

CPS

LOCATION OF NONBREEDING AND NOVICE BREEDING

WHOOPING CRANES - 1990

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Preliminary data, not for publication

SEPTEMBER 1990

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INTRODUCTION

After serious losses in numbers in 1988, the whooping crane population recovered the following year (Kuyt 1990a) and in 1989 at least 30 pairs nested in Wood Buffalo National Park (WBNP; Kuyt 1989). A 31st breeding pair (accompanied by a chick) arrived at the Aransas National Wildlife Refuge (ANWR) in Texas (T. Stehn, pers. comm.). This pair nested in an unknown area or, perhaps it was not identified correctly in spring and summer during Canadian Wildlife Service (CWS) surveys, and may have been identical with the pair nesting at nest 28/89. Kuyt (1989) suggested that 33 previously nesting pairs were expected to breed in 1990 and if habitat conditions were satisfactory, 37 pairs could nest.

Total population counts of whooping cranes are not attempted in WBNP. This information is made available annually by staff at ANWR as a result of regular aerial surveys over the cranes' winter range where birds are relatively concentrated and easier to locate and observe than in WBNP. Notwithstanding this, regular aerial surveys in 1990 by CWS accounted for 102 different birds, and surveys in United States Fish and Wildlife Service (USFWS) aircraft N737 (Kuyt 1990b) for an additional 19 birds. Three subadult birds remained in Saskatchewan all summer (B. Johns, pers. comm.), one yearling was seen at Samson Lake, Ponoka, Alberta (7-26 June), one bird near Bowden, Alberta (26-23 July) and one bird (likely one of the 2 above birds) on Buffalo Lake, Alberta (21-25 August; 1-4 September). A 2-yr-old bird (GWG-BWB) which may have been at ANWR all summer was observed there during the middle of August (T. Stehn, pers. comm.) and a 2-yr-old bird (RWR-GWG) summered in North Dakota (W. Jobman, pers. comm.). In total I accounted for 127 cranes or 90.1% of an

estimated spring population of 141 birds(excluding chicks). This population estimate is close to the count of 90% of the population of 133 birds arrived at by the same methods in 1989 (Kuyt 1989).

METHODS

Aerial surveys in CWS-chartered fixed-wing aircraft (Cessna 185 on ski-wheels or floats) based in Fort Smith, NWT were flown on 29 April, on 2, 7, 11, 13, 17 and 25 May, on 29 June and on 1, 2 and 4 July. These flights, averaging 3.6 hrs were made to locate breeding pairs, nests or family groups but also resulted in location of nonbreeding cranes. From 6-12 June I participated in aerial surveys over WBNP in USFWS aircraft N737 (Partenavia PN 08), a wheeled light twin-engined aircraft. Several of the flights in N737 enabled me to look at portions of WBNP other than the known high-density crane areas.

All sightings of whooping cranes were plotted on overlays covering aerial photographs on a scale of 1:11,811 or 1:58,071. Location of crane pairs or nests referred to in the text are show in Figures 1 and 2. Colour band nomenclature is described in Kuyt and Goossen (1987).

OBSERVATIONS

Regular CWS surveys in April and May resulted in the location of 29 nests. Flights in N737 in early June (Kuyt 1990b) accounted for two additional nests. The total of 32 nests equals the post-1938 record set in 1987 (Kuyt 1990c).

1. Previous breeders failing to breed in 1990
- 1.1 Yellow-Nil (formerly Yellow-BWSP) and WBW-WBW

This pair, made up of a 6-yr-old male and a 5-yr-old female nested at West Sass nest 23/89 last year and at 27/88 in 1988, female WBW-WBW's

first nesting at three years of age. Male Yellow-Nil first bred in 1987 with an unbanded female and the pair raised a chick that year. The female disappeared at ANWR that winter and Yellow-Nil paired with his present mate shortly thereafter.

In 1990 we first saw the pair in its previously occupied breeding territory Sass-15 (Kuyt and Goossen 1987) on 29 April, and on each of 8 surveys thereafter. Much of this territory was exceedingly dry in 1990.

1.2 Yellow-Nil (formerly Yellow-Green) and Green-Yellow

Yellow-Nil is the 1985 male which lost his mate White-Blue (1985) on or about 12 December 1989 in the vicinity of ANWR (T. Stehn, pers. comm.). The widowed male had no definite associations with a particular bird for the rest of that winter.

On 29 April 1990, and on at least six times thereafter I saw Yellow-Nil and a colour-banded bird in and near the territories where the male nested with his previous mate in 1988 and 1989. Although I identified the second bird as Green-Yellow we never did get a satisfactory look at the bird's legs. This crane was a large bird when banded in 1985 and is presumably a male. The bird had been seen at ANWR in spring of 1988 in association with a known female (Stehn 1989). It is likely that the bird was misidentified and that the crane in question is Y/G-Yellow, a 1987 bird presumed to be a female.

Whatever the female's identity, the cranes appear to have a solid pair bond as they were always seen feeding close together.

1.3 R-Yellow and White-Red (now White-Nil)

This pair, usually referred to as the "radio" pair (both birds at one time were equipped with radio transmitters) is composed of a 1983

male and a 1982 female. The pair nested in the Sass-13 territory in 1986, 1987 and 1988 but failed to do so in 1989. That year the birds could not be located after 22 May but on 29 April 1990 the two birds were observed southwest of their composite nesting area (CNA, Kuyt and Goossen 1987).

The cranes were also recorded on 7, 11, 17 and 25 May as well as on 7 June. The birds moved in a northeasterly direction, through the south portion of their CNA and were last seen well east of former nest sites. This territory, too, was quite dry in 1990. The birds did not nest in 1990.

1.4 Red-Nil (now Nil-high Silver) and unbanded mate

Red-Nil, a 1977 bird, which now only carries a metal band above its right tibio-tarsus is likely the bird which with an unbanded mate makes up the Hippo Lake pair in CNA Sass-9. The pair has nested irregularly since 1979 although the birds are frequently seen in their territory. Last year, a late nest with a single egg (eventually unsuccessful) was observed in the extreme southwest corner of Sass-9. Circumstantial evidence indicates that the nest (30/89) was that of the Hippo Lake birds.

The pair was again observed on 13, 17 and 25 May and possibly also on 29 April and 2 May. On 13 May we saw the birds building a nest 300 m east of Hippo Lake. The birds were within a few metres of each other, picking up dead plant material, rotting vegetation and mud adhering to plant stems, and throwing the material in a pile. On 17 May we returned and found the cranes well northeast of the site. They had abandoned the nesting effort and made no other attempts to nest in 1990.

2. Repeat breeders paired with novice breeders

2.1 Twin Lakes pair (Nil-low Silver, BWB-GWG)

Sass Klewi CNA SK-3 was occupied from 1984-1989 by a pair of cranes composed of a 1979 male bird Red-BWB and an unbanded crane. The banded bird now only carries a metal band low on the right leg and is difficult to identify. T. Stehn (pers. comm.) in 1989 reported that the bird was not accounted for that fall and winter. The bird may have died or it may have lost all bands. The Twin Lakes pair, without exception, has nested each of its six breeding years in a small bulrush stand in the same shallow pond.

On 11 May 1990 I found a crane nest in the same spot and a banded bird (BWB-GWG, a 1985 female) on the nest. On later surveys we could not find bands on its mate. The pair only had a single egg, which tested live on 27 May but the egg failed or was destroyed by a predator.

There is now considerable information to show that male whooping cranes select a breeding site or will be found at the same (nonbreeding) site with different mates in different years (Kuyt, unpub. data). With this in mind, I believe the same male bird had returned to the Twin Lakes site with a new mate, and that the male has lost his identifying colour bands and possibly metal band as well.

BWB-GWG on 29 May and 3 June 1989 was observed with an unbanded bird near the Sass River - Highway #5 junction, about 20 km SE of its eventual 1990 nest site (Kuyt 1989).

2.2 Unbanded bird and Blue-0/Y

Composite nesting area Klewi-11 was frequented in 1988 and 1989 by an unbanded bird and 1986 female (now B-0 after the loss of the yellow

band). I believe the unbanded bird to be the "widower" of the unbanded female nesting in the territory from 1983-1987. Kuyt (1989) suggested breeding of the unbanded bird and B-0 was expected in 1990.

A pair of cranes answering the above description was first observed this spring on 7 May. The birds nested in CNA Klewi-11, had 2 eggs by 17 May (nest 26/90) and were last seen with a single chick (the second egg had been removed during the egg pick-up) on 1 July.

2.3 Unbanded bird and Red-Yellow (1986)

The banded female bird, now Red (faded)-Yellow became associated with the widowed male and his chick at ANWR when the female of F11/89 disappeared in January 1990 (T. Stehn, pers. comm.). The male and his unbanded mate had nested the two previous years at 11/89 and at 26/88.

On 7 May I found the above pair 600-700 m north of the previous two nest sites and the pair had a late nest (29/90) with a single egg on 17 May. The nest was 900 m north of last year's nest 11/89. The cranes failed to hatch the egg as it was observed partly eaten by an unknown predator or scavenger on 10 June. The egg could not have hatched before about 17 June. It was not tested for viability during the 27 May egg pick-up.

Although the male bird is not banded, this nesting appears to be another one where the male, with a new female, has returned to his former breeding territory.

3. Novice nesting pairs

3.1 Unbanded bird and O/W-BWB Spiral

On 13 May I noted a pair of cranes in the West Sass area, about 2 km south of nesting pair 24/90. One bird was banded, but the correct

colour identification was not determined. On 17 May we found the birds at a nest (27/90) and now the banded crane was identified as O/W-BWB Spiral, a 1986 bird of undetermined sex (but because of measurements taken at colour banding believed to be a female). The cranes had two eggs and on 29 June and 1 July the adults were observed with a single chick. I saw the banded bird alone in the Klewi River area in 1987 when it was a year old.

T. Stehn (pers. comm.) reported that O/W -BW Spiral was associated with an unbanded bird at ANWR during the past winter and B. Johns (pers. comm.) reported O/W-BW Spiral and an unbanded adult together with a family group on 25 April 1990 8 km east of Penzance, Saskatchewan.

3.2 Yellow-YBY and White-YBY

The sex of these birds is undetermined but an examination of measurements taken when the birds were banded suggests that Yellow-YBY is a male and White-YBY a female. I saw White-YBY with YBY-YBY near Piglet Island along the Klewi River on 16 May 1988.

I observed Yellow-YBY on 22 May 1989 in the centre of the nonbreeder area and White-YBY six days later (with Red-YBY?) in the same area. Yellow-YBY and White-YBY were associated at ANWR the past winter (T. Stehn, pers. comm.). During aerial surveys in USFWS aircraft N737 (Kuyt 1990b) we were able to examine potential crane habitat south of the area covered during regular CWS surveys. On 9 June we found a new nest (31/90) 35 km south of the known breeding range. The nest was attended by Yellow-YBY and White-YBY and contained two eggs. Two days later we found that the nest had been abandoned and the eggs had disappeared. Perhaps that was not unexpected as 3-yr-old birds only

rarely succeed in raising a chick when mated with an older bird. This marks the first time that two 3-yr-old whooping cranes are known to have formed a breeding pair.

3.3 B/B-Yellow and Yellow-Red (1985)

The male B/B-Yellow (hatched in 1983) bred successfully in 1988 in an unknown area with its first mate which was shot by a Texas duck hunter in January 1989. The new pair is listed here because its nesting site is now known.

I saw B/B-Yellow in the Seton Lakes area with YBY-Green (a 1987 bird of unknown sex) on 6 May 1989. Three days later B/B-Yellow was still in the area but now associated with Yellow-(faded) Red, a 1985 female which also had been seen in the area on 6 May 1989 but then with a 1985 male Green-Green. B/B-Yellow had disappeared by 13 May, apparently taking Yellow-(faded) Red with him (Kuyt 1989). The birds may have nested in 1989 but if they did so, they were unsuccessful as they arrived at ANWR in fall 1989 without a chick (T. Stehn, pers. comm.).

On 9 June 1990 during a survey in USFWS N737 we located a new nest (32/90) about 1.5 km south of the NWT-Alberta border. The nest contained an egg and recently hatched chick and was attended by B/B-Yellow and Yellow-(faded) Red 1985.

The egg from the nest was removed and placed in nest 10/90 but it failed to hatch. Family 32/90 (two adults and chick) was last seen on 1 July.

4. Potentially new breeding pairs for 1991

4.1 RWR-Orange and RWR-YBY

RWR-Orange, a 1985 male, has lost its RWR band from the left leg and is now referable as low Silver-(faded)Orange. I saw the bird in the upper Klewi River area in August and September 1988 (Kuyt 1989) with an unbanded crane. In 1989 the male was observed repeatedly in the same area but now with a 1986 female WBW-Orange, a bird which was seen and photographed near Yellowknife, NWT on 14 May 1987 and had spent its winters north of ANWR. The two birds wintered on ANWR in 1989 until January when the female again moved off the refuge. The male became associated at ANWR with two unbanded cranes (T. Stehn, pers. comm.).

On 11 May 1990 I again located the male in the upper Klewi River but he now was accompanied by RWR-YBY, a 1987 bird of unknown sex. An examination of measurements taken at banding at first glance would indicate the chick is female but this is somewhat clouded as the chick had hatched late. The two birds were observed together on at least five surveys in May and June and they always occupied the same small area.

If the birds remain paired, I expect them to breed in the area in 1991.

4.2 YBY-YBY and White-Green

YBY-YBY is a 1987 bird of unknown sex but, again based on the examination of banding data, most likely the bird was a male. White-Green is a 1985 female. I saw this female with a 1986 male near NE Sass Gauge Lake on 1 August 1988, and on 22 May 1989 in the same area but then with a 1987 bird believed to be male.

YBY-YBY and White-Green were associated at ANWR during the 1989-1990 winter (T. Stehn, pers. comm.).

On 13 May 1990 I saw the two birds along Preble Creek, about 1.5 km west of nest 1/90 and on 17 May and 29 June surveys the cranes were seen in the same area. The location is equidistant from nests 1/90, 12/90 and 23/90 and, should the new pair nest in the area in 1991, some territorial conflicts may arise.

4.3 Unbanded crane and BYB-BYB

The banded bird (a 1985 female) was associated with an unbanded crane at ANWR during the past two winters (T. Stehn, pers. comm.). I did not see the banded bird during 1988 and 1989 surveys over WBNP. Perhaps the bird summered in areas south of those usually covered by our surveys. During a 10 June 1990 survey in N737 we sighted BYB-BYB and an unbanded bird in the east part of a large marsh complex about 5 km east of the Sass River-Highway #5 crossing. On 1 July the cranes were found in the same marsh but 3.3 km west of the earlier site.

This area should be checked closely in 1991.

4.4 Yellow-Red 1986 and R/B-0

During winter 1988-89 Yellow-Red (a 1986 male banded with the same colours as the 1985 female) was associated with O-White, a 1986 female which lost the short orange band from its left leg and who was associated with an unbanded bird the past winter. Yellow-Red 1986 (now Yellow-faded Red 1986) was seen with 1986 female R/B-0, which now only shows the short red band on its left leg.

On 7 June 1990 during a survey in N737 we saw two birds of the above colour band description on the south shore of North Klewi Gauge Lake. The two birds were about 100 m apart.

On 13 May 1989 I had reported two birds (Yellow-faded Red and O-0/S) between 300 and 500 m SE of North Klewi Lake. It is quite possible that the latter bird actually was R-0/S and the same as R/B-0 which now shows only the red colour. The metal band (S) is only visible on bright days.

If the birds return to the area in 1991, they will probably breed then.

4.5 White-RWR and YBY-Y/G

White-RWR is a 1985 male and measurements of YBY-Y/G taken at banding in 1987 indicate that bird is a female. The male was associated during winter 1988-89 with 1986 female B-0/Y (the latter nested this year at nest 26/90 as indicated in Section 2.2 above).

I saw White-RWR in the Klewi Five Lakes area alone on 29 July 1986, on 10 May 1987 and again in the same area on 7 and 9 September 1988 but then in company of female Blue-0/Y. The two birds were in or near the territory of pair 3/88 which failed to show up at ANWR and did not return to WBNP in 1989.

White-RWR obviously found another partner as on 13 May 1989 I saw him and YBY-Y/G north of the Five Lakes in the Klewi River part of the breeding range. Partly determined colour band combinations of paired birds seen in the same area on 6 and 9 May and 22 June, 1989 most likely involved the same pair.

In winter 1989-90 these two banded birds remained together and on 10 June we saw them in the former 3/88 territory NW of the Five Lakes. It is likely the birds will breed there in 1991.

4.6 Unidentified pair

Two banded cranes were observed 300 m apart in the Klewi River area on 1 and 4 July 1990. Even though the birds did not appear to be closely associated, they are listed in this section. One of the birds, seen in the Pistol Island area appeared to be Blue-0/S, resembling the colour combination on 1986 female B-0/S which last winter was associated at ANWR with an unbanded bird (T. Stehn, pers. comm.). The second bird appeared to be WBW-Yellow (there is no such combination) but it may have been WBW-0, a 1986 female which was seen in the upper Klewi-River area in 1989 (see Section 4.1) and has spent part or all of her winters off the Aransas Refuge.

On 4 July the birds were near Piglet Island and one bird was recorded as BWB-0/Y while the second bird again was (mis)identified as WBW-Yellow.

There is little doubt that some of the misidentification involved striped bands which are often difficult to read from the survey aircraft.

Other than the suggestions already made, it is remotely possible that the two birds were Blue-RWR (1985 male) and WBW-BYB (1985 female), a pair of cranes wintering together in 1989-90 at ANWR but not seen otherwise in WBNP in 1989 or 1990.

Winter observations hopefully will result in more accurate information.

4.7 Unbanded pair, Alberta

During a 9 June 1990 aerial survey in N737 we sighted an unbanded pair of cranes 7 km south of nest 32/90 (Kuyt 1990b). A follow-up survey the next day failed to relocate the birds. On 9 June the two cranes were

feeding close together when first seen and as we circled them the birds remained motionless. We did not see a chick and the birds' behaviour did not indicate a chick was nearby. The birds' close association indicates that this may well be a mated pair. Two young remained unbanded in 1986 and three in 1988 and the pair could have been made up of any of these or older unbanded cranes.

The area should be closely surveyed in 1991.

4.8 Potential breeding pairs, not observed in WBNP

A pair of 1985 cranes consisting of male Blue-RWR and female WBW-BYB has been wintering at ANWR during the past two winters (T. Stehn, pers. comm.) but I have not been able to find the cranes in WBNP (but see Section 4.6). This pair is the oldest pair currently unaccounted for in WBNP. Only one other 1985 bird (Green-Green) has not been located in WBNP in 1990. It has lost both colour bands (T. Stehn, pers. comm.).

O-White (1986 female) wintered with an unbanded crane at ANWR in 1989-90 and with a different bird the previous winter. I have not definitely seen the banded bird in WBNP. The bird has lost its orange band and is now referable as High Silver-White. An adult-plumaged bird with a tall white band on right leg was observed on 11 June 1990 15 km SSW of Alberta nest 11/90. We did not see a second bird in the area.

5. Subadult pairs

5.1 Red-White and unbanded crane

On 29 June 1990 I saw a bird with what appeared to be short red and white bands on the left leg and a tall white band on the right leg. The bird probably was Red-White, a 1988 bird, most likely a male. The white band on the left leg undoubtedly was the metal band underneath the

short red plastic band. The banded bird was together with an unbanded crane 600 m west of nest 3/90.

5.2 Red-Green and unbanded crane

On 11 and 13 May we observed Red-Green (a 1988 bird, likely male) with an unbanded crane in the centre of the nonbreeder area. On 10 June I saw Red-Green about 1.3 km south of the 13 May sighting.

6. Single subadults, observed in WBNP or elsewhere

6.1 Birds banded in 1987

6.1.1 YBY-GWG - 11 May, West Sass; 25 May, NE Sass

6.1.2 YBY-Yellow - 11 May, Central Klewi; 13 May - upper Sass?

6.1.3 ? - YBY - 10 June, upper Preble Creek, Alberta

6.2 Birds banded in 1988

6.2.1 Green-GWG - 17, 25 May - NE Sass Gauge Lake

6.2.2 GWG-Yellow - 10 June, 4 July 1.2 - 1.4 km SE Klewi nest 28/90

6.2.3 R-R - 10 June 3 km east of Sass - Highway #5 crossing

6.2.4 GWG-BWB - August 1990, Matagorda Island near ANWR (T. Stehn, pers. comm.)

6.2.5 RWR-GWG - June, July, 1990, North Dakota (W. Jobman, pers. comm.).

6.2.6 Unbanded bird - summer 1990, Eyebrow Lake, Saskatchewan - this was also a Saskatchewan resident in 1989 (B. Johns, pers. comm.).

6.2.7 Unbanded bird (believed to be a 1988 bird) - summer 1990, Melville area, Saskatchewan (B. Johns, pers. comm.)

7. Single yearlings, observed in WBNP or elsewhere

This age class can usually be identified even from the air, under good conditions. Yearlings still have brown feathers on the neck, and

the brownish colouration on the head is distinct from the clearly marked red and black areas on the crown and malar areas on the adult.

- 7.1 Yearling - 11 May, north end of Nyarling marshes
- 7.2 Yearling - 11 May, 10 June, Rooster Lake, nonbreeder area
- 7.3 Yearling - 13 May, 500 m NW of West Sass nest 24/90
- 7.4 Yearling - 11 June - 17 July, Ponoka, Alberta
- 7.5 Yearling - 17-20 July, West of Bowden, Alberta
- 7.6 Yearling - 21-25 August, Bashaw, Alberta (this bird is likely the same as 7.4 or 7.5)
- 7.7 Yearling - Luck Lake, Saskatchewan (B. Johns, pers. comm.).

DISCUSSION AND SUMMARY

Concern was expressed in a previous report (Kuyt 1989) about the 1990 habitat conditions in WBNP. It is likely that below average water levels in the breeding range and an unsatisfactory development of invertebrate food stocks (due to a cold spring) prevented the expected record production of juveniles this year. These conditions may even have discouraged some pairs from nesting or may have caused them to abandon nests before hatching.

At least 32 whooping crane pairs nested in 1990. Of these, 26 pairs had bred in 1989, one adult of each of three additional pairs was a novice breeder and 3 pairs consisted of new breeders or birds found nesting for the first time (pair 32/90).

Three former nesting pairs failed to breed in 1990, and another pair made up of a repeat breeder and a crane of unknown age also failed to breed. All four pairs continued to occupy previously used breeding territories.

Of the 23 birds still known to be alive in the 1985 and 1986 year classes, the sex ratio for 1985 is even (6 males:6 females) but for 1986 is skewed (2 males: 8 females: 1 bird of unknown sex, likely a female). With the possible exception of three birds (Section 4.8) all of the 1985 and older birds are now mated or appear to have formed pair bonds. Age differences between birds in pairs are small. The advantage of pairs made up of adults of similar age was discussed earlier (Kuyt 1988).

Of significance is the 35 km southward extension of the whooping crane breeding range. Two new nesting pairs, a pair apparently without nest and at least three single birds were observed in this area south of 60°N. The male of one of the two new breeding pairs found here, bred in 1988 with his first mate (Section 3.3) in an unknown area.

Barring unusual losses such as those experienced in 1988, the 1991 breeding population is expected to consist of a minimum of 36 nesting pairs. This total is made up of a minimum of 32 pairs repeating from 1990 and four pairs made up of previous breeders and potential breeders. With the increase over the past few years in the subadult portion of the crane population, the number of potential new breeding pairs is increasing. There is a possibility that up to seven of those pairs may nest in 1991.

Some losses of breeding adults can be expected to have occurred in late summer 1990 and may occur during the fall 1990 migration or during the 1990-1991 winter. Nevertheless, there is a real possibility that as many as 40 pairs may breed in 1991. To reach this lofty plateau, the whooping crane population must have average or below average mortality of

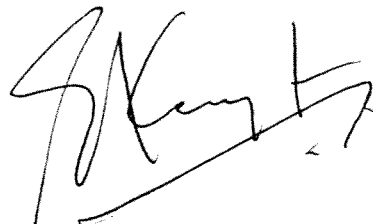
adults this fall and winter and, most importantly, habitat conditions in WBNP must improve to more normal levels.

ACKNOWLEDGEMENTS

I thank L. Strembitsky and S. MacEachran (CWS) for respectively typing this report and drafting the figures. Various staff members of WBNP (J. Saquet, S. Cornelson, J. Clarke), CWS (B. Johns), USFWS (J. Lewis, T. Stehn, J. Winship) and volunteers (Elsie and J. Kuyt) assisted during portions of the aerial surveys.

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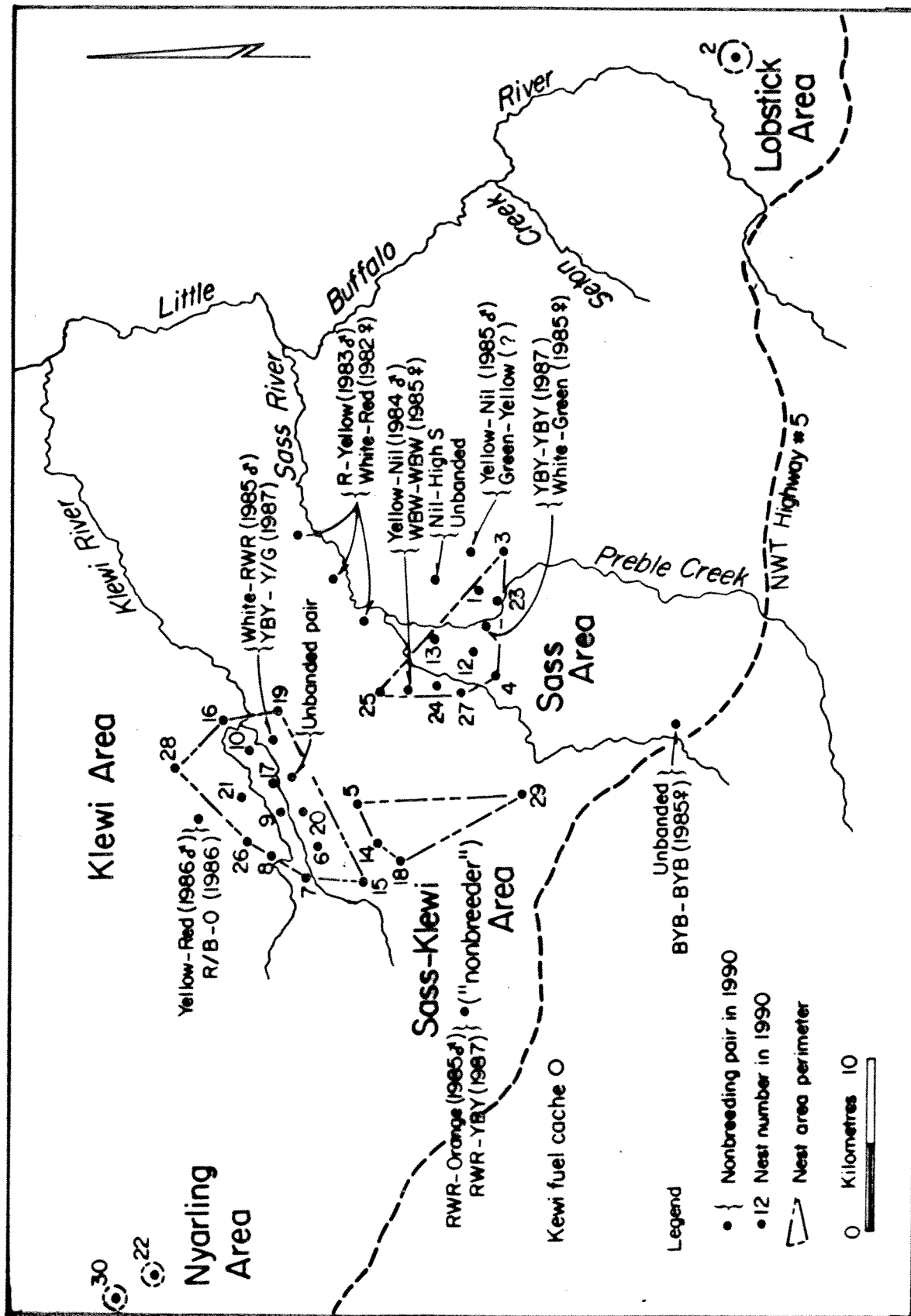


Figure 1. Location of 1990 Whooping Crane nests and nonbreeding pairs (NWT)

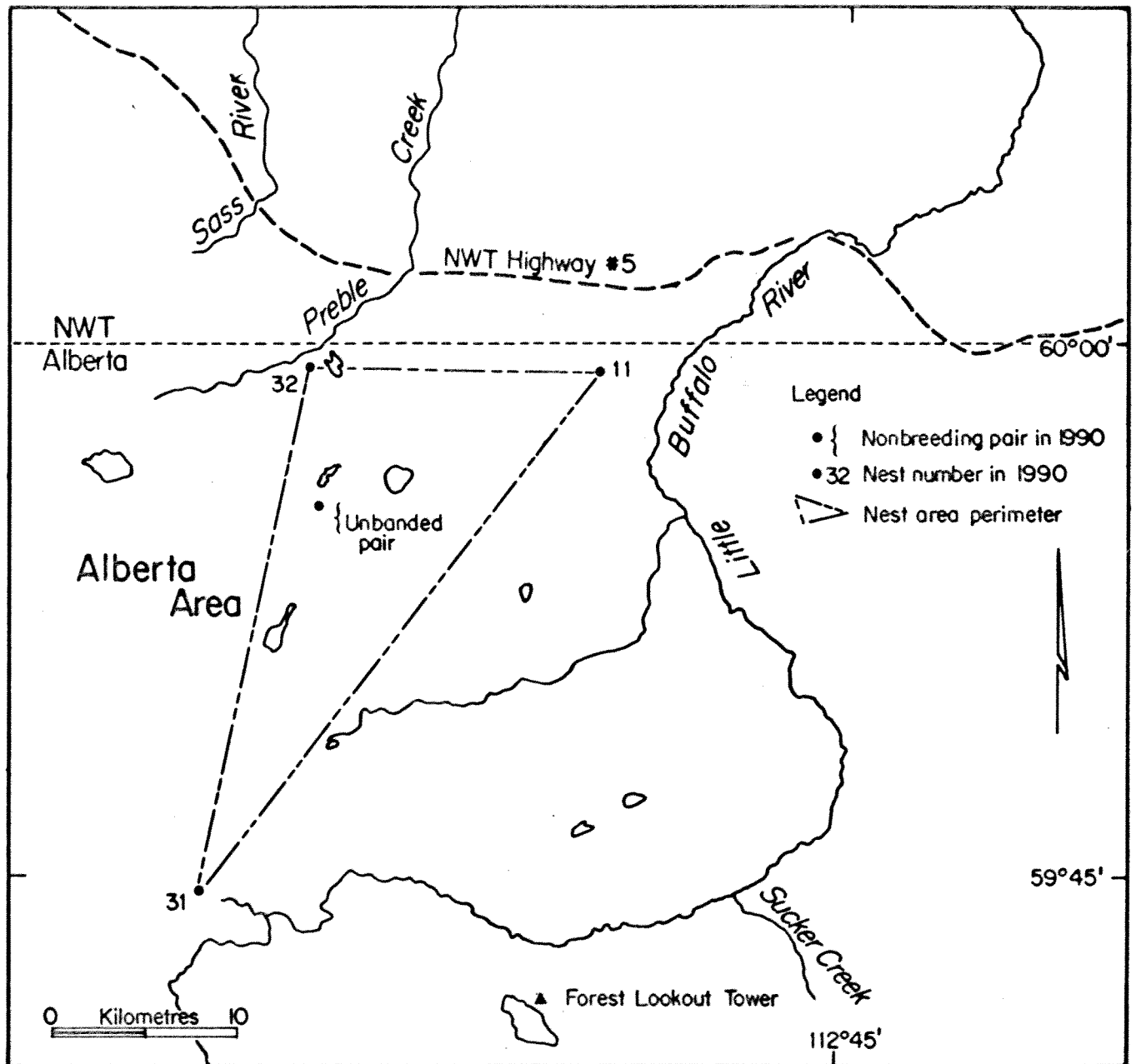


Figure 2. Location of 1990 Whooping Crane nests and nonbreeding pairs (Alberta)