Alaska Sheep Hunter Survey

Dr. Todd Brinkman
Asst. Professor Wildlife Ecology
Institute of Arctic Biology
University of Alaska Fairbanks
Email: tjbrinkman@alaska.edu
Dissatisfaction with the quality of sheep hunting opportunities

Crowding, competition, and conflict among interest groups
- Resident sheep hunters
- Nonresident sheep hunters
- Big-game guides
- Transporters & Air Taxis

Increasing number of sheep proposals to BOG
- Increasing concern expressed through other communication channels
ADF&G and BOG acknowledge that sheep hunter issues need to be addressed.

Insufficient information to evaluate issue.
Overarching Goals

1. Systematically collect more information on what sheep hunting interest groups think about the situation
Research Plan

- Design a scientific survey that collected information on characteristics, attitudes, norms, and behaviors of interest groups
  1. Sheep hunters
  2. Commercial operators
Statewide Survey
1. Is there a sheep hunter problem?
2. Why is there a sheep hunter problem?
3. How might sheep hunting be improved?
Focus-group discussion (Jan-Feb)
Questionnaire design and pretest (Mar-Apr)

- Did the survey hit the target?
- Does it effectively address the issue?
- What important questions are missing?
- What questions could be removed?
- Is the wording clear and understandable to the typical sheep hunter?
- **Do any questions seem biased, leading, or loaded?**
  - Equal number of positive and negative responses each question
Methods

- Questionnaire online and mailing (May-Sept)
- Data entry and analysis (Sept-Oct)
- Write-up (Nov-Dec)
Between 2009-2013

- Hunters
  - Hunted sheep
  - Received a sheep permit
  - Applied for a sheep permit
- Commercial operators providing services to sheep hunters
  - Guides
  - Transporters
  - Air Taxis
People that haven’t hunted sheep were NOT responding to the survey
  • Apathy
  • Didn’t feel qualified
Third and Fourth mailings concentrated on people that HAVE hunted sheep
<table>
<thead>
<tr>
<th>Group</th>
<th>Subgroup</th>
<th>Population</th>
<th>Sampled²</th>
<th>Valid Responses</th>
<th>Response Rate</th>
<th>Survey Sampling Error at 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunters</td>
<td>Res</td>
<td>5,901</td>
<td>1,889</td>
<td>698</td>
<td>37%</td>
<td>±3.5</td>
</tr>
<tr>
<td></td>
<td>Nonres</td>
<td>1,941</td>
<td>522</td>
<td>269</td>
<td>52%</td>
<td>±5.5</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7,842</td>
<td>2,411</td>
<td>967</td>
<td>40%</td>
<td>±3.0</td>
</tr>
<tr>
<td>Comm. Operators</td>
<td>Guides</td>
<td>~147</td>
<td>~122</td>
<td>62</td>
<td>51%</td>
<td>±9.0</td>
</tr>
<tr>
<td></td>
<td>Transporters/Air taxis</td>
<td>~32</td>
<td>~25</td>
<td>17</td>
<td>60%</td>
<td>±16.0</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>~171</td>
<td>~140</td>
<td>70</td>
<td>50%</td>
<td>±8.3</td>
</tr>
</tbody>
</table>
Is there a sheep hunter problem?
**Question**

To what extent do you agree or disagree that there is too much harvest pressure on the sheep population in the following areas?

- In Alaska overall?
- In the range most important to you?

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Unsure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hunter crowding in Alaska overall?

- **Residents**: 72% Strongly Agree or Agree
- **Commercial Operators**: 66% Strongly Agree or Agree
- **Nonresidents**: 56% Strongly Agree or Agree

- **Strongly disagree or disagree**
  - Residents: 6%
  - Commercial Operators: 10%
  - Nonresidents: 14%
Hunter crowding in the range most important to you?

- Residents: 66%, 68%
- Commercial Operators: 31%
- Nonresidents: 48%

Strongly agree or Agree
- Residents: 66%
- Commercial Operators: 31%
- Nonresidents: 48%

Neither or Unsure
- Residents: 24%
- Commercial Operators: 14%
- Nonresidents: 10%

Strongly disagree or Disagree
- Residents: 10%
- Commercial Operators: 17%
- Nonresidents: 22%
<table>
<thead>
<tr>
<th>Group</th>
<th>Strongly agree Or Agree</th>
<th>Strongly disagree Or Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residents</td>
<td>74%</td>
<td>11%</td>
</tr>
<tr>
<td>Commercial Operators</td>
<td>84%</td>
<td>15%</td>
</tr>
<tr>
<td>Nonresidents</td>
<td>35%</td>
<td>22%</td>
</tr>
</tbody>
</table>
What is the relative importance of “crowding”? 

- How important or unimportant are the following factors to your sheep hunting satisfaction in Alaska? (Hunter questionnaire) 
- How important or unimportant are the following factors to your client’s sheep hunting satisfaction in Alaska? (Commercial Operator questionnaire)
Opportunity to harvest sheep every year

Opportunity to harvest a sheep (any ram)

Opportunity for walk-in hunts in non-motorized areas

Opportunity to hire transporters or guides

Opportunity to harvest a very large (>40 inch) ram

Seclusion from other hunters

Seclusion from plane traffic

Number of sheep seen

Size of ram harvested

Number of legal rams seen

Level of crowding and competition

Harvest success

Cost of a sheep hunt

Physical difficulty of the hunt

Weather

Opportunity to harvest a full-curl ram

Commercial operators

Opportunity for walk-in hunts in non-motorized areas

Opportunity to harvest a sheep (any ram)

Opportunity to hunt sheep every year
<table>
<thead>
<tr>
<th>Residents</th>
<th>Commercial operators</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal rams seen</td>
<td>Legal rams seen</td>
<td>Legal rams seen</td>
</tr>
<tr>
<td>93%</td>
<td>97%</td>
<td>97%</td>
</tr>
<tr>
<td>Seclusion 92%</td>
<td>Opp. to harvest full-</td>
<td>Opp. to harvest full-curl 96%</td>
</tr>
<tr>
<td>Crowding 92%</td>
<td>curl 97%</td>
<td></td>
</tr>
<tr>
<td># of sheep seen</td>
<td>Opp. to hire comm.</td>
<td># of sheep seen</td>
</tr>
<tr>
<td>90%</td>
<td>Operator 94%</td>
<td>96%</td>
</tr>
<tr>
<td>Hunt every year</td>
<td>Seclusion 92%</td>
<td>Seclusion 94%</td>
</tr>
<tr>
<td>88%</td>
<td>Crowding 91%</td>
<td>Crowding 92%</td>
</tr>
<tr>
<td>Opp. to harvest full-</td>
<td>Harvest success</td>
<td>Size of ram 85%</td>
</tr>
<tr>
<td>curl 88%</td>
<td>91%</td>
<td></td>
</tr>
<tr>
<td></td>
<td># of sheep seen</td>
<td>Harvest success</td>
</tr>
<tr>
<td></td>
<td>91%</td>
<td>84%</td>
</tr>
</tbody>
</table>

Statistically similar
What’s most important?

- **All groups:**
  - Seeing sheep (especially legal full curls) while in seclusion from other hunters.
  - Followed by a successful harvest

- **Residents:**
  - Hunting every year is equally as important

- **Nonresidents:**
  - Size of the ram harvested is equally as important
How do hunters define “crowding”?  

Question: How tolerable or intolerable are the following levels of crowding while sheep hunting?

<table>
<thead>
<tr>
<th>Very tolerable(-2)</th>
<th>Somewhat tolerable(-1)</th>
<th>Neither(0)</th>
<th>Somewhat intolerable(1)</th>
<th>Very intolerable(2)</th>
</tr>
</thead>
</table>

24
Other hunters interrupt my stalk on a sheep
I can’t get away from other hunters
I see multiple hunters and camps while hunting
I have to change where I hunt to avoid other hunters
I see a small plane searching for sheep in the area I’m hunting
I see a small plane on the ground in the area I’m hunting
I see another hunter camp while hunting
I see another hunter while hunting
I see a small plane in the air passing over the area I’m hunting
Part 2

Why is there a sheep hunter problem?
If you feel sheep hunter crowding and competition is a problem, to what extent do you agree or disagree with the following causes of competition and crowding?

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Unsure</th>
</tr>
</thead>
</table>

27
Response options

- Fewer legal rams
- More resident hunters
- More nonresident hunters
- More professional guides
- More profession transporters/air taxis
- More Alaska residents with planes
- Decline in sheep distribution
- Drawing areas displacing hunters to general harvest areas
- Decline in hunter ethics
Response options (interpretation)

- Fewer legal rams
- **Number or Influence of** resident hunters
- **Number or Influence of** nonresident hunters
- **Number or Influence of** professional guides
- **Number or Influence of** profession transporters/air taxis
- **Number or Influence of** Alaska residents with planes
- Decline in sheep distribution
- Drawing areas displacing hunters to general harvest areas
- Decline in hunter ethics
Most agreed upon causes of crowding (strongly agreed + agreed)

<table>
<thead>
<tr>
<th>Residents</th>
<th>Commercial operators</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fewer legal rams 83%</td>
<td>Transporters/air taxis 88%</td>
<td>Fewer legal rams 88%</td>
</tr>
<tr>
<td>Nonresidents 83%</td>
<td>Guides 78%</td>
<td>Residents 68%</td>
</tr>
<tr>
<td>Guides 82%</td>
<td>Fewer legal rams 77%</td>
<td>Guides 68%</td>
</tr>
<tr>
<td>Transporters/air taxis 76%</td>
<td>Residents 68%</td>
<td>Decline in sheep distribution 66%</td>
</tr>
</tbody>
</table>
What are you satisfied and dissatisfied with?

- Question: How satisfied or dissatisfied are you with the following current sheep management and regulation characteristics?

<table>
<thead>
<tr>
<th>Very satisfied</th>
<th>Somewhat satisfied</th>
<th>Neither</th>
<th>Somewhat dissatisfied</th>
<th>Very dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristics</td>
<td></td>
<td></td>
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<tr>
<td>------------------------------------------------------</td>
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<td></td>
</tr>
<tr>
<td>Full-curl regulation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of sheep hunting season (Aug. 10 – Sep. 20)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horn sealing requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statute requiring nonresidents to hire professional guides</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheep population size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation of professional transporters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allocation of tags to nonresident second-degree of kindred</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of general harvest hunts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of other hunters seen while sheep hunting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of drawing hunts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of registration/subsistence hunts</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of enforcement in the field</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allocation of tags to nonresident hunters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation of professional guides</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residents</td>
<td>Commercial operators</td>
<td>Nonresident</td>
<td></td>
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<tr>
<td>-----------------------------------------------</td>
<td>----------------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of season 76%</td>
<td>Nonresident Guide-requirement 94%</td>
<td>Length of season 80%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonresident Guide-requirement 75%</td>
<td>Length of season 79%</td>
<td>Full-curl regulation 62%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-curl regulation 72%</td>
<td>Full-curl regulation 67%</td>
<td>Horn-sealing requirement 67%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horn-sealing requirement 52%</td>
<td>Horn-sealing requirement 55%</td>
<td>Sheep population size 51%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residents</td>
<td>Commercial operators</td>
<td>Nonresident</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------</td>
<td>-------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonresidents 60%</td>
<td>Regulation of transporters 81%</td>
<td>😊</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulation of guides 56%</td>
<td>Allocation of tags to 2nd degree kindred 60%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># hunters seen while hunting 44%</td>
<td>Sheep population size 53%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regulation of guides 46%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td># hunters seen while hunting 44%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Explore differences in resident hunter characteristics among groups

1. Problem Group: Hunters that agreed or strongly agreed sheep hunter competition and crowding is a problem

2. No Problem Group: Hunters that neither agreed or disagreed, disagreed, strongly disagreed, or were unsure if sheep hunter competition and crowding is a problem
<table>
<thead>
<tr>
<th></th>
<th>Problem</th>
<th>No problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of times hunted during the last 5 years</td>
<td>1.8 years</td>
<td>1.5 years</td>
</tr>
<tr>
<td>Number of sheep harvested during last 5 years</td>
<td>0.7 sheep</td>
<td>0.6 sheep</td>
</tr>
<tr>
<td>Harvest success rate during last 5 years</td>
<td>0.35</td>
<td>0.33</td>
</tr>
<tr>
<td>Year started sheep hunting</td>
<td>1998</td>
<td>1999</td>
</tr>
<tr>
<td>Number of years sheep hunted</td>
<td>10 yrs</td>
<td>7 yrs</td>
</tr>
<tr>
<td>Age of respondent</td>
<td>46 yrs old</td>
<td>49 yrs old</td>
</tr>
<tr>
<td>Length of Alaska residency</td>
<td>26 years</td>
<td>26 years</td>
</tr>
<tr>
<td>Household income in 2013</td>
<td>$75-$100K</td>
<td>$75-$100K</td>
</tr>
</tbody>
</table>
Most important mountain range for sheep hunting (statistically similar)

- Alaska Range
- Brooks Range
- Wrangell Mountains
- Chugach Mountains
- Talkeetna Mountains
- Kenai Mountains
- Tanana Hills
- White Mountains

![Bar chart showing the percentage of preference for each mountain range for sheep hunting.](chart.png)
Variability of types of hunts and hunter densities varies within mountain range.

Smaller spatial scale (GMU subunit or special management area) likely needs to be evaluated to look at the effects of location.
Mode of transportation to hunting area?

- Commercial airplane: Problem
- Vehicle: No problem
- ATV: Problem
- Hunter-owned airplane: Problem
- Boat: Problem
- Pack animal: Problem
Too much harvest pressure on sheep populations

In the range most important to you*

In Alaska overall*

- No problem
- Problem
Perceptions of sheep population change

In Alaska overall

In the range most important to you

-2 -1 0 1 2

- No problem
- Problem
How might sheep hunting be improved?
Hunters and commercial operators where asked about approval or disapproval of potential changes to:

- Timing and length of the sheep hunting season
- Same-day airborne regulation
- Special hunts
  - Non-motorized, youth, trophy, etc…
- Characteristics of drawing hunts
- Permit allocation and tag fees
Question: To what extent do you approve or disapprove of the following changes to reduce sheep hunting pressure, competition, and crowding?

<table>
<thead>
<tr>
<th>Strongly approve(-2)</th>
<th>Somewhat approve(-1)</th>
<th>Neither(0)</th>
<th>Somewhat disapprove(1)</th>
<th>Strongly disapprove(2)</th>
</tr>
</thead>
</table>

45
Reduce tag allocation to guided nonresidents

Increase nonresident tag fees

Reduce tag allocation to nonresident kin

Prohibit plane-spotting sheep during hunting season

Reduce motorized access

More drawing hunts

Increase resident tag fees

After harvest, must wait 3 years to hunt sheep again

No changes should be made

Limit hunters to 1 sheep tag every 3 years

Reduce hunting season length

Resident
Reduce motorized access

After harvest, must wait 3 years to hunt sheep again

More drawing hunts

Prohibit plane-spotting sheep during hunting season

Increase resident tag fees

Limit hunters to 1 sheep tag every 3 years

No changes should be made

Reduce tag allocation to nonresident kin

Reduce hunting season length

Increase nonresident tag fees

Reduce tag allocation to guided nonresidents
Reduce tag allocation to guided nonresidents

No changes should be made

Reduce hunting season length

More drawing hunts

Reduce motorized access

Prohibit plane-spotting sheep during hunting season

Limit hunters to 1 sheep tag every 3 years

Increase resident tag fees

Increase nonresident tag fees

After harvest, must wait 3 years to hunt sheep again

Reduce tag allocation to nonresident kin

Limit hunters to 1 sheep tag every 3 years

Prohibit plane-spotting sheep during hunting season

Reduce motorized access

More drawing hunts

Reduce hunting season length

No changes should be made

Reduce tag allocation to guided nonresidents
<table>
<thead>
<tr>
<th>Residents</th>
<th>Commercial operators</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce # of permits to nonresidents 77%</td>
<td>Increase resident tag fees 74%</td>
<td>After harvesting a sheep, wait 3 years to hunt 74%</td>
</tr>
<tr>
<td>Increase nonresident tag fees 73%</td>
<td><strong>After harvesting a sheep, wait 3 years to hunt 74%</strong></td>
<td>Reduce motorized access 62%</td>
</tr>
<tr>
<td>Reduce permit allocation to nonresident hunting with kin 64%</td>
<td>Reduce permit allocation to nonresident hunting with kin 63%</td>
<td>More drawing hunts 60%</td>
</tr>
<tr>
<td>Prohibit plane-spotting of sheep 53%</td>
<td>Increase nonresident tag fees 62%</td>
<td>Limit hunters to 1 sheep tag every 3 years 54%</td>
</tr>
<tr>
<td></td>
<td>Limit hunters to 1 sheep tag every 3 years 60%</td>
<td>Prohibit plane-spotting sheep 52%</td>
</tr>
<tr>
<td></td>
<td>Prohibit plane-spotting sheep 59%</td>
<td>Increase resident tag fees 47%</td>
</tr>
<tr>
<td>Residents</td>
<td>Commercial operators</td>
<td>Nonresident</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Reduce hunting season length 66%</td>
<td>Reduce permit allocation to guided nonresident 67%</td>
<td>Reduce permit allocation to guided nonresidents 71%</td>
</tr>
<tr>
<td>Limit hunters to 1 tag every 3 years 61%</td>
<td>Reduce hunting season length 58%</td>
<td>Increase nonresident tag fee 52%</td>
</tr>
<tr>
<td>Hunter must wait 3 years after harvesting a sheep 56%</td>
<td>More drawing hunts 54%</td>
<td>Reduce hunting season length 49%</td>
</tr>
<tr>
<td>Increase resident tag fees 49%</td>
<td>No changes should be made 49%</td>
<td></td>
</tr>
</tbody>
</table>
Hunters and commercial operators agreed that “Regulation of Guides” was contributing to crowding and competition.

BOG requested that questions exploring suggestions for improvement focus on issue that BOG could adequately address.

License & tag fees remained because of the more substantive connection between fees and ADF&G operations.
<table>
<thead>
<tr>
<th>Question</th>
<th>Resident</th>
<th>Nonresident</th>
<th>Commercial operator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Should limits be placed on allocation of sheep tags to nonresidents</td>
<td>Yes 88%</td>
<td>Yes 25%</td>
<td>Yes 39%</td>
</tr>
<tr>
<td>If yes, what % of total allocation should nonresidents receive</td>
<td>10%</td>
<td>25%</td>
<td>20%</td>
</tr>
<tr>
<td>Should Alaska residents pay for a sheep tag</td>
<td>Yes 40%</td>
<td>Yes 92%</td>
<td>Yes 87%</td>
</tr>
<tr>
<td>If yes, how much should a resident pay (med)</td>
<td>$50</td>
<td>$100</td>
<td>$100</td>
</tr>
<tr>
<td>Should the price of a nonresident sheep tag change</td>
<td>Yes 77%</td>
<td>Yes 32%</td>
<td>Yes 57%</td>
</tr>
<tr>
<td>If yes, how much should a nonresident pay (med)</td>
<td>$1000</td>
<td>&lt;$425 (33)</td>
<td>$500</td>
</tr>
</tbody>
</table>
Survey respondents were proportionally representative of where all resident sheep hunters reside (urban, rural) and choose to hunt (mountain range).

Harvest success of respondents (35%) higher than average (25%).
Summary

Do sheep hunters and commercial operators perceive a crowding problem?
• Yes

Is the level of crowding important to hunters and commercial operators?
• Yes
What is the perceived cause of the problem?

- Conflict and competition among different interest groups
- Not enough legal sheep to go around

Residents

Nonresidents

Commercial operators

Nonresident influence & regulation of guide and transporters

Resident influence & regulation of guide

Resident influence & regulation of guide and transporters
Common characteristic among group perceiving a problem has been elusive. Perceptions may be more related to expectations than an individual demographic or behavioral characteristic.

$$\text{Hunter} = \frac{\text{Expectations}}{\text{Experience}}$$
Quality vs. Quantity of sheep hunting opportunities

**Short-term fix:**
- An increase in quality requires a decrease in quantity of one or more interest groups

**Long-term fix:**
- Might (very speculative) be possible to maintain quantity while increasing quality
  - Potentially increase supply and distribution of legal rams to meet demand
- Reduce hunter and commercial operator expectations
Questions or Comments

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