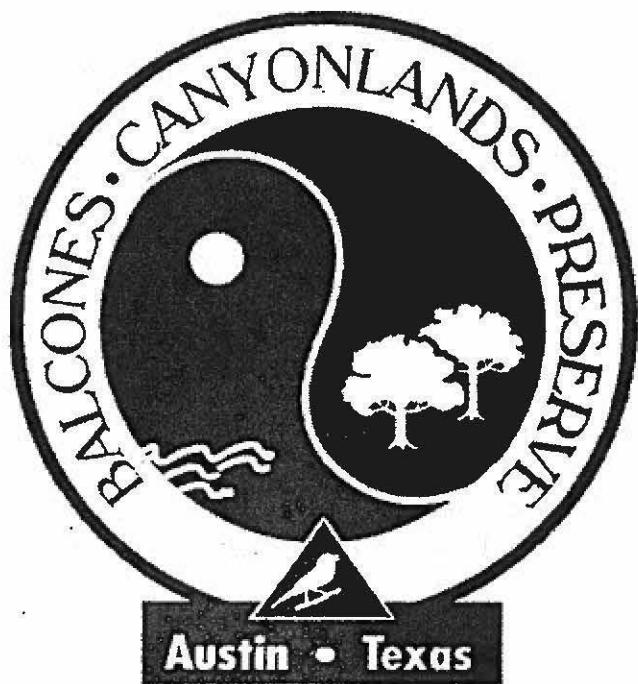


TIER II - A
BALCONES CANYONLANDS PRESERVE
MANAGEMENT HANDBOOK

XII. PUBLIC ACCESS MANAGEMENT



August 1999

SIGNATURE PAGE

Balcones Canyonlands Preserve Land Management Plan

Tier II-A

Document Name: Public Access Management

The signatures below indicate review and agreement on the contents of this draft document by the City of Austin and Travis County. Signers understand that the document is subject to change after further review.

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TIER II-A MANAGEMENT HANDBOOK

CHAPTER XII: PUBLIC ACCESS MANAGEMENT

1.0 Introduction

The Balcones Canyonlands Preserve (BCP) is Austin and Travis County's mitigation for species protected under the Endangered Species Act (ESA). In exchange for careful management of the land to benefit these species, land development in western Travis County is allowed to go forward under an ESA permit referred to as a Section 10.a. permit, which was issued jointly to the City of Austin and Travis County in 1996.

This system of preserves is managed under guidelines provided by the United States Fish and Wildlife Service (USFWS) and agreed upon by the various participating entities. The participating governmental entities are the City of Austin, Travis County, and Lower Colorado River Authority. There are additional Preserve tracts considered as part of the BCP, though managed by private landowners through their own individual 10(a) or Section 7 mitigation agreements with the USFWS.

1.1 Grandfathered Units

The BCP includes units that were pre-existing dedicated parkland or preserve land prior to the creation of the BCP that were brought into the Preserve as "grandfathered" tracts. These grandfathered units are allowed to continue public access at levels as of adoption of this plan.

- The City of Austin's pre-existing parkland properties with allowed current level of use includes Barton Creek Greenbelt and Wilderness Park, Bull Creek Park and Greenbelt, Commons Ford Park, Emma Long Metropolitan Park, Mt. Bonnell Park, and the non-BCP portion of St. Edwards Park. Pre-existing COA preserve land includes the Black-capped Vireo Research Area, Spicewood Springs Preserve and Barrow Preserve.
- Travis County's pre-existing preserve land with allowed current level of use includes the Romberg Preserve, Hamilton Pool Preserve and Wild Basin Preserve.
- LCRA's pre-existing preserve land with allowed current level of use includes Westcave Preserve.
- Travis Audubon Society land is privately owned Preserve land and access

is restricted.

1.2 Other BCP Units

Properties that were acquired specifically for Preserve land or were previously preserve land contain much more restrictive public access policies. The tracts which are not grandfathered for pre-existing uses include the following tracts.

- The **City of Austin** Preserve lands include Forest Ridge, Jester, Hilltop, 3M Unit, Coldwater Unit, Cow Fork Unit (Long Canyon), Park West Unit, Cortana, DJ&T/Bohls/Riecher Ranch Units, Ivanhoe, Beard Trust, Lime Creek, Senna Hills, and the Upper Bull Creek Units.
- **LCRA's** Preserve lands include the McGregor and Wheless Tracts.
- Future BCP acquisitions by the managing partners

The **City of Austin's** Ullrich Water Treatment and Water Treatment Plant #4 have restricted access due to COA policies for water treatment facilities.

1.3 Purpose

This Public Access Management document is designed to serve as a guide to the various managers of Balcones Canyonlands Preserve (BCP) land, as required under the Balcones Canyonlands Conservation Plan (BCCP), the 10(a) regional permit from the U.S. Fish and Wildlife Service (USFWS) held by the City of Austin and Travis County. This document addresses public access management on the land managed by the above listed managing partners, and will not include the individual 10(a) or Section 7 BCP tracts which are managed under separate agreements with the USFWS.

The Balcones Canyonlands Preserve system offers public access and recreational opportunities at selected sites. The Environmental Impact Statement (EIS) for the BCCP allows public access where and when such access does not threaten the welfare of golden-cheeked warblers (GCWs), or cause the degradation of soil, vegetation, or water resources (Final HCP-EIS). The primary purpose of managing the BCP is to ensure the continued survival of the golden-cheeked warbler, black-capped vireo (BCV), rare karst and rare plant species listed below.

This document includes general public access management policies for all BCP tracts, as well as specific information for each of the BCP tracts by each BCP managing partner agency or organization. It includes information about two categories of public access: (1) on pre-existing parkland with "grandfathered" uses

when they were added to the Preserve and (2) on the lands acquired specifically for the BCP. Activities and levels of activity that are acceptable within the Preserve are described.

The "BCP Land Management Plans and Guidelines" for the Balcones Canyonlands Conservation Plan (BCCP), located in the EIS, stipulate that endangered species management must take precedence over recreational opportunities within the preserve. Sections 1.3, and 3.0 through 5.0 of this document are based on those Guidelines. Specific access guidelines per tract are addressed in Section 3.0. Non-commercial and group uses are covered in Sections 4.0 and 5.0.

Passive and active recreation in the BCP is discussed and defined in Section 2.0. Section 2.2 discusses public access in parks which are part of the BCP and which will have grandfathered uses. Section 6.0 provides information and a table on public access opportunities for each BCP site.. Sections 7-9 discuss public access management by COA, Travis County, and Lower Colorado River Authority. Section 10 addresses spelunking.

1.4 Public Access—General Restrictions for Managers

The EIS allows the preserve system to offer public access and recreational opportunities within the Austin and Travis County area where possible and manageable. Public access may be allowed where and when such access does not threaten the welfare of the target species of concern. Access should not cause the degradation of soil, vegetation, or water resources. The key to allowing public access which is non-threatening and non-damaging to preserve lands is implementation of effective management strategies to control such access and use.

Managers must allow adequate time for preparation of the Tier III site management plans and for implementation of the management strategies before public access is initiated. These management strategies must be specified in the Tier III individual land management plans and implemented by the preserve tract managers. In determining recreational access by the public, land managers will be guided by the answers to the following questions: Does the proposed use benefit the preserve species and habitat? Does the use by definition require a preserve? The answer to both questions should be yes.

Demonstration over time of effectively implemented management strategies on a preserve tract may justify increased public access opportunities. Likewise, site problems resulting from public access may justify closing or reducing public access

for a particular tract.

It is important that funds for endangered species management not be diverted from the purpose of protection of endangered species. There should be sufficient funds beyond those needed to accomplish priority species protection activities in order to provide the necessary staff support for public access.

Effective management strategies can be any combination of, but are not limited to no access, or seasonally restricted access, or rotation of accessible preserves over a period of years, or prohibited access to selected sensitive areas of a tract, or selected access to non-habitat areas of a tract only, as well as careful trail and amenities location, design and relocation, fencing, signs, ranger patrols and enforcement. Preserve managers are encouraged to consider creative plans that could increase public education and recreational opportunities, but only after ensuring a healthy population of endangered species and species of concern.

Access to some sites during specific seasons will be regulated in order to conserve target species and their associated communities. Activities to avoid include (1) the creation of new roadways, trails, and cleared rights-of-way that open the canopies of woodland and shrubland communities, (2) the creation of additional impervious cover, and (3) the facilitation of public use of preserve interiors or high quality sites occupied by target species.

2.0 Active and Passive Recreation and Trail Issues

The Balcones Canyonlands Preserve exists primarily as a mitigation measure for ongoing development in western Travis County which would otherwise be restricted by the federal Endangered Species Act (ESA). The preserve is a requirement of the City of Austin/Travis County federal permit, obtained under the ESA.

Some of the preserve units are dedicated parkland. Other units were purchased specifically to mitigate killing or harming—called “taking”—of federally protected species during the development of homes, businesses, and support infrastructure in western Travis County.

Certain restrictions on these recreational uses—and requirements for their compatibility with endangered species management—were established by the City of Austin and Travis County in the EIS which is part of the regional permit. These restrictions are addressed in the “Land Management Guidelines,” referred to in Section 1.0 above.

The City of Austin bond election ballot, by which voters authorized purchase of the preserve lands, specified passive recreation as an additional use of the lands. This chapter provides a definition of “passive” and “active” recreation, and discusses the issue of recreation in dedicated parklands which are part of the BCP.

2.1 Definitions

Active Recreation

Active recreation within natural areas is herein defined as follows:

- those activities requiring a vehicle or animal for transportation, such as bicycling, horseback-riding, and off-road vehicle-riding
- exercise activities engaged in specifically for their aerobic and muscle-strengthening benefits, such as jogging, cross-country racing, and mountain-biking
- faster-paced activities which can disturb fish and wildlife, such as swimming, jogging, racing and group sports
- activities involving organized groups of greater than 10 people—unless guided by staff or other approved leader (see Section 3.1.1)
- noise-producing activities, such as music events and even bird-watching—when birders use taped bird calls and other sounds to attract birds
- resource extraction—when it is not an approved ecosystem management objective—such as, sport-fishing and hunting, as well as collecting or harvesting of plants or plant parts, animals or animal parts, and mineral or fossils
- rock-climbing

More discussion regarding these activities is found in Sections 3.0.

People wishing to camp, ride horses, and ride bicycles on restricted units within the Balcones Canyonlands Preserve should be referred to non-BCP locations in or near Austin which offer camping, biking, and equestrian trails.

Passive Recreation

Activities considered to be “passive” are nature-viewing and contemplation, guided educational tours, and walking or hiking (see statement above regarding organized groups of people). A discussion of each activity is found in Section 3.0 below.

Approved Trails and Activities

The EIS allows the addition of new trails and recreational activities within Preserve land when part of an "approved plan."

"Approved trails" is herein defined as trails which are marked on maps contained in approved Tier III land management plans, or which have been approved subsequently by the Coordinating Committee.

The activities listed in this chapter are "approved recreational activities" within the individual preserve units and changes in these approved activities or levels of activities will require approval of the Coordinating Committee.

If new trails are recommended by a land manager to the Coordinating Committee, these must be addressed in an amended preserve land management plan and designed to leave woodland canopies intact. In Golden-cheeked Warbler habitat, new trails should not fragment woodland interiors or allow levels of human use intensity detrimental to increasing populations of this species. Existing trails into woodland interiors should be minimized, not extended. Managers should consider blocking these trails where feasible with temporary barriers, during the nesting season to discourage their use by predators, such as raccoons and skunks, or by human intrusion. The EIS requires "existing approved trails" be restored to habitat if and when they are no longer in use.

2.2 Recreation in Grandfathered BCP Parkland

The Balcones Canyonlands Preserve is made up both of previously existing parkland AND purchased lands. These tracts are permitted by USFWS to continue providing current active and passive recreational uses at current levels. The tracts have been "grandfathered" from the more stringent requirements placed on other BCP lands. Construction of new trails is not grandfathered and must be approved by the BCP Secretary.

These parks and preserves are included in table format in Section 6.0 and are in bold type face. City parkland along Barton and Bull creeks is included, as well as the Travis County's Wild Basin Wilderness Preserve and Hamilton Pool Preserve and LCRA's Westcave Preserve.

3.0 Restrictions by Recreation Type

3.1 Individual or Independent Group Use

To protect endangered species and wildlife in general, it is necessary to avoid, detect, and reduce localized detrimental impacts on the preserves associated with human activity. The following types of outdoor activities may be allowed if they do not conflict with conservation of target species as described in the individual preserve land management plans.

3.1.1 Walking/Jogging/Hiking

Unsupervised group access should not be allowed within 100 meters of occupied songbird habitat during the breeding/nesting season, unless such access can be documented to show no apparent degradation to the welfare of the species of concern. Previously existing parkland is exempted from this restriction, but the site management plan for grandfathered parkland must address reduction of visitor impacts over time and these strategies should be implemented with two years after the adoption of the site management plan.

Public access trails within non-parkland BCP units are reserved for walking and hiking access only.

3.1.2 Fishing and Stocking of Fish

Fishing may be allowed, where there is existing access to lake frontage that is not inhabited by target species. If it is allowed on a site, fishing locations are to be designated. Fishing is prohibited outside these designated areas. Construction of new roads, access points and other support facilities for fishing must be part of that preserve's approved land management plan.

Fishing in environmentally sensitive springs and deeper spring runs, especially where rare salamander species are present, is absolutely prohibited.

Stocking of native species is discouraged; stocking with exotic species is expressly prohibited.

3.1.3 Swimming/Boating/Rafting/Tubing

Areas designated for swimming, boating, rafting or tubing may be made available at selected locations within parks or preserves, based on approved land management plans. Bank access restrictions may be necessary to protect adjacent target species habitats. All of these activities are prohibited in environmentally sensitive springs and deeper spring runs on non-parkland BCP units.

3.1.4 Bicycling

This activity is prohibited on all BCP tracts which are not dedicated parkland. Bicycling may continue at current levels on previously existing parklands which are now part of the BCP. Parks and greenbelts should be monitored for effects on the endangered species. Enforcement of all applicable rules is required.

No units purchased specifically for endangered species management or accepted for mitigation, or units which were pre-existing City of Austin Nature Preserves are available for bicycling. This active recreation is not compatible with the passive uses of wildlife-viewing, nature study and contemplation. However, all other trails on parkland are available for bicycling.

New bicycle trails for parkland units which have bicycling should only be considered by a manager where closing or relocation of existing trails will improve protection of listed species or species of concern. As part of an approved plan, creation of new trails should leave woodland canopies intact. In Golden-cheeked Warbler habitat, trails cannot fragment woodland interiors or allow human use intensity that threatens this species. In addition, any new bike trails must be designed to minimize erosion. All trails in BCP units must be part of an approved site management plan. Existing approved trails *see maps in Tier III for locations) exhibiting significant erosion must be closed or renovated and restored to habitat. All non-approved trails will be closed.

3.1.5 Horseback Riding

This activity may continue at current levels on previously existing parklands which are now within the BCP. It is not an approved activity on lands purchased specifically for the BCP, or those which were previously designated nature preserves.

Stables and similar facilities for the long-term (overnight or longer) maintenance of groups of horses shall not be constructed within any part of the preserve system. According to the EIS, contracts with private and commercial facilities on adjacent lands may be negotiated provided that mitigation, clean-up, and cowbird trapping are implemented; however, no participating partners in the BCP are proposing horseback-riding at this time in any BCP tract.

New horse trails for parkland units which have horseback-riding should only be considered by a manager where closing or relocation of existing trails will improve

protection of listed species or species of concern. As part of an approved plan, creation of new trails should leave woodland canopies intact. In Golden-cheeked Warbler habitat, trails cannot fragment woodland interiors or allow human use intensity that threatens this species. In addition, any new horse trails must be designed to minimize erosion. All trails in BCP units must be part of an approved site management plan. Existing approved trails *see maps in Tier III for locations) exhibiting significant erosion must be closed or renovated and restored to habitat. All non-approved trails will be closed.

Horses may be used by staff for operations and maintenance activities, such as patrolling and enforcement.

3.1.6 Off-Road Vehicle (ORV) Riding

This is prohibited as a recreational activity because it is not compatible with preserve management objectives and goals. The Motorcycle Park in Emma Long Metropolitan Park is grandfathered from this prohibition, and may continue at current levels. Furthermore, appropriate barriers and enforcement penalties will be established to minimize trespass into preserve properties and subsequent damage by ORV users. These vehicles may be used in the non-nesting season for appropriate preserve operations and maintenance activities, as needed.

3.1.7 Picnicking

This activity may continue at current levels on previously existing parklands which are now part of the BCP. Adoption of "Pack-it-in and pack-it-out" policies by park/preserve managers is encouraged. If this activity is included in an approved site management plans, preserve land management plans will designate picnic sites that can be easily maintained, to avoid creating focal centers for cowbird feeding or red imported fire ant foraging.

3.1.8 Camping

This activity may continue at current levels on previously existing parklands which are now part of the BCP. If camping is allowed at other units, sites must be designated in approved management plans and related to operations and maintenance or to guided educational activities. When allowed, camping must be restricted to minimum-impact camping. Preserve managers should designate suitable camping areas, and these minimum-impact camping areas should be rotated frequently to enable each site to recover from past use. Only closed-burning fires (such as camp stoves) will be allowed.

3.1.9 Nature Viewing

Permitted nature-viewing opportunities include designated viewing areas with blinds, trails with descriptive trail brochures, or guided tours. Educational tours for groups should be encouraged, but procedures for minimizing and monitoring the effects of tour group activities should be followed. These are addressed in Tier II-A: Management Handbook. Supplemental feeding to improve wildlife viewing is prohibited.

3.1.10 Spelunking

All access to caves is restricted to those holding permits issued by the appropriate land management agency; however, caves on dedicated parkland are grandfathered from this restriction. Permits to restricted caves may only be granted for karst species management, research and education.

3.1.11 Rock-Climbing

Rock-climbing and related activities are prohibited. Rock-climbing at Barton Creek Greenbelt is permitted to continue at current levels at those sites already designated for this activity.

3.1.12 Pets

No pets are permitted in areas designated for endangered species management, except in those areas of BCP parkland where pets were already allowed; pets in these areas should be leashed.

4.0 Non-Commercial Group Use

Non-commercial groups are nonprofit organizations, schools, and educational groups which request visitation to any tract for educational purposes or research. This use should be encouraged where there is sufficient staffing to monitor effects upon species and habitat. These groups will be issued permits by the appropriate land management agency. The permit process should include user guidelines that protect target species and their respective habitats.

4.1 Educational Uses

Educational use is defined as those activities which present or interpret information about the ecology of the preserve sites and the target species. Daytime field trips by school groups typify of this public use category and are encouraged where they are compatible with species protection. They will need to be coordinated through the appropriate preserve land manager and monitored by staff.

Limits should be established for maximum group size and number of groups accessing groups accessing an individual preserve at any one time.

Preserve managers are encouraged to offer high school and college internships. Managers are also encouraged to use part-time employment of high school students in small teams of "youth rangers." On-the-job training should focus on learning and applying preserve management activities, as well as providing educational tours of the preserves for others. For example, these tours could interpret for the participants the work done by the youth employees themselves.

4.2 Research Uses

Research use activities include those activities which gather and interpret site-specific data in a way that improves understanding of the preserve ecology. Such activities will be coordinated through the appropriate preserve land manager. Research related to endangered species must have approval from the U.S. Fish and Wildlife Service. The land manager may refer such research proposals to the Scientific Advisory Committee for review and comment.

5.0 Commercial Use

5.1 Guided Tours

Commercial tour groups may be allowed to schedule tours of preserve sites with the approval of the site manager, subject to the provision that such groups abide by prevailing visitation guidelines. Tours must not impact the preserve environment or the protected species. Tour groups will need to be coordinated through the appropriate preserve land manager and monitored by staff for possible impacts to the preserve. Limits should be established for maximum group size and number of groups accessing an individual preserve at any one time.

Contractual tour leaders are responsible to the site managers. Contractual arrangements for guided tours will be non-exclusive with regard to public access.

5.2 Film-making

Film production projects may be allowed subject to approval by the preserve manager and the Coordinating Committee Secretary. The film production process must not harm the preserve environment.

6.0 Public Access in the BCP by Site

The table below summarizes the designations of recreational uses for the various units of the Balcones Canyonlands Preserve. Note that all these locations may be accessed via approved volunteer service outings. All City of Austin tracts may also be accessed for approved educational outings.

Parks and preserves in which recreational activities are "grandfathered," i.e. may continue at current levels, are printed in *italic* type. Maps showing the approved trails are shown in the Tier III documents.

NAME	TYPE	AGENCY	TYPES OF RECREATIONAL USES
<i>Barton Creek Greenbelt/Wilderness Park</i>	park	Austin Parks and Rec.	hiking, swimming, tubing, mountain biking, rock climbing, picnicking, spelunking
<i>Black-capped Vireo Research Area</i>	preserve	Austin Parks and Rec.	approved educational/research access, guided educational groups tours
<i>Bull Creek Greenbelt and Bull Creek Park</i>	park	Austin Parks and Rec.	hiking on marked trails, swimming, tubing, mountain biking, picnicking
<i>Bull Creek Preserve (Forest Ridge)</i>	nature preserve	Austin Parks and Rec.	hiking from March through July by permit; hiking without permit from August through February; guided educational group tours
<i>Commons Ford Park, BCP portion</i>	park	Austin Parks and Rec.	hiking and biking on marked trail
<i>Cortána Unit</i>	nature preserve	Austin Parks and Rec.	approved educational/research access, guided educational groups tours
<i>Cow Fork/Coldwater Unit</i>	nature preserve	Austin Parks and Rec.	same as above
<i>Reicher/DJ&T /Bohls Unit</i>	nature preserve	Austin Parks and Rec.	approved educational/research access, guided educational groups tours; on Reicher: unsupervised hiking on marked trails near facilities and outdoor education programs

NAME	TYPE	AGENCY	ACCESS INFORMATION
<i>Emma Long Metro Park</i>	park	Austin Parks and Rec.	hiking on marked trails, mountain biking, motor bikes during the non-nesting season on specified trail
<i>Hamilton Pool Preserve</i>	nature preserve	Travis County Parks	hiking on marked trails, swimming, picnicking, guided tours
<i>Ivanhoe/Beard Trust Unit</i>	nature preserve	Austin Parks and Rec.	approved educational/research access, guided educational groups tours
<i>Lime Creek Unit</i>	nature preserve	Austin Parks and Rec.	approved educational/research access, guided educational groups tours
<i>McGregor Tract</i>	nature preserve	Lower Colorado River Authority	approved educational/research access, guided educational groups tours
<i>Mt. Bonnell Park</i>	park	Austin Parks and Rec.	hiking, viewing, picnicking, mountain-biking
<i>Romberg Preserve</i>	nature preserve	Travis County	no unsupervised public access
<i>St. Edward's Park, BCP portion</i>	park	Austin Parks and Rec.	hiking on marked trails, mountain biking
<i>Senna Hills Unit</i>	preserve	Austin Parks and Rec.	approved educational/research access, guided educational groups tours
<i>Spicewood Springs Preserve/Barrow Preserve</i>	nature preserve	Austin Parks and Rec.	hiking on marked trails, staff guided tours
<i>Ullrich Water Treatment Plant</i>	w/ww facility	Austin Water and Wastewater Department	no access
<i>Upper Bull Creek Unit</i>	nature preserve	Austin Parks and Rec.	approved educational/research access, guided educational groups tours
<i>Water Treatment Plant #4</i>	w/ww facility	Austin Water and Wastewater Department	no access
<i>West Cave Preserve</i>	nature preserve	Lower Colorado River Authority	approved educational/research access, guided educational groups tours

	TYPE	AGENCY	TYPE OF PUBLIC USE AND USE
Wheless Tract	nature preserve	Lower Colorado River Authority	approved educational/research access, guided educational groups tours
<i>Wild Basin Preserve</i>	nature preserve	Travis County/Wild Basin Wilderness Committee	hiking, guided educational tours, approved research

7.0 City of Austin-Managed BCP Tracts

7.1 Status of Golden-cheeked Warblers on COA Tracts

Populations of Golden-cheeked Warblers (GCW) have been monitored or censused in recent years in the BCP by various entities. Unfortunately, a variety of different methods was used, making it difficult or impossible to compare the results statistically. In 1997 a standardized monitoring method was initiated to monitor warblers throughout the BCP and on the Balcones Canyonlands National Wildlife Refuge (BCNWR). This protocol employs a system of 100-acre sample plots in which to monitor long-term trends in warbler populations and their reproductive success. Territorial males, females, and young are mapped within these plots using International Bird Census Committee (1970) methods.

Preliminary analysis of the 1998 surveys indicate that plots in more rural settings away from urban influences and with little or no human visitation have higher densities of warblers than plots in urban settings and with some form of human intrusion; for example, plots on the Forest Ridge and St. Edwards tracts of the Bull Creek Preserve contained 10 males, while a plot of similar habitat on the BCNWR had 22 singing males. In another example, pairing success for male GCWs on prime habitat City of Austin 100 acre plots was at 63%. This estimate falls well below the estimated pairing success of GCWs at Fort Hood, which ranged from 79% - 92% between the years of 1992-1995.

Continued long-term monitoring will be necessary to assess the condition of GCW populations on the BCP; however, these preliminary results suggest that human intrusion may have a negative impact on GCW breeding activities.

Therefore, COA-BCP managers will err on the side of the species in issues of public use, and focus their efforts on recovery of the species. This requires conservative public access—with a focus on guided programs—until such time as

the endangered species and species of concern have healthy populations, AND additional funding is provided for public access management.

7.2 Stakeholders Forum on BCP Public Access

In December 1998 representatives of various stakeholder groups met at the request of the City of Austin Parks and Recreation Department to identify their issues and concerns regarding public access in the City of Austin's Balcones Canyonlands Preserve tracts. These stakeholder representatives included recreationalists, neighborhood associations, adjacent land owners, educators and environmental groups.

It was the observation of the program co-facilitators that funding was most often mentioned by the forum participants as an issue which needs immediate attention. Several points were made in the forum's focus groups which seemed to be well received by the majority of the participants:

- protection of the species
- paid guided tours/eco-tourism
- establishment of a BCP Education Center,
- establishment of a "Friends" group

Most participants identified a need for more volunteer recruitment, coordination, and training, as well as an extensive educational outreach program. There was also concern by the majority of participants that extra funding be found to purchase other lands for recreational uses, as well as to complete purchase of the final acreage of the preserve system.

7.3 Public Access per City of Austin Location

7.3.1 Barton Creek Greenbelt and Wilderness Park

Since its opening in 1985, the level of use and types of use on Barton Creek Greenbelt have increased significantly. It is estimated that Barton Creek Greenbelt annually attracts over 100,000 visitors to its trail and natural areas. Common activities include:

- Hiking
- Mountain Biking
- Walking pets
- Water recreation - swimming, wading, tubing, canoeing, kayaking
- Rock climbing & rappelling
- Caving

Nature Study - field trips, photographers, bird watchers Increased and more

varied public use has simultaneously deepened community appreciation for the unique character and fragile and endangered resources of the Barton Creek watershed.

7.3.2 Black-capped Vireo Research Area

Public access is limited to staff-guided or approved environmental education, scientific research and service activities compatible with the goals of the management plan and with the approval of the site manager. A small unpaved parking area is provided for program participants. There are no restroom facilities or drinking fountains. No pets are allowed at any time.

7.3.3 Bull Creek Greenbelt and Bull Creek District Park

The Bull Creek Greenbelt is located on both the east and west sides of Loop 360 south of Spicewood Springs Road. Bull Creek Park is on the east side of Loop 360 on Lakewood Drive. There are parking area and public rest rooms. The greenbelt and park are used by recreationists for hiking, biking, swimming, picnicking and nature enjoyment. Pets are allowed on leash in the Greenbelt, but a small section within the developed portion of the Bull Creek District Park is a designated "off leash" area for dogs and will remain so. ←

7.3.4 Bull Creek Preserve

Background

The Bull Creek Preserve refers to a group of several independently acquired tracts: Forest Ridge, Jester, Hilltop, Beard Family Tract, and 3M. These tracts have suffered degradation from a variety of previous land use changes. Much of the surrounding lands have been developed in recent years into highways and roads, single-family residential subdivisions and support infrastructure, such as large electrical transmission lines and a water storage facility. In addition, even the preserve itself has been degraded by roadway clearing, dumping of construction materials and construction and maintenance of electrical lines. Off-road vehicles, motorcycle riding, trash dumping, illegal encampments, illegal trail clearing, cedar chopping, and general partying have all occurred throughout the Bull Creek Unit Preserve from numerous previously uncontrolled access points. An extensive system of trails, jeep roads, access roads, and abandoned roadway segments facilitated the unauthorized uses of this preserve unit. These various impacts are highly problematic for the managing agency and thus, habitat restoration at this site

is a high priority for management resources.

Public Access Limitations by Season

Austin Parks and Recreation reserves the right to place additional limitations on visitation, if the managing agency finds that it cannot adequately meet federal permit requirements for endangered species management and manage public access. Impacts on the species will be closely monitored.

There are restroom facilities and drinking fountains available in the adjacent Bull Creek Greenbelt facilities immediately west of Loop 360.

No pets are allowed at any time.

August 1 through February 28

Unsupervised public access will be available from August 1 through February 28 from dawn to dusk to walkers or hikers, individually or in groups of less than 10. Until additional resources are available to manage endangered species and public access on the BCP, this is the only preserve purchased specifically for the BCP which will allow unsupervised public access at this time.

March 1 through August 31

Public access during the months March through August from dawn to dusk is limited to

1. Individual hikers/walkers certified after completion of any one of a series of free one-day trainings developed by Parks and Recreation staff.
2. Environmental education group tours guided by BCP staff or such tours and guides approved by the site manager.
3. Scientific research and service/volunteer activities compatible with the goals of the management plan and approved by the site manager.
4. All organized groups are restricted in size to ten individuals or fewer. The tranquillity of the preserve must be respected: no loud voices or noises.

7.3.5 Commons Ford Metropolitan Park

Commons Ford Park is two miles northwest of the intersection of F.M. 2244 (Bee Caves Road) and Cuernevaca Dr. west of Austin. The tract is bound on the north by Lake Austin. The BCP portion of this metropolitan park has a hiking/biking trail. Pets are allowed in the non-BCP portion only.

7.3.6 Cortaña Unit

Public access is limited to staff guided or approved environmental education, scientific research and service activities compatible with the goals of the

management plan. All require the approval of the site manager. There are no restroom facilities or drinking fountains. No pets are allowed at any time.

7.3.7 Cow Fork/Coldwater Unit

Public access at the Cow Fork Unit near Emma Long Metro Park is limited to staff-guided or approved environmental education, scientific research and service activities compatible with the goals of the management plan and with the approval of the site manager. There are no restroom facilities or drinking fountains. No pets are allowed at any time.

7.3.8 Emma Long Metropolitan Park

The 950-acre BCP area within Emma Long is located on City Park Road off RR 2222. Most of the park is open to the public at no fee at this time. Fees are collected to enter the camping area on Lake Austin. Current land uses in the BCP acreage include archery, motorcycle riding and racing, hiking, biking, nature viewing and bird-watching.

A nature trail for hiking only follows Turkey Creek west of the park road, and turns north into upland areas. No mountain bikes are permitted to access this area. This trail had been designated by the Parks and Recreation Department in November 1994 as a "off leash" area for dogs. This document voids that designation. No dogs are allowed in the BCP portion of the park, except in designated parking areas.

→ In a part of the park referred to as the "Motorcycle Park," motorcycle and mountain-bike riding is allowed year round. Due to increasing damage to vegetation and other natural features, the Austin Parks and Recreation Department will explore ways to avoid over-crowding and to restore the trails.

7.3.9 Ivanhoe/Beard Trust Unit

Public access is limited to staff guided or approved environmental education, scientific research and service activities compatible with the goals of the management plan and with the approval of the site manager. There are no restroom facilities or drinking fountains. No pets are allowed at any time.

7.3.10 Lime Creek

Public access is limited to staff guided or approved environmental education, scientific research and service activities compatible with the goals of the management plan and with the approval of the site manager. There are no restroom

facilities or drinking fountains. No pets are allowed at any time.

7.3.11 Mount Bonnell Park

Mount Bonnell Park is located on Mount Bonnell Drive north of 38 1/2 Street and overlooking Lake Austin. Visitors climb steep stairs to reach the top where they may enjoy the views. Picnicking is provided at permanent tables provided for that purpose. Pets are permitted on leash. Bicyclists may access the service road.

7.3.12 Reicher/DJ&T/Bohls Unit

Several buildings on the Reicher Unit are available by reservation. Public access to the area in the immediate surroundings of these buildings is permitted by those who have permission from the Parks and Recreation Department to use the facilities. These visitors may hike the trail and road to the lake, and the trails into the nearby woods. No outdoor amplified sound systems are allowed.

Public access to the remainder of the unit is limited to staff guided or approved environmental education, scientific research and service activities compatible with the goals of the management plan and with the approval of the site manager. No pets are allowed at any time.

7.3.13 Senna Hills

Public access is limited to staff-guided tours or approved environmental education, scientific research and service activities compatible with the goals of the management plan and with the approval of the site manager. There are no restroom facilities or drinking fountains. No pets are allowed at any time.

7.3.14 Spicewood Springs Preserve/Barrow Preserve

Spicewood Springs Preserve is located at Sterling and Burney off of Mesa Drive. A mobility-impaired accessible trail leads from the small parking area to an overlook deck at the canyon above the springs and shelter caves. No pets or bikes are allowed in the preserve. Due to its narrow width and location directly on a waterway, Barrow Preserve has no public trails.

7.3.15 St. Edward's Park

St. Edward's Park is located in the northern edge of the Bull Creek Preserve Unit on Spicewood Springs Road. It has a parking area and hiking/biking trails in both the BCP portion of the park and the non-BCP lowlands. All dogs must be leashed.

Although the park has never been formally designated for horseback access by

the Director of Parks and Recreation Department, horseback riders have used the park for several years. Riders access the park via Spicewood Springs Road right of way. Hazardous conditions for horseback riders crossing and riding along the road have been created with increased traffic levels and vehicles driving in excess of posted speed limits. Riders as well as motorists are put at risk by this situation. Travis County and the City of Austin are working to resolve this safety issue.

7.3.16 Ullrich Water Treatment Plant

There is no public access to this tract.

7.3.17 Upper Bull Creek Unit

Public access is limited to staff guided or approved environmental education, scientific research and service activities compatible with the goals of the management plan and with the approval of the site manager. There are no restroom facilities or drinking fountains. No pets are allowed at any time.

7.3.18 Water Treatment Plant #4

There is no public access to this tract.

7.3.19 Future Acquisitions

Any additional BCP tracts purchased or managed in the future by the City of Austin will be closed to the public for at least the first five years of ownership or management by the City of Austin. This five-year period will be used to assess and monitor the condition of the habitat and resident populations of endangered species, and for general environmental assessment purposes. After five years, public access options will be considered along with the supporting O&M funding needs in a Public Access Plan. However, any public access will be contingent upon the ability of staff to continue to maintain and improve endangered species habitat and populations, upon evaluation of baseline ecological and endangered species data, and upon appropriate and sufficient operations and management funding approved by the Austin Council for public safety, education, enforcement, grounds maintenance, and any other necessary operations.

8.0 Travis County-Managed BCP Lands

8.1 Overview

Although there is little information on the effects of human disturbance on golden-cheeked warblers (GCWs) and black-capped vireos (BCVs), studies of

other birds indicate that the presence of humans may have a detrimental effect on these two species. Studies of various bird species (including BCVs) have shown that human intrusion may cause escape behaviors (flushing), reduced singing rates (important in mate attraction and territorial defense), nest abandonment, lower nestling survival rates, and displacement of birds from foraging areas (Tremblay and Ellison 1979, Westmoreland and Best 1985, Gutzwiller et al. 1994, Burger 1981, Kaiser and Fritzell 1984, and Sparkman 1996).

Public access, if not controlled, may cause a decrease in habitat quality for the protected endangered species. For the two bird species, visitors may increase openings in the canopy (such as illegal trail blazing) of GCW habitat, cause an increase in the occurrence of avoidance behaviors, and reduce the ability of birds to communicate where humans cause noise levels to be higher than in undisturbed habitat.

Visitors may adversely impact cave species by disturbing or altering cave habitats, or by physically damaging or killing individuals of the species.

Minimum protective measures recommended by the USFWS (L, O'Donnell, pers. comm.) are:

- Fencing and signage for all preserve tracts;
- Intensive public outreach and educational programs within the BCP and with adjacent landowners to manage threats (including public access, oak wilt, predators (jays and cowbirds attracted to birdfeeders, and pets). etc.);
- *Permanent closure of trail systems that cross through interiors of warbler habitat, and elimination of internal fragmentation through active habitat restoration and reforestation;
- Routine surveillance to ensure no unauthorized public access or other problems occur within the preserve;
- *Elimination of recreational access to all GCW habitat during the breeding season;
- *During the breeding season, restrict supervised, guided tours to the periphery of preserves, and rotate areas that are visited;
- *To reduce disturbance, limit access for supervised educational tours to peripheries of occupied habitat, and rotate visits among occupied habitat areas;

- *Prohibition of unauthorized recreational activities (mountain biking, horseback riding, all-terrain vehicles, etc.) unless clearly demonstrated through scientific research (in areas outside the preserve) that they are not a threat, and they are introduced slowly with monitoring and oversight to ensure no negative impact;
- *Permanent exclusion of activities that may promote the degradation or destruction (through erosion, habitat fragmentation, introduction of exotic species, noise, fire, etc.) of GCW habitat; and

* Except on "grandfathered" tracts (Wild Basin Wilderness Preserve and Hamilton Pool Preserve) where recreational access was already allowed before the creation of the BCP. On these tracts, access should be held near the level which occurred at the time the BCP was created.

Programs and brochures which describe the natural history and ecosystem of, and threats to the protected species will be used to educate the public about the BCP and the protected species (USFWS 1992).

Staff may access tracts for purposes of habitat management, research projects, species monitoring, fence and road maintenance, patrolling for trespassers, and other necessary management activities.

8.2 Public access by Site

8.2.1 Travis County Grandfathered Tracts: Hamilton Pool Preserve

Hamilton Pool Preserve is located on Hamilton Pool Road in southwestern Travis County, and consists of 232 acres along Hamilton Creek and the Pedernales River. Hamilton Pool is open from 9 a.m. to 6 p.m. every day for hiking, swimming and nature viewing. Access management includes a staffed entrance station, and information kiosk, and two trails. Other improvements include a parking area, picnic tables, composting and portable toilets, benches, and a footbridge. Guided public and private tours are available. Visitors must stay on designated trails and may swim only in designated areas when bacteria levels are within established safe standards. Disturbing, feeding collecting or harming plants or animals with the park is prohibited. Painting, marking, altering, or removing any natural features is prohibited. Pets are prohibited. No fires, stoves or cooking allowed.

Wild Basin Preserve

Travis County's 227-acre Wild Basin Preserve is managed through a contractual agreement with the Committee for Wild Basin Wilderness. The preserve is located on Loop 360 (Capital of Texas Highway), 1.5 miles north of Bee Cave Road, within the Bee Creek drainage basin. Wild Basin is open from daylight to dusk every day for hiking and nature viewing. Guided and self-guided tours are available, and a wide range of educational programs are offered. Improvements include an interpretive center, information kiosk, parking area, wheelchair access (moderately difficult) to the building and some trails, caretaker quarters, and composting and portable toilets. Visitors must stay on designated trails. Swimming is not allowed. Disturbing, feeding collecting or harming plants or animals within the park is prohibited. Painting, marking, altering, or removing any natural features is prohibited. Pets are prohibited. No fires, stoves or cooking allowed.

Romberg Preserve

The Romberg Preserve consists of about 40 acres across Comanche Trail from Bob Wentz Park, at Windy Point on Lake Travis. The preserve has no improvements, except for a septic drain field, and no visitor accommodations are available. Travis County staff conducts research, maintenance, and enforcement as needed. Ecological tours coordinated with Travis County staff may be conducted. Pets are prohibited.

8.2.2 Travis County future acquisitions

Any additional BCP tracts purchased or managed in the future by Travis County will be dedicated preserve land, and will be closed to the public for at least the first five years of ownership or management by Travis County. This five-year period will be used to assess and monitor the condition of the habitat and resident populations of endangered species, and for general environmental assessment purposes. After five years, public access options will be considered along with the supporting O&M funding needs in a Public Access Plan. However, any public access will be contingent upon the ability of staff to continue to maintain and improve endangered species habitat and populations, and upon appropriate and sufficient operations and management funding approved by the Travis County Commissioner's Court for public safety, education, enforcement, grounds maintenance, and any other necessary operations. Before opening any tract, baseline ecological and endangered species data will be evaluated by the BCP

Scientific Advisory Committee (SAC) and other endangered species experts. The SAC will then be asked to make recommendations on the type and extent of public access (if any) to be allowed on the tract.

9.0 LCRA-Managed BCP

9.1 McGregor Preserve

No commercial or non-commercial uses by individuals or private groups are permitted on LCRA preserve lands. LCRA plans to develop programs to promote educational research, and wildlife viewing activities which will not interfere with the nesting season. No pets are allowed at any time.

9.2 Westcave Preserve

The Westcave Preserve, a 25.8 acre preserve is located along the Pedernales River on Hamilton Pool Road. It is owned by the Lower Colorado River Authority and managed by the non-profit Westcave Preserve Corporation. The preserve has a headquarters/manager's residence, composting toilet, classroom trailer, trail, small parking area, gravel road, and fencing on all sides.

Both individuals and groups are encouraged to visit the site, although access to the site is by guided tour only. Tours are by appointment during the weekdays and at 10am, 12pm, 2pm and 4pm on Saturdays and Sundays, weather permitting. Tours are designed to avoid possible harm to the sensitive ecological features of the preserve. Motor vehicle access will be limited to the established parking area, except for equipment and vehicles used to maintain the preserve.

9.3 Wheless Preserve (LCRA)

No commercial or non-commercial uses by individuals or private groups are permitted on LCRA preserve lands. LCRA plans to develop programs to promote educational research, and wildlife viewing activities which will not interfere with the nesting season. No pets are allowed at any time.

10.0 Caves and Karst Features

All public-owned caves on the various units of the BCP are closed to unsupervised public visitation, and may only be accessed via permit from the site manager, with the exception of the following caves, which are "grandfathered" to current access levels:

1. Airman's Cave in the Barton Creek Greenbelt

2. The first portion of District Cave in Dick Nichol's Park (Note: the remainder of the cave is gated and accessible only by permit.)

11.0 Literature Cited

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Locations Available for Active Recreation in Central Texas

The Central Texas area offers ample opportunities for the active recreational pursuits of camping, horseback riding and bicycling. Listed below are some of the numerous facilities, both public and private, where these activities are available.

Agency/Location	Camping	Biking, mountain and otherwise	Horseback Riding
Texas Parks and Wildlife State Parks			
Bastrop State Park	✓	✓	
Blanco State Park	✓		
Buescher State Park	✓	✓	
Colorado Bend State Park	✓		
Enchanted Rock State Natural Area	✓		
Garner State Park	✓		
Guadalupe River State Park	✓		
Hill Country State Natural Area	✓	✓	✓
Inks Lake State Park	✓		
Kerrville-Schreiner State Park	✓	✓	
Lake Somerville State Park - Birch Creek	✓	✓	✓
Lockhart State Park	✓		
McKinney Falls State Park	✓	✓	
Mother Neff State Park	✓		
Palmetto State Park	✓		
Pedernales Falls State Park	✓	✓	✓
Travis County Parks			
Arkansas Bend Park	✓	✓ road biking	
Cypress Creek Park	✓	✓ road biking	
Mansfield Dam Park	✓ special use by groups only	✓ road biking	

Agency/Location	Camping	Biking, mountain and otherwise	Horseback Riding
Pace Bend Park	✓	✓ road biking	✓
Sandy Creek Park	✓	✓ road biking	
Richard Moya Park		✓ road biking	
Webberville Park		✓ ADA trail not suitable for mtn biking	✓
Lower Colorado River Authority			
Black Rock Park - Lake Buchanan	✓		
Cedar Point - Lake Buchanan	✓		
Gloster Bend - Lake Travis	✓		
Grelle - Lake Travis	✓		
McKinney Roughs		✓	✓
Muleshoe - Lake Travis	✓	✓	
Narrows - Lake Travis	✓		
North Shore Park - Lake Bastrop	✓		
Shaffer Bend - Lake Travis	✓		
Turkey Bend - Lake Travis	✓		
City of Austin Parks and Recreation Department			
* Balcones District Park		✓	
* Barton Creek Greenbelt		✓	
* Bull Creek District Park and Greenbelt		✓	
* Bull Creek Parkway		✓	
Circle C Veloway		✓	
* Commons Ford Ranch		hiking/mt biking	
* Emma Long Metropolitan Park	✓	hiking/mt. biking/ motorcycling/ archery	✓
Johnson Creek Greenbelt		✓	

Agency/Location	Camping	Biking, mountain and otherwise	Horseback Riding
Mary Moore Searight Park		✓	✓
* Mt. Bonnell Park		✓	
Pease District Park		✓	
Schroeter Park		✓	
Shoal Creek Greenbelt		✓	
Slaughter Creek Metropolitan Park		✓	
Springfield Park		✓	
St. Edward's Park		✓	✓
Town Lake Metropolitan Park		✓	
Waller Creek Greenbelt		✓	
Walnut Creek Metropolitan Park		✓	
Waterloo Park		✓	
Zilker Metropolitan Park		✓	
Private Facilities			
Bluff Creek Ranch			✓
Flat Creek Ranch			✓

* These City of Austin Parks are also included in the Balcones Canyonlands Preserve.

RECOMMENDED STUDY TO ASSESS THE EFFECTS OF
RECREATIONAL USE OF PRESERVE AREAS ON THE
GOLDEN-CHEEKED WARBLER

BY

BCCP SCIENTIFIC ADVISORY COMMITTEE

OBJECTIVES

The purpose of this recommended study is to determine if current and future recreational use (mountain biking, hiking, horseback riding) within the designated preserve areas for the Balcones Canyonlands Conservation Plan (BCCP) might have negative effects, no effects, or positive effects on the golden-cheeked warbler (GCWA) (*Dendroica chrysoparia*). Literature exists that provides assessments of the effects of various forms of recreational activities on avian and other wildlife populations (general bibliography attached, but not comprehensive). In general, many of these previous studies indicate that certain recreational activities can have negative effects on avian behaviors, abundance and productivity. However, no direct, scientifically-valid evidence currently exists to adequately assess the overall effects on the GCWA that might result from recreational use. Incidental observations by several researchers have noted flight response in GCWAs in reaction to recreational noise, while others have noted habituation (becoming accustomed to) to recreational noise in GCWAs and other species constantly exposed to recreational activities. While habituation might occur, there is no information to indicate whether any other effects on GCWA breeding or nesting behavior, abundance or productivity might take place even though immediate flight response might become subdued.

While many potential effects on various aspects of GCWA behavior and biology can be hypothesized and studies designed to assess those effects, the Scientific Advisory Committee (SAC) believes that the most crucial aspects of GCWA biology to study for potential effects of recreational activities is abundance and productivity. These two criteria would be measured by the number of individuals and offspring, respectively, per unit area each year. In our opinion, these parameters are the most crucial for GCWA conservation. Therefore, this study design is primarily aimed at assessing GCWA abundance and productivity in relation to various exposures to human recreational activities. The primary elements of the study design, methods, duration, minimum level of effort to be expended, and minimum qualifications of research personnel are outlined below. It is expected that if this study is advertised for bids, prospective bidders should provide a detailed study design as part of their bid submittal for evaluation. The SAC, or a representative subcommittee, would request to be included in the bid review and evaluation process. In order to avoid any appearance of conflict of interest in the bid process, members of the SAC bid review subcommittee would be prohibited from submitting bids on this study, or could not be affiliated in any way with any prospective bidders.

STUDY PARAMETERS

- A. Comprehensive study site characterizations (topography, vegetational communities, surface water resources, proximity to urban development, proximity to other disturbance factors).
- B. Territorial identification and mapping.
- C. Concurrent monitoring of cowbird, bluejay, and other predator/parasite influences on productivity.
- D. Fledgling counts per singing male GCWA, per territory, and per area.
- E. Concurrent Recreational Use Assessment: (For Biking, Hiking, Horseback riding).
 - 1) Temporal Counts of Activities (hourly, seasonally).
 - 2) Temporal Noise Assessment of Activities (compared with non-recreation background).

STUDY SITE SELECTION/CHARACTERISTICS/LOCATIONS

It is generally felt that at least several study sites (or study plots within sites) should be selected, including Forest Ridge. Study sites should include areas both presently influenced and non-influenced by recreational activities. Study sites should generally be similar in all characteristics. Sites within proximity to Austin and those that are more remote may provide a means of distinguishing between recreational effects and other urban influences. Site selection will require detailed analysis of each selected site to determine similarity of characteristics and surrounding influences. In order to buffer the study sites from outside influences, study sites might be selected from within larger preserve tracts to allow insulation from outside influences.

Potential study tracts could include:

Forest Ridge
Barton Creek Greenbelt
Emma Long Metropolitan Park
Other BCCP Preserve sites
Privately Owned Tracts
Balcones Canyonlands NWR
Pedernales Falls State Park
More remote sites such as Lost Maples State Park, Colorado Bend State Park, Fort Hood, etc.

LENGTH OF STUDY

Long-term biological studies will need to be conducted over 5 or more years to document any trends in territorial numbers or locations, abundance or productivity.

The season of biological study should generally be March 1st to July 31st each year. Certain aspects of the studies will need to focus on early-season observations (eg., territorial delineation) while other aspects (eg., fledgling counts) will require mid- to late-season investigations.

Recreation studies should be conducted concurrently with each biological study (March through July), but certain aspects will need to be investigated during an entire year to determine peak recreational usage or seasonality of demand.

LEVEL OF EFFORT

Certain biological observations will need to be based on a consistent level of effort each season to maintain competency in the results. For instance, territorial enumeration may require 5 visits per season, whereas territorial delineation may require 10 or more visits per year. Certain other aspects of the study may require more continuous observation of a select set of individuals or pairs/families over the study period, such as fledgling counts.

In general, a person/hour level of effort should meet or exceed 4 hours per 100 acres per visit. Some aspects of study may require less effort than this, while others may require more. Observations of individual birds, pairs, or families should require at least 1 hour of continuous observation per visit and those observations should be shifted throughout the day to observe any temporal variance in behaviors that might occur. This is particularly important were recreational activity may vary by time of day. In all cases, observations should span both low and high recreational activity periods.

METHODS

Standard methods of territorial enumeration and delineation as specified by IBCC¹ guidelines should be followed. If other methods are proposed, a level of consistency of study procedures between study sites and study seasons should be demonstrated.

Tight geographic control on study sites will be important when comparing various years of study and assessing trends. Territorial delineations should be documented each year either by reference to on-ground surveyed control points within each study site or by GPS location (\leq 10 meter accuracy) of territorial boundaries.

¹ International Bird Census Committee. 1970. An International Standard for a Mapping Method in Bird Census Work Recommended by the International Bird Census Committee. *Audubon Field Notes* 24(6): 722-726.

It is recommended that the study be conducted by auditory or visual observation only during the early and mid-portions (March to mid-May) of the season. Taped recordings of GCWA or screech owl might be utilized during later parts of the study season (late May, June and July) to elicit responses from post-nesting GCWAs.

Color banding of adults and fledglings would greatly enhance the ability to derive information about survival, demography, dispersal, recruitment, and space utilization; however, the banding activity in itself may result in certain levels of impact that could cloud the study findings. Color banding is recommended as an option to the study; however, if it is used, additional close scrutiny of banded birds vs. non-banded birds should be made to determine the possible effects of the banding activity.

MINIMUM QUALIFICATIONS OF RESEARCH PERSONNEL

The Principal Investigator (PI) should be trained or experienced in wildlife census techniques and have a minimum of 5 years of field experience working with the GCWA in Texas. Primary field personnel should also be experienced field biologists with previous GCWA experience. The PI and all field personnel should also possess, be qualified to obtain, or be listed as a subpermittee on an endangered species research permit from the U.S. Fish and Wildlife Service, Albuquerque Region, and a State of Texas Scientific Collection Permit specifically allowing the above study methods on GCWAs in the wild. Such permit should include banding if such is to be utilized.

STUDY EFFICACY

The study should be conducted in a manner and with such efficacy as to allow the results to be published in a peer reviewed journal.

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