

TITLE: Bald Eagle Productivity Survey for Wrangell-St Elias NP/P (1991)

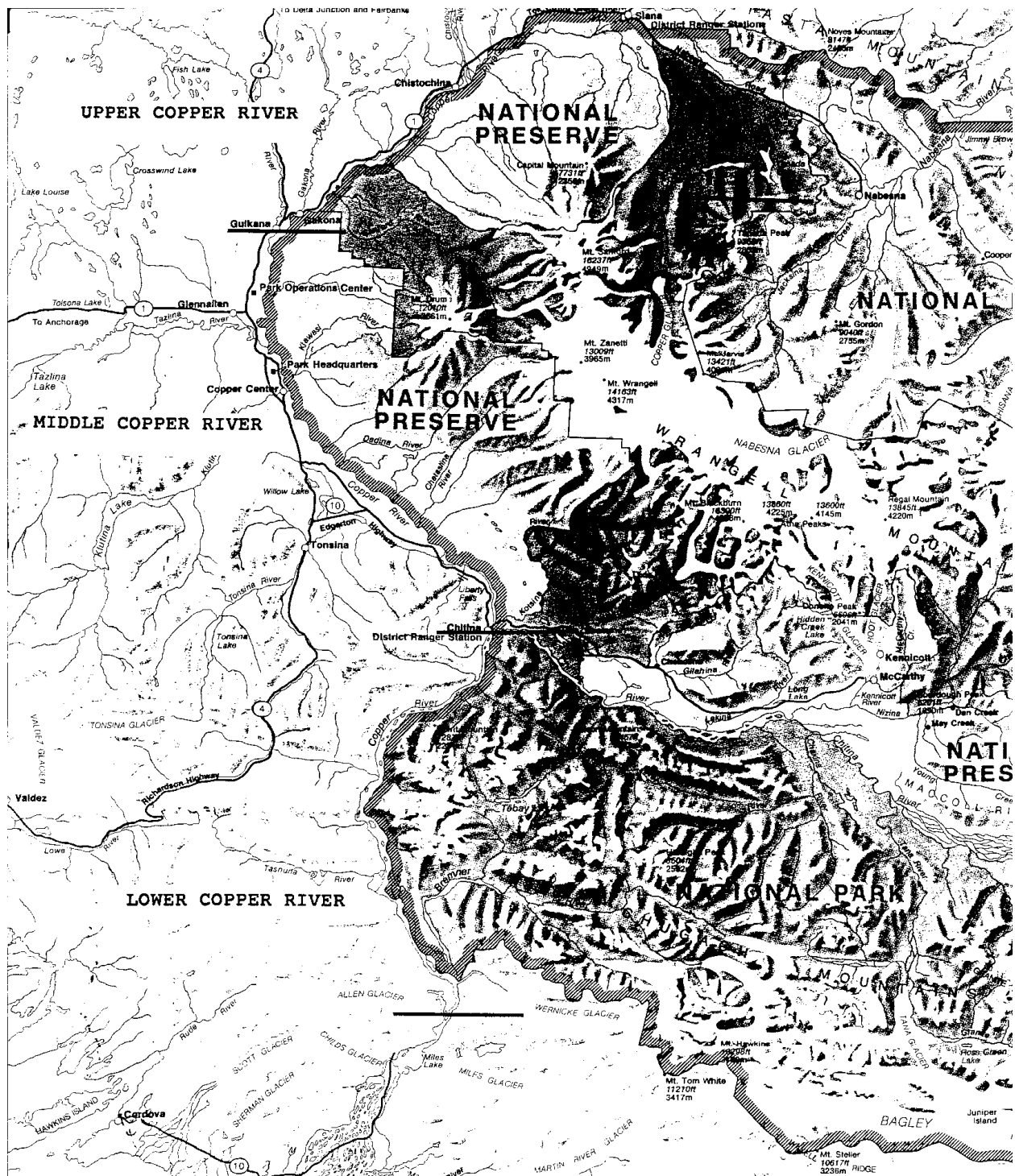
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PREVIOUS SURVEYS

In late June/early July of 1987/88, the USFWS surveyed the Copper River from its headwaters at Copper and Tanada Lakes to the Copper River Delta to document nesting raptors (Amaral 1988). While overall productivity cannot be accurately assessed from single surveys (since the number of pairs which attempted to nest but failed is unknown), these surveys provided invaluable information on bald eagle nest locations, productivity of some individual nesting pairs, habitat measurements, and some general information on food habits (Amaral 1988). WRST initiated annual bald eagle productivity surveys along the Copper River from Copper and Tanada Lakes to Chitina in 1989 (Faber 1989). A total of 16 occupied nests with known reproductive outcomes were identified that year. Productivity estimates were high, 94% nest success and 1.3 young/occupied nest. However, caution should be used when interpreting productivity figures from small sample sizes. The USFWS also surveyed the Copper River from Batzulnetas to Chitina in 1989. Twenty-eight occupied nests were located, with a nest success of 68% and 1.1 young/occupied nest (USFWS 1989). While numbers vary, both of these surveys suggest healthy productivity in that year. Thirty-seven occupied nests were found along the upper and middle Copper River (above Chitina) in 1990, with a nest success of 19% and 0.2 young/occupied nest (Route 1990). Productivity data for 1990 is difficult to interpret as second survey flights were flown late in the season (August 18) and at least some young had already fledged (J Lee, pers commun), especially along the middle Copper River. According to the nesting chronology of bald eagles in Prince William Sound, which is similar in timing to the Copper River Basin, 38% of young may have already fledged by this date (Bernatowicz et al, in prep). None of the young observed in a bald eagle research project along the Gulkana River had fledged by August 18 (B Steidl, Oregon State Univ, pers commun), but timing may have varied between areas. Regardless, it seems reasonable to assume productivity was lower in 1990 than in 1989 and may have been poor.

STUDY AREA AND METHODS

The study area is limited to the Copper River from its headwaters at Copper and Tanada Lakes down to the Allen Glacier. The route along Copper River has been divided into 3 survey units, upper (UCR), middle (MCR), and lower (LCR), based on logical survey routes rather than habitat differences (Fig. 1)(Kozie 1991). Some habitat differences do exist, however, especially between the upper and lower portions of the Copper River. Previous survey routes included the Chitina River. However, only 6 occupied nests were located in 1991 along the Chitina River from its confluence



with the Copper to the Nizina River. Available nest trees (e.g. poor habitat) seems to be a limiting factor for bald eagles nesting along the Chitina River. The additional time and cost required to survey this area could not be justified since the number of nesting eagles is small and the habitat is marginal. The Chitina River was deleted from the second survey in 1991.

The early survey was flown in a piper supercub with Jerry Lee piloting. The late survey used the Park's arctic tern with Jim Hannah as pilot. Karin Kozie was the observer during both flights. The early survey was conducted from May 15-17; the middle Copper River was flown on May 15, the lower Copper River and the Chitina River (to the confluence of the Nizina River) on May 16, and the upper Copper River on May 17. The late survey was conducted on July 19 and 20; the upper and lower Copper River were flown on July 19 and the middle Copper River was flown on July 20. Survey methods are described in Kozie (1991).

RESULTS AND DISCUSSION

Objective 1. To establish baseline data on bald eagle population size and trends.

Eighty-three pairs of nesting bald eagles were located along the Copper River during the early survey. An additional 5 nests with young were found during the late survey. This results in a minimum estimate of 88 nesting territories and 176 breeding adults. In addition, there were 22 and 10 adults, not clearly associated with nests ($>1/2$ mile from a known nest), 4 and 1 subadult (3 year old), 3 two year olds, and 1 one year old seen during the early and late surveys, respectively. Bald eagles usually attain their all white head and tail plumage and begin breeding at 4 years of age. It is probable that at least some of the "non-breeding" adults were associated with nests which have not yet been found.

Objective 2. Monitor reproductive success of bald eagles.

Productivity was exceptionally poor in 1991 (Table 1). Eagles nesting along the Copper River had 42% nest success and 0.52 young/occupied nest (Table 2). Bald eagles must have at least 50% nest success and produce 0.7 young/occupied nest to maintain a stable population (Sprunt et al 1973) but 1.0 young/occupied nest is more indicative of a healthy population (Wiemeyer et al 1984). The reason for poor productivity is unknown, especially along the middle section of the Copper River. Unusually high amounts of rain in June and July may have had some effect although productivity for 54 nests along the Gulkana River was good, 0.96 young/occupied nest, but weather may vary locally. Disturbance is minimal along most sections of the Copper River. Food resources may have affected nest success but were probably not a primary cause of nest failures along the middle Copper River, since productivity along the Gulkana River and the upper Copper River, both located above the middle Copper River section, had better

nest success.

Table 1. Productivity of bald eagles nesting along the Copper River in 1991.

	<u>OCC</u> <u>NESTS</u>	<u>SUCC</u> <u>NESTS</u>	<u>% NEST</u> <u>SUCCESS</u>	<u>NO OF</u> <u>YOUNG</u>	<u>YOUNG/</u> <u>OCC NEST</u>	<u>YOUNG/</u> <u>SUCC NEST</u>
UCR	26	12	46%	23	0.66	1.15
MCR	22	3	14%	3	0.14	0.16
LCR	35	20	57%	17	0.65	1.40
TOTAL ^a	83	35	42%	43	0.52	1.23

^a This table does not include the 5 nests with young found along the Copper River during the late survey or occupied nests located along the Chitina River during the early survey.

Nesting Chronology and Timing of Surveys

The pair of eagles nesting near the Gakona bridge overlook (Nest no. 15 on Gulkana B-3 quad) began incubating on about April 18. Two adult eagles were observed perched near a nest on Peninsula Lake off the Bremner River (Nest no. 9 on the Valdez A-2 quad) on April 9 and May 3. On May 13, they were observed incubating.

Young were aged to week post hatch during the second survey flight. Age estimates were based on amount of down or brown feathering and size (Bortolotti 1984). During 1991, the oldest young were observed along Tanada Creek and the upper Copper River. The smallest young were observed along the lower Copper and Bremner/Tasnuna Rivers. Many of the young in this area did not have brown feathers, suggesting they were 4 weeks of age or younger. Age data from USFWS surveys of this area in 1990 also indicate nesting chronology may be later. It may be necessary to delay the second survey along the lower Copper River until early August.

Objective 3. Document food habits and foraging areas and measure habitat characteristics.

Food remains were collected and habitat characteristics measured from a few nests along the upper Copper River and Ptarmigan Lake. Remains of 1 snowshoe hare and an unidentified large bird were found under a nest along the upper Copper River north of Little Tulsona Creek (Nest no. 2 on Gulkana B-2 quad) on July 7. Remains of one snowshoe hare were found under another nest along the upper Copper River south of the Chistochina airport (Nest no. 8 on Gulkana C-2 quad) on July 8. Remains from a dall sheep lamb (probably scavenged) and a snowshoe hare were found under the nest at Ptarmigan Lake on August 17. No fish remains, the primary food of bald eagles during summer, were found at any of the nests. U. Rahoi, the local lodge owner on Ptarmigan Lake, stated there had

been a nest in that area for about 25 years and they had produced young all but a few of those years. U. Raho'i observed 1 fledged young in 1991.

Objective 4. Identify occupied and potential bald eagle breeding habitat.

No new additional areas were surveyed in 1991.

Objective 5. Monitor contaminant levels in bald eagles to gain secondary information on water quality.

Bob Steidl (University of Oregon) collected an addled bald eagle egg in 1990 from a nest along the Copper River (near the confluence of the Copper and Gulkana Rivers). It was submitted to USFWS (Fairbanks) for contaminant analysis in fall 1991. Unfortunately, the egg arrived too late to be included with 1991 samples. Results can be expected during winter 1992-93.

Miscellaneous Information

Disturbance

There is relatively little disturbance along most sections of the upper and middle Copper River. Jet boat use associated with the salmon dipnet fishery in the lower Copper River south of Chitina may disturb eagles. People were observed boating and camping along the east side of the Copper River. Most of the eagle nests between Chitina and the Tiekol River occur on the east (which is normally inaccessible) rather than west side of the River. The increase in popularity of this area for fishing is relatively recent and eagles may not be habituated to human disturbance. No direct disturbance was observed but potential does occur. Potential disturbance may also occur from construction of the Cordova Highway south of Chitina.

Two nests were visited to collect food remains on July 7 and 8. Researchers were careful to limit the amount of time spent at nests and to visit nests only during periods of inclement weather. One adult was perched about 1/4 mile S-SW of nest no. 8 on the Gulkana C-2 quad. The adult began calling as we approached to about 150 yards but did not flush until we were within 200 feet. It flew toward the nest and continued to vocalize. Vocalizations became stronger and the adult began circling when we were within 300 yards of the nest. On July 8, we approached an adult perched about 1/4 mile N of nest no. 2 on Gulkana B-2 quad. The adult began vocalizing as we approached to within 75-100 yards and flushed at 50 yards. The adult was perched in the nest tree when we arrived and flushed at 50 yards. The adult flew away and did not return until 1.5 minutes later, then started circling and vocalizing loudly. No young could be seen in the nest from several different locations during our visit. This nest was empty during the July 19 aerial survey and was probably empty on July 8

also which would explain the subdued response of the adult to our presence.

We rafted by 2 adults perched along the west edge of the Copper River about 2-3 miles south of the Chistochina airport. The channel was fairly narrow and we could not avoid rafting close to the shore where the eagles were perched. They flushed at 150 and 75 yards, respectively and flew to another tree about 150 yards south but still along the river. They flushed again as we came within 100 yards and flew west out of sight away from the river.

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