

AERIAL SURVEY OF BARREN-GROUND CARIBOU AT ADAK ISLAND, ALASKA IN 2005



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EXECUTIVE SUMMARY

At the request of the U.S. Navy, 23 barren-ground caribou calves were introduced to Adak Island within the Alaska Maritime National Wildlife Refuge (including the former Aleutian Islands NWR) in 1958 and 1959 to provide sport hunting for residents of Naval Air Station, Adak and as an alternate food source for the military base in the event of a national emergency. Due to the lack of predators and biting insects, along with good range habitat and mild winters, the herd quickly increased. By 1964, the herd had grown large enough to support the first sport hunt. Surveys conducted opportunistically with military and U.S. Coast Guard aircraft estimated the post-calving herd at approximately 300-400 animals throughout much of the 1980's. In 1993, during replicate surveys, the USFWS counted 661 animals and estimated the island population to be about 750 animals. In 1998 we counted 854 caribou and estimated there were approximately 900 caribou on the island. In 2005, we counted 2,751 caribou during a single census – more than 3 times the number counted in 1998. This survey indicates the caribou population on Adak Island is rapidly increasing. Sport hunting by local residents and visiting hunters remains low and is not sufficient to ensure the long-term health of the habitat and caribou population.

INTRODUCTION

There are no indigenous land mammals on any of the Aleutian Islands west of Umnak Island. However, foxes, ground squirrels, reindeer and other mammals have been introduced by humans. At the request of the U.S. Navy, caribou were introduced to Adak Island by Alaska Department of Fish and Game and U.S. Fish and Wildlife Service to provide sport hunting for local Navy and civilian residents and to provide an additional food resource in the event of a national emergency. With the assistance of the Navy, Marines, and Air Force, caribou calves from the Nelchina herd northeast of Anchorage were captured, transported and released on Adak in 1958 and 1959. Twenty-three calves survived captivity and were released on the southwest side of the island. Due to the lack of predators and biting insects, coupled with good range habitat and mild winters, the herd quickly increased. By 1964 the herd had grown enough to allow the first sport hunt.

The U.S. Fish and Wildlife Service, Alaska Department of Fish and Game and U.S. Navy signed a tripartite agreement stating the caribou management objective was to maintain a pre-calving herd of 200-250 animals with an annual hunter harvest of 50. This long-term population goal was exceeded quickly by high reproduction and survival rates. Although estimates were not very accurate, the post-calving population rose to at least 300-400 animals through the 1980s. By 1993, the herd had grown to at least 661 animals (Meehan 1993) and to nearly 900 by 1998 (Williams 1998). This increase in abundance occurred despite the fact that annual hunter harvest exceeded 200 animals in the early 1990s. Adak Island is co-owned by the Alaska Maritime National Wildlife Refuge and The Aleut Corporation. The two agencies conducted a joint survey in 2005 to evaluate the distribution and size of the caribou population on Adak to provide information needed for managing the herd and habitats of the island.

STUDY AREA

Adak Island is located approximately 2,100 km (1300 mi) southwest of Anchorage in the Andreanof Island group of Alaska's Aleutian Islands (Fig. 1). It covers an area of 75,112 ha (185,600 ac) and is approximately 39 x 45 km (24 x 27 mi) in size. Like other islands in the Aleutian Chain, it is volcanic in origin with a superficial mantle of light soil and ash. The terrain is mountainous, generally rugged in the interior and has extensive lowland areas around the perimeter. It is deeply indented with bays and inlets. The highest point is Mount Moffett at 1,189 m (3,900 ft). The low-lying terrain contains numerous lakes, streams and tidal lagoons. The weather is typical of a northern maritime climate with average summer temperatures at sea level of 8.8 C (48° F), and an annual average of 4.8 C (40° F). The average annual precipitation is 165.9 cm (65.3 in).

Adak's vegetation is classified as oceanic boreal heath and contains no erect trees or shrubs. The principle plants are grasses, sedges, sphagnum mosses and lichens. Crowberry (*Empetrum nigrum*), and alpine willows (*Salix* spp.) are abundant between 90 and 300 m in elevation. Caribou eat reindeer moss (*Cladonia* spp.) which occurs extensively on the south side of the island below 180 m in elevation (an area covering 40,664 ha), and is considered the primary available winter forage for caribou (Jones 1966). The lowlands, including beach-front areas, are vegetated primarily with beach wildrye grass (*Leymus arenarius*) and Reed bent grass (*Calamagrostis canadensis*).

METHODS

A single complete-island survey was conducted 28 August 2005 using a Bell 206 B III Long Ranger helicopter (N302MH) operated by Maritime Helicopters from Homer, Alaska and flown by Bill Springer. Weather was calm and clear over the island with a few exceptions. We encountered thick fog along the east coast of Yakak peninsula between Slaughter Alley and Middle Rock extending inland several hundred meters, along the southwest tip of Yakak Peninsula from south of the Wedge Point cabin southerly to about Yakak, between Turret Point and Wedge Cape, and around Cape Kagigikak. Caribou in these areas were not counted during our survey. Depictions of these areas are indicated in Figs. 2-4.

The survey required 3 flights for a total of about 5.5hrs flight time. During flight 1 (0930-1130h) we surveyed the east quadrant of the island, flight 2 (1230-1510h) the southwest quadrant and flight 3 (1530-1625h) we surveyed the northern half of the island. We flew the survey at approximately 74-93 kph (40-50

knots) and 90 m (300 ft) AGL although this varied with the topography.

Williams sat in the front-left seat and acted primarily as navigator/recorder and secondarily as observer. In the rear of the helicopter, Tutiakoff sat in the left-rear seat and acted as primary observer. The pilot also acted secondarily as observer. The entire island was surveyed including the area north of the town of Adak (Mts. Moffett and Adagdak), where historic use by caribou has been rare. Where topography allowed, 1 km wide parallel transects were flown. In rough mountainous terrain, a systematic flight path through the area assured complete coverage. We used steep ridge lines as barriers to avoid double counting herds.

When caribou were observed, the observer in the front navigator position recorded the number of animals and location of the herd. If necessary, several passes over the animals were conducted in order to obtain a count.

RESULTS AND DISCUSSION

We counted a total of 2,751 caribou in 2005. We were unable to survey the southern half of Yakak Peninsula, Turret Point and Cape Kagigikak because of thick fog. These areas undoubtedly contained some animals based on the historic distribution of animals (Meehan 1993, Williams 1998), so our counts are somewhat low. Otherwise, our coverage was excellent and we believe we did not double count any animals due to herd movement during the survey with the exception of 1 herd of 55 animals near Lake Susan – an area with many animals. We believe we had not previously counted this herd but we cannot be absolutely certain. We have elected to include this herd in our total.

As in past surveys, most caribou were observed in the mountainous area between Splittop Mountain and Lake Vincennes and east to Hidden Bay (Figs. 2-5, Table 1). We counted a total of 226 herds or groupings ranging in size from 1 to 115 animals (Table 1). Mean herd size was 12 animals.

Table 1. Herd size of barren-ground caribou observed on Adak Island, Alaska on 28 August 2005. Map area references red numbers on Figure 2.

Map area	General area	No. Animals	No. Herds	Min. Herd	Max. Herd
1	Mt Moffett	34	5	1	14
2	Mt. Adagdak	0	0	0	0
3	Mt. Reed	184	13	2	55
4	Caribou Penin.	85	10	2	15
5	Yakak Penin.	301	40	1	36
6	Hatchet Lake-False Bay	302	30	1	50
7	Teardrop Basin	524	23	1	115
8	Mandy Lynn-Camel Cove-Campers Cove	135	21	1	21
9	Lake Betty-Scabbard-Campers Cove	577	46	1	74
10	Hatchet-Vincennes Lake High country	609	38	1	80
Total		2751	226	1	115

Periodic surveys of caribou track the overall increase (Fig. 6). Through the 1980s, the post-calving population was around 300-400 animals. By 1993, the herd had grown to at least 661 animals (Meehan 1993) and to nearly 900 by 1998 (Williams 1998). The herd has now increased 300% since the last survey in 1998 to at least 2,751 animals.

Because of the continued growth of the Adak caribou herd, we have expected for some time to observe caribou on nearby islands. Kagalaska Island is only 400 m away from Adak across a narrow

strait – an easy swim for caribou. Fox trappers working on Kagalaska in the late 1990s reported finding 2 shed antlers on interior portions of the island. On 20 August 2003, Williams completed a thorough aerial survey of Kagalaska Island. No caribou were observed during the survey and we had ideal survey weather conditions. We failed to detect any evidence of caribou (e.g. trails, shed antlers), and surmised that only a few caribou have swum over to Kagalaska. We did not survey Kagalaska in 2005 and do not know if they have become established on the island.

We have some data on harvest from past years when local permits and reporting were required (Fig. 7). Most years we only have a total number of animals harvested, but from 1979-1994 we recorded the sex of harvested animals. The mean ratio was 50:50 and has ranged from 38-58 % males harvested. Since 1995, no harvest data have been collected, but casual inquiries of residents suggest that fewer than 100 animals were annually taken through 1999 and perhaps slightly more than 100 animals annually from 2000-2004. The smaller human population on Adak since the closure of the Naval Base in 1994 has resulted in a much lower annual caribou harvest. In 1994, the U.S. Fish and Wildlife Service recommended the removal of the bag limit on the number of animals taken by each hunter and extended the hunting season to year-round in an effort to increase hunter harvest. In recent years, the number of animals annually harvested has increased as several local hunters have taken advantage of the no-season and no-limit harvest on Adak. In addition, with better airline access, more hunters from mainland Alaska and the contiguous U.S. have begun hunting on Adak. However, without a permit system, it is difficult to quantify harvest levels except anecdotally.

The amount of habitat damage caused by caribou on the southern part of the island is much more noticeable in 2005 than when Williams began flying aerial surveys at Adak in the early 1990's. Trails were most obvious around lakes, ponds, streams and passes that constricted movement of caribou. Some areas were especially trampled and eroded, such as the high pass region north of Lake Mandy Lynn located south east of Gannet Lake. In some locations 20-30 small trails coalesced into a single trail the entire area being well-trampled (Fig. 8).

This survey indicates that caribou numbers on Adak Island have rapidly increased. Despite a no-season/no-limit management practice, hunter harvest remains low and is not sufficient to control the growth of the island's caribou population (Fig. 6).

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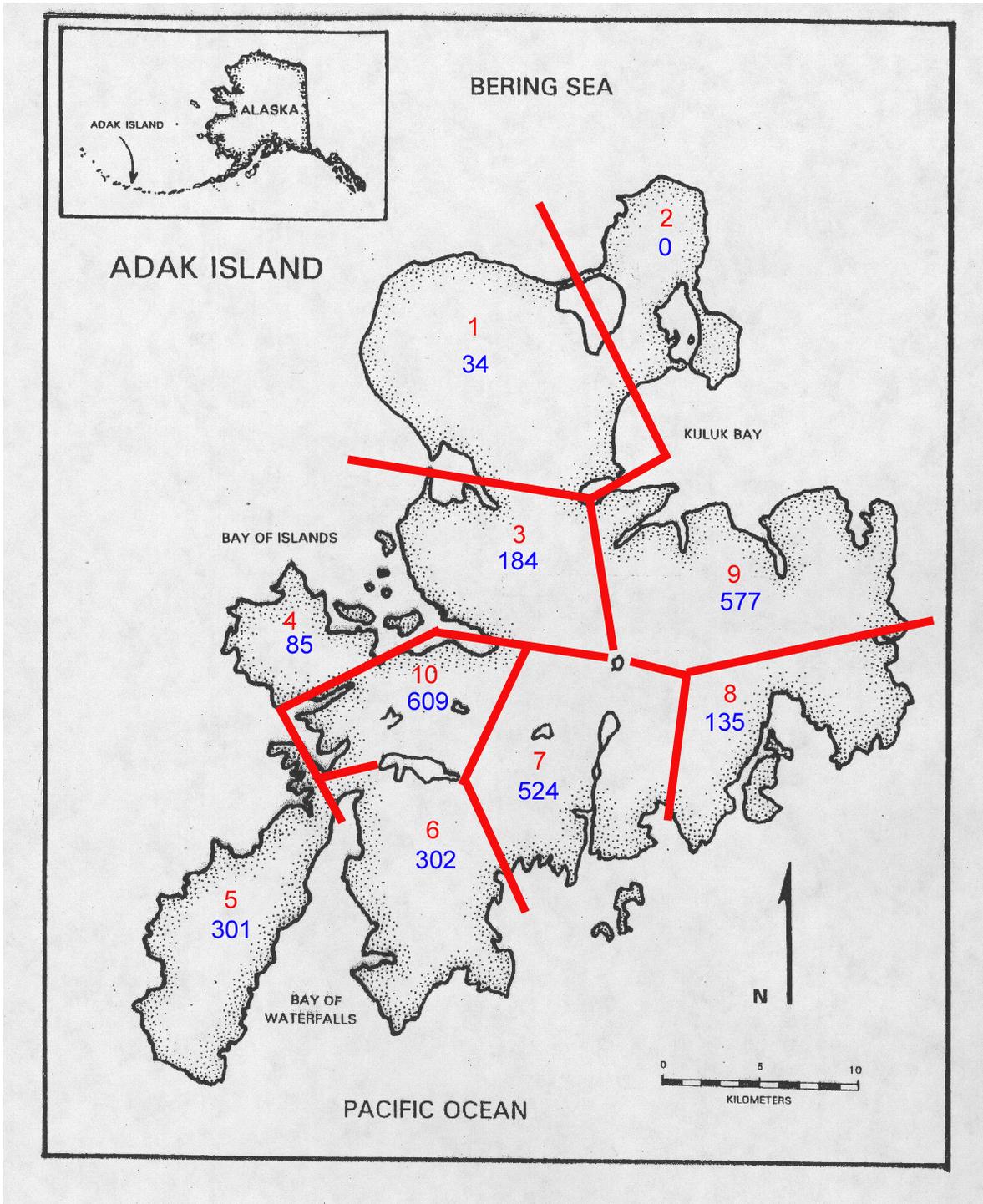


Figure 2. Map of Adak Island, Alaska showing numbers of caribou (blue) counted in 2005 by general area (red) listed in Table 1.

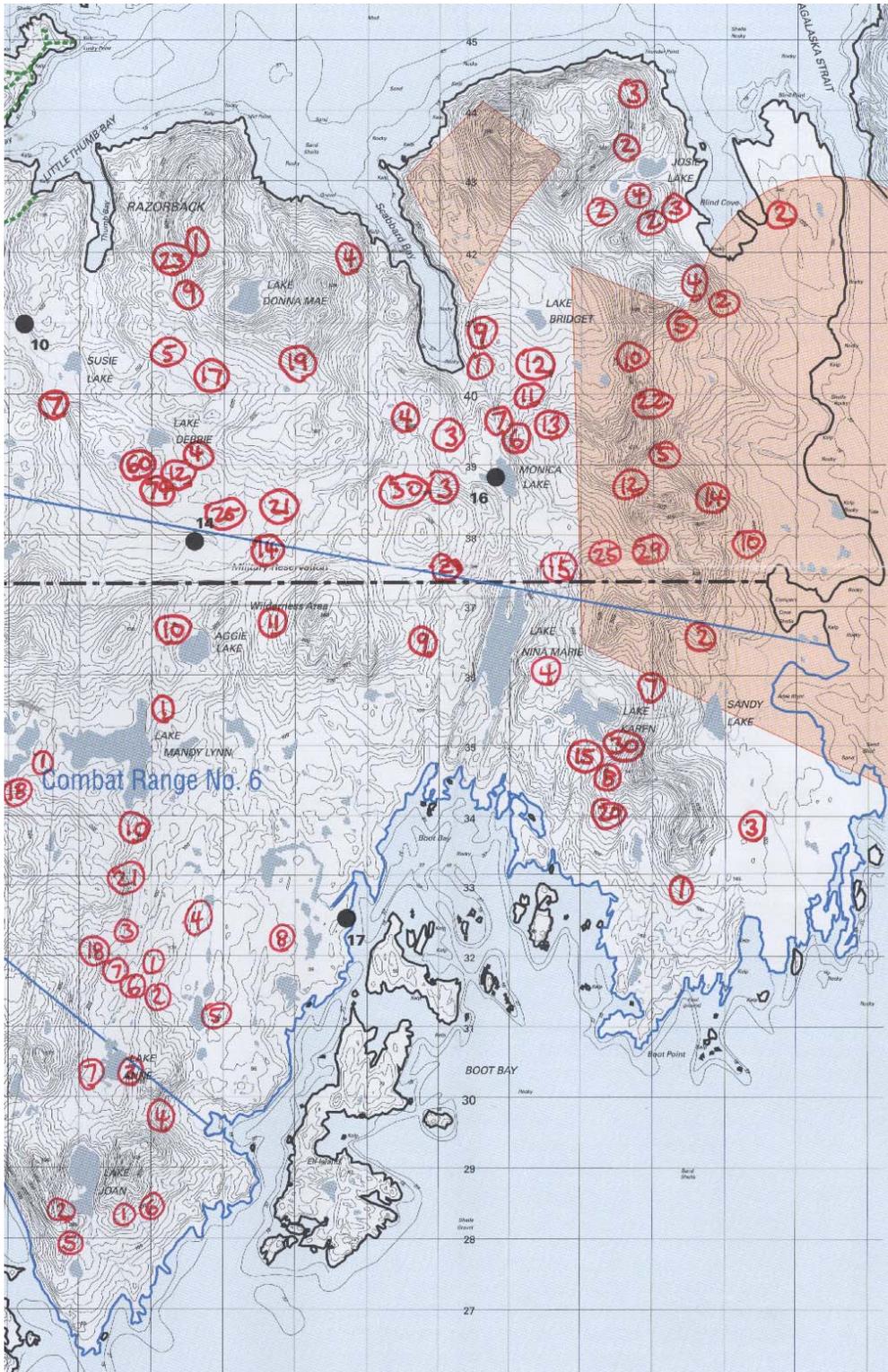


Figure 3. Map of the eastern portion of Adak Island, Alaska showing location and herd size of caribou observed on 28 August 2005.

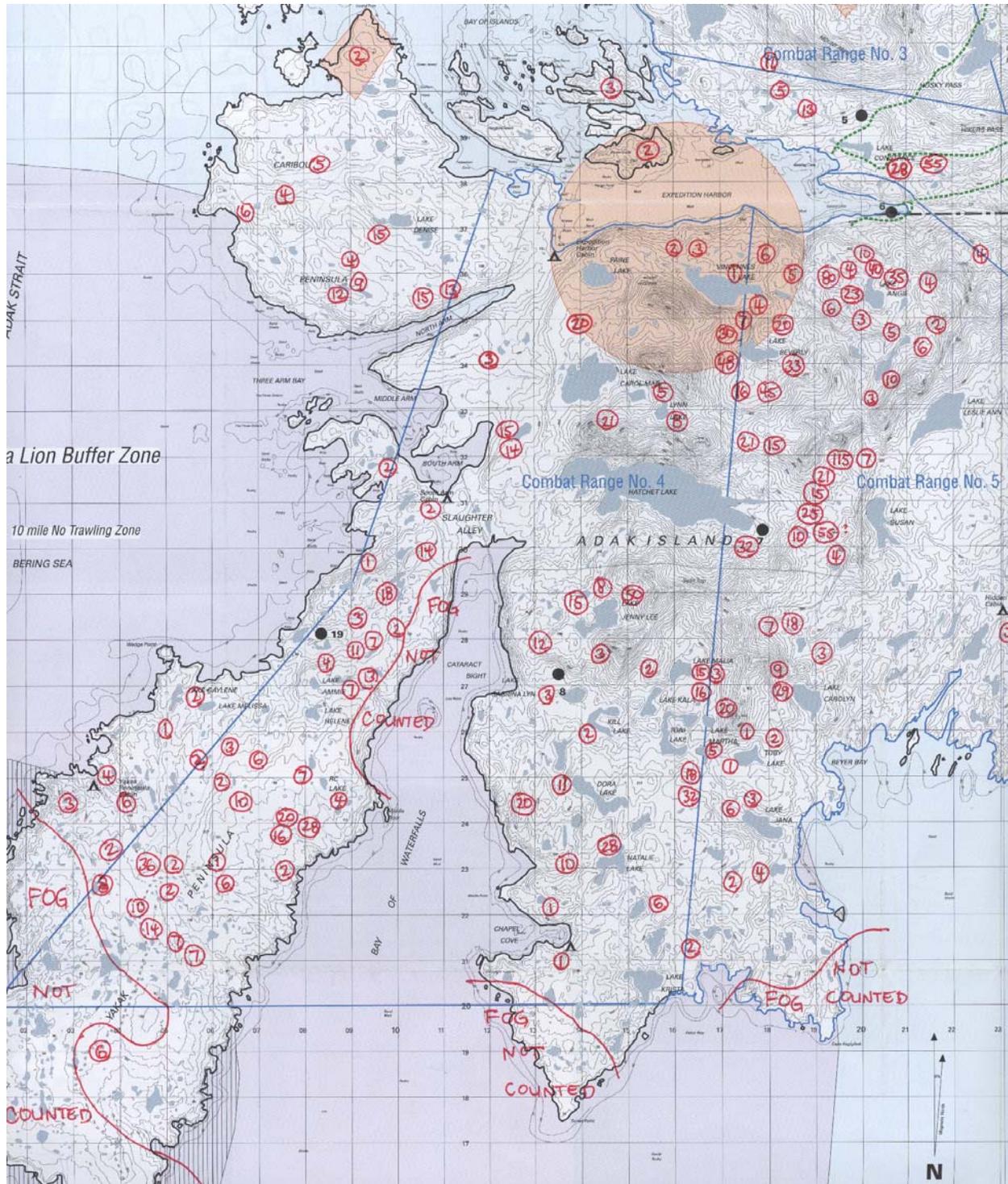


Figure 4. Map of the southwest portion of Adak Island, Alaska showing location and herd size of caribou observed on 28 August 2005.

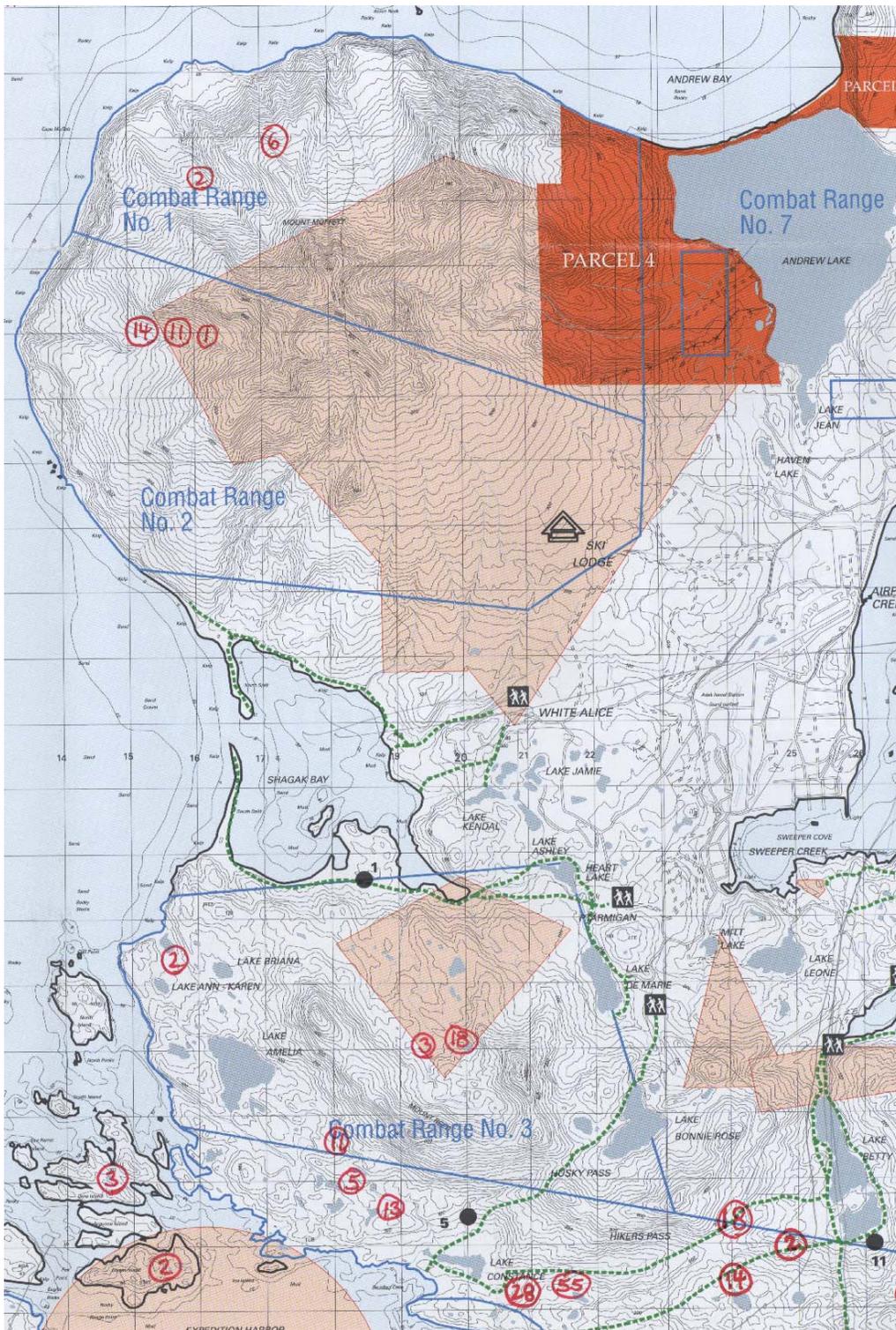


Figure 5. Map of the northwest portion of Adak Island, Alaska showing location and herd size of caribou observed on 28 August 2005.

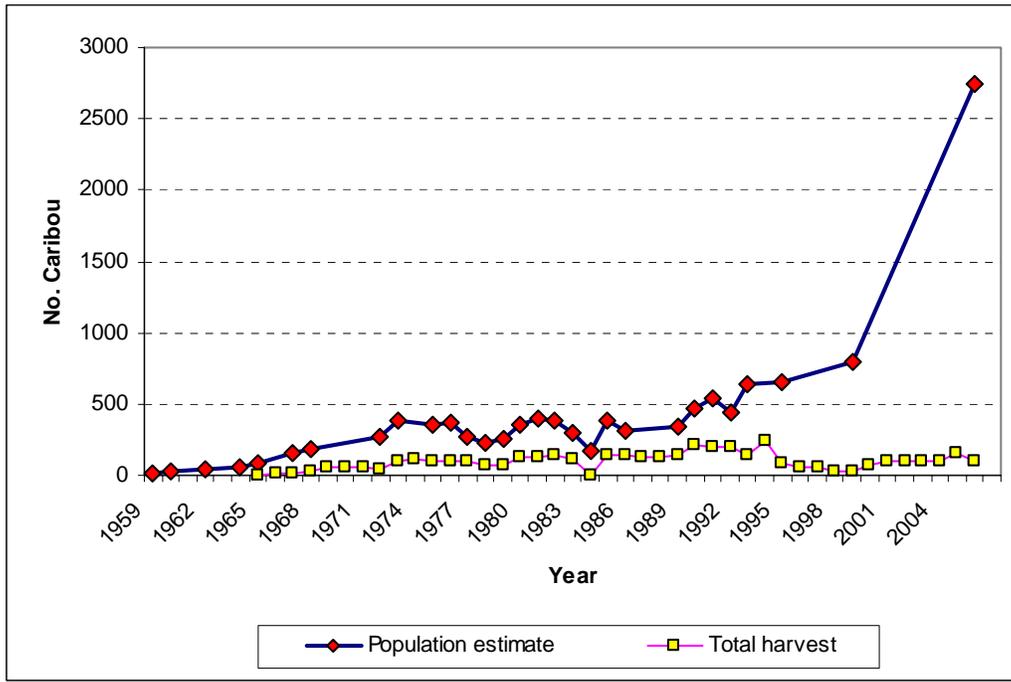


Figure 6. Hunter harvest and population estimates of caribou at Adak Island, Alaska.

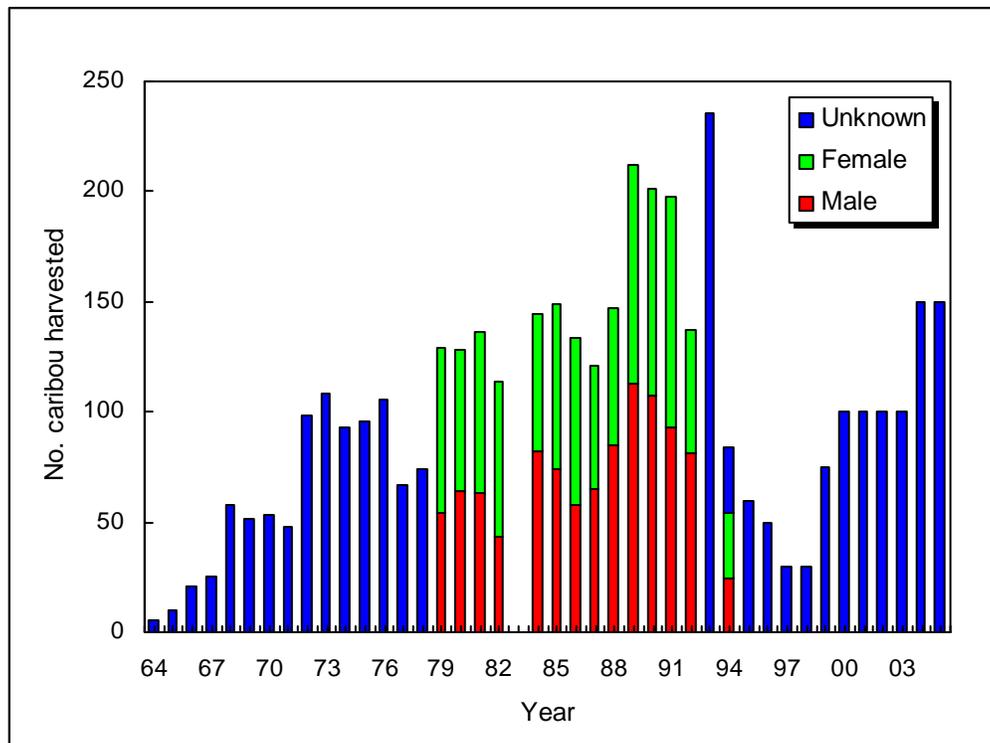


Figure 7. Sex composition and hunter harvest of caribou at Adak Island, Alaska, 1964-2005. Values for 1997-2005 are estimated because harvest records were no longer required.



Figure 8. Photo of steep hillside in southwest portion of Adak Island, Alaska showing a moderate amount of trailing from caribou. Note the primary trail on the left ridge ascending to the steep chute to the right. Numerous smaller trails above and below parallel the primary trail across the green slope. The entire area is well-trampled and cut up. We encountered many areas much more heavily eroded and trampled on other portions of the island.