Sage Grouse Program:

Rule Change, Conservation Leases, and Focus Group

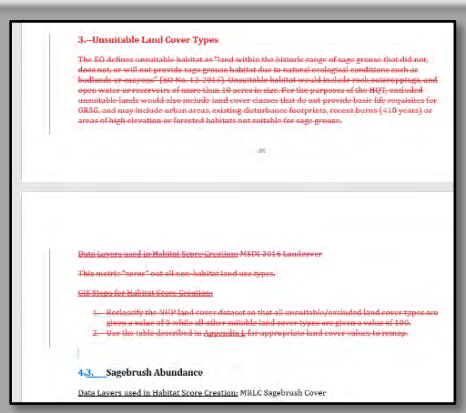
MSGOT Meeting

20 November 2023

MONTANA SAGE GROUSE
Habitat Conservation Program

HQT Technical Manual:
Incorporation of Unsuitable Land Cover Types

- Edits to Technical Manual to reflect the 2017 Stakeholder process and the 2018 HQT Basemap:



~~3. Unsuitable Land Cover Types~~

~~The EO defines unsuitable habitat as "land within the historic range of sage grouse that did not, does not, or will not provide sage grouse habitat due to natural ecological conditions such as badlands or canyons" (EO No. 12-2015). Unsuitable habitat would include rock outcroppings, and open water or reservoirs of more than 10 acres in size. For the purposes of the HQT, excluded unsuitable lands would also include land cover classes that do not provide basic life requisites for GRSG, and may include urban areas, existing disturbance footprints, recent burns (<10 years) or areas of high elevation or forested habitats not suitable for sage grouse.~~

~~Data Layers used in Habitat Score Creation: MSDI 2016 Landcover~~

~~This metric "zeros" out all non-habitat land use types.~~

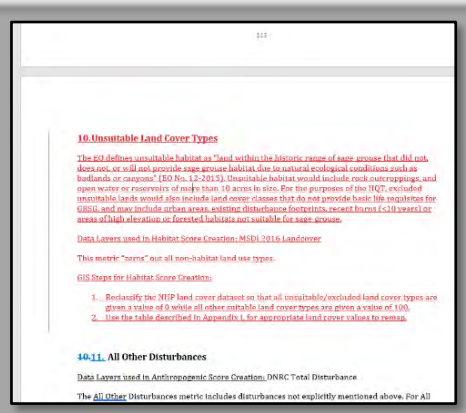
~~GIS Steps for Habitat Score Creation:~~

1. ~~Reclassify the NHP land cover dataset so that all unsuitable/excluded land cover types are given a value of 0 while all other suitable land cover types are given a value of 100.~~
2. ~~Use the table described in Appendix L for appropriate land cover values to remap.~~

~~4.~~3. Sagebrush Abundance

Data Layers used in Habitat Score Creation: MRLC Sagebrush Cover

Within Appendix A, remove Unsuitable Land Cover Types from the Population and Habitat Variables section on page 89 and add Unsuitable Land Cover Types to the Anthropogenic Variables section on page 114.



~~10.~~ 11. All Other Disturbances

Data Layers used in Anthropogenic Score Creation: DNRC Total Disturbance

The All Other Disturbances metric includes disturbances not explicitly mentioned above. For All

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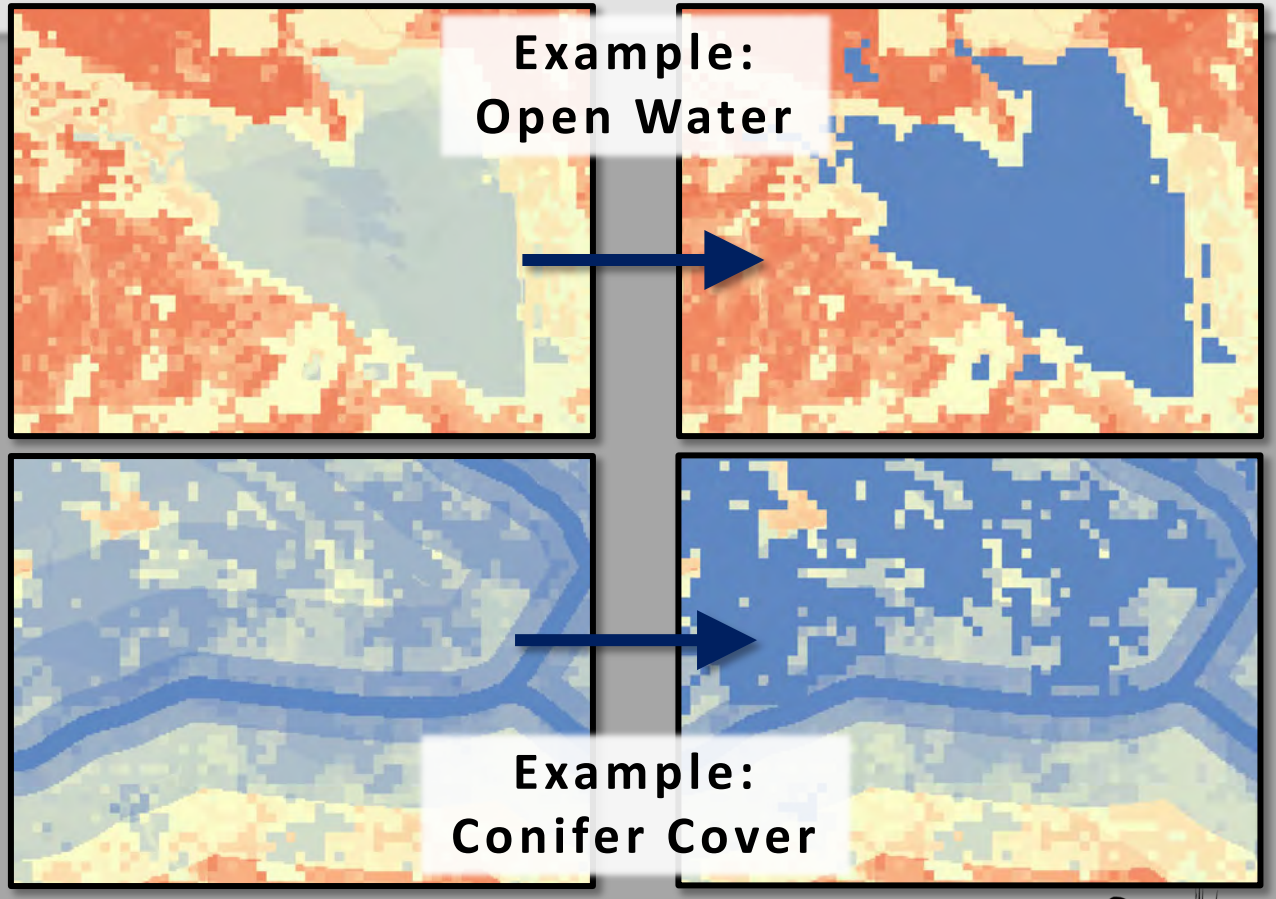

MONTANA SAGE GROUSE
Habitat Conservation Program

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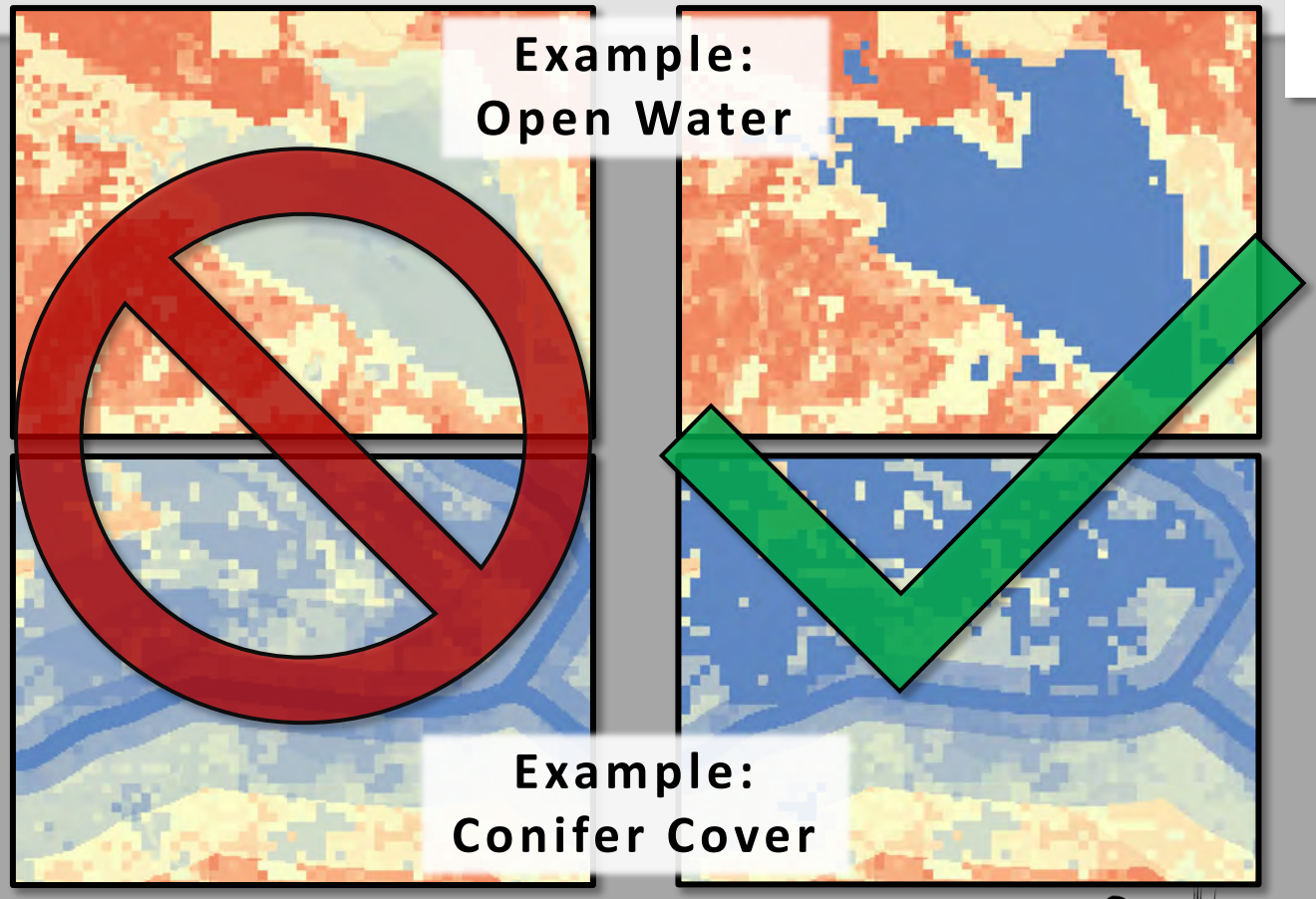


MONTANA SAGE GROUSE
Habitat Conservation Program

HQT Technical Manual:
Rule Change Status

- **October 6:** Proposal Notice Published
- **November 7:** Public Hearing
- **December 23:** Publish updated Technical Manual
- **January 1, 2024:** Release updated HQT Basemap

MONTANA SAGE GROUSE
Habitat Conservation Program

Public Notice

Notice of Public Hearing on Proposed Amendment of ARM 14.6.103 pertaining to Sage Grouse Habitat Quantification Tool Designation

This notice is to advise you the Governor's Office and the Montana Sage Grouse Oversight Team is currently in the process of revising their administrative rules regarding the amendment of ARM 14.6.103 pertaining to Sage Grouse Habitat Quantification Tool Designation.

Attached is a copy of the proposal notice which was published by the Secretary of State on October 6, 2023. An electronic copy of this proposal notice is available through the Secretary of State's website at http://sos.mt.gov/ARM/Register and is also available on the Sage Grouse website at https://sagegrouse.mt.gov/Team.

Please contact Mark Bostrom, Montana Sage Grouse Oversight Team, c/o Montana Department of Natural Resources and Conservation, P.O. Box 201601, Helena, Montana, 59620-1601; (406) 444-9708; or e-mail mbostrom2@mt.gov, if there are any questions about these rules.

ARM Proposal Notice

MONTANA SAGE GROUSE
Habitat Conservation Program

Montana's Greater Sage-Grouse

2022 Grant Cycle Grants Update

MONTANA SAGE GROUSE
Habitat Conservation Program

Conservation Easement Updates

Stewardship Application's Proximity to Closed Stewardship Grants

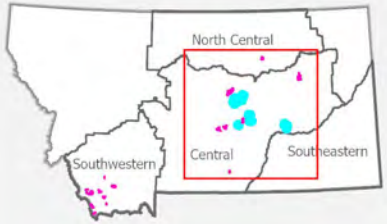
MONTANA SAGE GROUSE
Habitat Conservation Program

Project Information

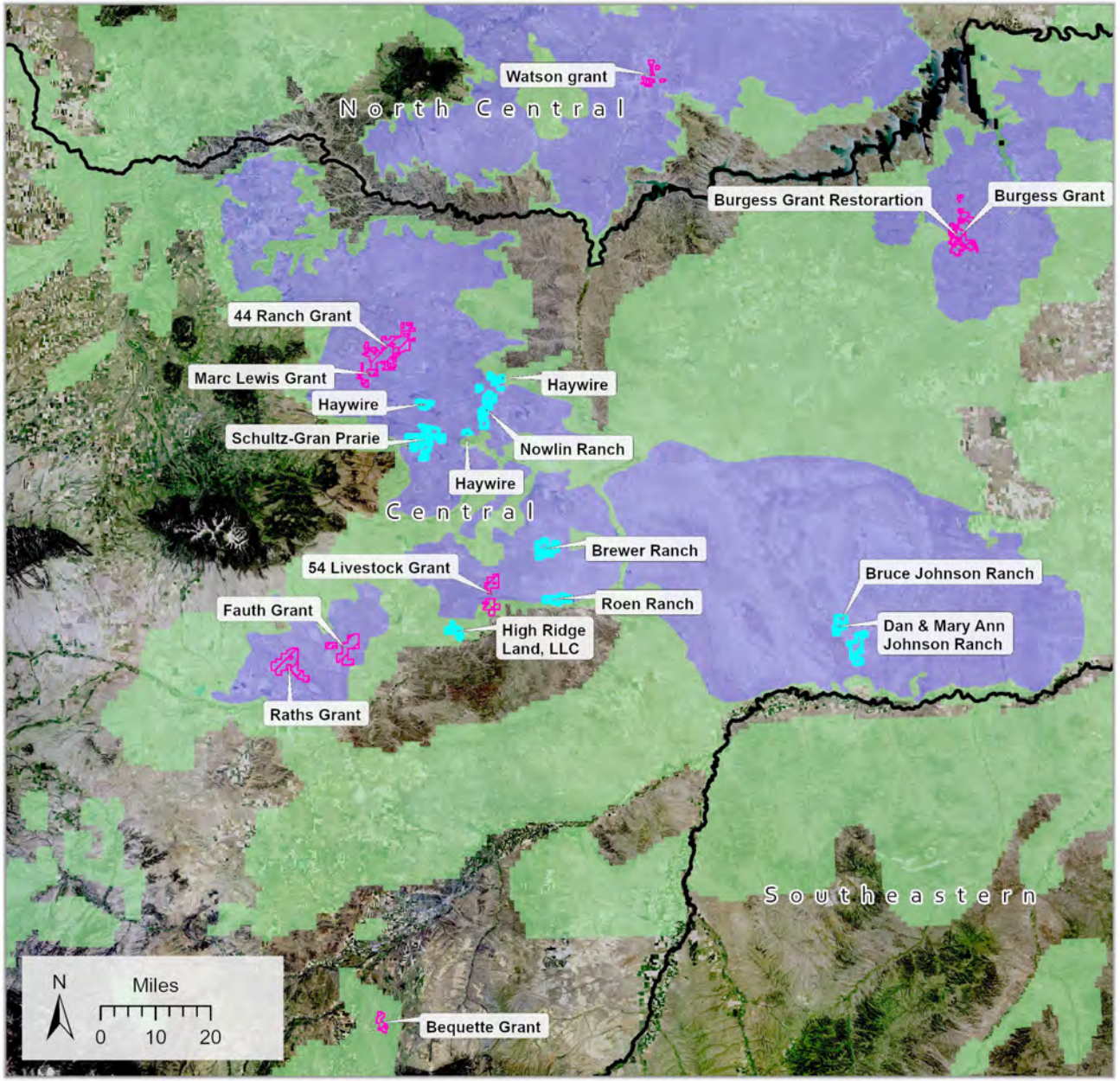
- Stewardship Application
- Closed Stewardship Grant

Habitat Designation

- EO-Core Area
- EO-General Habitat



Map Created: 20 September 2022
Imagery: 2021 NAIP



Stewardship Application's Proximity to Closed Stewardship Grants

MONTANA SAGE GROUSE
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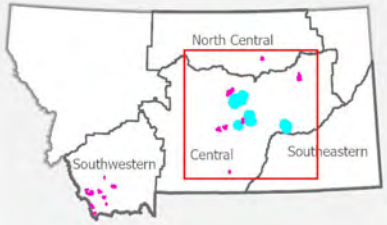
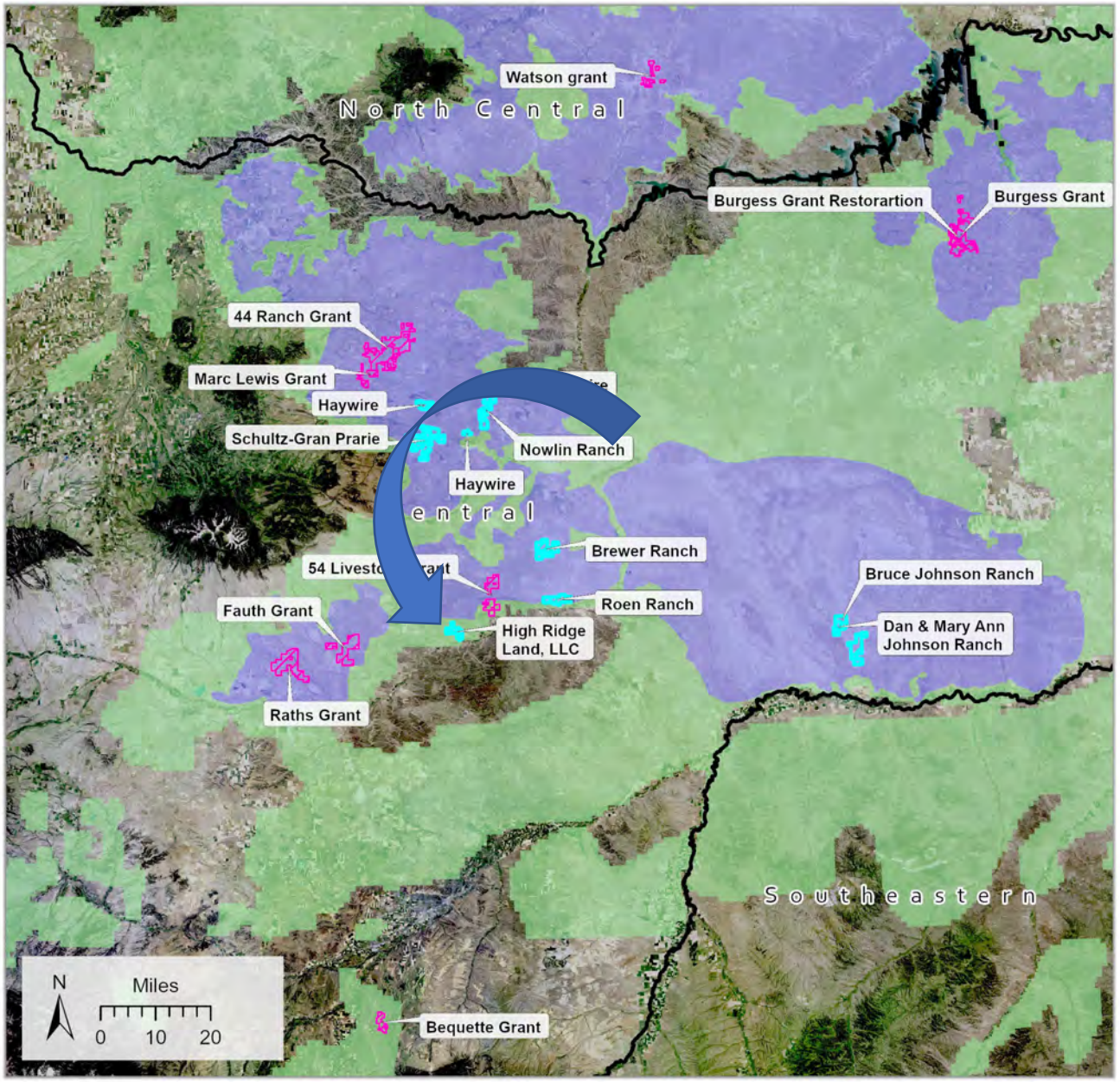


Map Created: 20 September 2022
Imagery: 2021 NAIP



High Ridge Land, LLC Conservation Easement and Restoration Project

MONTANA SAGE GROUSE
Habitat Conservation Program

Project Location and Activities

Project Activites
- Conservation Easement
- Restoration Area

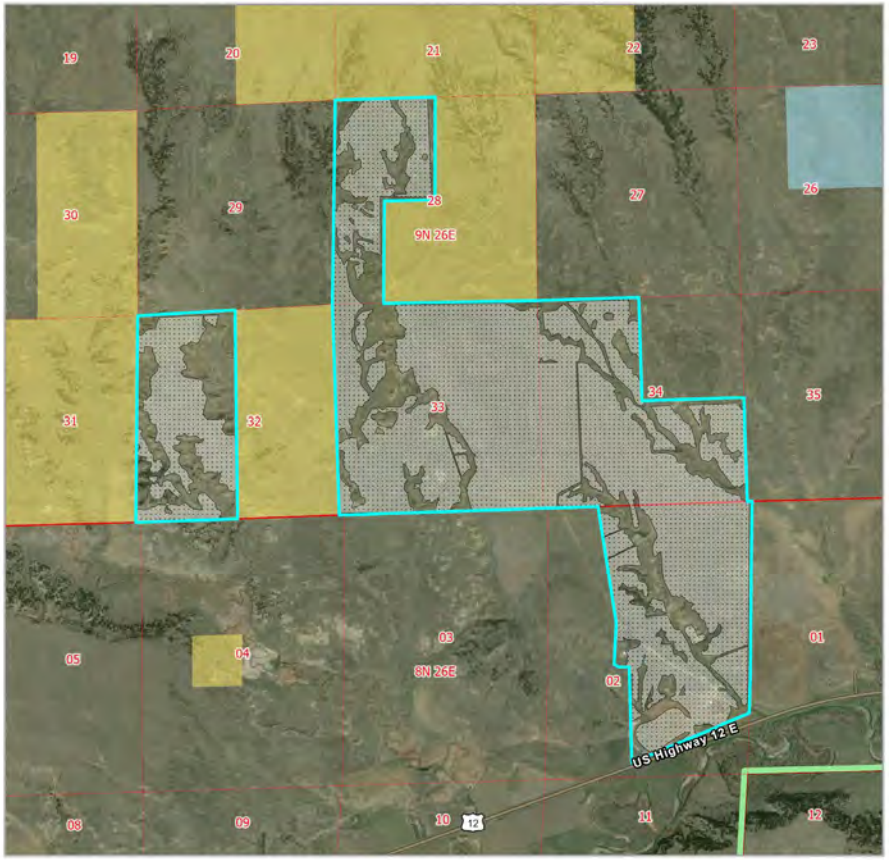
Land Ownership
- Bureau of Land Management
- Montana State Trust Lands

Habitat Classification
- EO-General Habitat

N

Miles
0 0.55 1.1

Map Created: 25 October 2023
Spatial Reference:
NAD 1983 StatePlane Montana FIPS 2500



High Ridge Land, LLC Conservation Easement and Restoration Project

MONTANA SAGE GROUSE
Habitat Conservation Program

Project Location and Activities

Project Activities

- Conservation Easement
- Restoration Area
- Seed / Plant 2023
- Herbicide 2023

Sagebrush Plot Plant Year

- 2024
- 2025
- 2026

Land Ownership

- Bureau of Land Management
- Montana State Trust Lands

Habitat Classification

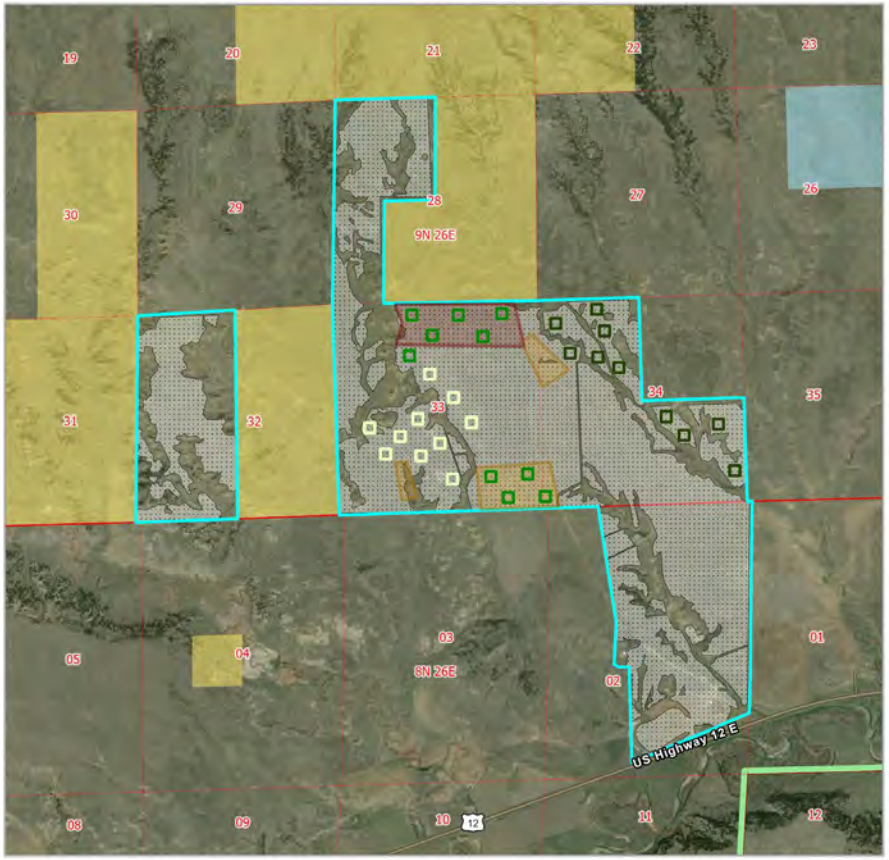
- EO-General Habitat

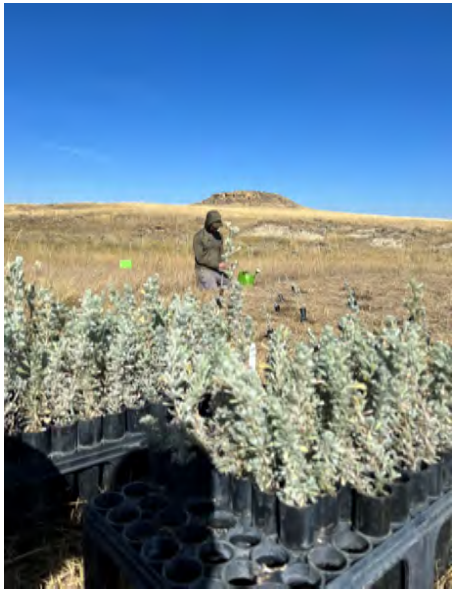
N

Miles

0 0.5 1

Map Created: 25 October 2023
Spatial Reference:
NAD 1983 StatePlane Montana FIPS 2500

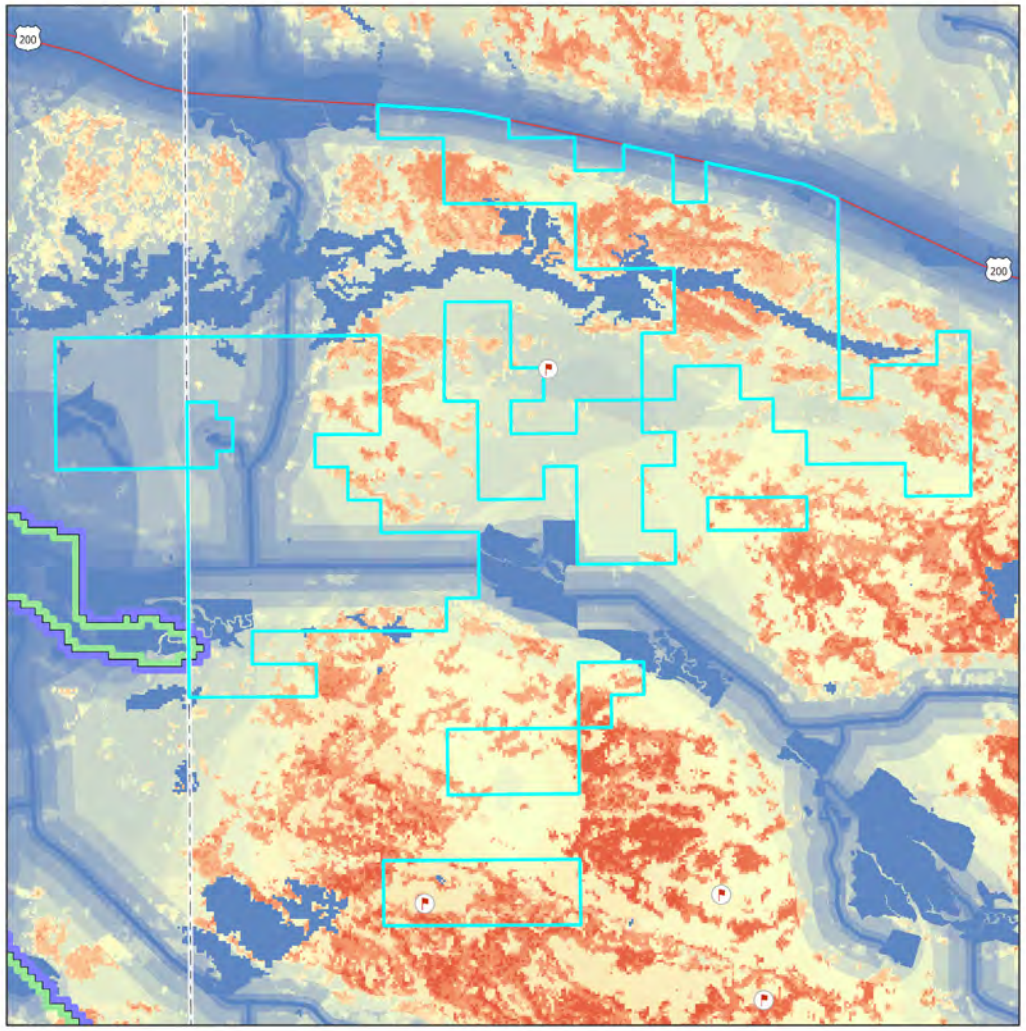


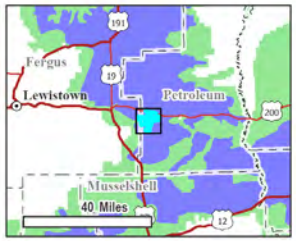


Conservation Lease Updates

Figure 1: Project #4736 - Schultz-Gran Prairie Term Lease

MONTANA SAGE GROUSE
Habitat Conservation Program





HQT Project Metadata

HQT Date: 21 February 2023
Years for Implementation: 0 Years
Years for Maintenance: 20 Years

0 0.75 1.5 Miles

N

NHS Interstate
Major Road

Proposed Activity
Lek Points

Habitat Quality
High
Low

EO-Core Area
EO-Connectivity Area
EO-General Habitat

Schultz Gran Prairie Ranch

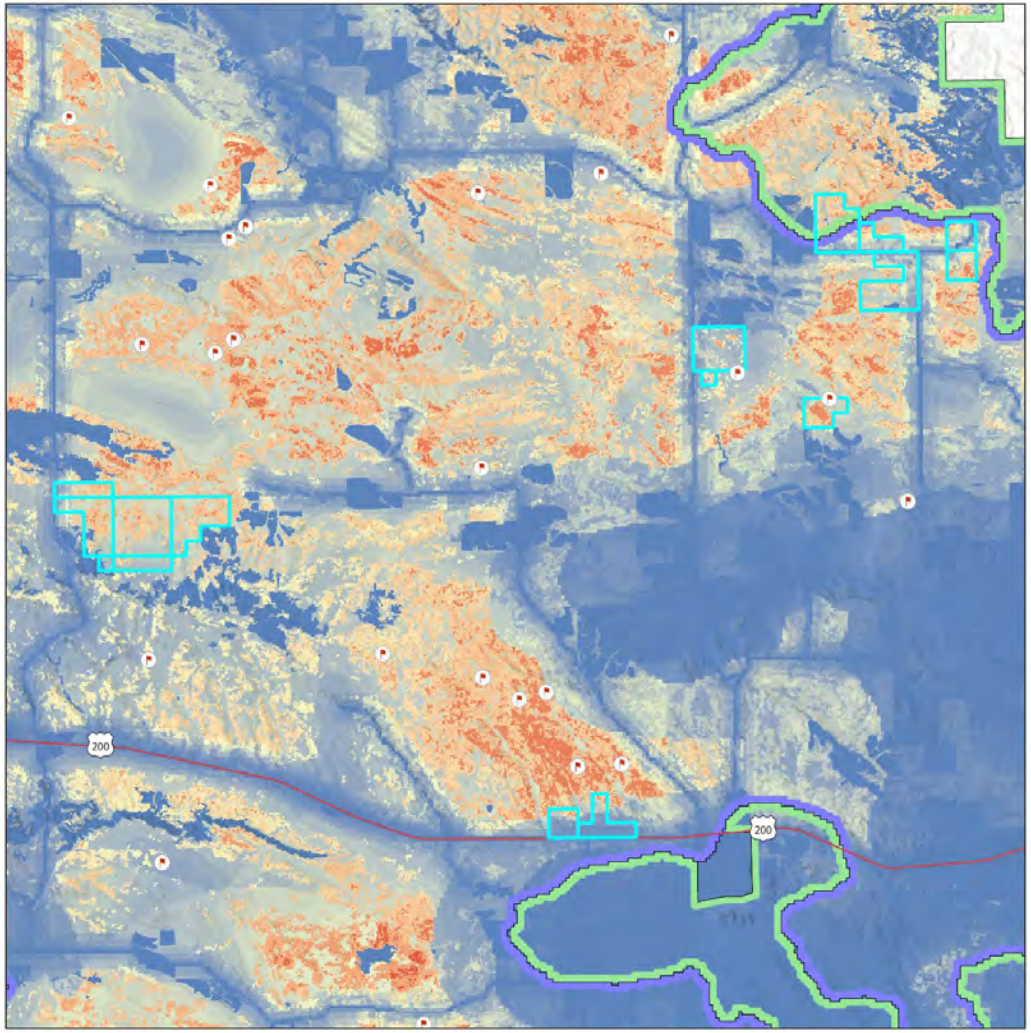
Conservation Lease	Project Metrics
Physical Acres	8023
Duration	20 years
Total credits with multipliers	55,725.81
MSGOT approved SA Grant	$555,055.21

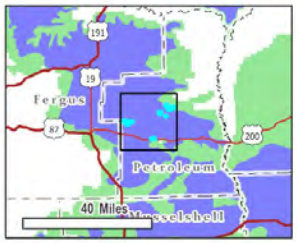
Schultz Gran Prairie Project Costs

Conservation Lease	$555,055.21
Petroleum Conservation District	$14,450.00
Title Report/Policy	$3500*
Approx. Total Costs	**$573,000.00**

Figure 2: Haywire Ranch Conservation Lease

MONTANA SAGE GROUSE
Habitat Conservation Program





HQT Project Metadata

HQT Date: 19 January 2023
Years for Implementation: 0 Years
Years for Maintenance: 15 Years

0 1.5 3 Miles

N

NHS Interstate
Major Road

Proposed Activity
Lek Points

Habitat Quality
High
Low

EO-Core Area
EO-Connectivity Area
EO-General Habitat

Haywire Ranch

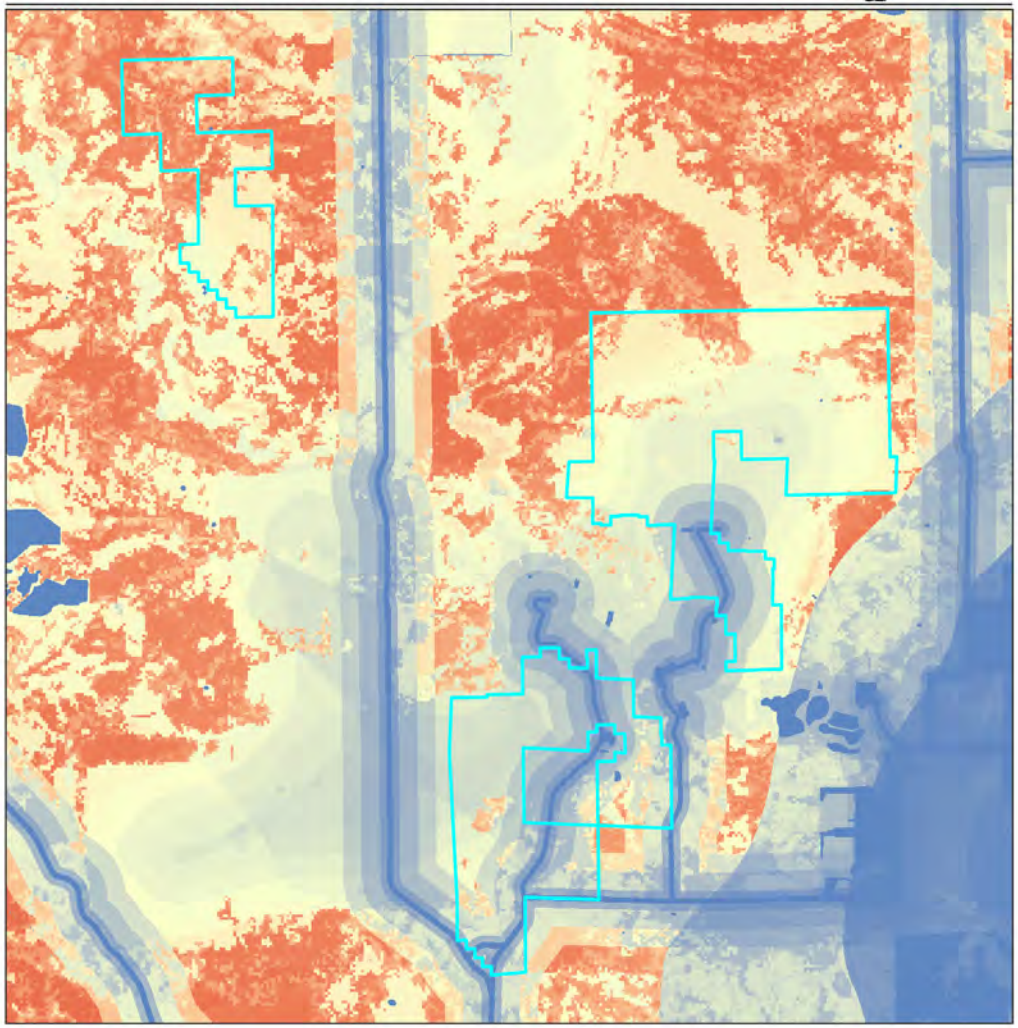
Conservation Lease	Project Metrics
Physical Acres	4317
Duration	15 years
Total credits with multipliers	27,211.93
MSGOT approved SA Grant	$289,986.60

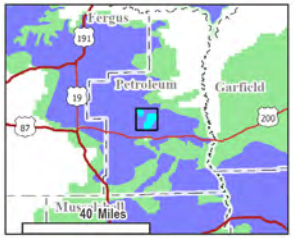
Haywire Ranch Project Costs

Conservation Lease	$289,986.60
Petroleum Conservation District	$12,400.00
Title Policy/Report	$2600*
Approx. Total Costs	**$305,000.00**

Figure 3: Nowlin Ranch Conservation Lease

MONTANA SAGE GROUSE
Habitat Conservation Program





HQT Project Metadata

HQT Date: 07 March 2023
Years for Implementation: 0 Years
Years for Maintenance: 15 Years

0 0.65 1.3 Miles

N

NHS Interstate
Major Road

Proposed Activity
Lek Points
EO-Core Area
EO-Connectivity Area
EO-General Habitat

Habitat Quality
High
Low

Nowlin Ranch

Conservation Lease	Project Metrics
Physical Acres	3624
Duration	15 years
Total credits with multipliers	21,025.75
MSGOT approved SA Grant	$224,062.90

Nowlin Ranch Project Costs

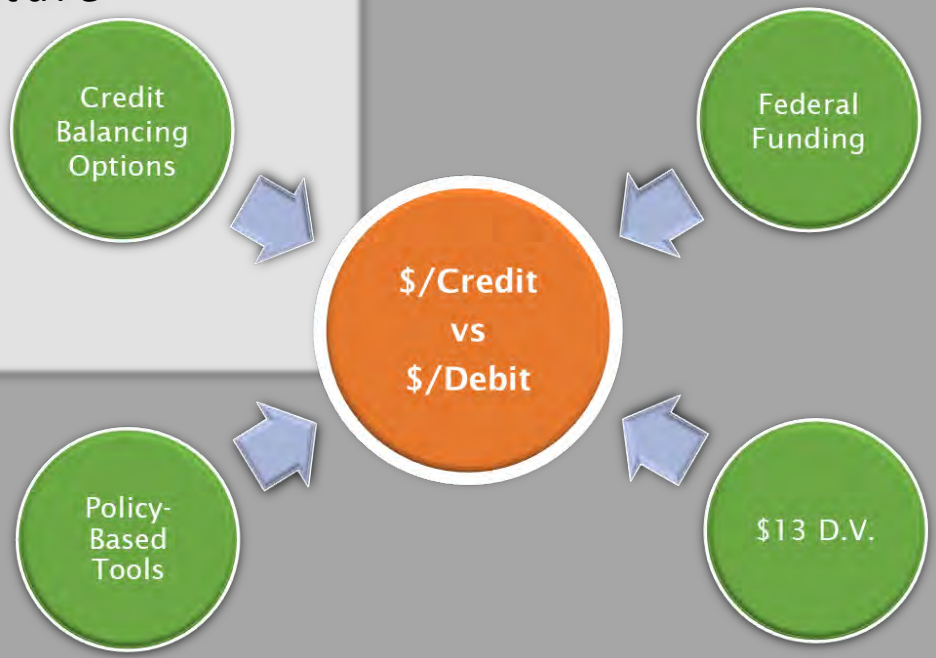
Conservation Lease	$224,062.90
Petroleum Conservation District	$9,250.00
Title Policy/Report	$2600*
Approx. Total Costs	**$235,900.00**

Sagegrouse.mt.gov

MONTANA SAGE GROUSE
Habitat Conservation Program

Stewardship Account:
Focus Group Update

- **September 8:** Stakeholder Workshop
  - Debit/Credit pricing structure (discount method)
  - Stewardship Account
    - Current Status
    - Financial Impacts



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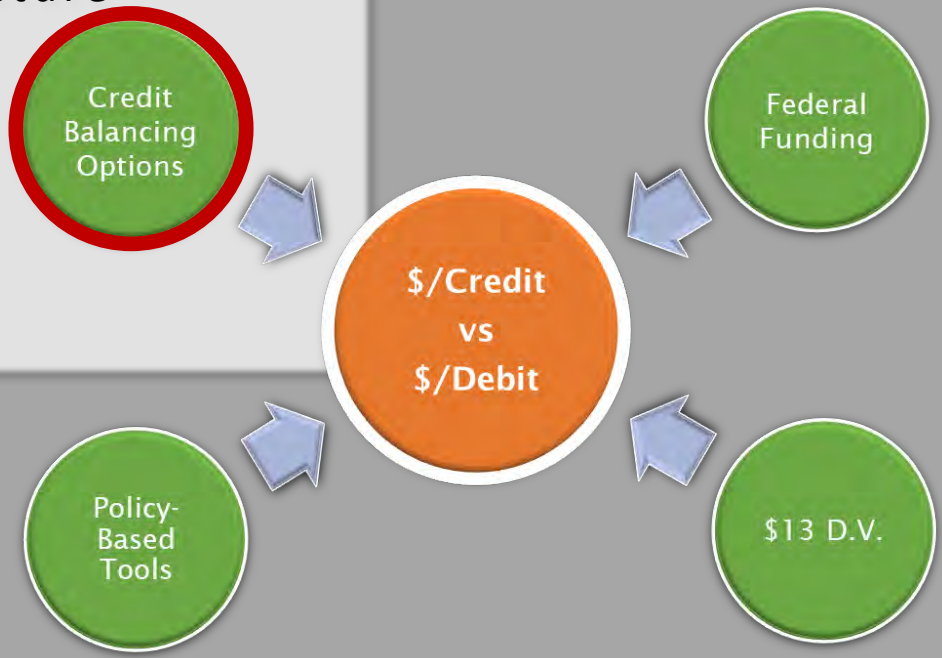

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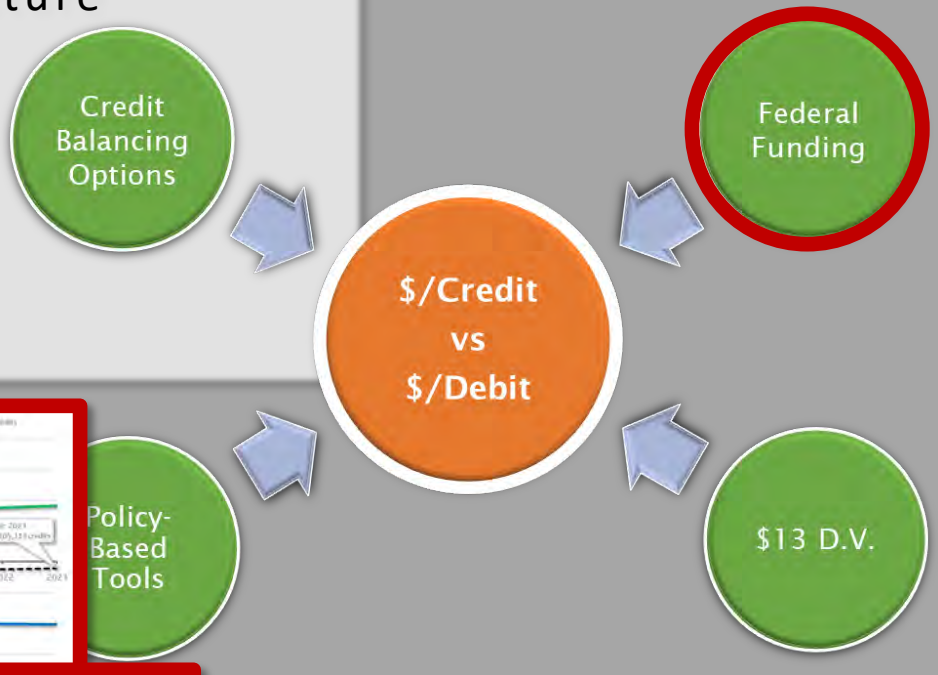

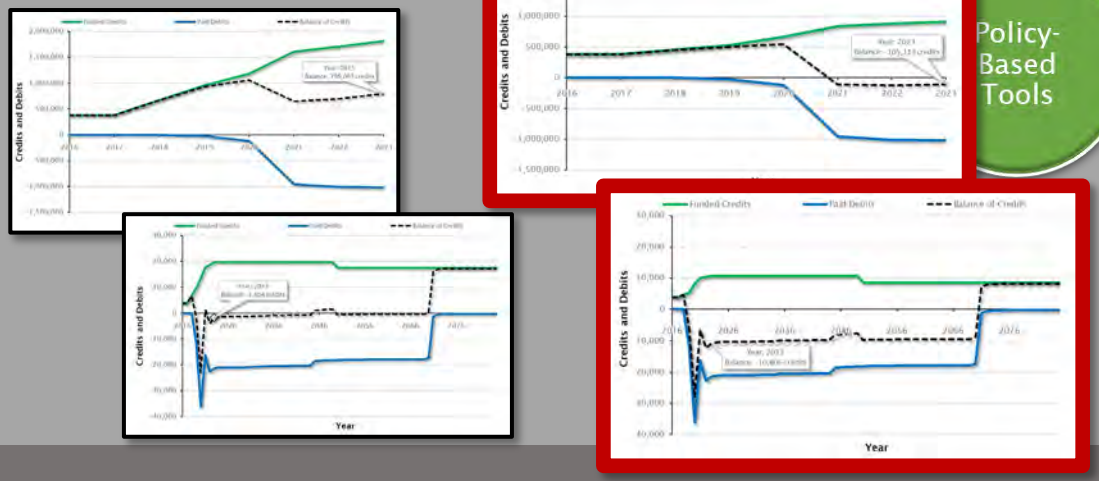

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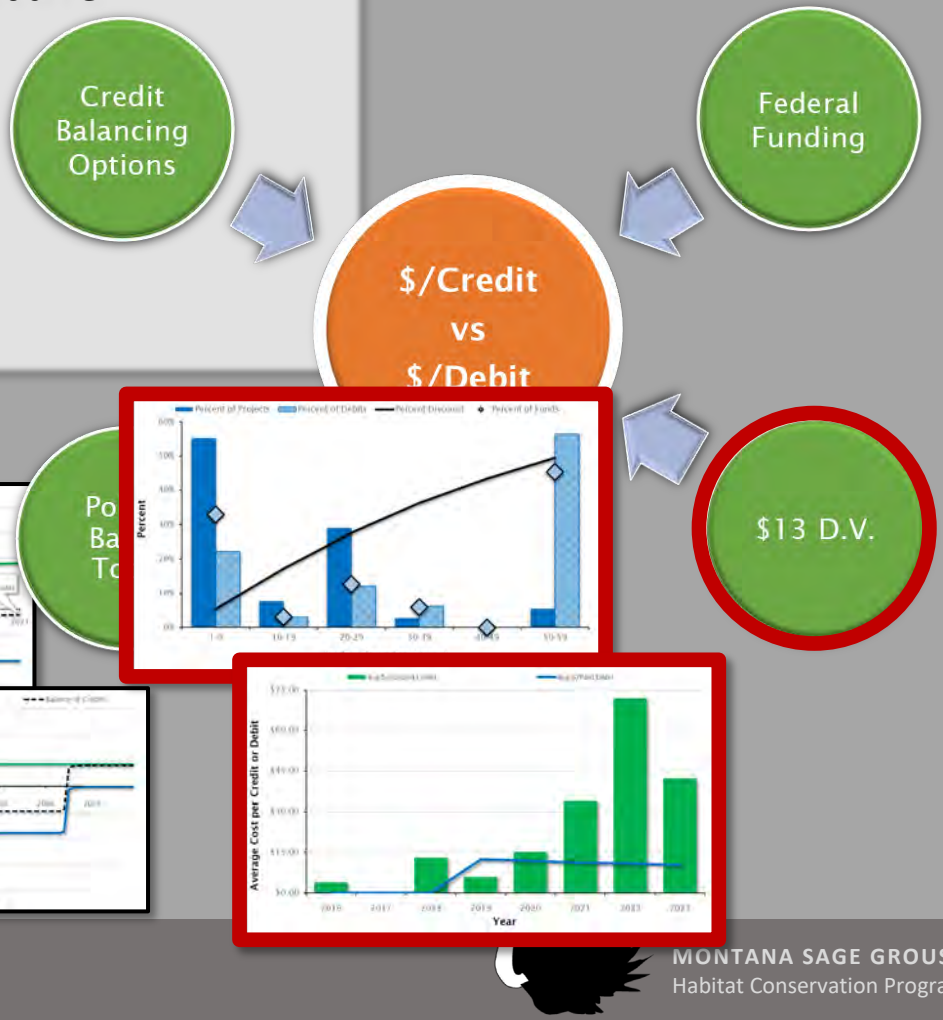

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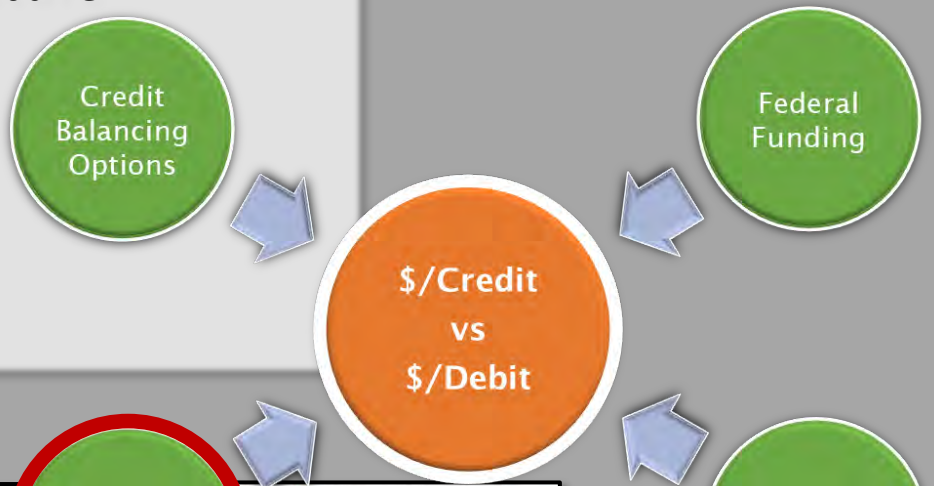

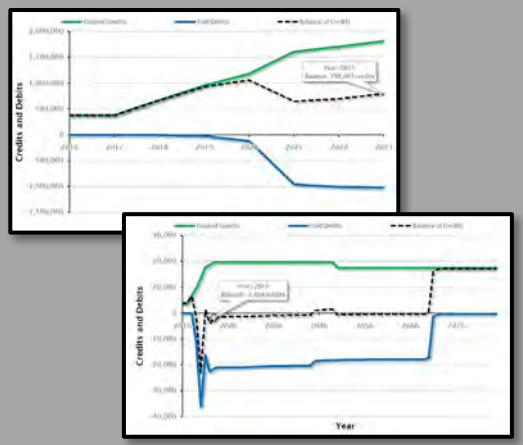

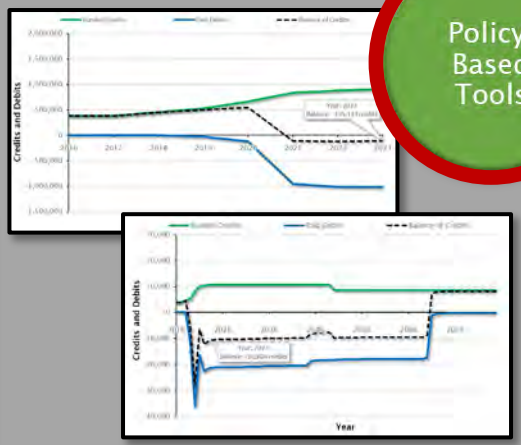

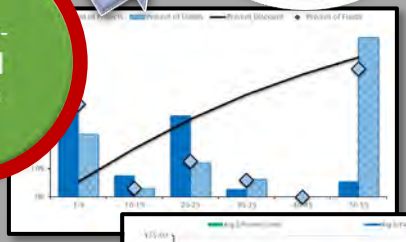

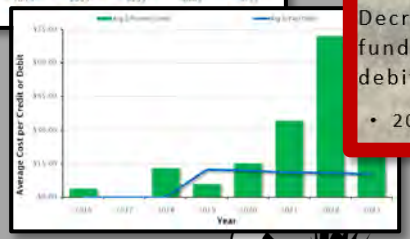

- Current $/Debit = $6.23
- If no modifications = $7.62

Decreased available funding for offsetting debits

- 203,900 unpaid debits

MONTANA SAGE GROUSE
Habitat Conservation Program

Stewardship Account:
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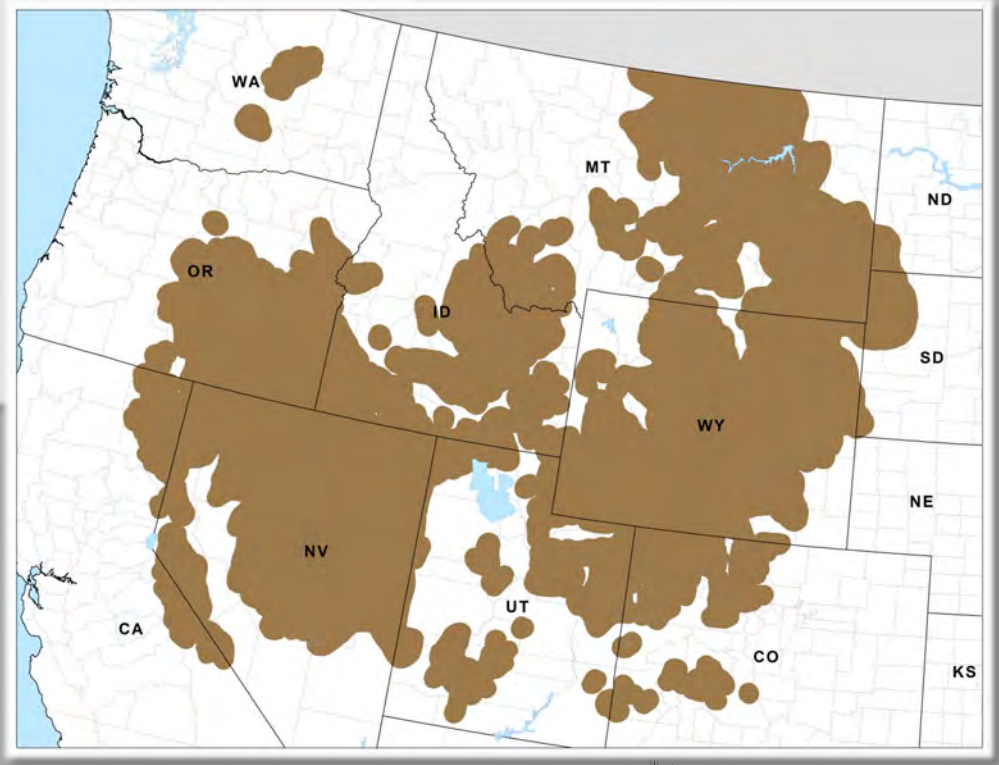
    - Current Status
    - Financial Impacts
  - **Reviewed other States' Mitigation Systems**

STATE	HOW DEBITS/CREDITS ARE CALCULATED	HOW CREDIT COST IS DETERMINED	COST OF A CREDIT	MULTIPLIERS	PROJECT TERM
IDAHO	HQT	Free Market	Negotiated between parties	Net Benefit=no net loss	Minimum 20 years
NEVADA	HQT	Free Market	Negotiated between parties	Net Benefit=5% Reserve Account=5-14% (25% for federal land) Proximity factor	Minimum 30 years plus 10 for reclamation
OREGON	HQT	In-Lieu Fee	Varies	Net Benefit=15% Reserve Account=50% Use of ILF funds=10%	Minimum 30 years
UTAH	4:1	Based on actual costs	Varies		Minimum 20 years
WYOMING	Table	One Conservation Bank	Set by Conservation Bank	N/A	Based on years of disturbance



MONTANA SAGE GROUSE
Habitat Conservation Program

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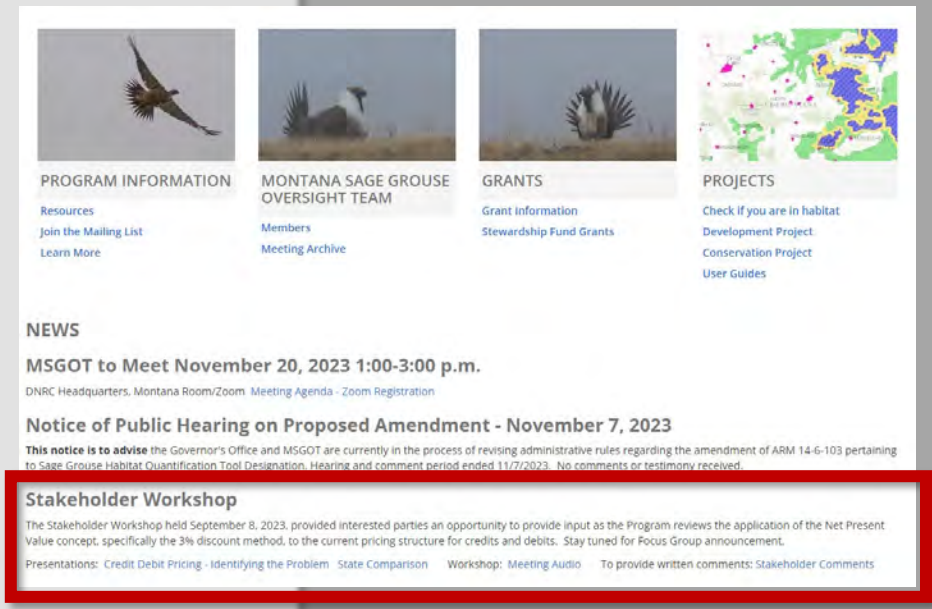
  - Reviewed other States' Mitigation Systems
  - **Presentations: https://sagegrouse.mt.gov/**



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  - Reviewed other States' Mitigation Systems
  - Presentations: https://sagegrouse.mt.gov/
- **On-going:**
  - Development of Focus Group
  - Coordination with UM BBER economists


MONTANA SAGE GROUSE
Habitat Conservation Program

Montana Sage Grouse Habitat Conservation Program
2023 Stakeholder Focus Group Application

The purpose of the focus group is to advise the Montana Sage Grouse Oversight Team (MSGOT) on the application of the Net Present Value concept, specifically the 3% discount method and the current pricing


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75th ANNIVERSARY 1948-2023 BUREAU OF BUSINESS AND ECONOMIC RESEARCH

Coming soon: 2024 Economic Outlook Seminar. Learn more here.

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Bureau of Business and Economic Research

College of Business, University of Montana

The **Bureau of Business and Economic Research** is a research department within the College of Business at the University of Montana, Missoula. We produce a variety of economic and industry data including annual economic forecasts for the United States as well as Montana, its industries, and counties. Five functional areas make up the Bureau of Business and Economic Research:

1. **Economic Analysis** tracks the economic performance of all geographic areas in Montana.
2. **Forest Industry** Research and Manufacturing Research focus special attention on these important industries in Montana and surrounding states.
3. **Health Care** Ind
topics to monitor
4. **Publications**,
data that help M
5. The **Survey Res**
both public and


MONTANA SAGE GROUSE
Habitat Conservation Program

Montana Sage Grouse Habitat Conservation Program Seeks Interested Parties to Participate in Focus Group

September XX, 2023

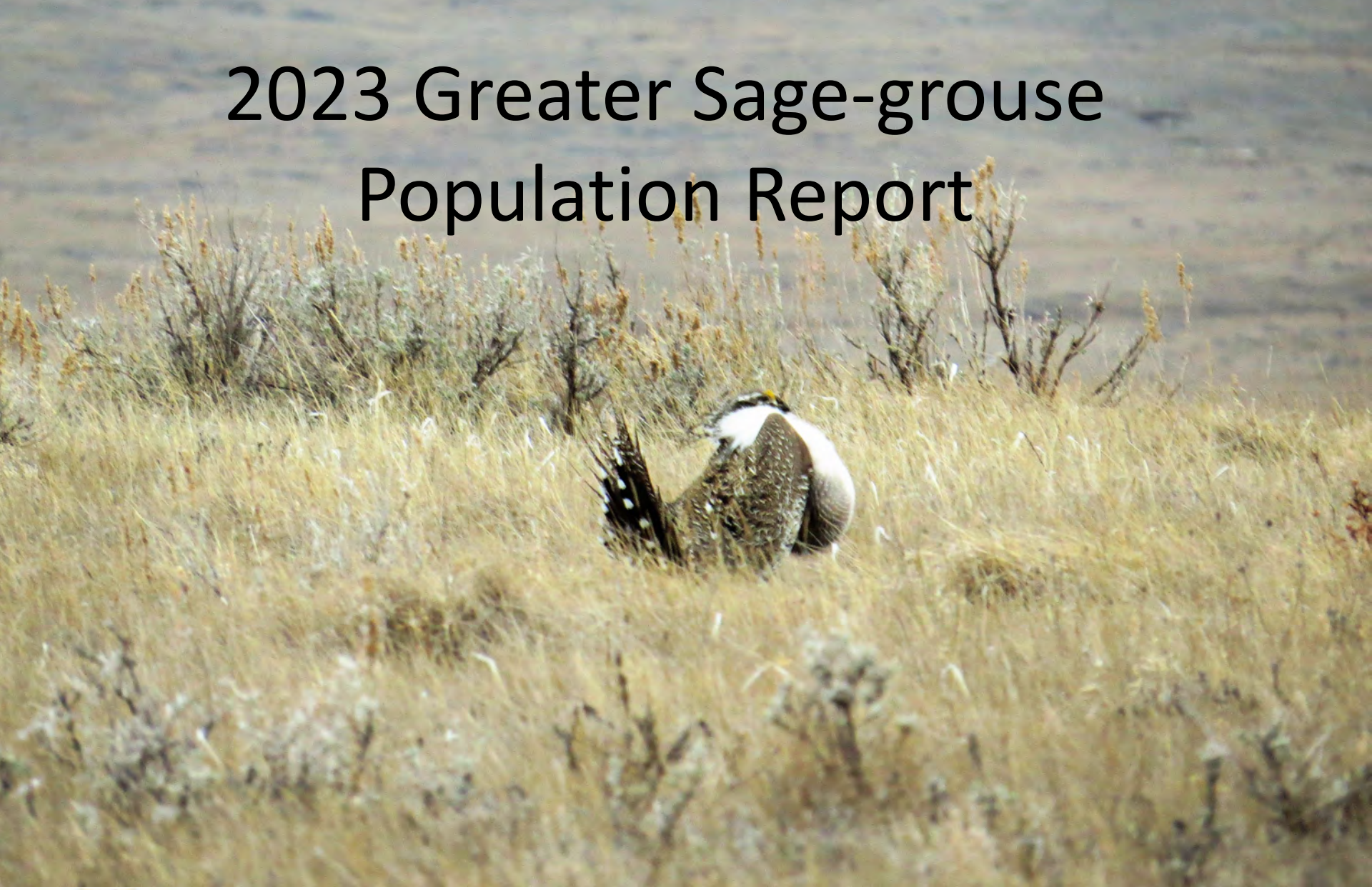
The Montana Sage Grouse Habitat Conservation Program is looking for stakeholder input as the Program reviews the application of the Net Present Value concept, specifically the 3% discount method and the current pricing structure for credits and debits.

The Program seeks 8-10 representatives who can provide viewpoints for stakeholders affected by Montana's Sage Grouse Mitigation System. The focus group will consider the current pricing structure for credits and

MONTANA SAGE GROUSE
Habitat Conservation Program

MONTANA SAGE GROUSE
Habitat Conservation Program

2023 Greater Sage-grouse Population Report



Introduction – FWP's role

- FWP manages wildlife populations for the citizens and guests of Montana
- Sage-grouse records go back to 1899 with more regular reporting starting in 1952
- Standardized surveys began in 1980
- Recorded multiple visits within years beginning in 2002

Survey Methods

- Lek – display grounds where males congregate in spring
- Count number of displaying males during peak of activity - between ½ hour before sunrise to 1 hour after sunrise
- Visit AHM leks at least 3 times per season; multiple visits to other leks as time and priority allows

Adaptive Harvest Management

- Developed to help assist with season setting decisions
  - Initially for liberal vs conservative bag limit decisions
  - Has been used to set thresholds for closing the season
- Sample of leks with long history of data
- High male count from ~8% of known active leks used in trend assessment
- Research suggests hunting regulations have been adjusted appropriately for population fluctuations (Dinkins et al. 2021)

Partners

- Private landowners
- Bureau of Land Management
- Natural Resource Conservation Service
- Consultants
- Not for profit organizations and programs, Volunteers

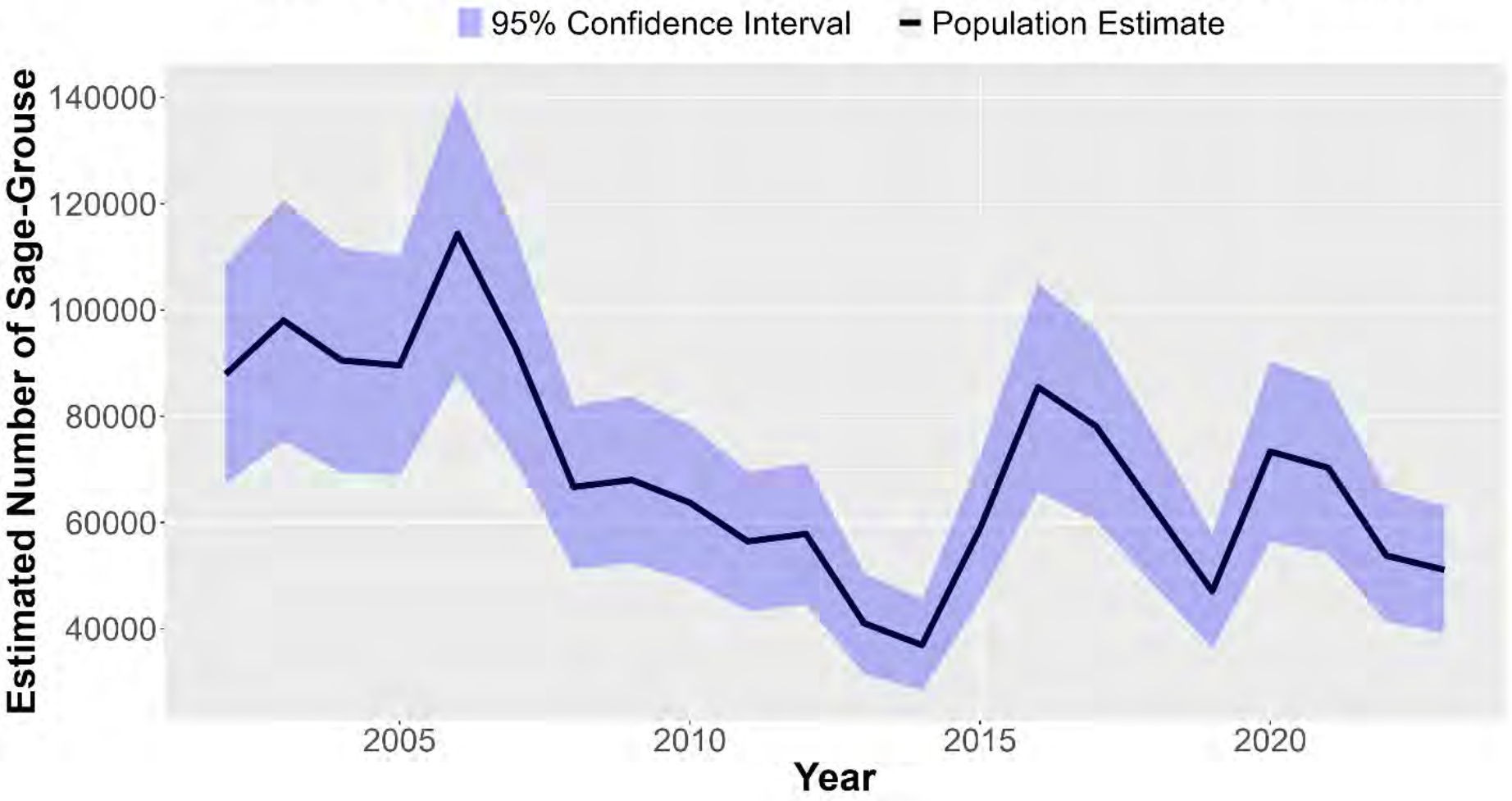
- FWP manages the state sage-grouse lek database

Partner Needs

Population Report per MCA 87-1-201(1)(11)

- Annual sage-grouse population estimates
- Worked with Dr. Paul Lukacs at University of Montana
- Only data since 2002 can be used in models (repeat counts recorded)
- Estimates based on assumptions
  - Male to female ratio of 1:2.45
  - Assumes all leks are known
  - Assumes each male visited only one lek
  - Assumes each male was detected independently from other males

Montana Sage-Grouse Population Estimates, 2002-2023

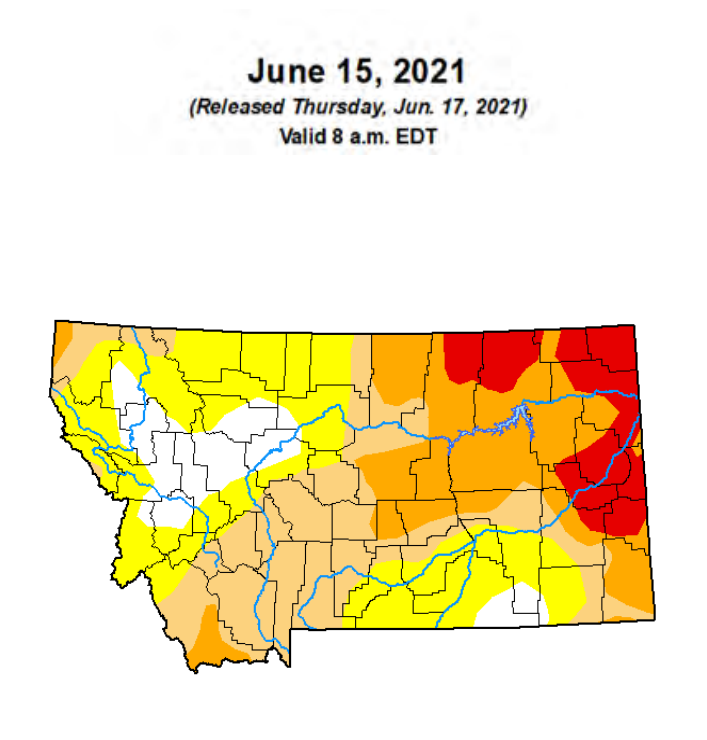


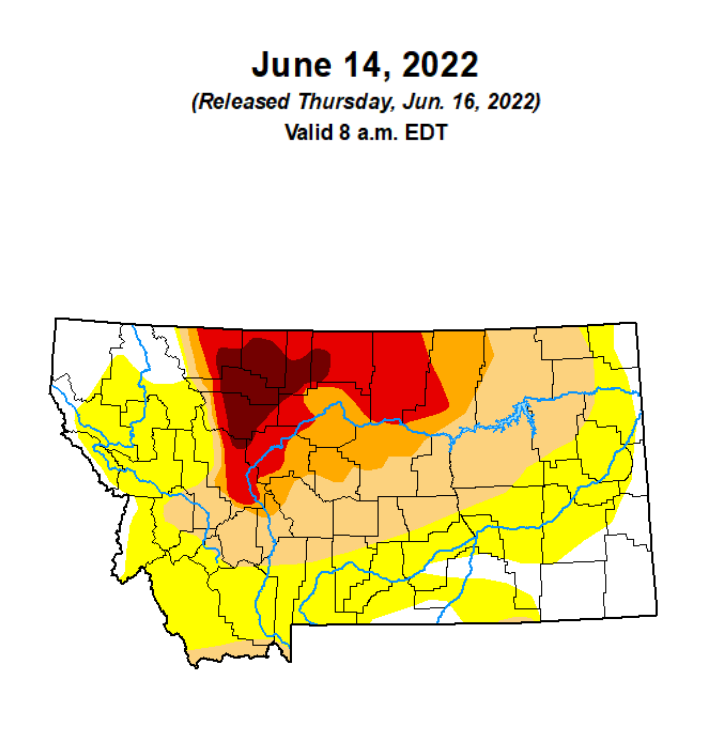
Reason for lower population estimate

- Short-term trend: 8–10-year oscillation
- Long-term drivers: Habitat changes

Weather

U.S. Drought Monitor





Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

Survey Conditions

V. Boccadori

MONTANA FISH, WILDLIFE & PARKS

Montana Greater Sage-grouse Population Report

August 28, 2023

Montana Greater Sage-grouse population estimates and associated uncertainty, and the number of known breeding sites (called leks) are presented here in compliance with MCA 87-1-201(1)(11), as amended in 2017.

Montana Fish, Wildlife and Parks (FWP) biologists work with federal agency, non-governmental organization partners, and volunteers to count the number of displaying males at lek sites across the state in spring of each year. Counts are conducted at leks 1-3 times within a season; however, all leks are not monitored in every year. FWP also updates and manages the sage-grouse lek count and activity status database for the State of Montana. These data are used to assess population trends for use in sage-grouse management decisions. They are also provided to the Montana Sage-grouse Habitat Conservation Program and the Bureau of Land Management for use in land use decisions and permitting. Each lek is also categorized based on activity status, such as confirmed active or confirmed inactive, according to established definitions (see lek status definitions below).

Population Estimates - Methods

Montana FWP worked with Dr. Paul Lukacs, University of Montana, to develop a model that estimates sage-grouse population numbers based on counts of displaying males at leks using *N*-mixture models. For this 2023 report, it was run by Dr. Alixandra Godar, FWP Wildlife Population Ecologist/Biometrician. This modeling approach is a robust analytical method for estimating population size and trend over time for species like sage-grouse that congregate at discrete breeding sites (McCaffrey et al. 2016). Although the database of male counts at leks dates back to 1952, only data from 2002 onward could be used for this approach.

It is important to recognize these models use algorithms that will estimate similar, but not precisely the same, population numbers each time the models are run. This means that population estimates may vary slightly from previous reports but are well within reported confidence limits.

Population Estimates – Results and Discussion

Montana FWP and partners surveyed 766 leks at least once in spring 2023. The models estimate that there were approximately 51,087 (95% credible interval (CI):39,078–63,096) sage-grouse in Montana in spring 2023 (Figure 1, Table 1). This estimate is down ~5% from last year's estimate of 53,758 (95% CI:41,329–66,186), and a 27% decrease over the past two seasons from the estimate in 2021 of 70,287 (95% CI:54,086–86,488).

Montana experienced exceptional drought conditions in 2021 and 2022 (https://droughtmonitor.unl.edu/Maps/MapArchive.aspx) with higher-than-average temperatures and well below average precipitation. This meant that wet areas critical for cover and food resources, forbs and insects, were likely limited during the brood-rearing season. Extremely difficult survey conditions occurred in spring of 2023 with persistent spring snow and wet impassable roads later into the spring than typical, shortening the survey period. Because of the compressed survey timeframe many surveys did not achieve the preferred 3

visits/lek or the preferred time of season to document peak male attendance. While some of this variation is accounted for in the model, this may have affected overall accuracy for the 2023 estimate.

Weather factors drive short term changes in sage-grouse numbers. A similar decrease (25%) was experienced in the 2019 population estimate after drought conditions occurred in summer 2018. During this time, FWP was conducting a sage-grouse research project in central Montana, that suggested nest success, chick survival and hen survival were low during summer and fall 2018 (Berkeley et al. 2019). Range-wide drought conditions in 2021 and 2022 may have impacted the population in a similar manner, providing a possible explanation for the past two year's decline.

Sage-grouse population numbers generally oscillate over a period of 8 – 10 years across large scales (Fedy and Doherty 2011). In Montana, weather patterns, predation, and other factors are believed to cause these oscillations. Longer term trends, over multiple oscillations, are important to consider when making management decisions.

An assumption used in the development of these estimates is, a male to female ratio of 1:2.45 (Taylor et al. 2011). The 2018 and 2019 population reports list other main assumptions. There are also other analytical models that have utility for estimating population size and trends, such as Integrated Population Models. However, these models require additional demographic information, such as recruitment data, that are currently unavailable statewide. FWP may explore additional and/or improved modeling techniques in the future as new data become available.

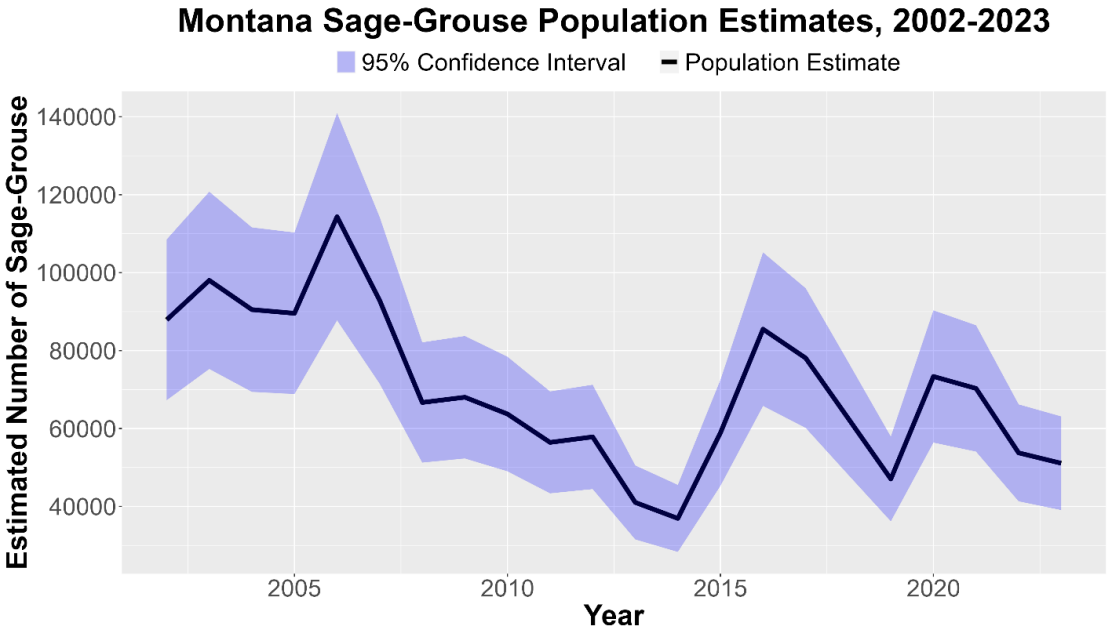


Figure 1. Greater Sage-grouse population estimates and associated uncertainty (95% credible intervals) from *N*-mixture models in Montana, 2002-2023. In general terms, credible intervals describe the uncertainty around the population estimate due to imperfect detectability of grouse on leks and variable lek count effort each year.

Table 1. Numerical estimates of Greater Sage-grouse population numbers and associated uncertainty from *N*-mixture models in Montana, 2002-2023.

Year	Population Estimate	Standard Error	Confidence Interval	
			Lower Bound	*Upper Bound*
2002	87893	10520	67275	108511
2003	98026	11599	75291	120760
2004	90509	10761	69417	111601
2005	89571	10570	68854	110287
2006	114356	13566	87767	140946
2007	92876	10902	71508	114244
2008	66682	7867	51262	82102
2009	68027	8012	52323	83732
2010	63727	7498	49031	78424
2011	56441	6668	43372	69510
2012	57848	6824	44473	71223
2013	41037	4840	31551	50523
2014	36933	4382	28345	45521
2015	58893	6932	45306	72480
2016	85491	10047	65799	105184
2017	78088	9140	60173	96003
2018	62592	7373	48141	77043
2019	47052	5539	36194	57909
2020	73360	8654	56399	90321
2021	70287	8266	54086	86488
2022	53758	6341	41329	66186
2023	51087	6127	39078	63096

Number of Leks

FWP maintains a spatial database of Greater Sage-grouse leks, summarized by activity status in Table 2. FWP staff annually work to confirm and record lek locations and update lek status. In 2018, FWP added a new status category, *Provisionally Active*, to alert the Montana Sage Grouse Habitat Conservation Program, the Bureau of Land Management, and industry proponents of newly discovered leks immediately. Two survey years are required to meet the definition of a Confirmed Active lek; thus, without a Provisionally Active status option, there was a delay of over one year before resource agencies and industry were notified of newly discovered leks. Provisionally Active status is meant to be temporary. If data are not sufficient to meet the definition of Confirmed Active after a second year of surveys, a Provisionally Active lek will revert to Unconfirmed and would not be evaluated under state or federal assessments for new development. If data is sufficient in the second year of surveys, the lek will immediately be classified as Confirmed Active.

Table 2. Number of known Greater Sage-grouse leks in Montana by classification status, 2002-2023. *

Year	Confirmed Active	Confirmed Inactive	Confirmed Extirpated	Provisionally Active^	Never Confirmed Active	Unconfirmed	Total
2002	542	79	8	.	29	516	1174
2003	609	84	8	.	47	516	1264
2004	645	88	10	.	56	528	1327
2005	671	94	10	.	64	541	1380
2006	713	96	10	.	67	605	1491
2007	748	98	11	.	72	630	1559
2008	805	100	13	.	75	586	1579
2009	847	104	15	.	93	545	1604
2010	939	110	30	.	119	443	1641
2011	963	125	39	.	148	380	1655
2012	974	130	39	.	178	350	1671
2013	972	143	49	.	197	332	1693
2014	978	154	55	.	224	292	1703
2015	981	172	55	.	238	272	1718
2016	987	184	56	.	256	271	1754
2017	1002	199	56	.	255	286	1798
2018	1005	221	56	.	263	268	1813
2019	1013	234	56	.	273	259	1835
2020	987	272	56	.	276	260	1851
2021	987	293	56	.	284	255	1875
2022	985	310	56	(1)	291	245	1887
2023	982	322	62	(3)	300	228	1897

*FWP's database is dynamic and the status of a lek can change retroactively based on new information entered at any time. Reviewers may notice small changes in classification numbers from previous reports. These are not errors; rather they are the most up-to-date numbers as of this report.
^New status created in 2018. See definition below. Provisionally Active status is only relevant for the current year; leks categorized as Provisionally Active in previous years have been moved to Confirmed Active or Unconfirmed status, as appropriate. The number of leks that meet the Provisionally Active criteria in the past two years is noted in parenthesis.

Lek Status Definitions

Confirmed Active - Data supports existence of a lek. Supporting data defined as 1 year with 2 or more males lekking on site followed by evidence of lekking (Birds - male, female or unclassified; -OR- Sign - vegetation trampling, feathers, or droppings) within 10 years of that observation.

Confirmed Inactive - A Confirmed Active lek with no evidence of lekking (Birds - male, female or unclassified; -OR- Sign - vegetation trampling, feathers, or droppings) for the last 10 years. Requires a minimum of 3 survey years with no evidence of lekking during a 10-year period. Reinstating Confirmed Active status requires meeting the supporting data requirements.

Confirmed Extirpated - Habitat changes have caused birds to permanently abandon a lek (e.g., plowing, urban development, overhead power line) as determined by the biologists monitoring the lek.

Never confirmed active – An Unconfirmed lek that was never confirmed active. Requires 3 or more survey years with no evidence of lekking (Birds - male, female or unclassified; -OR- Sign - vegetation trampling, feathers, or droppings) over any period of time.

Provisionally Active – Preliminary data supports existence of an active lek. This status can only apply during the first year of detection. Supporting data defined as 1 observation with 2 or more males lekking on site AND sign of lekking (vegetation trampling, feather, or droppings) or followed by a 2nd observation of 2 or more males lekking within the same survey year.

Unconfirmed - Possible lek. Grouse activity documented. Data insufficient to classify as Confirmed Active status.

References

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Fedy, B.C. and K.E. Doherty. 2010. Population cycles are highly correlated over long time series and large spatial scales in two unrelated species: greater sage-grouse and cottontail rabbits. Oecologia; DOI 10.1007/s00442-010-1768-0.

McCaffrey, R., J.J. Nowak, and P.M. Lukacs. 2016. Improved analysis of lek count data using N-Mixture models. Journal of Wildlife Management; DOI: 10.1002/jwmg.21094.

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