



CCS Science Update

- **From the NV State Plan**

- “The methods and rubric outlined in Coates et al. (2016) are the methods for the updating process moving forward unless the coordination team (SETT, NDOW, BLM, FS, FWS) agrees to changes in the methods. The methods used are anticipated to be fairly consistent; **modifications to methods should consider best available science.** Modifications to methods should generally occur on the 3-5 year update schedule, but only made when Team identifies new analytical tools and determine the current model no longer represents best available science.” – pg 40, Management Categories
- “The SEC oversees CCS operations and approves changes to the program. The Administrator manages the CCS’s day-to-day operations, ongoing program improvements, facilitates transactions, and reports programmatic results. CCS operations are also informed by Resource Managers (e.g. BLM, NDOW, USFS, USFWS) and by a Science Committee to ensure it **functions according to current laws, policies, and regulations and is consistent with the best available science.**” – pg 86, Roles and Responsibilities



CCS Science Update

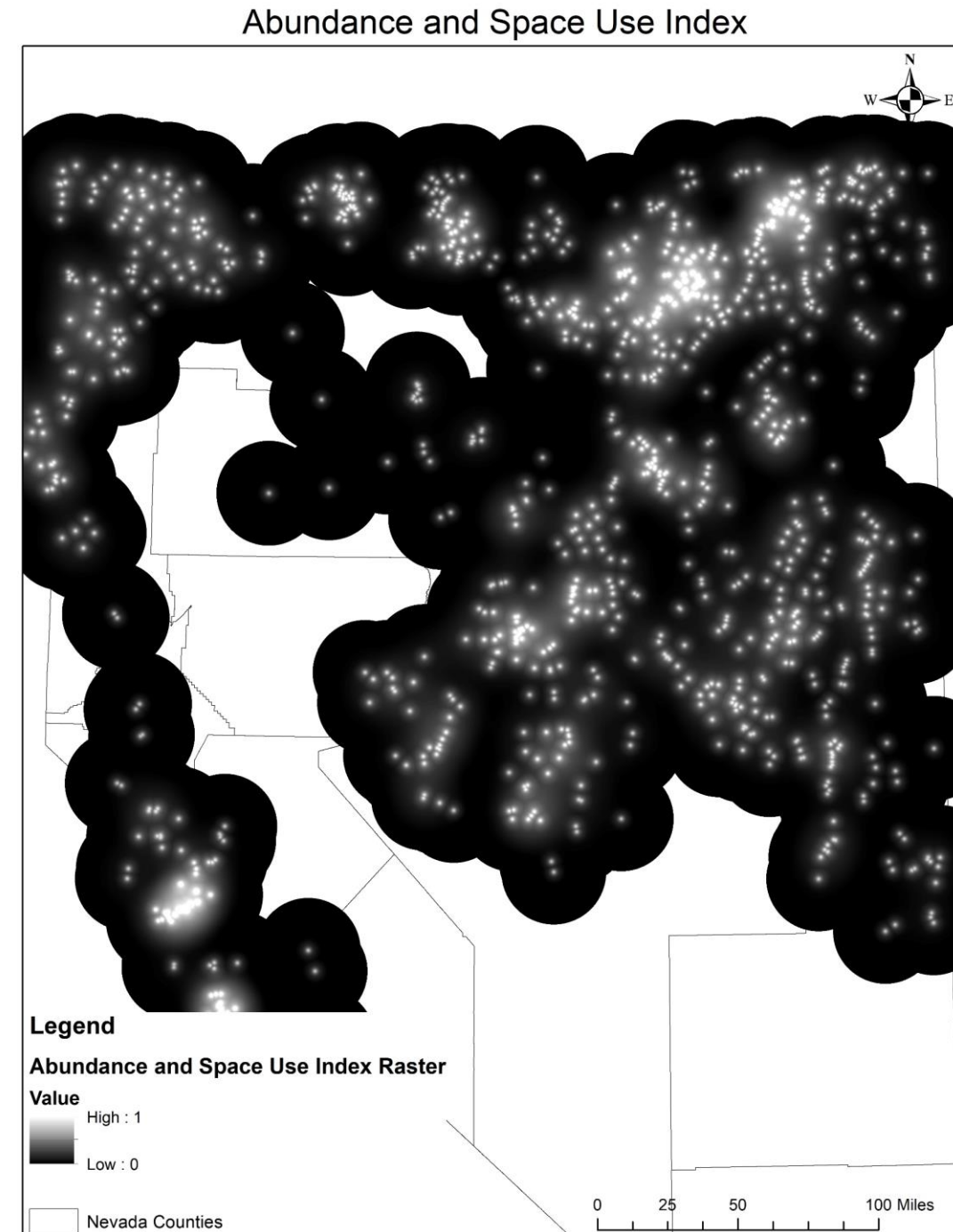
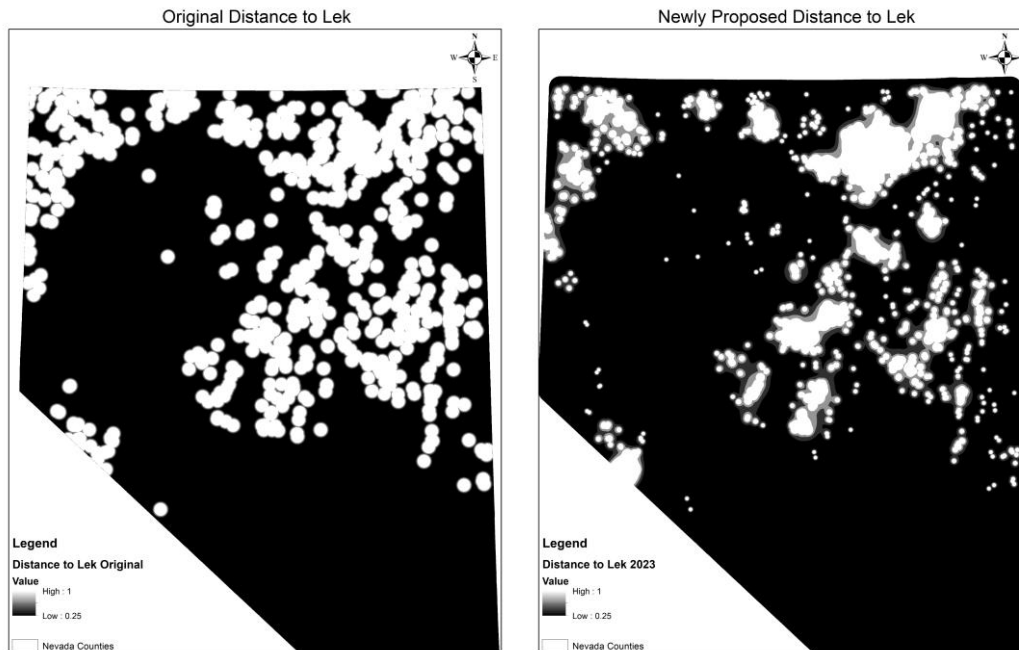
- **From the CCS Manual**
 - “Administrator synthesizes relevant research, monitoring and operational findings to inform CCS improvements. Synthesizing findings into information that is directly related to the operations of the CCS is essential to inform management decisions. **Incorporating the best available science and other new information into the program and HQT** ensures the calculation of credits and debits is accurate, improves project selection and design decisions, and improves accountability.” – pg 10, Managing the CCS
 - “Gains input from the Administrator and Science Committee on **new scientific information to be incorporated into the CCS’s tools and processes** as necessary and at least annually.” – pg 16, Oversight Committee Key Responsibilities



Coates' Abundance and Space Use Layer Science Update

Continuous Raster Space Use Layer Based on Population

- Aligns with the Habitat Management Categories
- New Dist_Lek layer
 - Same functional categories as the old Dist_Lek

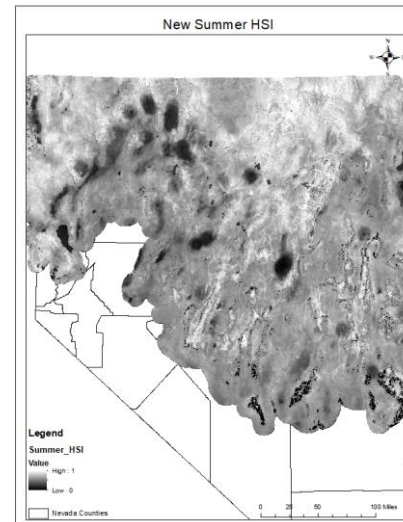
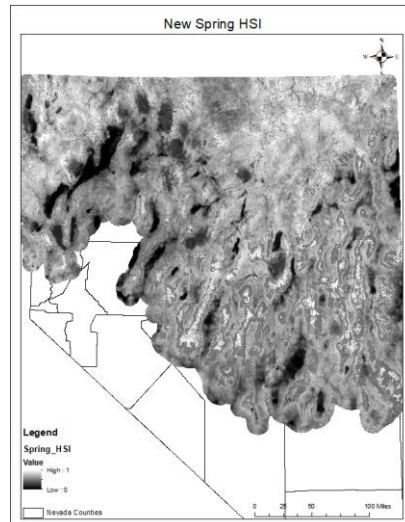
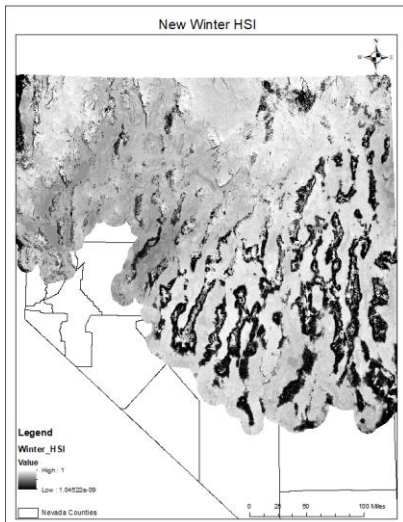




Coates' HSI Layers Science Update

New Habitat Suitability Indexes

- Adds in Selection and Survival Indexes
- Updated using latest science and modeling
- Direct 1:1 replacement of the original Spring, Summer, and Winter Suitability Indexes



Project	Number of leks w/in 6km	Original Term Debits	Original Perm Debits	New Science Term Debits	New Science Perm Debits	% change Term Debits	% change Perm Debits
Exploration	16	129	0	138	0	6.98%	N/A
Geothermal	1	30	0	39	0	30.00%	N/A
Mine 1	5	5749	73	8787	129	52.84%	76.71%
Mine 2	15	13284	268	20143	325	51.63%	21.27%
Mine 3	7	2197	1004	3088	1658	40.56%	65.14%
Mine 4	3	1676	0	3689	0	120.11%	N/A
Powerline	8	0	5031	0	5933	N/A	17.93%
Solar	0	2	0	6	0	200.00%	N/A
Tower 1	2	188	0	308	0	63.83%	N/A
Tower 2	0	2	0	2	0	0.00%	N/A

Project	Number of leks w/in 6km	Original Credits	Acres of Uplift	New Science Credits	New Science Uplift Credits	% change Credits
Credit Project 1	8	766	4655.27	800	987	4.44%
Credit Project 2	7	8873	2582.04	10714	467	20.75%
Credit Project 3	2	2929	112.59	3007	65	2.66%
Credit Project 4	1	548	1043.88	517	257	-5.66%
Credit Project 5	15	1718	67.67	2014	49	17.23%



Questions?



CCS Version 1.8 Improvement

Goal of Improvement

- Use the available science to collectively account for impacts to sage-grouse populations and habitats
- To properly quantify impacts that may be developed on or near leks, especially our most productive source leks and their clusters
- Incorporate the best science of population metrics into the Habitat Quantification Tool



Proposed Population Metric to Address Lek Importance

Debit Projects – No Change

- **Updated Habitat Suitability Index** multiplied with **1 + Abundance and Space Use Index**. More accurately represents suitability and use near leks
- Debit project scenarios indicate that the debit values are variable largely dependent on:
 - Increases and decreases are variable dependent on proximity, lek size, and type in high space use areas

Project	Number of leks w/in 6km	New Science Term Debits	New Science Perm Debits	HSI* (1+ASUI) Term Debits	HSI* (1+ASUI) Perm Debits	% change Term Debits	% change Perm Debits
Exploration	16	138	0	186	0	34.78%	N/A
Geothermal	1	39	0	39	0	0.00%	N/A
Mine 1	5	8787	129	9787	141	11.38%	9.30%
Mine 2	15	20143	325	28459	509	41.28%	56.62%
Mine 3	7	3088	1658	3889	2134	25.94%	28.71%
Mine 4	3	3689	0	3989	0	8.13%	N/A
Powerline	8	0	5933	0	5028	N/A	-15.25%
Solar	0	6	0	6	0	0.00%	N/A
Tower 1	2	308	0	334	0	8.44%	N/A
Tower 2	0	2	0	2	0	0.00%	N/A

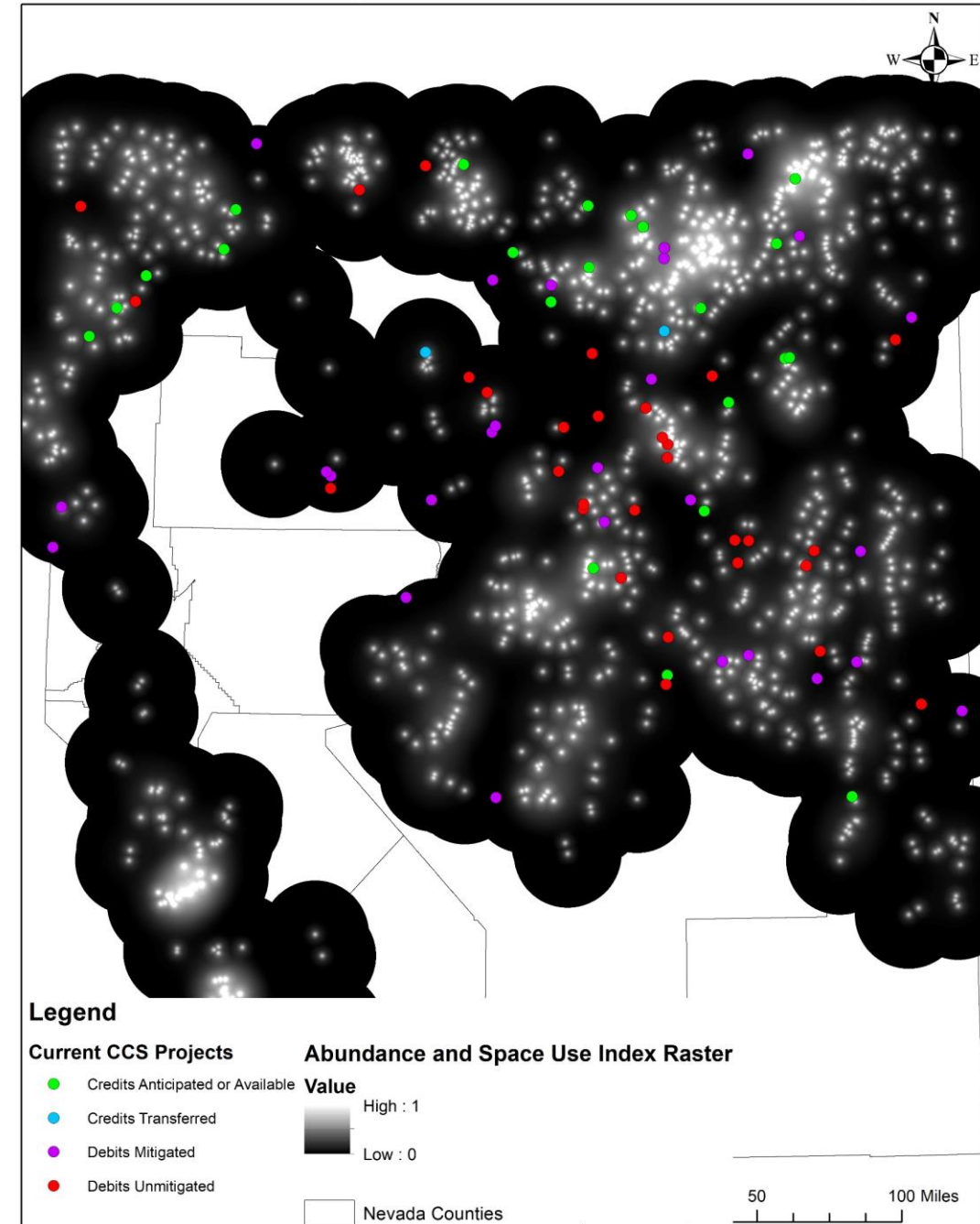


Proposed Population Metric to Address Lek Importance

Credit Projects – Original Proposal

- Would use the proposed **new Distance to Lek layer** and **new HSI layers**
- No other changes, heavily incentivized already
 - Maximizes net gain for greater sage-grouse
 - Credit projects are accepted based on proximity to leks, and the space use layer will further assist in that effort
 - Preservation/maintenance projects are given full credit values
 - Not typical for similar programs, preservation is generally given partial values (credits)
 - Credit projects likely have opportunities that incentivize additional conservation (uplift = more credits)
 - PJ
 - Lowered baseline
- Improvement may lead to higher demand for credits

Abundance and Space Use Index with Current Projects





Proposed Population Metric to Address Lek Importance

Credit Projects – Alternative Scenarios

Scenario 1:

- **Updated Habitat Suitability Index** multiplied with **1 + a quarter (0.25)** of the **Abundance and Space Use Index**
 - Takes into account population and space use while still increasing net gain for greater sage-grouse
 - However, further incentivizes preservation while marginally encouraging habitat improvement (uplift)
 - Would require increased commitments from the Credit Project Proponent

Project	Uplift Type	Acres of Uplift	Estimated Cost of Implementation*	New Science Credits	Uplift Amount	HSI*(1+0.25*ASUI) Credits	Uplift Amount	HSI*(1+ASUI) Uplift Only Credits	Uplift Amount	HSI*(1+ASUI) Credits	Uplift Amount
Credit Project 1	Cheatgrass reduction/Sagebrush Canopy Cover to 12% where below 10% Hand Seed	4655.27	\$1,298,202.47	800	987	842	1109	800	1304	967	1304
Credit Project 2	PJ/Sagebrush Canopy Cover to 12% where below 10% Range Drill	2582.04	\$331,817.82	10714	467	11636	501	10714	601	14395	601
Credit Project 3	PJ/Forb and Grass hand seeding in meadows	112.59	\$46,347.40	3007	65	3094	67	3007	72	3352	72
Credit Project 4	PJ/Forb and Perennial Grass Forage Enhancement in Uplands	1043.88	\$115,892.53	517	257	541	273	517	320	614	320
Credit Project 5	PJ	67.67	\$7,557.91	2014	49	2202	53	2014	65	2728	65

*Based on NRCS' cost-share calculator



Proposed Population Metric to Address Lek Importance

Credit Projects – Alternative Scenarios

Scenario 2:

- **Updated Habitat Suitability Index** multiplied with **1 + Abundance and Space Use Index** for Uplift Credits Only
 - Takes into account population and space use while still increasing net gain for greater sage-grouse
 - Incentivizes uplift and public lands projects which may lead to more effective mitigation

Project	Uplift Type	Acres of Uplift	Estimated Cost of Implementation*	New Science Credits	Uplift Amount	HSI*(1+0.25*ASUI) Credits	Uplift Amount	HSI*(1+ASUI) Uplift Only Credits	Uplift Amount	HSI*(1+ASUI) Credits	Uplift Amount
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Proposed Population Metric to Address Lek Importance

Credit Projects – Alternative Scenarios

Scenario 3:

- **Updated Habitat Suitability Index** multiplied with **1 + Abundance and Space Use Index**
 - Takes into account population and space use, however, does not generate any additional net gain for greater sage-grouse unless uplift is applied and achieved

Project	Uplift Type	Acres of Uplift	Estimated Cost of Implementation*	New Science Credits	Uplift Amount	HSI*(1+0.25*ASUI) Credits	Uplift Amount	HSI*(1+ASUI) Uplift Only Credits	Uplift Amount	HSI*(1+ASUI) Credits	Uplift Amount
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