

FEASIBILITY ASSESSMENT FOR MAINTAINING OR INCREASING SUSTAINABLE HARVEST OF MOOSE IN GMU 20A



**Prepared by:
Division of Wildlife Conservation
February 2015**

HISTORY

- **The Unit 20A feasibility assessment was agreed to be presented to the Board in response to 5AAC 92.108 Intensive Management Population and Harvest objectives not being met in RY2013-2014.**
- **We anticipated that a current moose abundance estimate would be available at this time, but due to poor survey conditions during November 2014, we were not able to complete a survey.**

Department Recommendation

At this time, the Department does not recommend implementing an Intensive Management plan that includes predator control.

RATIONALE

- 1) Moose densities are relatively high at >2 moose/mi² (based on the 2013 population estimate);
- 2) Improvements in the nutritional condition of the moose population have not yet been detected;
- 3) The department will be capturing and weighing 10-month old calves in March 2015 to better assess the nutritional condition (i.e., substantiate low twinning rates);
- 4) We have not had the opportunity to evaluate the effect of several years of conservative and 1 year without cow harvests on moose numbers;
- 5) The 2013 population estimate is a single data point;
- 6) The 2013 estimate may have been biased low due to poor survey conditions (i.e., the surveys were conducted in early December when low light condition persist, negatively affecting sightability).



GMU 20F

GMU 25C

YUKON RIVER

STEESE HWY

Fairbanks

GMU 20B

Nenana

TANANA RIVER

GMU 20D

GMU 20A

Delta Jct.

GMU 20C

PARKS HWY

Healy

ALASKA HWY

Federal Lands



20 0 20 40 Miles

Unit 20A IM Feasibility Assessment

National Park

Denali Park

Military Lands

Eielson Air Force Base

Fort Wainwright

Clear AFB

Fort Greely

Wild and Scenic Rivers

Beaver Creek Wild & Scenic River

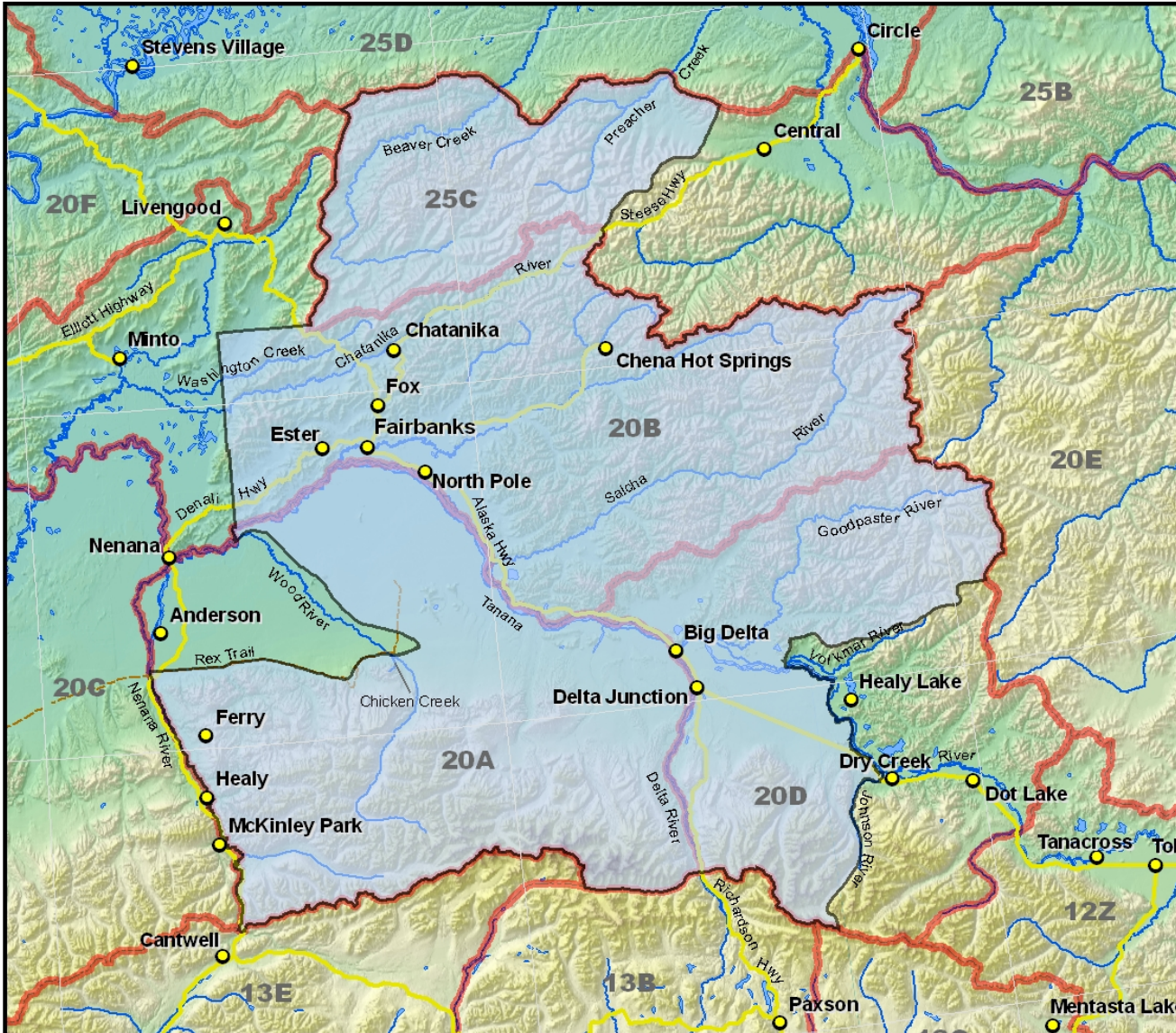
Birch Creek Wild & Scenic River

Recreation Areas

Steese National Conservation Area

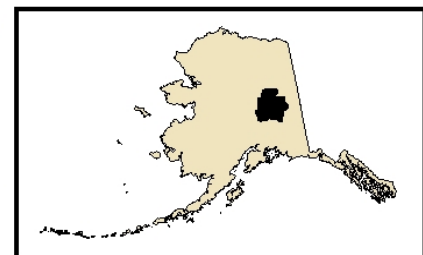
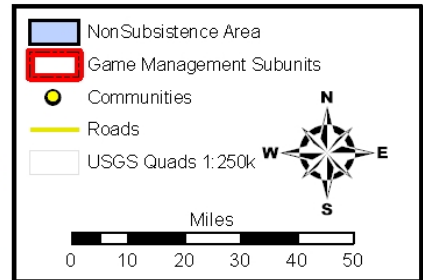
White Mountains National Recreation Area

Fairbanks NonSubsistence Area



5 AAC 99.015 Joint Board nonsubsistence areas. (a) The following areas are found by the Joint Board of Fisheries and Game to be nonsubsistence use areas:

(4) The Fairbanks Nonsubsistence Area is comprised of the following: within Unit 20(A), as defined by 5 AAC 92.450(20) (A), east of the Wood River drainage and south of the Rex Trail but including the upper Wood River drainage south of its confluence with Chicken Creek; within Unit 20(B), as defined by 5 AAC 92.450(20) (B), the North Star Borough and that portion of the Washington Creek drainage east of the Elliot Highway; within Unit 20(D) as defined by 5 AAC 92.450(20) (D), west of the Tanana River between its confluence with the Johnson and Delta Rivers, west of the east bank of the Johnson River, and north and west of the Volkmar drainage, including the Goodpaster River drainage; and within Unit 25(C), as defined by 5 AAC 92.450(25) (C), the Preacher and Beaver Creek drainages.



Disclaimer: This map is not intended for navigational purposes.

2004 - 2006 Moose/ Sq. Mile



Nenana

Fairbanks

Delta Jct.

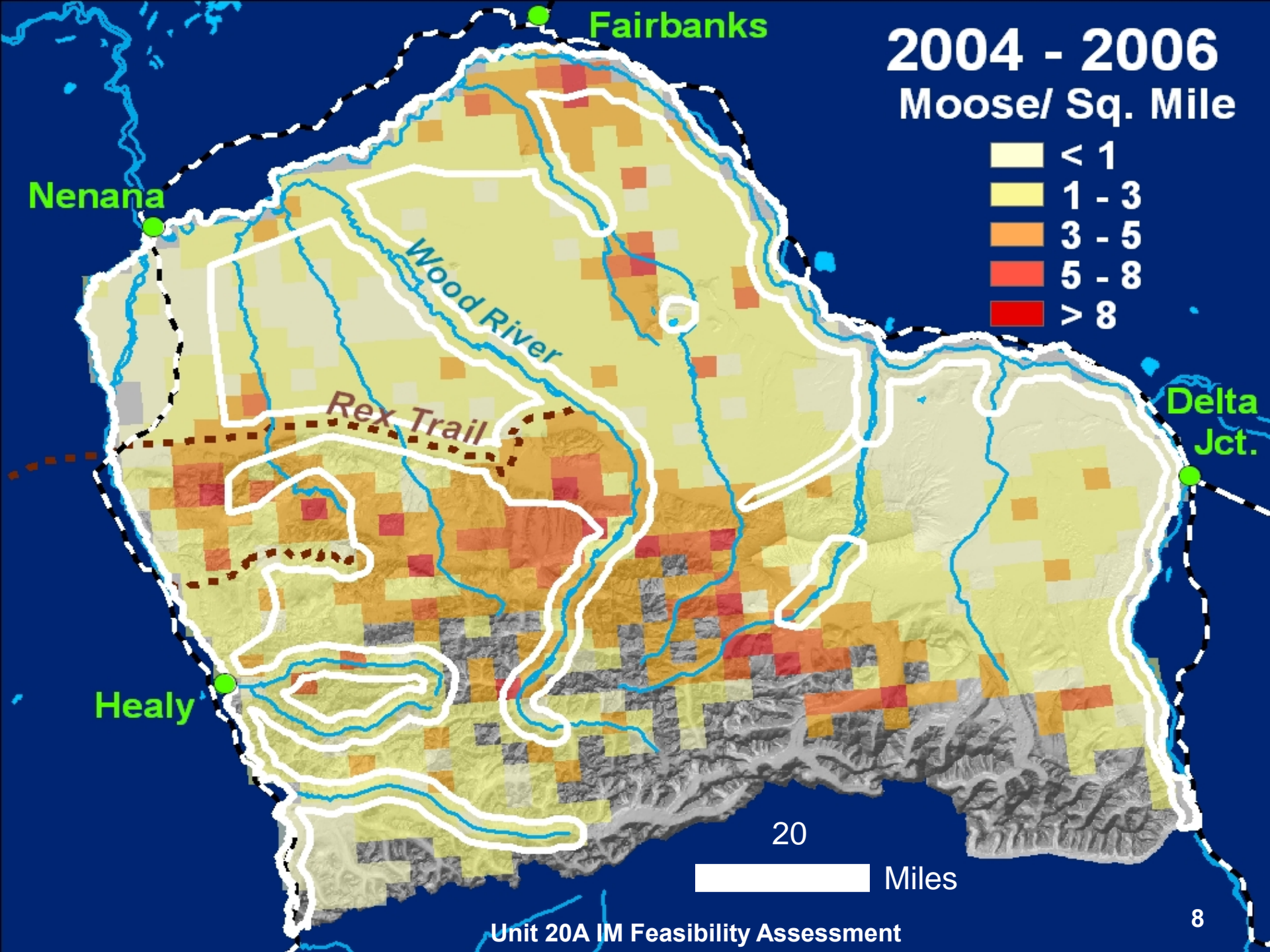
Healy

Wood River

Rex Trail

20

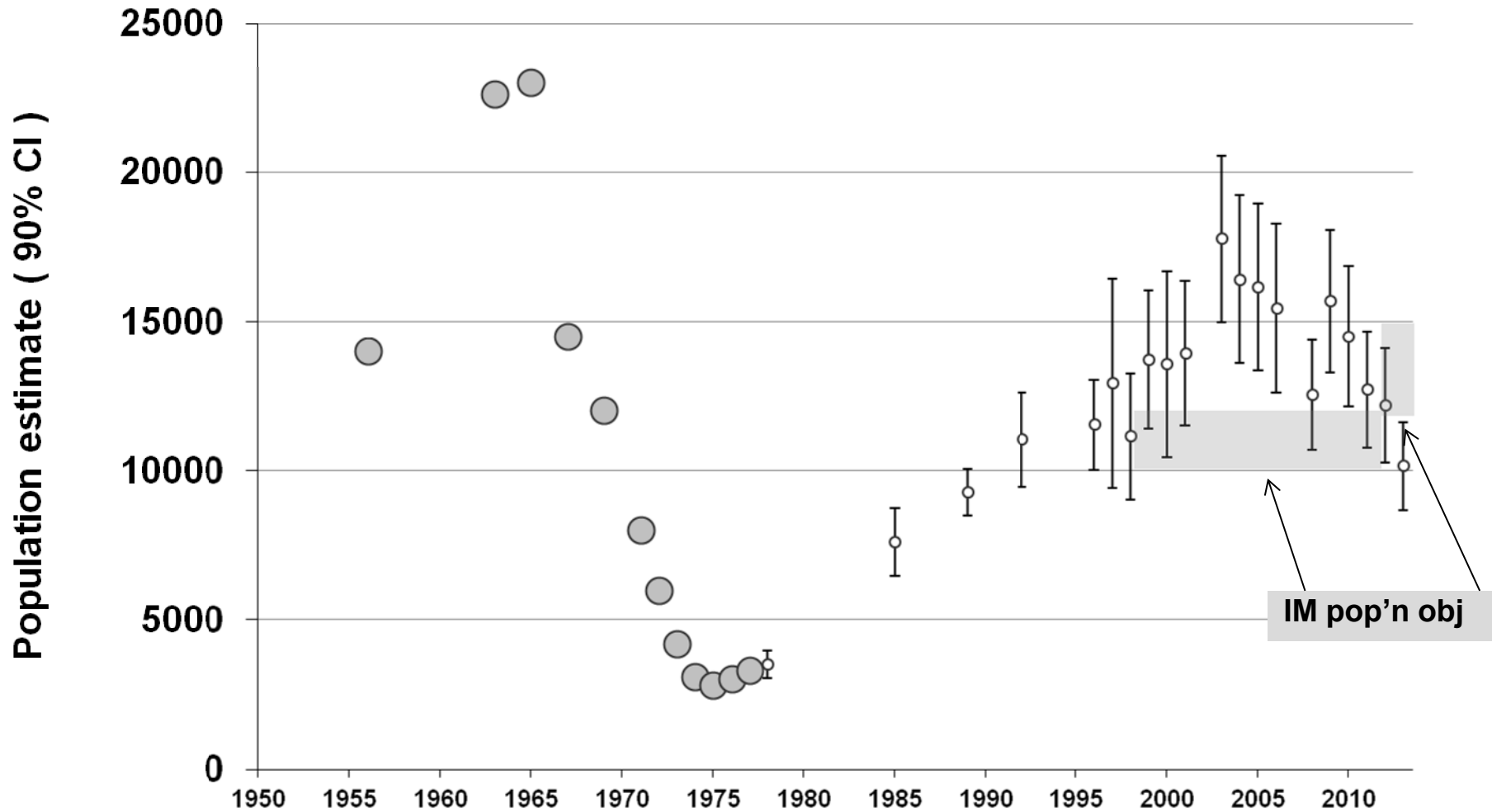
Miles



BACKGROUND (POPULATION)

- In 2003, the number of moose in Unit 20A was estimated at 17,766 (14,975-20,558; 90% CI).
- Research indicated this high-density moose population was experiencing density-dependent effects (i.e., low productivity, relatively light calf weights, and high removal rates of winter forage).
- Objective beginning in 2004: reduce moose numbers to 10,000–12,000 (population objective 1998-2012) unless indicators of moose condition showed signs of improvement at higher densities.
- In 2013, the number of moose in Unit 20A was estimated at 10,156 (8678–11,633; 90% CI) moose.

GMU 20A moose population trend, 1956-2013



FEASIBILITY OF ATTAINING POPULATION OBJECTIVE: HIGH

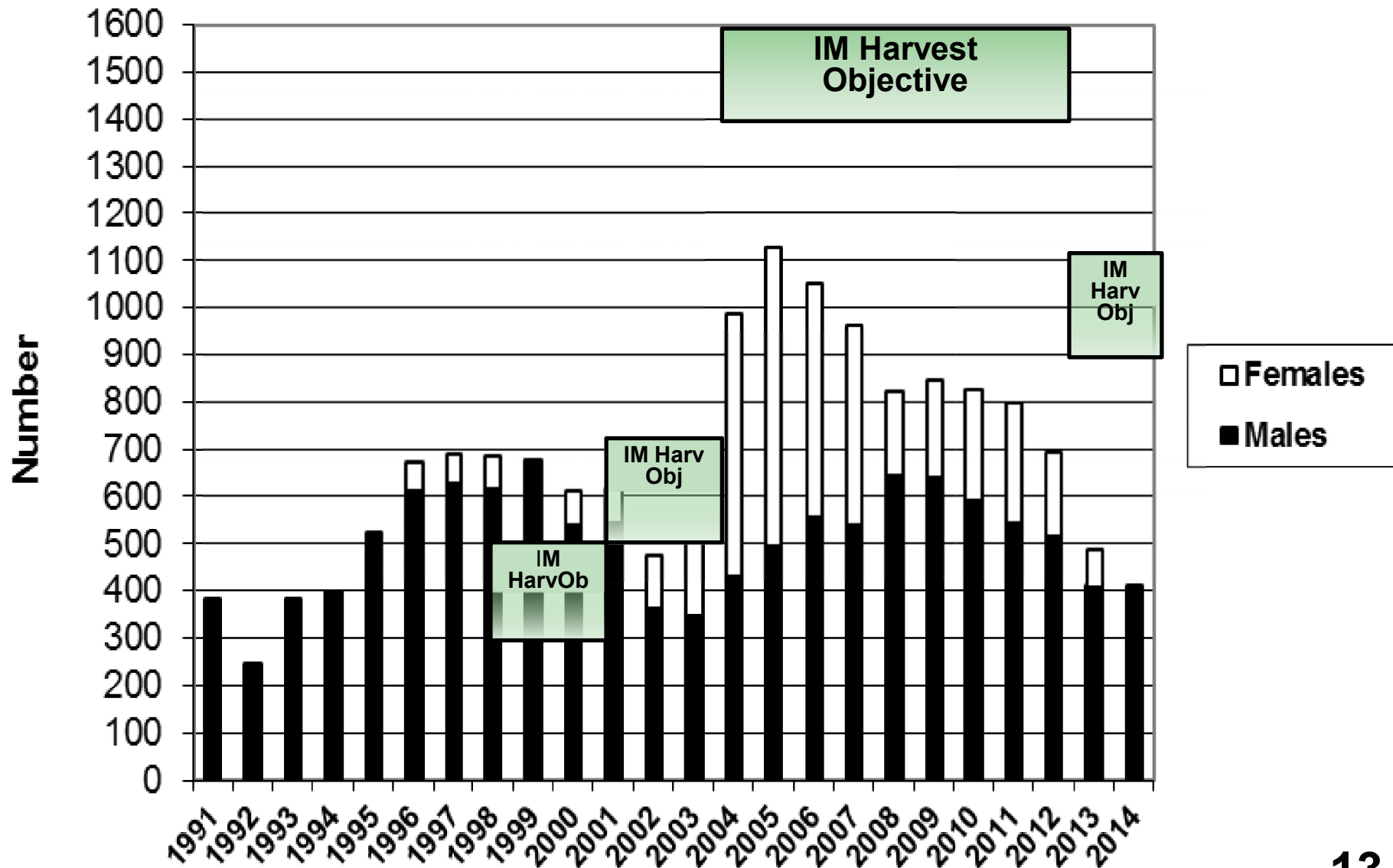
- **10,156 (8678–11,633; 90% CI) moose is ~20% below lower limit of population objective of 12,000 moose**
- **Proximity to Fairbanks makes aircraft/pilots teams readily available**
- **Wolves are the primary predator, particularly of adult moose, in this predator-prey system**
- **Land ownership - 98% state and federal (primarily military managed by BLM)**

BACKGROUND (HARVEST)

Harvest objectives and reported harvests:

- 1998-2000: 300-500; mean=658 (613-687)
- 2001-2003: 500-720; mean=533 (478-616)
- 2004-2012: 1,400-1,600; mean=903 (695-1,131)
- 2013-2014: 900-1,100; mean=450* (411*-490)

Reported harvest of moose in Unit 20A, 1991-2014



FEASIBILITY OF ATTAINING HARVEST OBJECTIVE: LOW-MODERATE

- **Require increasing reported harvest by 400-500 moose annually to reach lower bound of harvest objective of 900 moose (i.e., roughly double the mean RY2013 and RY2014 reported harvest of 450 moose)**
- **At population of 12,000 moose, a reported harvest rate of 7.5% would be needed to meet harvest objective of 900 moose**
- **Estimated reported harvest rates averaged < 7% during reduction phase in Unit 20A, 2004-2007**
- **This level of harvest not sustainable without substantial population increase or predator control**

ISSUES

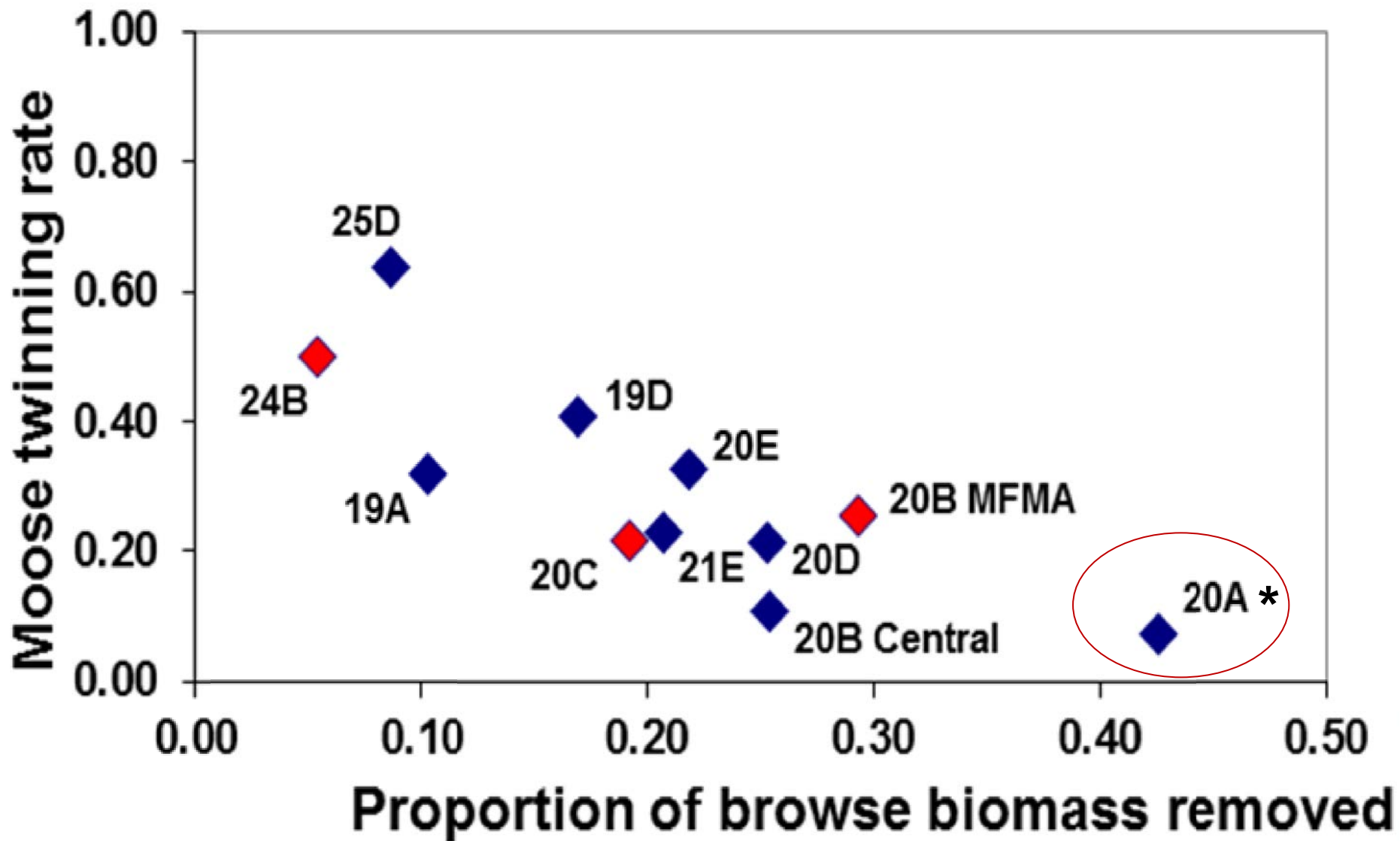
Biological

- **Moose nutritional condition/productivity concerns**
- **Habitat concerns (i.e., overbrowsing)**
- **Habitat degradation (e.g., trail damage Rex trail)**

ISSUES

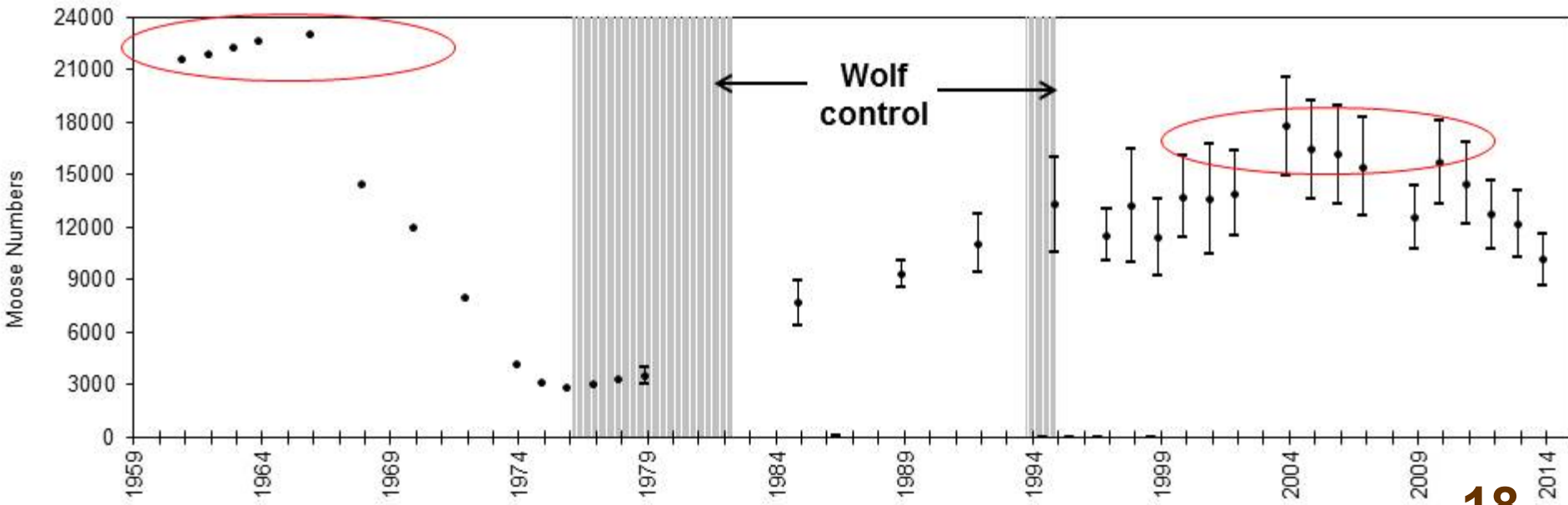
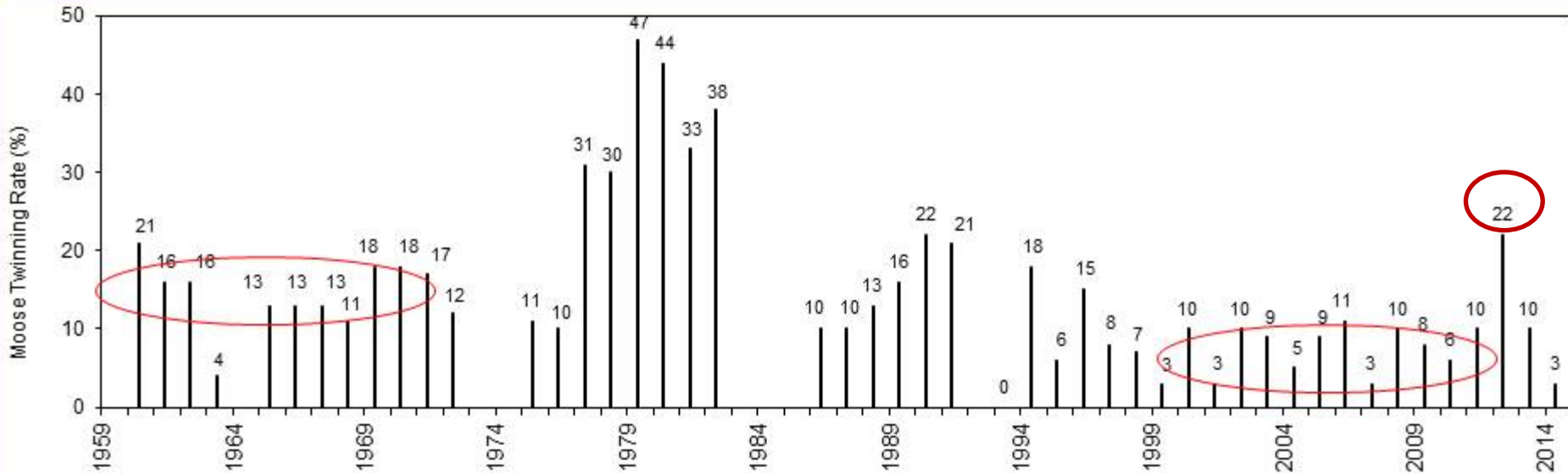
Social

- **Public opposition to cow hunts (e.g., Minto-Nenana opposition 2015)**
- **Public opposition to IM (e.g., Middle Nenana AC, 2012 Denali Borough Resolution)**
- **Hunter crowding/conflicts**
- **Trapper pushback**
- **Denali Wolf Buffer controversy**

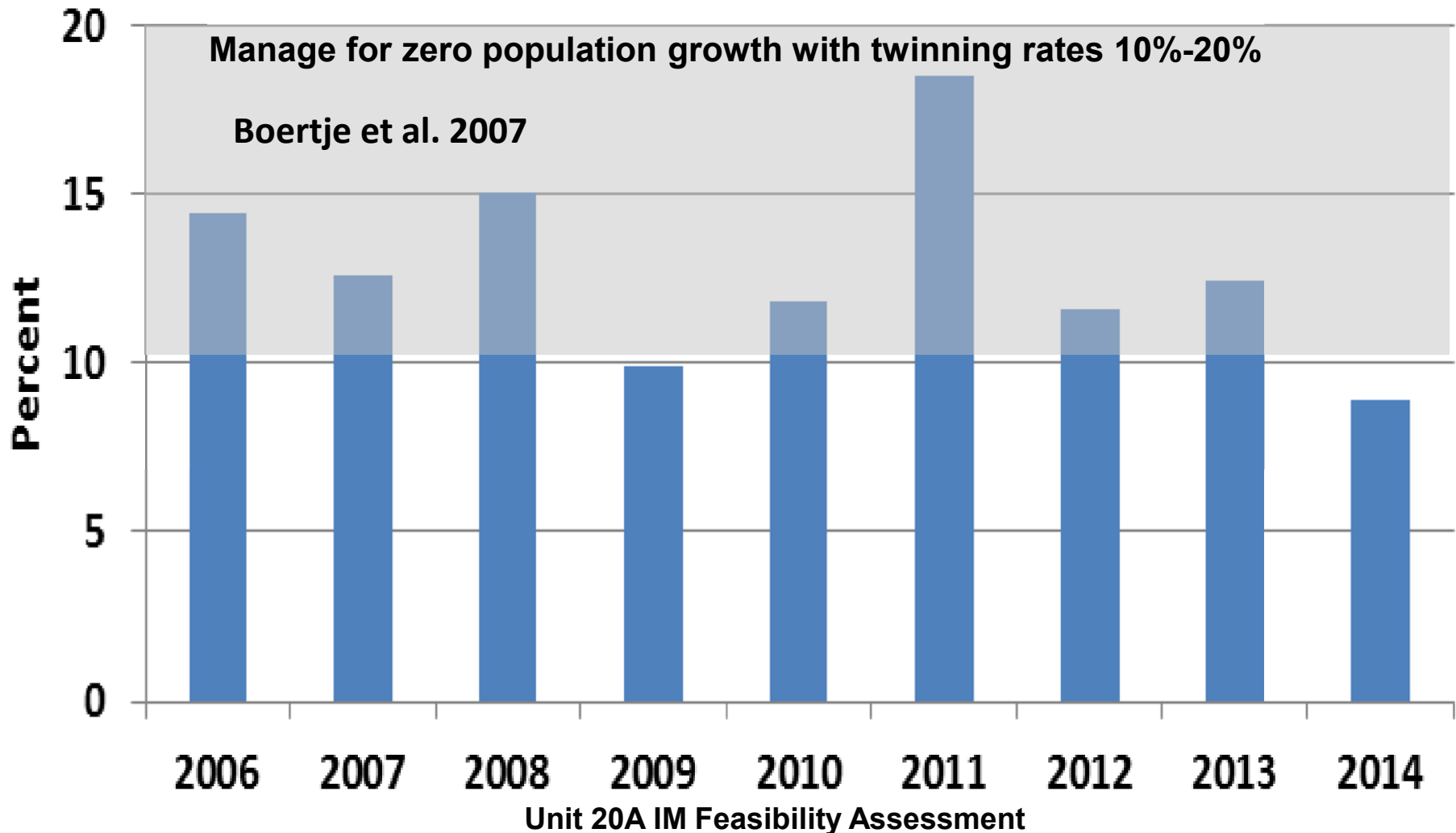


* Mean twinning rate, central Unit 20A, 1997-2005; browse removal Unit 20A winter 1999-2000

Twinning rate and moose population size, central Unit 20A



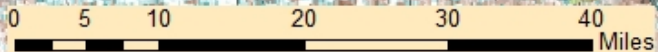
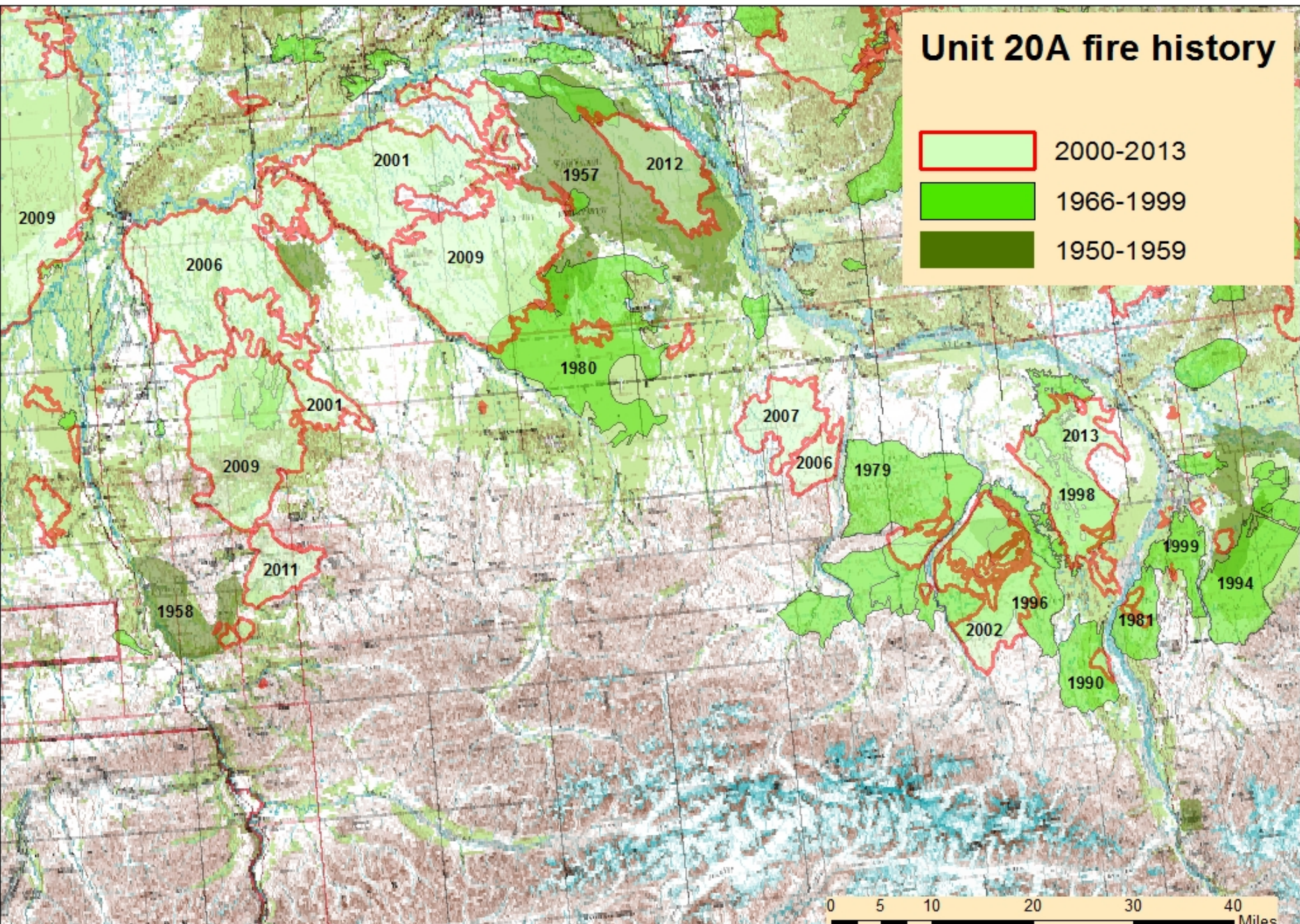
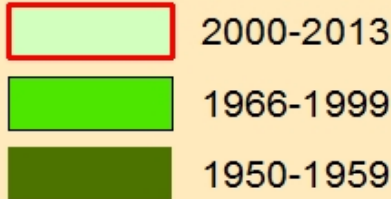
Twining rates on the Tanana Flats, Unit 20A, 2006-2014



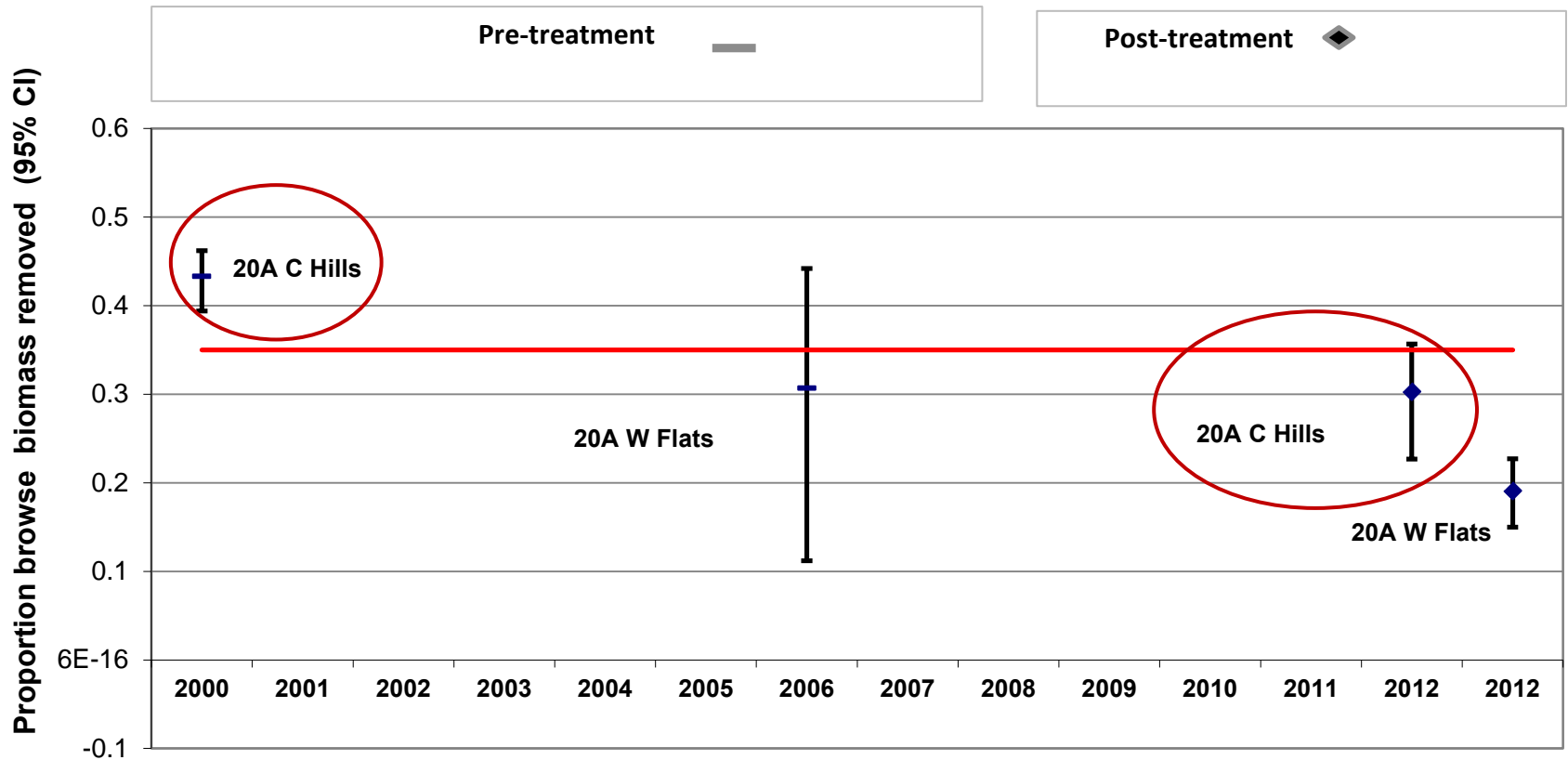
OTHER CONSIDERATIONS

- **Convenience of Unit 20A predator control program may detract from other programs**
- **Habitat improvements – approximately 700,000 acres burned 2001-present (increased productivity)**
- **Trend toward shallower snow accumulations (high survival rates, especially calves)**

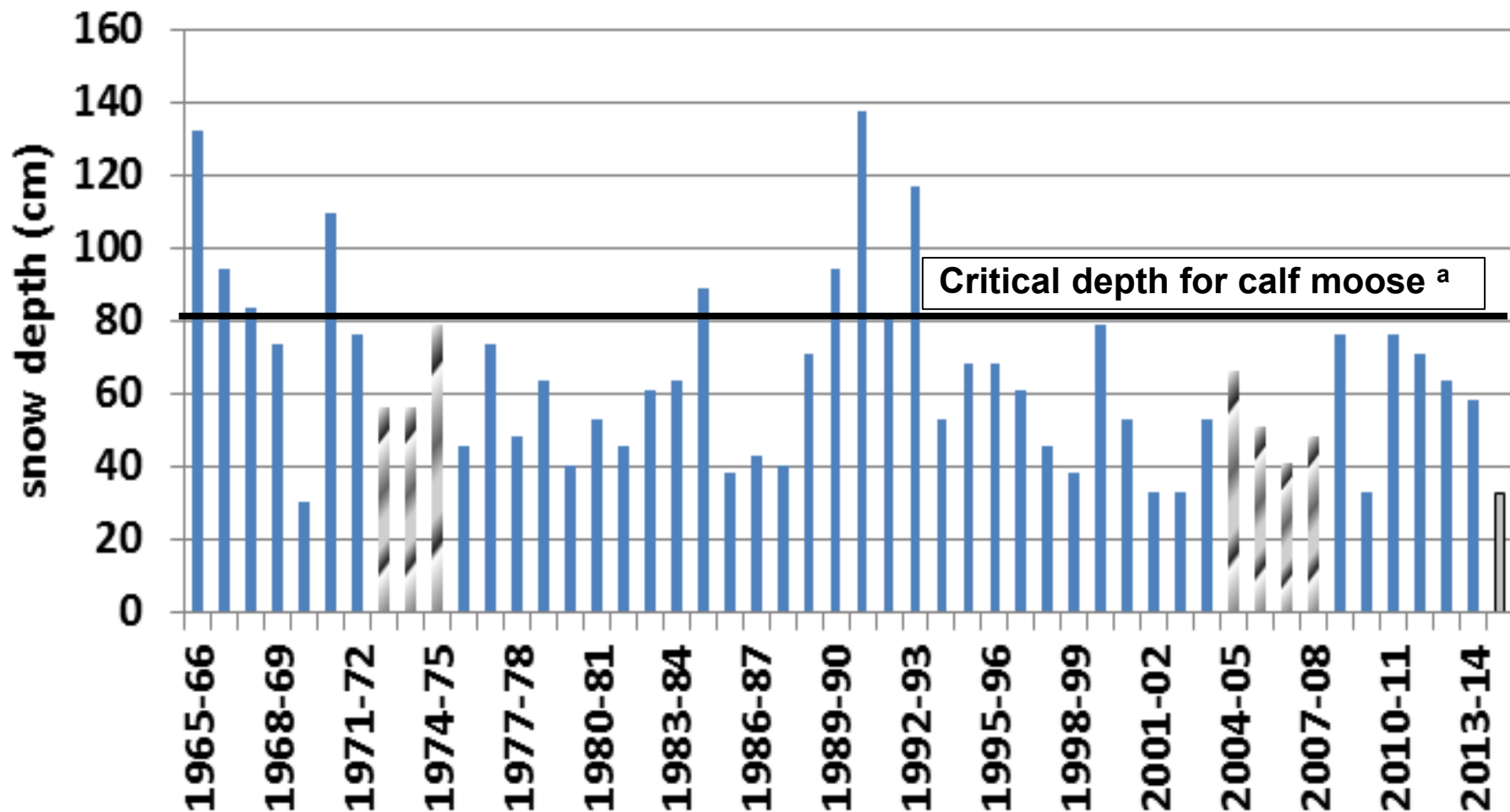
Unit 20A fire history



Browse Removal by Moose, Unit 20A



Maximum accumulated snow depth (cm), winters 1965-66 through 2014-15, Fairbanks, AK

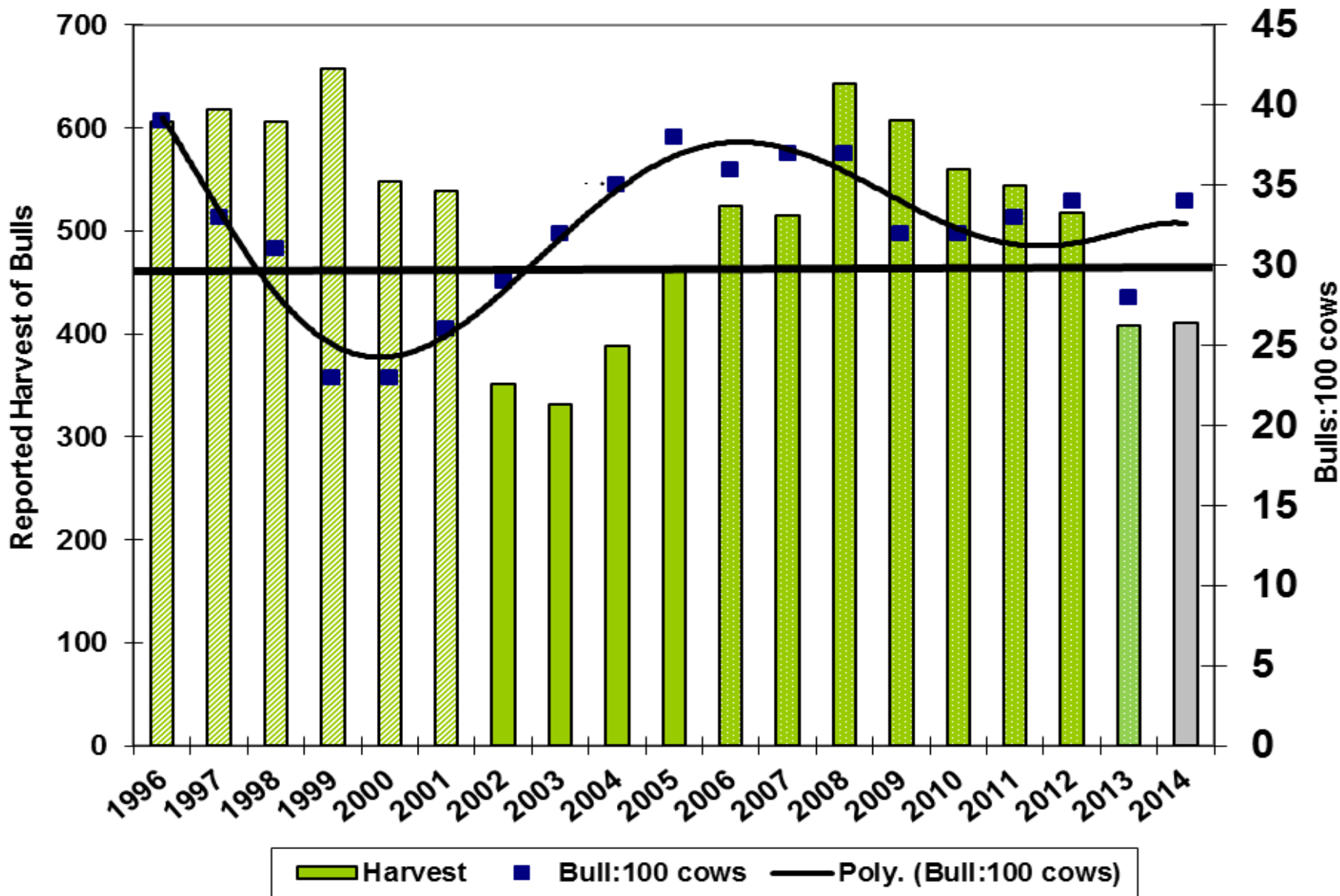


^a Coady, J. W. 1974. Influence of snow on behavior of moose. Nat. Can (Que.) 101:417-436

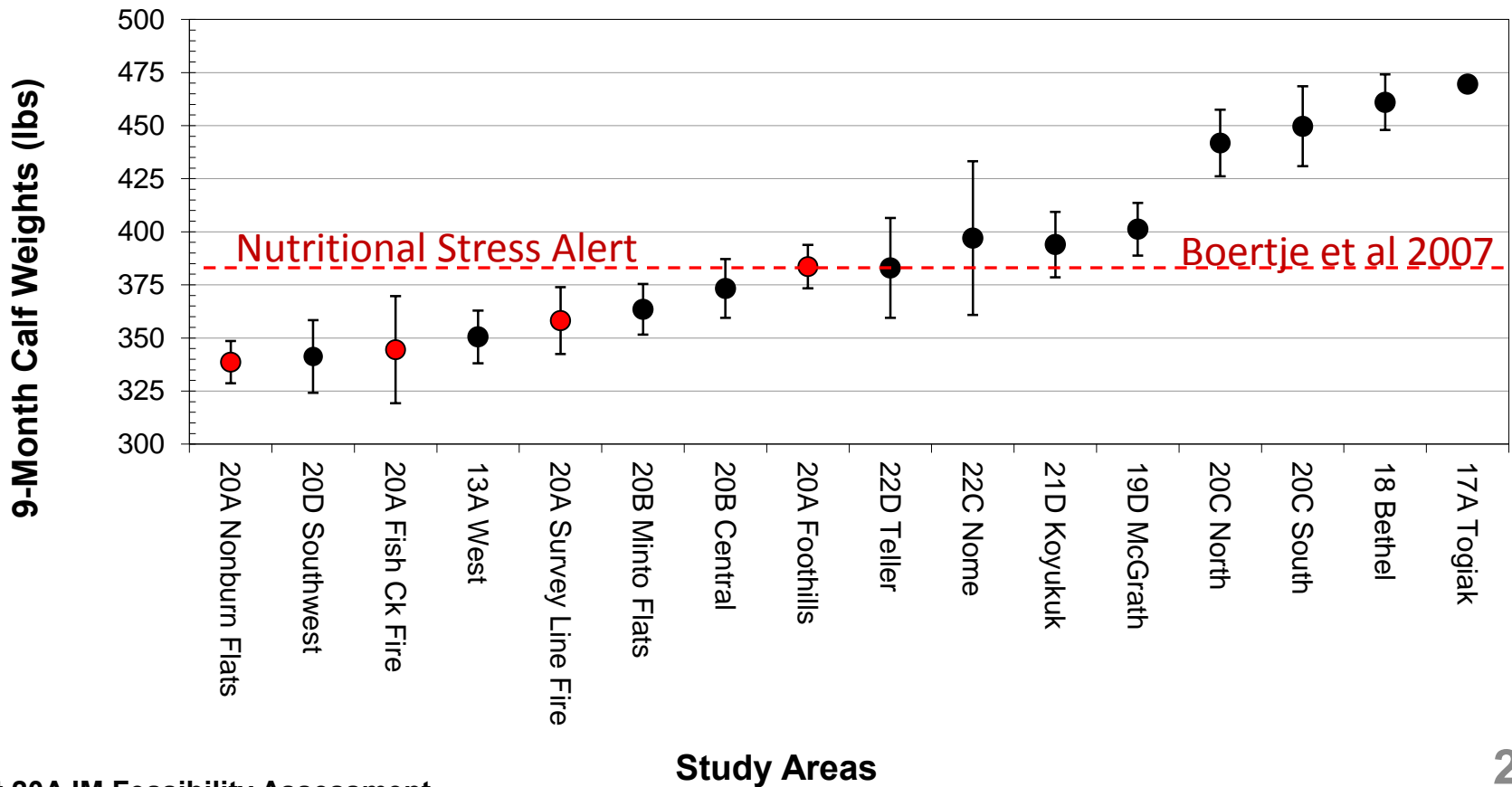
ADDITIONAL INFORMATION

- **Bull:cow ratios and hunter success rates have remained stable suggesting a stable population**
- **We will be capturing and weighing 60 10-month-old calves in March 2015 to assess the moose population's nutritional condition**

Bull:cow ratios and reported harvest of bull moose in GMU 20A, 1996-2014



Calf Weights Across Alaska



ADDITIONAL INFORMATION - WOLVES

- **The management objective for wolves in Unit 20A is to maintain a fall density of ≥ 11 wolves/1000 mi² (~75 wolves).**
- **Population size based on an estimate of roughly the northern 1/2 of Unit 20A in 2013 and extrapolation to the remainder of the unit is approximately 300 wolves.**
- **Moose:wolf ratio $> 30:1$ (suggests population stability or growth Gasaway et al. 1983)**
- **Harvest averaged 45 wolves per year during 2011-2013.**
- **Estimated harvest rate is ~15%.**

ADDITIONAL INFORMATION – GRIZZLY BEARS

- **The management objective for grizzly bears is to manage for a stable population with human-caused mortality $\leq 8\%$ (bears ≥ 2 years) with at least 55% males in the harvest.**
- **Population size based upon estimates conducted in the 1990s is ~ 150 independent bears.**
- **Harvest averaged 23 grizzly bears per year during 2011-2013.**
- **Harvest rate is estimated at ~15% (suggests the grizzly bear population may be higher than in 1990s).**

ADDITIONAL INFORMATION – BLACK BEARS

- **The management objective for black bears is to maintain a black bear population that sustains a harvest of at least 55% males for the most recent 3 years.**
- **Estimated population size in Unit 20A is approximately 600 black bears.**
- **Harvest was 20 black bears per year during 2011-2013.**
- **Harvest rate is likely < 1%.**

Department Recommendation

- **At this time, the Department does not recommend implementing an Intensive Management plan that includes predator control.**
- **Instead, we recommend evaluating potential for change in the feasibility assessment after collecting additional information on:**
 - **Abundance (GSPE with SCF fall 2015)**
 - **Productivity and survival (Composition data)**
 - **Nutritional condition (10-month calf weights and twinning rate estimates)**
 - **Public support for IM that includes predator control**

