

LOCATION OF NONBREEDING AND NOVICE BREEDING WHOOPING CRANES,
WOOD BUFFALO NATIONAL PARK - 1991

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INTRODUCTION

Serious losses of whooping cranes occurred on the Aransas National Wildlife Refuge (ANWR) during winter 1990-91. The peak wintering population of 146 whooping cranes (identical to the previous winter's) was reduced by 11 birds (2 adult females, 1 adult male, 3 colour banded subadults and 5 juveniles). The spring population prior to northward migration is believed to have consisted of 8 juveniles and 127 older birds. The total of 135 birds was further reduced on 15 April 1991 as the result of the illegal shooting near Bend, Texas of a breeding age female whooping crane. In addition, an adult plumaged bird of unknown sex (but on the basis of small size believed to be a female) in an advanced state of decomposition was found on the breeding range on 11 June 1991. It is not known if that bird was adult or subadult.

Kuyt (1990) suggested that with acceptable over winter mortality and good habitat conditions as many as 40 pairs of whooping cranes could breed in 1991. In 1990, 32 nests were located in and near Wood Buffalo National Park (WBNP), equalling the post-1938 record set in 1987.

METHODS

Aerial surveys in CWS-chartered fixed wing aircraft (Cessna 185 on ski-wheels or floats, one flight in a wheeled Cessna 210) were flown from a charter base in Fort Smith, NWT on 28 April, on 2, 5, 8, 11, 15, 19 and 24 May and on 17 and 20 August. The April and May flights averaged 3.8 hrs and were made to locate breeding

pairs, nests and family groups but these flights and the August flights (averaging 3.5 hrs) also resulted in the location of nonbreeding cranes. From 10-16 June (Kuyt and Johns 1991b) we participated in aerial surveys over WBNP in United States Fish and Wildlife Service (USFWS) aircraft N737, a wheeled light twin-engine aircraft. The flights, made on 10, 11, 12, 13 (2 flights), 14 and 15 June averaged 3.8 hrs.

Aerial surveys were flown at altitudes of 300 m except in cases where nest contents had to be examined, requiring a closer approach. All sightings of whooping cranes or their nests were plotted on overlays covering aerial photographs on a scale of 1:11,811 or 1:58,071. Locations of crane pairs or nests referred to in the text are shown in Figures 1 and 2. Colour band nomenclature follows that of Kuyt and Goossen (1987).

OBSERVATIONS

The regular CWS surveys in April-May resulted in the location of 31 nests. The June flights in N737 resulted in the location of two additional family groups (one near a nest). The total number of known nestings (33) in 1991 establishes an all-time record.

1. Previous breeders failing to breed in 1991

- 1.1 Blue-White and unbanded mate

This pair, made up of a 1984 male and a female of unknown age, first nested in 1987 and has nested in Composite Nesting Area Sass-14 (CNA Sass-14, Kuyt, in prep.) in 1987, 1988, 1989 and 1990. The banded bird Blue-White and an unbanded crane were observed on last

year's breeding territory on 8, 11, 15, 19 and 24 May. On 8 May the two birds were 1.8 km SE of their previous nest 25/90. It is likely the birds had just arrived on the breeding range. The other 4 sightings were all made within 0.6 km of their previous 1988 and 1989 nests. We don't know why the cranes were not observed near their 1990 nest site nor why this pair did not nest in 1991. The only cranes observed near Blue-White's 1990 nest site (25/90) were White-Nil and Red-Yellow (28 April and 2 May 1991). This pair, commonly known as the "radio" pair was not seen again until observed with a small chick on 12 June about 6.5 km NE of their 28 April - 2 May location. Undoubtedly the radio pair's nest was close by and consequently its nesting in 1991 could not have influenced Blue-White's non-nesting.

Blue-White and its mate continued to use parts of its CNA after the nesting season as we observed the birds there on 10, 11 and 12 June.

1.2 B/B-Yellow (1983) and Yellow-Red (1985)

Male B/B-Yellow first bred in 1988 in an unknown area. Its first mate was shot by a Texas duck hunter in January 1989. The male, then with female Yellow-Red was found at new nest 32/90 on 9 June 1990. The cranes had an egg and a just-hatched chick in the nest but the pair later lost the chick.

On 8, 11, 15, 19 and 24 May 1991 we observed the same pair in the marsh complex near last year's nest 32/90. We did not record any nest building activities. On each survey we saw the birds

foraging busily. On 12 June in aircraft N737 we again located the pair near its former nest site 32/90 although we failed to spot the birds on 14 June.

1.3 Nil-Low Silver (1979) and BWB-GWG (1985)

Male Nil-Low Silver (formerly Red-BWB) nested with an unbanded crane in CNA SK-3 each year from 1984-1989. The pair known as the Twin Lakes pair always nested in the same small stand of bulrush in a small pond. In 1990 an apparently unbanded bird (but possibly the male having lost its metal band from the right leg) nested with a new bird (1985 female BWB-GWG) in the same spot as in previous years. The birds' single live egg failed to hatch in 1990 or was taken by a predator. That year the banded bird lost its GWG band.

On 5, 8, 15, 19 and 24 May 1991 we saw BWB-Nil and its apparently unbanded mate near its 1990 nest site (18/90) in CNA SK-3. We did not record any attempts at nest building by this pair. On 28 May 1991 during the removal of surplus whooping crane eggs (Kuyt and Johns 1991a) we observed a sandhill crane on a nest in Twin Lakes in the same spot where whooping cranes nested from 1984-1990. On 13 June, well before the sandhill crane egg(s) could have hatched we noted that the nest was empty.

1.4 Unbanded crane and Y/B-O (1986)

This pair usually referred to as the Snoopy Lake pair nested in 1990 at Klewi nest 26/90. The unbanded male may have been the same bird nesting in the same area (Klewi CNA-11) in 1985, 1986 and

1987. In 1988 Kuyt observed the pair's 1987 chick near the 1987 nest site as well as a pair of cranes composed of an unbanded crane and B-O (likely the former Y/B-O which lost the short yellow band from its left leg). The bird carried a metal band below the orange band, as was the case with Y/B-O. In 1988 and 1989 the two birds were observed repeatedly in the same area but they did not nest until 1990.

This year, we first observed the pair on 11 May. The birds were seen again on 15 May (most likely in a trio with another banded bird O-Yellow) and on 19 and 24 May (adjacent to Snoopy Lake). The birds failed to nest in 1991. They were also observed in the area after the nesting season (11, 13 and 15 June).

1.5 Northeast Klewi pair (CNA K-6)

An unbanded pair of whooping cranes has nested in CNA K-6 each year from 1967-1990. As neither bird is identifiable we cannot be sure the pair nesting here is still the same pair. The cranes had 2 eggs in 1990 (nest 28/90). It was a late nest and no egg was collected from the nest that year. The nest was later found abandoned before the eggs could have hatched. On 8 May 1991 we saw a single adult whooping crane in the NE corner of K-6 less than 300 m from the previous year's nest 28/90. We have no other 1991 observations of single or paired unbanded whooping cranes in K-6.

1.6 Yellow-B/B (1983)

This bird, a 1983 male, was first found nesting in 1987 with

an unbanded bird in CNA K-16. The banded crane and his unbanded mate nested in the same area from 1987-1990. In late November or early December 1990 the unbanded bird disappeared from the pair's well-established winter territory at ANWR (Stehn 1991). On 21 December 1990 and 7 January 1991 Yellow-B/B was associated with BYB-BYB (a 1985 female) with no unbanded cranes observed in the vicinity (Stehn 1991).

On 2 May 1991 we saw the two birds Yellow-B/B and BYB-BYB in the former's territory K-16. The birds were again observed on 5, 11 and 19 May but not on 24 May. By then, the laying season was finished. On 15 June we located Yellow-B/B foraging about 900 m east of last year's nest 16/90. An unbanded bird was feeding 300 m away. There was no sign of BYB-BYB. On 13 and 14 June we had seen a pair of banded cranes just north of the Sass River - Highway 5 crossing at least 25 km south of Yellow-B/B's summer range. One of the birds of that pair was BYB-BYB, the other crane was Yellow-YBY (see Point 1.7), the largest chick banded in 1986 and undoubtedly a male.

Kuyt did not see BYB-BYB in WBNP in 1988 nor in 1989 but on 10 June and 1 July 1990 he saw the bird with an unbanded crane in a marsh 5 km east of the Sass River - Highway 5 crossing. That is where we saw BYB-BYB this year but now with a different companion.

It remains unclear why BYB-BYB left her winter and spring companion Yellow-B/B to spend the rest of the summer with Yellow-YBY. Their summering areas should be closely checked for nest sites in 1992.

1.7 Yellow-YBY (1987) and White-YBY (1987)

This pair nested for the first time in 1990 at nest 31/90. The nest, located almost 35 km south of the Alberta-NWT border is the southernmost recorded nest in WBNP. Nest 31/90 had two eggs when found on 9 June 1990 but the nest of these 3 yr old birds was abandoned several days later.

Our aerial surveys over the 31/90 nest area this spring and summer failed to locate any cranes in the area. On 28 April and 5 May 1991 we located a pair of cranes in the West Sass area. One bird carried a white band on its left leg, the other carried a metal band above its right tibio-tarsus. The pair later nested at nest 13/91. The crane with the metal band (Nil-high Silver) has nested in the territory (S-1) in previous years but the colour banded bird is a new partner. Stehn (1991) advised the crane is likely the former White-YBY (1987). The YBY band (this type of band is weaker than most other bands and we have experienced its damage or loss) was worn when the crane was last seen by Stehn and likely has now disappeared completely. Stehn (1991) also indicated that White-YBY was paired with "hs-nil" (I believe his report is in error and should read "Nil-hs"). That would account for our observed sighting in WBNP. White-YBY is therefore no longer paired with Yellow-YBY.

Yellow-YBY was observed on 13 June with BYB-BYB near the Sass River - Highway 5 crossing (see Point 1.6). What we have seen here is another example of a widowed adult male (Nil-hs is likely a 1977 bird) attracting the female from a pair composed of younger birds,

successfully forming a pair bond, and eventually breeding with the younger female.

On the other hand it appears from our summer observations that older male Yellow-B/B (1983) failed to maintain the bond (established during winter 1990-91) with 1985 female BYB-BYB who elected to return to her 1990 summer area, coincidentally (?) occupied by Yellow-YBY.

1.8 Nyarling unbanded pair

On 11 May 1991 we found an occupied whooping crane nest in the original Nyarling CNA NY-1. That nesting area had always been used by an unbanded pair of cranes. We did not check the birds on and near the new found nest for colour bands.

On 24 May we found Nyarling nest 23/91 abandoned and the nest empty. Close by we found a new nest, containing a single egg. The bird on the nest at the time of discovery was banded and appeared to be O-R/B. This bird, a 1986 female, in 1990 nested NW of the original Nyarling pair with an unbanded mate (nest 30/90). The second bird at nest 23/91 carried no bands.

We checked the second Nyarling territory several times in 1991 but we found no birds. The bird O-R/B lost her mate in late February 1990 and may later have re-paired with an unbanded mate (Stehn 1991).

On 11 and 15 June we saw the above pair in the Nyarling nesting area and nearby a single unbanded adult. There are several possible scenarios anyone of which could accurately reflect what

happened but it is probably pointless to speculate.

2. Repeat breeders paired with novice breeders

2.1 Yellow-Nil (1985) and Y/G-Yellow (1987)

This pair, first seen in the SE Sass area on 15 May 1991, was found with a nest (30/91) 9 days later. The two birds were associated the past winter at ANWR (Stehn 1991). In 1988 and 1989 male Yellow-Nil (formerly Yellow-Green) nested with a 1984 bird White-Blue several km east of present nest 30/91. White-Blue died at ANWR sometime after 12 December 1989 (Stehn 1990). The 1991 nesting was the first for 4-yr old female Y/G-Yellow.

2.2 R/W-Nil (1979) and unbanded mate

The banded male has nested with an unbanded crane in CNA K-14 each year since 1984. The male apparently showed up at ANWR in fall 1990 without its mate (Stehn 1991). After 10 February 1991 it was always associated with an unbanded crane. We found the pair nesting at Klewi nest 22/91 this spring.

3. Novice nesting pairs

3.1 BWB-YBY (1987) and White-Green (1985)

Cranes YBY-YBY (1987) and White-Green were associated at ANWR in winter 1989-90. Although it was believed that a pair bond had been established (Stehn 1990) the two cranes migrated separately. In May 1990, Kuyt observed female White-Green along Preble Creek with a bird carrying striped bands on both legs. There was some

confusion whether the striped bands were BWB or YBY.

On 11 May 1991 we saw a flock of five whooping cranes in the same area where Kuyt saw the above banded cranes the previous year. Later in the 11 May survey we returned and now noted the flock had broken up into three groups. One pair consisted of BWB-YBY and White-Green. On 24 May we found the pair's nest (29/31) containing two eggs.

3.2 RWR-Orange (1985) and RWR-YBY (1987)

Male RWR-Orange has lost its RWR band and is now referable as "low S-(faded) Orange". Kuyt saw the bird in the upper Klewi River area in 1988, 1989 and 1990, each year with a different bird. In 1990 that bird was RWR-YBY, a 1987 bird of unknown sex. On 19 May 1991 we found the pair's first nest, a late nest (28/91) containing a single egg.

3.3 White-RWR (1985) and YBY-Y/G (1987)

Kuyt observed male White-RWR alone in the Klewi Five Lakes area in 1986 and 1987 and with banded female Blue-O/Y (1986) in 1988. The following year Kuyt saw the banded male with YBY-Y/G on four different surveys in the same general area. Kuyt (1990) suggested the birds would breed in the area in 1991. We found the pair in the same area on 5 and 8 May 1991 and located the new nest (20/91) on 11 May. The nest later had 2 eggs.

3.4 Unbanded pair, Sass-Klewi area

On 19 May we located the nest of a pair of apparently unbanded cranes near the north end of the Sass-Klewi marshes. The nest, called 27/91 contained one egg and the completed 2-egg clutch was first observed on 24 May. The cranes' behaviour at the nest site (walking away from the nest when the survey aircraft circled) implied these were novice breeders.

Two unbanded cranes were observed on 11 June 300 m west of nest 27/91, and the nest and its two eggs appeared to have been abandoned. Later in the day when we flew past the nest again we saw a single bird standing beside the nest. Two days later we saw only a single egg in the nest and the nest was definitely abandoned.

We have no idea about the identify of this pair (but see 3.5 below).

3.5 Nest 4/91

Nest 4/91 in the north end of the Sass-Klewi area was found on 2 May 1991. The nest was a few metres away from last year's nest 14/90, attended by an unbanded crane and its mate, the former BWB-Red, a 1979 bird. The latter crane eventually lost both colour bands and, until it also lost its metal band was known as "low silver-nil". The pair raised a young bird in 1990 and 1989 (both unbanded), in 1988 (RWR-GWG), in 1987 (Y/B-YBY), and the banded bird with her first breeding partner (determined to be male when he died after colliding with a power line in North Dakota in fall 1984) also produced a young bird in 1984 when the cranes nested in

an unknown area.

BWB-Red and her second mate were also involved in the 1988 nesting which saw a sandhill crane lay an egg in the whooping cranes' nest (Kuyt 1989).

When we circled nest 4/91, containing a single egg on 2 May 1991, we were surprised to note the crane standing on the nest was colour banded, apparently R/Y-BWB. There is no such band combination but existing birds O/W-BWspiral and O/Y-Blue are close approximations. Crane O/W-BWspiral (now O/W-Nil) nested at nests 27/90 and 12/91 in the Sass River area the past two years. It is likely the banded bird at nest 4/91 was O/Y-Blue, a 1986 female associated at ANWR the past winter with an unbanded crane (Stehn 1991).

If this assumption is correct, we have no explanation what happened to the resident pair of the previous years. That pair does not appear to be strong territorially (judging by its toleration of the sandhill crane pair in 1988) and it is possible that O/Y-Blue and her mate arrived early on the breeding range and usurped the resident pair's nesting area. There is evidence of this event happening elsewhere in 1991 (in the West Klewi area involving two whooping crane pairs, and in the area immediately east of nest 4/91 involving a sandhill and a whooping crane pair).

Our spring 1991 observations, and those made in earlier years indicate that cranes (both species) will utilize nests or nest ponds used previously by other cranes. It is likely therefore, that cranes recognize other crane nests and this use of each

other's nest sites may become important during dry years (such as 1991) when suitable nest sites are at a premium.

In view of the above theory, it is plausible that the unbanded pair (Point 3.4) nesting this year 1.2 km SE of nest 4/91 was the resident pair from CNA SK-4, displaced by the earlier arriving O/Y-Blue and her mate.

Our records show that O/Y-Blue hatched in 1986 at nest 10/86 in the west part of the Klewi River breeding range only about 5 km NW of nest 4/91. It is likely therefore, that O/Y-Blue was familiar with the general area.

3.6 Blue-RWR (1985) and WBW-BYB (1985)

On 15 June 1991 we sighted a whooping crane family in the easternmost portion of the Klewi River marshes. The three birds were about 100 m from a crane nest (33/91) containing a single egg. Both banded adults were observed feeding a small chick. One bird was identified as WBW-BYB, a 1985 female. The second bird carried only a metal band below its right tibio-tarsus. That second bird was originally banded in 1985 as Blue-RWR (male). Kuyt had not observed either bird in 1989 or 1990: the area where the birds were seen in 1991 is not surveyed as often as the higher density areas to the west. Also, the nest site lies just outside the Klewi marshes covered by our aerial photographs. Kuyt had observed two flying birds in the general area on 10 September 1988 but colour bands could not be observed. Stehn (1991) considered the pair a probable, new breeding pair for 1991. The two birds spent the

winters of 1989-90 and 1990-91 in the same area near North Dunham Point, ANWR (T. Stehn, pers. commun.).

4. Potentially new breeding pairs for 1992

4.1 Yellow-B/B and unknown mate

Yellow-B/B is a proven breeder and should return to breed in 1992, either with BYB-BYB or, more likely, with a different female.

4.2 Yellow-YBY and BYB-BYB

This pair can be expected to breed in 1992, most likely in the area NE of the Sass River - Highway 5 junction.

4.3 NE Klewi CNA K-6

A pair can be expected here in 1992 if the remaining adult finds a new mate.

4.4 Nyarling area

A second pair can be expected here in 1992 if the single adult observed in 1991 can attract a new breeding partner.

4.5 Unbanded crane and Blue-O/Y (1986)

These two birds were associated at ANWR the last two winters (Stehn 1990, 1991). The colour banded female and a bird believed to carry a metal band above the right tibio-tarsus were observed in the NE Klewi area on 11 May 1991. During our next survey, four days later we saw the colour banded bird about 1.2 km south but we

saw no metal band on the second bird. Blue-O/Y and its mate (no further sightings of a metal band) were observed during each of seven aerial surveys in May, June, July and August. They were always seen in the SW corner of CNA K-6 and in the NE corner of former CNA K-9. It is likely the birds will nest there in 1992.

4.6 Green-GWG (1988) and YBY-White (1989)

Stehn (1991) indicated that these two birds were associated in winter 1990-91 but the birds had different wintering partners the previous winter (Stehn 1990). We saw the pair on 15 and 19 May 1991 near the north end of Preble Creek. On 12 June the two birds were within 150 m of former nests 10/83 and 17/84 (vacant CNA S-10) and nest 18/80 (vacant CNA S-9). Kuyt saw Green-GWG alone in the same area on 17 and 25 May 1990. The pair should nest in the area west of the Sass Watergauge Lake in 1992. Green-GWG was a large, strong chick at banding in 1988 and measurements suggest it is a male.

4.7 Unbanded and O/Y-Blue (1986)

The colour banded female and her unbanded mate were observed on 13 and 14 June 1991 in the centre of the Sass-Klewi marshes, about 1.2 km due west of former nest 20/87. We don't know if the pair nested or not in 1991 but the birds should do so in 1992, if the male is old enough. The banded bird and an unbanded crane were associated at ANWR during winter 1990-91.

4.8 Unbanded and YBY-RWR (1987)

This pair was observed on 13 June 1991 in vacant CNA SK-1. The banded bird should be old enough to breed in 1992. Measurements taken during banding in 1987 suggest the banded bird is female.

4.9 Unbanded and O-White (1986)

The birds wintered as a pair at ANWR in 1990-91 (Stehn 1991). The banded bird is a female which has lost the orange band and is now called "High Silver-White". A pair answering this description was observed on 2 May 1991 in the west Klewi, immediately east of where a pair built nest 26/91 on 14-15 May 1991. We have no other positive sighting for this pair.

5. Subadult pairs

5.1 O-Yellow and unbanded

The banded bird (a 1986 male) was observed alone on 8 May and 15 June 1991 north of Skull Lake. On 20 August 1991 the bird was seen in the area south of Snoopy Lake but now with an unbanded crane.

5.2 O-Yellow and Y/B-YBY (Y-YBY?)

On 15 May and 13 June 1991 two colour banded cranes were observed in the Small Birdhead Lake area. The birds may have been the above two birds. The latter bird, of unknown sex, hatched in 1987. At banding, it was one of the smallest birds caught that

year and therefore most likely a female.

5.3 Yearling and RY-RY

This pair was observed 11 May 1991 south of North Klewi Gauge Lake. The unbanded yearling was identifiable because it still had brownish feathers on neck and head. We are unsure about the second bird's identity.

5.4 Red-YBY (1987) and R-R (1988)

On 11 May 1991 we saw a pair of cranes north of Skull Lake in the Klewi marshes that may have been the above pair. As stated earlier, the YBY bands are becoming difficult to identify and we were not sure of the identity of the first bird's right leg band. T. Stehn (1991) indicated the bird's YBY band is worn. Crane R-R has been seen in WBNP before: on 17 May and 10 June 1990, Kuyt saw the lone bird just north of the Sass River - Highway 5 crossing and on 14 June 1991 the single crane was observed in the same area. Judging by the crane's size at banding in 1988 the bird is a male. Red-YBY was also one of the largest chicks banded in 1987, and is also believed to be male. It is likely that R-R will return to the Sass Highway 5 area in 1992, and the area should be closely examined then.

5.5 Unbanded pair

Kuyt observed an unbanded pair of adult whooping cranes on 12 October 1991. The cranes had been reported first by a local farmer

on 11 October. The following day Kuyt sighted the cranes 16.9 km north and 6.5 km east of Viking, Alberta. The birds were observed feeding in a barley stubble field, roosting in a 300 m long pond and flying between the two sites. The unbanded cranes acted like a mated pair, feeding and moving in close union. One bird was slightly larger than the other. The cranes were not seen after 13 October. Strong, gusty winds occurred on 12 October and these may have kept the cranes on the ground that day.

6. Single subadults observed in WBNP

6.1 Yellow-faded R

This bird, a 1986 male was observed alone on 15 June 1991 (and possibly four days earlier) north of North Klewi Gauge Lake. It was seen in the same area in 1990 but then with R-B/O, a 1986 female. Stehn (1991) considered the two birds a probable 1991 nesting pair.

6.2 Red-YBY (or Red-Green?)

On 11 May 1991 we saw an unidentified colour banded crane north of West Oval Lake. A bird of similar description was observed the same day further north (Point 5.4 above). The crane Red-Green was reported missing at ANWR after 13 December 1990 (Stehn 1990) so it is likely the crane was misidentified.

DISCUSSION AND SUMMARY

Dry conditions in WBNP in 1990 continued into 1991. Mean

water depth in nesting ponds this year was the lowest in the past 11 years (Kuyt and Johns 1991a). We believe that the low spring water levels discouraged four previously breeding pairs from nesting. This drought may also have been responsible for the failure to nest by three novice pairs, old enough to breed in 1991.

Three previously breeding adults lost their mates during the past winter and they failed to establish new pair bonds in time for the 1991 breeding season. Pairs nesting in 1991 at nest 22/91 and 13/91 were each made up of a single adult (previously breeding in 1990) and a new bird to replace the mates lost during the past winter or fall. We counted six pairs nesting for the first time in 1991, although one adult (pair 30/91) had bred with a different mate in 1988 and 1989.

At least 33 whooping crane pairs nested in 1991, an all time record. With the seven breeding pairs not nesting in 1991, there is a potential of 40 breeding pairs in 1992. This will require an absence of fall and winter mortality of breeding adults and acceptable spring habitat conditions.

All of the 11 colour banded cranes of the 1985 year class are now part of breeding pairs with the exception of female BYB-BYB which alternated between two males in 1991.

Of the 1986 year class (10 birds), four are part of four

different pairs which nested in 1990 and/or 1991. Four appear to have formed four different pairs with unbanded cranes and may now have established summer territories. The remaining two birds Yellow-Red (1986) and R/B-O were seen together in 1990 but only the former was located in 1991.

Of the 15 birds in the 1987 year class, two bred in 1990 and four in 1991. One bird is paired with a 1988 bird. Several other birds in this year class may also be paired but YBY bands in this cohort have fallen off or are worn and difficult to identify.

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LIST OF REFERENCES

- Kuyt, E. 1989. Use of a whooping crane nest by a sandhill crane. *Blue Jay* 47(1):33-38.
- Kuyt, E. 1990. Location of nonbreeding and novice breeding whooping cranes - 1990. Unpub. CWS Report. 19 p.
- Kuyt, E. 1991. Whooping Crane (*Grus americana*) breeding range expansion in Wood Buffalo National Park, 1970-1991. (in prep.)
- Kuyt, E. and J.P. Goossen. 1987. Survival, age composition, sex ratio and age at first breeding of whooping cranes in Wood Buffalo National Park, Canada. Pp. 230-244 in Proceedings 1985 Crane Workshop, Grand Island, Nebraska. Edited by J.C. Lewis. Platte River Whooping Crane Maintenance Trust, Grand Island, Nebraska.
- Kuyt, E. and B.W. Johns. 1991a. Removal, examination and transfer of whooping crane eggs from Wood Buffalo National Park 28-29 May 1991. Unpub. CWS Report. 22 p.
- Kuyt, E. and B.W. Johns. 1991b. Whooping crane summer range surveys, 10-16 June 1991. Unpub. CWS Report. 12 p.
- Stehn, T. 1990. Whooping cranes during the 1989-1990 winter. Unpub. USFWS Report. 41 p., tables, figures.
- Stehn, T. 1991. Whooping cranes during the 1990-1991 winter. Unpub. USFWS Report. 103 p.

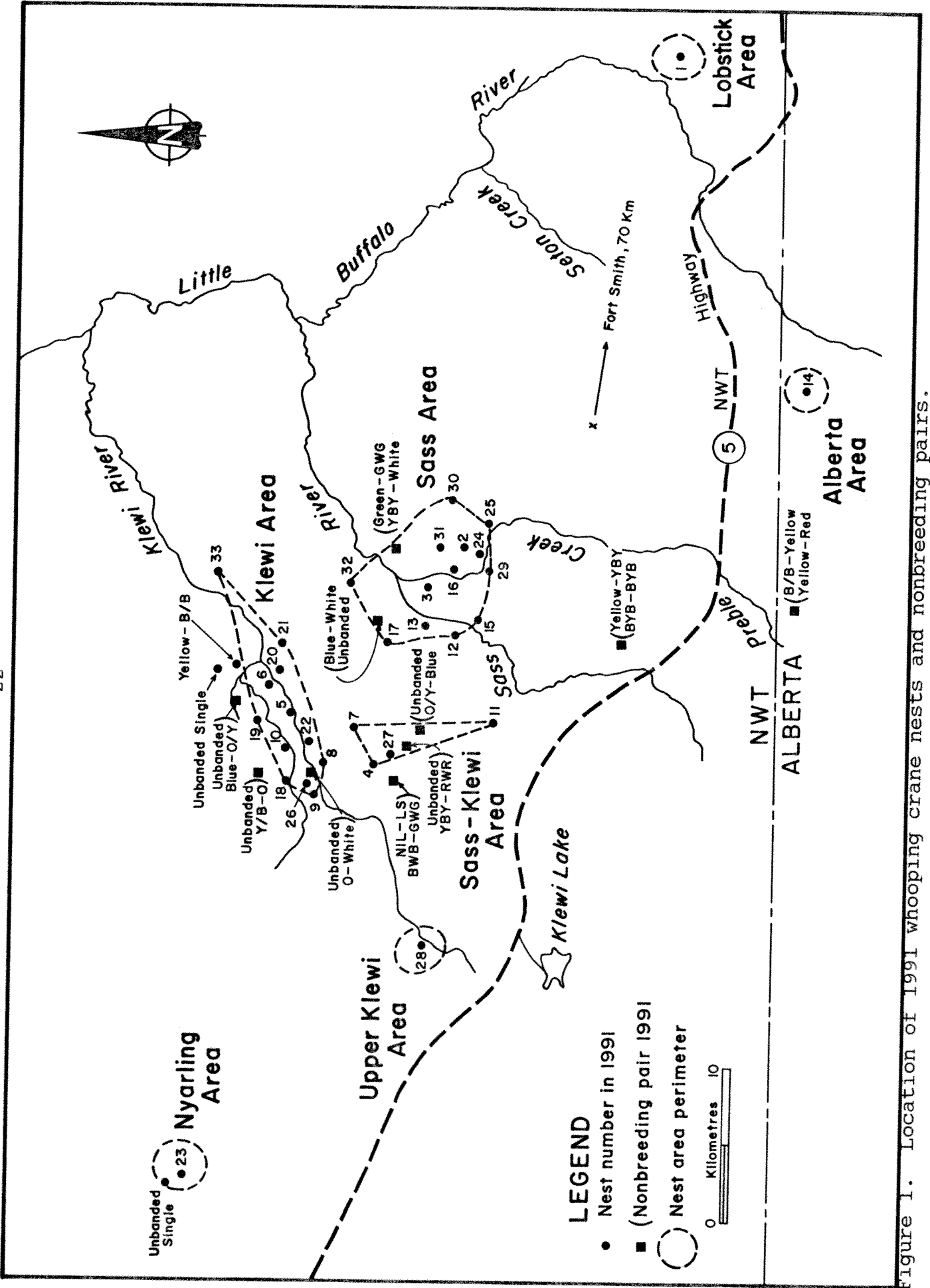


Figure 1. Location of 1991 whooping crane nests and nonbreeding pairs.