

# Fire and Moose on the Kenai Peninsula, Alaska



Division of Wildlife Conservation  
Region II Research and Management  
& WHESAP Program

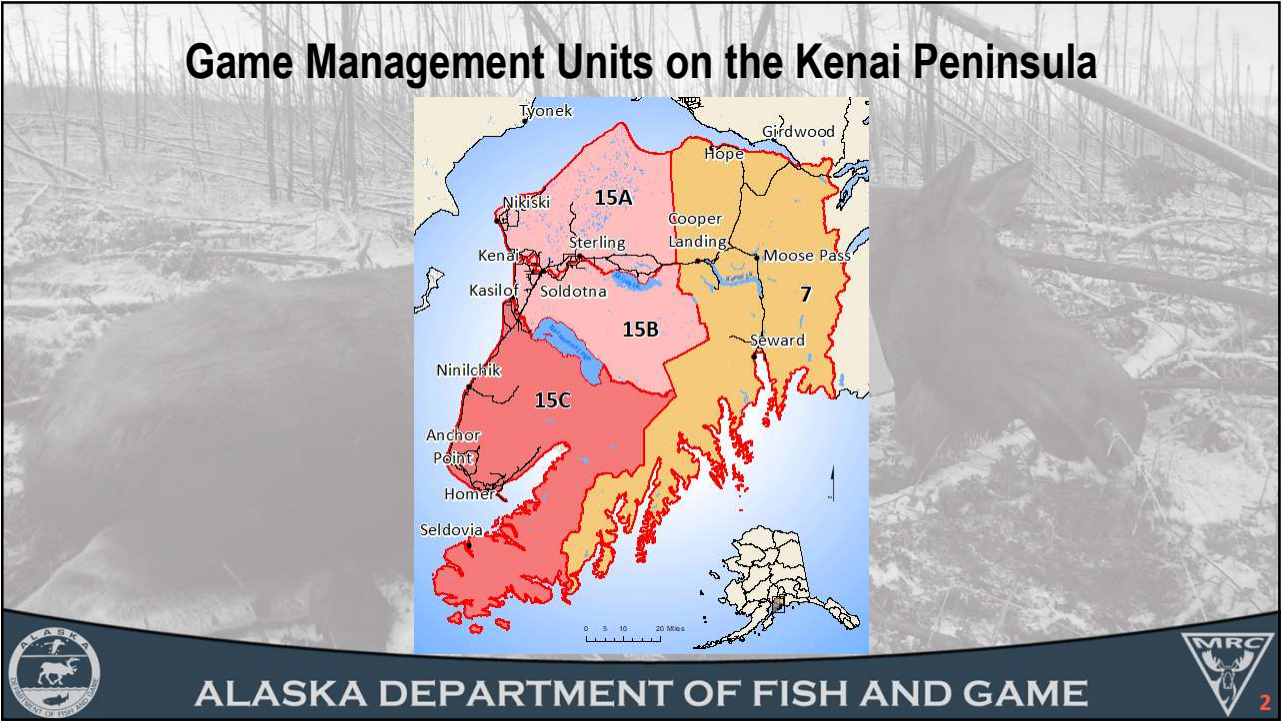


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# Game Management Units on the Kenai Peninsula

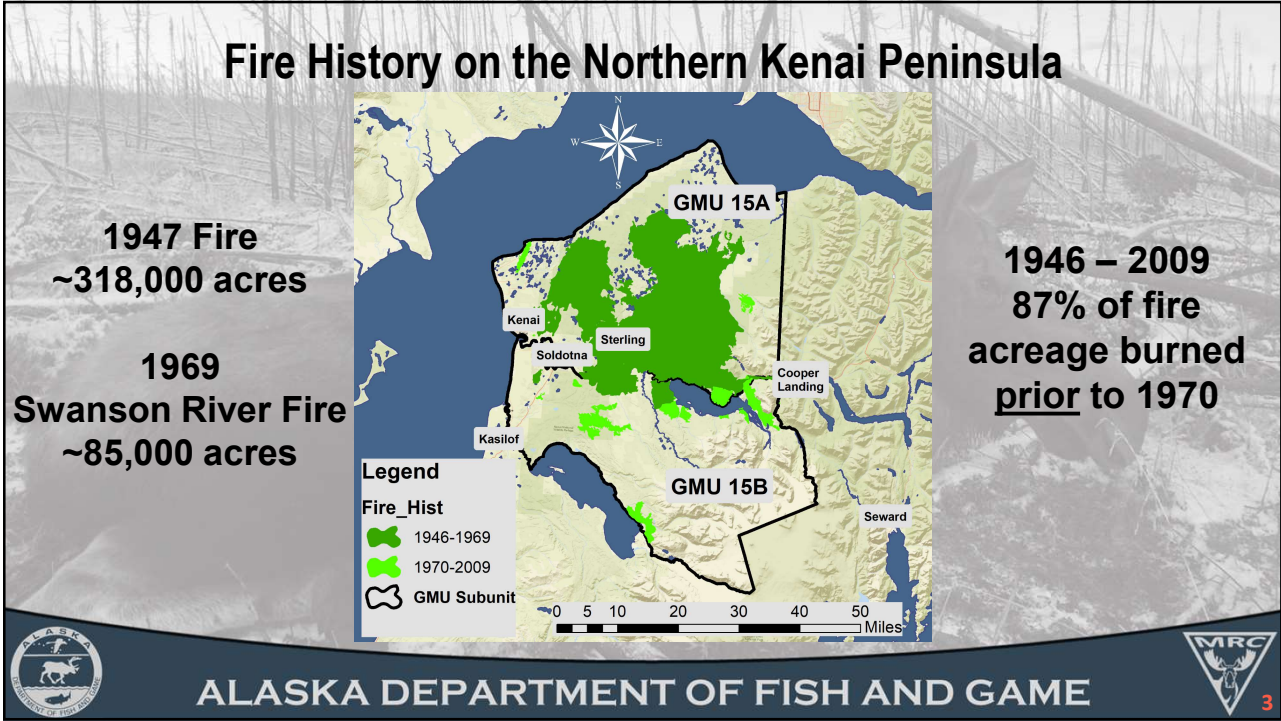


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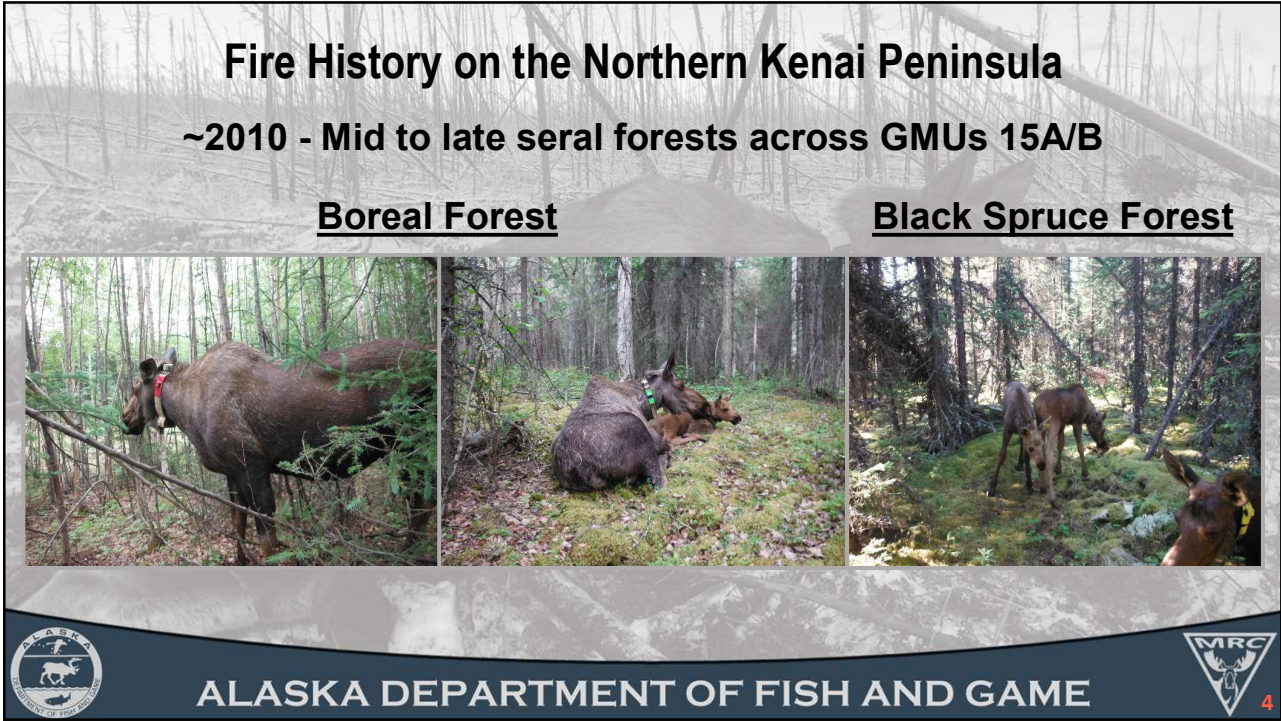
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### Funny River Fire - Northern Kenai Peninsula

Started on May 19<sup>th</sup>, 2014

<http://earthobservatory.nasa.gov/IOTD/view.php?id=83732>

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### Swan Lake Fire - Northern Kenai Peninsula

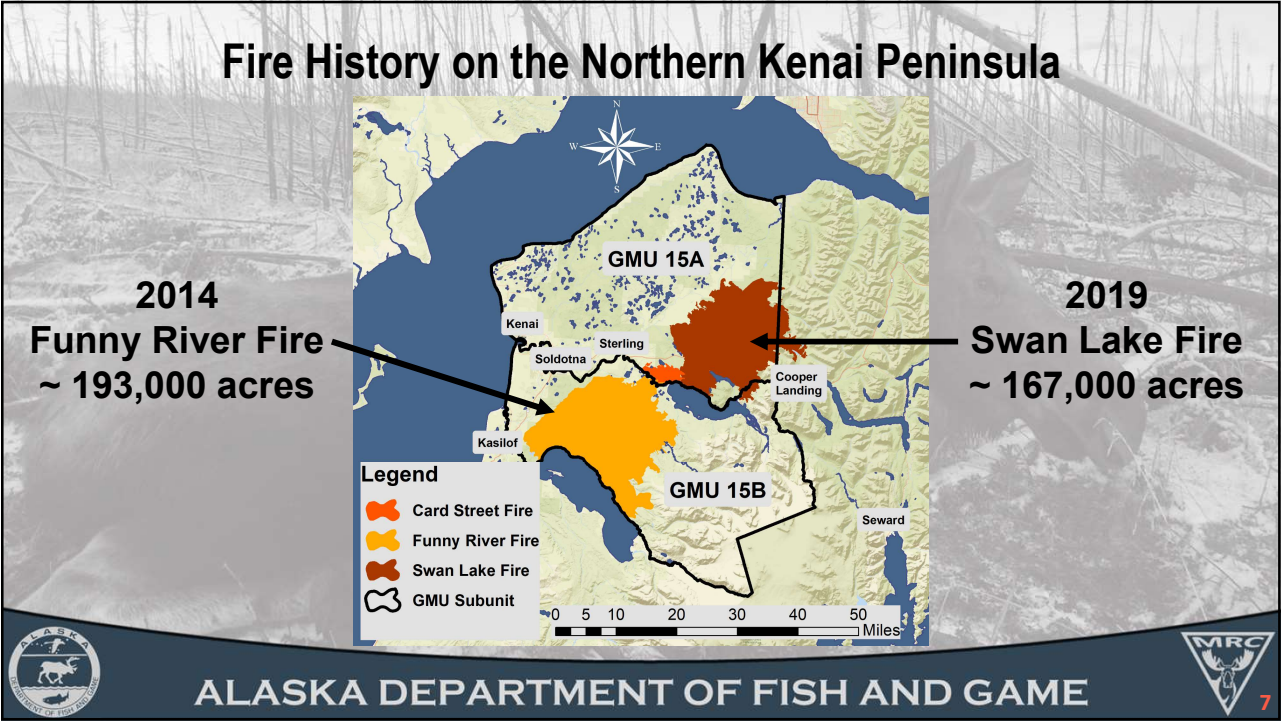
Started on June 5<sup>th</sup>, 2019

Casey Lasota/Alaska Division of Forestry

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# Moose and Fire – Northern Kenai Peninsula

How do we quantify moose habitat after large wildfires?





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# Moose and Fire – Northern Kenai Peninsula

How do we quantify moose habitat after large wildfires?


Vegetation

- Winter browse surveys (Seaton method)
- Quality and quantity surveys





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# Moose and Fire – Northern Kenai Peninsula


How do we quantify moose habitat after large wildfires?


**Vegetation**

- Winter browse surveys (Seaton method)
- Quality and quantity surveys

**Moose body condition**

- Animal indicator concept





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# Evaluating Moose Habitat


How do we quantify moose habitat after large wildfires?


**Vegetation**


- Winter browse surveys (Seaton method)
- Quality and quantity surveys

**Moose body condition**


- Animal indicator concept







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# Moose and Fire – Northern Kenai Peninsula

Objectives:


Longitudinal study

- 1. Adult female moose
- 2. Calves
- 3. Habitat quality





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# Moose and Fire – Northern Kenai Peninsula


Adult cow moose  
2014-2021

Objectives:


Longitudinal Study

- 1. Body condition
- 2. Parturition surveys
- 3. Habitat use



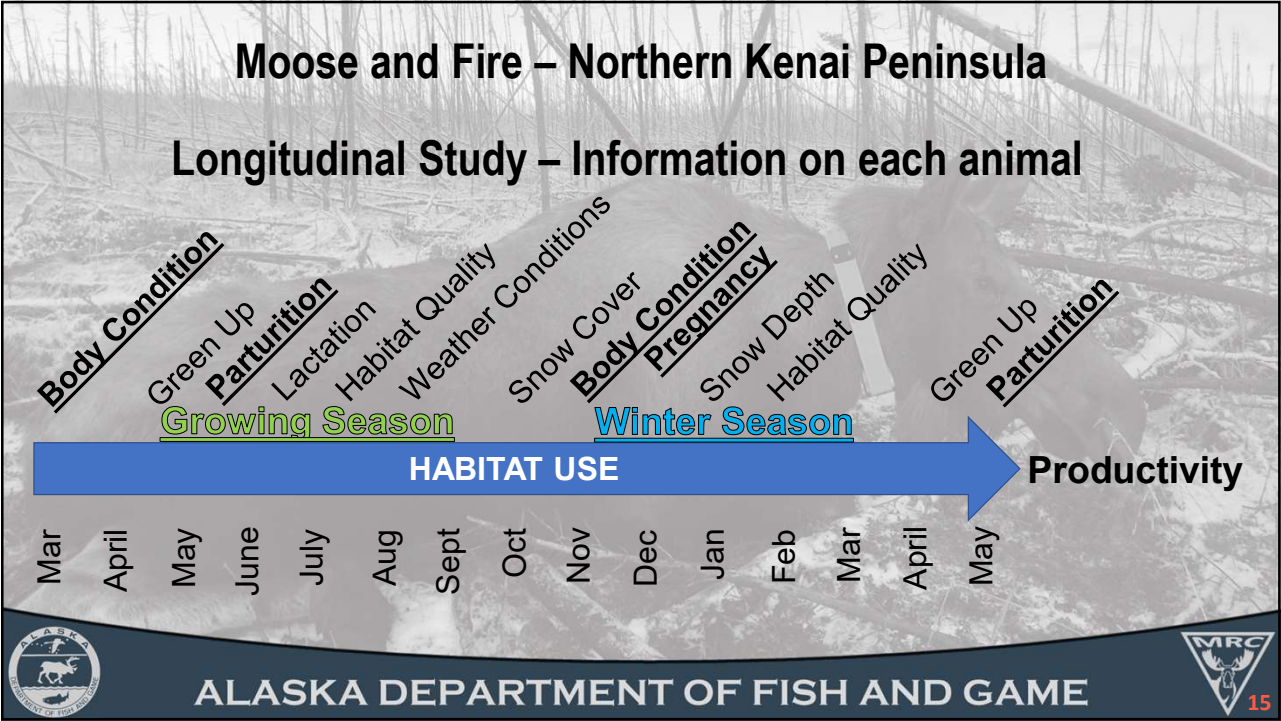


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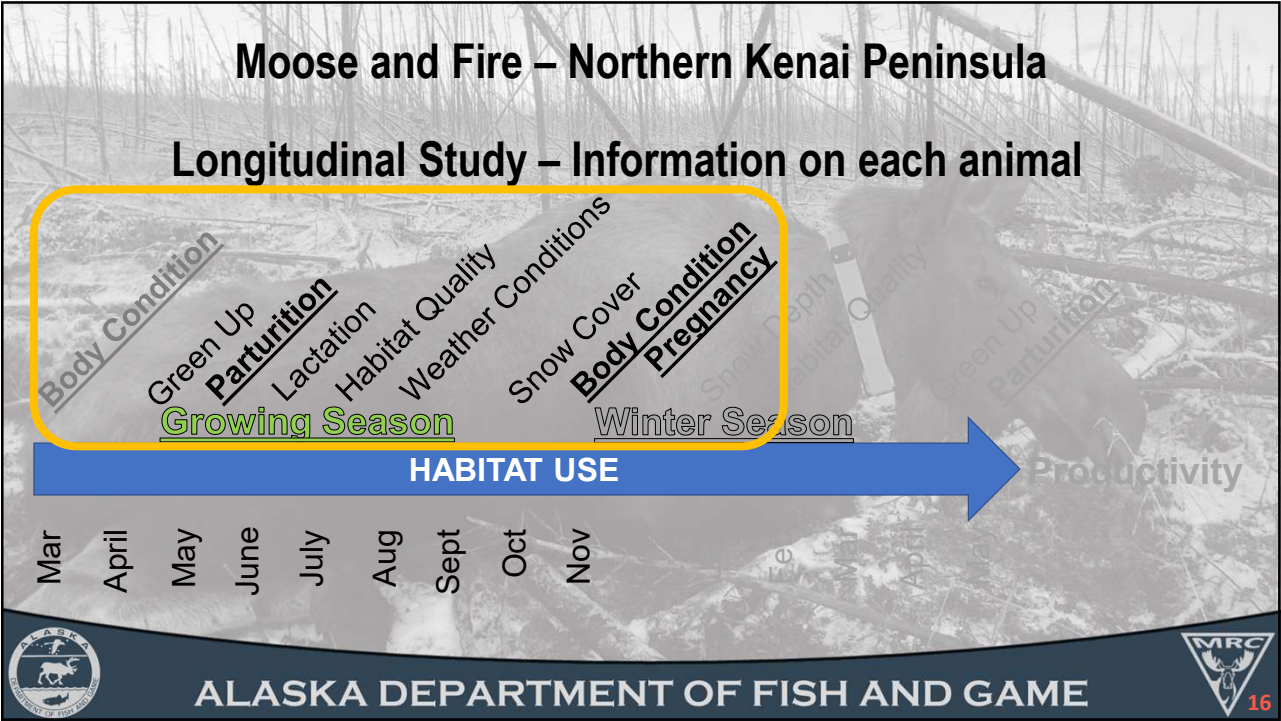


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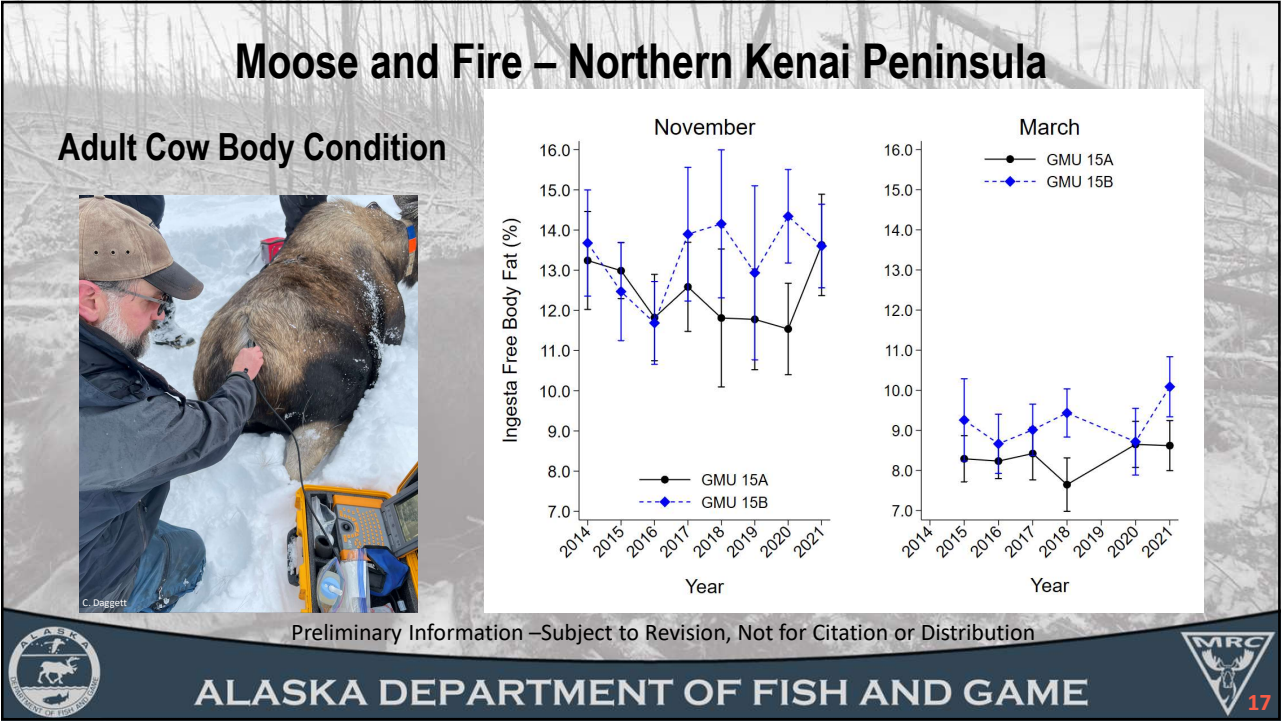


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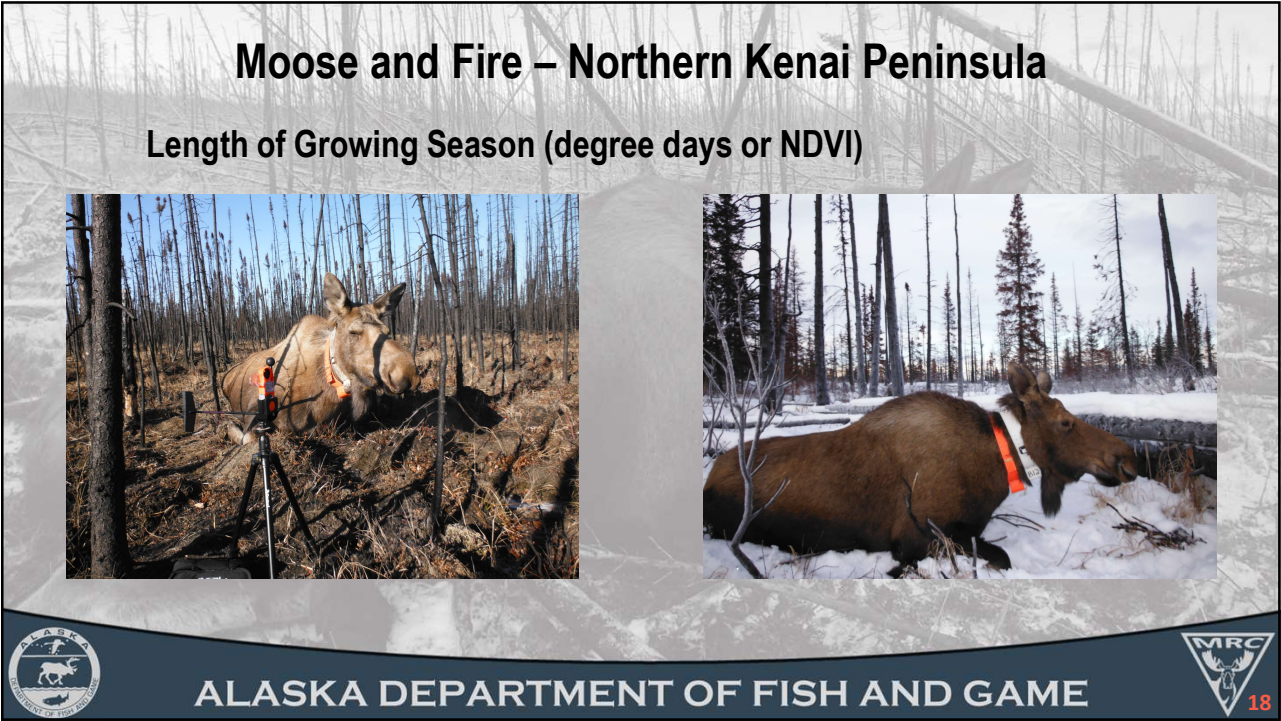


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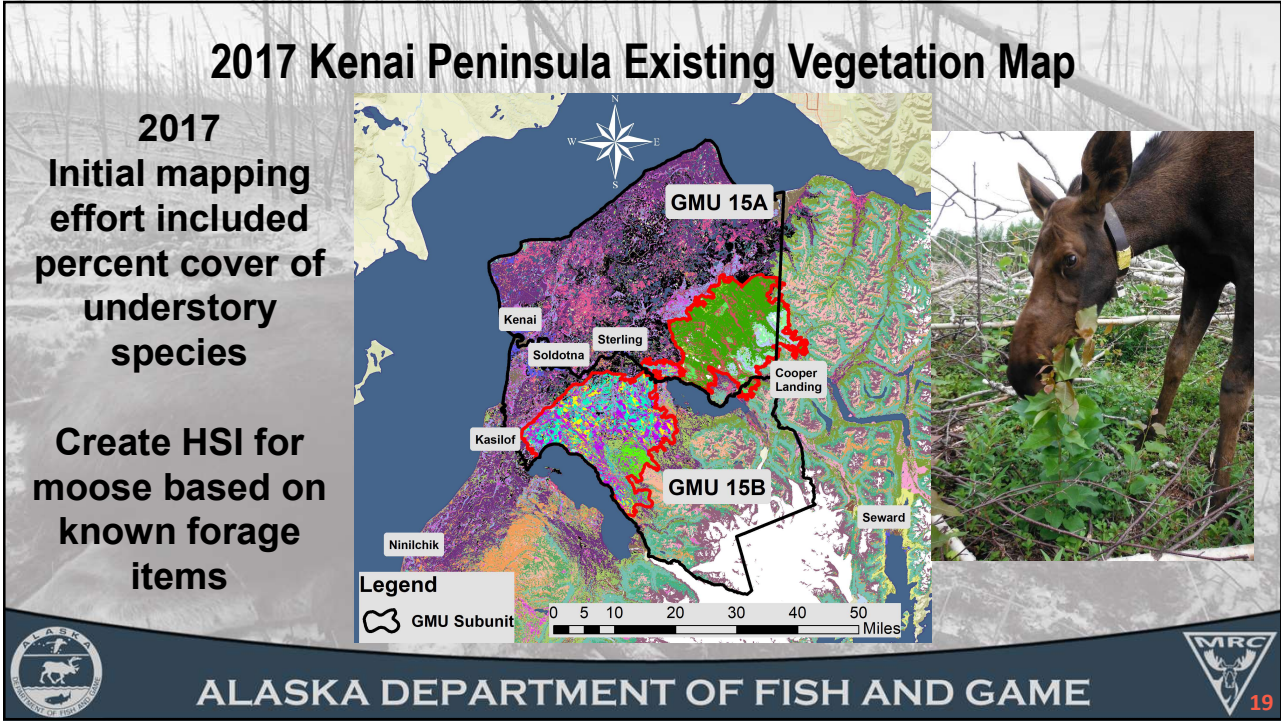


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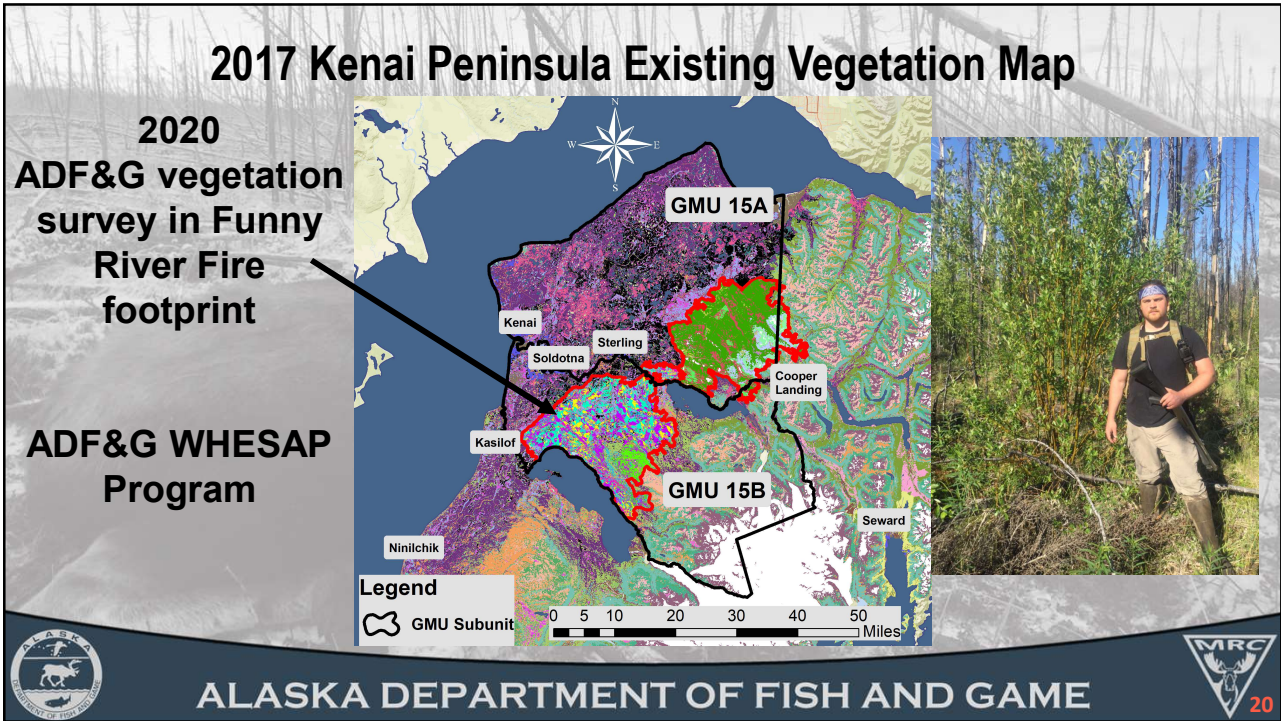


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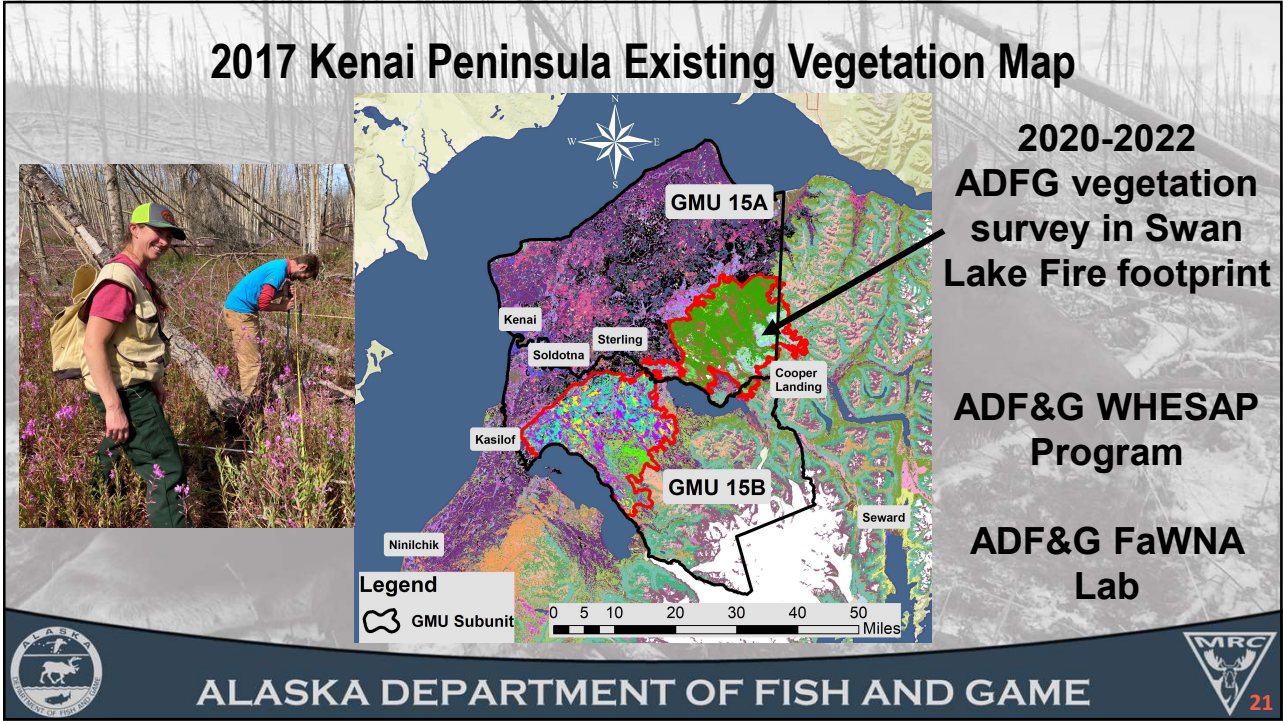


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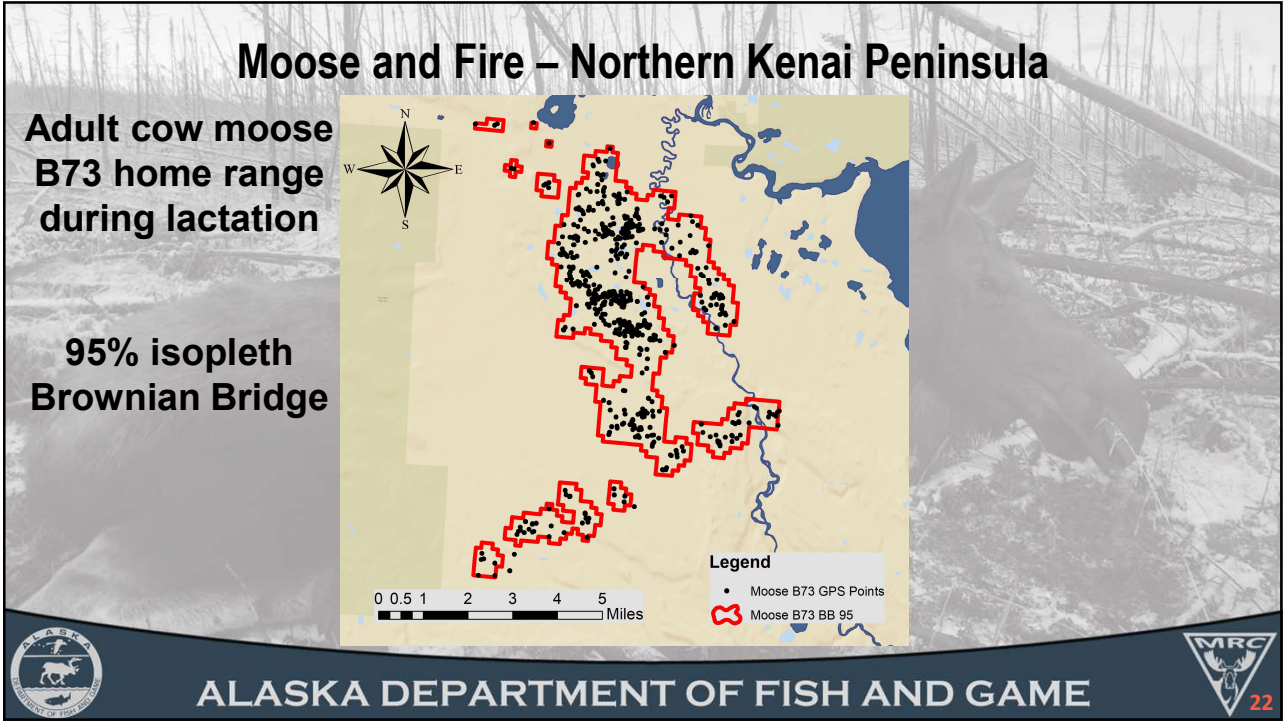


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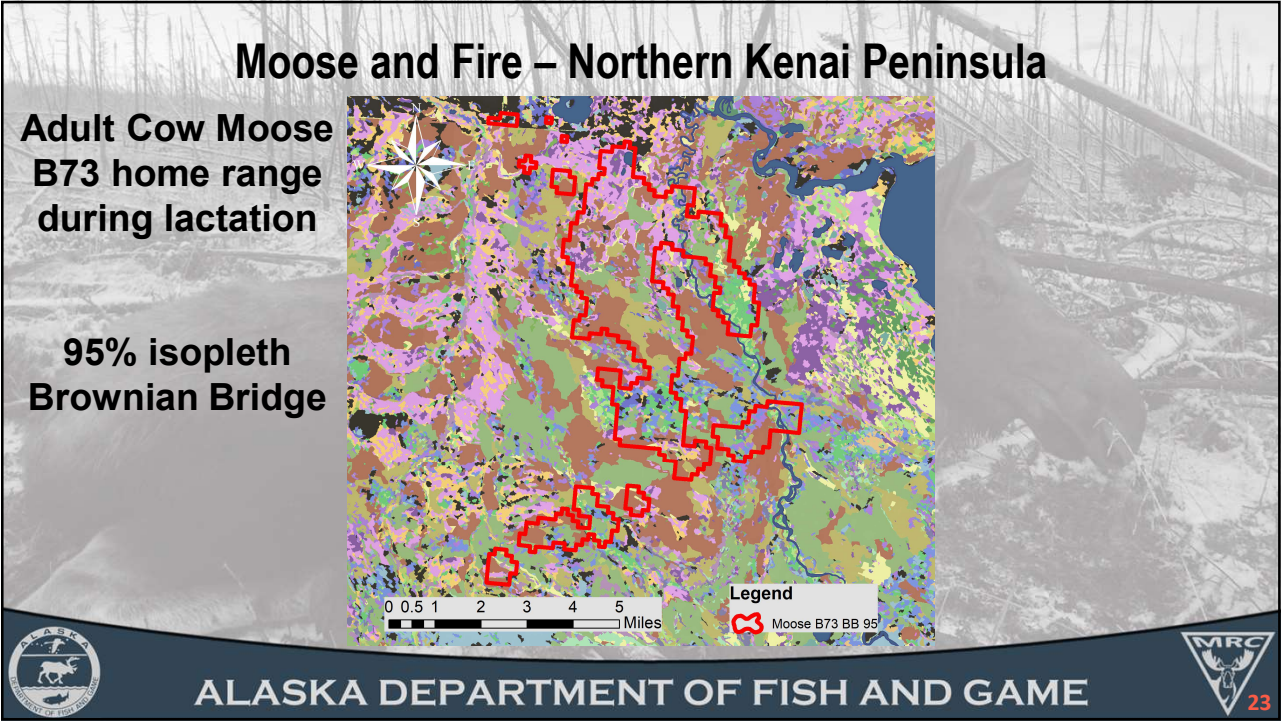


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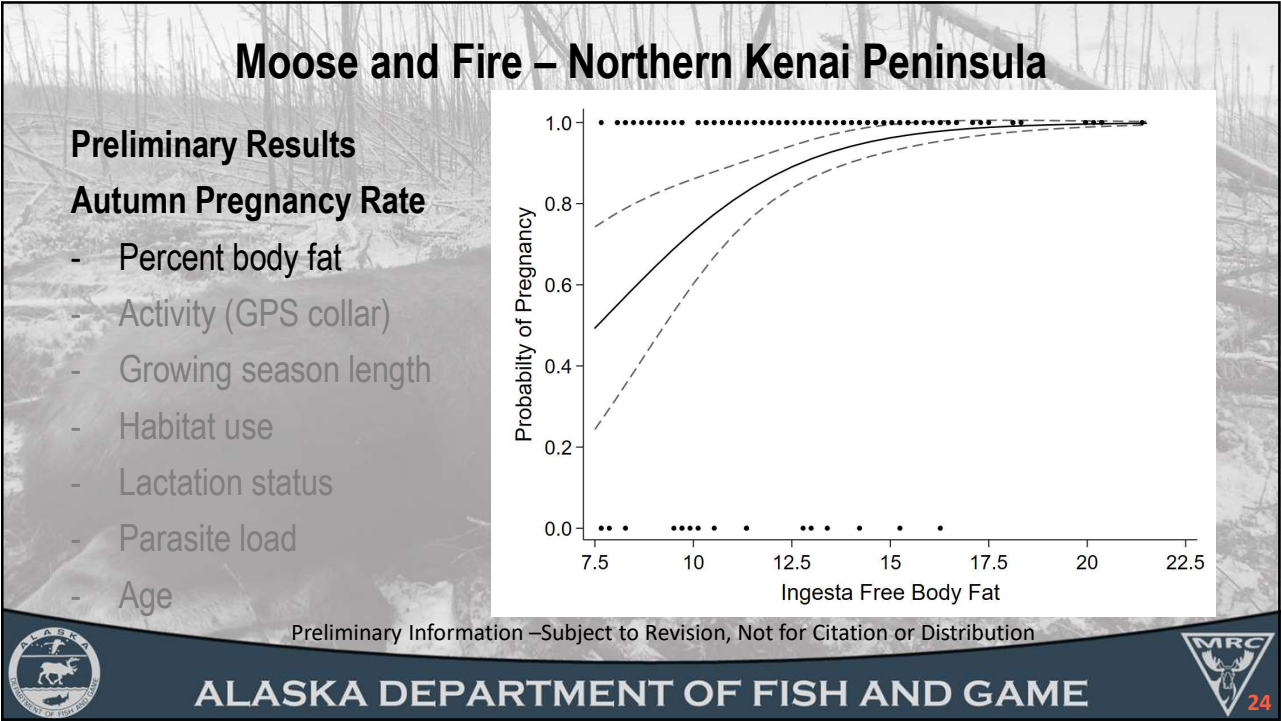


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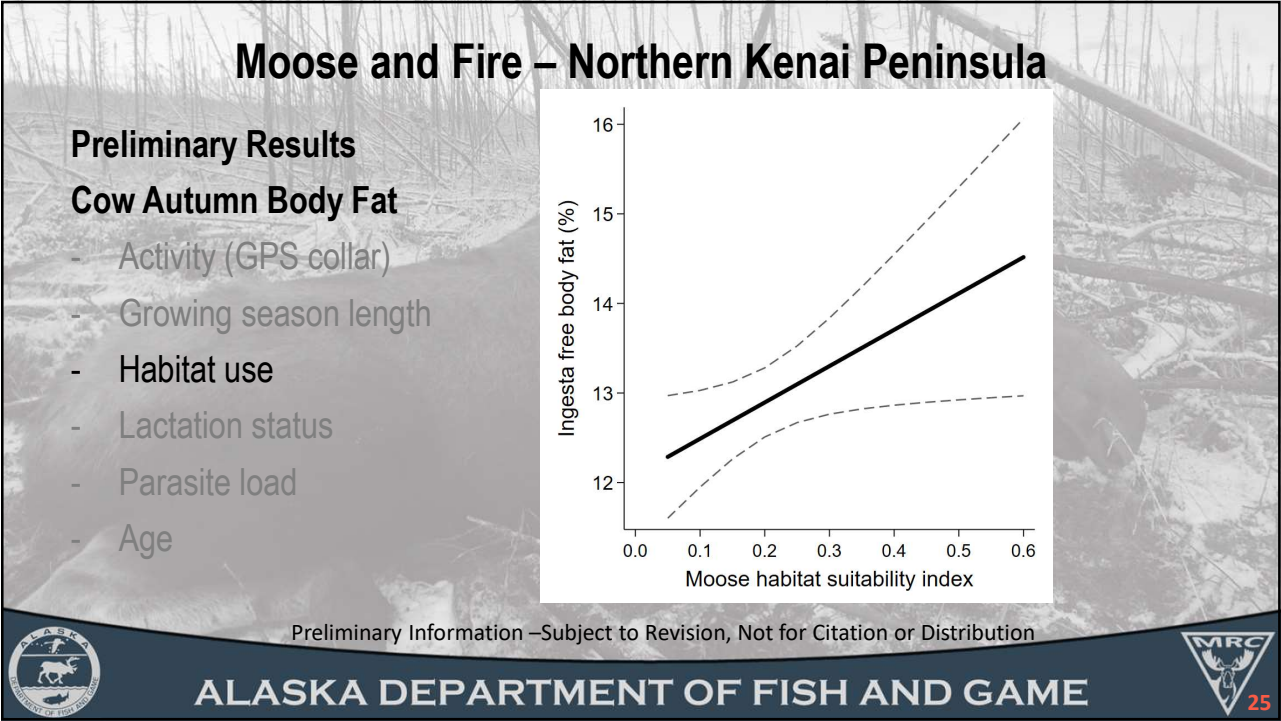


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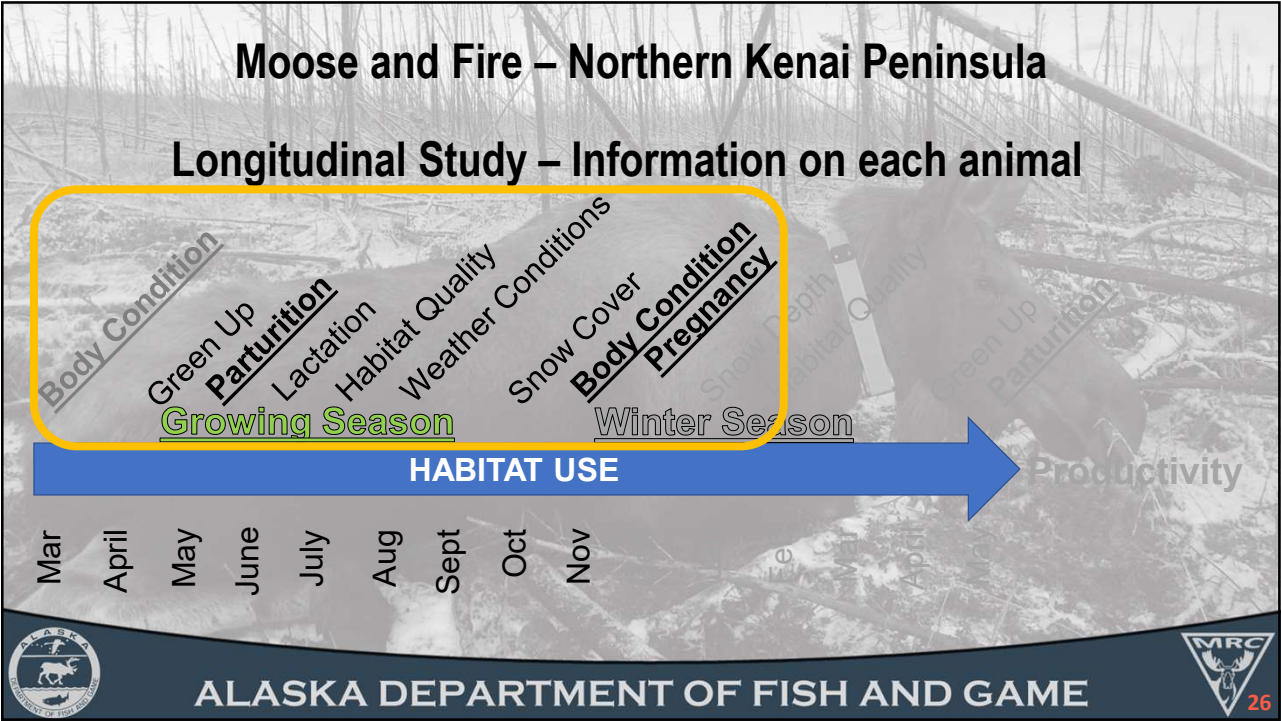


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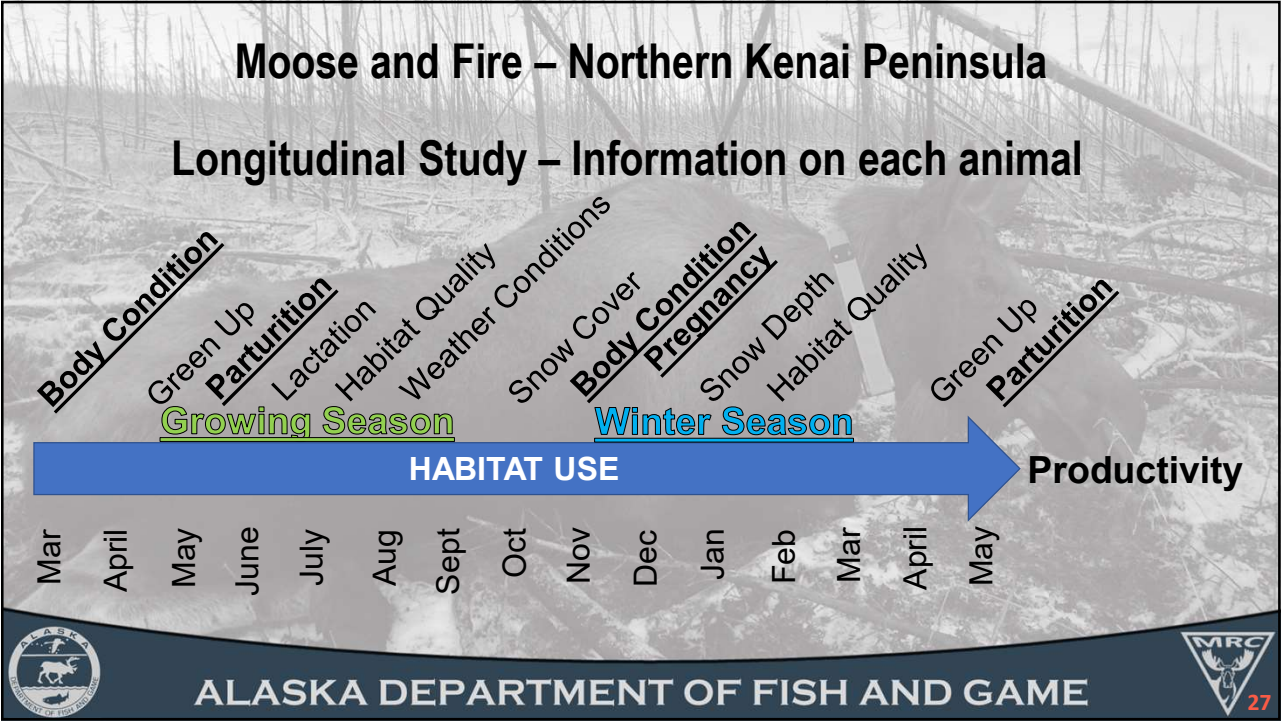


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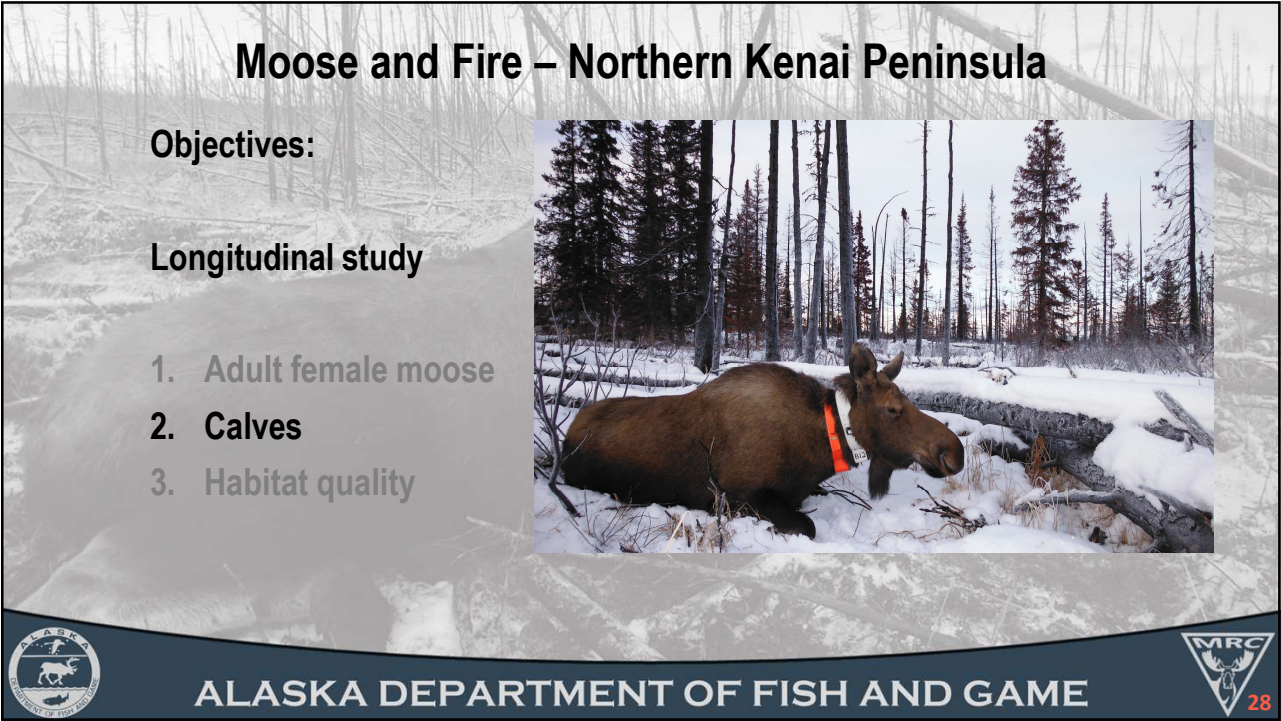


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### Moose and Fire – Northern Kenai Peninsula

**Silver Spoon effect** - When environmental quality at birth improves future performance regardless of the adult environment



Pigeon et al. 2017. DOI:10.1098/rspb.2017.0222




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### Moose and Fire – Northern Kenai Peninsula


**10-month-old Calves – (Over 5 years)**

- Body mass 30 / year
- GPS collars
  - Females beginning 2018
  - Males beginning 2020





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# Moose and Fire – Northern Kenai Peninsula

## Course Scale Moose Locations: 2017-2022


### 10-month-old Calves – (Over 5 years)

- Age at first reproduction
- Survival rate
- Home range size and activity level
- Antler development



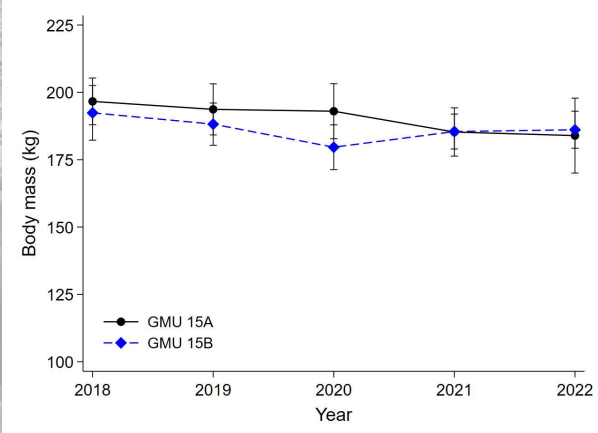


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# 10-Month-Old Calves – Northern Kenai Peninsula


Body Mass (*n* = 157)      Average = 188 kg      Males on average 9 kg heavier




| Year | GMU 15A (kg) | GMU 15B (kg) |
|------|--------------|--------------|
| 2018 | ~195         | ~190         |
| 2019 | ~192         | ~185         |
| 2020 | ~190         | ~178         |
| 2021 | ~185         | ~185         |
| 2022 | ~185         | ~185         |



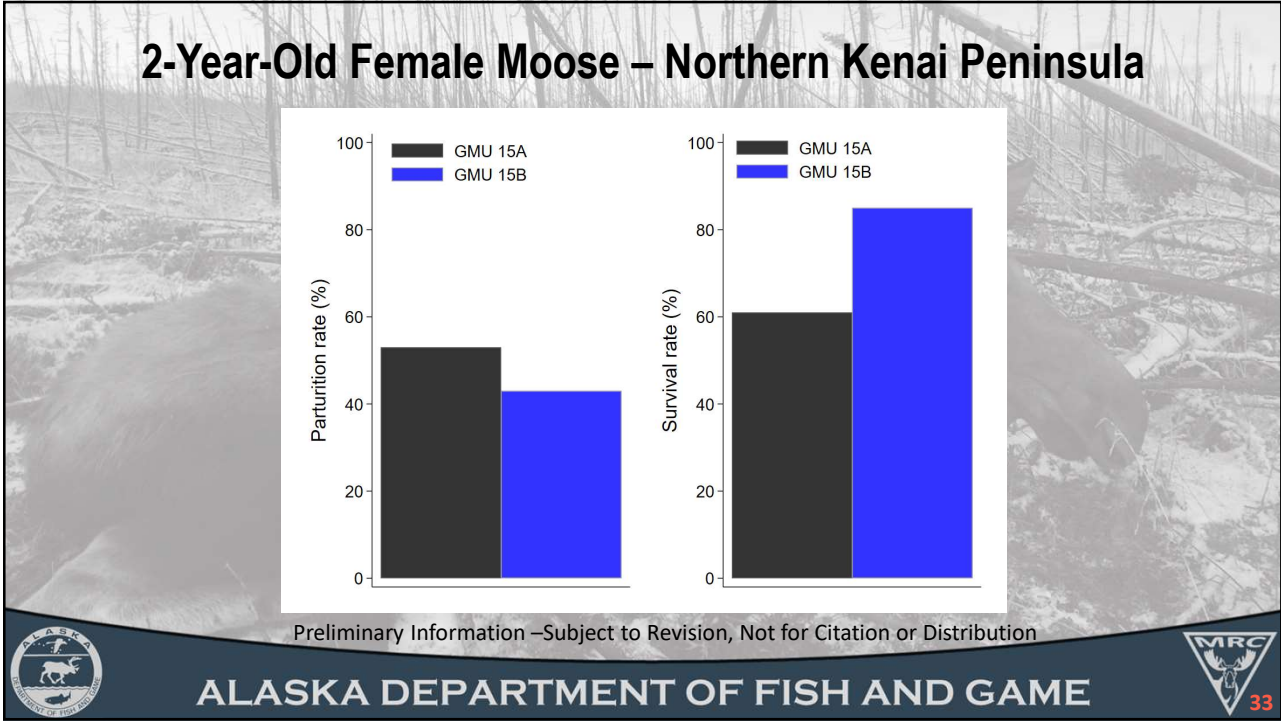
Preliminary Information –Subject to Revision, Not for Citation or Distribution



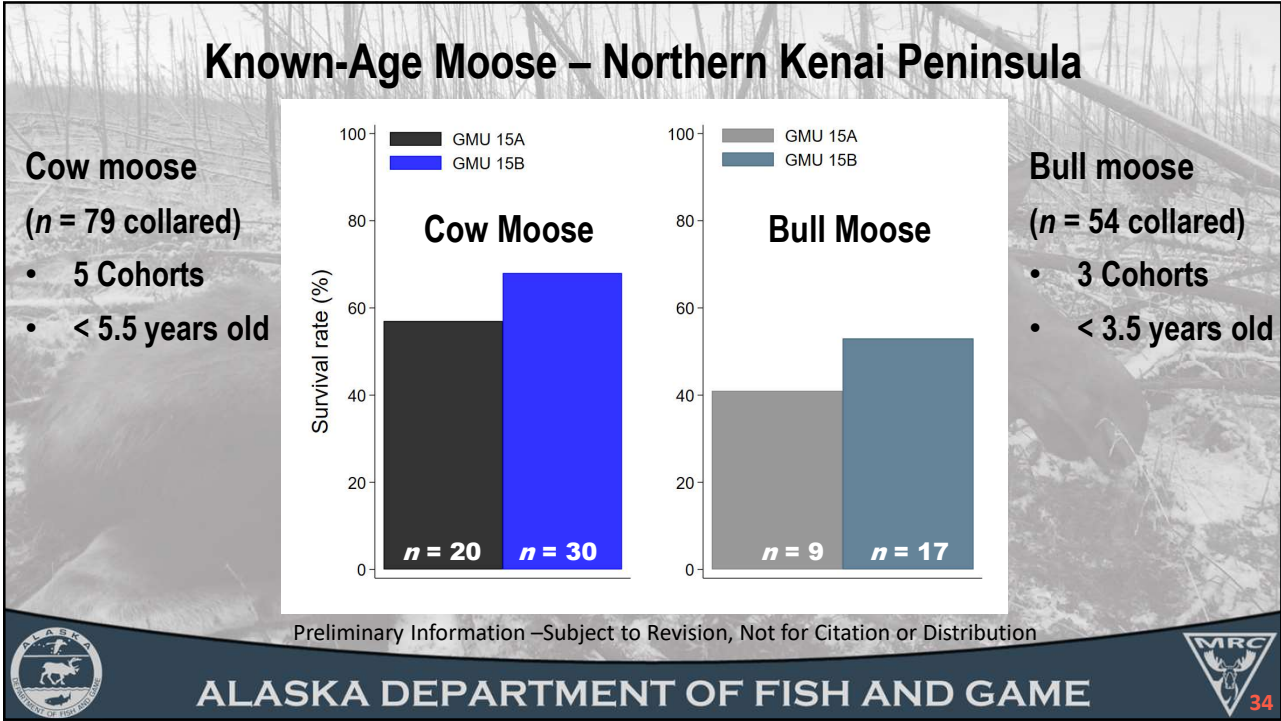
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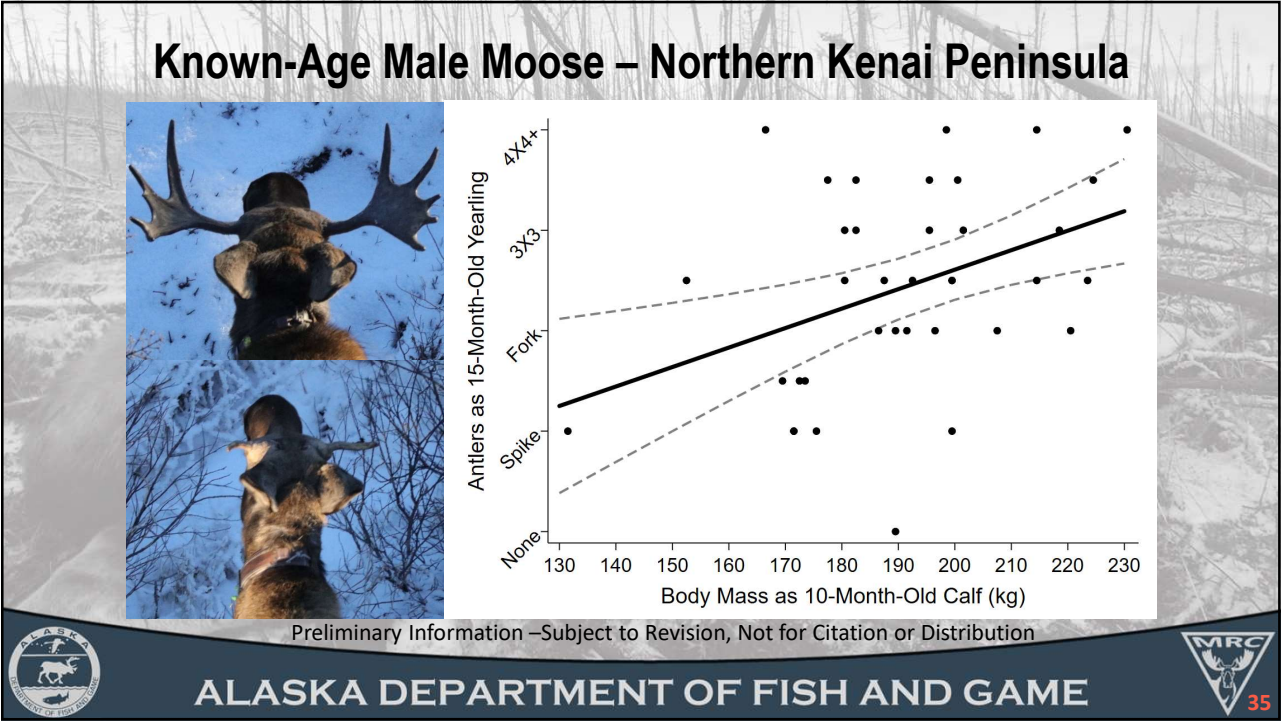


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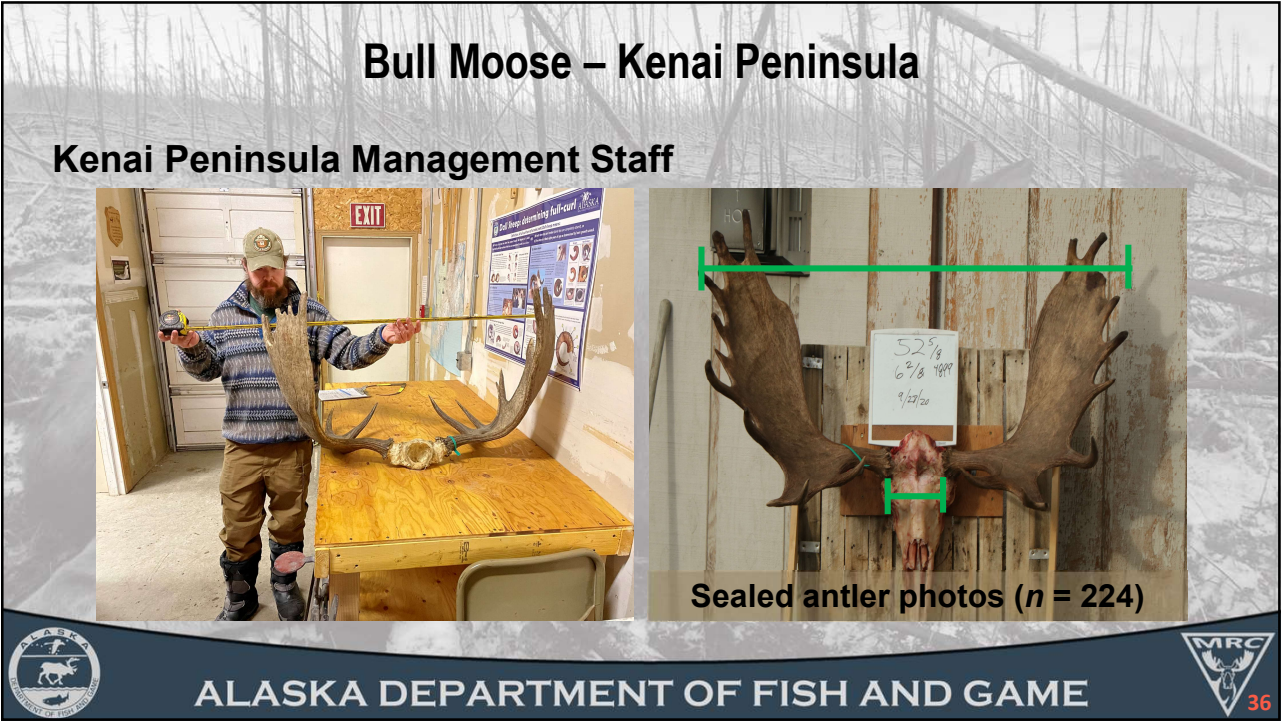


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# Known-Age Bull Moose – Kenai Peninsula

Kenai Peninsula Management Staff





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# Moose and Fire – Northern Kenai Peninsula

Objectives:


Longitudinal study

1. Adult female moose
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# 2019 Swan Lake Fire – Northern Kenai Peninsula


## Think like a moose

Available moose forage for nutrition


- Digestible energy
- Digestible protein

ADF&G WHESAP and FaWNA Programs

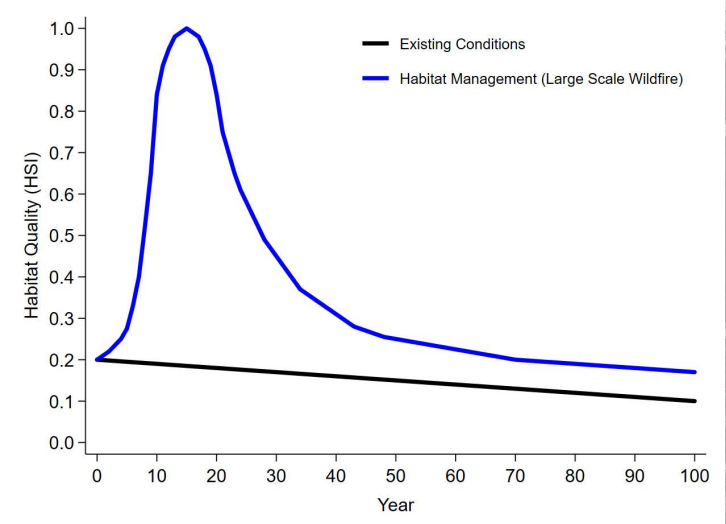





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# Expected Moose Habitat Quality Post Fire



Adapted from Schwartz and Franzmann. 1989. Alces 25:1–10.



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### Evaluating Moose Habitat

**Summer Forage**


June, July, August

- Fireweed
- Rose
- Willows (leaves)
- Aspen (leaves)
- Paper Birch (leaves)
- Dwarf Birch (leaves)
- Highbush Cranberry (leaves)





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### Evaluating Moose Habitat

**Winter forage**


October and March

- Willows (twigs)
- Aspen (twigs)
- Paper Birch (twigs)
- Dwarf Birch (twigs)
- Highbush Cranberry (twigs)
- Lowbush Cranberry
- Wintergreen
- Bunchberry dogwood





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### 2019 Swan Lake Fire – Northern Kenai Peninsula


**Forage**

- Fireweed
- Aspen

**Early Seral Aspen**




**Late Seral Aspen**




**Forage**

- High bush cranberry
- Prickly rose
- Fireweed
- Aspen




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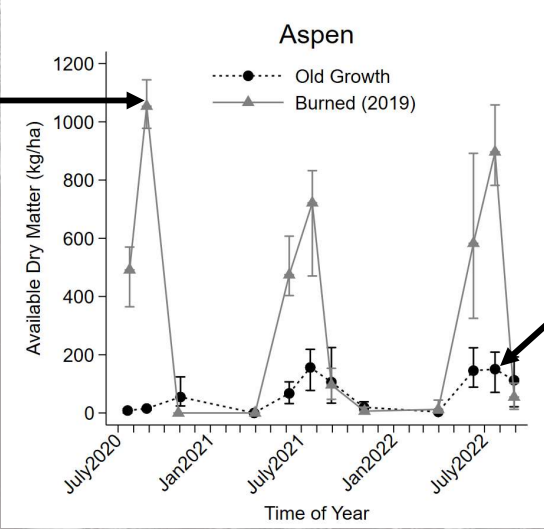
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### 2019 Swan Lake Fire – Northern Kenai Peninsula

**Early Seral Aspen**




**Aspen**




| Time of Year | Old Growth (kg/ha) | Burned (2019) (kg/ha) |
|--------------|--------------------|-----------------------|
| July 2020    | ~50                | ~500                  |
| Jan 2021     | ~50                | ~100                  |
| July 2021    | ~100               | ~500                  |
| Jan 2022     | ~50                | ~100                  |
| July 2022    | ~150               | ~800                  |


**Late Seral Aspen**



Preliminary Information –Subject to Revision, Not for Citation or Distribution



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## 2019 Swan Lake Fire – Northern Kenai Peninsula

**Forage**


Summer

- Fireweed

**Early Seral Black Spruce**



**Late Seral Black Spruce**




**Forage**

Summer


- Prickly rose
- Fireweed

Winter

- Lowbush Cranberry




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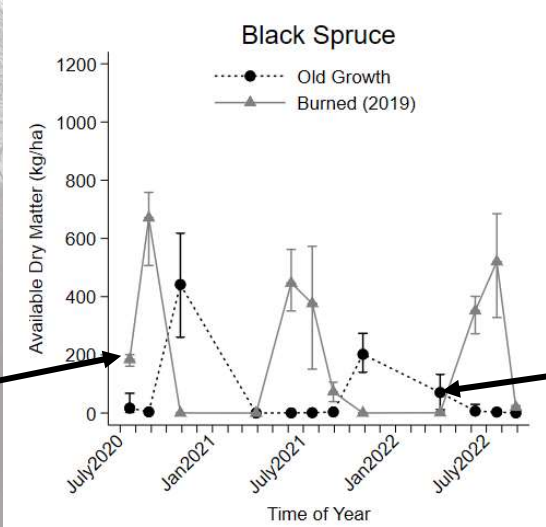
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## 2019 Swan Lake Fire – Northern Kenai Peninsula


**Early Seral Black Spruce**




**Black Spruce**




**Late Seral Black Spruce**



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# Moose and Fire – Northern Kenai Peninsula

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# Fire and Moose on the Kenai Peninsula, Alaska



## QUESTIONS?



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