# REGION I RESEARCH UPDATE
# DIVISION OF WILDLIFE CONSERVATION

Alaska Board of Game Meeting
11–15 January 2019
Petersburg, AK



## RESEARCH PROGRAM STAFF
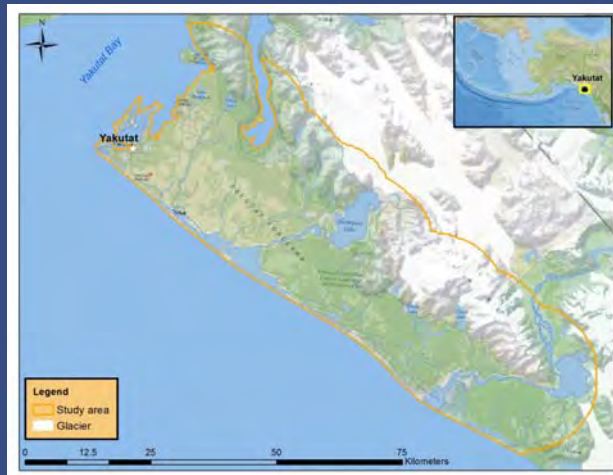
## GMU 5 — BROWN BEAR

**Objectives:**

- **Density and abundance**
  - Expert opinion 1990s:
    - $193/1,000$ km$^2$
    - 522 bears
- **Population demographics**
  - Survival
  - Productivity
- **Spatial use**
  - Seasonal movements
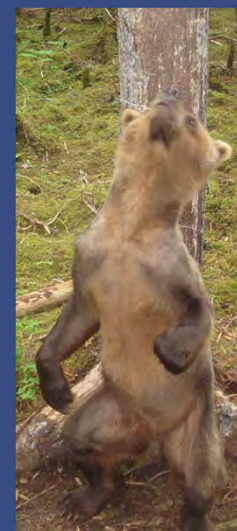  - Resource selection



3

## GMU 5 — BROWN BEAR

- Radio collars to:
  - Collect habitat/movement data
  - Inform study design
- Density and abundance
  - Noninvasive DNA and SECR
  - Density: $99 \pm 8$ bears/$1,000$ km$^2$
  - Abundance: $354 \pm 29$ bears
  - NOTE: Density ½ of expert opinion
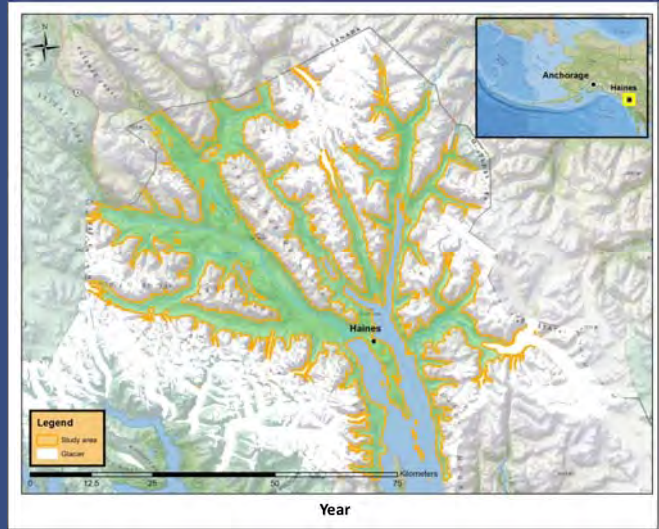


4

## GMU 1D                    BROWN BEAR

5 year project (2018–2023)

- Background
  - High female harvest
  - Mortality exceeding HGL
  - Increasing resource extraction



5

## GMU 1D                    BROWN BEAR

- Density and abundance
- Population demographics
  - Survival, mortality, productivity
- Spatial use
  - Seasonal movements
  - Habitat preferences
  - Den habitat selection

- Summer/Fall 2018 deployed 21 GPS collars and 45 cameras

6

## GMU 1B & 3                    DEER

- Limited harvest season
- Current methods:
  - Aerial alpine surveys
  - Pellet transects
  - Fecal DNA
- Unreliable (partial?) estimates
- Poor accuracy and precision

7

## GMU 1B & 3                    DEER

- **Objectives: Estimate abundance and density**
- Simulations to inform study design
- Initiated pilot study on Mitkof Island October 2018
  - Expected duration of study = 3 years
  - Integrated Spatial Capture-Recapture
    - Game cameras
    - Fecal DNA
- Develop Integrated Population Model (IPM)

Bob Armstrong

8

## GMU 1A, 1C, 1D, 4      MOUNTAIN GOAT

**Objectives:**

- Improve aerial survey techniques (sightability)
- Vital rate estimation (e.g., survival, recruitment)
- Habitat and movement modeling
- Population modeling
- Population genetics
- Drug trials
- Disease surveillance



Haines/Skagway
Lynn Canal
Cleveland Peninsula
Baranof
Gulf of Alaska

9

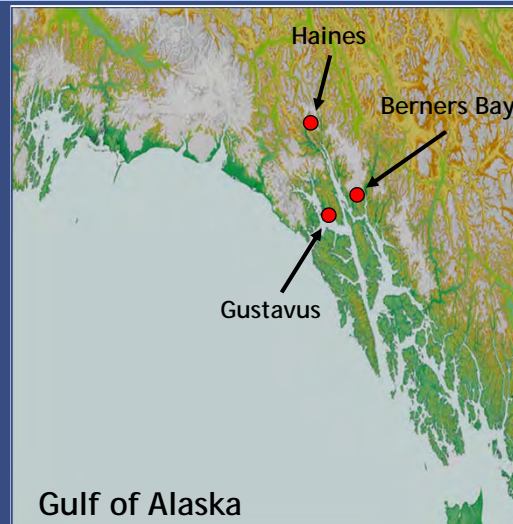## GMU 1C & 1D      MOOSE

**Gustavus and Berners Bay**

- Collared moose
  - Monitor abundance
  - Manage harvest
  - Find moose in thick forest

Haines—March 2019

- Collar moose for sightability
- Improved population estimates for informing harvest



Haines
Berners Bay
Gustavus
Gulf of Alaska

10

# GMU 2                                                    WOLF

- Conservation concern for 3 decades due to high harvest and reduction in deer habitat

- Gap in population estimation (1995-2013)

- Regular pop monitoring for management
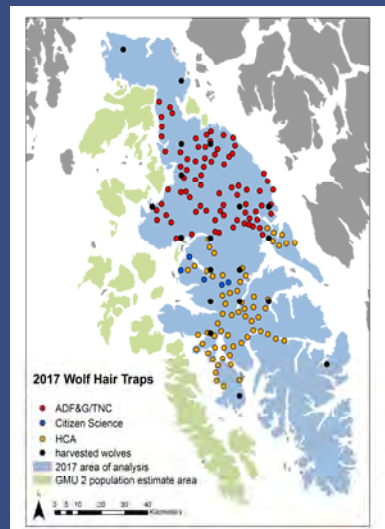
Kris Larson

- Need method that works in dense rainforests

11

# GMU 2                                                    WOLF

- Noninvasive SECR to estimate density
- 2012–2018

2017 Wolf Hair Traps

- ADF&G/TNC
- Citizen Science
- HCA
- harvested wolves
- 2017 area of analysis
- GMU 2 population estimate area

12

## GMU 2                              WOLF

- Noninvasive SECR to estimate density
- 2012–2018
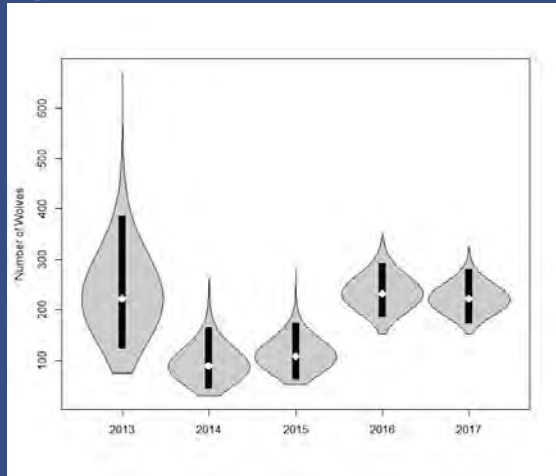
Density fall 2017
 23 (CI: 18–29)1,000 km$^2$
 Abundance fall 2017
225 (CI: 198–264) GMU 2
HGL 2018 = 225*0.20 = 45 wolves



13

## GMU 2                              WOLF

- Monitor with cameras (n ≈ 60)
- Previous work:
    - Minimum count
    - Confirm reproduction/pup count
    - Behavior at hair boards
- Planned 2019 work:
    - Advances with unmarked animals
    - Post-doc started January 2019
    - Goal: Recommendations for managers



14

## GMU 1C                                      WOLF

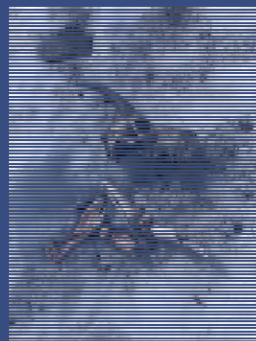- **Objective: Assess seasonal predation patterns of wolves**

Deer predation rates previously calculated indirectly

Drawbacks:
- No data on age-specific and seasonal prey use
- Assume consistent kill rate

How improved estimates could help:
- Better understanding of effects of wolves on prey
- Allow estimation of region-wide wolf population
- Wolf PVAs

15

## GMU 1C                                      WOLF

- Pilot study: Gustavus and Berner's Bay
  - GPS collar wolves
  - Identify temporal and spatial clusters
  - Prey composition and kill rate
- Expand to other GMUS
  - e.g., GMU3, Douglas/Juneau

16

## REGION WIDE                              WOLF

- **Objective: Characterize variation in wolf diets across regions and seasons**

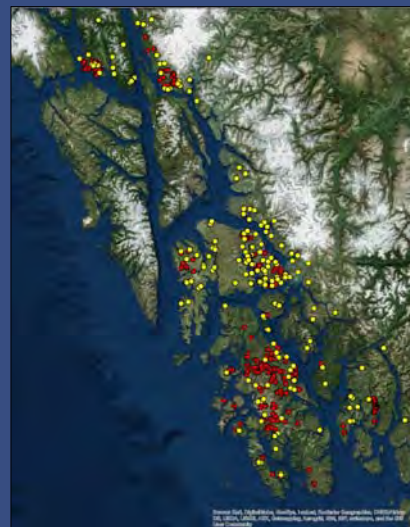Results useful for:

- Effects of wolves on prey
- Predict ability of wolves to adapt to declines of primary prey
- Predict wolf population persistence

17

## REGION WIDE                              WOLF

- Metabarcoding of prey DNA sequences in wolf scats
  N = 744, prey species = 48

- Stable isotope ratios
  N = 370

18