

REMOVAL, EXAMINATION AND TRANSFER OF WHOOPING CRANE
EGGS FROM WOOD BUFFALO NATIONAL PARK, 27-28 May 1990

E. Kuyt

Canadian Wildlife Service
2nd Floor, 4999 - 98 Avenue

Edmonton, Alberta

T5B 2X3

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1. INTRODUCTION AND PRE-PICKUP PLANNING

The author carried out regular whooping crane breeding pair surveys on 29 April 1990 and on 2, 7, 11, 13, 17 and 25 May. I was assisted by J. Kuyt during the season's first survey, by Warden S. Cornelsen (Wood Buffalo National Park) during the 13 May flight and by B. Johns (Canadian Wildlife Service) and J. Lewis (U.S. Fish and Wildlife Service) on the 25 May survey. The seven surveys varied from 1.6-4.9 hrs and averaged 3.6 hrs.

During these seven surveys 30 nests were discovered (2 additional nests, found on 9 June will not be discussed in this report). Of the 30 nests, all but five contained the usual two eggs each. Two of the five one-egg clutches had a novice breeding bird as one parent.

First eggs in 1990 were laid on 29 April. The last nest covered in this report (nest 30/90) was found with two eggs on 25 May. The eggs were laid sometime between 18 and 25 May. A total of 55 eggs was accounted for in the 30 nests located up to 25 May.

A comparison of estimated laying periods and dates of egg pickup for the past 10 years and proposed dates for the 1990 pickup are shown below:

Year	Major laying period	No. of days	% of eggs laid	Approximate pickup date	Actual pickup date
1981	2- 8 May	7	71	2 May + 24 d = 26 May	25 May
1982	4-10 May	7	82	4 May + 24 d = 28 May	28 May
1983	5-11 May	7	78	5 May + 24 d = 29 May	30 May
1984*	3-13 May	11	23	3 May + 24 d = 27 May	21, 23 May
1985	1-10 May	10	92	1 May + 24 d = 25 May	22, 23 May
1986	30 Apr-7 May	8	85	30 Apr + 24 d = 24 May	21, 24, 25 May
1987	26 Apr-6 May	11	91	26 Apr + 24 d = 20 May	21 May
1988	28 Apr-8 May	11	77	28 Apr + 24 d = 22 May	27 May
1989	5-12 May	8	84	5 May + 24 d = 29 May	29 May
1990	2-10 May	9	66	2 May + 24 d = 26 May	27 May

*Incomplete data due to Kuyt's absence on radio-tracking project.

Dr. E. Bizeau (USFWS) who had assisted in the egg removal each year since 1974 was not able to participate in 1990 and Dr. R. Drewien (USFWS) agreed to take his place. Dr. J. Lewis (USFWS), who had not yet visited the whooping crane breeding range also assisted in the egg pickup this year. B. Johns, CWS, Saskatoon was able to arrange his other duties so that he, too, could participate in the spring work in WBNP. Drewien arrived in Fort Smith on 21 May, Johns on 23 May and Lewis on 24 May.

On 22 May G. Cooch called me in Fort Smith to advise that the Patuxent Research Centre in Laurel, Maryland did not desire any surplus eggs. Even though the International Crane Foundation (ICF) earlier had indicated their time was fully committed with looking after the 20-24 whooping cranes transferred from Patuxent last fall, ICF now indicated they would take 10 good eggs. Any nonviable eggs could also be shipped there for later analysis.

On 23 May Canadian Parks Service (CPS) Warden J. Saquet called and advised he would place a 45 gal drum of helicopter fuel in a designated fuel cache along Highway #5 about 5 km northwest of the Sass River crossing. Earlier in the week I had contacted Canadian Helicopters in Fort Smith and discussed with the assigned pilot the requirements under the Standing Offer Agreement (SOA). A Bell 206-B helicopter was available but there were no floats for the machine. The aircraft was equipped with high skids instead as specified under the SOA. A pickup date of 27 May, weather permitting, was agreed on.

On 25 May, I made a pre-pickup survey to familiarize myself again with the various nest sites and to select potential helicopter landing

sites. J. Lewis and B. Johns accompanied me on the flight and this enabled them to have a comprehensive look at the crane breeding range. All nests with a bird in incubating position (except nest 9/90) were observed and a new nest (30/90) in the Nyarling area was found. Later that day J. Lewis indicated that 12 eggs were to be collected although G. Cooch had mentioned 10 eggs earlier. I conferred with G. Cooch and he said he had no problem with taking 12 eggs.?

On 26 May we had a brief discussion on the planned egg pickup and the role of each participant. As the author was troubled by an arthritic knee and could not walk in the marshy nesting areas, R. Drewien and B. Johns would be the crew to leave the helicopter to examine and collect the eggs. Drewien was the only one in addition to the author familiar with the egg testing technique and he had a great deal of experience in egg handling. Johns may in time take over some of Kuyt's whooping crane work so it was imperative that he would be exposed to as much of the work as possible. J. Lewis was on his first trip to Wood Buffalo National Park and since it was unlikely that he could come up again in the near future, he too was to be involved in all aspects of the work. The author was required on the flight as he was the only one who knew where the nests were located. With five men on board, the Bell 206-B helicopter's seating capacity was filled. The rear seat, on most previous egg pickups holding two men and incubators, now held three men in a rather crowded situation.

At each nest, Drewien would leave the helicopter from the left side and Johns from the right side. Both men would return to the same side with Drewien passing the collected egg(s) to Lewis who occupied the

centre rear seat and remained in the helicopter. Drewien tested egg viability and Johns measured water depth of nest ponds and recorded nest material, pond vegetation and results of egg testing. Lewis received the collected eggs, wrote the catalogue number on each egg and monitored temperature of the portable suitcase incubators. Kuyt navigated, located nests, suggested landing sites, recorded landing and departure times and decided which eggs were to be collected or substituted. At nests 2/90 and 11/90 (the first two nests to be visited and where I planned to leave 2 live eggs in each nest) Lewis was given the opportunity to view nests and watch Drewien conduct the viability test. Johns remained in the helicopter at these nest sites.

The decision from which nest an egg was to be collected was difficult but was based, in part, on the known breeding history of the various pairs, on the age of the eggs (laying dates) or of breeding birds, nest location and other factors. ✓

I wanted to leave full clutches intact at nests 2/90 and 11/90 because both pairs had good reproductive histories and had no close neighbours (no competition for food). Some nests (25/90-30/90) were late nests and viability tests would have been inconclusive. Several nests (29/90, 27/90, 26/90) were attended by first-time breeders perhaps more easily disturbed than veterans. Nests 1/90 and 6/90 were only a few days from hatching and as both were attended by experienced birds with good reproductive histories, they were left alone. Nest 4/90 was on an island in a deep lake and was not visited. Nest 20/90 was relatively inaccessible and as a stop at this nest would also disturb two close neighbours (9/90, 17/90), nest 20/90 was not visited. The birds at 20/90 ✓

also had a good breeding history. Nest 23/90 (second year nesting of a young pair unsuccessful in 1989) was visited to substitute an older egg into the nest. One-egg nest 24/90 was visited for the same purpose. Nest 15/90 was not visited because this pair does not have close neighbours (no competitors) which probably provided a better chance for the raising of both chicks.

From a logistics point of view, 1990 was perhaps not a bad year for collecting relatively few eggs as new crew members were involved. Two electric incubators borrowed from CWS Wainwright were set up in Fort Smith on 24 May and, as on previous occasions, the machines performed perfectly. J. Lewis had arranged for a private U.S. aircraft (twin jet Cessna "Citation") to take the collected eggs from Fort Smith to ICF and he accompanied the return flight.

Reservations for the return of Drewien, Johns and Kuyt via Canadian Airlines International were made on 24 May. The three men left Fort Smith on 28 May.

2. WEATHER DURING EGG PICKUP, 27 May 1990

At 0600 it was clear, cool and windy in Fort Smith. An hour later the temperature had reached 9°C and 11°C at 0900 hrs. At 10:30 the temperature was about 12°C and continued rising. At takeoff (1030 hrs) the weather was clear with excellent visibility, winds 90° at 9-10 km/hr and barometric pressure at 30.19 inches Hg. Temperatures reached 16°C at noon, about 18-20°C at 1400 hrs and 22°C at 1600 hrs when we were at the penultimate nest.

3. FLIGHT CREW

Pilot of the helicopter was Bill Derksen. R. Drewien, J. Lewis, B. Johns and E. Kuyt constituted the crew.

4. AIRCRAFT

Canadian Helicopters Bell 206-B C-FBQH (high skids) was used. Power was maintained when the aircraft was on the ground near nest sites but was shut off during two refueling stops. One drum (45 gal) of fuel was used at these two stops. We were charged for 4.3 hrs flying. We left Fort Smith at 1030 hrs and returned at 1715 hrs.

Although floats would have enabled the pilot to select landing sites quicker, the relatively dry conditions in the breeding range posed no problems for the pilot in finding landing sites.

5. ROUTE (see Figure 1)

Fort Smith - nest 2 - nests 11-3-13-24-12-23-1 (no landing) - Sass fuel cache - nests 18-14-5-7 (no landing) -8-7-9-21-17 - Sass fuel cache - nests 19-10-16 - Fort Smith.

6. EGG COLLECTION

6.1 We were down at Lobstick nest 2/90 from 1052-1100 hrs (landing and departure times at nest sites summarized in Table 1). The nest was in a roundstem bulrush stand (vegetation data in Table 1). When we approached the nest area, the incubating adult walked off the nest, then flew. Water depth at 1 m distance from the edge of

- the nest was 22.7 cm (Table 1). Both eggs were tested by Drewien and both were live (Table 1). The two eggs were left in the nest.
- 6.2 Both birds were at Alberta nest 11/90 and when we approached, the cranes flew southeast. I was unable to find the nest for a few minutes but we eventually located it. The nest was in a sedge-willow-birch marsh with sedge and bulrush predominating near the nest. Drewien and Lewis examined the eggs. Both live eggs were left in the nest.
- 6.3 Nest 3/90 was in a cattail bog with standing dead trees, swamp birch and willows. The nest was in sedge-cattail habitat and located beside a willow clump. Both eggs were live and the younger egg (less advanced in development and less active during the float test) was collected.
- 6.4 I saw a bird on nest 1/90 but it did not get up.
- 6.5 As we approached nest 13/90, the incubating bird walked north towards the forested area. Both eggs were live; the younger one was collected. The nest is in a bulrush-sedge marsh.
- 6.6 At nest 24/90 which contained only one egg, Drewien and Johns placed the egg collected from nest 3/90 in the nest and took out the original egg. To save time, we did not test the egg at the nest site but waited until we were refueling. I had decided not to substitute egg 13/90 into nest 24/90 as that egg had just been collected and a substitution just then would have extended the cooling period for longer than necessary. The nest was located on a small mound in a bulrush-sedge marsh. The incubating bird had walked north when we approached but I did not see the crane fly.

- 6.7 At nest 12/90 the incubating bird walked off the nest, then flew south. The nest is located in a bulrush stand. Both eggs were live; the younger egg did not move as well as the older egg which was left in the nest.
- 6.8 At nest 23/90 both relatively young eggs were collected and the egg collected from nest 13/90 left in the nest. This pair (both adults banded) nested for the first time in 1989, when the birds had only one late egg which failed to hatch. Due to a virtually inaccessible nest site in 1989 (and the egg was late anyhow) I did not test the egg last year. I wanted to make sure the birds had a live egg this time. The eggs collected were tested during refueling. The nest was in a bulrush-sedge-willow-birch marsh. The incubating bird remained on the nest until the helicopter was quite close.
- 6.9 We flew by nest 1/90 enroute to the fuel cache as I had not yet seen the contents of that nest. We saw two eggs in the nest.
- 6.10 We refueled at the Sass River cache from 1243-1315 during which time we tested eggs 12/90, 23A/90 and 23B/90. All three eggs were live with 23B the younger of the two eggs from nest 23/90.
- 6.11 The pair at Twin Lakes nest 18/90 had only a single egg. One bird, likely the female, is a new bird here. A pair has nested on exactly the same lake each year since 1984. I requested Drewien to test the egg and if it was live to leave it. The egg was live and estimated about 19 days old (eggs younger than 16 days can usually not be tested for viability with confidence). The nest

(as always in this territory) is made of bulrush and located in a bulrush stand.

- 6.12 Both birds were at nest 14/90 as we approached and the cranes flew from the nest. The nest is made of bulrush and is located in a bulrush marsh. Both eggs were live, one was left in the nest.
- 6.13 A bird was on nest 5/90 as we approached. This pair nested last year for the first time (on the same bulrush island). There was only one egg in 1990; it was live and left in the nest. There is no suitable helicopter landing site nearby and that explains why we were on the ground for 16 minutes (Table 1).
- 6.14 As we traveled to nest 7/90, we saw a bird on nest 6/90. I did not want to disturb the latter nest. As we approached nest 7/90 I saw a raven circling the nest site. It would not have been a good time to disturb a nesting crane with a potential egg predator nearby so we flew to nest 8/90 instead.
- 6.15 A bird was on nest 8/90 located in a bulrush-sedge marsh bordering unburned coniferous woods. Both eggs were live, one was left in the nest.
- 6.16 We now returned to nest 7/90 and found both cranes there. The birds flew a short distance south, then disappeared. The nest was in a bulrush-cattail-sedge area. Both eggs were live, one was left in the nest.
- 6.17 We saw a pair of cranes north of a branch of Klewi River and west of nest 9/90.

- 6.18 The bird on nest 9/90 flew south. The nest is in a small bulrush marsh surrounded by swamp birch and willows. A live egg was left in the nest.
- 6.19 The area surrounding nest 21/90 is getting quite dry. A bird was standing beside the nest as we approached. When we circled the nest the crane flew southwest. The nest is in a mixed sedge-bulrush marsh bordered by swamp birch. Both eggs were live but still quite young (14-18 days). One egg was left in the nest.
- 6.20 As we approached nest 17/90 a Canada goose with four goslings only a few days old scurried from the banks of a pond. Both eggs were collected as this pair has had poor quality eggs in past years. The egg earlier collected from nest 7/90 was left in the nest. The nest was in a mixed sedge-bulrush stand.
- 6.21 We returned to the Sass River area for fuel. Enroute I saw that birds had returned to nests 5/90, 14/90 and 18/90. At the fuel cache we tested egg 24/90 (live but still young), egg 17A/90 (questionable) and 17B/90 (live).
- 6.22 On our return to the Klewi area we passed within 500 m of nest 29/90. We saw a bird on the nest.
- 6.23 The bird on nest 19/90 flew south as we approached. The nest is in a small bulrush-sedge marsh surrounded by swamp birch, larch and an occasional tall spruce. The single egg in the nest was tested, it was live and left in the nest.
- 6.24 A bird stayed on nest 10/90 until we had almost touched down. Then the bird flew a short distance south. The nest is located in a bulrush marsh, surrounded by isolated clumps of willow and swamp

birch. Both eggs were live and less than a week from hatching. One egg was left in the nest. When Drewien and Johns were at the nest, the two cranes flew by twice.

6.25 We saw no birds at nest 16/90 and it was difficult to find the nest without birds nearby. With the use of the airphoto I eventually found the nest. Drewien and Johns found that both eggs were warm to the touch, they were live and one was left in the nest. The nest is in a bulrush marsh (with some sedge also present) surrounded by swamp birch, a few larch trees and black spruce.

6.26 We returned to Fort Smith where we landed at 1715 hrs.

7. EXAMINATION AND TRANSPORT OF EGGS

The 12 eggs collected were measured and tested for viability in the morning of 28 May (Table 2). Only egg 17A/90 was non-viable. Eggs were replaced in the electric incubator after the examination was complete. At about 1130 the Cessna Citation aircraft which was to take the eggs south arrived in Fort Smith. The aircraft as piloted by Mr. Terry Kohler. The pilot's wife Mary was also on board as well as Mr. Tom Mahan, aviculturist at ICF. Mr. Mahan was also involved in taking still photographs and video footage of eggs, aircraft and personnel. After lunch, portable suitcase incubators were warmed up, the 12 eggs placed in the incubators, then loaded on the aircraft. J. Lewis accompanied the eggs to ICF.

On 8 June J. Lewis advised six chicks had hatched and five eggs were still in the incubator. On 17 June I heard from J. Lewis that all 11 chicks were alive at ICF. ✓

8. SUMMARY OF EGG COLLECTION

On 27 May 1990, 12 whooping crane eggs were collected. Eighteen of the 30 nests known to be present at that time were visited and 13 of the 14 two-egg clutches visited contained two live eggs each. One of the two eggs from nest 17/90 was not viable. Four one-egg clutches were visited and the egg was live in all of them. Single, live eggs were substituted as follows: egg 3B/90 was placed in nest 24/90 (one-egg clutch), egg 13B/90 was placed in nest 23/90 (both original eggs removed) and egg 7B/90 was placed in nest 17/90 (both original eggs removed).

Single egg nest 29/90 was not visited and similarly, no landings were made at 11 two-egg nests 1/90, 4/90, 25/90, 27/90, 15/90, 6/90, 20/90, 26/90, 28/90, 22/90, and 30/90. In the nests visited we were unable to document any egg loss.

Twelve eggs were collected, only one of which was nonviable. That egg was the only such egg in 18 nests visited, constituting a total of 32 eggs (3.1%). It is likely though that the later eggs will contain a higher proportion of nonviable eggs.

Water depth (Table 1) at 1 m from nests averaged 15.4 cm, the lowest level in 10 years and even lower than the exceedingly dry year 1981 when 17 breeding pairs produced only three fledged young and when major forest fires broke out in WBNP in August.

The average time spent at nest sites was almost 8 min, similar to other years and a credit to the team of Drewien and Johns who spent no more time at nests than absolutely necessary.

9. ACKNOWLEDGEMENTS

I acknowledge with thanks the assistance provided by R. Drewien, B. Johns, J. Lewis, J. Saquet and S. Cornelsen (WBNP), U. Banasch (CWS, for the use of incubators), J. Kuyt and others during the 1990 whooping crane egg pickup and preceding aerial breeding pair counts.

Table 1. Helicopter landing times, water depth at nest ponds and vegetation, 27 May 1990.

Nest No.	Helicopter		Down time (min)	Nest pond depth* (cm)	Nest material	Nest pond vegetation
	Down	Up				
2/90	1052	1100	8	22.5	RSB**	RSB
11/90	1112	1121	9	11	C ⁺ -RSB	C-RSB
3/90	1135	1145	10	12.5	C 85%, Cattail 15%	C 70%, W 20%, Cattail 10%
13/90	1152	1200	8	13	RSB 90%, C 10%	C 85%, RSB 15%
24/90	1205	1210	5	29.5	RSB ^x	RSB 80%, C 20%
12/90	1215	1221	6	19	RSB	RSB
23/90	1225	1232	7	7.5	RSB 95%, W ⁺⁺ 5%	RSB 80%, C 15%, W 5%
Fuel	1243	1315				
18/90	1326	1334	8	13	RSB	RSB
14/90	1338	1347	9	11	RSB	RSB
5/90	1350	1406	16	16	RSB	RSB
8/90	1413	1418	5	16	RSB	RSB
7/90	1422	1430	8	16.5	RSB ^x	C 50%, RSB 40%, W 10%
9/90	1438	1446	8	9	RSB	RSB 75%, C 15%, W 10%
21/90	1450	1458	8	9.5	RSB ^x	RSB 50%, W 30%, C 20%
17/90	1500	1505	5	13.5	RSB	C 80%, RSB 20%
Fuel	1525	1555				RSB 70%, C 20%, W 10%
19/90	1605	1613	8	23	RSB	RSB 80%, C 20%
10/90	1616	1625	9	12	RSB	RSB 95%, W 5%
16/90	1632	1638	6	22	RSB	RSB 95%, C 5%

* Water depth at 1 m from nest edge

** Roundstem bulrush

+ Carex

++ Willow

x Nest on a slight mound

Average length of down time at nests: 143/18 = 7.9 min/landing

Mean pond depth: 276.5/18 = 15.4 cm

Table 2. Measurements and viability test results of 12 whooping crane eggs collected and age determination of other eggs in nests visited 27 May 1990.

Egg No.	Length (mm)	Width (mm)	Weight (g)	Estimated age (d)	Remarks, test results from Fort Smith
2/90				25	
11/90				21-23	
3/90				25-26	Egg 3/90 placed in nest 24/90.
13/90				18-21	Egg 13/90 placed in nest 23/90
24/90	101	62	195.0	12-16	
12A/90				17-19	
12B/90	97	65	199.5	15-17	Rotation.
23A/90	98.5	63	200.0	14-16	Slight rotation
23B/90	94.0	63	189.5	12-14	Slight rotation (younger of 23/90 eggs).
18/90				18-19	
14A/90				22-23	
14B/90	98	62	181.0	20-22	Good movement.
5/90				19-20	
8A/90				23-25	
8B/90	102	64	205.5	22-23	Good movement. Imperfect egg shape.
7/90				22-24	Egg 7/90 placed in nest 17/90.
9A/90				25-26	
9B/90	99	63	184.0	23-24	Good movement
21A/90				17-18	
21B/90	106	62	211.0	15-16	Rotation.
17A/90	104	62	201.5	21-22	No movement.
17B/90	98	66	208.5	22-25	Good movement.
19/90				18-19	Slight rotation (in field).
10A/90				25-26	
10B/90	102	62	182.5	22-25	Good movement.
16A/90				23	
16B/90	99	60	175.0	20-22	Good movement.

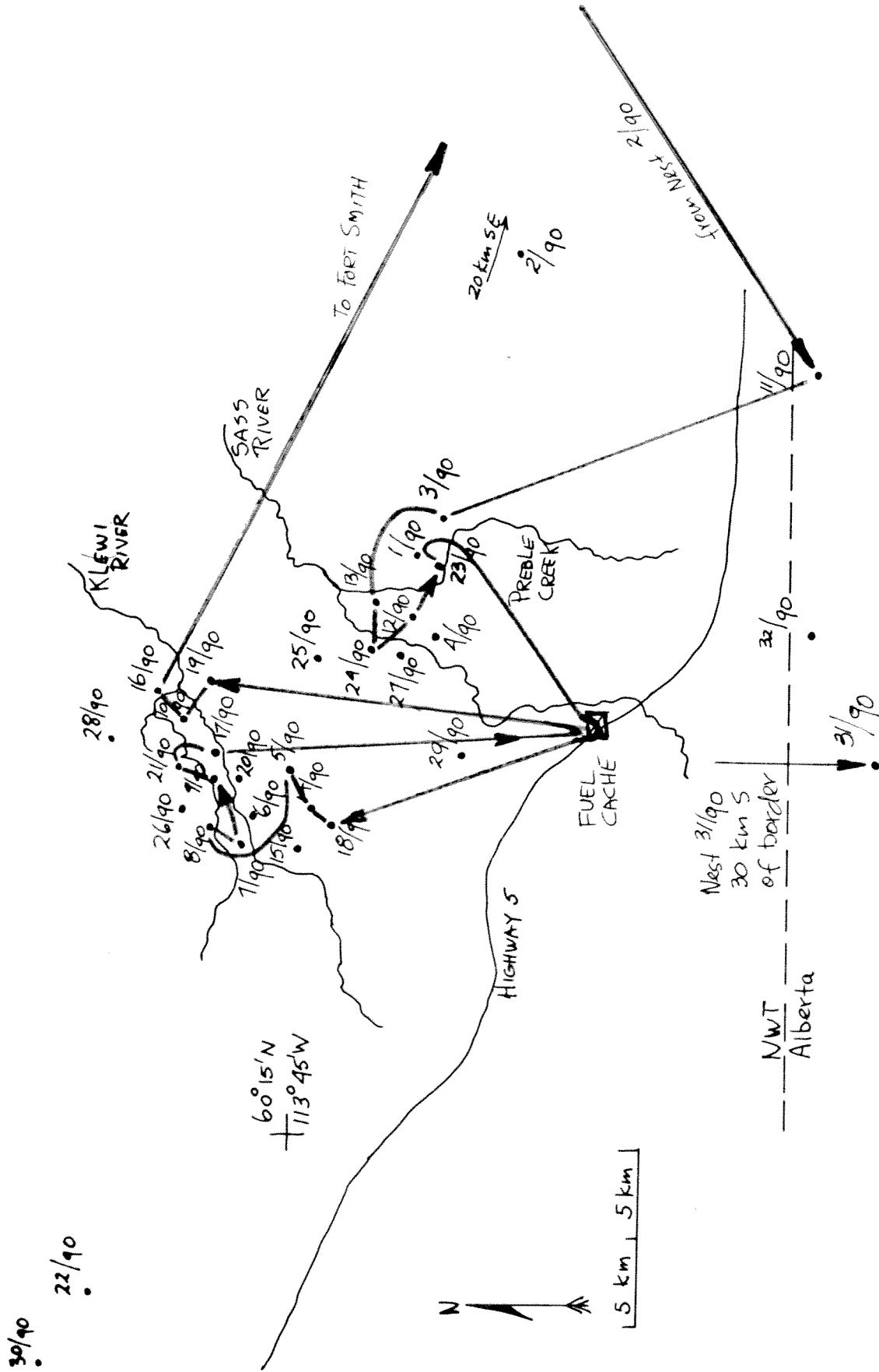


Figure 1. Whooping Crane egg pickup route, 27 May 1990.