*Wild Basin Wilderness Preserve*
*Golden-Cheeked Warbler Survey –*
*Spring 2006*
*Travis County, Texas*

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# WILD BASIN WILDERNESS PRESERVE
# GOLDEN-CHEEKED WARBLER SURVEY –
# SPRING 2006
# TRAVIS COUNTY, TEXAS

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# 1.0 INTRODUCTION

PBS&J conducted surveys for the federally listed endangered golden-cheeked warbler (*Dendroica chrysoparia*), on the 227-acre Wild Basin Wilderness Preserve located in Austin, Texas, in the spring of 2006. Wild Basin contracted with PBS&J to conduct the surveys in order to determine the presence or absence of golden-cheeked warblers on the Preserve.

The study area is located 6 miles northwest of downtown Austin and features 2.5 miles of hiking trails, which meander through woodlands, grasslands, and streamside habitats. The preserve is bordered by single-family residential development to the south, east and north, and by Capital of Texas Highway (Loop 360) to the west (Figure 1).

# 2.0 BIOLOGICAL BACKGROUND

## 2.1 GOLDEN-CHEEKED WARBLER (*Dendroica chrysoparia*)

**Description**: The golden-cheeked warbler (GCW) is a medium-sized (length ca. 12–13 centimeters) insectivorous songbird. Breeding adult males have black on the forehead, crown, nape, and back. The cheeks are a bright golden yellow and are interrupted by a black eyeline. The throat and upper breast are black, which continues as streaking along the sides and flanks. The remaining underparts are white. The wings are black with two distinct white wing-bars. Adult females are similar in coloration, but are comparatively duller; the crown and back are olive-green with some black streaking (Oberholser, 1974; Pulich, 1976; Ladd and Gass, 1999).

**Habitat**: In Texas, the GCW inhabits mature oak-juniper woodlands in the Edwards Plateau, Lampasas Cut-Plain, and Llano Uplift regions, and to a lesser extent on portions of the Comanche Plateau, Western Cross Timbers, and North-Central Prairies (Ladd and Gass, 1999; Lockwood and Freeman, 2004). Various oak species (*Quercus* spp.) and Ashe juniper (*Juniperus ashei*) are the dominant tree species throughout the GCW's breeding range. Texas red oak (*Quercus buckleyi*), plateau live oak (*Quercus virginiana* var. *fusiformis*), post oak (*Quercus stellata*), cedar elm (*Ulmus crassifolia*), walnut (*Juglans* spp.), hackberry (*Celtis* spp.), and Texas ash (*Fraxinus texensis*) are common components, particularly in the central part of the species' range (Ladd, 1985; Ladd and Gass, 1999). GCWs use the shredding bark of mature Ashe junipers for constructing nests and, therefore, require some mature junipers in their nesting habitat, but may occur in areas with very little juniper provided that other key components of their habitat are present. GCWs typically occur in areas of steep slopes, canyon heads, draws, and adjacent ridgetops, but may occur elsewhere provided suitable habitat is present (Pulich, 1976; Ladd and Gass, 1999).

**Range**: The GCW is the only bird species that nests exclusively within the state's boundaries. The species historically nested in 41 of Texas' 254 counties; however, current confirmed breeding records exist from 27 Texas counties (Pulich, 1976; U.S. Fish and Wildlife Service [FWS], 1995; Texas Ornithological

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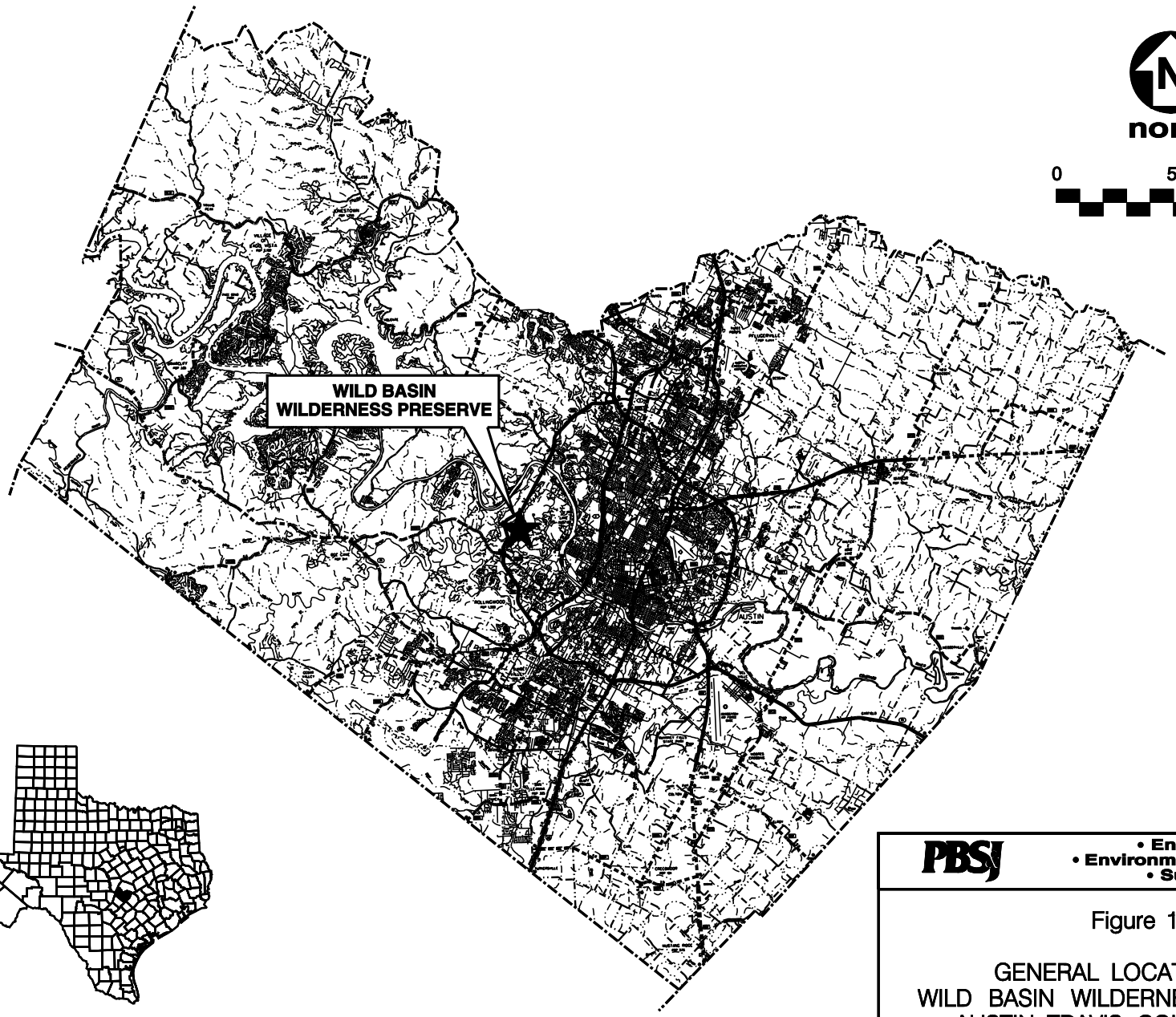


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Figure 1

GENERAL LOCATION OF
WILD BASIN WILDERNESS PRESERVE,
AUSTIN, TRAVIS COUNTY, TEXAS

Society [TOS], 1995; Lasley et al., 1997; Ladd and Gass, 1999; Lockwood and Freeman, 2004). Currently, the species is a rare to locally common summer resident from Young and Palo Pinto counties, south through the eastern and south central parts of the Edwards Plateau to Real and Uvalde counties (Lockwood and Freeman, 2004). GCWs winter in pine and pine-oak woodlands in the highlands of southern Mexico, Guatemala, Honduras, and Nicaragua (Ladd and Gass, 1999).

**Status**: On 4 May 1990, FWS published an emergency listing of the GCW as endangered (55 FR 18844) as well as a proposed rule to formally list the GCW as endangered. On 27 December 1990, FWS published the final rule for listing as endangered (55 FR 53153). The Texas Parks and Wildlife Department (TPWD) also lists the species as endangered.

Most researchers conclude that the population decline of the GCW is a result of various factors related to habitat reduction and fragmentation (Wahl et al., 1990; FWS, 1992; Ladd and Gass, 1999). Oberholser (1974) discussed three main causes for the decline in the amount of suitable habitat: (1) land clearing for agricultural use; (2) land development; and (3) reservoir construction. In addition, nest parasitism by the brown-headed cowbird (*Molothrus ater*) has likely contributed to the GCW's population decline (Pulich, 1976; FWS, 1992; Ladd and Gass, 1999).

## 2.2 PREVIOUS SURVEYS

PBS&J conducted presence/absence surveys within the 227-acre tract during the spring 2003, 2004, and 2005 survey seasons, during which time GCWs were detected.

# 3.0 STUDY AREA AND METHODS

The dominant vegetation communities on the property are juniper-oak woodland and mixed shrubland. The dominant species occurring within the juniper-oak woodland include Ashe juniper, Texas red oak, plateau live oak, and Texas mountain laurel (*Sophora secundiflora*). Other associated species include elbowbush (*Forestiera pubescens*), Texas persimmon (*Diospyros texana*), Texas redbud (*Cercis canadensis* var. *texensis*), agarito (*Berberis trifoliolata*), silktassel (*Garya ovata)*, escarpment black cherry (*Prunus serotina*), cedar elm (*Ulmus crassifolia*), hackberry (*Celtis* sp.), black willow (*Salix nigra*), eastern cottonwood (*Populus deltodes*), American sycamore (*Platanus occidentalis*), and twist-leaf yucca (*Yucca rupicola*). The mixed shrubland community occurs primarily on the canyon side slopes where selective cutting has occurred in the past or in natural openings within the woodlands. This shrubland community is dominated by evergreen sumac (*Rhus virens*), Texas mountain laurel, plateau oak, and young Ashe juniper. Other associated species within this habitat include agarito, curly mesquite grass (*Hilaria belangeri*), and Texas persimmon.

PBS&J performed the presence/absence surveys in accordance with the procedures outlined by FWS. Current FWS survey protocol establishes the GCW survey season as 15 March to 15 May. Furthermore, PBS&J adhered to guidelines set by Travis County, which stipulate that eight surveys be conducted in a

study area during the survey season. PBS&J conducted the initial survey on the property on 17 March 2006. A PBS&J staff ecologist surveyed the entire study area on eight separate visits from 17 March to 6 May 2006. PBS&J did not use tapes or playback recordings to elicit responses from the target species. One ecologist conducted these surveys. Table 1 presents data including survey dates, weather conditions, general comments, and time spent per survey visit. PBS&J performed surveys using the spot-mapping method, as described by the International Bird Census Committee (IBCC, 1970). Ecologists recorded field observations on a U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Austin West, Texas quadrangle). Table 2 presents additional bird species that ecologists recorded within the study area during the 2005 survey period.

TABLE 1

SUMMARY OF SURVEY EFFORT AND WEATHER CONDITIONS

| Date | Time | Temperature (°Fahrenheit) | Wind Direction and Speed (mph) | Cloud Cover (%) | Personnel | Comments |
|---|---|---|---|---|---|---|
| 3/17/06 | 7:00–11:00 | 60–65 | NE 8–12 | 100 | B. Hunt<br>J. Beach | 1 male GCW |
| 3/24/06 | 7:00–11:00 | 38–55 | N 5–8 | 0 | B. Hunt<br>J. Beach | 6 male GCWs |
| 3/31/06 | 7:00–11:00 | 70–75 | N 0–5 | 100 | B. Hunt | 3 male GCWs |
| 4/7/06 | 7:00–11:00 | 75–80 | S 0–5 | 75–100 | B. Hunt<br>J. Beach | 4 male GCWs; 1 female GCW |
| 4/15/06 | 7:00–11:00 | 70–75 | S 8–12 | 75–100 | B. Hunt | 2 male GCWs |
| 4/21/06 | 7:00–11:00 | 63–68 | N 0–5 | 100 | B. Hunt<br>J. Beach | 4 male GCWs; 2 female GCWs |
| 4/30/06 | 7:00–11:00 | 55–80 | N 0–5 | 0 | B. Hunt | 1 male GCW |
| 5/6/06 | 7:00–11:00 | 65–70 | NW 0–10 | 100 | B. Hunt<br>J. Beach | No GCWs observed |

TABLE 2

AVIAN SPECIES RECORDED DURING THE SPRING 2006 SURVEY SEASON
WILD BASIN WILDERNESS

| Common Name[1] | Scientific Name[1] |
|---|---|
| Double-crested Cormorant | *Phalacrocorax auritus* |
| Great Blue Heron | *Ardea herodias* |
| Black Vulture | *Coragyps atratus* |
| Turkey Vulture | *Cathartes aura* |
| Red-shouldered Hawk | *Buteo lineatus* |
| Red-tailed Hawk | *Buteo jamaicensis* |
| Killdeer | *Charadrius vociferus* |
| Rock Pigeon | *Columbia livia* |
| White-winged Dove | *Zenaida asiatica* |
| Mourning Dove | *Zenaida macroura* |
| Greater Roadrunner | *Geococcyx californianus* |
| Chimney Swift | *Chaetura pelagica* |
| Black-chinned Hummingbird | *Archilochus alexandri* |
| Belted Kingfisher | *Ceryle alcyon* |
| Golden-fronted Woodpecker | *Melanerpes aurifrons* |
| Red-bellied Woodpecker | *Melanerpes carolinus* |
| Eastern Phoebe | *Sayornis phoebe* |
| Eastern Wood-Pewee | *Contopus virens* |
| White-eyed Vireo | *Vireo griseus* |
| Blue Jay | *Cyannocitta cristata* |
| Western Scrub-Jay | *Aphelocoma californica* |
| Purple Martin | *Progne subis* |
| Carolina Chickadee | *Poecile carolinensis* |
| Black-crested Titmouse | *Baeolophus atricristatus* |
| Carolina Wren | *Thryothorus ludovicianus* |
| Bewick's Wren | *Thryomanes bewickii* |
| Ruby-crowned Kinglet | *Regulus calendula* |
| Blue-gray Gnatcatcher | *Polioptila caerulea* |
| Swainson's Thrush | *Catharus ustulatus* |
| Hermit Thrush | *Catharus guttatus* |
| American Robin | *Turdus migratorius* |
| Gray Catbird | *Dumetella carolinensis* |
| Northern Mockingbird | *Mimus polyglottos* |
| Cedar Waxwing | *Bombycilla cedrorum* |
| Tennessee Warbler | *Vermivora peregrina* |
| Orange-crowned Warbler | *Vermivora celata* |
| Nashville Warbler | *Vermivora ruficapilla* |

TABLE 2 (Cont'd)

| Common Name[1] | Scientific Name[1] |
|---|---|
| Northern Parula | *Parula americana* |
| Golden-cheeked Warbler | *Dendroica chrysoparia* |
| Black-throated Green Warbler | *Dendroica virens* |
| Yellow-throated Warbler | *Dendroica dominica* |
| Black-and-white Warbler | *Mniotilta varia* |
| Louisiana Waterthrush | *Seiurus motacilla* |
| Spotted Towhee | *Pipilo maculatus* |
| Chipping Sparrow | *Spizella passerina* |
| Northern Cardinal | *Cardinalis cardinalis* |
| Indigo Bunting | *Passerina cyanea* |
| Painted Bunting | *Passerina ciris* |
| Common Grackle | *Quiscalus quiscula* |
| House Finch | *Carpodacus mexicanus* |
| American Goldfinch | *Carduelis tristis* |

[1] Nomenclature follows the American Ornithologist's Union's *Check-list of North American Birds* (1998, 2000, 2002, 2003, and 2004).

# 4.0 RESULTS

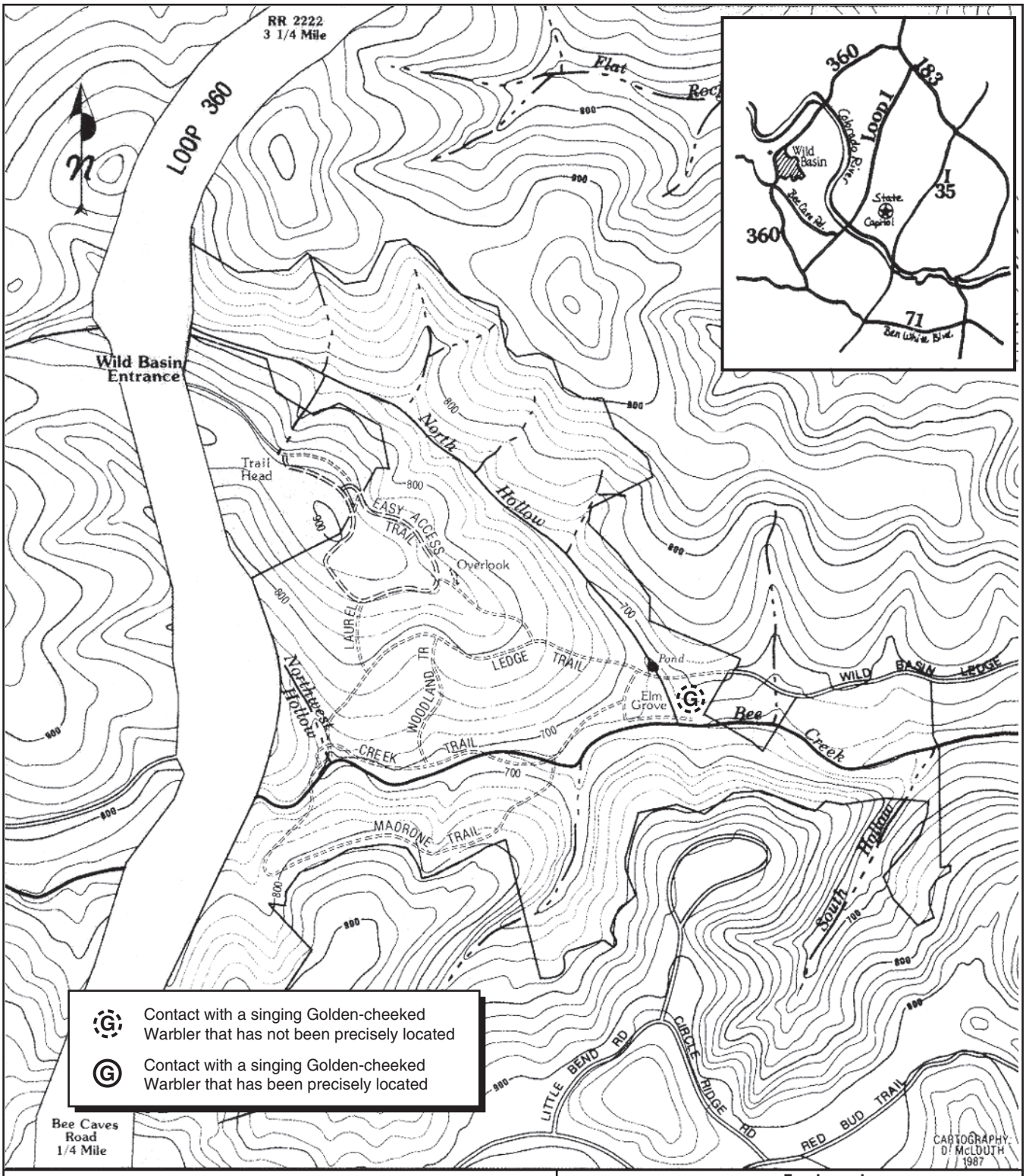
A PBS&J ecologist conducted GCW surveys on the project site between 17 March and 6 May 2006, which included eight visits totaling approximately 32 survey hours. PBS&J ecologists recorded GCWs on seven of eight survey days, representing four to five possible territories. Figures 2 through 9 depict the locations and directions of movements of observed GCWs, with individual observations represented by the appropriate IBCC symbol.

On the initial survey (17 March), a PBS&J ecologist detected one male GCW by vocalization only ("A-Song").

On 24 March, a PBS&J ecologist observed six adult males, representing four to five possible territories (Figure 3). PBS&J ecologists visually verified two of the six males, with the remaining males detected by song alone. Male vocalizations were limited to the "A-Song" (i.e., unmated).

On 31 March, a PBS&J ecologist observed three adult male GCWs, representing at least one to two possible territories (Figure 4). Two of the three males were visually verified, with the remaining male detected by song alone. Male vocalizations observed during this visit were all "A-Song."

On 7 April, a PBS&J ecologist documented four adult male GCWs and one adult female GCW, representing two to three possible territories (Figure 5). These individual males could not be precisely located, and were detected by song alone. All vocalizations were "A-Song."




EASY ACCESS
FOOT TRAIL
MINOR CREEK
CONTOURS (20') INTERVAL
WET WEATHER CREEK
PRESERVE BOUNDARY
MAJOR CREEK

0 1000 2000 feet

Base Map: The Committee for Wild Basin Wilderness

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Figure 2

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE MARCH 17, 2006 SURVEY

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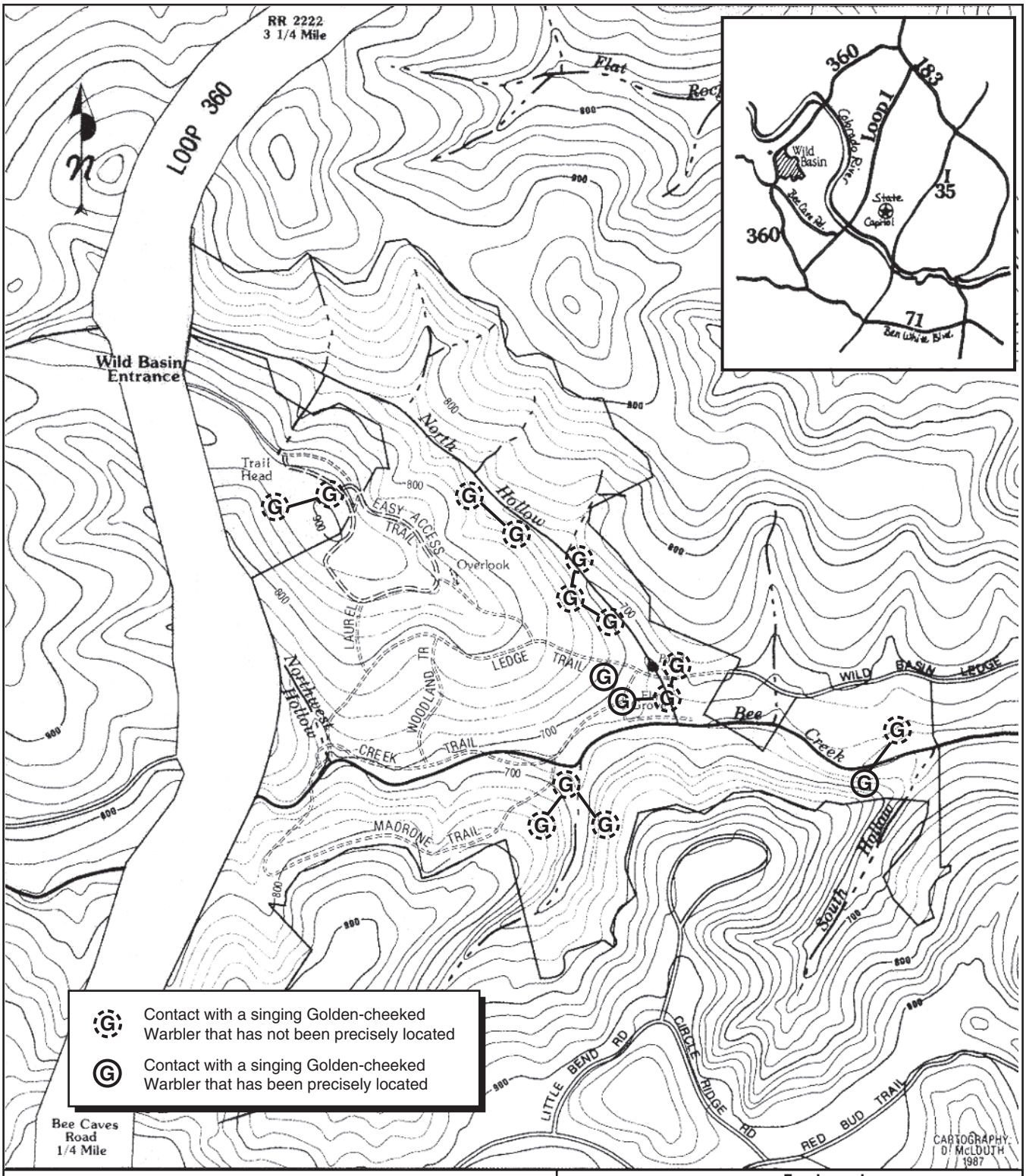


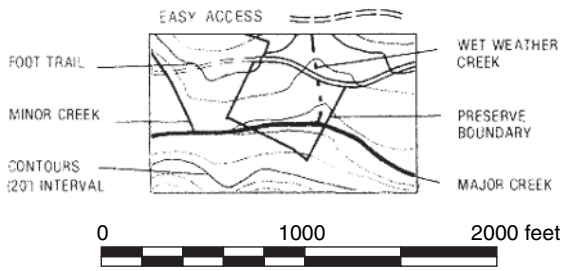


Base Map: The Committee for Wild Basin Wilderness

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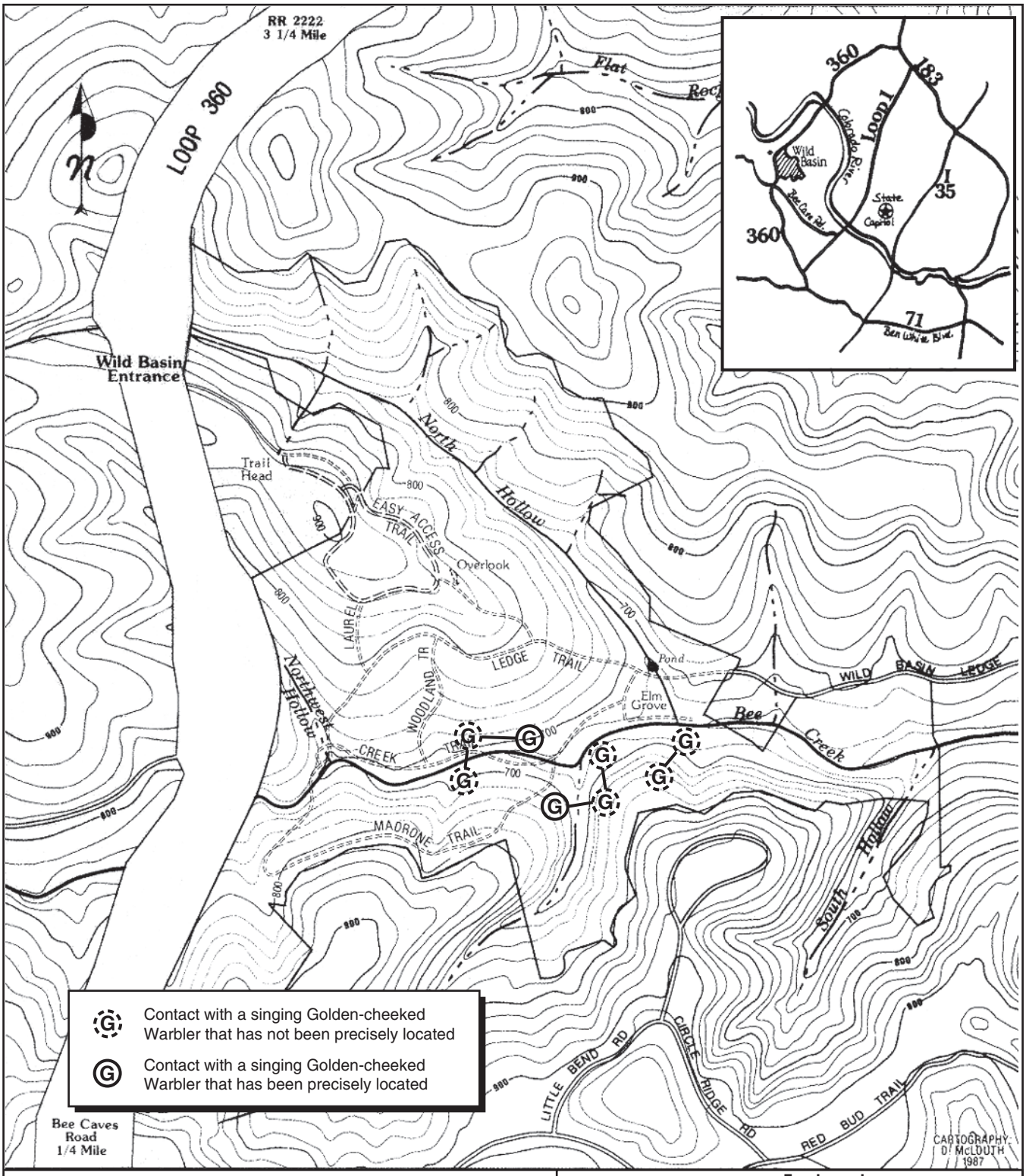
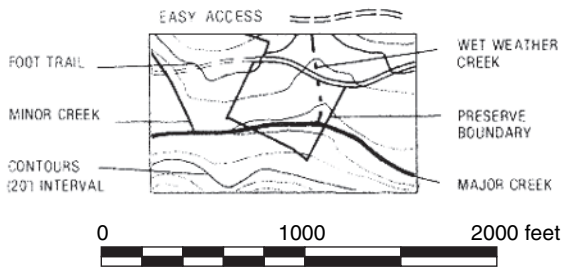
Figure 3

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE MARCH 24, 2006 SURVEY

I:\projects\hc1\wild basin wilderness\441659\cad\2006 survey\figure3.ai




Base Map: The Committee for Wild Basin Wilderness

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Figure 4

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE MARCH 31, 2006 SURVEY

I:\projects\hc1\wild basin wilderness\441659\cad\2006 survey\figure4.ai

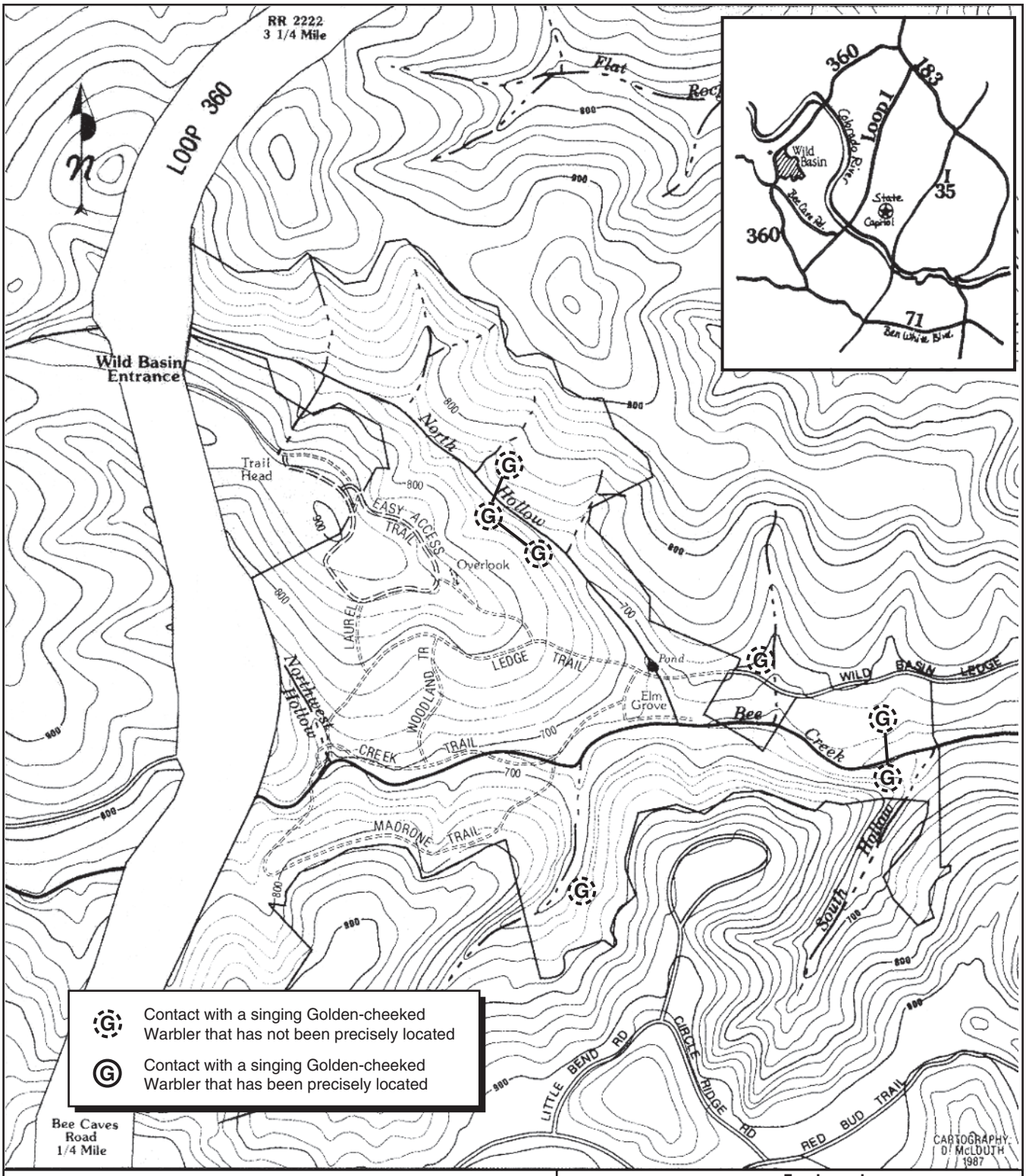


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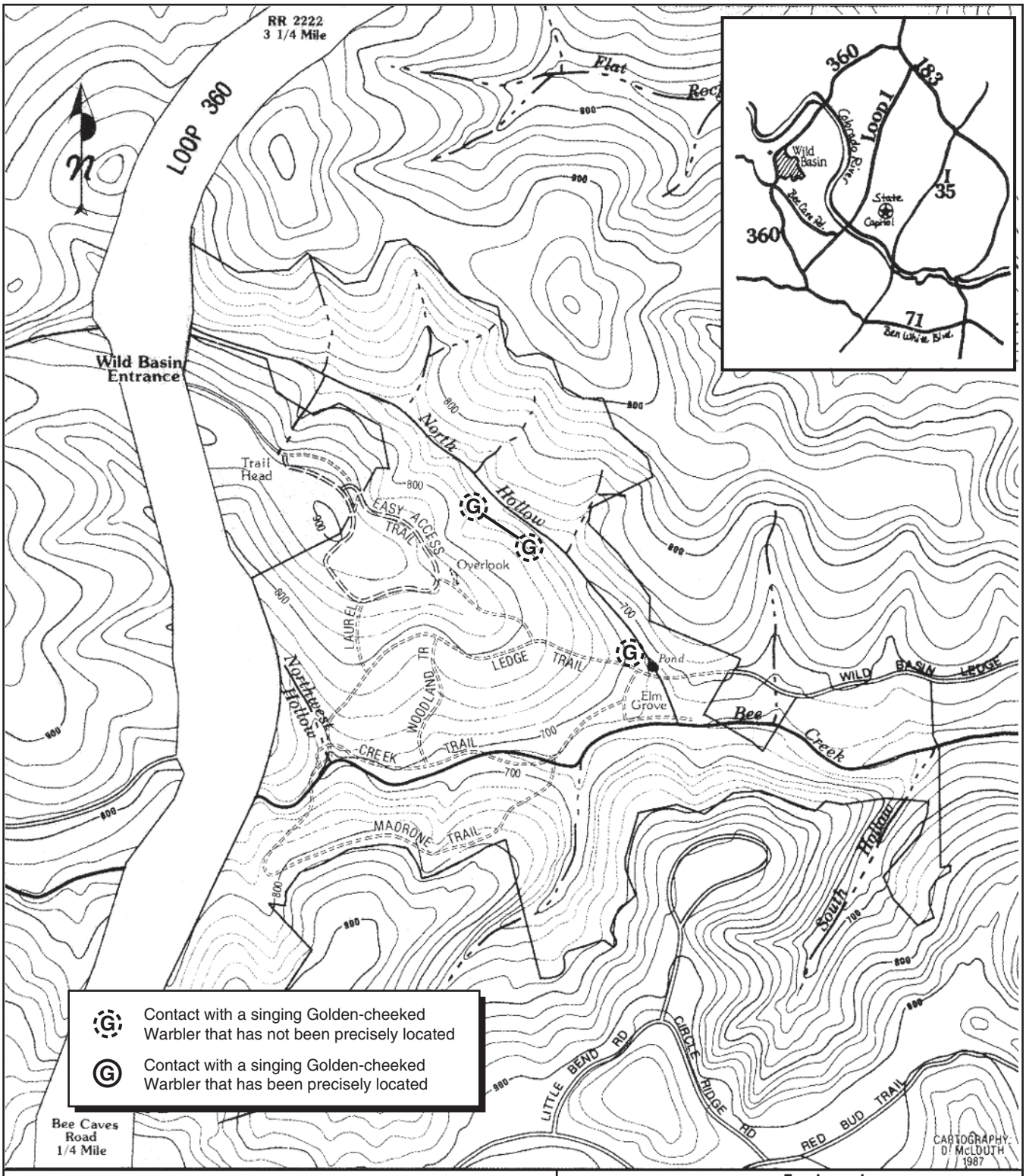
Figure 5

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE APRIL 7, 2006 SURVEY

I:\projects\hc1\wild basin wilderness\441659\cad\2006 survey\figure5.ai



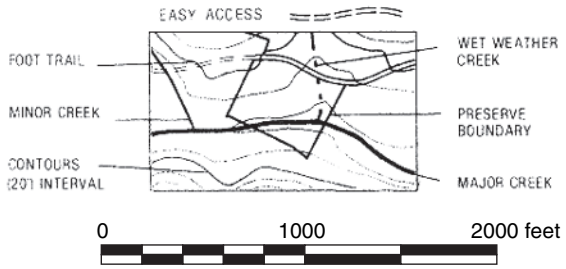




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Figure 6

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE APRIL 15, 2006 SURVEY

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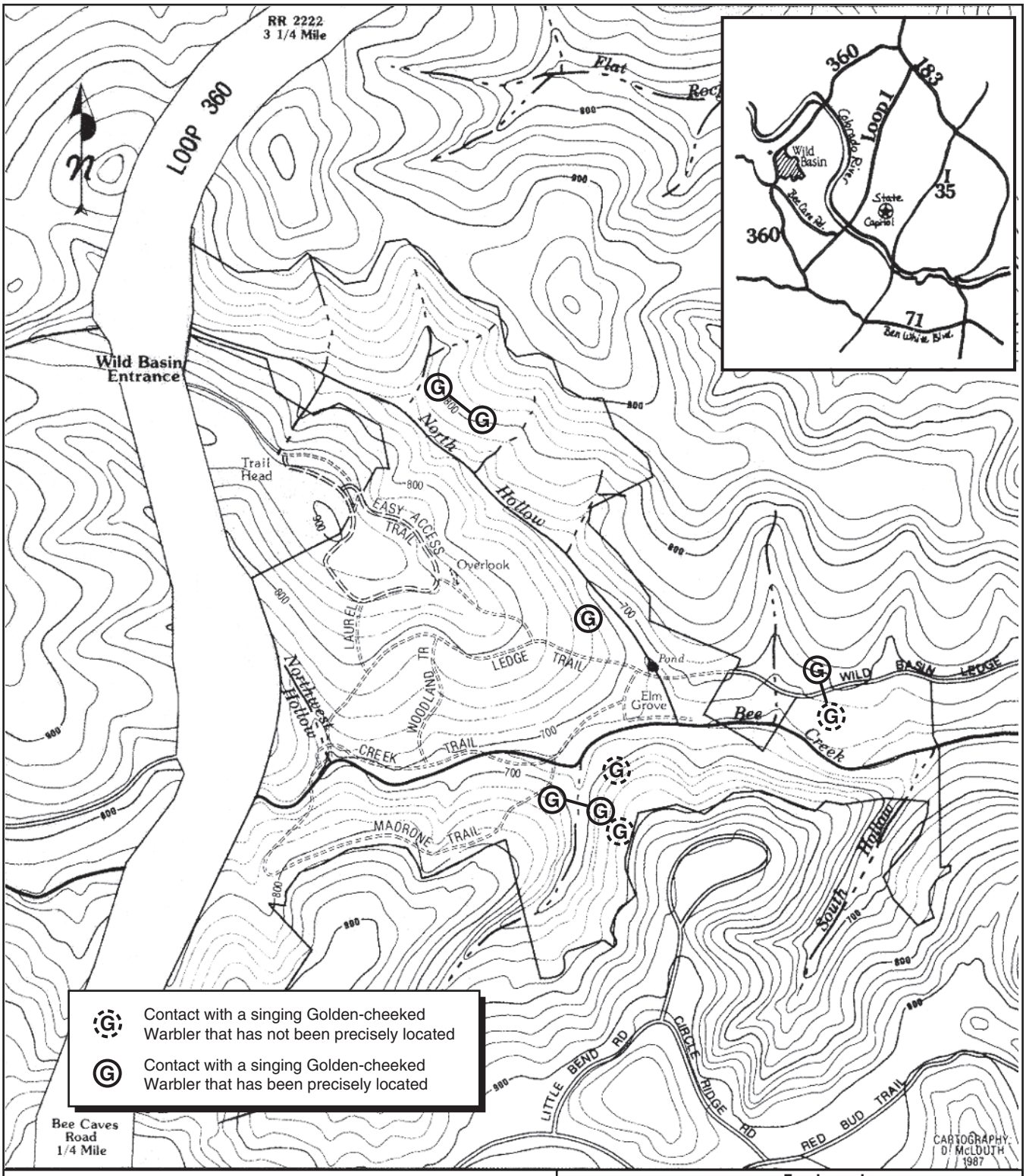


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Figure 7

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE APRIL 21, 2006 SURVEY

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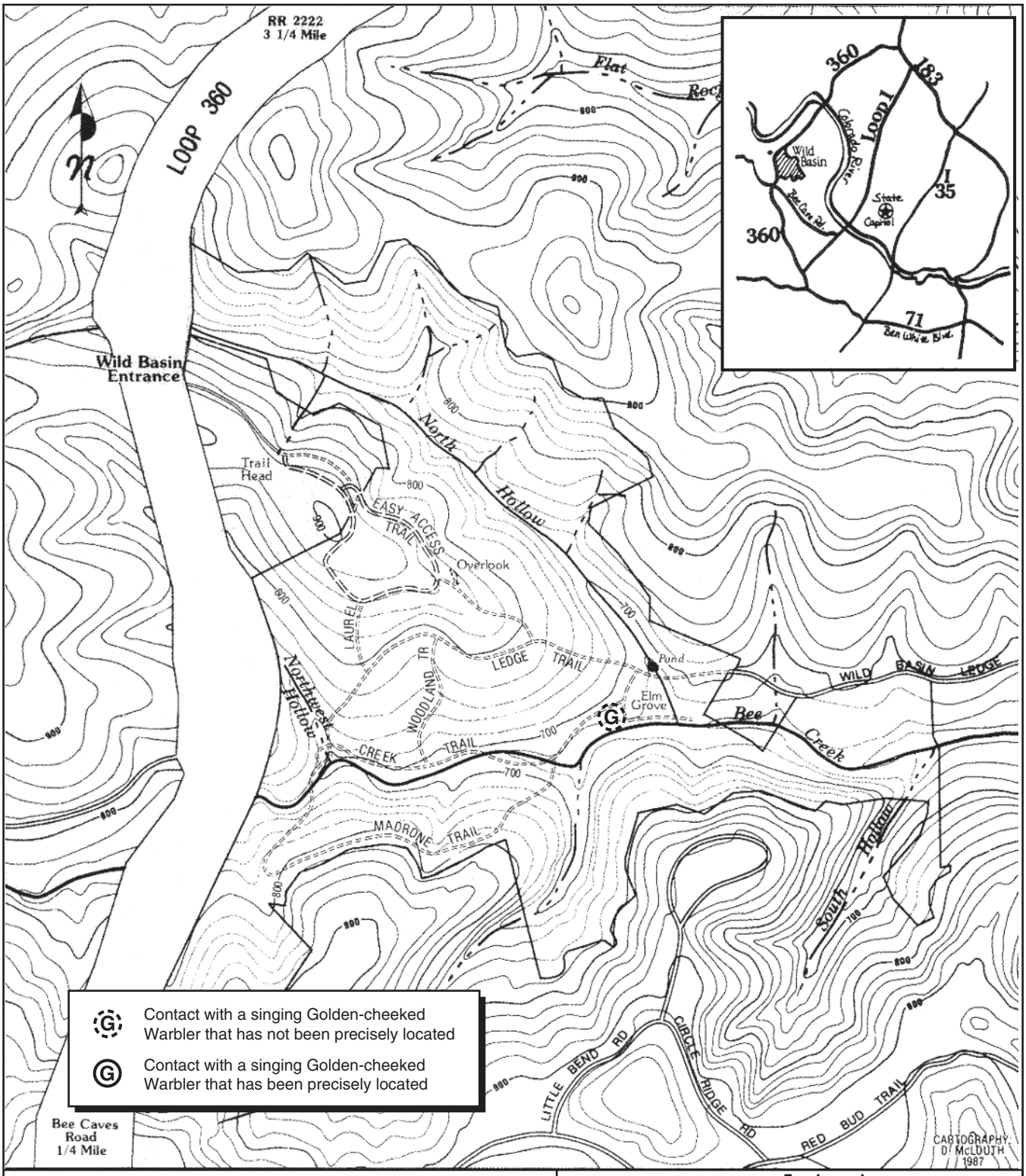


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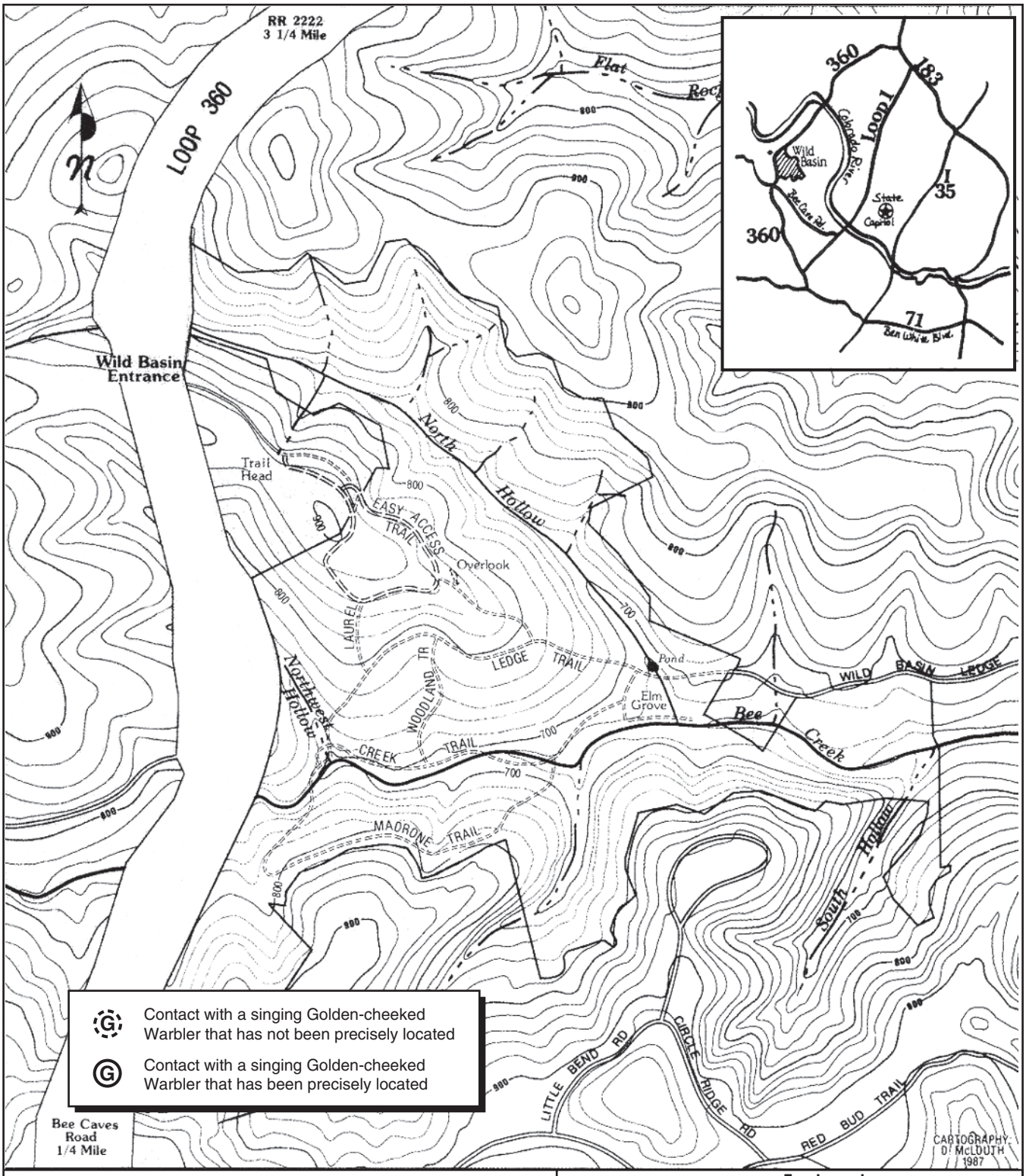
Figure 8

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE APRIL 30, 2006 SURVEY

I:\projects\hc1\wild basin wilderness\441659\cad\2006 survey\figure8.ai




Base Map: The Committee for Wild Basin Wilderness

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Figure 9

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE MAY 6, 2006 SURVEY

I:\projects\hc1\wild basin wilderness\441659\cad\2006 survey\figure9.ai

On 15 April, a PBS&J ecologist observed two adult male GCWs, which were detected by sound. Male vocalizations observed during this visit were both "A-Song" and "B-Song."

On 21 April, a PBS&J ecologist observed six adult GCWs (four male, two female), including adult pairs along North Hollow and Wild Basin Ledge. The male/female pairs were visually verified, and appeared to be breeding pairs, although nests were not located. These pairs were observed chipping (female) and singing "B-Song" (male), and were located by movement in the tree canopy. Two other male GCWs were visually verified.

On 30 April, a PBS&J ecologist observed one male GCW, representing one territory. This individual was singing the "A-Song," and moving around quite a bit. No female was located, or nest found. This GCW was not visually verified, but detected by song.

On the final survey (6 May) no GCWs were observed.

## 5.0 SUMMARY

PBS&J recorded 24 GCWs, of which 21 were adult males, and 3 adult females representing 4 to 5 possible territories. Eleven of the 24 recorded GCWs were visually verified. Individual GCWs were likely recorded on multiple occasions during repeated visits; therefore, the total number of GCWs within Wild Basin is likely less than the number recorded. No fledgling GCWs were observed during the spring 2006 survey period. Figures 2 through 9 present the locations and direction of movement of the GCW sightings on the property.

The survey results indicate that one to two of the potential territories may be totally encompassed within the subject property. The property contains at least 100 acres of suitable GCW. Table 2 presents additional bird species that were recorded within the study area during the 2006 survey period.

## 6.0 LITERATURE CITED

American Ornithologists' Union (AOU). 1998. Check-list of North American birds. 7th edition. Allen Press, Inc. Lawrence, Kansas.

———. 2000. 42nd supplement to the check-list of North American birds. Auk 117:847–858.

———. 2002. 43rd supplement to the check-list of North American birds. Auk 119:897–906.

———. 2003. 44th supplement to the check-list of North American birds. Auk 120:923–931.

———. 2004. 45th supplement to the check-list of North American birds. Auk 121:985–995.

Fish and Wildlife Service (FWS), U.S. Department of the Interior. 1992. Golden-cheeked warbler (*Dendroica chrysoparia*) Recovery Plan. Albuquerque, New Mexico.

———. 1995. Threatened and endangered species of Texas (Revised). U.S. Fish and Wildlife Service, Austin, Texas. June 1995.

———. 2001. Minimum procedures for determining the presence/absence of golden-cheeked warblers and black-capped vireos. U.S. Fish and Wildlife Service, Austin, Texas. Revised August 2001.

International Bird Census Committee (IBCC). 1970. An international standard for a mapping method in bird census work recommended by the International Bird Census Committee. Audubon Field Notes 24:722–726.

Ladd, C.G. 1985. Nesting habitat requirements of the golden-cheeked warbler. M.S. Thesis. Southwest Texas State University, San Marcos.

Ladd, C., and L. Gass. 1999. Golden-cheeked warbler (*Dendroica chrysoparia*). In: The birds of North America, No. 420 (A. Poole and F. Gill, eds.). The Birds of North America, Inc. Philadelphia, Pennsylvania.

Lasley, G., C. Sexton, W. Sekula, M. Lockwood, and C. Shackelford. 1997. Texas region, spring migration, March 1–May 31, 1997. Field Notes 51:892–897.

Lockwood, M.W. and B. Freeman. 2004. The Texas Ornithological Society handbook of Texas birds. Texas A&M University Press, College Station.

Oberholser, H.C. 1974. The bird life of Texas. 2 vols. University of Texas Press, Austin.

Pulich, W.M. 1976. The golden-cheeked warbler: a bioecological study. Texas Parks and Wildlife Dept., Austin.

Texas Ornithological Society (TOS). 1995. Checklist of the birds of Texas. 3rd edition. Capital Printing, Austin.

Wahl, R., D.D. Diamond, and D. Shaw. 1990. The golden-cheeked warbler: a status review. Prepared for the U.S. Fish and Wildlife Service, Fort Worth, Texas.