



2014 Rangeland Management Stakeholder Workshop Summary Report

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In February 2014 the BioEarth project's communication and extension working group convened a stakeholder advisory workshop focused on rangeland management concerns in order to build understanding among research team members of how the BioEarth integrated earth systems model might produce outputs that are relevant to the needs of decision-makers concerned with rangelands in the Columbia River Basin. The workshop, held in Richland WA, brought together a group of 7 stakeholders and 7 BioEarth researchers. This series of issue-based stakeholder workshops is a step toward greater information sharing and collaboration among university-based environmental modelers and stakeholders who can provide guidance and feedback to the modeling team and potentially use model results.

The workshop was designed to gain insight about 3 key questions:

1. What are stakeholders' most pressing concerns about current issues and future changes?
2. What information would aid in making better decisions?
3. How can the modeling approach be refined and scenarios be developed to produce outputs that are relevant to stakeholders' concerns?

I. Stakeholders represented at the workshops

35 individuals were identified and invited, 11 people were expected to attend the workshop (3 government, 2 NGO, 3 industry, 3 academic), only 7 were able to attend (2 industry, 2 government, 3 academic)

Academic/science (3 individuals): USDA Agricultural Research Service research scientist based at UI, WSU extension economist, WSU extension rangelands scientist

Government/Public Sector (2 individuals): Washington State Department of Natural Resources, Bureau of Land Management

Industry (2 individuals): Small-scale ranchers, holistic management practitioners



Groups not represented at the stakeholder workshop, but recommended for future inclusion by attending stakeholders: Tribal land managers, NGO representatives focused on water quality and land conservation, ranchers from large-scale and more traditional ranching operations, Oregon and Idaho Departments of Natural Resources.

II. Dominant regional issues of interest and concern

Environmental issues:

- Erosion linked to changing seasonality and amount of precipitation, impacts of erosion of air and water quality
- Forage quality changes associated with drought and changes in species distribution
- Soil moisture (timing and volume of water storage)
- Fetch (spacing between plants)
- Wildfire frequency and severity
- Frequency of multi-year droughts and extreme precipitation events
- Ranges of invasive species (cheat grass and medusa head)
- Juniper and pinion encroachment
- Water quality (including contributions from non-rangeland sources)
- Economic and non-economic recognition/quantification of environmental benefits of rangelands including carbon sequestration, wildlife habitat, etc.

Management and decision-making:

- Different kinds of grazing (sheep, goats, variation in cattle weights and uses of terrain)
- Application of Holistic Management principles
- Prescribed burning
- Use of forested rangelands
- Stocking rates, intensity and timing of grazing

Policy:

- Riparian fencing policies
- Completing land uses (recreation, oil and gas)
- Development and use of economical rangeland health monitoring systems

Economic:

- Winter feed prices
- Impact of ethanol process on hay prices
- Terms of leases—multi-year vs. annual

III. Information that may aid decision-makers

Model Scope: Drought and timing of precipitation are foremost concerns; grazing dates are intricately linked to precipitation. Weed pressure and invasive species are a moderate concern. Wildlife-livestock interactions are a less pressing issue. Perspectives on whether more information about C sequestration in rangeland soils would be relevant for decision making vary widely among stakeholders.

Model Time Frame: Agencies that lease rangeland make planning and permitting decisions on a 15-20 year cycle and are responsive to projections at this scale. In terms of decisions about managing individual range operations, model forecasts on a monthly time scale matter most for decisions about forage sources, length of grazing and recovery periods for the land.

Model Spatial Scale: Relevant scales depend on the decisions at hand. There is most interest in watershed-based models, ideally with plug-ins for looking at rangeland conditions within particular ranch managers' operations.



IV. Scenarios to Explore:

- How will shifting energy sources in the future (e.g. increasing emphasis on biomass-based energy) and pressures in other regions (e.g. drought) impact feed prices?
- How will climate change and management practices impact wildfire patterns?
- Holistic management (HM) approach; based on principles rather than prescribed practices, embraces intensified grazing. The biggest criticism of the HM approach is that most evidence in support of it is anecdotal; models could help explore relationship between practice and outcome and suggest what to monitor to evaluate impacts.
- Show how litter cover is impacted by grazing – model different herd densities and duration, how does grazing impact nutrient availability for the roots?
- Differentiate between the sizes of cattle being grazed; different animals use the terrain differently depending on how large they are. Sheep or bison grazing are other uses to explore.
- Look at vegetation interactions in forested rangelands– in some parts of the Columbia River Basin animals are grazed on land that has trees.
- Use the model to point toward ways that ranchers can have a positive environmental impact. This includes using models to better assess the impacts of cattle on riparian zones.
- Modeling “worst management practices” may in some respects be more meaningful than modeling “best management practices”. Seeing the consequences of decision-making that is destructive could help make it clear what to regulate against.
- Project changes in invasive plants and translate that into potential impacts on mammals, for example, the impact of yellow star thistle invasion on big game habitat quality.

V. Reflections on Communication:

- Webinars and online resources are increasingly important, but in-person workshops are greatly appreciated– this format enables another level of mutual understanding
- Very few mainstream news articles discuss grazing, the non-agricultural public has misconceptions about rangeland management that effective reporting could mitigate
- Fact sheets and research summaries that clearly outline conclusions are more likely to be read and talked about than long articles
- It’s essential to pay attention to the audience, for instance a cattlemen’s association has different information needs than agency biologists
- Ultimately, for models to be trusted in decision-making contexts, on-the-ground monitoring is essential to track model accuracy
- For government agencies, using model projections to make management decisions opens up a suite of ethical questions connected to how accurately models represent different areas and processes
- The research team should facilitate more in-depth stakeholder involvement in hypothesis/research question formation
Stakeholder involvement generates buy-in and confidence in results. There is a need for continued proactive engagement with stakeholders

Additional findings from the rangeland workshop session are available from the BioEarth Communication team, including a spreadsheet of actionable recommendations prepared for the research team. We greatly appreciate the time and energy that BioEarth researchers and stakeholders have invested in the workshop process, and feel that the questions raised and perspectives shared at the stakeholder advisory workshops have been extremely valuable in guiding the research team’s approach to model development.