

**The Distribution of Spectacled Eiders
in the Vicinity of the Pt. Thomson Unit: 1999**

Submitted to

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INTRODUCTION

To assist in planning for the prospective Pt. Thomson Unit (PTU) development BPX requested TERA to conduct a breeding-pair survey to assess the distribution of Spectacled Eiders (*Somateria fischeri*) in the region. The Spectacled Eider (*Somateria fischeri*) was listed as Threatened under the Endangered Species Act effective 9 June 1993 (58 *Federal Register* 27474-27480). Concern for this species originated from an apparent decline in the Yukon-Kuskokwim Delta population from approximately 47,700 pairs prior to 1972 (Dau and Kistchinski 1977) to 1,721 pairs in 1992 (Stehn et al. 1993). The Threatened status was assigned to Spectacled Eiders worldwide, although little information was available on the status of the Arctic Russia and the North Slope of Alaska populations at the time of listing. Designation of Critical Habitat for this species is under consideration (65 *Federal Register* 6114-6133). The proposed Critical Habitat on the North Slope includes much of the Arctic Coastal Plain east to approximately Bullen Point. The PTU project area does not overlap the proposed Critical Habitat (Fig. 1); however, transportation (pipeline) corridors would likely transit it. Due to their status as a Threatened species, it is desirable to have information on the distribution of Spectacled Eiders to ascertain if potential facilities or potentially disruptive activities would encroach on nesting or brood-rearing areas of this species.

The focus of our investigation was on Spectacled Eiders; however, all eiders were recorded during the surveys and their distribution and abundance is summarized in this report. Steller's Eider (*Polysticta stelleri*) is also listed as a Threatened Species (at least those breeding in Alaska). We have not encountered this species in the PTU. King (*Somateria spectabilis*) and Common (*S. mollissima v-nigra*) eiders are of interest because Beaufort Sea populations of both of these species have declined greater than 50% since 1976 (Suydam et al. 2000).

A survey was conducted in the Pt. Thomson Unit Study Area (Badami to Staines River) in 1998. Spectacled Eider density during the 1998 breeding-pair survey (0.01pairs/km²) was lower than found during similar surveys (in other years) in study areas between Milne Pt and Badami. The timing of the 1998 survey may have been slightly late but it and prior studies in the region indicated low use of the Pt. Thomson Unit area by breeding Spectacled Eiders. The distribution of Spectacled Eiders within the study area suggested that greatest use occurs in the western half of the study region, west of Pt. Sweeney.

This report describes the results of an additional survey conducted in 1999.

METHODS

The study area included the outer portion of the Arctic Coastal Plain from the Badami Oil Field west to the Staines River and from the coast of the Beaufort Sea inland 1-4 km in the west, up to 12 km in the east (see Figs. 1 and 2). The survey area encompassed 198.7 km².

Survey methods were the same as for similar studies such as Badami planning (TERA 1995a), the Milne-Prudhoe-Endicott areas (e.g., TERA 1995b, 1996a,b) and the prior PTU survey (TERA 1999a). The survey was made using a helicopter (Bell 206L) following a series of north-south flight lines located 400 m apart. A helicopter was used because Spectacled Eiders appear to be more tolerant (less prone to flushing) of small helicopters than fixed-winged aircraft. Use of a helicopter conferred three benefits:

- Spectacled Eider positions were mapped more accurately,
- We obtained better estimates of the number of birds using the area because there was less probability of double counting birds that moved, and
- Disturbance of a threatened species was minimized.

Observers concentrated their search on bands within 200 m of the flight line to provide complete coverage of the survey area. Use of the Global Positioning System (GPS, Pathfinder Pro XL; Trimble Navigation Ltd.) and detailed maps of the study area assisted navigation of flight lines. Locations, numbers, and sex of the birds were recorded on the maps, and locations were stored in the GPS unit. Additional information was recorded on a hand-held tape recorder. The flight lines were flown at a speed of approximately 90 knots and an altitude of approximately 40 m. Flight lines were broken when Spectacled Eiders were seen or suspected to facilitate additional observation and mapping. The flight line, and survey, was then resumed.

A single aerial survey—a breeding-pair survey—was conducted on 16-18 June 1999. Ideally the survey should be timed just prior to, or at, the onset of nest initiation; i.e., late enough such that the eiders have returned to the nesting areas but prior to the departure of males (which may occur when incubation commences). No quantitative measures of Spectacled Eider nesting phenology were available to rigorously assess the timing of the 1999 survey. Snowmelt phenology appeared later in 1999 than 1998 and the 1999 survey was 4-5 days later than in 1998 survey.

Duck abundance, as measured in breeding-pair surveys, is generally expressed as indicated pairs. Non-flocking males, with or without females, are considered to represent pairs; females are excluded from calculations. We recorded all females eiders encountered during the surveys and locations are included on the maps; however, estimates of pairs and densities are based only on observations of males. Male Spectacled Eiders are, compared to many other ducks, relatively conspicuous from the air. However, some Spectacled Eiders are likely missed due to their having departed the area; obstructed from view; or mistaken for foam, ice, styrofoam, or other debris.

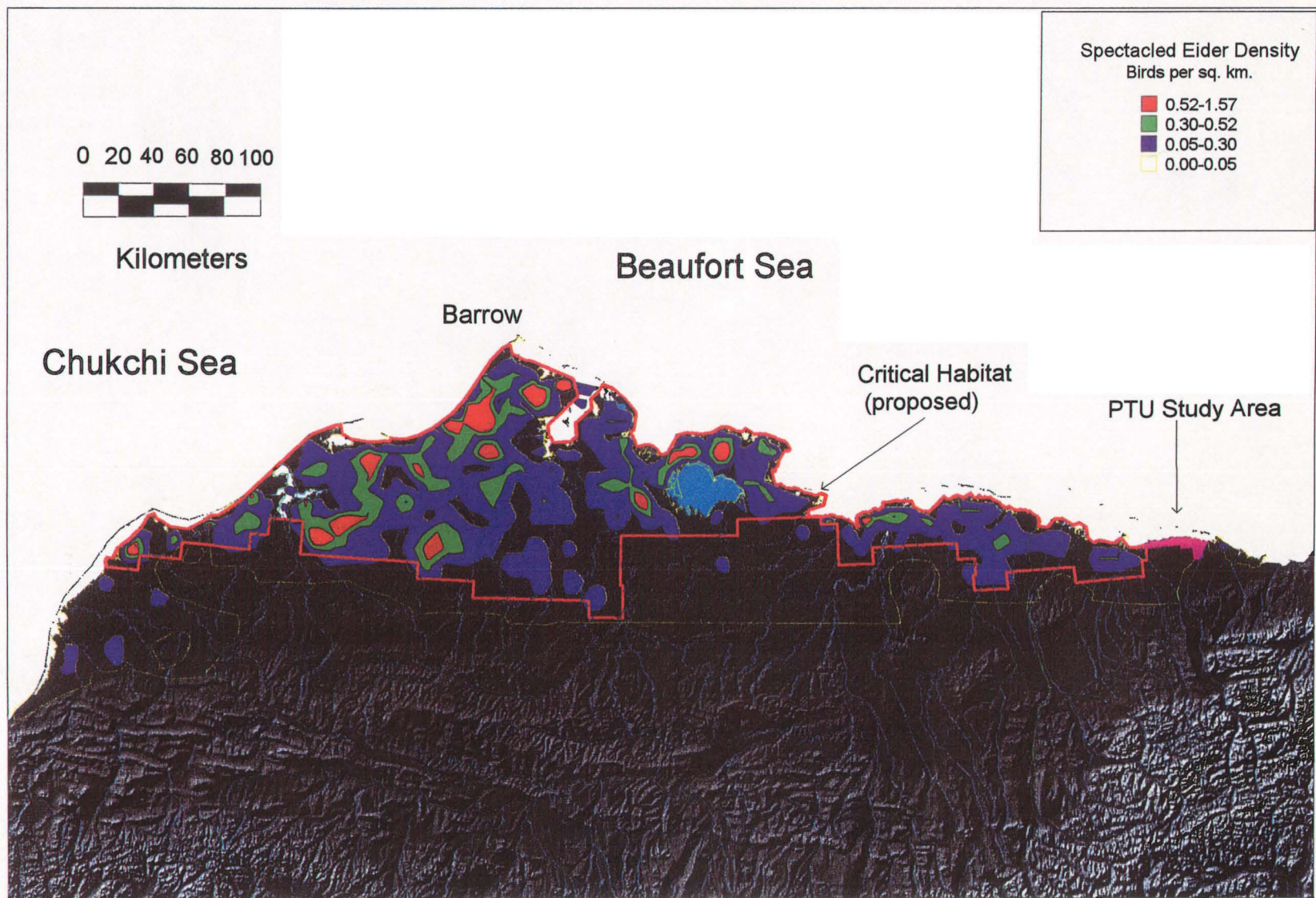


Figure 1. Location of the PTU study area in relation to North Slope Spectacled Eider breeding distribution (Larned et al. 1999) and proposed critical habitat (breeding). The PTU study area is within the breeding range, but in the lowest density class.

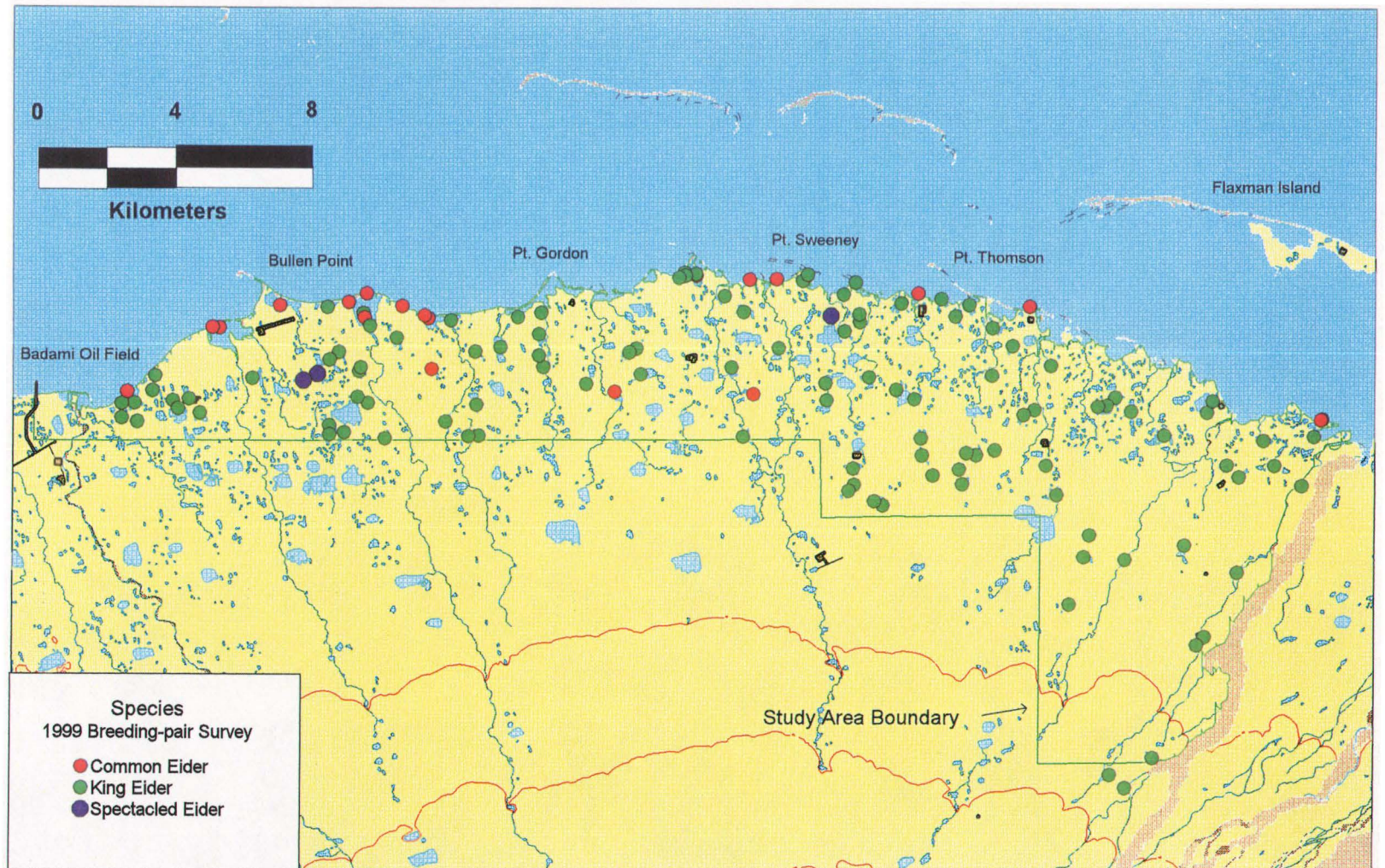


Figure 2. Locations of Spectacled, King, and Common eiders in the Pt. Thomson Unit Study Area, 16-18 June 1999.

RESULTS AND DISCUSSION

Results of the 1999 Survey

The locations of sightings of Spectacled, Common, and King eiders are summarized in Figure 2. Three pairs of Spectacled Eiders were seen within the study area during the survey. An additional female was associated with one of the pairs, perhaps indicating some male departure had commenced (i.e., the survey may have been later than optimal).

Eiders were widespread in the study area but were most concentrated near the coast, approximating the distribution of lakes and ponds. Where the survey region extended farthest inland, fewer eiders (only King Eiders) were seen. Spectacled Eiders tended to be in the western portion of the survey area: although they were found further east than in 1998 (southeast of Pt. Sweeney). As in 1998, 2 pairs were found south of Pt. Bullen, making this the most reliable location for Spectacled Eiders in the study area. The density of Spectacled Eiders (3 pair/198.7 km² or 0.02 pairs/km²) was slightly higher than 1998. The available information continues to indicate that the PTU region supports a lower density of Spectacled Eiders than other sections of the ACP in the Prudhoe Bay region (TERA 1996b).

Common Eiders were primarily found along the coast but were also seen at three locations on the tundra. These observations are of interest because Common Eiders are generally not expected inland. Due to their similar appearance (from the air) and being in an unexpected place, Common Eiders can be easily mistaken for Spectacled Eiders. Based on this survey, and our 1998 survey, Common and Spectacled eiders were equally numerous on the tundra in the Pt. Thomson Study area. If these results are typical and observers were not prepared, abundance of Spectacled Eiders could easily be overestimated in this area due to mistaken identity of Common Eiders. King Eiders were found through the study area; although, abundance declined in the most inland portions of the study area.

Species	1998	1999
Spectacled Eider	2	3
King Eider	133	127
Common Eider	5	18
Common Eider (including coast)	14	75

Numbers of Spectacled and King eiders were similar to those recorded in 1998; whereas, many more Common Eiders were found in 1999. The apparent increase in Common Eider abundance likely reflects differing ice conditions along the coast between years more than an actual change in abundance of this species.

The low density of Spectacled Eiders recorded in the Pt. Thomson Unit region could indicate that this is an area little used by Spectacled Eiders or reflect suboptimal survey timing. Both factors may have contributed to our results. Other surveys in the region also indicate low use by Spectacled Eiders. The Shaviovik area, immediately to the west of the Pt. Thomson Unit Study Area including the zone from the Shaviovik River to the Badami Oil

Field had, until this survey, the lowest density of Spectacled Eiders of any of our Prudhoe region study areas (TERA 1997). Results of surveys of the Arctic Coastal Plain (Larned, et al. 1999) found low use of the Pt. Thomson Unit region (see Figure 1). Byrne et al. (1994) surveyed an area south of but partially overlapping the Pt. Thomson Unit Study Area. They found low abundance of Spectacled Eiders (0.03 pairs/km²) relative to areas to the west (to the Sagavanirktok River, 0.14 pairs/km²). All the Spectacled Eiders found by Byrne et al. (1994) were east of Pt. Sweeney, similar to our observations. The Byrne et al. (1994) results, while confirming the low density and general east-west distribution of Spectacled Eiders, also indicate that this species occurs further inland than the limit of our survey.

Male Spectacled Eiders may be present near the breeding areas for only a brief period (TERA 1997). The departure of males is presumably tied to the onset of nest initiation, which in turn is likely dependent on the timing of snowmelt or water levels. At present, methods to forecast the optimal time for surveys have yet to be developed. Most years, including 1999, there is no quantitative measure of the timing of male departure so assessing the adequacy of the surveys is essentially "gut feel." The evidence for the adequacy of the timing of our survey was mixed. The median date of departure of marked Spectacled Eiders at Prudhoe Bay was 20 June (1994-1997, TERA 1999b). Since our 1998 and 1999 surveys were completed prior to 20 June, in most years, most male Spectacled Eiders should have been present. Break-up on the tundra appeared to be delayed in 1999, at least relative to 1998. Late snowmelt tends to delay the onset of nest initiation. Most of the Spectacled Eider recorded were still in pairs; however, an unpaired female was detected which could indicate some males had departed.

Overall, the low density of Spectacled Eiders probably reflects relatively low use of the PTU study area by this species. Our surveys may underestimate the actual use, but it is unlikely that the bias is resulting in the mischaracterization of the general level of Spectacled Eider use of the area.

Other Reports of Spectacled Eiders in the Pt. Thomson Unit Area

There has been relatively little avifaunal research in the Pt. Thomson Unit region. The fragmentary information available is insufficient to document the distribution or nesting areas of Spectacled Eiders. However, given the limited knowledge of the region it is desirable to identify areas where Spectacled Eiders are known to have occurred. Some known reports are summarized here and, when locations could be approximated, these observations are shown in Figure 3.

- Wright and Fancy (1980) reported sighting(s) of Spectacled Eiders at their study site near Point Sweeney.

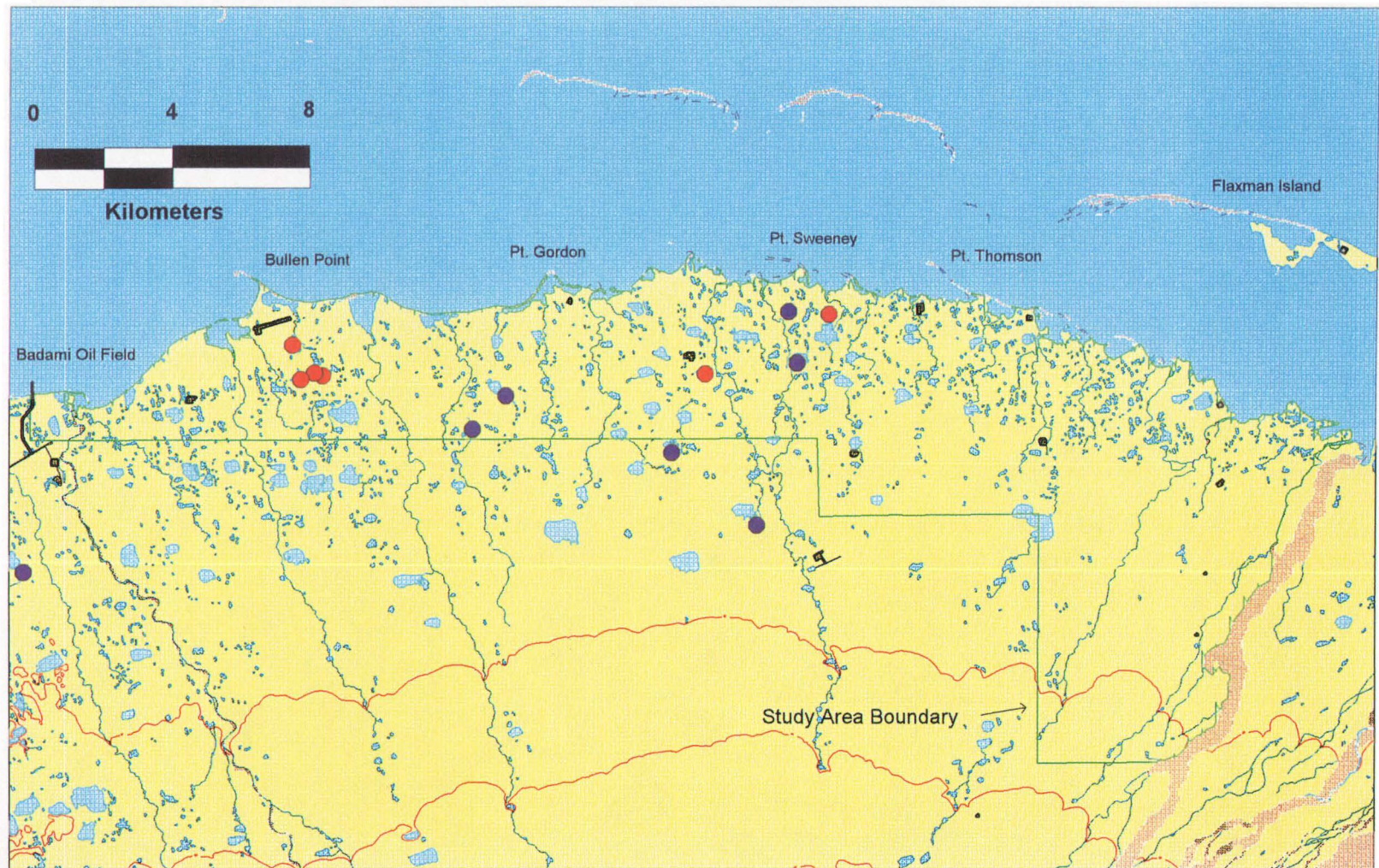


Figure 3. Composite of Spectacled Eider sightings in or adjacent to the PTU Study Area. Red locations are from this investigation (TERA 1999a, this report). Blue locations are from Wright and Fancy (1980), Byrne et al. (1994), and L. Noel (pers. comm.).

- Hampton et al. (1983) reported Spectacled Eider as occurring in the Point Thomson area during the nesting period. The location(s) of the sighting(s) are not provided.
- Byrne et al. (1994) surveyed a corridor south of but partially overlapping the Pt. Thomson Unit Study area. Two locations were within the Pt. Thomson Unit Study Area. As with our survey, all sightings were in the western portion of the study region.
- Lynn Noel (pers. comm.) reported a Spectacled Eider with a brood of four, south of Point Sweeney on 31 July 1998. This appears to be the only confirmed report of breeding within the study area.

In aggregate, the historical observations suggest Spectacled Eider use is greatest in the western half of the Pt. Thomson Unit Study Area as all but one sighting were west of Point Sweeney. This is qualified by the lack of information on the search effort in some of the studies or knowledge of where the sightings of Hampton et al. (1984) were made. We do know that Spectacled Eiders occur, and breed, to the east of the study area (e.g., Canning River delta, Martin and Moitoret 1981; Okpilak Delta, Garner and Reynolds 1987).

Conclusions

Spectacled Eiders were sparsely distributed in the Pt. Thomson Unit Study Area. The pair density during the 1998 and 1999 breeding-pair surveys ($0.01/\text{km}^2$) was lower than found during similar surveys (in other years) in all study areas between Milne Pt and Badami. The timing of the 1998 and 1999 surveys may have been slightly late, but this and prior studies in the region still indicate low use of the Pt. Thomson Unit area by breeding Spectacled Eiders. The distribution of Spectacled Eiders within the study area suggests that most use is in the western half of the study region, west of Pt. Sweeney.

Overall, the results of the 1999 survey largely confirm the findings from the 1998 effort and add to the database of areas known to be used by Spectacled Eiders.

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