MANAGING GEESE WITH RECREATIONAL HUNTING

Getting to know goose hunters: their behaviours and motivations

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Photo: Ove Martin Gundersen
TALK OVERVIEW

Getting to know Danish goose hunters

- Background: Why manage goose populations & the role of hunters
- Research: Questions and how we got to know Danish goose hunters
- Findings: What we have learnt about them
- Perspectives: Implications for managing geese and other waterbirds
BACKGROUND

AEWA International Species Management Plan

- Svalbard population Pink-footed Goose
- Concerns
  - Arctic tundra degradation
  - Agricultural conflicts
- One option: manage the population
- Goal
  - Stable and sustainable population
  - Adaptive harvest management
BACKGROUND

Upper target: Reduce damage (agriculture and tundra)

Lower target: Safety net under the population

Population target

Population size

Year


0 10000 20000 30000 40000 50000 60000 70000 80000 90000
RESEARCH: AIM

Who is a typical goose hunter?

Photo: Ove Martin Gundersen
Social science research to improve our understanding of Danish goose hunters and different segments of the goose hunting community

- **First phase**: qualitative interviews
  - Hunting stories from 16 active goose hunters

- **Second phase**: Analysis of Danish wildlife bag statistics (2013-15/16)
  - Access to extensive set of data, submitted by all Danish hunters
  - Legal requirement

- **Third phase**: qualitative survey amongst goose hunters shot in 2013
  - Stratified sample: 3 groups based on bag size (randomly selected within)
  - 962 respondents (48% response rate)
  - On-line questionnaire about goose hunting behaviours and motivations
FINDINGS: BAG STATISTICS

Goose hunters in Denmark: how many are there and what do they shoot?

- About 13,000 hunters shoot geese each year
- Shooting approximately 80,000 birds
  - Hunting season extended in 2014-15 onwards (incl. January)
- Mostly shooting: Greylag, Pink-footed and Canada geese

<table>
<thead>
<tr>
<th></th>
<th>2013-14~</th>
<th>2014-15*</th>
<th>2015-16*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of goose hunters</td>
<td>12600</td>
<td>13200</td>
<td>13400</td>
</tr>
<tr>
<td>Annual goose bag</td>
<td>73000</td>
<td>82000</td>
<td>85000</td>
</tr>
</tbody>
</table>

~ Estimated number based on the number of hunters who reported, either online or by mail.
* Hunters as of 2014/15 required to report hunting bags before getting annual hunting license
FINDINGS: BAG STATISTICS

Small group of hunters have a large impact on the overall goose bag

- For goose hunters in 2013-14
  - 12% of all goose hunters shot more than 10 geese
  - Accounted for 55% of all geese shot
  - Majority (52%) only shot 1 or 2 geese
- Pattern repeated in subsequent years

- Goose bag size (2013)
  - Low 1-2: 13%
  - Med 3-10: 32%
  - High 11+: 12%
  - % Hunters
  - % Overall goose bag

FINDINGS: BAG STATISTICS

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FINDINGS: BAG STATISTICS

Are they regular or occasional goose hunters? (annually)

- **46%** of all hunters who shot geese in 2013 didn’t go on to shoot any geese the following year, but differences between bag size groups

- Positive relationship between bag size and shooting geese the next year

![Bar chart showing goose hunting rates by bag size in 2014](chart1.png)

![Graph showing probability of shooting 2014](chart2.png)
FINDINGS: BAG STATISTICS

Do they shoot the same number geese - annually?

- Majority goose hunters stayed within the same bag size group
  - For those who shot geese in 2013-14 & 2014-15
- Negative relationship between bag size and changing bag size group

![Graph showing bag statistics]
FINDINGS: SURVEY DATA

How many days goose hunting in 2013?

- Measure of hunting effort.
  - We expected more days goose hunting = higher goose bag
- Positive relationship but weak, explaining 10% of goose bag variance

![Graph showing the relationship between number of days goose hunting and total goose bag.](image)
FINDINGS: SURVEY DATA

What make some hunters more successful?

Using Information Theoretic (I-T) approach & regression analysis

- Formulated 20 candidate models
- Best model

\[
\text{Total goose bag} \sim \text{days} + \text{areas} + \text{check} + \text{distance} + \text{dog} + \text{equipment} + \\
\text{when} + \text{days x when} + \text{days x distance}
\]

3 key behavioural characteristics that positively influenced hunting bag sizes

1. Access to multiple hunting areas
2. Use specialist equipment
3. Frequency of checking
FINDINGS: SURVEY DATA

What make some hunters more successful?
For example: using specialist equipment
**FINDINGS: SURVEY DATA**

What are their motivations for going goose hunting?

- For a ‘nature experience’, highest ranked reason to go goose hunting

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Important</th>
<th>Neutral</th>
<th>Not important</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>For nature experience</td>
<td>11</td>
<td>11</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>It’s exciting to shoot geese</td>
<td>14</td>
<td>7</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>For the sake of the challenge</td>
<td>19</td>
<td>21</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Away from stressful daily life</td>
<td>17</td>
<td>24</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>To be with good friends</td>
<td>18</td>
<td>28</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>To work with hunting dogs</td>
<td>19</td>
<td>32</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>For the meat</td>
<td>24</td>
<td>31</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

For a ‘nature experience’, highest ranked reason to go goose hunting.
FINDINGS: SURVEY DATA

Influence of motivations on goose bag size?

- Only two motivational traits positively influenced goose bag sizes
  - How many geese they are satisfied with from a day’s goose hunt
  - To manage and control the number of geese
  - Influenced by publicity surrounding the management of pink-feet at time of survey?
FINDINGS: SURVEY DATA

Influence of motivations on goose bag size?

- For example: ‘bag orientated’ goose hunters
  - Small proportion of respondents, potentially high impact.
RESEARCH: AIM

Not a typical goose hunter, one type of goose hunter?
WHAT HAVE WE LEARNT

- A small proportion of Danish goose hunters account for large proportion of the goose bag
  - More likely to shot geese in consecutive years and consistently in higher numbers
- The majority only shoot 1 or 2 geese each year, and probably not every year
  - Perhaps have other hunting interests e.g. ducks and small game
- How often a hunter goes goose hunting does not necessarily correspond with higher goose bags
  - Can achieve high bag in a few days
- Goose hunting effectiveness enhanced by:
  - Access to multiple hunting-areas
  - Use of specialist equipment
  - Checking for geese
IMPLICATIONS FOR GOOSE MANAGEMENT

When using recreational hunting as a management tool we should:

- Recognise and account for different types of hunters
- Anticipate likely response of different segments of hunting community to adaptive harvest management regimes
  - When increasing & decreasing harvest
- Consider 3 related aspects

- Hunting bag statistics are:
  - Beneficial for managers and hunters
  - Foundation for sustainable harvest management
  - Particularly when combined with social studies
Thank you