MARKING CANADA GEESE ON THE NORTH GULF COAST OF ALASKA - 1998

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INTRODUCTION

While the number of dusky Canada geese breeding on the Copper River Delta, Alaska (CRD) remains low, the total number of large, dark Canada geese (Vancouver, western and dusky combined) on the wintering grounds in Washington and Oregon has increased. The number of smaller bodied Canada geese (cackler, Taverner, lesser, and Aleutian) has also increased at these locations during the winter (Pacific Flyway Council 1997). The large aggregation of mixed species complicates harvest strategies designed to minimize mortality of dusky Canada geese (Pacific Flyway Council 1997).

The population size and subspecific deliniation of large bodied Canada geese breeding in the North Gulf Coast of Alaska is still in question. Canada geese on Middleton Island are apparently genetically similar to Canada geese inhabiting Prince William Sound, but both populations are distinct from dusky Canada geese. This is despite transplants of dusky Canada geese (n=192) to Middleton Island in 1987 and 1988 (Crowley et al. 1997). We determined that Canada geese on Middleton Island have increased to an index of about 2000 geese from the late 1980's through 1997, and that production is relatively high (Crowley et al. 1997). We do not have a population estimate or index for Canada geese in Prince William Sound. We also do not know where Canada geese breeding in Prince William Sound or Middleton Island spend the winter. Consequently, we do not know if they mix with and are counted as dusky Canada geese during winter surveys. A sample of uniquely marked Canada geese from these areas would provide useful information for identifying their wintering areas, and could assist in the management of goose populations in Oregon and Washington. We selected Green Island in Prince William Sound because of its distance from the CRD (125 km), we knew that Canada geese nested on the island, and no red-collared geese (duskies from the CRD) had been observed in the area. We visited Green Island during May 26 - 30 and Middleton Island during July 11 - 14 1998.

METHODS

Green Island, Prince William Sound

We visited Green Island during the breeding season in order to trap nesting geese. We used a "hoop trap" sprung remotely using a radio control system designed for operating model cars (Futaba Attack 2DR-found at most hobby shops). The 2 aluminum tubes of the hoop were secured together using left and right hand torsion springs designed for leg-hold traps (Kirk-Habitch Co. 8905 Kelso Drive, Baltimore, MD 21221, 410-686-9100 - Part No. KH27430P). The torsion spring provided the needed force to prevent captured geese from escaping beneath the trap hoop. The trap was secured to the substrate using 4, 10" tent stakes. We cleared the trap, netting, and arc of swing from twigs, branches and debris located near the nest bowl. The detonating mechanism was composed of a servo, receiver and battery source modified to fit in

a waterproof package (Tupperware bowl) small enough to be inconspicuously buried beneath the secured hoop. Hoops of the set trap were secured to the detonating mechanism using 80lb fishing line. Range on the transmitter is approximately 100 m, but varies with the characteristics of the terrain. To ensure that the trap would spring, we held the transmitter in the "on" position until we reached the nest site. One transmitter was capable of operating 2 receivers (i.e. traps) of the same frequency.

We searched for goose nests on Green Island on foot with the aid of 2 Chesapeake Bay retrievers experienced in nest searching. We searched all small islands in Gibbon Anchorage, and most of the open bog meadows located on the north-central portion of the island (Fig. 1). We concentrated our search effort along the edge of meadows near conifer cover.

Middleton Island, Gulf of Alaska

We used 2 methods to capture geese on Middleton Island: a standard goose drive into lead and pot nets, and capture of individuals by chasing molting geese in heavy vegetation. The drive was conducted along the island's northeast beach and bluffs. Ten people (we had help from USGS BRD seabird researchers stationed on the island) distributed between the beach and the steep, inland bluff drove geese south toward the trap, while 1 experienced observer stationed atop the bluff orchestrated the drive by radio. We also captured geese by walking along bluffs and through meadows and charging into their midst when observed. When possible, we selected adult geese in the group to pursue and tackle in heavy vegetation.

RESULTS AND DISCUSSION

Green Island, Prince William Sound

We located 15 Canada goose nests on Green Island, 7 of which were previously depredated (Table 1). Of the 8 active nests, 2 nests were not being attended by geese when located, however, the eggs were warm and covered, and geese were flushed in the immediate vicinity of the nest bowl. Nest status for active nests ranged from laying to 24 days of incubation. We set traps on all active nests. We captured 4 geese on nests and applied green neck collars (white lettering) with radio transmitters and USFWS metal leg bands. We recorded clutch size, and estimated nest age by candling or floating eggs. We also recorded bill, tarsus, and wing measurements (Table 2).

We had the potential of capturing 2 additional geese but a trap spring broke on one nest when sprung, and the batteries had failed on another. We recommend using lithium batteries in the future. Geese were sitting on the nest in both instances. One goose eventually abandoned the nest and the other was depredated. For the other 2 active nests, one never returned after the initial trap set, and the other nest was completely exposed from above and subsequently depredated. We may have captured this female if we had set a trap at the nest when we flushed her the first time, but all 4 traps were set elsewhere. The goose was also flushed during our second visit, when we set the trap. We recommend having a sufficient number of traps so that they can be set when visiting the nest for the first time.

We anticipated locating more nests than we did given the success USGS-BRD had in locating nests in 1996 (11 nests) with relatively less effort. The high incidence of depredation was probably the reason we only found 8 active nests. Because most nests were completely concealed from above by conifer boughs, we believe mammalian depredation rather than avian depredation was the cause. We observed canid and river otter tracks while nest searching. We have no reports of coyotes being present on Green Island. ADFG Technician Bob Hunter (pers. comm.) observed what was likely a fox while conducting an aerial survey of Green Island in 1990. Fox farming was once common in Prince William Sound and there may be a remnant population on Green Island. No bear sign was observed. The relatively large variation in nest ages suggests that nest initiation is not very synchronous and/or re-nesting had occurred for nests depredated early on. We are not certain whether an attempt at nest searching earlier in the season would have proved more successful in locating active nests because females are probably less attentive at the nest and more likely to abandon when flushed during laying.

We were generally satisfied with the performance of the nest traps given the often confining areas selected for nesting. On one occasion we actually moved the nest bowl approximately 0.5m in order to set the trap securely. The goose returned to the nest and incubated the eggs. Precautions must be taken to ensure that the trap can spring freely, is concealed to blend in with the substrate, adequate numbers of traps are available, and new lithium batteries are used.

Middleton Island, Gulf of Alaska

We captured and banded 96 Canada geese on Middleton Island. Most geese (62) were captured in the large drive along the northeast end of the island. Another 24 geese were captured by chasing them down in heavy vegetation. Although no geese were injured using this technique, 1 biologist received a painful knee injury when compelled to leap off the bluff by a fleeing gander. We placed green neck collars on 32 geese including 24 collars with radio transmitters attached. Ages and sex of captured geese were as follows:

	M	F	
Local	27	37	(only 1 local was collared)
AHY	20	12	

We measured 30 adult geese on Middleton Island. Noting the small sample from Green Island (n=4), there were no significant differences in average morphological measurements between Green and Middleton adult females, except for nare to bill tip (P=0.05). Therefore, measurements of females from the 2 locations were combined (Table 3).

We did not survey the island or estimate productivity this year because our visit was several weeks later than usual (in order to catch molting geese). Molting geese were more likely to immediately hide or sneak off when detecting our presence, compared to flight-capable geese which often held up their heads in the alert position, called, and flushed relatively close. Our flush-and-count method of surveying the island would not have been effective during this period. There were enough goslings present to indicate that relatively high productivity occurred.

We will not know the movements of collard geese until winter surveys are conducted in Alaska, Oregon and Washington.

LITERATURE CITED

Crowley, D. W., D. H. Rosenberg, M. J. Petrula, and T. C. Rothe. 1997. Status of Middleton Island Canada geese - 1997. Unpubl. Report. Alaska Department of Fish and Game, Anchorage, AK. 13 pp with addendum.

Pacific Flyway Council. 1997. Pacific Flyway management plan for the dusky Canada goose. [c/o USFWS, Portland, OR]. 46 pp.

Table 1. Canada goose nests found on Green Island, Prince William Sound, Alaska in May, 1998.

Nest	Band#	Collar Code	Radio Frequency	Clutch Size	Nest Age	Status When Found	Status Last Visit
MJP001	918-24901	1-OA	166.283	6	10-17	active	trapped
DWC001				6	1-4	active	abandoned
DWC002	918-24902	1-5A	166.343	6	5-9	active	trapped
DWC003	918-24904	0-1A	166.244	5	21-24	active	trapped
DWC005	918-24903	2-0A	166.012	5	5-9	active	trapped
MJP005				5	16	active	depredated
DWC004				5	0	active	depredated
MJP002				5	12-14	active	abandoned
CGC003				3	0	abandoned	
CGC002				0		depredated	
MJP004				0		depredated	
CGC001				0		depredated	
DWC006				0		depredated	
DWC007				0		depredated	
MJP003				0		depredated	

Table 2. Measurements (mm) taken from 4 Canada geese captured on Green Island, Prince William Sound, Alaska in May, 1998.

		Nests			
Measurement		MJP001	DWC002	DWC003	DWC005
Culmen		45.99	46.24	43.75	44.28
Front	Nare	23.61	22.94	22.16	22.33
Nail	Length	14.87	13.83	14.13	14.49
Nail	Width	11.23	12.36	11.56	12.59
Bill Wdth	Base	24.17	24.40	22.56	23.74
Bill Wdth	Nare	21.70	21.71	20.50	20.64
Bill Wdth	Nail	18.38	18.40	17.20	17.38
Tarsus	Total	100.00	97.34	99.41	97.68
Tarsus	Diag	86.00	83.97	86.45	83.22
Mid-Toe	w/o claw	65.61	69.68	67.93	62.54

Table 3. Average measurements (mm) taken from 4 Canada geese captured on Green Island, Prince William Sound, Alaska in May, 1998 and 30 geese captured on Middleton Island., Alaska in July 1998.

		MALE (n=18)		FEMALE (n=16)	
		AVE	SDEV	AVE	SDEV
	Culmen	45.97	1.86	43.64	1.88
Front	Nare	24.91	1.07	23.94	0.90
Nail	Length	15.50	0.82	14.59	0.82
Nail	Width	12.93	1.05	11.74	0.92
Bill Wdth	Base	25.34	0.96	23.73	1.44
Bill Wdth	Nare	22.08	1.12	20.92	0.73
Bill Wdth	Nail	18.88	0.41	18.03	0.55
Tarsus	Total	104.32	4.12	98.32	3.21
Tarsus	Diag	89.49	4.05	85.04	4.36
Mid-Toe	w/o claw	76.13	5.16	69.80	5.15