Deer, Elk and Moose Management in Wyoming

Objectives, Data Collection, Season Setting, and Cervid Management
OUTLINE

• Big Game Management Synopsis
  o Management by objective
  o Herd units/hunt areas
  o Types of cervid objectives
  o Herd unit management strategies
  o Data collection/information used for season setting
  o General vs. Limited Quota licensing
  o Season setting process and timeline
  o Mule deer management

• Will Not Cover....
  o All big game season structures (i.e. all license types, season scenarios)
  o Other facets of licensing including preference points, landowner licenses, etc.
  o In-depth elk, WTD and moose management
  o Non-cervid big game management
Management by Objective

- All big game herds have a management objective
- Planned instead of reactionary management
- Accountability
- Everyone knows where we’re going
  - Department personnel
  - Landowners
  - Land management agencies
  - Sportspersons
  - Others
1. Inventory  
(Where are we?)

2. Objectives  
(Where do we want to be?)

3. Actions  
(How do we get there?)  
-Season Setting Process

4. Evaluation  
(Did we make it?)
Big Game Herd Units

- Geographical area with a discrete (closed) animal population
- Based on movement data, topography, habitats, barriers, etc.
- Population spends entire annual cycle within herd unit (all seasonal ranges present)
# Big Game Herd/ Hunt Areas Units in Wyoming

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>HERD UNITS</th>
<th>HUNT AREAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pronghorn</td>
<td>40</td>
<td>103</td>
</tr>
<tr>
<td>Mule Deer</td>
<td>37</td>
<td>132</td>
</tr>
<tr>
<td>White-tailed Deer</td>
<td>5</td>
<td>132</td>
</tr>
<tr>
<td>Elk</td>
<td>35</td>
<td>106</td>
</tr>
<tr>
<td>Moose</td>
<td>10</td>
<td>38</td>
</tr>
<tr>
<td>Bighorn Sheep</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Mountain Goat</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Bison</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Establishing Herd Unit Objectives

- Public meetings, open houses, individual and group discussions
- Objectives are measurable, numeric, quantifiable
- Objectives typically determined by socioeconomics with limits defined by biology
- Reviewed on 5-year rotation
- Must be approved by WGF Commission
Big Game Objectives (cervids only)

- **Postseason Population Size** – estimate produced from models
  - Most big game herds have this numeric objective, including 34 of 37 mule deer herds

- **Mid-winter Trend Counts** – based on aerial/ground surveys
  - Most elk herds have this numeric objective due to difficulty in modeling elk populations – based on 3-year averages

- **Satisfaction** – 60% satisfied landowners and hunters with secondary objective of male quality, harvest stats or habitat
  - Measured via landowner and hunter harvest surveys

- **Limited Opportunity** (some moose herds only)
  - Median age of male harvest is $\geq$ 4 yrs old over past 5 years
  - Average hunter days / bull harvest is $\leq$ 10
  - Documentation of at least 3x more adult bulls than # licenses issued
Big Game Management Strategies

- Commission approved management strategies accompany each objective
  - Special
  - Recreational
  - Private Land
# Big Game Management Strategies

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>METRIC</th>
<th>RECREATION MANAGEMENT</th>
<th>SPECIAL MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mule Deer</td>
<td>Post-hunt bucks: 100 does</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29</td>
<td>45</td>
</tr>
<tr>
<td>White-tailed Deer</td>
<td>Post-hunt bucks: 100 does</td>
<td>20</td>
<td>na</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29</td>
<td>na</td>
</tr>
<tr>
<td>Elk</td>
<td>Post-hunt bulls: 100 does</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>%Branch Antlered Bulls in the Harvest</td>
<td>45%</td>
<td>62%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61%</td>
<td>75%</td>
</tr>
<tr>
<td>Moose</td>
<td></td>
<td>n/a</td>
<td>Median age of harvested bulls &gt;4 years old; 50-70 males/100 females post-hunt</td>
</tr>
</tbody>
</table>

Private land strategy – no male ratio target range
Data Collection/ Information Used for Season Setting
Data Collection/Information Used for Season Setting

- Post-Season classifications
- Obtain sex/age ratios
- Helicopter and ground
Data Collection/Information Used for Season Setting

- Sightability surveys (population census for mule deer, elk, moose)
Data Collection/Information Used for Season Setting

- Trail cameras, trend counts, late winter classifications (change in ratios), mortality transects, etc.
Data Collection/Information Used for Season Setting

- Antler measurements (mule deer statewide)
- Disease sampling
- Tooth age data
- Field harvest data collection (check stations, field checks)
- Hunter feedback during hunting seasons (field contacts)
- Statistically valid harvest survey data
Data goes into population models

- Produces herd size estimates
- Evaluate preseason harvest percentages
- Predict affects of varying future harvest prescriptions and changes in survival (e.g. low survival due to severe winter, disease, etc.)
Data Collection/ Information Used for Season Setting

- Landowner contacts
- Damage claims and complaints
- Hunter/landowner satisfaction surveys
- Year-round public input from constituents
Data Collection/Information Used for Season Setting

- This all leads to Department recommendations for next fall’s hunting seasons.
Season Setting Process
Timeline

- Data collection – Year-round
- **PUBLIC INPUT**
- Notify Governor & LSO – January
- Compile/analyze harvest data – Jan & Feb
- Regions develop draft proposals – Jan & Feb
- Wildlife Administration review – March
- Local public season meetings – mid/late March
  - ~700 public at meetings last year
- **PUBLIC INPUT**
- Regions review public comment, edit seasons as appropriate – Early April
- Wildlife Administration final review – Mid April
- Commission sets seasons – Late April
  - **PUBLIC INPUT**
Challenges

- Limited data, not an exact science
- Conflicting public attitudes, desires, and needs
- Changing demographics of user groups
- Resource limitations (funding & personnel)
- Attendance at meetings – outreach
- Timelines/constraints of regulation process
- Results of management actions are not always:
  - Immediate
  - Readily identifiable
  - Predictable
Hunting Season Structure
Hunting Season Structure

GENERAL LICENSE:
• No limit on number of hunters
• General seasons for mule deer, elk and WTD

Positives:
• Greatest hunter flexibility
• No limits on resident hunter participation each year

Negatives:
• Increased hunter #s, decreased hunter success, increased # of days to harvest an animal
• Decreased season length
• Lower hunter satisfaction
Hunting Season Structure

**LIMITED QUOTA**
- Hunter numbers determined by quota
- LQ seasons for mule deer, elk and WTD
- More general hunt areas than LQ hunt areas

**Positives:**
- Reduced hunter #s, greater hunter success, fewer days required to harvest an animal
- Increased season length
- Higher satisfaction rates due to better hunting quality

**Negatives:**
- Reduced chance to draw a license each year
- Restricted to one hunt area
LIMITED QUOTA SEASONS WITHIN GENERAL AREAS

- Can provide for special opportunities within general areas (e.g. early or late season buck/bull licenses)
White-tailed Deer Management

• WTD managed with a combination of general and LQ licenses
  o Type 3 & 8 licenses
  o Up to 2 licenses for buck deer, but one or both must be Type 3
• Very liberal WTD management statewide – maximize opportunity
  o Most WTD seasons go through end of Nov (some until mid-Dec)
• Most WTD occupy private lands (irrigated fields / river bottoms)
Late Season Mule Deer Hunting

- Very few areas in the state offer November mule deer buck hunting opportunities
  - The Black Hills (HAs 1 – 6), HA128 (by Dubois), some areas in the Bighorn Basin
Current Mule Deer Management

37 Herd Units Statewide

- 34 have postseason population objective
  - 21 below objective
  - 13 at objective (+/- 20%)
- 3 have satisfaction objective
  - All meeting objective
Big Game Management Strategies

- Moose

22 Recreational, 11 Special, 4 Private Land
2014 – 2018 Average Postseason Buck Ratios

3 herds with no ratios (satisfaction), 7 herds from 20 – 29, 15 herds from 30 – 39, 11 herds from 40 – 49, 1 herd with 50+
Chronic Wasting Disease (CWD) Prevalence in Hunter Harvested Adult Buck Mule Deer by Herd Unit 2014-2018

* Sample size is too low for estimation of prevalence

This map depicts prevalences calculated from 2014-2018 data only, see distribution map for statewide distribution of CWD
Buck Ratios and Minimum Viability

- Low buck ratios still adequate to breed all available does

- Alberta found that pregnancy rates and fawn production were not affected until buck ratios $\sim 5$ (pers. communication)
Current Mule Deer Management

Doe/fawn harvest is very conservative in most herd units (based on 2017 harvest data)

- ≤ 5% of overall harvest in 17 herds
- 6 – 10% of harvest in 7 herds
- 10 – 20% in 7 herds
- 21 – 30% in 3 herds
- > 30% in 3 herds
Important Management Metrics

• Male ratios – for change in ratio modeling
• Herd productivity (fawn/calf ratios and recruitment)
  o ~66 fawns per 100 does (postseason) needed to sustain average mule deer population – not a universal rule
• Survival rates
• Sex/age harvest percentages
  o % of males, females, young and overall based on preseason availability
Important Management Metrics

Harvest Percentages (2014 - 2018)

• South Converse Mule Deer (>40% CWD prevalence)
  o Harvest 22% of bucks, <1% of females

• Bates Hole / Hat Six Mule Deer (29% CWD prevalence)
  o Harvest 37% of bucks, <1% of females

• Black Hills Mule Deer (<5% CWD prevalence)
  o Harvest 37% of bucks, 2% of females

• Laramie Peak / Muddy Mountain Elk (6% CWD prevalence)
  o Harvest ~23% - 27% of bulls, ~16% - 19% of females

• CWD prevalence data on this slide are not necessarily correlated with harvest percentages! Also depends on epidemiological timeline
REMINDER!

- Any local initiatives to alter management (i.e. hunting seasons) in an attempt to reduce CWD prevalence must still go through the Department’s traditional public input process.

- Depending upon the scale of the proposed management action, this may even require a localized collaborative process with affected stakeholders.
Mule Deer Initiatives

- Regional Mule Deer Initiatives
  - Wyoming Range
  - Sublette
  - Owl Creek / Meeteetse
  - Upper Powder River
  - Baggs
  - Sheep Mountain
  - Platte Valley
  - Green Mountain
  - South Wind River
  - Bates Hole / Hat Six

Management decisions must also consider public input and management direction borne from MDIs.
Questions?
Hunting Season Structure

“ANY”:
- Allows for harvest of any sex or age
- Can be used in both limited quota & general license seasons

**Positives:**
- Maximum hunter flexibility
- Increased male:female ratios
- Greatest hunter success of general license scenario

**Negatives:**
- Limited control of harvest
**Hunting Season Structure**

**“ANTLERED”:**
- Harvest of antlered animals only
- Can be used in both limited quota & general license seasons

**Positives:**
- Reduces hunter density than “any” seasons
- Used to increase populations

**Negatives:**
- Decreased male:female ratios
- Reduced hunter flexibility
- Lower hunter success than “any” season structure
Hunting Season Structure

“ANTLERLESS”:

- Harvest of antlerless animals only
- Used in both limited quota and general license seasons

Similar to “COW OR CALF, DOE OR FAWN” – limited quota seasons

**Positives:**
- No male harvest
- Increased male:female ratios
- Used to decrease populations

**Negatives:**
- Not applicable when populations are below objective
- Reduced hunter flexibility
Timing of Seasons

• Used to increase/decrease vulnerability to harvest

**Early Seasons:**
• Increased opportunity to harvest male animals during rut (i.e., elk)
• Increased opportunity to harvest resident herd segments

**Late Seasons:**
• Increased opportunity to harvest male animals during rut (i.e., mule deer)
• Increased opportunity to harvest migratory herd segments
Antler Restrictions

ANTLER POINT RESTRICTIONS (APR):
• Used to control harvest on males

**Positives:**
• Reduces hunter participation
• Reduces total male harvest
• Can result in greater male:female ratios in short-term (<3 yrs)

**Negatives:**
• Increases harvest pressure on select age classes of males, and reduces their number if used long-term
• Reduces number of older-aged males if used long-term
• Results in increased illegal/accidental harvest
Antler Restrictions

SPIKES-EXCLUDED SEASONS:
• Used to limit harvest on younger males

Positives:
• Reduces hunter participation
• Reduces total male harvest
• Reduces harvest of yearling males
• Can result in greater adult male:female ratios in short-term

Negatives:
• Reduces number of older-aged males if used long-term
• Results in increased illegal/accidental harvest
Antler Restrictions

SPIKES-ONLY SEASONS:
• Used to focus harvest on younger males

Positives:
• Flexible harvest opportunity during late antlerless seasons within large cow/calf groups
• Can reduce bull ratios where needed while preserving mature bull quality
• May enable more bull harvest on private lands where needed without requiring trespass fees

Negatives:
• Increases harvest pressure on select age classes of males, and reduces their number if used long-term