SUMMARY OF WILDLIFE STUDIES FOR THE ALPINE SATELLITE DEVELOPMENT PROJECT, 2004

Prepared for

ConocoPhillips Alaska, Inc.
P.O. Box 100360
Anchorage, AK 99510

and

Anadarko Petroleum Corporation
3201 C Street, Suite 603
Anchorage, AK 99503

Prepared by

Charles B. Johnson
Robert M. Burgess
Ann M. Wildman
Alice A. Stickney
Pamela E. Seiser
Brian E. Lawhead
Todd J. Mabee
Alexander K. Prichard
John R. Rose

ABR, Inc. Environmental Research & Services
P.O. Box 80410
Fairbanks, AK 99708

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SUMMARY OF WILDLIFE STUDIES FOR THE ALPINE SATELLITE DEVELOPMENT PROJECT, 2004

ConocoPhillips Alaska, Inc. (CPAI) has conducted numerous wildlife studies on the central Arctic Coastal Plain to monitor the effects of oil development and to identify important wildlife areas that may need special consideration during new oilfield development. This document is a summary of the wildlife surveys conducted in 2004 for the proposed Alpine Satellite Development Project (ASDP), which includes the Colville River Delta and the adjacent portion of the Northeast Planning Area of the National Petroleum Reserve-Alaska (NPRA). Details on the 2004 studies can be found in the technical report "Wildlife Studies for the Alpine Satellite Development Project, 2004," prepared by ABR, Inc., a biological research company contracted by ConocoPhillips. Copies of that report are kept at the Kuukpik Corporation offices in Anchorage and Nuiqsut, as well as the Kuukpik Subsistence Oversight Panel (KSOP) office in Nuiqsut. Questions about the reports and studies can be directed to Caryn Rea, Environmental Studies Coordinator for ConocoPhillips, at (907) 265-6515.

Why We Do Wildlife Studies

Wildlife surveys are used to gather information on the abundance and distribution of wildlife in the areas targeted for development before the construction of any oil production facilities. Engineers at ConocoPhillips need information on wildlife habitat use throughout the year to avoid or minimize development impacts. Similar surveys are conducted after construction so that scientists can compare wildlife abundance and distribution before and after oilfields are built. The wildlife surveys focus on species that are important to subsistence users (for example, niġliq [geese] and tuttu [caribou]), birds with declining populations (qaqsrauq [red-throated loons]), birds on the US Fish and Wildlife Service Threaten Species List (qavaasuk [spectacled eiders] and igniquaqtuq [Steller's Eiders]) or birds that breed primarily or only on the arctic coastal plain (tuullik [yellow-billed loons] and qiŋalik [king eider]). Species that prey on waterfowl or their nests are also monitored, such as nauyavasrugruk (glaucous

gulls), tulugaq (ravens), migiaqsaayuk (parasitic jaegers), isuŋŋaq (long-tailed jaegers), tiġiganniaq (arctic foxes), and kayuqtuq (red foxes).

The 2004 studies included foot surveys for large waterbirds and ptarmigan and aerial surveys for the following species: qavaasuk (spectacled eider), qiŋalik (king eider), igniqauqtuq (Steller's eider), qugruk (tundra swan), tuullik (yellow-billed loon), nauyavasrugruk (glaucous gull), tuttu (caribou), and tiġiganniaq (arctic fox) and kayuqtuq (red fox) dens. In NPRA, aerial surveys also were conducted for brood-rearing and fall-staging niġliq (geese), and additional foot surveys were conducted for tiŋmiaġruk (shorebird and songbird) nests.

The Colville River Delta is divided into the CD North and CD South study areas, and the northeast Delta (see map, Figure 1), but in this summary we mainly provide information on the entire delta. The Colville Delta is a 213 square-mile region that stretches from Nuiqsut to the coast and from the Niġliq (Nechelik Channel) eastward to the East Channel of the Kuukpik (Colville River) (Figure 1). ABR started foot surveys on the Colville Delta in 1992 and began foot surveys of the CD-3 and CD-4 pad sites (formerly called CD North and CD South) in 2000. Aerial surveys of most of the Colville Delta have been conducted since 1992. The NPRA study area is on the west side of the Niġliq (Nechelik Channel). The study area extends 4 miles east of Nuiqsut and 25 miles west of Nuiqsut, covering 475 square miles of the northeastern NPRA (Figure 1). ABR biologists started collecting data in this area in 1999. The first two years (1999 and 2000), they conducted aerial surveys for qavaasuk and qugruk (spectacled eiders and tundra swans) and foot surveys for qavaasuk near proposed drilling locations. Surveys for most of the other species began in 2001. ABR has conducted foot surveys for waterbird nests at the three proposed pad sites (CD-5, CD-6, and CD-7) in NPRA since 2002.

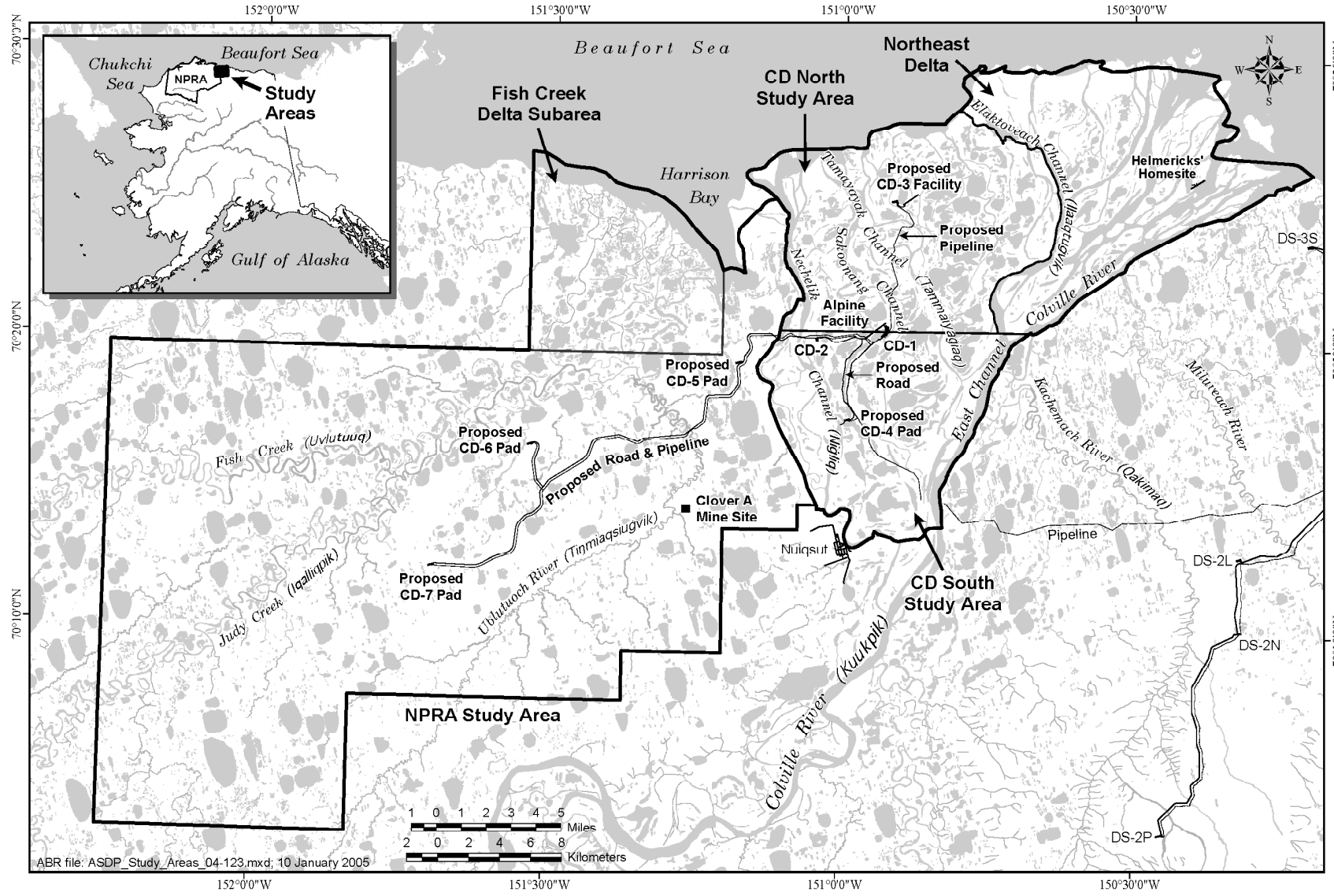

Figure 1. Wildlife study areas and proposed pad sites for the Alpine Satellite Development Project, northern Alaska, 2004.

Local Knowledge and Input

To increase public involvement in our studies, we have met with representatives of the North Slope Borough and with Nuiqsut residents at various community meetings, every May for the last 4 years. In 2001, the May meetings included a science fair at Trapper School, in which CPAI and ABR biologists introduced exploration and development programs on the Colville Delta and in NPRA, and to inform residents about the environmental studies scheduled for the summer. CPAI and ABR biologists next met with Nuiqsut elders to discuss NPRA activities and to seek input on traditional use areas. The most recent event was an open house held in Nuiqsut on May 18, 2004, to allow residents to visit with ABR biologists and other CPAI scientists to discuss information on and concerns for resources in the Delta and NPRA areas. Input from these meetings was used to coordinate our field survey schedules to avoid conflict with subsistence activities in the area. ABR biologists also shared their research findings on caribou and waterfowl with Nuiqsut residents through summer presentations on July 8 and July 14, 2004. At these informal presentations, residents had a chance to talk to biologists one-on-one, to share their local knowledge of wildlife species, and to voice their concerns. In addition to these meetings, KSOP representatives accompanied ABR scientists on their wildlife surveys. Mark Ahmakak represented KSOP on wildlife surveys in 2002–2004. Doreen Nukapigak, also representing KSOP, participated in our studies in 2001 and 2003. Gordon Matumeak was another KSOP representative who joined our wildlife surveys in 2002.

CPAI also provided opportunities for Nuiqsut elders to visit proposed exploration sites and study locations. In September 2003, we flew two groups of Nuiqsut elders to exploration sites to solicit their input on potential issues associated with development or exploration activities. Joeb Woods and Ruth Nukapigak went with CPAI to visit subsistence cabines near study areas in 2003.

During the summer field season, we posted weekly updates on bulletin boards in the post office, store, and community center in Nuiqsut. The updates reported on surveys conducted the previous week and the schedule of surveys for the coming week. CPAI also sent reports to the *Arctic Sounder* newspaper. The "NPRA Update" has been included in that newspaper every year since 2001. We hoped that these reports would

inform residents where our scientists were going to be working and, if they saw a conflict with their subsistence activities, that they would call us. CPAI did modify one of the surveys in 2001 in response to concerns about helicopter traffic near camps. More recently we addressed further concerns over subsistence hunting and aircraft travel. CPAI provided KSOP field representatives with radio and Global Positioning System (GPS) equipment to communicate with CPAI aircraft pilots when aircraft (primarily helicopters) might interfere with subsistence hunting.

How We Conduct Our Studies

The studies in 2004 included both aerial and ground surveys. Aerial surveys (in helicopters or airplanes) covered most of the Colville River Delta and NPRA study area, but avoided the area close to Nuiqsut. Surveys conducted from aircraft allow ABR to cover a large area in a short amount of time, but these surveys can only be used for large, easily seen birds and mammals. Geese, swans, eiders, and large loons are all counted from the air. In the 1980's, the U.S. Fish and Wildlife Service established standard survey procedures for counts of waterfowl from airplanes. Government agencies request that ABR also follow these same survey procedures and continue to use airplanes, so results of these surveys can be compared with those of other studies. However, airplanes are not the best aircraft for all wildlife surveys. For example biologists need the slow speed and mobility of helicopters if they want to detect nests along lake shorelines. Therefore, helicopters are better for counting tuullik (yellow-billed loon) that nest on islands and shorelines of lakes.

ABR conducts each annual survey close to the same date each year, because the timing affects the number of animals counted. For example, pre-nesting eider surveys are conducted in the second week of June when the male eiders are still paired with females. Without the colorful males present, many of the females cannot be seen from the airplane. During nesting, when many waterbirds are difficult to see from the air, nest searches are conducted on foot by crews in the areas proposed for gravel pads or roads. During these nest searches, crews of 5 to 10 people walk 30 feet apart in a line and look for waterfowl, loon, gull, and ptarmigan nests. In addition to searching for bird nests, biologists spend time on the ground watching fox dens to see how many pups are present.

What We Found In 2004

Large Waterbird Nest Searches

The searches conducted on foot for large waterbird nests in 2004 focused on proposed pad sites at CD North and in NPRA. The CD North search area was centered on the proposed site of CD-3 and covered about 6.9 square miles (see Figure 2). We located 518 nests of 17 species of large birds at CD-3 in 2004. This was the highest number of nests found since the start of surveys at CD-3 in 2000. Those nests included 330 niġlivik (greater white-fronted goose) nests, 32 aaqhaaliq (long-tailed duck) nests, 23 niġlinġaq (brant) nests, and 8 qugruk (tundra swan) nests. Forty-one loon nests were found, including 20 malġi (Pacific loon), 16 qaqsrauq (red-throated loon), and 5 tuullik (yellow-billed loon) nests. All other species had fewer than 11 nests each.

In NPRA, we searched 3 potential pad sites — CD-5, CD-6, and CD-7 — plus wetlands along the proposed road corridor that would connect these 3 sites to the existing Alpine facilities (see Figures 3 and 4). The number of nests found in the combined NPRA search areas was about half that found in the CD-3 search area, despite our searching more area in NPRA. The total area searched in NPRA was about 9.2 square miles. In all 3 areas in NPRA, we found 279 nests of 20 species of large birds in 2004. We found 113 niġlivik (greater white-fronted goose) nests, 34 iqsraġutilik (Canada goose) nests, 21 niġlinġaq (brant) nests, 22 malġi (Pacific loon) nests, and smaller numbers of nests belonging to other species.

Breeding-Bird Plots

Breeding-bird plots were designed to count bird nests of all species in different habitats but focused on tiŋmiaġruk (small birds). The plots are part of a larger study across the North Slope of the effects of oilfields and predators on nesting birds. In NPRA, we had 24 of these plots in 6 different areas. Each plot measures about 0.6 miles long and 100 yards wide. Shorebird plots were visited at least 5 times each summer so that we could find all the nests of small birds that we normally pass by while searching for waterfowl nests. In 2004, we found 188 nests belonging to

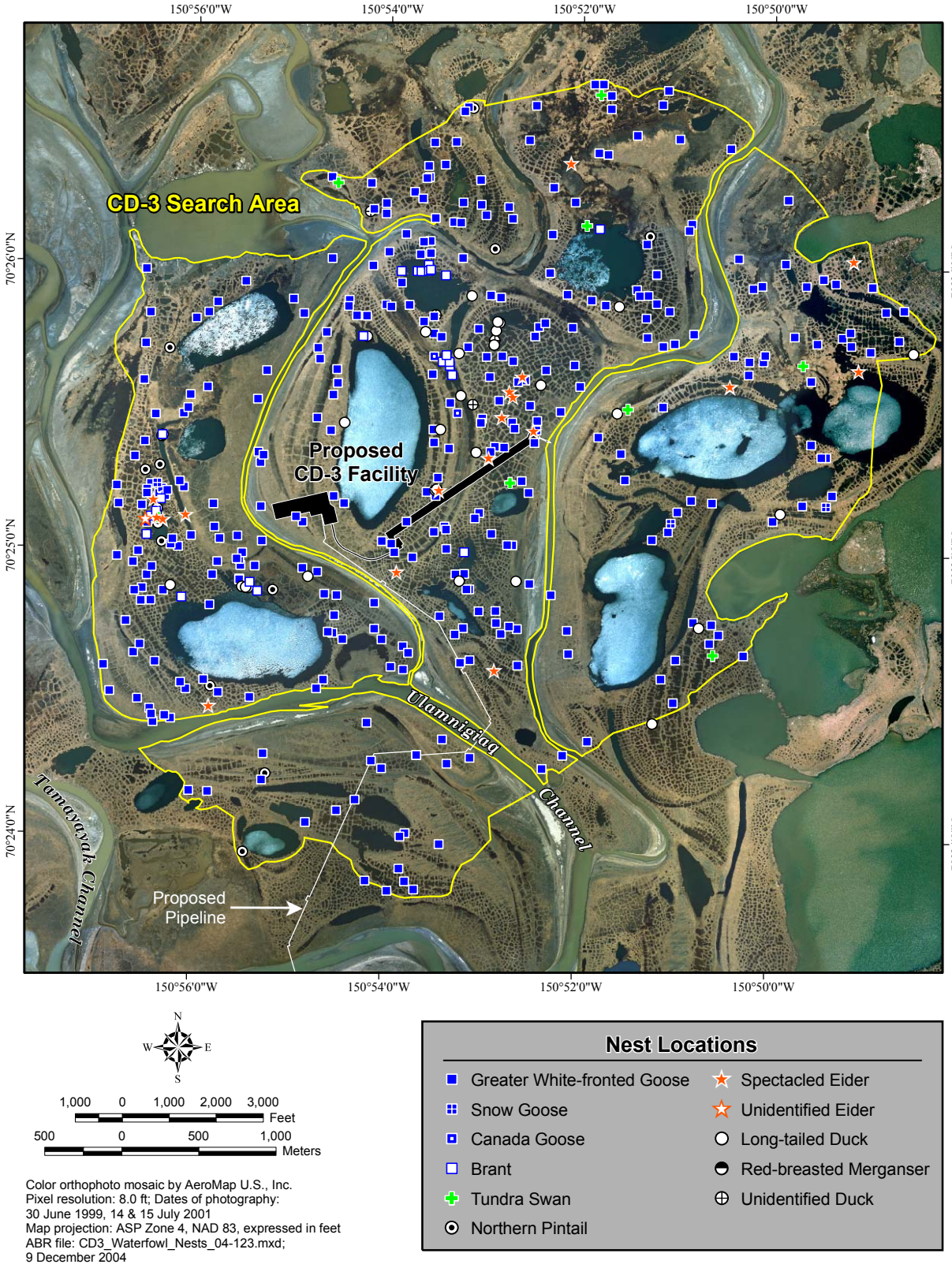

Figure 2. Waterfowl nests in the CD-3 search area, Colville River Delta, Alaska, 2004.

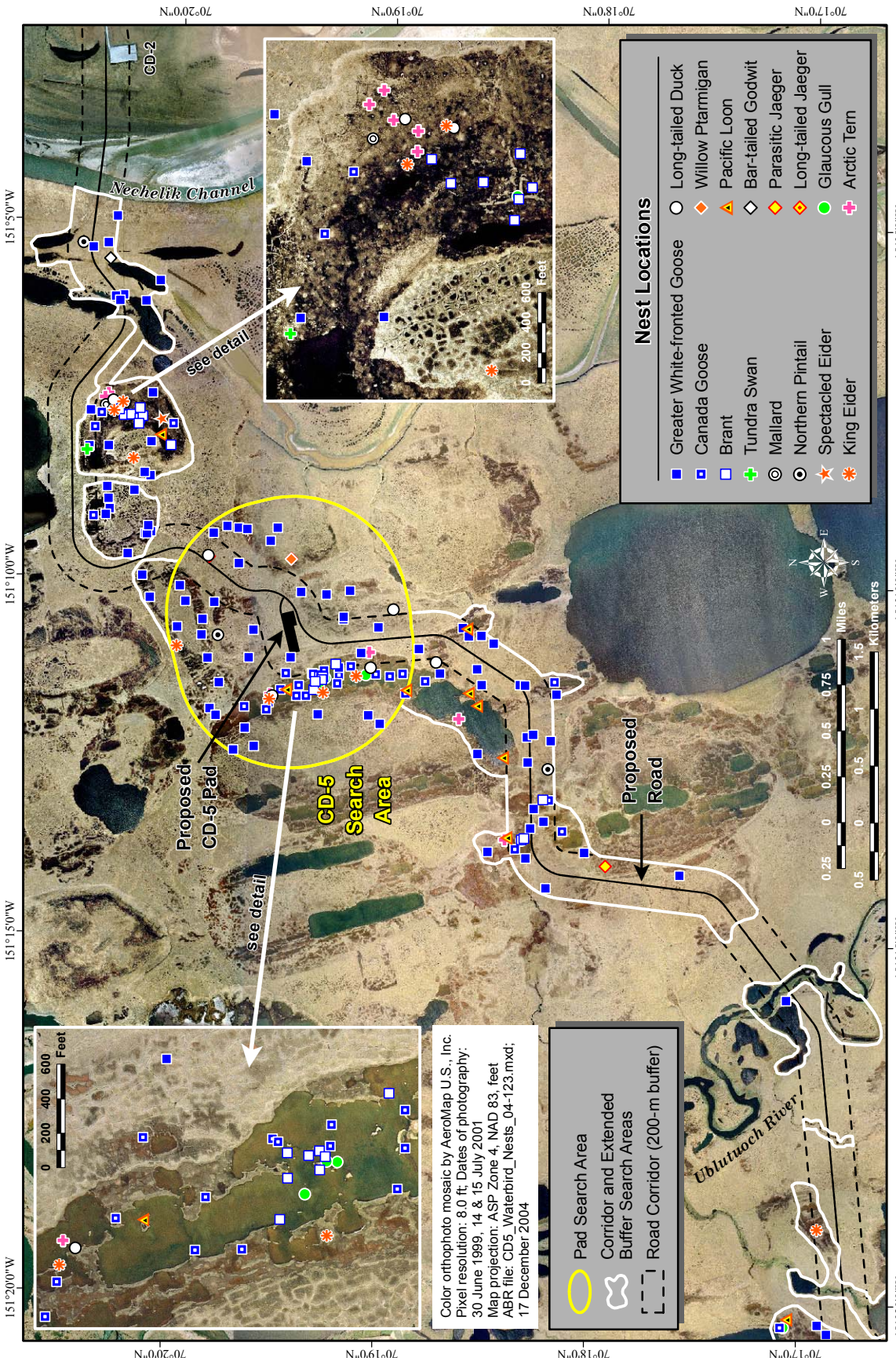

Figure 3. Large waterbird nests in the CD-5 search area and road corridor, NPRA, Alaska, 2004.

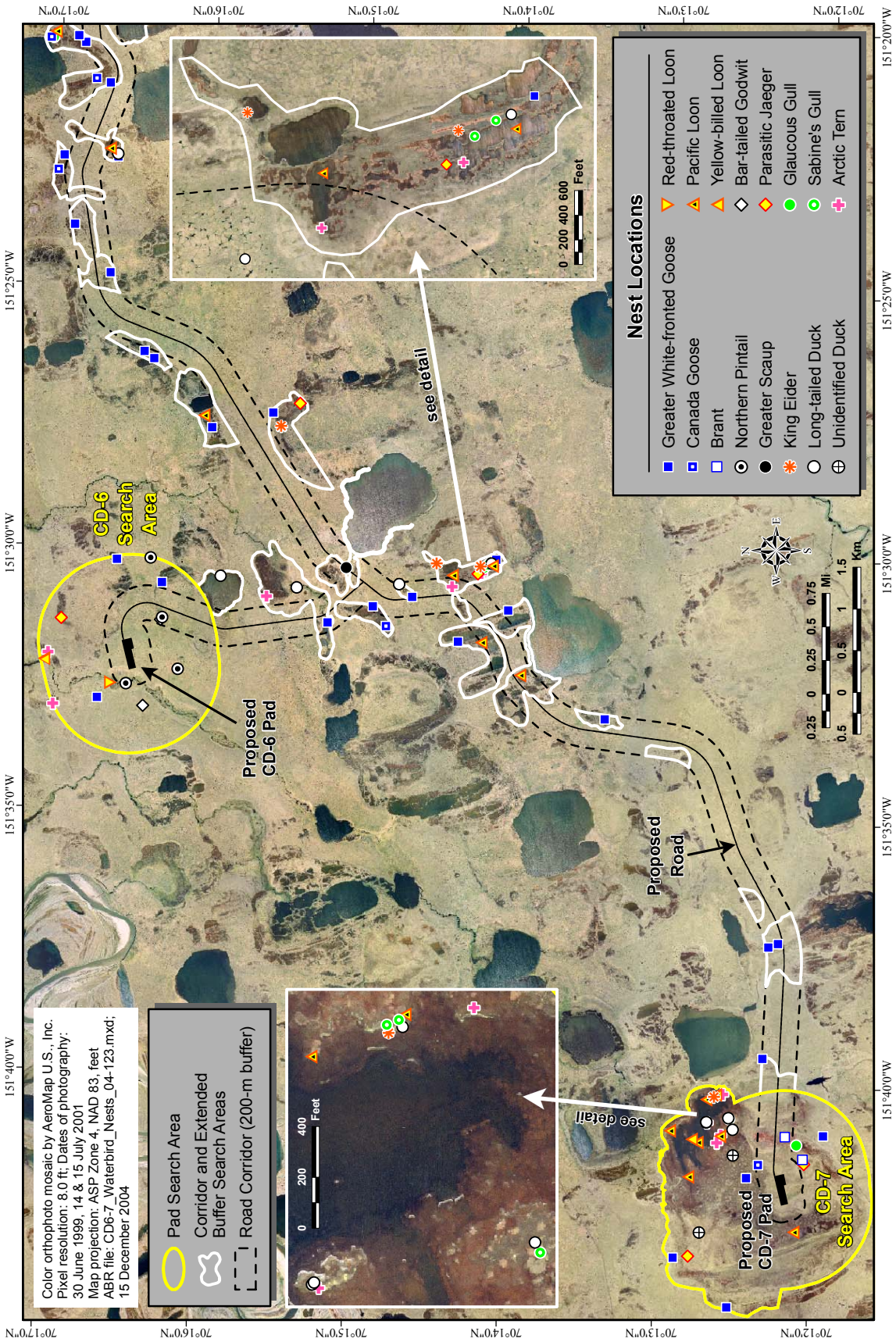

Figure 4. Large waterbird nests in the CD-6 and CD-7 search areas and road corridor, NPRA, Alaska, 2004.

19 species. The qupaĺuk (Lapland longspur) was the most common nesting bird in 2004 with 75 nests, followed by the shorebirds: puviaqtuuq (pectoral sandpiper, 24 nests), livalivaq (semipalmated sandpiper, 19 nests), kilyaktalik (long-billed dowitcher, 15 nests), and qayyiuġun (red-necked phalarope, 15 nests).

Eider Surveys

On the Colville River Delta in 2004, 11 qavaasuk (spectacled eiders) and 17 qiŋalik (king eiders) were seen on an aerial survey flown on June 14–15, 2004 (Figure 5). The number of spectacled eiders counted on the 2004 survey was the lowest number in 5 years of survey. The aerial survey was flown prior to nesting, but may have been flown too late to count the peak in numbers of male qavaasuk pairing up in the nesting areas. Qavaasuk prefer areas close to the coast, which explains why qavaasuk were not seen in the CD South area. The CD North study area supports a higher number of nesting qavaasuk compared with more inland areas. During ground-based nest searches in late June, 18 qavaasuk nests and 1 unknown eider nest were found in the nest search area at CD-3 (Figure 2).

The aerial survey for pre-nesting eiders in NPRA was conducted June 11 and June 15, 2004. Fourteen qavaasuk (spectacled eiders) and 168 qiŋalik (king eiders) were seen on the aerial survey (Figure 5). During ground-based nest searches in June 2004, we found 1 qavaasuk and 12 qiŋalik nests in the NPRA search areas (Figures 3 and 4). No igniquaqtuq (Steller's eiders) were seen in the NPRA study area or on the Colville Delta in 2004.

Tuullik (Yellow-Billed Loon) Surveys

On the nesting aerial survey and ground searches in 2004, 24 tuullik (yellow-billed loons) nests were found on the Colville River Delta (Figure 6). A similar number of nests were found in 2003, which was the highest number of tuullik nests found since ABR began surveying the delta in 1992. All nests were on lakes where tuullik have nested in past years. In August, 12 broods of young were observed on the Colville Delta (Figure 6). In the NPRA study area, 23 tuullik nests were found in 2004. Nests

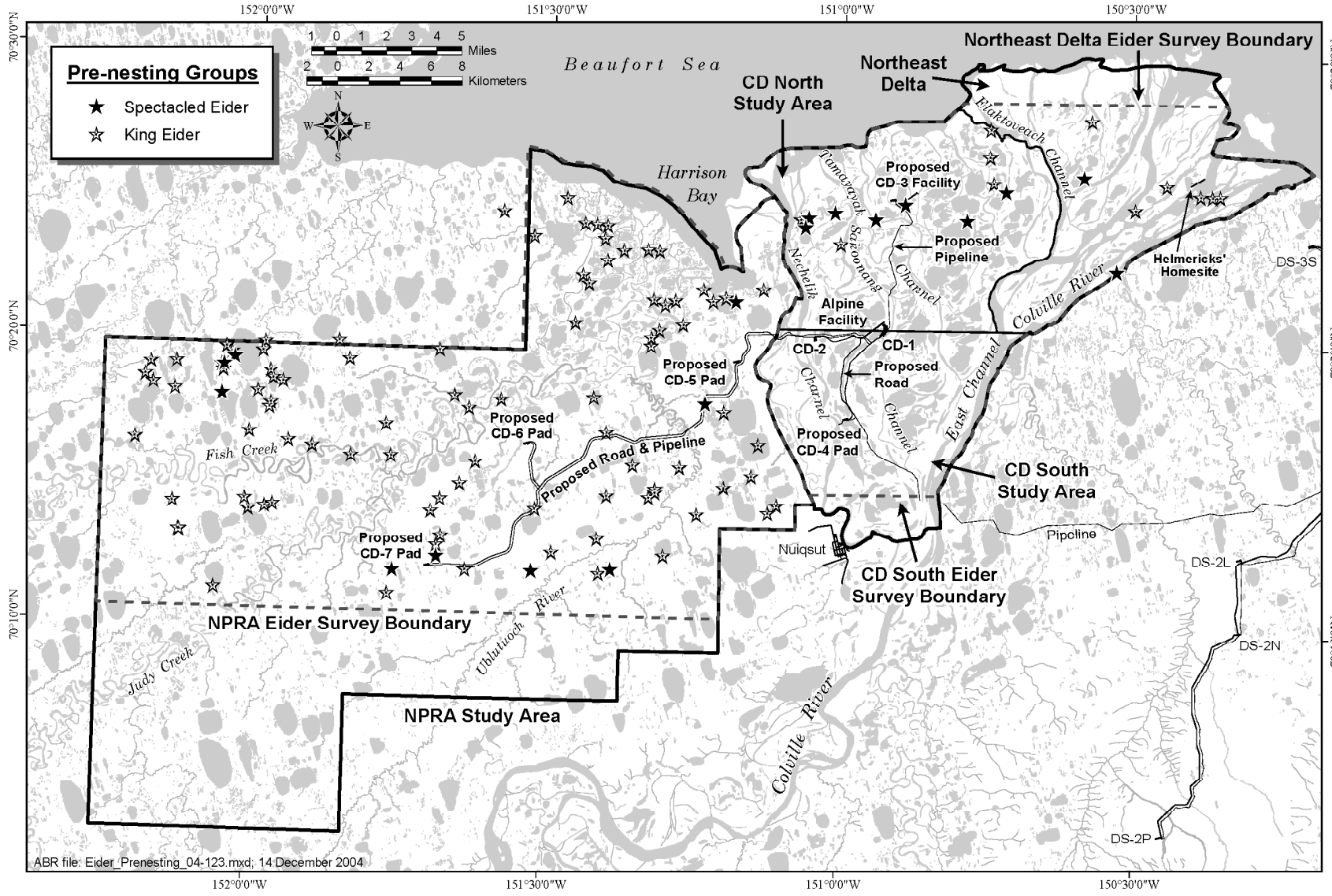

Figure 5. Spectacled and King eider groups during pre-nesting aerial surveys, Colville Delta and NPRA study areas, Alaska, 2004.

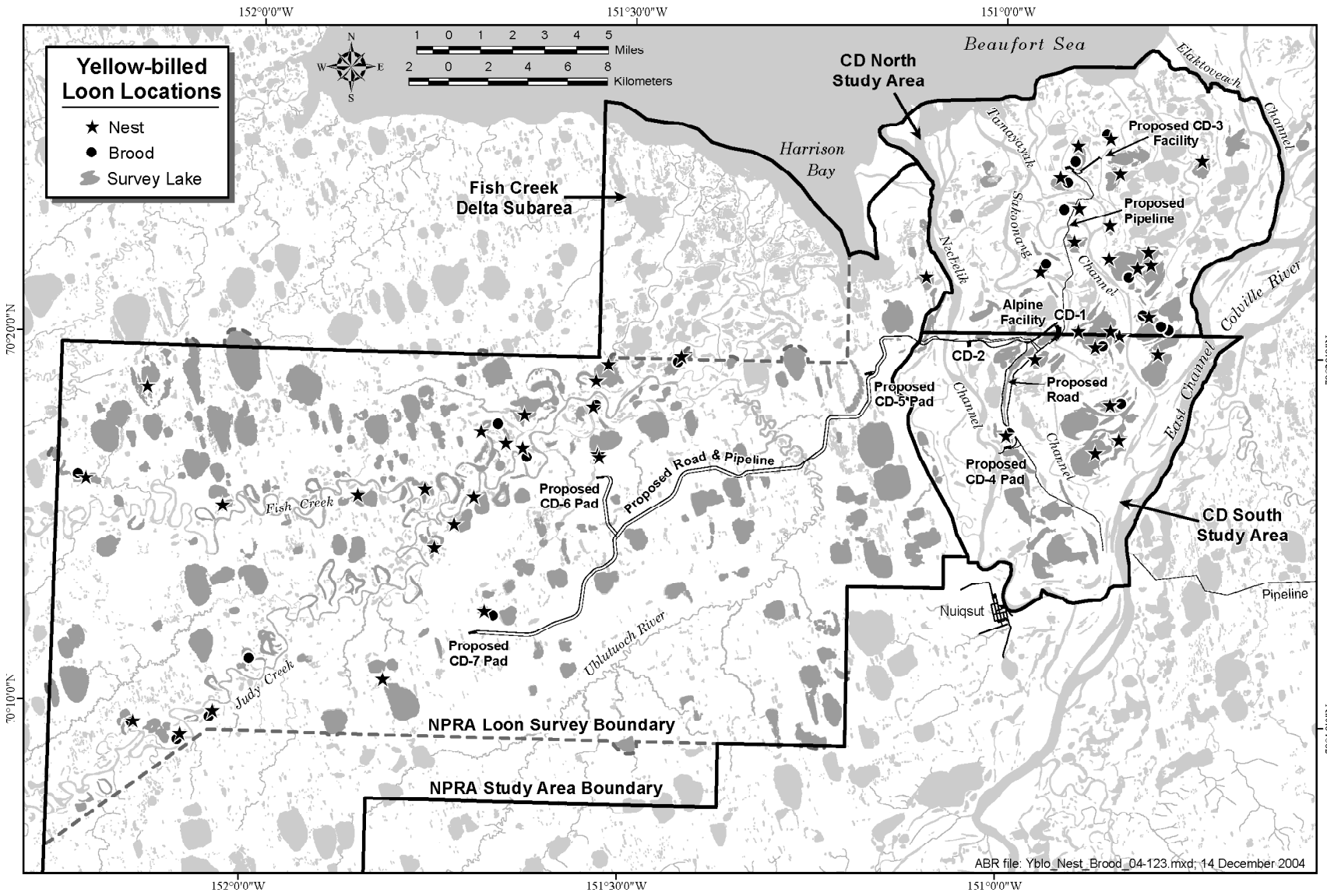

Figure 6. Yellow-billed Loon nests and broods, Colville Delta and NPRA study areas, Alaska, 2004.

were concentrated on lakes adjacent to Uvlutuuq and Iqalliqpik (Fish and Judy creeks; see Figure 6). During the brood-rearing aerial survey in 2004, 10 broods of young tuullik were observed in the NPRA study area.

Qugruk (Tundra Swan) Surveys

Fifty-one qugruk (tundra swan) nests were found during June aerial and ground surveys of the Colville River Delta in 2004 (Figure 7). On the August aerial survey, 42 qugruk broods were located on the Colville Delta. The majority of the nests and broods were in the CD North study area. In the NPRA study area in 2004, 88 qugruk nests and 37 broods were found during aerial surveys and ground searches (Figure 7). Since surveys began in 1999, the density of qugruk nests (number of nests per square mile) in the NPRA study area has always been lower than the density on the Colville Delta.

Niġliq (Goose) Surveys

In addition to the ground searches for large waterfowl nests, 2 aerial surveys were conducted for niġliq (geese) in the NPRA study area: one in late July for brood-rearing geese, and one in late August for fall-staging geese. Niġlivik (greater white-fronted geese) were the most common goose nesting in NPRA search areas and were 3 to 4 times more numerous than other geese. On the brood-rearing aerial survey, we counted 1,372 adult niġlivik with 383 goslings, 60 adult iqsraġutilik (Canada geese) with 30 goslings, 30 adult kaŋuq (snow geese) with 30 goslings, and 18 niġliŋġaq (brant) with 30 goslings. On the fall-staging aerial survey, we counted 283 niġlivik, 244 iqsraġutilik, 96 kaŋuq, and 20 niġliŋġaq, for a combined total of 678 geese.

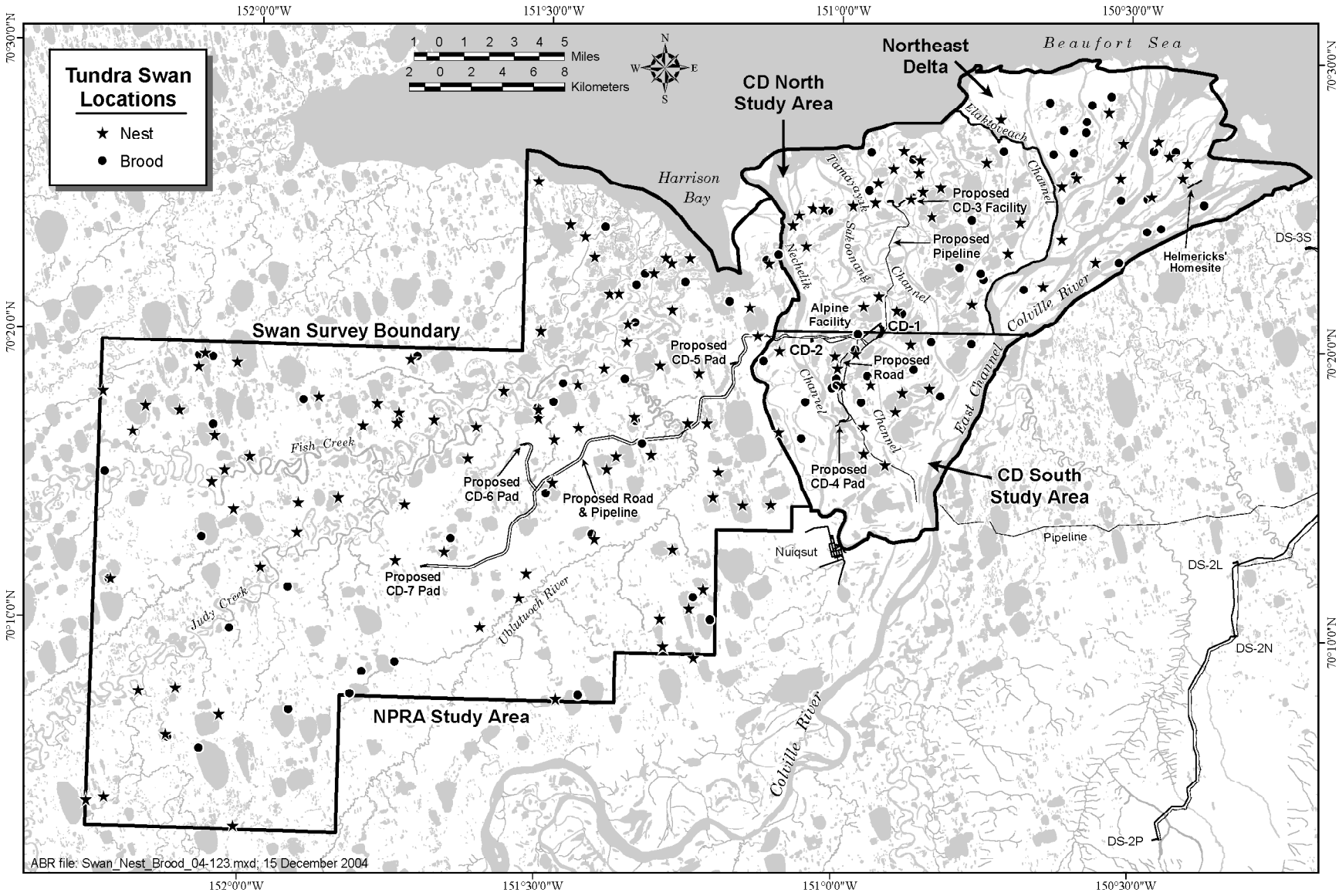

Figure 7. Tundra Swan nests and broods, Colville Delta and NPRA study areas, Alaska, 2004.

Nauyavasrugruk (Glaucous Gull) Surveys

Nauyavasrugruk (glaucous gull) were included in the list of wildlife surveyed because they are predators of other birds' eggs, and their numbers tend to increase around human settlements. It is important to monitor how many of these birds used the study area before development, so that changes in numbers after development can be measured. In 2004, we located 43 nauyavasrugruk nests on the Colville Delta and 93 nauyavasrugruk nests in NPRA.

Tuttu (Caribou) Surveys

Caribou from 2 adjacent herds — the Teshekpuk Herd and the Central Arctic Herd — use the Colville Delta and NPRA study areas. Although the degree of use of each area by each herd varies by season and year, data from radio- and satellite-collars indicate our NPRA study area is mainly used by the Teshekpuk Herd, and the Colville Delta is mainly used by the Central Arctic Herd. To monitor caribou use of the study areas, we conducted 2 aerial surveys of the Colville Delta on June 25 and August 18, and 5 aerial surveys in NPRA between May 18 and October 18. More surveys were planned, but aircraft problems and bad weather prevented flying.

After calving, caribou numbers usually increase on the Colville River Delta, which is used most heavily when large groups of caribou form in response to mosquito harassment between late June and late July. When the correct conditions occur, thousands of caribou may occur on the delta, but such movements do not occur every year. The size and timing of caribou movements each year depends on the interaction of wind, temperature, and insect conditions. The number of caribou using the Colville Delta on June 25, 2004 was relatively high for that time of year, as a large aggregation of mosquito-harassed caribou containing more than 1,050 caribou moved across the delta that day. Only 4 caribou were recorded on Colville Delta on the August 11 survey, which occurred during the period when warble and bot flies were harassing caribou.

Caribou use of the NPRA study area appears to peak during fall and winter, in contrast to neighboring Colville Delta, where the greatest use occurs during the insect season. Only 29 caribou were present in the NPRA study area during the pre-calving survey on May 2004 (Figure 8). Although we were unable to conduct the calving survey

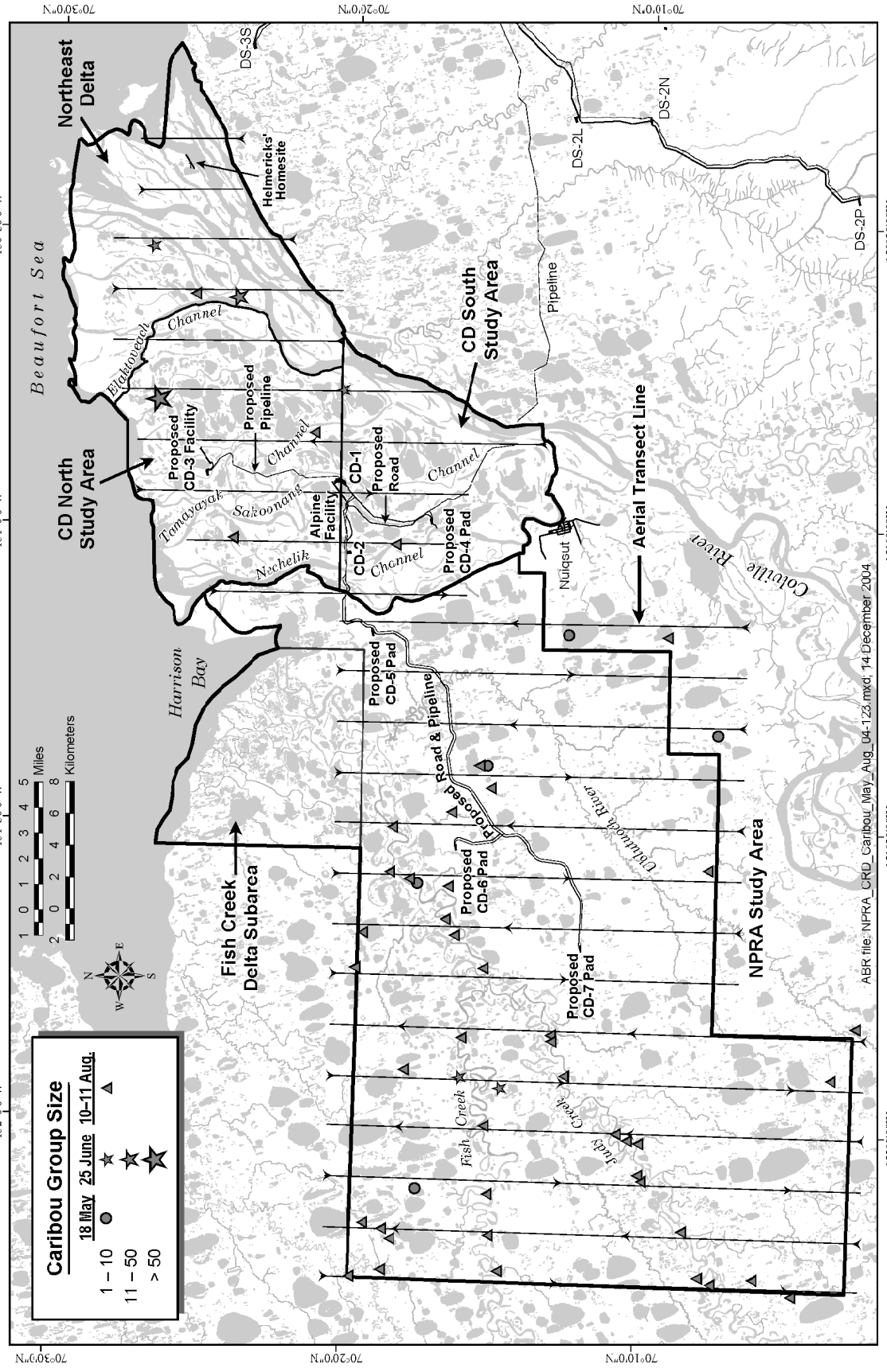

Figure 8. Distribution and group size of caribou, Colville Delta and NPRA study areas, Alaska, May-August 2004.

we had planned in 2004, past surveys indicated that the NPRA survey area is not an important calving area. The beginning of mosquito harassment in the NPRA survey area on June 20, 2004 caused caribou to move toward the coast. Only 2 caribou were seen on the June 25 survey. No aerial surveys were conducted during July 2004. Caribou typically leave the survey area for coastal areas outside our study area during harassment by mosquitoes, which normally are active from late June through July in the region. The number of caribou in the study area increased slightly by early August 2004, after the seasonal decline in mosquito abundance but while warble and bot flies were still present. On August 10, 45 caribou were seen in the survey area, many of which were feeding in stream-side shrub habitats or standing on sand bars along Fish and Judy creeks (Figure 8). A strong association of caribou with stream-side habitats also was noted last year. Caribou numbers in the study area increased further during fall 2004 (Figure 9), consistent with the general pattern seen since 2001. The mid-September survey recorded 210 caribou, and the mid-October survey recorded 802 caribou. The October survey occurred during the breeding season (rut). In mid-October 2004, there was a southeasterly movement of Teshekpuk Herd caribou through the NPRA and across the Colville River south of Nuiqsut. By November, a large number of Teshekpuk Herd caribou moved into the northern portions of the Central Arctic Herd wintering range. A similar migratory movement was observed in mid-October 2003, including an unusual movement of over 10,000 Teshekpuk Herd caribou that later wintered in the Arctic National Wildlife Refuge.

Fox Den Surveys

We have located a total of 25 fox dens on the Colville Delta since surveys began in 1992. Sixteen dens belonged to tiġiganniaq (arctic foxes) and 9 dens were used by kayuqtuq (red foxes) (Figure 10). Biologists visited the dens on July 2004 and found 12 pups at 3 tiġiganniaq dens and suspected that 3 more dens also had pups, because of the amount of activity (food remains, fresh digging, and scat) around those dens. We also counted 10 kayuqtuq pups at 3 dens. The remaining dens did not appear to have

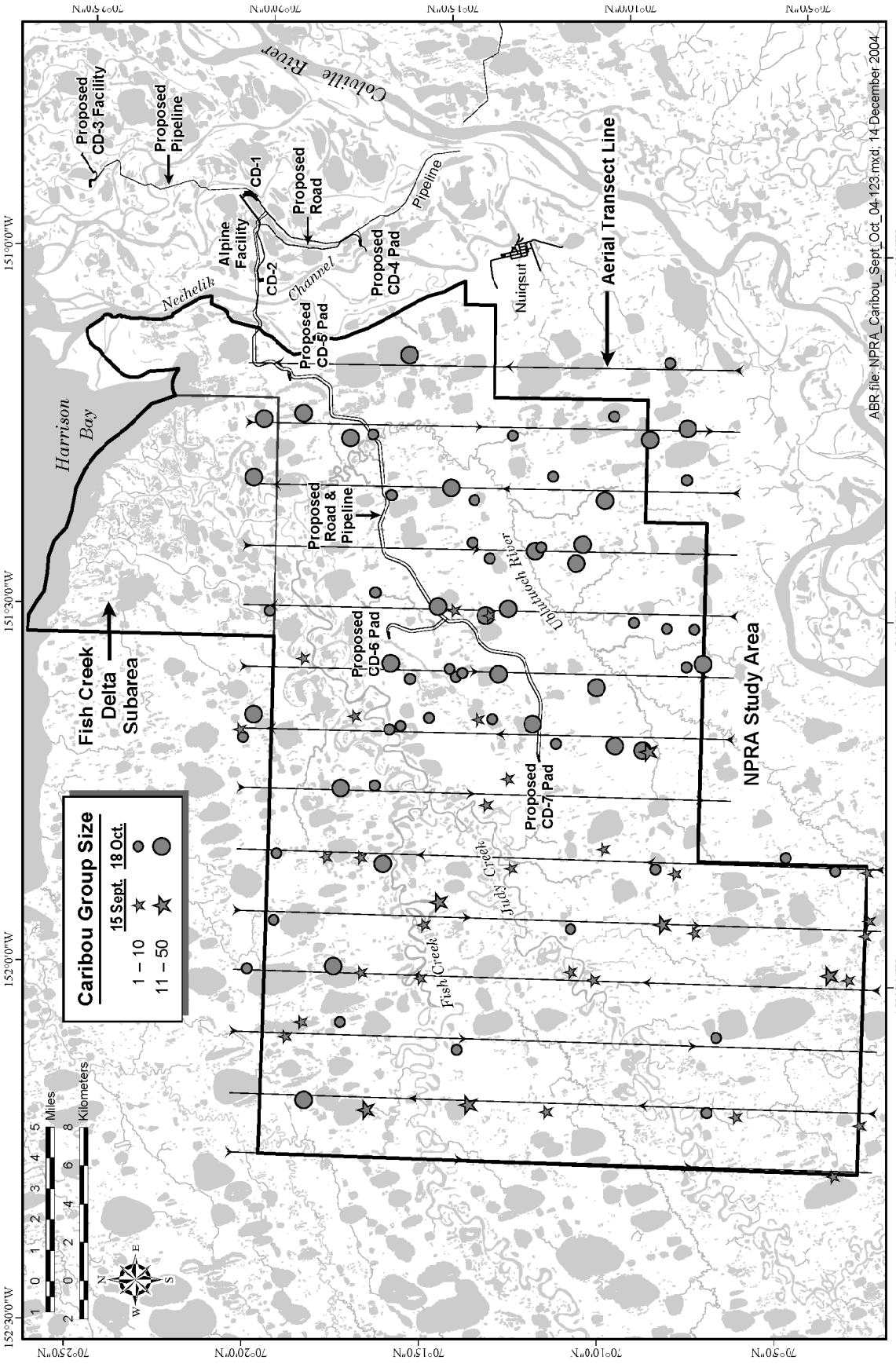

Figure 9. Distribution and group size of caribou, NPRA study area, Alaska, September–October 2004.

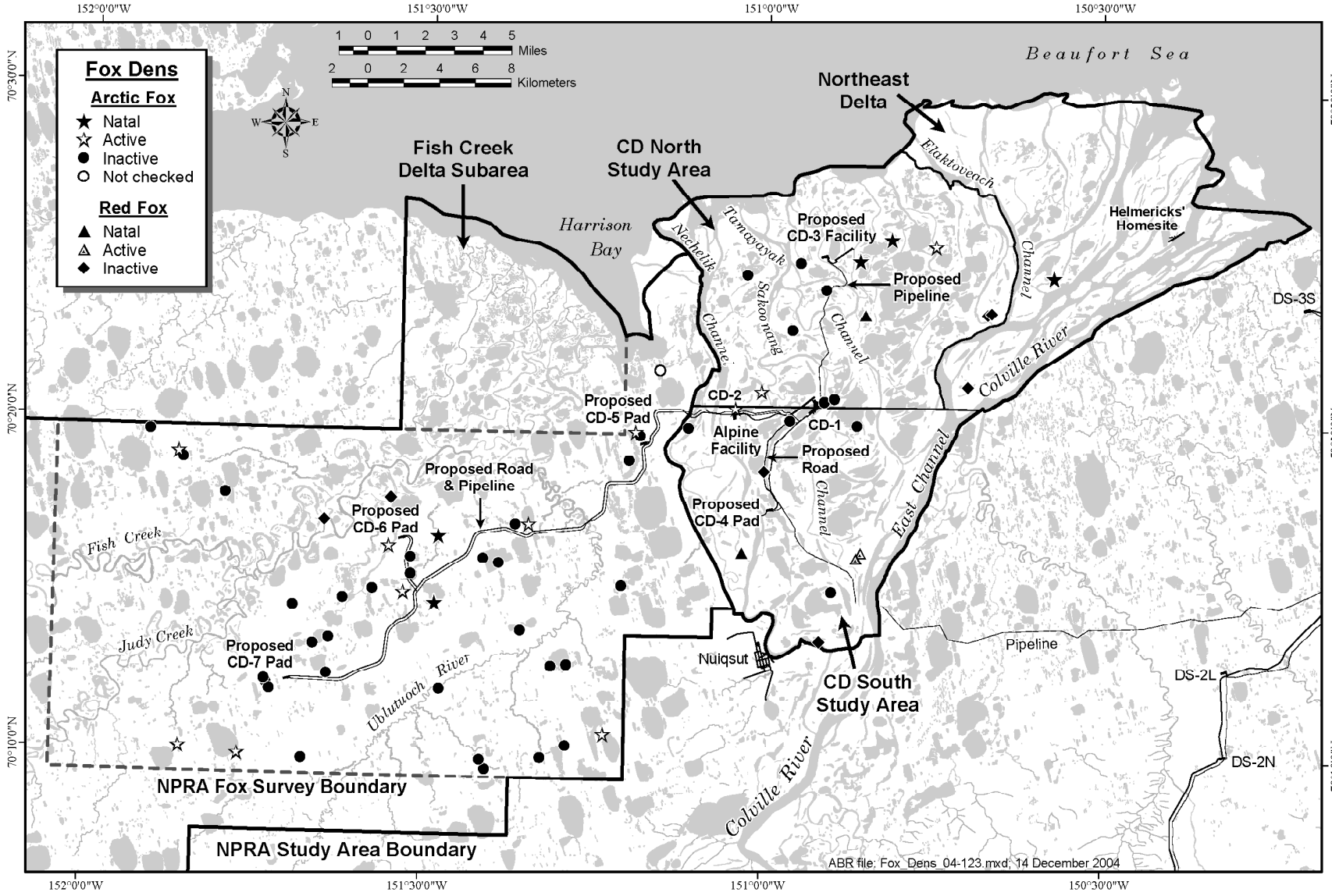

Figure 10. Distribution and status of arctic and red fox dens, Colville Delta and NPRA study areas, Alaska, late June–mid-July 2004.

pups in 2004. In NPRA, we have located 42 fox dens, with all but 2 belonging to tiġiganniaq. We found 10 tiġiganniaq dens occupied in 2004 (Figure 10). Only four tiġiganniaq pups were seen at 2 of the 10 occupied dens. The low litter size at fox dens and low number of occupied dens was similar to observations in 2001 and 2002.

Notes On Other Wildlife

Umiŋmak (muskoxen), tuttuvak (moose), akłaq (grizzly bears), qavvik (wolverine), qasigiaq (spotted seals), and amaġuq (wolves) are occasionally spotted during aerial surveys. We did not see umiŋmak (muskoxen) in Colville River Delta during ABR surveys in 2004, but groups were observed along the east bank of the main channel of the Colville River (Figure 11). In the NPRA study area, we have no reports of umiŋmak since a group was sighted in 2001. We occasionally see a tuttuvak (moose) on the Colville River Delta, but not during our 2004 surveys. A single cow tuttuvak was reported in the NPRA study area on July 12, 2004. Akłaq (grizzly bears) were seen twice on the Colville River Delta and 6 times in NPRA during our 2004 aerial surveys. One of those sightings in NPRA was of a female with a cub. CPAI staff reported of an adult amaġuq (wolf) resting under a building on Kuparuk Drill Site L (Figure 11) on July 2, 2004. ABR biologists have observed amaġuq on only two previous occasions on the Colville and in the northeastern NPRA region despite extensive aerial surveys since the early 1980s. One or two qavvik (wolverines) were seen near DS-3S during winter-early spring 2004, and two more qavvik were seen east of the Colville River during October. A group of seven qasigiak (spotted seals) was seen hauled out on a sandbar in the main channel of the Colville River in the area of haulout locations recorded in previous years.

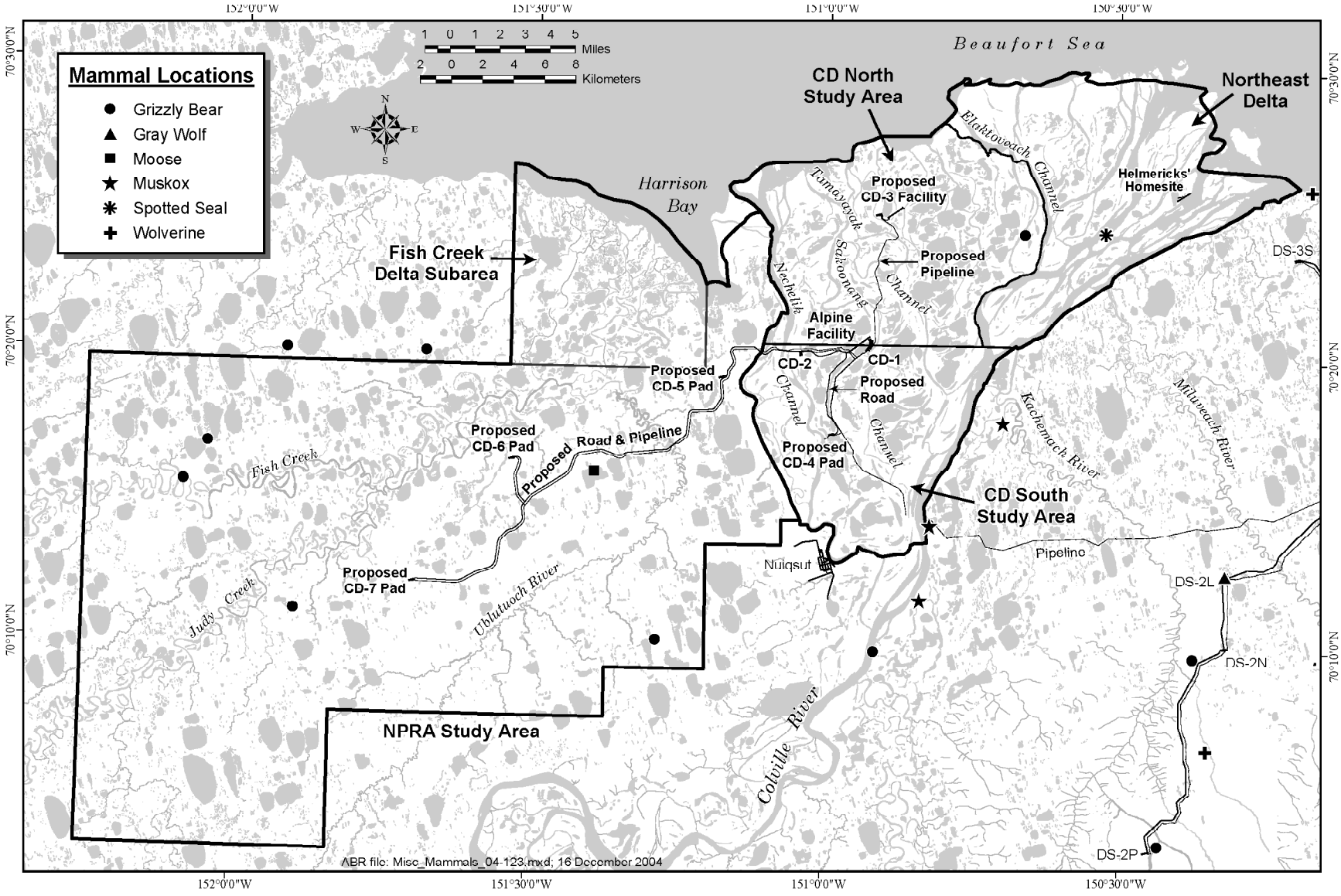

Figure 11. Incidental sightings of muskox, moose, grizzly bears and wolves during aerial surveys for caribou and waterfowl, Colville Delta and NPRA study areas, Alaska, May–October 2004.

NEXT STEPS

ConocoPhillips has sponsored 3–5 years of site specific ground surveys and 6–12 years of aerial surveys on the Colville River Delta and in the NPRA study area, resulting in long-term information on the numbers of various wildlife species and the habitats that are most important to those species. Field work on caribou and selected nesting birds will continue. ConocoPhillips and ABR will gather similar information in 2005 and continue to consult with Nuiqsut residents, the North Slope Borough, and state and federal agencies.