Summary: Tools and Management Applications Workshop for Managing Greater Sage-Grouse *presented by the Society for Range Management Nevada Section*

Time: December 11th, 2013
Location: Room 103 Davidson Math and Science Building, University of Nevada Reno

I. 9:00 - Introduction, Summary of Sage-grouse Discussion at Great Basin Consortium Conference, and current state of Sage-grouse with regards to listing and BLM EIS process – *Génie MontBlanc, University of Nevada Reno and Steve Abele U.S Fish and Wildlife Service*

II. Conservation Planning Tool - *Pete Coates. U.S. Geological Survey*

a. Pinyon Juniper Mapping and Treatment Assessment Tool
b. Models have been developed to help predict sage-grouse space use across the landscape as well as determine which variables sage-grouse are selecting for. This can help managers prioritize areas for protection and conservation actions.
c. Sage-grouse variables selected for and avoided:

d. Modeling can help determine habitat limiting factors and what conservation actions provided the biggest bang for our buck:
    i. A 1% increase in Phase 1 Juniper = 0.8% decrease in the probability an area is selected by sage-grouse.
    ii. A 1% increase in Phase 2 Juniper = 7.2% decrease in the probability an area is selected by sage-grouse.
    iii. A 1% increase in Phase 3 Juniper = 12.4% decrease in the probability an area is selected by sage-grouse.
    iv. 10% increase in low sagebrush results in 4% increase in the probability of selection
    v. 10% increase in Wyoming big sagebrush results in 10% increase in the probability of selection.
    vi. 10% increase in mountain big sagebrush results in 40% increase in the probability of selection.

e. Can predict probabilities of Sage-grouse use before and after treatment. The resource selection function (i.e. how sage-grouse utilize the landscape) x Dispersal Index (distance from and density of leks), can model the relative benefit: cost ratio to help managers prioritize treatments across the landscape. This has been completed for Pinyon Juniper Treatments in the Bi-State area.

III. Conservation Credit System – *Tim Rubald, Sagebrush Ecosystem Technical Team*

a. Background: A Nevada State program has been developed to address issues with sage-grouse and sagebrush ecosystems. Products that the team is currently working on include:
   i. A BLM sub-regional EIS Alternative
   ii. Conservations Credit System
   iii. Sage-grouse Habitat Suitability Map for Nevada
   iv. USFWS Data call/Database Development

b. The Conservation Credit System is the primary regulatory mechanism to meet the objective of No Net Unmitigated Loss of sage-grouse habitat due to anthropogenic disturbances.
   i. Still early in the conceptual phase
   ii. Contract with the USGS – Dr. Pete Coates to develop for the state (similar to Bi-State mapping effort)
   iii. Collaborative effort – BLM, SETT, additional state and federal agencies and experts in the field

IV. 1:00 - Fire and Mowing in the Sagebrush Ecosystem; Lessons Learned from the Synergistic Monitoring Project – *Synergistic Monitoring Team*

a. Overview and Fire in Wyoming Big sagebrush Community– J*ohn Swanson and Peter Murphy, University of Nevada Reno*
   i. The purpose of the Synergistic Monitoring Program was to collect data on treatments (that occurred from 2001 – 2010) in Wyoming Sagebrush communities to help inform future management actions. Paired plots were established in treated and untreated (i.e. control) areas for comparison purposes.

b. Temporal Response to Mowing Wyoming Sagebrush Communities – *Brad Shultz, University of Nevada Reno*
   i. **Sagebrush Conclusions**
      1. Recovery of absolute sagebrush (SB) canopy cover takes longer than 10 years which is consistent with many other studies
         a. General trend for mowed sites is to *slowly* increase with time since treatment
         b. SB canopy cover is expanding faster on untreated than treated sites Increased herbaceous on treated sites may be affecting rate of sagebrush increase
      2. Absolute herbaceous cover typically much less on untreated sites, not affecting sagebrush growth and ability to continue increasing
      3. Ten years post-treatment, sagebrush cover on mowed sites has not reached a threshold where it drives future vegetation change.
   ii. **Herbaceous Conclusions**
      1. Native grasses
         a. Native grasses increase with age of mowing

b. Difference between mowed and unmowed generally increases with time
c. Mowed sites generally become more resilient with time due to increased bunchgrasses
d. *Caveat*: had to have them to start with

2. <u>Native Forbs</u>
    a. Generally increase in first four years and decrease through year 10 Small sample size in 3-4 year class weakens interpretation
    b. Very similar cover in mowed and unmowed from years 6-10
    c. No evidence mowing increases native forbs for more than a few years
3. <u>Cheatgrass</u>
    a. Most mowed sites had more cheatgrass
        i. Differences between mowed and unmowed generally small except yrs 1-2 and 9-10
        ii. Possible nitrogen release yrs 1-2
        iii. Cheatgrass also germinates better when litter present, mowed sites had more litter
    b. Time since mowing did not affect cheatgrass cover – similar in each age class
        i. Different than our expectation of decline with time
4. <u>Exotic Forb</u>
    a. Consistently more cover in mowed areas Mow/untreated difference only significant in the 1-2 year age class
    b. Similar cover in each treatment age class
    c. Mowing treatments "generally" not a serious threat to increase exotic forbs long-term

iii. **Soil surface features**

1. Differences between mowed and untreated sites will persist for 10 years of longer
    a. More bare ground in untreated
    b. More litter in mowed areas
    c. Greater cryptogam cover in untreated, influence of microclimate under shrubs
    d. *Important caveat*, if it all burns, it all goes to zero on a much larger area

iv. **Broader Conclusions**

1. Results applicable primarily Wyoming SB in the 8-10 inch ppt zone
2. Reduction of Sagebrush as a medium to heavy fuel persists 10+ years
3. Both bunchgrasses and annual grasses increase on mowed areas and persist
    a. Additional actions may be needed to address cheatgrass– it's a long-term integrated vegetation management issue
    b. SB/cheatgrass site vs SB/bunchgrass site
4. Mowing probably not the tool, at least as a stand alone treatment, to increase perennial forbs across large areas, but:
    a. Do the forbs present in mowed areas stay green longer? If so, every year or only wet years?

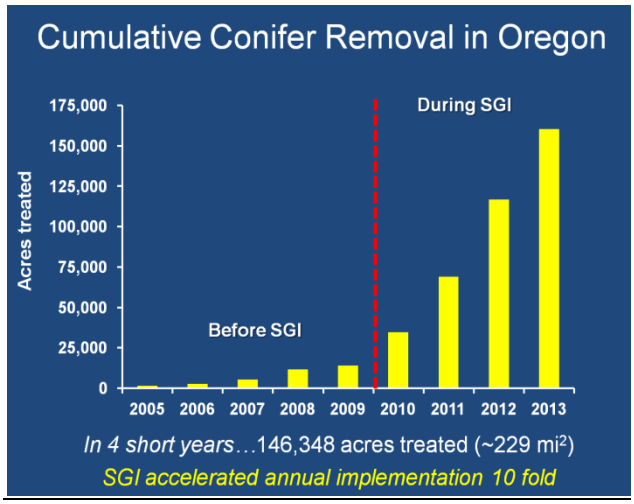
b. Many quantity vs quality vs duration of availability unknowns that need to be documented to understand potential uses of the tool

5. Exotic forbs (mostly mustards) are a minor issue if bunchgrasses increase and occupy the site
6. Mowing is not a "silver bullet" tool, but
    a. A "risk management" tool
    b. Size, shape, and location issues
7. Need to know all the potential steps needed to meet management goals and have the resources to implement them before anything is done

c. Mowing Sagebrush May be a Management Tool - *Sherm Swanson, University of Nevada Reno*
    i. No or few annuals or exotics led to no or few annuals or exotics (~75% of the time)
    ii. Vegetation communities before treatment are a great predictor for what you will get following treatment.
    iii. Place fuel breaks where they will most likely provide protection of large vulnerable habitats, increased resilience, and decreased risk of shifting dominance to annuals
    iv. Resilient locations have:
        1. Herbaceous vegetation dominated by perennial grasses
        2. Little cover of cheatgrass or other annuals
        3. Are dominated by sagebrush, especially it is not too large
    v. Mowing height and season can make a difference
        1. Mowing heights of 8-12 inches versus <8 inch mowing height may increase in annual forb response and less sagebrush survival.
        2. Mowing during the winter can increase sagebrush reproductive recovery since sagebrush seed is ripe.

V. 2:30 - Tools and Applications in Nevada and Oregon: Sage-grouse Initiative (SGI) Projects

a. Saving Sage-Grouse from the Trees: SGI's Strategic Approach to Tackling Conifer Encroachment and Quantifying Outcomes for Sage-Grouse – *Thad Heater, Natural Resource Conservation Service*
    i. SGI's Strategic Approach to Tacking Conifer Encroachment and Quantifying Outcomes for Sage-Grouse
    ii. Sagebrush → Phase II: Fuel loads double; Phase II→ III: Fuel loads double again; Fuel loads up to 8x higher in woodland than sagebrush steppe



iii. Modeled relationship of trees and lek activity at multiple scales (500, 1,000….5,000 m) to assess and prioritize treatments

b. Nevada State Projects Overview - Thad Heater, Natural Resource Conservation Service

i. A Regional NRCS Initiative – focused on building cooperative conservation efforts to locally address Sage-grouse Conservation with Partners.

ii. Major Key to SGI Success Cooperative Partnerships: Farmers and Ranchers, State and Federal Agencies, Non-Government Organizations (NGO's), Industry, General Public

iii. Programs EQIP, WHIP, WRP, GRP, FRP

iv. Projects

1. Remove encroached conifers, improving habitat for sage-grouse and other wildlife and increasing forage availability for livestock.
2. Improve grazing systems management, increasing rangeland plant diversity, cover for birds, and forage availability for livestock.
3. Identify and mark fences where sage-grouse collisions are likely reduce accidental mortality caused by fence strikes.
4. Increase connectivity of existing core habitat.
5. Improve management of weeds and invasive species.
6. Restore and promote healthy, productive springs and seeps.
7. Install wildlife escape ramps in livestock watering facilities.
8. Establish conservation easements to prevent large and intact working ranches from being converted into subdivisions.

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

NV NRCS 2010-13 SGI Funding Summary

Year	EQIP	WHIP	GRP	WRP	FRPP*	Total SGI $
2010	$ 1,136,303	$ 575,667	$ -	$ -	$ -	$ 1,711,970
2011	$ 450,000	$ 50,000	$ 501,377	$ 3,228,223	$ -	$ 4,229,600
2012	$ 2,067,160	$ 97,789	$ 2,170,375	$ 3,766,795	$ 10,001,790	$ 18,103,909
2013	$ 784,674	$ 156,145	$ 8,105,847	$ 849,376	$ -	$ 9,896,042
Totals	**$ 4,438,137**	**$ 879,601**	**$ 10,777,599**	**$ 7,844,394**	**$ 10,001,790**	**$ 33,941,521**

*Easement Partner Funding Match

$ 28,623,783 investment in NV Sage-grouse Conservation Easements

- **5,703 Acres Completed**
- **14,661 Acres completing enrollment**
- **1,405/acre**

c. Western Nevada Project Highlights - Jim Gifford, Natural Resource Conservation Service

Implementing the Bi-State Action Plan:

March 2010-September 2013:

Over $21 million invested in Sage Grouse conservation in the Bi-State, so far:

Year	EQIP	WHIP	GRP	WRP	FRPP*	Total SGI $
2010	$119,778	$36,209	----------	----------	----------	$155,988
2011	$430,294	$90,353	----------	----------	----------	$520,647
2012	$234,642	$31,367	$2,218,565	$278,400	$6,400,000	$9,162,974
2013	$303,447	$47,492	$9,570,557	$0	$1,240,000	$11,161,496
Totals	$1,088,161	$205,421	$11,789,122	$278,400	$7,640,000	$21,001,104

*FRPP Easement funding includes Partnership dollars.

i. Conservations Easements
   1. 11,752 applications in Nevada; 7,439 applications in California
   2. NRCS Easement Dollars = $12,712,522 Partnership Easement Dollars = $6,895,000 Acres = 13,422

ii. Pinyon-Juniper Removal
   1. 3,174 acres of encroached conifer removed on Private and Public Land since 2010. 1,101 additional acres planned for treatment.

iii. Fence Marking and Removal

1. 14.3 miles of fence markers installed with an additional 3.5 miles planned for 2014.
2. 1.9 miles of fence removed in the Pine Nut PMU in 2012; 3 miles removed in 2013 in the Bodie PMU.

iv. Meadow Restoration
1. 1,225 acres, including rabbitbrush removal

v. Prescribed Grazing Plans
1. 7,922 acres of prescribed grazing planned to benefit Sage-grouse with an additional 8,637 acres currently being planned with Bi-State landowners.

vi. Other Conservation Practices: install escape ramps, water facilities, fencing, brush management, weed control, spring improvements, re-seeding following fires, conservation plans, technical assistance,

d. <u>Grazing Plans in the Bi-State Area – Tracey Jean Wolfe, Natural Resource Conservation Service</u>

i. NRCS develops a conservation plan on private property based upon their goals and objectives. The plan list the practices that they will implement

ii. A resource inventory (e.g. plants, infrastructure, wildlife habitat, etc.) is conducted

iii. A prescriptive grazing plan is developed based upon the goals and objectives that specifies, kind, class, and number of livestock; forage quantities; forage animal balance; grazing schedule; key forage species, proper grazing use; contingency plan, monitoring plan
1. The prescribed grazing plan is based upon NRCS standards and specifications
2. Grazing Plans are now addressing sage-grouse life history needs including managing for cover,
    a. Grazing Prescription for early brooding/nesting:
        i. Defer spring grazing
        ii. Limit use levels to 50%
        iii. Rotate spring use areas between years
        iv. Habitat Benefits: Improve vigor of grasses and forbs
    b. Grazing Prescription for late brooding:
        i. Rotate grazing use
        ii. Follow plant height/re-growth specifications
        iii. Habitat Benefits: Grazed field provide access to forbs/insects, re-growth provides cover
    c. Grazing Prescription for winter habitat:
        i. Limit use to 65% of grasses and shrubs
        ii. Habitat Benefits: Maintains Cover
    d. Additional Recommendations to benefit sage-grouse:
        i. Reduce Hazards: Mark or remove fences, remove PJ, Cut Hay after July
        ii. Maintain and Increase vegetation cover
        iii. Improve meadows by reducing shrub encroachment
        iv. Include forbs in seed mixes
        v. Rest grazing during droughts
        vi. Dispose of animal carcasses properly to reduce predators/scavengers