIBITED OR CONTROLLED NEAR GUNNISON SAGE-GROUSE HABITAT.** Requirements in the form of conditions of a permit, and/or inclusion within declarations of a subdivision's protective covenants enforceable by Gunnison County, may be required prohibiting, or requiring control by kenneling or other physically-secure methods within Gunnison Sage-grouse lek or within Gunnison Sage-grouse habitat.
- e. **PROTECTION FROM ANIMAL-BORNE DISEASES.** Gunnison County may impose limitations on the introduction or possession of non-native species to lessen the possibility of the introduction of disease to native wildlife populations.
- f. **CONTROL OF NUISANCES.** Controls on lighting, noise, excess use of fertilizers or pesticides, and similar nuisances that could have a significant net adverse effect on Gunnison Sage-grouse habitat and the continued use of the area by other wildlife.
- g. **DENSITY RELOCATION.** Residential development may be clustered to avoid sensitive wildlife habitat.
- h. **ROAD CONSTRUCTION.** Requirements to avoid new road construction through sensitive wildlife habitat.
- i. **STREAM ALTERATIONS OR DIVERSIONS.** Controls on alterations or diversions of streams to retain the character and productivity of the streams. Such alterations will be subject to all applicable local, state and federal codes and regulations.
- j. **ALTERATIONS OF EXISTING WET MEADOW/SAGE HABITAT INTERFACE AREAS.** Controls on alterations of existing wet meadow/sage habitat interface areas.
- k. **STRUCTURES TO MINIMIZE HAZARDS.** Requirements to design, locate, construct and maintain game-proof fencing, one-way gates, game underpasses, or other structures to minimize hazards to wildlife, such as requiring a minimum distance between high-power electric wires to avoid electrocution of eagles.
- l. **AGENCY ACCESS.** Where applicable, the provision of access to Colorado Division of Parks and Wildlife or other applicable agencies to facilitate maintenance of wildlife and wildlife habitat.
- H. **STANDARDS SPECIFIC FOR DEVELOPMENT PROPOSED ON PARCELS THAT ARE WHOLLY OR PARTIALLY WITHIN GUNNISON SAGE-GROUSE HABITAT.** In addition to the standards and mitigation techniques included within this Section, the following standards shall apply specifically to development proposed on a parcel that is wholly or partially within Gunnison Sage-grouse habitat:
1. **DISTURBANCE GUIDELINES.** Development activity shall comply with the GUSG *Disturbance Guidelines in the Gunnison Sage-grouse Rangewide Conservation Plan, Appendix 1*, as may be adopted and amended from time to time by the BOCC.
2. **LIMITATION ON HUMAN ACTIVITIES INCLUDING RECREATIONAL USES DURING GUNNISON SAGE-GROUSE SENSITIVE TIME PERIODS.** Seasonal avoidance or limitations of intrusive human behavior during sensitive time periods, including but not limited to winter and when Gunnison Sage-grouse are mating or raising chicks.
3. **UNDERGROUND UTILITIES REQUIRED NEAR GUNNISON SAGE-GROUSE LEKS.** Utility lines shall be placed underground within Gunnison Sage-grouse habitat, to discourage avian predators.
- I. **FENCES.** Design of fences other than those associated with agricultural operations shall ensure they do not adversely impact wildlife. Design standards for fences are as follows:
1. **MAXIMUM HEIGHT.** Fences shall not be higher than 42 inches.
2. **MATERIALS.** Fences should be limited to a maximum of three strands or rails. Rail fences should only use rounded rails. Wire fences should not be made of woven wire, unless they are used to enclose sheep or goats. Wire and rail fences shall have a kick-space (distance between the top two wires or rails) of not less than 18 inches that uses wire or rail that has a smooth surface. The top rail should be made of a solid material in heavy use areas, to make it more visible to wildlife.
3. **REMOVABLE SECTIONS.** Fences in migration corridors should have removable sections or openings to allow for seasonal passage of wildlife. The applicant shall be responsible for removing fence sections when migration is occurring and replacing those sections when the season of migration has ceased.

4. **UPGRADING EXISTING FENCES.** As a condition of development approval, applicants proposing land use changes within sensitive wildlife habitat areas should agree to remove or to alter any existing fences on the property to comply with the above requirements.
 5. **FENCES AROUND RESIDENCES EXEMPT.** Fences located in the immediate vicinity of a residence shall be exempt from these limitations.
 6. **DESIGN AND LOCATION.** Fence location and design should minimize adverse impacts to sensitive wildlife habitat.
- J. VEGETATION.** Proposed land use changes shall be designed to comply with the recommendations of the Colorado Division of Parks and Wildlife regarding vegetation, and to preserve large areas of vegetation utilized by wildlife for food and cover. Roads shall be located on the edge of wildlife habitat areas, to prevent fragmentation of wildlife habitat. When native vegetation must be removed within habitat areas, it shall be replaced with native and/or desirable non-native vegetation capable of supporting post-disturbance land use. Individuals planting vegetation away from the homesite should consider using vegetation suitable for wildlife cover and food. Vegetation removed to control noxious weeds shall not be required to be replaced, unless the site requires revegetation to prevent erosion or noxious weeds from becoming established.
1. **TIME ALLOTTED FOR REVEGETATION.** Vegetation required pursuant to *Section 13-115: Reclamation and Noxious Weed Control* shall be established and growing within two growing seasons (730 days) of the issue date of the applicable Gunnison County Reclamation Permit.
- K. CDOW ACCESS.** Where applicable, the applicant shall continue to provide historical access or agreed-upon new access other than the historical access, for the Colorado Division of Parks and Wildlife to manage wildlife and to monitor wildlife activities.

SECTION 11-107: PROTECTION OF WATER QUALITY

- A. PURPOSE.** The purpose of this Section is to protect the quantity, quality and dependability of water resources in Gunnison County by avoiding development in and adjacent to water bodies and mudflow hazard areas whenever possible, by minimizing adverse impacts of development, including siltation, sedimentation, salinization, runoff, loss of decreed minimum in-stream flows, stream bank erosion and change to existing drainage patterns.
- B. RELATIONSHIP TO OTHER SECTIONS.** As applicable, of the standards imposed by this Section, and Section 11-103: *Development in Areas Subject to Flood Hazards*, Section 13-116: *Grading and Erosion Control*, and Section 13-117: *Drainage, Construction and Post-Construction Storm Water Runoff*, the more restrictive shall apply.
- C. APPLICABILITY.** Unless otherwise exempted, this Section shall apply to all Land Use Change Permit applications that involve uses within 125 feet of water bodies and mudflow hazard areas in unincorporated areas of Gunnison County, except as exempted in Section 11-107: C. 1.: *Exempt*, and Section 11-107: C. 2.: *Partially Exempt*.
1. **EXEMPT.** The following structures, improvements, activities, or areas shall be exempt from all of the requirements of this Section:
 - a. **STRUCTURES USED FOR DECREED WATER RIGHT.** Structures or improvements used for the exercise of a decreed water right, including headgates and measuring devices; and
 - b. **WETLANDS RESULTING FROM AGRICULTURAL OPERATIONS.** Wetlands and riparian areas created solely by normal and customary agricultural activities; and
 - c. **PROJECTS PRIMARILY FOR WATER PROTECTION THAT HAVE RECEIVED REQUIRED STATE OR FEDERAL PERMITS.** Projects that have received all applicable permits required by state and/or federal agencies, such as those designed primarily for the enhancement, protection and/or restoration of water body banks or channels, wetlands, riparian areas and/or piscatorial wildlife habitat; and
 - d. **WATER IMPOUNDMENTS.** Water impoundments that are a component of an approved mineral exploration or extraction Project or construction materials processing Project, and comply with Section 13-118: *Water Impoundments*, and with all applicable federal codes and regulations; and
 - e. **EMERGENCY FLOOD CONTROL MEASURES.** A structure or other land use change necessary, in an emergency declared by the County Manager to eliminate or reduce potential flood hazards or damage. If it is to be removed, it shall be removed as soon as possible; and

Parcel and Acreage Changes for HPT Update

Changes to Habitat Acreages

Habitat	HPT Version	Acres	% Change in Acreage from 2018 to Draft 2025	% of Total Acreage*	% Change in Total Acreage* from Version 2 (2018)
Winter	2018	210,645.3	0	34.9%	0
	Draft 2025	210,504.7	-0.1%	34.9%	0
NSF	2018	217,847.9	0	36.1%	0
	Draft 2025	216,132.6	-0.8%	35.8%	-0.3%
Roads	2018	18,043.1	0	3.0%	0
	Draft 2025	20,111.2	10.3%	3.3%	0.3%

These are the updates to acreages of different kinds of habitat once we re-ran the model including the updates described in my email. Basically, there were minor decreases in winter habitat, decreases in nesting/summer/fall habitat, and increased habitat negatively impacted by roads. I included the changes as a percentage of the 2018 version of the model (center column) and as a percent of the total acreage (Tier 1 and Tier 2 habitat) on the far right column.

Acreage of Tier 1 and Tier 2 habitat

Tier	HPT Version	Acres	% Change in Tier 1/ Tier 2 Acreage from Version 2 (2018)	% of Total Acreage*	% Change in Total Acreage* from Version 2 (2018)
Tier 1	2018	364,348.7	0	60.4%	0
	Draft 2025	389,258.2	6.4%	64.6%	4.1%
	Draft 2025 with half values 0.6 – 1.0 miles	397,608.1	8.4%	65.9%	5.5%
Tier 2	2018	238,636.8	0	39.6%	0
	Draft 2025	213,729.3	-11.7%	35.4%	-4.1%
	Draft 2025 with half values 0.6 – 1.0 miles	205,379.3	-16.2%	34.1%	-5.5%

These are the changes to Tier 1 and Tier 2 acreage in the 2018 version, the 2025 version with base changes to spatial data and scoring for historic leks and irrigated lands, and the proposed 2025 version (with the half values from 0.6 to 1.0 miles from the lek boundary). Again, I included the changes to Tier 1 and Tier 2 habitat compared to the 2018 version, and considering the overall acreage included in the model (right column).

Total number of parcels included in each version (or proposed version) of the HPT. Numbers in parentheses are the net changes from the 2018 version.

Parcel type	Version 2 (2018)	Version 3 (2025)	Version 3 (2025) Half Values	Version 3 (2025) Full Values
Total	6,286	6,286	6,286	6,286
Tier 1	1,327	1,304 (-23)	1,324 (-3)	1372 (+45)
Tier 1 with Easement	207	198 (-9)	198 (-9)	202 (-5)
Tier 1 Public Land	722	730 (+8)	733 (+11)	738 (+16)
Tier 1 with Existing Reviews	379	404 (+25)	410 (+31)	424 (+45)
Tier 1 Public Land, No Easements, No Existing Reviews	306	264 (-42)	277 (-29)	307 (+1)

Please note that there are some overlaps between public lands and existing reviews, and easements and existing reviews, so not all of these values add up perfectly.

Mike has pointed out that likely most people can agree to the Version 3 (2025) version that includes the base updates to spatial data, historical lek scoring, and irrigated land scoring. So the changes from the Version 3 (2025) column to the Version 3 (2025) Half Values column might be the most important to discussions at the full committee meeting.

Total number of parcels included in each version (or proposed version) of the HPT. Numbers in parentheses are the net changes from the 2018 version.

Parcel type	Version 2 (2018)	Version 3 (2025)	Version 3 (2025) Half Values	Version 3 (2025) Full Values
Total	6,286	6,286	6,286	6,286
Tier 1	1,327	1,304 (-107, +84)	1,324 (-104, +101)	1372 (-93, +138)
Tier 1 with Easement	207	198 (-9, +0)	198 (-9, +0)	202 (-6, +1)
Tier 1 Public Land	722	730 (-18, +26)	733 (-18, +29)	738 (-18, +34)
Tier 1 with Existing Reviews	379	404 (-35, +60)	410 (-34, +65)	424 (-30, +75)
Tier 1 Public Land, No Easements, No Existing Reviews	306	264 (-54, +12)	277 (-52, +23)	307 (-47, +48)

This is the same as the preceding table but it shows how many parcels were added and subtracted from Tier 1 habitat for each category (easements, public lands, existing sage-grouse reviews, and no public/easement/review) for each proposed HPT model.

For parcels that drop out of Tier 1 and do not have an easement, existing review, or public land, 13 are in Ohio Creek irrigated meadows and 11 of those have existing development. 26 are in the Cranor Hill/Sage Drive neighborhoods and of those, 20 have existing development and 6 do not. 2 more undeveloped parcels are on the south end of CR 25 in the Blue Mesa Estates subdivision and both have some trees. 3 parcels adjacent to the Gunnison River off CR 17 also dropped out of Tier 1, and all 3 have existing development. There is a group of 3 parcels near the HWY 50/CR 26 intersection that have not been developed that would drop out of Tier 1 as well. There are a few single

parcels as well (one on the south end of Almont that is developed, one north of Almont that is not developed, one in Steuben Creek that is developed, one small parcel north of Needle Creek Reservoir with existing development). Overall, there are 52 private parcels that would drop out of Tier 1 that do not have easements or existing reviews, of which 37 are developed.

For parcels that become Tier 1 that do not have an easement, existing review, or public land, there is 1 partially forested and undeveloped in the CR 25/ Blue Mesa Estates Subdivision area, 3 partially forested and undeveloped parcels on the north end of County Road 25, 1 undeveloped parcel near Gold Basin, 1 undeveloped parcel on the north side of the Antelope Hills subdivision, 4 developed parcels in the Esty Lane area, 1 partially undeveloped forested parcel south of Wildwood, 1 partially forested undeveloped parcel adjacent to Taylor Canyon road near Almont, 7 south of Almont of which 6 are developed, 1 developed parcel in Mitzel's Green Acres, 2 along Tomichi Creek (1 of the 2 developed), 1 adjacent to CR 877 that is undeveloped. That means there are 23 parcels added to Tier 1, of which 11 are undeveloped.

HPT Update Presentation



Proposed Revisions to the Habitat Prioritization Tool

Technical Subcommittee

Gunnison Basin Sage Grouse Strategic Committee

May 2025

Where are we headed?

- Overview, uses
- County land use review process
- How the HPT works
- Proposed updates
- Changes to Tier 1/Tier 2 acreage and parcels
- Scenarios for development



Habitat Prioritization Tool Overview

- ▶ Began in 2012
 - ▶ Updated in 2018
 - ▶ Annual and 5-year updates recommended in documentation
- ▶ Prioritizes **potential** habitats for Gunnison sage-grouse
 - ▶ Tier 1 vs Tier 2
- ▶ Technical Subcommittee
 - ▶ Approved by full Strategic Committee





2014 Listing Decision

Federal Register Volume 79, No. 224

- ▶ “As described in detail below, we have determined that the most substantial threats to Gunnison sage-grouse currently and in the future include habitat decline due to human disturbance (Factor A), small population size and structure (Factor E), drought (Factor E), climate change (Factor A), and disease (Factor C).” (page 69192)
- ▶ **Summary of Changes From the Proposed Rule** (Endangered to Threatened)
 - ▶ “.... we have reevaluated our proposed listing rule and made changes as appropriate. (4) We have found that the threat from current residential development in the Gunnison Basin is not as high as we previously concluded. See Factor A analysis and discussion.” (page 69201)
 - ▶ It’s the ONLY factor listed with that change.



Gunnison County Land Use Resolution

Section 11-106: Protection of Wildlife Habitat Areas

- A. Purpose.** The standards in this Section are intended to protect sensitive wildlife habitat areas, to protect biological field research, and to ensure that wildlife remains a part of Gunnison County's natural environment for generations to come.
1. Sustain and Enhance Existing Populations of Gunnison Sage-Grouse
 2. Preclude the Need to List, or Minimize the Impact of Listing of Gunnison Sage-Grouse as Candidate Species.
- C. Maps Used to Identify Sensitive and Critical Wildlife Habitats.** The general reference maps used to identify locations of sensitive wildlife habitats. Because maps depicting wildlife habitat are general in nature, and because animal distribution is fluid and animal populations are dynamic, the maps shall be used as “guides” or “red-flags.”



How is it Used?

- ▶ Gunnison County land use planning
- ▶ BLM uses the HPT to identify routes for decommissioning
- ▶ USFS used the HPT when under the CCA agreement to prioritize projects and for Section 7 consultation
- ▶ Incorporated into the
 - ▶ CPW Wildlife Decision Tool
 - ▶ Cheatgrass treatment prioritization mapping
 - ▶ Referenced in USFWS GUSG SSA and RIS



USFWS Species Status Assessment

- ▶ Conservation Efforts
 - ▶ Long-Term Protection on Private Lands
 - ▶ **Regulatory Measures on Private Lands (3.3.2)**
 - ▶ “Most counties with GUSG populations have developed specific land use regulations addressing local habitat conservation in long-term development planning”
 - ▶ Regulatory Measures on Public Lands
 - ▶ Habitat Restoration Actions
 - ▶ Translocations and Captive Rearing
- ▶ Cited in Conservation Scenarios section as a factor to consider for species viability assessments



USFWS Recovery Implementation Strategy – Priority 1 Actions and Activities

- ▶ 3.05 Acquire and/or protect private lands, prioritizing those adjacent to public lands and contain moderate to high quality GUSG habitat in collaboration with state, Federal, local, and conservation partners (such as land trusts, conservation realtors, and NGOs).
- ▶ 3.08 Continue using Habitat Prioritization Tool (HPT) and Gunnison County Land Use Resolution for land use permitting in GUSG habitat.
- ▶ 3.09 Improve procedures with counties to determine if take may occur from private lands development and a streamlined process for issuing incidental take permits. This can be done through determining specific standards for preventing take of GUSG and their habitat at the population level and specific minimization and mitigation standards to offset take in an incidental take permit (Habitat Conservation Plan) and/or county regulations.
- ▶ 3.11 Improve communication and outreach to improve land use regulations and procedures to avoid loss of habitat, specifically in Saguache County.

An aerial photograph of a vast, rolling landscape covered in dense, low-lying sagebrush. The vegetation is a mix of green and greyish-green, with some bare, brownish soil visible between the clumps. The terrain appears to be a steppe or prairie. A dark green, arrow-shaped graphic overlay is positioned in the lower-left quadrant, pointing towards the right. Inside this overlay, the text "Gunnison County Sage-Grouse Reviews" is written in a white, sans-serif font.

Gunnison County Sage-Grouse Reviews

Gunnison County receives pre-app or permit app and sends to contract biologist

Biologist evaluates Tier 1/ Tier 2, distance to lek, presence of existing development

Tier 2

Tier 1

If no additional factors warrant site visit, biologist completes desk review

Biologist determines if a site visit is warranted, sends to CPW for concurrence

no

yes

Contract biologist sends review to County. County may choose to implement recommendations into building permit approvals. Review recorded with deed.

If a site visit is warranted, includes contract biologist, CPW biologist, applicants, County Public Works, County Community Development

Determine habitat condition, line of sight to lek, presence of grouse sign (fecal pellets, etc.). Consider and discuss mitigations to minimize impact.

Gunnison County Land Use Planning

Actions	Tier 2 Parcels	Tier 1 Parcels
Desk review / site visit	Usually desk review, can request site visit	Usually desk review, can request site visit (more likely to have potential for a site visit)
Request concurrence with CPW	Can occur, but usually not	Always
Reclamation Permit	Usually not required unless >10,000 sq ft disturbance or in discussion with Gunnison County Public Works or CPW about resources at risk	Usually required



Likely Recommendations

- ▶ Noxious weed treatment
- ▶ Controlling pets
- ▶ Need separate review for proposals not covered by current review
- ▶ Reclamation permit and reseeding with native species
 - ▶ Tier 2: if disturbance >10,000 sq ft (or at discretion, request of County staff)
 - ▶ Tier 1: always
- ▶ “This review encompasses restrictions as related to sage-grouse habitat values and **DOES NOT** constitute clearance for building. The applicant shall obtain the applicable Gunnison County permits before beginning construction or ground-disturbing activities.”



Possible Additional Recommendations

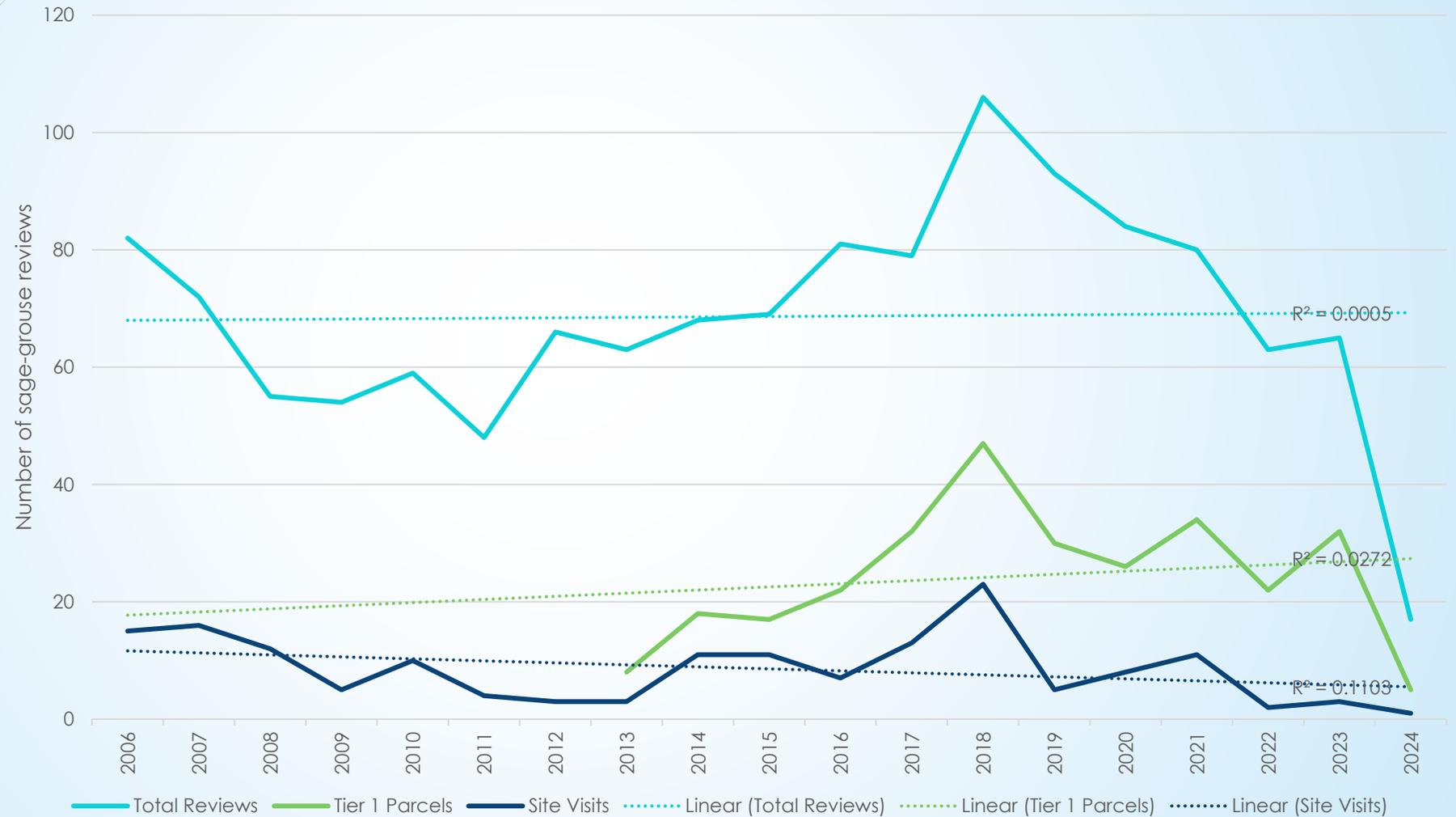
- ▶ Wildlife friendly fencing
- ▶ No conversion of sagebrush habitats or habitat treatments without consultation
- ▶ Grazing planning assistance
- ▶ No gallinaceous game bird importation
- ▶ No roads, trails, etc. without additional review
- ▶ Long-term camping permit
- ▶ Site specific design and location control
 - ▶ House color, number of stories, driveway orientation to minimize headlights, exterior lighting
 - ▶ Cluster development, building envelope
- ▶ Driveway width waiver to 12-foot wide
- ▶ Living with wildlife recommendations



Cost to Applicants for Land Use Planning

- ▶ Sage-grouse Review
 - ▶ Desk review \$65
 - ▶ Site visit \$225
 - ▶ Fees will be adjusted annually with the Consumer Price Index
- ▶ Reclamation Permit
 - ▶ Until January 1, 2025: \$75
 - ▶ Post January 1, 2025: \$670 permit application fee
 - ▶ \$1,500 security deposit for first 10,000 sq ft and \$200 for each additional 1,000 sq ft

How many reviews?



How many reviews?



An aerial photograph of a scrubland landscape. The terrain is covered with low-lying, green and greyish shrubs and grasses, interspersed with patches of reddish-brown soil. A large, dark green arrow-shaped overlay points from the left side of the image towards the center. Inside this arrow, the text "Habitat Prioritization Tool" is written in a white, sans-serif font.

Habitat Prioritization Tool

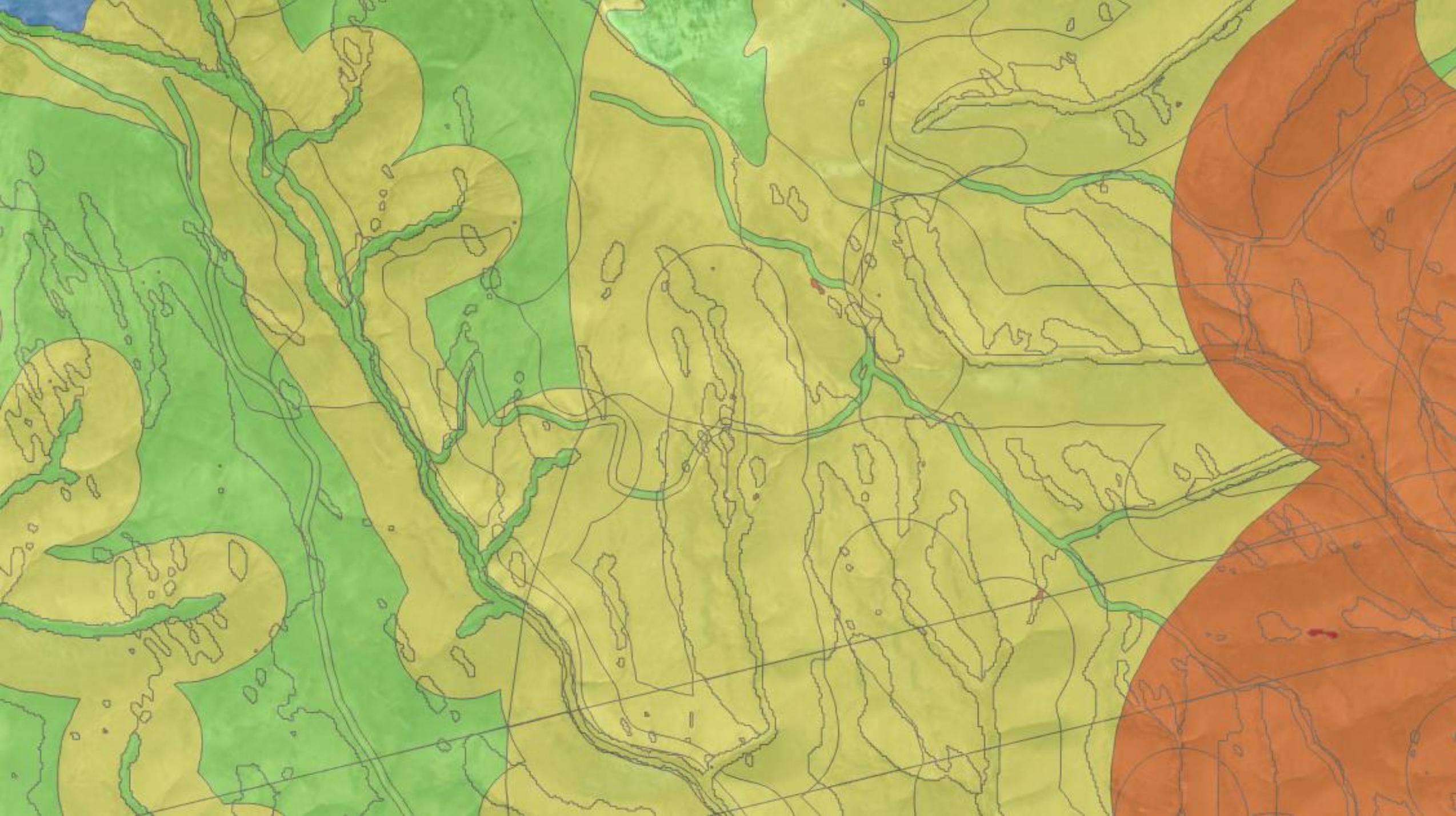
How does the HPT work?

Habitat (+)

- ▶ Leks (within 0.6 miles)
- ▶ Land Near Active Leks (within 2.0 miles)
- ▶ Brood Rearing Habitat
- ▶ Nesting/Summer/Fall/Winter Habitat
- ▶ Irrigated Lands

Impacts (-)

- ▶ Subdivisions
- ▶ Roads and Trails
- ▶ Power Lines
- ▶ Unsuitable Habitat



Evaluation Class Breaks – Habitat (+)

- ▶ Leks (within 0.6 miles)
 - ▶ Active (15)
 - ▶ Unknown (10)
 - ▶ Inactive (8)
 - ▶ Historic (1)
- ▶ Land Near Active Leks (within 2.0 miles)
 - ▶ Areas within active leks and <2 miles from the edge of the active leks (5)
- ▶ Brood Rearing Habitat
 - ▶ Present (13)
- ▶ Nesting/Summer/Fall/Winter Habitat
 - ▶ Present <750 ft from brood rearing and winter habitat (15)
 - ▶ Present >750 ft from brood rearing and winter habitat (10)
- ▶ Irrigated Lands
 - ▶ Present (1)

Evaluation Class Breaks – Impacts (-)

► Subdivisions

- Areas within 300 ft of a house point (-5)
- Areas where 3 house points are within 1,000 ft (-20)

► Roads and Trails

- <150 ft from the centerline of an improved road (-4)
- <50 ft from centerline of a double track (-3)
- <25 ft from the centerline of a single track (-2)
- <25 ft from the centerline of a closed route (0)

► Power Lines (above-ground)

- 0 – 820 ft from WAPA transmission line (-3)
- 820 – 1640 ft from WAPA transmission line (-2)
- 1641 – 4920 ft from WAPA transmission line (-1)
- 4920 – 6560 ft from WAPA transmission line (0)
- 150 – 450 ft from GCEA distribution line (-1)
- <150 ft from GCEA distribution line (-2)

► Unsuitable Habitat

- Within and <500 ft from the landfill boundary (-30)
- UMTRCA site (-30)
- Gunnison County airport (-30)
- Large open water areas (-30)
- Large/historic gravel pits (-30)



Habitat Prioritization Tool Proposed Updates



2025 Recommended Updates

- ▶ “This model incorporates the most recent information providing a representation of potential on the ground habitat conditions in the Gunnison Basin. Data included is the best information available at the time. Future updates will be essential when new and better data is available.”
 - ▶ Gunnison Sage-Grouse Habita Prioritization Tool 2018 Update Documentation
- ▶ Recommended updates to:
 - ▶ Spatial data
 - ▶ Scores
 - ▶ Documentation



Considered but Dismissed

- ▶ Critical Winter Habitat
- ▶ Seeps and springs spatial data for Brood Rearing Habitat
- ▶ Tree/conifer layer
- ▶ Communication towers
- ▶ Decommissioned routes vs. closed routes
- ▶ Seasonal road closures
- ▶ Noxious weeds
- ▶ Viewshed analysis for power lines



Updated Spatial Data

- ▶ Soils data
- ▶ Roads layers – BLM, USFS, NPS, CPW
 - ▶ Including driveways
- ▶ Lek status
- ▶ Lek polygon shapes/locations

Updated Scoring

- ▶ Irrigated lands
 - ▶ 1 → -8
- ▶ Leks
 - ▶ Within 0.6 miles of a historic lek
 - ▶ 1 → 6

Updated Scoring

- ▶ Irrigated lands
 - ▶ 1 → -8
- ▶ Leks
 - ▶ Within 0.6 miles of a historic lek
 - ▶ 1 → 6
 - ▶ Within 0.6 miles to 1.0 miles of an active lek
 - ▶ 0 → 8
 - ▶ Within 0.6 miles to 1.0 miles of an unknown lek
 - ▶ 0 → 5
 - ▶ Within 0.6 miles to 1.0 miles of an inactive lek
 - ▶ 0 → 4
 - ▶ Within 0.6 miles to 1.0 miles of an historic lek
 - ▶ 0 → 3

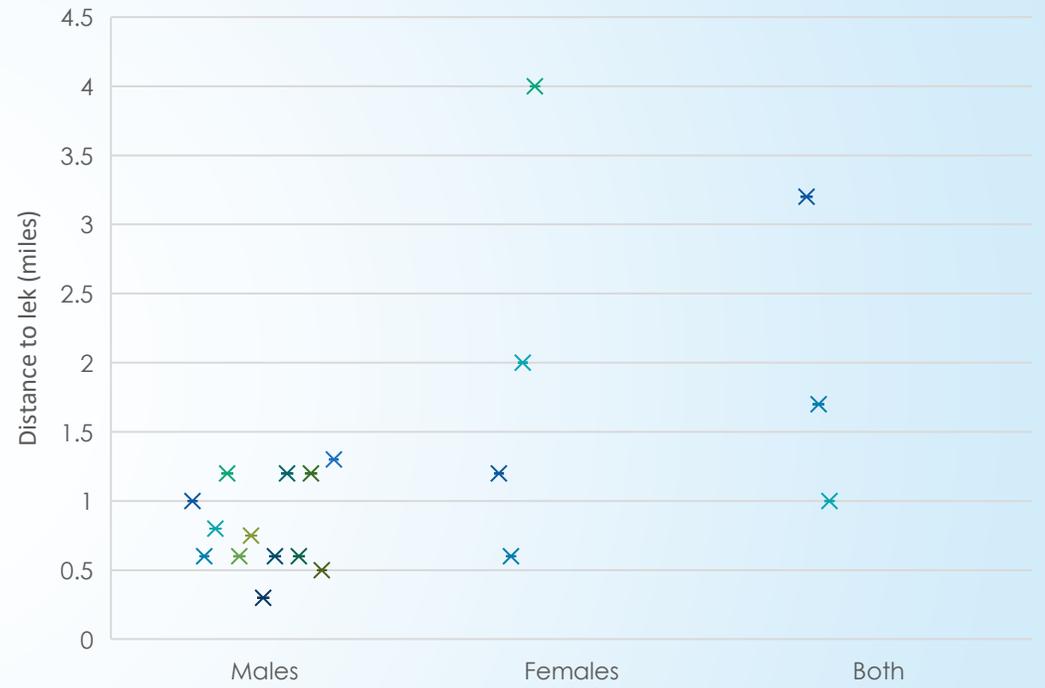
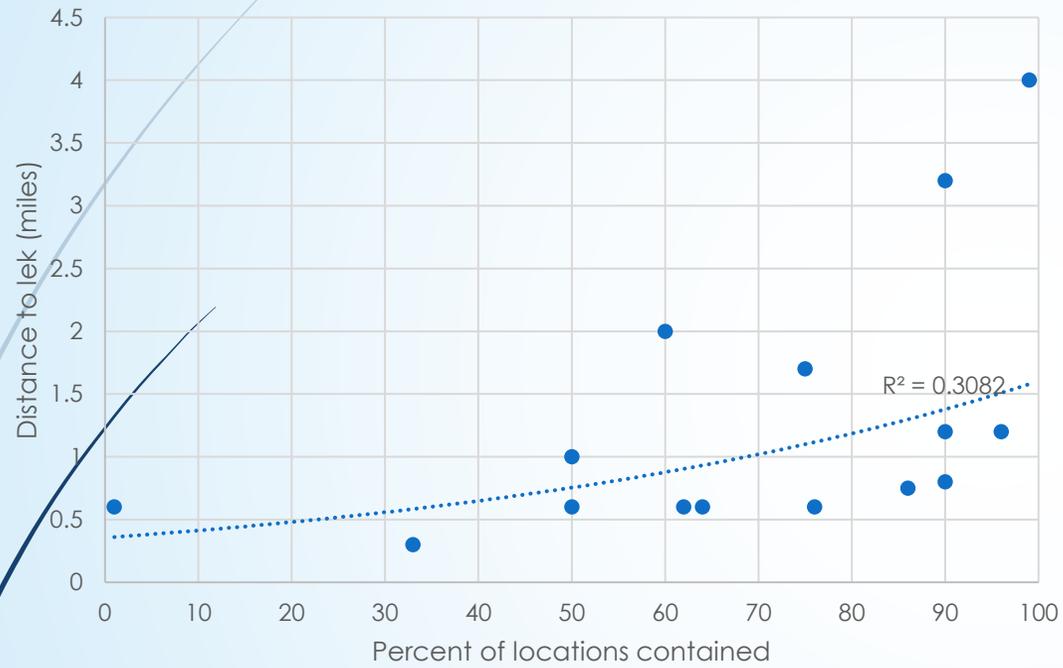
Lek Buffer Literature - Disturbances

- ▶ Blickley et al. 2012:
 - ▶ Greater sage-grouse
 - ▶ 73% declines in male lek attendance, 48% declines in female lek attendance associated with road noise (even with no road present but mimicked road 0.25 miles away)
- ▶ Piquette et al. 2014:
 - ▶ Gunnison sage-grouse
 - ▶ Short-term anthropogenic noises (vehicles, airplanes)
 - ▶ Disrupted lek behavior including vocalizations/display efforts from 0.3 – 4.3 miles from leks
 - ▶ Mechanism for masking display noise
- ▶ Atkinson et al. 2021:
 - ▶ Raven point counts were more likely to detect ravens closer to (larger) leks and human footprint
 - ▶ Ravens disrupted lek behavior more than any other predator or ungulate
 - ▶ May adversely influence lek activity and therefore reproduction

Lek Abandonment and Extirpation

- ▶ Aldridge et al. 2008: Extirpation most likely in areas with ≥ 4 people/sq km in 1950
- ▶ Holloran 2005: Male lek attendance declined nearly 100% for leks close to drilling rigs, producing wells, main haul roads within 5 km of lek
- ▶ Harju et al. 2010: Leks with 1+ well in 0.25 miles had 35-91% lower attendance, and impacts up to 3 miles. 8 well pads/sq mile had 77-79% reduced attendance
- ▶ Hanser et al. 2011: Occurrence was reduced near energy development, power lines, major roads
- ▶ Johnson et al. 2011: Fewer leks and more significantly declining attendance in 3.1 miles of developed land
- ▶ Wisdom et al. 2011: Factors that separated extirpated and occupied ranges included sagebrush area, distance to transmission lines, distance to cellular towers, land ownership. Human density 26 times lower in occupied vs extirpated range.
- ▶ Hess and Beck 2012: Lek abandonment increased with number of oil and gas wells within 1.0 km
- ▶ Gregory and Beck 2014: Increasing well density associated with 24% decline in lek counts
- ▶ Suzuki Spence et al. 2017: Core Areas in WY were half as likely to have lek collapse
- ▶ Dinkins et al. 2021: Higher proportions of human populations, oil and gas well densities were associated with lower abundance (removing time-varying population cycles)

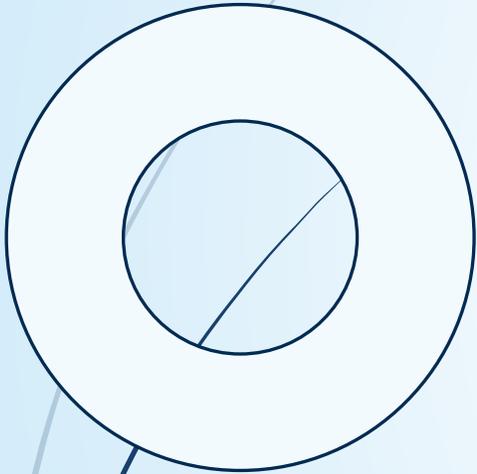
Distance to lek (miles)	Male/ Female	Metric	Season	Result	n (adults)	Capture location	Citation
0.9– 1.1	M	“Cruising radius” from lek	Breeding	Range			Carr et al. 1967
0.6	M	Locations	Breeding	76% contained	15 (13)	Lek	Wallestad and Schladweiler 1974
0.8	M	Locations	Breeding	90% contained	15 (13)	Lek	Wallestad and Schladweiler 1974
0.2 – 1.2	M	Daily movement from lek	Breeding	90% contained	15 (13)	Lek	Wallestad and Schladweiler 1974
0.6	M	Locations for males	Breeding	64% contained	?	?	Rothenmaier 1979
0.75	M	Locations for males	Breeding	86% contained	?	?	Rothenmaier 1979
>0.3	M	Locations for males	Breeding	67% contained	?	?	Emmons 1980
0.6	M	Lek to day use	Breeding	Average	11 (9)	Along roads, leks	Schoenberg 1982
0.02 – 1.2	M	Lek to day use	Breeding	Range	11 (9)	Along roads, leks	Schoenberg 1982
0.6	M	Lek to day use	Breeding	62% contained	11 (9)	Along roads, leks	Schoenberg 1982
1.2	M	Lek to day use	Breeding	96% contained	11 (9)	Along roads, leks	Schoenberg 1982
0.3 – 0.5	M	Lek to day use	Breeding	“Typical”	8 (7)	Lek	Ellis et al. 1987, Ellis et al. 1989
1.2 – 1.3	M	Lek to day use	Breeding	Longest	8 (7)	Lek	Ellis et al. 1987, Ellis et al. 1989
0.6 – 1.2	F	Daily displacement	Breeding	Average	30	Lek, and unknown	Bradbury et al. 1989
3.2	Both	Space use	All seasons	90% contained	193	Spring/fall	Coates et al. 2013
1.7	Both	Space use	All seasons	75% contained	193	Spring/fall	Coates et al. 2013
1.0	Both	Space use	All seasons	50% contained	193	Spring/fall	Coates et al. 2013
0.6	F	Locations, Gunnison Basin	Breeding – brood-rearing	1% contained	4	Unknown	Ouren et al. 2019
2.0	F	Locations, Gunnison Basin	Breeding	60% contained	4	Unknown	Ouren et al. 2019
4.0	F	Locations Gunnison Basin	All seasons	99% contained	4	Unknown	Ouren et al. 2019



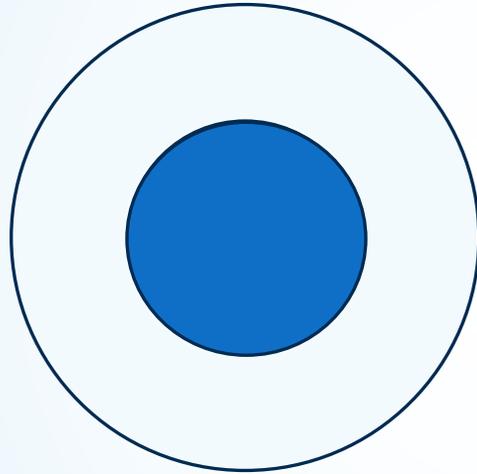
An aerial photograph of a vast, green, hilly landscape. The terrain is covered in dense, low-lying vegetation, likely grasses or shrubs. A dark green arrow-shaped overlay is positioned in the bottom left corner, pointing towards the right. Inside this overlay, the text "Impacts to Tier 1 / Tier 2 Habitat Designations" is written in white, sans-serif font. The background shows rolling hills and a small blue structure or vehicle in the distance.

Impacts to
Tier 1 / Tier 2
Habitat Designations

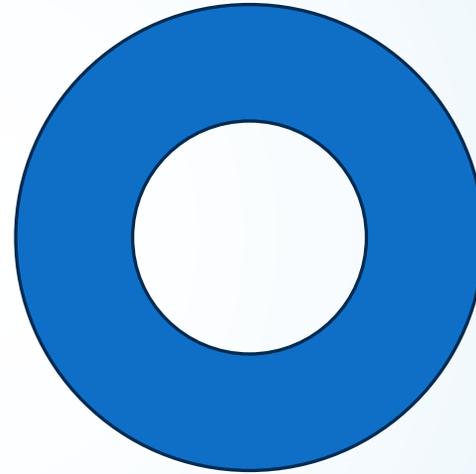
2018



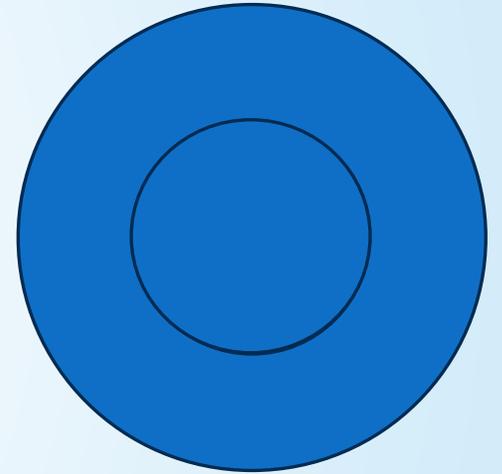
2025
"Base"



2025
"Half Values"



2025
"Full Values"



Changes to Habitat and Impacts Acreage

Habitat	HPT Version		Acres	% Change in Acreage from 2018 to Draft 2025	% of Total Acreage*	% Change in Total Acreage* from Version 2 (2018)
Winter	2018	○	210,645.3	0	34.9%	0
	Draft 2025	●	210,504.7	-0.1%	34.9%	0
NSF	2018	○	217,847.9	0	36.1%	0
	Draft 2025	●	216,132.6	-0.8%	35.8%	-0.3%
Roads	2018	○	18,043.1	0	3.0%	0
	Draft 2025	●	20,111.2	10.3%	3.3%	0.3%

*All acreage included in HPT is 602,985.5

Changes to Tier 1 and Tier 2 Acreage

Tier	HPT Version	Acres	% Change in Tier 1 / Tier 2 Acreage from Version 2 (2018)	% of Total Acreage*	% Change in Total Acreage* from Version 2 (2018)
Tier 1	2018 <input type="radio"/>	364,348.7	0	60.4%	0
	Draft 2025 <input checked="" type="radio"/>	389,258.2	6.4%	64.6%	4.1%
	Draft 2025 with half values 0.6 – 1.0 miles <input checked="" type="radio"/>	397,608.1	8.4%	65.9%	5.5%
Tier 2	2018 <input type="radio"/>	238,636.8	0	39.6%	0
	Draft 2025 <input checked="" type="radio"/>	213,729.3	-11.7%	35.4%	-4.1%
	Draft 2025 with half values 0.6 – 1.0 miles <input checked="" type="radio"/>	205,379.3	-16.2%	34.1%	-5.5%

*All acreage included in HPT is 602,985.5

Changes to Tier 1 and Tier 2 Acreage

Tier	HPT Version	Acres	% Change in Tier 1 / Tier 2 Acreage from Version 2 (2018)	% of Total Acreage*	% Change in Total Acreage* from Version 2 (2018)
Tier 1	2018 <input type="radio"/>	364,348.7	0	60.4%	0
	Draft 2025 <input checked="" type="radio"/>	389,258.2	6.4%	64.6%	4.1%
	Draft 2025 with half values 0.6 – 1.0 miles <input checked="" type="radio"/>	397,608.1	8.4%	65.9%	5.5%
Tier 2	2018 <input type="radio"/>	238,636.8	0	39.6%	0
	Draft 2025 <input checked="" type="radio"/>	213,729.3	-11.7%	35.4%	-4.1%
	Draft 2025 with half values 0.6 – 1.0 miles <input checked="" type="radio"/>	205,379.3	-16.2%	34.1%	-5.5%

1.4%

-1.4%

*All acreage included in HPT is 602,985.5

Changes to Tier 1 and Tier 2 Parcels Gunnison County

Parcel type	Version 2 (2018)	Version 3 (2025)	Version 3 (2025) Half Values
Total	6,286	6,286	6,286
Tier 1	1,327	1,304 (-23)	1,324 (-3)
Tier 1 with Easement	207	198 (-9)	198 (-9)
Tier 1 Public Land	722	730 (+8)	733 (+11)
Tier 1 with Existing Reviews	379	404 (+25)	410 (+31)
Tier 1 Private Land, No Easements, No Existing Reviews	306	264 (-42)	277 (-29)

Changes to Tier 1 and Tier 2 Parcels Gunnison County

Parcel type	Version 2 (2018)	Version 3 (2025)	Version 3 (2025) Half Values
Total	6,286	6,286	6,286
Tier 1	1,327	1,304 (-23)	+20 1,324 (-3)
Tier 1 with Easement	207	198 (-9)	0 198 (-9)
Tier 1 Public Land	722	730 (+8)	+3 733 (+11)
Tier 1 with Existing Reviews	379	404 (+25)	+6 410 (+31)
Tier 1 Private Land, No Easements, No Existing Reviews	306	264 (-42)	+13 277 (-29)



Of changes to parcels in Gunnison County

- ▶ Version 2 (2018) HPT to Version 3 (2025 draft **with** 0.6-1.0 mile buffer)
 - ▶ 104 parcels decreased from Tier 1 to Tier 2
 - ▶ 101 parcels increased from Tier 2 to Tier 1 (**net -3**)
 - ▶ Of parcels that increased from Tier 2 to Tier 1:
 - ▶ 29 public
 - ▶ 0 easement
 - ▶ 65 previous reviews
 - ▶ 23 other
 - ▶ 12 developed
 - ▶ 6 undeveloped partially forested
 - ▶ 5 undeveloped



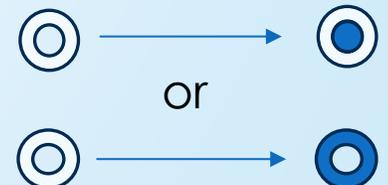
Changes to Tier 1 and Tier 2 Parcels Saguache County



Parcel type	Version 2 (2018)	Version 3 (2025)	Version 3 (2025) Half Values
Total	300	300	300
Tier 1	296	300	300
Tier 1 with Easement	21	22	22
Tier 1 Public Land	3	3	3
Tier 1 with Existing Reviews	No spatial data	No spatial data	No spatial data
Tier 1 Private Land, No Easements, No Existing Reviews	273	276	276

Of changes to parcels in Saguache County

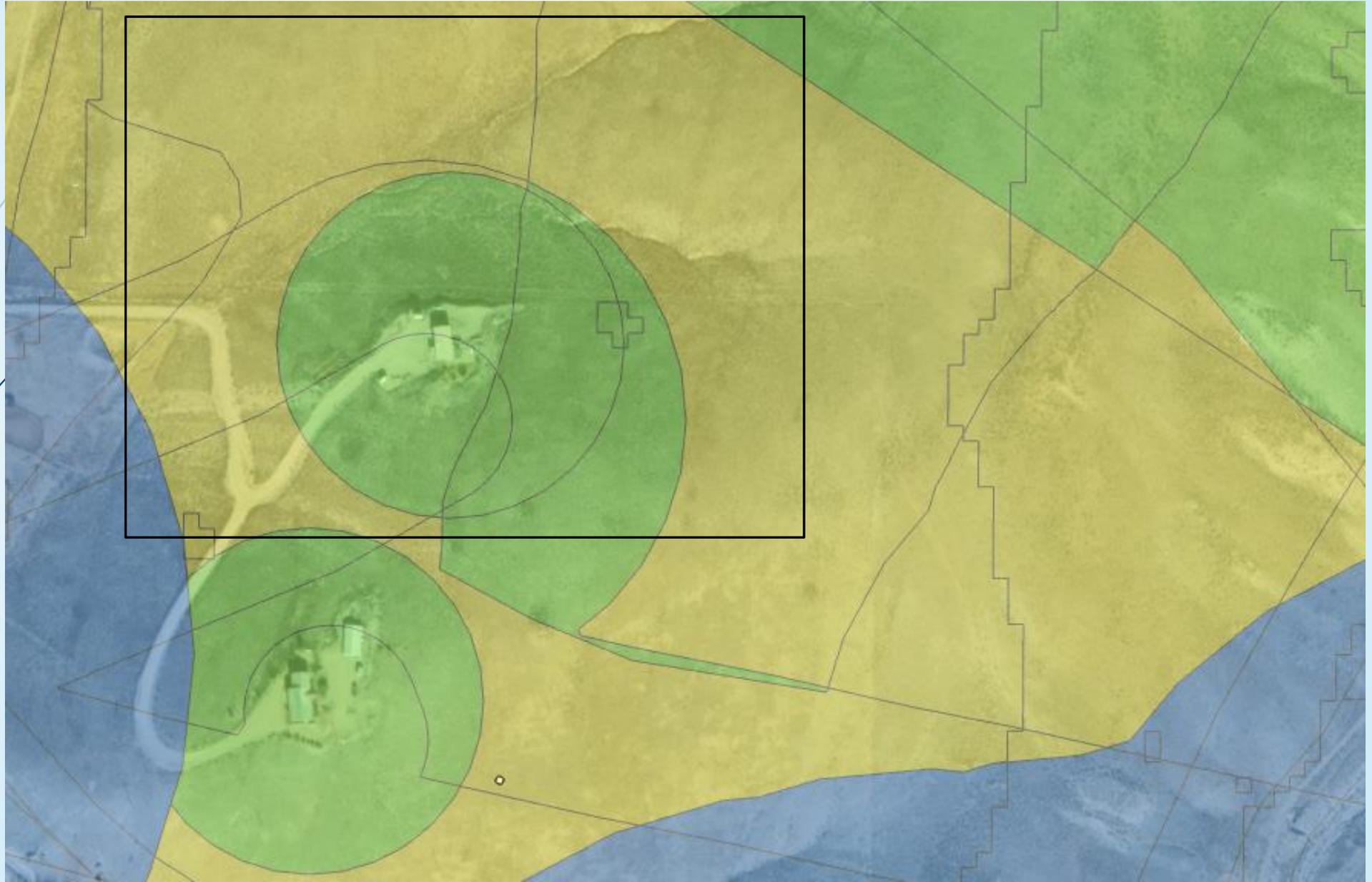
- ▶ Version 2 (2018) HPT to Version 3 (2025 draft **with or without** 0.6-1.0 mile buffer)
 - ▶ 1 parcels decreased from Tier 1 to Tier 2
 - ▶ 4 parcels increased from Tier 2 to Tier 1 (**net +3**)
 - ▶ Of parcels that increased from Tier 2 to Tier 1:
 - ▶ 1 easement
 - ▶ 3 other (spatial data not available in time to assess if they were previously reviewed)
 - ▶ 0 developed
 - ▶ 2 undeveloped partially forested
 - ▶ 1 undeveloped



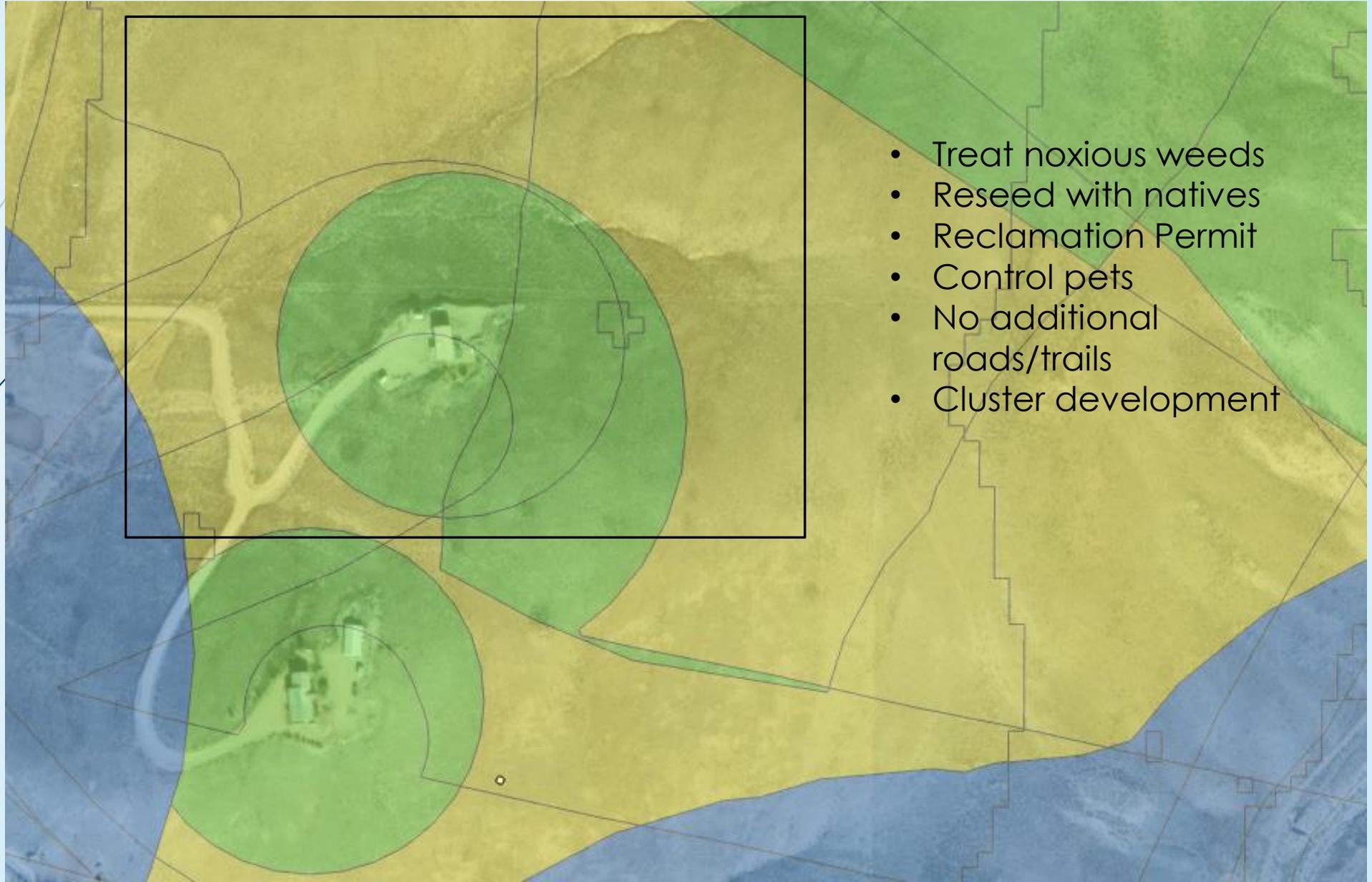


On the Ground
Scenarios

Scenario 1: Developed



Scenario 1: Developed



- Treat noxious weeds
- Reseed with natives
- Reclamation Permit
- Control pets
- No additional roads/trails
- Cluster development

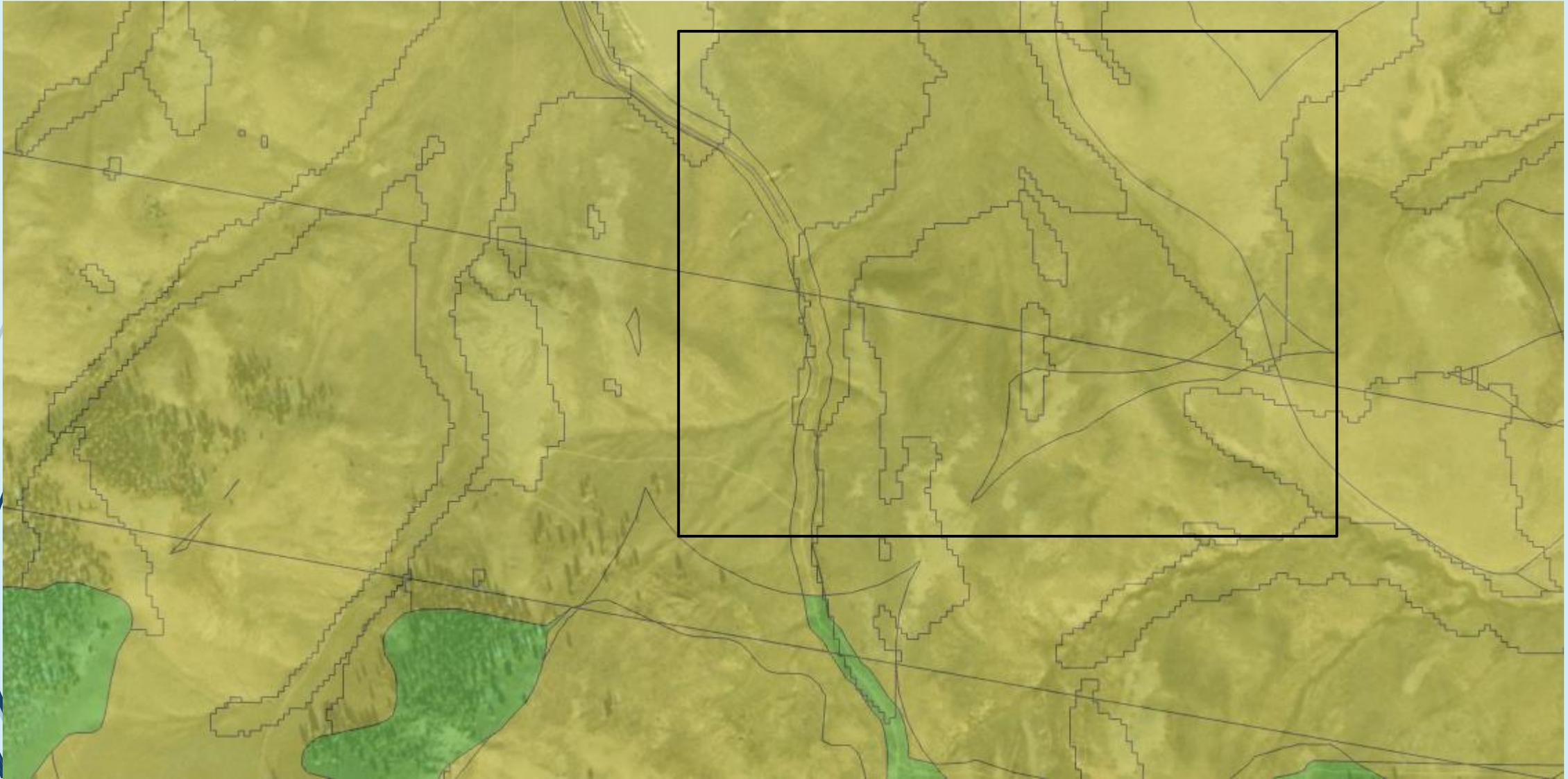
Scenario 2: Undeveloped, Partially Forested



Scenario 2: Undeveloped, Partially Forested

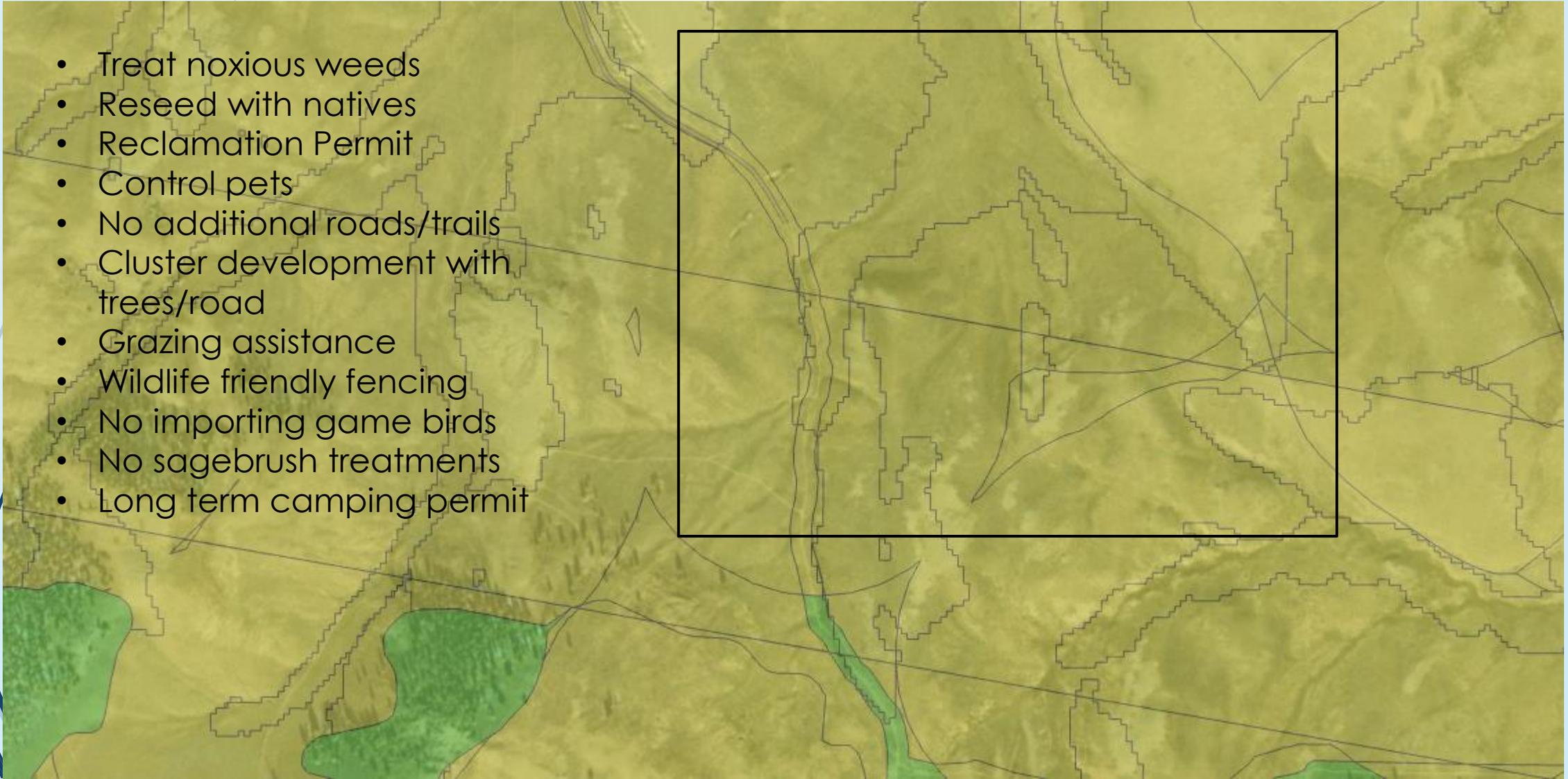
- 
- Treat noxious weeds
 - Reseed with natives
 - Reclamation Permit
 - Control pets
 - No additional roads/trails
 - Cluster development with trees/road
 - Grazing assistance
 - Wildlife friendly fencing
 - No importing game birds
 - No sagebrush treatments
 - Long term camping permit

Scenario 3: Undeveloped, Lower Concern

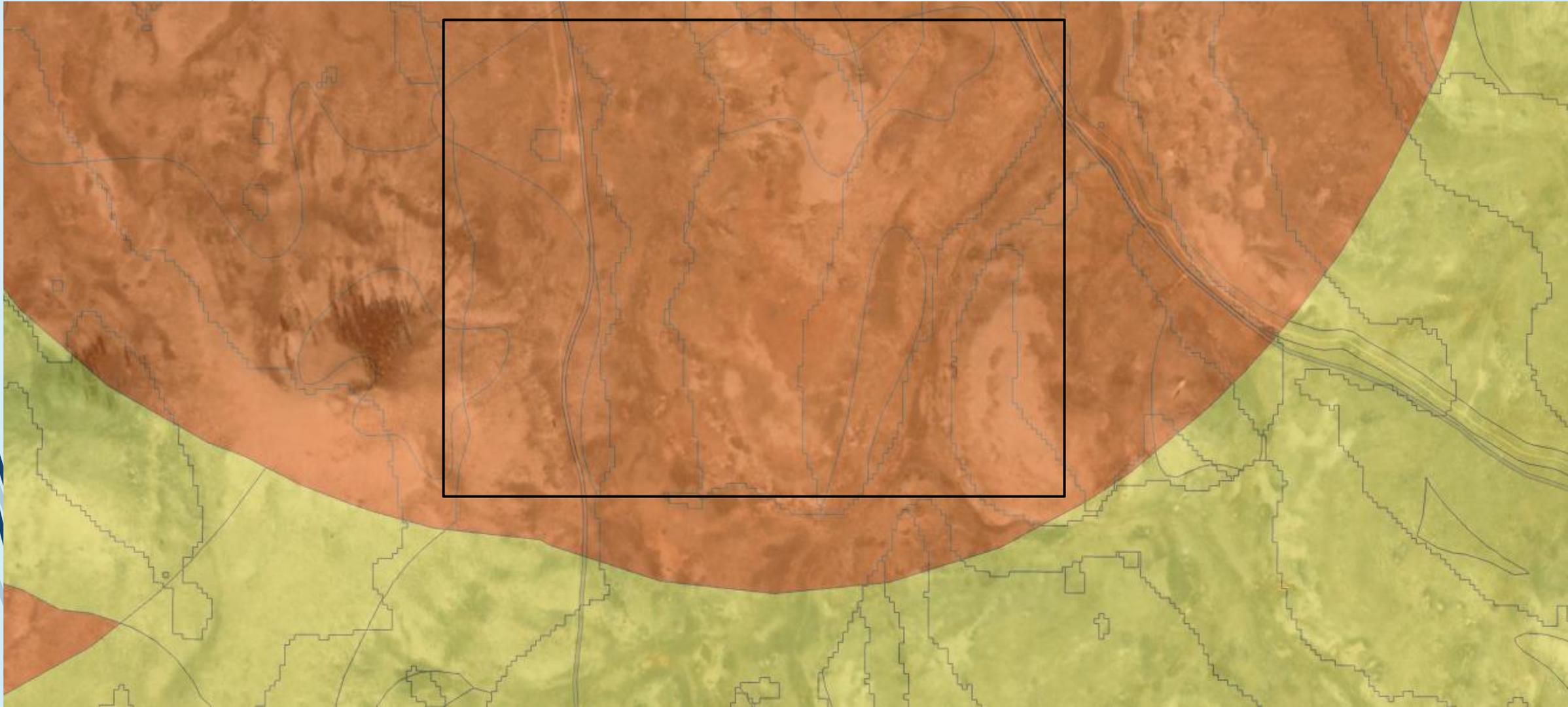


Scenario 3: Undeveloped, Lower Concern

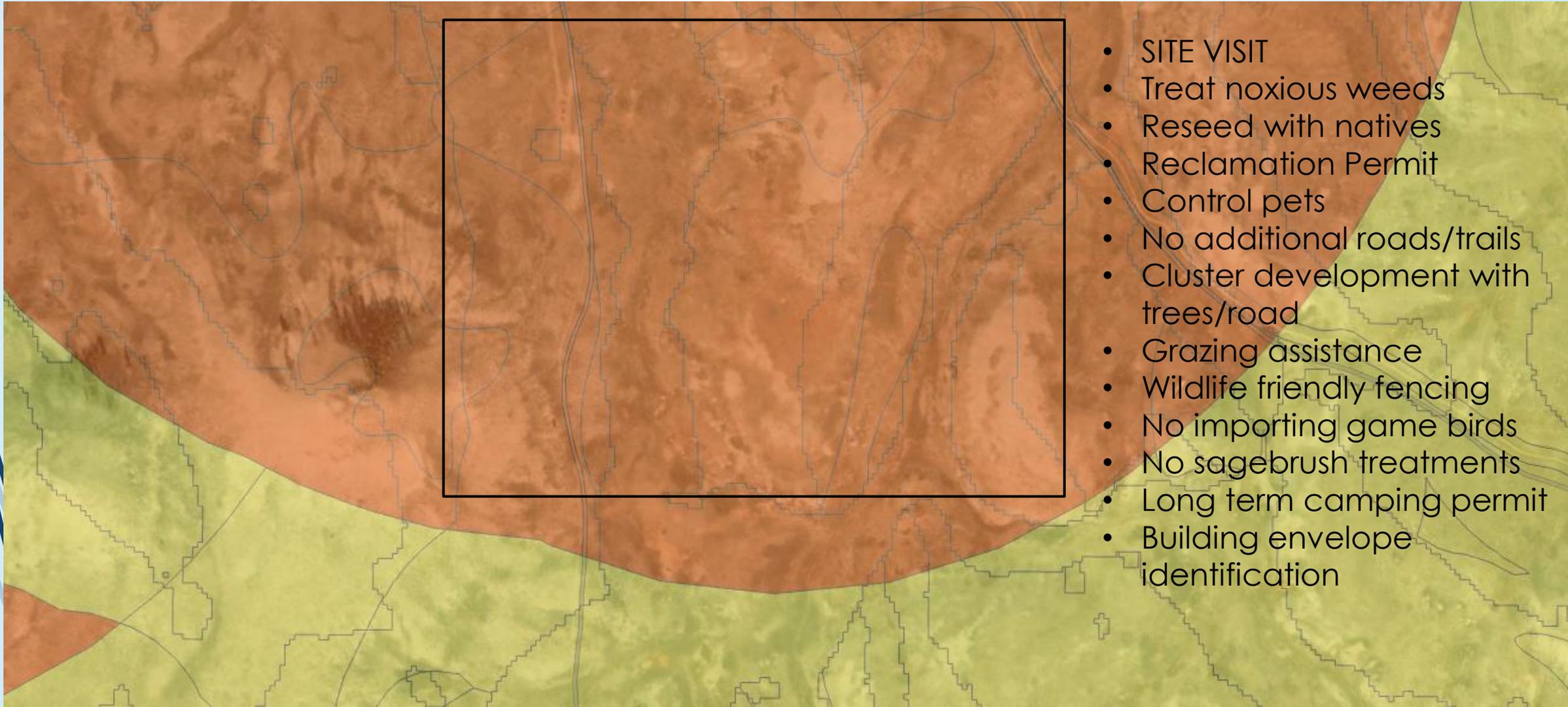
- Treat noxious weeds
- Reseed with natives
- Reclamation Permit
- Control pets
- No additional roads/trails
- Cluster development with trees/road
- Grazing assistance
- Wildlife friendly fencing
- No importing game birds
- No sagebrush treatments
- Long term camping permit



Scenario 4: Undeveloped, Higher Concern



Scenario 4: Undeveloped, Higher Concern



- SITE VISIT
- Treat noxious weeds
- Reseed with natives
- Reclamation Permit
- Control pets
- No additional roads/trails
- Cluster development with trees/road
- Grazing assistance
- Wildlife friendly fencing
- No importing game birds
- No sagebrush treatments
- Long term camping permit
- Building envelope identification

Recap



- ▶ County land use review process is the primary use and has significant discretion from the expertise of the biologists involved
 - ▶ The review process is NOT included in HPT documentation or the LUR
- ▶ HPT weighs positive habitat attributes against negative impacts
- ▶ Proposed updates
 - ▶ Spatial data for soils, roads, lek status and shape
 - ▶ Score updates for historic leks, irrigated meadows, and a buffer from 0.6 to 1.0 miles (half values of the 0- to 0.6-mile buffer)
- ▶ Changes to Tier 1/Tier 2 acreage and parcels
 - ▶ Minimal changes to acreage included in HPT shifting from Tier 2 to Tier 1
 - ▶ Net loss in parcels overall in Tier 1

An aerial photograph of a scrubland landscape. The terrain is covered with dense, low-lying green bushes and shrubs, interspersed with patches of brown soil. The vegetation appears to be a mix of different species, with some showing silvery-green foliage. The overall scene is a vast, open area with a slight slope visible in the background.

QUESTIONS?

Of changes to parcels in Gunnison County

- ▶ Version 2 (2018) HPT to Version 3 (2025 draft with **no** 0.6-1.0 mile buffer)
 - ▶ 107 parcels decreased from Tier 1 to Tier 2
 - ▶ 84 parcels increased from Tier 2 to Tier 1 (**net -23**)
 - ▶ Of parcels that increased from Tier 2 to Tier 1:
 - ▶ 26 public
 - ▶ 0 easement
 - ▶ 60 previous reviews
 - ▶ 12 other
 - ▶ 3 developed
 - ▶ 5 undeveloped partially forested
 - ▶ 4 undeveloped



Site visit numbers and raw data

Year	Total Reviews	Tier 1 Parcels	Site Visits	Site Visits/ Total Reviews %	Tier 1 Reviews/ Total Reviews %
2006	41		14	34.1	
2007	82		15	18.3	
2008	72		16	22.2	
2009	55		12	21.8	
2010	54		5	9.3	
2011	59		10	16.9	
2012	48		4	8.3	
2013	66		3	4.5	
2014	63	8	3	4.8	12.7
2015	68	18	11	16.2	26.5
2016	69	17	11	15.9	24.6
2017	81	22	7	8.6	27.2
2018	79	32	13	16.5	40.5
2019	106	47	23	21.7	44.3
2020	93	30	5	5.4	32.3
2021	84	26	8	9.5	31.0
2022	80	34	11	13.8	42.5
2023	63	22	2	3.2	34.9
2024	65	32	3	4.6	49.2
2025	17	5	1	5.9	29.4

Changes to Tier 1 and Tier 2 Parcels Gunnison County

Parcel type	Version 2 (2018)	Version 3 (2025)	Version 3 (2025) Half Values
Total	6,286	6,286	6,286
Tier 1	1,327	1,304 (-107, +84)	1,324 (-104, +101)
Tier 1 with Easement	207	198 (-9, +0)	198 (-9, +0)
Tier 1 Public Land	722	730 (-18, +26)	733 (-18, +29)
Tier 1 with Existing Reviews	379	404 (-35, +60)	410 (-34, +65)
Tier 1 Public Land, No Easements, No Existing Reviews	306	264 (-54, +12)	277 (-52, +23)

Changes to Tier 1 and Tier 2 Parcels Gunnison County

Parcel type	Version 2 (2018)	Version 3 (2025)	Version 3 (2025) Half Values	Version 3 (2025) Full Values
Total	6,286	6,286	6,286	6,286
Tier 1	1,327	1,304 (-107, +84)	1,324 (-104, +101)	1372 (-93, +138)
Tier 1 with Easement	207	198 (-9, +0)	198 (-9, +0)	202 (-6, +1)
Tier 1 Public Land	722	730 (-18, +26)	733 (-18, +29)	738 (-18, +34)
Tier 1 with Existing Reviews	379	404 (-35, +60)	410 (-34, +65)	424 (-30, +75)
Tier 1 Public Land, No Easements, No Existing Reviews	306	264 (-54, +12)	277 (-52, +23)	307 (-47, +48)

Changes to Tier 1 and Tier 2 Parcels Gunnison County

Parcel type	Version 2 (2018)	Version 3 (2025)	Version 3 (2025) Half Values	Version 3 (2025) Full Values
Total	6,286	6,286	6,286	6,286
Tier 1	1,327	1,304 (-23)	1,324 (-3)	1372 (+45)
Tier 1 with Easement	207	198 (-9)	198 (-9)	202 (-5)
Tier 1 Public Land	722	730 (+8)	733 (+11)	738 (+16)
Tier 1 with Existing Reviews	379	404 (+25)	410 (+31)	424 (+45)
Tier 1 Public Land, No Easements, No Existing Reviews	306	264 (-42)	277 (-29)	307 (+1)

Bibliography for HPT Update

Lek Buffers / Disturbance Around Leks Annotated Bibliography

Primary Literature Organized by Publication Date – Disturbances at Leks

Blickley, J. L., D. Blackwood, and G. Patricelli. 2011. Experimental evidence for the effects of chronic anthropogenic noise on abundance of greater sage-grouse at leks. *Conservation Biology* 26(3): 461-471. [The Society for Conservation Biology](#)

- Replicated noise levels to be about 400 m (0.25 miles) of drilling rigs and/or access roads
 - Roads included 56 semis and 61 light truck recordings interspersed with 170 30-second silent files to simulate average levels of traffic on an access road, played throughout the day
- 73% decline in lek attendance by males and 48% decline in lek attendance by females (GRSG) using road noise playbacks with no actual road present
- Declines in attendance occurred within the first year of noise playbacks
- Intermittent noise had a greater effect on attendance than continuous noise.

Piquette, D., A. Keck, N. Seward, B. P. Magee, P. A. Magee, and G. Patricelli. 2014. Acoustic soundscapes in the Gunnison Basin and effects of anthropogenic noise on Gunnison sage-grouse (*Centrocercus minimus*) in the Gunnison Basin, Colorado. Report to Colorado Parks and Wildlife, 22 April 2014. 27 pages.

- 12 GUSG leks in 2012 and 11 leks in 2013. Documented anthropogenic noise including automobile traffic on roads and highways, jet airplanes, and propeller airplanes (exceeding ambient noise by about 15 dBa).
- Analyzing data for all leks combined, they found a significant reduction in grouse vocalizations during and after noise events caused by passing aircraft and nearby vehicle traffic (highways from 0.3 – 4.3 miles from leks).
- Short-term intermittent anthropogenic noises, such as road noise and airplanes, disrupted lekking behavior for GUSG including vocalizations and display efforts, suggesting impacts to breeding behavior.

Atkinson, J. L., P. S. Coates, B. E. Brussee, I. A. Dwight, M. A. Ricca, and P. J. Jackson. 2021. Common ravens disrupt greater sage-grouse lekking behavior in the Great Basin, USA. *Human-Wildlife Interactions* 15(3): 374-390.

- Human expansion has contributed to increased abundance of common ravens, which were documented causing flushing behavior or ceasing sage-grouse displaying activity
- Ravens were more likely to be observed closer to leks, especially as leks increased in size (point counts)
 - Significantly more likely to be found near sites with increasing road density and increasing agriculture (as well as more shrub and more open edges)
- Ravens disrupt lek behavior, cause flushes, or cause males to cease displaying
 - Ravens were the most common predator observed during lek counts, and more common than ungulates
 - Ravens more likely to flush but also observed stopping males from displaying
- May adversely influence their reproduction during lekking, and/or counts could be low

Primary Literature Organized by Publication Date – Movements and Habitat Use in and Around Leks

Carr, H. D. 1967. Effects of sagebrush control on abundance, distribution and movements of sage grouse. Colorado Game, Fish, Parks Dept. Job Completion Rep. Proj. W-37-R-20, Job 8a. 106 pp.

- Followed male sage-grouse as they left 4 CO leks
- Maximum cruising radius of 0.875 miles to 1.125 miles from leks

Wallestad, R. and P. Schladweiler. 1974. Breeding season movements and habitat selection of male sage grouse. The Journal of Wildlife Management 38(4): 634-637. [Breeding Season Movements and Habitat Selection of Male Sage Grouse](#).

- Captured late evening/early morning hours on leks. 15 males (13 adults, 2 juveniles)
- Followed male movements daily during spring/breeding season
- "Movements of up to 0.8 miles from the strutting grounds were common, with 82 percent of the locations falling beyond 0.2 mile"
- Maximum distance was 1.1 miles from lek
- "Results of this and previous studies in this area indicate that this protection should extend to a radius of no less than 1.5 miles from strutting grounds" in reference to sagebrush removal projects

Rothenmaier, D. 1979. Sage grouse reproductive ecology: breeding season movements, strutting ground attendance and site characteristics, and nesting. M.S. Thesis. University of Wyoming, Laramie, Wyoming. [Sage grouse reproductive ecology: Breeding season movements, strutting ground attendance and site characteristics, and nesting - ProQuest](#)

- 64% and 86% of the radio locations of males using the "section 17 strutting ground" were within a 1.0- and 1.2-km radius (0.62 miles and 0.75 miles), respectively

Emmons 1980

- Dispersal distances to day-use areas of 0.2 km were common and that 67% of all day-use areas were over 0.5 km (0.31 miles) from the lek

Schoenberg, T. J. 1982. Sage grouse movements and habitat selection in North Park, Colorado. M.S. Thesis. Department of Fishery and Wildlife Biology. Colorado State University, Fort Collins, Colorado. [Sage grouse movements and habitat selection in North Park, Colorado | Semantic Scholar](#)

- Birds captured on roads and on leks
- Daily movements of males from leks to day-use areas in spring averaged 0.9 km (0.56 miles), with a range of 0.03 (0.02 miles) to 2.4 km (1.49 miles). Average of 0.9 km in 1979 and 1.3 km in 1980 (difference attributed potentially to more locations in 2nd half of May/end of breeding season in 1980 when distances could be farther)
- 62% of all movements from leks to day use were within 1 km (0.62 miles) and 95.7% of all movements were within 2 km (1.24 miles)
- Average daily dispersal distance for hens to nest sites was 2.7 km (1.68 miles)

Ellis, K. L., J. R. Murphy, and G. H. Richins. 1987. Distribution of breeding male sage grouse in northeastern Utah. Western Birds 18: 117-121. [https://archive.westernfieldornithologists.org/archive/V18/18\(2\)-p0117-p0122.pdf](https://archive.westernfieldornithologists.org/archive/V18/18(2)-p0117-p0122.pdf)

- Captured males as they roosted on the lek– potential bias for dominant males since they birds often moved back toward the lek 2 hours before sunset
- Primary day-use areas for 8 males (7 adults, 1 juvenile) overlapped both years, but core areas (with greater than 5% use) shifted by 0.4-0.5 km)
- Dispersal flights from lek to day-use areas in spring were typically 0.5 km (0.31 miles) to 0.8 km (0.5 miles)
- Longest flights recorded were 2.1 km in 1983 and 1.9 km in 1984

Bradbury, J. W., R. M. Gibson, C. E. McCarthy, and S. L. Vehrencamp. 1989. Dispersion of displaying male sage grouse: II. The role of female dispersion. *Behavioral Ecology and Sociobiology* 24(1): 15-24. [Dispersion of Displaying Male Sage Grouse: II. The Role of Female Dispersion](#)

- Mean monthly values for female daily displacements peaked at 1.0 km (0.6 miles) to 1.9 km (1.2 miles) per day during the pre-breeding and mating period from February through April.
- Captured on leks and by spotlighting (locations not specified)
- N=30 after excluding transmitter failures and deaths

Ellis, K. L., J. R. Parrish, J. R. Murphy, and G. H. Richins. 1989. Habitat use by breeding male sage grouse: a management approach. *The Great Basin Naturalist* 49(3): 404-407. [HABITAT USE BY BREEDING MALE SAGE GROUSE: A MANAGEMENT APPROACH](#)

- Captured males as they roosted on the lek – potential bias for dominant males
- Evaluated day-use flights from leks in spring for 8 males (7 adults, 1 juvenile), which were often 0.5 km (0.31 miles) to 0.8 km (0.5 miles) with longest flights of 2.1 km (1.3 miles)

Coates, P. S., M. L. Casazza, E. J. Blomberg, S. C. Gardner, S. P. Espinosa, J. L. Yee, L. Wiechman, and B. J. Halstead. 2013. Evaluating greater sage-grouse seasonal space use relative to leks: implications for surface use designations in sagebrush ecosystems. *Journal of Wildlife Management* 77(8): 1598-1609. DOI: 10.1002/jwmg.618. [Evaluating greater sage-grouse seasonal space use relative to leks: Implications for surface use designations in sagebrush ecosystems - Coates - 2013 - The Journal of Wildlife Management - Wiley Online Library.](#)

- Spring/fall captures, 193 sage-grouse (87% of UD's from females)
- 90% of the volume of all utilization distributions (space use) within 5.16 km (3.2 miles) of leks for all seasons combined. 75% was within 2.79 km (1.73 miles) and 50% was within 1.56 km (0.97 miles).
- Space use varied by migratory patterns of the population and season (non-migratory populations had space use closer to leks in spring/summer).
 - Peak at 3 km (1.86 miles) likely represents a large volume of spring and summer space use for both migratory and non-migratory populations.

Ouren, D. S., B. S. Cade, K. W. Holsinger, and M. S. Siders. 2019. Are Lek Disturbance Buffers Equitable for All Gunnison Sage-Grouse Populations? *Journal of Fish and Wildlife Management* 10(1): 51-61.

SEE PRIMARY LITERATURE ORGANIZED BY PUBLICATION DATE – EVALUATIONS OF LEK BUFFERS AND/OR LEK PERSISTENCE SECTION

Primary Literature Organized by Publication Date – Evaluations of Lek Buffers and/or Lek Persistence

Aldridge, C. L., S. E. Nielsen, H. L. Beyer, M. S. Boyce, J. W. Connelly, S. T. Knick, and M. A. Schroeder. 2008. Range-wide patterns of greater sage-grouse persistence. *Diversity and Distributions* 14(6): 983-994. [Range-wide patterns of greater sage-grouse persistence - Aldridge - 2008 - Diversity and Distributions - Wiley Online Library](#)

- Extirpation of sage-grouse was most likely in areas having at least four persons per square kilometer in 1950, 25% cultivated cropland in 2002 or the presence of three or more severe droughts per decade.

Holloran, M.J. 2005. Greater sage-grouse (*Centrocercus urophasianus*) population response to natural gas field development in western Wyoming. PhD Dissertation. University of Wyoming, Laramie, Wyoming. [GREATER SAGE-GROUSE \(Centrocercus urophasianus\) POPULATION RESPONSE TO NATURAL GAS FIELD DEVELOPMENT IN WESTERN WYOMING](#)

- Examined impacts of natural gas development features on male and female habitat selection and use, including distances of features to leks and their counts
- Declines in male lek attendance approached 100% for leks close to drilling rigs, producing wells, and main haul roads with most impacts occurring within 5 km of the lek

Harju, S. M., M. R. Dzialak, R. C. Taylor, L. D. Hayden-Wing, and J. B. Winstead. 2010. Thresholds and time lags in effects of energy development on greater sage-grouse populations. *Journal of Wildlife Management* 74(3): 437-448.

- Evaluated 704 leks over 12 years in Wyoming for GRSG peak male attendance in relationship to oil and gas development
- Surface occupancy was negatively associated with male lek attendance at 5 of 7 study sites
- Leks with 1 or more wells within 0.25 mile radius had 35-91% fewer males attending than leks with no wells in that radius
- In 2 of 5 study areas, negative effects of well surface occupancy were present out to 4.8 km (2.98 miles)
- Declining lek attendance with well pad density. 4 well pads/sq mile ranged from 13% to 74% lower than attendance at unimpacted leks. 8 well pads/sq mile ranged from 77% to 79% lower attendance than unimpacted leks.
- Delay of 2-10 years between activity associated with energy development and measurable impacts to lek attendance.

Hanser, S. E., C. L. Aldridge, M. Leu, M. M. Rowland, S. E. Nielsen, and S. T. Knick. 2011. Greater sage-grouse: General use and roost site occurrence with pellet counts as a measure of relative abundance. *Sagebrush ecosystem conservation and management: ecoregional assessment tools and models for the Wyoming Basins*, pages 112-140. [Chapter 5: Greater sage-grouse: General use and roost site occurrence with pellet counts as a measure of relative abundance](#)

- Proximity to anthropogenic disturbance including energy development, power lines, and major roads was negatively associated with sage-grouse occurrence.
- Sagebrush within 1 km and NDVI was most important for predicting roost site occurrence
- Sage-grouse occurrence was negatively affected by anthropogenic features. Areas near interstates and major highways, power lines, and oil and gas well locations had lower probability of sage-grouse occurrence (roost and general use).

Johnson, D. H., M. J. Holloran, J. W. Connelly, S. E. Hanser, C. L. Amundson, and S. T. Knick. 2011. Influences of environmental and anthropogenic features on greater sage-grouse populations, 1997-2007. PP. 407-450 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA.

doi.org/10.1525/9780520948686-021

- Few leks were located within 5 km (3.1 miles) of developed land, and trends were lower for leks with more developed land within 5 km (3.1 miles) or 18 km (11.2 miles)
- Lek trends reduced when communication towers were nearby, no effect for power lines

Wisdom, M. J., C. W. Meinke, S. T. Knick, and M. A. Schroeder. 2011. Factors associated with extirpation of sage-grouse. PP. 451-472 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA.

[Factors Associated with Extirpation of Sage-Grouse](#)

- Factors that best discriminated between extirpated and occupied ranges included sagebrush area, elevation, distance to transmission lines, distance to cellular towers, and land ownership
- Human density per km² was significantly different in occupied and unoccupied ranges: mean human density was 26 times lower in occupied than in extirpated range
- Also significantly lower in occupied ranges: road density, distance

Hess, J. E., and J. L. Beck. 2012. Disturbance factors influencing greater sage-grouse lek abandonment in north-central Wyoming. Journal of Wildlife Management 76(8): 1625-1634. [Disturbance factors influencing greater sage-grouse lek abandonment in north-central Wyoming - Hess - 2012 - The Journal of Wildlife Management - Wiley Online Library](#)

[Disturbance factors influencing greater sage-grouse lek abandonment in north-central Wyoming - Hess - 2012 - The Journal of Wildlife Management - Wiley Online Library](#)

- Evaluated lek abandonment from 144 occupied and 39 unoccupied leks over 30 years.
- 1.0, 3.2, 4.0, 5.0, and 6.4 km radii around leks for features including agricultural development, oil and gas development, prescribed burns, roads (and wildfire and vegetation attributes)
- Factors that influenced lek abandonment:
 - Number of oil and gas wells within 1.0 km (odds of persistence was 0.66 for each 1 unit increase in oil and gas wells within 1.0 km)
 - Percent area of wildfire in a 1.0 km radius
 - Variability in shrub height in a 1.0 km radius

Gregory, A. J., and J. L. Beck. 2014. Spatial heterogeneity in response of male greater sage-grouse lek attendance to energy development. PLoS ONE 9(6): e97132. doi:10.1371/journal.pone.0097132 [pone.0097132](#)
[1..8](#)

- Evaluated 814 leks 1991-2011. Found oil and gas well pad density increased 3.6x across the state and was associated with 24% decline in lek count high male counts.
- Found 1-4 year time lag between development density and lek decline.
- Development density alone does not predict impacts of oil and gas on sage-grouse.
- Suggests maximum development density of 1 well-pad within 2 km of leks to avoid measurable impacts within 1 year, and <6 well pads within 0 km of leks to avoid delayed impacts.

Suzuki Spence, E., J. L. Beck, and A. J. Gregory. 2017. Probability of lek collapse is lower inside sage-grouse Core Areas: Effectiveness of conservation policy for a landscape species. PLoS ONE 12(11): e0185885.

<https://doi.org/10.1371/journal.pone.0185885>

- Sage Grouse Core Areas in WY designated in 2008 by limiting anthropogenic disturbance (primarily oil and gas development) near active sage-grouse leks
- Core Areas contained 77% of male sage-grouse attending leks and 64% of active leks
- 10.9% probability of lek collapse in Core Areas and 20.4% probability of collapse outside Core Areas
- Development density outside Core Areas was related to probability of lek collapse inside Core Areas

Ouren, D. S., B. S. Cade, K. W. Holsinger, and M. S. Siders. 2019. Are Lek Disturbance Buffers Equitable for All Gunnison Sage-Grouse Populations? Journal of Fish and Wildlife Management 10(1): 51-61. [LINK](#)

- 4 females for analysis for Gunnison, 9 females for analysis for Crawford
- Focused on Gunnison Basin and Crawford populations, which had different distances between active leks, home range sizes, and total daily distance traveled.
- Lek disturbance buffers in small populations overlapped, therefore not providing equal protection for all populations
- Compared 3 lek buffers
 - B1 = 966 m (0.60 miles), based on GRSG studies of movement of adult males during breeding season (GSGRSC 2005 1-3)
 - B2 = 3217 m (2.00 miles), based on sage-grouse nests not being uniformly distributed in nesting habitat and some research indicating 70-80% of nests occur within 3,217 m of an active lek (page 23 in GSGRSC 2005)
 - B3 = 6,437 m (4.00 miles), based on GRSG unpublished studies where 85% of all nests and 81% of all breeding and summer/fall seasonal locations were within 6,437 m of lek of capture (page D-3 in GSGRSC 2005)
- 99% of bird use in western Gunnison Basin was contained in the B3 buffer, whereas 99% of Crawford bird use was contained in B2 buffer
 - During the breeding and late brood-rearing season specifically, an average of 1% of locations were contained within B1 buffer for western Gunnison Basin (60% of locations in B2 during breeding season and 85% in late-brood rearing)
 - Maximum distance to an active lek for any season was 9,040 m (5.62 miles) for Gunnison Basin

Dinkins, J. B., K. J. Lawson, J. L. Beck. 2021. Influence of environmental change, harvest exposure, and human disturbance on population trends of greater sage-grouse. PLoS ONE 16(9): e0257198.

<https://doi.org/10.1371/journal.pone.0257198>

- Evaluated hunted populations versus non-hunted populations but also examined landscape-scale factors that could impact lek counts.
- Higher proportions of human population and oil and gas well densities were associated with lower equilibrium abundance (removing time-varying population cycles)
 - They evaluated human population density, and activities related to sagebrush habitat loss (all significantly negatively correlated with population size)

Primary Literature Organized by Publication Date – Nest Site Selection

Wallestad, R. and D. B. Pyrah. 1974. Movement and nesting of sage grouse hens in central Montana. *Journal of Wildlife Management* 38(4): 630-633. [Movement and Nesting of Sage Grouse Hens in Central Montana](#)

- Found 68% of all nests occurred within a radius of 1.5 miles of leks.
- Average distance from leks to nests was 1.5 miles for adults and 1.7 miles for yearlings.

Wakkinen, W. L., K. P. Reese, and J. W. Connelly. 1992. Sage grouse nest locations in relation to leks. *Journal of Wildlife Management* 56(2): 381-383. [Sage Grouse Nest Locations in Relation to Leks](#)

- Mean distance from nest to lek of capture was 4.6 ± 0.8 km
- Mean distance from nest to nearest lek was 1.5 ± 0.2 km
- 92% of nests were less than 3 km from any lek, whereas 55% of nests were less than 3 km from the lek of capture

Hagen, C. A. 1999. Sage grouse habitat use and seasonal movements in a naturally fragmented landscape, Northwestern Colorado. M. S. Thesis. University of Manitoba, Winnipeg, Manitoba, Canada.

- Nest locations for females (only 6) had an average distance to nearest lek of 1.0 ± 0.4 and distance to lek of capture of 1.4 ± 0.8 km
- Given seasonal evaluations of home ranges, etc. one of the management recommendations is: "Fragmented landscapes may require a re-evaluation for the 3.2 km buffer as a suitable amount of habitat may occur within those boundaries."

Hausleitner, D. 2003. Population dynamics, habitat use and movements of greater sage-grouse in Moffat County, Colorado. M. S. Thesis. University of Idaho, Moscow, Idaho.

- Lek to nest movements were $4.00 \text{ km} \pm 0.56 \text{ km}$ (2.5 ± 0.3 miles) in 2001 and $4.01 \text{ km} \pm 0.46 \text{ km}$ (2.5 ± 0.3 miles)

Lyon, A. G., and S. H. Anderson. 2003. Potential gas development impacts on sage grouse nest initiation and movement. *Wildlife Society Bulletin* 31(2): 486-491. [Potential Gas Development Impacts on Sage Grouse Nest Initiation and Movement](#)

- Considered disturbed leks as ones with oil/gas development within 3 km
- Distance from disturbed leks to nest sites was greater than the distance to undisturbed leks.
- Nest initiation rates for hens from disturbed leks was 65%, whereas hens from undisturbed nests had an initiation rate of 89%. Nest success at both was 50%.
- Light traffic disturbance (1-12 vehicles/day) might reduce nest-initiation rates and increase distances moved from leks during nest site selection.

Aldridge, C. L., D. J. Saher, T. M. Childers, K. E. Stahlnecker, and Z. H. Bowen. 2012. Crucial nesting habitat for Gunnison sage-grouse: A spatially explicit hierarchical approach. *Journal of Wildlife Management* 76(2): 391-406. [Crucial nesting habitat for gunnison sage-grouse: A spatially explicit hierarchical approach - Aldridge - 2012 - The Journal of Wildlife Management - Wiley Online Library.](#)

- Maximum distance a female GUSG traveled from lek of capture to nesting site was 10.1 km

- Patch-scale variables with the strongest influence on nest site selection were proportion of sagebrush cover >10%, distance to residential development, distance to high volume paved roads, and mean productivity.
- Patch scale used a 0.564-km moving window. Euclidean distance to residential classed habitat (quadratic function) – moderate distance from residential development for nest sites. Threshold response curve capturing selection for large landscapes (1.5 km radii) with a low density of residential development at <1%.
- Patch-scale threshold suggests maximum probability of nest site selection 2.5 km away from any given development (residential, roads, etc.)

Coates, P. S., M. L. Casazza, E. J. Blomberg, S. C. Gardner, S. P. Espinosa, J. L. Yee, L. Wiechman, and B. J. Halstead. 2013. Evaluating greater sage-grouse seasonal space use relative to leks: implications for surface use designations in sagebrush ecosystems. *Journal of Wildlife Management* 77(8): 1598-1609. DOI: 10.1002/jwmg.618. [Evaluating greater sage-grouse seasonal space use relative to leks: Implications for surface use designations in sagebrush ecosystems - Coates - 2013 - The Journal of Wildlife Management - Wiley Online Library](https://doi.org/10.1002/jwmg.618)

- 95% of all nests were within 3.1 miles of leks. 75% were within 2.2 km (1.37 miles), 50% were within 1.5 km (0.93 miles).
- Average nest to lek distance across all study sites was 1.9 ± 0.1 km.

Holloran, M. J., and S. H. Anderson. 2005. Spatial distribution of greater sage-grouse nests in relatively contiguous sagebrush habitats. *The Condor* 107(4): 742-752. <https://doi.org/10.1650/7749.1>

- Nest distributions related to lek locations, with 45% of all nests within 3 km (1.86 miles) of the lek and 64% of all nests within 5 km (3.11 miles) of the lek

Summaries from Biological Opinions, Conservation Plans, Review Papers, Agency Recommendations etc.

Connelly, J. W., M. A. Schroeder, A. R. Sands, and C. E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin 28(4): 967-985. [Guidelines to Manage Sage Grouse Populations and Their Habitats](#)

- Summarizes seasonal movements and home ranges, survival, reproduction, habitat requirements by season, effects of habitat alterations including range management treatments, land use, weather, and predation.
- Provides recommended guidelines:
 - For nonmigratory grouse occupying habitats that are distributed uniformly (i.e., habitats have the characteristics described in guideline 1 and are generally distributed around the leks), protect (i.e., do not manipulate) sagebrush and herbaceous understory within 3.2 km of all occupied leks. For nonmigratory populations, consider leks the center of year-round activity and use them as focal points for management efforts (Braun et al.1977)
 - For nonmigratory populations where sage- brush is not distributed uniformly (i.e., habitats have the characteristics described in guideline 1 but distributed irregularly with respect to leks), protect suitable habitats for ≤ 5 km from all occupied leks.
 - For migratory populations, identify and protect breeding habitats within 18 km of leks in a manner similar to that described for nonmigratory sage grouse. For migratory sage grouse, leks generally are associated with nesting habitats but migratory birds may move > 18 km from leks to nest sites. Thus, protection of habitat within 3.2 km of leks may not protect most of the important nesting areas (Wakkinen et al.1992, Lyon 2000).
 - Human activities within view of or < 0.5 km from leks should be minimized during the early morning and late evening when birds are near or on leks

Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming. [Conservation Assessment of Greater Sage-grouse and Sagebrush Habitats](#)

- Discusses general impacts of urbanization and land use
- Chapter 12 is about the human footprint across the sage-grouse conservation area
- In areas that have a low human footprint, the addition of anthropogenic features could potentially have drastic effects.
- They found the human footprint intensity differs between areas currently occupied and extirpated
 - Highest footprint areas were less than 5% of occupied range and 25% of the extirpated range
 - Low footprint classes/densities encompassed 72% of the current range and 46% of the extirpated range

Gunnison Sage-grouse Rangewide Steering Committee. 2005. Gunnison sage-grouse range-wide conservation plan. Colorado Division of Wildlife, Denver, Colorado, USA. [Gunnison Sage-Grouse Rangewide Conservation Plan.pdf](#)

- Describes life history, saying nests are not uniformly distributed in nesting habitat (Bradbury et al. 1989, Wakkinen et al. 1992)
 - 70-80% of nests often occur within 2 miles of an active lek (Bradbury et al. 1989, Wakkinen et al. 1992)

- GRSG in NW CO showed 46% of females nesting within 1.8 miles of lek of capture, 76% within 4 miles, and 88% within 5.8 miles (Hausleitner 2003, A. D. Apa unpublished data)
- In North Park CO, GRSG moved 1.6 miles on average from lek to nest and in ID movements were 2.1 to 3.0 miles (Wakkinen 1990, Fischer 1994, and Apa 1998).
- 85.2% of GUSG nests were within 4 miles of the lek of capture (Apa 2004, NPS unpublished data)
- 80% of nests in the Gunnison Basin population were placed less than 4 miles from the lek of capture (Young 1994, Apa 2004, NPS unpublished data)
 - 68% of nests were within less than 3 miles of the lek of capture
- Distances from lek to nest were 0.6 to 0.83 miles at Poncha Pass (Nehring and Braun 2000), 0.1-12.6 for 6 GUSG populations (Apa 2004)
- Average GUSG distance from nest to nearest lek were 2.6 +/- 2.2 miles in Gunnison Basin (Young 1994)

Connelly, J. W., C. A. Hagen, and M. A. Schroeder. 2011. Characteristics and dynamics of Greater Sage-Grouse populations. Pp. 53–67 in S. T. Knick and J. W. Connelly (editors). Greater Sage-Grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology (vol. 38), University of California Press, Berkeley, CA.

- Summarizes home ranges, seasonal movements, site fidelity and breeding biology
- During breeding season, home ranges <1 km to 29 km² (Schroeder et al. 1999)
- Discusses lek site fidelity and how leks sometimes shift due to persistent disturbances or alterations of vegetation cover, or over time with female selection of certain males, satellite leks forming during periods of relatively high population abundance, etc. (pg 61)
- Discussion of conservation implications of landscape-scale species

U.S. Fish and Wildlife Service. 2014. Endangered and Threatened Wildlife and Plants; Threatened Status for Gunnison Sage-Grouse Final Rule. Federal Register 79(224): 69192-69310.

- “As described in detail below, we have determined that the most substantial threats to Gunnison sage-grouse currently and in the future include habitat decline due to human disturbance (Factor A), small population size and structure (Factor E), drought (Factor E), climate change (Factor A), and disease (Factor C).” (page 69192)
- Summary of Changes From the Proposed Rule (originally proposed as Endangered but updated decision to Threatened): “... we have reevaluated our proposed listing rule and made changes as appropriate. (4) We have found that the threat from current residential development in the Gunnison Basin is not as high as we previously concluded. See Factor A analysis and discussion.” (page 69201)
 - Factor A (residential development) is the only factor listed

Natural Resources Conservation Service. 2014. Gunnison Sage-Grouse NRCS Final Biological Opinion. December 16, 2014.

- UT DWR recommends 1 mile from GUSG leks as a buffer in the UT NRCS BO
- CO BO all surface disturbances will not occur March 1 – July 15 within 4 miles of a lek and any construction or surface disturbance within 0.6 miles around active leks would be avoided entirely.
 - Page 20: As outlined in (78 FR 2486; 78 FR 2540), a landscape-scale spatial model predicting Gunnison sage grouse nest site selection showed strong avoidance of areas with high road

- densities of roads classed 1 through 4 (primary paved highways through primitive roads with 2-wheel drive sedan clearance) within 6.4 km (4 mi) of nest sites (Aldridge et al. 2011). Nest sites also decreased with increased proximity to primary and secondary paved highways (roads classes 1 and 2) (Aldridge et al. 2011). Male greater sage-grouse lek attendance was shown to decline within 3 km (1.9 mi) of a methane well or haul road with traffic volume exceeding one vehicle per day (Holloran 2005). Male sage grouse depend on acoustical signals to attract females to leks (Gibson and Bradbury 1985; Gratson 1993). If noise from roads interferes with mating displays, and thereby female attendance, younger males will not be drawn to the lek and eventually leks will become inactive (Amstrup and Phillips 1977; Braun 1986). In a study on the Pinedale Anticline in Wyoming, greater sage-grouse hens that bred on leks within 3 km (1.9 mi) of roads associated with oil and gas development traveled twice as far to nest as did hens that bred on leks greater than 3 km (1.9 mi) from roads. Nest initiation rates for hens bred on leks close to roads also were lower (65 versus 89 percent), affecting population recruitment (33 versus 44 percent) (Lyon 2000; Lyon and Anderson 2003).
- Page 21: Considerations of buffers and/or timing restrictions are warranted as daytime movements of adult male Greater sage-grouse (GRSG) during the breeding season do not vary greatly. Wallestad and Schladweiler (1974) found daily movements ranged between 0.2 and 0.8 miles from leks, with a maximum cruising radius of 0.9 to 1.2 miles. Ellis et al. (1987) reported that dispersal flights of male GRSG (to day-use areas) ranged from 0.3 to 0.5 miles, with the longest flights ranging from 1.2 to 1.3 miles. Carr (1967) reported that the cruising radius of male GRSG ranged from 0.9 to 1.1 miles. Rothenmaier (1979) found that 60 to 80% of male GRSG locations were within 0.6 to 0.7 miles of a lek. Emmons (1980) reported that male dispersal distances to day-use areas of 0.1 miles were common and that 67% of all use areas were greater than 0.3 miles from the lek. In addition, Schoenber (1982) found that male daily movements averaged 0.6 miles, but ranged from 0.02 to 1.5 miles. While no similar data are available for GUSG, the Service believes this information is applicable to the species due to similar life histories.

Manier et al. 2014 (Conservation Buffer Distance Estimates for Greater Sage-Grouse – A Review)

- BLM RMPA and USFS Forest Management Plan both cite this publication
- Wallestad et al. 1974: in Montana, showed a 0.6-mile buffer contained 76% of breeding season movements (90% within 0.8 miles)
- Coates et al. 2013: found 90 – 95% of locations within 5 miles of leks in CA/NV and 95% of nests were within 3.1 miles
- Holloran and Anderson 2005: found 64% of nests in 3.1 miles
- Connelly et al. 2000 and 2004: found large home ranges where a 3.1-mile buffer would be insufficient protection
- Johnson et al. 2011: human footprint negatively associated with lek counts
- Aldridge et al. 2008 and Wisdom et al 2011: human footprint negatively associated with population persistence
- Knick and Hanser 2011: 1965 through 2007 lek abandonment research showed the level of human footprint within 3.1 miles is negatively associated with lek persistence
 - Discussion of this has several citations associated with mechanisms for decreases in abundance which could be the association of generalist predators with infrastructure and their subsequent predation on sage-grouse

Colorado Parks and Wildlife. 2023. Colorado Parks and Wildlife's (CPW) Recommendations to Avoid and Minimize Impacts to Wildlife From Land Use Development in Colorado. July 19, 2023.

- CPW_HPH-Map-Layers.pdf
- For Gunnison Sage-Grouse Lek Sites: “No Lease (Leasable Minerals only); NSO/NGD (year-round) within 1.0-mile of lek sites; CSU/SSR - Surface density limitation of one pad per square mile and less than one linear mile of routes per square mile (640 acres). If pad or route density cannot be achieved or maintained, implement offsite mitigation to offset functional habitat loss. Relocate compressors > 4 miles from a lek and limit noise to not exceed 49 dB as measured 30 feet from the source.”
 - NSO = No Surface Occupancy (use or occupancy of the land surface for fluid mineral exploration or development and all activities associated with fluid mineral leasing (e.g. truck-mounted drilling, stationary drilling, geophysical exploration equipment off designated routes, and construction of wells, pads, compressors or pipelines) are prohibited to protect resource values)
 - NGD = No Ground Disturbance
 - CSU = Controlled Surface Use (area is open to fluid mineral leasing and development subject to special operating constraints to protect the specified resource values)
 - SSR = Site Specific Relocation (is similar to a CSU in that it allows some development while protecting the identified resource values with special constraints. These constraints may include shifting the activity away from the resource value needing protection)