Plants, Moose and Hunters:
A case study in the Hajdukovich Creek Burn

Background

- Moose populations increase after wildfires on the Kenai Peninsula (Schwartz and Franzmann 1989, Peek 2007)
- Moose preferentially select burns over areas outside of burn. (Neu 1974)
- Fire severity affects proportional production and removal of aspen by moose. (Lord et al. 2008)

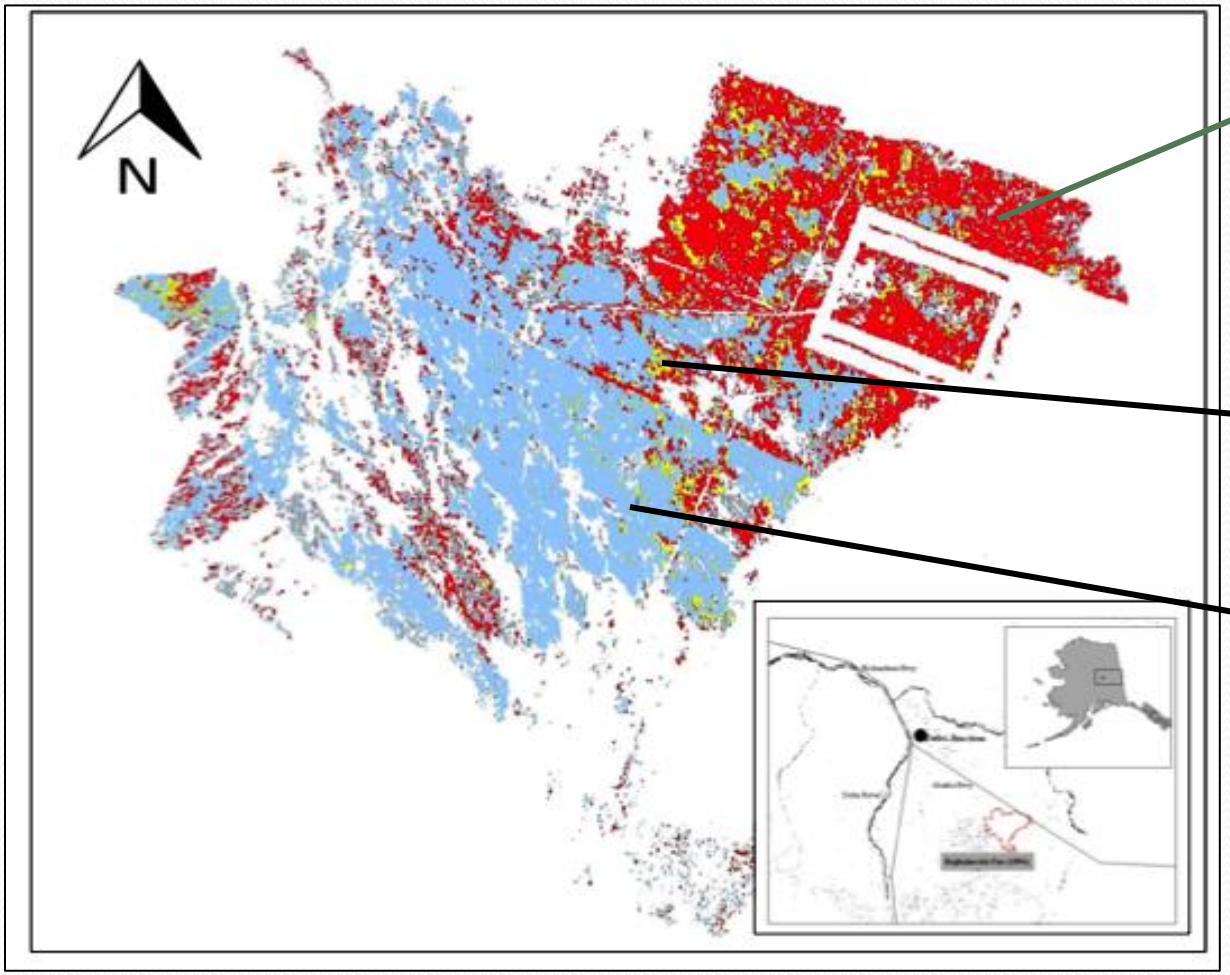
Background

- Moose constitute the largest non-fish subsistence resource in Interior, Alaska.
- Burns may not necessarily result in increased hunter success.
  - Access
  - Sightability

Question 1:

How have browse production and browse removal rates changed in the Hajdukovich Creek Burn since time of fire (1994)?

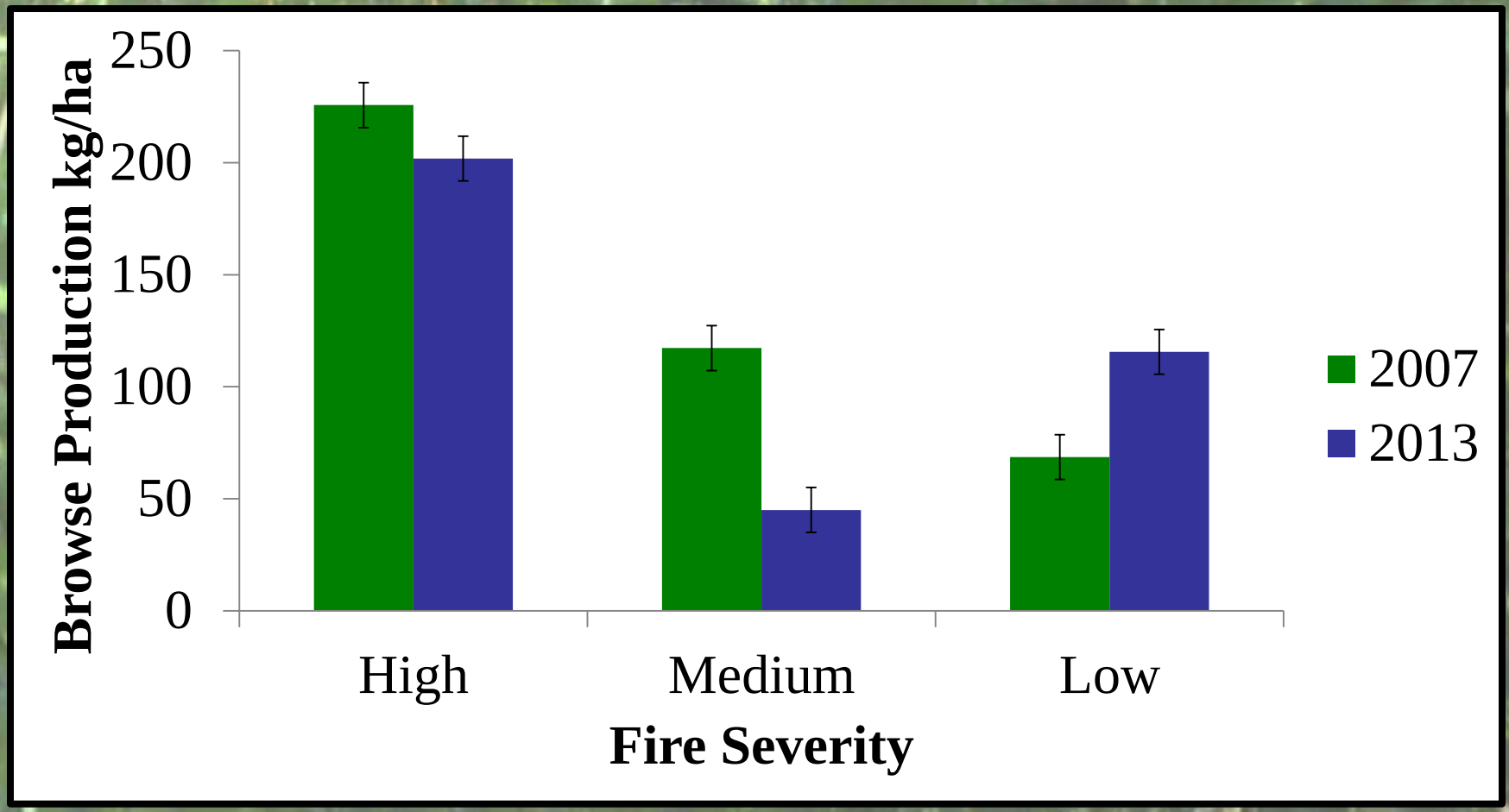
Hajdukovich Creek Burn



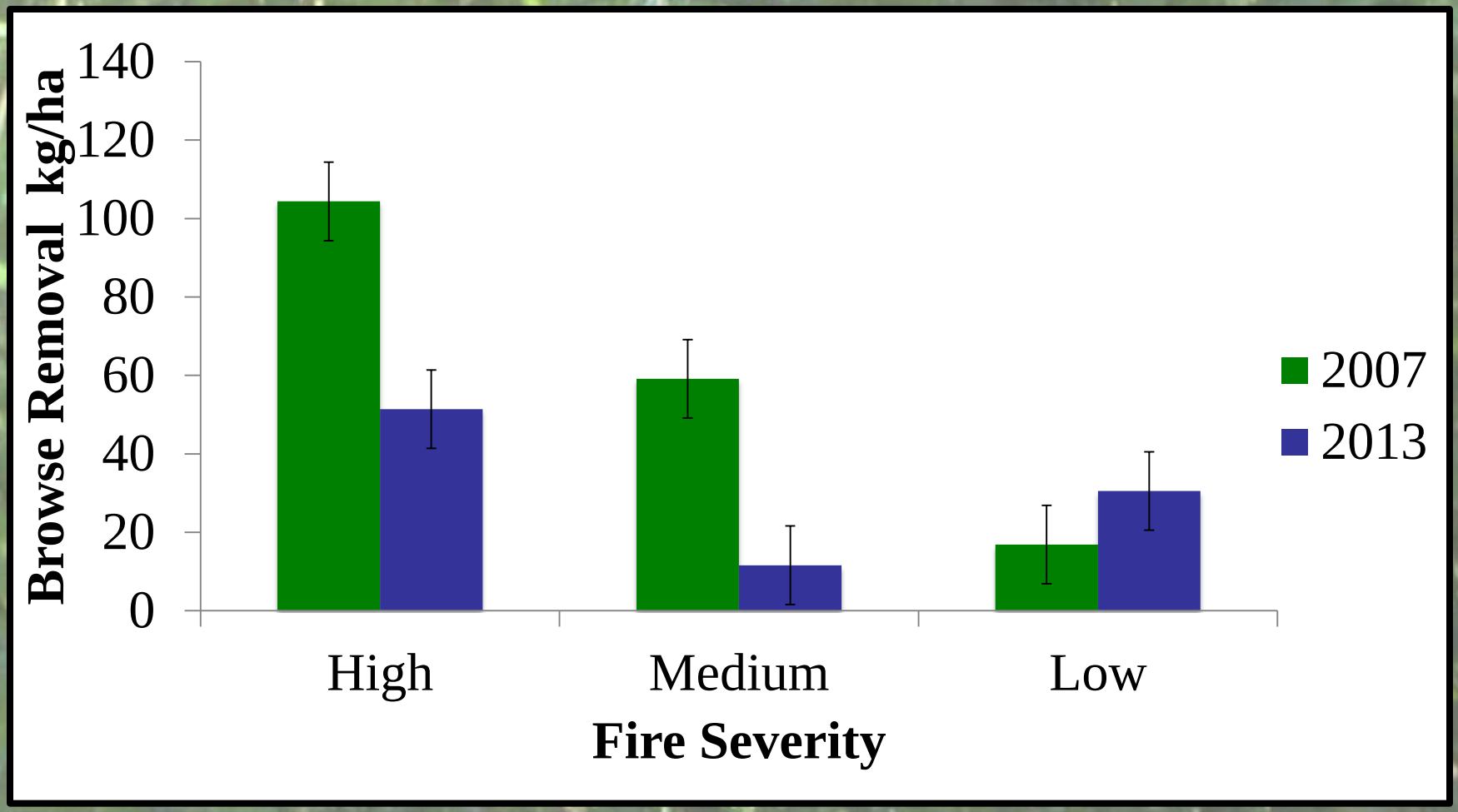
Methods

- Browse assessment survey:
  (Seaton et al. 2002)
  - % dead
  - Architectural class
  - Diameters of current annual growth and point of browsing
- Estimate biomass of forage production and removal.

Results: Browse Production



Results: Browse Removal



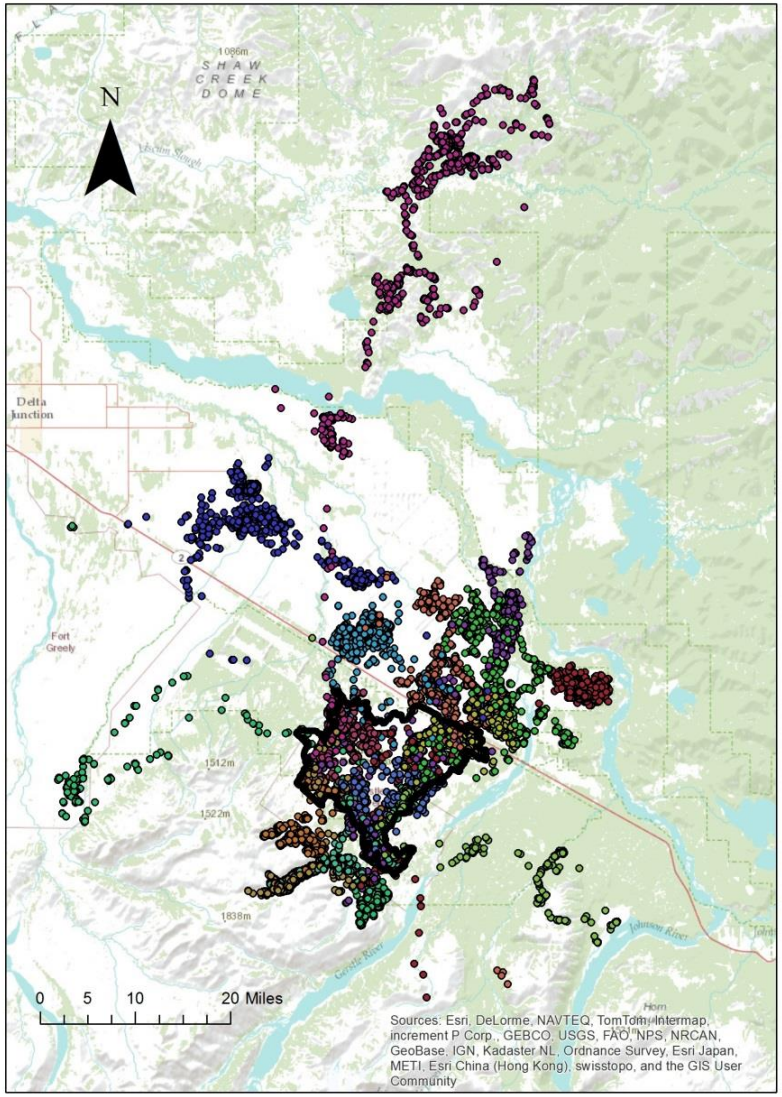
Questions 2 & 3: Ongoing

- At the home range scale, how does the Haj Burn influence habitat selection of wintering moose compared to other landscape features?
- Within the Haj Burn, does fire severity of habitat patches affect moose habitat selection?

Methods

- 26 bull moose radio collared with Telonyx GPS collars.
  - Within burn (n=15)
  - Outside of burn (n=11)
- Location fix rate transmitted every 2 hours.
- Activity data measured with three-axis accelerometer.
  -active seconds/minute

Methods



Habitat Selection Modeling:

- Resource Selection Functions
- Brownian Bridge Movement Models

Habitat Variables:

-Burn Variables

-Fire Severity

-Distance to burn

-Wind

-Vegetation Class

-Temperature

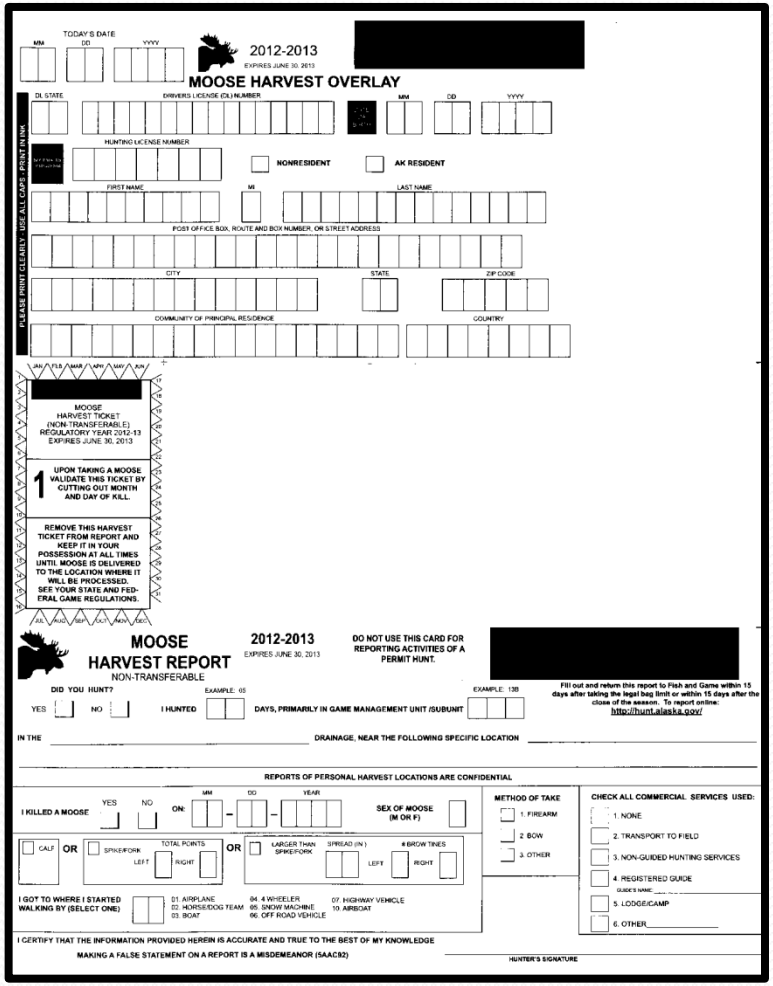
-% Cover

Question 4 :

- Does regenerating moose habitat in the burn translate to increased hunter harvest rates? How does hunter access affect these rates?

Methods: Harvest Rates

- Compared local harvest statistics from 1994-2009.
  - SW20 D
  - NE 20D
- Both units have experienced wildfire and have varying levels of access into the burn.



TODAY'S DATE MM DD YYYY

2012-2013
EXPIRES JUNE 30, 2013

MOOSE HARVEST OVERLAY

[redacted]

DL STATE | DRIVERS LICENSE (DL) NUMBER | MM DD YYYY

HUNTING LICENSE NUMBER

☐ NONRESIDENT ☐ AK RESIDENT

PLEASE PRINT CLEARLY - USE ALL CAPS - PRINT IN INK

FIRST NAME | MI | LAST NAME

POST OFFICE BOX, ROUTE AND BOX NUMBER, OR STREET ADDRESS

CITY | STATE | ZIP CODE

COMMUNITY OF PRINCIPAL RESIDENCE | COUNTRY

JAN FEB MAR APR MAY JUN

[redacted]

MOOSE HARVEST TICKET (NON-TRANSFERABLE) REGULATORY YEAR 2012-13 EXPIRES JUNE 30, 2013

1 UPON TAKING A MOOSE VALIDATE THIS TICKET BY CUTTING OUT MONTH AND DAY OF KILL.

REMOVE THIS HARVEST TICKET FROM REPORT AND KEEP IT IN YOUR POSSESSION AT ALL TIMES UNTIL MOOSE IS DELIVERED TO THE LOCATION WHERE IT WILL BE PROCESSED. SEE YOUR STATE AND FEDERAL GAME REGULATIONS.

JUL AUG SEP OCT NOV DEC

MOOSE HARVEST REPORT
NON-TRANSFERABLE

2012-2013
EXPIRES JUNE 30, 2013

DO NOT USE THIS CARD FOR REPORTING ACTIVITIES OF A PERMIT HUNT.

[redacted]

Fill out and return this report to Fish and Game within 15 days after taking the legal bag limit or within 15 days after the close of the season. To report online: http://hunt.alaska.gov/

DID YOU HUNT? YES ☐ NO ☐ | I HUNTED EXAMPLE: 05 DAYS, PRIMARILY IN GAME MANAGEMENT UNIT /SUBUNIT EXAMPLE: 13B

IN THE _____ DRAINAGE, NEAR THE FOLLOWING SPECIFIC LOCATION _____

REPORTS OF PERSONAL HARVEST LOCATIONS ARE CONFIDENTIAL

I KILLED A MOOSE YES ☐ NO ☐ ON: MM DD YEAR | SEX OF MOOSE (M OR F)

METHOD OF TAKE: 1. FIREARM 2. BOW 3. OTHER

CHECK ALL COMMERCIAL SERVICES USED: 1. NONE 2. TRANSPORT TO FIELD 3. NON-GUIDED HUNTING SERVICES 4. REGISTERED GUIDE (GUIDE'S NAME:) 5. LODGE/CAMP 6. OTHER

☐ CALF OR ☐ SPIKE/FORK TOTAL POINTS LEFT RIGHT OR ☐ LARGER THAN SPIKE/FORK SPREAD (IN.) LEFT RIGHT # BROW TINES

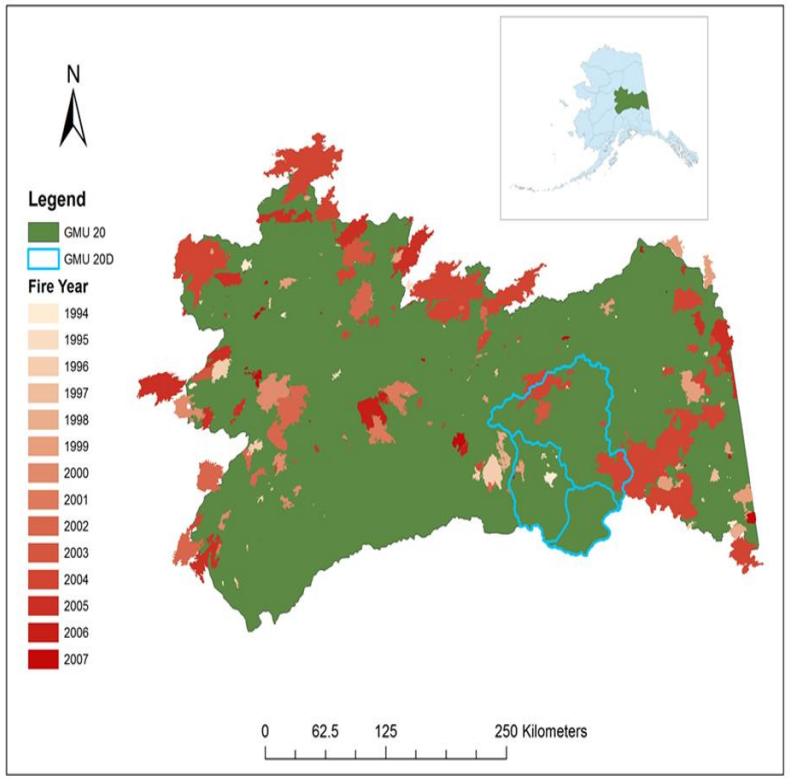
I GOT TO WHERE I STARTED WALKING BY (SELECT ONE): 01. AIRPLANE 02. HORSE/DOG TEAM 03. BOAT 04. 4 WHEELER 05. SNOW MACHINE 06. OFF ROAD VEHICLE 07. HIGHWAY VEHICLE 10. AIRBOAT

I CERTIFY THAT THE INFORMATION PROVIDED HEREIN IS ACCURATE AND TRUE TO THE BEST OF MY KNOWLEDGE
MAKING A FALSE STATEMENT ON A REPORT IS A MISDEMEANOR (5AAC92)

HUNTER'S SIGNATURE

Methods

- Used statewide infrastructure layer and 2 km buffer .
- Intersected this buffered area w/ fires layer to produce a map of burned areas accessible to hunters.
- Calculated accessible area burned for SW GMU 20D and NE 20D.



Results:

- SW20D, 48,141 ha burned of which, 11,675 ha accessible to hunters.
- NE GMU 20D approximately 93,885 ha burned, however, <100 ha are accessible to hunters.
- The Hajdukovich Creek Burn had approximately 8,900 ha burn of which 6,004 ha of total burned area is accessible to hunters.

Results:

- SW GMU 20D (good access into burns):
  - -28% average success rate
  - -52% of the total number of hunters
- NE GMU 20D (little access into burns):
  - -36% average success rate
  - -5% of the total number of hunters
- In a special permit area in Haj Burn:
  - -74% average success rate (2007)

Management Implications

- Fire-related vegetation regeneration is an important habitat component for moose in this region…..however, forage production and removal rates are beginning to decline.
- GPS collar data will provide moose distribution and fine-scale movement models.
- In 2007, the Hajdukovich Creek Burn supported 74% of the total harvest in SW GMU 20.
- Several factors, including good access, may impact harvest rates.

Acknowledgements

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