

BACKGROUND

- Effective management of moose in GMU 14(C) requires data on population size and gender composition
- Additionally, positive finding for the intensive management of moose in GMU 14(C)
 - Population Objective: 1,500 - 1,800 moose
 - Harvest Objective: 90 - 270 moose
- Large percentage of moose habitat within GMU 14(C) occurs within the Anchorage bowl



BACKGROUND

Why study moose in Anchorage?

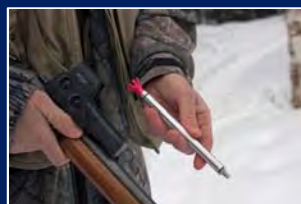
- Safety concerns
- Proposed hunts
- Likely lower natural mortality
- Low cost study
- Dense population within a small study area
- Likelihood of recapturing individuals
- During the survey period (i.e., late winter) limited immigration and emigration



3

BACKGROUND

- Several issues with traditional aerial moose surveys in Anchorage bowl:
 - Class C airspace of Ted Stevens Anchorage International
 - Recent environmental conditions (i.e., lack of snow)
- Due to these issues, we are testing methodology for estimating the moose population in Anchorage with genetic-based identification from biopsy samples



4

BACKGROUND

- The biological samples will enable us to obtain an annual minimum count and to potentially estimate population size using DNA based Mark-Recapture techniques
- In addition to population estimates, this survey will provide data on sex ratios, survival rates, susceptibility to harvest/roadkill, and movement/dispersal



5

BACKGROUND

How to effectively locate enough moose in an urban environment?

- Our solution was to enlist the public's help
- First we conducted an extensive public relations campaign (e.g., press release, social media, interviews, etc.)
- Then had the public text, call, or report online moose sightings



6

OBJECTIVES

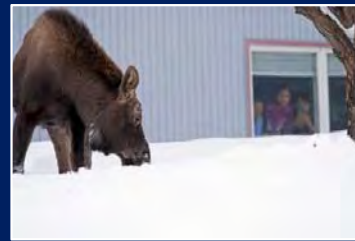
1. Estimate population size, sex ratio, and survival of moose within the Anchorage urban area utilizing ground based biopsy darting and potentially DNA based Mark-Recapture techniques
2. Test a new methodology/technique for ADF&G biologists to estimate moose populations without being dependent on snow cover

7



METHODS

- 2 main phases to this project
 - Field based sample collection
 - Laboratory-based genetics analysis



9

METHODS

Sample Collection:

- Conducted a pilot study in 2017 to test feasibility of study design
- Conducted full survey in 2018 and 2019
- Prior to each survey, we conducted an extensive public relations campaign
 - Media interviews
 - Presentations to multiple user groups
 - Press releases
 - Facebook and NextDoor posts
 - Called local user groups



10

METHODS

Sample Collection:

- Recruit enough staff and volunteers to canvass Anchorage over a 3-day period and respond to moose sightings reported by the public
- Set up an office-based crew to staff phones, map locations of public moose sightings, and direct teams using iPads
- Have a dedicated team to canvass green spaces

11

METHODS

Sample Collection:

- In the field, 7-8 teams of 2-3 personnel responded to sightings within their dedicated area
 - At least one experienced biologist per team
 - Locations of darted moose and tracks were all mapped



12

METHODS

Genetic Analyses:

- Uses DNA to identify individual moose
- In addition, collect tissue samples from road-kills and hunter harvest
- Collaboration within Region II wildlife staff, ADFG Gene Conservation lab (GCL), and federal biologist provide a strong group approach
- Anchorage ideal study area for controlling some variables



13

RESULTS

2017 Pilot Study:

What we learned

- Public participation was greater than we expected (> 800 reports)
- We were able to get viable samples from a large number of moose
- Moose often did not react to dart impact
- Media picked up the story across the country

14

RESULTS

2018 and 2019 Full Survey:

- Public Participation averaged 780 reports over 3-day survey
- During the survey, teams were able to interact with hundreds of residents while trying to sample moose in Anchorage
- In 2018, we were able to identify 143 individual moose in the Anchorage bowl, comprising 95 cows and 48 bulls
- In 2018, 100 adult moose (76 cows and 24 bulls) and 43 calves (19 cows and 24 bulls) were identified
- In 2019, we obtained a similar number of samples, however it will be several months before laboratory analyses will be complete

15

CONCLUSIONS

Due to the success of the past two years, we anticipate this technique will provide valuable data on Anchorage moose including:

- Annual minimum count
- Sex ratio
- Degree of relatedness
- Susceptibility to roadkill and hunter harvest (i.e. exploitation rate)
- Population estimates using Mark-Recapture
- Survival rates
- Movements/ dispersal



16

CONCLUSIONS

- This technique could also be used for estimating moose populations in select areas where environmental conditions preclude traditional aerial surveys.
- This study design promotes a citizen science-based approach that is extremely valuable for our department, particularly for public relations.

17

ACKNOWLEDGEMENTS

- All the ADF&G staff from multiple divisions that contributed their time during the survey
- Anchorage Advisory Committee and other volunteers
- Ken Marsh for invaluable assistance in getting our message out to the public
- ADFG Gene Conservation Lab

18

QUESTIONS?



19