

PROPOSAL 38: opposition

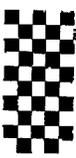
RC114

THIS IS A MILITARY LAND USE ISSUE AND INCLUDES A LIVE BOMBING RANGE FULL OF BOMB DEBRI AND TARGETS AS WELL AS NUMEROUS MILITARY TRAILS.

F&G CAN'T EVEN MEET THE (zone 5) ANTLERLESS MOOSE HARVEST QUOTA DUE TO OVER POPULATION OF MOOSE. THERE IS NOTHING RATIONAL ABOUT THIS PROPOSAL

Support As Ammended Close the area to all motorized vehicles "To keep this BOMBING RANGE PRISTINE."

THANK YOU
ABE HORSCHEL
DELTA JCT. AK 99737
Abe Horschel



RC115

COMENTS ON PROPOSAL #86

My name is Robert Blake

I do not support this proposal

I have lived, hunted, fished, and trapped in this area for many years.

This proposal would only help depress this small community further with little or no possibility of growth for the small business man, or prospect for the working family.

I'm not saying this should be a trade off of wildlife for economics, but I feel the justification of this refuge is tainted by the special interests of the biologist that help put this all together!

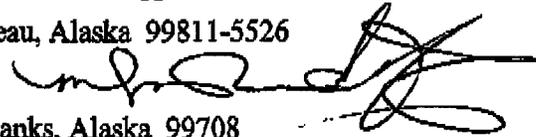
There is the Paxson refuge not far from this area and not 2 years ago the Fish and Game biologist asked the Paxson game advisory board to vote on the disbandment of this refuge, saying there was no real need for it in this are and it was a finical burden on the department to keep signed and patrolled, and as a group we voted not to disband this area. In this I feel the request for this refuge is for the suppression of mining in the area, and not so much the protection of wildlife.

Robert W. Blake

RECEIVED
MAR 03 2008
BOARDS

RC 116
RECEIVED
MAR 03 2008
BOARDS

TO: Alaska Board of Game, Boards Support Section
PO Box 115526 – Juneau, Alaska 99811-5526

FROM: Mary Jane Derendoff 
PO Box 84473 – Fairbanks, Alaska 99708

DATE: 25 February 2008

SUBJECT: PROPOSAL #94

I very much oppose the Proposal #94. Please do not eliminate the Koyukuk Controlled Use Area in Unit 21 and 24. And especially do not allow aircraft to fly in to this area for moose hunting. I don't want the moose to become extinct like what happened to the buffalo. It's bad enough that people with high powered boats go and hunt the moose. This leaves village residents who rely on moose for subsistence and traditional life style to compete –most of the time unsuccessfully– with folks that have the money to hunt. People in the village barely can afford the gas prices. I strongly oppose allowing aircraft to hunt moose.

I hope this letter counts for something and is not mailed in vain.

Any questions from me please feel free to contact me. Thank you.



Cascadia Wildlands Project

Alaska Field Office

907.424.3835 - POB 853 - Cordova AK 99574 • gscott@cascwild.org • www.cascwild.org

RC117

ATTN: BOG COMMENTS
Alaska Dept. of Fish and Game
Boards Support Section
PO Box 115526
Juneau, AK 99811-5526

MAR 03 2008

BOARDS

RE: Proposal 86

Members of the Board of Game:

Please accept these brief comment, on behalf of the non-profit organization Cascadia Wildlands Project, as well as myself as an individual Alaska resident, and my family, in support of Proposal #86. We would very much like to see a Tangle Lakes Wildlife Refuge established. I'd like to ensure that my newborn daughter has the same opportunities there, that my wife and I have enjoyed.

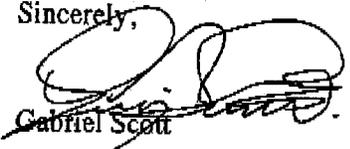
As a family we have had several experiences with Tangle Lakes. My wife grew up in Anchorage, and remembers visiting it as a child. We live today in Cordova, well downstream of that place, but have still found a couple occasions to visit when we were camping upriver. I recall bringing a friend, a photographer, who was visiting from Outside, there, and I remember how excited he was with the spectacular scenery. We have friends upriver who hunt the caribou herd there, and know through them how truly irreplaceable that subsistence tradition is.

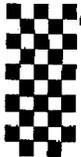
This is important so it bears repeating: the wildland values of Tangle Lakes are irreplaceable. There are other sources of minerals, other jobs, and even other caribou herds. But there is only one Tangle Lakes.

Tangle Lakes is on the outside margins of the geographic area where Cascadia, a non-profit conservation organization, normally takes active interest. We are more coastal, and the proposed wildlife refuge is well upstream. However, Tangle Lakes is one of those unique, special places that even distant neighbors appreciate. It is important to preserve the natural processes there, and especially the wildlife habitat for the caribou, as one of the most productive biological systems in our bioregion. These systems are all interconnected. From a conservation perspective, a wildlife refuge at Tangle Lakes is a no-brainer.

Please take your service to future generations seriously. Please protect Tangle Lakes.

Sincerely,


Gabriel Scott



RC118

RECEIVED
23-08
CWS

ATTN: BOG COMMENTS
Alaska Department of Fish and Game
Boards Support Section
P.O. Box 115526
Juneau, AK 99811-5526
Fax: 907-465-6094

RECEIVED
FEB 29 2008
BOARDS

29 February 2008

Alaska Board of Game Members:

I strongly support proposal number 86 to create a state wildlife refuge in the area of the Tangle Lakes. This is a bountiful and beautiful area, one used for hunting for many centuries by humans, dating back to early inhabitants of this region. It is an important portion of the range of the caribou who frequent this and nearby regions. My family and I have enjoyed this area for nearly 30 years. We have utilized the Tangle Lakes and surrounding locales for hunting, wildlife viewing, photography, and fishing, as well as for canoeing and berry picking.

The area around the Tangle Lakes continues to be an important resource to the inhabitants of this area, as it has been, judging by the archeological record, for millennia. It is highly deserving of the designation of Tangle Lakes State Wildlife Refuge.

Thank you for your attention in this matter.

David T. Wellman
HC60 Box 227
Copper Center, AK 99573
(907) 822-3418

RC119

Dear Alaska Board of Game,

I would like to thank you for the opportunities of big game cold-weather hunting and encourage the board to keep or widen the use for other hunters because of the positive experiences I have had this winter while hunting moose and bison. The ability to properly care for the meat both while in the field and by properly aging it in a cooled environment (our garage) has made the prize (great tasting, tender meat) a real treat for the family. It has also allowed the fun of the hunt to be extended as family members (my three sons 11, 9, and 6) and hunting partners and their kids gather around to be part of the whole processing experience (making hamburger, pepperoni, jerky etc). Having the time to do this in the fall is difficult if not impossible to do because of the many fall activities competing for my time such as great rainbow and salmon fishing; taking family to the fair; start of school, winterizing boats/RV's etc.

In short-- no meat flies, no heat spoiled meat, better tasting properly aged meat and time to enjoy the experience with family and friends are some of the benefits we have had from a cold weather hunt.

Thanks again for the opportunity.

Sincerely,



Doug Ohms
Anchorage
345-2477



RC 120

DON KIELY

12 February 2008

ATTN: Board of Game Comments
Alaska Department of Fish and Game
Boards Support Section
P.O. Box 115526
Juneau, Alaska 99811-5526
Fax: (907) 465-6094

Re: Proposal 86
Tangle Lakes State Wildlife Refuge

I am writing to urge the Board to support the proposal to create a Tangle Lakes State Wildlife Refuge. That area is a valuable resource for both recreation and wildlife, and a wildlife refuge would provide additional protection for the Nelchina caribou herd as well as the area's extensive wildlife.

I am an Alaskan living in Fairbanks and use the area extensively for boating and hiking, and value the area for its habitat for caribou and other wildlife.

PLEASE create the Tangle Lakes State Wildlife Refuge!

Sincerely,

Don Kiely

P.O. BOX 83830 • FAIRBANKS, ALASKA • 99708
PHONE: (907) 455-6749 • donkiely@computer.org

RECEIVED TIME FEB. 12. 9:26PM

PRINT TIME FEB. 12. 9:27PM

RC:121

**Alaska Board of Game Region III Meeting
Feb. 29 - March 10, 2008**

Sleetmute Traditional Council Proposal Comments

Proposals 8, 9, 83, 99, 100, 103, 105, 112, 137, 138 - Supported. The Sleetmute Traditional Council (STC), supports proposals that encourage and increase the harvest of predators, due to the decline in moose stocks in GMU 19, and many other areas of the state. When advisory committees in an area sponsor these sort of proposals or proposals to start new comprehensive predator management plans, it is evident that predator management is needed there and STC supports them.

Proposals 101 & 104 - Supported. These proposals are to extend the 2 predator management programs for several years- in GMU 19 A, and 19D. These programs are working, but need more time.

Proposals 102, 106, & 113 - Opposed. These proposals are attempts to terminate 3 predator management programs. These programs are effective and require more time. The state went through a long period with NO predator control for 11 or 12 years. It is unrealistic to expect there to be a large harvestable surplus in so short a time period

- All 3 claim they have not been effective in increasing moose harvest. In Prop 102, (19A), a closure and Tier II have been put in place. How could hunter harvest possibly have increased there??
- Also claimed is that these programs are too expensive. They are not when compared to what it would cost if the ban initiative were passed, and ADF&G personnel were required to do it!

Proposals 12 & 14 - Opposed. Both of these proposals eliminate antler restrictions and lengthen the moose season in 19B. The sponsor of Proposal 14 didn't get a moose. If these hunters are having trouble getting spike/fork moos in 19B, it is evident that the 19A moose closure needs to be extended into 19, as STC testified when it made the 19A/B closure proposal 2 years ago. There is no recent information on population density and composition in 19B. Keeping the spike/fork restriction is necessary to insure that some moose are left for recruitment.

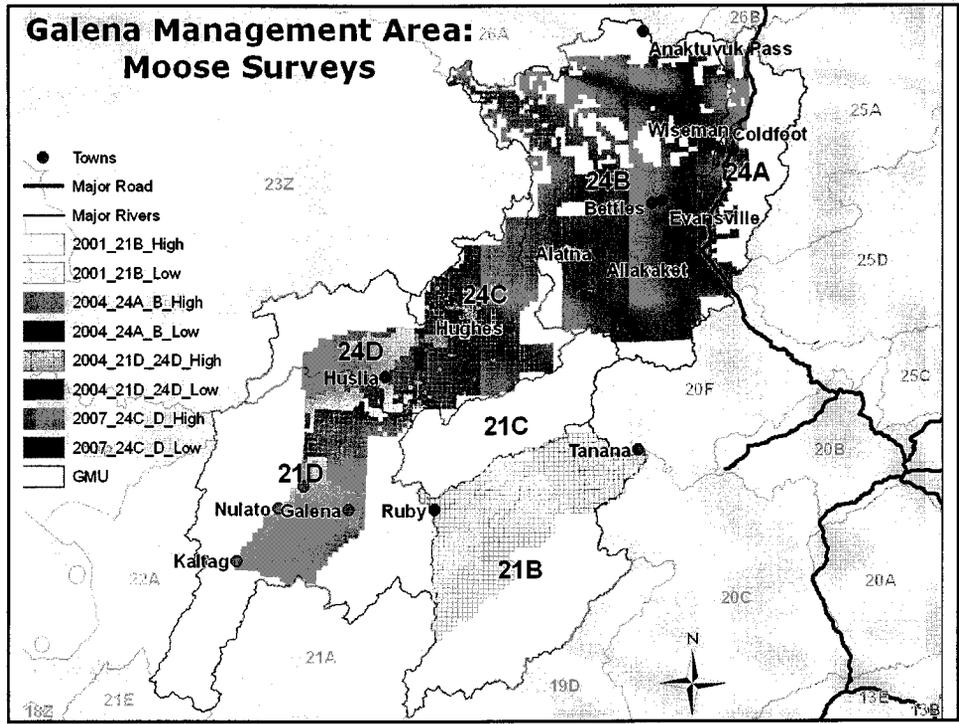
Proposal 13 - Supported. (See STC comments on 12 and 14.) This Central Kuskokwim Advisory Committee, (CKAC), proposal speaks for itself, and is also supported by the comments made by the Stony Holmna Advisory Committee, (SHAC). This is what STC Proposal 64 addressed at the Spring, 2006 BOG meeting 2 years ago.

Proposal 87 - Supported. The Holitna-Hoholitna Controlled Use Area is definitely NOT "a frivolous regulation" as its sponsor said. Hunters who live outside of 19A The people living within 19A use much smaller outboard motors for their transportation and hunting due to cost of larger motors, cost of fuel, and lack of jobs and income in the area. There is also no commercial fishing in 19A.

The SHAC comments on this proposal list most of the reasons the 40 hp limit was imposed in the first place.

Making a proposal like this - that would increase the amount of hunting pressure at the present time - when the resource is depleted to the point it is now - would work in opposition to moose population recovery.

RC122



PredPrey Input Values (Unit 24)

Number Grizzly Bears: 950
Number Black Bears: 2,400 (@ 1 bear/10 mi.²)

PredPrey Input Values (Unit 21D)

Number Grizzly Bears: 200
Number Black Bears: 1,700 (@ 1 bear/7 mi.²)
21B/C: 1,800 (@ 1 bear/7 mi.²)

Harvest Rates and Sustainable Harvest

GMU24 @ 6-12% harv. rate = 144-288 black bears/year (est. harv. less than 80 black bears)
GMU21D @ 6-12% harv. rate = 100-200 black bears/year (est. harvest less than 50 black bears)
GMU's 21B/21C @ 6-12% harv. rate = 100-200 black bears/year (est. harvest less than 25 black bears)

290

Yukon Koyukuk Census Area /1 /2

290 42080

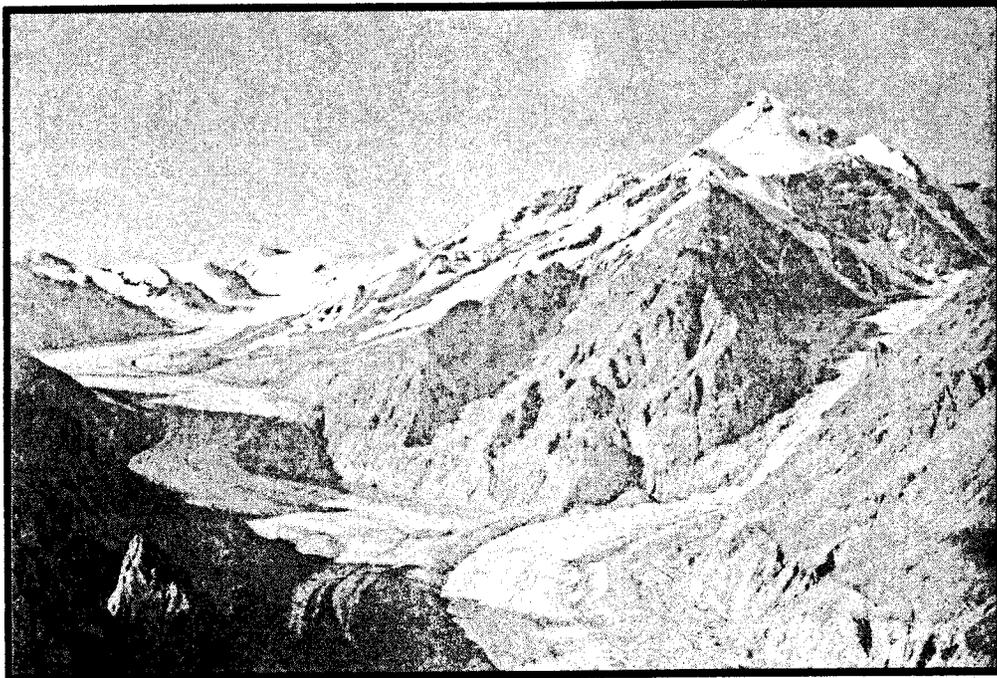
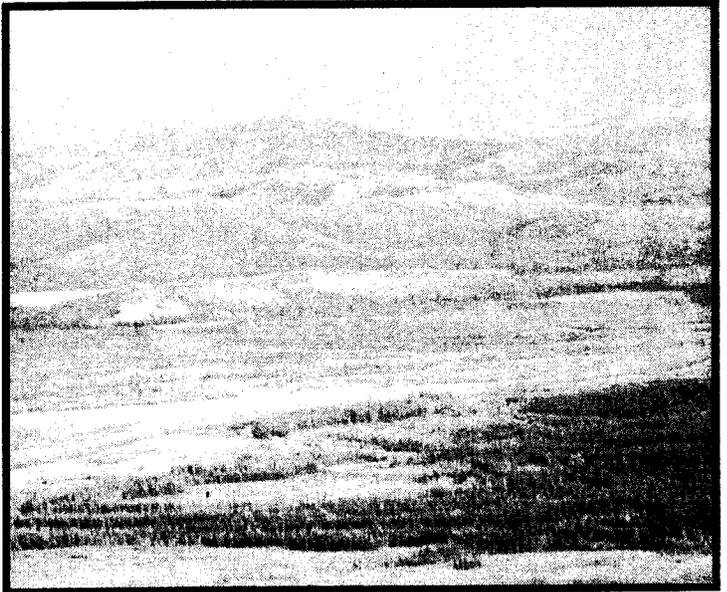
Koyukuk-Middle Yukon census subarea

3,109

290	99999	6070	Allakaket *	133
290	53162	9999	New Allakaket CDP	36
290	1860	9999	Allakaket city	97
290	1305	6040	Alatna CDP *	35
290	99999	6490	Evansville *	71
290	6630	9999	Bettles city	43
290	23790	9999	Evansville CDP	28
290	16630	9999	Coldfoot CDP	13
290	26835	9999	Four Mile Road CDP	38
290	27530	6525	Galena city *	675
290	33910	6605	Hughes city *	78
290	34350	6610	Huslia city *	293
290	37430	6690	Kaltag city *	230
290	42050	6830	Koyukuk city *	101
290	56350	7130	Nulato city *	336
290	65590	7310	Ruby city *	188
290	75160	7540	Tanana city *	308
290	85610	9999	Wiseman CDP	21
290	99999	9999	Remainder of Koyukuk-Middle Yukc	385

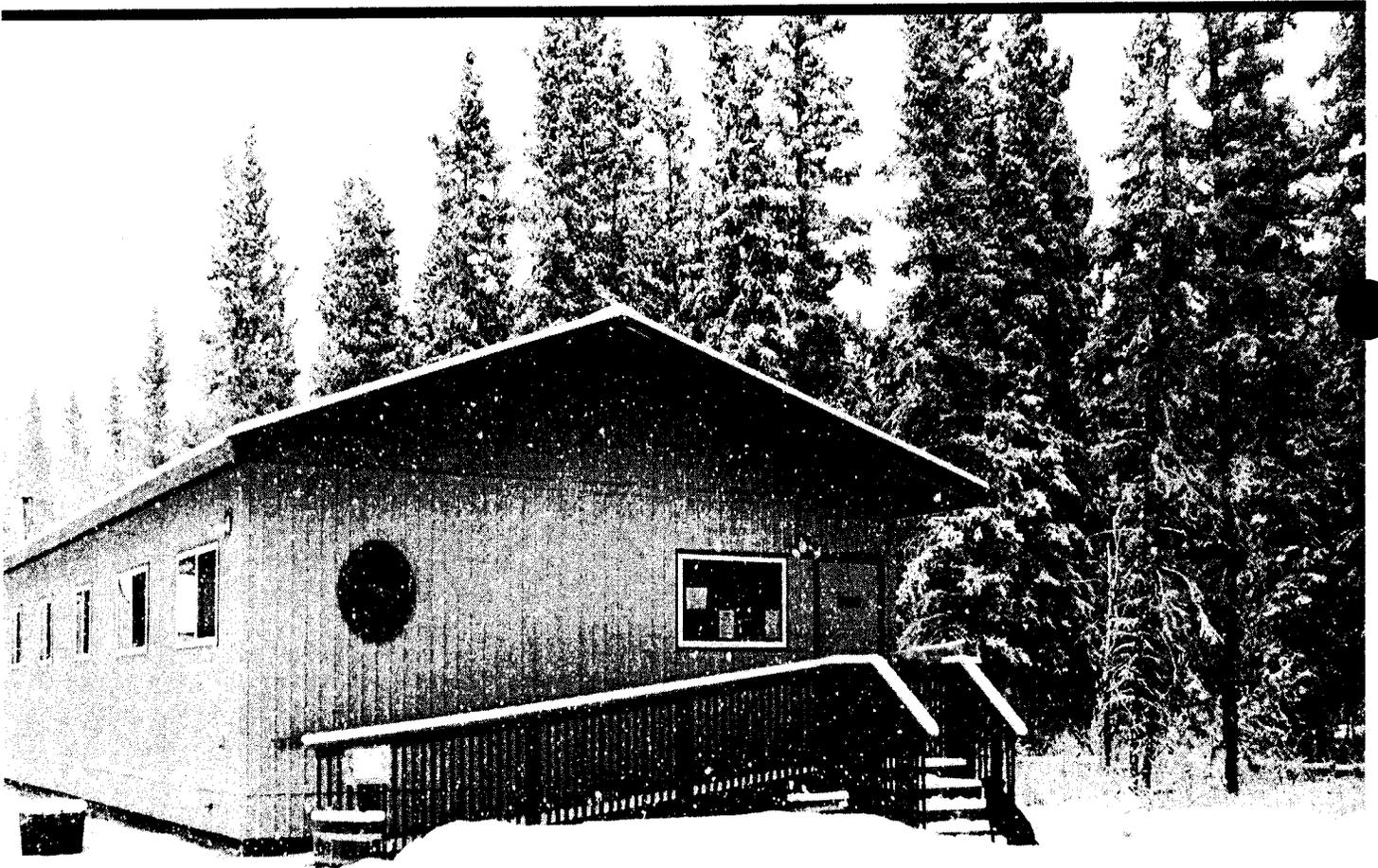
RC123

2008 Unit 20D



State of the Unit Address

Unit 20D
Delta Junction
Area Office

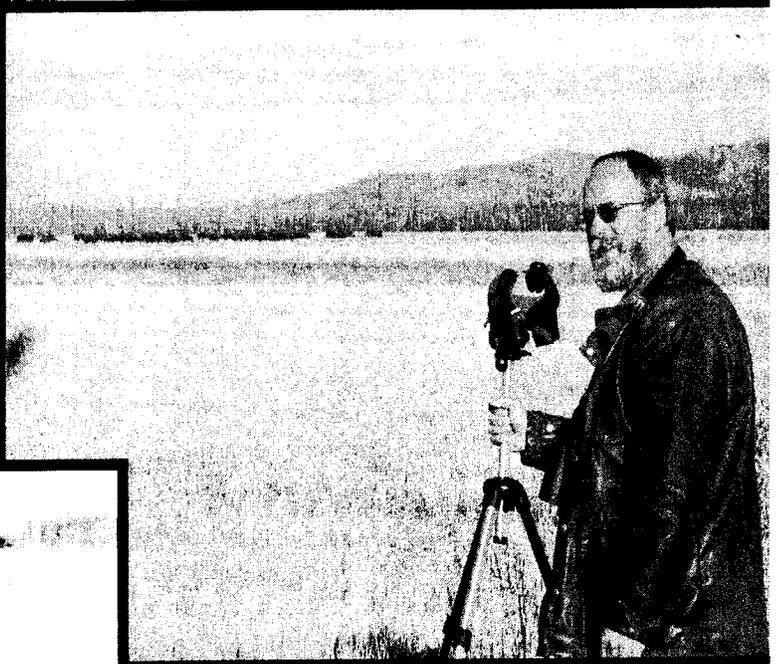


Delta Staff



**Ron Riesgaard,
PS FWT 4, Bison
Range Manager**

**Steve DuBois,
Area Biologist**

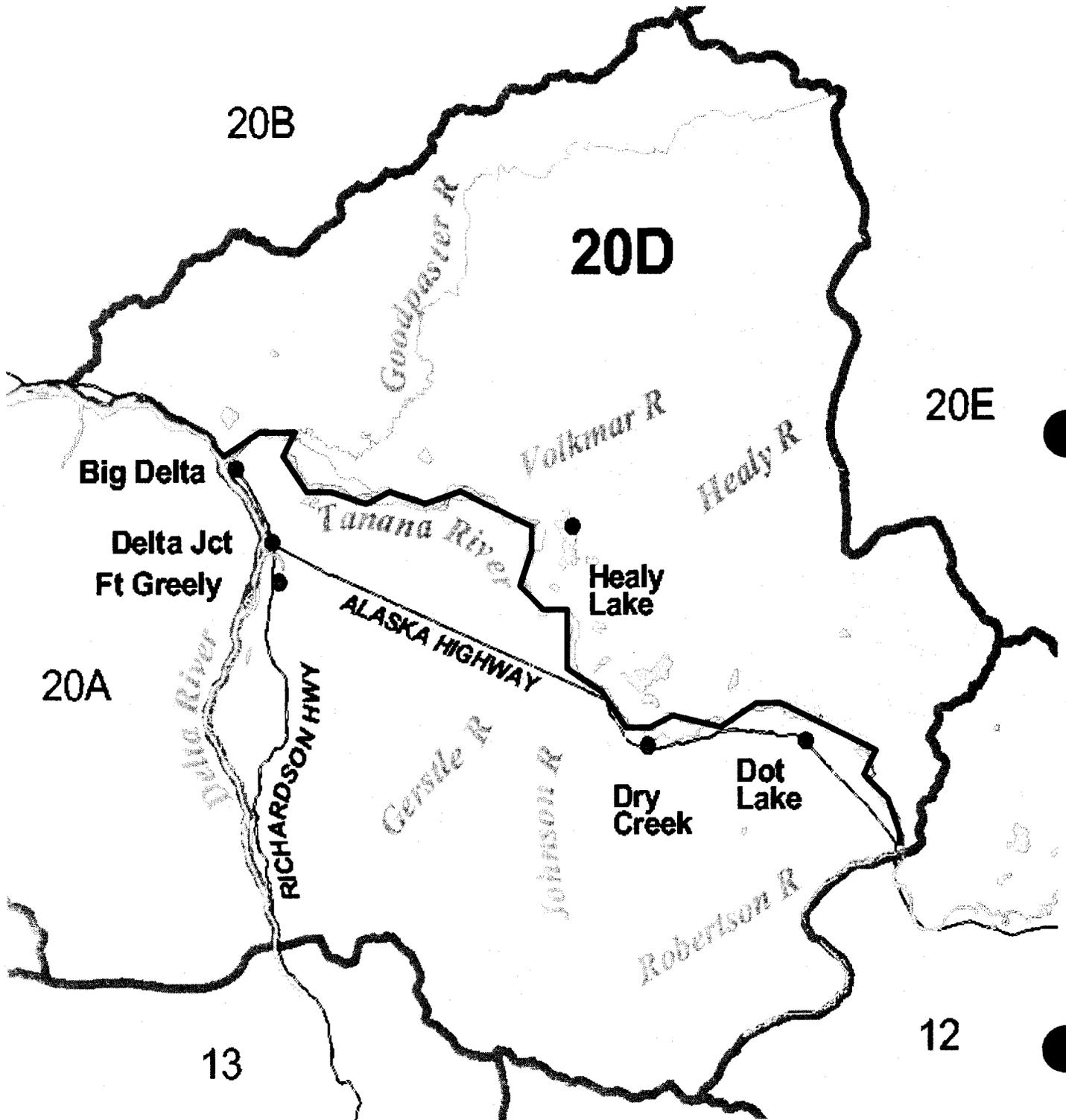


**Dave
Davenport, PS
FWT 3**



Game Management Unit

20D



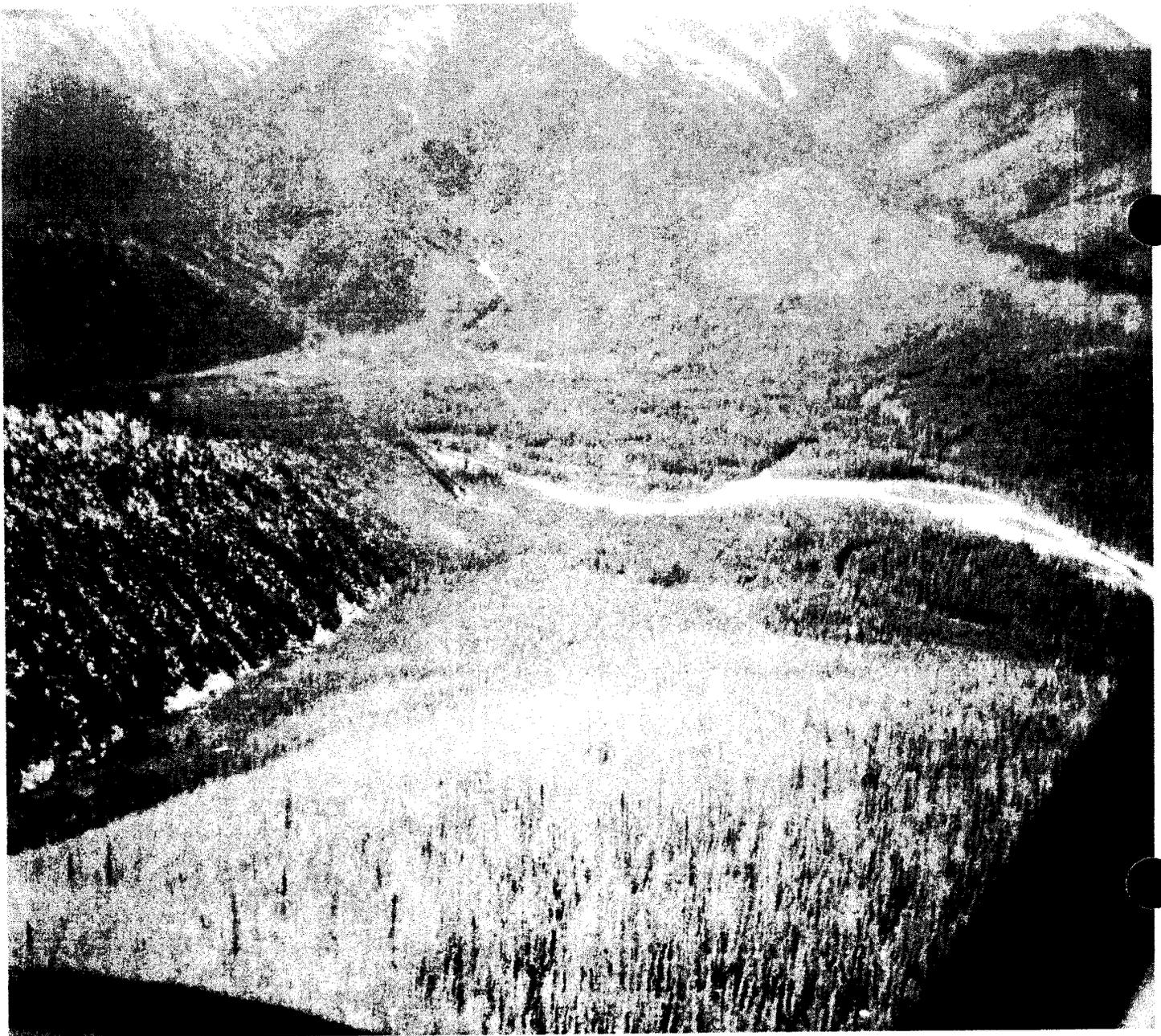
Southern Unit 20D

- **Mountains of eastern Alaska Range**
- **Lowlands of Tanana Rv valley**

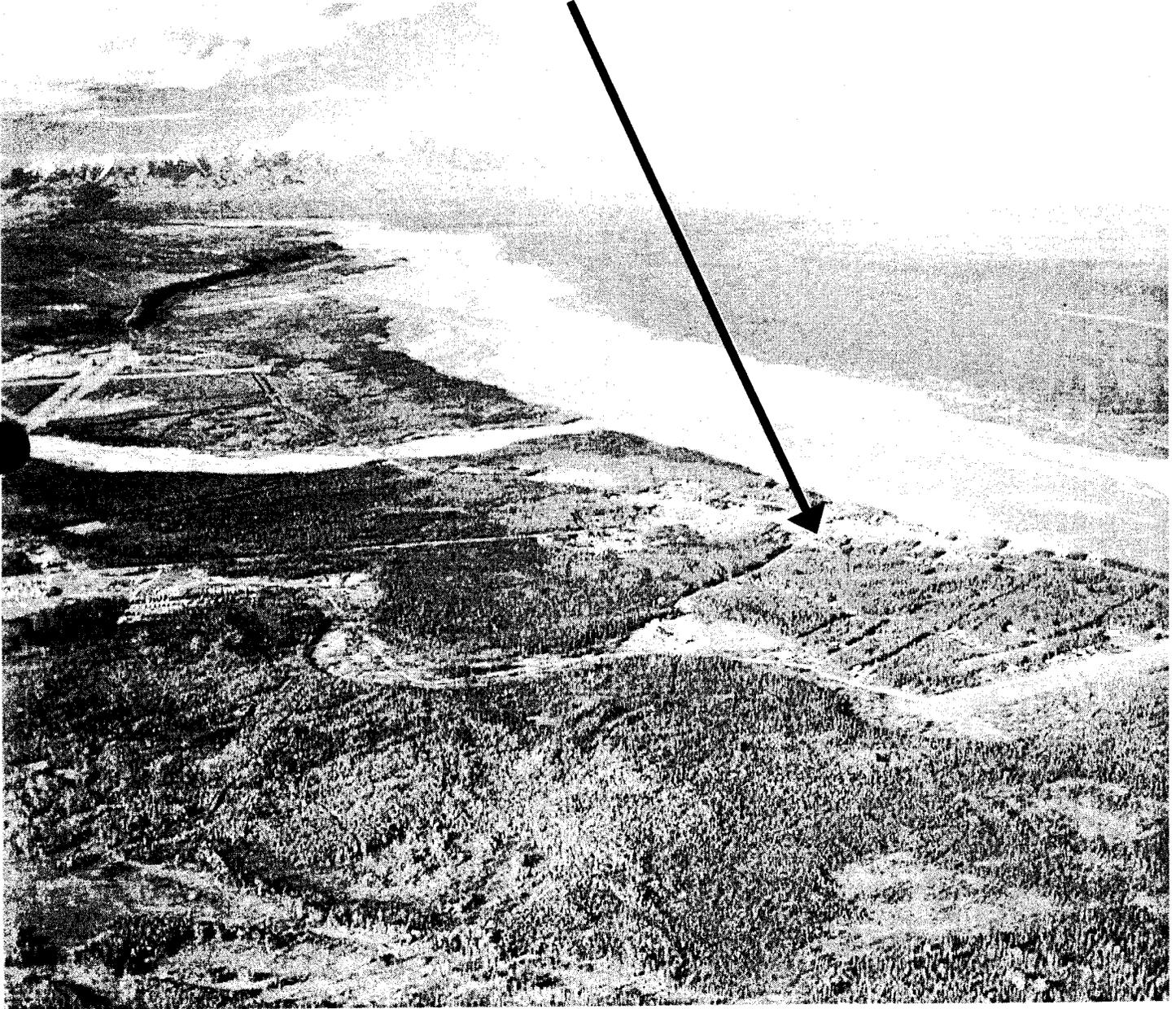


Northern Unit 20D

- Hills of Tanana uplands
- Lowlands of major river valleys



Delta Junction,
Big Delta, Deltana

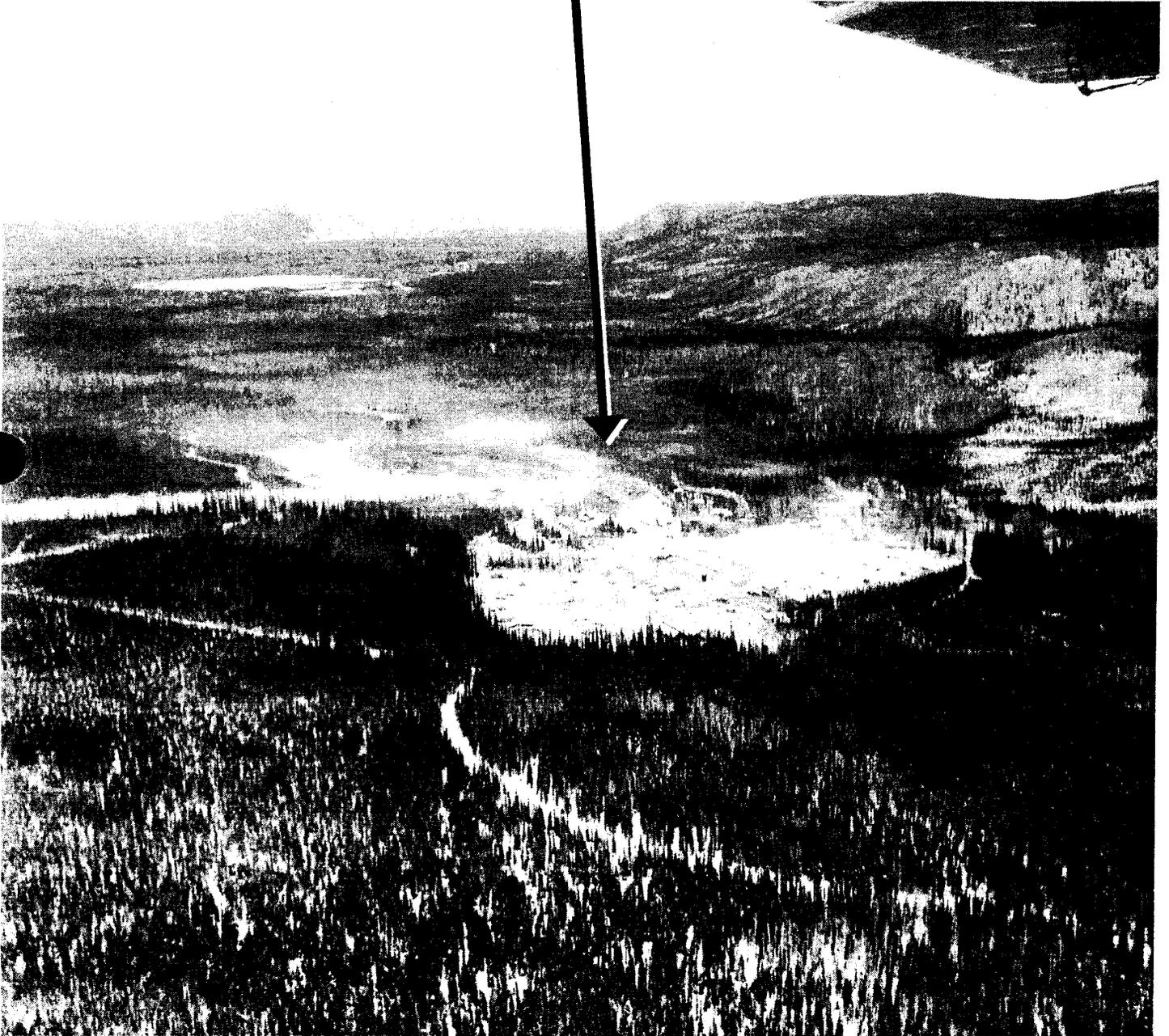


Population ~3,200

Ft. Greely,
Donnelly Training Area,
National Missile
Defense Site,
Population ~500

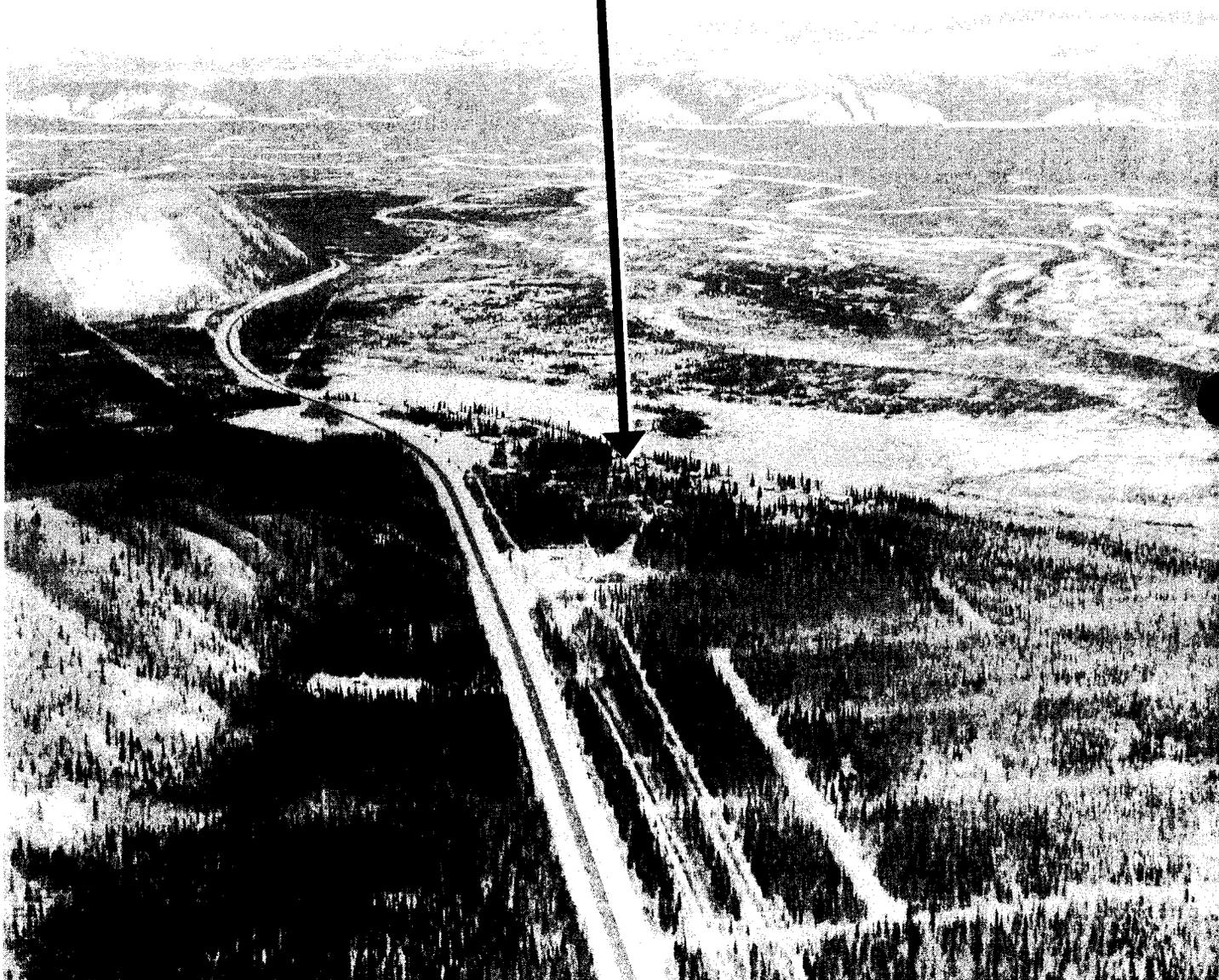


Dry Creek



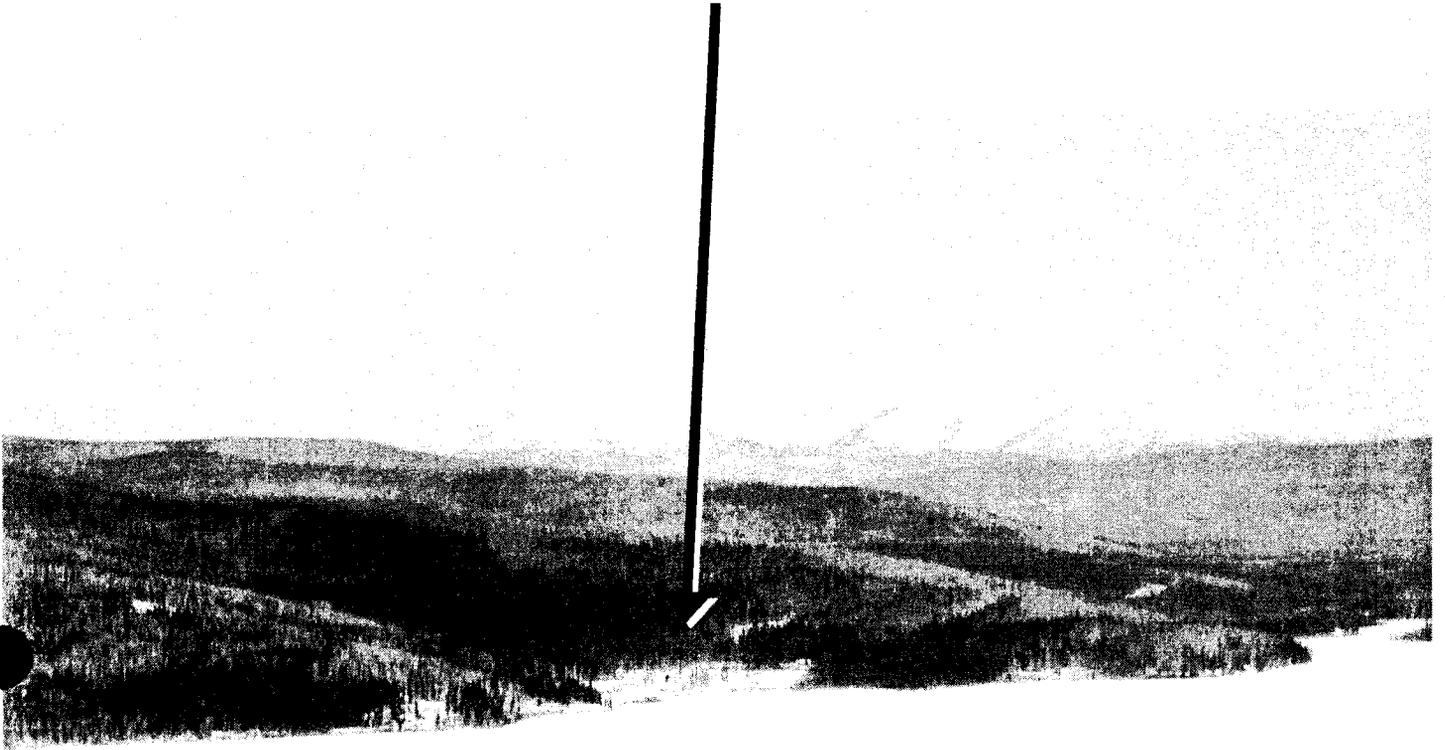
Population ~100

Dot Lake



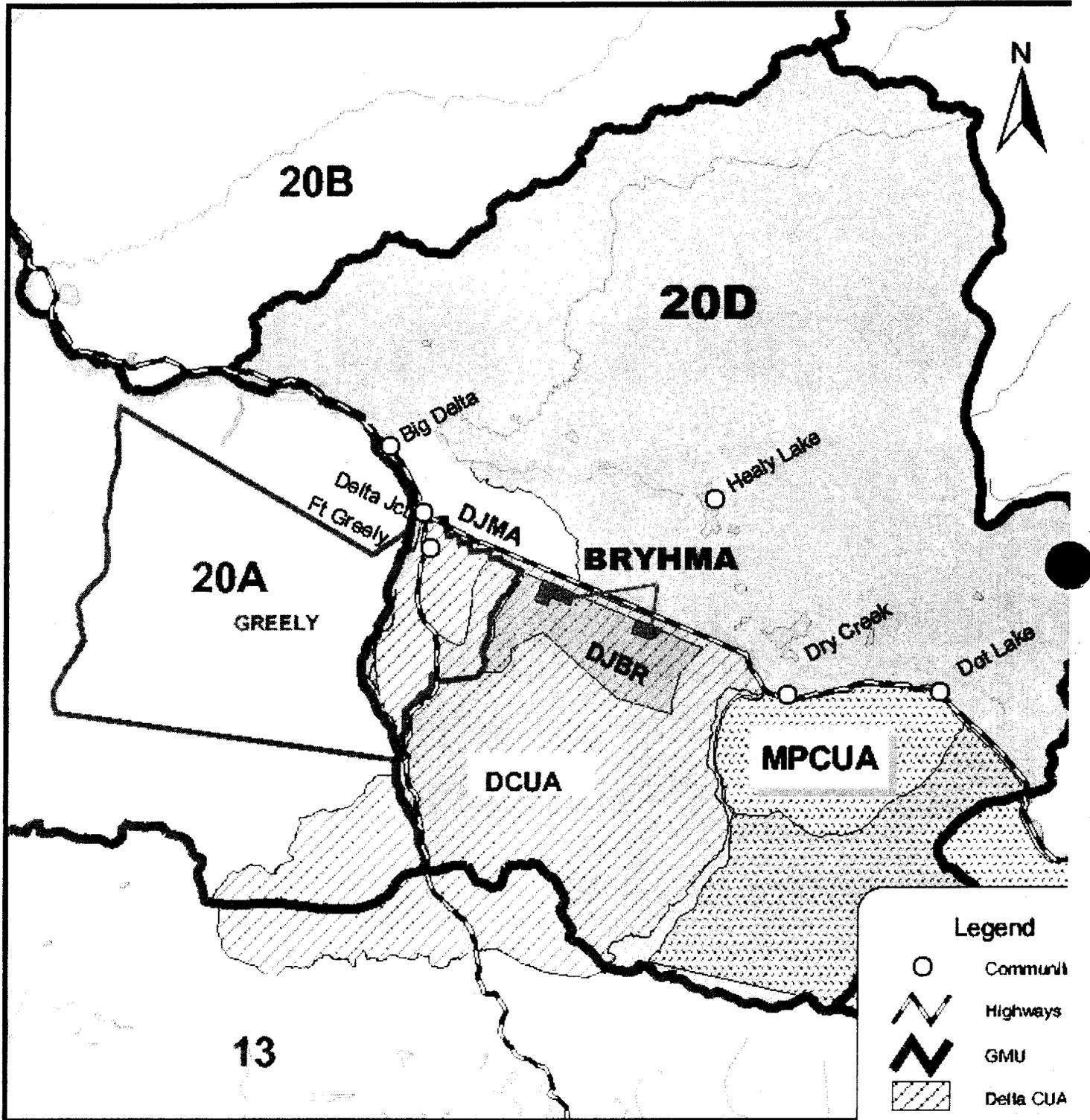
Population ~80

Healy Lake



Population ~25

GMU 20D Special Use Areas



Legend	
	Community
	Highways
	GMU
	Delta CUA
	Delta Jct. Bison Res.
	Delta Jct.
	Macomb C
	Bison Res. Youth Hu

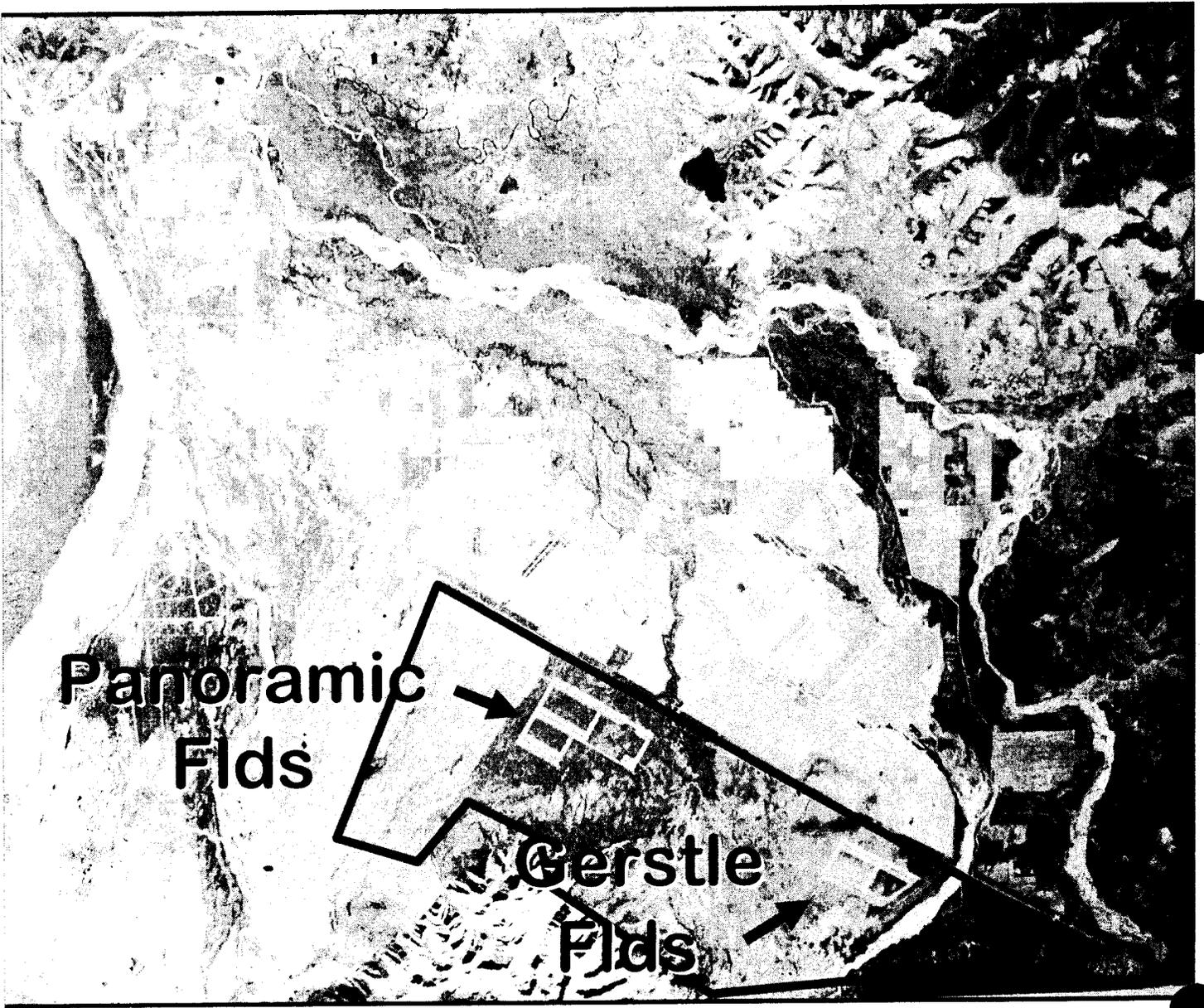
10 0 10 20 Miles

Delta Junction Bison

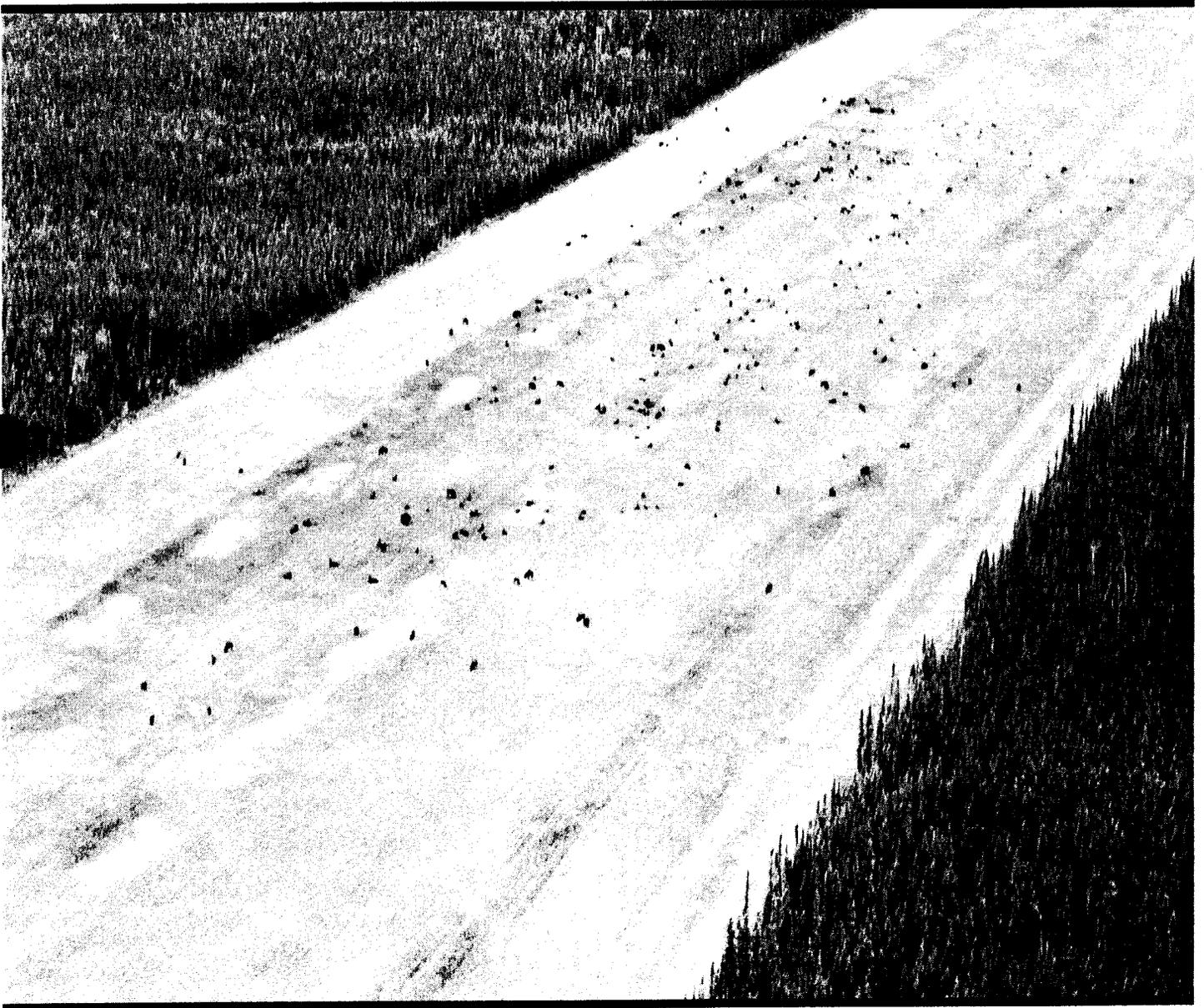
Range

- **Created 1979 by AK legislature to:**
 - **Perpetuate free-ranging bison**
 - **Diminish agricultural damage from bison**
- **~90,000 acres**
- **~2,700 acres bison forage**

Delta Junction Bison *Range*



● **Delta Junction Bison**
Range



● **322 bison**

in Panoramic Fields

Delta Junction Bison Range

Ruffed Grouse Habitat Management Area



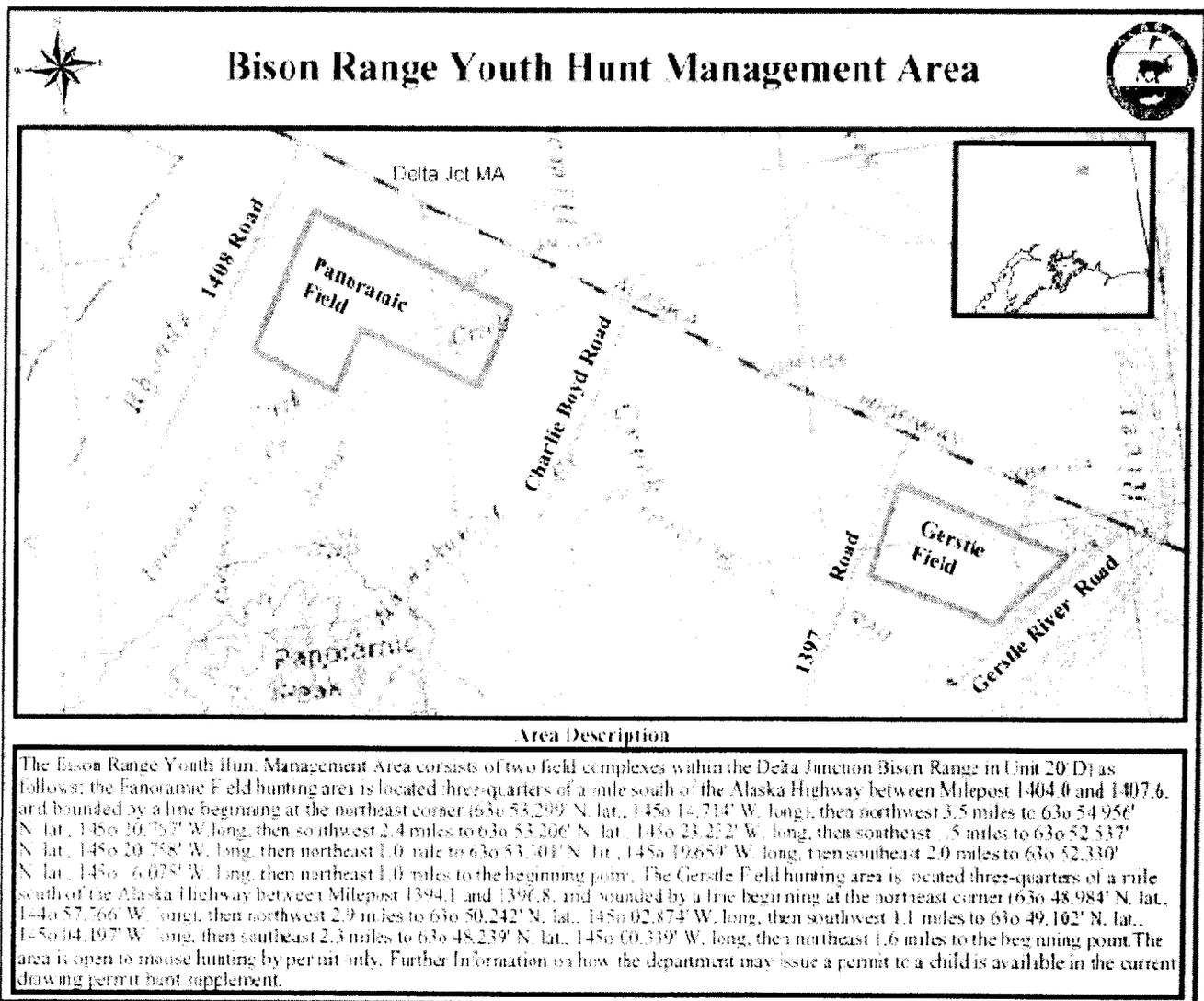
Delta Junction Bison Range

- **Multiple use when compatible: hunting, fishing, camping, trapping, logging**
 - **Muzzleloader Rendezvous**

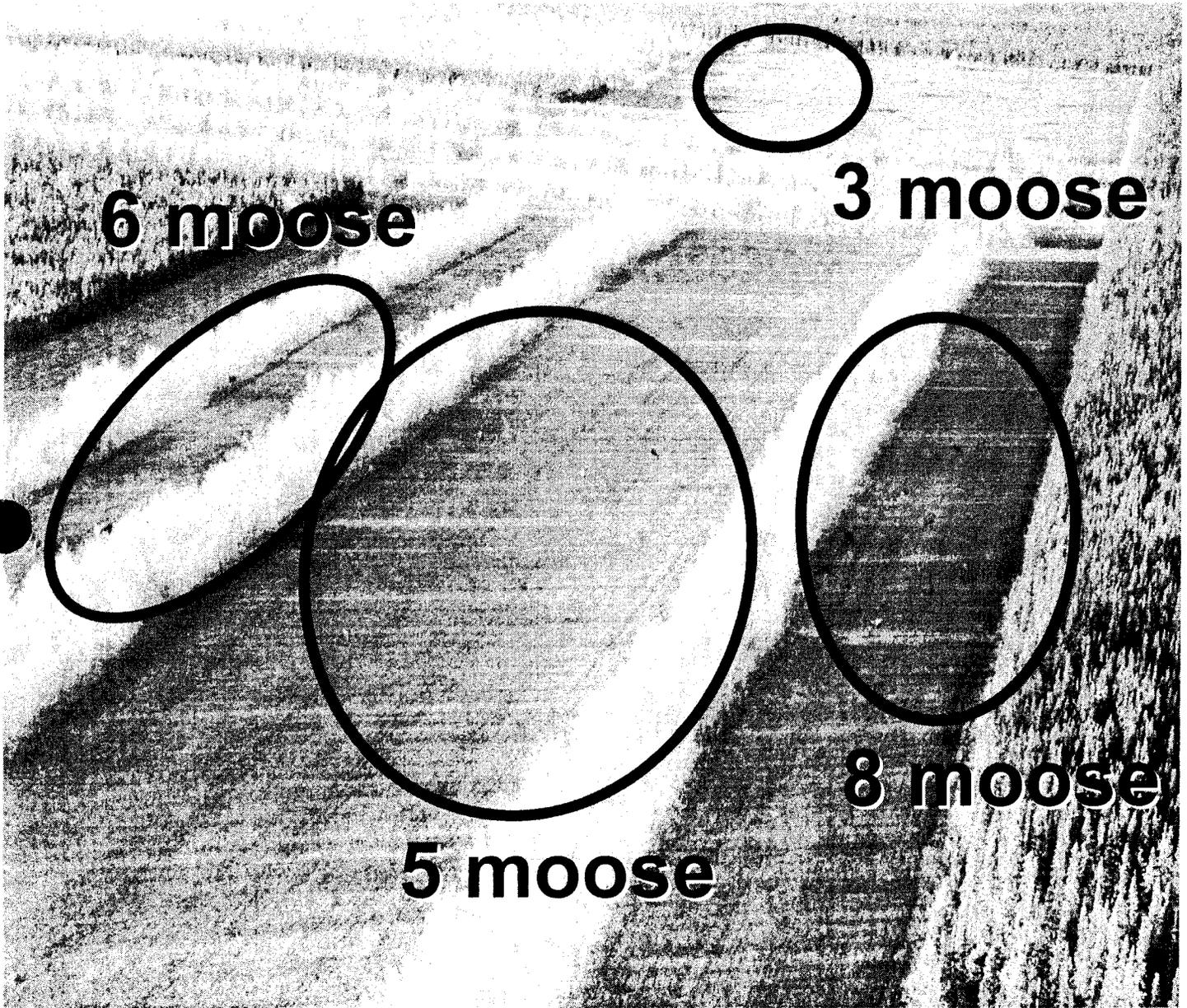


Bison Range Youth Hunt Management Area

- **BRYHMA** estab. 2002 in DJBR fields
- **6,380** acres in fields only



DBH; BRYHMA



**With bison forage management,
more moose & hunters were
attracted to the fields**

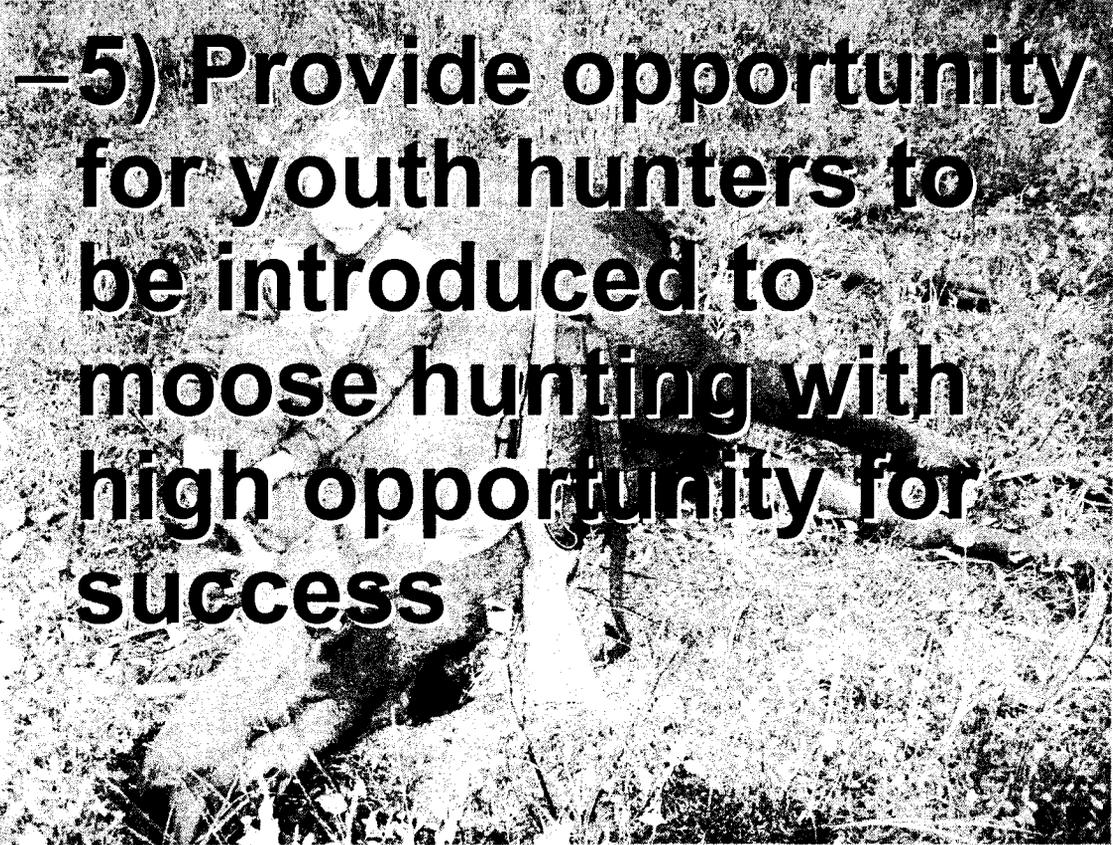
BRYHMA

- **Goals were to:**
 - 1) **Improve ADFG's ability to meet**
 - **DJBR legislative mandates**
 - **Bison Management Plan objectives**

 - 2) **Benefit farmers by improving bison use of DJBR**

BRYHMA

- Objectives (cont.)
 - 3) Reduce damage to bison forage crops from moose hunters
 - 4) Provide safer work environment for ADFG staff



–5) Provide opportunity for youth hunters to be introduced to moose hunting with high opportunity for success

BRYHMA

- **10 draw permits for SF50
bull moose or cow w/o calf**
- **Hunting season = Sept 1-30**
- **Hunt Friday-Monday 1st
three weekends in Sept.**
 - **Each hunter has 4 days**
- **Hunters assigned weekend
and field**
- **No motorized vehicles**

BRYHMA

- **BRYHMA hunt is meeting objectives:**
 - **Reduction in bison forage damage**
 - **Improved workplace safety resulting in more field work**
 - **Bison increased use of fields & less time on farms during moose hunting season**
 - **Youth hunt successful**
 - **2007 = 70% success**

Delta Controlled Use **Area**

- **Estab. 1971 to meet sheep hunter desire for a walk-in hunting area**
- **1,680 mi² in 20D, 20A, & 13B**



Delta CUA

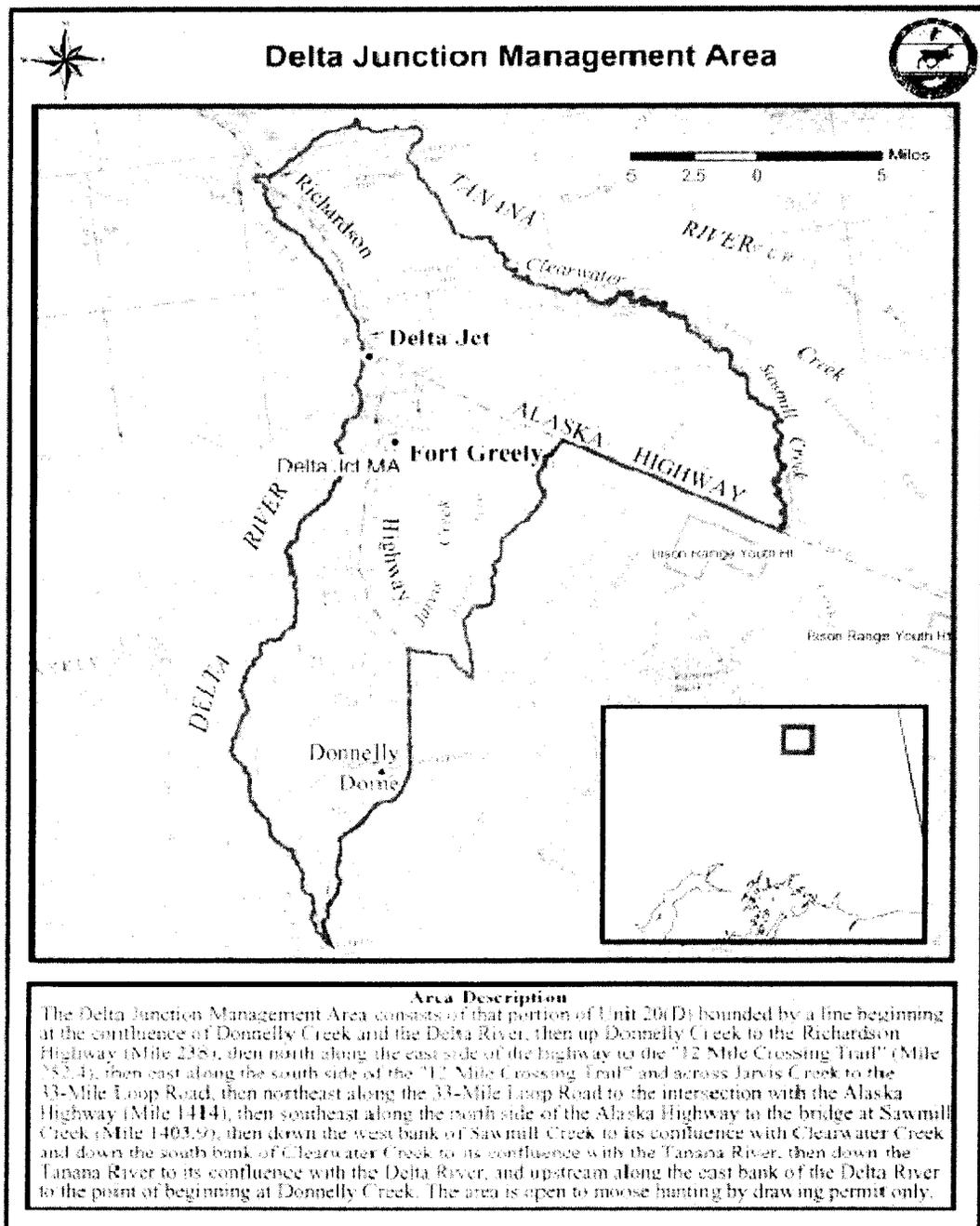
- **Management goal:**
 - **Provide:**
 - **Uncrowded hunting**
 - **Walk-in hunting**
 - **By managing hunter numbers, access, & transportation**
 - **Harvest objective:**
 - **Harvest 35 full-curl rams/yr with mean horn length 36 in. & 8+ yrs old**

Delta CUA

- **DCUA is hunt is conducted as 2 drawing permit hunts**
- **DS203 = Aug 10 – 25**
 - **Nonmotorized**
- **DS204 = Aug 26 – Sept 20**
 - **Unrestricted access**
- **2007 harvest**
 - **DS203 = 21**
 - **DS204 = 29**

Delta Junction Management Area

278 mi² around Delta Jct



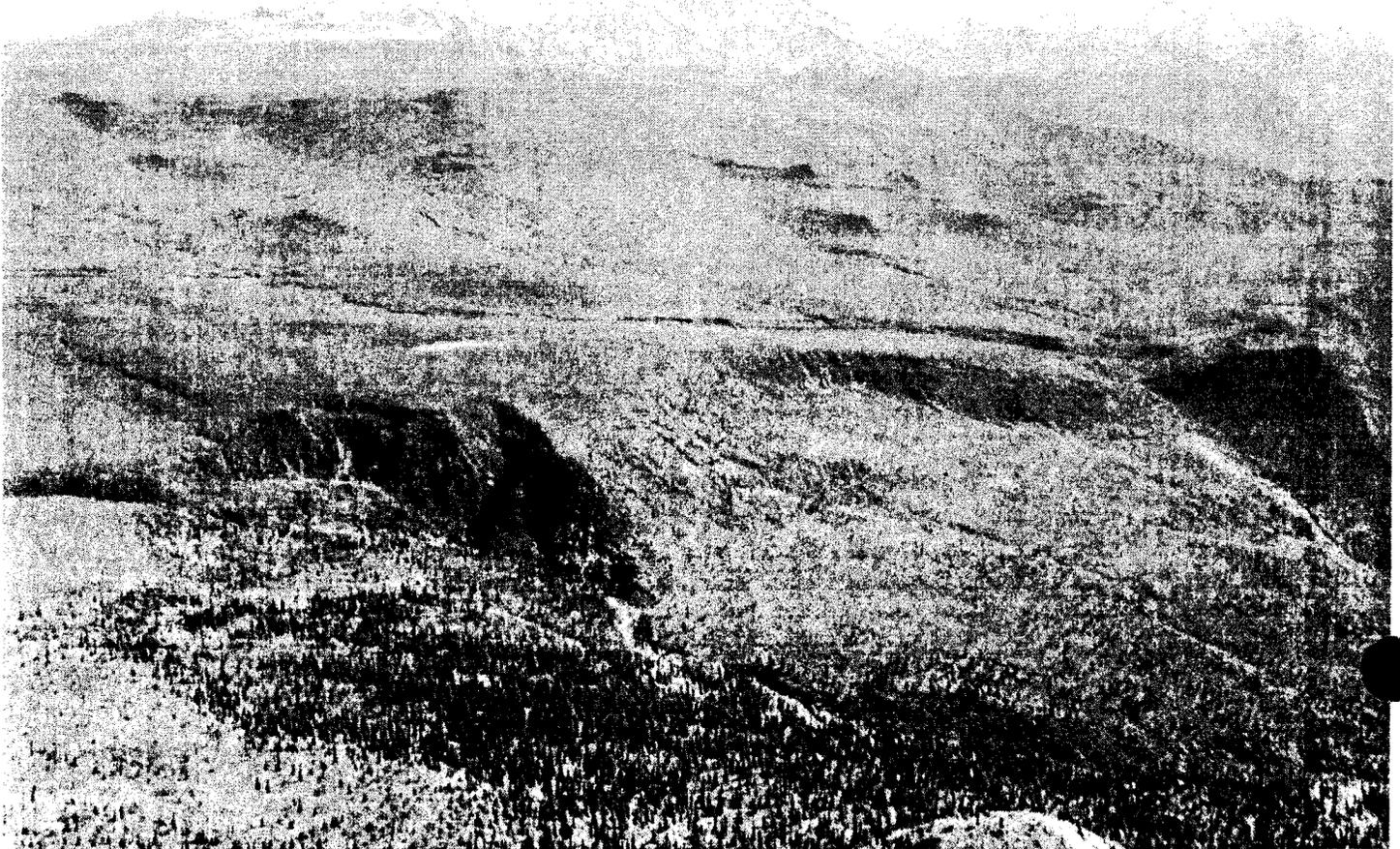
Delta Junction **Management Area**

- **Estab. 1974 at request of Delta AC to close hunting around Delta Jct. when moose low**
 - **Delta Junction Closed Area**
- **Reduced in size in 1991**
- **Renamed DJMA in 1996**
 - **First issued drawing permits**
 - **10 permits for SF50 bull moose**
- **2007 harvest = 6**

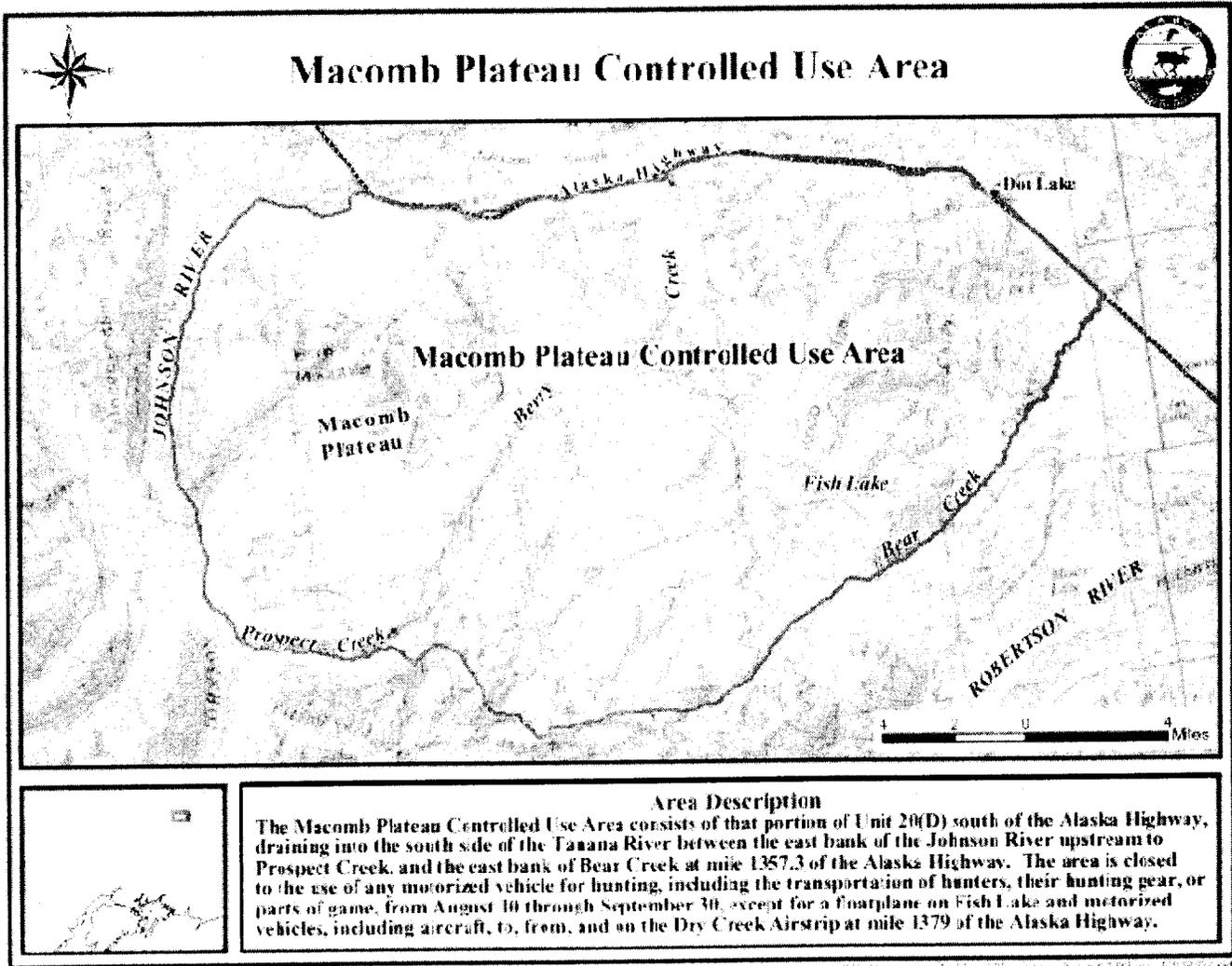
Macomb Plateau

Controlled Use Area

- Created 1974 to:
 - Protect critical MCH habitat by restricting motorized vehicles from Aug 10-Sep 30
 - Regulate MCH harvest
- 304 mi²



MPCUA



Macomb Plateau Controlled Use Area

Macomb Plateau Controlled Use Area

Area Description

The Macomb Plateau Controlled Use Area consists of that portion of Unit 20(D) south of the Alaska Highway, draining into the south side of the Tanana River between the east bank of the Johnson River upstream to Prospect Creek, and the east bank of Bear Creek at mile 1357.3 of the Alaska Highway. The area is closed to the use of any motorized vehicle for hunting, including the transportation of hunters, their hunting gear, or parts of game, from August 10 through September 30, except for a floatplane on Fish Lake and motorized vehicles, including aircraft, to, from, and on the Dry Creek Airstrip at mile 1379 of the Alaska Highway.

Macomb Plateau CUA

- **Meeting objectives to:**
 - **Prevent habitat degradation from motorized vehicles**
 - **Control harvest**
 - **Provide nonmotorized hunting opportunity**

Private Agricultural Lands



~100,000 acre (156 mi²)

**Hunting for bison (70%),
waterfowl, sharp-tailed
grouse, moose**

Delta Fish and Game **Advisory Committee**

- Delta AC serves Delta Jct. & Dry Ck.
- Dot Lk. & Healy Lk. served by Upper Tanana Fortymile AC

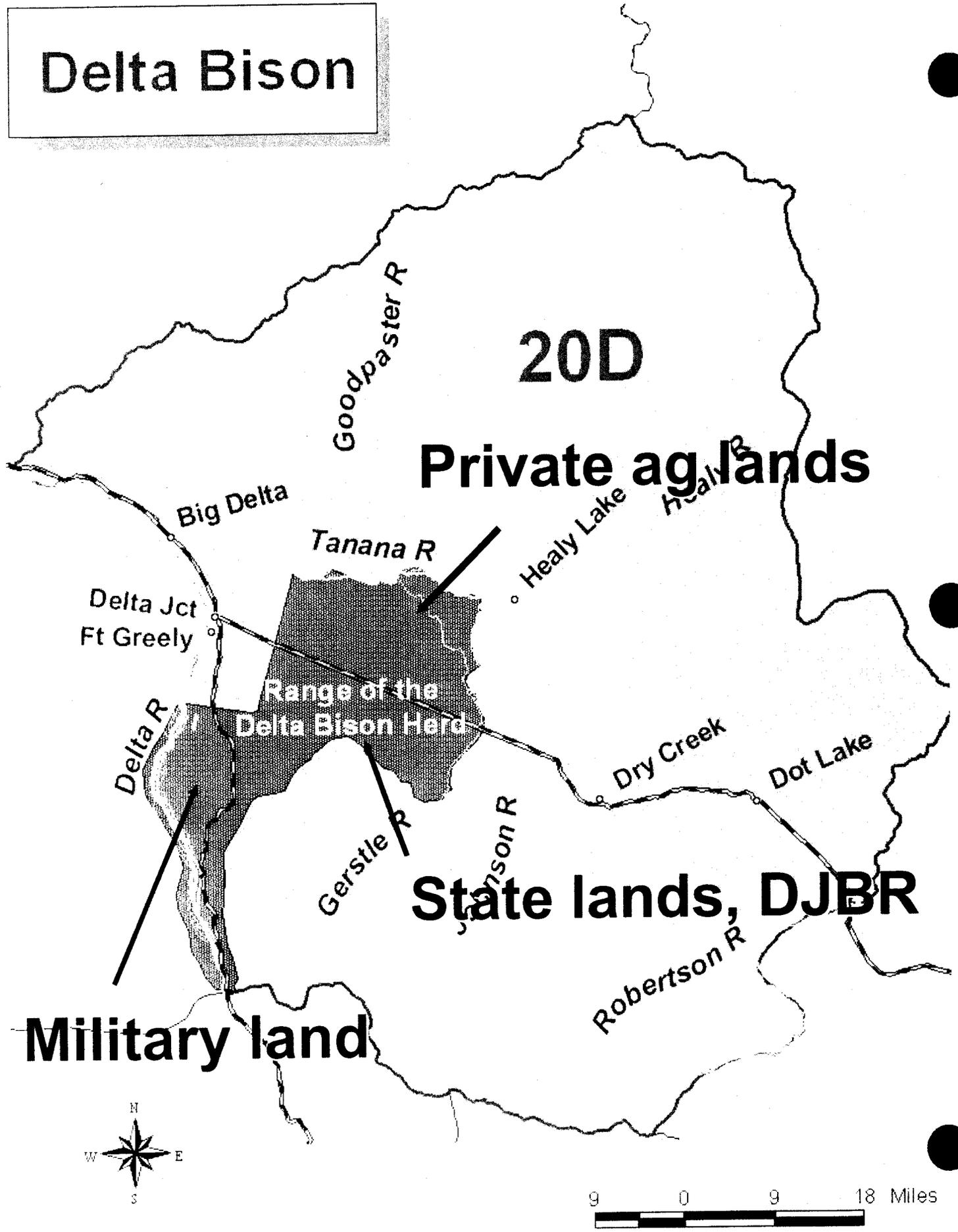


Delta Bison Herd



- Herd ranges in SW 20D

Delta Bison



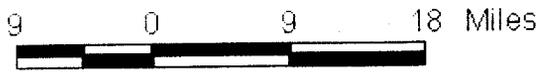
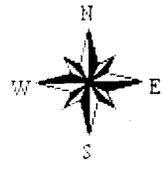
20D

Private ag lands

Range of the Delta Bison Herd

State lands, DJBR

Military land



Delta Bison Herd

- Management based on plan developed with Delta Bison Working Group
 - Approved by Board



Delta Bison Herd

- DJBR managed to reduce bison-agriculture conflicts
- Herd size managed by drawing permit hunt
- 15,000+ applications/yr
- 60-155 permits/yr
- Season July 20-Mar 31
- Permits issued starting Oct 1
- ~75% hunter success



Delta Bison Herd

- **Management Activities**
 - **Aerial population estimate**
 - **Ground based sex-age composition counts**
 - **Radio collars**
 - **Serologic survey**
 - **Manage bison forage on DJBR**
 - **Administer drawing permit hunt**

Delta Bison Herd

- **Issues:**
- **Prevent damage to private agricultural crops while maintaining free-ranging herd**
 - **Accomplished with DJBR & forage management**
- **Military training on bison summer & calving range**
 - **Cooperating with military to minimize conflicts**

Delta Bison Herd

- **Issues:**
- **Bison starting to calve in agricultural lands**
- **Other Issues include:**
 - **Retain access to private land for hunters**
 - **Escape of domestic bison**
 - **Livestock diseases**

Delta Bison Herd

- **Issues (rumor)**
- **Bison interbreeding with moose**



Just Kidding

Seeing if you're awake

Black Bear

- **Accurate pop. est. not available but extrapolated to 750**

- **Bears are plentiful**

- **Hunting and baiting is popular**

- **2007 Harvest = 20**

Black Bear

- **Management Activities**

- **Seal bears**

- **Register bait stations**

- **Nuisance bears**

- **Issues**

- **Black bear baiting on**

- Goodpaster River**

Brown Bear

- **Extrapolated population = 181-210 bears**

- **Harvest obj = 5-15/yr**

- **Current Regulations:**

- **No resident tag fees**

- **Season = Aug 10-Jun 30**

- **Bag limit = 1/yr**

- **Total mortality = 14/yr &**

- **52% males**

Brown Bear

- **Management Activities**

- **Seal bears**

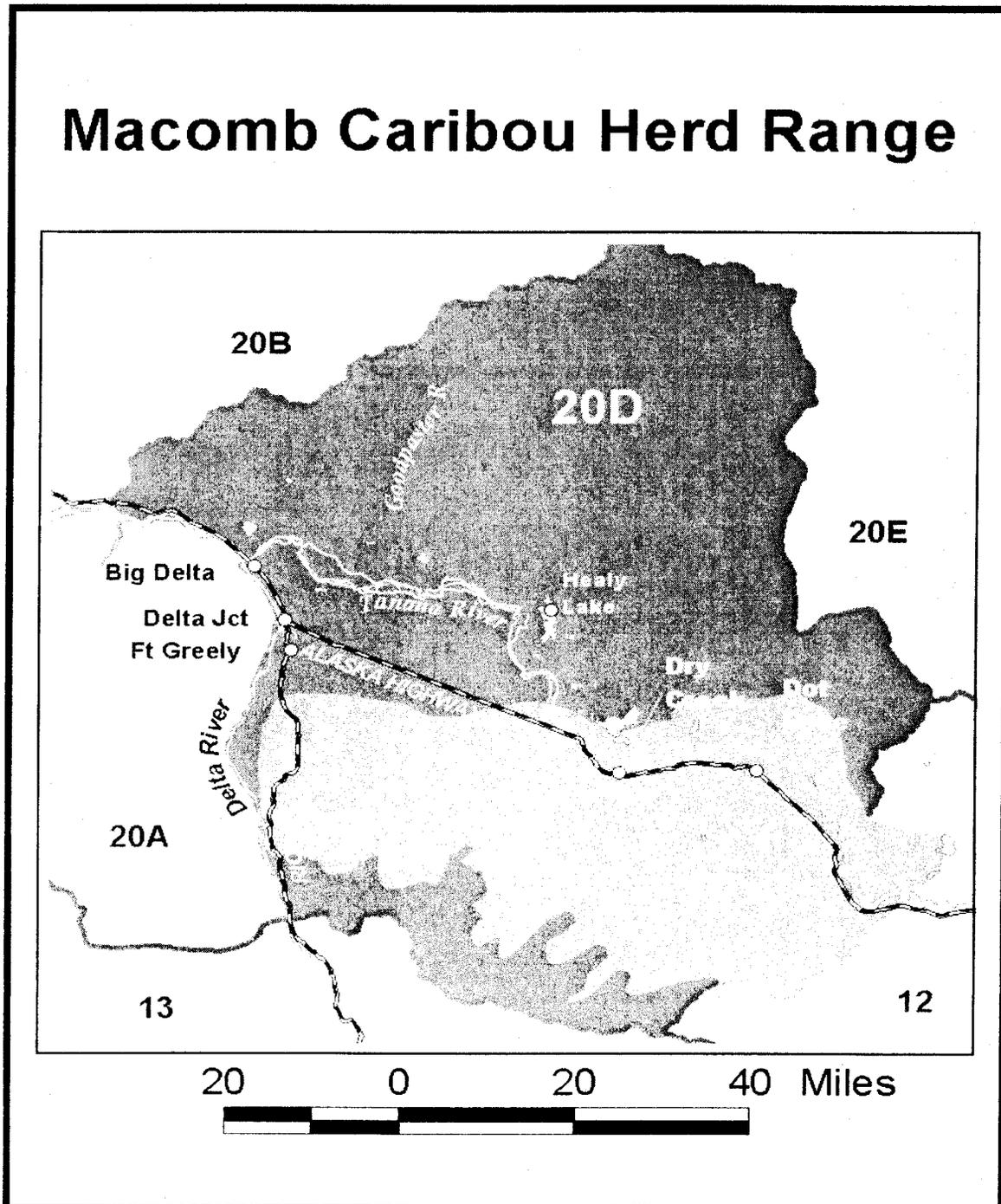
- **Nuisance bears**

- **Issues**

- **Role in Intensive
Management**

Macomb Caribou Herd

- MCH small herd in southern Unit 20D



Macomb Caribou Herd

- Human consumption is highest use
- Identified for intensive management in 1995
- Positive C&T with amounts necessary = 10-40
- Pop. obj = 600-800
- Fall 2007 pop. = 1,305
 - 29 calves:100 cows
 - 68 bulls:100 cows

Macomb Caribou Herd

- **Harv obj. = 30-50/yr**
- **Hunting by registration permit during Delta CUA & Macomb Plateau CUA access restrictions**
- **Herd distribution shifted to west adjacent Richardson Hwy**
- **Harvest frequently exceeded quota & many EO closures until boundary changed in 2004**

Macomb Caribou Herd

- **Management Activities**
 - **Annual aerial population estimate & composition survey**
 - **Hunting season distribution survey**
 - **Radio collars**
 - **Registration permits**

Macomb Caribou Herd

- **Issue**

- **Meeting harvest objectives with current regulations**

- **Will make 2008 season longer i.e.. Aug 10-27**

- **2 days with no motorized restrictions**

Furbearers

- **Species of importance include:**
 - **Beaver**
 - **Coyote**
 - **Lynx**
 - **Marten**
 - **Red fox**
 - **Wolverine**

Furbearers

- **Management Activities**
 - Seal furs
 - Mail trapper questionnaire
 - Annual snowshoe hare population survey
- **Issues**
 - Coordinating lynx harvest tracking strategy
 - Incidental trapping of moose & caribou

Moose

- **Human consumption identified as highest use**
- **Intensive Mgmt adopted 1995**
- **Pop. objective = 8,000-10,000**
- **North of Tanana 2004**
 - **63% of area**
 - **2,411 moose**
- **South of Tanana 2006**
 - **37% of area**
 - **7,406 moose**
- **Harv. goal = 500-700**
 - **3 yr. mean harv = 447/yr**

GMU 20D Moose Hunting Regulations

**GMU
20B**

**GMU
20E**

Delta Jct. Mgmt Area

Residents: Sept 1 - 15
1 bull S/F or 50"+ antlers
or 4+ brow tines
Non-residents: Sept 5 - 15
1 bull with 50"+ antlers
or 4+ brow tines

Drawing Hunt

Residents: Aug 15 - 28 -- 1 S/F bull c
Sept 1 - 15 -- 1 bull
Non-residents: Sept 1 - 15 -- 1 bull

Delta Junction

**GMU
20A**

Residents/non-residents: Sept 1 - 15 -- 1 bull

Bison Range Youth Hunt Mgmt Area

Residents/non-residents: Sept 1 - 30
1 S/F bull or 50"+ antlers
or 4+ brow tines.
1 bull per lifetime

Drawing Hunt

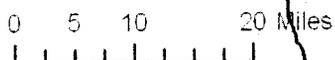
**GMU
12**

Residents: Sept 1 - 15 -- 1 bull
Non-residents: No open season

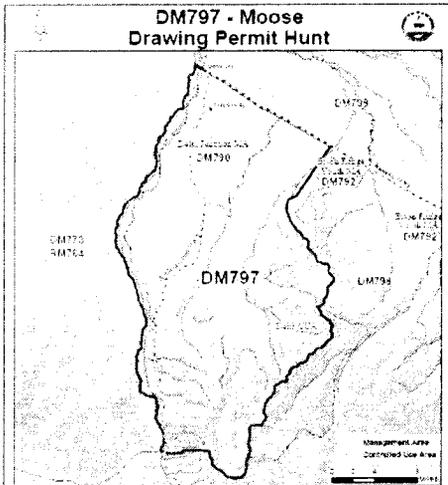
Residents: Sept 1 - 15 -- 1 bull S/F or 50"+ antlers
or 4+ brow tines
Non-residents: Sept 5 - 15 -- 1 bull with 50"+ antlers
or 4+ brow tines

Residents: Sept 1 - 15 -- 1 bull
Non-residents: Sept 5 - 15 -- 1 bull > 50"+
antlers or 4+ brow tines

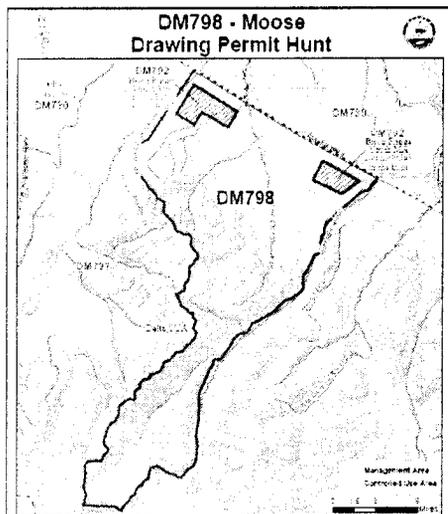
**GMU
13**



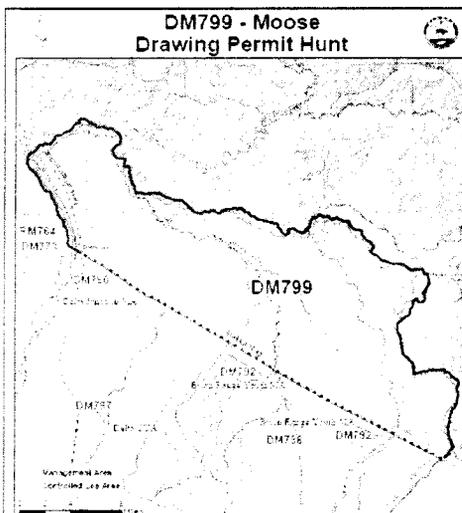
2007 SW20D Cow moose harvest



DM797 = 541 permits



DM798 = 180 permits



DM799 = 180 permits

Moose

- **Management Activities**
 - **Annual GSPE population estimates in north or south**
 - **Annual aerial twinning surveys**
 - **Periodic browse surveys**
 - **Regulatory signs**
 - **Public meetings**

Moose

- **Issues**

- **High density in SW Unit
20D & antlerless hunt**

- **Antler restrictions
unpopular**

- **High incidence of
vehicle collisions**

Dall Sheep in **Delta CUA**

- **Sheep hunting divided into 2 permit hunts:**
 - **DS 203 Aug 10-25**
 - **Walk-in only**
 - **DS 204 Aug 26-Sept 20**
 - **Unrestricted access**
- **75 permits each hunt**
- **Average harvest = 51/yr last 3 yrs.**
- **Based on most recent questionnaire results,**
 - **81% hunters satisfied**

Dall Sheep

- **Management Activities**
 - **Plug horns**
 - **Conduct aerial surveys or population estimates**
 - **Mail hunter questionnaire periodically**
- **Issues**
 - **Protecting habitat with development**
 - **Disease prevention**

Small Game

- **Important species:**
 - **Sharp-tailed grouse**
 - **Ruffed grouse**
 - **Spruce grouse**
 - **Snowshoe hares**
- **Popular hunting area for statewide hunters**
- **Grouse numbers currently moderate**
- **Hare numbers currently high**

Small Game

- **Management Activities**
 - **Ruffed grouse drumming surveys**
 - **Monitor sharptailed grouse leks**
 - **Ruffed grouse habitat management area on DJBR**

- **Issues**
 - **Developing habitat mgmt techniques**

Wolf

- **Wolf control implementation plan adopted in 1997**
- **Plan reauthorized in 2004**
- **Pop. objective = 15-125**
- **Fall 2006 pop est = 119-134 in 12 packs**
 - **1:161 wolf:moose ratio south of Tanana**
 - **1:25 north of Tanana**

Wolf

- **Seasons:**
 - **Hunting = Aug 10-May 31, bag limit = 5**
 - **Trapping = Oct 15-Apr 30, no limit**

- **Harvest = 50 in 2006**

Wolf

- **Management Activities**
 - **Seal pelts**
 - **Annual aerial surveys & trapper interviews to estimate population size**
 - **Upper Yukon-Tanana Wolf Control Area includes a portion of northern Unit 20D**

Other Issues

- **Forestry: Cooperating to improve wildlife habitat**
 - **Timber sales, wildfire**
- **Mining: New road in N. 20D to Pogo Mine**
- **Big game ranching: Bison, elk, yak, reindeer**
- **Domestic livestock & disease**
- **Enforcement: poaching**

Unit 20D Summary

- **Bison**

- Herd slightly above objective
- Damage to farm crops reduced

- **Black Bear**

- Harvest objective met

- **Brown Bear**

- Harvest objective met

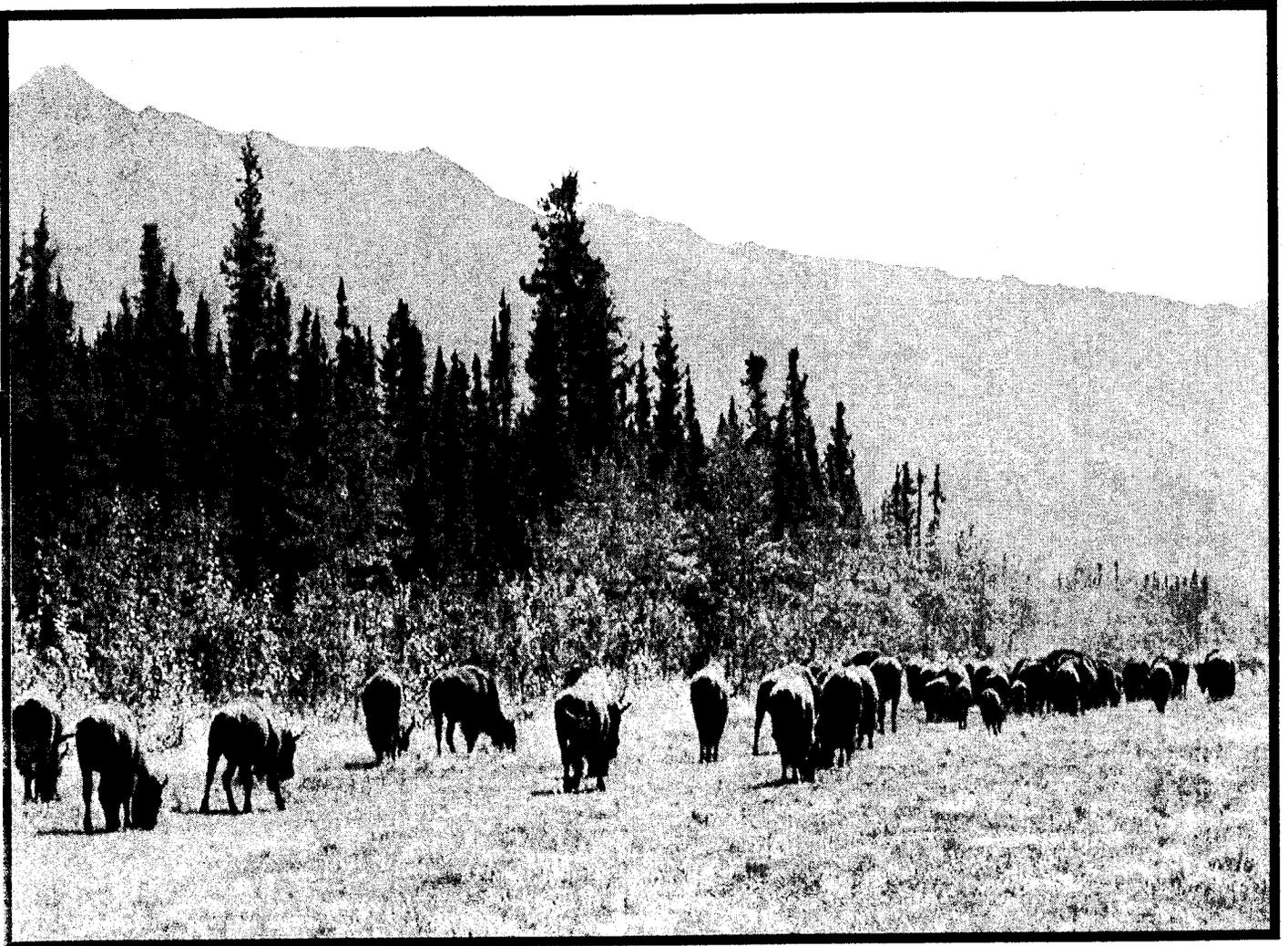
- **Macomb Caribou Herd**

- Population objective met
- Harvest below objective

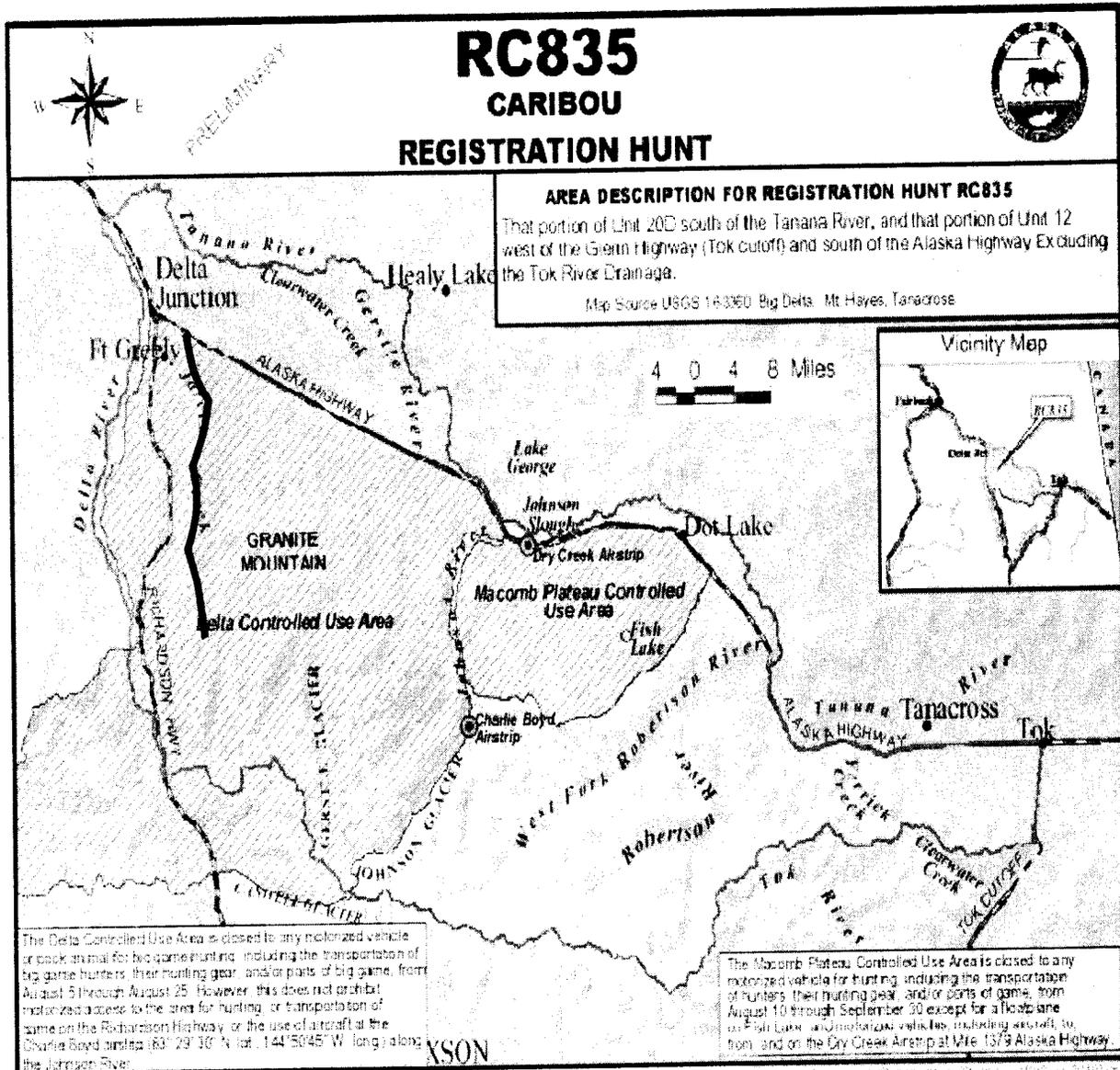
Summary

- **Moose**
 - Population objective met
 - Harvest objective met in 2007
- **Dall sheep**
 - Population objective met
 - Harvest objective met
- **Wolf**
 - Population objective met

The End



Macomb Caribou Herd



- **Hunting east of Jarvis Ck (yellow line) by nonmotorized access via DCUA**

Unit 20D 2008 BOG Regulation Proposals



RC124

Proposal: 135

- Proposal: Reauthorize the antlerless moose hunt in southwest Unit 20D, as well as create an antlerless moose registration permit hunt & a bull moose drawing permit hunt
- Submitted by: ADF&G
- Issue: Antlerless moose hunting must be reauthorized annually.
- ADF&G Recommendation: Amended & Adopt
- Rationale: High density population of a hunt for antlerless hunt. Reauthorization of a hunt for cow moose without calves is proposed in order to stabilize population growth and increase harvest toward the intensive management harvest objective.

Proposal 135

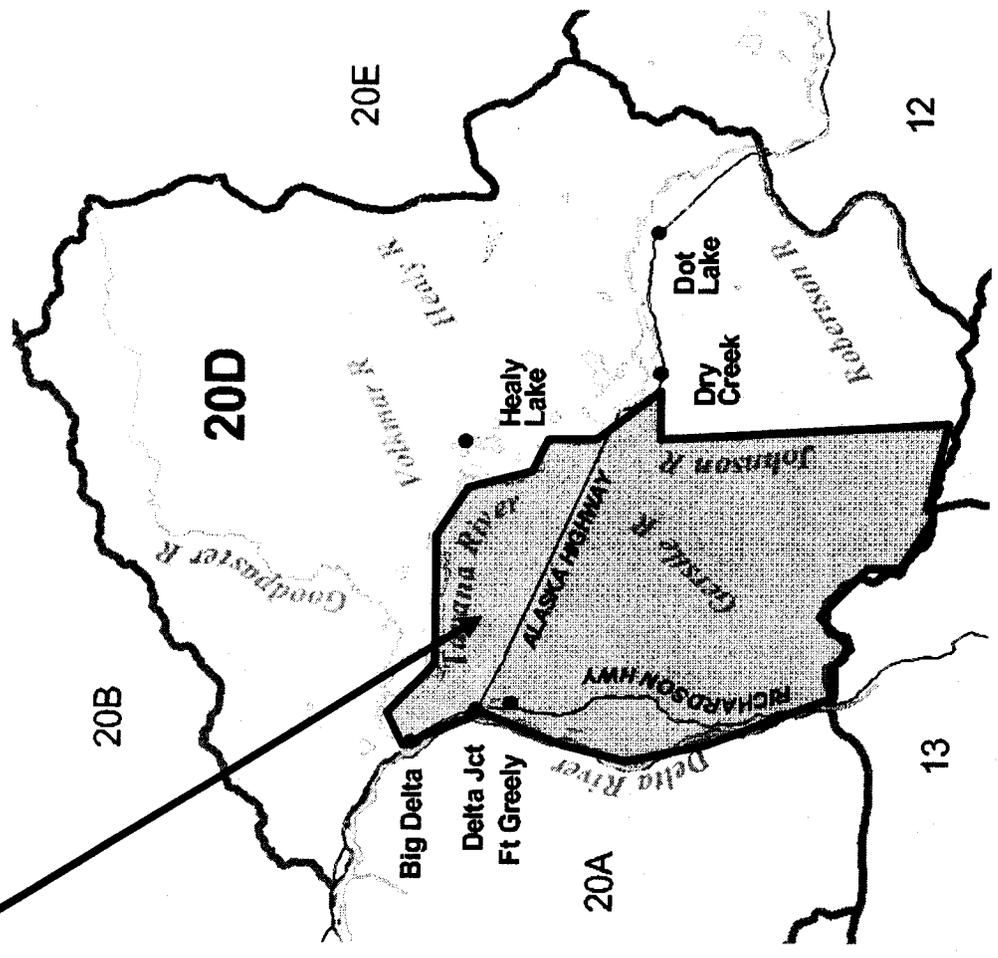
- Proposal is to reauthorize drawing permit hunts in southwest Unit 20D for a cow not accompanied by a calf, from Oct 10 – Nov 25,
 - This is a season date change from Oct 1 – Nov 15
- Create a registration permit hunt in southwest Unit 20D for a cow not accompanied by a calf, from Oct 10 – Nov 25
- Create a drawing permit hunt for 1 bull moose
 - To create additional bull harvest if bull:cow ratio rises above 30 bulls:100 cows

Proposal 135

Game Management Unit

20D

- Southwest Unit 20D
 - South of Tanana Rv
 - West of Johnson Rv
- Location of highest moose density & population growth





I'm glad I'm not a
cow in 20D!

Proposal 135

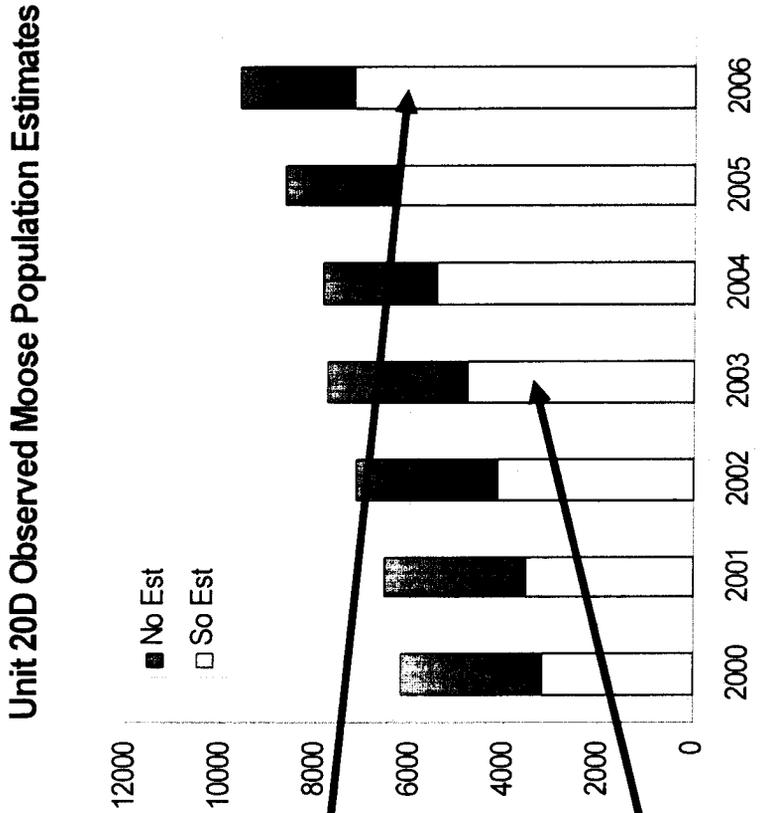
- Background
- The BOG adopted intensive management for Unit 20D moose in 1995
 - Unit 20D IM moose population objective = 8,000-10,000
 - Unit 20D IM moose harvest objective = 500-700/year
- Unit 20D population ~5,600 moose
- ADFG & Delta AC have been working toward meeting the population and harvest objectives since

Proposal 135

- Most recent Unit 20D moose population estimates include:
 - Northern Unit 20D (2004) = 2,411 @ 0.8 moose/mi²
 - Southern Unit 20D
 - SW Unit 20D (2007) = 7,111 @ 5.6 moose/mi²
 - SE Unit 20D (2006) = 770 @ 1.3 moose/mi²

Proposal 135

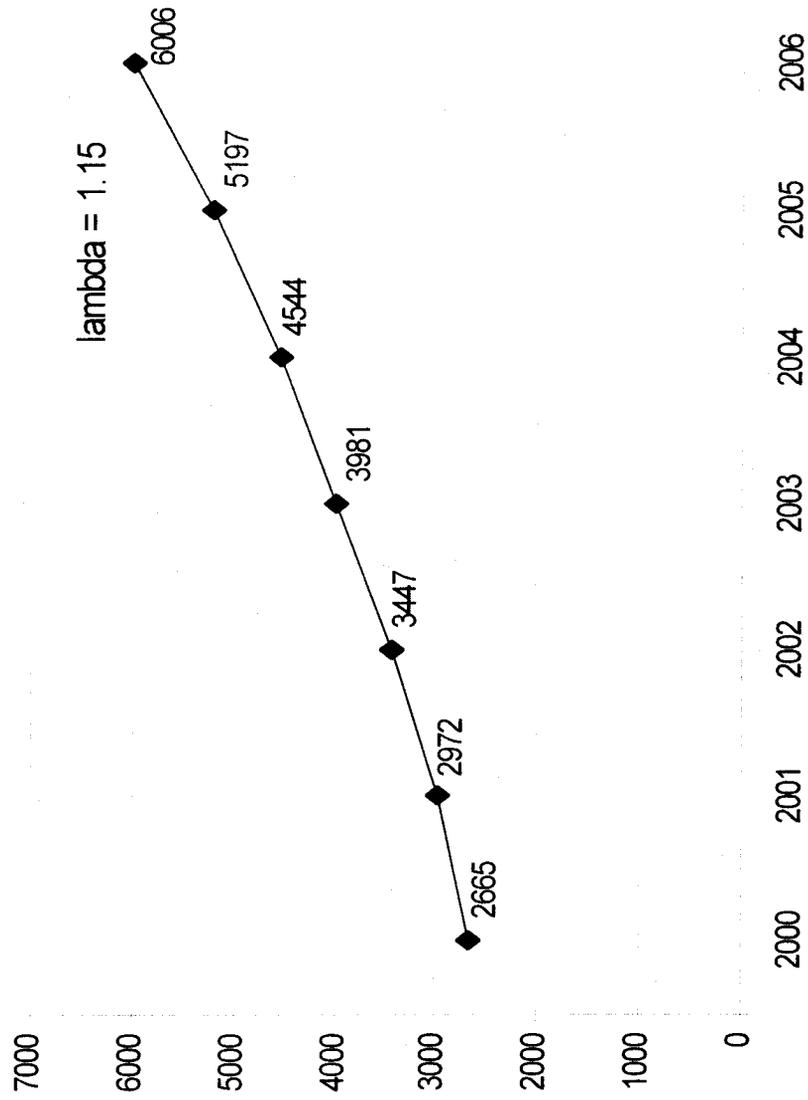
- Population meeting 8,000-10,000 objective since 2005 & 2006
- No complete aerial survey in 2007
- Growth is in southern Unit 20D
 - Primarily in southwest Unit 20D



Proposal 135

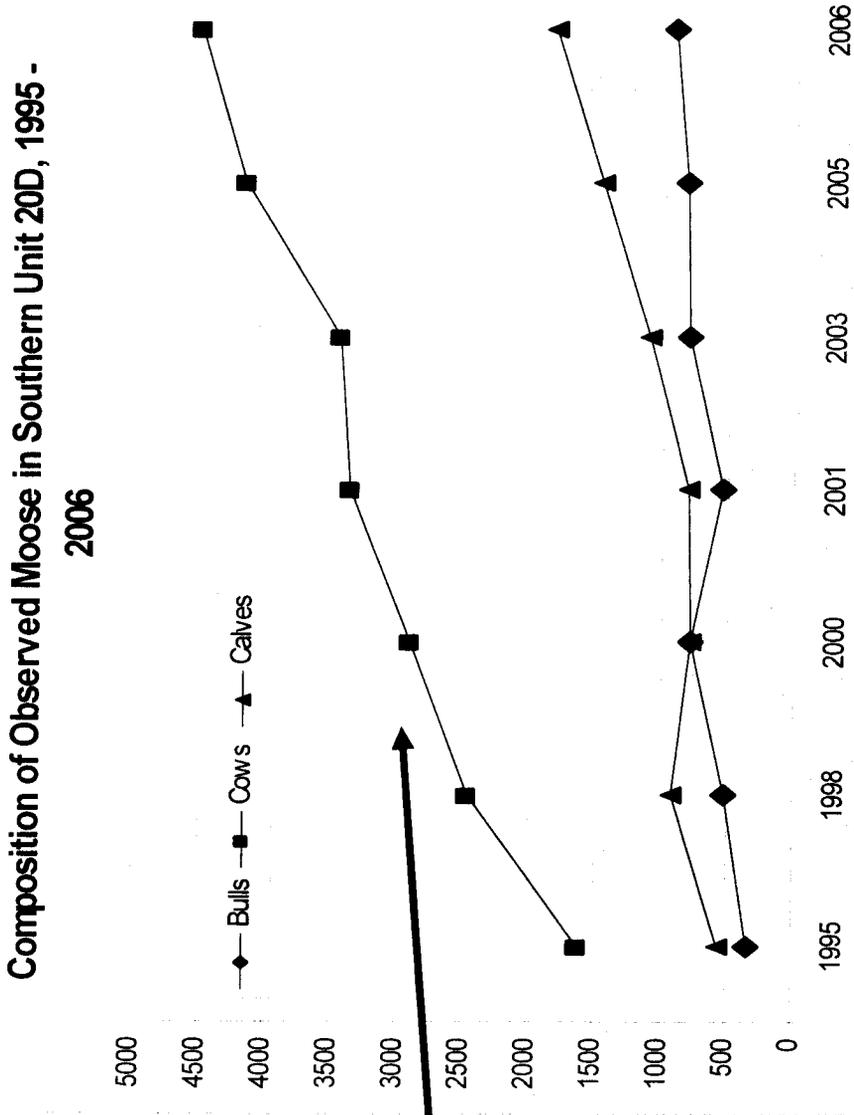
- From 2000-2006, SW 20D moose population had estimated 15% rate of growth
- Growth from several large wildfires, ag. land clearing, & high harvest of predators

SouthWest Unit 20D Moose Population Trend
(Smoothed, Exponential Model)



Proposal 135

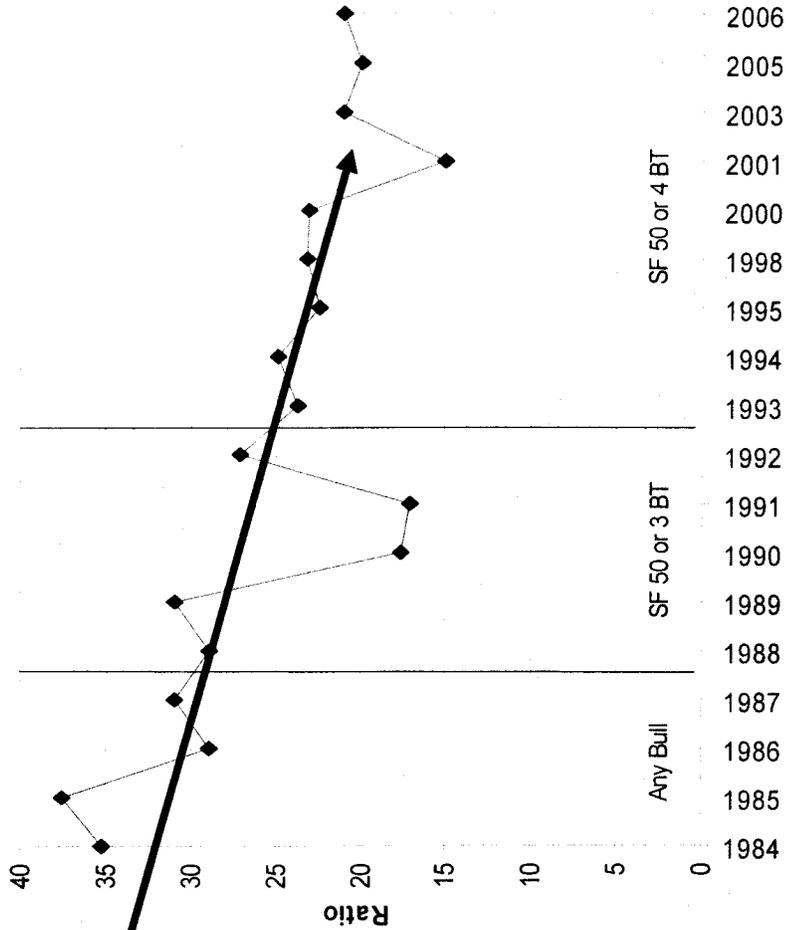
- From 1995 – 2006 population growth in SW20D occurring primarily in cow segment of population



Proposal 135

- Prior to antlerless hunt, bull:cow ratio declining even with progressively restrictive SHS
 - Due in part to # cows
- SW 20D bull:cow ratio averaging low 20's even with spike-fork, 50", or 4 brow tine restrictions
- Objective to keep bull:cow ratio >20:100

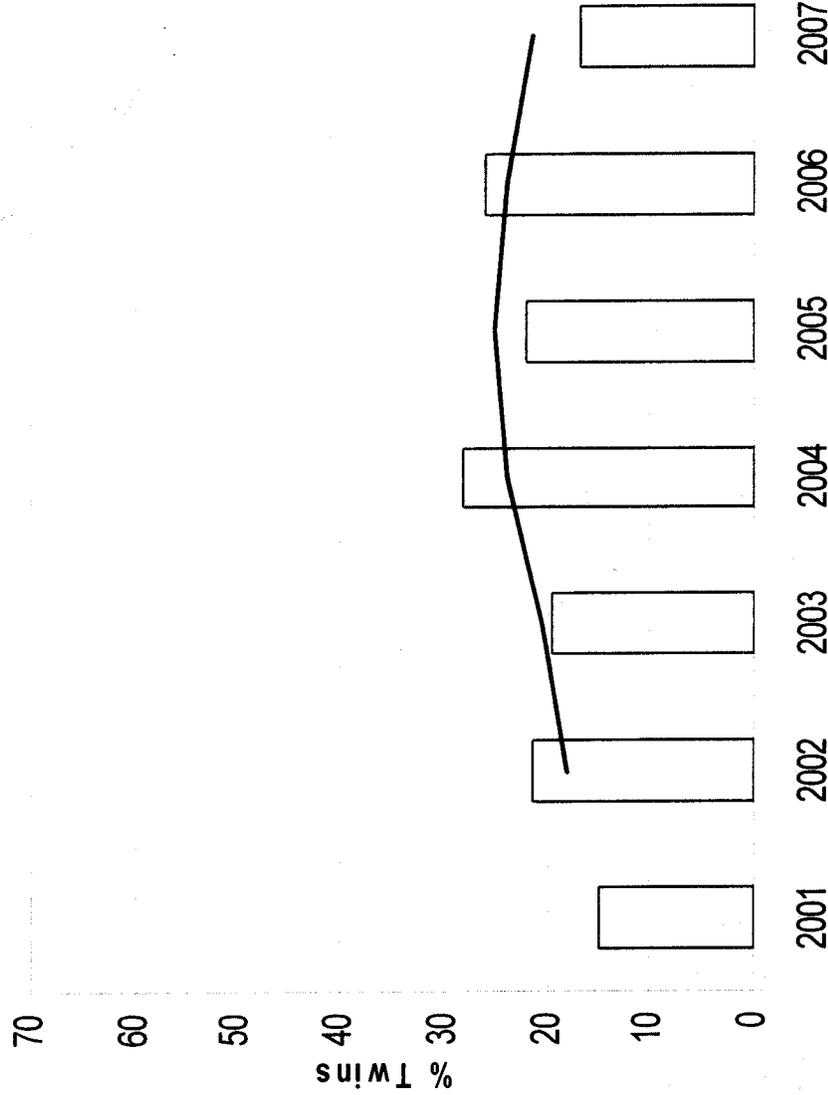
RATIO OF BULLS:100 COWS IN SW 20D



Proposal 135

- **% twins in SW 20D is averaging 21% for the last 2 years but was 16.7% in 2007**

**% Twins for Cows with Calves
in SWUnit 20D**

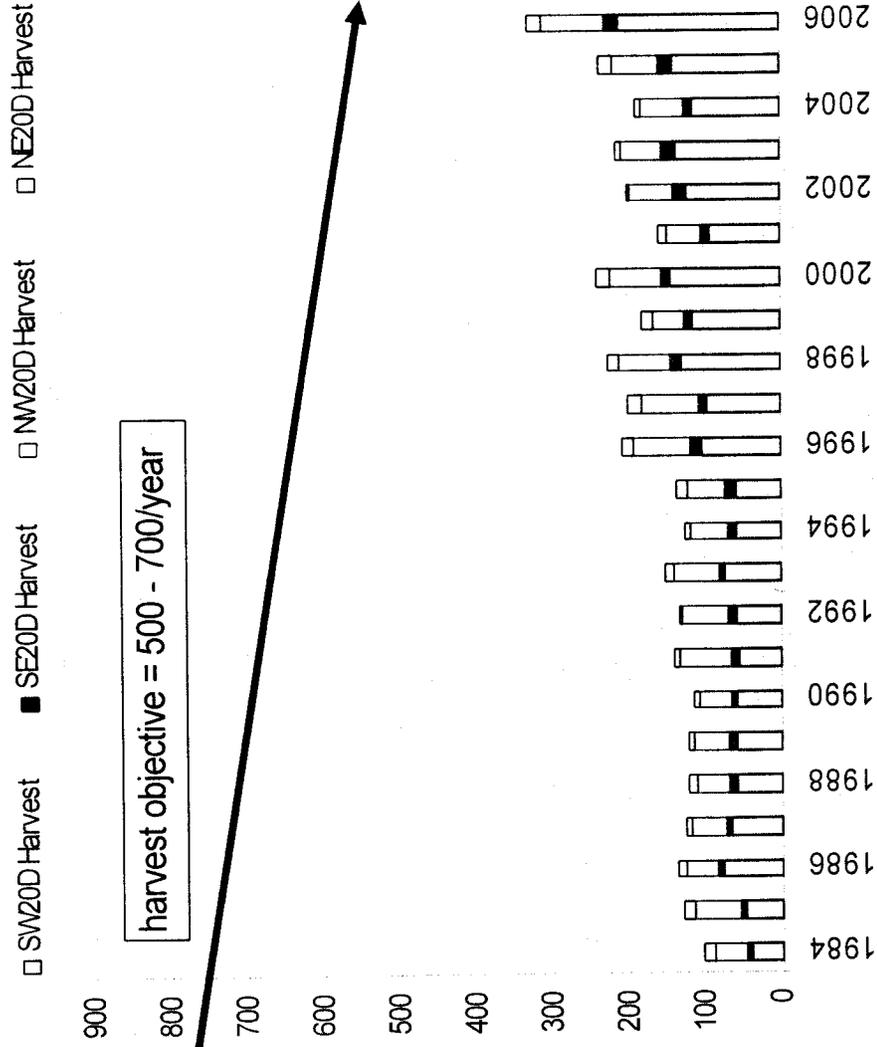


Proposal 135

- 2007 Unit 20D harvest met objective & exceeded

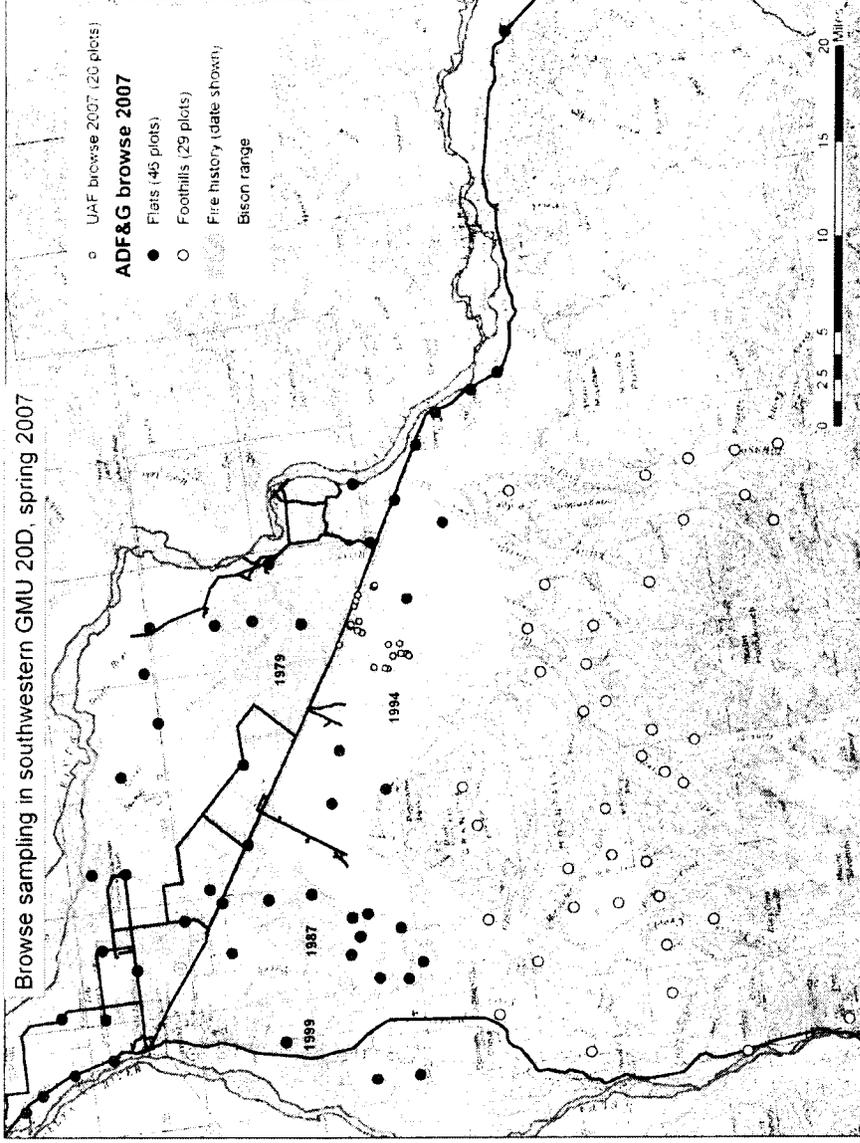
- Most harvest from SW20D

Reported Moose Harvest In Different Areas of Unit
20D, 1984-2004

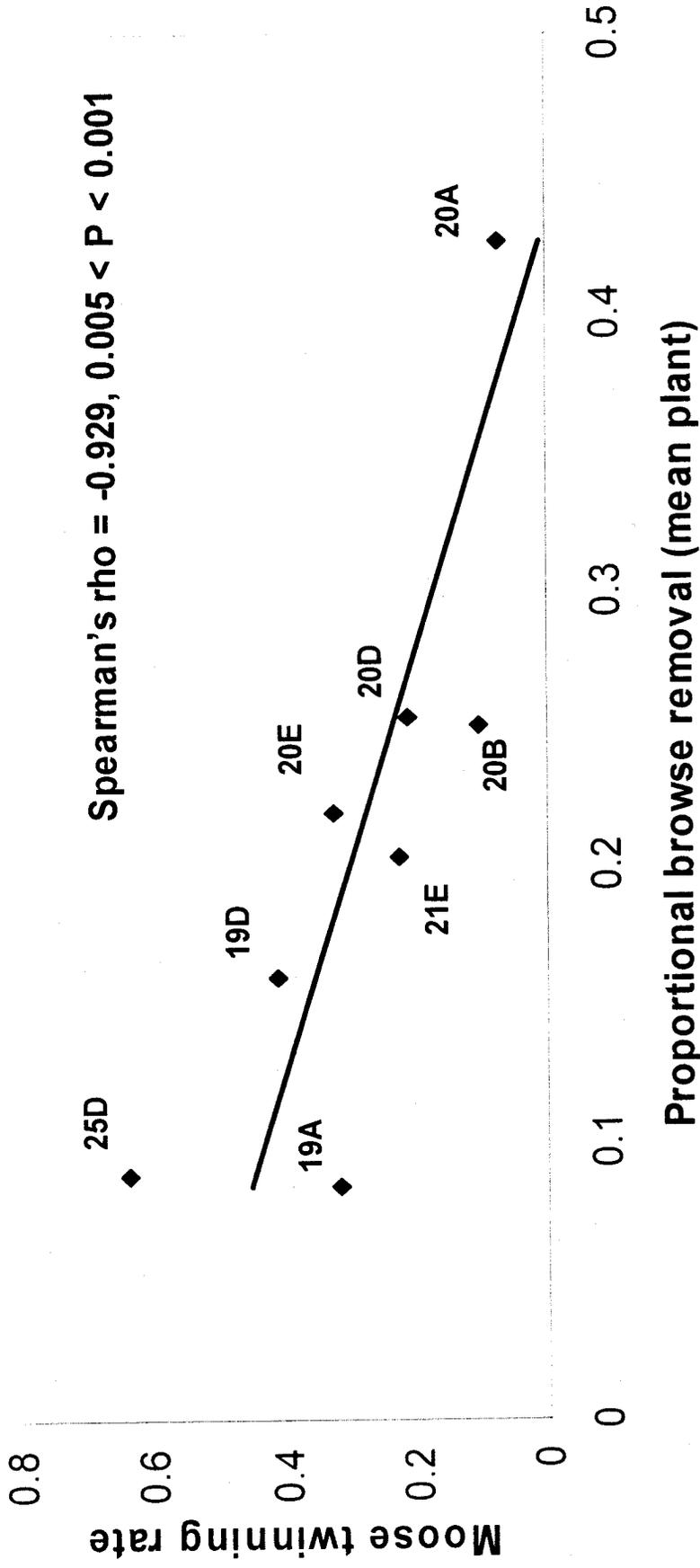


Proposal 135

- Map shows burns
- Extensive browse survey in spring 2007
- 2006 – 2007 overwinter browse removal was high in SW 20D
 - 22.3 % in flats
 - 30.4 % in foothills
 - 37.3% in recent burn
- Brooming index was high
 - 62% in flats
 - 75% in foothills
 - 87% in recent burn



Proposal 135



- Unit 20D browse removal rate is relatively high in relation to other interior Alaska GMUs

Proposal 135

- **First SW 20D antlerless harvest in 2006**
- **Goal of this very conservative harvest was to “break the ice” & implement cow moose hunt in SW20D**
 - **BRYHMA = 8**
 - **DM793 = 50 cows killed from 65 permits**

Proposal 135

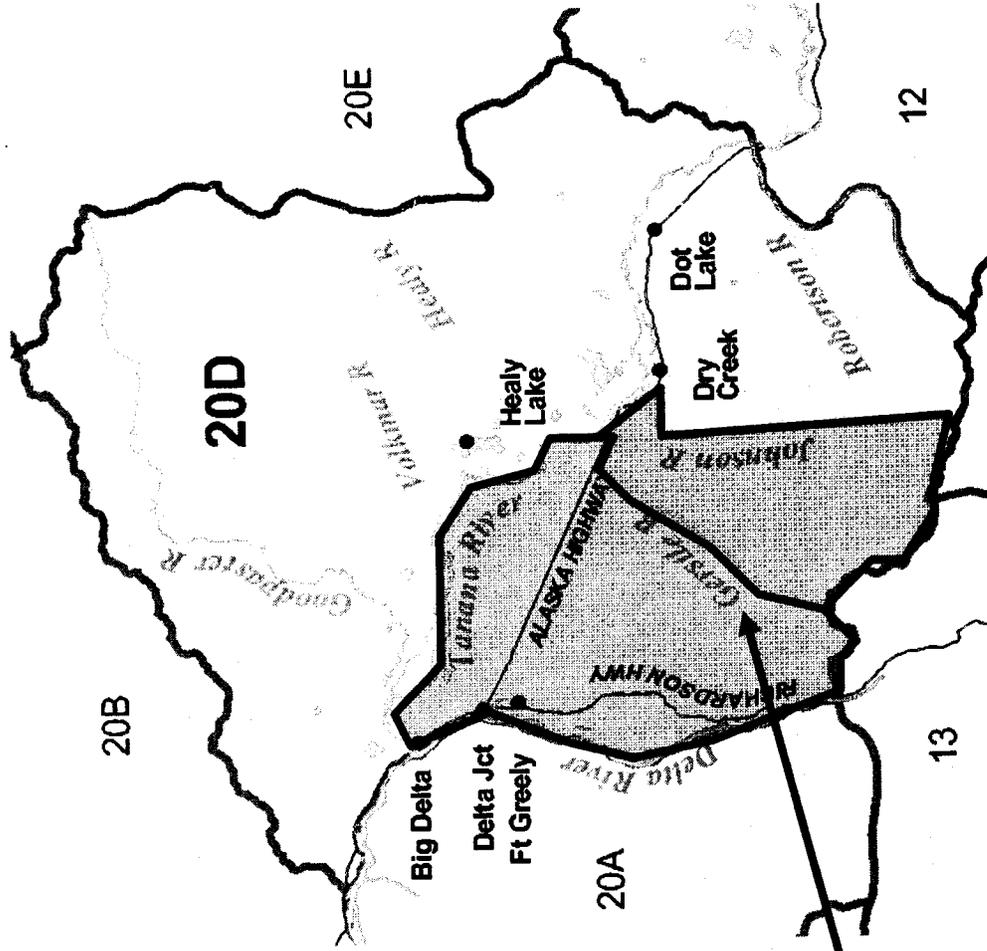
- **Working with Delta AC for 2007, decided to slow rate of population growth in SW20D**
- **AC's desire was to take a significant harvest in 1 year rather than extend the harvest over several years because of:**
 - **High density of 5.6 moose/mi²**
 - **Relatively low twinning rates 21% indicating moose were likely having a negative impact on forage**
 - **Browse surveys indicating significant browse removal**

Proposal 135

Game Management Unit

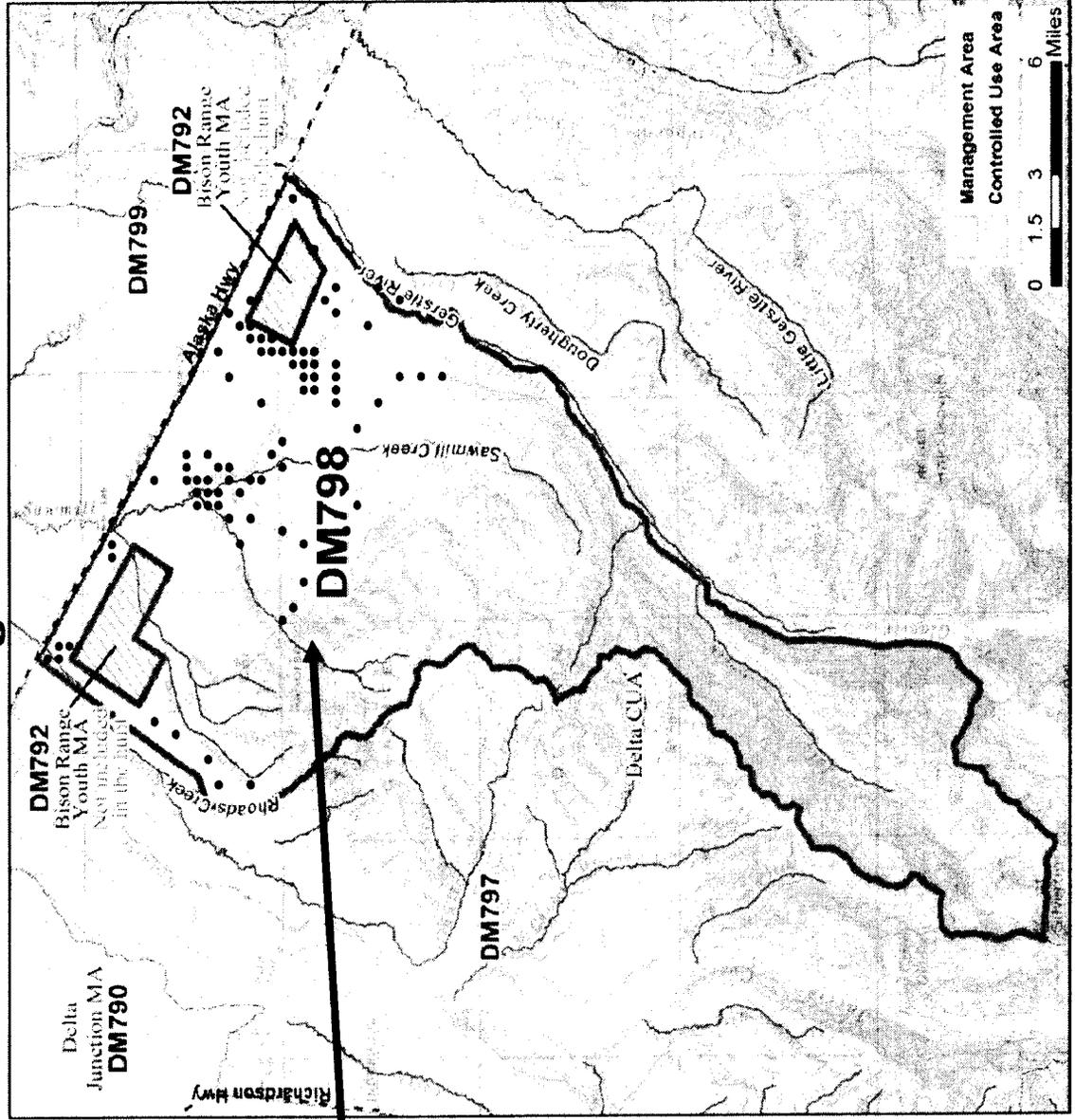
20D

- Results of 2007 decision to have liberal antlerless moose harvest
- 3 drawing permit hunts created in location of highest moose density
- Southwest Unit 20D
 - South of Tanana Rv
 - West of Gerstle Rv



Proposal 135

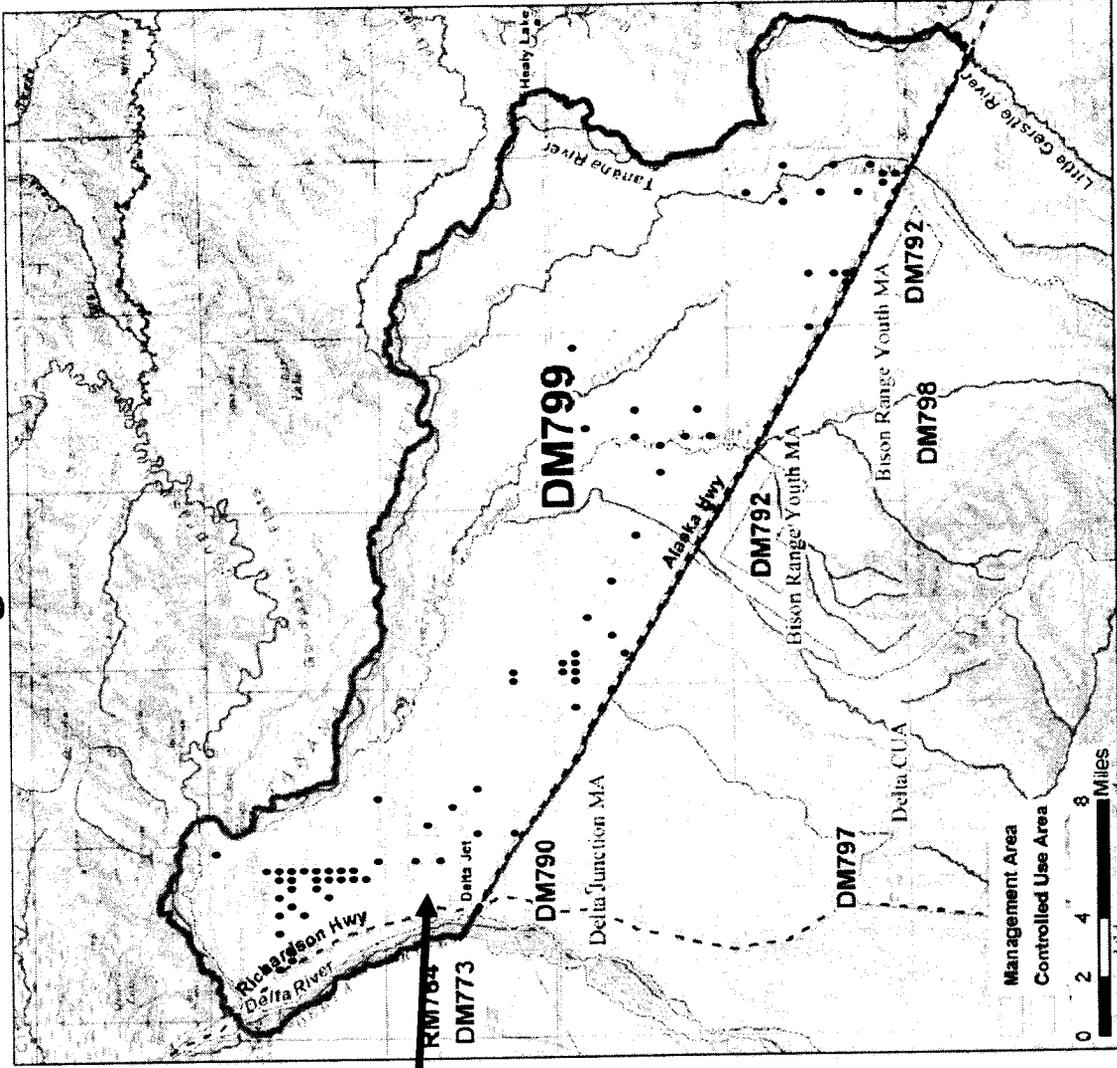
DM798 - Moose Drawing Permit Hunt



- DM798 = 180 permits issued
- Approx harvest locations
- Reported harvest = 93 cows
- 76% hunter success
- 52% permits issued were successful

Proposal 135

- DM 799 = 180 permits issued
- Approx harvest locations
- Reported harvest = 91
- Hunter success = 70%
- 51% of permits issued were successful

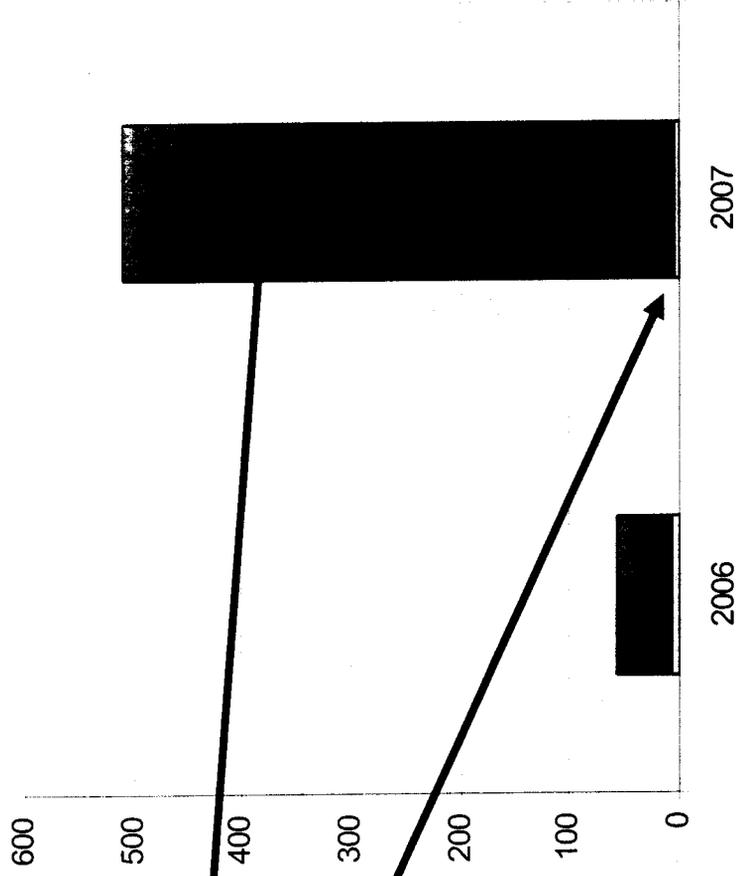


Proposal 135

Cow Moose Harvest In SWUnit 20D from
the

Antlerless Draw Permit Hunt
and

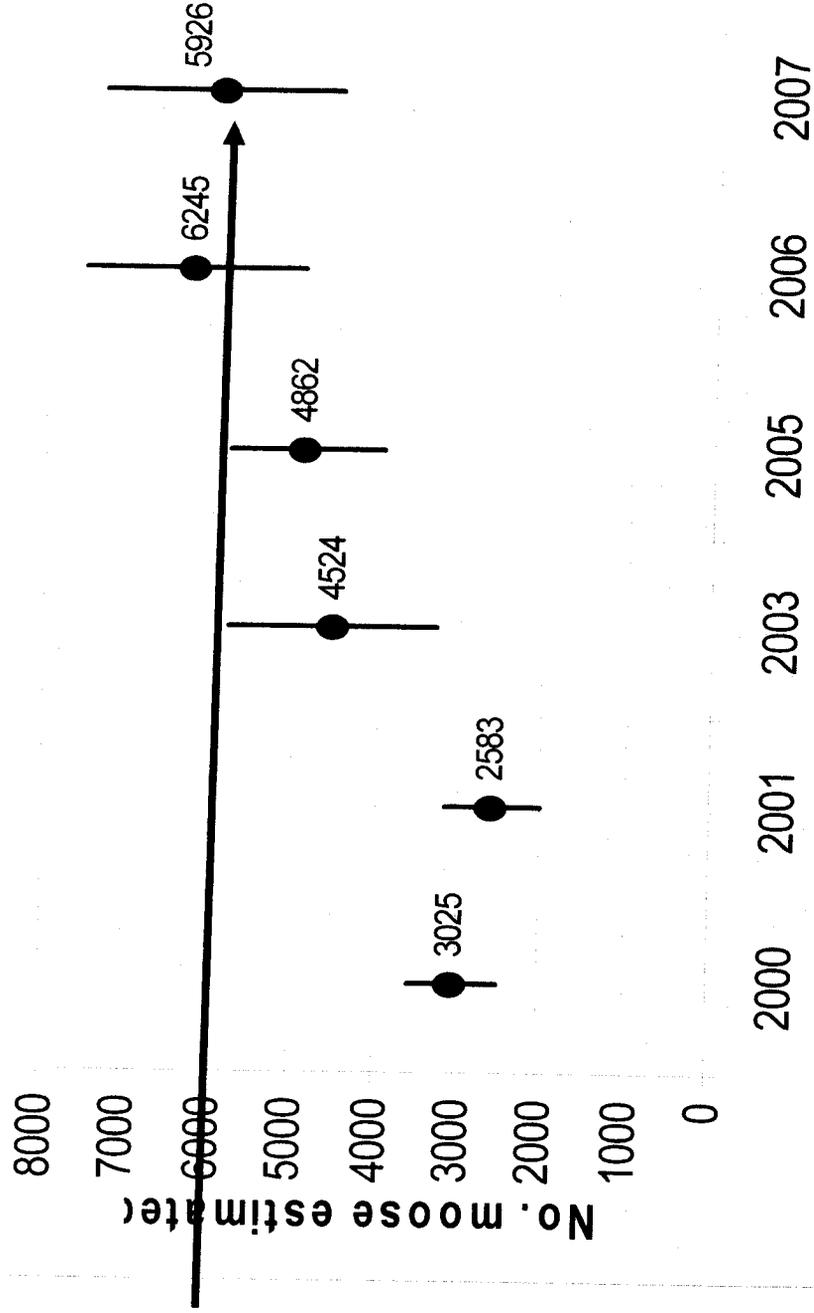
- Total 2007 antlerless harvest =
- 504 in antlerless drawing permit hunts
- 6 in BRYHMA
- Antlerless harvest = 6% of prehunt population



Proposal 135

- After 2007 antlerless hunt, SW20D observed population estimate declined 319 moose, however with large overlap in confidence intervals

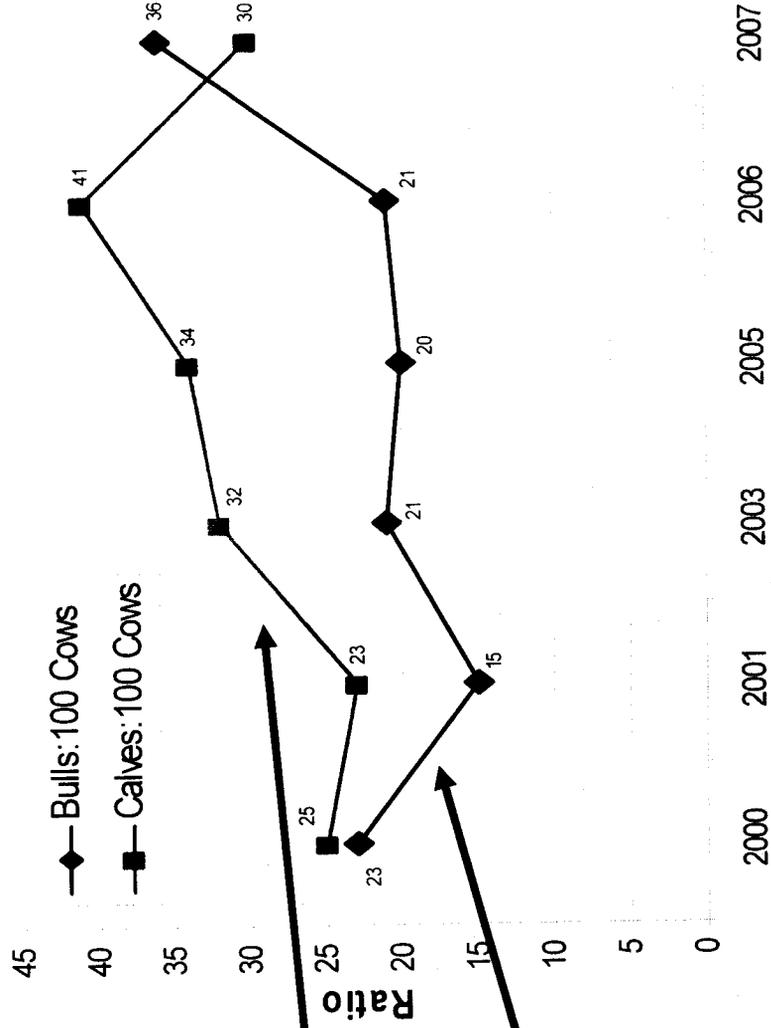
Moose Population Estimates for "Observed"
Moose in Unit 20D Southwest



Proposal 135

- After 2007 antlerless hunt in SW 20D, calf:cow ratio decreased unexpectedly
- bull:cow ratio increased as expected

Southwest Unit 20D Bull:100 Cow and Calf:100 Cow Ratios From GSPE Surveys



● ● ● Proposal 135

- **Planning for 2008 antlerless moose hunt we developed population growth and harvest guidelines based on indices of moose density**
- **For Unit 20D, primary density indices are**
 - **Moose density**
 - **Twinning rates**
 - **Overwinter browse removal**

Interim Unit 20D Population Guidelines

- Intensively manage the northern and southern Unit 20D moose populations independently (north and south of the Tanana River) for optimal population size based on indices to density-dependent nutritional limitation to guard against eventual site-specific long-term range damage and starvation from overabundance. Moose populations will be managed for:
 - (1): increasing population growth when the average 2-year prior twinning rate exceeds 20%, but a reduced rate of growth as this twinning rate average approaches 20%,
 - (2) stable population size when the 2-year prior twinning rate averages 11%-20%, and
 - (3) decreasing population growth when the 2-year prior twinning rate averages $\leq 10\%$.
- An attempt will be made to use at least 1 additional index to verify the respective increases in nutritional limitation implied by steps (1.) to (3.) above, such as increasing browse removal rates, decreasing late-winter calf weights, or decreasing reproductive indices other than twinning rates

Interim Unit 20D Harvest Guidelines

- Harvest the northern and southern Unit 20D moose population (north and south of the Tanana River) independently.
- The bull segment of the population will be managed in any portion of Unit 20D for a sustainable harvest to take the maximum number of bulls. The bull bag limit will be liberal for an area with a ratio of >30 bulls:100 cows for ≥ 2 consecutive years. If, in any area, the bull:cow ratio decreases to <30 bulls:100 cows for ≥ 2 consecutive years, regulations will be adopted to restrict bull harvest sufficient to maintain a ratio of >20 bulls:100 cows.
- Antlerless moose harvest will be implemented as needed to manage for increasing population growth, no growth, or decreasing population growth as described in the population guidelines.

Proposal 135

Interim Population Guidelines

<u>Population Trend</u>	<u>Guideline</u>	<u>Current Status</u>
Increasing	2-yr twinning rates >20%; slow growth as approach 20%	SW 20D 2-yr twinning rate = 21% = slow population growth rate
Stable	2-yr twinning rate = 11-20%	
Decreasing	2-yr twinning \leq 10%	
Try to use 1 additional index, i.e. browse removal rates		Spr 2007 Browse Removal Lowlands = 22% Uplands = 30%

Proposal 135

Interim Harvest Guidelines

<u>Harvest Guideline</u>	<u>Current Status</u>
Sustainable harvest for max no. of bulls	
Bag limit liberal if >30 bulls:100 cows for 2-yr	
Restrict bull harvest if <30 bulls:100 cows for 2-yr	2006 & 2007 bull:cow ratio = 29:100 = maintain current SF/50 or 4 BT bull harvest restrictions
Further harvest restrictions if needed to maintain ≥ 20 bull:100 cows	
Antlerless harvest as needed to meet population growth guidelines	Antlerless harvest to slow population growth rate

Proposal 135

688

CAN. J. ZOOL.

- Concern is Oct 1 season opening is during peak of rut
- Interference with breeding could result in cows being bred in later estrous
 - Results in later born calves with lower survival
- Impact on 2008 calving?
- Delta AC adjusted to season opening to start hunt later on Oct 10

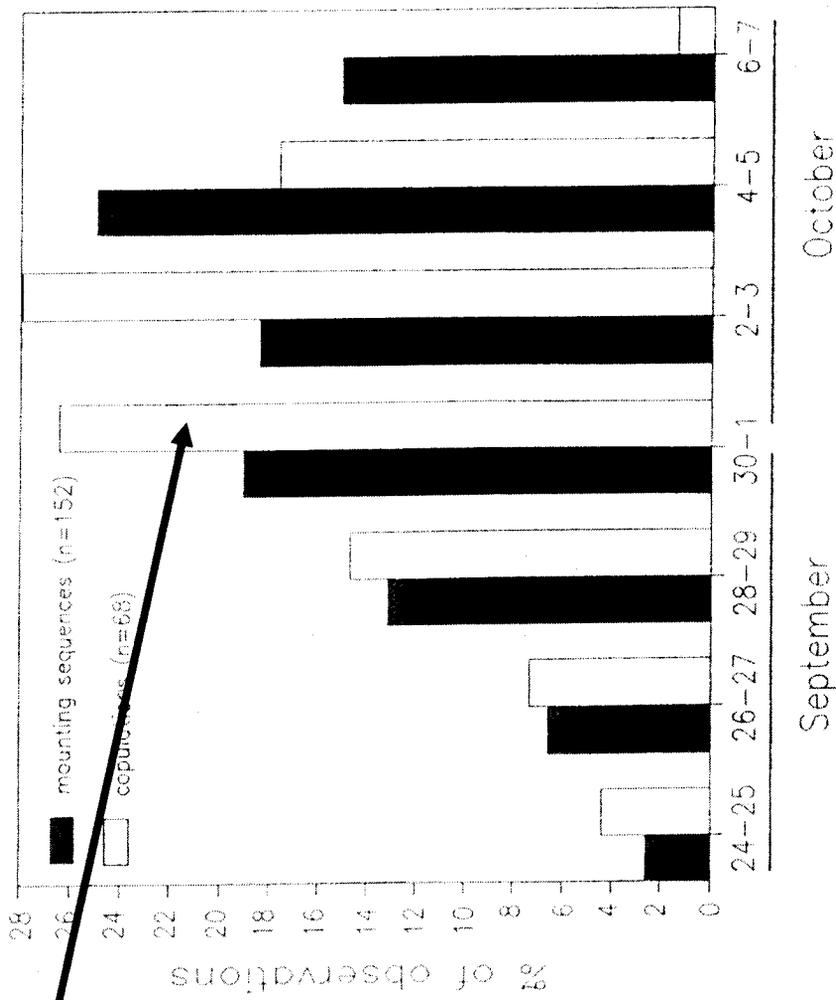
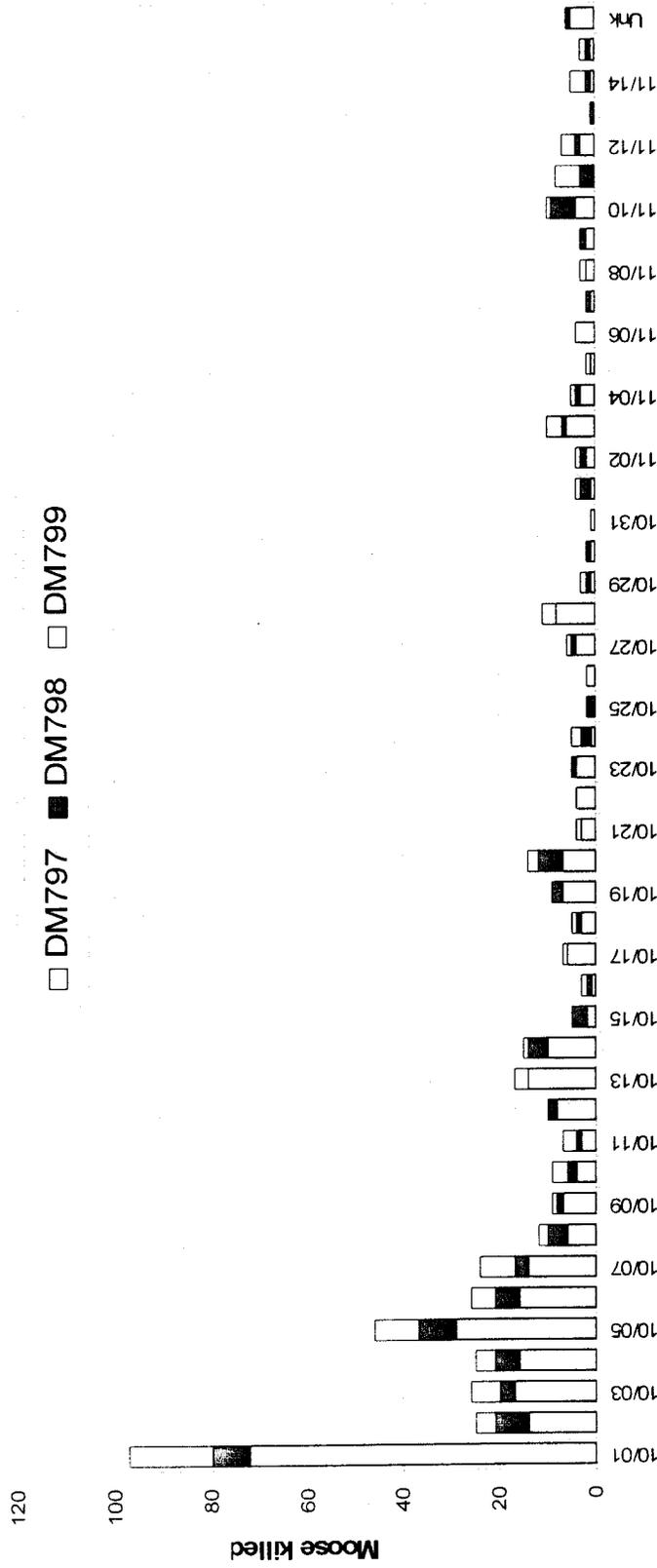


FIG. 1. Percentage of mounting sequences and copulations of moose by 2-day intervals observed during the breeding season in central Alaska.

Proposal 135

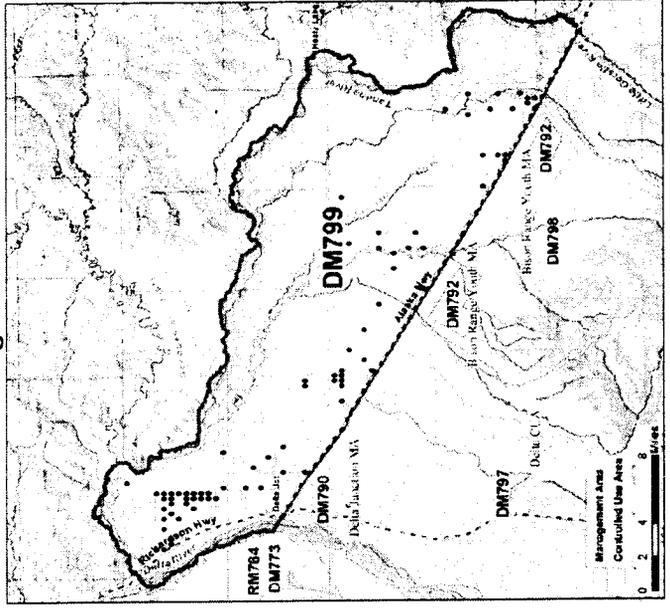
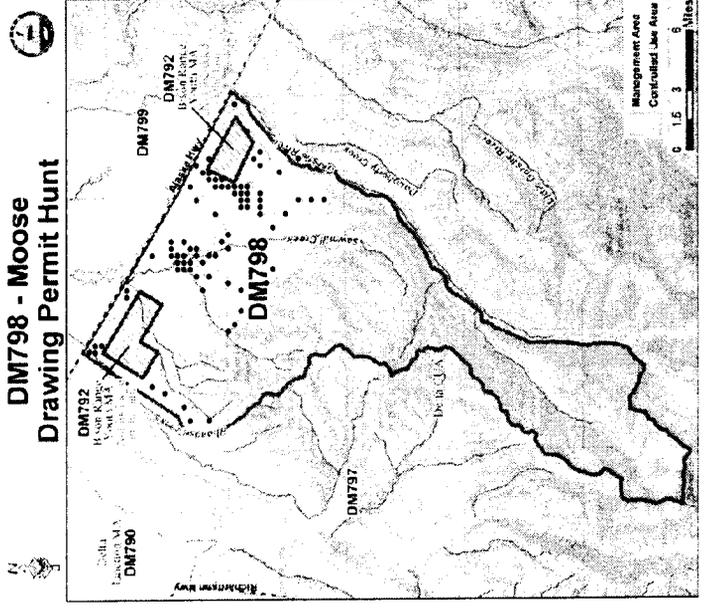
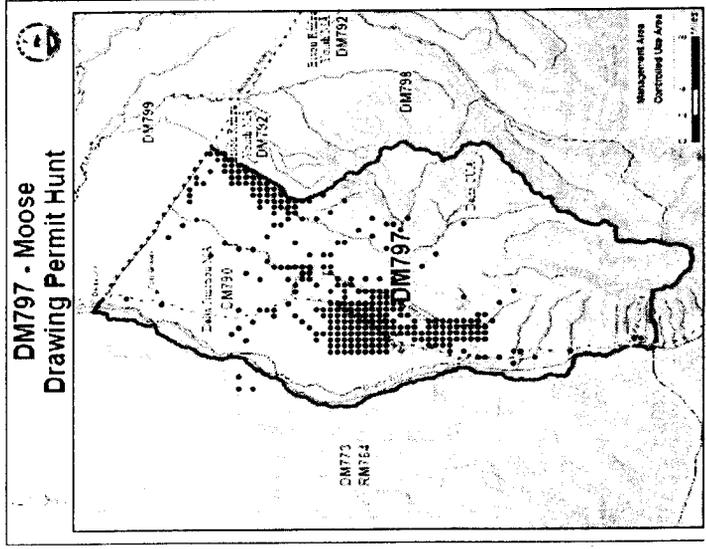
2007 Harvest Chronology for DM797, 798, & 799
from Oct 1 - Nov 15



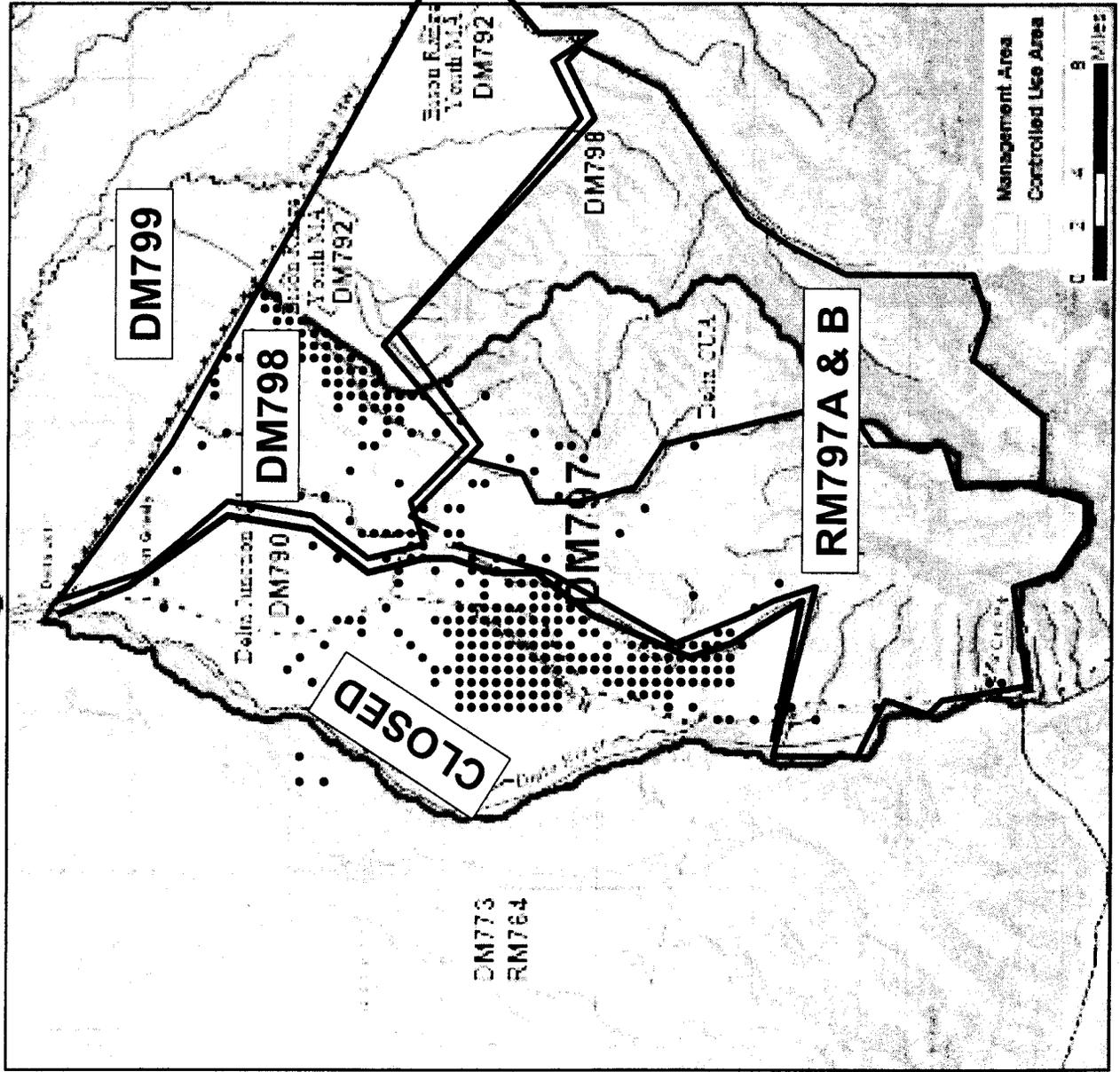
- High harvest of cow moose from Oct 1 – Oct 7, 2007 corresponding to peak of rut.

Proposal 135

-After reviewing 2007 antlerless hunt, ADFG & Delta AC decided to restructure permit hunt boundaries & possibly create a registration permit hunt



DM797 - Moose Drawing Permit Hunt



- 2008 SW20D antlerless hunt

- Close DM797 area west of Jarvis Ck

- Redraw DM798 to incorporate more high density lowland

- Institute RM797

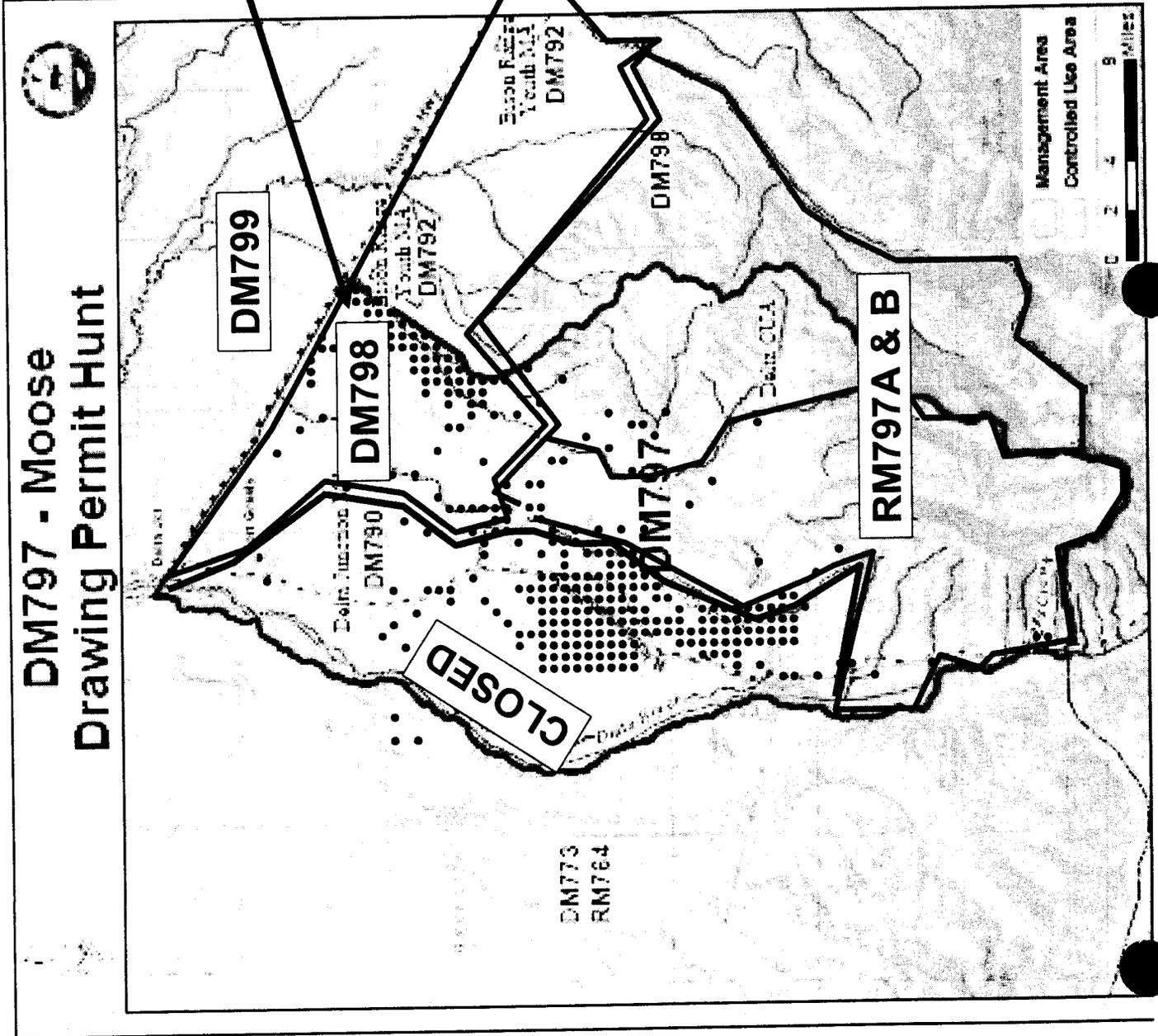
- Maintain DM799

• 2008 SW20D antlerless hunt

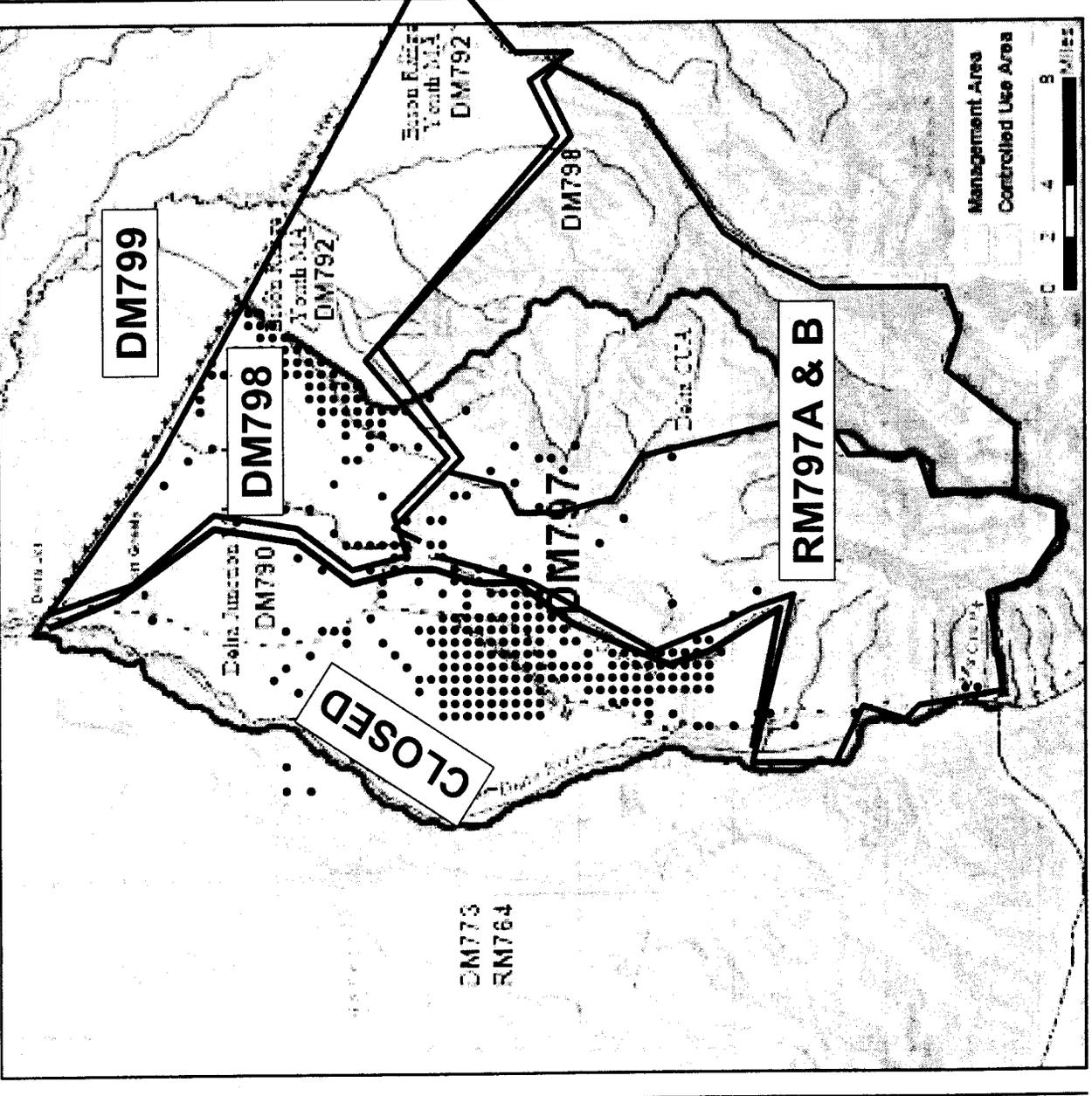
• Redraw DM798 to incorporate more high density lowland

• Issue 400 drawing permits

• ~ 210 harvest



DM797 - Moose Drawing Permit Hunt



- SW20D antlerless hunt
- Establish drawing permit hunt for 1 bull
- Initiated if bull:cow ratio exceeds 30:100 for 2 consecutive years
- Not to be implemented until possibly 2009

Proposal 135 Summary

- SW20D moose population remains very high density = 5.6 moose/mi²
- 2007 hunt of 510 cows & 162 bulls may have stabilized population growth
 - Most harvest concentrated along Richardson Hwy
- Two yr average twinning rate = 21%
 - Guideline calls for slowing population growth
- Browse removal rates relatively high

● ● Proposal 135 Summary ● ●

- Proposal is to reauthorize drawing permit hunts in southwest Unit 20D for a cow not accompanied by a calf, from Oct 10 – Nov 25, and ...
 - This is a season date change from Oct 1 – Nov 15
- Create a registration permit hunt in southwest Unit 20D for a cow not accompanied by a calf, from Oct 10 – Nov 25
- Create a drawing permit hunt for 1 bull moose

Proposal 135

- Questions?

Proposal 35

- Proposal: Extend the moose hunting season in northeast Unit 20D
- Submitted by: Delta AC
- Issue: This area has poor accessibility, low hunter effort, & low harvest & can sustain additional effort & harvest

• ADF&G Recommendation: Amend & adopt

• Rationale: This area can sustain additional bull harvest. Proposed boundary should be amended to coincide with other moose regulation boundaries in the area.

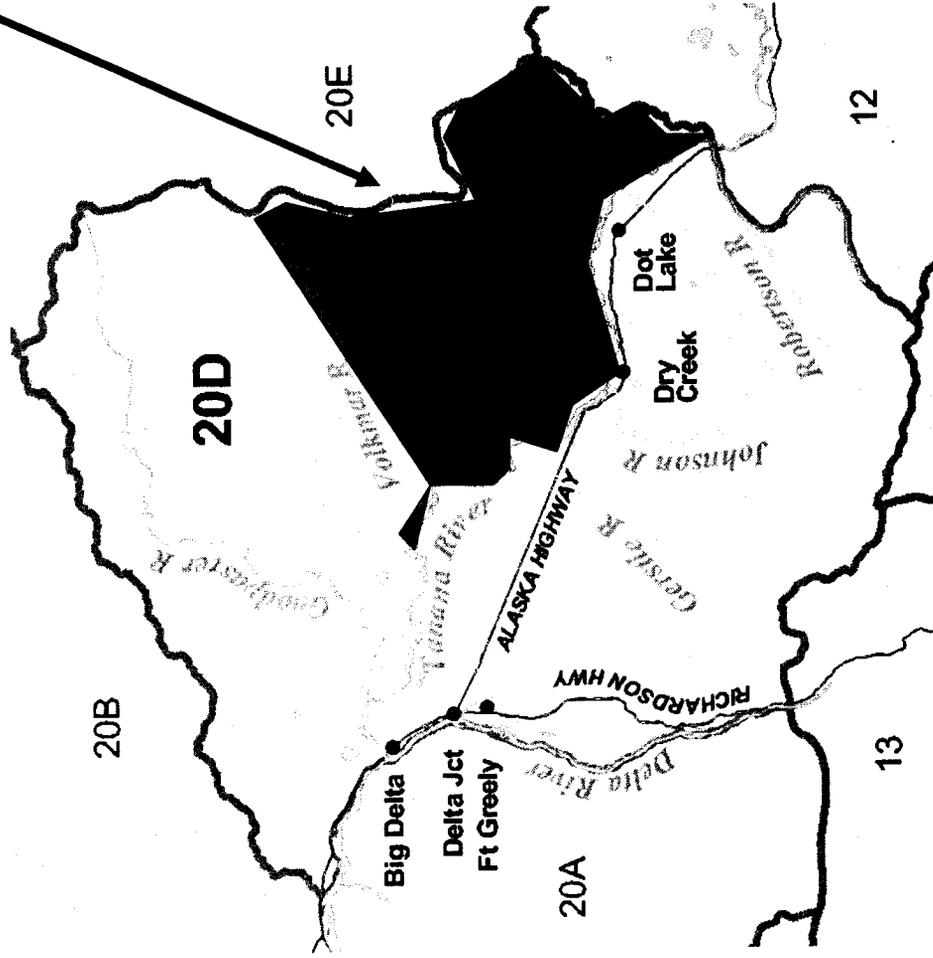
Proposal 35

Game Management Unit

20D

- Northeast Unit 20D east of the Volkmar Rv drainage & north of Tanana Rv

- Moose density in 2004 0.8 moose/mi²
- ~1,200 mi² in area =
- ~1,000 moose

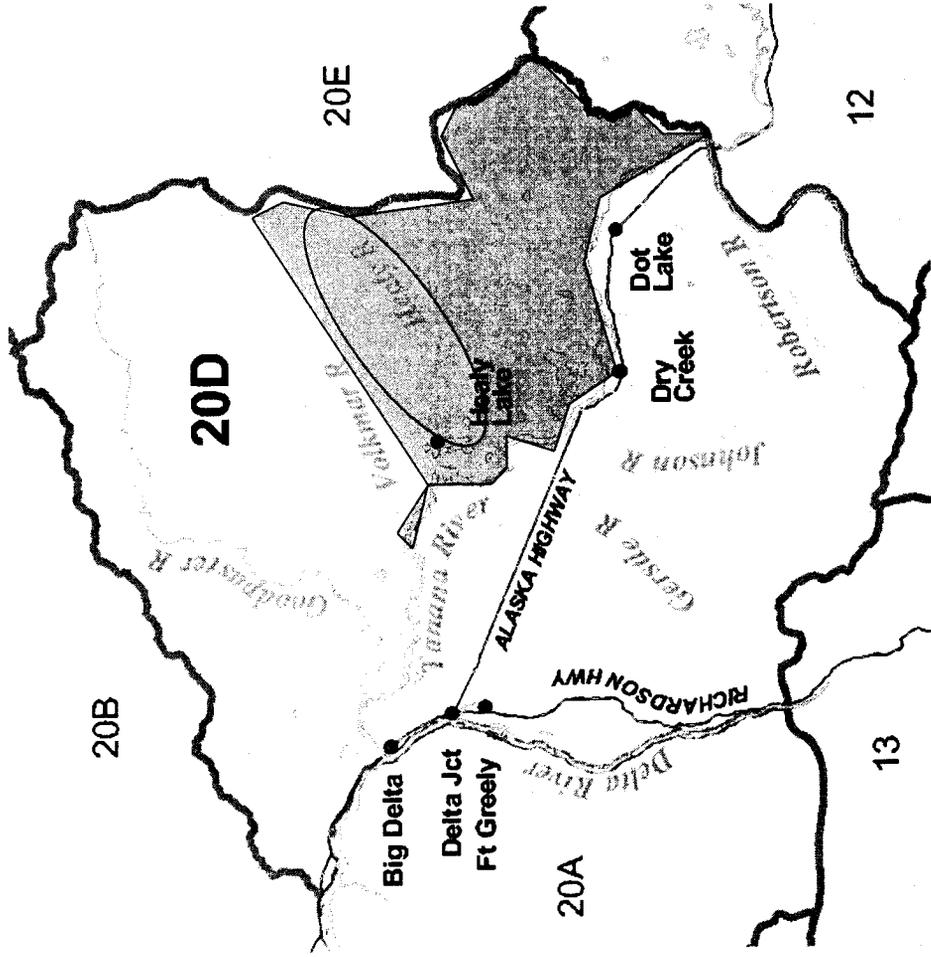


Proposal 35

Game Management Unit

20D

- Current hunting season is Sept 1 – 15, bag limit = 1 bull
- Healy Rv drainage season also has Aug 15 – 28, bag limit 1 sf bull, residents only
- Proposal 35 is Sept 1 – 20

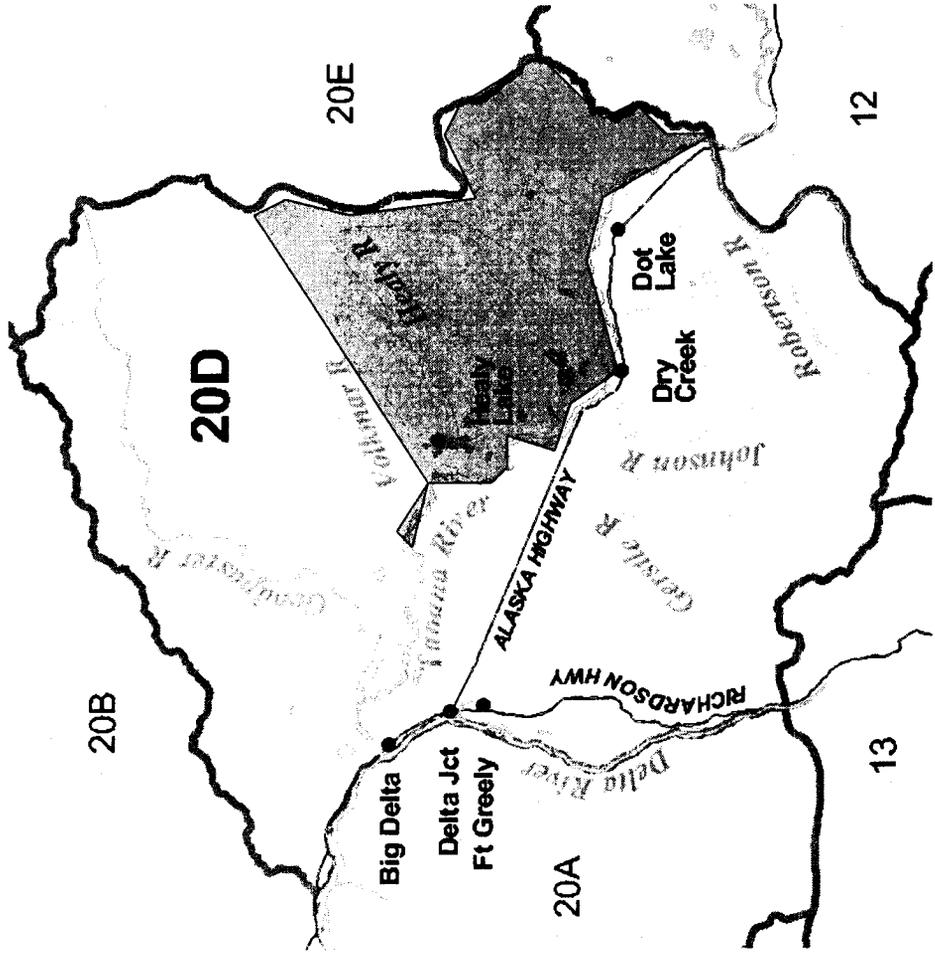


Proposal 35

Game Management Unit

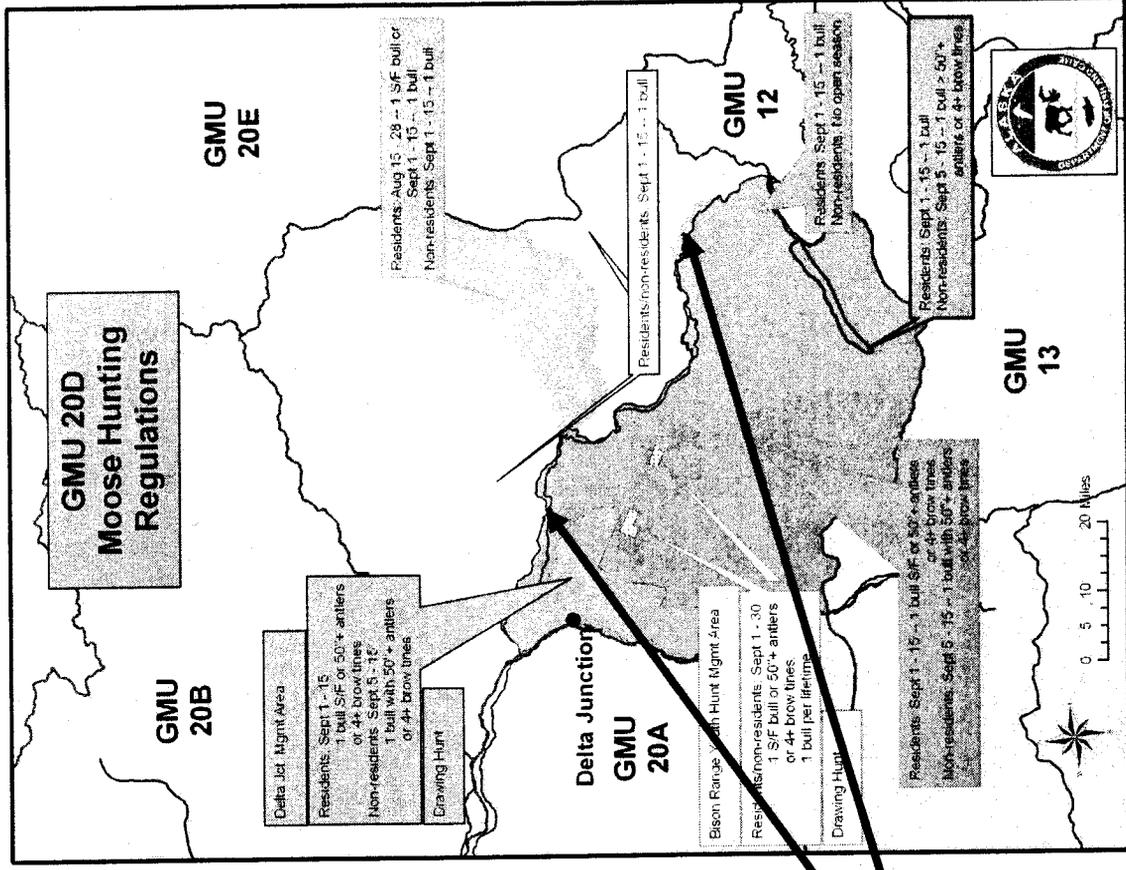
20D

- 49 hunters/yr last 3 yrs
- 20 moose killed/yr last 3 yrs
- Current harvest rate ~2%
- Moose population expected to grow with extensive wildfires in 2003 & 2004
- Portion of area in Upper Yukon-Tanana Wolf Control Area
- Area can sustain additional harvest which is not expected to exceed sustainable levels



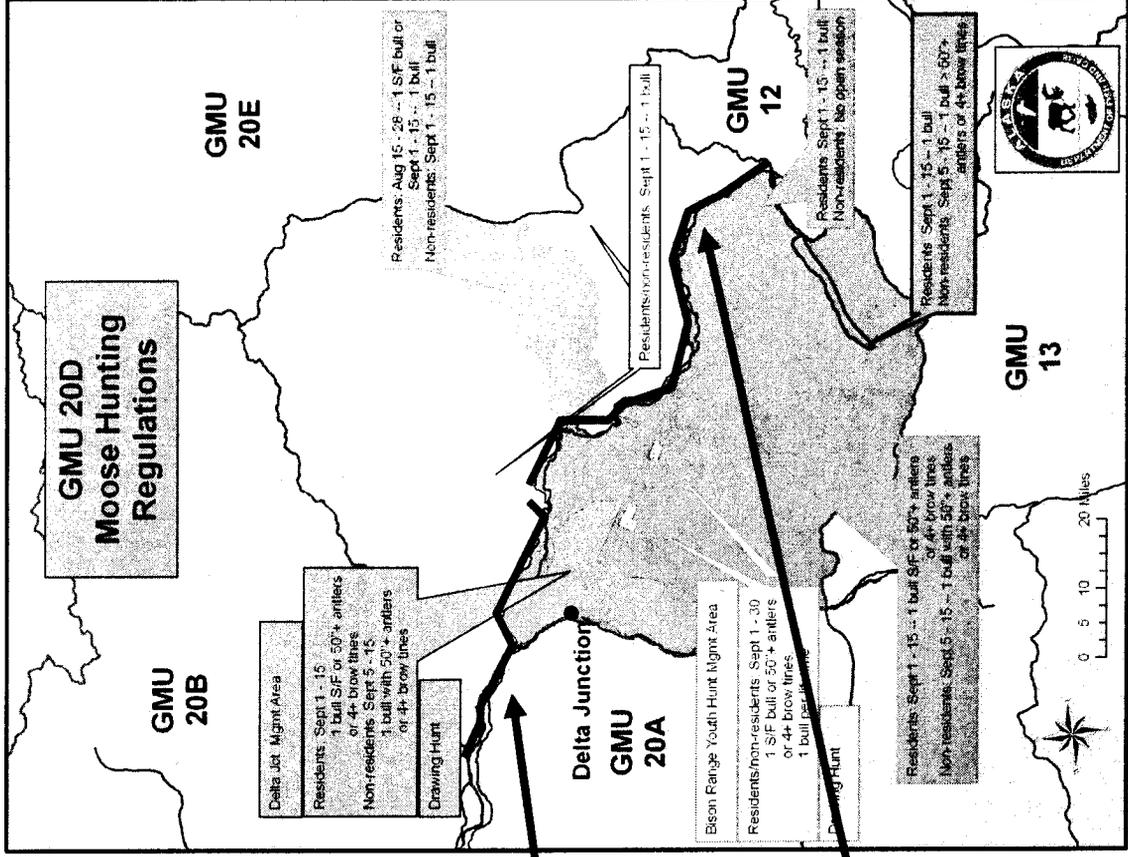
Proposal 35

- Amend boundary because:
- Sept. moose hunting regulations in Unit 20D are very complex & complicated
- ADFG receives many “comments” about complexity of the regulations
- Moose hunting regulations & mgmt are currently divided at north bank of Tanana Rv



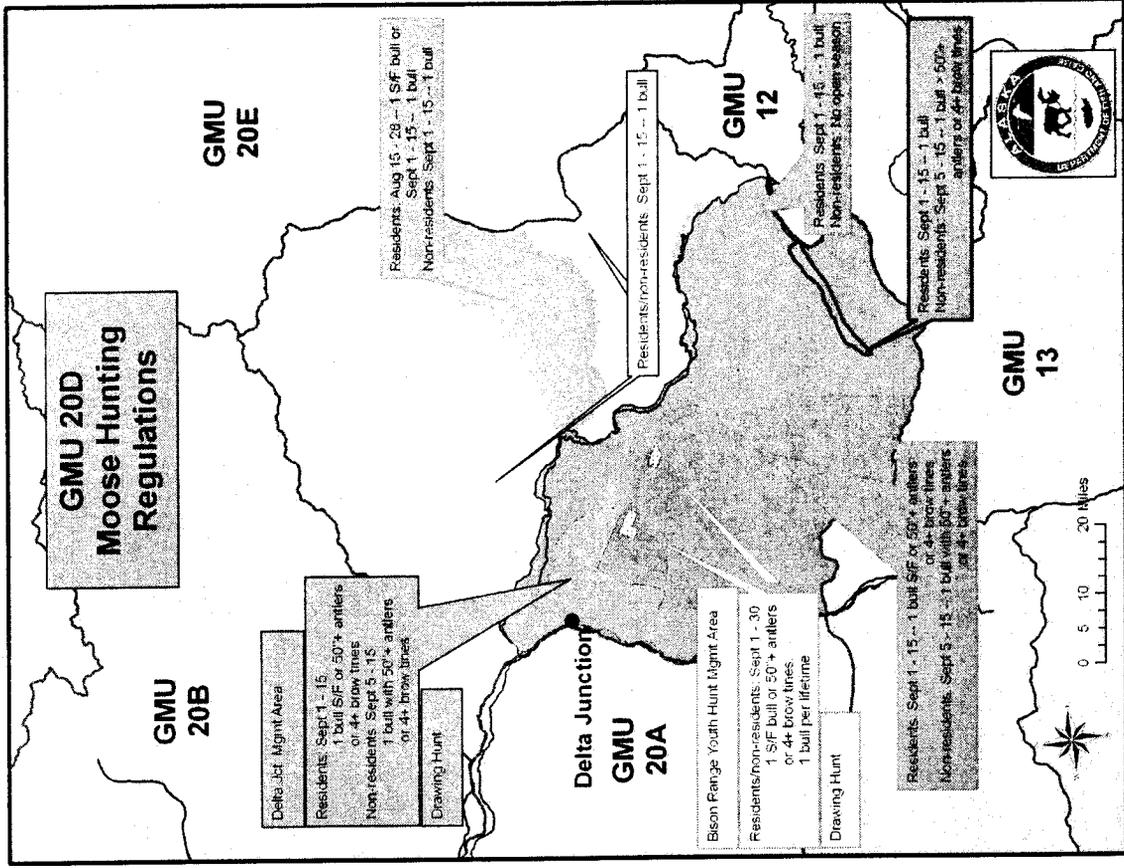
Proposal 35

- Adopting this proposal as written will further complicate regulations
- The north bank of Tanana Rv will be boundary for part of unit
- The south bank of Tanana Rv will be boundary for remainder of unit



Proposal 35

- This boundary change will further complicate regulations in Unit 20D
- Hunter confusion will result in enforcement issues
- Recommend amending proposal to north bank of Tanana Rv



Proposal 35 Summary

- **NE Unit 20D has low hunting effort & harvest due to poor access except several large lakes and creeks**
- **Much of area burned in 2003 – 2004**
- **Area can sustain additional harvest**
- **Recommend amending boundary to north bank of Tanana Rv to simplify regulations and enforcement**

● ● ● Proposal 35

● Questions?

Proposal 22

- Proposal: Increase the allowable harvest for Macomb caribou permit hunt RC 835 from 50 to 100

Submitted by ADF&G

- Issue: Macomb herd harvest limit currently set at 50 caribou & herd may be able to sustain higher harvest in the future

ADF&G Recommendation: Adopt

- Rationale: The Macomb caribou herd is above its population objective and can sustain additional harvest

Proposal 22

Resident Open Season
(Subsistence and General
Hunts)

...

Unit 20 (D) south of the
Tanana River

RESIDENT HUNTERS

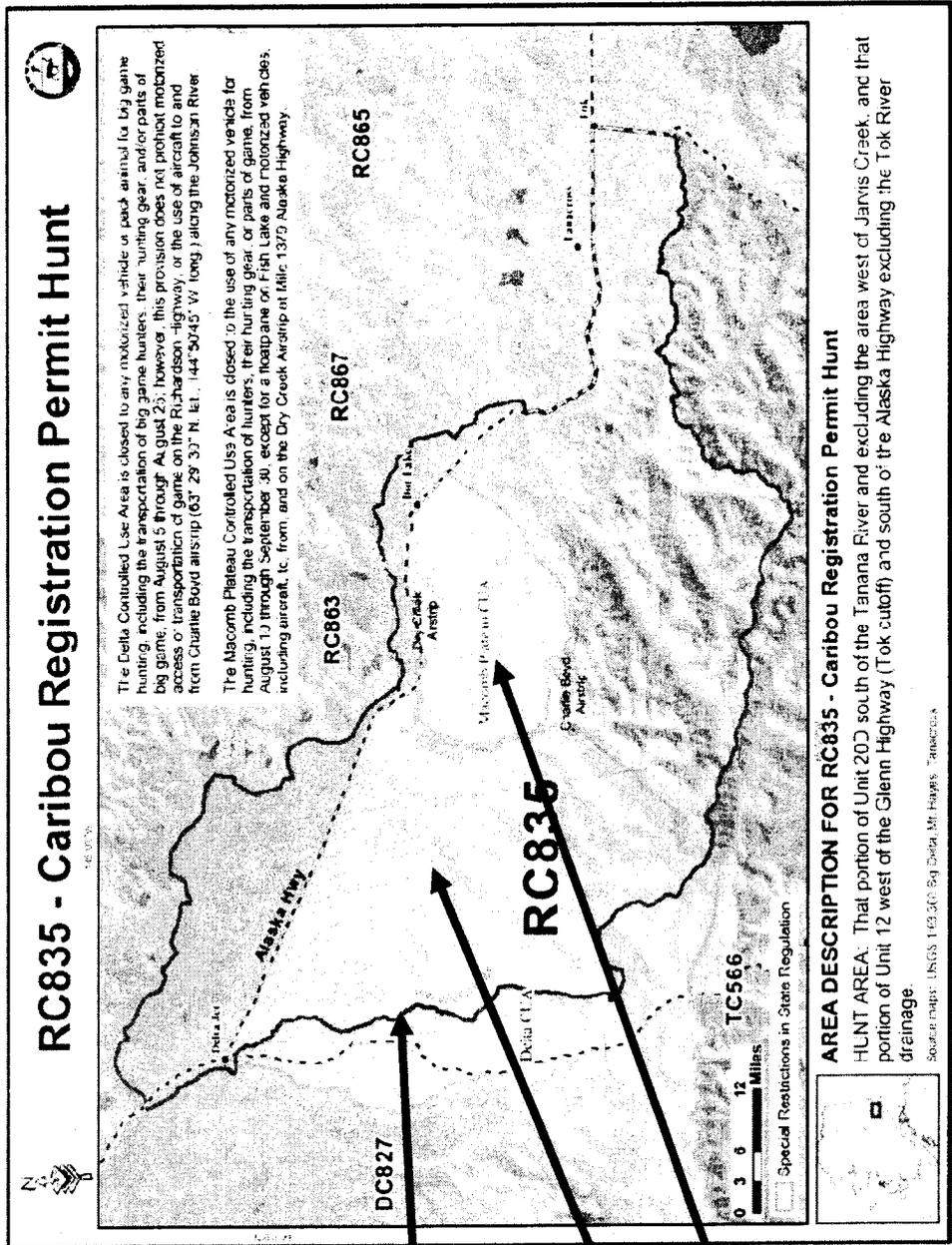
1 bull by registration
permit only; up to [50] 100
bulls may be taken in combination
with Unit 12 in that portion west
of the Glenn Highway (Tok
Cutoff) and south of the
Alaska Highway, excluding
the Tok River drainage.

No nonresident season

Aug. 10–Sept. 30

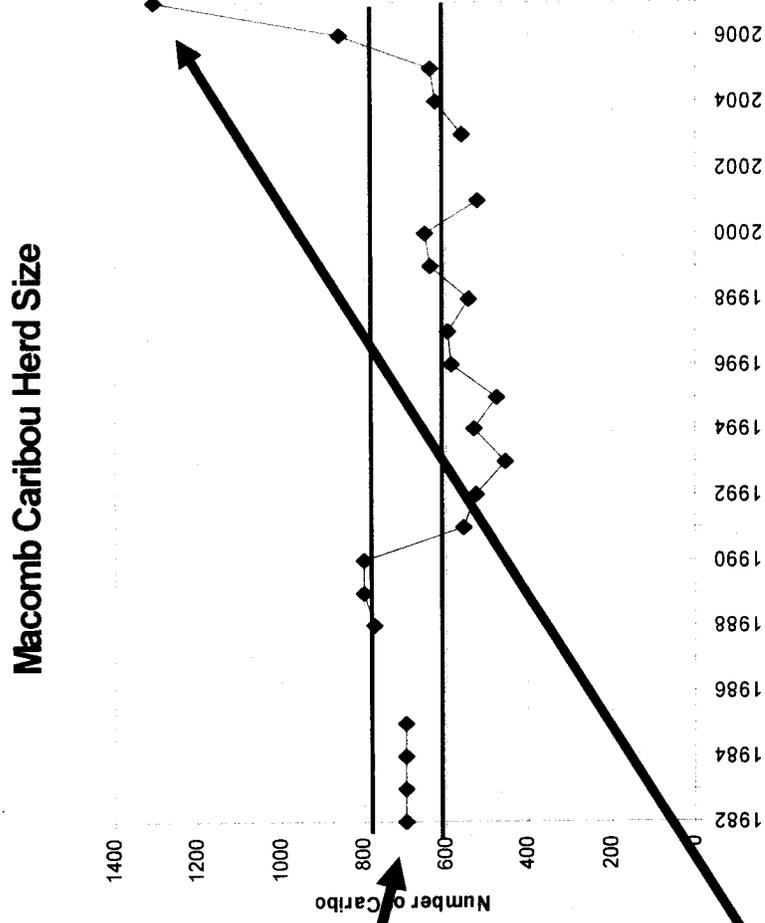
Proposal 22

- MCH hunt is RC835; Aug 10-25; registration permit
- Unit 20D S. of Tanana Rv, east Jarvis Ck & portion of Unit 12
- DCUA & MPCUA restrict motorized access



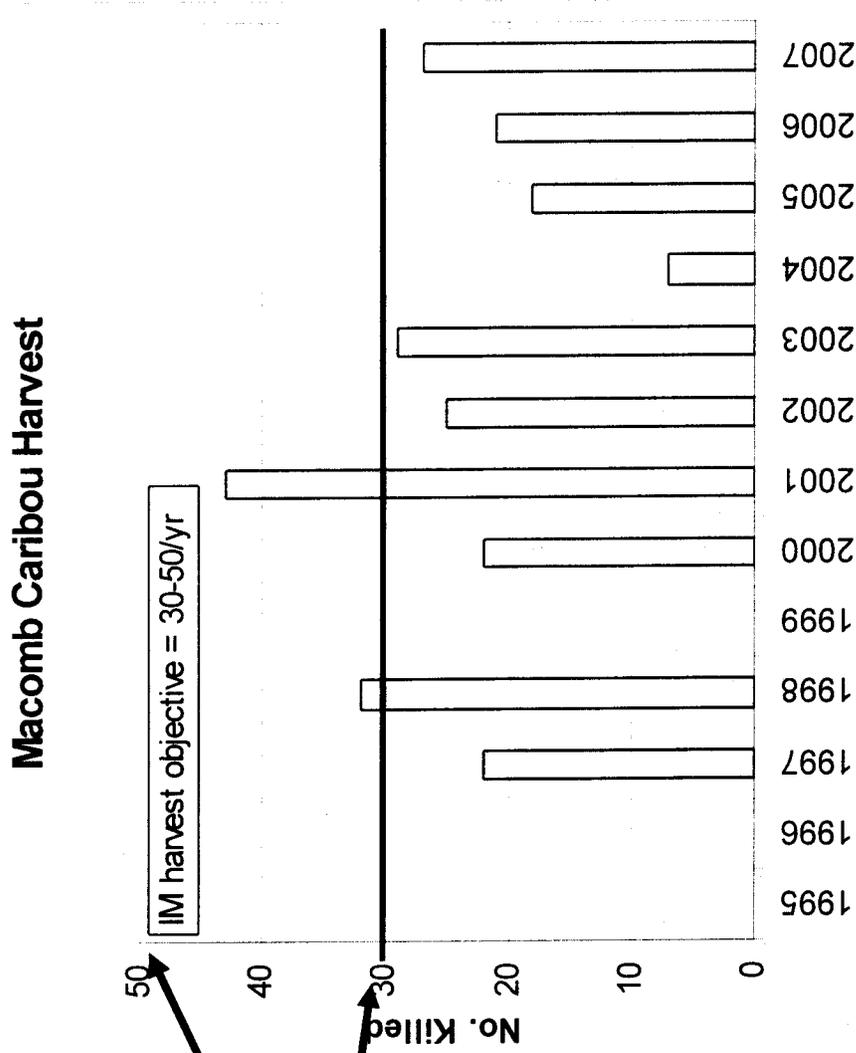
Proposal 22

- BOG set MCH population objective = 600-800
- Herd below obj from 1990-2005
- Fall 2007 population estimate = 1,305



Proposal 22

- **BOG set MCH harvest objective = 30-50/yr**
- **Positive C&T with ANS = 10-40**
- **Harvest below objective since 2002**



Proposal 22

- **Current regulations limit harvest to 50 caribou.**
- **If MCH population stays high for the next several years, it may be possible to harvest more than 50 caribou/yr**
- **This proposal will allow the flexibility to take additional bull caribou as appropriate**

Proposal 22

- **Current hunting season is Aug 10-25 by registration permit**
 - For 2008 will extend current registration permit hunt to Aug 10 - 27
- **Current hunt is basically nonmotorized in Unit 20D**
 - Aug 26-27 will allow motorized access from Richardson & Alaska Hwys for 2 days and I anticipate taking an additional 20-25 caribou in 2 days.

Proposal 22 Summary

- **MCH current season is 15 days, basically nonmotorized**
- **Herd size is above objective**
- **Harvest is below objective**
- **Will add 2 days of motorized hunting in 2008 for anticipated 20 – 25 additional caribou harvested**
- **Increasing allowable harvest to 100 will provide management flexibility in the future**

Proposal 22

- Questions?

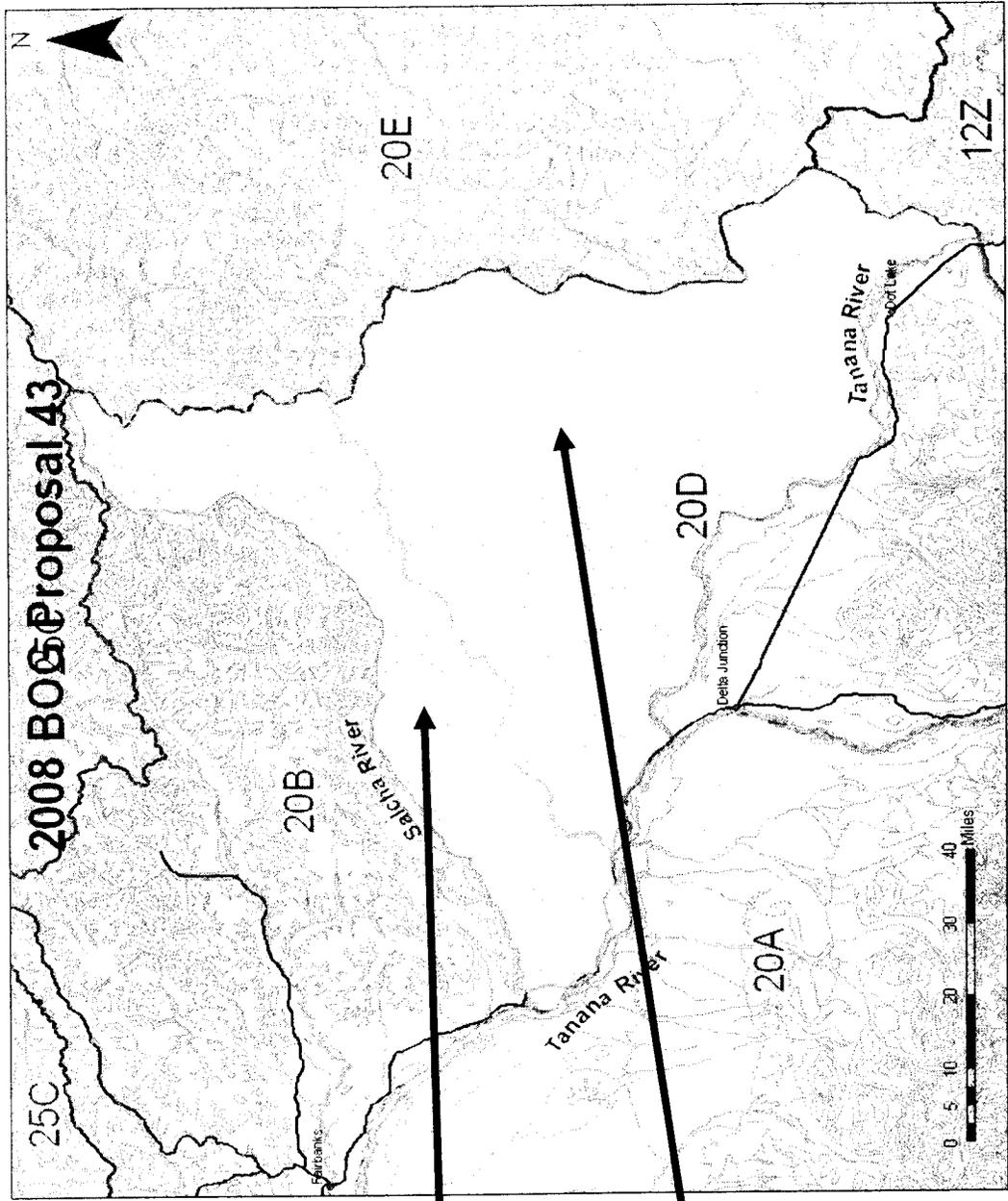
Proposal 43

- Proposal: Restrict airboat use until after 3:00 a.m. following the day of use between the Salcha and Tanana Rivers
- Submitted by: Delta AC
- Issue: Airboat use is increasing for hunting moose in previously inaccessible areas
- ADF&G Recommendation: No recommendation
- Rationale: Allocation issue

Proposal 43

- **Hunters may not hunt or assist someone hunting more than $\frac{1}{4}$ mile outside of navigable waters until after 3:00 a.m. following the day hunter traveled by airboat**
- **Does not affect jet boat, stern drive boat, paddle or float boat**

Proposal 43



- Proposed regulation boundary
- Unit 20B south of Salcha Rv
- Unit 20D north of Tanana Rv

Proposal 43

- Reported airboat use is currently light in this area
- Moose killed/yr by airboat hunters in last 3 years
 - 20B = 9 moose/yr by 24 hunters
 - 20D = 5 moose/yr by 7 hunters

Proposal 43

- Questions?

Proposal 44

- Proposal: Establish same day restrictions for hunters using motorized land vehicles off of established trails in Units 20A, 20D, & 20E
- Submitted by: Public
- Issue: Negative effects by unrestricted use of motorized land vehicles for hunting
- ADF&G Recommendation: No recommendation
- Rationale: Allocation issue

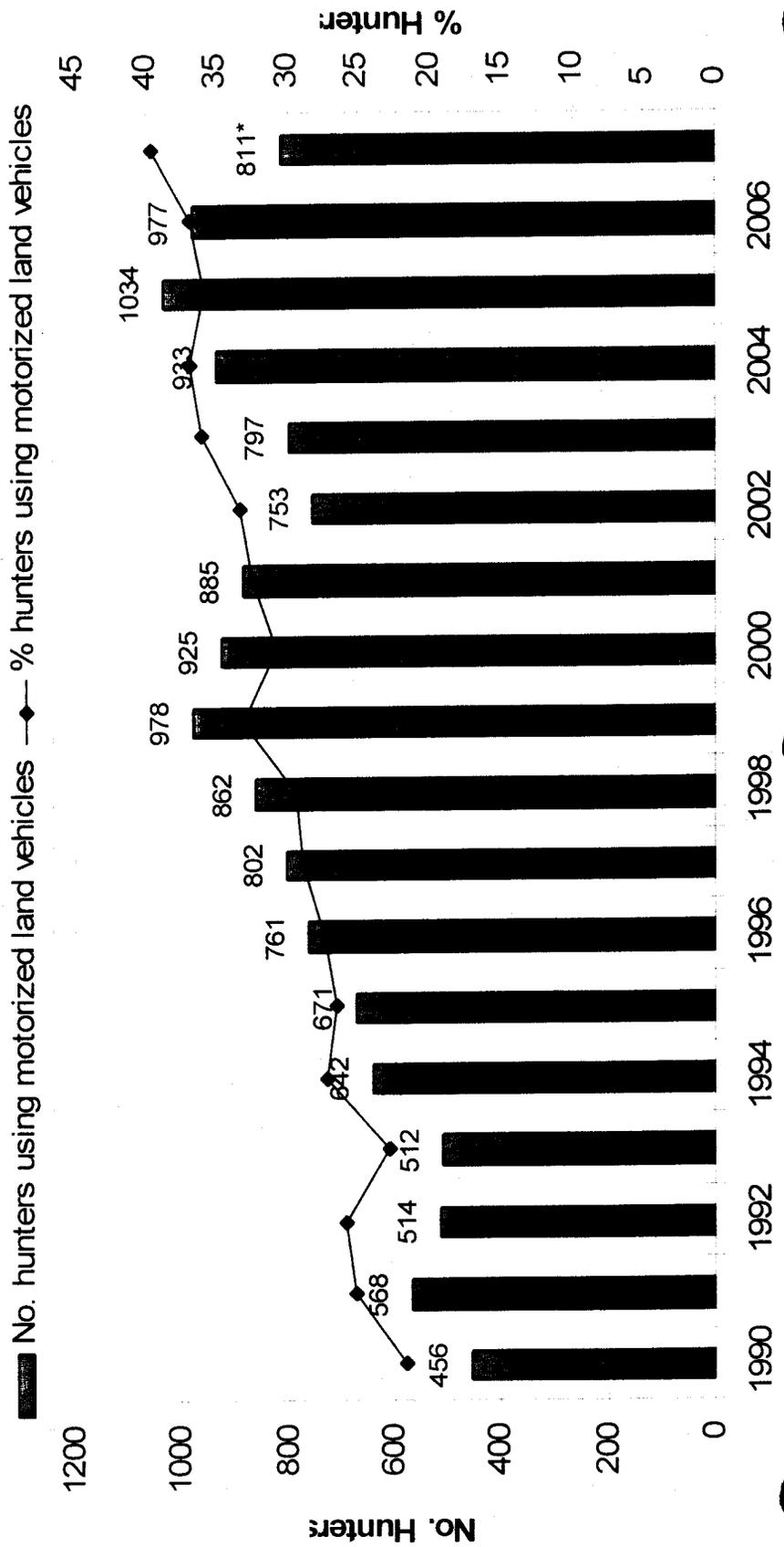
Proposal 44

- **Proposal is to restrict hunters from hunting big game until 3:00 a.m. of the day following riding a motorized land vehicle off an established trail above the normal high-water mark of any stream, from Aug 1-Sept 30.**
 - **“Established trail” is not defined**

Proposal 44

- Number and % of moose hunters using 3-4 wheelers and ATVs has increased substantially since 1990
- * 2007 data is preliminary

Number and % of Moose Hunters Using Motorized Land Vehicles for Hunting in Units 20A, D, and E; 1990-2007



Proposal 44 Summary

- **This proposal is to restrict motorized land vehicles for hunting “same day motorized” until after 3:00 a.m. of day traveled off established trails**
- **“Established trails” is not defined**
- **May be more appropriate to address these issues on a case by case basis rather than broadscale**

Proposal 44

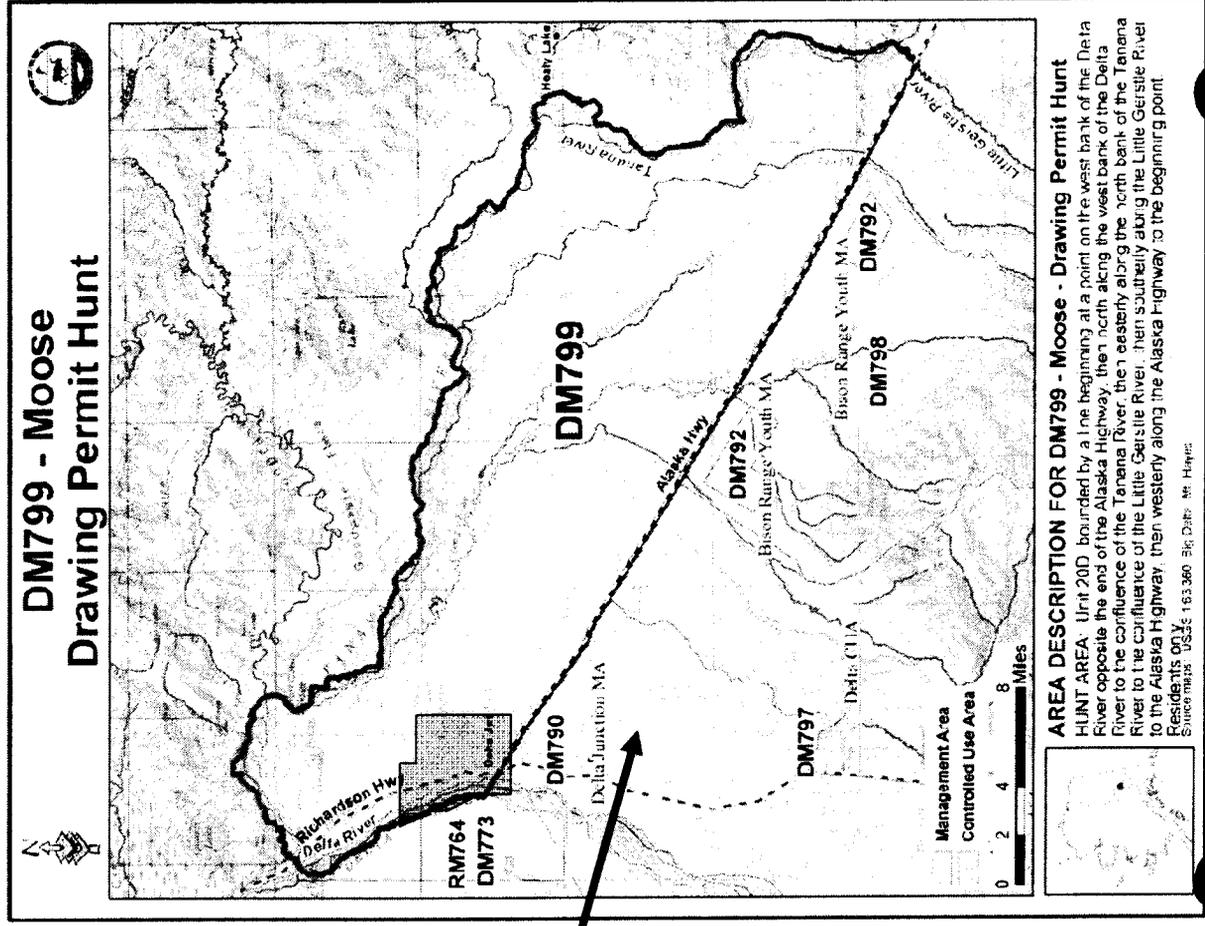
- Questions?

Proposal 45

- Proposal: Close the city limits of Delta Junction to big game hunting
- Submitted by: City of Delta Junction
- Issue: Public concerns that antlerless moose hunt DM799 creates a dangerous public safety situation
- ADF&G Recommendation: No recommendation
- Rationale: Public safety issue

Proposal 45

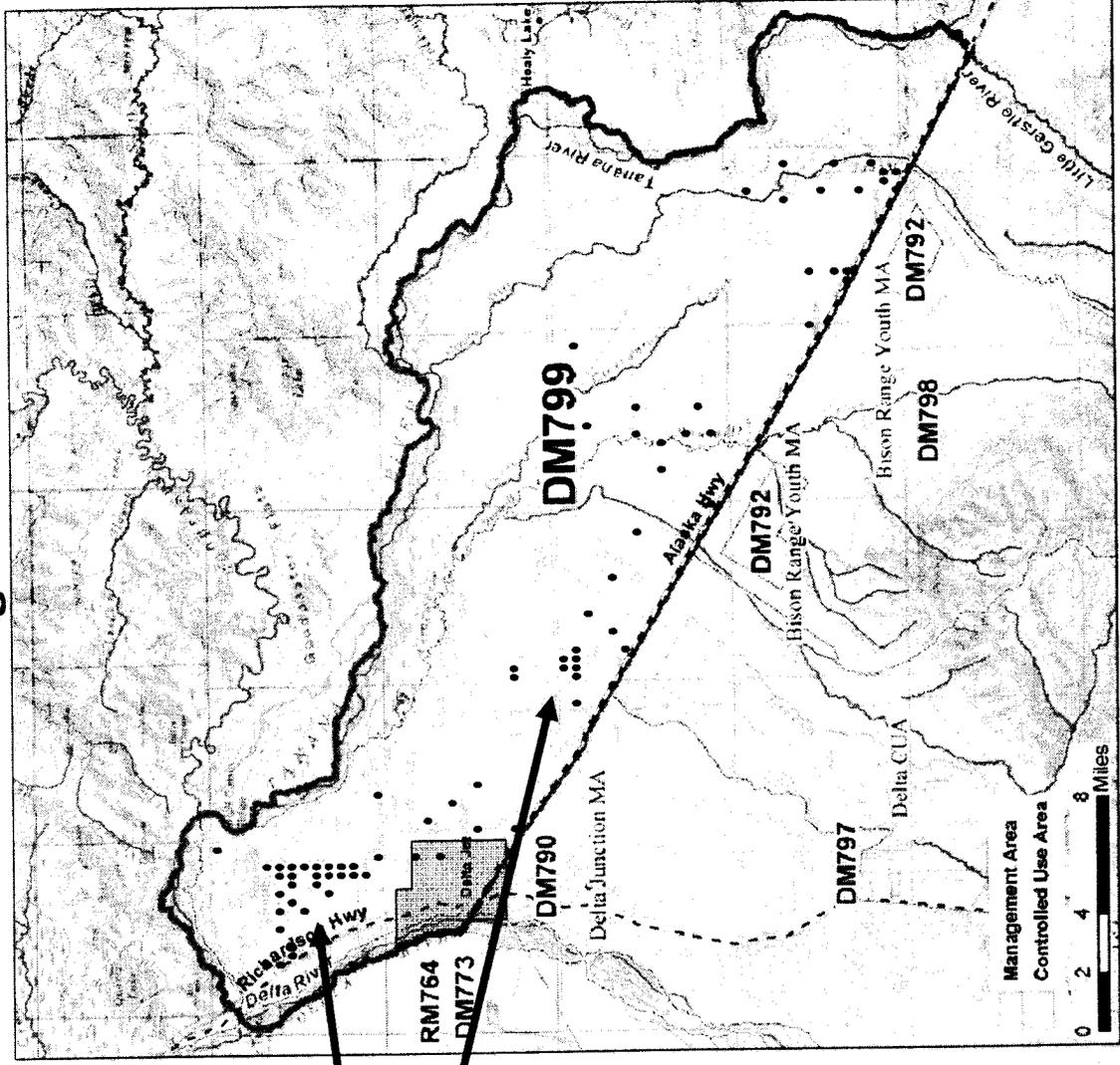
- **DJ city limits in red**
 - Human population ~950
 - Much of DM799 populated
- **Delta Junction Closed Area created in 1974**
- **DJCA changed to DJMA in 1996 & bull hunting by drawing permit**
- **Delta Junction city limits currently has 2 open moose seasons**
 - DM790 (DJMA)
 - Sept 1 – 15, 10 draw permits for SF50/4BT bull
- **DM799 (antlerless)**
 - Created 2007
 - 180 permits for cows w/o calves





Proposal 45

- In 2007, 91 antlerless moose killed in DM799
- ~1-2 killed inside city limits
- No DM790 bulls killed inside city limits



Proposal 45

- **City of Delta Junction has been reluctant to address concern by prohibiting discharge of firearms on principle and because they have no enforcement authority**
- **Closing the city limits to hunting via BOG will provide enforcement through Alaska Wildlife Troopers**
- **Closing city limits to hunting will have little overall reduction in moose hunting opportunity**
- **Public safety concern will go away when DM799 hunting stops**
- **Home ranges of most moose inside city limits probably extends outside of city limits and they would be available for hunting outside**

Proposal 45

- Closing the Delta Junction city limits to big game hunting will have a negative effect on control of bears in city limits, although the cities concern is with cow moose hunters
- Currently city residents can shoot nuisance bears with a hunting license or DLP
 - Bears killed annually in city limits is low (0 – 2)
- This regulation would make DLP only legal way to kill bears in the city limits

Proposal 45 Summary

- **City wants BOG to close big game hunting because of public safety concern with cow moose hunters**
- **Proposal is for all big game hunting**
- **Will complicate dealing with nuisance bears in the city limits**

● ● Proposal 45

● Questions?

Lagniappe



Proposal 35

• Fairbanks
Nonsubsistence Area

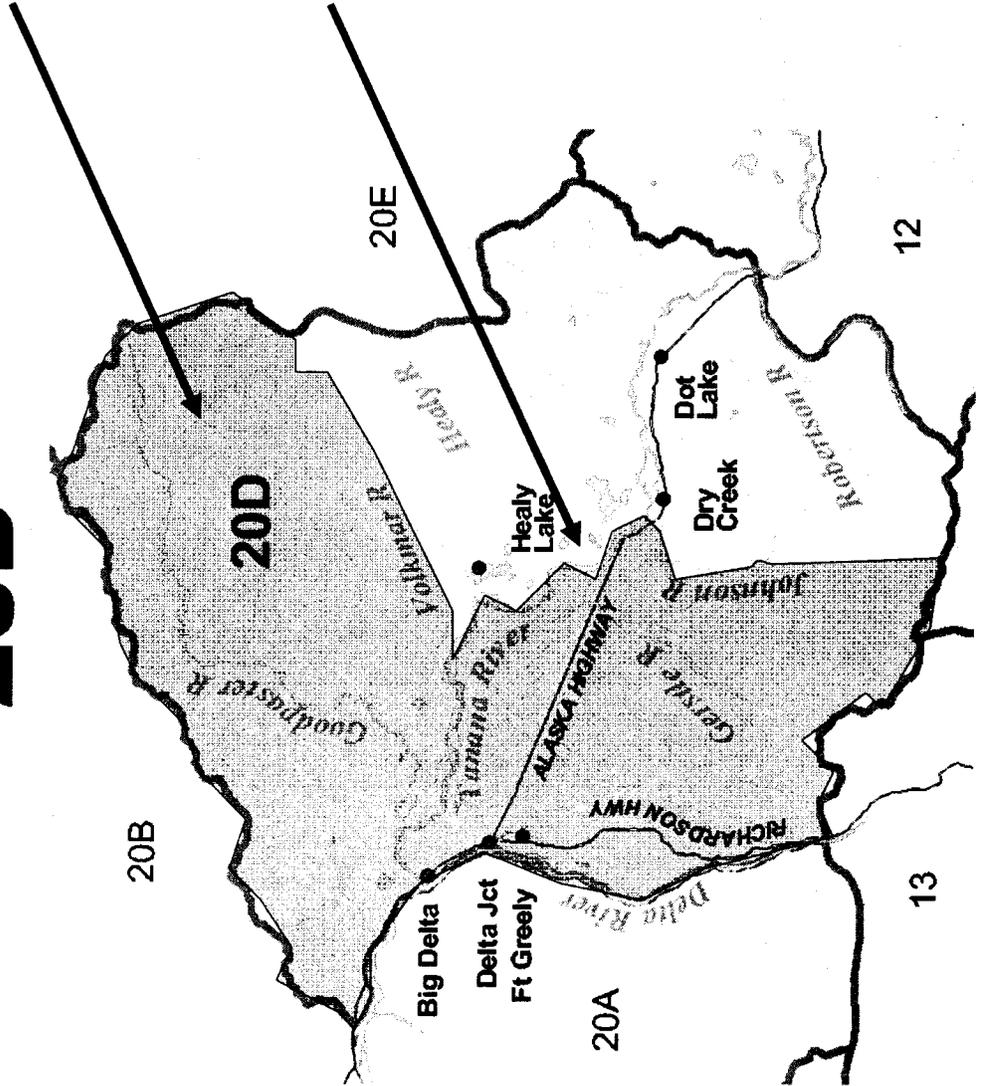
• North bank of
Tanana is boundary
of Fai.

Nonsubsistence Area

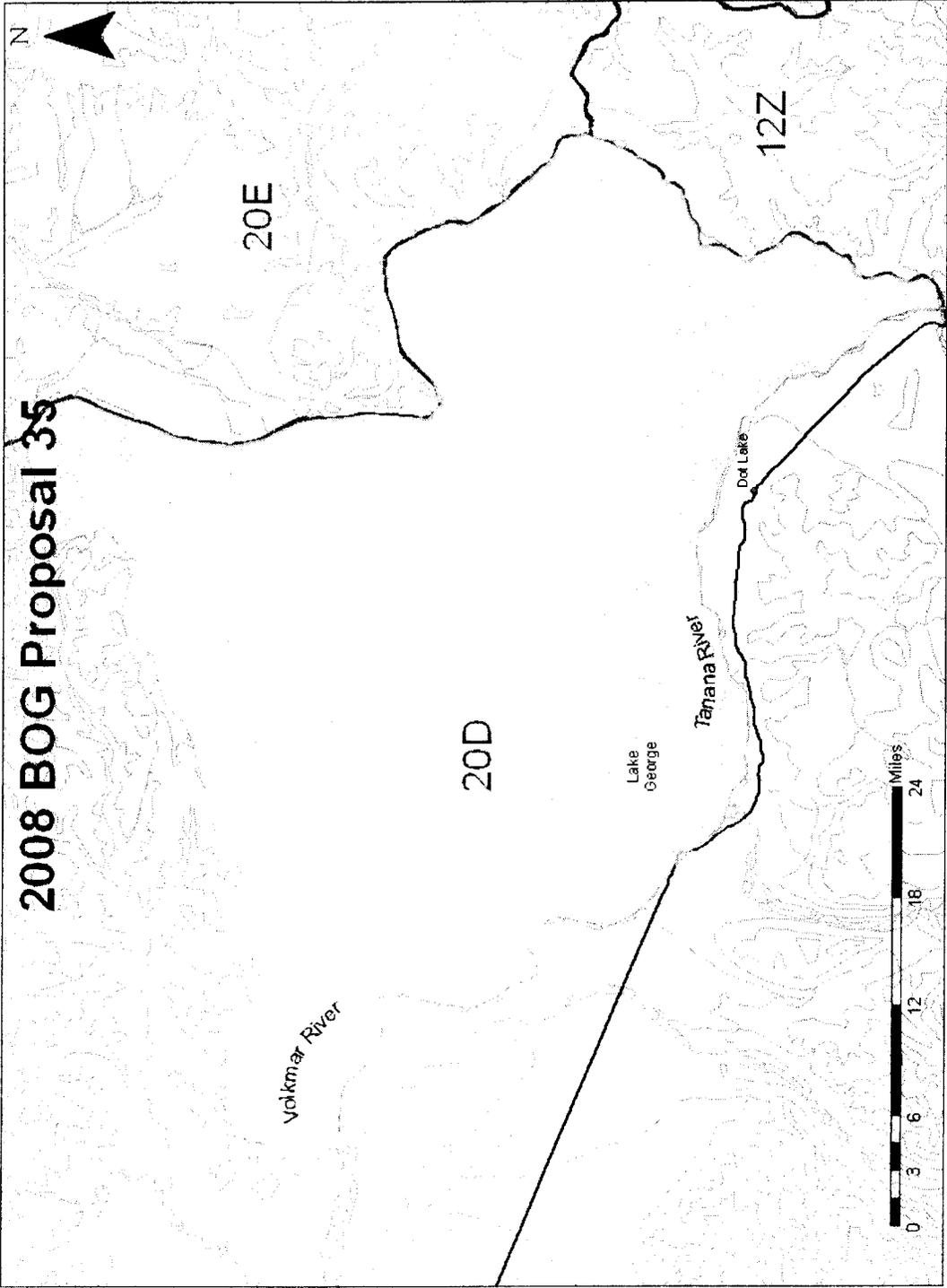
• Proposal 35 is south
bank of Tanana Rv
where adjacent to
FNA

• Amend proposal to
north bank of Tanana
Rv to align with
Fairbanks
Nonsubsistence Area

Game Management Unit 20D

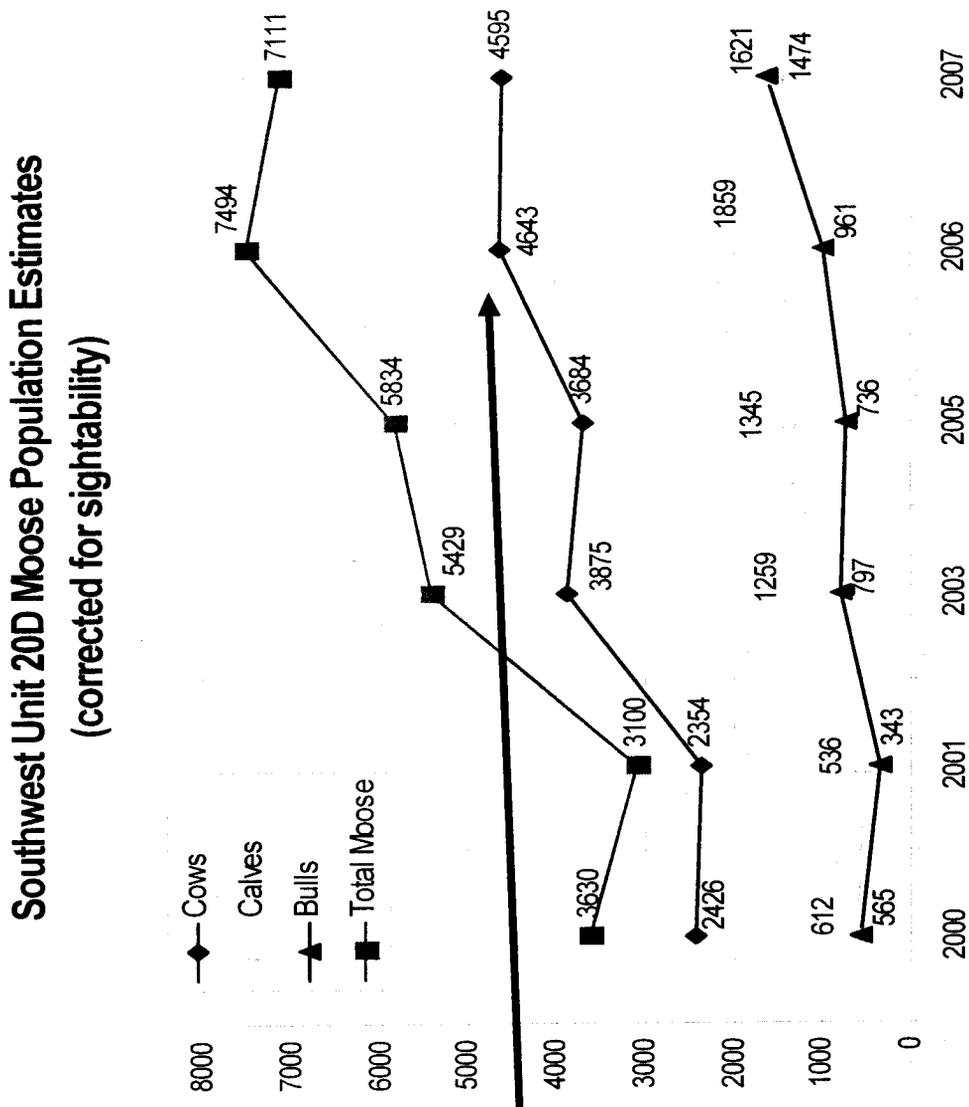


Proposal 35



Proposal 135

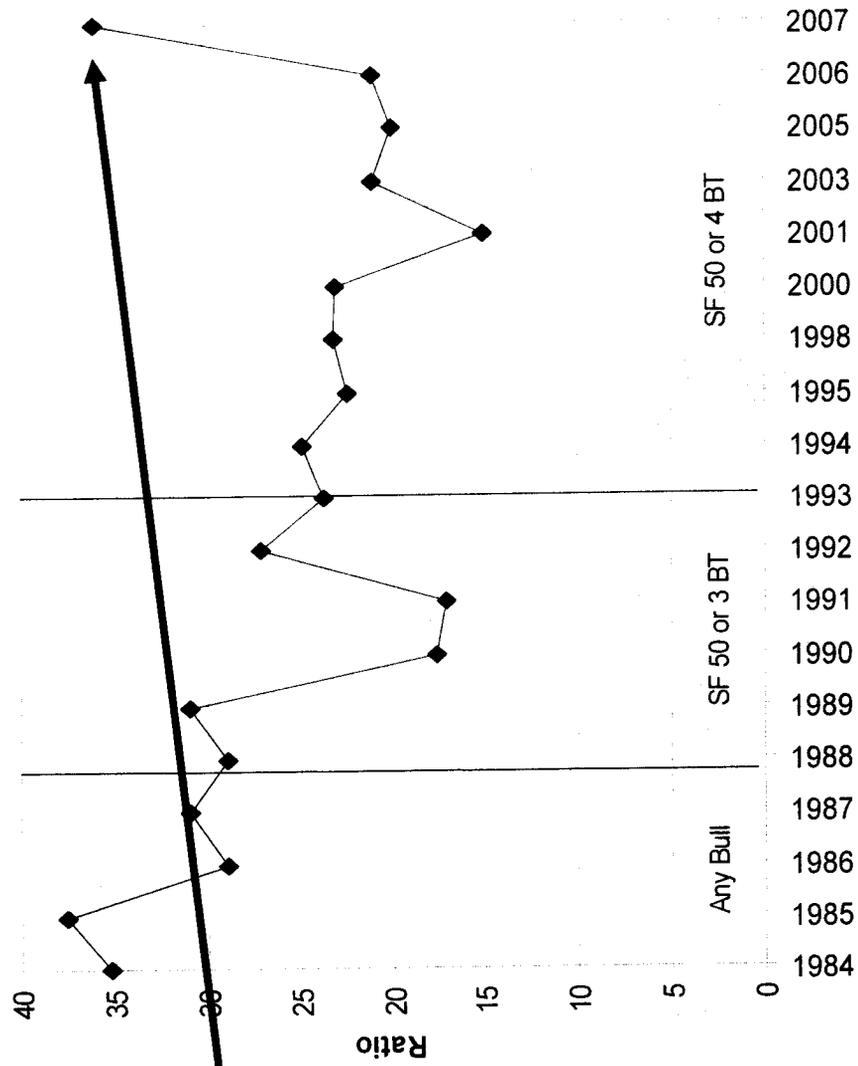
- After 2007 antlerless hunt in SW 20D, population growth stabilized primarily in cow segment of population



Proposal 135

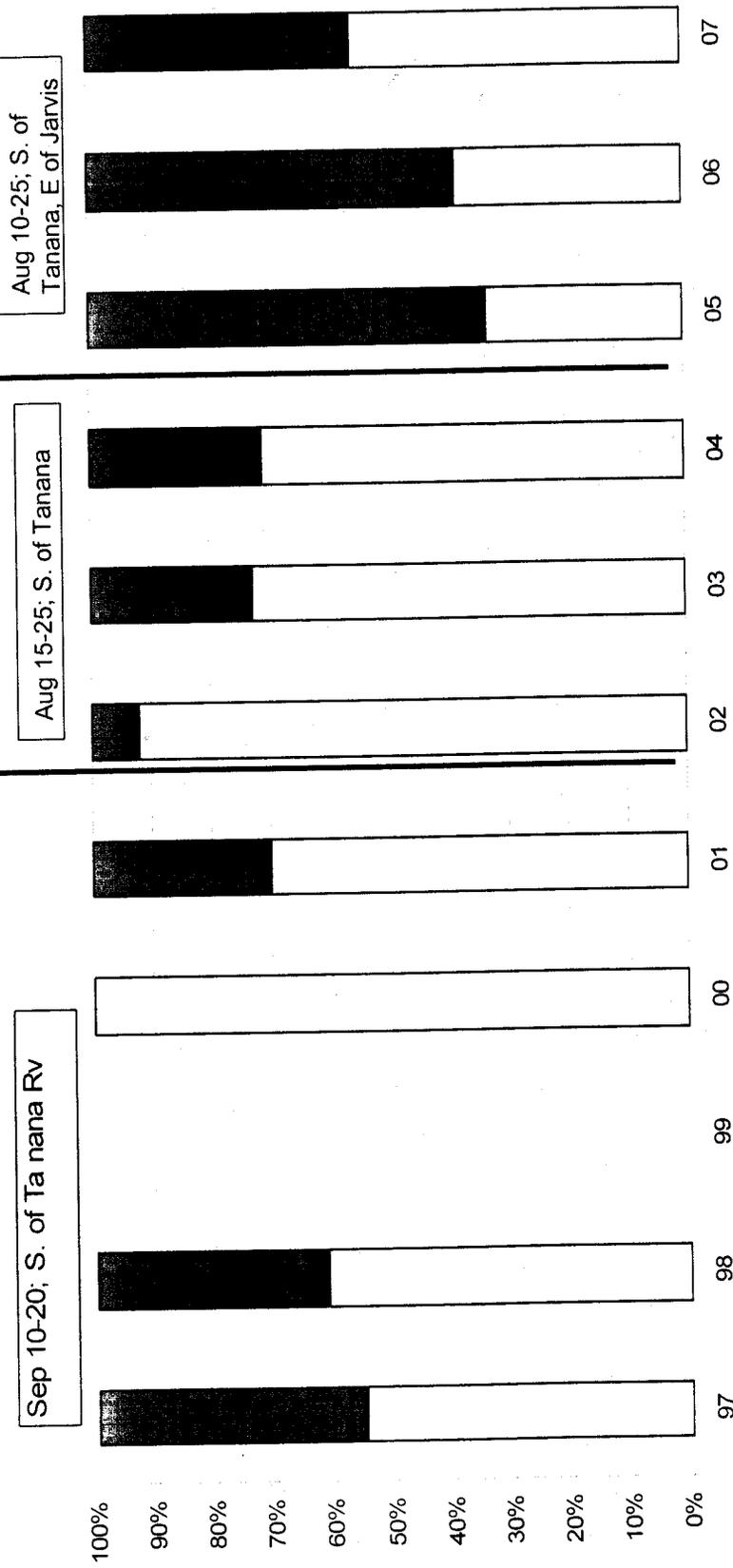
- After the 2007 antlerless hunt SW 20D bull:cow ratio increases to 36 bull:100 cows

RATIO OF BULLS:100 COWS IN SW 20D



Proposal 22

% of Macomb Caribou Killed by Registration Permit Hunts vs East of the Johnson River



- Most of harvest has shifted to east of Johnson Rv with boundary change to E of Jarvis Ck
- Adding Aug 26 - 27 will allow additional motorized opportunity west of Johnson Rv

RC125

PROPOSAL 135 - 5AAC 85.045(a)(18). HUNTING SEASONS AND BAG LIMITS FOR MOOSE. Reauthorize the antlerless moose hunting season in Unit 20D, create an antlerless registration hunt in the same area.

5 AAC 85.045. Hunting seasons and bag limits for moose. (a) ...

Units and Bag Limits	Resident Open Season (Subsistence and General Hunts)	Nonresident Open Season
-----------------------------	---	------------------------------------

...

(18)

...

Unit 20(D), that portion lying west of the west bank of the Johnson River and south of the north bank of the Tanana River, except the Delta Junction Management Area and the Bison Range Youth Hunt Management Area

RESIDENT HUNTERS:

1 bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on one side; or

Sept. 1–Sept. 15
(General Hunt Only)

1 bull by drawing permit;
or;

Sept. 1–Sept. 15
(General Hunt Only)

1 antlerless moose by drawing permit only; up to 1,000 permits may be issued in combination with that portion in the Delta Junction Management Area; a person may not take a calf or a cow accompanied by a calf, **or;**

Oct. 10 – Nov. 25
(General Hunt Only)

1 antlerless moose by registration permit only;
a person may not take a calf or a cow accompanied by a calf

Oct. 10 – Nov. 25
(General Hunt Only)

NONRESIDENT HUNTERS:

1 bull with 50-inch antlers or antlers with 4 or more brow tines on one side

Sept. 5–Sept. 15

Unit 20(D), that portion within the Bison Range Youth Hunt Management Area

1 bull, with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on one side; or 1 antlerless moose, per lifetime of a hunter, by drawing permit only; up to 10 permits may be issued; a person may not take a calf or a cow accompanied by a calf

Sept. 1 – Sept. 30
(General Hunt Only)

Sept. 1 – Sept. 30

Unit 20(D), that portion within the Delta Junction Management Area

RESIDENT HUNTERS:

1 bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on one side by drawing permit only; up to 30 permits may be issued; **or**

Sept. 1 – Sept. 15
(General Hunt Only)

1 antlerless moose by drawing permit only; up to 1,000 permits may be issued in combination with that portion lying west of the west bank of the Johnson River and south of the north bank of the Tanana River; a person may not take a calf or a cow accompanied by a calf **or;**

Oct. 10 – Nov. 25
(General Hunt Only)

1 antlerless moose by registration permit only;
a person may not take a calf or a cow accompanied by a calf

Oct. 10 – Nov. 25
(General Hunt Only)

NONRESIDENT HUNTERS:
1 bull with 50-inch antlers or

Sept. 5–Sept. 15

antlers with 4 or more brow
tines on one side by drawing
permit only; up to 30 permits
may be issued

...

ISSUE: Antlerless moose hunting seasons must be reauthorized annually. Reauthorization of a limited drawing permit for cow moose without calves is proposed in order to begin stabilizing population growth in this area, and increase harvest toward the intensive management harvest objective. The density of moose in Unit 20D south of the Tanana River and west of the Johnson River is high, about 5.6 moose/mi² in 2006. The Unit 20D moose population has reached its intensive management population objective of 8,000 to 10,000, with most population growth and highest densities occurring in this southwestern portion of Unit 20D. The moose population in this area is increasingly demonstrating the effects of increased competition for food; e.g. twinning rates are at moderately low levels of 21%. Also, browse surveys indicate that moose are consuming moderately high quantities (25%) of available browse over the winter. Unit 20D antlerless moose hunts should be conducted as drawing permit hunts in road accessible areas. However, it would be advantageous to have the option of establishing registration permits hunts in the more remote, roadless areas where moose browsing pressure is greatest, and to direct hunting pressure there through the incentive of a registration permit.

Changing the opening date of the antlerless moose hunting season from October 1 to October 10 moves the hunting pressure out of the peak of rutting activity. Changing the closing date of the hunt from November 15 to November 25 replaces the 10 days that were removed from the beginning of the season.

Harvesting cow moose from the southwest Unit 20D moose population may result in the bull:cow ratio increasing. Interim Unit 20D moose harvest guidelines recommend liberalizing bull harvest if the bull:cow ratio exceeds 30 bull:100 cows for 2 consecutive years. Providing a drawing permit hunt for 1 bull will provide additional hunting opportunity for bull moose without resulting in an over harvest of bull moose.

Adding the term "general hunt only" to the resident season hunts is a housekeeping correction. All hunts in nonsubsistence areas, such as this portion of Unit 20D, should include this language to designate them as nonsubsistence hunts. This designation was inadvertently left out of the codified language.

WHAT WILL HAPPEN IF NOTHING IS DONE? The moose population in southwest Unit 20D will continue to increase in size and may over browse its habitat, and the Unit 20D intensive management harvest objective will not be met.

WILL THE QUALITY OF THE RESOURCE HARVESTED OR PRODUCTS PRODUCED BE IMPROVED? Passage and implementation of this proposal will improve the ability of moose habitat in southwest Unit 20D to support the current moose population. It will also allow hunters to increase moose harvest toward meeting the Unit 20D intensive management harvest objective without further reducing the bull-to-cow ratio.

WHO IS LIKELY TO BENEFIT? The moose population will benefit by having a moose density compatible with their habitat. Moose hunters will benefit by increasing harvest of moose from this area to meet the harvest objective.

WHO IS LIKELY TO SUFFER? Those people who are opposed to intensive management harvest strategies.

OTHER SOLUTIONS CONSIDERED? No antlerless permits or more antlerless permits.

PROPOSED BY: Alaska Department of Fish and Game

(HQ-08S-G-)

RC126

PROPOSAL 35 – 5 AAC 95.045. Hunting seasons and bag limits for moose. Extend the moose season in Unit 20D as follows:

Units and Bag Limits	Resident Open Season (Subsistence and General Hunts)	Nonresident Open Season
<p>...</p> <p>Unit 20 (D), that portion lying south of the north bank of the Tanana River and east of the west bank of the Johnson River, except that portion within the Robertson River drainage south of the confluence of the east and west forks, and within one mile west of the west fork</p>	Sept. 1 – Sept 15	No open season
<p>Unit 20 (D), that portion within the Robertson River drainage south of the confluence of the east and west forks, and within one mile west of the west fork</p>	Sept. 1 – Sept. 15	Sept. 5 – Sept. 15
<p>RESIDENT HUNTERS: 1 bull</p>	Sept. 1 – Sept. 15	Sept. 5 – Sept. 15
<p>NONRESIDENT HUNTERS: 1 bull with 50-inch antlers or antlers with 4 or more brow tines on one side</p>	Sept. 1 – Sept. 15	Sept. 5 – Sept. 15
<p>Unit 20 (D), that portion lying west of the west bank of the Johnson River and south of the north bank of the Tanana River, except the Delta Junction Management Area and the Bison Range Youth Hunt Management Area</p>	Sept. 1 – Sept. 15	Sept. 5 – Sept. 15
<p>RESIDENT HUNTERS 1 bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on one side; or</p>	Sept. 1 – Sept. 15	Sept. 5 – Sept. 15

1 antlerless moose by drawing permit only, up to 1,000 permits may be issued in combination with that portion in the Delta Junction Management Area; a person may not take a calf or a cow accompanied by a calf

Oct. 1 – Nov. 15

NONRESIDENT HUNTERS:
1 bull with 50-inch antlers or antlers with 4 or more brow tines on one side

Sept. 5 – Sept. 15

Unit 20 (D), that portion within the Bison Range Youth Hunt Management Area

Sept. 1 – Sept. 30

Sept. 1 – Sept. 30

1 bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on one side; or 1 antlerless moose, per life-time of a hunter, by drawing permit only; up to 10 permits may be issued; a person may not take a calf or a cow accompanied by a calf

Unit 20 (D), that portion within the Delta Junction Management Area

RESIDENT HUNTERS
1 bull with spike-fork or 50-inch antlers or antlers with 4 or more brow tines on one side by drawing permit only; up to 30 permits may be issued; or

Sept. 1 – Sept. 15

1 antlerless moose by drawing permit only; up to 1,000 permits may be issued in combination with that portion lying west of the west bank of the Johnson River and south of the north bank of the Tanana River; a person may not take a calf or a cow accompanied by a calf

Oct. 1 – Nov. 15

NONRESIDENT HUNTERS:
1 bull with 50-inch antlers or antlers with 4 or more brow tines on one side by drawing permit

Sept. 5 – Sept. 15

only; up to 30 permits may be issued

Unit 20 (D), that portion within the
Healy River drainage

RESIDENT HUNTERS

1 spike-fork bull or
1 bull

Aug. 15 – Aug. 28
Sept. 1 – Sept. 15

NONRESIDENT HUNTERS

1 bull

Sept. 1 – Sept. 15

**Unit 20 (D), that portion lying
north of the north bank of the
Tanana River and draining into
the Volkmar River east to include
the Billy Creek drainage**

Sept 1 – Sept 20

Sept. 1 – Sept 20

Remainder of Unit 20 (D)
1 bull

Sept. 1 – Sept 15

Sept. 1 – Sept. 15

RC1 ~~127~~
127

Alaska Board of Game
P. O. Box 115526
Juneau, Alaska 99811-5526

February 26, 2008

To whom it may concern.

RECEIVED

MAR 03 2008

BOARDS

Does a season on full curled rams select for small-horned rams?

Horn-growth is expressed maximally under exceptionally favorable food conditions, when rams grow to their genetic maximum in body size. Then and only then is the length of the horn a function of heredity. That is, differences in horn-size then relate to habitability of horn length, and the horn length reflects the true genetic potential for horn growth by each ram.

Note: do you have Dall's rams of maximum genetic size (300 pounds and up), anywhere on your mountains?

If not, if your rams run about 180-220 lbs then the size of the ram's horns is disconnected from its genetics for horn-size. Horn size is very sensitive to environment and not very sensitive to heredity. Consequently, in rams of average body mass horn growth has little relationship to its genetics. Maximum horn size then is a function of a few good summers plus the good luck of not being killed by predators or an accident.

Moreover, rams from different home range groups of females are likely to be discrepant for horn growth, because phenotypic development of sheep differs for different female home range groups. When rams born and raised in different home range groups mix in ram groups, as they do, a ram with rapid horn growth may be inferior genetically in horn growth to ram originating in another home range group with poorer body development. An understanding of gene/environment interaction is mandatory for understanding the shaping of any organ by natural (or artificial!) selection.

The beanbag approach to genetics is flawed!

To minimize any possibility of hunters selecting against horn size, the best strategy is to harvest a fraction of the full curled rams, while keeping a tab on both, the average size of horns in rams taken by hunters as well as the average age. Both functions should be more or less constant.

Longstanding trial and error management for large antler size has shown that removing all large-antlered males leads to an exhaustion of young males and subsequently to a significant decrease in their body and horn growth. We have some evidence that this also happens to rams.

The fraction of full-curl rams can be determined accurately only when the old rams have moved to their rutting areas. Timing here is crucial as the old rams are the last to move to female ranges to breed and are the first to depart. This is not a task for quick judgment from a rapidly moving helicopter over rapidly moving sheep! Accurate methods of census are crucial.

You have in the past with the full curl rule harvested only a fraction of the legal rams – as it should be!

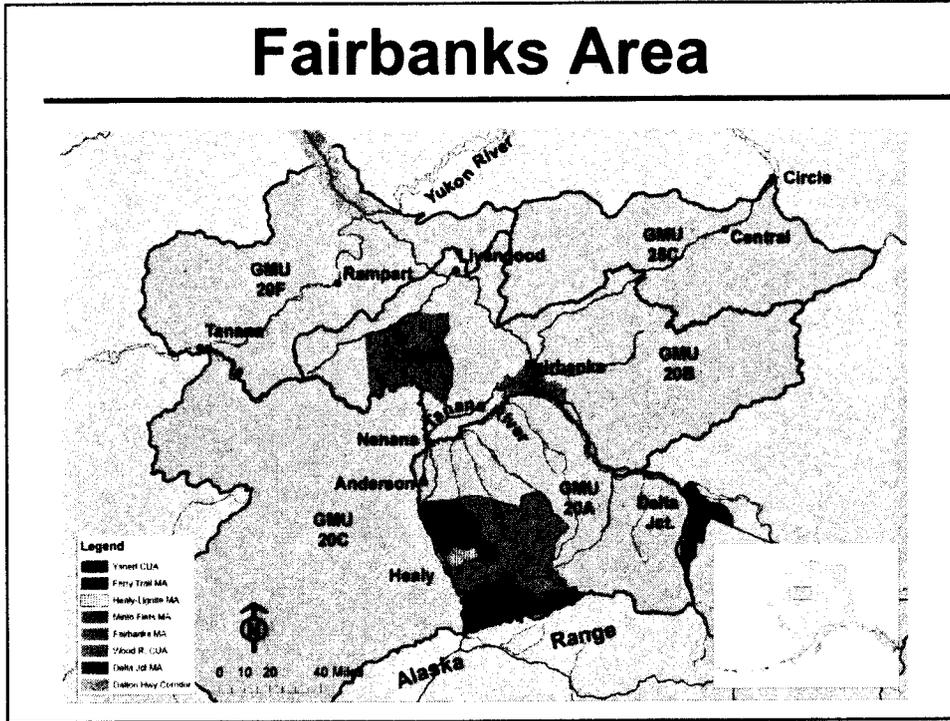
The fear, that taking a large fraction of full curled rams will diminish horn growth potential, is well meaning, but unfounded. It would be a different matter if rams were severely harvested at the $\frac{3}{4}$ curl stage

Sincerely,

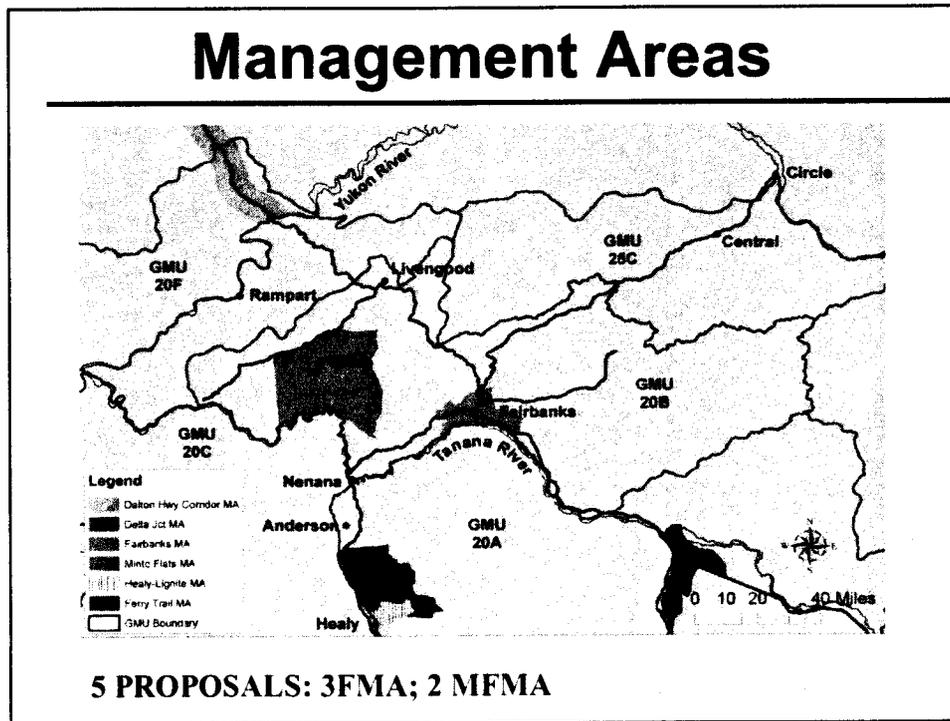


Valerius Geist PhD., P. Biol.
Professor Emeritus of Environmental Science
The University of Calgary
kendulf@shaw.ca
250-723-7436

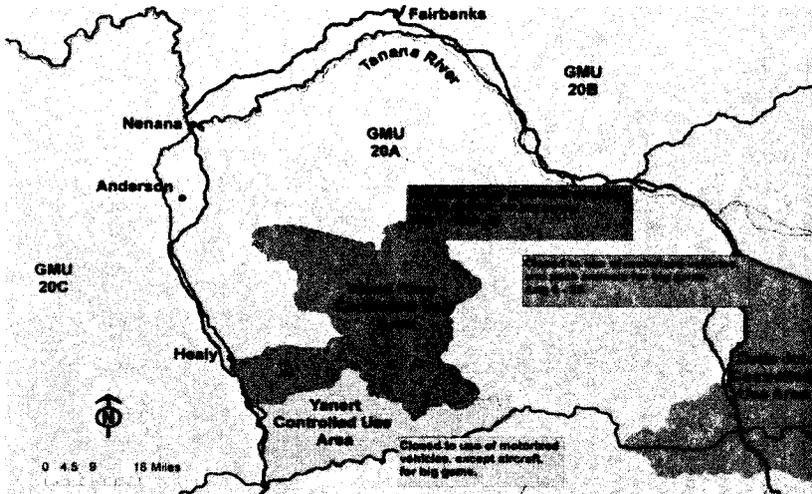
Fairbanks Area



Management Areas

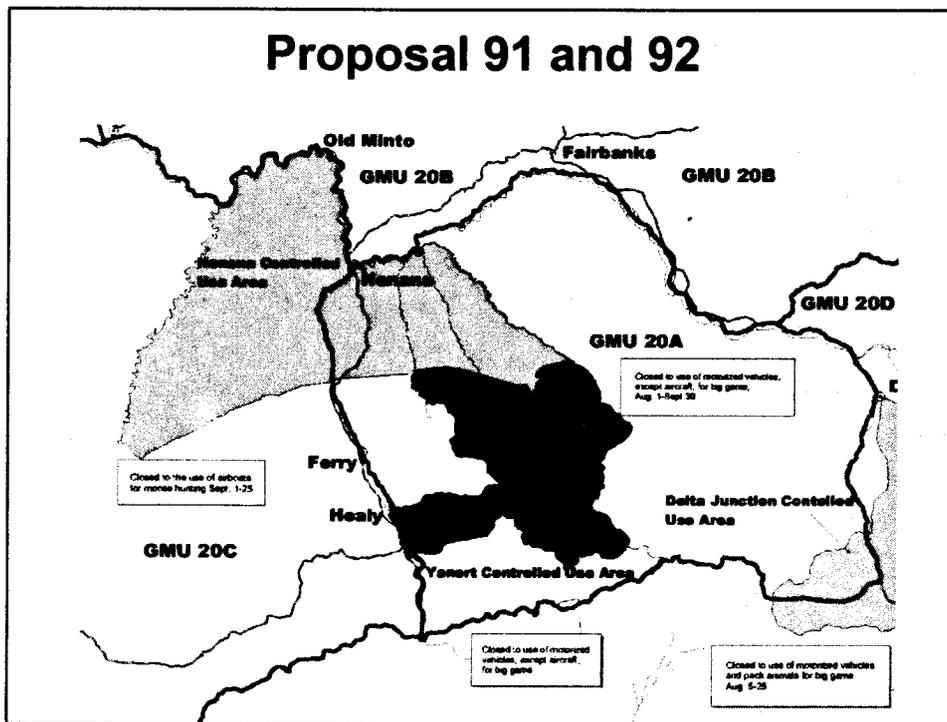


Controlled Use Areas

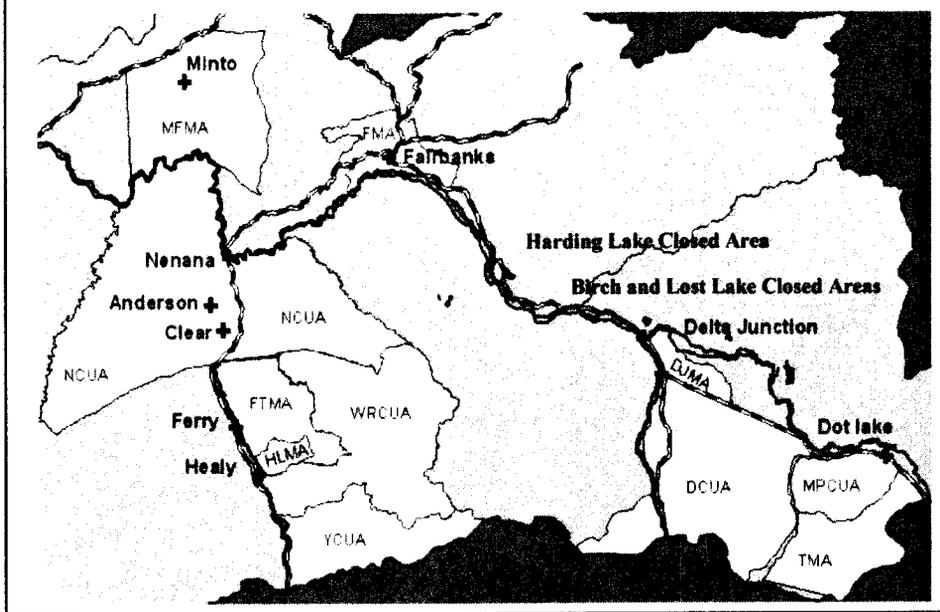


5 PROPOSALS: 2 WRCUA; 2 reinstate NCUA; 1 DCCUA

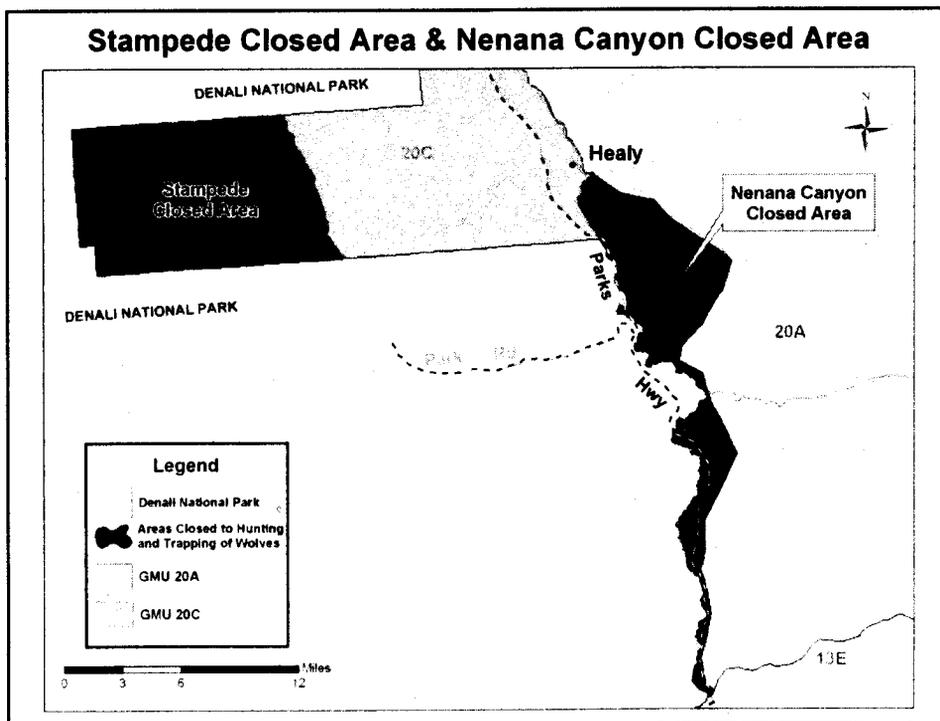
Proposal 91 and 92

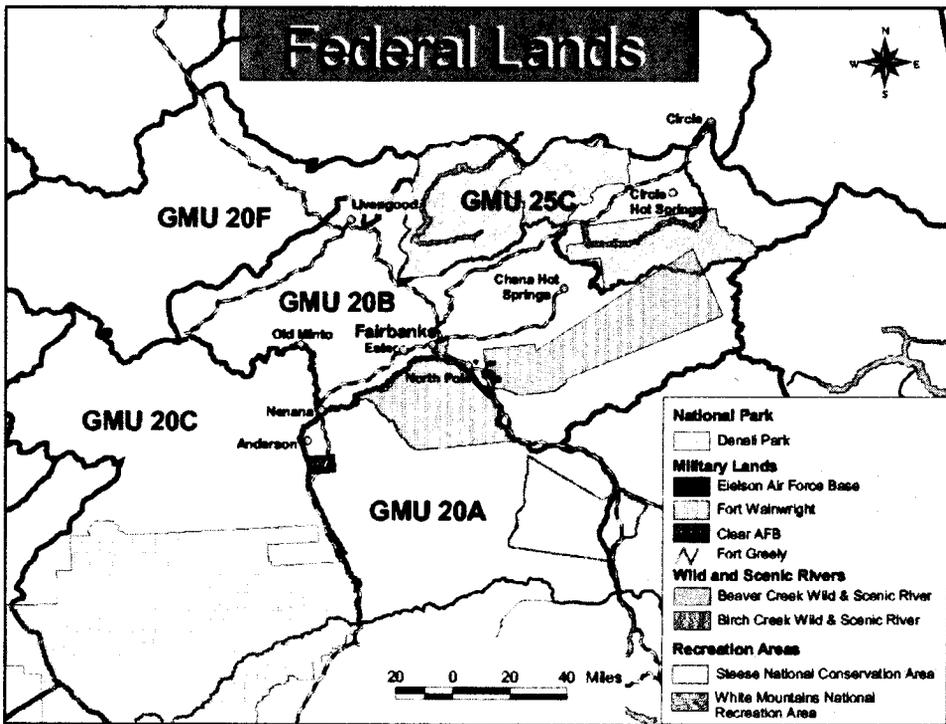
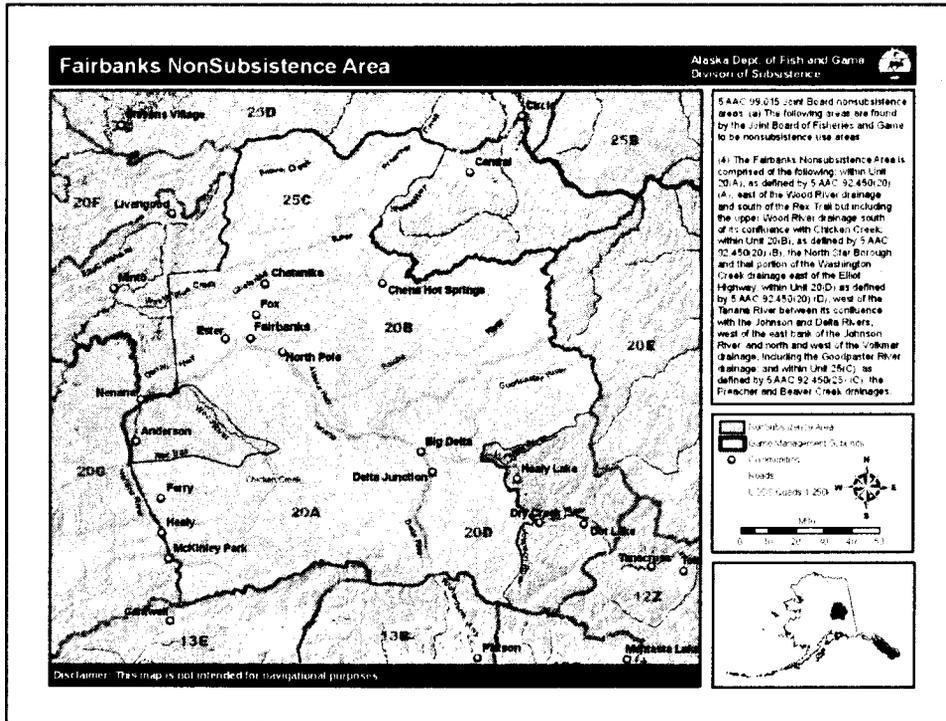


Harding Lake, Birch Lake and Lost Lake Closed Areas



Stampede Closed Area & Nenana Canyon Closed Area

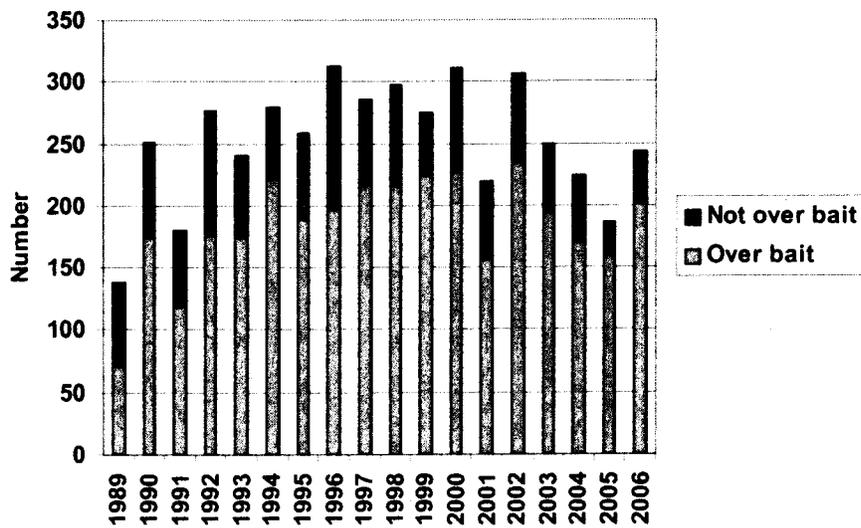




Black Bear

- Common in all units
- Issues:
 - Slight declines in effort/harvest
- No proposals

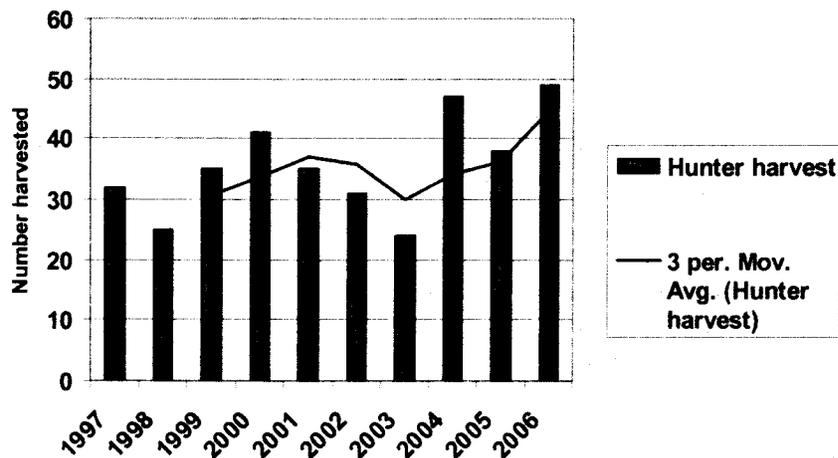
Reported black bear harvest, Fairbanks Area,
1989-2006

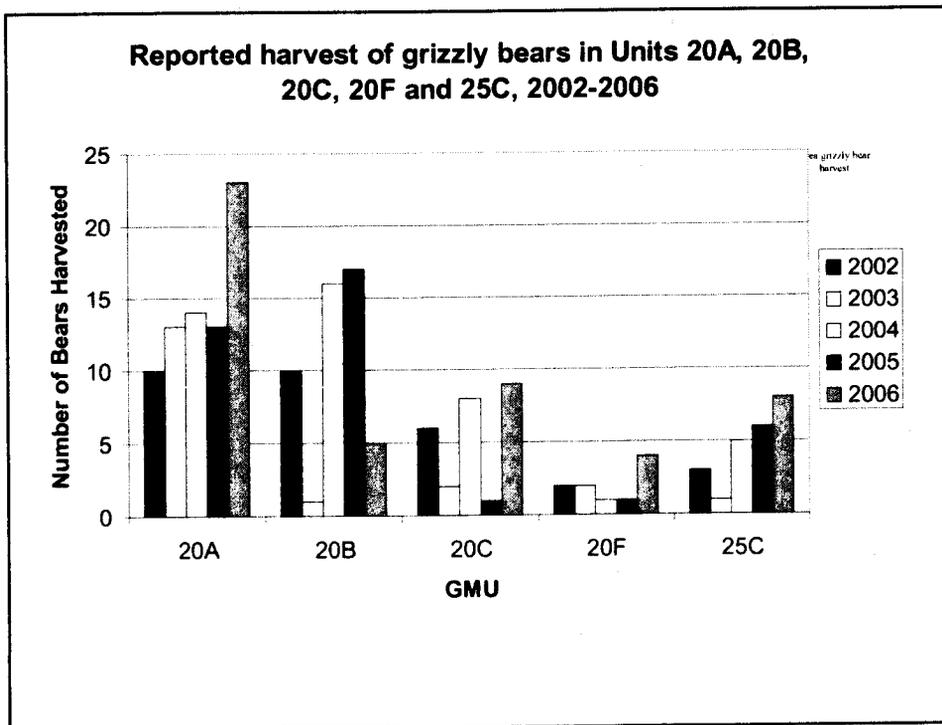
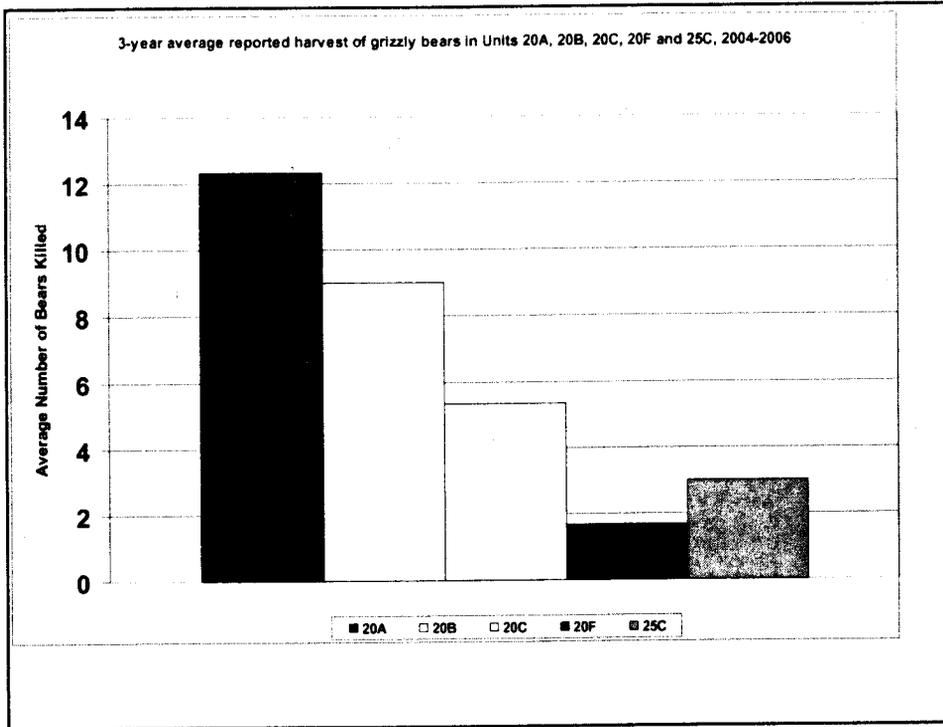


Brown Bear

- Found in all units
- Highest densities Alaska Range (Units 20A and 20C)
- Issues:
 - Potential overharvest in Units 20A and 20B due to high moose hunter densities and recently high DLP take in 20B
 - Tag fee exemptions
- 2 proposals: GMU 20B baiting

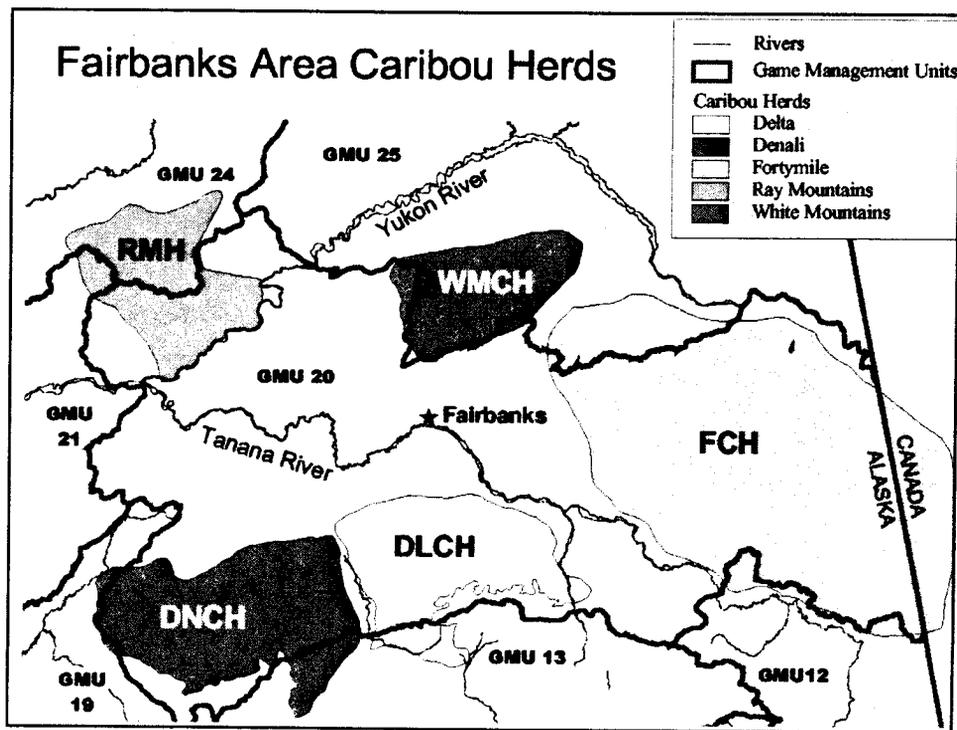
Reported grizzly bear harvest in GMU's 20A, 20B, 20C, 20F and 25C, regulatory years 1997-2006

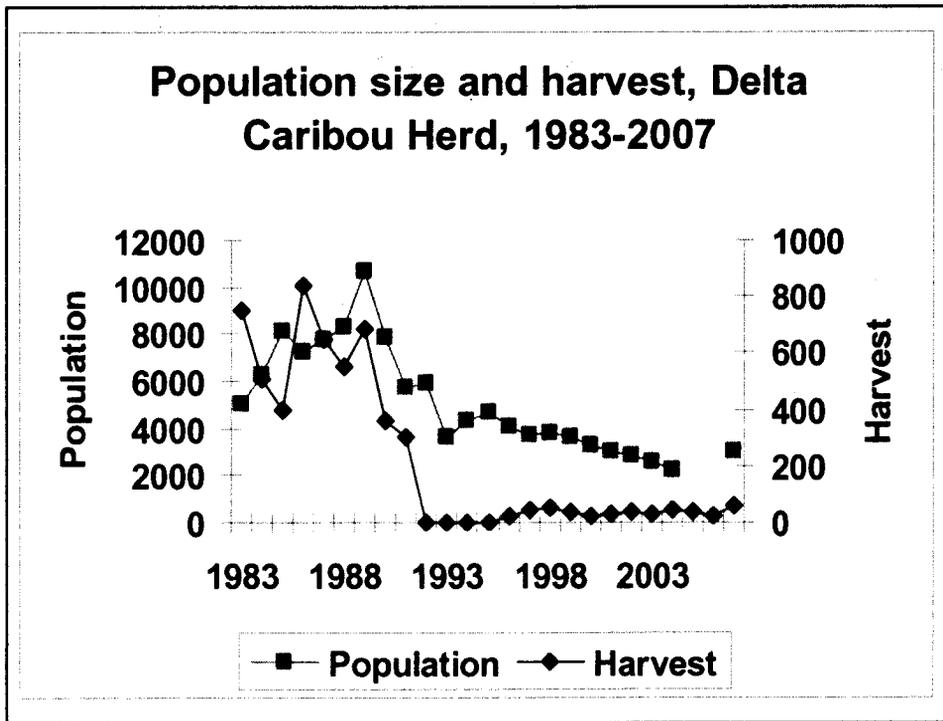
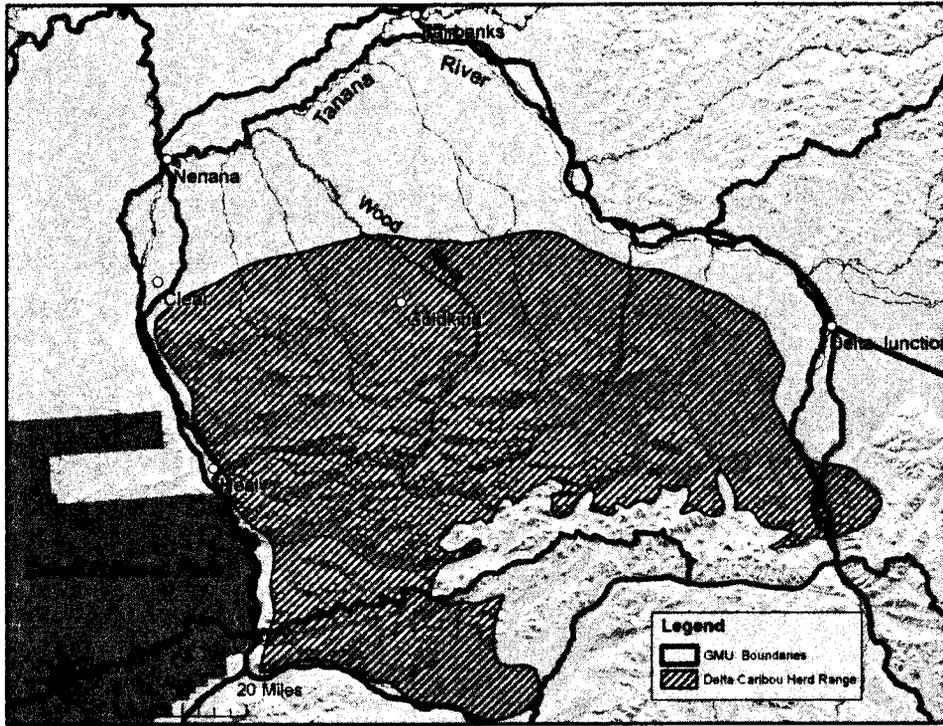




Caribou

- White Mountains, Denali and Delta herds relatively small
- Harvest is low
- Issues:
 - Decline in Delta herd
 - Lack of IM efforts to restore numbers
 - Number of permits issued/gone unused
- 1 proposals to implement predator control plan for Delta herd



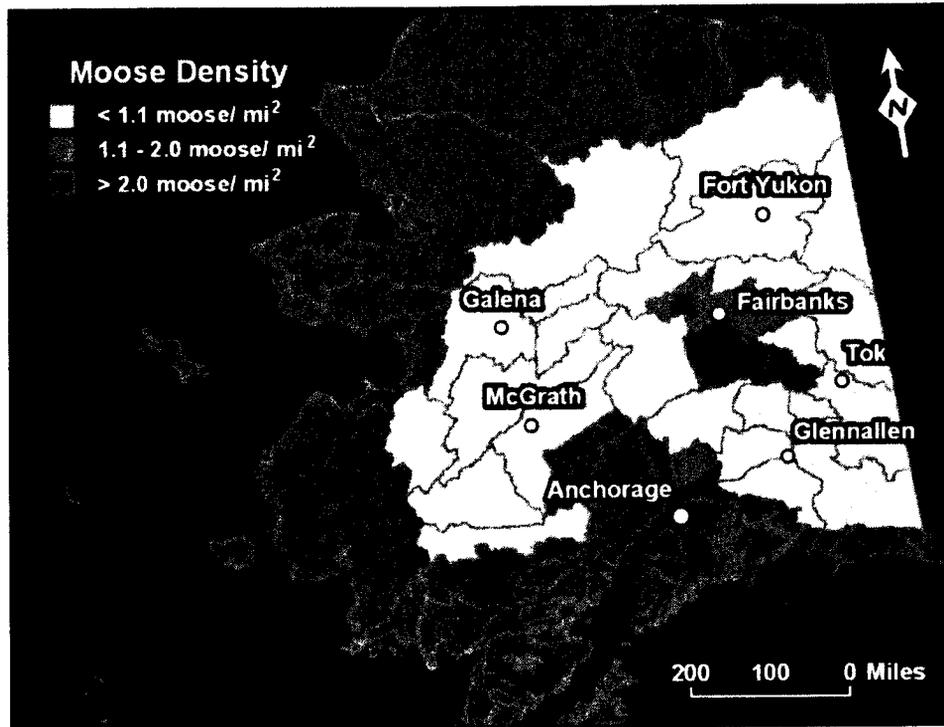


Furbearers

- **Conduct annual lynx/hare track surveys (1 proposal)**
- **Lower Chena River beaver management program: successful**
- **ADF&G Regional proposal: simplify and liberalize beaver seasons and bag limits**

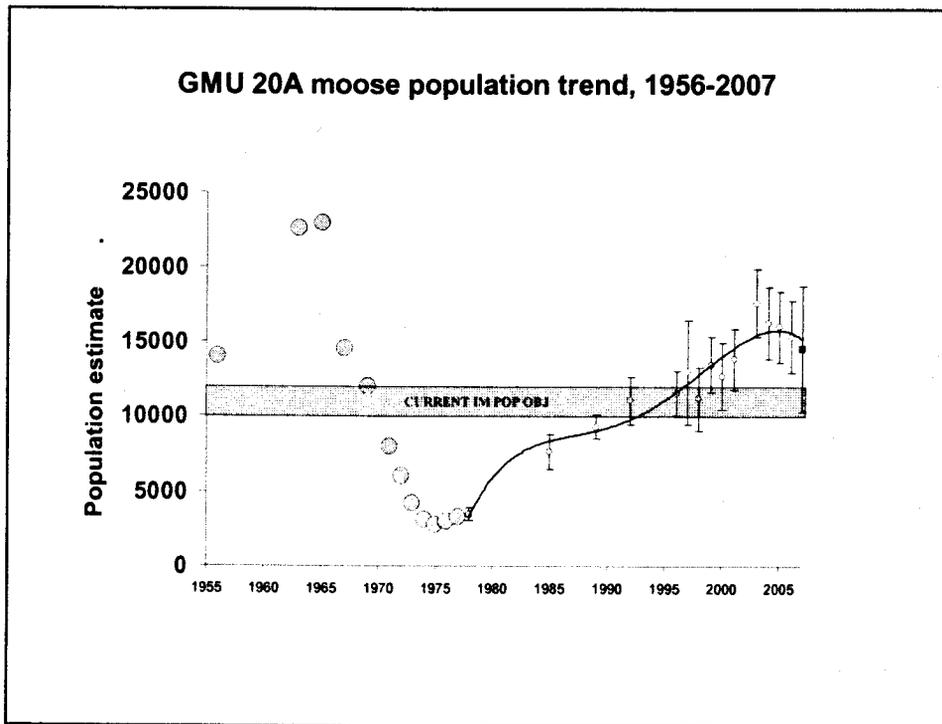
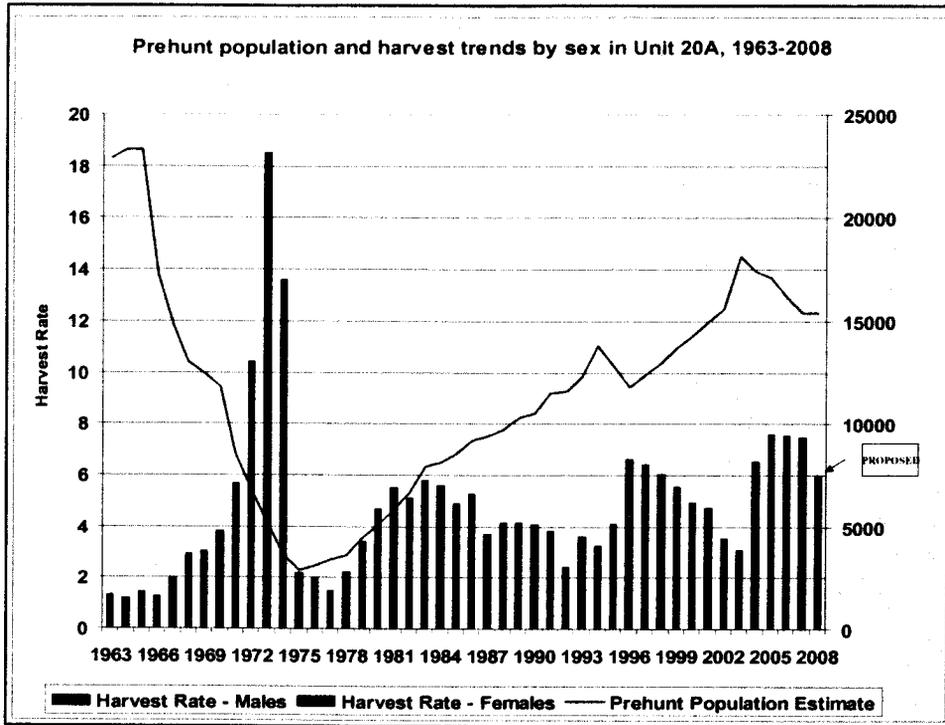
Moose

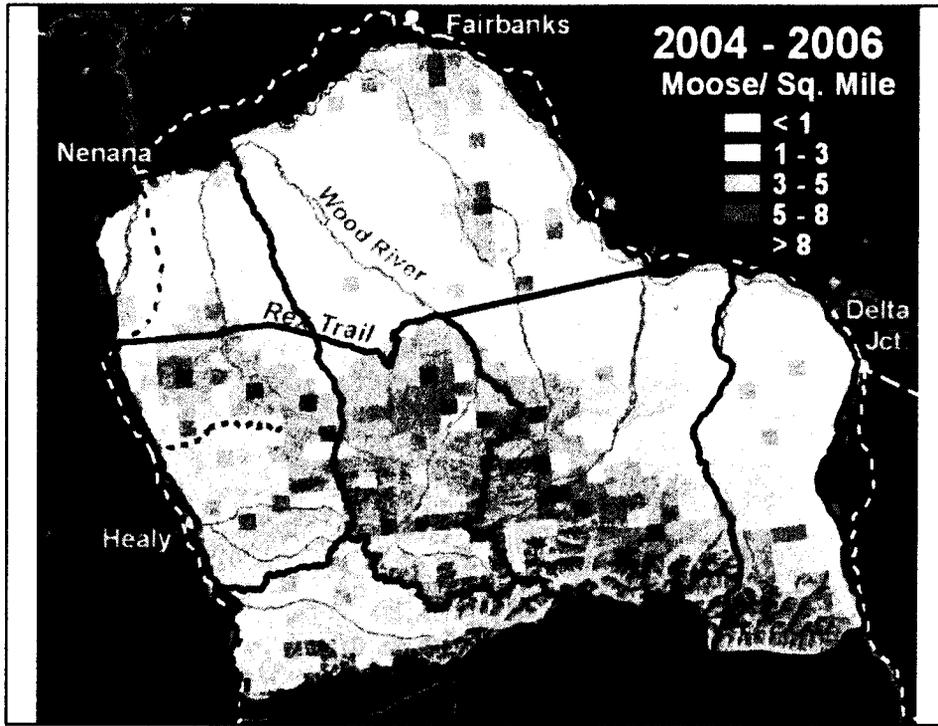
- **High moose densities in Units 20A and 20B**
- **Long-term, ongoing research in Unit 20A**
- **Issues:**
 - **Unit 20A antlerless moose hunt: contentious**
 - **Unit 20A antler restrictions: successful**
 - **Unit 20A controlled burns: unsuccessful**
 - **Unit 20B antlerless hunts: maintain**
 - **Minto Flats MA registration hunt: contentious**
- **Proposals (all 20A, 20B): 13 public, 2 Department**



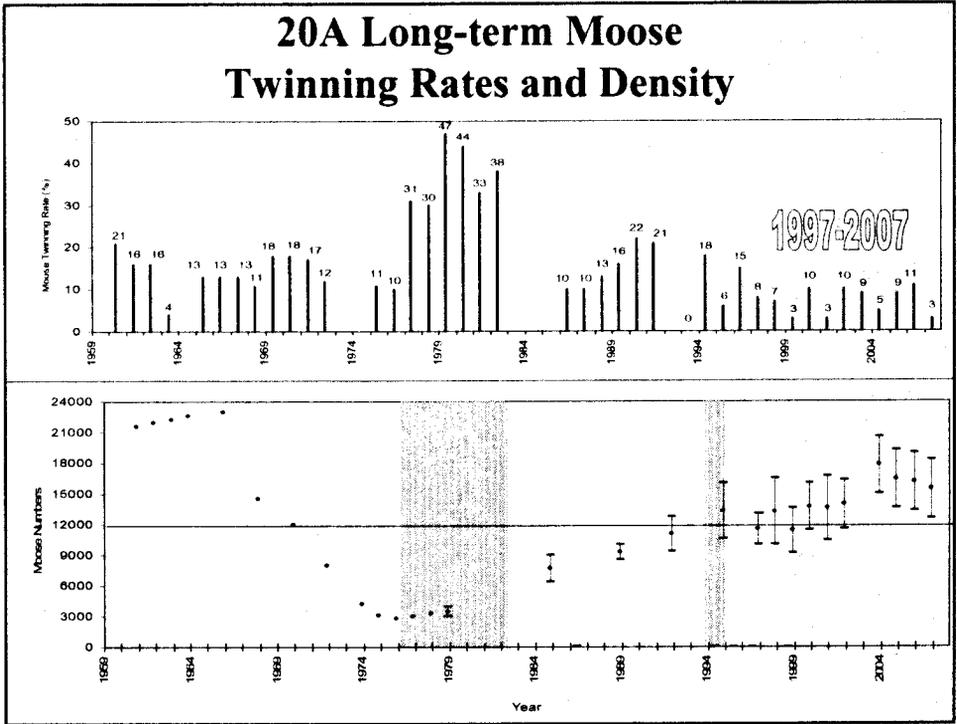
Goals

- 1) **Protect the moose population's health and habitat**
- 2) **Fulfill Intensive Management mandate for elevated yield**
- 3) **Maximize hunting opportunity**
- 4) **Reduce moose-human conflicts by reducing moose density along roads and Fairbanks vicinity**

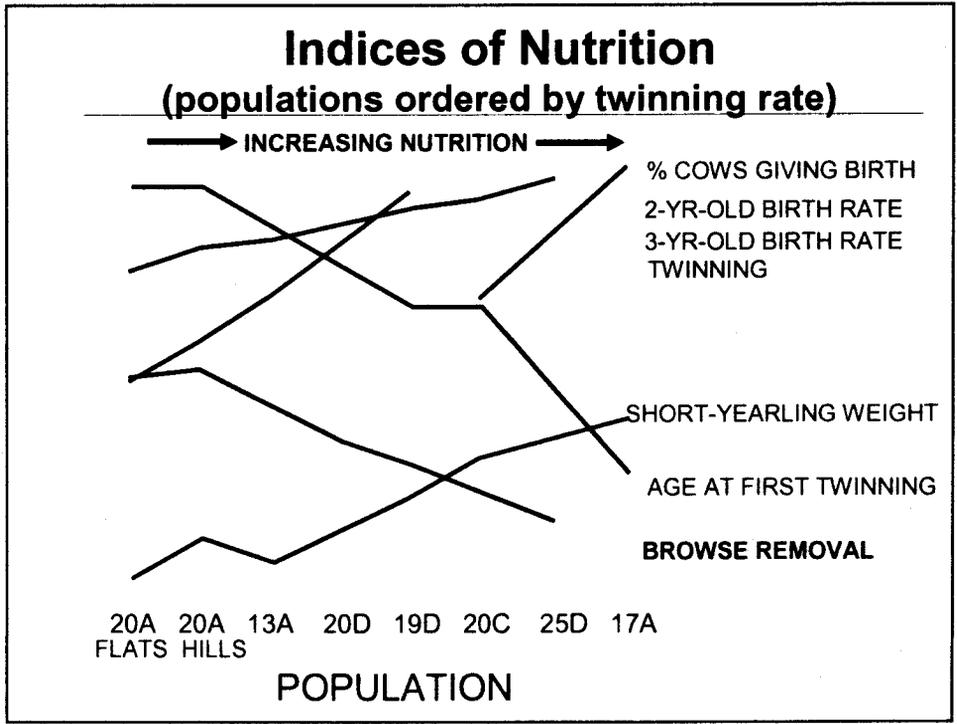




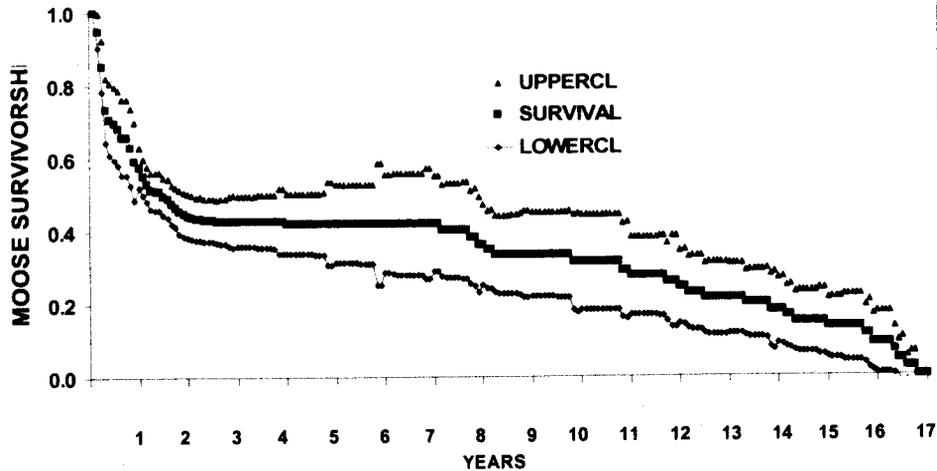
20A Long-term Moose Twinning Rates and Density



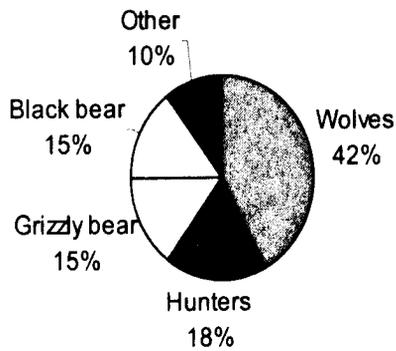
Indices of Nutrition (populations ordered by twinning rate)



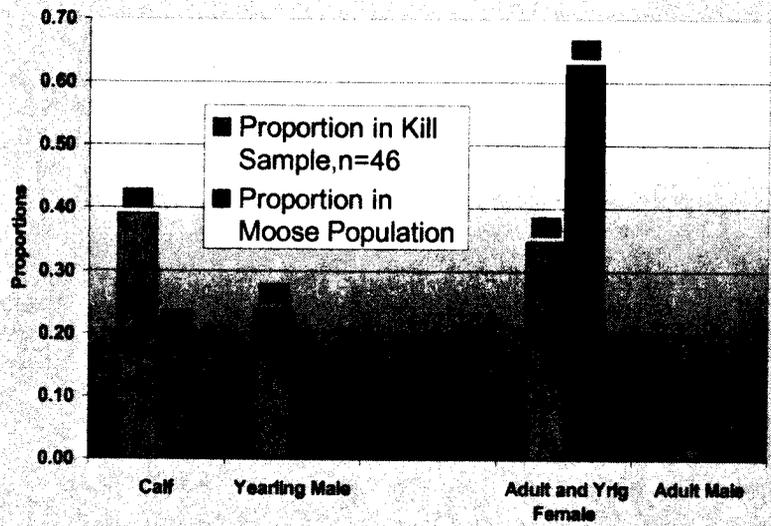
Kaplan Meier Age-Specific Survival Curves for Radiocollared Moose in 20A

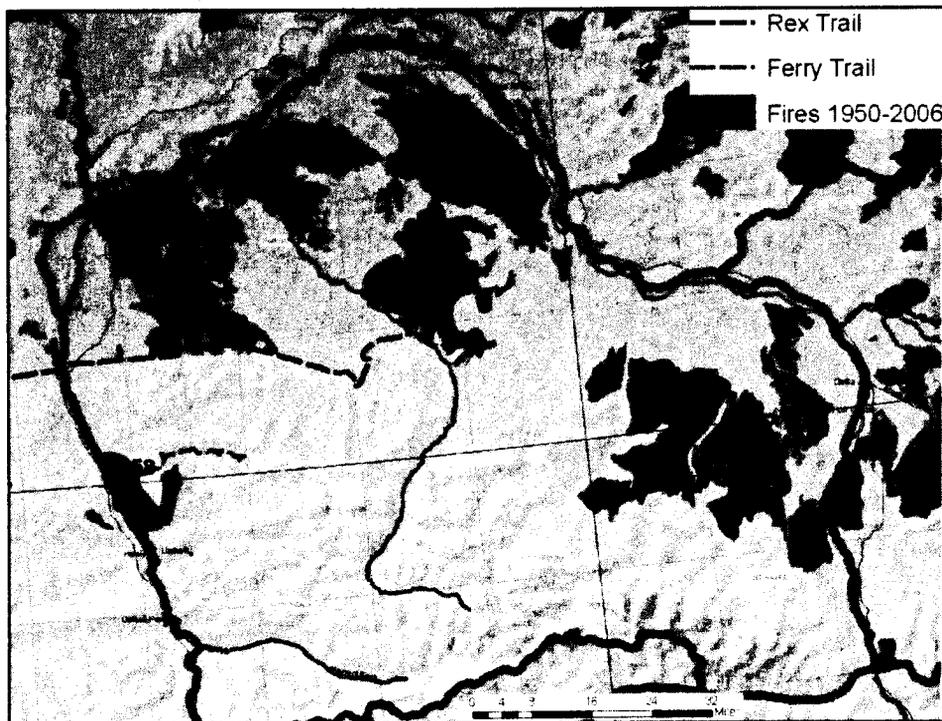


Causes of mortality of moose in Unit 20A



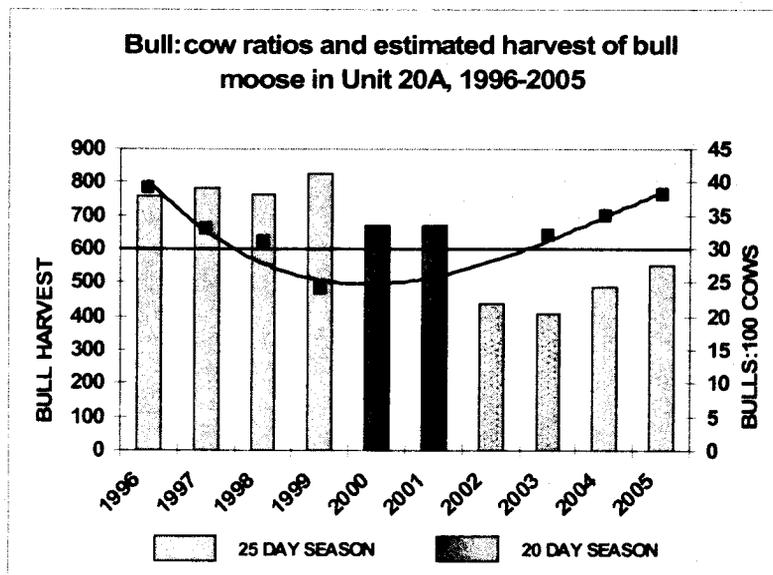
Distribution of Wolf Killed Moose Among Sex and Age Classes Compared to Proportions of those Sex and Age Classes in the Moose Population, 1998 and 2000

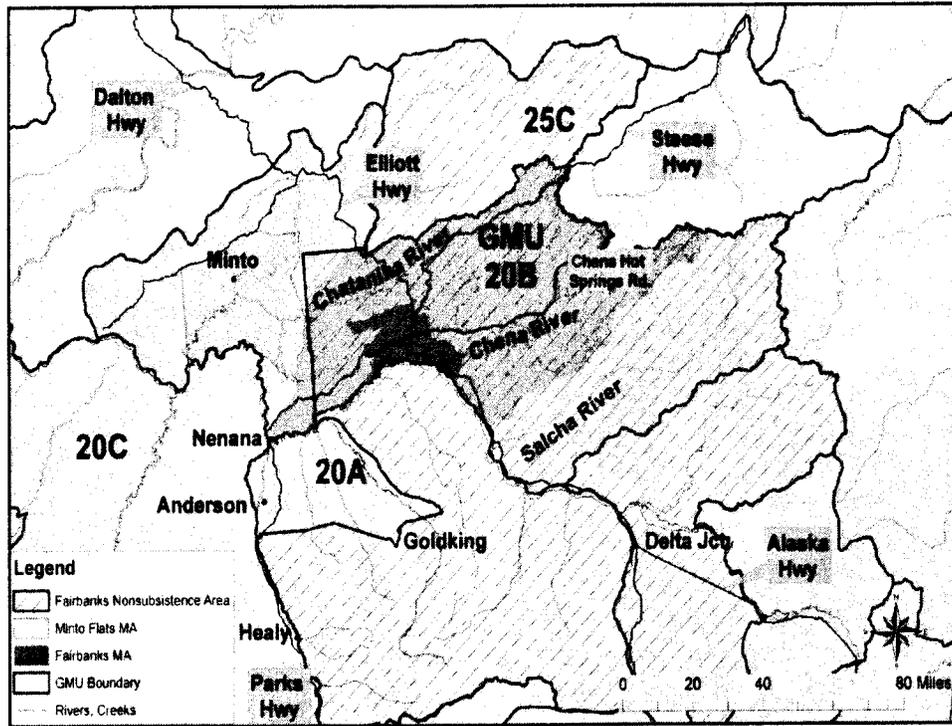






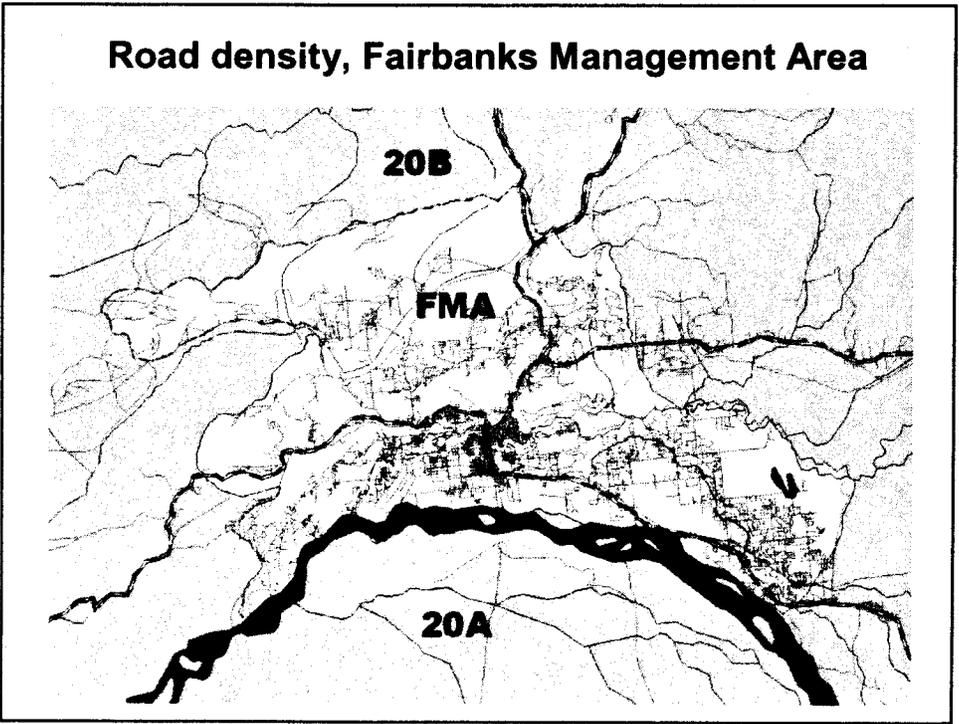
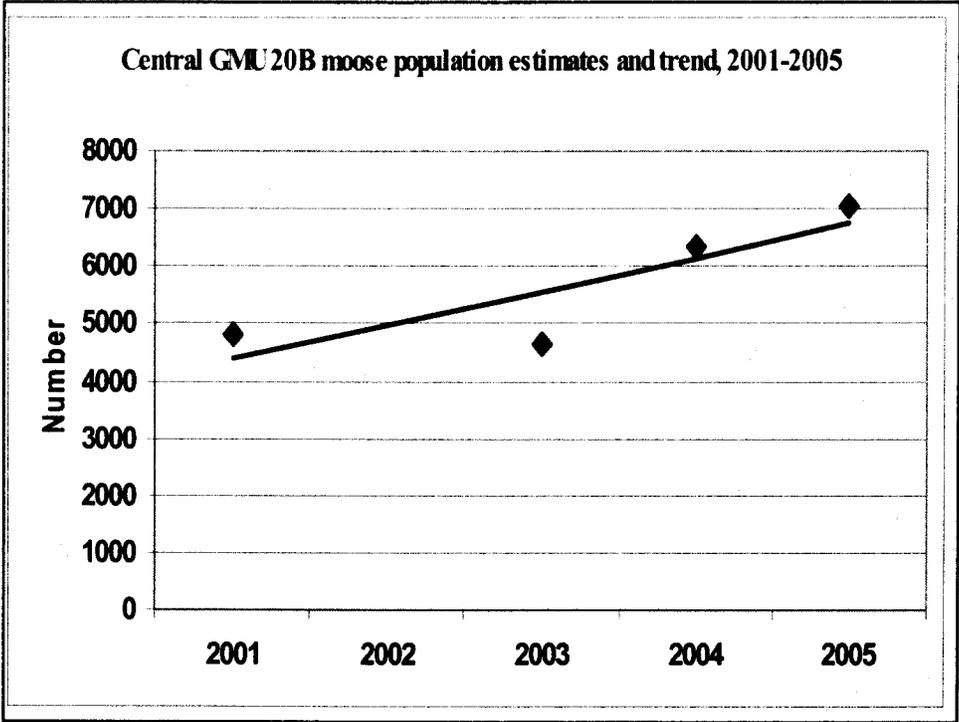
Young and Boertje. Journal Alces



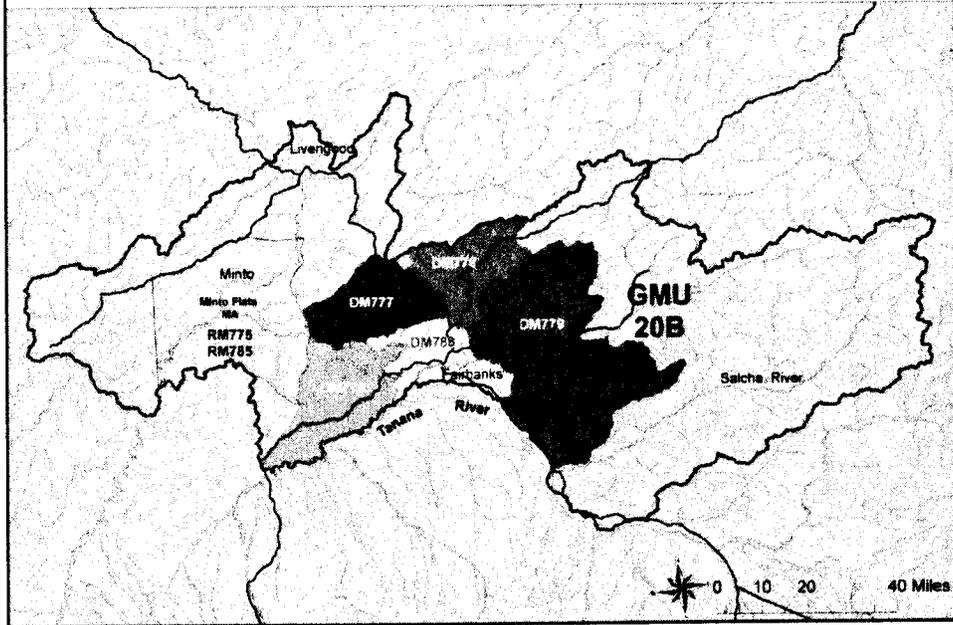


Moose fall composition counts and estimated population size in central GMU 20B, 2001-2005

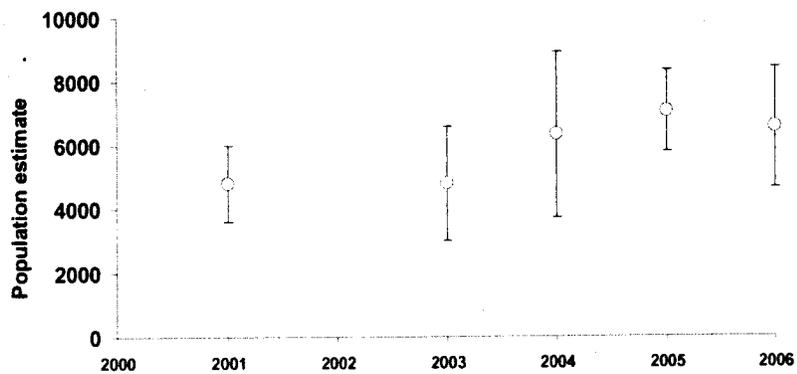
Regulatory year	Bulls: 100 Cows	Yearlings: 100 Cows ^a	Calves: 100 Cows	Moose/mi ²	Population size (90% CI)	SCF=1.2
2001	27	13	34	1.0 ^b	4005 (±25%)	4806
2003	26	21	35	1.0 ^b	3883 (±39%)	4660
2004	33	22	46	1.4 ^b	5276 (±41%)	6331
2005	26	26	40	1.5 ^b	5881 (±18%)	7057

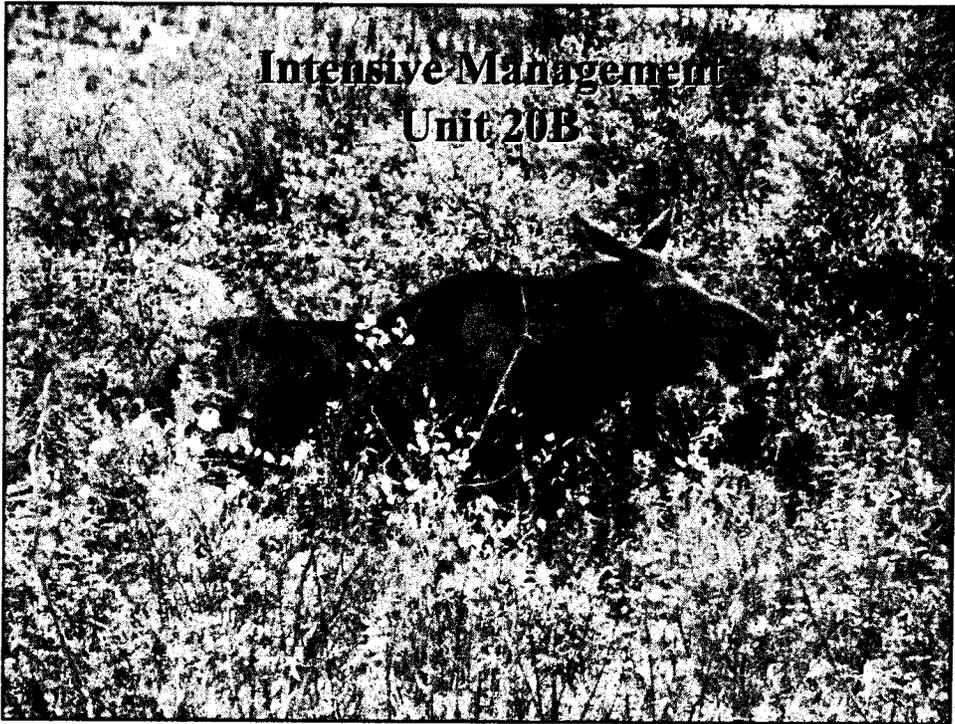
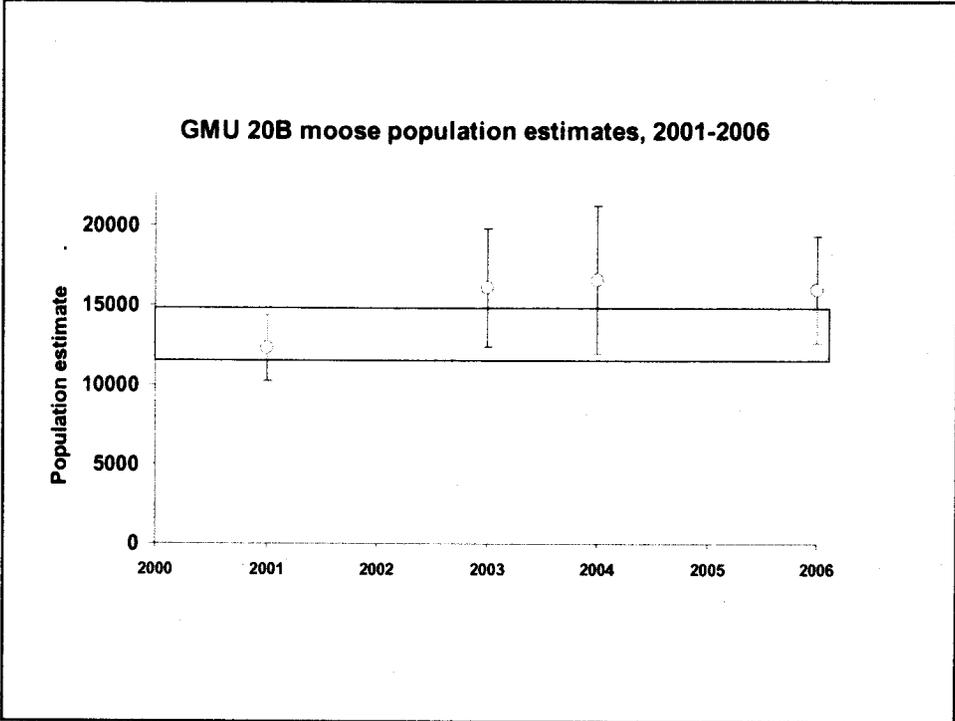


GMU 20B ANTLERLESS MOOSE HUNTS



Central GMU 20B moose population estimates, 2001-2006



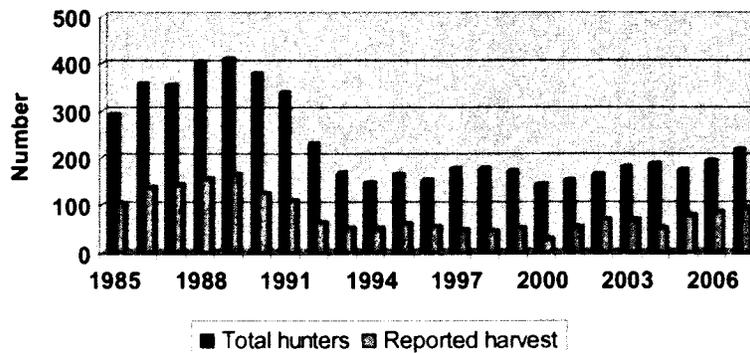


Sheep

- No clear population trends
- Unit 20A - effort and harvest increasing
- White Mountains – effort and harvest increasing
- 20A sheep-coyote-hare research project recently completed
- No proposals

Sheep

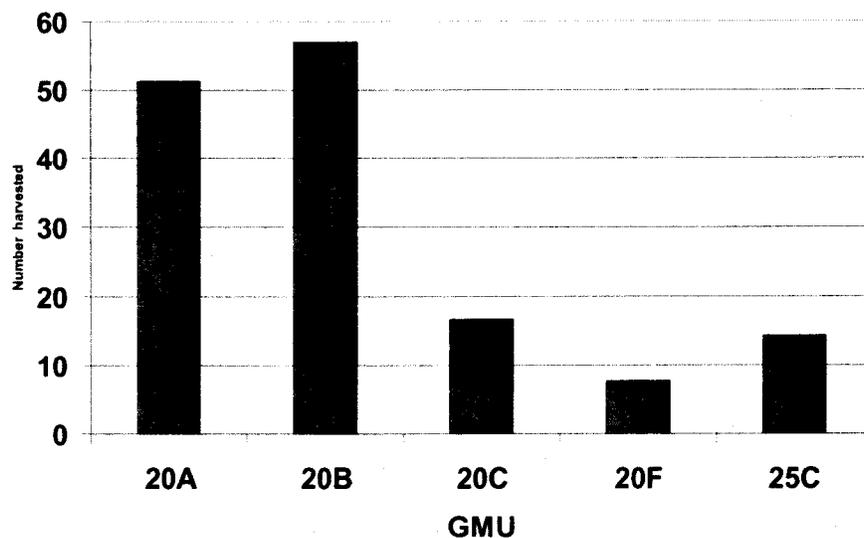
Reported sheep harvest and hunters, Unit 20A,
1985-2007

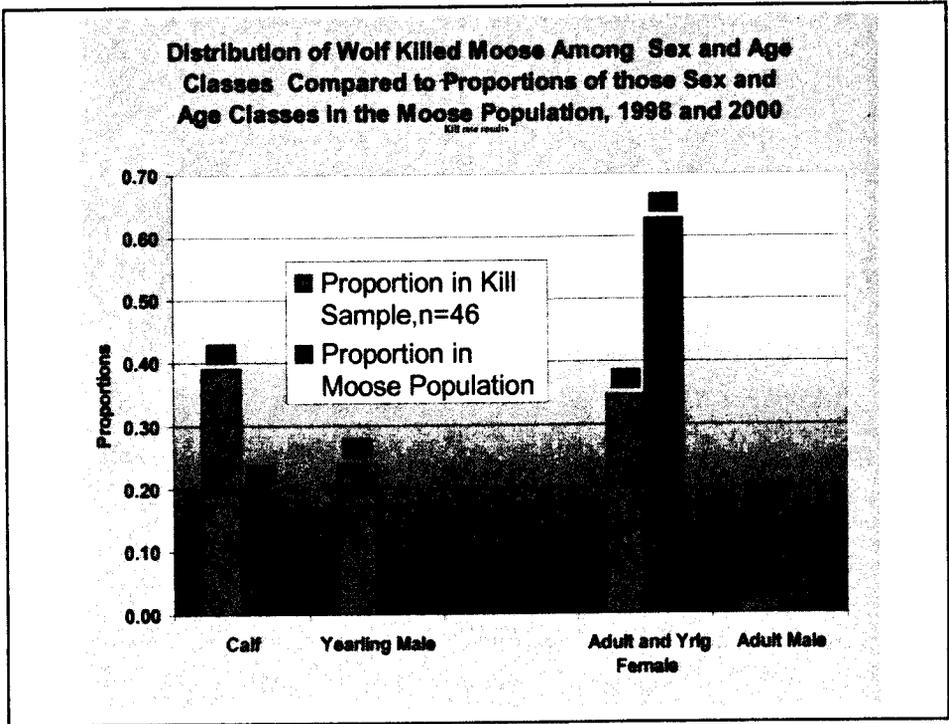
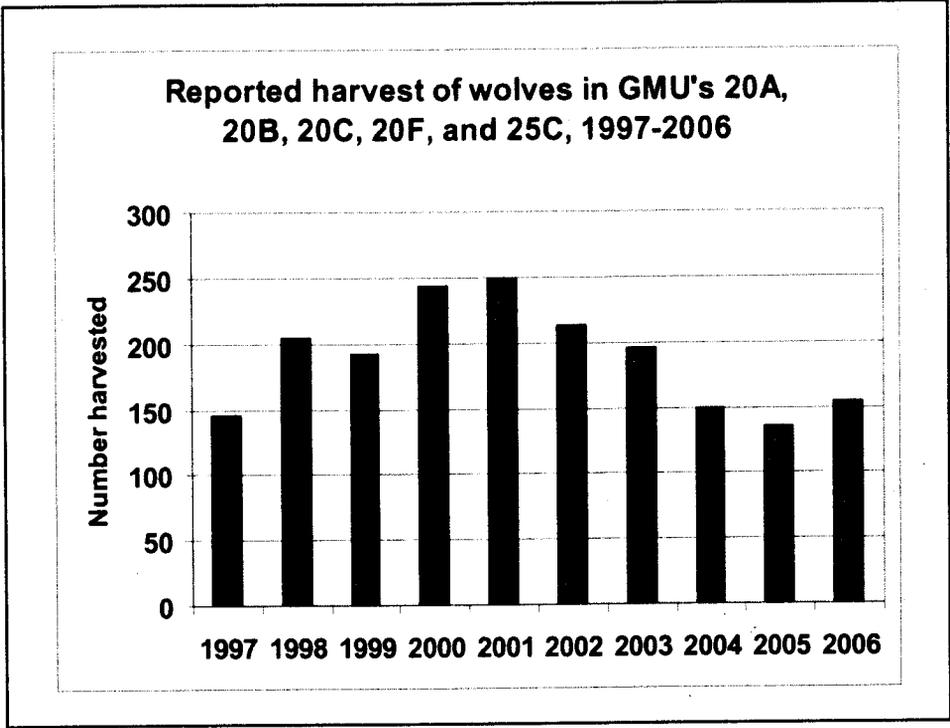


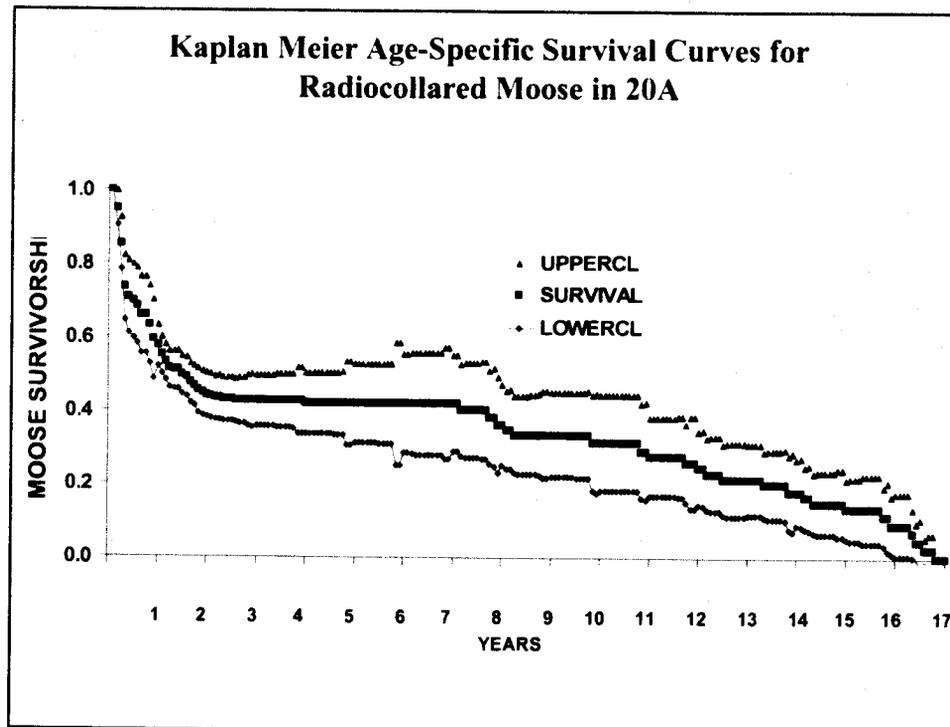
Wolf

- High harvests in Units 20A and 20B
- Low harvests in Units 20C, 20F and 25C
- Kill rate study completed in 2000
- Issues:
 - Predator control plan for Delta caribou herd inactive
 - Lice identified in Unit 20A wolves in 2004
- 2 proposals (wolf control implementation)

3-year average reported harvest of wolves in Fairbanks Area stratified by GMU, 2004-2006





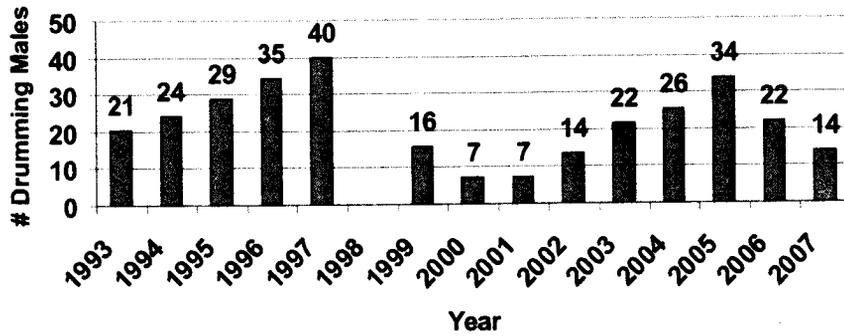


Small Game

- **Conduct annual hare/lynx track surveys**
- **Conduct annual Ruffed Grouse drumming count surveys**
- **Habitat improvement projects for grouse**

Small Game

Ruffed grouse drumming counts, Clear Air Station, 1993-2007



Proposal 130 – GMU 20A Moose

EFFECT OF THE PROPOSAL:

- **Reauthorize antlerless hunt**
 - Change antlerless bag limit to “may not shoot a calf or cow accompanied by a calf”
 - Redistribute harvest and hunting pressure away from high access areas (e.g., roads, trails, river corridors)
- **Increase “up to” language for “any bull” permits from 500 to 1000**

DEPARTMENT RECOMMENDATION: Staff proposal

Supported by all affected AC's

Proposal 130 – GMU 20A Moose

RATIONALE:

- **Population exceeding IM objective**
- **Population nutritionally stressed**
- **Liberal antlerless harvest important (biologically and to meet IM mandates)**
- **Hunt provides considerable hunting opportunity**
- **Total harvest below IM objective**

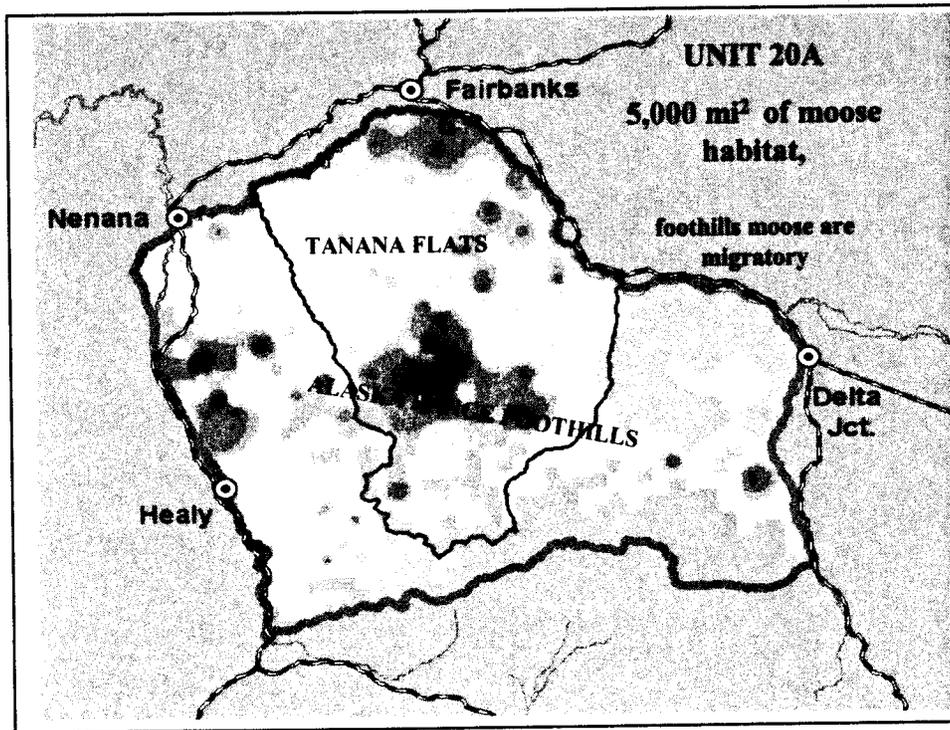
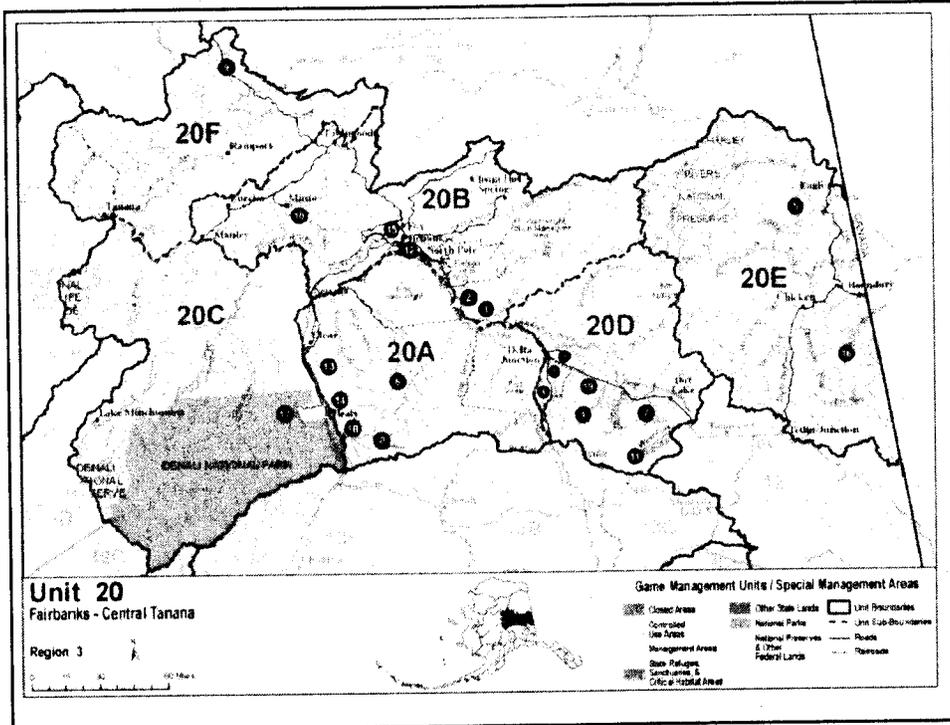
Proposal 130 – GMU 20A Moose

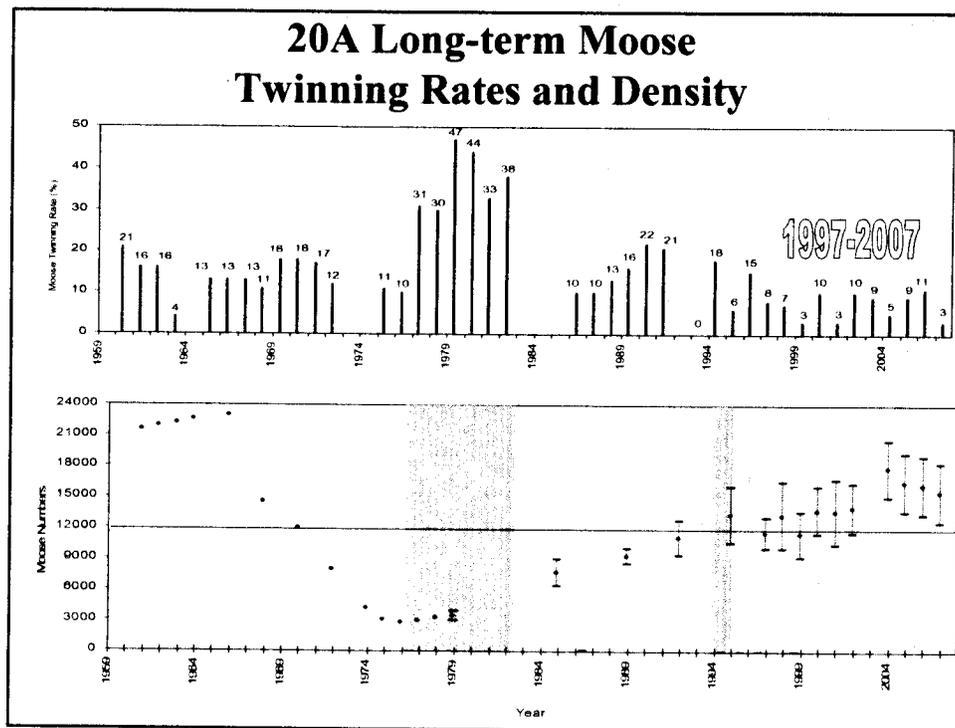
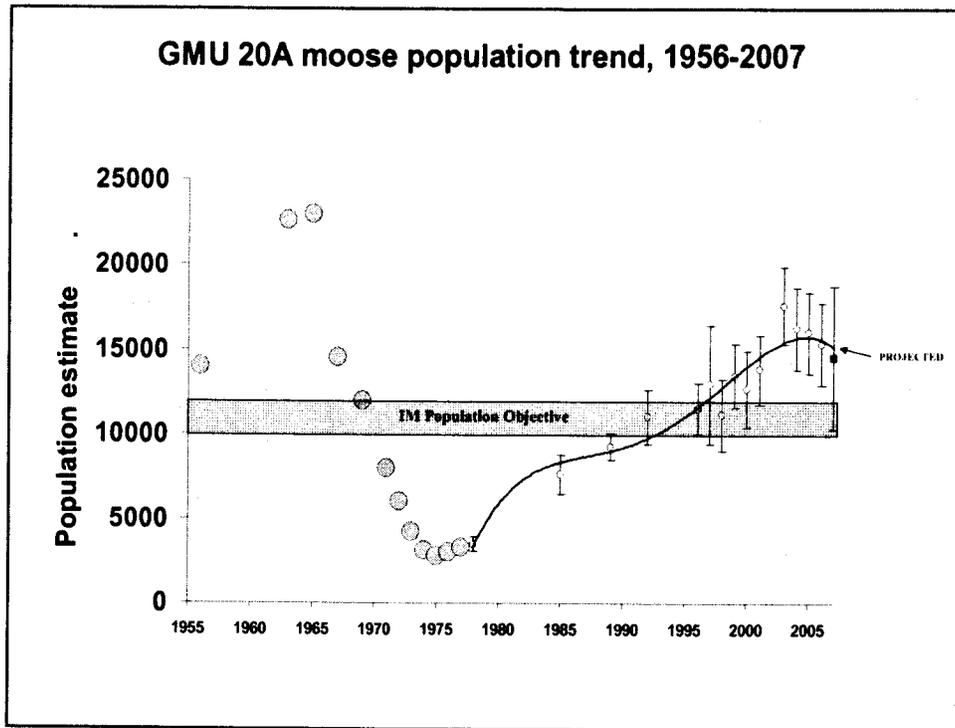
Overview:

- **Population trend and nutritional limitation**
- **Conservative antlerless drawing hunt (1996-2003)**
- **Liberal antlerless registration hunt (2004-2007)**
 - Hunt design
 - Harvest statistics
 - Harvest distribution
- **Proposed changes**
 - Bag limit “may not take a calf or cow accompanied by calf”
 - Redistribute harvest and hunting pressure away from high access areas (e.g., roads, trails, river corridors)
 - Increase “up to language” for “any bull” permits from 500 to 1000

Goals

- 1) **Protect the moose population’s health and habitat**
- 2) **Fulfill Intensive Management mandate for elevated yield**
- 3) **Maximize hunting opportunity**
- 4) **Reduce moose-human conflicts by reducing moose density along roads and Fairbanks vicinity**

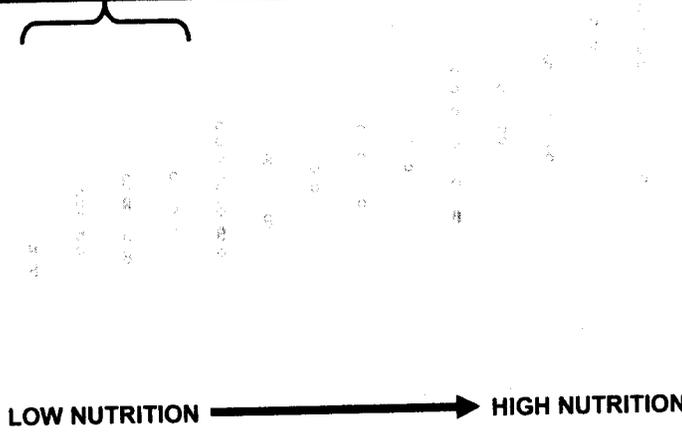




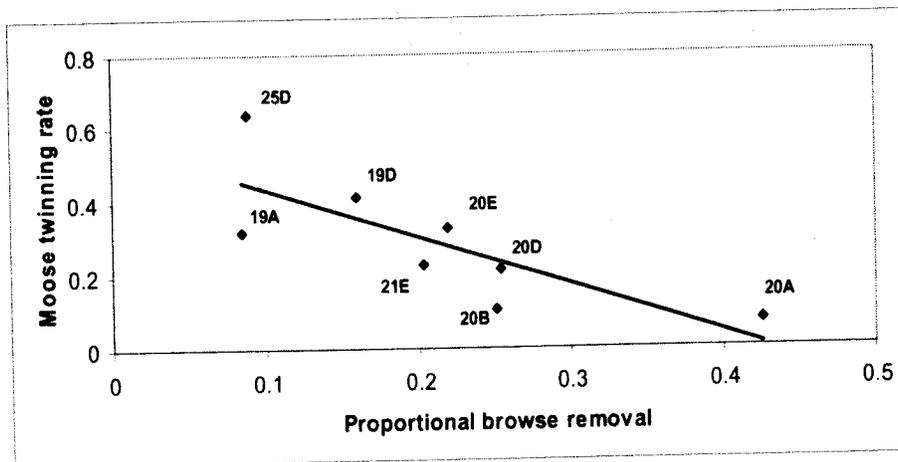
Twinning Rates

(an index of population nutrition)

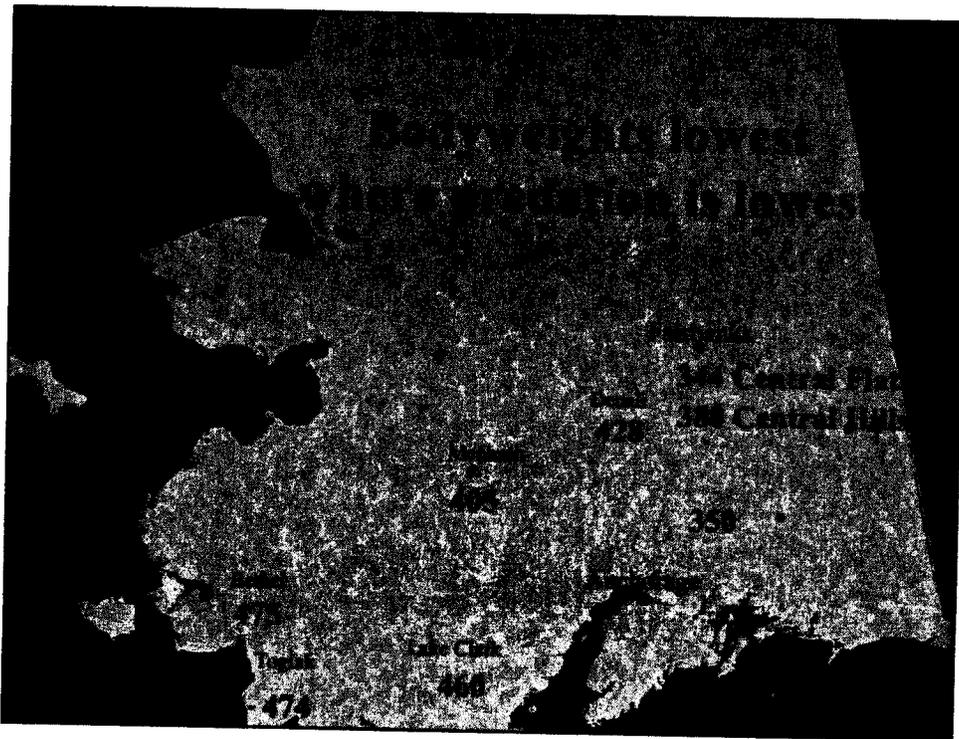
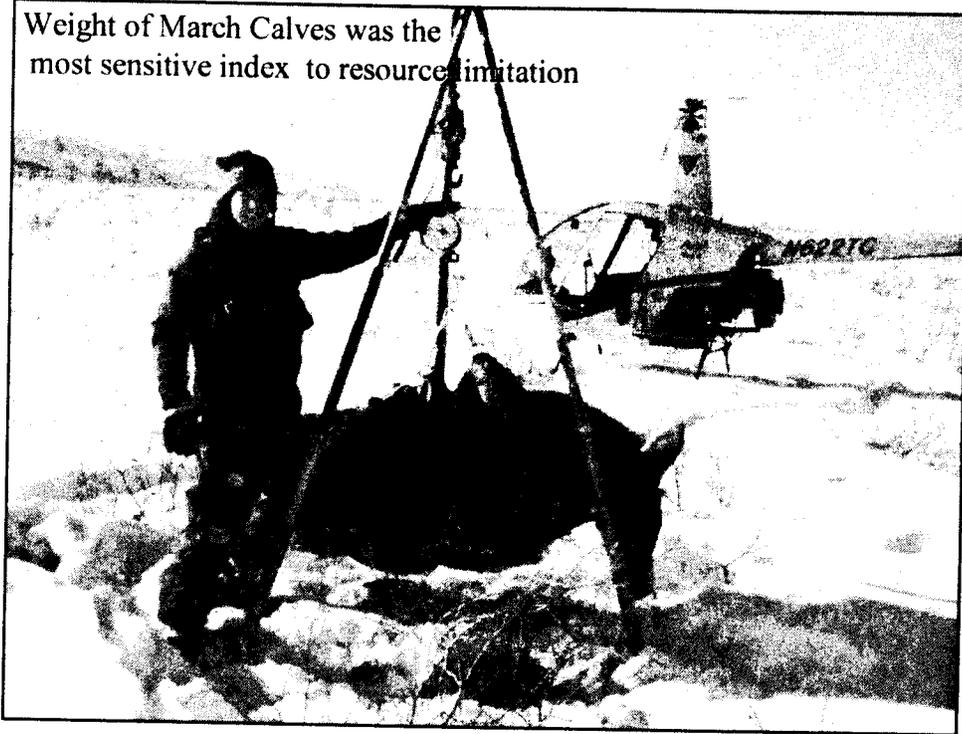
Near Urban/ agricultural areas
HIGH MOOSE DENSITY

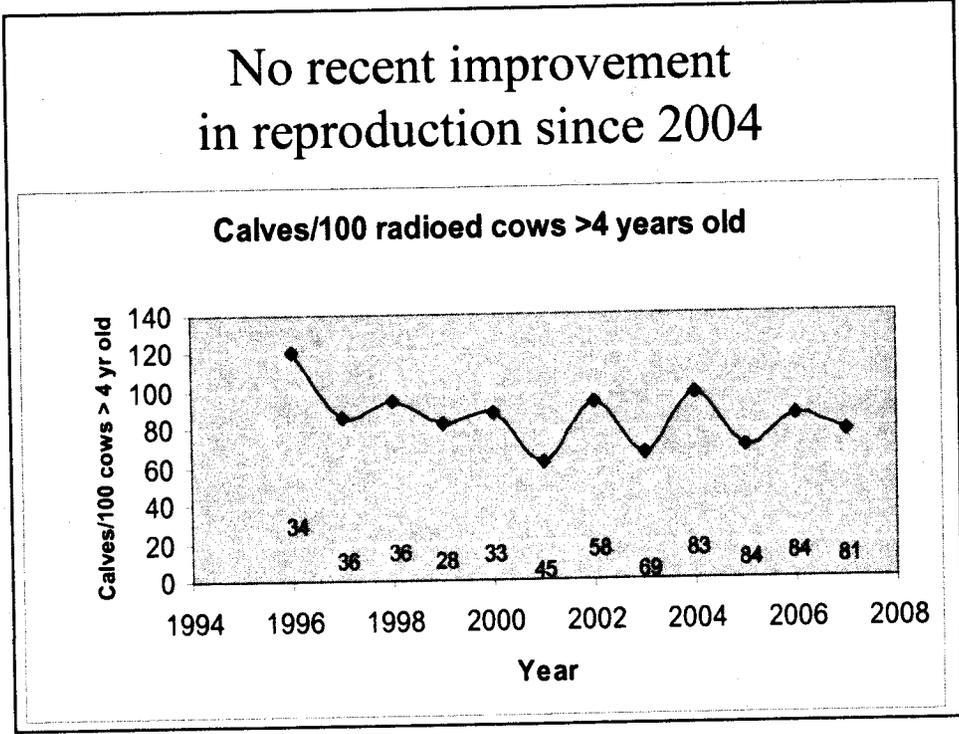
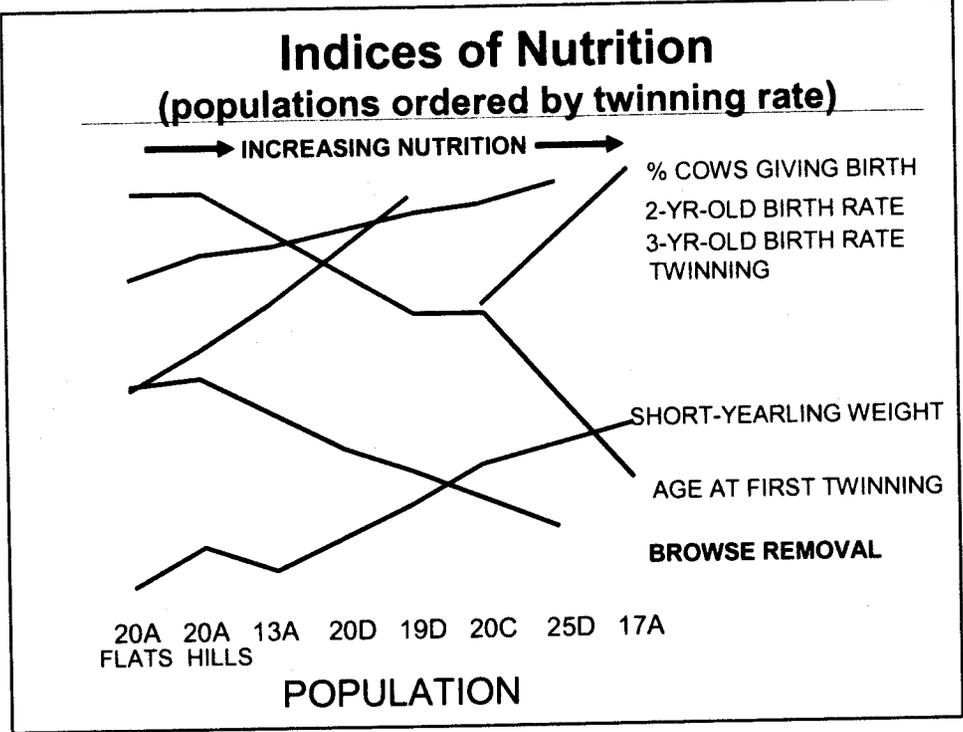


Relationship between moose twinning and browse removal rates



Weight of March Calves was the most sensitive index to resource limitation

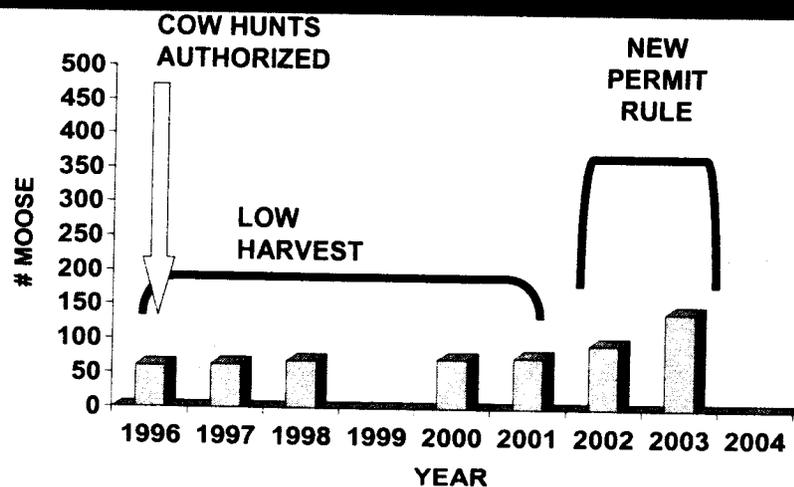




Nutritional Limitation Summary

- Twinning and overall reproduction, bodyweights, and browse surveys indicate a low level of nutritional status in central 20A relative to elsewhere in Alaska.
- Bodyweights are most sensitive indicator of nutrition, but we observed no improvement yet with the reduction from 17,000 to 14,500 moose.
- 300 females should be harvested to keep the population from increasing.
- If the population grows, we expect nutritional condition will decline; range damage will increase; and the risk of disease, starvation and predation, particularly during severe winters, will increase (i.e., population setback).

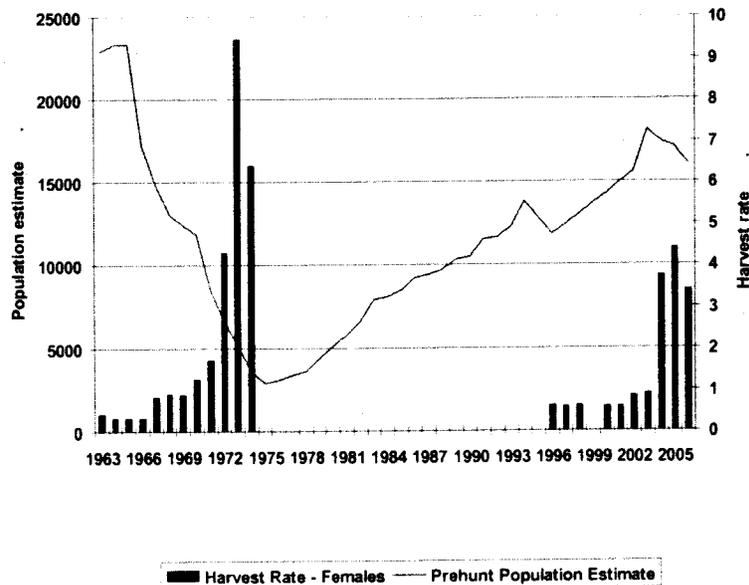
Reported Antlerless Harvest Unit 20A

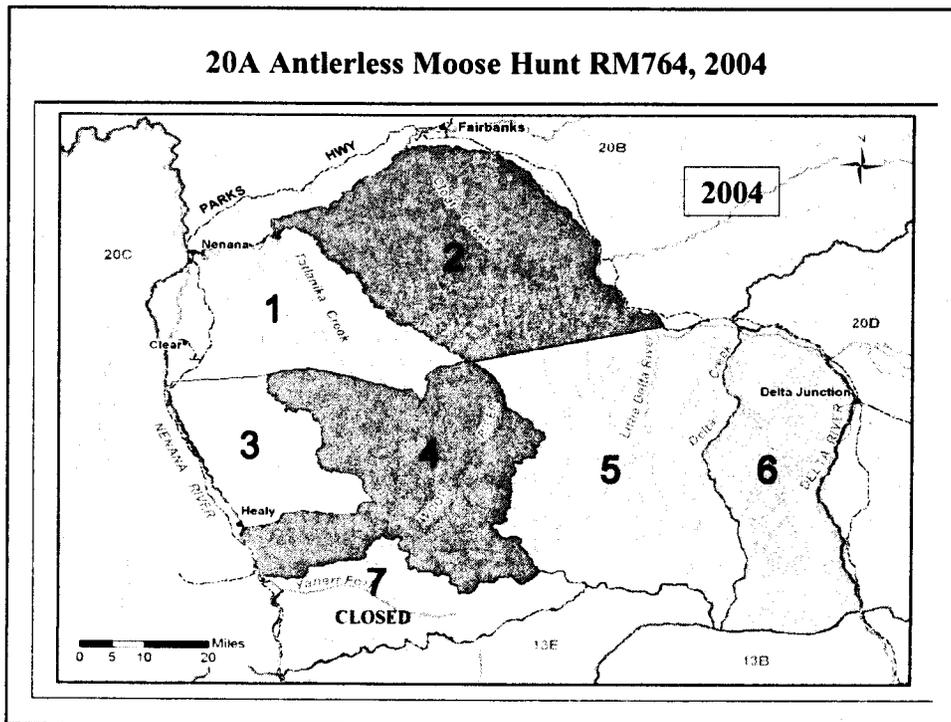
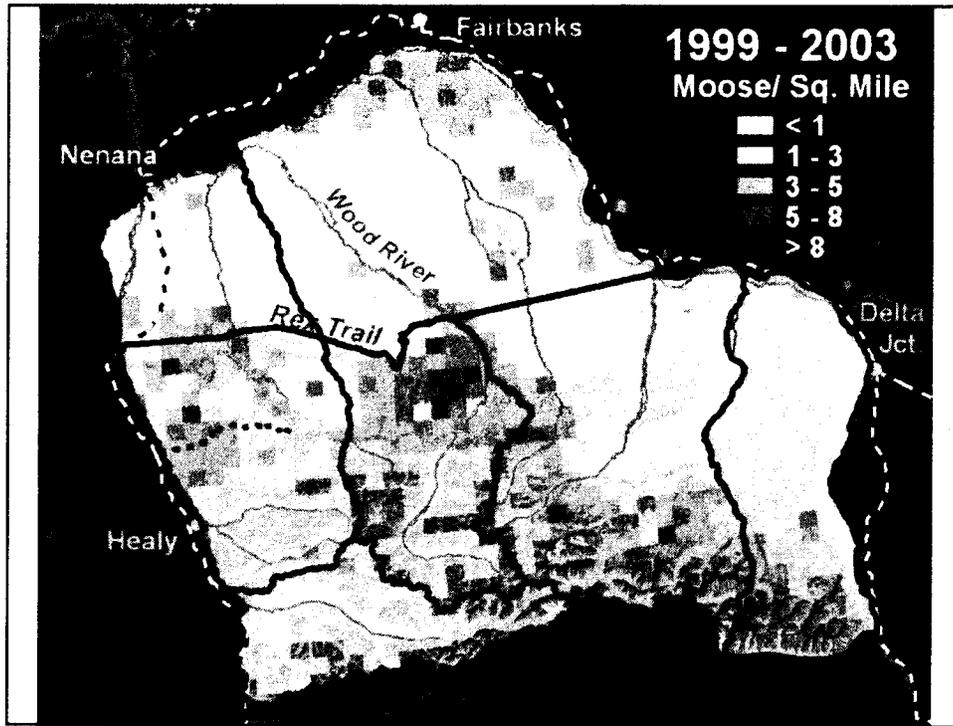


Reported harvest of bull, cow and calf moose in GMU 20A, 1990-2004

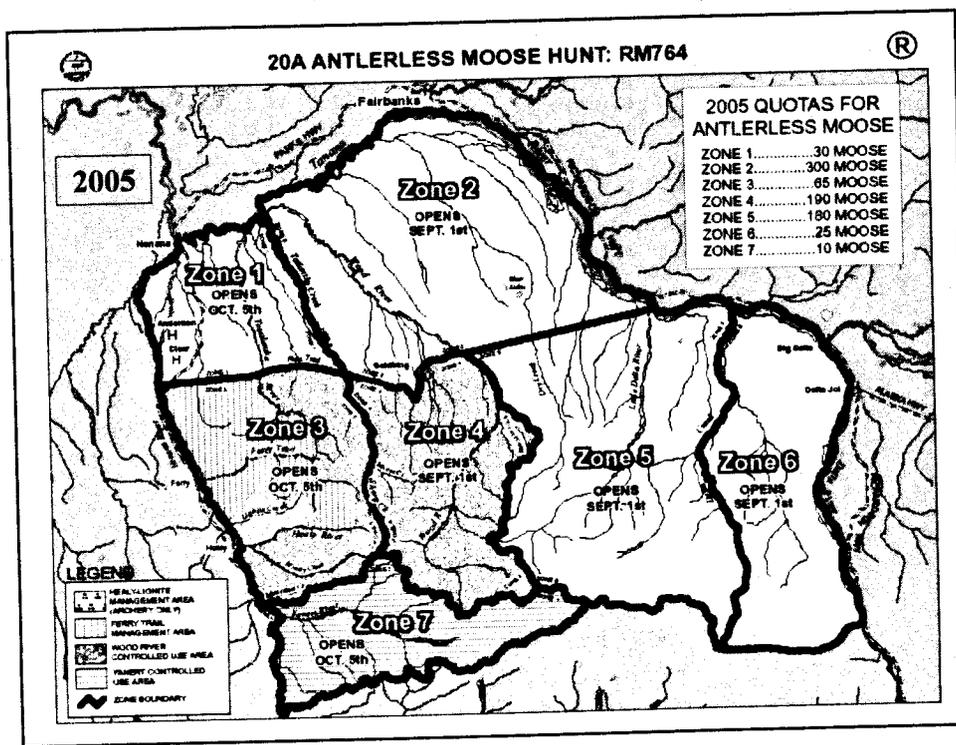
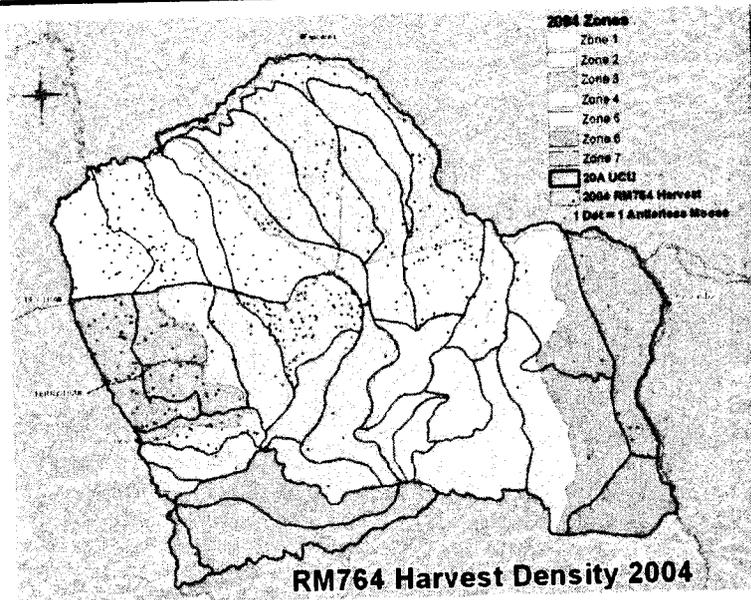


Prehunt population and harvest trends in GMU 20A, 1963-2006

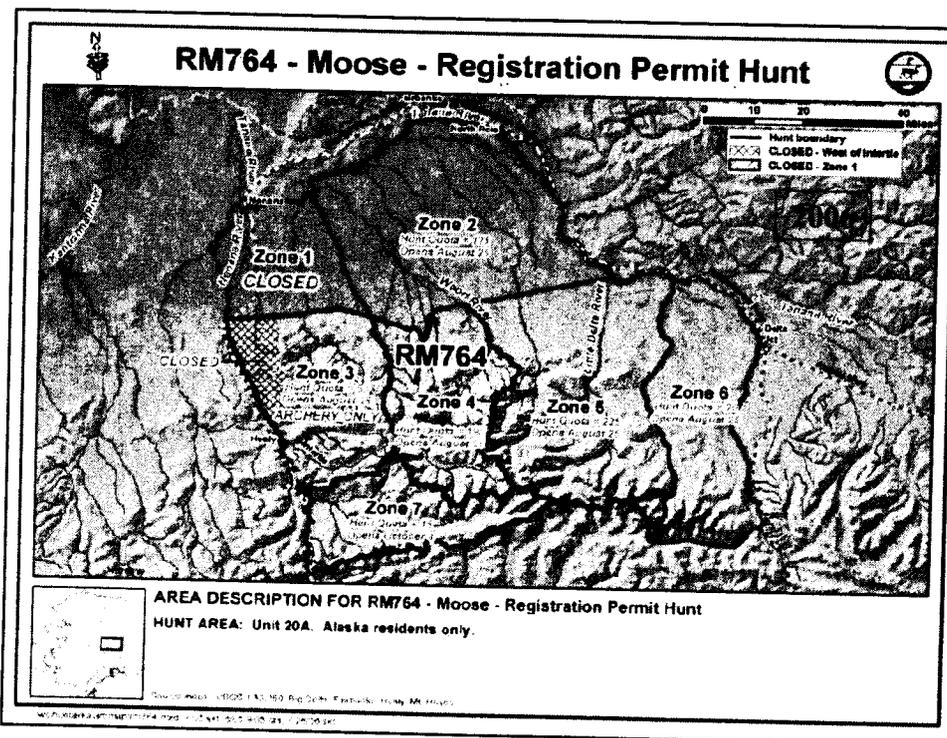
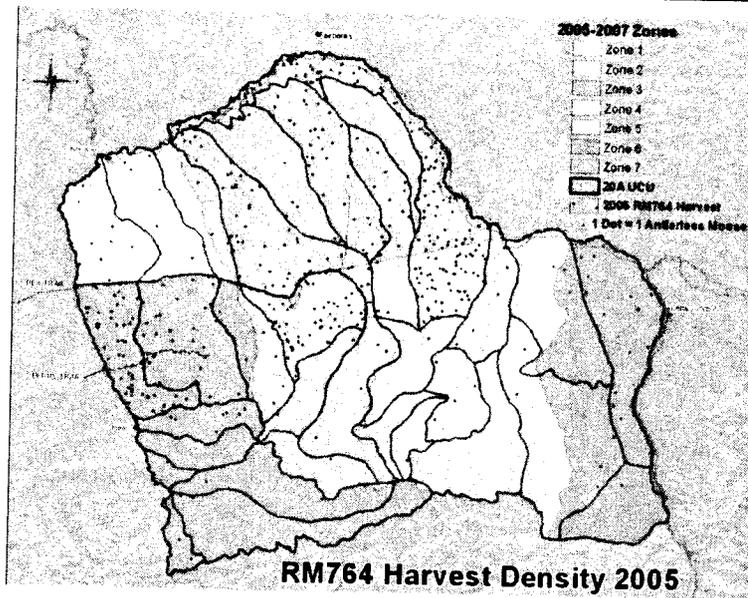




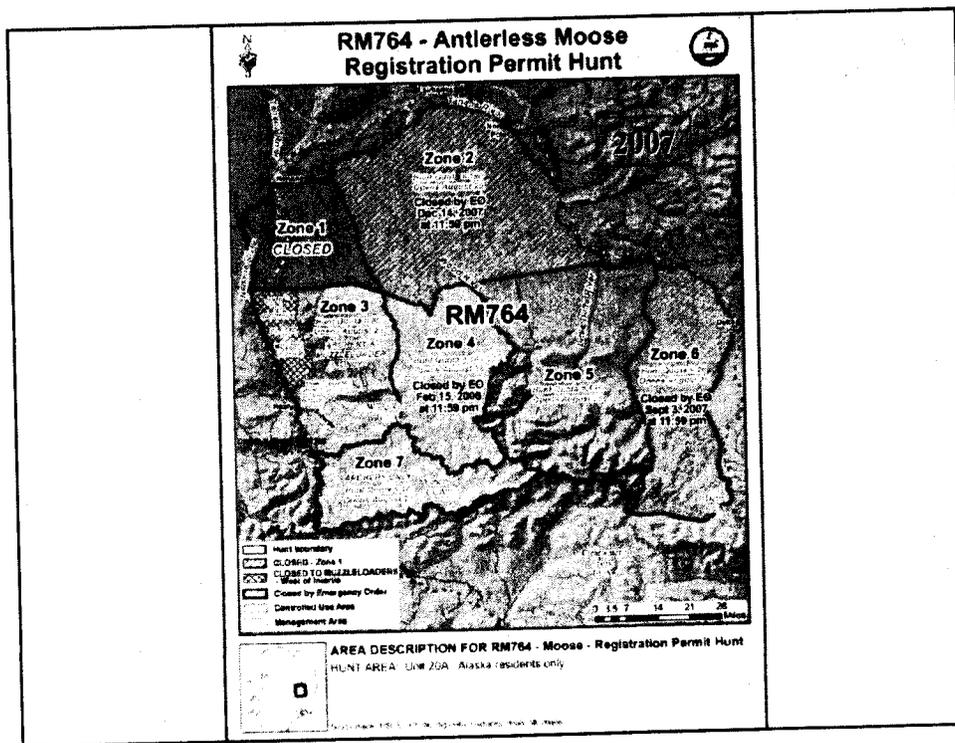
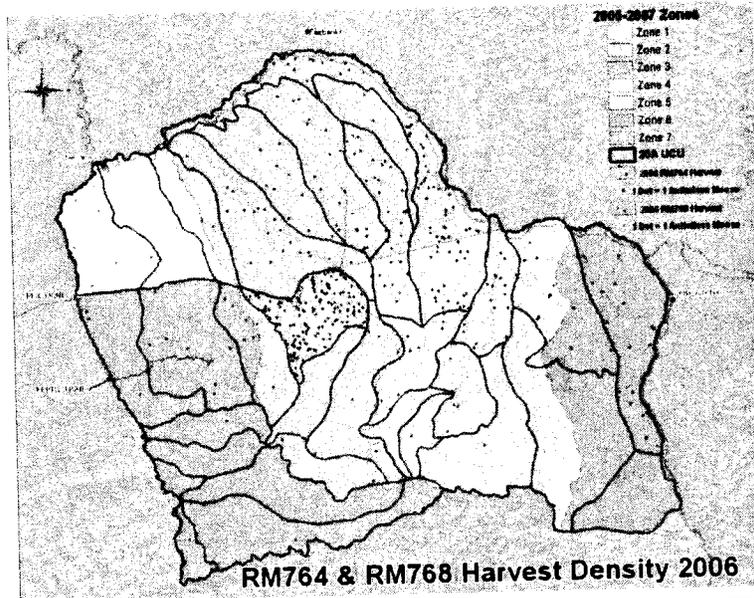
GMU 20A harvest density by UCU and hunt zone, antlerless moose hunt RM764, 2004



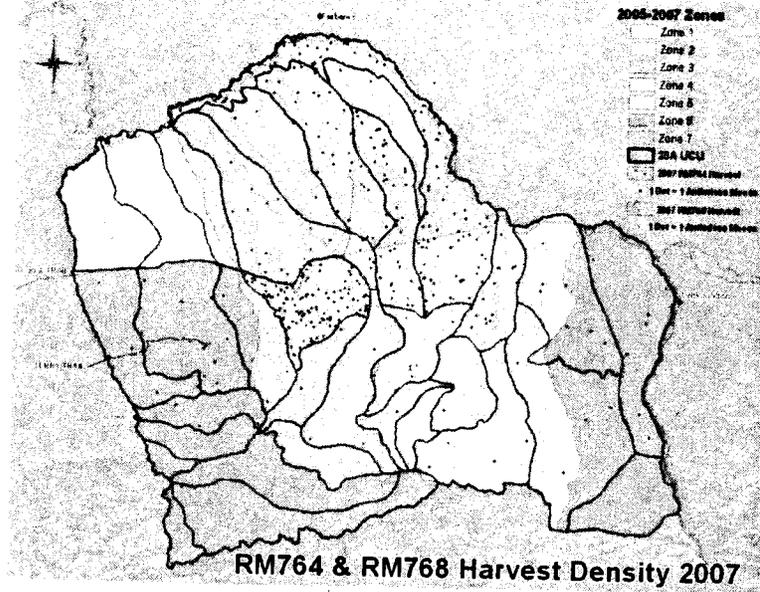
GMU 20A harvest density by UCU and hunt zone, antlerless moose hunt RM764, 2005



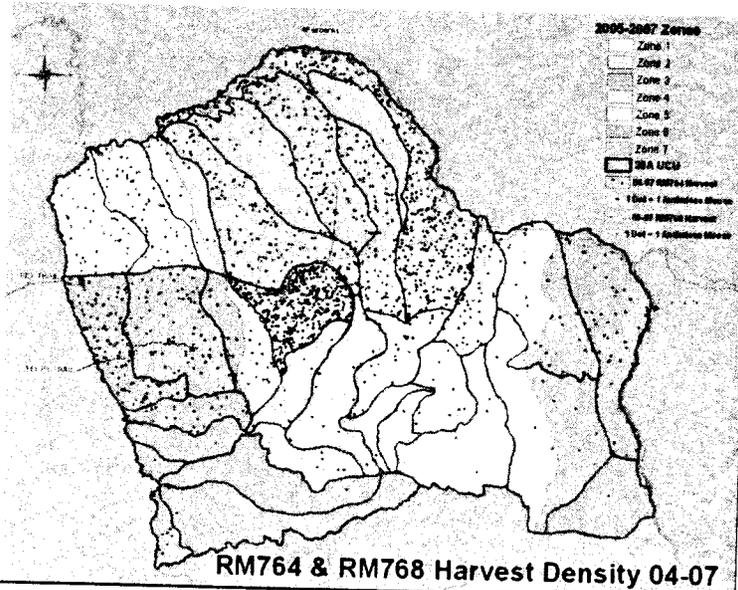
GMU 20A harvest density by UCU and hunt zone, antlerless moose hunts RM764 & RM768, 2006

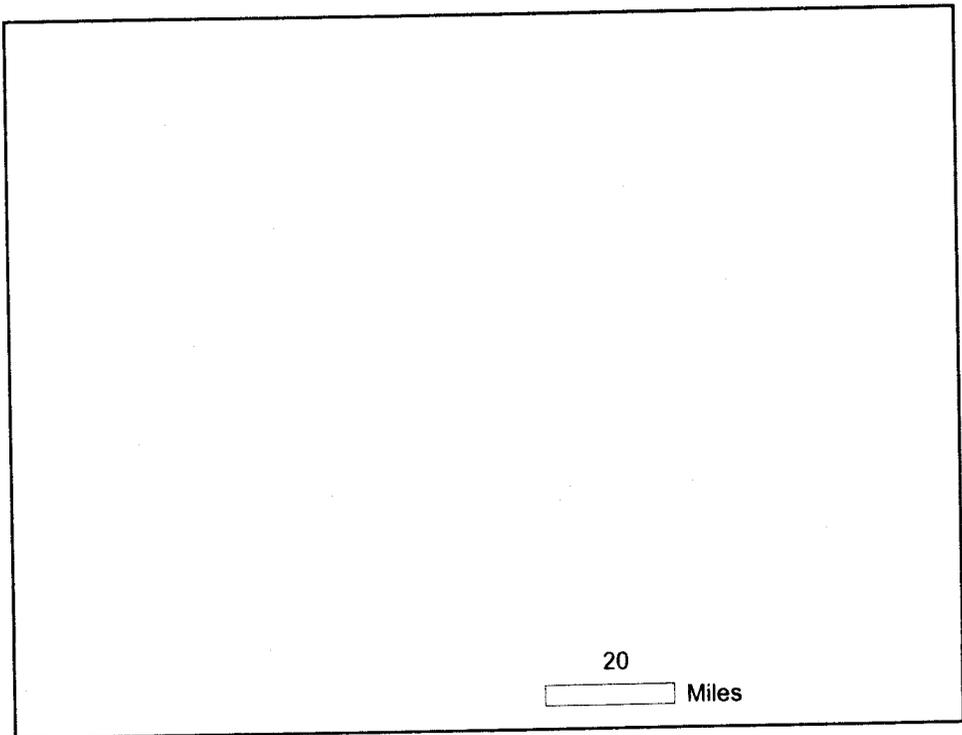
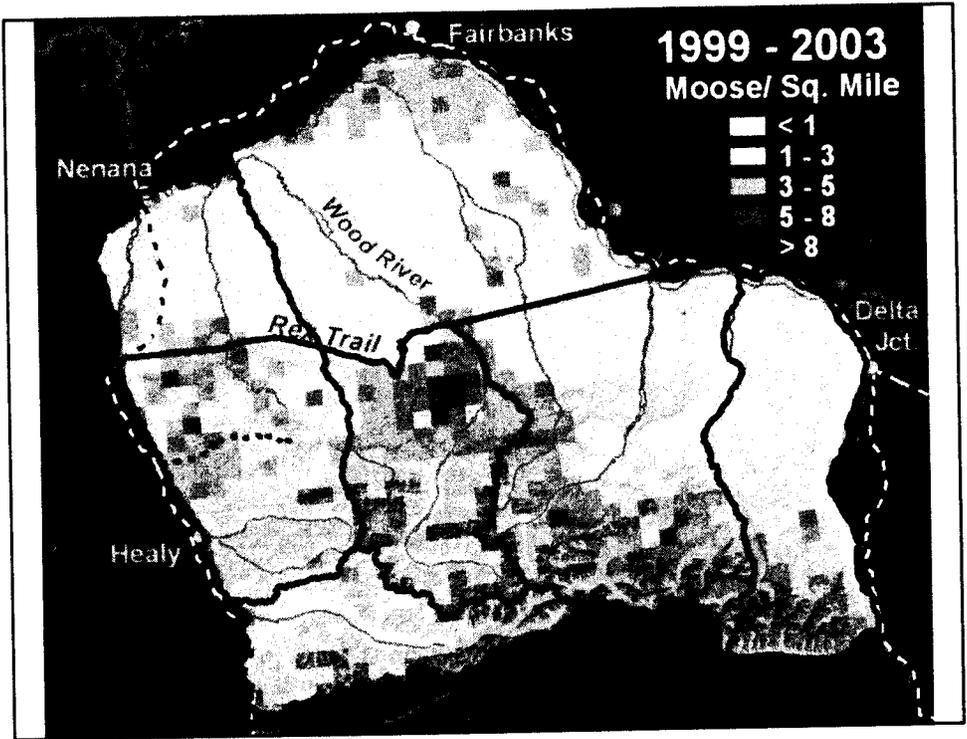


GMU 20A harvest density by UCU and hunt zone, antlerless moose hunts RM764 & RM768, 2007

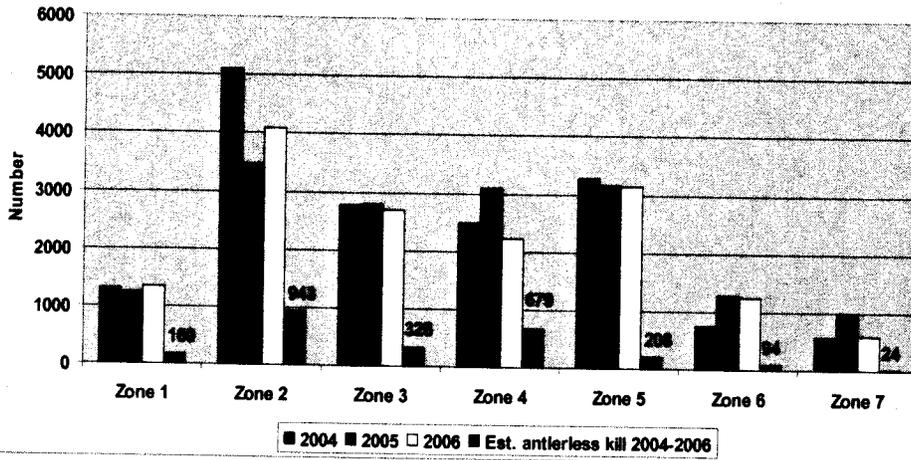


GMU 20A harvest density by UCU and hunt zone, antlerless moose hunts RM764 & RM768, 2004-2007

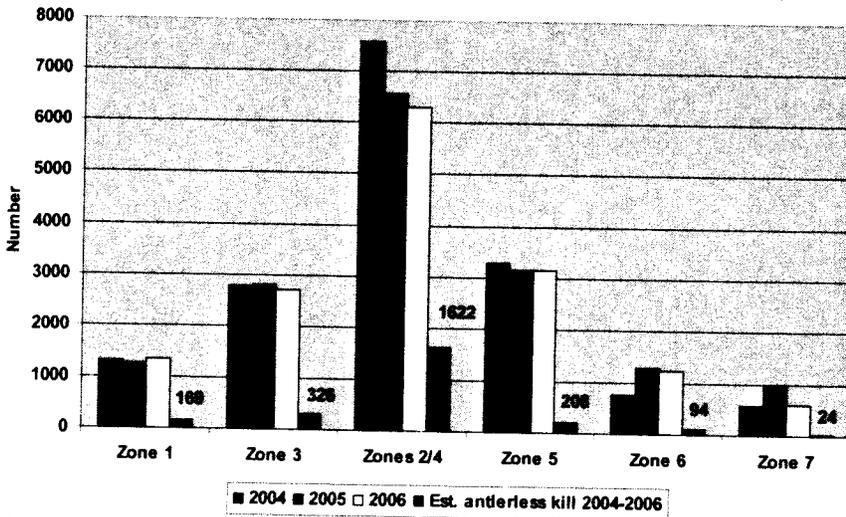


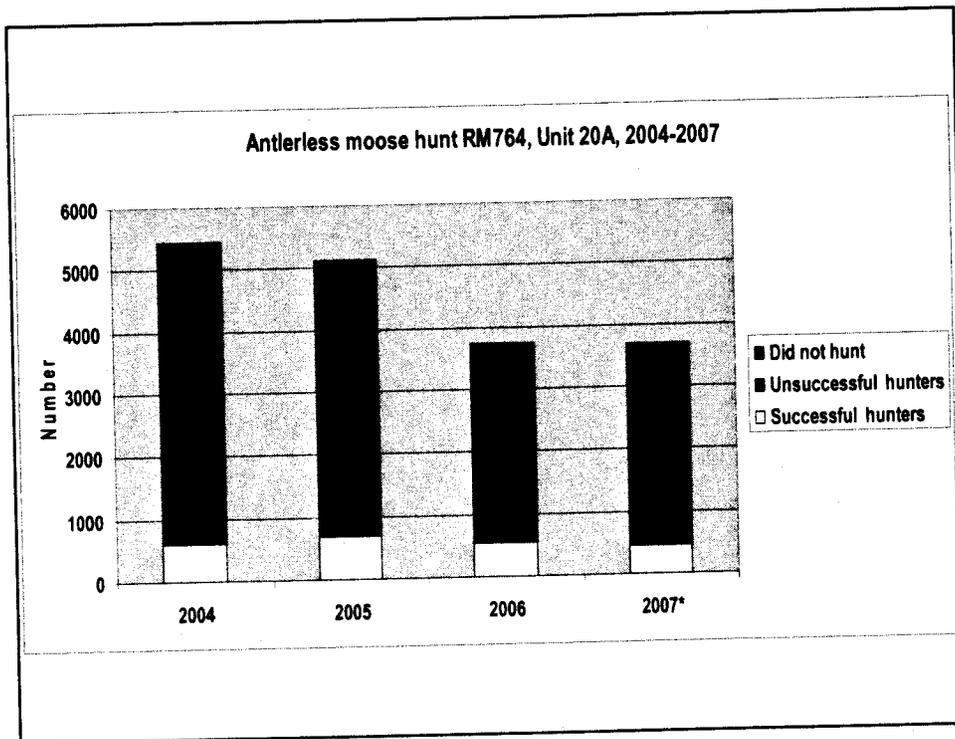
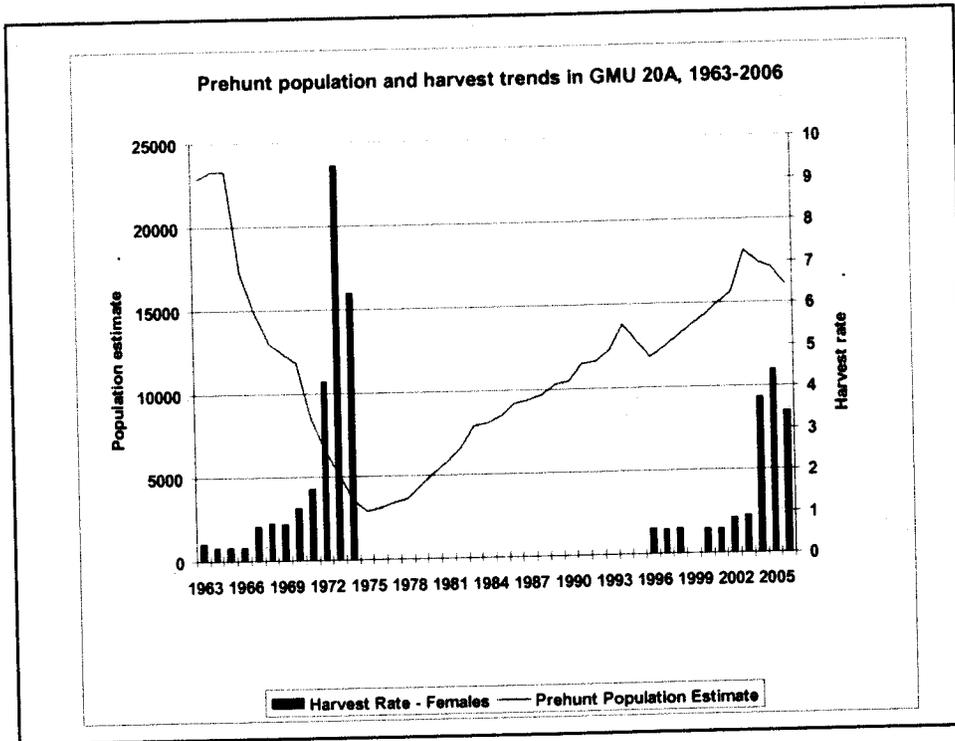


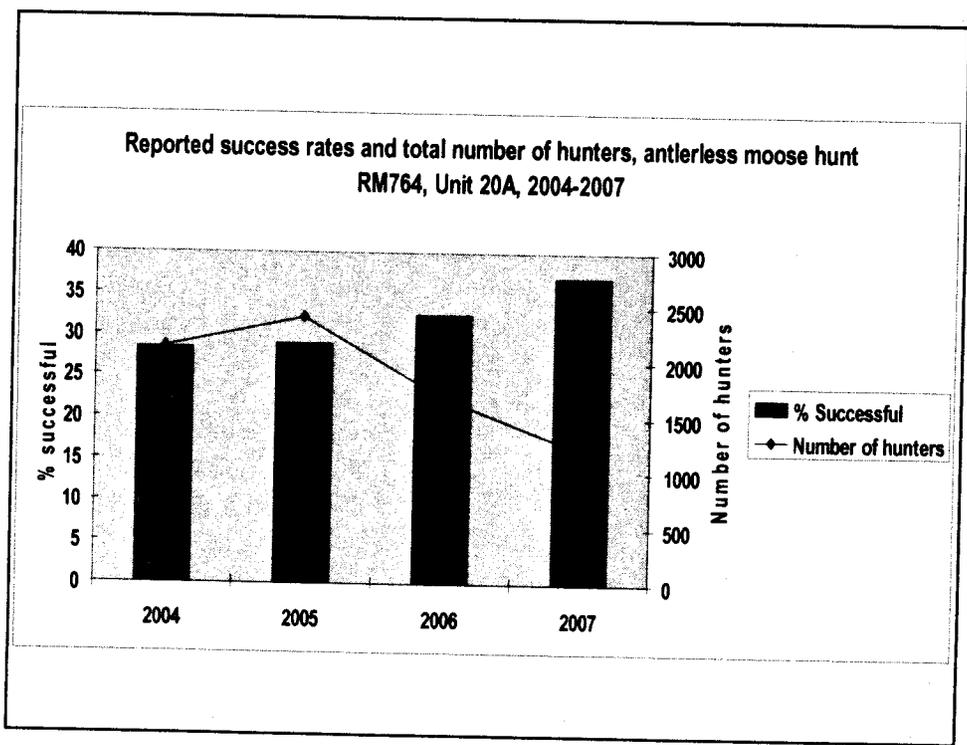
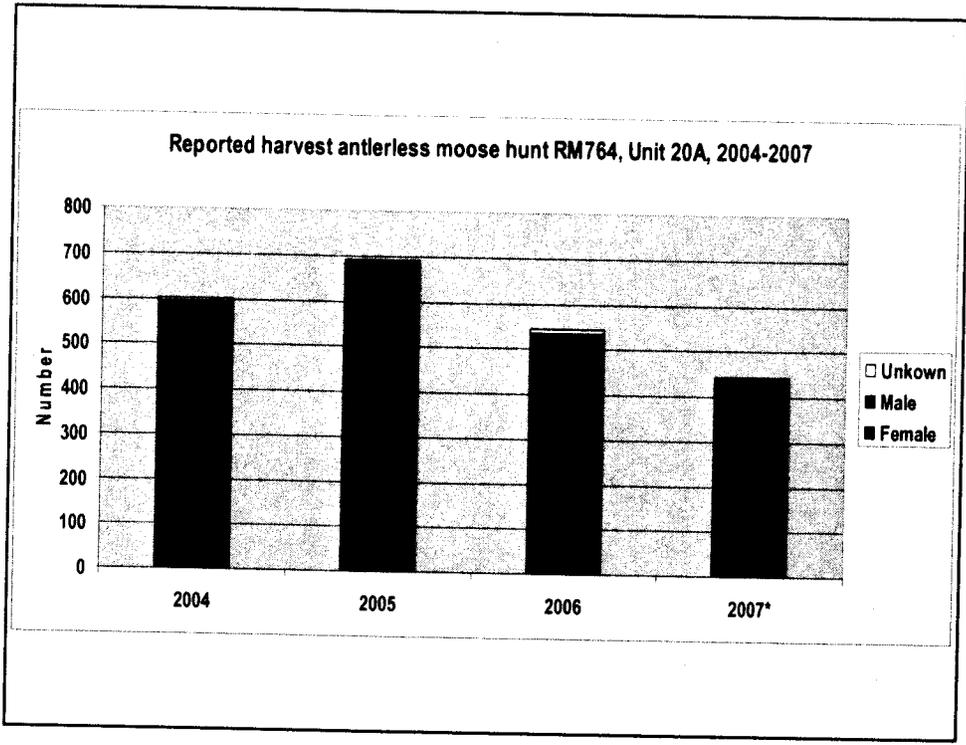
Population and antlerless kill estimates by hunt zone, Unit 20A, 2004-2006



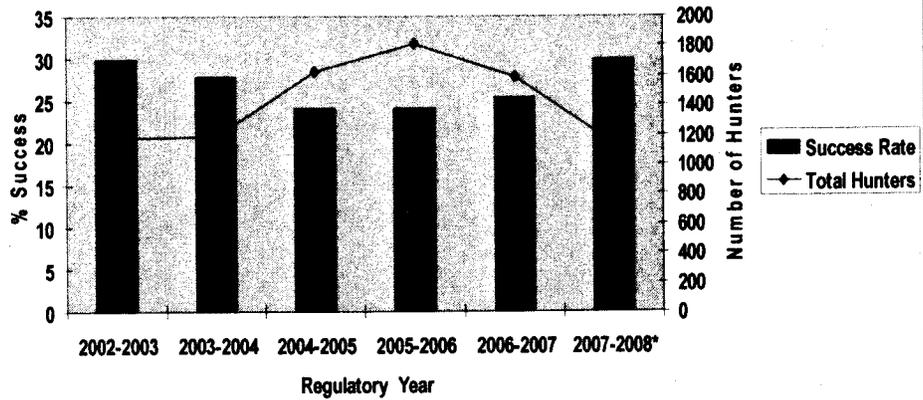
Population and antlerless kill estimates by hunt zone, Unit 20A, 2004-2006



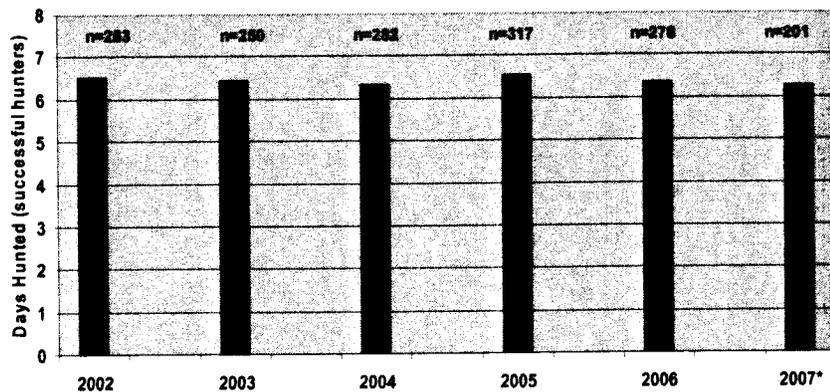




Reported success rates and total number of hunters, general moose hunt, Unit 20A, 2002-2007



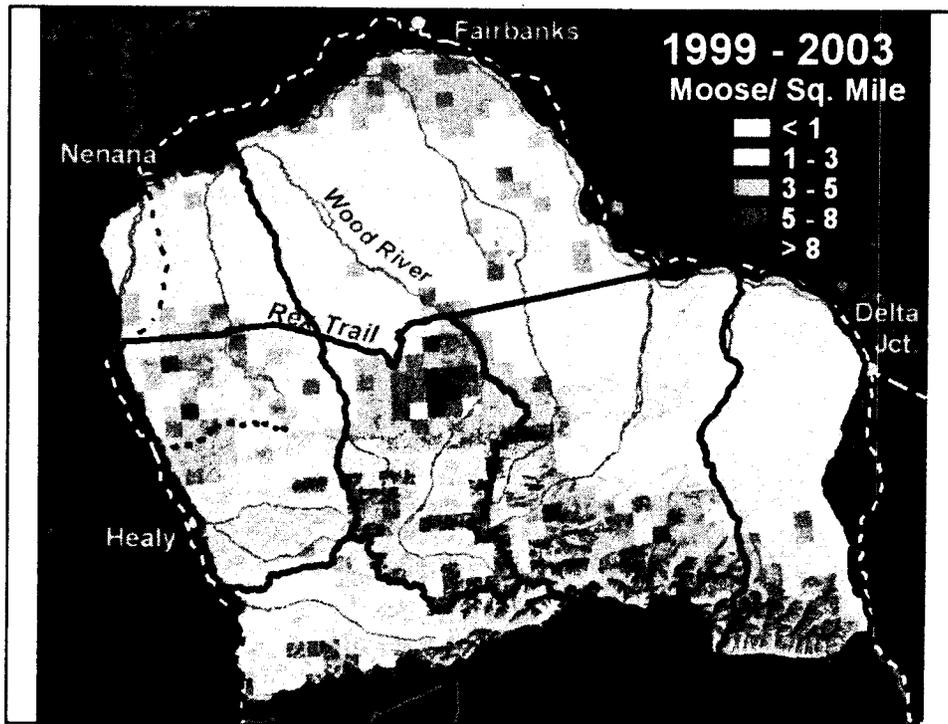
Reported number of days hunted by successful hunters (CPUE), general moose hunt, Unit 20A, 2002-2007

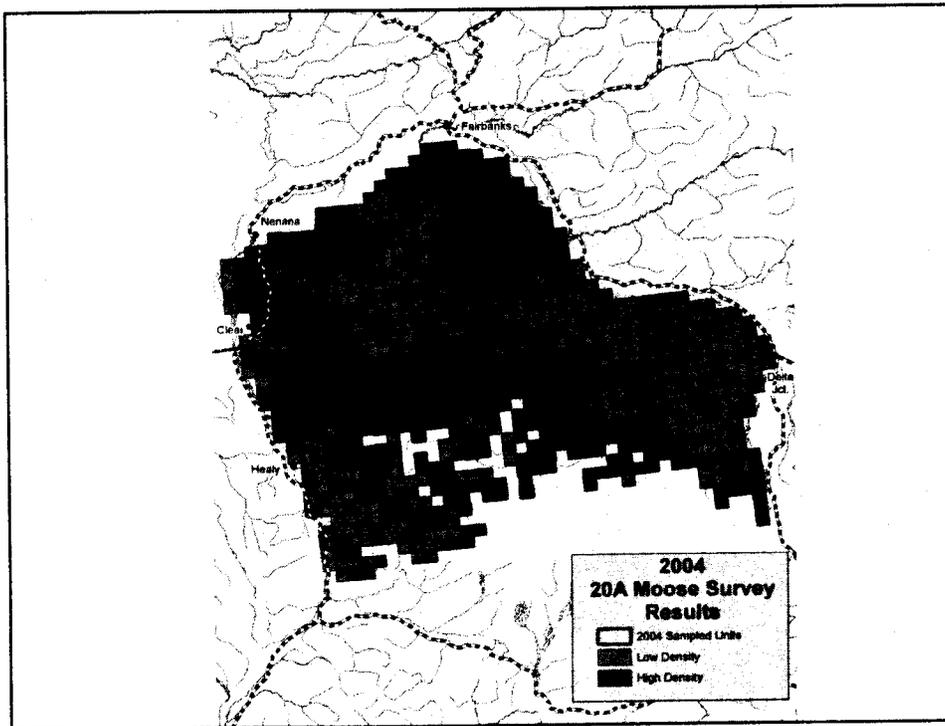
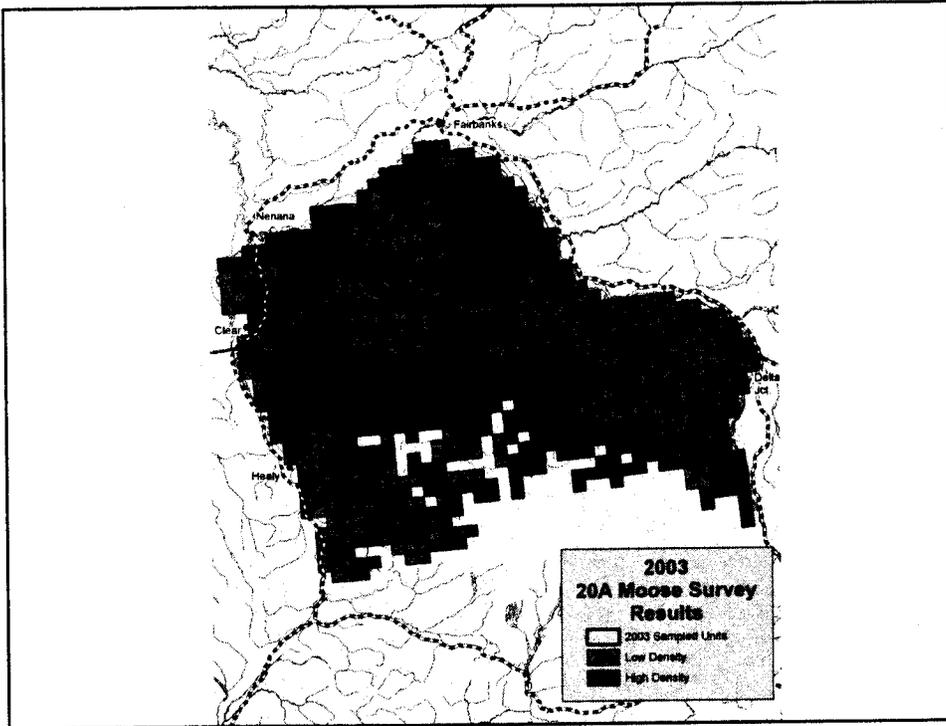


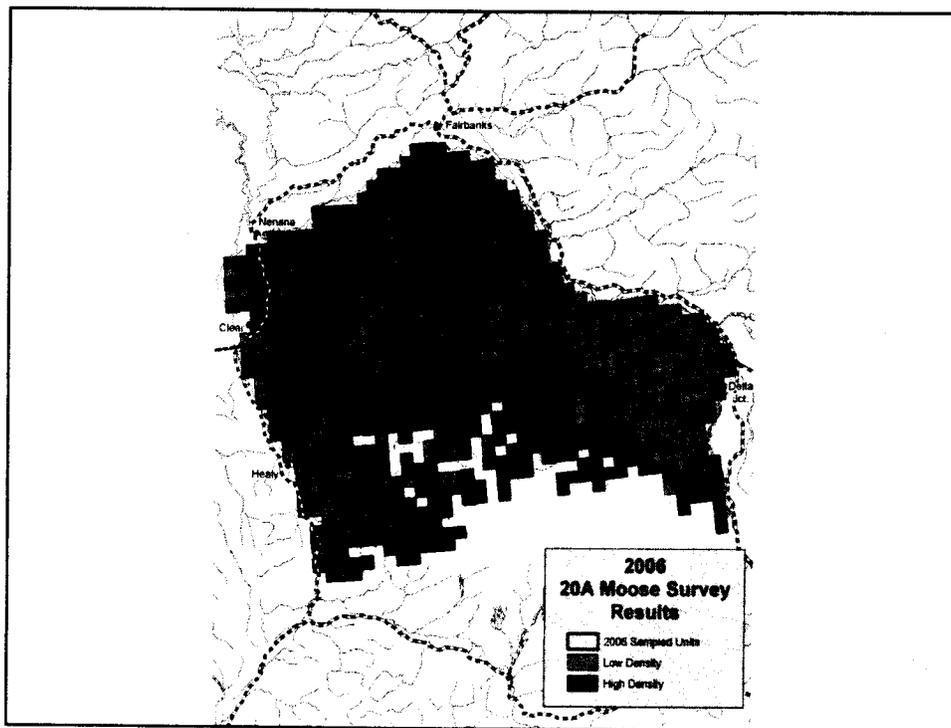
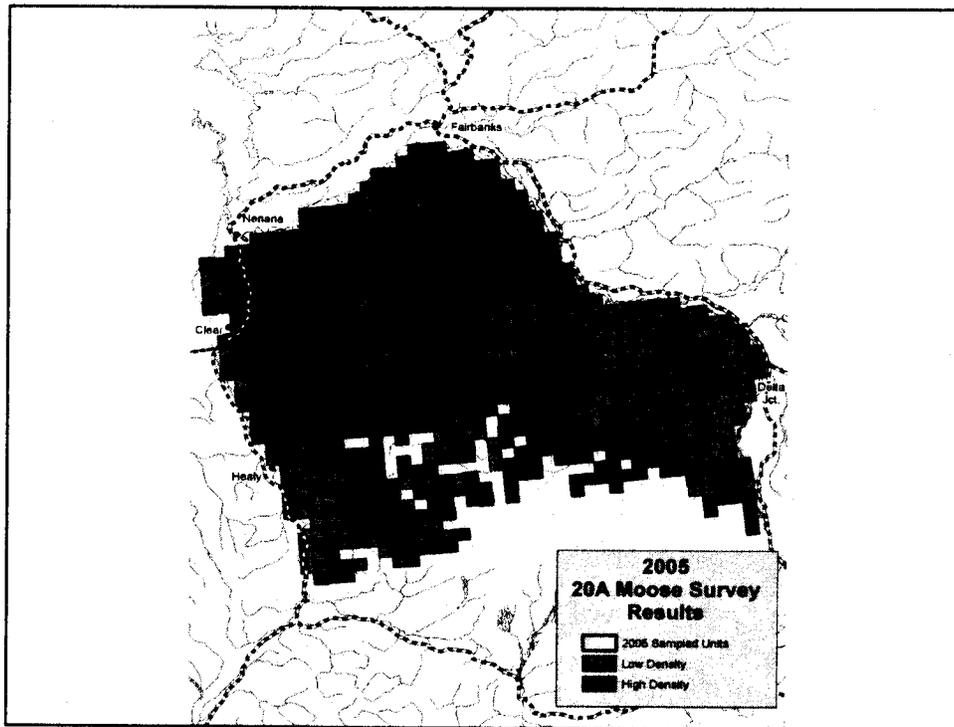
GMU 20A Moose Numbers Debate

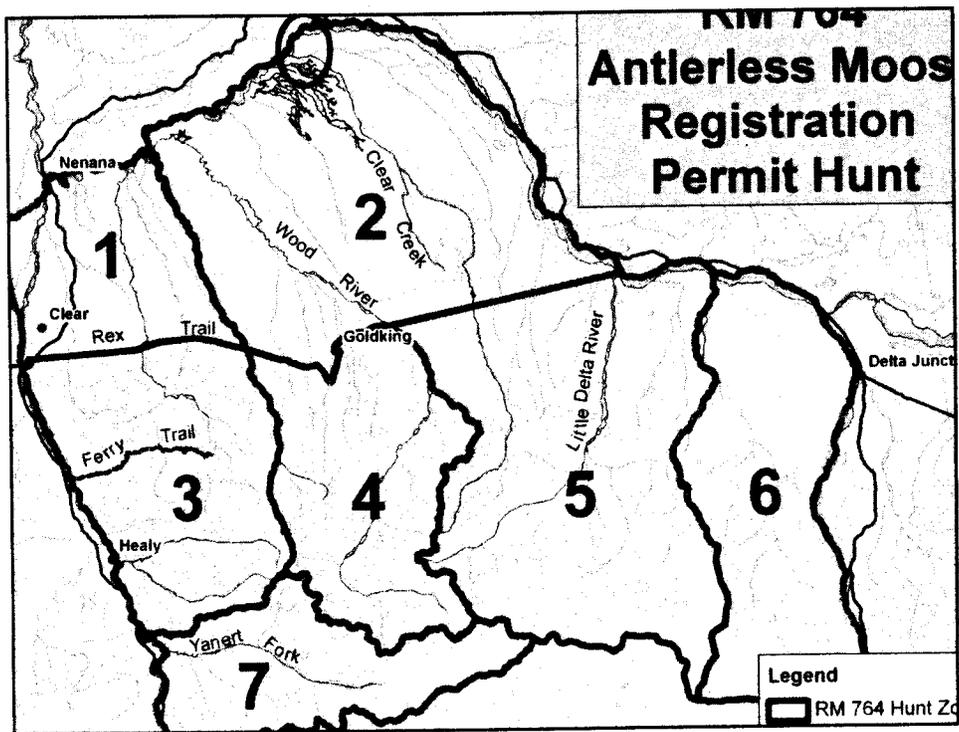
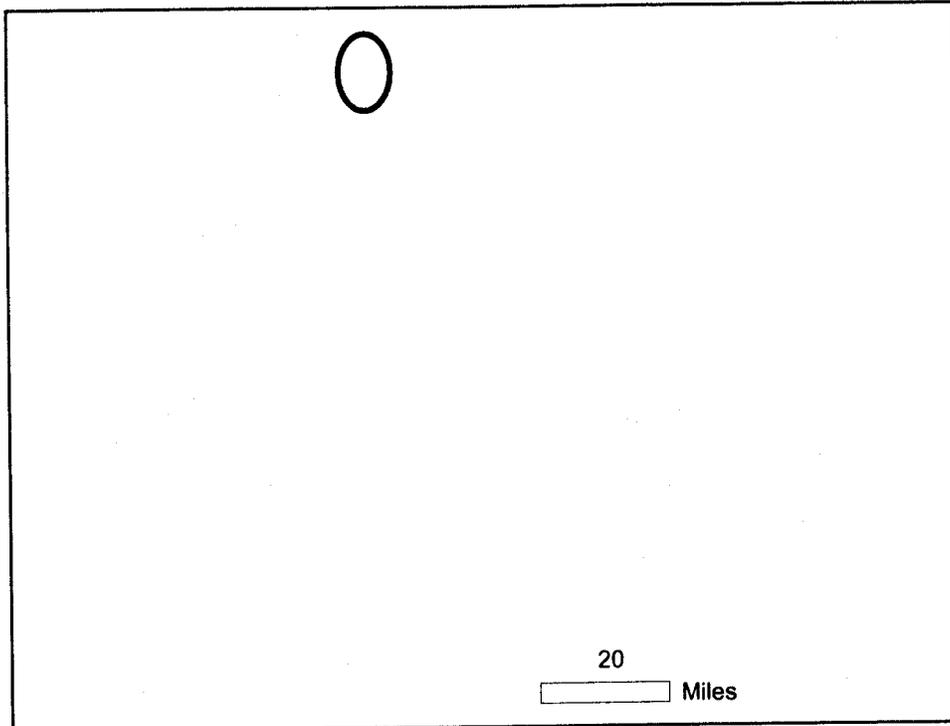
Hypothesis:

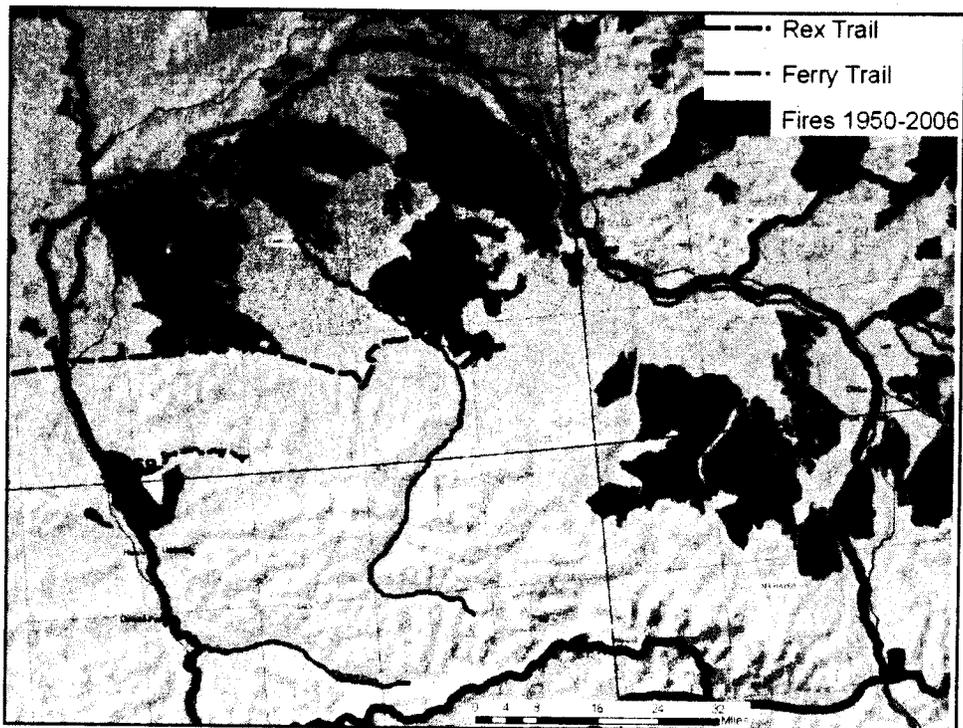
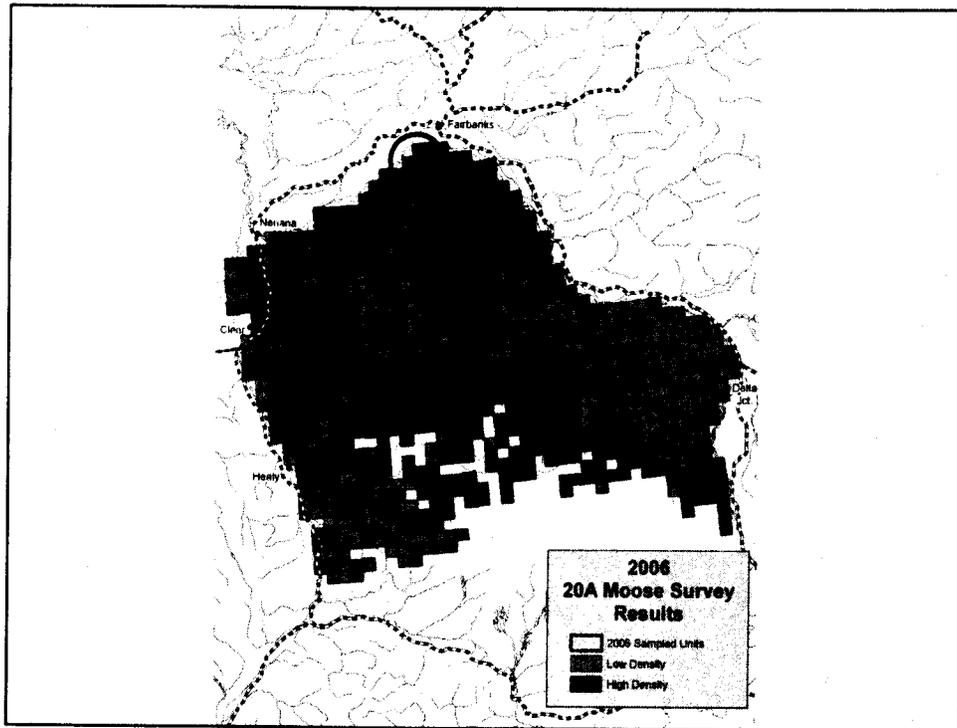
- Localized overharvest high access areas (e.g., trails, roads, rivers)
- Change in moose behavior, particularly cows, due to hunting
- Change in moose distributions due to fire (e.g., Zone 1)
- Change in seasonal moose movements due to relatively shallow snow loads



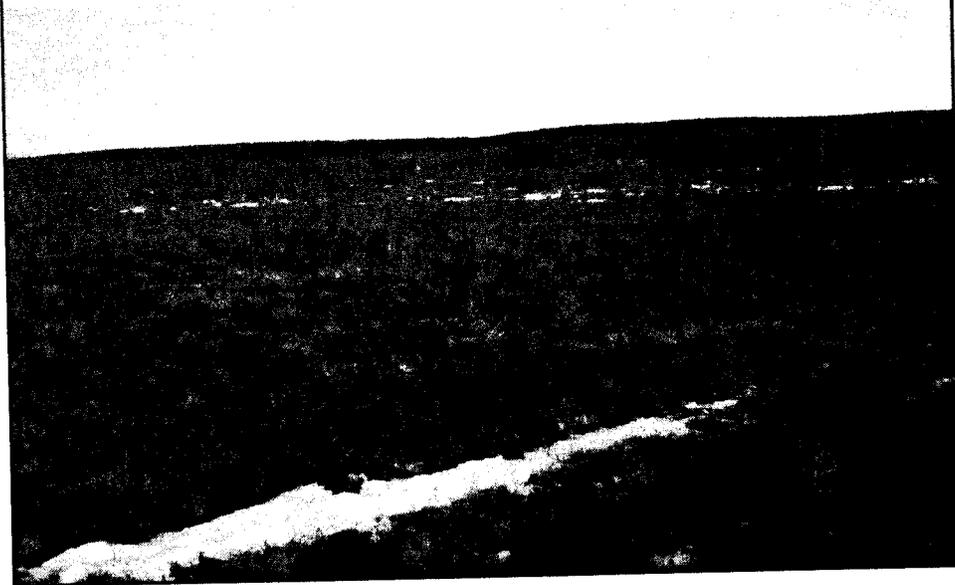




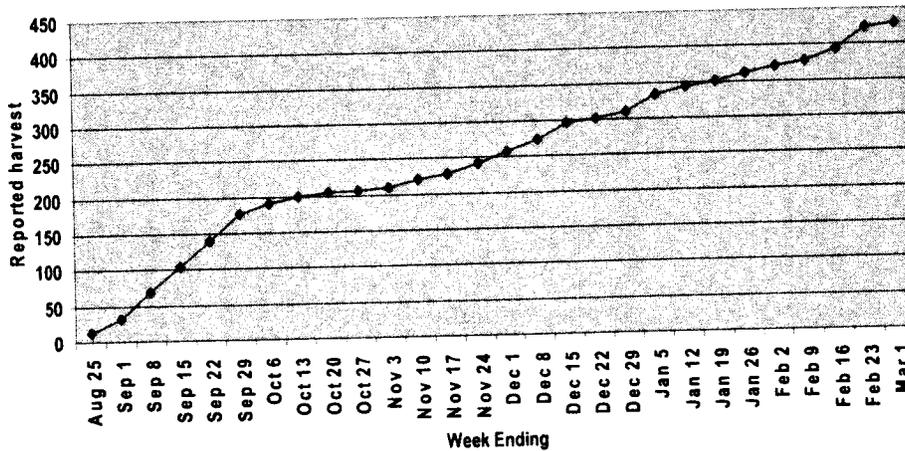


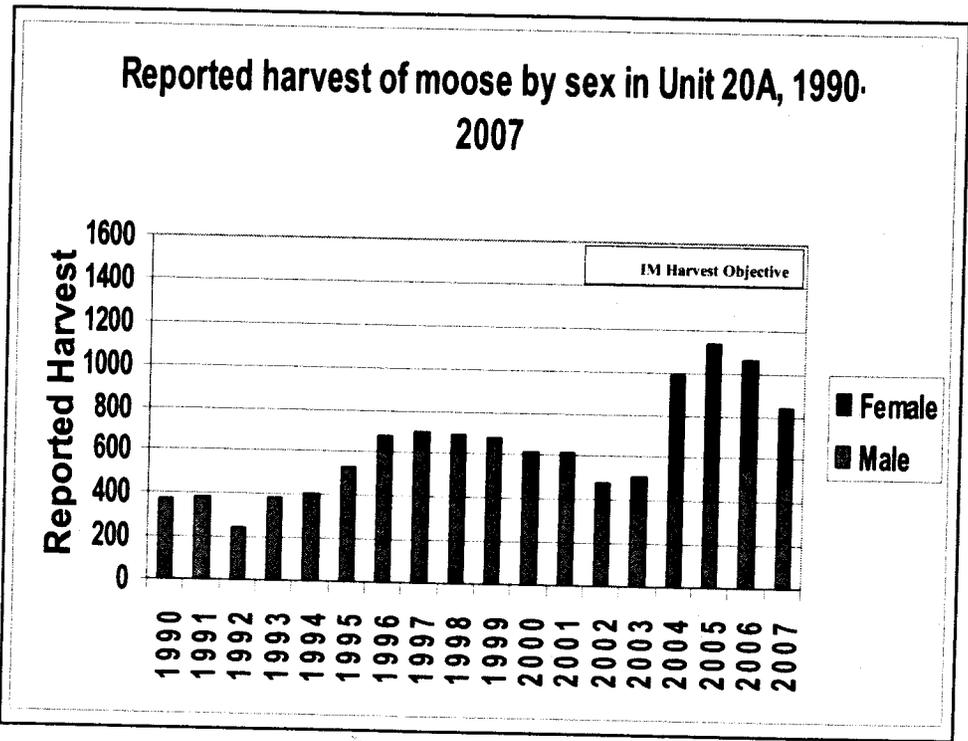
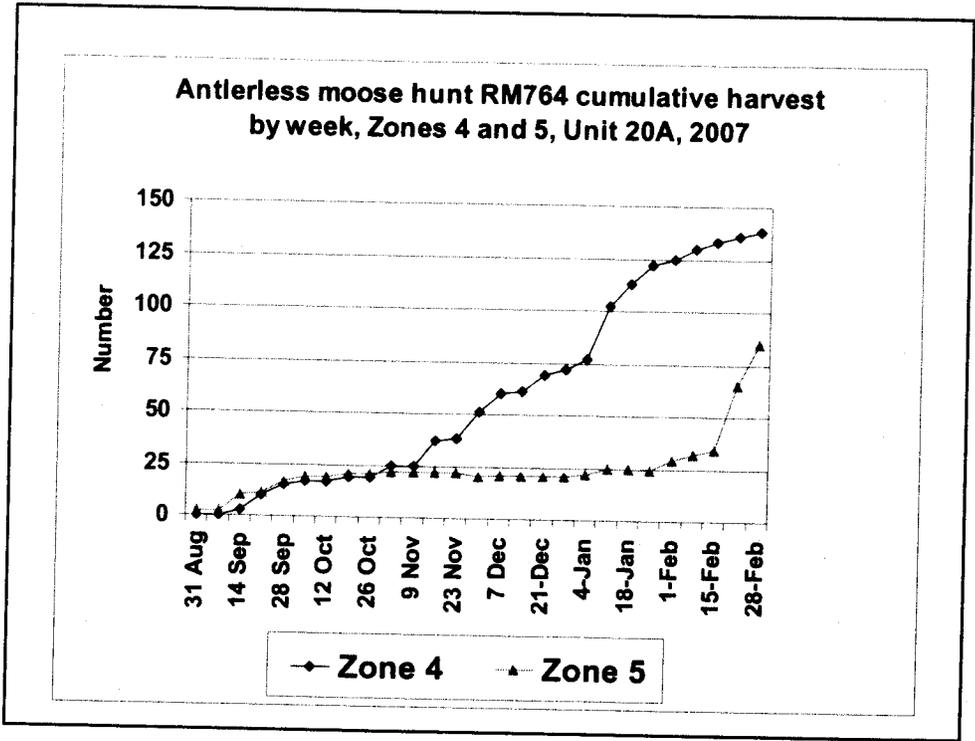


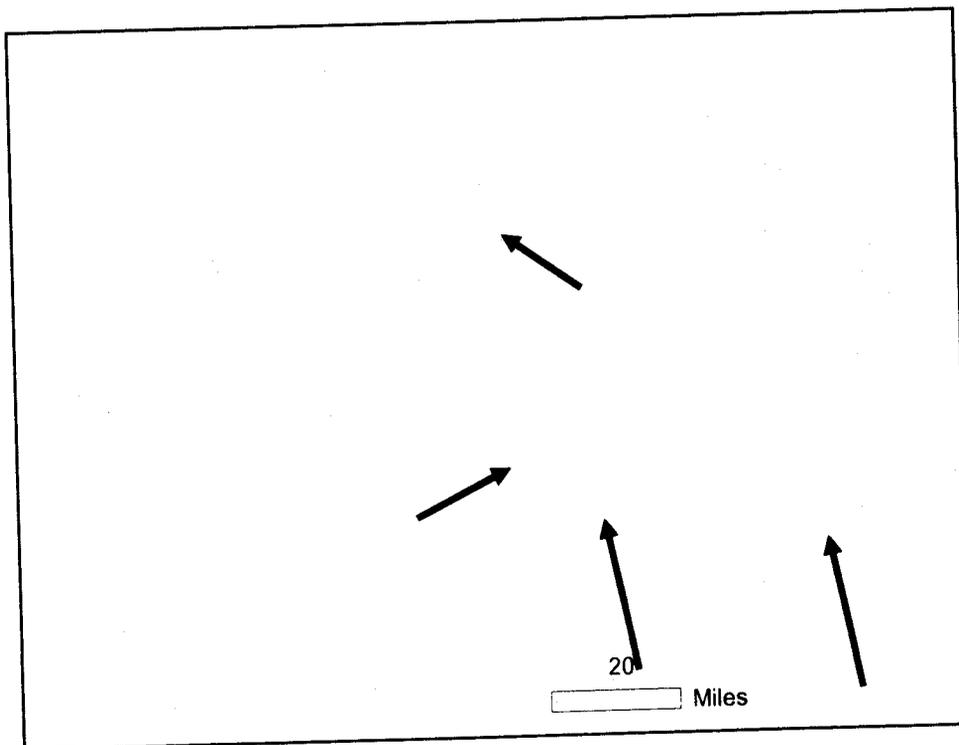
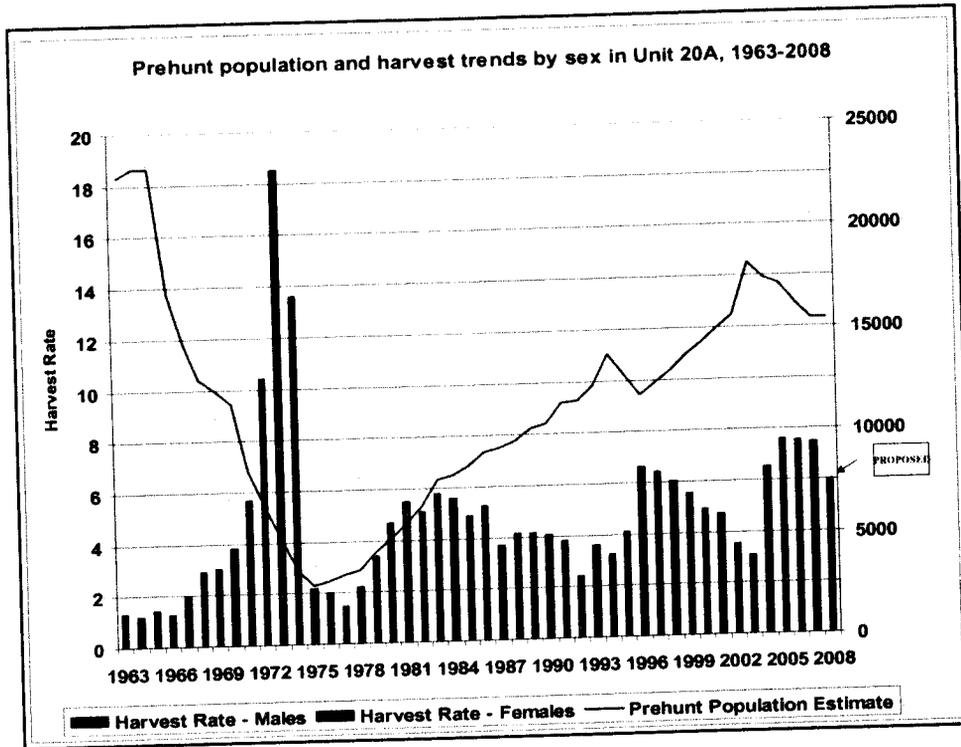
~ 1500' elevation, Zone 3, Unit 20A, February 3, 2007



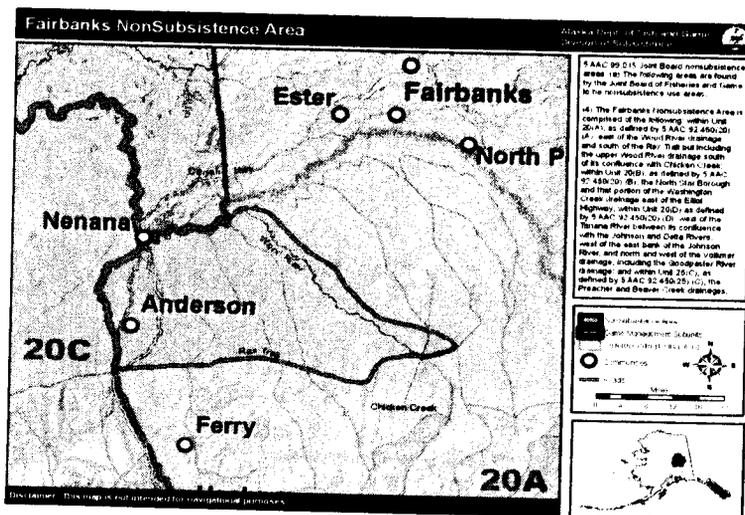
Antlerless moose hunt RM764 cumulative harvest by week, Unit 20A, 2007



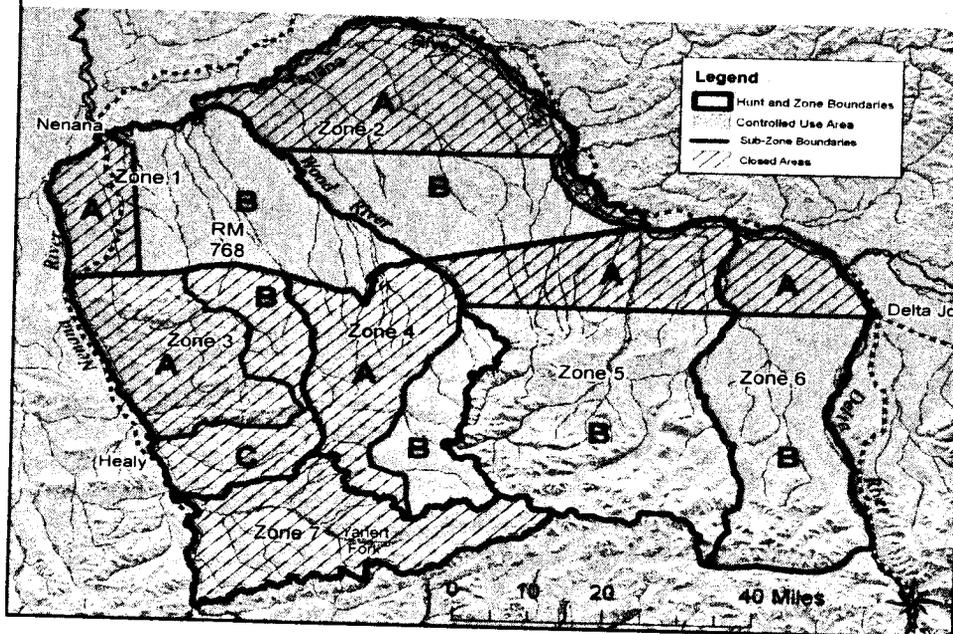


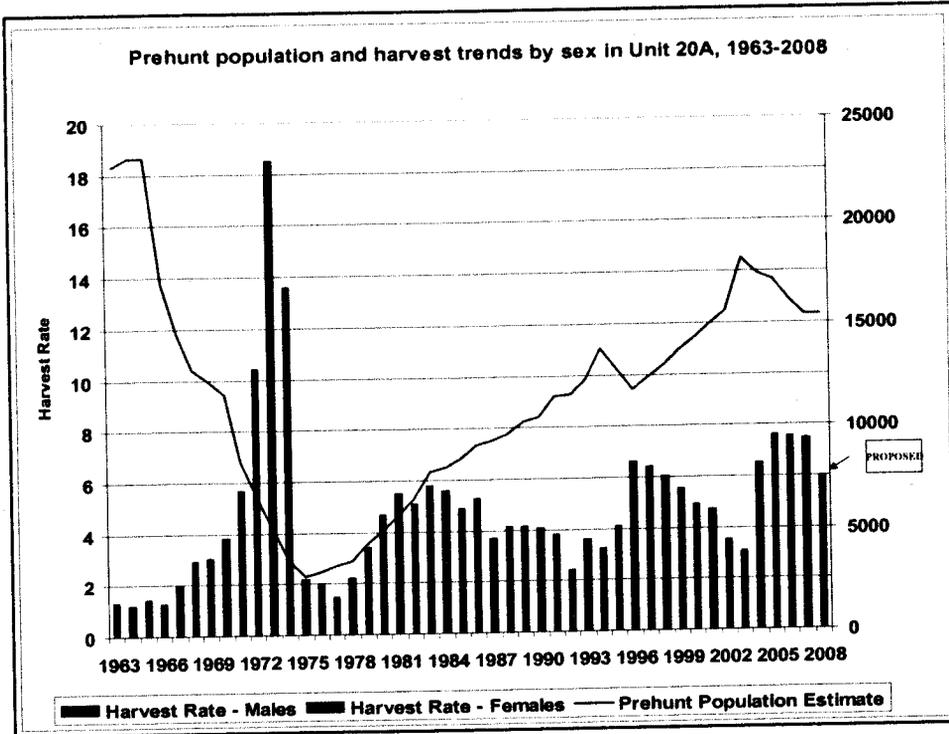


Excluded area within proposed hunt zones 1 and 2, GMU 20A antlerless hunt



Proposed Hunt Zones RY2008-2009





Unit 20A "any bull" hunt

- **2006:**
 - Issued 300 permits
 - 125 (42%) permits went unused
 - 175 hunters harvested 71 bulls
 - 41% success rate
- **2007:**
 - Issued 500 permits
 - 209 (42%) permits went unused
 - 291 hunters harvested 96 bulls
 - 33% success rate

GMU 20A Harvest Strategy

- **Antler restrictions** - limit harvest of bull moose; reduce hunting pressure; retain longer seasons
- **“Any bull” drawing permits** – maximize harvest; optimize harvest distribution; meet IM mandate for high harvests
- **Antlerless harvest** - population regulation; meet IM mandate for high harvests

Proposal 130 – GMU 20A Moose

EFFECT OF THE PROPOSAL:

- Reauthorize antlerless hunt
 - Change antlerless bag limit to “may not shoot a calf or cow accompanied by a calf”
 - Redistribute harvest and hunting pressure away from high access areas (e.g., roads, trails, river corridors)
- Increase “up to” language for “any bull” permits from 500 to 1000

DEPARTMENT RECOMMENDATION: Staff proposal

Supported by all affected AC's

Proposal 131 – GMU 20B Moose

EFFECT OF THE PROPOSAL:

- Reauthorize antlerless hunts in Fairbanks area and Minto Flats MA
- Change antlerless bag limit to “may not shoot a calf or cow accompanied by a calf” (Central Unit 20B hunts only)

DEPARTMENT RECOMMENDATION: Staff proposal

RATIONALE:

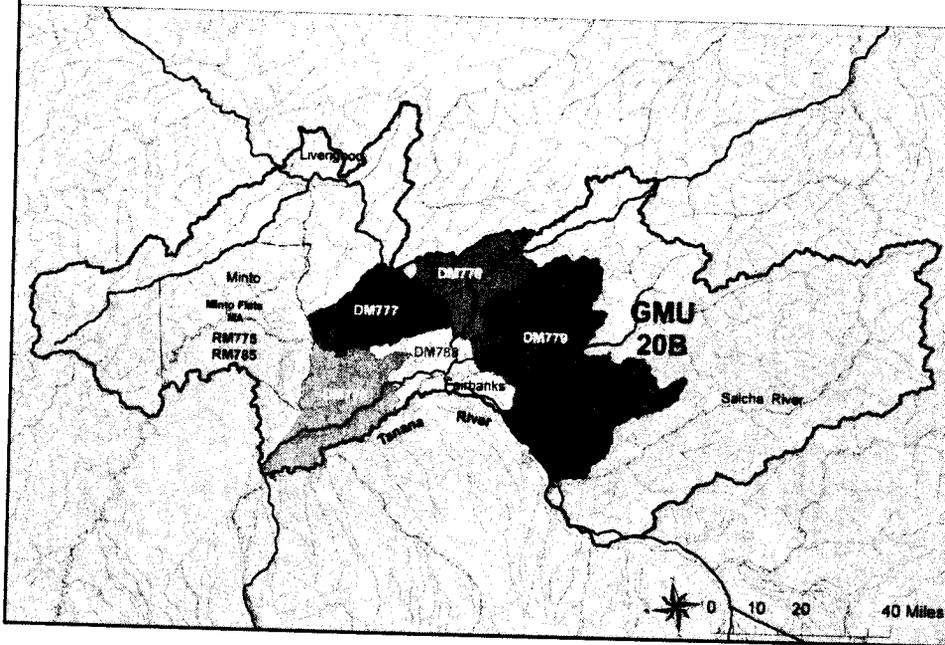
- Moose populations in central GMU 20B at high densities and were increasing
- Slow population growth
- Provide additional hunting opportunity
- Potentially reduce road kill in Fairbanks area

Proposal 131 – GMU 20B Moose

Overview:

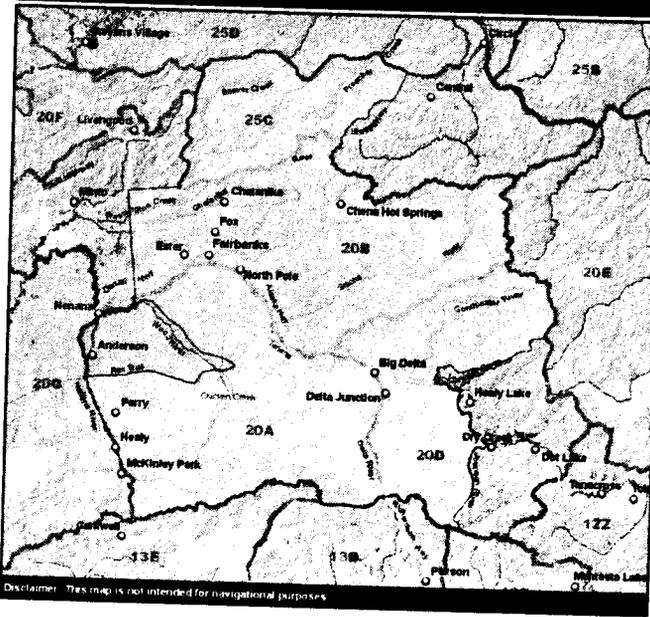
- Unit 20B population trend, IM population and harvest objectives
- Central Unit 20B antlerless hunts
- Fairbanks Management Area (FMA)
- Minto Flats Management Area (MFMA)

GMU 20B ANTLERLESS MOOSE HUNTS



Fairbanks NonSubsistence Area

Alaska Dept. of Fish and Game
Division of Subsistence

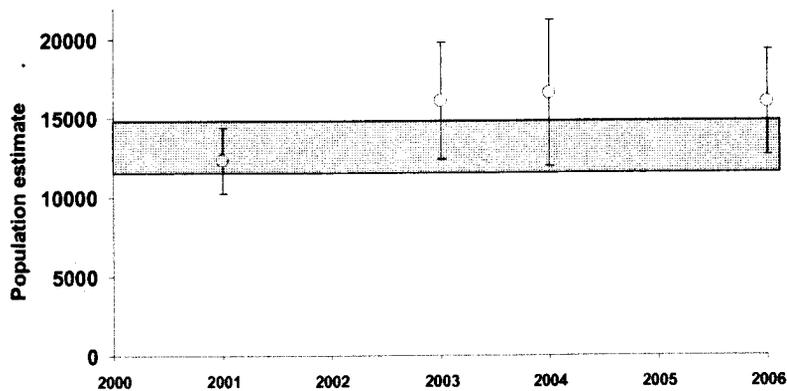


Proposal 131 – GMU 20B Moose

OBJECTIVES

- Population objective 12,000 - 15,000 moose
- Harvest objective 600 – 1,500 moose
- Manage for 30 bulls:100 cows (posthunt)

GMU 20B moose population estimates, 2001-2006



Proposal 131 – GMU 20B Moose

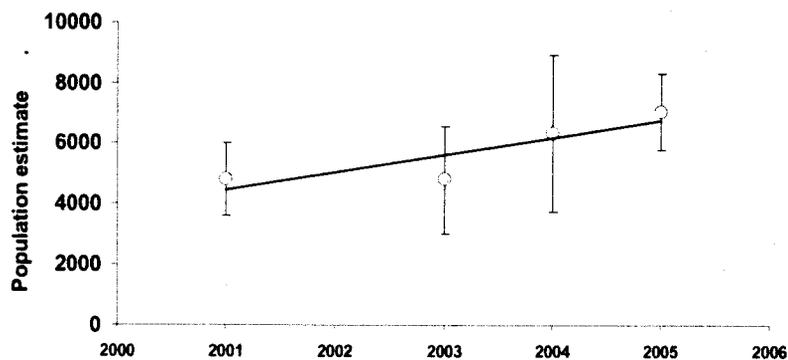
EFFECT OF THE PROPOSAL:

- Reauthorize antlerless hunts by drawing permit in central portion of Unit 20B (Sept 1-30; up to 300 permits)
- Change antlerless bag limit to “may not shoot a calf or cow accompanied by a calf” (Central Unit 20B hunts only)

RATIONALE:

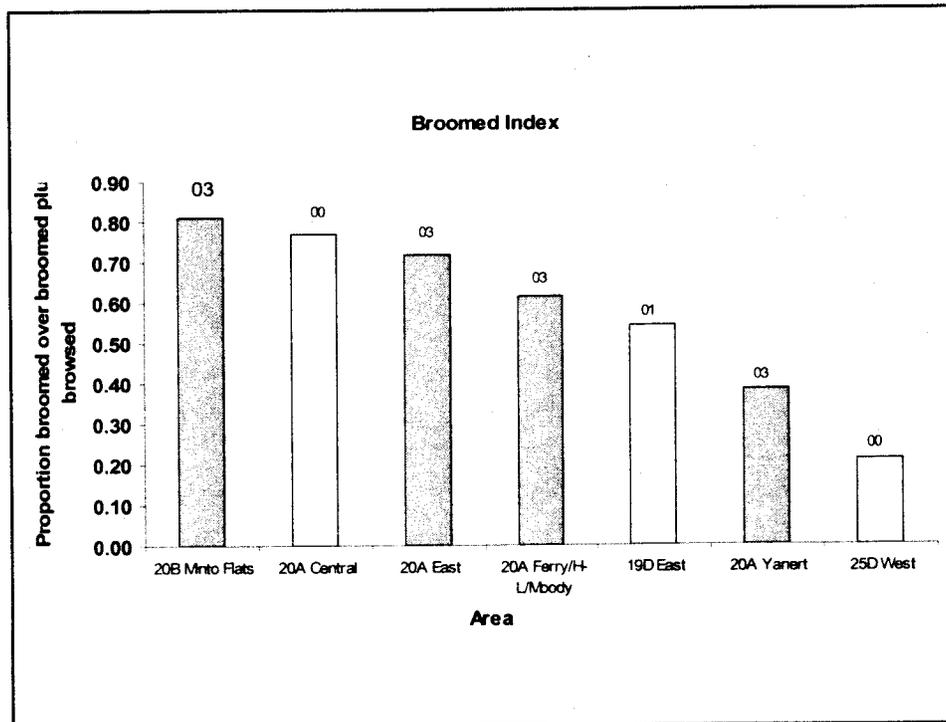
- Moose population in central Unit 20B at high density and increasing
- Hunts aimed at slowing population growth
- Provide additional hunting opportunity
- Potentially reduce road kill in Fairbanks area

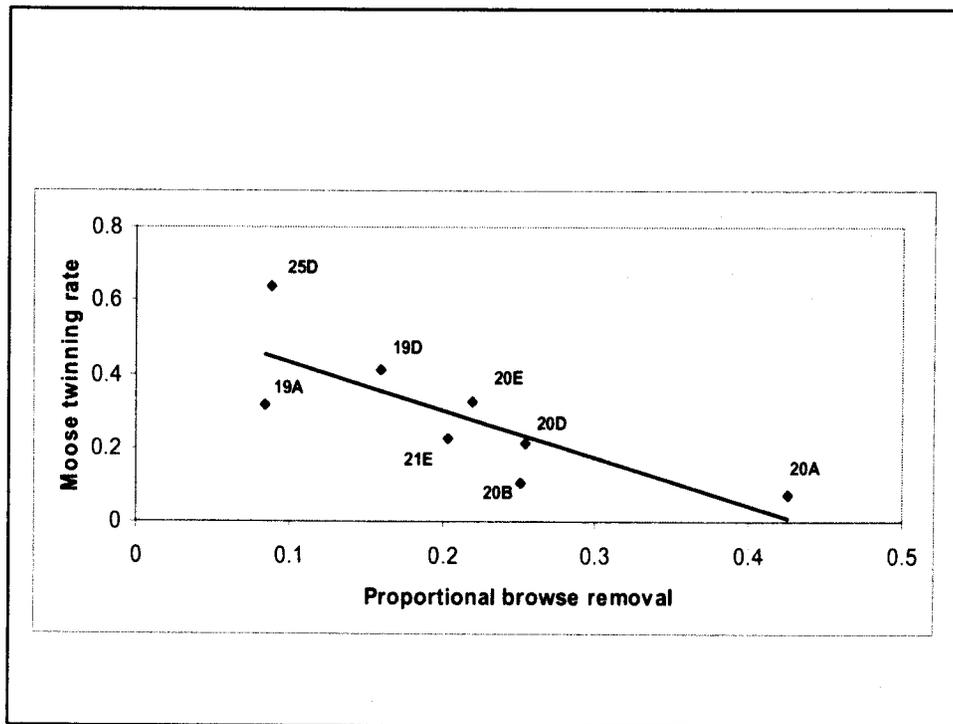
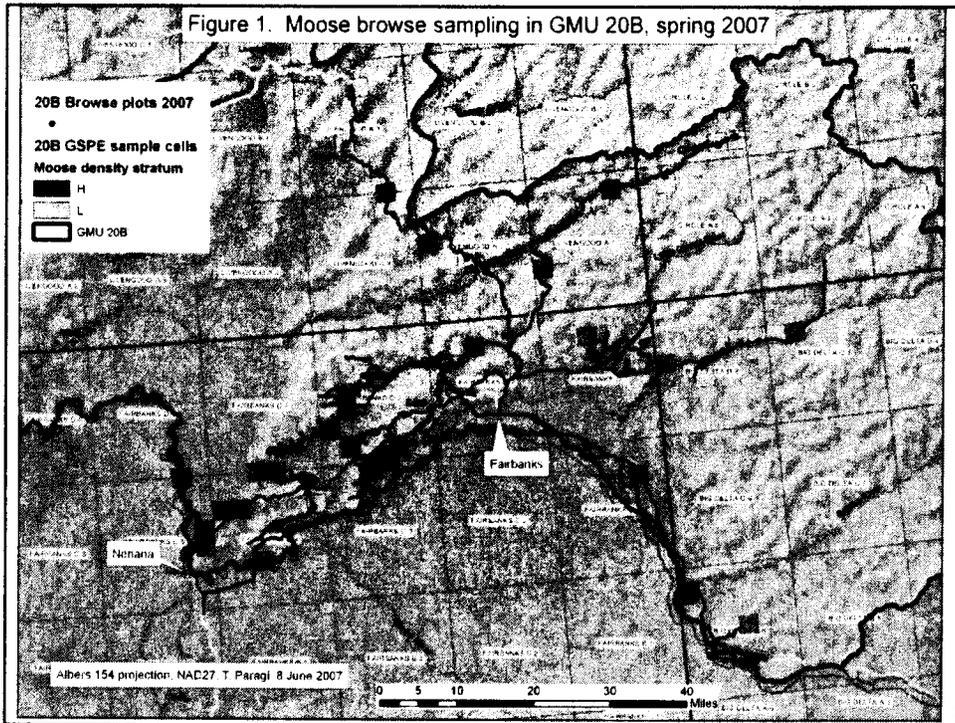
Central GMU 20B moose population trend, 2001-2005

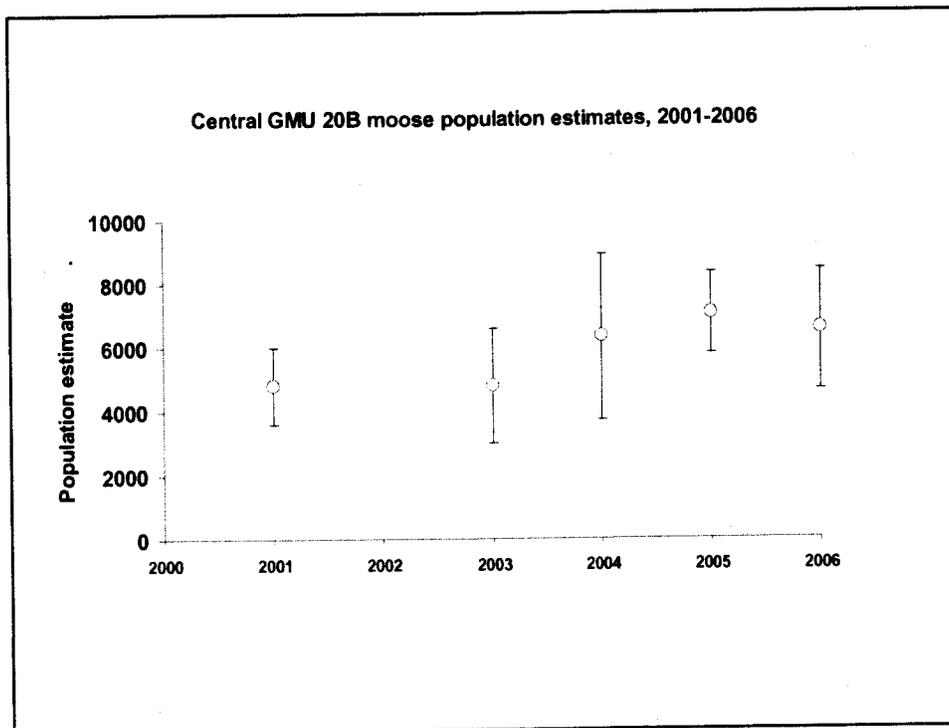
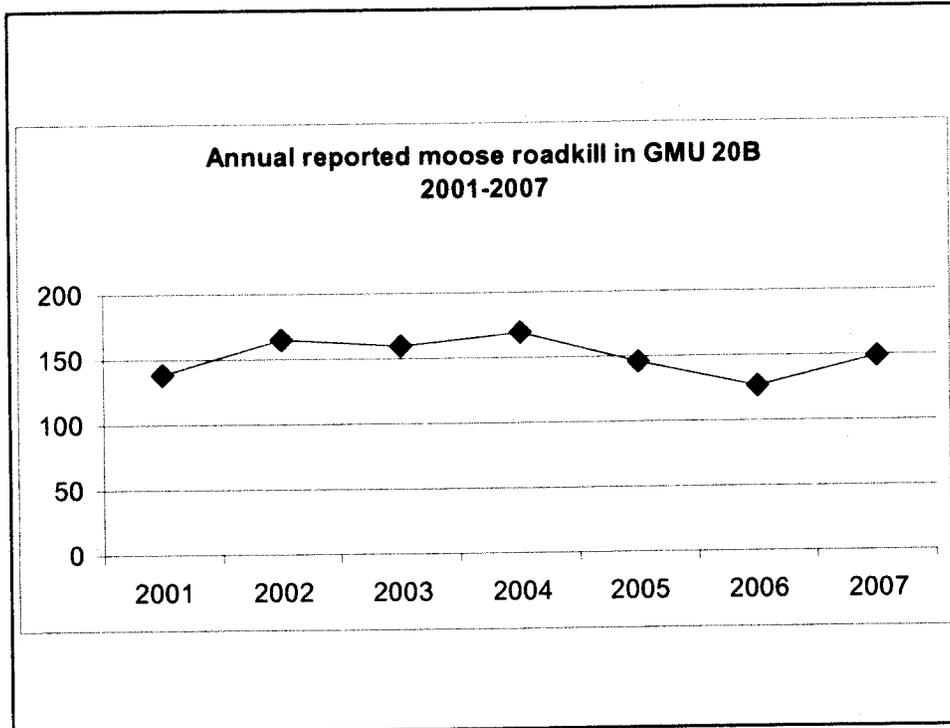


Moose fall composition counts and estimated population size in central GMU 20B, 2001-2005

Regulatory year	Bulls: 100 Cows	Yearlings: 100 Cows ^a	Calves: 100 Cows	Moose/mi ²	Population size (90% CI)	SCF=1.2
2001	27	13	34	1.0 ^b	4005 (±25%)	4806
2003	26	21	35	1.0 ^b	3883 (±39%)	4660
2004	33	22	46	1.4 ^b	5276 (±41%)	6331
2005	26	26	40	1.5 ^b	5881 (±18%)	7057







Central Unit 20B Antlerless Hunt

- **2006:**
 - Issued 200 permits
 - 22 (11%) permits went unused
 - 178 hunters harvested 101 antlerless moose
 - 57% success rate
- **2007:**
 - Issued 200 permits
 - 33 (17%) permits went unused
 - 167 hunters harvested 83 antlerless moose
 - 50% success rate

Proposal 131 – GMU 20B Moose

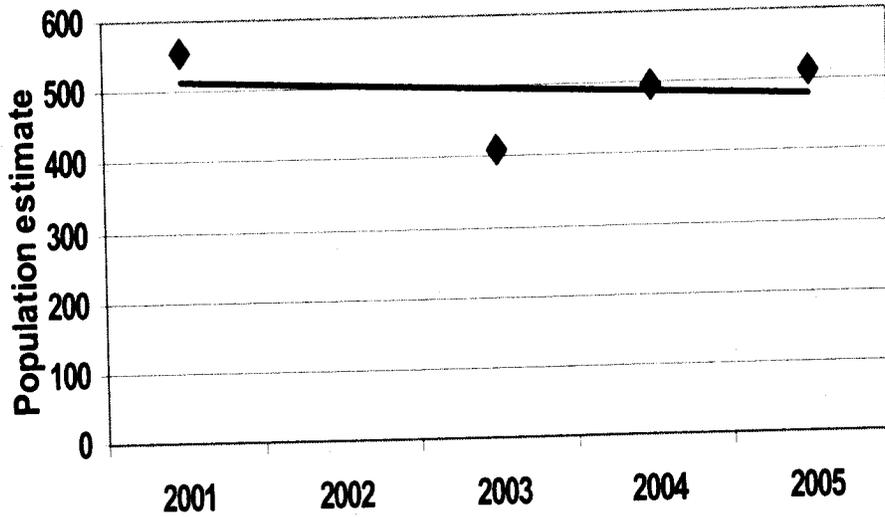
EFFECT OF THE PROPOSAL:

- Reauthorize antlerless hunts by drawing permit in Fairbanks MA of Unit 20B (Sept 1-Nov 27; up to 150 permits)
- Change antlerless bag limit to “may not shoot a calf or cow accompanied by a calf” (Central Unit 20B hunts only)

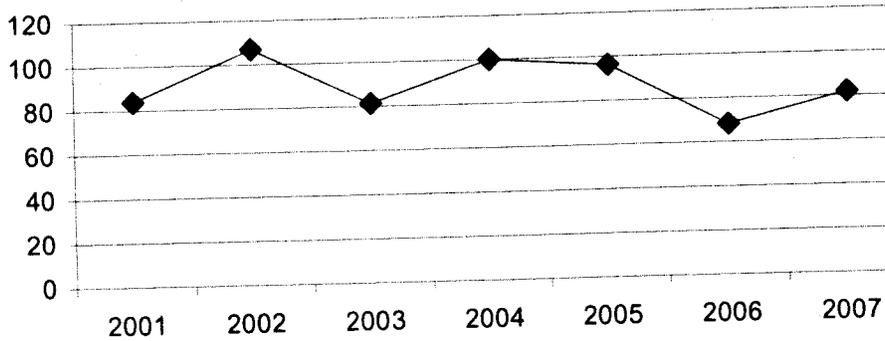
RATIONALE:

- Moose population in central Unit 20B at high density and increasing
- Hunts aimed at slowing population growth
- Provide additional hunting opportunity
- Potentially reduce road kill in Fairbanks area

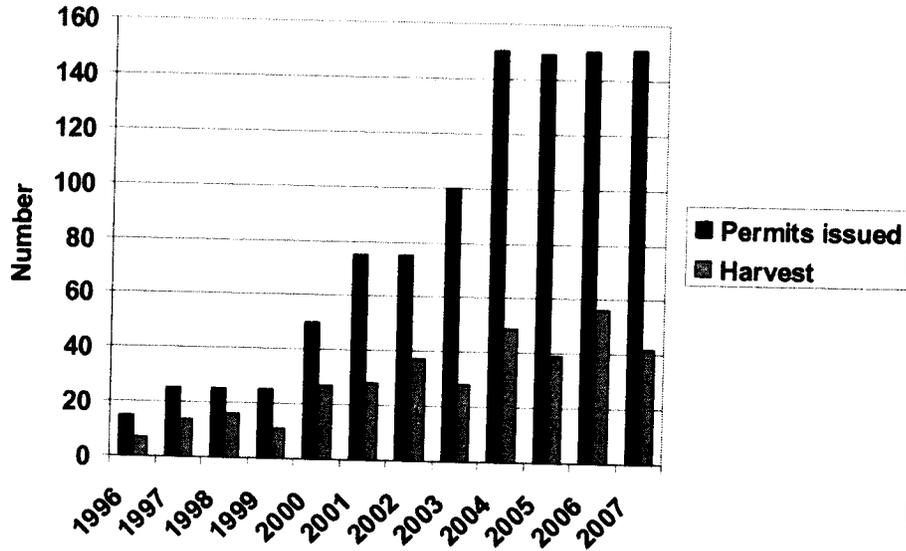
Fairbanks MA moose population estimates and trend , 2001-2005



Annual reported moose roadkill in FMA
2001-2007



**Harvest in relation to number of permits issued in Fairbanks
MA antlerless hunt DM788, 1996-2007**



Proposal 131 – GMU 20B Moose

EFFECT OF THE PROPOSAL:

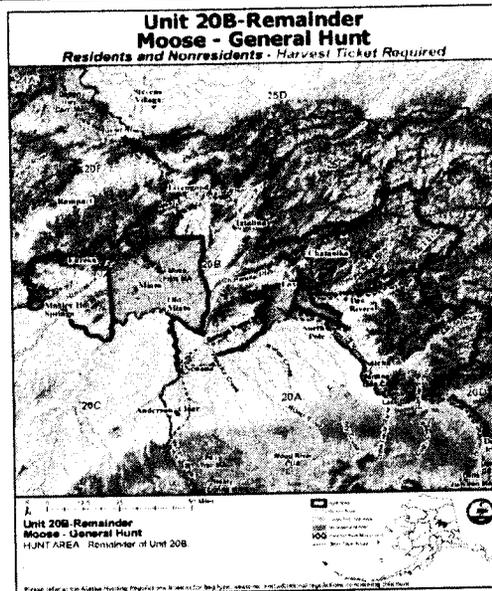
- Reauthorize antlerless hunt in Minto Flats MA

DEPARTMENT RECOMMENDATION: Staff proposal

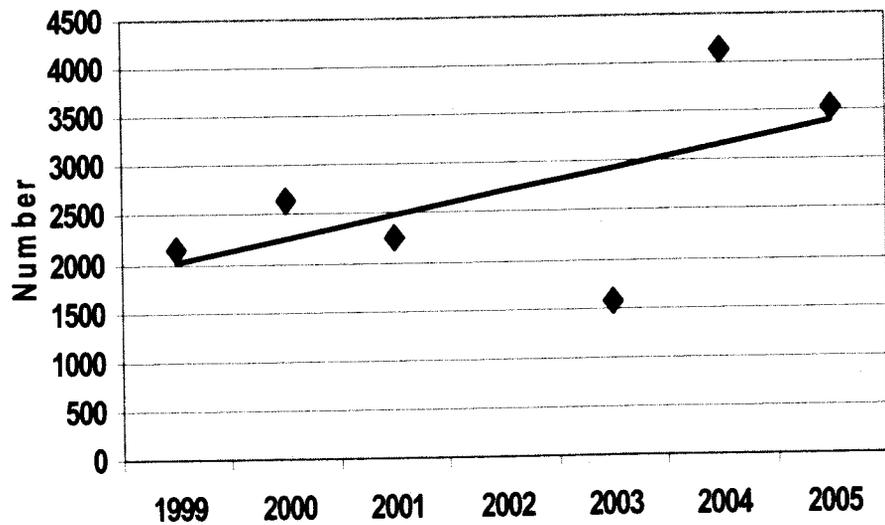
RATIONALE:

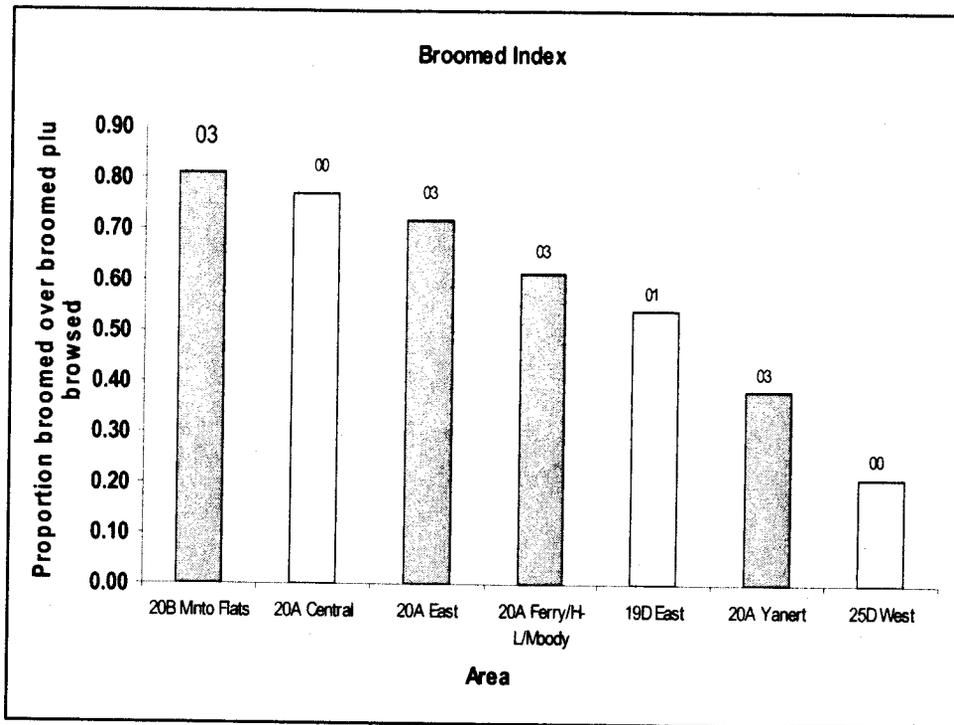
- Moose populations in central GMU 20B at high densities and increasing
- Slow population growth
- Provide additional hunting opportunity
- Potentially reduce road kill in Fairbanks area

Location of Minto Flats MA



Minto Flats MA moose population estimates and trend, 1999-2005





Proposal 131 – GMU 20B Moose MFMA

- Harvest 50-60 cow moose annually
- Annual harvest rate of cows < 2.0%

Proposal 131 – GMU 20B Moose

EFFECT OF THE PROPOSAL:

- Reauthorize antlerless hunts in Fairbanks area and Minto Flats MA
- Change antlerless bag limit to “may not shoot a calf or cow accompanied by a calf” (Central Unit 20B hunts only)

DEPARTMENT RECOMMENDATION: Staff proposal

RATIONALE:

- Moose populations in central GMU 20B at high densities and were increasing
- Slow population growth
- Provide additional hunting opportunity
- Potentially reduce road kill in Fairbanks area

Proposal 24 – GMU 20B Moose

EFFECT OF THE PROPOSAL: Reinstate the TM785 permit hunt in the Minto Flats MA

DEPARTMENT RECOMMENDATION: NO RECOMMENDATION

RATIONALE:

- This is an allocation issue
- Annual harvest of ~150 moose exceeds ANS of 20-40
- Current estimated annual harvestable surplus 180 moose (@ 6% harvest rate)
- Bifurcate hunt
 - Limited registration hunt (~200 permits): “any moose” Sept 1-25 and Jan 10-Feb 28
 - General season: SF50/4 BT Sept 11-25 season
- Distribution of permits had been highly contentious issue

Proposal 24 – GMU 20B Moose

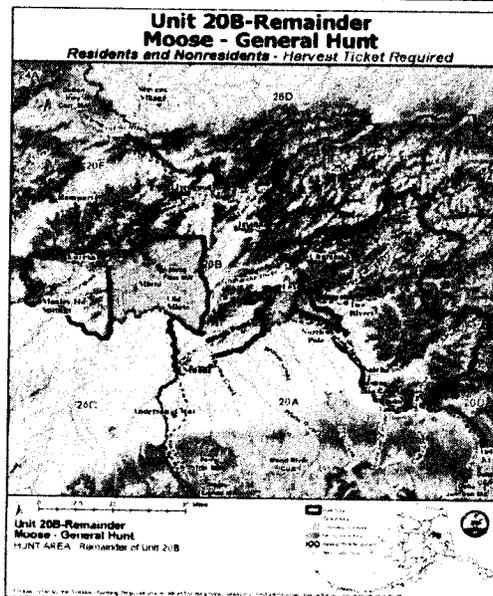
EFFECT OF THE PROPOSAL: Reinstate the TM785 permit hunt in the Minto Flats MA

DEPARTMENT RECOMMENDATION: NO RECOMMENDATION

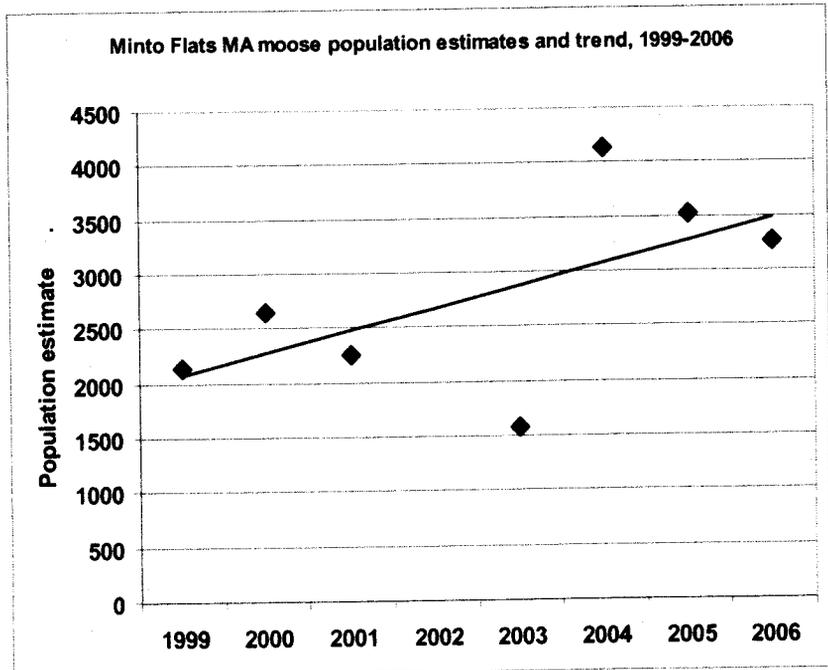
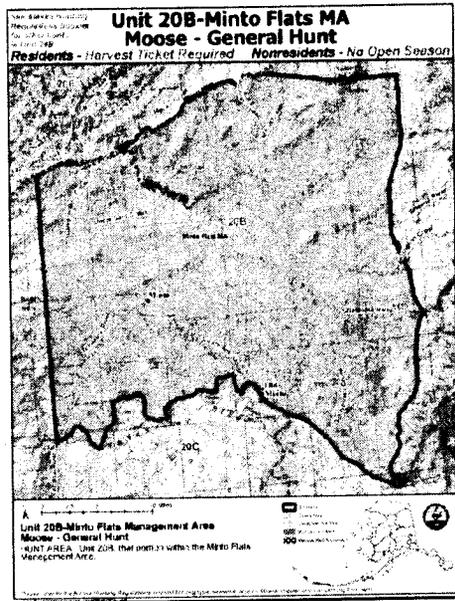
RATIONALE:

- This is an allocation issue
- Annual harvest of ~150 moose
- Current estimated annual harvestable surplus 180 moose (@ 6% harvest rate)
- ANS of 20-40
- Bifurcated hunt
 - Limited registration hunt (~200 permits): “any moose” Sept 1-25 and Jan 10-Feb 28
 - General season: SF50/4 BT Sept 11-25 season
- Distribution of permits had been highly contentious issue

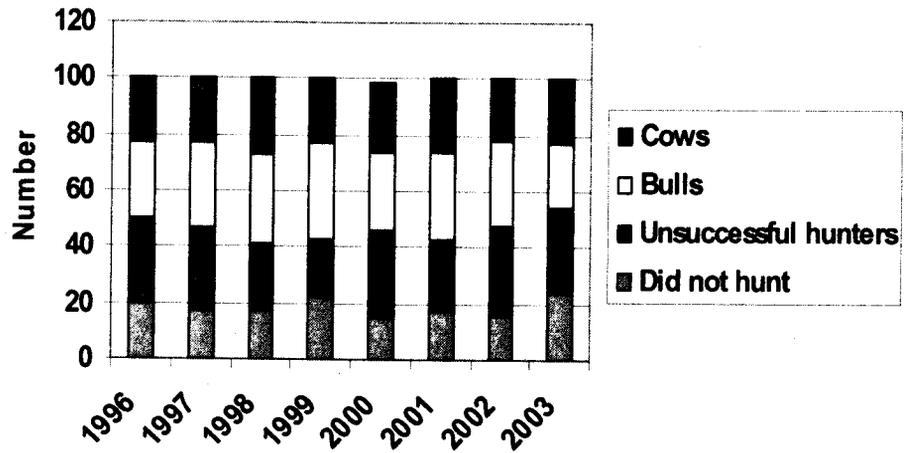
Proposal 24 – Location of Minto Flats MA



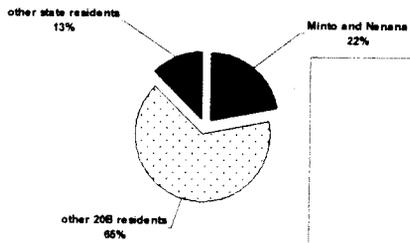
Proposal 24 – Detail of Minto Flats MA



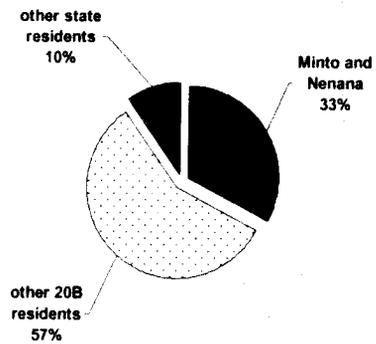
GMU 20B moose hunt TM785 hunt results, 1996-2003



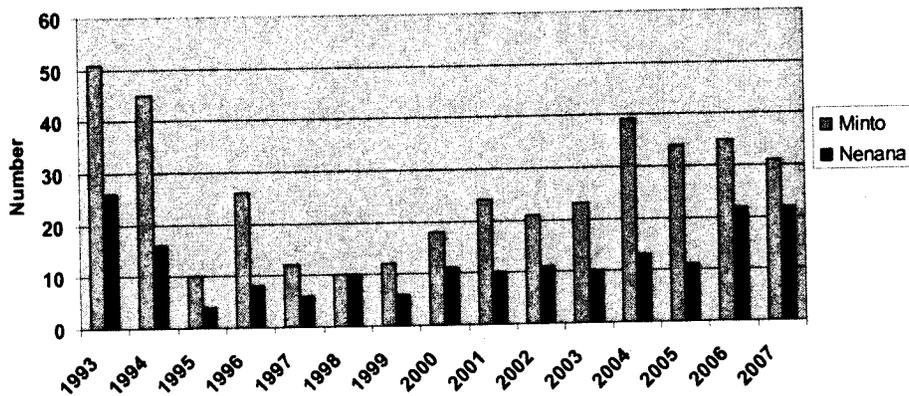
Tier II permits by residence, MFMA, 1993 - 2003



Registration permits by residence, MFMA, fall 2004 - spring 2008



Permits received by Minto and Nenana residents, Tier II (1993-2003) and Registration (2004-2007) hunts



Proposal 24 – GMU 20B Moose

EFFECT OF THE PROPOSAL: Reinstate the TM785 permit hunt in the Minto Flats MA

DEPARTMENT RECOMMENDATION: NO RECOMMENDATION

RATIONALE:

- This is an allocation issue
- Annual harvest of ~150 moose
- Current estimated annual harvestable surplus 180 moose (@ 6% harvest rate)
- ANS of 20-40
- Bifurcated hunt
 - Limited registration hunt (~200 permits): "any moose" Sept 1-25 and Jan 10-Feb 28
 - General season: SF50/4 BT Sept 11-25 season
- Distribution of permits had been highly contentious issue

Proposal 25 – GMUs 20A, B Moose

EFFECT OF THE PROPOSAL:

- Eliminate the antlerless hunts in Units 20A and 20B

DEPARTMENT RECOMMENDATION: TAKE NO ACTION

RATIONALE: See staff proposals 130 and 131.

Proposal 27 – GMUs 20A, B Moose

EFFECT OF THE PROPOSAL:

- Eliminate the antlerless hunts in Units 20A and 20B

DEPARTMENT RECOMMENDATION: TAKE NO ACTION

RATIONALE: See staff proposals 130 and 131.

Proposal 28 – GMUs 20A, B Moose

EFFECT OF THE PROPOSAL:

- Eliminate the antlerless hunts in Units 20A and 20B

DEPARTMENT RECOMMENDATION: TAKE NO ACTION

RATIONALE: See staff proposals 130 and 131.

Proposal 36 – GMUs 20A, B, D Moose

EFFECT OF THE PROPOSAL:

- Eliminate the antlerless hunts in Units 20A, 20B and 20D

DEPARTMENT RECOMMENDATION: TAKE NO ACTION

RATIONALE: See staff proposals 130, 131 and 135.

Proposal 19 – GMU 20 Moose

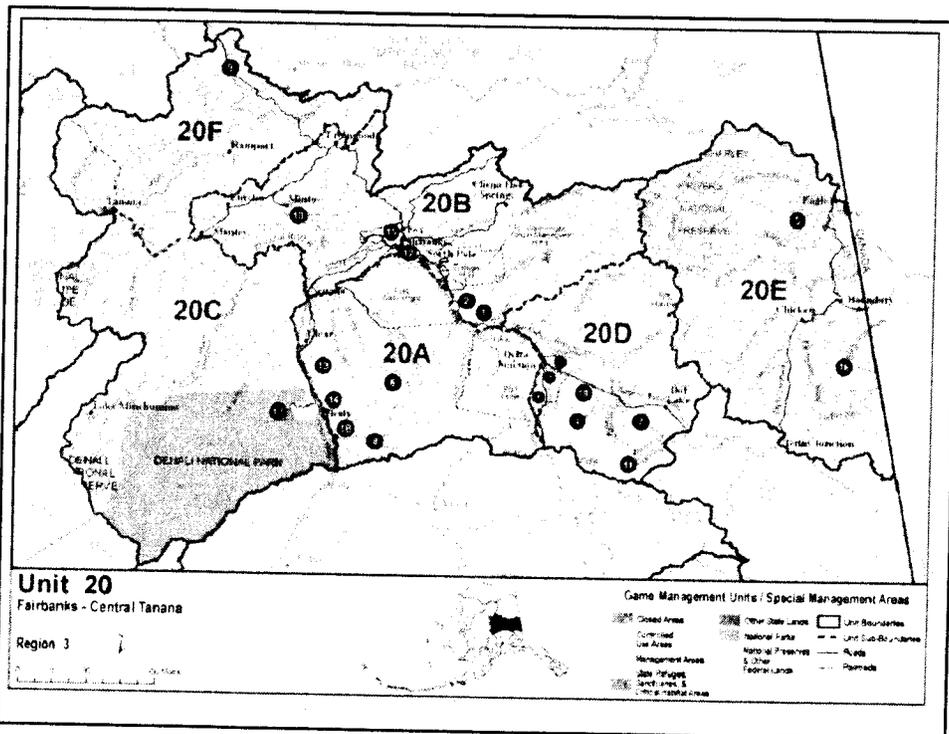
EFFECT OF THE PROPOSAL:

- Shift seasons to open later in GMUs 20A,B,C,D,E and F

DEPARTMENT RECOMMENDATION: DO NOT ADOPT

RATIONALE:

- Unit 20 is a large, geographically diverse area
- Season dates vary considerably across the unit
- Many factors considered when setting season dates
- Moving season dates back based only on apparent changing weather patterns while ignoring other factors may raise other biological or allocative issues



Proposal 19 – GMU 20 Moose

EFFECT OF THE PROPOSAL:

- Move moose seasons back in GMUs 20A,B,C,D,E and F

DEPARTMENT RECOMMENDATION: DO NOT ADOPT

RATIONALE:

- Unit 20 is a large, geographically diverse area
- Season dates vary considerably across the unit.
- Many factors considered when setting season dates.
- Moving season dates back based only on apparent changing weather patterns while ignoring other factors may raise other biological or allocative issues.
- This proposal would be better addressed at regional or statewide level at a later date.

Proposal 29 and 34

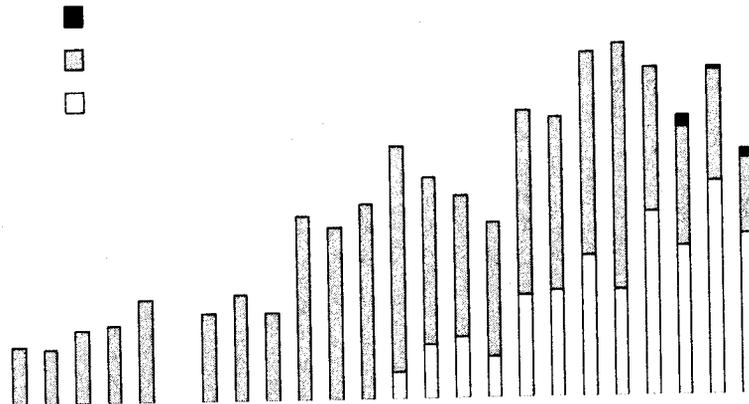
- EFFECT OF PROPOSAL:** Move moose season later due to warming weather

- DEPARTMENT RECOMMENDATION: Take No Action**

•RATIONALE:

- Proposal 19 covers this issue for a broader geographic area

Proposals 30, 31, 32, 33 and 39



Proposal 30

•**EFFECT OF PROPOSAL:** Establish a late archery season (Sept 16-30) in all of Unit 20B

•**DEPARTMENT RECOMMENDATION:** No Recommendation

•**RATIONALE:**

- This is an issue of allocation between user groups.
- The proposal intent is to alleviate overcrowding in the FMA
- FMA is not intended to be a high quality, low competition hunt
- Areas adjacent to FMA already have 111 consecutive days of bowhunting opportunity
- 20B currently has seasons through the 25th in Minto flats and through the 30th on the Chena and Salcha.
- Adopting the proposal will not address the issue stated in the proposal but it may dilute effort in the FMA

Proposal 39

•EFFECT OF PROPOSAL: Establish a late archery season (Sept 1-30) in all of Unit 20B

•DEPARTMENT RECOMMENDATION: Take No Action

•RATIONALE:

•Proposal 30

Proposal 31

•EFFECT OF PROPOSAL: Shorten the archery bull season in the FMA from 37 days to 10.

•DEPARTMENT RECOMMENDATION: No Recommendation

•RATIONALE:

•This is an issue of allocation between user groups.

•The proposal intent is to alleviate overcrowding in the FMA and reduce moose-vehicle collisions

•FMA is not intended to be a high quality, low competition hunt

•Adopting the proposal would reduce the season by 73%, and will not address the issue stated in the proposal

Proposal 32

•**EFFECT OF PROPOSAL:** Make a borough-wide cow permit hunt in 20B Sept 1-15, that turns into late archery season (Sept 16-30) for cow moose.

•**DEPARTMENT RECOMMENDATION:** No Recommendation

•**RATIONALE:**

•This is an issue of allocation between user groups.

•The proposal intent is to alleviate overcrowding in the FMA

•FMA is not intended to be a high quality, low competition hunt

•Much of southwestern Unit 20A had 188 days of bowhunting-only seasons in 2007

•Adopting the proposal will not address the issue stated in the proposal

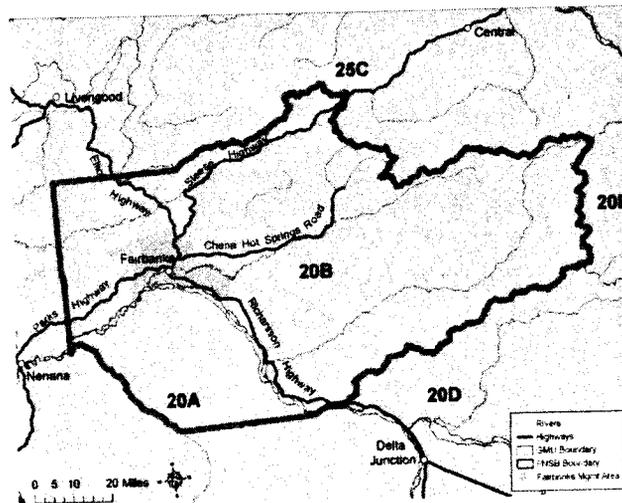
•The borough boundary would be difficult for hunters and law enforcement to follow because it is not easily identifiable in the field.

•Already cow hunts by drawing permit in the same area with good boundaries within which archery is allowed.

Proposal 32

•**EFFECT OF PROPOSAL:** Make a borough-wide cow permit hunt in 20B Sept 1-15, that turns into late archery season (Sept 16-30) for cow moose.

•**DEPARTMENT RECOMMENDATION:** No Recommendation



Proposal 33

•**EFFECT OF PROPOSAL:** Restrict winner of drawing permits for moose within the FMA to only hunt in the FMA

•**DEPARTMENT RECOMMENDATION:** No Recommendation

•**RATIONALE:**

•This is an issue of allocation between user groups.

•Proposal is vague, but intent might be to decrease the number of permit applicants for the FMA antlerless hunt

•Taking away the freedom to hunt moose statewide for a regulatory year is unprecedented.

•The proposal would likely reduce the number of applicants, but is unlikely to increase the number of moose taken

•In 2007, 150 permit holders reported taking 42 moose

Proposal 23 – GMU 20 Moose

EFFECT OF THE PROPOSAL:

•Eliminate the spike-fork season in GMUs 20A,B, and D

DEPARTMENT RECOMMENDATION: DO NOT ADOPT

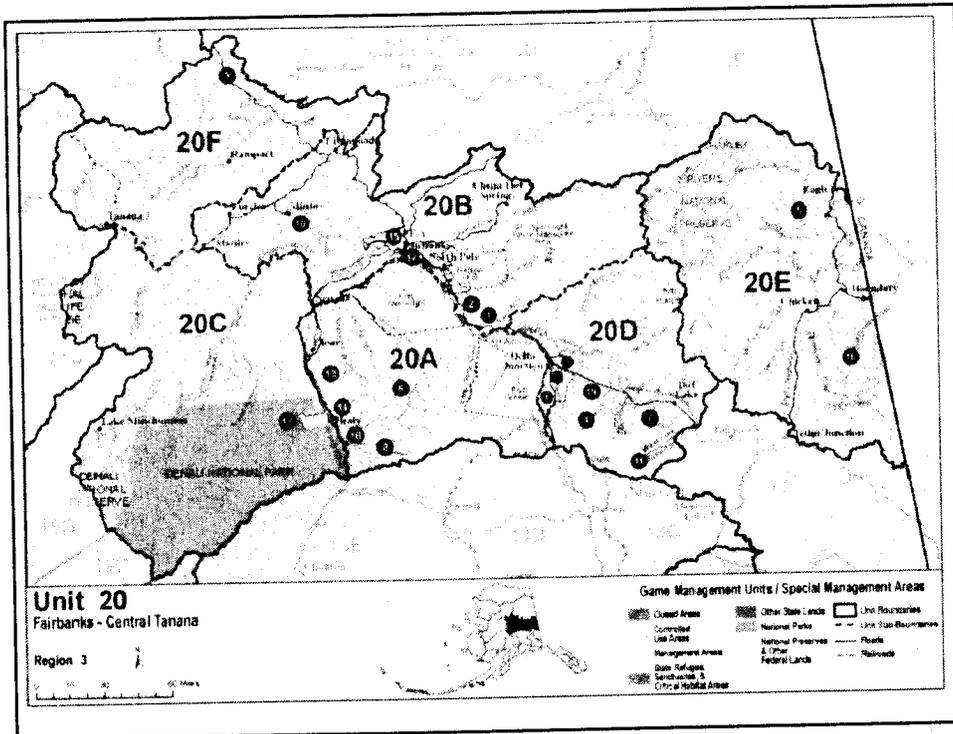
RATIONALE:

•No biological reason to eliminate harvest of spike-fork bulls

•SHS, which include spike-fork component, proven management tool for regulating bull harvests and recovering and/or maintaining desired bull:cow ratios

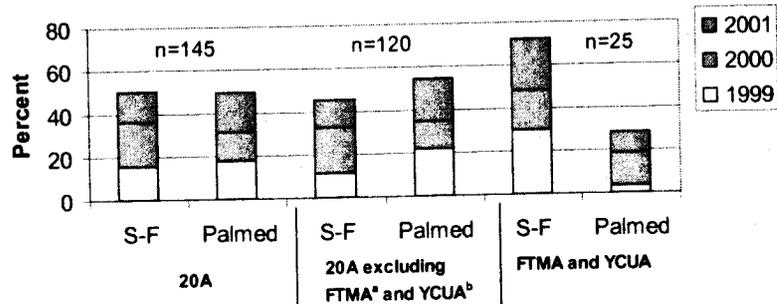
•Proven highly effective in Unit 20A

•Hunter harvest of yearlings tends to be more compensatory, increasing sustained yield



Proposal 23 – GMU 20 Moose

Observed proportions of spike-forked (S-F) and palmated yearling bull moose in surveys conducted in 20A, 1999-2001

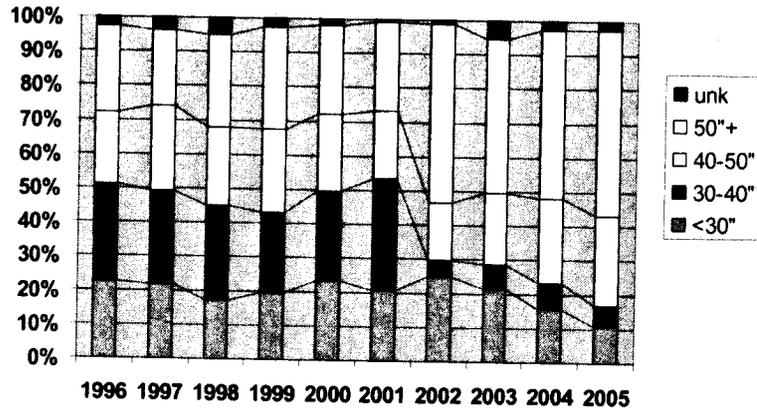


^aFerry Trail Management Area

^bYanert Controlled Use Area

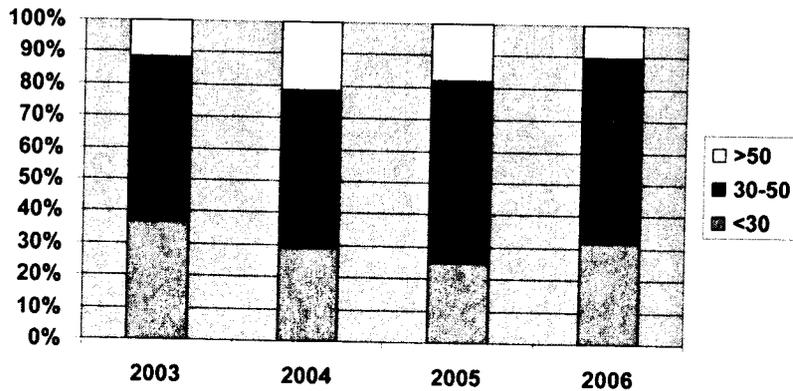
Proposal 23 – GMU 20 Moose

Antler spread (inches) of moose harvested in Unit 20A, 1996-2005



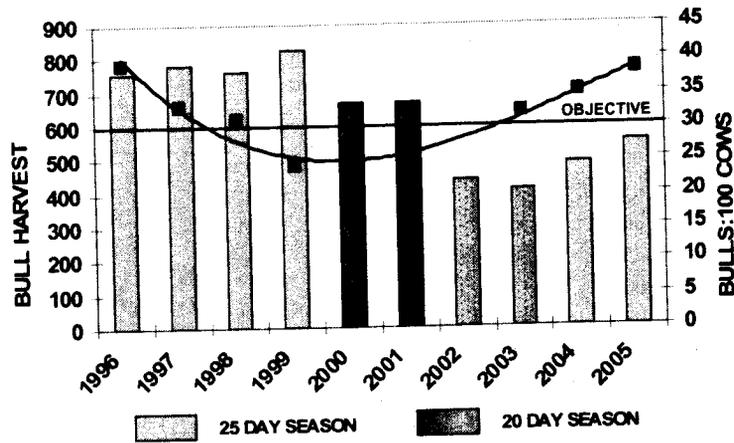
Proposal 23– GMU 20Moose

Antler spread (inches) of moose observed during November surveys in Unit 20A, 2002-2006



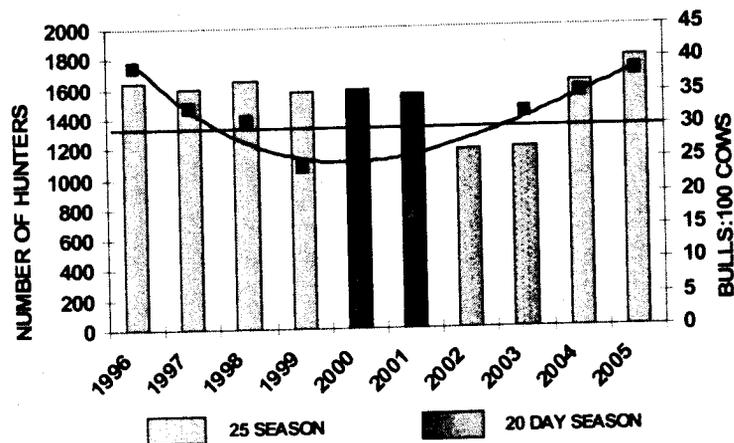
Proposal 23- GMU 20 Moose

Bull:cow ratios and estimated harvest of bull moose in Unit 20A, 1996-2005



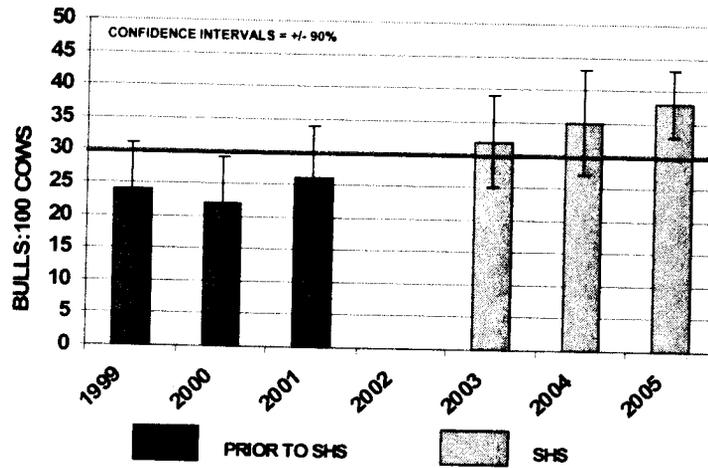
Proposal 23- GMU 20 Moose

Bull:cow ratios and hunter participation in Unit 20A, 1996-2005



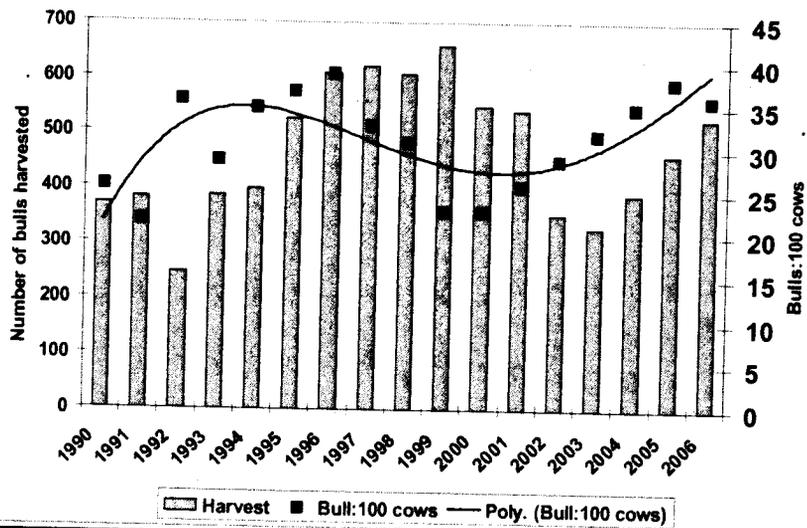
Proposal 23- GMU 20 Moose

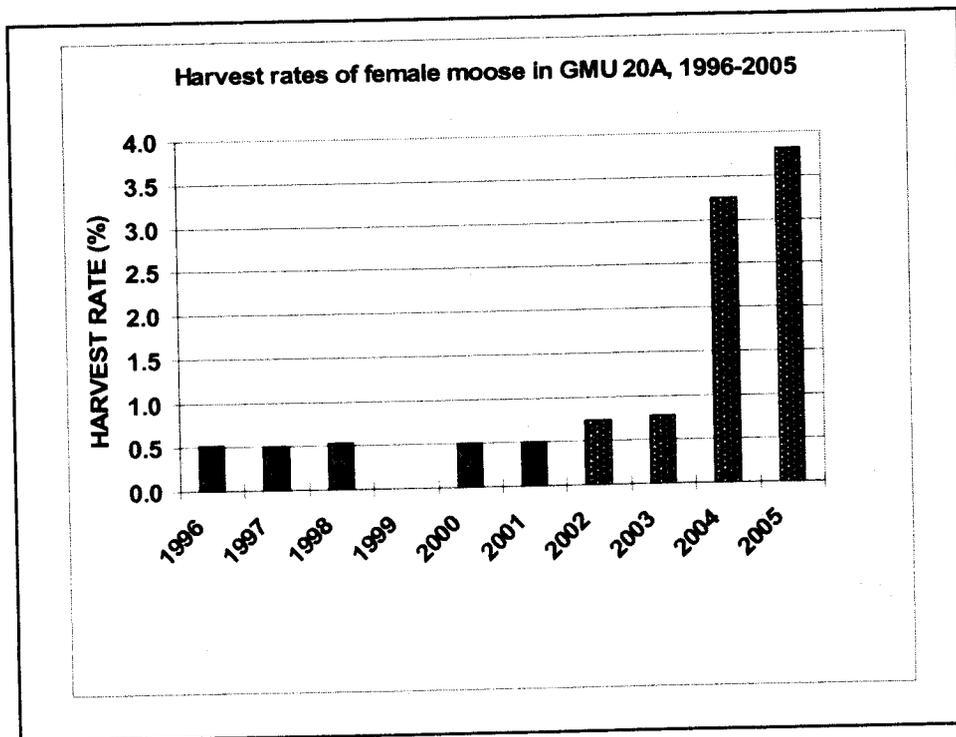
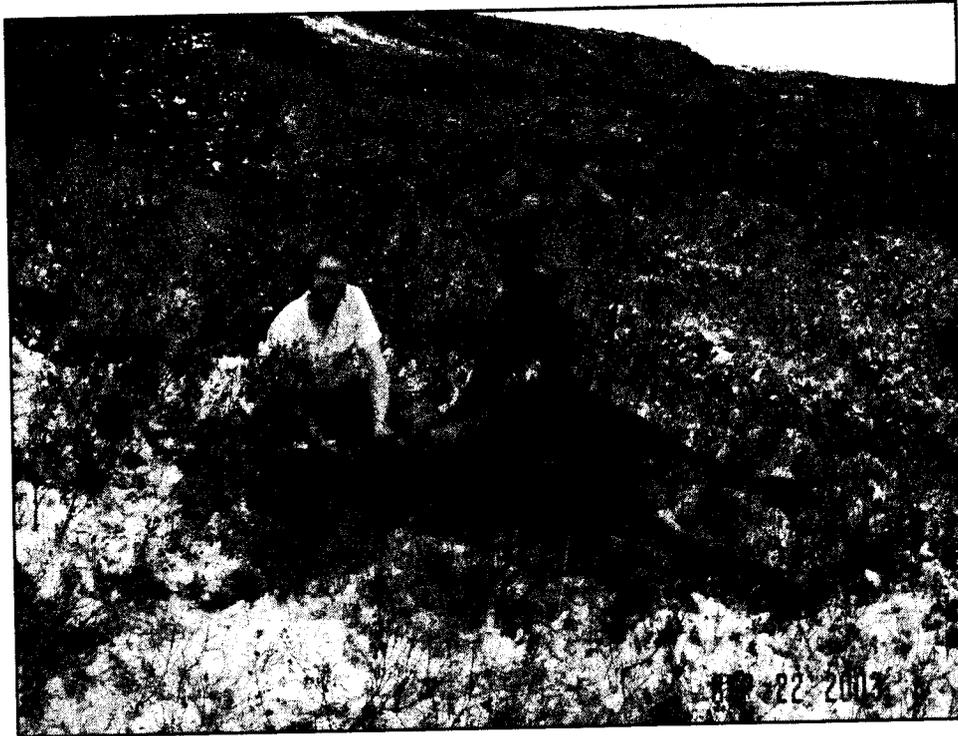
Bull:cow ratios prior to and after implementation of selective harvest strategy (SHS) in Unit 20A, 1999-2005



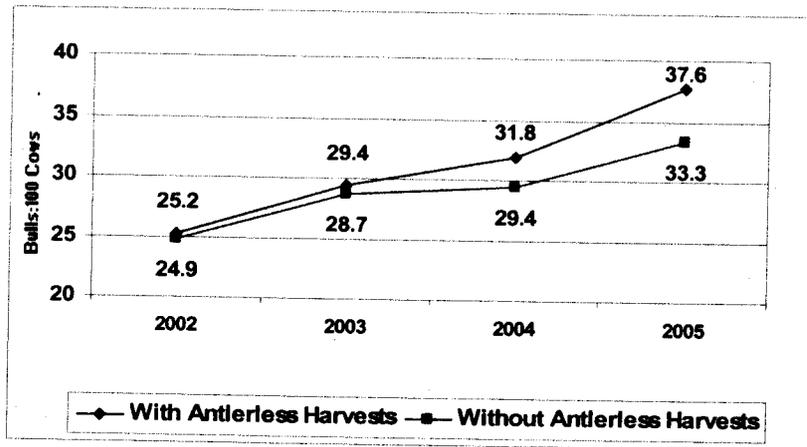
Proposal 23- GMU 20 Moose

Bull:cow ratios and reported harvest of bull moose in Unit 20A, 1990-2006





Simulated bull:cow ratios with and without antlerless harvests, 2002-2005



Proposal 23 – GMU 20 Moose

EFFECT OF THE PROPOSAL:

- Eliminate the spike-fork season in GMUs 20A,B, and D

DEPARTMENT RECOMMENDATION: DO NOT ADOPT

RATIONALE:

- No biological reason to eliminate harvest of spike-fork bulls
- SHS, which include spike-fork component, proven management tool for regulating bull harvests and recovering and/or maintaining desired bull:cow ratios
- Proven highly effective in Unit 20A
- Hunter harvest of yearlings tends to be more compensatory, increasing sustained yield

Proposal 26 – GMU 20A Moose

EFFECT OF THE PROPOSAL:

- **Modify antler restrictions to spike-fork/36”
3 brow tines in Unit 20A**

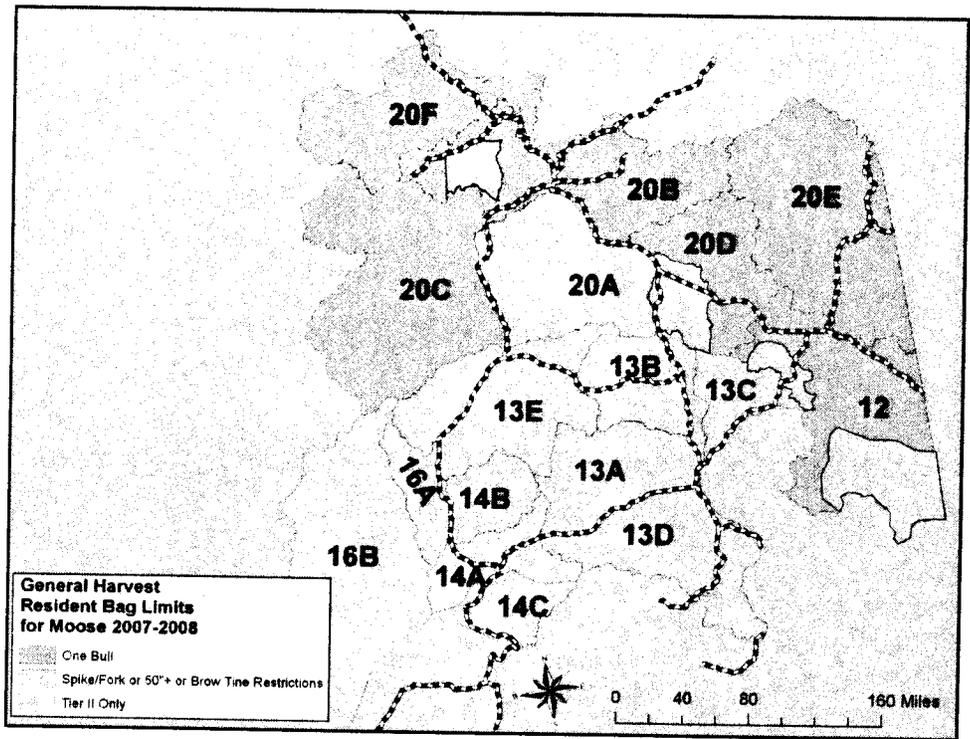
**DEPARTMENT RECOMMENDATION: DO
NOT ADOPT**

**Opposed by Fairbanks and Middle Nenana
River Advisory Committees**

Proposal 26 – GMU 20A Moose

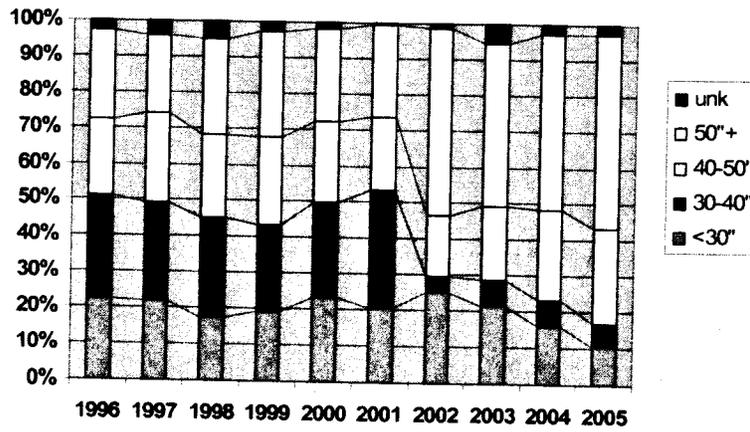
RATIONALE:

- **SF/36” strategy inconsistent with
statewide SF/50” SHS**
- **Predict overharvest of bulls**
- **Attract more hunters to Unit 20A
resulting in additional hunter and land
use conflicts**
- **Current SHS with additional drawing
permit hunts for “any bull” more
effective management strategy**



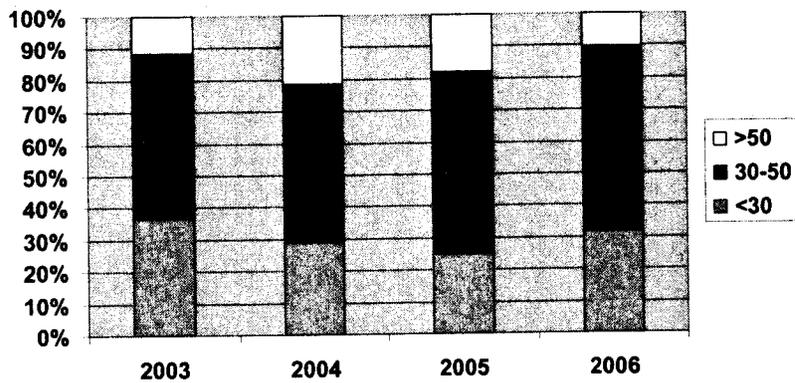
Proposal 26 – GMU 20A Moose

Antler spread (inches) of moose harvested in Unit 20A, 1996-2005



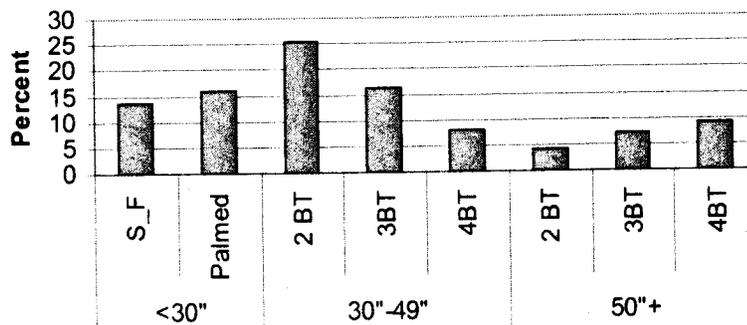
Proposal 26 – GMU 20A Moose

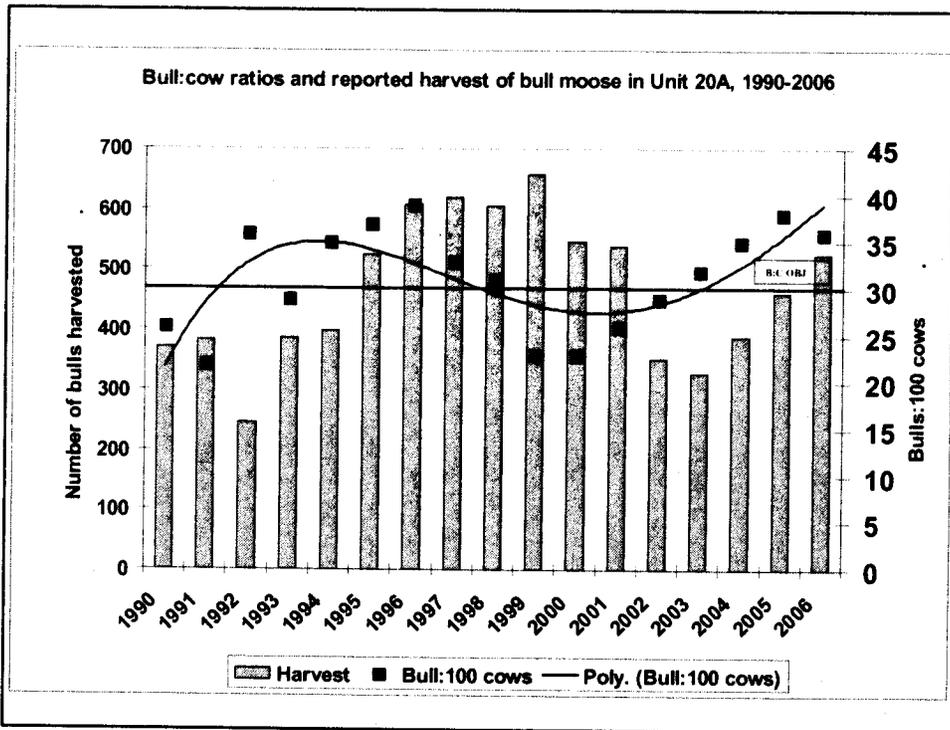
Antler spread (inches) of moose observed during November surveys in Unit 20A, 2002-2006



Proposal 26 – GMU 20A Moose

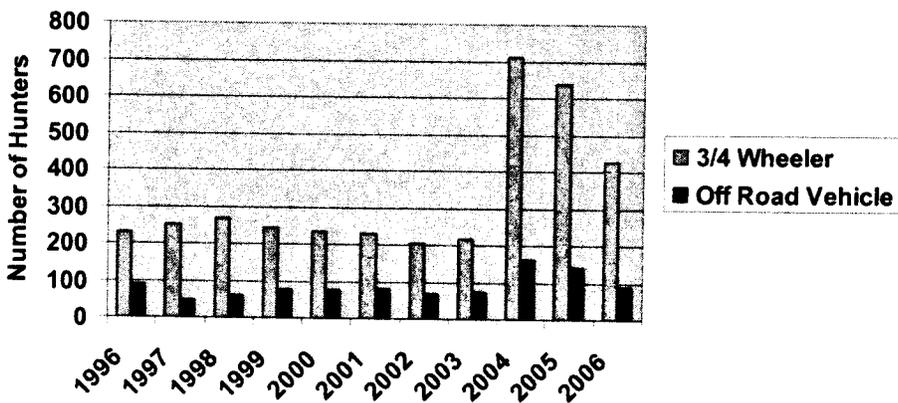
Estimated proportions of bull moose in 20A stratified by antler class and brow tine configuration





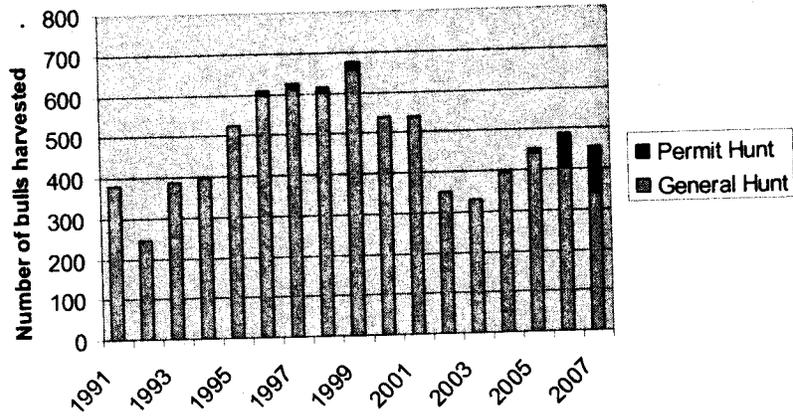
Proposal 26 – GMU 20A Moose

Reported ATV use by hunters in the vicinity of the Rex Trail, Unit 20A, 1996-2006

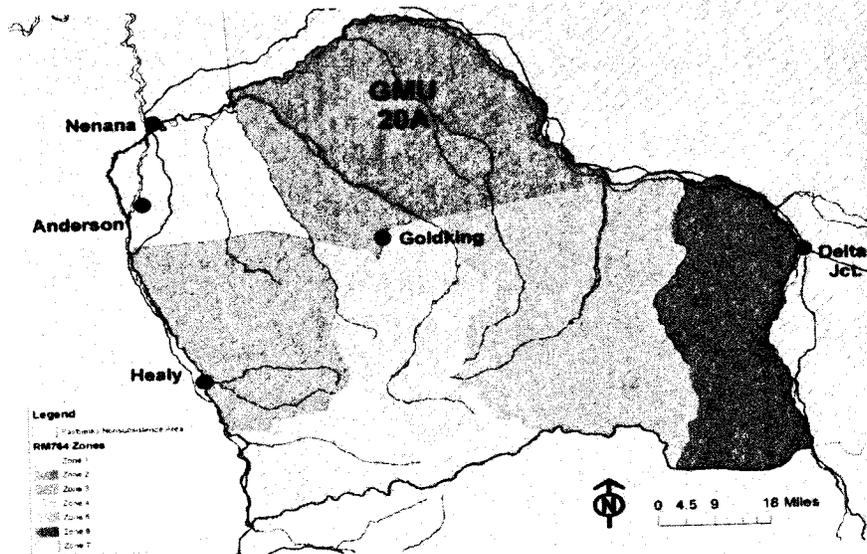


Proposal 26 – GMU 20A Moose

Reported general season and permit hunt harvest of bull moose in Unit 20A, 1991-2007



Hunt zones, GMU 20A, 2005-2007



Proposal 26 – GMU 20A Moose

RATIONALE:

- SF/36” strategy inconsistent with statewide SF/50” SHS
- Predict overharvest of bulls
- Attract more hunters to Unit 20A resulting in additional hunter and land use conflicts
- Current SHS with additional drawing permit hunts for “any bull” effective management strategy

Proposal 108 – GMU 20A Moose

EFFECT OF THE PROPOSAL:

- Modify Unit 20A predation control plan for caribou to include moose

DEPARTMENT RECOMMENDATION: DO NOT ADOPT

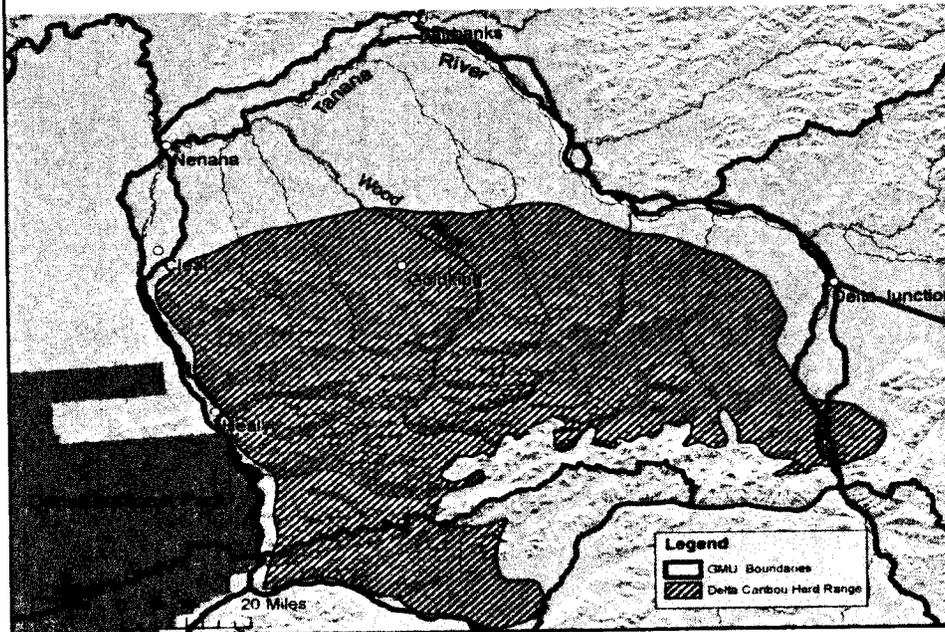
Opposed by Middle Nenana AC

Proposal 108 – GMU 20A Moose

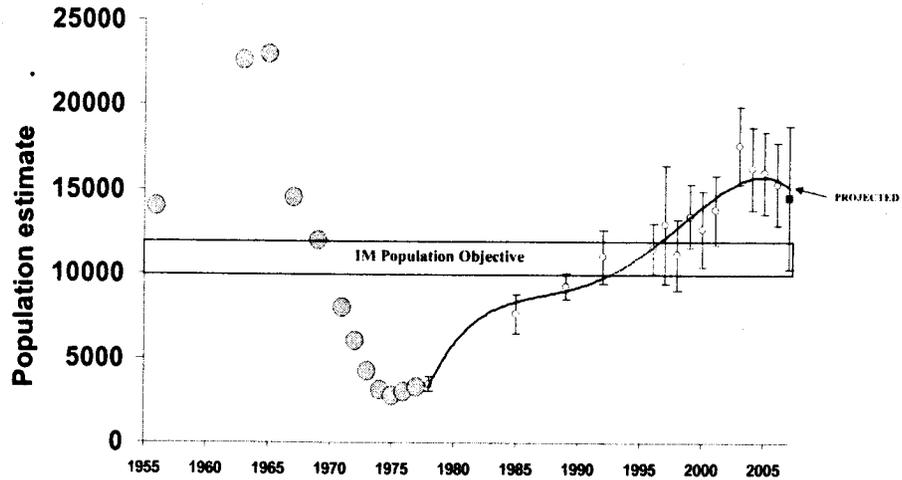
RATIONALE:

- Unit 20A predator control plan addresses the decline of the Delta caribou herd
- Implementation would lead to moose population growth in the absence of liberal antlerless harvests
- Future of antlerless moose hunts is uncertain
- Without liberal antlerless hunts, moose numbers would increase risking further declines in nutritional status and habitat quality of the moose population
- Thus, implementing predator control plan at this time not recommended

Proposal 108 – GMU 20A Moose

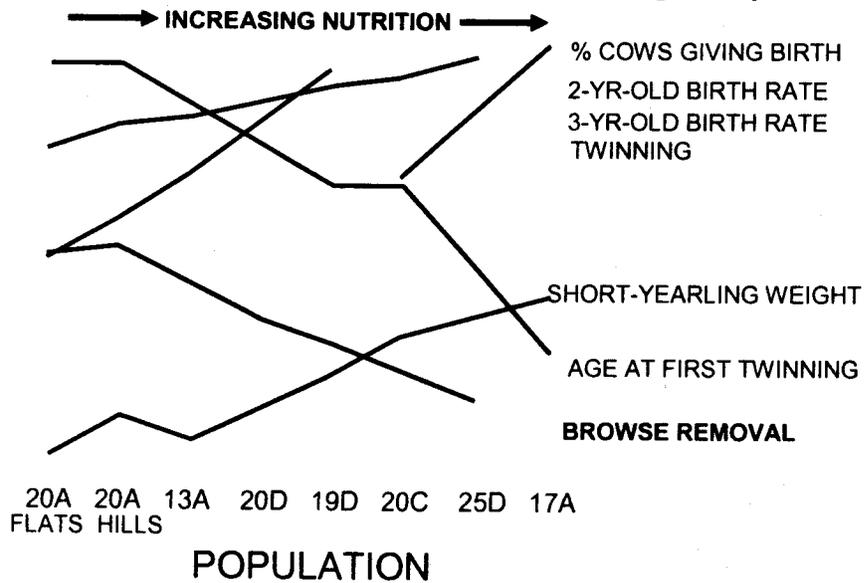


GMU 20A moose population trend, 1956-2007



Indices of Nutrition

(populations ordered by twinning rate)



Proposal 108 – GMU 20A Moose

RATIONALE:

- Unit 20A predator control plan addresses the decline of the Delta caribou herd
- Implementation would lead to moose population growth in the absence of liberal antlerless harvests
- Future of antlerless moose hunts is uncertain
- Without liberal antlerless hunts, moose numbers would increase risking further declines in nutritional status and habitat quality of the moose population
- Thus, implementing predator control plan at this time not recommended

Proposal 109 – GMU 20A Moose

EFFECT OF THE PROPOSAL:

- Increase Intensive Management moose population objective for Unit 20A

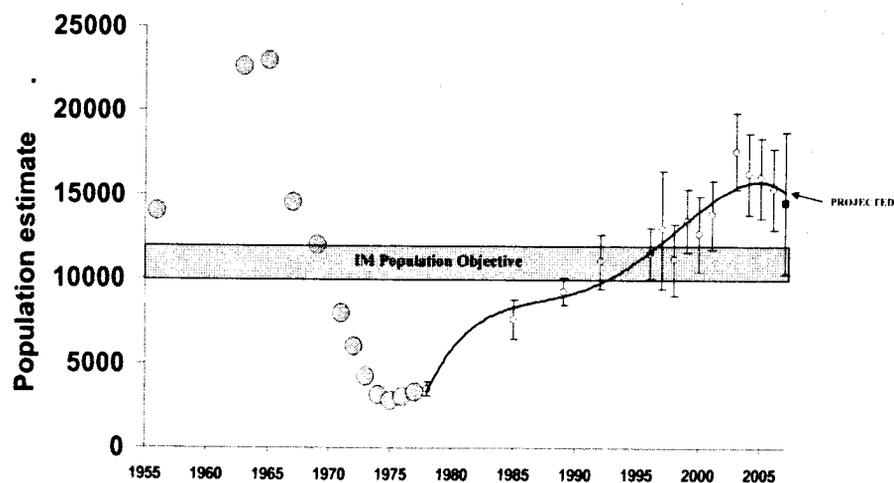
DEPARTMENT RECOMMENDATION: DO NOT ADOPT

Proposal 109 – GMU 20A Moose

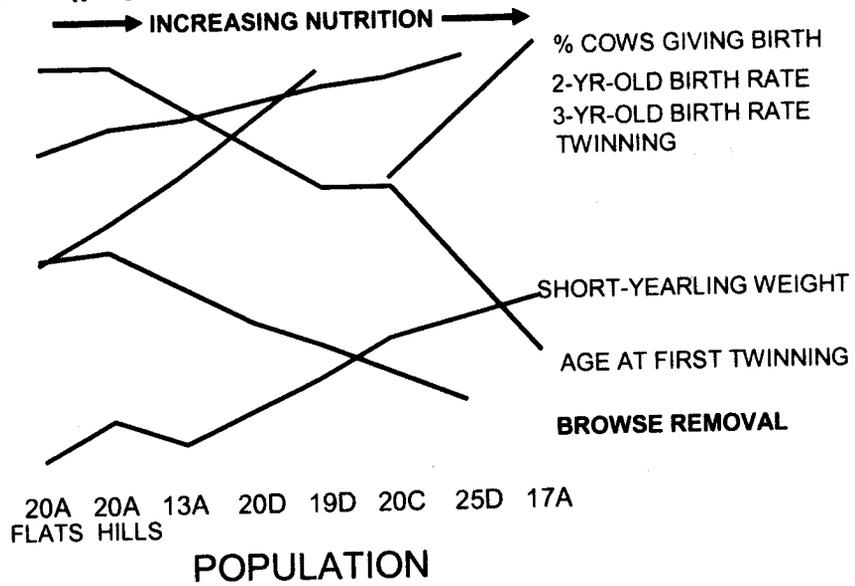
RATIONALE:

- The moose population has been reduced from an estimated 17,000 -18,000 moose in 2003 to 14,500 moose in 2007, and we predict the 2008 population to be 13,000- 14,000 moose.
- At this lower population level, we have not yet detected improvements in the nutritional status of the moose population.
- The Department proposes to reduce harvest rates in 2008 in order to stabilize the population at 13,000-14,000 moose, while continuing to monitor nutritional status and obtaining public input concerning population and harvest objectives.

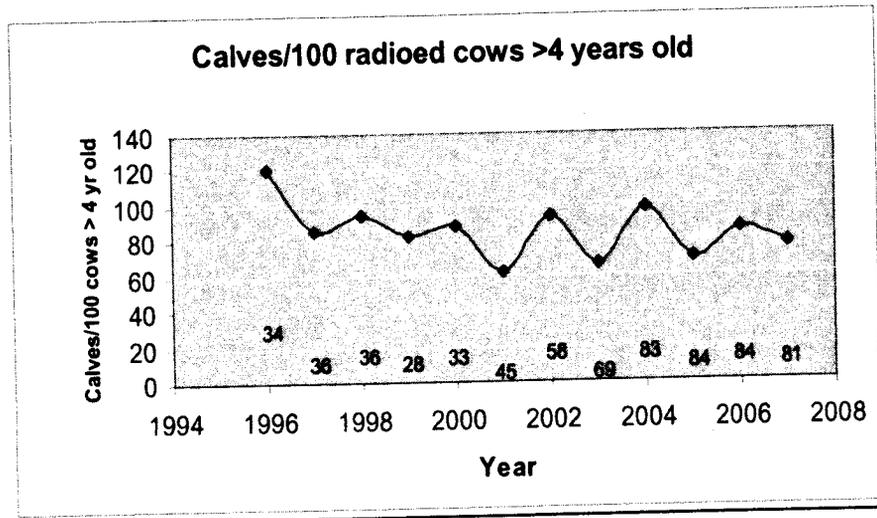
GMU 20A moose population trend, 1956-2007

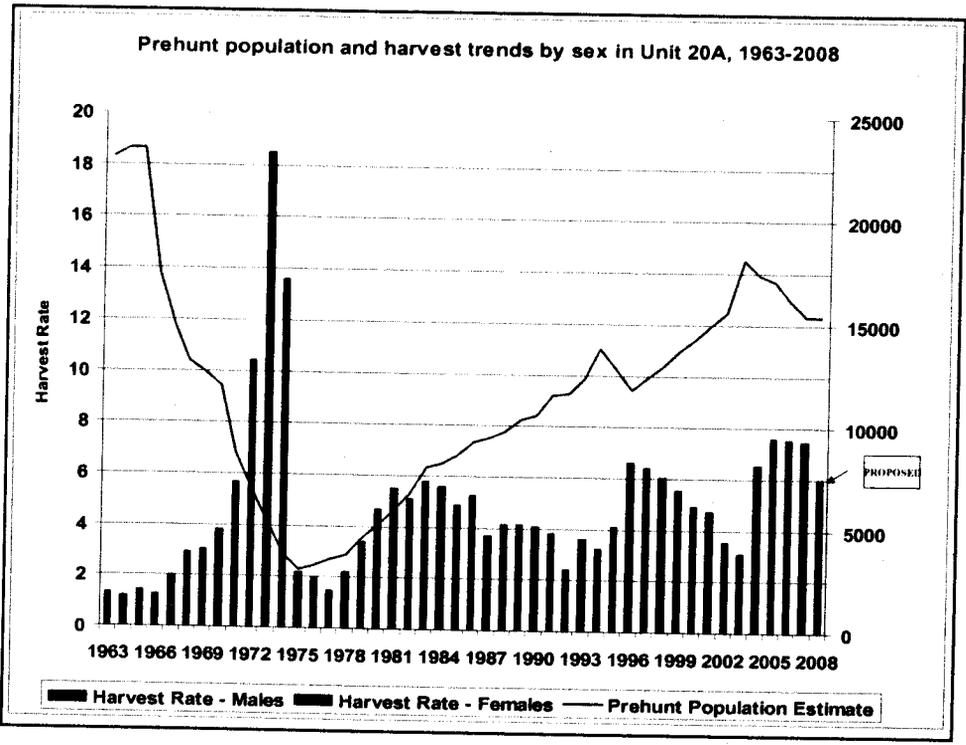


Indices of Nutrition (populations ordered by twinning rate)



No recent improvement in reproduction since 2004





Proposal 109 – GMU 20A Moose

EFFECT OF THE PROPOSAL:

- Increase Intensive Management moose population objective for Unit 20A

DEPARTMENT RECOMMENDATION: DO NOT ADOPT

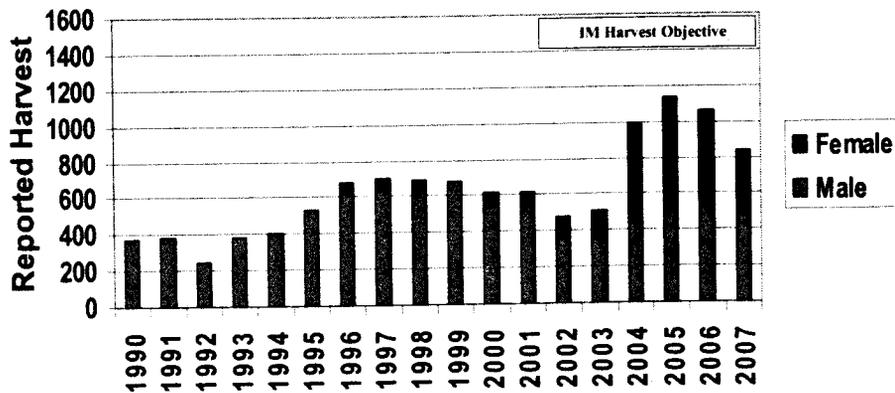
Proposal 109 – GMU 20A Moose

RATIONALE:

- The moose population has been reduced from an estimated 17,000 -18,000 moose in 2003 to 14,500 moose in 2007, and we predict the 2008 population to be 13,000- 14,000 moose.
- At this lower population level, we have not yet detected improvements in the nutritional status of the moose population.
- The Department proposes to reduce harvest rates in 2008 in order to stabilize the population at 13,000-14,000 moose, while continuing to monitor nutritional status and obtaining public input concerning population and harvest objectives.

Proposal 109 – GMU 20A Moose

Reported harvest of moose by sex in Unit 20A, 1990-2007



**Proposal 110 – GMU 20A Delta Caribou
Herd Predator Control Plan**

EFFECT OF THE PROPOSAL:

- Implement the predator control plan for the Delta caribou herd

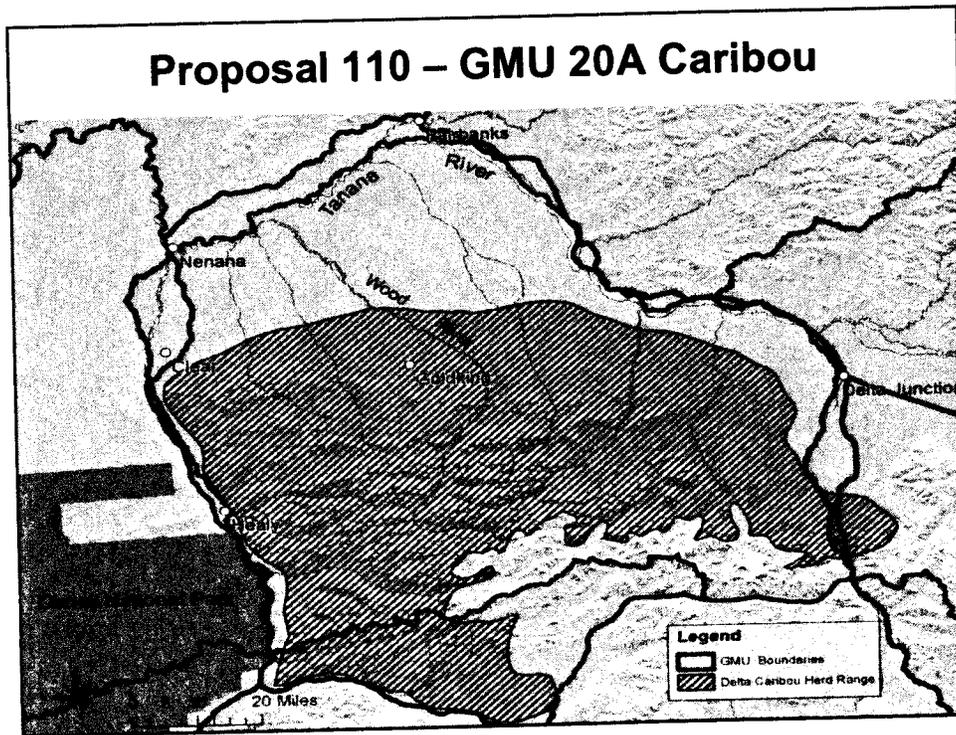
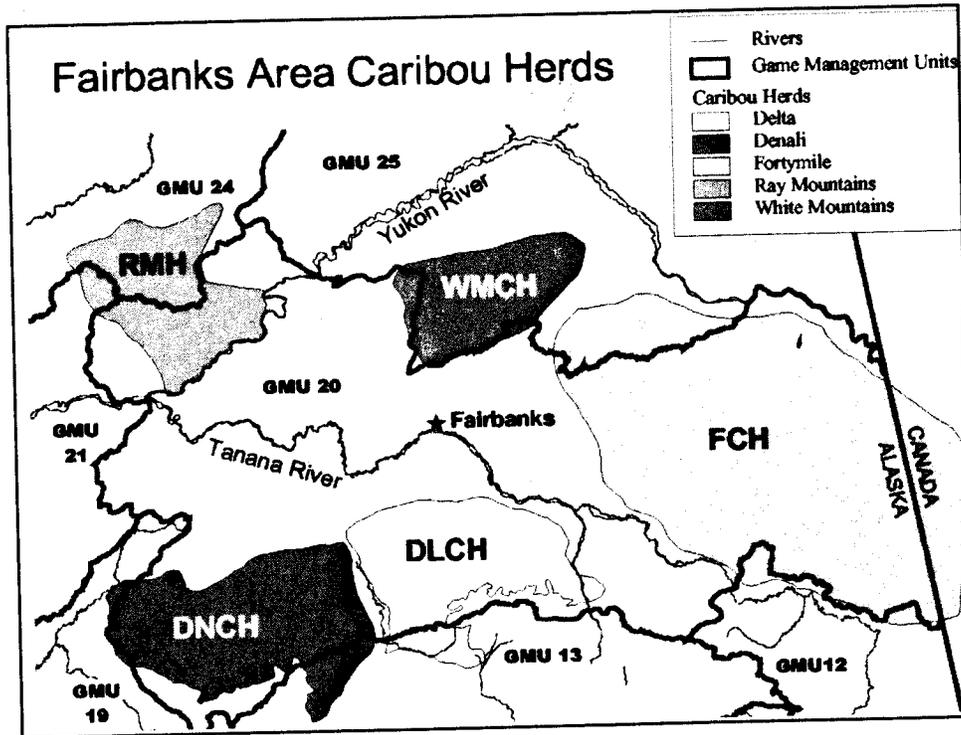
DEPARTMENT RECOMMENDATION: DO NOT ADOPT

Opposed by Middle Nenana AC

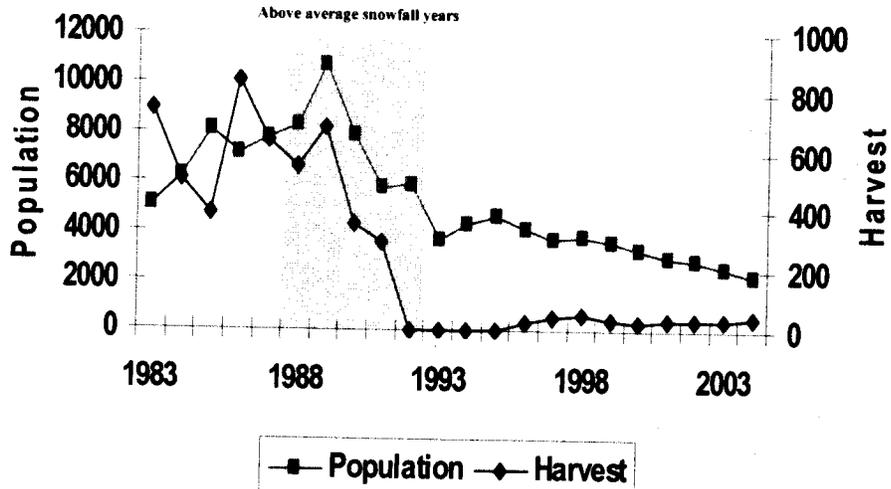
Proposal 110 – GMU 20A Caribou

RATIONALE:

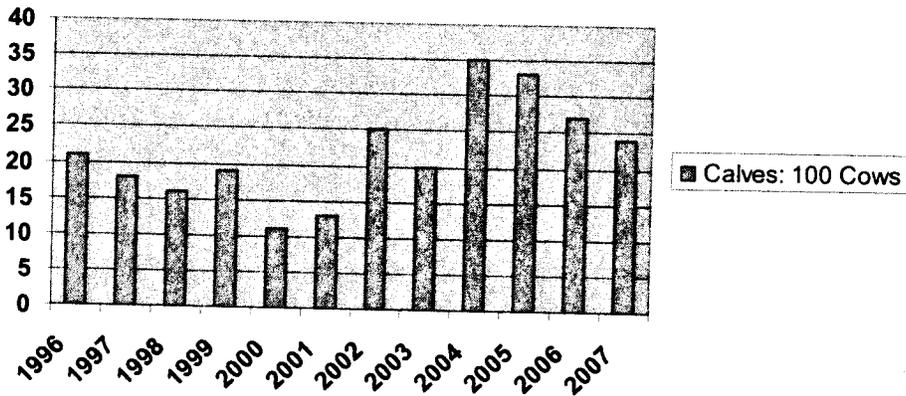
- Would lead to moose population growth in the absence of liberal antlerless harvests
- Future of antlerless hunts is uncertain
- Without liberal antlerless hunts, moose numbers would increase risking further declines in nutritional status and habitat quality of the moose population
- Thus, implementing predator control plan at this time not recommended

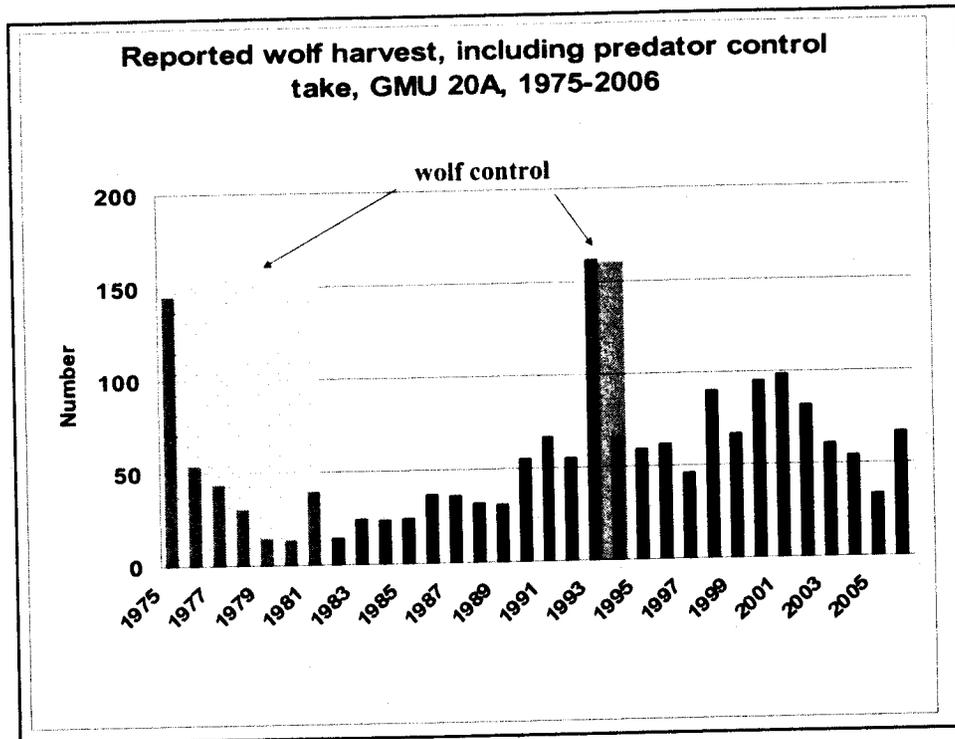


Population size and harvest, Delta Caribou Herd, 1983-2004



Calves per 100 cows, Delta Caribou Herd, 1996-2007





Proposal 110 – GMU 20A Caribou

RATIONALE:

- Would lead to moose population growth in the absence of liberal antlerless harvests
- Future of antlerless hunts is uncertain
- Without liberal antlerless hunts, moose numbers would increase risking further declines in nutritional status and habitat quality of the moose population
- Thus, implementing predator control plan at this time not recommended

Proposal 89 – GMU 20A Controlled Use Area

EFFECT OF THE PROPOSAL:

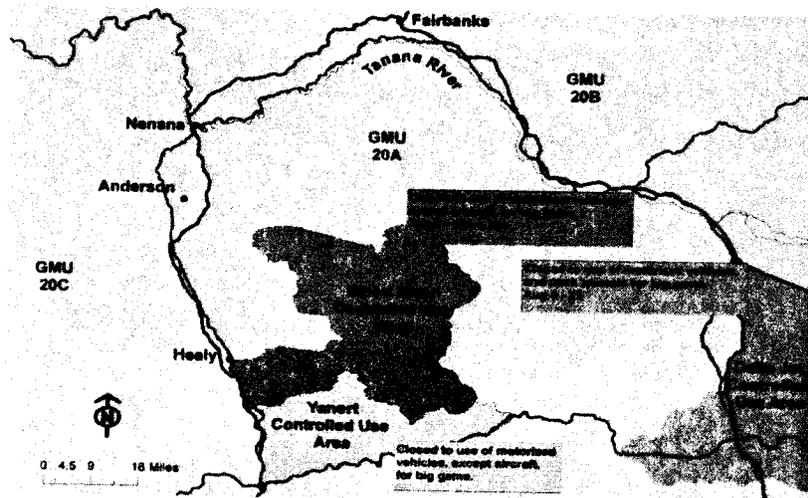
- Modify dates of closure for Wood River Controlled Use Area from Aug 1 - Sept 30 to Aug 1 – Aug 31

DEPARTMENT RECOMMENDATION: NO RECOMMENDATION

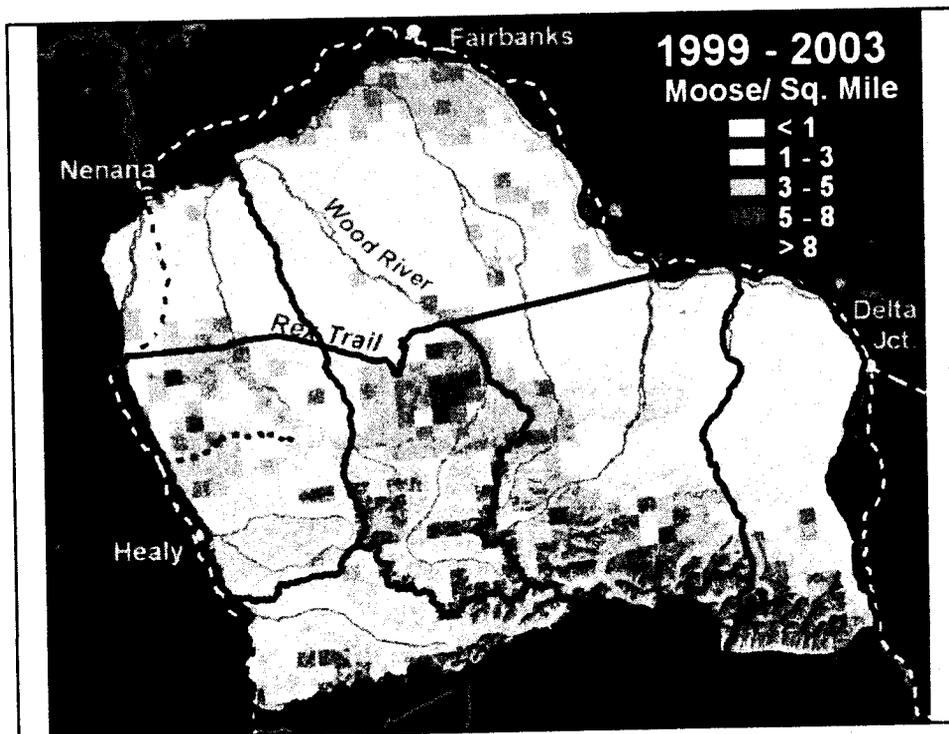
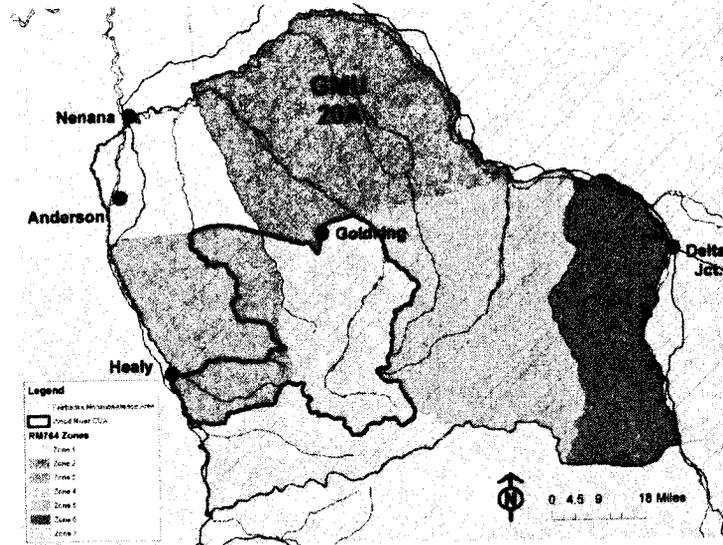
RATIONALE:

- This is an allocation/user conflict issue
- Fairbanks & Middle Nenana ACs oppose
- Moose harvest objectives can be met more effectively with extended antlerless moose season
- Exacerbate damage to Rex Trail

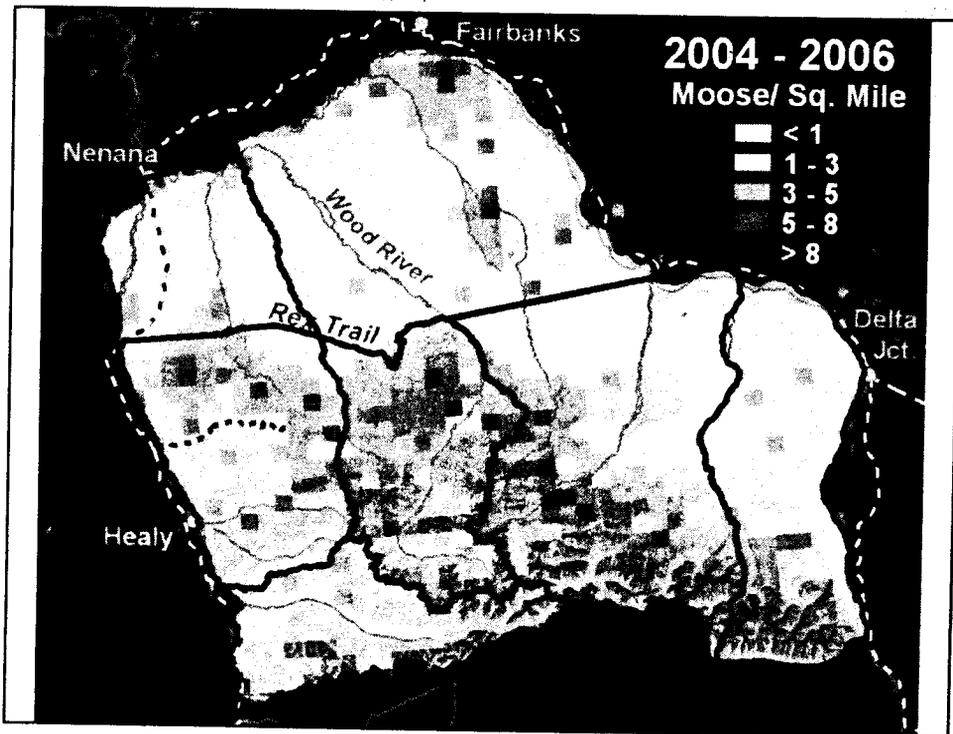
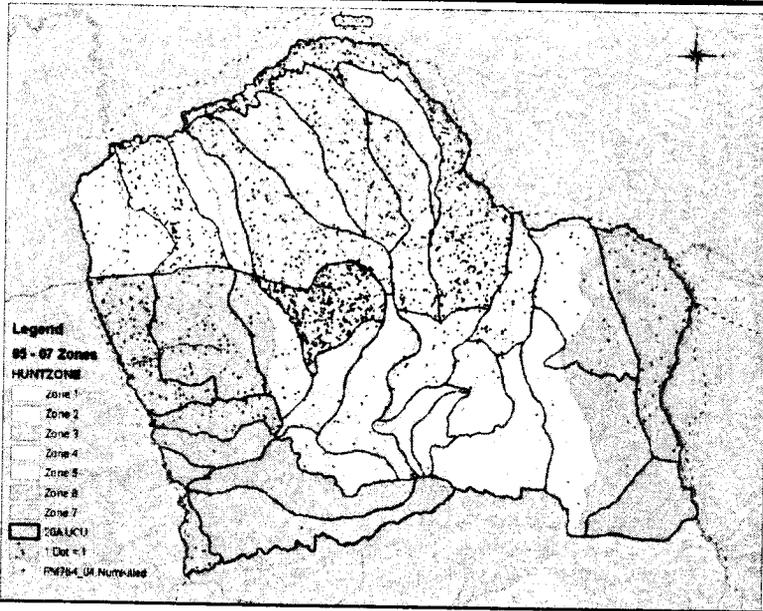
Controlled Use Areas GMU 20A



Location of the Wood River CUA in relation to moose hunt zones

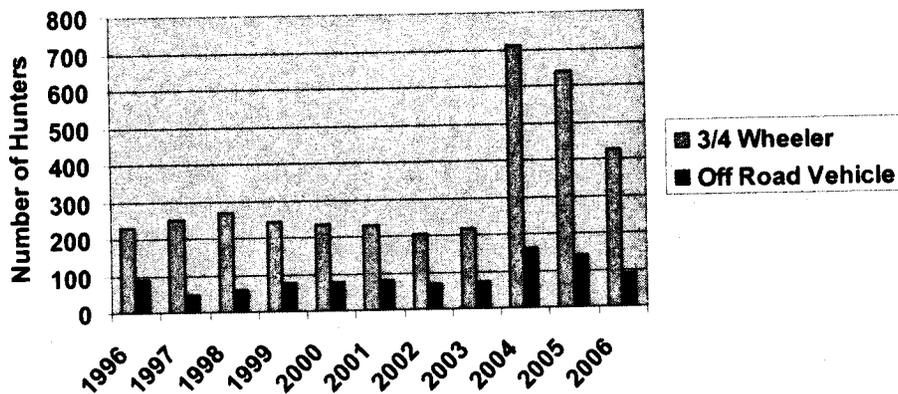


GMU 20A harvest density by UCU and hunt zone, antlerless moose hunt RM764, 2004-2007



Proposal 89 – GMU 20A Controlled Use Area

Reported ATV use by hunters in the vicinity of the Rex Trail, Unit 20A, 1996-2006



Proposal 89 – GMU 20A Controlled Use Area

EFFECT OF THE PROPOSAL:

- Modify dates of closure for Wood River Controlled Use Area from Aug 1 - Sept 30 to Aug 1 – Aug 31

DEPARTMENT RECOMMENDATION: NO RECOMMENDATION

RATIONALE:

- This is an allocation/user conflict issue
- Fairbanks & Middle Nenana ACs oppose
- Moose harvest objectives can be met more effectively with extended antlerless moose season
- Exacerbate damage to Rex Trail

Proposal 90 – GMU 20A Controlled Use Area

EFFECT OF THE PROPOSAL:

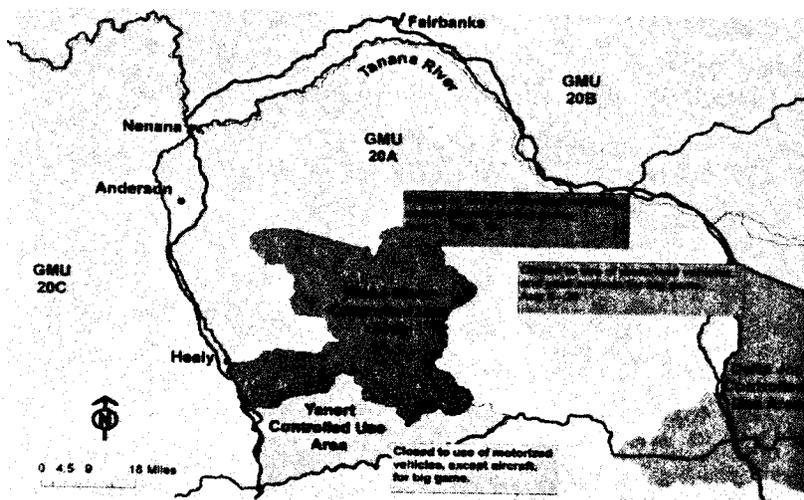
- Eliminate Wood River Controlled Use Area

DEPARTMENT RECOMMENDATION: NO RECOMMENDATION

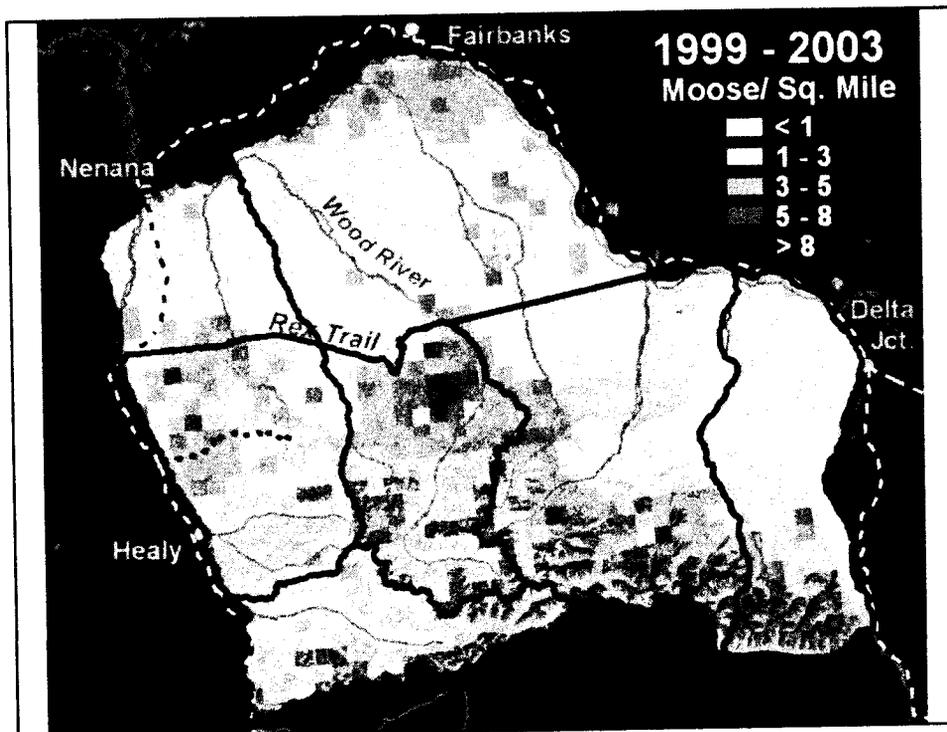
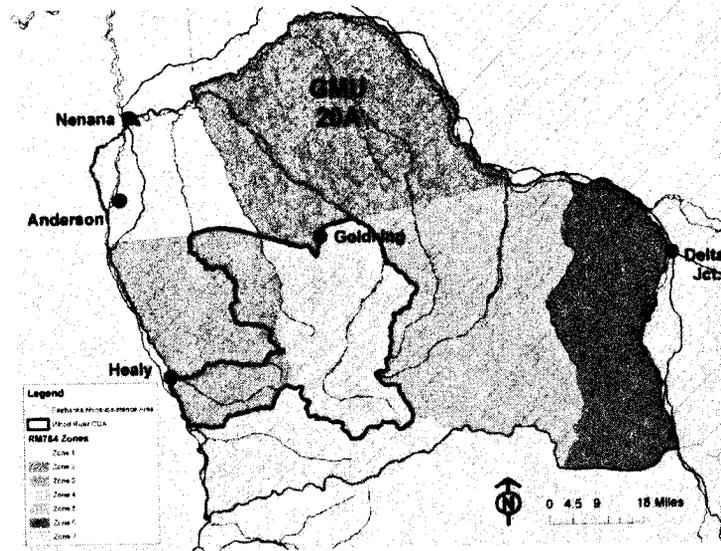
RATIONALE:

- This is an allocation/user conflict issue
- Fairbanks & Middle Nenana ACs oppose
- Moose harvest objectives can be met more effectively with extended antlerless moose season
- Exacerbate damage to Rex Trail

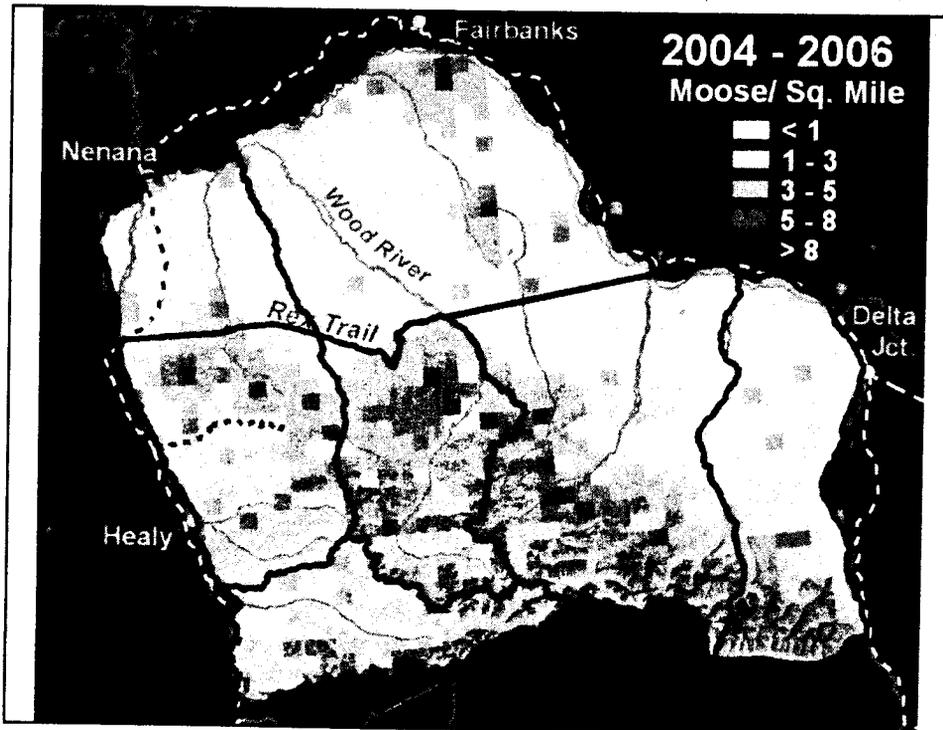
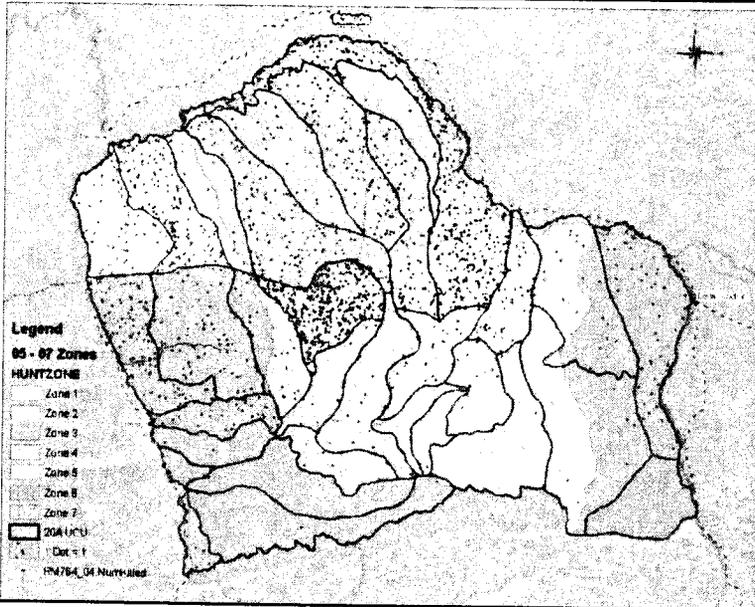
Controlled Use Areas GMU 20A



Location of the Wood River CUA in relation to moose hunt zones

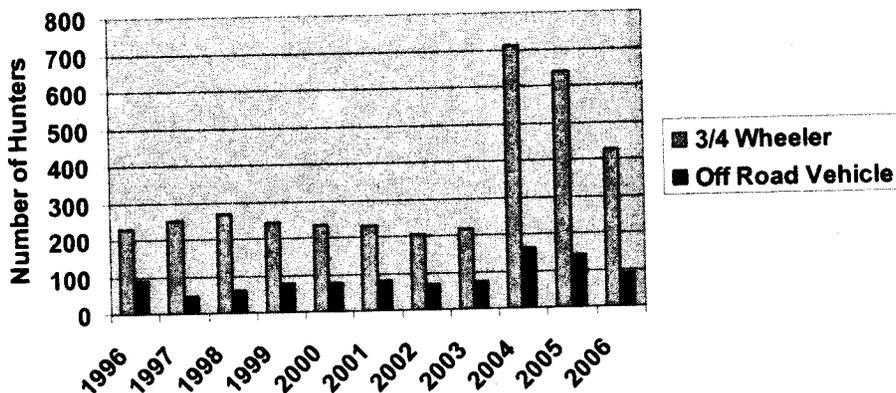


GMU 20A harvest density by UCU and hunt zone, antlerless moose hunt RM764, 2004-2007



Proposal 90 – GMU 20A Controlled Use Area

Reported ATV use by hunters in the vicinity of the Rex Trail, Unit 20A, 1996-2006



Proposal 90 – GMU 20A Controlled Use Area

EFFECT OF THE PROPOSAL:

- Eliminate Wood River Controlled Use Area

DEPARTMENT RECOMMENDATION: NO RECOMMENDATION

RATIONALE:

- This is an allocation/user conflict issue
- Fairbanks & Middle Nenana ACs oppose
- Moose harvest objectives can be met more effectively with extended antlerless moose season
- Exacerbate damage to Rex Trail

Proposal 38 – GMU 20A Controlled Use Area

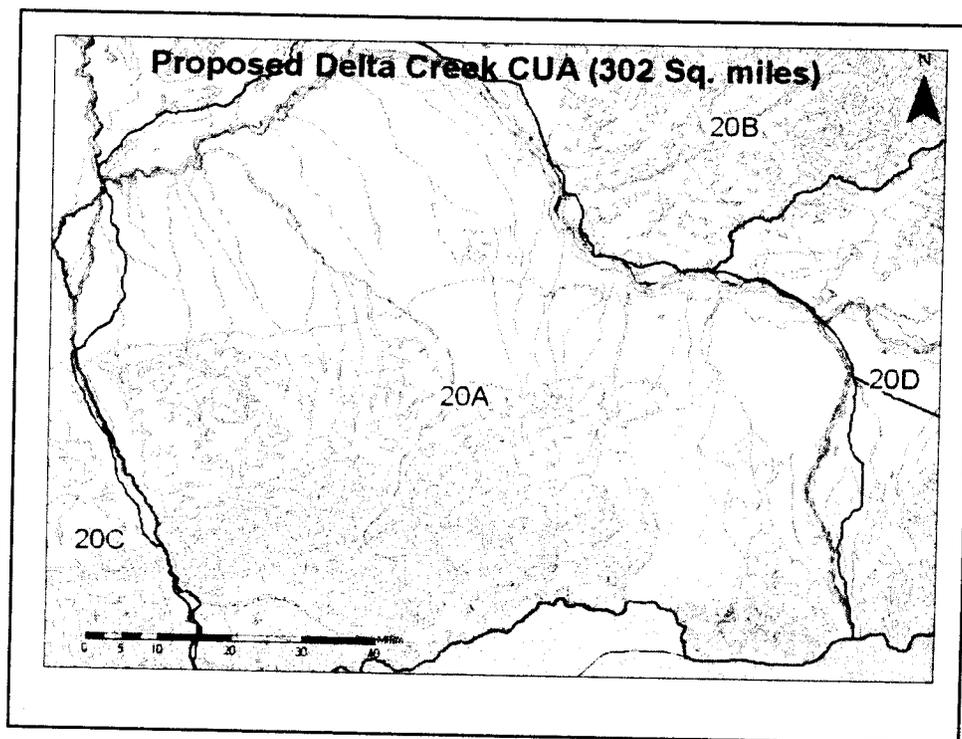
EFFECT OF THE PROPOSAL:

- Establish Delta Creek Controlled Use Area in Unit 20A

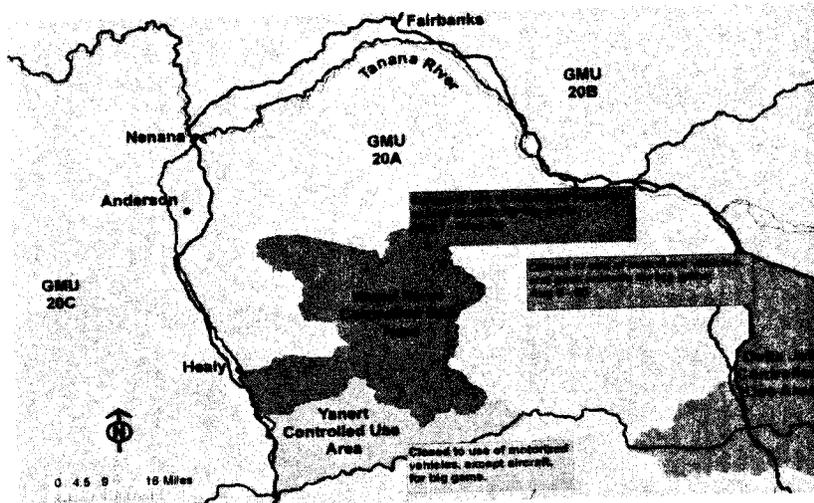
DEPARTMENT RECOMMENDATION: NO RECOMMENDATION

RATIONALE: This is a user conflict and land management issue

Opposed by Delta AC



Controlled Use Areas



Proposal 38 – GMU 20A Controlled Use Area

EFFECT OF THE PROPOSAL:

- Establish Delta Creek Controlled Use Area in Unit 20A

DEPARTMENT RECOMMENDATION: NO RECOMMENDATION

RATIONALE: This is a user conflict and land management issue

Opposed by Delta AC

Proposal 91 and 92

•EFFECT OF PROPOSAL: Reinstate Nenana Controlled use area and/or stop airboat traffic on the Kantishna river

•DEPARTMENT RECOMMENDATION: No Recommendation

•RATIONALE:

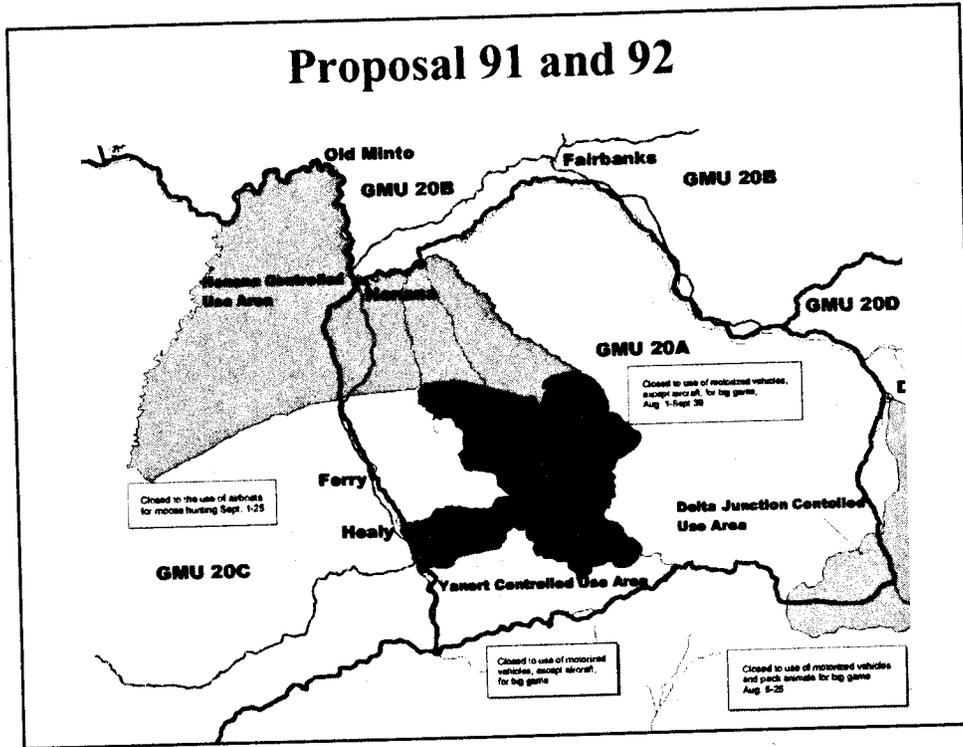
- Allocation issue
- Existed 1996 – 2004
- 2419 mi²
- Outside the Fairbanks nonsubsistence area
- Established to reduce conflicts between airboating moose hunters and other moose hunters
- Was closed to airboats September 1-25 for moose hunters
- Did not restrict airboat use on major 20C rivers after 1998
- Controversial

Proposal 91 and 92

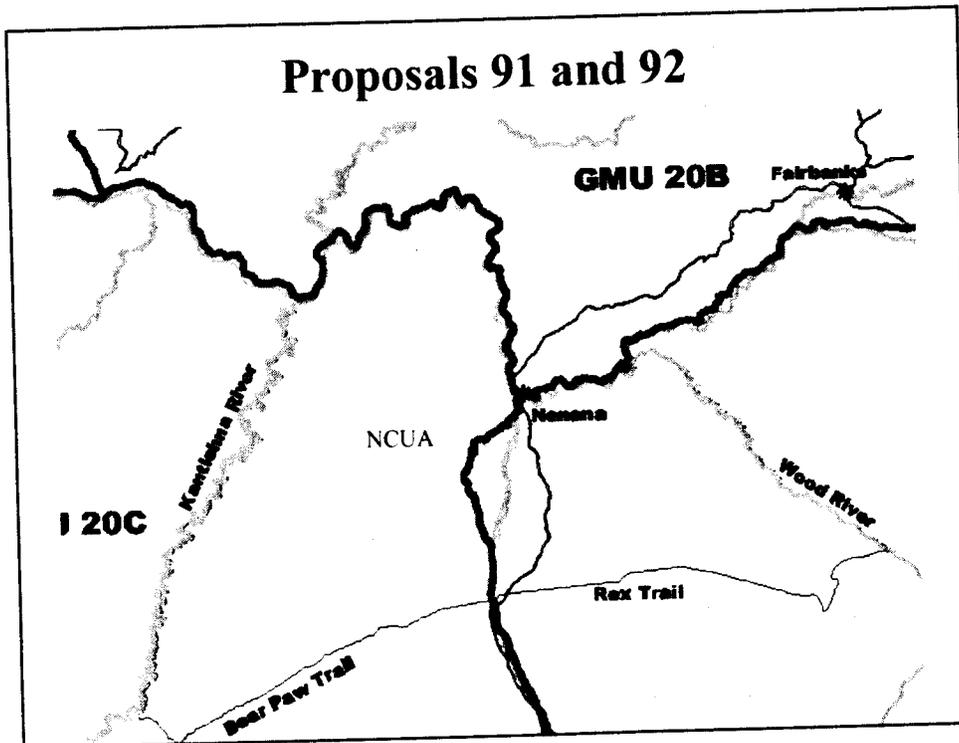
Mean 14

Mean 6

Proposal 91 and 92



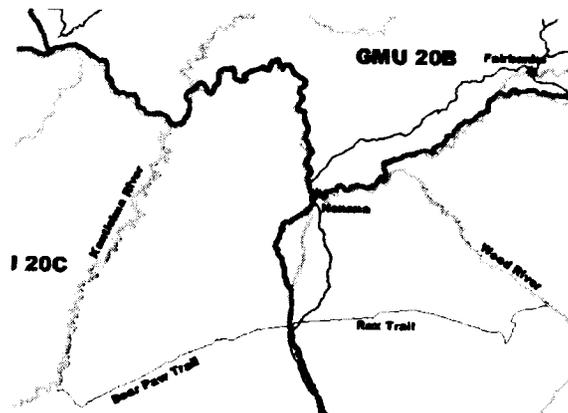
Proposals 91 and 92



Proposal 91 and 92

•EFFECT OF PROPOSAL: Reinstate Nenana Controlled use area and/or stop airboat traffic on the Kantishna river

•DEPARTMENT RECOMMENDATION: No Recommendation



Proposal 18

•EFFECT OF PROPOSAL: Close lynx trapping season in November in Unit 20F

•DEPARTMENT RECOMMENDATION: Do Not Adopt

•RATIONALE:

•5% of harvest is in November while other seasons are open