Wild Basin Wilderness Preserve
Golden-Cheeked Warbler Survey –
Spring 2005
Travis County, Texas

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WILD BASIN WILDERNESS PRESERVE
GOLDEN-CHEEKED WARBLER SURVEY – SPRING 2005
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 2005. 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).

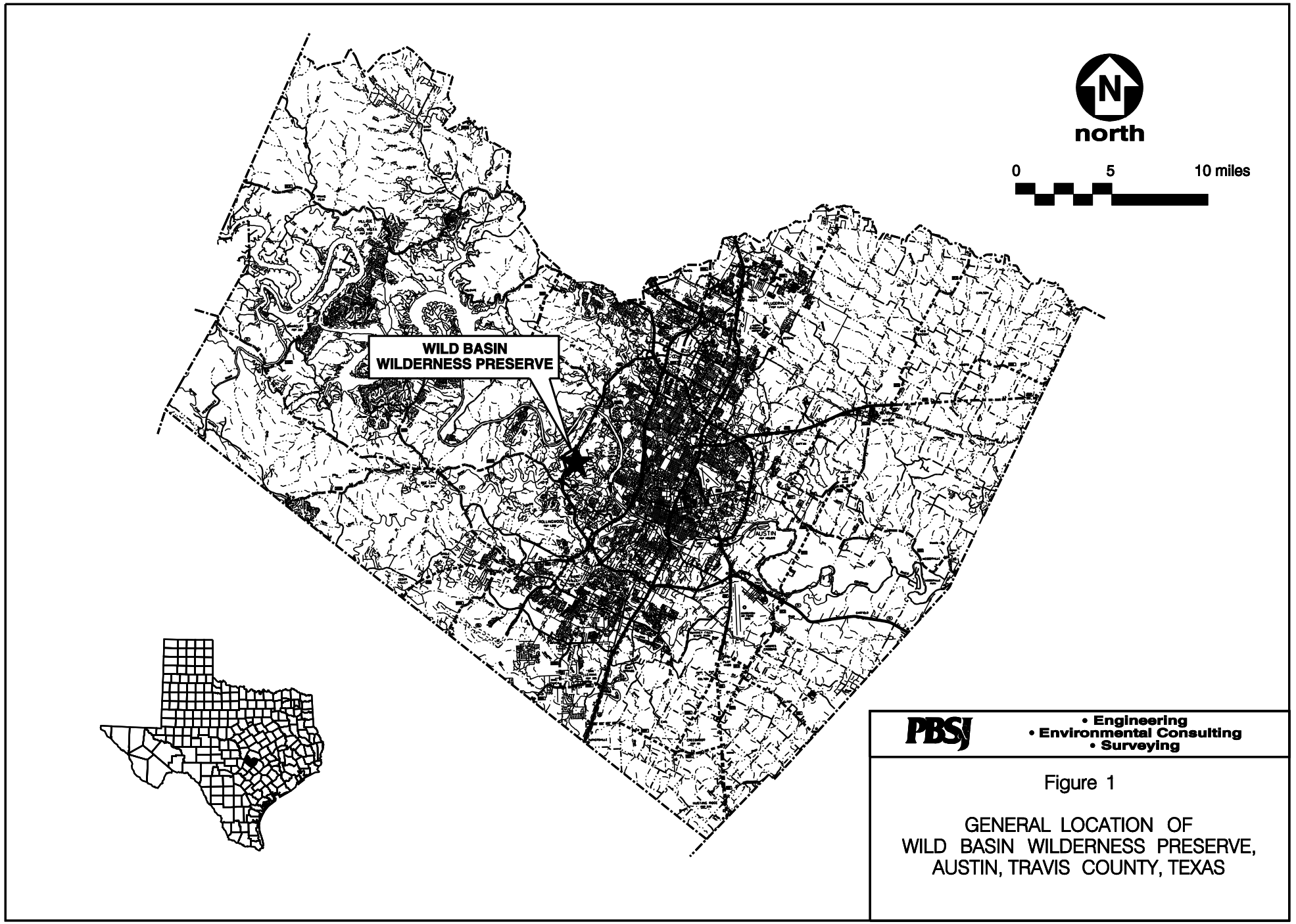
2.0 BIOLOGICAL BACKGROUND

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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Figure 1

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

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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 and 2004 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 18 March 2005. PBS&J staff ecologists surveyed the entire study area on eight separate visits from 18 March to 6 May 2005. Ecologists did not use tapes or playback recordings to elicit responses from the target species. One to two ecologists conducted the 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
3/18/05	07:00–11:00	50–70	S 10–15	0–25	E. Huebner B. Hunt C. Masey	None observed
3/25/05	07:00–11:00	65–75	S 0–5	50–75	E. Huebner B. Hunt C. Masey	5 male GCWs
4/1/05	07:00–11:00	55–65	NW 15–20	25–50	B. Hunt C. Masey	4 male GCWs
4/8/05	07:00–11:00	50–70	S 0–5	0–25	E. Huebner C. Masey	1 male GCW
4/17/05	07:00–11:00	55–70	SE 5–10	50–75	B. Hunt	3 male GCWs
4/21/05	7:00–11:00	70–75	S 5–10	75–100	E. Huebner C. Masey	3 male GCWs; 1 female GCW
4/29/05	7:00–11:00	70–75	S 15–20	75–100	B. Hunt C. Masey	1 male GCW
5/6/05	7:00–11:00	55–70	SE 10–15	50–75	B. Hunt C. Masey	1 male GCW; 1 female GCW; 1 fledgling GCW

TABLE 2

AVIAN SPECIES RECORDED DURING THE SPRING 2005 SURVEY SEASON
WILD BASIN WILDERNESS

Common Name[1]	Scientific Name[1]
Double-crested Cormorant	*Phalacrocorax auritus*
Great Blue Heron	*Ardea herodias*
Green Heron	*Butorides virescens*
Black Vulture	*Coragyps atratus*
Turkey Vulture	*Cathartes aura*
Sharp-shinned Hawk	*Accipiter striatus*
Red-shouldered Hawk	*Buteo lineatus*
Red-tailed Hawk	*Buteo jamaicensis*
Sandhill Crane	*Grus canadensis*
Franklin's Gull	*Larus pipixcan*
Mourning Dove	*Zenaida macroura*
Yellow-billed Cuckoo	*Coccyzus americanus*
Chimney Swift	*Chaetura pelagica*
Black-chinned Hummingbird	*Archilochus alexandri*
Belted Kingfisher	*Ceryle alcyon*
Golden-fronted Woodpecker	*Melanerpes aurifrons*
Ladder-backed Woodpecker	*Picoides scalaris*
Eastern Phoebe	*Sayornis phoebe*
Great Crested Flycatcher	*Myiarchus crinitus*
White-eyed Vireo	*Vireo griseus*
Blue Jay	*Cyannocitta cristata*
Western Scrub-Jay	*Aphelocoma californica*
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*
Cliff Swallow	*Petrochelidon pyrrhonota*
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*
Hermit Thrush	*Catharus guttatus*
American Robin	*Turdus migratorius*
Northern Mockingbird	*Mimus polyglottos*
Cedar Waxwing	*Bombycilla cedrorum*
Tennessee Warbler	*Vermivora peregrina*
Orange-crowned Warbler	*Vermivora celata*
Nashville Warbler	*Vermivora ruficapilla*
Chestnut-sided Warbler	*Dendroica pensylvanica*

TABLE 2 (CONT'D)

Common Name[1]	Scientific Name[1]
Yellow-rumped Warbler	*Dendroica coronata*
Golden-cheeked Warbler	*Dendroica chrysoparia*
Black-and-white Warbler	*Mniotilta varia*
Summer Tanager	*Piranga rubra*
Rufous-crowned Sparrow	*Aimophila ruficeps*
Chipping Sparrow	*Spizella passerina*
Northern Cardinal	*Cardinalis cardinalis*
Rose-breasted Grosbeak	*Pheucticus ludovicianus*
Painted Bunting	*Passerina ciris*
Great-tailed Grackle	*Quiscalus mexicanus*
Brown-headed Cowbird	*Molothrus ater*
House Finch	*Carpodacus mexicanus*

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

4.0 RESULTS

PBS&J ecologists conducted GCW surveys on the project site between 18 March and 6 May 2005, which included eight visits totaling approximately 40 survey hours. PBS&J ecologists recorded GCWs on seven of eight survey days, representing three 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.

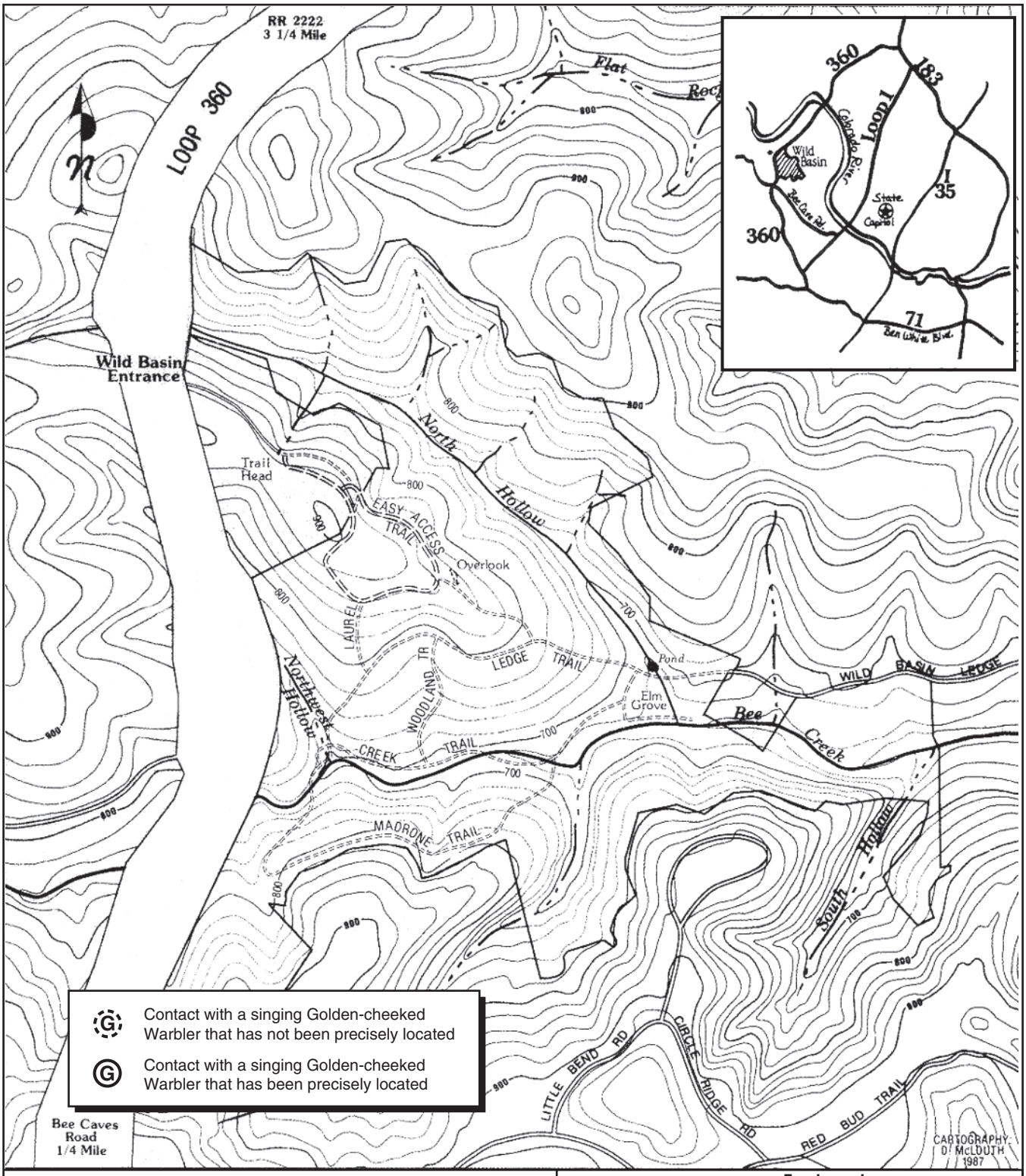
On the initial survey (18 March), PBS&J ecologists observed or heard no GCWs.

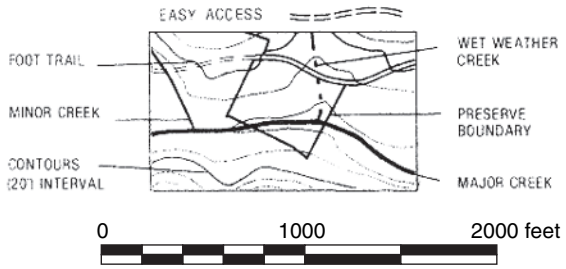
On 25 March, PBS&J ecologists observed five adult males, representing three to four possible territories (Figure 3). PBS&J ecologists visually verified three of the five males, with the remaining male detected by song alone. Male vocalizations were limited to the "A-Song" (i.e., unmated).

On 1 April, a PBS&J ecologist observed four adult male GCWs, representing at least two to three possible territories (Figure 4). Three of the four males were visually verified, with the remaining male detected by song alone. Male vocalizations observed during this visit were all "A-Song."

On 8 April, a PBS&J ecologist documented one adult male GCW, representing one possible territory (Figure 5). This male could not be precisely located. This male's vocalizations were all "A-Song."

On 17 April, a PBS&J ecologist observed three adult male GCWs, which was initially detected by sound but was also visually verified. Male vocalizations observed during this visit were all "A-Song."





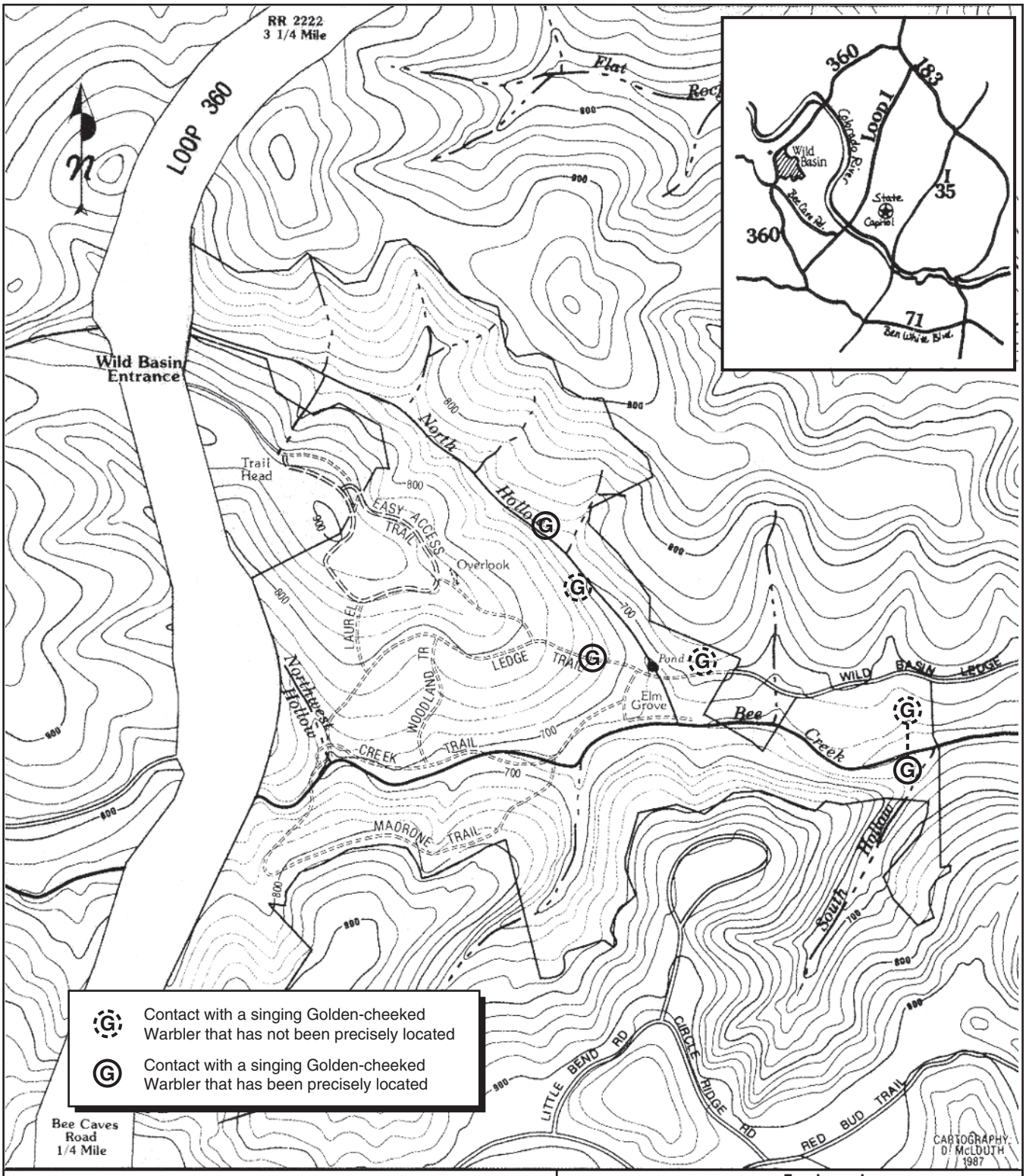
Base Map: The Committee for Wild Basin Wilderness

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Figure 2

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE MARCH 18, 2005 SURVEY

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Base Map: The Committee for Wild Basin Wilderness

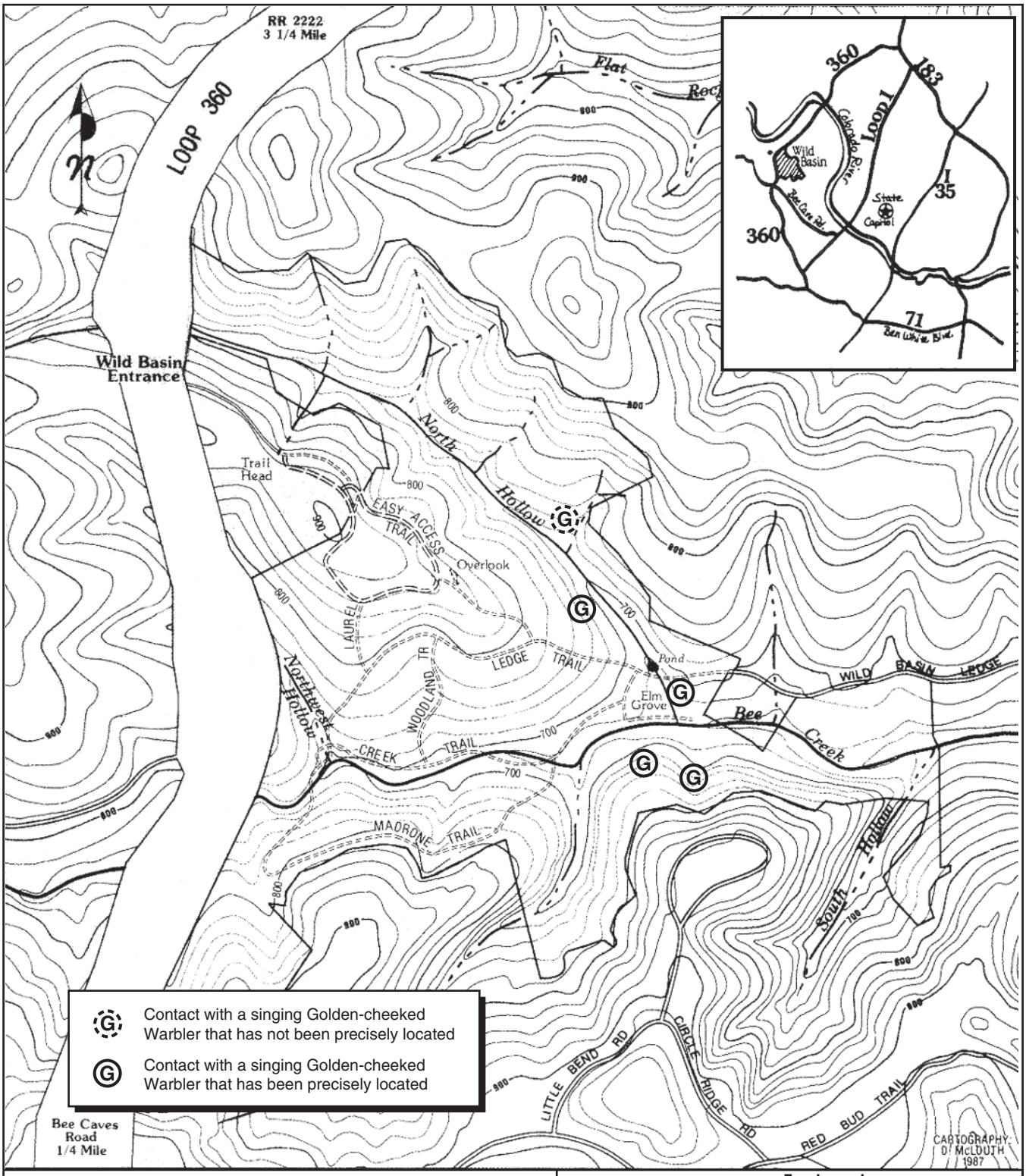
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Figure 3

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE MARCH 25, 2005 SURVEY

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Base Map: The Committee for Wild Basin Wilderness

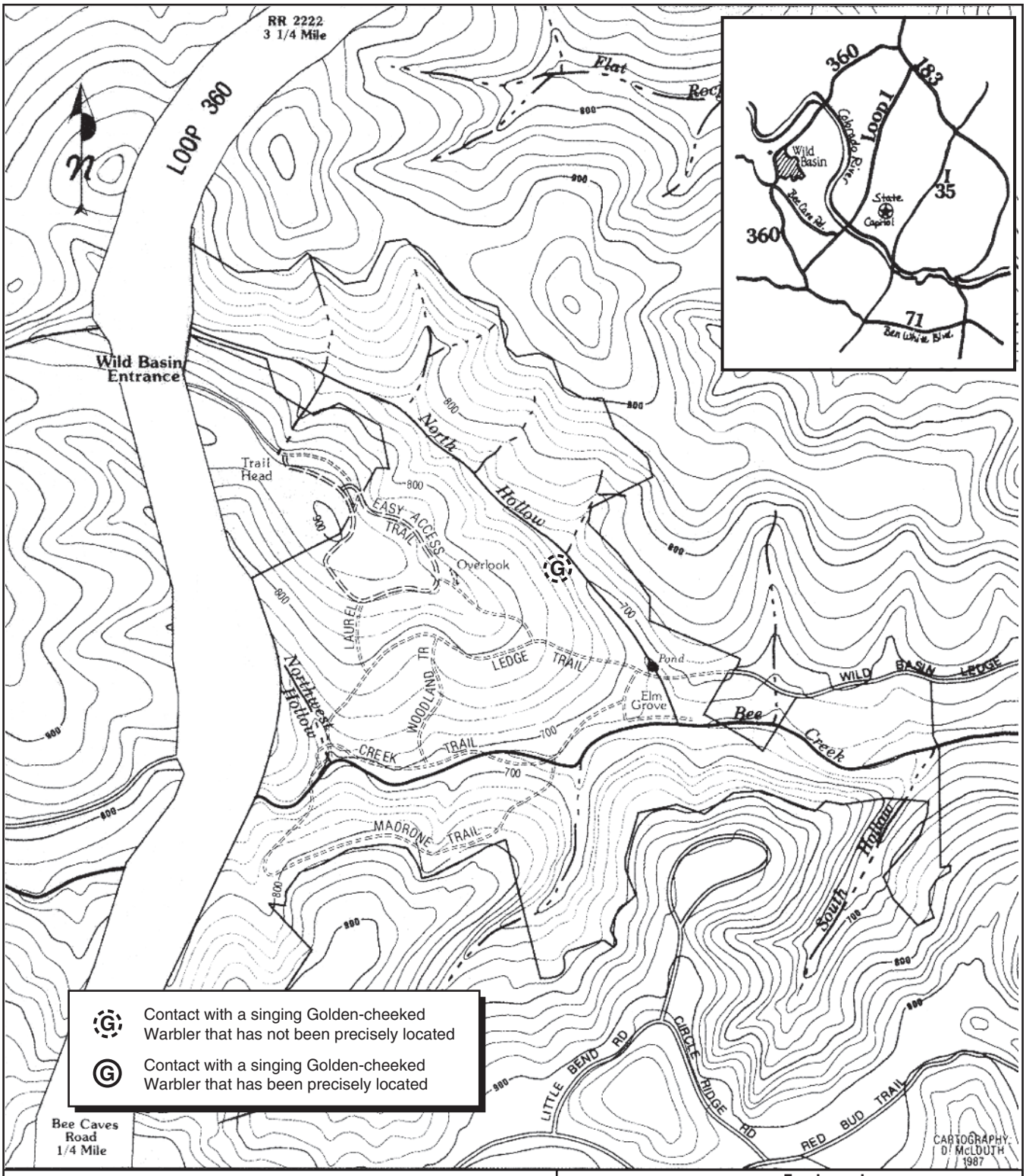
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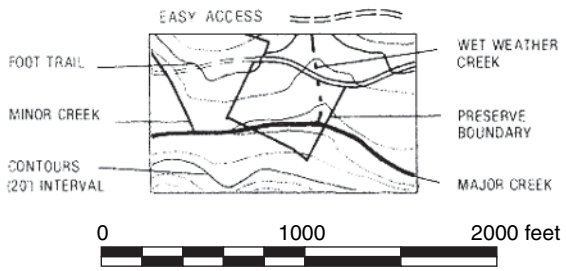
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Figure 4

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE APRIL 1, 2005 SURVEY

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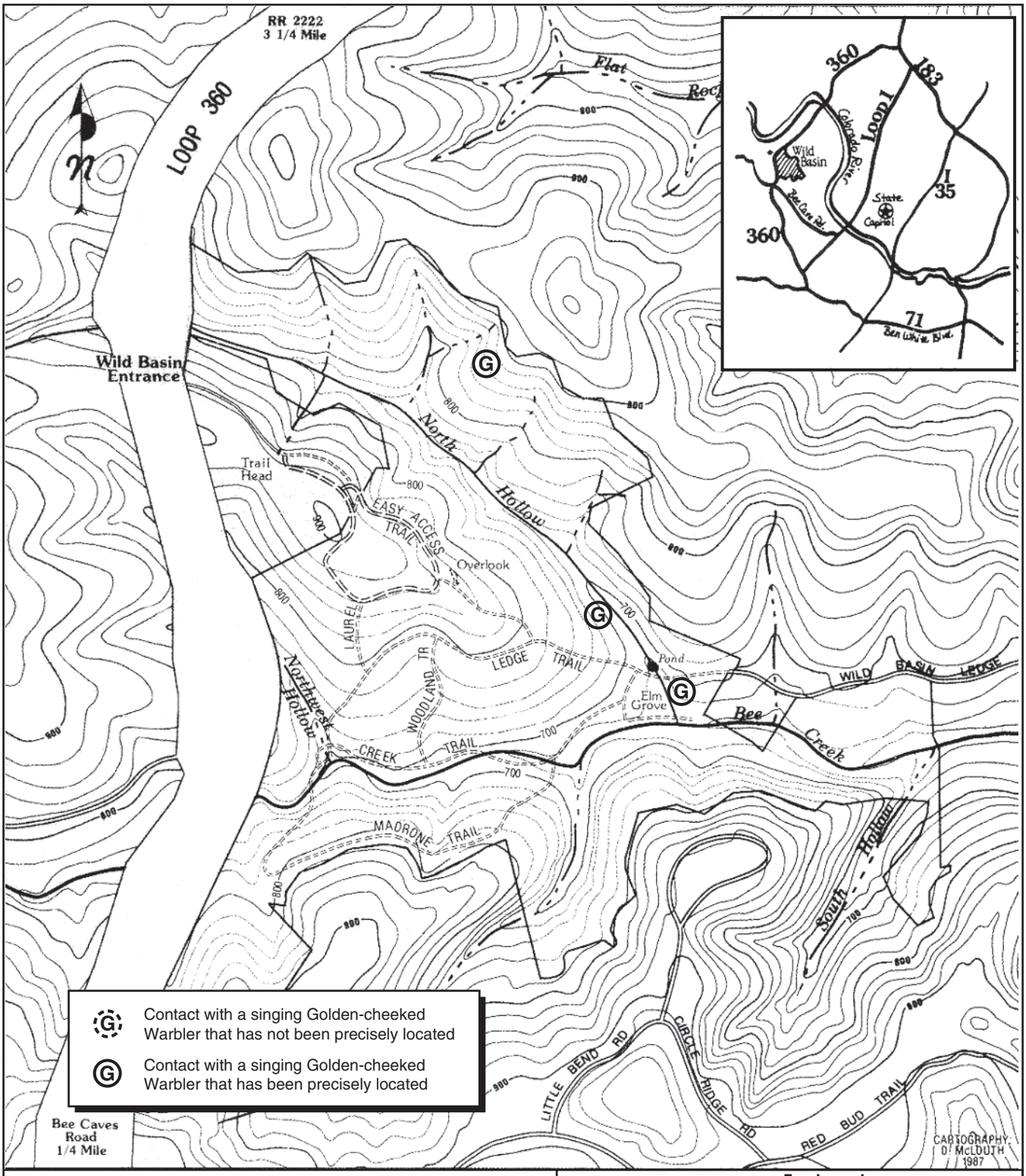
Base Map: The Committee for Wild Basin Wilderness

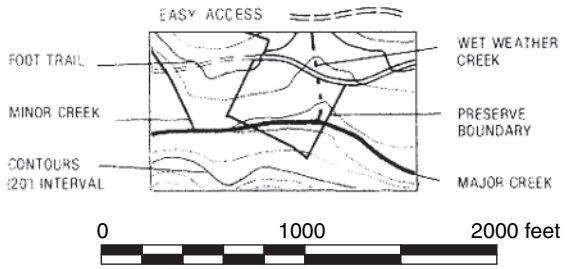
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Figure 5

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE APRIL 8, 2005 SURVEY

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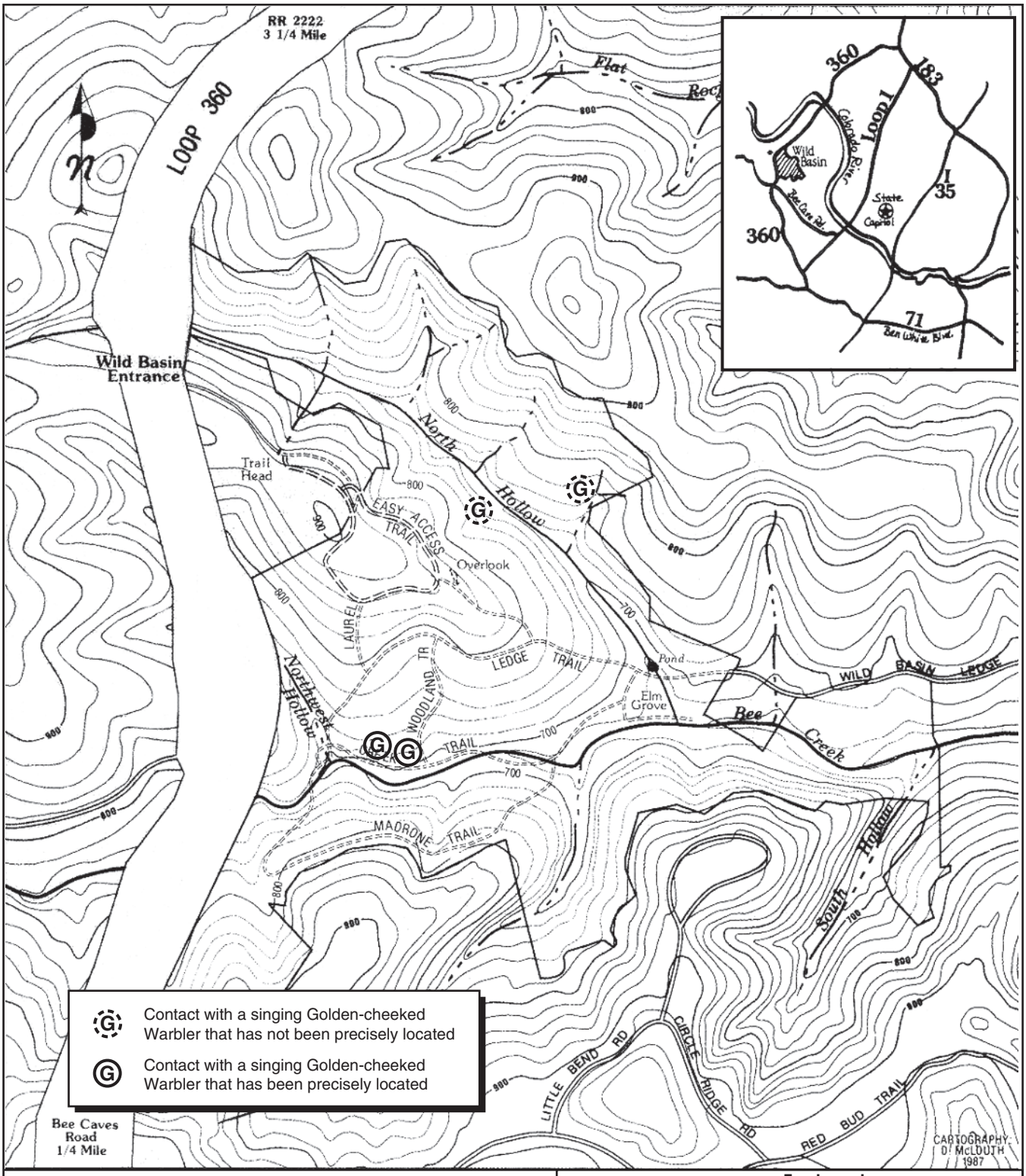
Base Map: The Committee for Wild Basin Wilderness

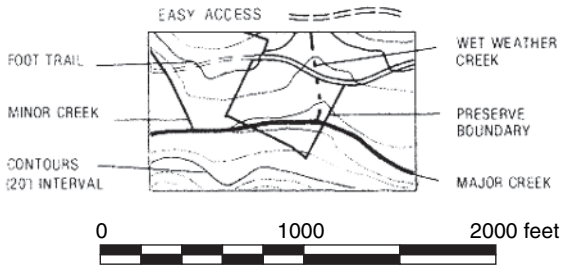
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Figure 6

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE APRIL 17, 2005 SURVEY

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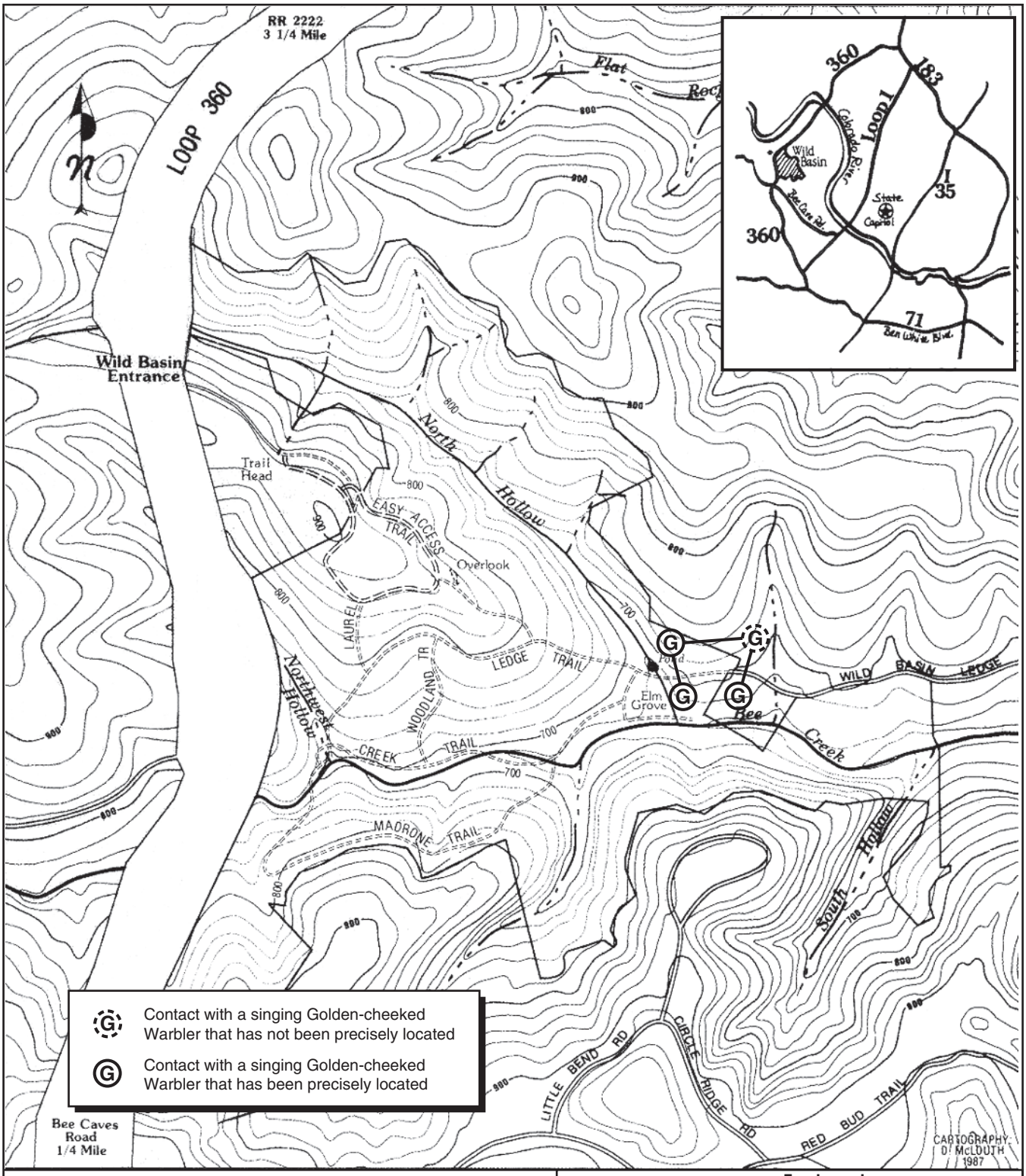
Base Map: The Committee for Wild Basin Wilderness

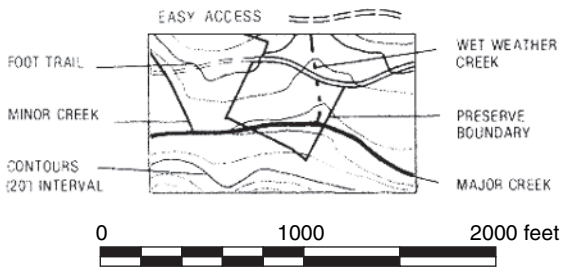
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Figure 7

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE APRIL 21, 2005 SURVEY

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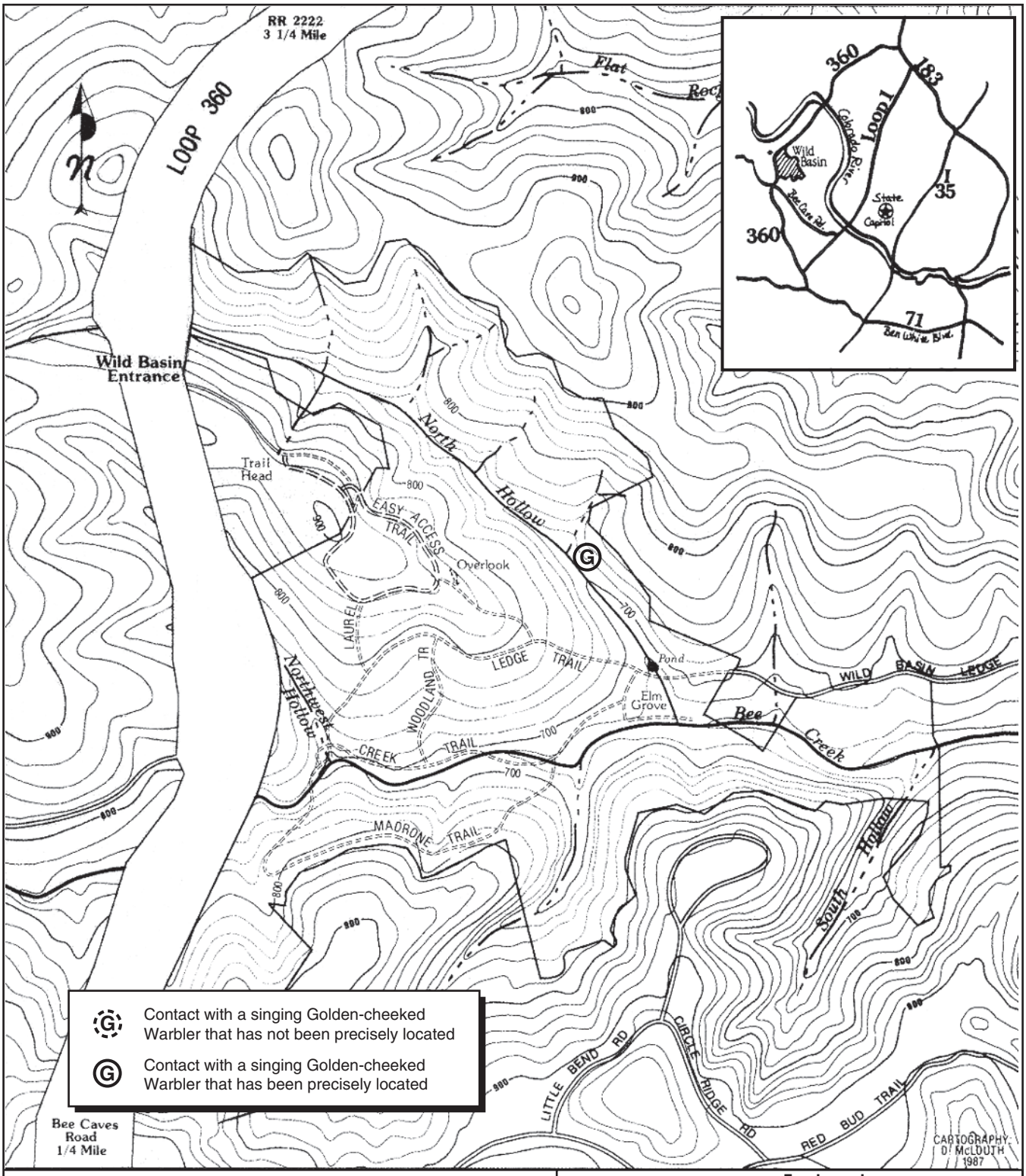
Base Map: The Committee for Wild Basin Wilderness

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Figure 8

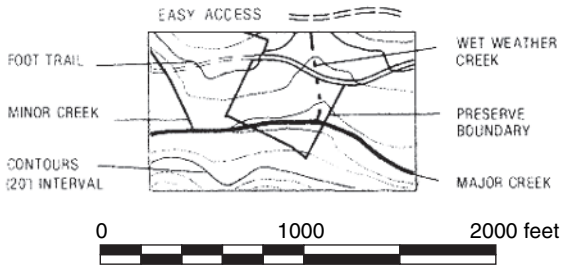
LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE APRIL 29, 2005 SURVEY

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Contact with a singing Golden-cheeked Warbler that has not been precisely located

Contact with a singing Golden-cheeked Warbler that has been precisely located



Base Map: The Committee for Wild Basin Wilderness

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Figure 9

LOCATIONS OF SINGING GOLDEN-CHEEKED WARBLERS ON THE MAY 6, 2005 SURVEY

I:\projects\hc1\wild basin wilderness\441565\cad\2005 survey\figure9.ai

On 21 April, a PBS&J ecologist observed four adult GCWs (3 male, 1 female), including an adult pair along Creek Trail. The male/female pair were visually verified, and appeared to be a breeding pair, although a nest was not located. This pair was silent, and were located by movement in the tree canopy. Two other male GCWs were not visually verified, but were identified by song.

On 29 April, a PBS&J ecologist observed one male GCW, representing one territory. This individual was singing the "B song," and moving around quite a bit. No female was located, or nest found. This GCW was visually verified as well as identified by song.

On the final survey (5 May), one breeding pair was both visually verified and located by sound. In addition to the adult pair, one fledgling was observed as the female fed it on a low branch of a tree. The male was observed singing the "B song" as the female called back in "chip notes." While observed, the female stayed relatively close to the fledgling as the male ventured further distances to forage. The female was observed feeding the fledgling, and the fledgling returned rapid "chip notes" as the female approached to feed it. The location of this observation is represented on Figure 9.

5.0 SUMMARY

PBS&J ecologists recorded 21 GCWs, of which 18 were adult males, 2 adult females, and 1 fledgling representing 4 to 5 possible territories. Thirteen of the 15 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. PBS&J ecologists observed one fledgling GCW during the spring 2005 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 ecologists recorded within the study area during the 2005 survey period.

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