Rancher Preferences for PES Program Design in Southwestern Wyoming

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Upper Green River Basin
Upper Green River Basin

World-class wildlife
Headwaters  Colorado River
Abundant natural resources

Land use change
Growth in population, traffic
Wildlife, air quality declines
Local landowners initiated the idea.

The Nature Conservancy and the Sublette County Conservation District.

Dixon Water Foundation/World Bank Community Connections Fund.

Funding secured for scoping efforts.

Partnered with the University of Wyoming.

Expert team assembled to brainstorm and build collaborative.

Literature review and discussions with experts.

Focus Groups.

The team was awarded a Wyoming NRCS Conservation Innovation Grant and AES Grant.

Grants & Feasibility Report.

New Partnership + Pilot Projects + Landowner Survey.
Supply Analysis: Need

- Ensuring that funds are spent wisely

- Purposeful and site specific program design is essential because program oversight, structure, and eligibility requirements mediate participation

- For a PES program to be successful in achieving its environmental objectives, it must be designed to enable sufficient participation by landowners managing ecologically important parcels of land
Supply Analysis: Previous Research

- Meta-analysis of 56 landowner participation studies for existing and hypothetical PES programs Duke (2010)
  - relationships between explanatory or influential factors and PES participation (+, -, mixed)
  - Factors explored in 3 or more studies

<table>
<thead>
<tr>
<th>Individual Farm/Household</th>
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<tbody>
<tr>
<td>Farm size</td>
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<tr>
<td>Land (and tree) tenure/Title</td>
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<tr>
<td>Environmental /Conservation ethic</td>
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<tr>
<td>Age</td>
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<tr>
<td>Education</td>
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<tr>
<td>Off-farm income/employment</td>
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<td>Family farm labor</td>
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<tr>
<th>Program Design Factors</th>
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<tr>
<td>Contract length</td>
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<tr>
<td>Program oversight</td>
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<tr>
<td>Institutional capacity</td>
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<tr>
<td>Transaction costs</td>
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<td>Compensation amount</td>
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<td>Targeting</td>
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<tr>
<th>Land Attributes</th>
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<tbody>
<tr>
<td>Heterogeneity of land value</td>
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<td>Land attributes/opportunity costs</td>
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Supply Analysis: Previous Research

• Kramer and Jenkins (2009):
  – Contract length has a negative impact on respondents’ willingness to participate
  – Payment level has a positive impact on participation
  – Program administrators - ranchers preferred a state agency
  – Red wolf conservation not widely supported, PES for wildlife habitat conservation in general was supported
Supply Analysis: Previous Research

- Cheatum, Casey, Alvarez, & Parkhurst (2011):
  - Ranchers strongly interested in PES programs (esp. wildlife habitat).
  - Ranchers prefer shorter contracts, larger payments and minimal administrative burden.
  - Program administrators - ranchers preferred a nonprofit org
Supply Analysis: Research Examples

• Miller et al. (2010) focus groups
  – Landowners value wildlife habitat and open space
  – Concerns over term length and public access to their lands

• McGaffin (2009) choice experiment survey
  – Negative (e.g. productivity of the land, percentage of land managed for oil, gas, and/or minerals)
  – Positive (e.g. higher payment in exchange for development rights, education level)
  – Colorado landowners are more likely to choose a conservation easement than Wyoming landowners
Interviews & Focus Groups

Participatory Rural Appraisal (PRA) approach

• Semi-Structured Scoping Interviews
• Focus Group 1: Experts and Potential Program Collaborators
• Focus Group 2: Mitigation Teams
• Focus Group 3: Potential Buyers
• Focus Groups 4 & 5: Potential Sellers (December, 2011)
  - Group 4: Pinedale
  - Group 5: Marbleton
Supply Analysis: Interviews & Focus Groups

Objectives

Determine...

- Feasibility of a PES program focused on biodiversity and water resources in the UGRB
- Potential ES that funders are willing to pay for and landowners are willing to produce
- Viable program structure and contract terms
- Acceptable process of clearing transactions
- Potential roadblocks to implementation
## Scoping Interview Findings

### Ecological Priorities (input from expert informants)

**Species to focus on:**
- Sage-grouse
- Mountain plover
- Mule deer
- Pronghorn
- Native trout
- Wild trout (naturally sustaining, but not native)

**Important systems:**
- Sagebrush-grasslands
- Desert shrub
- Riparian habitats
- Coldwater aquatic systems

**Arrangement on landscape/scale/scope:**
- Sage-grouse core areas
- Watersheds
- Sub watershed scale

### Program Design Preferences (input from potential sellers and potential buyers)

**Contract Management Entity:**
- Conservation District
- Nongovernmental Organization/501c3 (TNC, private land trusts, etc.)
- No state or federal agency, the more local the better
- NRCS perhaps jointly with UW extension biologist
- Wyoming Game and Fish Department
- Wyoming Wildlife and Natural Resource Trust

**Compliance and Monitoring:**
- Some annually, more intensive every 3-5 years
- Generic baseline for program instead of a landowner baseline
- Systematic but flexible approach to monitoring
- Monitoring programs can also be designed to include education/outreach

**Contract:**
- 5 years with renewals and reassessment
- If done in conjunction with or as mitigation for development project, then duration could be linked to project duration/reclamation time frames
- 20 year maximum
- 1, 2, or 3-year drought type situation
- First 5 year payment up front with annual payments afterwards, money held in escrow

### Program Focus (input from potential buyers)

**Outcomes - Three main goals:**
- Reduce fragmentation
- Reduce invasive species
- Maintain and improve water quality, quantity, and flows

**Important Factors:**
- Protect existing investments
- Ecosystem function/benefits more than a single species
- Benefits “watch list” or endangered species
- Public land/private land dual focus

**Requirements/prioritization criteria:**
- Closely aligned with industry impacts and processes
- Maintains existing habitat
- Cost efficient
- Has longevity

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1The state of Wyoming has adopted a sage-grouse core area policy (State of Wyoming Executive Order 2011-5) that limits infrastructure development within areas of the highest breeding population densities for sage-grouse (population core areas, Doherty et al., 2011) as a strategy to avoid population losses of the bird that could warrant it for listing under the Endangered Species Act.
Results: Landowner Focus Groups

Discussion topics included:

- Baseline - credit for work already being done, existing conditions of land
- Stacking/Bundling
- Spatial prioritization
- Potential practices
- Program design preferences
Supply Analysis: Landowner Survey

Objectives

- Understand landowner preferences for contract design features and identify the landowner characteristics that best explain willingness to participate
- Provide support for the Exchange already in development in the basin
- Increase awareness of and generate discussion about the UGR Conservation Exchange
- Demonstrate commitment and investment to potential national funders
Survey Methods

- Mail Survey
- N = 400 Ranchers in Sublette Co
- Modified Dillman method (Dillman, 1978)
- The Wyoming office of the National Agricultural Statistics Service (NASS) administered the survey.
Supply Analysis: Landowner Survey

• **Section 1: Current Land Use**

• **Section 2: Nature’s Benefits (Choice Experiments)**
  – Reveal the PES program design preferences by estimating the trade-offs between levels of the three program attributes in a simulated PES program.
  – Estimate the relative ranking and relative “value” of the attributes within a provided program and the additional compensation needed for ranchers to select alternatives.

• **Section 3: Conservation Program Participation**
  – Experience and level of satisfaction with various conservation practices.
  – Where they get information that they use for land management decisions.

• **Section 4: Personal Background**
  – Are any socio-demographic groups are more or less likely to be interested in enrolling in a PES program?
Survey Methods: Choice Set

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
<th>Levels</th>
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</thead>
<tbody>
<tr>
<td><strong>Management Practice</strong></td>
<td>Specific land-management practices required by the contract</td>
<td></td>
</tr>
<tr>
<td><strong>Target Outcome</strong></td>
<td>The focus of the program and the reason for the management practice</td>
<td></td>
</tr>
<tr>
<td><strong>Contract length</strong></td>
<td>The length of time that the contract agreement will last</td>
<td>5, 10, 20 years</td>
</tr>
<tr>
<td><strong>Payment</strong></td>
<td>The annual payment you would receive to manage your lands under the contract terms. For total payment amount multiply the amount by contract length and the appropriate unit (acres, gates, etc.)</td>
<td>$5, $25, $50, $100, $250, and $500</td>
</tr>
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## Survey Methods: Choice Set

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Levels = Mgt Practice Options</th>
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<tbody>
<tr>
<td><strong>Target Outcomes:</strong></td>
<td></td>
</tr>
<tr>
<td>Native sagebrush habitat for greater sage grouse and other wildlife</td>
<td>1) Work with program managers to apply an invasive or noxious weed control and monitoring plan. Reclaim and rest as needed. <em>The annual payment is multiplied by the number of eligible acres treated.</em></td>
</tr>
<tr>
<td></td>
<td>2) Agree to not treat intact sagebrush or to work with technical assistance to apply any treatments with minimal disturbance. <em>The annual payment is multiplied by the number of acres enrolled.</em></td>
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<tr>
<td></td>
<td>3) Remove fencing and/or other raven perches from Sage-Grouse Core Areas and reclaim native sagebrush acres as needed. <em>The annual payment is multiplied by the number of eligible acres enrolled.</em></td>
</tr>
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<td></td>
<td>4) Remove garbage dumps/dead piles closer than 0.6 miles from known sage-grouse habitat. Reclaim as needed. <em>The annual payment is multiplied by the number of eligible acres enrolled.</em></td>
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<td>5) Agree not to build any new roads or structures in Sage-Grouse Core Areas and reclaim native sagebrush acres as needed. <em>The annual payment is multiplied by the number of eligible acres enrolled.</em></td>
</tr>
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<td></td>
<td>6) Implement a grazing management plan that holds utilization of key species to 40% or less in Sage-Grouse Core Areas. <em>The annual payment is multiplied by the number of eligible acres enrolled.</em></td>
</tr>
<tr>
<td>Riparian habitat, water quality, and fish habitat</td>
<td>7) Optimize flood irrigation by managing irrigation to maximize return flow, subirrigation, and riparian benefits. <em>The annual payment is multiplied by the number of irrigated acres enrolled.</em></td>
</tr>
<tr>
<td></td>
<td>8) Adjust head gates to step-down slowly (over 3-5 days) to alert fish. <em>The annual payment is multiplied by the number of head gates adjusted.</em></td>
</tr>
<tr>
<td>Wildlife Migration Corridors</td>
<td>9) Open gates in known wildlife corridors during migration periods in spring and fall. <em>The annual payment is multiplied by the number of gates opened.</em></td>
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<tr>
<td></td>
<td>10) Convert to Wildlife Friendly Fencing: (according to Wyoming Game and Fish Department specifications). <em>The annual payment is multiplied by the number of feet of fencing.</em></td>
</tr>
<tr>
<td></td>
<td>11) Implement a grazing management plan in known wildlife migration corridors. This may require changes to ranch operations. <em>The annual payment is multiplied by the number of eligible acres enrolled</em>.</td>
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### Survey Methods: Choice Set

<table>
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<tr>
<th>Program Features</th>
<th>Program A</th>
<th>Program B</th>
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<tr>
<td><strong>Contract Length:</strong></td>
<td>20 years</td>
<td>10 years</td>
</tr>
<tr>
<td><strong>Payment Level:</strong></td>
<td>$100 Multiplied by the # of eligible acres enrolled</td>
<td>$5 Multiplied by the # of eligible acres enrolled</td>
</tr>
<tr>
<td>I would prefer to enroll in...</td>
<td>☐ Program A</td>
<td>☐ Neither</td>
</tr>
<tr>
<td>The program I think would be more popular in Sublette County is...</td>
<td>☐ Program A</td>
<td>☐ Program B</td>
</tr>
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Next Steps

- Economic Assessment (contract design, product and price preferences among potential buyers and sellers of PES)
- Ecological Assessment (conservation plan development, analysis of optimal products and locations from an ecological perspective)
- Landowner Survey (solicit broader rancher input on contract design, products, and prices)
- PES Pilot (voluntary market where management practices are undertaken by landowners and paid for by private funders)
- Prospective Full-Scale PES Program (increased geographic scale and product scope)