

**Sustainable Rangeland Roundtable (SRR)
General Session Notes
Portland, OR—September 22-24, 2009**

Tuesday, September 22

Welcome and self-introductions – led by Facilitator (Lori Hiding)

Complete list of attendees provided separately (Appendix A)

SRR Administrative Transition – Robin Reid, CSU

SRR is transitioning from being housed at CSU to WY. With the transition, there is opportunity for growth and renewal. We want to keep the focus on the future. It is unusual for a volunteer organization to position itself between policy, science and land management. This is a challenging place to be and it is amazing that SRR is still here after 10 years. I am encouraged by past accomplishments and looking forward to many more years of good work. There are several reasons for the transition: 1) Always planned on a 10-year tenure at an organization so that it would remain open/shift, 2) More time commitment than originally thought, 3) issues with budget. I initiated the transition and thank John for taking it over. John has been a part of SRR from the beginning. He will attempt to attract more resources for additional staffing

Plan is to complete outputs at CSU by December 31, 2009. (These include: OR pilot report synthesized, ecosystem services paper/energy, workshop on fragmentation, 4NCGI conference in Reno in Dec with ranch assessment activity). Funding will not be spent till April 2010, so from Jan to April Robin and John will both supervise. The larger SRR community can support during the transition by continuing to support SRR.

Vision for SRR 2010-2020 – John Tanaka, University of Wyoming

John provided a review of the vision, mission and strategic goals for the roundtable and discussion that these elements are the same and will not change with the transition. Introduce new governance structure and discuss the desire to meet at a more regular basis to reinvigorate the group. Discussion of the new website for SRR to make the information more accessible and break up the long pages.

**SRR Steering Committee Project Updates – led by Facilitator (Lori Hiding)
Rangeland Ecosystem Goods, Services & Core Processes – Lori Hiding and Kristie**

Maczko We did a workshop in 2006 and released an 80-page booklet on ecosystem goods/services. There is a second group looking at EGS and energy production on rangelands. This is in the process. We expect to have a draft by the end of the year and then begin the peer review process in *BioScience*. Another booklet and peer-reviewed publication looking at climate change and rangeland EGS is also planned.

Conceptual Model Article Publication –Bill Fox

This article came out in August 2009. There were many people involved in this process

and it isn't static—please offer critiques. This document is available on the SRR website, or through the Journal of Society and Natural Resources.

SRR Local/Ranch Assessment Effort – *Stan Hamilton and Kristie Maczko*

Stan is currently working with Cindy Garretson-Weibel (business plan) and Hellyer Ranch (pilot project). This is a slow process because the ranch is very busy, but hoping the results will be available in 1-2 years. Chuck Stanley (NRCS), Chuck Quimby (FS), Doug Powell (BLM) are three employees helping out on the development of a manual/handbook. There will be related symposia at 4NCGL and SRM. Hoping the manual will be ready in a year.

SRR Monograph Status – *John Mitchell*

Editing of the monograph series happened a year ago. We are currently waiting for the “plant and animal” criterion paper, led by Linda Joyce. This will be done soon. Hoping to hand over the entire manuscript at the next SRM meeting and then it will be published online (180 pgs).

Outreach efforts (4NCGL, SRM, NCBA, ESA) – *Kristie Maczko*

SRR is currently planning to go to both the SRM and 4NCGL meetings. Potentially may attend the National Cattlemen's meeting and possibly hold a rangeland/energy symposium for ESA, and/or an EGS session at SWCS. There may be a few other additional outreach activities. Let Kristie know if there are other opportunities for outreach that she should consider.

Update on W1192 committee and opportunities for SRR – *John Tanaka*

W1192 was created to look at wildfire and invasive species. It falls under a land grant program to attempt to get regional universities to coordinate and write grants together. Progress has been slow, but planning to meet in Las Cruces in a few months.

SRR Pilot Project Review – *Cliff Duke and Kristie Maczko*

Last winter we brought together a review committee for the draft report on the pilot project with 4-5 outside reviewers. Kristie is currently working on preparing a synthesis.

Fragmentation—*John Mitchell*

Agencies said they needed help from roundtable to define this. We held a workshop in 2007 and are working on summarizing into a report to follow up on funding.

SRR Indicator Review Process – *James Bernard*

In June 2007 we met for a day in Denver to ask questions of indicators. From this meeting, we came up with revised indicator names, additions/removals, matrix with supporting data, and recommendations for next steps. James is planning to complete the final report and matrix by Oct 1 and will send out to working group. Will ask to look it over and then make it final. Need to convene a wider group in next few months to confirm and need to continue with updating. This will also lead to a set of research needs—might serve as a catalyst.

Partner Resource Roundtables (SWRR & RSF) – Cliff Duke and David Morman
Update on the Roundtable on Sustainable Forests: David Morman (OR Dept of Forestry)

The forest roundtable is very active, both nationally and internationally. They are part of the Montreal process, which includes 12 nations that have agreed to common set of criteria/indicators. It was started in late 1990's with state forestry groups. They are interested in a wide range of issues (from national to local), scale, engaging broader community and trying to create stakeholder strategy. Roundtable is going to develop an action strategy based on national reports and look at actions in next 2 years. Goals are to: 1) Identify economic evaluations, 2) forest health, 3) develop private land products, 4) establish presidential commission on sustainable forests (Forest Bill?), and 5) develop a targeted outreach strategy. Interested in collaboration with other roundtables on indicator work, partner with other states, see collaboration as a way of progressing both goals.

Discussion

- **Budget.** Something has to change in terms of budget (50% going toward suppression), many issues and values involved.
- **Overlap of indicators.** This is part of the matrix James Bernard is developing and is also included in Ted's matrix that shows overlaps between sector indicators.

Update on Sustainable Water Resources Roundtable: Cliff Duke

They are working on an annual report. Pilot project NES project is looking at water indicators and exploring what role they can play in contributing to this. Peter Gaulke mentioned potential cross roundtable discussions. In 2010 maybe joint meeting in Denver or Chesapeake Bay.

Oregon's Approach to Sustainable Forests: Policy, State-level Indicators, and evolution of a state-level roundtable – David Morman, Director, Oregon Forest Resources Planning Program

The presentation discussed a nine-year effort in Oregon to look at state-level sustainability indicators. Half of OR lands are in forest and half of the forested land is managed by the federal government. There is a lot of controversy and polarization around forests. They used the Montreal process to build common ground around a shared framework at state level. They started by taking a poll asking residents about public/private lands and balance between 3 E's. Oregon established seven primary goals that were not a hierarchy but a balance between elements and then came up with indicators for each goal. Developed a web-based platform to understand where indicators stand (+/-), the trend and the data quality. They created desired initial trend statements and want actual quantitative targets for each. The presentation included several examples of indicators.

Important Take Away Messages

- One of the interesting outcomes was an awareness of a disconnect between what the public wants to know and what scientists recommend. Thinks that you could save money by focusing on the questions/information that is important to the public.
- Everyone thinks they know best—but need to look at knowledge that each

group has to contribute to the process. Regardless of values, come to the table and share what you know to focus on common problems.

- Want involvement of diverse groups to shape and use the framework. People are hungry to have this conversation if there is a safe place. Considering a state-level effort in OR to lead the process.

Update on Multi-Agency Oregon Pilot Project: Progress to date and future plans, including pilot report review and overview of adapted FIA/NRI protocols – Leonard Jolley and Jeff Goebel (NRCS), Janette Kaiser (FS) and Rob Roudabush (BLM)

SRR was the stimulus for this project that helped agencies work together on a joint effort. In 2007 data actually collected and we are currently working on a review of the initial effort. For OR pilot had 5 indicators (1) amount and dist of range, 2) bare ground, 3) vegetation composition, 4) invasive species 5) fragmentation. The process offered an opportunity to compare protocols, develop a common vocabulary and create a common sampling protocol. The next step is to summarize ecological data and then integrate with socio-economic data.

Difficulties

- The sites lacked consistent soil information/ecological site descriptions so it was difficult to stratify.
- Challenge of scaling up.

Discussion

- Do we want to scale up/include more indicators to collect more data or attempt to use existing data?
- Better to ask questions upfront instead of just collecting data. What questions are we asking? Should talk about that this afternoon. We need to think through what we want to answer with the indicators.

Rangeland Landscape Pattern Analyses: Data, Methods, Results, Next Steps & Discussion – Jim Alegria, USDA Forest Service and USDI BLM, and Paul Patterson, USDA Forest Service

There has been wide spread interest in fragmentation from agencies, academics and advocates. This talk described one tool to look at proportions of an attribute at difference scales across a landscape. This is just a methodology and could be used to address a broad range of questions. Need to classify land into three general types and use a triangle similar to the soil texture description to come to a specific description of each point on the map. We can look at attributes such as density (amount), mosaic (composition) and spatial patterns (configuration). We can also look at both core areas and connectors. A more detailed description is in the PowerPoint presentation.

- Questions:
 - **Categories.** Are you required to have 3 basic categories? Look at the base map—we originally had 19 that we had to collapse to 3—usually have one “other”. Might be able to do on four dimensions, but becomes hard to interpret.
 - **Scale/Time Issues.**
 - Can look at both scale and time. EX: Sage-grouse lek points with maps to characterize what is around the leks on various

“neighborhoods” and then you could do a predictive model to identify potential leaks.

- What was the drive for national focus? OR is hopefully pilot for national so wanted to make sure that the tool developed could be scaled up. Did you drill down to look at finer scale? Finer scale dependent on base map and size of window. Effort to ground truth this? Would need finer scale base map—this is the only scale currently assessed.
- **Integrating Socio-economics.** How to integrate with Pilot study/socio-economics? Fragmentation wasn't defined and so this is the approach we came up with. Didn't explore the intersection of this and other indicators, but could look at indicators and model.
- **How to.** How do I use this approach? What software do you use? Everything was done in ARC GIS or GUIDOS (free software). No substitute for subject matter guidance—need to have clear objectives and locate needed data/information. Need a GIS person to help use this tool.

Refresher presentation on SRR Core Indicator selection criteria, SRR indicator data status (existing metrics, existing data, etc.), and other potential indicator sources to inform identification of next indicators to add to MAPP suite – *John Mitchell, Doug Powell and John Tanaka with participating criteria group leaders*

We decided to create the core indicator list because there were so many indicators and needed to find a way to organize and prioritize them. The criteria we used included the importance of the indicator and the availability of data. Presentation provided an overview of the 6-point framework and a review of core indicators (in presentation). Completed the data matrix for each indicator. Validated the indicators through systems based framework—LUCID project USFS (Montreal Process): try to apply the Montreal process at local scale. Need a systematic way to show that indicators have a scientific basis. To do this, came up with scenarios and ran them through the model in order to find what indicators were salient. Not all of the core indicators need to be used—instead it should be thought of as a suite to chose from.

Whole group discussion on MAPP to agree upon process for identification of other indicator data collected (beyond 5 MAPP indicators) with NRI and FIA protocols in MAPP counties and additional indicators to be added to the MAPP suite. – led by Facilitator (Lori Hidinger) with *Leonard Jolley and Jeff Goebel (NRCS), Janette Kaiser (FS) and Rob Roudabush (BLM)*

There were three key discussion points: 1) framing questions (what do we want to know?), 2) what indicators can we add to the pilot suite? 3) how can we use existing collected data?

Rob Roudabush (BLM)

BLM has always been primarily an authorizing institution and data collection was often seen as a mitigation strategy. There is a move from processing permits to managing conservation. There is an increased need for a regional assessments in order to use existing info to understand where processes are intact and how can we maintain those

areas, where are opportunities for restoration and where have they crossed a threshold. In this scenario, indicators have new meaning. The purpose of the regional assessments is to look at opportunities for conservation, restoration and/or development. Making the connection to the field is important because the BLM is ripe for indicators. Would like to figure out how to deal with regional assessments/focal areas/local mgmt strategies. Heinz center is working in the west to develop performance indicators (NV: sagegrouse, Mojave Desert and Spring brook Ecosystems to identify performance species). This could lead to field teams talking about indicators and scale and bringing teams together (wildlife, water, etc...). Workshops on regional assessments this spring. TNC, TU, USGS, Wildlife society trying to make sense of indicators top down and bottom up for land use planning. Don't want to duplicate—want to harvest the best of what there is.

Small Group Discussion Regarding Indicators

Framing Questions

Where do we want to go from here? The basic and complex list of desired futures? How could the existing data be used to assess sustainability? How to scale up indicators?

Group Discussion

- **SRR has historically focused primarily on the biophysical.** Important to consider links to socio-economic.
- **Scale.** Agencies would like to see assessments at a regional scale. Concerns and unknowns about how to make it scaleable. Need a finer grained analysis.
- **Resource limited environment.** Need to address the project level needs while building a larger infrastructure.
- **Indicator Matrix.** Brief overview of spreadsheet that lists both of what was used in OR pilot and what FIA/NRI collect
- **Indicators and utility for different groups.** Wildlife managers want to know what these structural indicators tell about specific wildlife habitat—indicators do not always get to this. Heinz center is looking at performance indicators and doing it from the state level—bottom up. How to connect cross state?
- **SUMMARY:** Need to resolve issues of scale, integration and make incremental improvements. We should also look for clever uses of existing data (FIA/NRI) and match work to agency needs (EX: BLM and land use planning).

Small Group Feedback

Group 4:

- Predictive Indicators. Would like to look forward and focus on stressors.
- Indicator Overview
 - 5: Soil erosion. This indicator is difficult because NRI collects for cropland, which is different than rangelands.
 - 6: Water Bodies/Biotic. Might be able to be supported by nature serve database. Weighted stressors.
 - 7: Surface water. Supported by NAWQUA database—but 51 watersheds don't cover all western rangelands—uneven.
 - 15: Density of roads/houses in rangelands. Lots of agencies are looking at imaging and mapping

- 16: Fire—large agreement. Existing mapping but need to look at frequency and intensity and extent
- 17/14 Riparian Condition: Discussed proper functioning condition
- 18: Invasives. Validation of stressors
- 24: Domestic Livestock—not the greatest indicator. Not what they are after. Came up with cattle grazing from the NAS database and there were some interesting calculations there (John Mitchell)
- Suggested new indicators:
 - PFC: need an index to monitor riparian systems. Need a status of these systems. Look at # of stream miles and do HML assessment.
 - Groundwater depth: databases not there at national level. No indicator in SRR list. Held at state level. Change in stream flow is not an SRR indicator but could get at USGS.
 - Climate change indicators are needed.

Group 3:

- We focused on framing questions about the context, not by indicator.
- Indicators that sort background from trend—something about stability and redundancy. EX: weather—cover varies with weather and how does this tie with condition.
- Comparison to what? Needs to look at a goal/target/reference
- Need a better suite of disturbance indicators? There are a few: fire/livestock...but in their absence you have forests, so they are important to include.
- Desired futures
 - **Include Thresholds.** What is the action point? When does it inspire us to do something? When is this?
 - **Data Quality.** How to enforce/encourage consistency? There needs to be a process/mechanism to encourage good data collection.
 - **Scale or Intensity?** Question of how to expand: test current indicators and whether they correlate with what you want to know or expand to more indicators.
 - **Make the links apparent.** Make it apparent how what we want to know is connected to indicators.

Group 2:

- Focused on how to understand thresholds in lands at risk and how does climate change impact this?
- Useful indicators
 - 9 (surface flow), 5 (erosion), 17 (riparian areas)—difficult to deal with and issues in existing monitoring but need to be looked at.
 - Potential new indicators
 - Snow pack data is available—well used and managed and could provide water information/temperatures.
 - Air quality measurements: view-shed, PM 10, fugitive dust.

Group 1:

- Discussed the issue of scale. Broad national scale (more inclusive) and/or international scale (after listening to forest roundtable). Is there time to think bigger? 2011: Argentina—this could be a good time to launch this effort.
- Could focus on private landowner incentives. Provide a point of commonality b/c all deal with private landowners, transcend private land boundaries, adaptation and transparency.
- Data use: Which are next to focus on? Use what has been collected and see if it tells us anything. Run it through ISEEC model and see if it is verifiable. Bring it back to roundtable to interpret and come up with policy recommendations.
- Should we consider recommending to USFS and NRCS as part of RPA/NRCA process? To see if they are useful on a national basis.
- Refocus on a national assessment and let that drive the data collection.

Summary

- Desire to think about/understand indicators that measure stressors and thresholds.
- How do we make the indicators useful for different stakeholders (scale, intensity)
- What does the extension of the OR pilot project mean? How do we define it and how do we want to do it? (Replication, expansion, intensification) Want to be opportunistic, relevant and applicable.
- Strategies:
 - indicators suggested for testing (add a few), run with the ones we have now—test them to see: do they work?
 - lots of data exists—assess it.

Wednesday, September 23, 2009

Overview of Day 1 progress and plans for Day 2 – *Facilitator (Lori Hiding)*

- Introductions of new people:
Kit Muller: BLM DC, Janette Kaiser: FS DC & Read Smith: Farm Ranch in WA 2525 initiative
- Overview of yesterday
- Game plan: look at climate change, informational pieces, later will work in small groups to tackle climate change.

Summary of Climate Change Report released in June 2009, other current developments with climate change policy, and implications for SRR initiatives – *Jack Morgan, ARS*

Jack presented a brief overview of state of climate change research and implications for SRR. The five key points included: 1) Unknown plant response to climate change, 2) Increased weather uncertainty, 3) Potential increase in stressors (weed, disease and insects), 4) Forage quality declining due to decrease in N concentration, 5) heat, disease and weather may decrease animal productivity.

- Implications: There is a growing interest in using agricultural lands as carbon sinks (HR2454).
 - What we know: 1) Rangelands are neutral to slightly positive carbon sinks, 2) weather has huge effect on soil C, 3) little known about near-term impacts of climate/mgmt, 4) Rangelands have been sinks in past, if

continued warming, may be sources.(due to increase in respiration), 5)
Climate change and plant invasion—what will happen?

- Challenges/Opportunities: 1) Uncertain and changing environment, 2) Strong argument for monitoring systems

- **QUESTIONS:**

- What else would you add? Indicators cover a lot but may want to look at phenology of plants. Synchronicity of processes.
- Climate information should be explored and may think of linking up. Data sets not organized nationally, but could be useful to tap in.
- How to disentangle management/climate change? Combination of manipulative experiments, simulations, observational experiments. There is an experiment in NZ with management included. At ARS can't do this except in simulation.

Overview of energy development issues for rangelands with emphasis on renewable resources including solar, wind and biofuels; a USDI perspective – Kit Muller, BLM
Kit discussed how the Department of the Interior is moving from a project-by-project planning process to more regional assessments. Critical habitat for sage grouse needs integrative planning process—the example of the Northern Great Basin given as first attempt. The Department has seen a lot of change from non-renewable to renewable focus. Attempt is to look at a broader scale and prioritize areas for conservation, restoration and development.

BLM AIM Strategy, relevance to climate change, and opportunities for SRR with regard to climate change assessment, regional indicator applications, and multi-scale inventory and monitoring – Craig MacKinnon, BLM AIMS Group Leader

This presentation discussed the Northern Great Basin Rapid Eco-regional Assessment. The goal of the assessments is to use existing data and identify focal areas for conservation and restoration. Researchers looked at sagebrush cover, sage grouse, mule deer and fire frequency to prioritize areas. Plan to spend money in areas with species of concern and fire risk (priority areas). Next steps include: 1) mapping watersheds and core habitat, 2) working with sage grouse groups to locate their high priority areas. We worked with ARS & Dr. Jeff Herrick to develop core indicators (similar to FIA/NRI).

Climate change and renewable energy: 25x25's recent efforts to determine Agriculture and Forestry's role in a reduced carbon economy – Read Smith, 25x25 National Co-chair

This presentation discussed the Energy Future Coalition, which is an organization that straddles agriculture practice and policy to look at the potential for agriculture and forestry to contribute to the new energy economy. Their vision is that by 2025, 25% of our energy will be from US sources. Their major initiatives include: 1) bringing the vision to life (outreach/education), 2) addressing particular challenges and barriers (sustainability, biomass, community wind, infrastructure challenges), and 3) promoting agriculture /forestry solutions including a carbon initiative. More information is available on their website: www.25X25.org.

- QUESTIONS:
 - Why advocating not capping agriculture? Outside of control—capping all of input providers (capped through fert/fuel/chemical), shouldn't be capped twice. A little like non-point pollution—might as well not try.
 - CA experience: payback has been lower than would like. Creating business for consultants in management practice accountability and verification—making sure not double counting on either end. CA way ahead on this, but behind Europe.

Presentation and discussion on current version of SRR Integrated Concept for Social, Economic, and Ecologic Sustainability (ISEEC) in the context of climate change and energy development with a focus on social, ecological, and economic information integration in general and more specifically in relation to MAPP – *Bill Fox and Urs Kreuter, Texas A&M University, and John Tanaka University of Wyoming*

This presentation provided an overview of the ISEEC framework to look at the interactions between the social-economic and biophysical. They discussed how they ran different issues (invasives, fire, endangered species, drought) through the model to see if indicators are answering questions. The model is intended to take an integrated view of impacts and remind us of the other factors that should be included in assessment. Currently are working on using it to run several energy production scenarios with a focus on ecosystem services. This could also potentially be used to understand climate change scenarios, but would be very complex.

Data Issues (RPA, NRCA) *Greg Reams & Jeff Goebel*

This presentation covered current data collected by the NRI (RPA & RCA). A database has been put together in the past year to compile data looking at biotic integrity, hydrologic function, invasive species, etc... This is the first attempt to look at rangeland health over large landscapes. Still measured against ecological site description (reference condition), but it is an early approximation of range health. All data might not be perfect for indicators but probably 9-15 indicators have been measured. Some concern expressed that SRR might be focused too much on data collection when it is already being done.

The database is only partial & non-statistical. How do people feel about using it for a basis for an assessment? Under SRR, data quality (OMB, NRI) standards wouldn't have to be met. If people are willing to do it, it might provide more information. Data is qualified and data quality is tracked.

Discussion

- **Carbon.** Contribute to inventory of carbon (doing it since 1992) Difficult with intermingling of range/forest/etc... Problems with gaps & double counting. Should latch on to carbon accounting (Jeff)
- **Assessment for non-private lands?** Has been done for years. RPA has samples on both federal and public land but not all current. RPA has included both for a long time. Private has more depth, but in the past 12 years have it for public.

- **RPA and RCA differences:** RCA focuses on agricultural land/grazing land. RPA focuses on land with trees. A little overlap (both out of USDA), but have to reconcile because both under Sec of Agriculture.
- **What do you propose for SRR (Jeff)?** —It is important that SRR knows what types of data are available. What are useful national applications that already occur and do we want to do them again? Don't want to start with digging in the data—know what is already happening and go from there. Can we build off what exists? RPA/RCA might be higher visibility. The question might be “how do we improve the current assessments 5-years from now?” We all have vested interests, but if SRR were invested in RPA/RCA then this would be a huge influence.

OR Pilot and progress forwards (Janette Kaiser)

Pilot is not the future—it is an attempt to use the indicators jointly. We wanted to know if agencies could normalize differences, get beyond self-interest and monitor together. Felt this was a success—used them and worked together and are moving forward. FS took the information from SRR/pilot and in HoHot talked about global rangeland assessment (GRASS). In 2011 will have a session in Argentina. Argentina and Australia and China are looking at indicators. We figured out: we can do this, we can use indicators, and we can work together.

- How to move forward? Looking for funding (tough budget and need to demonstrate the utility and who cares?). Need to make it marketable. Collaboration between NRI and FIA is great.
- Participate in global scale.
- Provide something for US—national level assessment.
 - The RCA and RPA are supposed to be collecting this data. Don't have a lot of federal information—a lot is private. This is a place where SRR could help—these assessments could be better (2011)—these are 5-year reports and this is a place we could be a driver. Want to bring this to Argentina and present to the world.
 - NRI is doing this and is going forward regardless. Do ourselves a disservice if we focus just on Western US.

Social, Economic, and Ecological Data Integration Needs; Challenges, Opportunities, & Preliminary Discussion to Outline a Strategic Approach (actual work will occur in a smaller group, likely outside the SRR general sessions at a later date) – led by Facilitator (Lori Hidinger) with John Tanaka and Bill Fox

This discussion was centered on how best to do an integrative assessment of sustainability that accounts for more than just ecological sustainability. The conceptual framework is one way of thinking about this, but doesn't get into a lot of depth. Right now the model is more conceptual than operational. To move to an operational model it has to be context specific and 1) address linkages, 2) look at which indicators are relevant and 3) what measures can you assign for these indicators? One suggestion was to start looking at relationships between social/ecological variables and unexpected relationships might start new pathways of thinking. Another suggestion was to start with the questions that we are trying to address and go backwards to try to understand why it might be

changing.

Whole group discussion to develop a process to evaluate utility of the ISEEC for assessment of monitoring needs and policy applications in the context of climate change – led by Facilitator (Lori Hiding) with John Tanaka and Jack Morgan

- **Scope.** What role does SRR want to play in looking at climate change? What is a relevant timeframe? No decisions were reached.
- **Discussion of utility of tool.** There was some discussion that the model might be moving SRR away from concrete actions. There was a discussion about the importance of integrating social-economic and ecological aspects and assessing of the efficacy of indicators for decision makers. Someone also suggested the need to put it in the context of a value system.
- **Discussion about exercise.** Some discussion about what would be most useful, but decided to let groups decide.

Reconvene to identify small group participants; small groups begin work on evaluation of climate change issues using ISEEC and indicators (small group discussion leaders tentatively Bill Fox, John Tanaka, Urs Kreuter, Dan McCollum, and Cliff Duke) includes afternoon break

Output for small group work: 1) Thoughts on conceptual framework/scale, 2) How do we want to play with climate change, 3) Where do we see challenges/opportunities in integration?

Group: Bill Fox (TX)

This group worked on working increased temperature through the model to see what ecosystem services would be affected and what impacts it would have in order to try to see if any processes/linkages emerged that didn't fit within the model. The group tried to think of both positive and negative impacts of increased temperature. The model worked well, but increased temperature is very broad and it might be easier to look at a smaller scale.

Group: Urs Kreuter (TX)

This group found "climate change" to be too general because you need to know details (temperature, precipitation, location) to understand impacts. They felt that it might be useful to establish a range of input scenarios and develop a matrix of responses. There was also concern that climate change should be recognized as a response, not a driver. Other concerns included the importance of defining terms and needing to make the indicators more clear. The framework may help to identify data gaps in NRI/FIA, but it also needs to provide useful information on a policy level.

Group: Cliff Duke (DC)

This group focused on the interaction between impacts (ex: water storage, flooding, forage quality) and the potential to link them. They discussed unfortunate and positive feedback loops with climate change. They agreed that SRR needs to think hard about geographic variation and keep location and extent in mind.

Group: John Mitchell (CO)

This group focused on the driving variables (temperature and distribution) and tried to link them with indicators. They discussed impacts on natural capital (wildlife, biomass, functioning ecosystems, and water) and social capacity/capital. They didn't look at connection in terms of actual flows but might have been a challenge to do that. Instead, they focused on and listed impacted ecosystem services.

Summary

- Most people had good luck with the framework—could be a useful tool.
- How we use it? We must be careful and clear about questions & geographic scale.
- Climate change may be something we want to continue to think about—looking at how to see it in an integrated fashion.

Thursday, September 24, 2009

Overview of Day 1 progress and plans for Day 3 – *Facilitator (Lori Hidinger)*
Small groups continue work on evaluation of climate change issues using ISEEC and indicators; at least one group each for evaluation beginning on ecological side of model and socio-economic side of model (small group discussion leaders tentatively Bill Fox, John Tanaka, Urs Kreuter, Dan McCollum, and Cliff Duke), potentially by sector (agriculture, non-renewable energy, renewable energy – wind, solar, biofuels)

Brief overview of timeline from yesterday and progress.

The facilitator proposed two options for the breakout sessions: by impacts or by sector. Sector was decided on, because it is more helpful to paper and programmatic EIS (Washington). The decision was made to let groups decide how to approach the exercise, but to focus on the testing the framework to see how it works with different energy development alternatives (O&G, solar, wind, etc...).

Small group reports - led by Facilitator (Lori Hidinger) and small group discussion leaders

Conceptual framework - Bill Fox

This group started in the middle with ecosystem goods/services and decided to run O&G through the model. They came up with several extractible (forage, ground water issues, O&G production) and tangible/intangible (soil stability, wildlife habitat, soil quality/salinity, recreation increase/decrease (OHV users), open space issues, air quality) goods and services. They decided that this is a very difficult task and it might be easier to ask one question and then run it through the framework. Discussed solar development: are we adequately looking at efficient end use/distributed vs. centralized development? We ended up concluding that RPA/RCA assessment might move SRR forward and reconfirm our relevance. In terms of the framework, project-scale is doable but larger scales are difficult. The group consensus was that the framework could grow/change as SRR continues—it started to test indicators, if want it to integrate socio-economic with

ecological it may need work. Discussed the issue of scale and whether indicators are the same at different levels.

Ecological indicators – Cliff Duke

This group looked at each energy sector to assess associated impacts. They developed a matrix that looks at source (wind, solar, oil...) and impact (erosion, road building, etc...). They filled in each box with the numbers of indicators that could get at this impact. The types of impacts they looked at included permanent impacts (pads) and temporary (roads). They discussed: transmission lines, impacts on bird and bats (wind), impact of structures on species (sage grouse-wind), fragmentation (type & intensity), invasive species. One example is wind power (#4, #5, changes in vegetation community). We could create a matrix to describe impacts and indicators that would get at each of these. Discussion of cumulative impact and decision that ongoing activities could be “layered” to get at this.

Social-ecological indicators – John Tanaka

This group did a similar thing (matrix). They decided that impacts depend on spatial and temporal scales, type of energy source and the point in development. For instance: solar might have a 2-year construction period with a large impact but then they would just have ongoing maintenance. Basically all the vegetation is gone from the area—might be seen as a type conversion, but on a national scale this is just a tiny blip. Solar array will likely be fenced off (lack of access). Socio-economic impacts such as employment will be important locally, but perhaps not on a national scale. Discussed employment potential of solar vs. wind vs. oil and gas. There was a discussion about whether current indicators are adequate? Issues such as crime & suicide rates are very important on a local level.

Bill Fox and Jack Morgan

This group also took an impact approach. Discussed the appropriate scale for assessment—and questioned which one/ones SRR should address. This group was interested in how this framework can help look at energy development and tradeoffs.

Whole group discussion on gaps and overlaps; commonalities across sectors, as well as between ecological and socio-economic approaches; and recommendations for improvements to the ISEEC and indicators – led by Facilitator (Lori Hidinger) with John Tanaka, Bill Fox, and Jack Morgan

Opportunities – led by Facilitator (Lori Hidinger)

1. RPA/RCA
 - Help with synthesis of assessments for the 2011 IRC meeting. Connects with #5 (this is the assessment).
 - Matt Read of USFS at SRM—policy, feasibility symposium to look at state of the science on carbon and rangelands. This is part of the RPA.
 - Overlaps with some of the other opportunities (below)
2. Energy Development
 - There is a subgroup currently—ongoing.
3. Climate Change

- There is a subgroup currently—ongoing.
- 4. Interacting with Sustainable Waters & Forestry
 - Could we designate a liaison to attend other meetings and help with communication? We need to also commit to integrating the indicators between groups. Also talked about developing a joint pilot project.
- 5. Tackle a large-scale sustainability assessment
- 6. Interest in wildlife indicators (BLM-Craig MacKinnon)
- 7. OR: State level application
- 8. Integrating with new partners—shared proof of concept and overlap with Nita’s work
- 9. Dealing with SCALE
- 10. How do we look at integration of social-ecological (works on a project level but need to work on it as we scale it up)?
 - Need to think through how to integrate these factors—this is a new science and a really emerging area that this group could do.

National Rangeland Assessment

How could SRR contribute?

USFS:

- Currently: coordinate with RCA (2011)/RPA (2010). After these are done we could come up with first approximation including extent, use, integration of indicators. Janette is willing to come back with more specific proposals and suite of things to choose from.
- For 2015: possibility to inform (structure and data sources) new RPA/RCA development and help figure out how to integrate social, ecological and economic.
- Opportunity is to produce a national synthesis report from RPA/RCA/Breeding Bird/NatureServe. This could provide an analysis of gaps.
- Timeline: April 2011 (IRC). Need to be printed by December 2010. Would need the report by October 2010.
- At 2008 IRC Argentina shared indicators. Australia created book on rangeland. China reported on using indicators on a site-specific level. These might be good to build upon.
- Challenges
 - Getting all the pieces you need to synthesize. Timelines need to be figured out. Ton of information, but difficult to figure out how to pull it all together.
 - Original goal was to have a national assessment by 2010. This will be difficult, but start small. First year will be thin.
 - Could get funding and hire someone to work on this
- Highlights
 - Next steps: Janette coming back with ideas, Leonard reporting back about RCA, continue to be nice to Greg/Jeff, finish indicator report and run it by larger SRR group. The indicator needs a continuous review process. Might want to think about some type of online comment site. One thing we can do is to meet more often and do homework in the interim. New website can have discussion board on it. Neta will stay in touch and continue to let SRR know how EPA integrates biophysical to the human health side.

- Decisions—focus on the big assessment instead of taking on additional projects and continue to work with new partners.

BLM:

- Rob agrees with Janette that there is a need to SEE the integration of different elements. This is a really important piece of the big picture.

Summary

- Working groups will continue on these small projects (small resources or volunteer time).
- Energy indicators would keep SRR really relevant. Want to keep this going. At crossroads in terms of relevant indicators, want to sharpen them up and make them functional and then move out to develop/build more.
- One of the most important parts of an assessment is locating gaps and saying what we need.
- Monograph reports suggested for climate change and energy development pieces.

Meeting accomplishments, next steps, and future needs – led by Facilitator (Lori Hiding)

- Thanks to Robin for holding the SRR together in the short term and thanks to John for stepping up.
- Kristie did a great job putting together the schedule and outlining the speakers.
- See bright future for SRR. Mission big but important...encourage to keep it going.
- Focus in on real actions and glad to see moving forwards. Hope to reinvigorate and reengage additional participants.

Participants – September 22-24, 2009

1. Jim	Alegria	BLM
2. James	Bernard	Bernard Consulting
3. Martin	Beutler	SD State University
4. Bob	Breckenridge	INL
5. Rooter	Brite	GLCI
6. Craig	Ducey	BLM-Oregon
7. Cliff	Duke	ESA
8. Jeff	Fehmi	University of AZ
9. Bill	Fox	TAMU
10. Jeff	Goebel	USDA-NRCS
11. Stan	Hamilton	NASF
12. Lori	Hidinger	ASU
13. Tom	Hilken	R6-USFS
14. Nelroy	Jackson	Retired
15. Leonard	Jolley	USDA-NRCS
16. Janette	Kaiser	USFS
17. Urs	Kreuter	TAMU
18. Craig	MacKinnon	BLM
19. Kristie	Maczko	SRR
20. Ted O.	McArthur	USDA-FS
21. Dan	McCollum	USFS
22. John	Mitchell	USDA-FS (retired)
23. Jack	Morgan	ARS
24. David	Mormon	State of OR
25. Kit	Muller	BLM
26. Paul	Patterson	USDA-FS
27. Doug	Powell	BLM
28. Greg	Reams	USDA-FS
29. Robin	Reid	CSU
30. Rob	Roudabush	BLM
31. Read	Smith	2525 Initiative
32. Nita G	Tallent-Halsell	US EPA
33. John	Tanaka	University of WY