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CABARTON BALD EAGLE TERRITORY

by

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and
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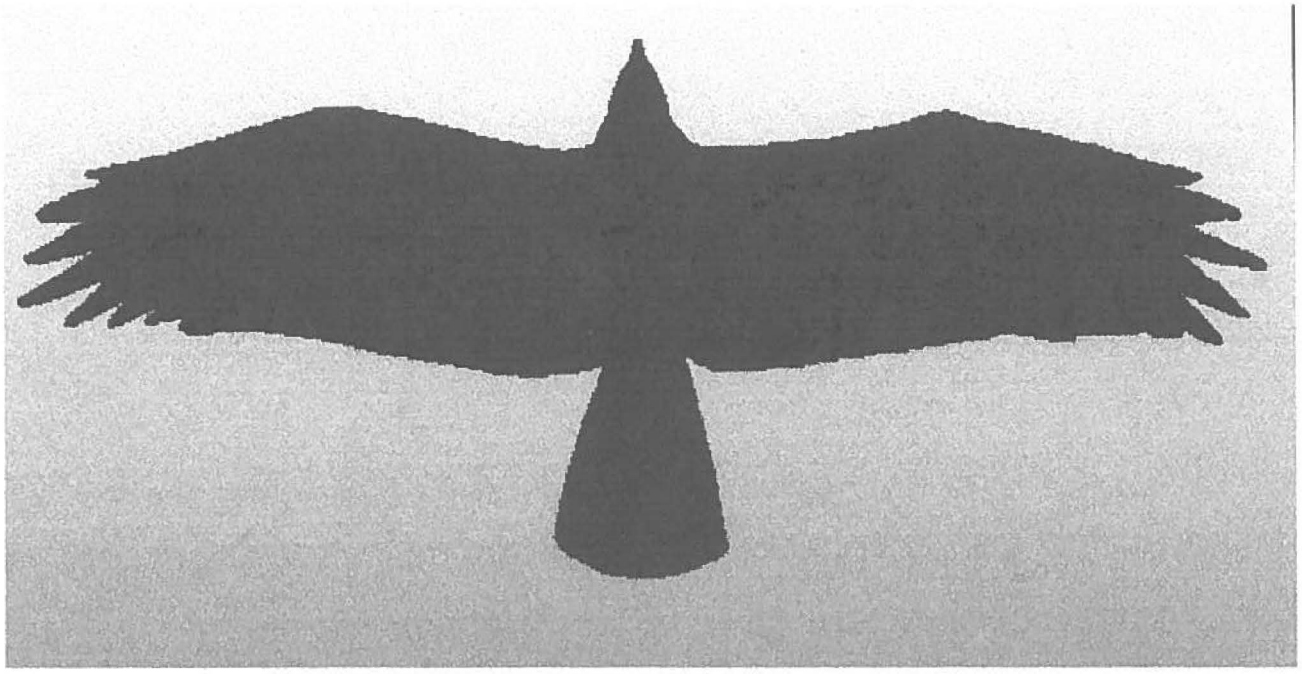

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CABARTON BALD EAGLE TERRITORY

NORTH FORK PAYETTE RIVER,

CABARTON, VALLEY COUNTY, IDAHO

Final Report
2000

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ACKNOWLEDGEMENTS

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INTRODUCTION

Breeding bald eagles (*Haliaeetus leucocephalus*) were first recorded at Lake Cascade in 1976 (Krol and Bechard 1989, U.S. Forest Service et al. 1990). By 1988, five of the 47 documented bald eagle nest territories in Idaho were situated at Lake Cascade (Melquist 1989). By 1999, there were seven territories on the reservoir (Donnelly, Gold Fork/Buttercup, Poison Creek, Hurd Creek, French Creek, Sugarloaf, and Raspberry territories) and one to the south on the North Fork of the Payette River (Cabarton territory, Fig. 1; Beals and Melquist 1999). These territories are in Zone 15 of the Pacific Bald Eagle Recovery Region. The Cabarton territory was first found in 1986 by Ed Bottom of the Idaho Department of Fish and Game (Melquist, pers. comm.). Since then, it has been occupied continuously producing 0-4 young per year for an average production of approximately 1.5 eaglets per year (Table 1). This average is similar to the average productivity of eagle territories located directly on the reservoir.

The home range and foraging habitat use of the Cabarton bald eagles was first studied in 1990 and 1991 (Evans et al. 1994). The study showed that the home range included a 7.9 km segment of the North Fork of the Payette River. Foraging of both male and female adult eagles was observed and important perching and foraging habitats were documented both above and below the Cabarton Bridge. Foraging habitats above the bridge were located immediately on and adjacent to the river in areas that were bordered by private land and consisted primarily of pastureland with interspersed lodgepole pine (*Pinus contorta*) and black cottonwood (*Populus trichocarpa*) and varying amounts of willow (*Salix* spp.) and hawthorn (*Crategus douglasii*). Below the Cabarton Bridge, foraging habitats consisted of steep forested slopes comprised mainly of ponderosa pine (*Pinus ponderosa*), grand fir (*Abies grandis*), Douglas-fir (*Pseudotsuga menziesii*) and Engelmann spruce (*Picea engelmannii*). Since the 1990 and 1991 studies, a new bald eagle territory has been established on the North Fork of the Payette River below the Cabarton Bridge. This territory was first found in 2000 during the course of this study, and, because of its location, it may affect the use of the river below the bridge by the Cabarton bald eagle pair.

This study was conducted to compare home range and foraging habitat use of the Cabarton bald eagle territory in 2000 with that from 1990 and 1991. It is based on observations made during the 2000 breeding season and includes a description of the home range and foraging habitat use, a summary of activities of the breeding pair and recommendations for management of critical foraging habitat.

NORTH FORK PAYETTE RIVER

The North Fork of the Payette River extends from Squaw Meadows north of Upper Payette Lake to its confluence with the Snake River at Payette, Idaho. The river is dammed at Cascade, Idaho, forming Lake Cascade. The stretch of the river below the dam from Cascade to Smith's Ferry contains the Cabarton territory. The upper portion from Cascade to the Cabarton Bridge is shallow and meanders through agricultural land. The portion from Cabarton Bridge to Smith's Ferry, known as the Cabarton Stretch to river enthusiasts, is faster running with many riffle and rapids. The shoreline is steep and forested with pines and firs. The Cabarton Stretch is

a "highest valued" fishery resource and is one of the few free-flowing stretches of the North Fork Payette River not paralleled by a highway.

The Cascade to Smith's Ferry stretch of the river provides habitat for a variety of fish and waterfowl species that are important prey for bald eagles. Fish include mountain whitefish (*Prosopium williamsoni*), rainbow trout (*Oncorhynchus mykiss*) and yellow perch (*Perca flavescens*) (Don Anderson, pers. comm.). Perch are most abundant near Cascade Dam and rainbow trout are most common in the Cabarton Stretch. Waterfowl occurring in this stretch include mallard (*Anas platyrhynchos*), green-winged teal (*Anas crecca*), common merganser (*Mergus merganser*) and Canada goose (*Branta canadensis*).

Water levels fluctuate in this portion of the river. Levels are highest during the spring run-off and gradually decrease through the month of June. Water levels rise again in mid-summer as water is released from Lake Cascade for irrigation. In 2000, an unusually dry spring kept water levels lower than normal during the spring and early summer.

Most of the land along this stretch of the river is privately owned, although the Bureau of Land Management (BLM) administers three parcels, one of which supports the nest tree. The area north of the Cabarton Bridge consists of irrigated pastureland grazed by cattle. Permanent buildings and roads are well removed from the river. The only developments close to the river are located 6 km north of the eagle nest and include an RV park, public park and airstrip near the town of Cascade. The southern portion of the stretch is undeveloped and supports mixed conifer forests.

Recreational use of the portion of the river between Cascade and the Cabarton Bridge is limited and consists of occasional canoeing, rafting, kayaking, swimming and fishing between June and August. Most recreational use occurs from the Cabarton Bridge to Smith's Ferry throughout spring, summer, and fall. The bridge itself is a popular fishing area and a consistently used put-in spot for kayakers and rafters.

METHODS

The Cabarton territory was monitored from 17 March through 28 June. Observations were conducted in three ways. During the incubation phase (mid March to early April), weather precluded access to the territory for long-term observations. Therefore, the nest site was checked for occupancy and activities on two days in mid and late March. During the nestling and fledging phase (mid-April to late June), observations were made approximately every ten days. Observation periods lasted from sunrise to sunset (usually 0700-2030 hours), averaged 13 hrs per visit (91 total observation hours) and covered all daylight periods. We conducted observations from fixed point observation sites (Fig. 2). Observations were made with 10X50 binoculars, a 20-40X60 spotting scope and a Questar 1300 telescope. We also surveyed the Cabarton Stretch of the river by raft on five occasions interspersed within the normal observation visits. These raft trips were designed to identify areas used by the eagles but inaccessible by land.

Data recorded during observation periods included locations of birds, sex when known (determined by size differences when perched next to each other) and the types and durations of activities. Activities were categorized as sitting (on eggs or brooding), perching, preening, standing (on the ground), flapping flight, soaring, gliding, foraging, feeding, eating, aggressive interactions, and nest maintenance.

Any period when the a bird was not visible to the observer was categorized as out-of-view. Activities were categorized as unknown when weather (heat waves, wind or precipitation) made it too difficult to distinguish similar-looking activities (e.g., nest maintenance and feeding). We categorized activities continuously throughout the observation period. Activities were separated by sex when possible, but when unknown, data on activities were combined and expressed as percentages of the total observation time.

All distances were calculated from U.S, Geological Survey (USGS) 7.5 min. topographic maps. Perch trees were defined as trees that were used a minimum of three occasions and two or more hours in duration. Perch areas included two or more trees that collectively were used a minimum of three times.

On 17 May, all nestlings were measured and banded. Nestling weight, bill depth, foot pad length, and eighth primary length were measured at the nest. These measurements were taken in accordance with Bortolotti (1984) to determine exact ages and hatching dates (eighth primary) and sexes (bill depth and foot pad) of nestlings. Weight was then used to determine relative health of the nestlings. While in the nest, nestlings were banded with USGS aluminum bands on right legs and numbered, anodized (red), aluminum bands on left legs.

CABARTON BALD EAGLE TERRITORY

History. The Cabarton eagle nest was first found in May 1986 by Ed Bottom of the Idaho Department of Fish and Game (Wayne Melquist, pers. comm.). Two adults were seen at that time and a young was observed in the nest on 18 June. Since then, this site has been occupied each year and has produced a total of 22 young (Table 1).

Nest-site Location. See Evans et al. (1994) for a detailed description of the nest-site location. The Cabarton nest tree was located on the North Fork Payette 9 km southwest of Cascade and 1.8 km northeast of Cabarton on land administered by the BLM (T13N R4E, Section 30). It was situated in the floodplain on a sparsely forested peninsula formed by a large s-shape meander of the river. The surrounding land was divided into six privately owned parcels and was grazed by cattle and cut for hay.

The nearest bald eagle nest was the Raspberry nest that was located 4.75 km to the northwest near Lake Cascade. At least three occupied osprey (*Pandion haliaetus*) nests occurred within a 5 km radius of the nest tree with the closest located on the river 2.2 km to the north on the river. A small great blue heron (*Ardea herodiuas*) rookery containing approximately 10 nests was also situated to the north near the mouths of Brush and Moore's Creeks.

Nest. See Evans et al. (1994) for a detailed description of the nest. The nest tree was a live ponderosa pine located 183 m east of the river at the edge of a mixed stand of younger

ponderosa and lodgepole pines. The area surrounding the tree consisted of other similar stands of pines and cottonwoods interspersed with open areas containing young cottonwoods, hawthorn, yarrow (*Archillea millifolium*), and goldenrod (*Solidago* spp.). The nest tree was substantially taller than the surrounding trees, with the next tallest tree located 1 km to the southeast on the next river peninsula.

There was no trace of the original nest left in 2000. The current nest, built in 1990, was the only known nest in the territory. It was situated 5 m from the top on the west side of the tree and was supported against the main trunk by a live branch. It was protected from sunlight by sparse foliage above the nest but the sides offered little protection from the wind. The nest was visible from the river, from pastures on the west side of the river, and from Cabarton Road located 1.1 km to the west.

Excluding the river, access to the nest was very limited. An unimproved road through the fields led from the southeast to within 60 m of the nest tree. It was used infrequently by the adjacent landowner to check livestock. The nearest occupied buildings were 1.35 km to the southeast and 1.7 km to the southwest. The nearest roads were Highway 55 located 1.7 km to the east and Cabarton Road located 1.1 km to the west.

ACTIVITIES OF CABARTON BALD EAGLES

Nesting Activities. The nest was first checked on 17 March although weather conditions made it impossible to determine the status of the nest at that time. The site was rechecked on 25 March when an adult was seen sitting in the nest. The first raft survey below Cabarton Bridge occurred on 1 April. No adult bald eagles were seen on the river below the bridge until an adult was observed in the area of the new territory located at Boulder Creek. However, a subadult eagle was seen approximately 0.5 km below the bridge. Periods of continuous observations began on 24 April and continued through 28 June when all young had fledged and the adults no longer remained in the vicinity of the nest. During that period, the adults spent the majority (>75%) of the time perching in the vicinity of the nest. Sitting duties were shared by the male and female during the early stages of the nestling phase and accounted for the second most frequent activity (Table 2, Fig. 3). Of the 13 activities observed, five pertained directly to the success of the nesting attempt: sitting, nest maintenance, foraging, feeding and aggressive interactions (resource defense). Of these activities, nest maintenance and foraging were the only two not shared by both parents (Fig. 3).

Compared to 1990 and 1991, the Cabarton bald eagles limited their use of the portion of their territory that extended below the Cabarton Bridge. They were only seen flying below the bridge on three occasions and each of these lasted <0.5 hrs. They were never seen returning from this area with food, although this did not preclude the possibility that they may have consumed prey while still below the bridge. Furthermore, no adult eagles were seen north of the Boulder Creek territory on any of the raft trips below the bridge.

Nest attendance by the adult bald eagles was defined as an adult perching within 100 m of the nest. Attendance was quantified based on the presence of two adults present, one adult present or no adults present (Fig. 4). Adults attended the nest nearly 100% of the observation

time during the early stages of the nesting period but dropped to almost 0% after fledging (Fig. 5). This was expected given the necessary duties of the parents during each phase of the nesting cycle.

Nesting Chronology. See Table 3 for a summary. The Cabarton eagles successfully fledged three young in 2000. On 17 May, all young were banded and measured to determine age and sex (Table 6). Based on eighth primary lengths, the oldest nestling was approximately 55 days old on that date indicating that it hatched approximately on 6 April. Given an incubation period of 35 days (Stalmaster 1987), eggs were laid on or about 2 March. Nestlings were first seen out of the nest on limbs in the nest tree on 9 June. This is nine weeks from the date of hatching and was probably the best estimate of the date of fledging. On this date at least two, if not three, of the nestlings were seen to fly to and from branches in the tree that were 10 m both above and below the nest.

Interspecific Interactions. The Cabarton bald eagles were observed in several aggressive interspecific interactions throughout the nesting cycle. These interactions involved several species of birds but were particularly common with ospreys (Table 4). At least three nesting pairs of ospreys had nest territories at least partially within the home range of the eagles. The nearest osprey nest was located approximately 2.2 km to the north. This pair frequently chased and stooped at the eagles, apparently excluding the eagles from that portion of the river. On most occasions when ospreys were involved, they were the aggressor (Table 4). However, one act of kleptoparasitism by one of the eagles was recorded. It occurred when the eagle took a fish from the osprey when it was well within the territory of the eagle. Ospreys were never seen to perch on the peninsula of the river used by the eagles. One interesting interaction involved a long-billed curlew (*Numenius americanus*). The curlew chased and stooped at the eagle while it was in transit over the pasture west of the nest area. Interactions with this species have never been described for bald eagles nesting in the vicinity of Lake Cascade.

Intraspecific Interactions. The Cabarton bald eagles reacted only one time to other bald eagles in their territory. Subadult bald eagles were seen on several occasions flying on the periphery of the Cabarton territory, but they never evoked any reactions from the Cabarton pair. However, on one occasion, a subadult flew directly over the nest area and was quickly chased away by the adults.

Human Disturbance. We did not observe any human activity in the nest vicinity. The only human disturbance to the nesting eagles was caused when we banded the young. Due to weather problems, we had to extend our tree climbing efforts to two days, thereby increasing the amount of disturbance caused to the adults. On each day, adult responses were the same. The adult bald eagles showed no response to our presence until we were within approximately 50 m of the nest tree. At that point the attending adult began a vigilant attempt to discourage our presence. After approximately 10 min, the second adult joined the first and neither left the area for the duration of our visits. Adult responses were limited to constant vocalizations and near-continuous flying above the nest. After we left the vicinity of the nest tree, the adults returned to the nest within approximately 5 minutes.

HABITAT USE BY CABARTON BALD EAGLES

Home Range. The home range of the Cabarton bald eagles included approximately 8 km of the river (Fig. 6). The northern boundary of the range on the river occurred where the nesting ospreys prevented the eagles from using portions of the river. We could only estimate the southern boundary on the river and it was based on the location of the Boulder Creek bald eagle territory.

Approximately two-thirds of the observation time consisted of periods when neither bird was present or visible to observers. Occasionally this was due to the eagles being obscured by foliage or topography. More often, the birds were out of the vicinity of the nest entirely. On nearly every observation day, one or both birds would fly several kilometers from the nest area, primarily to the northeast. Because they flew too far and fast into inaccessible areas, we were unable to determine were they went. However, based on their direction of flight and the approximate distance, we were able to determine some possible destinations that we considered to be part of the home range.

Perch Trees/Areas. The Cabarton eagles spent the majority of their time perching (Table 2). Perching time was distributed between several perch trees and perch areas (Table 5). The nest tree and Perch Tree #1 were the most frequently used perches and they were used >80% of the observed perching time. Perch Tree #1 was a snag located approximately 75 m to the southwest of the nest tree. It was approximately 10 m taller than the surrounding trees and offered an unobstructed view of the nest and the river below. It was virtually limbless except for one small limb (1 m long) that projected from the north side of the tree (2 m below the top). This limb was used as a perch by both eagles, frequently simultaneously. Perch Tree #2 was used less frequently. Even so, it served as an important perch for foraging. More than one foraging attempt was staged from this perch. In addition, the one incident of kleptoparasitism of the eagles on ospreys was initiated from this perch tree. It was a live lodgepole pine that was approximately 5 m taller than surrounding trees. It was located 200 m south of the nest tree and approximately 25 m from the river. This perch allowed for an unobstructed view of the nest tree and the river.

Perch Area A to the north of the nest area included several snags distributed along the shore of the river and into the forest approximately 50 m. This area also included a fence row on the west side of the river that was used by at least one of the adults. This area was frequently used by the adults when they retreated from aggressive ospreys. It was also used by the young after fledging. Perch Area B was located to the south of the nest area and was used the least. Trees in this perch area were typically small (<10 m) and relatively sparse. However, the perch area did offer a good view of the river and was away from any known nesting ospreys.

Foraging Areas. Five potential foraging areas were identified within the Cabarton home range (Fig. 8). Foraging Area A was located to the north of the nest area and included Perch Area A. The area to the north and west of the river was open pasture, whereas the area to the east and south of the river consisted of stands of lodgepole pine and black cottonwoods. The area also included several large beaches used by the eagles. Foraging Area B was the primary

foraging area used by the eagles within the nest area. The west side of this area consisted entirely of open pasture with no available perches. The east side of the river consisted of a mixed stand of lodgepole pines, hawthorn and cottonwoods. Both perch trees were located in this area as well as several large sand bars that were used by the eagles. Foraging Area C was located to the south of the nest area and included Perch Area B. No active foraging was seen in this area but eagles flew over this section on several occasions and used it as a perch area. Forest became increasingly sparse and trees became increasingly smaller toward the southern end of this foraging area. Foraging Area D included the areas just to the north and south of Cabarton Bridge. Again, no active foraging was witnessed in this area but it is presumed that, on the few occasions when the eagles flew into this region, they were foraging. Foraging Area E included all of the region that was presumed to be used by the eagles when they flew from the vicinity of the nest territory. This area was probably used heavily for foraging given the lack of foraging that we saw in the other foraging areas. Because the areas immediately to the north and south of the home range on the river were occupied by either ospreys or other bald eagles, we felt that the Cabarton eagles probably used Foraging Area E to avoid competition with these other birds.

Foraging Activity. A total of five prey capture attempts were observed in foraging areas, three of which were successful.

Habitat Use. While habitat use during the 2000 breeding season provided the basis for our description of the home range of the Cabarton bald eagles, it did not accurately describe the use of the new portion of the home range located to the northeast. Anticipated differences in the habitat use by the Cabarton eagles in 2000 included increased use of small lakes and reservoirs located away from the North Fork of the Payette River.

Annual changes in water levels, food availability, and locations of occupied osprey and bald eagle nests also could affect habitat use and home range size. The new bald eagle territory below the Cabarton Bridge (Boulder Creek territory) has not been described. This new territory has probably changed the use of those portions of the river that are below the Cabarton bridge. In fact, the Cabarton eagles used this section of the home range much less than reported 10 years ago (Evans et al. 1994).

Recommended Additional Study. Because the Cabarton eagles have begun to use new foraging areas away from the river, an additional study is needed to confirm and describe the use of this habitat. In addition, effects of the new Boulder Creek territory located below the Cabarton Bridge on the foraging activities of the Cabarton eagles need to be investigated further. We recommend, therefore, a follow-up study beginning in March and ending in July 2001, be undertaken to better understand the new foraging activities of these eagles. This study should also focus on the effects of nesting ospreys to the north and south of the nest area on the foraging habits of the Cabarton bald eagles.

MANAGEMENT ISSUES AND POTENTIAL CONFLICTS

1. Land Ownership. The nest, both perch trees and portions of three perch areas were located on lands administered by the BLM. There was no public access to these areas although adjacent landowners use the land for cattle grazing. The remaining portions of the Cabarton

territory were privately owned and used primarily for cattle grazing and hay production. The forested area below the Cabarton Bridge also was owned privately and managed for timber production. Development of these privately-owned areas pose a potential threat to the status of the Cabarton territory. Any change in current land use practices such as housing developments or open access to the river could increase the amount of human activity in the territory and threaten its future use by nesting or wintering bald eagles.

2. Disturbance. The section of the river within the Cabarton territory above the Cabarton Bridge was relatively inaccessible by land. While the territory was easily accessible by river, there was no observed use of this stretch of the river.

3. Limited Availability of Nest Trees. The territory contained only one other large ponderosa pine that appeared to be suitable for use as a nest tree. Furthermore, no known alternative nests occur within the territory. Therefore, loss of the existing nest tree could result in the desertion of the territory.

MANAGEMENT RECOMMENDATIONS

1. Habitat Protection. While existing land use practices within the Cabarton bald eagle territory are compatible with eagle breeding activity, the following measures aimed at ensuring the long-term protection of critical habitat should be undertaken:

A. Interim Protection Measures. Each of the landowners who own property within the territory should be contacted and informed of specific eagle habitat use on their property. They should also be requested to restrict access to and activity around perch trees and foraging areas along the river and should be given a summary of this report.

B. BLM Protection Area. BLM land on which the nest tree and perch trees are located should be designated a "Protected Area." All timber harvesting in this area should be prohibited.

C. Conservation Easements. Conservation easements are recommended to protect critical eagle habitat located on private land. Easements along the river would allow land to remain under current ownership and allow existing land uses to continue, but they would prohibit any future development of these lands and restrict public access to the river. It is recommended that the BLM or another appropriate agency negotiate protection measures with private landowners. These negotiations should aim for the establishment of a continuous corridor of protected land along the river. In addition, an easement with the Boise Cascade company on forested land below the Cabarton Bridge should be negotiated and guidelines established to minimize the impacts of timber harvests on the Cabarton bald eagles. These guidelines should include recommendations for the timing of logging activities and the retention of potential nest and perch trees.

2. Habitat Enhancement. The northern half of the peninsula located immediately south of the nest tree provided potential habitat including the only other potential nest tree along this stretch of the river. It is recommended that this peninsula also be designated a "Protected Area" by the BLM and that restrictions on use and entry instituted.

3. Human Disturbance. The level of recreational activity on this stretch of the river does not currently threaten the integrity of the Cabarton territory. Should recreational activity increase in the future, it is recommended that a fence be constructed along the nest tree peninsula.

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Figure 1. Locations of Lake Cascade area bald eagle nest sites, 2000.

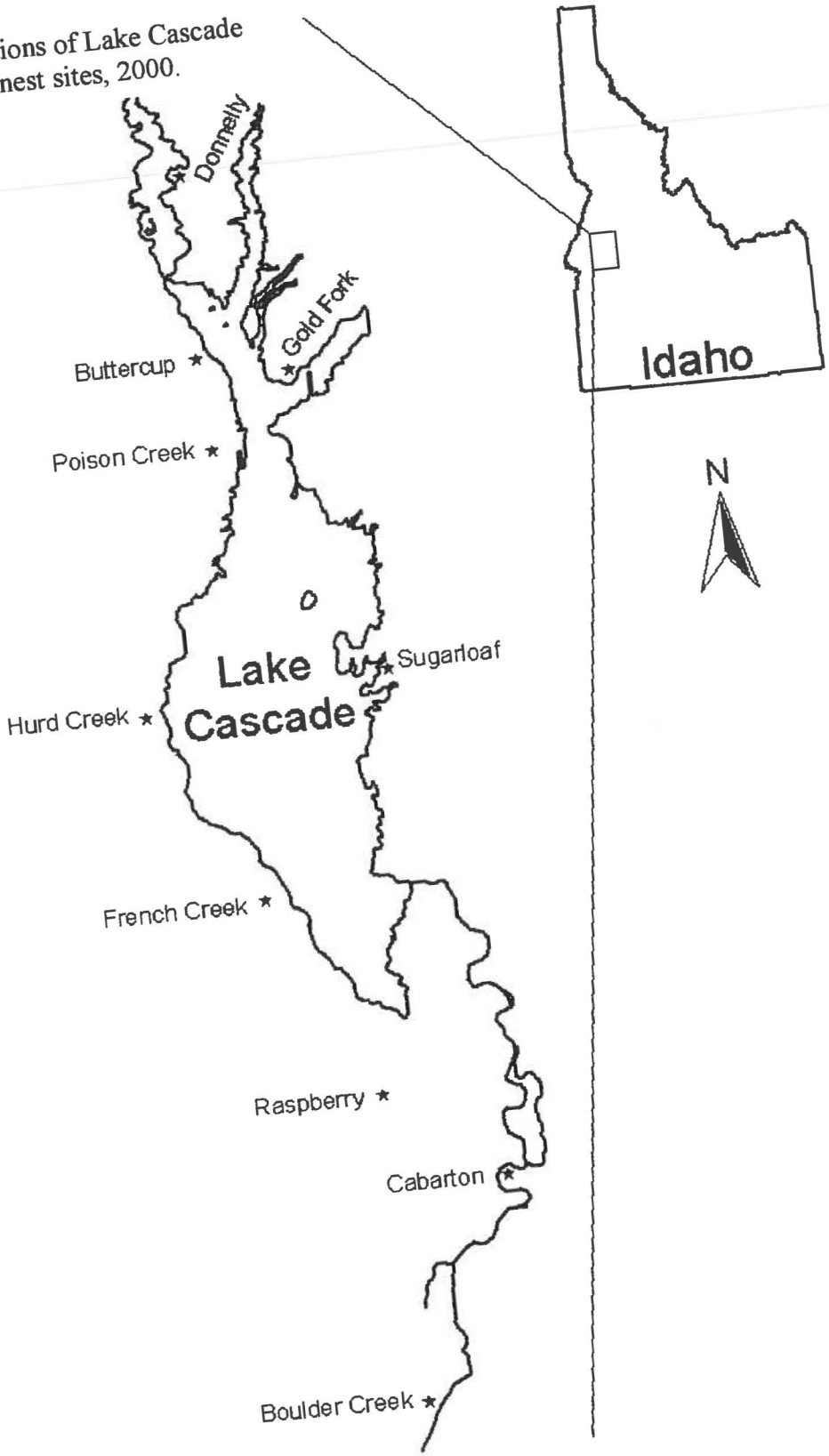

Figure 2. Locations of nest and observation sites, Cabarton bald eagle territory.

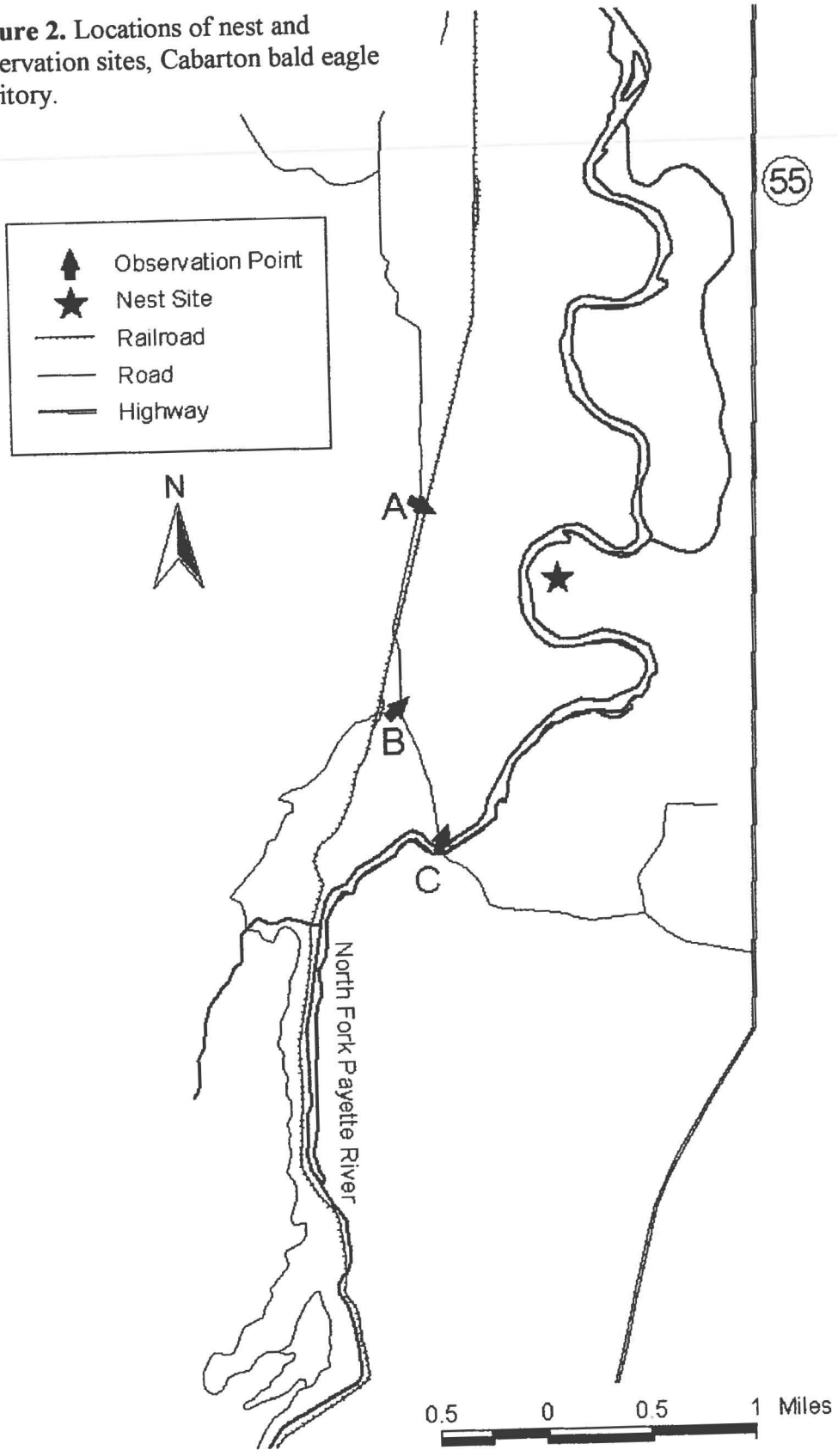

Figure 3. Cabarton Bald Eagle activities by sex, 2000.

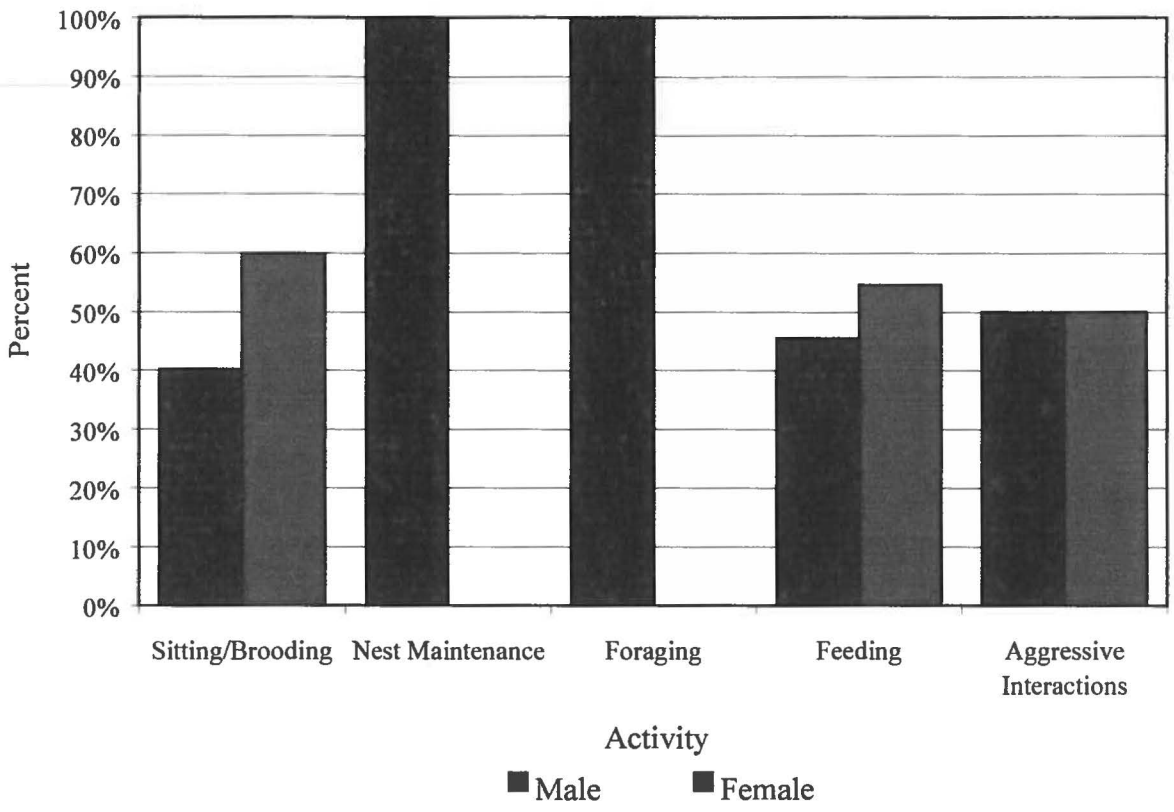

Figure 4. Nest attendance by 0, 1 and 2 adults throughout the period of observation (24 April to 28 June 2000).

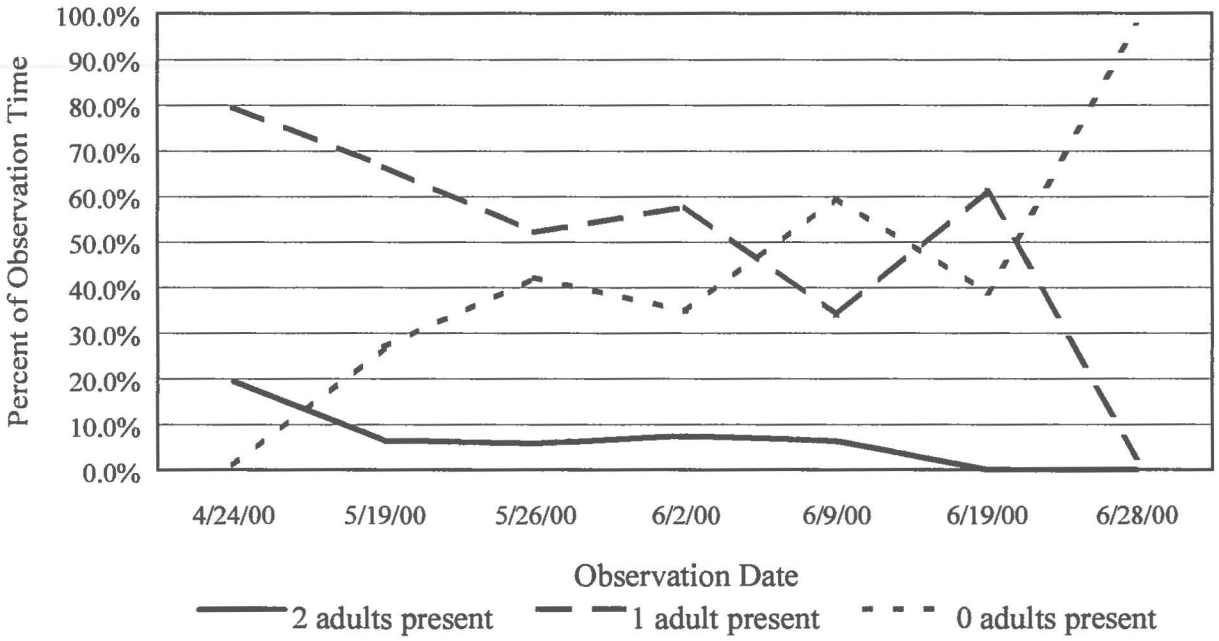

Figure 5. Nest attendance by at least one adult during the observation period (24 April to 28 June 2000).

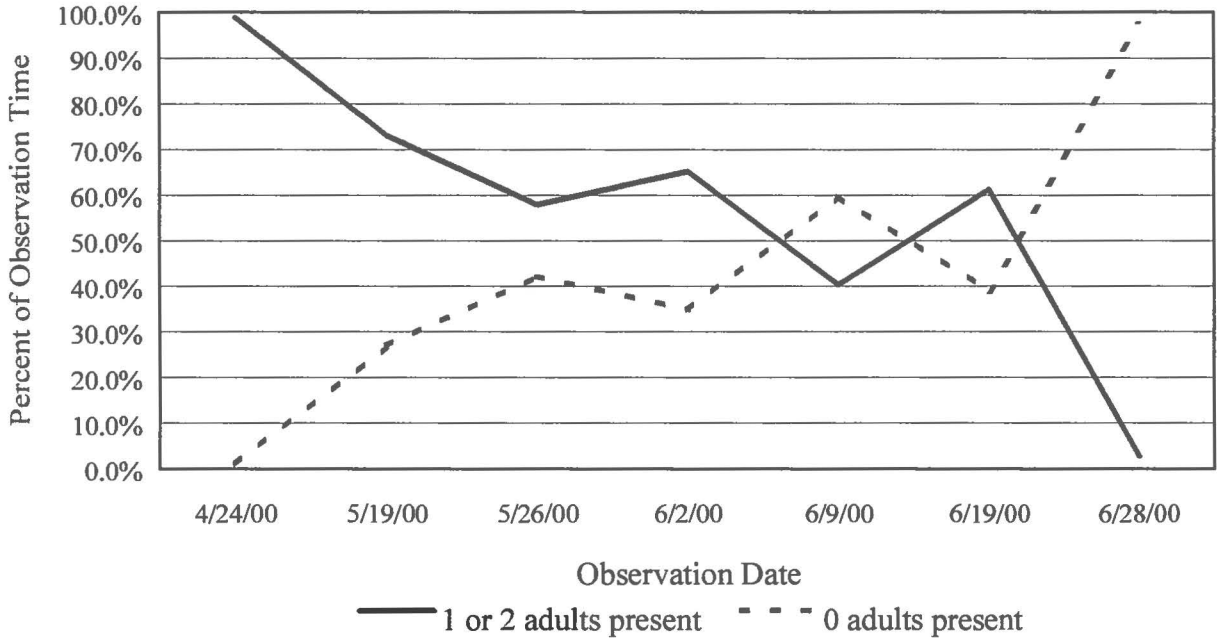

Figure 6. Home range of the Cabarton bald eagle pair during the 2000 breeding season.

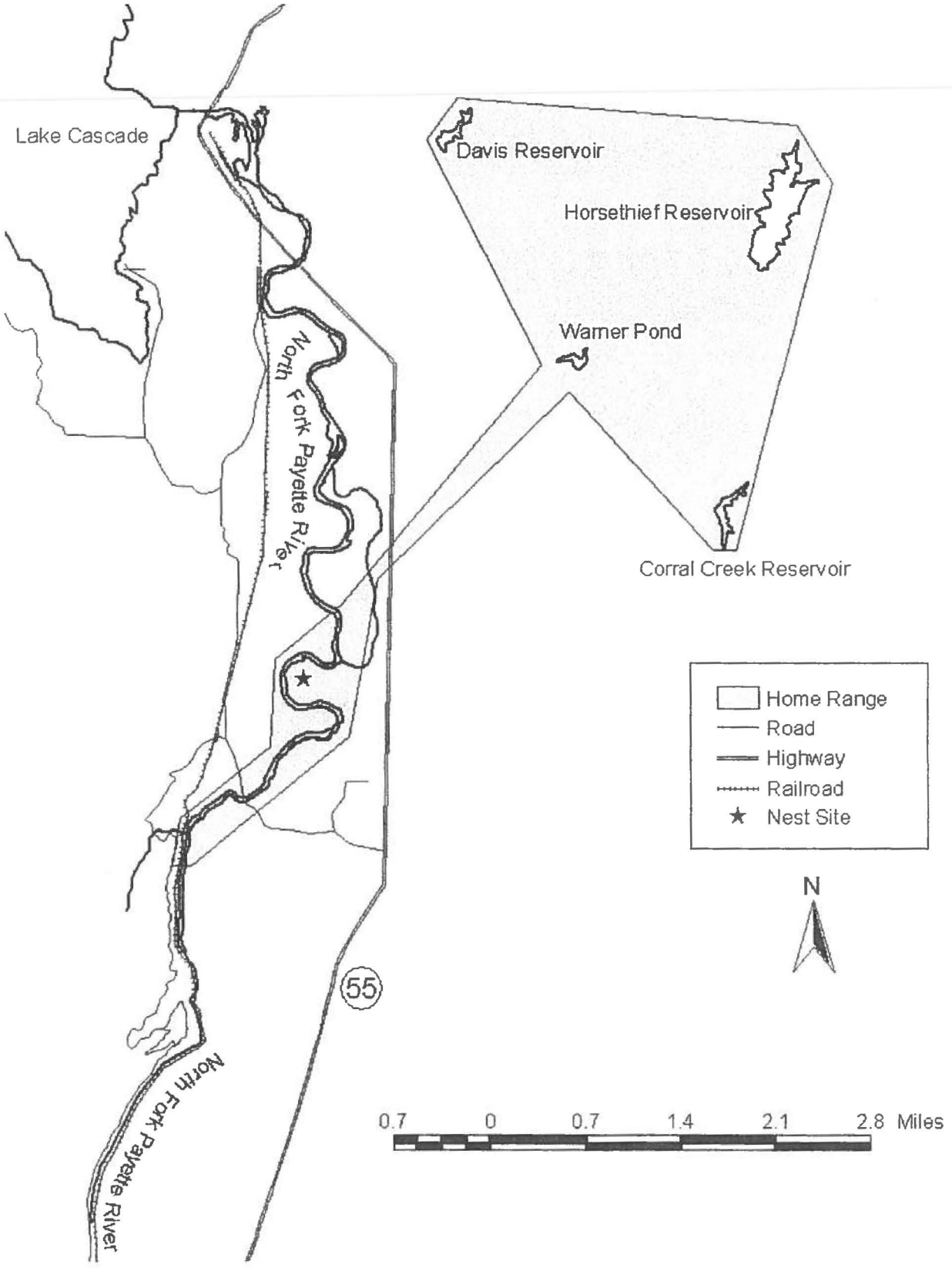

Figure 7. Perch tree and perch area locations for the Cabarton bald eagle pair, 2000.

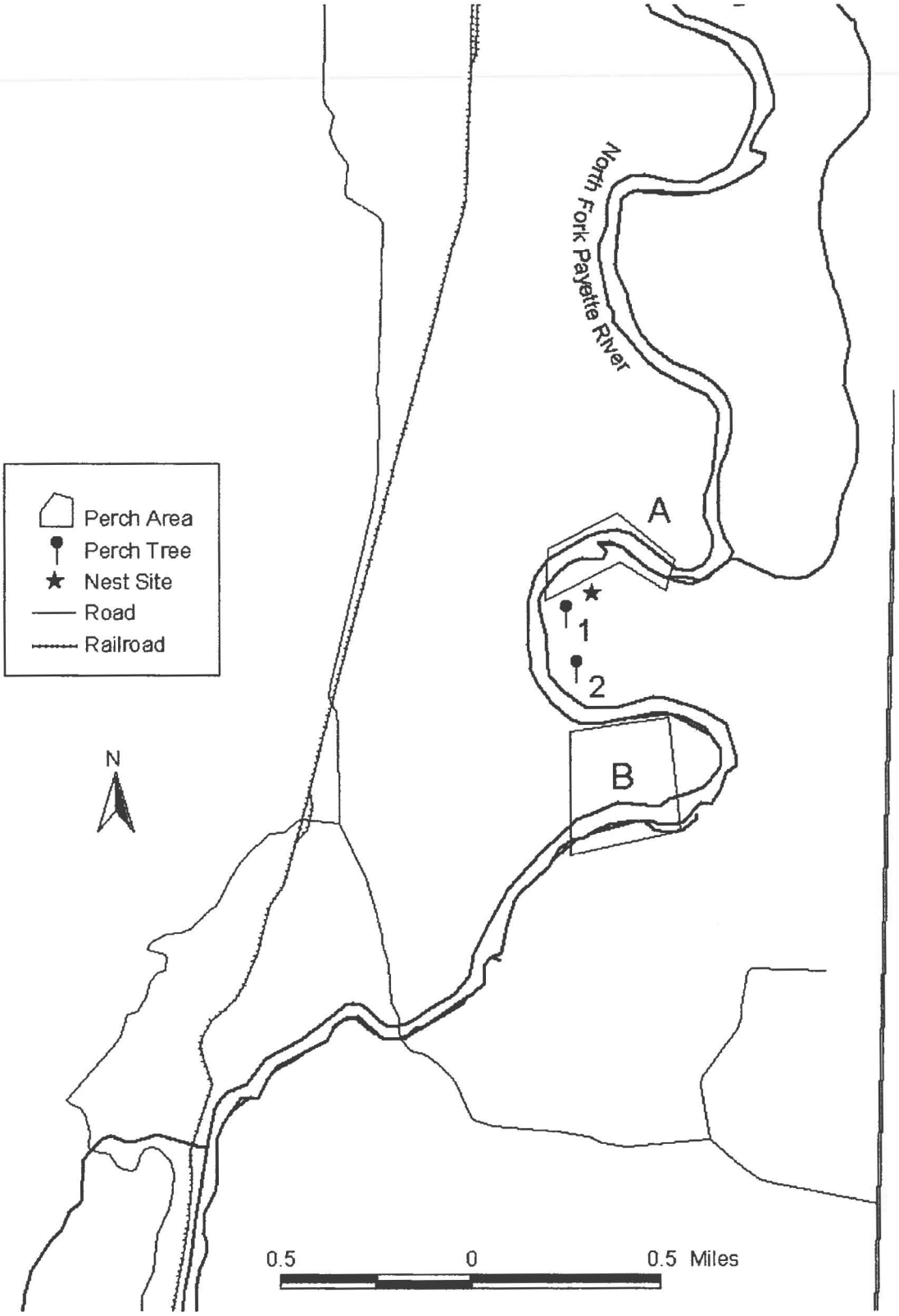

Figure 8. Foraging areas of the Cabarton bald eagle territory, 2000.

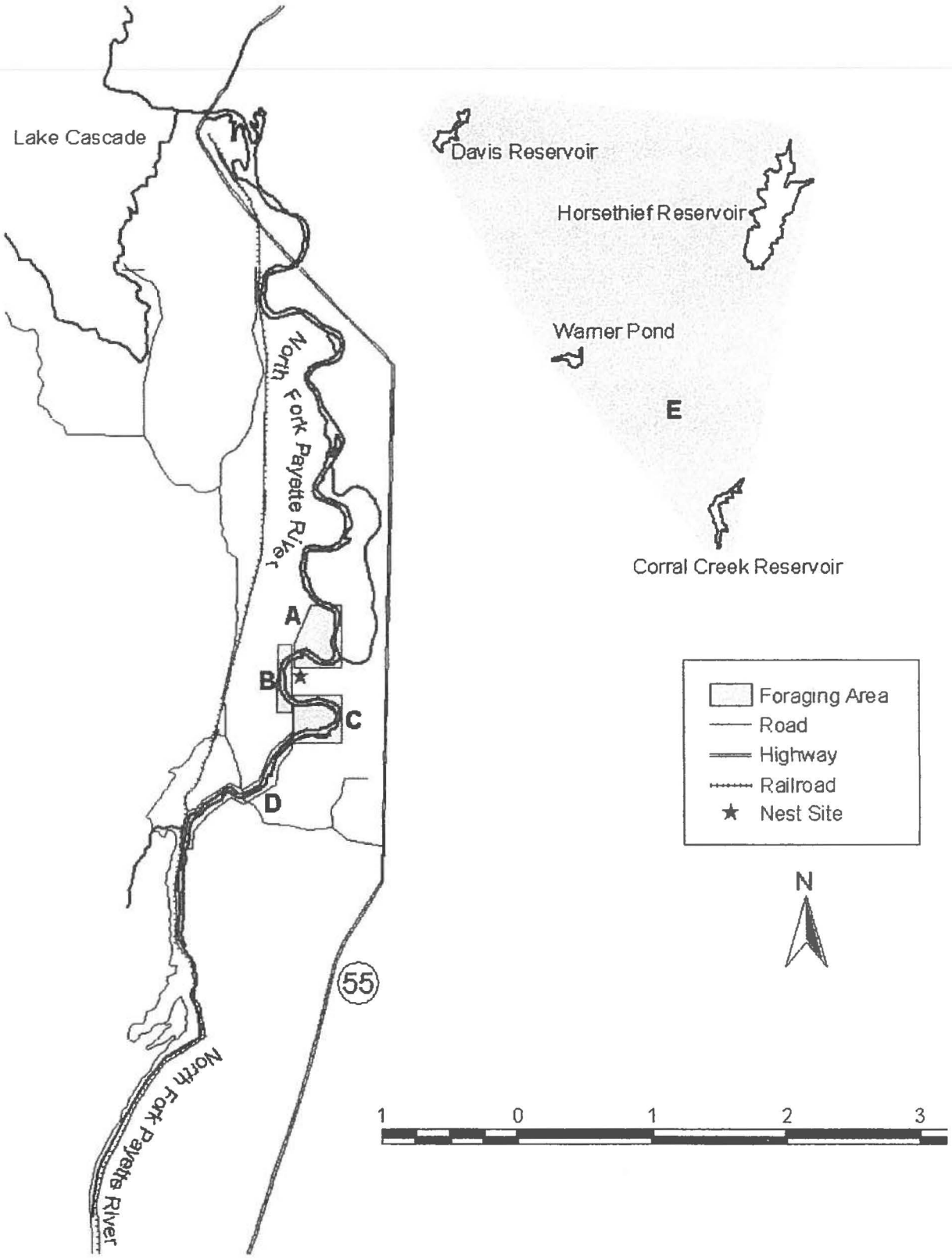

Table 1. Summary of Cabarton Bald Eagle nest productivity 1986-2000.

YEAR	#YOUNG FLEDGED
1986	1 *
1987	1 *
1988	2 *
1989	2 *
1990	0 **
1991	3 **
1992	1 *
1993	2 *
1994	0 *
1995	0 *
1996	0 *
1997	2 *
1998	1 *
1999	4 *
2000	3 *
Total	22
Average /Occupied	1.47
Average/Successful	2

Sources:

* Idaho Fish and Game Annual Bald Eagle Nesting Reports

**Evans et al. (1994)

Table 2. Summary of the Cabarton Bald Eagle daily activities (excluding periods of observation time when no eagles were in view) from April through June 2000. Time represents hours of observation time spent in each activity. Numbers in brackets represent percentages of total observation times for each column.

ACTIVITY	MALE	FEMALE	KNOWN SEX	UNKNOWN SEX	TOTAL
Sitting	2.18 (18.7%)	3.25 (24.5%)	5.43 (21.8%)	0.00 (0.0%)	5.43 (8.5%)
Perching	7.72 (66.0%)	8.37 (63.0%)	16.08 (64.4%)	32.32 (82.3%)	48.4 (75.4%)
Preening	0.25 (2.1%)	0.10 (0.8%)	0.35 (1.4%)	0.95 (2.4%)	1.30 (2.0%)
Standing	0.00 (0.0%)	0.00 (0.0%)	0.00 (0.0%)	0.07 (0.2%)	0.07 (0.1%)
Flapping Flight	0.20 (1.7%)	0.25 (1.9%)	0.45 (1.8%)	1.63 (4.2%)	2.08 (3.2%)
Soaring	0.57 (4.9%)	0.52 (3.9%)	1.08 (4.3%)	0.77 (2.0%)	1.85 (2.9%)
Gliding	0.03 (0.3%)	0.18 (1.4%)	0.22 (0.9%)	0.43 (1.1%)	0.65 (1.0%)
Foraging	0.08 (0.7%)	0.00 (0.0%)	0.08 (0.3%)	0.00 (0.0%)	0.08 (0.1%)
Feeding Young	0.50 (4.3%)	0.60 (4.5%)	1.10 (4.4%)	0.58 (1.5%)	1.68 (2.6%)
Eating	0.00 (0.0%)	0.00 (0.0%)	0.00 (0.0%)	0.95 (2.4%)	0.95 (1.5%)
Aggressive Interactions	0.02 (0.1%)	0.02 (0.1%)	0.03 (0.1%)	0.28 (0.7%)	0.32 (0.5%)
Nest Maintenance	0.13 (1.1%)	0.00 (0.0%)	0.13 (0.5%)	0.00 (0.0%)	0.13 (0.2%)
Unknown	0.00 (0.0%)	0.00 (0.0%)	0.00 (0.0%)	1.28 (3.3%)	1.28 (2.0%)
Total	11.68 (100%)	13.28 (100%)	24.97 (100%)	39.27 (100%)	64.23 (100%)

Note: 64.23 hours represents activities of both birds excluding periods of observation time when both birds were out of view. This represents approximately 32.12 hours of actual observation time.

Table 3. Nesting chronology of Cabarton Bald Eagles, 2000.

Date	Event	Comments
2 March 2000	Laying	Based on 35 day incubation period
6 April 2000	Hatch	Back dated from age at banding
17 May 2000	Band/Weigh	Measurements include: weight, bill depth, foot pad, eighth primary
9 June 2000	Fledge	approximated from first observation of fledged nestlings

Table 4. Aggressive interactions of Cabarton Bald Eagles, 2000.

Date	Duration (min)	Species	Aggressor
5/19/00	5	Common Raven (*Corvus corax*)	Common Raven
	1	Osprey (*Pandion haliaetus*)	Osprey
	1	Red-tailed Hawk (*Buteo jamaicensis*)	Red-tailed Hawk
	1	Osprey	Osprey
	1	Osprey	Osprey
	1	Red-tailed Hawk	Red-tailed Hawk
	1	Red-tailed Hawk	Red-tailed Hawk
	1	Osprey	Bald Eagle
	1	Osprey	Osprey
5/26/00	1	Northern Harrier (*Circus cyaneus*)	Bald Eagle
	1	Northern Harrier	Bald Eagle
	1	Long-Billed Curlew (*Numenius americanus*)	Long-billed Curlew
	1	Bald Eagle (subadult) (*Haliaeetus leucocephalus*)	Bald Eagle (adult)
6/2/00	1	Osprey	Osprey
6/9/00	1	unidentified raptor	unid. raptor

Table 5. Perch tree and perch area use by the Cabarton Bald Eagles, 2000.

Perch	# Times Used	Total Time Spent (hours)	% Total Perching Time
Nest	24	19.6	40.6%
Nest Tree	31	3.6	7.4%
Perch Tree #1	31	21.0	43.3%
Perch Tree #2	5	2.4	5.0%
Perch Area A	5	1.2	2.4%
Perch Area B	3	0.7	1.3%
Total		48.5	100.0%

Table 6. Cabarton nestling data collected on 17 May, 2000.

Band	8th Primary	Bill Depth	Foot Pad	Weight	Sex*	Age*
19	245	34.6	144	5.1	F	55
20	243	31.5	127	4	M	53
21	216	33	147	4.9	F	51

* Sex and Age derived from measurements after Bortolotti (1984)

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