TIER II – A
BALCONES CANYONLANDS PRESERVE
MANAGEMENT HANDBOOK

XII. PUBLIC ACCESS MANAGEMENT

Approved by the BCCP Coordinating Committee on December 7, 2018

TIER II-A MANAGEMENT HANDBOOK

CHAPTER XII: PUBLIC ACCESS MANAGEMENT

1.0 INTRODUCTION

The Balcones Canyonlands Preserve (BCP) serves as mitigation for species protected under the federal 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. A permit issued jointly to the City of Austin (COA) and Travis County in 1996 for the Balcones Canyonlands Conservation Plan (BCCP) by the U.S. Fish and Wildlife Service (USFWS) (the Permit) authorized incidental take under the ESA (USFWS 1996). Incidental take is the loss of federally listed species or their habitats in the course of (or "incidental to") otherwise legal actions, like development and infrastructure activities. Such permitting is authorized under ESA Section 10(A)(1)(b).

This system of preserves is managed under guidelines provided by USFWS and agreed upon by the various participating entities. The managing partners of the Balcones Canyonlands Preserve are the City of Austin, Travis County, City of Sunset Valley, and Lower Colorado River Authority. The Nature Conservancy of Texas, Travis Audubon Society, and St. Edward's University also manage BCP lands. There are additional Preserve tracts considered as part of the BCP that are managed by private landowners through their own individual 10(a) or Section 7 mitigation agreements with the USFWS.

The preserve offers public access and recreational opportunities at selected sites, as long as those activities are consistent with the protections required by the Endangered Species Act. The 1996 Habitat Conservation Plan and Environmental Impact Statement (HCP/EIS) for the BCCP allows public access where and when such access does not threaten the welfare of golden-cheeked warblers (GCWAs) and other target species, or cause the degradation of soil, vegetation, or water resources. The primary purpose of managing the BCP is to ensure the continued survival of the GCWA, black-capped vireo (BCVI), and rare karst and plant species.[1]

1.1 PURPOSE

This document is designed to serve as a guide for Balcones Canyonlands Preserve (BCP) managers. It addresses public access on tracts managed by the above listed partners. It does not include the individual 10(a) or Section 7 BCP tracts, which are managed by private landowners under separate agreements with the USFWS.

The chapter includes general public access management policies for all BCP tracts, including lists of activities and levels of activity that are acceptable within the preserve. It includes information about two categories of public access: pre-existing parkland that has "grandfathered" uses and lands acquired specifically for the BCP.

---

[1] The 1996 HCP/EIS states "The BCCP preserve system is to be managed to permanently conserve and facilitate the recovery of the populations of target endangered species inhabiting western Travis County. This priority objective will govern preserve management activities to improve target species habitat, while protecting preserves against degradation caused by urbanization of surrounding lands and increased public demand for recreational usage within preserves. The welfare of target species (species of concern) will be the overriding influence on all decisions regarding activities on preserve lands. Decisions about activities within preserves should be made cautiously, so as to meet biological objectives to protect and enhance target species and minimize risk of damage to their habitat." (p. 2-28)

The “BCP Land Management Plans and Guidelines” for the BCCP, located in the HCP/EIS (p. 2-31 to 2-44), stipulate that endangered species management must take precedence over recreational opportunities within the preserve. Section 1.3 and sections 3.0 through 5.0 of this document are based on those Guidelines.

1.2 PUBLIC ACCESS BY TYPE OF BCP UNIT

1.2.1 GRANDFATHERED UNITS

The BCP includes parkland or preserve lands that existed prior to the creation of the BCP with specific grandfathered uses that were brought into the preserve as "grandfathered" tracts. The Public Access chapter adopted in 1999 noted, “These grandfathered units are allowed to continue public access at levels as of adoption of this plan”. . . “these tracts are permitted by USFWS to continue providing current active and passive recreational uses at current levels,” and at the “current level of use.” Although there is likely no measurable difference in BCP access between 1996 and 1999, changes in access levels relative to the signing of the 1996 permit is the most defensible reference point for upholding the commitments of the federal permit. 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 managing entity and the BCCP Secretary.

- **The City of Austin's** pre-existing parkland properties with allowed 1996 levels of use are 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.
- **Travis County's** pre-existing preserve lands with allowed 1996 levels of use include the Romberg Preserve, Hamilton Pool Preserve, and Wild Basin Preserve.
- **LCRA's** pre-existing preserve land with allowed 1996 level of use includes Westcave Preserve.
- **Travis Audubon Society** land is privately owned Preserve land secured for the Balcones Canyonlands Preserve by a conservation easement held by Travis County. Access is restricted.
- **The Nature Conservancy’s** land is privately owned Preserve land with restricted access.

Publicly accessible City of Austin parks and preserves contain many caves that the USFWS BCCP permit requires be protected. As described in greater detail in Section 10, the caves themselves are not publicly accessible without a permit. These include Airman’s Cave and Cave Y at the Barton Creek Greenbelt and Wilderness Park; Goat Cave and Maple Run Cave at the Goat Cave Karst Nature Preserve; District Park Cave at Dick Nichols District Park; Midnight Cave, Arrow Cave, and Slaughter Creek Cave at Circle C Ranch on Slaughter Creek; Get Down Cave at the Village at Western Oaks Karst Preserve and Watershed Management Area; Buda Boulder Spring at Shoal Creek Greenbelt; Cotterell Cave at Stillhouse Hollow Nature Preserve; and Fossil Cave at Hubert C. Schroeter Neighborhood Park.

1.2.2 REGULAR PRESERVE UNITS

Properties that were acquired specifically for preserve land contain much more restrictive public access policies. These tracts were purchased with private, local, and/or federal funds specifically deeded to mitigate "take" of permitted species during the development of homes, businesses, and support infrastructure in western Travis County. The majority of the BCP fits into this category. Volunteer opportunities and guided hikes are available on mitigation tracts. On most tracts, public access activities are allowed only when the impacts of the activity have been carefully considered and after monitoring and management strategies have been detailed in the tract-specific Tier III tract management plans. Exceptions to this are described in sections 6, 7, and 8. The **City of Austin's** Ullrich Water Treatment

Plant, now the Bee Creek Preserve, has restricted access due to COA policies for water treatment facilities. Note that the Water Treatment Plant #4 site referenced in the 1999 Public Access Chapter is now known as the Sam Hamilton tract and has no grandfathered public access provisions. The currently operating Water Treatment Plant #4 site is a different site that also has no public access provisions and is not part of the BCP.

1.2.3 CONSERVATION EASEMENTS

Travis County manages some tracts through conservation easement agreements. These BCP tracts are mitigation lands that are owned by private individuals, companies, non-profit organizations, or universities, but are subject to conservations easements held by Travis County. Most of these tracts have restricted access outlined in the individual conservation easement agreements and/or in the individual 10(a) permits. Examples of this type of tract include Steiner Ranch, Travis Audubon's Baker Sanctuary, and Concordia University. Those conservation easement tracts, which provide access to large numbers of people (>100 individuals annually), are described in section 6.

The BCP also contains mitigation lands from private 10(a) permits or Section 7 consultations with the USFWS that are owned and managed by the private landowner. These tracts are subject to their own rules and are not considered in this public access chapter.

1.3 MANAGEMENT STRATEGIES

The key to allowing public access that is non-damaging to preserve lands is the implementation of effective management strategies to control such access and use.[2] Public access should be managed on a tract or unit level based on the type of unit (grandfathered, mitigation, conservation easement), the site's environmental features, the species present, and the resources available to the managing entity. The level of public access allowed and the strategies to monitor and manage the public access should be described in a unit-specific land management plan. These unit-specific plans are part of the Tier III section of the Balcones Canyonlands Land Management Plan.

Since the creation of the 1996 federal permit, public access to BCP lands and BCP permit caves has likely increased for all recreational use types including hiking, caving, rock climbing, and mountain biking. In some respects, this increasing interest in greenspace utilization is a positive sign that Travis County residents' value outdoor activities and are supportive of parks and preserves, as seen in highly successful public votes for additional greenspaces. However, the BCP has a federal permit requirement to maintain public access on grandfathered tracts to 1996 levels. Innovative solutions such as offering additional recreational areas to keep pace with growing populations and demands and acquiring additional preserves to offset habitat degradation on existing BCP lands are needed to help satisfy the increased demand while still meeting the permit requirements.

For BCP land where access is not already allowed, managers should allow adequate time for preparation of the Tier III tract management plans (that provide details for each BCP tract) and for implementation of the management strategies. These management strategies must be specified in the Tier III tract management plans and implemented by the preserve tract managers.

Effective management strategies can be any combination of, but are not limited to no access, seasonally restricted access, rotation of accessible preserves over a period of years, prohibited access to selected sensitive areas of a tract, selected access to non-habitat areas of a tract only, or careful trail and

[2] The 1996 HCP/EIS states "The preserve system may 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, which is the overriding goal of the preserve system, nor cause the degradation of soil, vegetation, or water resources." (p. 2-36).

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 healthy populations[3] of endangered species and species of concern. 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[4].

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.

It is important that funds for endangered species management not be diverted from the purpose of endangered species protection. 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. Public access to a preserve tract requires considerable resources including:

- infrastructure construction including sustainable trails
- regular patrols
- complaint response
- scientific monitoring
- restoration after harmful impacts, including removal of graffiti, trash disposal, and homeless camps.

Another consideration is that a site with public access must be managed differently from one without public access. For instance, it is difficult to manage for environmentally damaging feral hogs and deer on publicly accessible sites. Areas with public access can have additional problems like illegal camping, trash disposal, graffiti, and vandalism. It is important to acknowledge that most citizens who enjoy access to the BCP are good stewards, and it is a small minority that causes the problems above. Nevertheless, management of these problems is necessary. Maintenance of trails and other facilities are important for sustainable public access. Partnerships with user groups and neighborhood associations may assist in communication on management issues and support for addressing them. Public safety is another factor that needs to be considered. As wilderness and cave sites, the BCP lands are associated with inherent potential public safety hazards that require additional infrastructure and staff if public access is allowed or increased.

---

[3] Long-term monitoring of both the environmental quality of the preserve and the health of its populations of endangered species is a necessary part of this endeavor. This is primarily because the basic biology of most local federally-listed species is not sufficiently well understood to allow prediction of the impact on those species of specific management activities or use-intensity levels for public recreation. Consequently, management practices should be prescribed and monitored with an appropriate multi-species emphasis and overall ecosystem approach. (HCP/EIS, 1996, pg. 2-34)

[4] Demonstration over time of effectively implemented management strategies on a preserve tract may justify increased public access opportunities. Demonstrated non-effectiveness or habitat degradation may justify less public access for a particular tract. (HCP/EIS, 1996, page 2-36)

1.3.1 Benefits of Public Access

Developing creative options for providing outdoor opportunities for the public is also important, both for the protection of preserves as well as for our community health and cohesion. Unstructured positive immersion in nature promotes greater environmental sensitivity (Tanner 1980; Hungerford and Volk, 1990; Mathews and Riley, 1995). Pergams and Zaradic (2008) measured an 18-25% decline in nature-based recreation between 1981 and 1991 that has the potential to, "greatly reduce the value people place on biodiversity conservation" and challenge efforts to "raise public awareness of the current biodiversity crisis." Kellert (1996) concluded that while the college-educated public showed the highest tendency towards biodiversity protection, providing greater scientific information in a classroom setting alone does not increase protection tendencies of the public. Greater exposure to nature has been linked in nation-wide surveys to more environmentally responsible behavior, greater community cohesion, and lower crime (Kuo and Sullivan 2001, Mayer et al., 2008; Weinstein et al., 2015). Nature immersion provides positive effects to communities including physical fitness (Leather et al., 1998, Maas et al., 2006), reducing depression (Tarrant 1996; Hartig et al 2003, White et al 2010), and reducing stress (Ulrich et al., 1991, Hartig et al., 2003; Fuller et al., 2007). Attention Restoration Theory studies demonstrate that outdoor immersion limits overexposure to attention-consuming technology and increases creativity and problem-solving ability (Atchley et al 2012).

1.3.2 Species Specific Considerations

Populations of golden-cheeked warblers (GCWAs) have been monitored or censused in recent years in the BCP by various entities. Unfortunately, a variety of different methods were initially used, making it difficult or impossible to compare the results statistically. The 1997 Tier IIA-7 GCWA Management chapter of the land management plan outlines a standardized monitoring method that was initiated to monitor GCWAs throughout the BCP. This protocol employs a system of 100-acre sample plots in which to monitor long-term trends in GCWA populations and their reproductive success. Territorial males, females, and young are mapped within these plots using International Bird Census Committee (1970) methods.

The City of Austin began more intensive monitoring (color-banding and nest monitoring) on these plots in 2009. In 2011, the City of Austin entered into a 5-year collection agreement with the U.S. Forest Service and University of Missouri to assess habitat relationships and population viability of the GCWA within the BCP (Reidy et al. 2015, 2016, 2017, 2018). Travis County contributed to this study with funding, plot sites, and staff support for color-banding and survey effort. BCP partners and volunteers assisted with site access and data collection on an expanded number of plots throughout the BCP. The purpose of this study was to evaluate the status and habitat requirements of the GCWA on the BCP to promote informed management strategies. The study addressed four primary questions:

1. What is the absolute abundance of the GCWA on the BCP and on individual macrosites?
2. How do demographics (e.g. density, productivity, survival) vary with landscape and habitat factors?
3. How viable are these populations?
4. How do various management scenarios influence population viability?

The study results were consistent with those of Fort Hood (Peak 2007, Peak and Thompson 2013, 2014) and other population viability analyses for the GCWA (Duarte et al. 2013, 2016a,b) and reinforce the conservation goals of the BCCP, specifically protection of large patches of closed canopy, mature Ashe juniper-oak woodlands with minimal edge. While the 5-year study did not specifically address

recreation, the findings support managing for tall (>3 m) mixed juniper-oak woodlands, including upland woodlands, with a well-developed understory of native woody vegetation under a closed canopy. Managing for this habitat requires healthy soils and watersheds. The study re-emphasizes the importance of ensuring that access does not cause the degradation of soil, vegetation, or water resources and to take corrective action if it does.

Land managers should take relevant scientific data regarding impact from public access, including site-specific information, into account in developing management plans. In general, managers should 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 on regular preserve tracts - until such time as the endangered species and species of concern have healthy populations, AND additional funding is provided for public access management.

Although there is limited information on the effects of human disturbance on karst invertebrates, GCWAs, BCVIs, rare plants, and other protected species, 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 BCVIs) 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 GCWA 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 unauthorized access, oak wilt, predators [jays and cowbirds attracted to birdfeeders, and pets], etc.);
- *Permanent closure of trail systems that cross through interiors of GCWA 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 GCWA habitat during the breeding season;
- *To reduce disturbance during the breeding season, 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; and
- *Permanent exclusion of activities that may promote the degradation or destruction (through erosion, habitat fragmentation, introduction of exotic species, noise, fire, etc.) of GCWA habitat

*Except on "grandfathered" tracts (including 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 that occurred at the time the BCP was created.

Programs and brochures that 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.

1.3.3 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 recreationists, 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 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.

2.0 ACTIVE AND PASSIVE RECREATION AND TRAIL ISSUES

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

2.1 DEFINITIONS

2.1.1 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
- faster-paced activities that 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 minerals or fossils.
- rock-climbing

More discussion regarding these activities is found in Section 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 that offer camping, biking, and equestrian trails. (See Appendix E)

2.1.2 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.

2.1.3 Approved Trails and Activities

The HCP/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 that are marked on maps contained in approved Tier III land management plans prepared by the tract manager, or that have been approved subsequently by the Coordinating Committee. If no trail maps are shown in the currently approved Tier III plan, the authorized trails are defined as those shown in the most recent previously approved Tier III plan that shows a trail map. BCP staff will solicit input from user groups to ensure that there is clear documentation of approved trails in parks on grandfathered units. The BCCP commits to a transparent process for incorporating stakeholder feedback during updates to Tier III plans on grandfathered units.

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 GCWA habitat, new trails should not fragment woodland interiors or allow levels of human use intensity to degrade the habitat. 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 human intrusion. The HCP/EIS requires "existing approved trails" be restored to habitat if and when they are no longer in use.

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 tracts associated with human activity. The following types of outdoor activities may be allowed if they do not conflict with conservation of target species 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 Tier III management plan for grandfathered parkland must address reduction of visitor impacts over time to 1996 levels and these strategies should be implemented within two years after the adoption of the Tier III management plan.

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 Tier III 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 Tier III 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 that are not dedicated parkland, except as provided for in the City of Austin Trail Master Plan. Bicycling may continue at 1996 levels on previously existing parklands which are now part of the BCP including Barton Creek Greenbelt, Bull Creek Greenbelt, Emma Long, and St. Edwards. Parks and greenbelts should be monitored for effects on the endangered species. Enforcement of all applicable rules is required.

New bicycle trails for parkland units that 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 GCWA 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 Tier III site management plan. Existing approved trails (*see maps in Tier III plans for locations) exhibiting significant erosion must be closed or renovated and restored to habitat. All non-approved trails are subject to closure and restoration.

No units purchased specifically for endangered species management or accepted for mitigation, or units that 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, other trails on parkland are available for bicycling.

3.1.5 Horseback Riding

This activity may continue at 1996 levels on previously existing parklands that are now within the BCP. It is not an approved activity on lands purchased specifically for the BCP, or those that 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.

According to the HCP/EIS, contracts with private and commercial facilities on adjacent lands may be negotiated for use of tracts during the non-nesting and breeding season, 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.

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 1996 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 for appropriate preserve operations and maintenance activities, as needed.

3.1.7 Picnicking

This activity may continue at 1996 levels on previously existing parklands that 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 approved Tier III site management plans, those plans will designate picnic sites that can be easily maintained to avoid creating food centers for cowbirds, tawny crazy ants, or red imported fire ants.

3.1.8 Camping

This activity may continue at 1996 levels on previously existing parklands that are now part of the BCP. If camping is allowed at other units, sites must be designated in approved Tier III site 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 ll-A: Management Handbook. Supplemental feeding to improve wildlife viewing is prohibited.

3.1.10 Caving

All access to caves is restricted to those holding permits issued by the appropriate land management agency; however, some caves on dedicated parkland are grandfathered from this restriction. Permits to restricted caves may only be granted for karst species management, research and education. See Section 10 for more information.

3.1.11 Rock-Climbing

Rock-climbing and related activities are prohibited in BCP portions of parks. Rock-climbing at Barton Creek Greenbelt is permitted to continue at 1996 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. An exception is Turkey Creek Trail in Emma Long Park, where pets are allowed to be off-leash. Pets may also be allowed on BCP tracts that have conservation easements, each of which has its own terms and contractual rights.

4.0 NON-COMMERCIAL GROUP USE

Non-commercial groups are nonprofit organizations, schools, and educational groups that 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 that present or interpret information about the ecology of the preserve sites and the target species. Daytime field trips by school groups typify 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 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 preserve 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 that 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 BCP land manager and appropriate permits from the Texas Parks and Wildlife Department and the USFWS. The land manager may refer such research proposals to the BCCP 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 harm 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 or educational outings. Maps showing approved trails are shown in the Tier III documents.

UNIT	TYPE	PRIMARY MANAGEMENT RESPONSIBILITY	TYPE OF PUBLIC ACCESS AND USE
Grandfathered Units			
Barton Creek Greenbelt (East and West)/ Wilderness Park	park	Austin Parks and Recreation Department Operations, Austin Water – Wildland Conservation Division	Grandfathered uses include hiking, swimming, tubing, mountain biking, rock climbing, picnicking, and caving.
Commons Ford Ranch Metropolitan Park/ BCP portion	Park/ preserve	Austin Parks and Recreation Department Operations/Austin Water - Wildland Conservation Division	The BCP portion is generally the wooded portion of the park south of the park road as mapped in the 1999 EIS & HCP. Grandfathered uses include hiking on marked trail, though pets are not allowed in the BCP portion. Biking is currently prohibited by PARD in the BCP portion of the preserve.
Bull Creek Greenbelt (Upper and Lower) and Bull Creek District Park	park	Austin Parks and Recreation Department Operations/ Austin Water – Wildland Conservation Division	Grandfathered uses include hiking on marked trails, swimming, tubing, mountain biking, and picnicking. Rock climbing (bouldering) is allowed outside the BCP Preserve area south of Bull Creek and upstream of Lakewood Drive.

UNIT	TYPE	PRIMARY MANAGEMENT RESPONSIBILITY	TYPE OF PUBLIC ACCESS AND USE
Emma Long Metropolitan Park	park	Austin Parks and Recreation Department Operations, Austin Water - Wildland Conservation Division	Grandfathered uses include hiking on marked trails, mountain biking, and motorcycle riding on approved trails in designated areas. Emma Long is the only BCP tract that allows hiking with dogs off-leash, specifically along Turkey Creek nature trail. Archery is permitted in a designated range.
Mt. Bonnell Park	park	Austin Parks and Recreation Department Operations, Austin Water - Wildland Conservation Division	Grandfathered uses include hiking, viewing, picnicking, and mountain-biking on approved trails.
St. Edwards Park/BCP portion	park/ preserve	Austin Parks and Recreation Department Operations/Austin Water - Wildland Conservation Division	Public uses include hiking on approved trails, hiking with pets on leash, and mountain biking.
Stillhouse Hollow (Spicewood Springs Preserve) /Barrow Preserve	preserve	Austin Parks and Recreation Department Operations/Austin Water - Wildland Conservation Division	Grandfathered uses include hiking on approved trails, staff guided tours.
Hamilton Pool Preserve	preserve	Travis County Parks and Travis County Natural Resources	Grandfathered uses include hiking on approved trails, swimming (except when bacteria levels are too high), picnicking, guided tours, and fishing on river. An entry fee is required year-round and a reservation system is in place.
Romberg Preserve	preserve	Travis County Parks and Travis County Natural Resources	Romberg Preserve is a portion of Bob Wentz Park that is part of the BCP. Access is limited to guided hikes and approved research. The non-BCP portion of Bob Wentz Park has public access and amenities.

UNIT	TYPE	PRIMARY MANAGEMENT RESPONSIBILITY	TYPE OF PUBLIC ACCESS AND USE
Barton Creek Habitat Preserve	preserve	The Nature Conservancy	Approved educational/research access, guided educational group tours.
Lehmann Tract	preserve	The Nature Conservancy	Approved educational/research access, guided educational group tours.
Baker Sanctuary	preserve	Travis Audubon/Travis County Natural Resources	Baker Sanctuary is open to Travis Audubon members and their guests. Other members of the public can access the sanctuary through guided hikes.
Ullrich Water Treatment Plant	AW Facility	Austin Water	No access; secure facility for public safety.
Westcave Preserve	preserve	Lower Colorado River Authority/Westcave Preserve Corporation	BCP section: approved educational/research access, guided educational group tours.
Regular Preserve Units			
Bull Creek Preserve (Forest Ridge, Jester, portion of 3M)	preserve	Austin Water – Wildland Conservation Division	Public uses that existed prior to the COA BCP Trail Master Plan include hiking from March through July by permit, hiking without permit from August through February and guided educational group tours.
South Lake Austin Unit (Reicher/DJ&T/ Bohls)	preserve	Austin Water - Wildland Conservation Division; Reicher also Parks and Recreation Department	Public uses that existed prior to the COA BCP Trail Master Plan include approved educational / research access, guided educational group tours. On Reicher: reservations of facility may include unsupervised hiking on marked trails near facilities and outdoor education programs.
Cortaña	preserve	Austin Water - Wildland Conservation Division	Public uses that existed prior to the COA BCP Trail Master Plan include approved educational / research access, and guided educational group tours.

UNIT	TYPE	PRIMARY MANAGEMENT RESPONSIBILITY	TYPE OF PUBLIC ACCESS AND USE
Black-capped Vireo Research Area, Cow Fork/Coldwater, Kent Butler (Ivanhoe)/Beard Trust, Lime Creek, Senna Hills, Upper Bull Creek Unit Sam Hamilton Memorial Reserve West (formerly WTP #4)	preserve	Austin Water – Wildland Conservation Division	Approved educational/research access, guided educational group tours, and volunteer projects.
Sansom	preserve	Austin Water - Wildland Conservation Division	Approved educational/research access, guided educational group tours, and volunteer projects.
Wild Basin Wilderness Preserve	preserve	Travis County Natural Resources/St. Edward's University	Grandfathered uses include hiking on marked trails. Also approved educational/research access, guided educational group tours, and volunteer projects.
Upper and Lower Bull Creek Units, Canyon Vista Unit, Jollyville Unit, Cypress Creek Unit, Volente Unit, South Lake Austin Unit, North Lake Austin Unit, Kotrla Unit, and Lime Creek Unit	Nature preserve	Travis County Natural Resources	Approved educational/research access, guided educational group tours, and volunteer projects.
Trails End	Park/ preserve	Travis County Natural Resources and Travis County Parks	Public access is allowed on a portion of the tract on the east side of Trails End Road which is proposed as a future County Park. No amenities are available. There is restricted walk-in access for neighbors on a portion of the tract on the west side of Trails End Road. No parking or amenities are available.

UNIT	TYPE	PRIMARY MANAGEMENT RESPONSIBILITY	TYPE OF PUBLIC ACCESS AND USE
McGregor Preserve	preserve	Lower Colorado River Authority (LCRA)	Approved educational/research access, guided educational group tours. The LCRA's Good Neighbors Program provides training to owners of property immediately adjacent to McGregor Preserve. Successful completion of the training grants the property owner access to McGregor Preserve under specific conditions outlined in the training.
Wheless Tract	preserve	Travis County Natural Resources (the Wheless Tract was acquired from LCRA by Travis County in 2017)	A 19-acre portion is managed for public access as part of Sandy Creek Park. The rest can be accessed through approved educational/research, guided educational group tours, and volunteer projects.
Gaines Greenbelt	preserve	City of Sunset Valley	A hike and bike trail, which is part of the Violet Crown Trail, is open to the public during daylight hours. Dogs are allowed on leash.
Conservation Easements			
The Crossings Conservation Easement	preserve	Travis County Natural Resources	Employees and guests of Travaasa Austin are allowed to hike on approved trails. Pets are prohibited.
Steiner Ranch Conservation Easement	preserve	Travis County Natural Resources	Steiner Ranch residents and their guests are allowed to hike on approved trails. Dogs are permitted only if on leash.
Concordia University Conservation Easement	preserve	Travis County Natural Resources	Approved educational/research access, guided educational group tours, and volunteer projects.

7.0 CITY OF AUSTIN BCP TRACTS

7.1 PUBLIC ACCESS PER CITY OF AUSTIN LOCATION

7.1.1 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 was estimated that Barton Creek Greenbelt annually attracted over 100,000 visitors to its trail and natural areas in 1999. 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.

7.1.2 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 Tier III tract 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.

7.1.3 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 restrooms. The BCP portion of Bull Creek District Park is located east of Bull Creek. The greenbelt and park are used by recreationists for hiking, biking, swimming, picnicking, rock climbing, and nature enjoyment. Pets are allowed on leash in the Greenbelt. Due to fecal bacteria contamination of Bull Creek that was attributed to dogs, PARD designated all Bull Creek District Park to on-leash dog access only on February 17, 2011. A designated rock-climbing bouldering area is located outside of the BCP area within the park east of Lakewood Drive and south of Bull Creek, where rock climbing has occurred prior to 1996.

7.1.4 Bull Creek Preserve, also called Forest Ridge

7.1.4.1 Background

Forest Ridge refers to a group of several independently acquired tracts: Forest Ridge, Jester, 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 Forest Ridge 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.

7.1.4.2 Public Access Limitations by Season

Austin Water 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.

7.1.4.2.1 Non-Nesting Season 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 by the City that will allow unsupervised public access at this time.

7.1.4.2.2 Nesting Season March 1 through July 31

Public access during the months March through July 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 originally developed by Parks and Recreation staff but now administered by Austin Water, Wildland Conservation Division 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 Tier III tract management plan and approved by the site manager.
4. All organized groups are restricted in size to ten individuals or fewer. The tranquility of the preserve must be respected: no loud voices or noises.

The acquisition deed for the 3M tract limits its use to: “the property shall be used as a conservation area managed for the preservation of the natural habitat of the golden-cheeked warbler (and other conservation efforts consistent therewith) and for no other purpose. “ A small strip of the 3M tract along the western fence line is used solely for access between Jester and St. Edwards Park.

7.1.5 Commons Ford Metropolitan Park

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

7.1.6 Cortaña Unit

Public access is limited to staff-guided, volunteer-guided, or other approved environmental education, scientific research and service activities compatible with the goals of the Tier III tract

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.

7.1.7 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 Tier III tract 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.

7.1.8 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. Tier III management plans are reviewed every 5 years and are updated as necessary to reflect current conditions.

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 as an "off leash" area for dogs. In a part of the park referred to as the "Motorcycle Park", motorcycle and mountain-bike riding is allowed year-round.

7.1.9 Kent Butler Ecological Reserve (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 Tier III tract 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.

7.1.10 Lime Creek

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

7.1.11 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 allowed at permanent tables provided for that purpose. Pets are permitted on leash. Bicyclists may access the service road. Note that unauthorized hiking/biking trails have damaged colonies of the rare bracted twistflower (*Streptanthus bracteatus*) that the BCCP is charged with protecting (HCP/EIS p. 4-38). Some of these areas have been fenced and the unauthorized trails are closed.

7.1.12 South Lake Austin (Reicher/JJ&T/Bohls) Unit

Several buildings on the Reicher Unit are available by reservation from Austin Water. Public access to the area in the immediate surroundings of these buildings is permitted by those who have permission from Austin Water Wildlands Conservation Division 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 Tier III tract management plan and with the approval of the site manager. No pets are allowed at any time.

7.1.13 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 Tier III tract 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.

7.1.14 Stillhouse Hollow Preserve (Spicewood Springs Preserve)/Barrow Nature Preserve

Stillhouse Hollow Preserve (Spicewood Springs Preserve) is located at Sterling and Burney off Mesa Drive. Spicewood Springs Park (8.1 acres) was traded for a portion of the current Stillhouse Hollow Preserve (19.8 acres) following voter approval in 1991. The actual Spicewood Springs is located about a mile east of Stillhouse Hollow in another watershed. 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.

7.1.15 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. Horseback riders have used the park prior to 1996.

7.1.16 Ullrich Water Treatment Plant/Bee Creek Preserve

There is no public access to this tract.

7.1.17 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 Tier III tract 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.

7.1.18 Sam Hamilton Memorial Reserve West (Former Water Treatment Plant #4 Site)

Approved educational/research access, guided educational group tours. No pets are allowed at any time.

7.2 FUTURE ACQUISITIONS

The City of Austin may acquire tracts to be managed as part of the preserve for a variety of purposes. The acquired tracts may or may not include habitat for listed species but may serve as buffers to tracts that do support listed species, or as venues for learning about the environment of the preserve. In all cases, the primary purpose of acquiring and managing these tracts, as for the existing preserve lands, will be to protect and/or benefit the listed species and their habitats. Most 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 funding needs in a Public Access Plan. 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 PUBLIC ACCESS BY SITE

8.1.1 Grandfathered Units

8.1.1.1 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 generally open every day for hiking, swimming and nature viewing. Access management includes a staffed entrance station, an information kiosk, and two trails. Other improvements include a parking area, picnic tables, restrooms, benches, and a footbridge. Guided public 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 in the preserve is prohibited. Painting, marking, altering, or removing any natural features is prohibited. Pets are prohibited. No fires, stoves or cooking are allowed. An entry fee is required, and a reservation system is in place during the peak season.

8.1.1.2 Wild Basin Preserve

The 227-acre Wild Basin Preserve is owned and managed jointly by Travis County and St. Edward's University. 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 called the Wild Basin Creative Research Center, information kiosk, parking area, 2.5 miles of trails including an easy access loop, and composting and portable toilets. Visitors must stay on designated trails. Swimming is not allowed. Disturbing, feeding, collecting, or harming plants or animals is prohibited. Painting, marking, altering, or removing any natural features is prohibited. Pets are prohibited. No fires, stoves or cooking are allowed.

8.1.1.3 Romberg Preserve

The Romberg Preserve is a 40 acre portion of Bob Wentz Park, which is part of the BCP. It is located on Comanche Trail Road 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. The non-BCP portion of Bob Wentz Park has public access and amenities.

8.1.2 Units with Limited Public Access

8.1.2.1 Trails End

The 227.8-acre Trails End tract is located on the southern end of Trails End Road and the property is bisected by the road. A portion of the tract on the east side of Trails End Road has deeded recreational access for residents of an adjacent subdivision. In 2016, Travis County included that 36-acre portion of the Trails End tract, which already has some access, in the Parks Master Plan as a proposed future County Park. Public access is currently allowed in this area, but there are no amenities available. In addition, there is restricted walk-in access for neighbors on the portion of Trails End tract west of Trails End Road. No parking or amenities are available on the western portion of the tract.

8.1.2.2 Wheless Tract

The 2,319 acre Wheless tract is located along Lime Creek Road. It was acquired from LCRA by Travis County in 2017. A 19 acre portion of the tract is managed for public access as part of Sandy Creek Park. The remainder of the tract can be accessed through approved guided educational activities and volunteer projects.

8.1.3 All Other Travis County BCP Units

All other Travis County BCP units not discussed above can be accessed through approved educational/research, guided educational group tours, and volunteer projects.

8.2 TRAVIS COUNTY FUTURE ACQUISITIONS

Most BCP tracts purchased or managed in the future by Travis County will be dedicated as preserve, 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 operations and management 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.

Travis County may purchase tracts for the specific purpose of providing nature-based recreation to support the preserve, which could be open to the public in fewer than five years. It is important to note that the primary way that Travis County provides new opportunities for recreation is through parks. Travis County Parks has a robust program and has added new parks continually over the past several decades.

9.0 LCRA-MANAGED BCP

9.1 MCGREGOR PRESERVE

No commercial or non-commercial uses by individuals or private groups are permitted on the McGregor Preserve. LCRA plans to develop programs to promote educational research, and wildlife viewing activities which will not interfere with the nesting season. The LCRA's Good Neighbors Program provides training to owners of property immediately adjacent to McGregor Preserve. Successful completion of the training grants the property owner access to McGregor Preserve under specific conditions outlined in the training. 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, visitor center, trails, 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 regular times 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.

10.0 CAVES AND KARST FEATURES

The Tier II A Chapter IX 2016 Karst Species Management Plan states: *"Education both for land management professionals and the general public should be implemented in order to raise awareness of cave conservation issues and encourage protection of caves and karst ecosystems.....Public education includes literature, curriculum, web media, interpretive kiosks, and guided surface and subsurface tours that can be made available for the general public, agencies, and individuals interested in learning more about karst areas and their inhabitants. A higher public awareness is an important step towards the recovery of the endangered cave invertebrates and continued preservation of karst species of concern."*

The 1996 HCP/EIS states: *"All access to caves must be restricted to permits issued by the appropriate land management agency, based on an appropriate program in the land management plan for the preservation of the caves' ecosystem."* Public access to the 62 BCP permit caves is restricted to Whirlpool, Goat, Maple Run, District Park, Lost Oasis, Midnight, and Airman's Cave under guided tours, with permits, and associated visitor traffic logging and faunal surveys. As mentioned in the 1999 Public Access Chapter, access to the first portion (50 feet) of District Park Cave in Dick Nichols Park is still open to public access. Within the Barton Creek Wilderness Park, Backdoor Cave is a relatively short non-permit cave that is not gated.

Airman's Cave was listed as "grandfathered" to unsupervised public visitation in the 1999 Public Access Chapter. However, it was gated January 12, 2012 in response to rescues by Austin Fire Department on February 1993, July 2, 2006, and October 15, 2007. Some of those rescues involved jackhammering the entrance, building a fire at the entrance and public complaints regarding tax-payer funding required for the rescues and other actions that were not supportive of BCP cave management. Prior to gating Airman's Cave, incidents of vandalism involving graffiti, trash deposition and harassment of hibernating bats were also observed. Open public access is now allowed within the first 20 feet of the cave entrance. Because of inherent ecosystem sensitivity, special hazards, equipment, and experience required for safe cave exploring, this activity is limited to permitted guided tours in all BCP caves. Cave gating recommendations are provided in the Tier II A Chapter IX 2016 Karst Species Management Plan.

11.0 GUIDE TO THE CITY OF AUSTIN BCP TRAIL MASTER PLAN PROCESS

11.1 INTRODUCTION

This chapter is intended to serve as a functional guide to the BCP Trail Master Plan process and should be used by stakeholders interested in sponsoring a trail proposal on eligible City of Austin BCP tracts. The complete BCP Trail Master Plan and supporting process development documents can be found online at https://austintexas.gov/page/bccp-trail-master-planning-process.

The City of Austin's BCP Trail Master Plan process was created in response to a new policy issued by the BCCP Coordinating Committee on November 28, 2007 to increase opportunities for sustainable recreational trails on the BCP. The process was created by the Trail Master Plan Committee which was formed by 17 stakeholders representing various recreation advocates, environmental advocates, and neighborhoods, and it was approved by the BCCP Coordinating Committee on February 18, 2009. The goal and objective of the BCP Trail Master Plan process is to increase recreation access by identifying public access locations and activities within less sensitive areas of the BCP that can sustainably support access consistent with existing conditions of the BCCP and associated permit, and to ensure adequate monitoring and adaptive management of the public access locations and land uses. The Travis County Commissioners Court did not adopt this Trail Master Plan process, so it does not apply to County BCP tracts.

The primary expectation of the BCP Trail Master Plan is to convert existing unauthorized trails to authorized or sustainable ones as appropriate. Proposals may also include plans for new trails or improving the sustainability of existing trails. New trails may be considered on tracts unburdened by unauthorized and/or unsustainable trails. BCP Trail Master Plan proposals will be accepted for the following City of Austin BCP tracts, and Appendix G shows a map of these BCP tract locations:

- Barton Creek Greenbelt (East and West)
- Barton Creek Wilderness Park
- Bull Creek Greenbelt (Upper and Lower)
- Bull Creek District Park
- Forest Ridge
- Jester
- St. Edwards Park
- Stillhouse Hollow Nature Preserve
- Cortaña
- Emma Long Metropolitan Park
- Bohls
- Reicher
- Commons Ford Ranch Metropolitan Park
- Double J & T
- Sansom

The BCCP preserve system is managed to permanently conserve and facilitate the recovery of the populations of target endangered species inhabiting western Travis County. This priority objective will govern preserve management activities to improve target species habitat, while protecting preserves against degradation caused by urbanization of surrounding lands and increased public demand for recreation usage within preserves. The welfare of target species will be the overriding influence on all decisions regarding activities on preserve lands. Decisions about activities within preserves will be made cautiously, so as to meet biological objectives to protect and enhance target species populations and minimize risk of damage to their habitat. Public access may be allowed where and when such access does not threaten the welfare of the target species of concern, which is the overriding goal of the preserve system, nor cause the degradation of soil, vegetation, or water resources. Trail uses will be limited to hiking, trail running, and biking, as constrained by grandfathering and the Trail Master Plan Strategic Vision. No activity will be allowed which results in a "take" of an endangered species, or which degrades or in any way harms the preserve. On tracts where grandfathered uses are provided for, those use types shall continue for any redefined public access recommended in this plan.

The COA and stakeholders must develop trail systems for additional public access that utilize the best available knowledge to provide for increased trail access while avoiding, minimizing, and mitigating potential adverse effects of recreational activities on endangered species populations. Long-term monitoring of both the environmental quality of the preserve and the health of its populations of endangered species is a necessary part of this endeavor to maintain compliance with the federal Endangered Species Act. To ensure impacts from the additional public recreation have insignificant impacts to the preserve and permitted species, it would be necessary to develop peer-reviewed scientific studies to test for potential adverse effects of recreation using the following monitoring guidelines for trails within habitat and non-habitat areas. In non-habitat areas:

1. Monitoring should include baseline (pre-trail) conditions, control (no trail in similar area), and post treatment (post-trail) conditions to document any changes in soils, vegetation, water, and wildlife resources.
2. Monitoring of vegetation should include, at a minimum, measures of introduction of exotics, oak wilt, effects of trampling, species composition and cover, and regeneration of native woody species.
3. Monitoring of soils should include, at a minimum, measures of soil compaction and erosion, and changes in amount and composition of litter.
4. Monitoring water quality should include, at a minimum, measures of turbidity/suspended solids, dissolved oxygen, temperature, nutrients, algal/plant communities, and introduction of pathogens and exotic species.
5. Monitoring of wildlife species should include, at a minimum, measures of changes in abundance of known predators (snakes, jays and crows, squirrels, red imported fire ants) and likely predators (free-roaming cats) to species of concern and avian communities. It should also include changes in abundance of species, such as deer and feral hogs that are known to be detrimental to the habitat of endangered species and species of concern.

Within habitat areas, a research plan should be designed to isolate the effects of public recreation from the overriding influences of habitat loss from surrounding urbanization. Although monitoring baseline conditions is not possible on existing trails, at a minimum, monitoring focused on areas of public recreation and known locations of species of concern in current habitat areas should include all monitoring identified in non-habitat areas, plus:

1. Effects on territory size, distribution, and productivity of Golden-cheeked Warblers and Black-capped Vireos.
2. Effects on abundance of karst invertebrates and species upon which they depend.
3. Direct disturbance of rare plants and karst features.

Additionally, it would be necessary for stakeholders to collaborate to develop a monitoring plan to quantify the type and level of activity for all areas with public recreation to document the extent of authorized and unauthorized use. Information from the scientific research and public recreation monitoring will be used to ensure that no activity results in a “take” of any species of concern, or degrades their habitat (soil, vegetation, water). This information would also be utilized to develop an ongoing adaptive management process, thus ensuring insignificant impacts to the preserve over the long-term. As identified in the BCCP, this must be adequately demonstrated prior to considering access to known endangered species habitat sites. The BCCP Scientific Advisory Committee (2015) provides recommendations for monitoring effects of recreation and examples of monitoring protocols.

11.2 BCP TRAIL MASTER PLAN PROCESS

The BCP Trail Master Plan process begins with the sponsors request to plan a proposal. A Trail Sponsor Request to Plan a Proposal using the BCP Trail Master Plan Process application can be found in Appendix H and it should be used for this request. The following process components are essential to completing the Trail Master Plan process.

1. COA and stakeholders will identify, and secure necessary funding/staffing resources needed to develop the Trail Master Plan, construct, manage, monitor and enforce the additional public recreation, and provide for additional public outreach/education.
2. Through the stakeholder process, a Geographic Information Systems (GIS) database will be developed by COA with stakeholder assistance as needed, with data layers identifying endangered species habitat, non-endangered species habitat, sensitive areas, and other factors as necessary. In this portion of the process, sharing of data will allow stakeholders to understand more about each other's needs. This may assist with identifying challenges with meeting the goals and objectives.
3. All stakeholders will identify logistical constraints (physical access, parking, topography, public access/recreation on tracts with hog and deer management, etc.) for each site identified.
4. With the information above, the COA and stakeholders will identify the most appropriate site(s) and uses to consider for providing increased public access through trails while ensuring compliance with the terms and conditions of the Federal permit, and that the species and preserve needs are met. The goal of this effort would be to focus stakeholders on existing non-endangered species habitat areas and other less sensitive sites, while also meeting the needs of trail users.

11.2.1 Planning Considerations for a BCP Trail Master Plan Proposal

Trail sponsors and stakeholders must address and explain trail issues as outlined in the Planning Considerations for a BCP Trail Master Plan Proposal, found below. A BCP Trail Master Plan Application, designed to help stakeholders satisfy these requirements can be found in Appendix I. This should be completed collaboratively by the trail sponsor and the land manager(s) to ensure accurate and agreeable answers. This should be submitted after the Trail Sponsor Request to Plan a Proposal has been evaluated by BCP staff, and the GIS database
supporting sustainable trail analysis for the proposed project has been completed collaboratively by the trail sponsor and the land manager(s). This completed application must be included in the trail sponsor proposal application submission package. The following are the Planning Considerations for a BCP Trail Master Plan Proposal.

<u>Use</u>

1. What uses are being sponsored?
2. Who is/are the sponsors?
3. What resources is/are sponsor(s) offering to provide?
4. What resources is/are the sponsor(s) seeking from the land manager?
5. How will this trail comply with the BCP (from TMP and Strategic Vision)?
6. How will user conflicts be avoided?

<u>Trail</u>

1. What is the approximate length of the proposed trail? Please provide a map or GIS data.
2. What is the proposed surface of the trail?

3. Are there any potential structural components?
4. What is the type and expected extent of clearing created by the proposed trail?
5. What type of habitat is expected to be affected? (Use TMP process documents as a guide.)
    a. Can occupied habitat, karst, springs, and plants be avoided by more than 100 meters?
    b. If habitat cannot be avoided, what are the proposed actions to mitigate?

6. How will International Mountain Biking Association (IMBA) design standards and specifications be met?
7. How will cultural and other sensitive resources be protected?

Facilities

1. Will parking be onsite or off BCP property?
    a. If the parking is onsite, what is the proposed mitigation?
    b. Is any impervious cover proposed?
2. Are structural facilities proposed?
    a. Will they be located onsite or offsite?
    b. If onsite, what is the proposed mitigation?
    c. Is any impervious cover proposed?

Operations

1. User management
    a. How will intensity of use be managed and/or maintenance be adjusted to address intensity?
    b. How will enforcement and security be addressed?
    c. What design and education components are proposed to keep users on trails?
2. Resource impacts (protected species, soil, water, and plant communities)
    a. What design and/or management components are proposed to avoid impacts to protected species, soil, water, and plant communities?
3. How will uninterrupted preserve operations be provided for:
    a. Species monitoring
    b. Animal population management (deer, hogs, brown-headed cowbird)
    c. Habitat manipulation
        - planting/restoration
        - burning
        - mechanical and chemical treatments
    d. Safety of personnel and users
    e. Other
4. How do you propose to provide long-term maintenance and repairs, enforcement, monitoring, and adaptive management?
5. How do you propose to support monitoring of the potential impacts from this trail on protected species, soil, water, and plants?

11.2.2 BCP Trail Master Plan Proposal Process and Memorandum of Agreement (MOA)

A Trail Master Plan Memorandum of Agreement between the City and a trail sponsor must be drafted and will require revision to mutually agreed items before moving through the approval process. A template MOA can be found in Appendix J. A simplified outline of the Trail Master Plan proposal and implementation process and MOA approval process are provided below.

1. Sponsor submits the Trail Sponsor Request to Plan a Proposal using the BCP Trail Master Plan Process form (Appendix H).
    a. BCP staff review of proposal request.
    b. Coordination meeting between sponsor and the City to discuss proposal and provide guidance.
    c. Sponsor obtains City of Austin access letter (for non-park land).
    d. City and sponsor collaborate on GIS data, maps, monitoring data, natural resource information, and other documents as needed to analyze proposed trail suitability and sustainability.
2. BCP Trail Master Plan Application (Appendix I) and Trail Proposal submission and review
    a. Collaboration, clarification and discussion between the City and sponsor
    b. COA proposes revisions to sponsor.
    c. Acceptance
3. Memorandum of Agreement (MOA)
    a. Use BCP Trail Master Plan MOA template found in Appendix J.
    b. Initial Trail Master Plan MOA will require revision to mutually agreed items (committees, reviews, administration, etc.).
    c. MOA Approval
        i. BCCP Coordinating Committee
            1. Advisory Committee recommendations
                a. Scientific Advisory Committee
                b. Citizens Advisory Committee
2. USFWS concurrence or comment
        ii. City Council
            1. Boards and Commissions recommendations
                a. Water and Wastewater Commission
                b. Environmental Board
                c. Parks and Recreation Board (for grandfathered sites)
4. Initial design
5. Permitting
    a. Revisions to design as required
    b. COA Austin Water Utility/PARD general permits
6. Construction
    a. Problem solving
    b. Permit compliance certification
7. Trail Impact Monitoring
    a. Adaptive land management as needed

12.0 LITERATURE CITED

Atchley, R. A., D. L. Strayer, and P. Atchley. 2012. Creativity in the Wild: Improving Creative Reasoning through Immersion in Natural Settings. *PLoS ONE* 7(12): e51474

BCCP Scientific Advisory Committee. 2015. Recommendations for monitoring effects of mountain biking and other recreational uses on the Balcones Canyonlands Preserve. Prepared by the Mountain Bike Experimental Design Subcommittee. Austin, TX

Burger, J. 1981. The effect of human activity on birds at a coastal bay. *Biological Conservation* 21: 231-241

Duarte, A., J. L. R. Jensen, J. S. Hatfield, and F. W. Weckerly. 2013. Spatiotemporal variation in range-wide Golden-cheeked Warbler breeding habitat. *Ecosphere* 4(12):1-12

Duarte, A., J. S. Hatfield, T. M. Swannack, M. R. J. Forstner, M. C. Green, and F. W. Weckerly. 2016a. Simulating range-wide population and breeding habitat dynamics for an endangered woodland warbler in the face of uncertainty. *Ecological Modeling* 320:52-61

Duarte, A. F. W. Weckerly, M. Schaub, and J. S. Hatfield. 2016b. Estimating Golden-cheeked Warbler immigration: implications for the spatial scale of conservation. *Animal Conservation* 19:65-74

Fuller, R.A., Gaston, K.J., 2009. The scaling of green space coverage in European cities. Biol. Lett. 5, 352–355.

Gutzwiller, K. J., R.T. Wiedenmann, K. L. Clements, and S.H. Anderson. 1994. Effects of human intrusion on song occurrence and singing consistency in subalpine birds. *Auk* 111:28-37

Gillieson, David S. 2011. Management of Caves. Chapter 6 in Karst Management, Phillip E. van Beynen (Ed.), p. 141-158

Hartig, T., G. W. Evans, L. D. Jamner, D. S. Davis, and T. Gärling. 2003. Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology* 23(2): 109-1-23

Hungerford, H. and T. Volk. 1990. Changing learner behavior through environmental education. J. *Environmental Education.* 21(3): 8-21
http://www.academia.edu/download/30575883/changing_learner_behavior_-_h_and_v.pdf

Kellert, S. 1996. The Value of Life: Biological Diversity and Human Society. Island Press, Washington, DC.

Kaiser, M. S. and E. K. Fritzell. 1984. Effects of river recreationists on green-backed heron behavior. *Journal of Wildlife Management* 48:561-566

Kuo, F. E. and W. C. Sullivan. 2001. Environment and crime in the inner city: Does vegetation reduce Crime? *Environment and Behavior* 33: 343-367

Leather, P., M. Pyrgas, B. Beale, B. Kweon, and E. Tyler. 1998. Plants in the workplace: the effects of plant density on productivity, attitudes and perceptions. *Environment and Behaviour* 30, 261-282

Maas, J., R. A. Verheij, P. P. Groenewegen, S. de Vries, and P. Spreeuwenberg. 2006. Green space, urbanity, and health: How strong is the relation? *Journal of Epidemiology and Community Health* 60: 587-592.

Matthews B.E. and C. K. Riley. 1995. National Wildlife Federation, Teaching and evaluating outdoor ethics education programs. ERIC Document Reproduction Service No. ED 401 097, Vienna,

VA. https://files.eric.ed.gov/fulltext/ED401097.pdf

Mayer, F. S., C. M. Frantz, E. Bruehlman-Senecal, and K. Dolliver. 2008. Why is nature beneficial? The role of connectedness to nature. *Environment and Behavior* 41: 607-643

O'Donnell, Lisa. 1998. United States Fish and Wildlife Service, personal communication.

Peak, R. G. 2007. Forest edges negatively affect golden-cheeked warbler nest survival. *The Condor* 109:628–637.

Peak, R. G. and F. R. Thompson, III. 2013. Amount and type of forest cover and edge are important predictors of Golden-cheeked Warbler density. *Condor* 115:659-668.

Peak, R. G. and F. R. Thompson, III. 2014. Seasonal productivity and nest survival of Golden-cheeked Warblers vary with forest type and edge density. *Condor* 116:546-559

Pergams, O.R.W. and P. A. Zaradic. 2008. Evidence for a fundamental and pervasive shift away from nature-based recreation. *Proc Natl Acad Sci* 105: 2295–2300

Pulido-Bosch, A., W. Martin-Rosales, M. Lopez-Chicano, C. Rodriguez-Navarro, and A. Vallejos. 1997. Human impacts in a touristic karstic cave (Aracena, Spain). *Environmental Geology* 31:142-149

Reidy, J. L., L. O'Donnell, and F. R. Thompson III. 2015. Evaluation of a reproductive index for estimating songbird productivity: case study of the Golden-cheeked Warbler. Wildlife Society Bulletin 39:721–731.

Reidy, J. L., F. R. Thompson III, C. Amundson, and L. O'Donnell. 2016. Landscape and local effects on occupancy and densities of an endangered wood-warbler in an urbanizing landscape. Landscape Ecology 31:365-382.

Reidy, J. L., F. R. Thompson III, G. M. Connette, and L. O'Donnell. 2018. Demographic rates of Golden-cheeked Warblers in an urbanizing woodland preserve. Condor 120:249-264.

Reidy, J. L., F. R. Thompson III, and L. O'Donnell. 2017. Density and nest survival of Golden-cheeked Warblers: spatial scale matters. Journal of Wildlife Management 81:678-689.

Sparkman, L.J. 1996. Effects of human intrusion on singing behavior of black-capped vireos (*Vireo atricapillus*), Hill Country State Natural Area, Texas. Master's thesis, Southwest Texas State University, San Marcos.

Tanner, T. 1980. Significant life experiences: A new research area in environmental education. *Environmental Education* 11(4): 20-24

Tarrant, M.A. 1996. Attending to past outdoor recreation experiences: Symptom reporting and changes in affect. *Journal of Leisure Research*. 28 (1): 1-17

Tremblay, J. and L. N. Ellison. 1979. Effects of human disturbance on breeding of black crowned night herons. *Auk* 96:364-369

Ulrich, R.S., Simons, R.F., Losito, B.D., Fiorito, E., Miles, M.A., Zelson, M., 1991. Stress recovery during exposure to natural and urban environments. J. Environ. Psychol. 11, 201–230
U.S. Fish and Wildlife Service (USFWS). 1992. Golden-checked warbler (*Dendroica chrysoparia*) recovery plan. Albuquerque, NM

U.S. Fish and Wildlife Service (USFWS). 1996. Final environmental impact statement/habitat conservation plan for proposed issuance of a permit to allow incidental take of the golden-cheeked warbler, black-capped vireo, and six karst invertebrates in Travis County, Texas. U.S. Fish and Wildlife Service, Albuquerque, NM

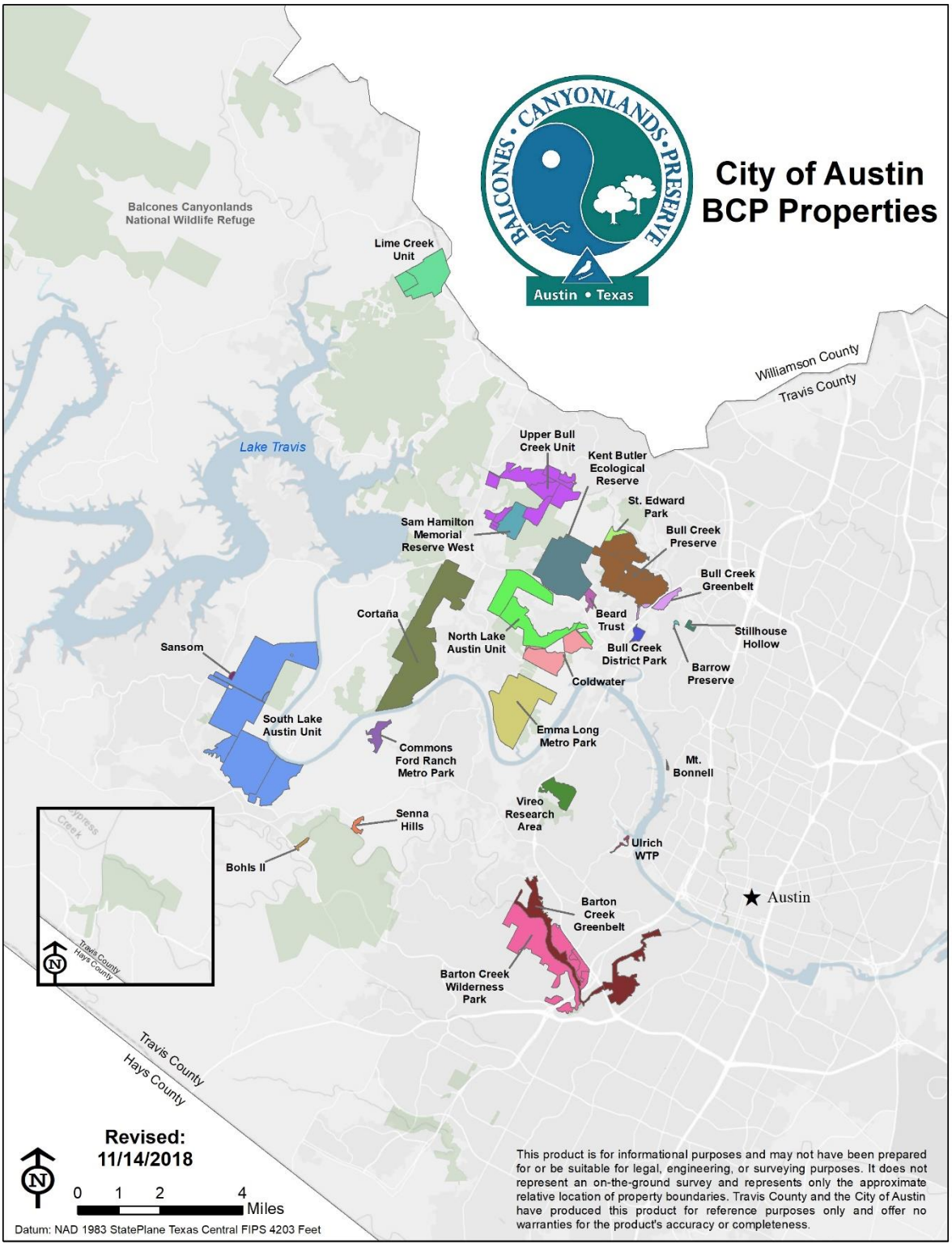
U.S. Geological Survey. 2013. Threats to cave ecosystems. Retrieved July 2013 from http://sbsc.wr.usgs.gov/cprs/research/projects/caves/threats.asp

Weinstein, N., A. Balmford, C. DeHaan, V. Gladwell, R. Bradbury, T. Amano, 2015. Seeing Community for the Trees: The Links among Contact with Natural Environments, Community Cohesion, and Crime. *BioScience* 65(12):1141–1153.

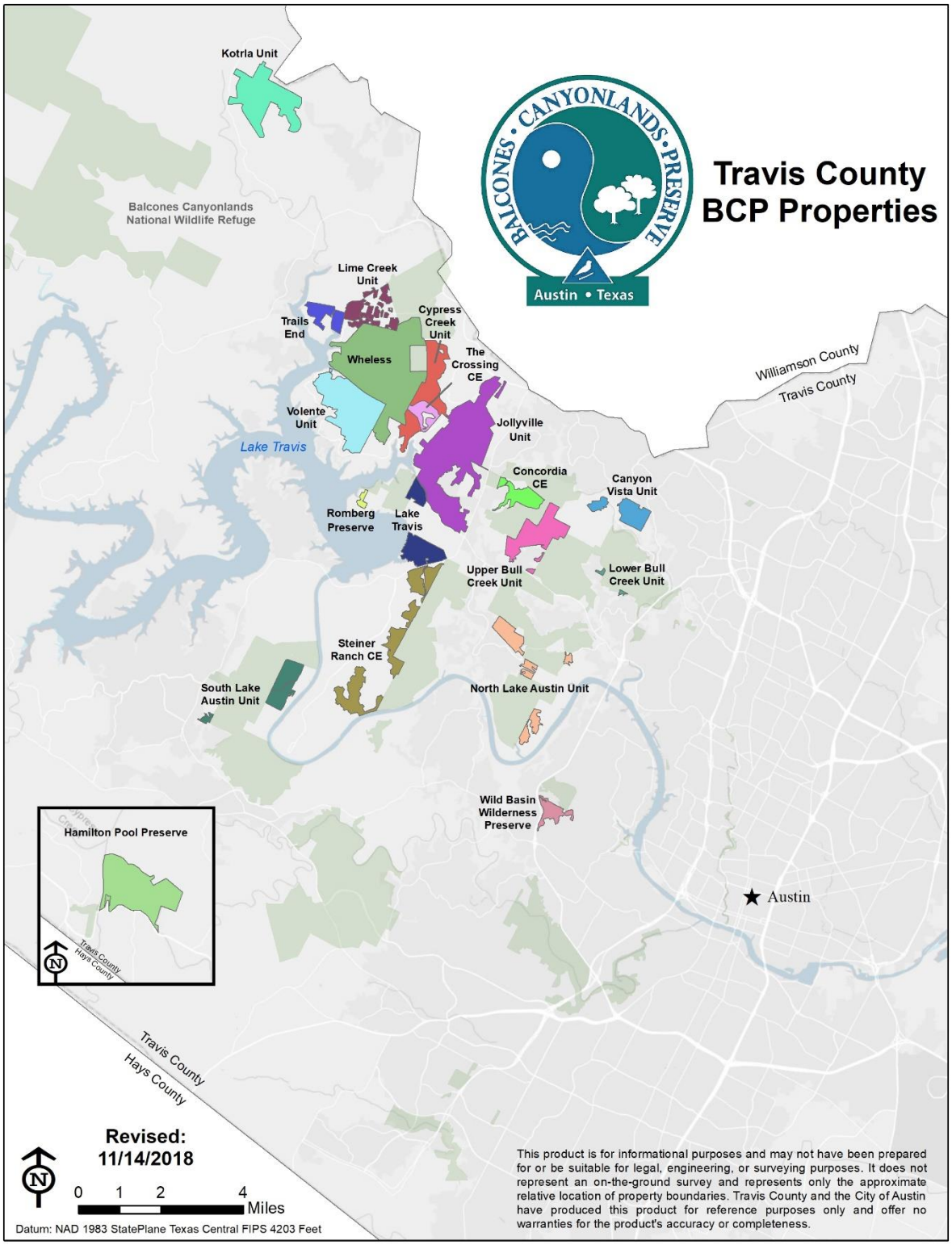
Westmoreland, D. and L. B. Best. 1985. The effect of disturbance on mourning dove nesting success. *Auk* 102:774-780

White, M., A. Smith, K. Humphryes, S. Pahl, D. Snelling, M. Depledge. 2010. Blue space: The importance of water for preference, affect, and restorativeness ratings of natural and built scenes. *Journal of Environmental* Psychology 30: 482493

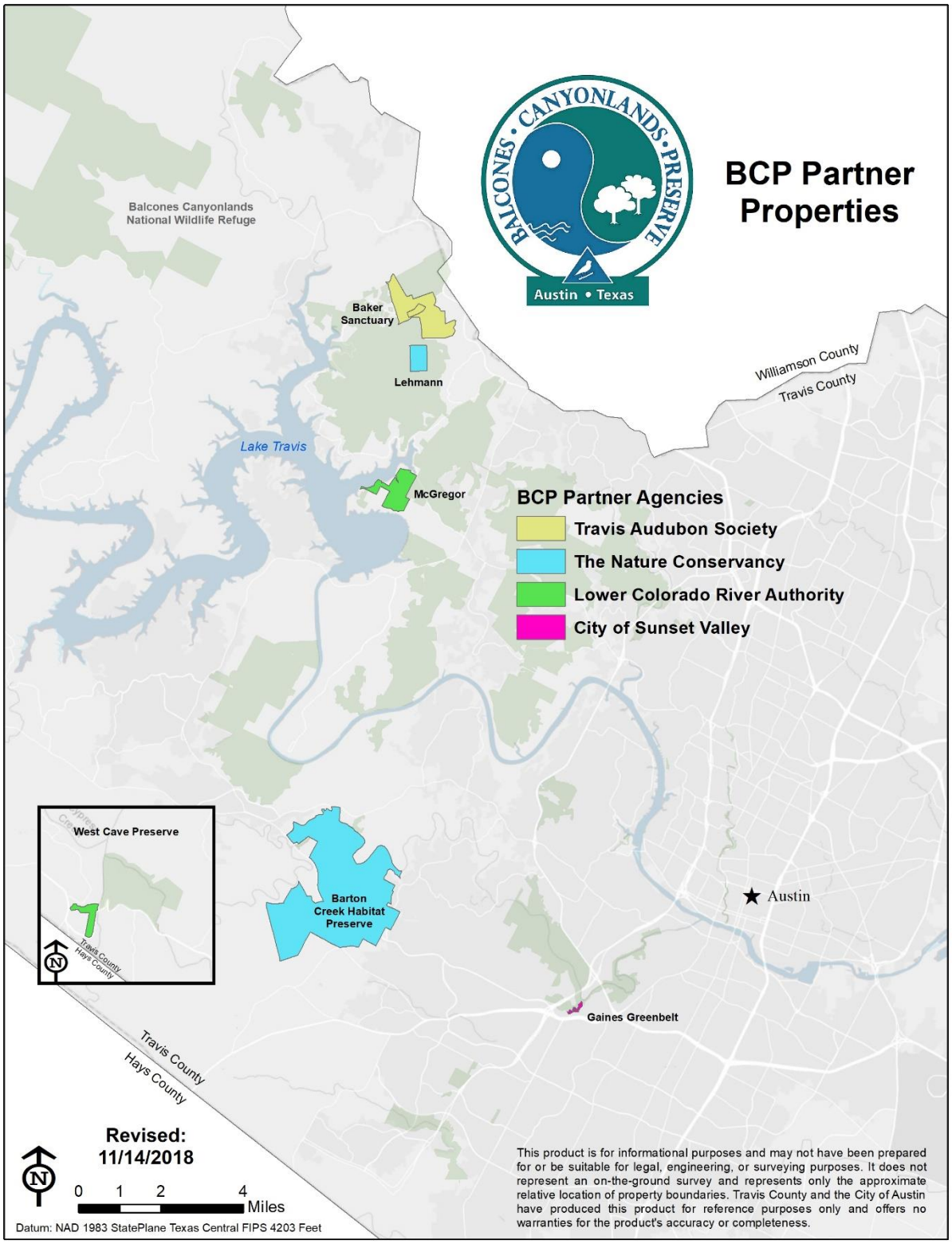
APPENDIX A - CITY OF AUSTIN BCP PROPERTIES MAP



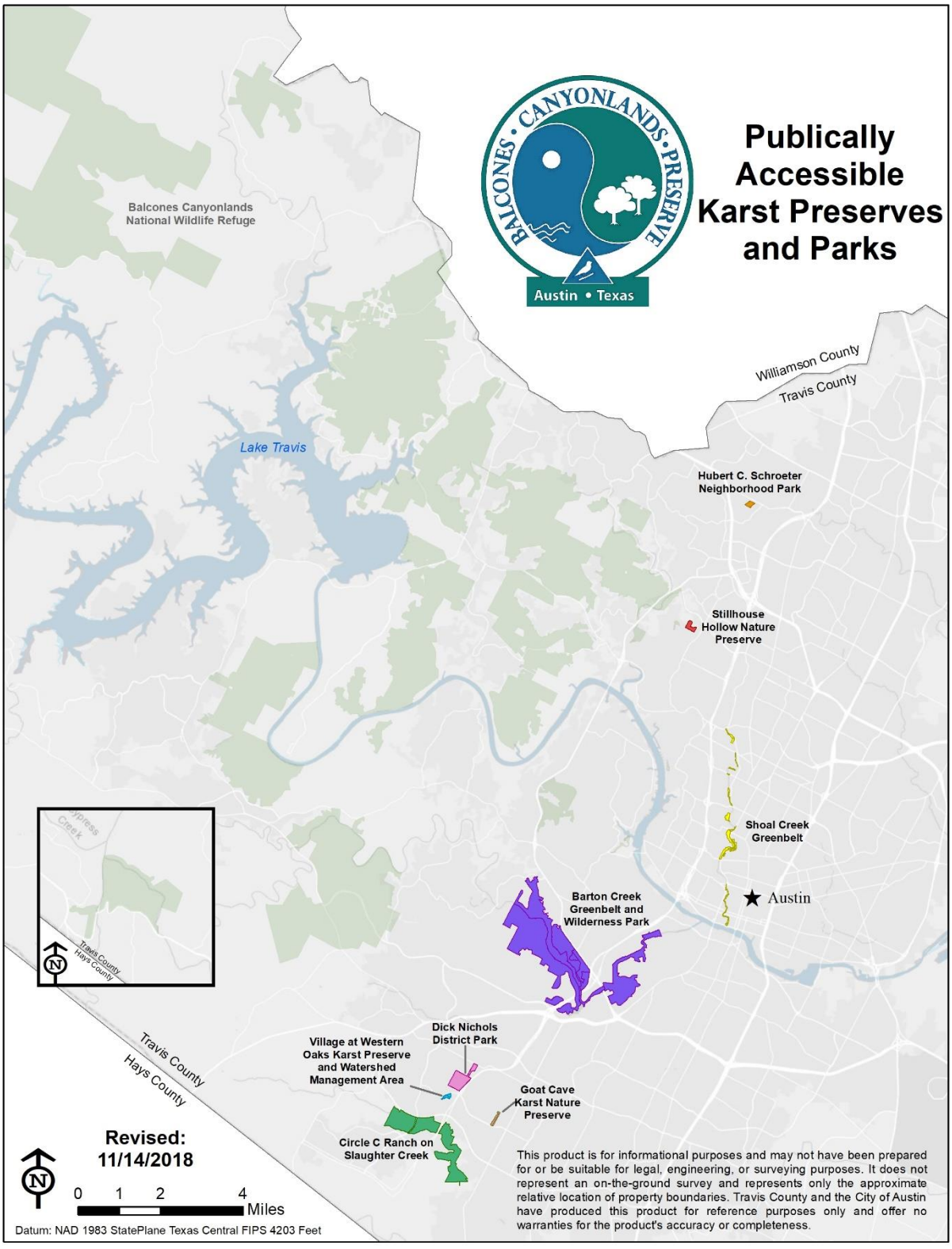
APPENDIX B - TRAVIS COUNTY BCP PROPERTIES MAP



APPENDIX C – BCP PARTNER PROPERTIES MAP



APPENDIX D - PUBLICLY ACCESSIBLE BCP KARST PRESERVES



APPENDIX E - 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	Swimming	Fishing
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 (now operated by City of Kerrville)	✓	✓		✓	✓
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	✓			✓	✓
Barkley Meadows Park		✓			✓
Bob Wentz Park				✓	✓
Cypress Creek Park	✓			✓	✓
Dink Pearson Park				✓	✓
East Metropolitan Park		✓		✓	✓
Hamilton Pool Preserve				✓	
Hippie Hollow Park				✓	✓

Agency/Location	Camping	Biking, mountain and otherwise	Horseback Riding	Swimming	Fishing
Mansfield Dam Park		✓		✓	
Milton Reimers Ranch Park		✓	✓	✓	✓
Northeast Metropolitan Park		✓			
Pace Bend Park	✓	✓	✓	✓	✓
Southeast Metropolitan Park		✓			✓
Tom Hughes Park				✓	✓
Sandy Creek Park	✓	✓ road biking		✓	✓
Richard Moya Park		✓ road biking			
Webberville Park		✓ ADA trial not suitable for mt. 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		✓	✓

Agency/Location	Camping	Biking, mountain and otherwise	Horseback Riding	Swimming	Fishing
Johnson Creek Greenbelt		✓			
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		✓		✓	

* These City of Austin Parks are also included in the Balcones Canyonlands Preserve (BCP) or are locations for BCP caves.

APPENDIX F - BIBLIOGRAPHY OF RECREATIONAL EFFECTS ON WILDLIFE AND THEIR HABITATS

Anderson, D. W. and J. 0. Keith. 1980. The Human Influence on Seabird Nesting Success: Conservation Implications. *Biological Conservation* 18 (1980) 65-80

Askins, R. A. 1994. Open Corridors in a Heavily Forested Landscape: Impact on Shrubland and Forest-Interior Birds. *Wildl. Soc. Bull*. 22(2): 339-347

Ballantyne, M. and C. M. Pickering. 2015. The Impacts of Trail Infrastructure on Vegetation and Soils: Current Literature and Future Directions. *Journal of Environmental Management* 164: 53-64

Banks, P. B. and J. V. Bryant. 2007. Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* 3(6): 611-613

Bolger, D. T., T. A. Scott and J. T. Rotenberry. 1997. Breeding Abundance in an Urbanizing Landscape in Coastal Southern California. *Conservation Biology* 11(2): 406-421

Boyle, S. A. and F. B. Samson. 1985. Effects of Nonconsumptive Recreation on Wildlife: A Review. *Wildl. Soc. Bull*. 13: 110-116

Burger, J. 1981. The Effect of Human Activity on Birds at a Coastal Bay. *Biological Conservation* 21(1981): 231-241

Chavez, D. J. 1996. Mountain Biking: Issues and Actions for USDA Forest Service Managers. *United States Department of Agriculture. Forest Service, Pacific Southwest Research Station*. Res. Paper PSW-RP-226

Coldren, C. L. 1998. *The Effects of Habitat Fragmentation on the Golden-cheeked Warbler*. M.S. Thesis, Texas A&M University, College Station, TX

Cole, D. N. 1978. Estimating the Susceptibility of Wildland Vegetation to Trailside Alteration. *Journal of Applied Ecology* 15: 281-286

Cole, D. N. 1993. Minimizing Conflict between Recreation and Nature Conservation. Pages 105-122 in D. S. Smith and P. C. Hellmund (Eds.) *Ecology of GreenWays: Design and Function of Linear Conservation Areas*. Univ. of Minnesota Press, Minneapolis, MN

Cole, D. N. and Landers, P. B. 1996. Threats to Wilderness Ecosystems: Impacts and Research Needs. *Ecological Applications* 6(1): 168-184

Cooke, A.S. 1980. Observations on How Close Certain Passerine Species Will Tolerate an Approaching Human in Rural and Suburban Areas. *Biological Conservation* 18(1980) 85-88

Dale, D. and T. Weaver. 1974. Trampling Effects on Vegetation of the Trail Corridors of North Rocky Mountain Forests. *The Journal of Applied Ecology* 11(2): 767-772

Davis, C. A., D. M. Leslie Jr., W. D. Walter, and A. E. Graber. 2010. Mountain Biking Trail Use Affects Reproductive Success of Nesting Golden-cheeked Warblers. *The Wilson Journal of Ornithology* 122(3): 465-474

DeMauro, M. M. 1993. Colonial Nesting Bird Responses to Visitor Use at Lake Renwick Heron Rookery, Illinois. *Natural Areas Journal* 13(1): 4-9

Ellison, L. N. and L. Cleary. 1978. Effects of Human Disturbance on Breeding of Double-crested Cormorants. *The Auk* 95: 510-517

Fernández-Juricic, E. 2000. Local and Regional Effects of Pedestrians on Forest Birds in a Fragmented Landscape. *The Condor* 102(2): 247-255

Fernández-Juricic, E. 2002. Can Human Disturbance Promote Nestedness? A Case Study with Breeding Birds in Urban Habitat Fragments. *Oecologia* 131: 269-278

Field, R., W. R. Danielson and M. S. Hale. 1995. *An Annotated Bibliography of Effects of Human Recreational Activities on Wildlife and Their Habitats*. Massachusetts Cooperative Fish and Wildlife Research Unit, Amherst, MA

Francis, C. D., C. P. Ortega and A. Cruz. 2011. Vocal Frequency Change Reflects Different Responses to Anthropogenic Noise in Two Suboscine Tyrant Flycatchers. *Proceedings: Biological Sciences* 278(1714): 2025-2031

Francis, C. D. and J. Paritsis. 2011. Landscape Patterns of Avian Habitat Use and Nest Success are Affected by Chronic Gas Well Compressor Noise. *Landscape Ecology* 26(9): 1269-1280

Gaddy, L. L. 1987. Recreational Impact on the Natural Vegetation, Avifauna, and Herpetofauna of Four South Carolina Barrier Islands: *Natural Areas Journal* 7(2): 55-84

Germaine, S. S., S. S. Rosenstock, R. E. Schweinsburg and W. S. Richardson. 1998. Relationships among Breeding Birds, Habitat, and Residential Development in Greater Tucson, Arizona. *Ecological Applications* 8(3): 680-691

Gill, J. A., K. Norris, and W. J. Sutherland. 2001. Why Behavioral Responses May Not Reflect the Population Consequences of Human Disturbance. *Biological Conservation* 97: 265-268

Gillieson, D. S. 2011. Chapter 6: Management of Caves. Pages 141-158 in P. E. van Beynen (Ed.) *Karst Management*. Springer, New York

Gutzwiller, K. J., E. A Kroese, S. H. Anderson, and C. A. Wilkins. 1997. Does Human Intrusion Alter the Seasonal Timing of Avian Song During Breeding Periods? *The Auk* 114(1): 55-55

Gutzwiller, K. J.; H. A. Marcum, H. B. Harvey, J. D. Roth and S. H. Anderson. 1998. Bird Tolerance to Human Intrusion in Wyoming Montane Forests. *The Condor* 100: 519-527

Halfwerk, W., L. J. M. Holleman, C. M. Lessells and H. Slabbekoorn. 2011. Negative Impact of Traffic Noise on Avian Reproductive Success. *Journal of Applied Ecology* 48(1): 210-219

Hamann, B., H. Johnston, J. Gobielle, M. Hillis, S. Johnson, L. Kelly, P. McClelland. 1999. Chapter 3: Birds. Pages 3.1-3.34 in G. Joslin and H. Youmans (coordinators), *Effects of Recreation on Rocky Mountain Wildlife: A Review for Montana*. Montana Chapter of The Wildlife Society

Harris, L. K.; W. W. Shaw and J. Schelhas. 1997. Urban Neighbors Wildlife-Related Attitudes and Behaviors near Federally Protected Areas in Tucson, Arizona, USA. *Natural Areas Journal* 17(2): 144-148

Hickman, S. 1990. Evidence of edge species attraction to nature trails within deciduous forest. *Natural Areas Journal* 10: 3-5

Hunter, A., D. Northup, C. Dahm, and P. Boston. 2004. Persistent coliform contamination in Lechuguilla Cave pools. *Journal of Cave and Karst Studies* 66(3): 102-110

Ikner, L., R. Toomey, G. Nolan, J. Neilson, B. Pryor, and R. Maier. 2007. Cultural microbial diversity and the impact of tourism in Kartchner Caverns, Arizona. *Microbial Ecol.* 53: 30-42
Ikuta, L. A. and D. T. Blumstein. 2003. Do Fences Protect Birds from Human Disturbance? *Biological Conservation* 112: 447-452

Jablonsky, P., S. Kraemer, and B. Yett. 1995. *Lint in caves*. Pages 73-86 in D. L. Pate (Ed.) *Proceedings of the 1993 Cave Management Symposium*. Carlsbad Caverns, New Mexico

Keller, V. 1989. Variations in the Response of Great Crested Grebes *Podiceps cristatus* to Human Disturbance - A Sign of Adaptation. *Biological Conservation* 49(1989) 31-45

Klein, M. L.; S. R. Humphrey and H. F. Percival. 1995. Effects of Ecotourism on Distribution of Waterbirds in a Wildlife Refuge. *Conservation Biology* 9(6): 1454-1465

Kleist, N. J., R. P. Guralnick, A. Cruz, and C. D. Francis. 2016. Sound Settlement: Noise Surpasses Land Cover in Explaining Breeding Habitat Selection of Secondary Cavity Nesting Birds. *Ecological Applications* 27(1): 260-273

Kleist, N. J., R. P. Guralnick, A. Cruz, C. A. Lowry, and C. D. Francis. 2018. Chronic Anthropogenic Noise Disrupts Glucocorticoid Signaling and Has Multiple Effects on Fitness in an Avian Community. *Proceedings of the National Academy of Sciences* 115: E648-E657

Knight, C. R., M. S. Saha, and J. P. Swaddle. 2012. Anthropogenic Noise is Associated with Reductions in Productivity of Breeding Eastern Bluebirds. *Ecological Applications* 22(7): 1989-1996

Knight, R. L., D. P. Anderson, and N. V. Marr. 1991. Responses of an Avian Scavenging Guild to Anglers. *Biological Conservation* 56(1991): 195-205

Kociolek, A. V., A. P. Clevenger, C. C. St. Clair, and D. S. Proppe. Effects of Road Networks on Bird Populations. *Conservation Biology* 25(2): 241-249

Lavoie, K. and D. Northup. 2005. Bacteria as indicators of human impact in caves. Pages 40-47 in *Proceedings of the 2005 National Cave and Karst Management Symposium*. Albany, New York

Legatzki, Antje, et al. Bacterial and archaeal community structure of two adjacent calcite speleothems in Kartchner Caverns, Arizona, USA. *Geomicrobiology Journal* 28.2 (2011): 99-117

Length, B. E., R. L. Knight, and M. E. Brennan. 2008. The Effects of Dogs on Wildlife Communities. *Natural Areas Journal* 28: 218-227

Leonard, M. L. and A. G. Horn. 2012. Ambient Noise Increases Missed Detections in Nestling Birds. *Biology Letters* 8(4): 530-532

Liddle, M. 1997. *Recreation Ecology: The Ecological Impact of Outdoor Recreation and Ecotourism.* Chapman and Hall, New York, NY

Madsen, J. 1985. Impact of Disturbance on Field Utilization of Pink-footed Geese in West Jutland, Denmark. *Biological Conservation* 33(1985): 53-63

Marcum, H. A. 2005. *The Effects of Human Disturbance of Birds in Bastrop State Park*. Dissertation, Texas A&M University, College Station, TX

McIntyre, E., M. L. Leonard, and A. G. Horn. 2014. Ambient Noise and Parental Communication of Predation Risk in Tree Swallows, *Tachycineta bicolor*. *Animal Behavior* 87: 85-89

Miller, S. G.; R. L. Knight and C. K. Miller. 1998. Influence of Recreational Trails on Breeding Bird Communities. *Ecological Applications* 8(1): 162-169

Monz, C. A.,C. M. Pickering, and W. L. Hadwen. 2013. Recent Advances in Recreation Ecology and the Implications of Different Relationships between Recreation Use and Ecological Impacts. *Frontiers in Ecology and the Environment* 11(8): 441-446

Parris, K. M. and A. Schneider. 2009. Impacts of Traffic Noise and Traffic Volume on Birds of Roadside Habitats. *Ecology and Society* 14(1): 29

Peak, R. G. 2007. Forest Edges Negatively Affect Golden-cheeked Warbler Nest Survival. *The Condor* 109: 628-637

Pickering, C. M. 2010. Ten Factors that Affect the Severity of Environmental Impacts of Visitors in Protected Areas. *Ambio* 39(1): 70-77

Pickering, C. M., W. Hill, D. Newsome, Y. Leung. 2010. Comparing Hiking, Mountain Biking and Horse Riding Impacts on Vegetation and Soils in Australia and the United States of America. *Journal of Environmental Management* 91: 551-562

Press, D., D. F. Doak and P. Steinberg. 1996. The Role of Local Government in the Conservation of Rare Species. *Conservation Biology* 10(6): 1538-1548

Pulido-Bosch, A., W. Martin-Rosales, M. Lopez-Chicano, C. Rodriguez-Navarro, and A. Vallejos. 1997. Human impacts in a touristic karstic cave (Aracena, Spain). *Environmental Geology* 31: 142-149

Reed, S. E. and A. M. Merenlender. 2011. Effects of Management of Domestic Dogs and Recreation on Carnivores in Protected Areas in Northern California. *Conservation Biology* 25(3): 504-513

Reijnen, R., R. Foppen, C. T. Braak and J. Thissen. 1995. The Effects of Car Traffic on Breeding Bird Populations in Woodland. lll. Reduction of Density in Relation to the Proximity of Main Roads. *Journal of Applied Ecology* 32: 187-202

Shannon, G., M. F. McKenna, L. M. Angeloni, K. R. Crooks, K. M. Fristrup, E. Brown, K. A. Warner, M. D. Nelson, C. White, J. Briggs, S. McFarland, and G. Wittemyer. 2016. A Synthesis of Two Decards of Research Documenting the Effects of Noise on Wildlife. *Biological Reviews* 91: 982-1005

Slabbekoorn, H. and W. Halfwerk. 2009. Behavioural Ecology: Noise Annoys at Community Level. *Current Biology* 19(16): 693-695

Smith-Castro, J. R. and A. D. Rodewald. 2010. Behavioral Responses of Nesting Birds to Human Disturbance along Recreational Trails. *Journal of Field Ornithology* 81(2): 130-138

Stalmaster, M. V. and J. L. Kaiser. 1998. Wildlife Monographs: Effects of Recreational Activity on Wintering Bald Eagles. *The Wildlife Society, Inc*. 137: 1-46

Steven, R., C. Pickering, and J. G. Castley. 2011. A Review of the Impacts of Nature Based Recreation on Birds. *Journal of Environmental Management* 92: 2287-2294

Stokowski, P. A. and C. B. LaPointe. 2000. *Environmental and Social Effects of ATVs and ORVs: An Annotated Bibliography and Research Assessment*. School of Natural Resources, University of Vermont, Burlington, VT

Suarez, A. V., K. S. Pfenning and S. K Robinson. 1997. Nesting Success of a Disturbance-Dependent Songbird on Different Kinds of Edges. *Conservation Biology* 11(4): 928-935

Temple, D., Wright, V., Neilson, J., and Mildenstein, T. 2008. Understanding and Managing Backcountry Recreation Impacts on Terretrial Wildlife: An Annotated List. V. Volume 5 in Wright (Ed.) *Linking Wilderness Research and Management*. Gen. Tech. Rep. RMRS-GTR-79-Vol 5, USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO

Tonnesen, A. S. and J. J. Ebersole. 1997. Human Trampling Effects on Regeneration and Age Structures of *Pinus Edulis* and *Juniperus Monosperma*. *Great Basin Naturalist* 57(1): 50-56

U.S. Geological Survey. 2013. Threats to cave ecosystems. Retrieved July 2013 from http://sbsc.wr.usgs.gov/cprs/research/projects/caves/threats.asp

van der Zande, A. N ., J. C. Berkhuizen, H. C. van Latesteijn, W. J. ter Keurs, and A. J. Poppelaars. 1984. Impact of Outdoor Recreation on the Density of a Number of Breeding Bird Species in Woods Adjacent to Urban Residential Areas. *Biological Conservation* 30(1984): 1-39

van dar Zande, A. N. and P. Vos. 1984. Impact of a Semi-experimental Increase in Recreation Intensity on the Densities of Birds in Groves and Hedges on a Lake Shore in the Netherlands. *Biological Conservation* 30(1984): 237-259

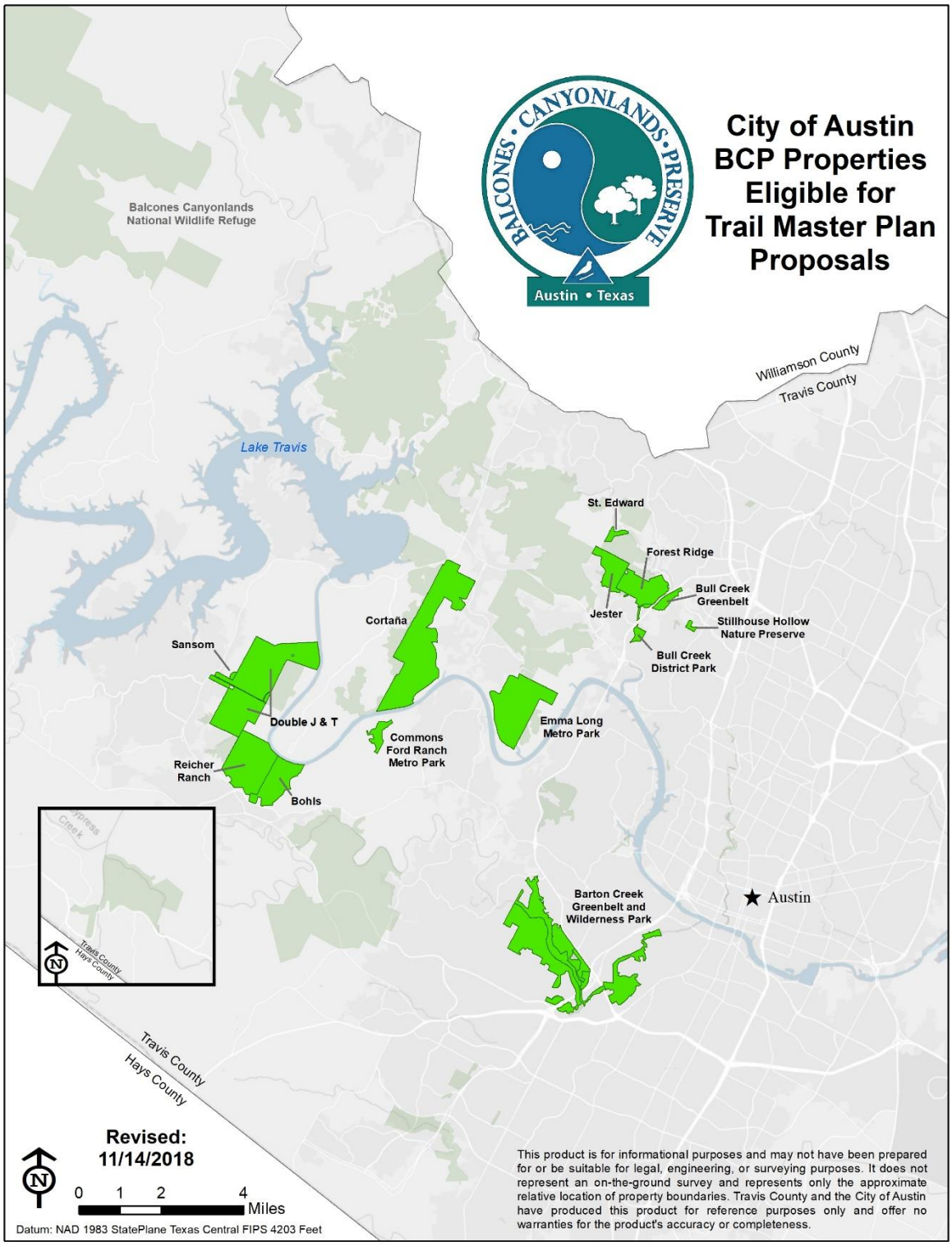
Walker, L. E. and J. M. Marzluff. 2015. Recreation Changes the Use of a Wild Landscape by Corvids. *The Condor* 117(2): 262-283

Ware, H., C. J. W. McClure, J. D. Carlisle, J. R. Barber. 2015. A Phantom Road Experiment Reveals Traffic Noise is an Invisible Source of Habitat Degradation. *Proceedings of the National Academy of Sciences* 112(39): 2105-12109

Westmoreland, D. and L. B. Best. 1985. The Effect of Disturbance on Mourning Dove Nesting Success. *The Auk* 102: 774-780

White, D. D., M. T. Waskey, G. P. Brodehl, P. E. Foti. A Comparative Study of Impacts to Mountain Bike Trails in Five Common Ecological Regions of the Southwestern U.S. *Journal of Park and Recreation Administration* 24(2): 21-41

APPENDIX G - MAP OF CITY OF AUSTIN BCP TRACTS ELIGIBLE FOR BCP TRAIL MASTER PLAN PROPOSALS



APPENDIX H - TRAIL SPONSOR REQUEST TO PLAN A PROPOSAL USING THE CITY OF AUSTIN BCP TRAIL MASTER PLAN PROCESS

Balcones Canyonlands Conservation Plan (BCCP)

Trail Sponsor Request to Plan a Proposal using the City of Austin BCP Trail Master Plan Process

The City of Austin BCP Trail Master Plan process begins with the submission of this Trail Sponsor Request to Plan a Proposal. Stakeholders interested in sponsoring a trail proposal for a sustainable trail in City of Austin owned Balcones Canyonlands Preserve (BCP) land should review all of the information and guidance found on the BCP Trail Master Plan Process Sponsor Pre-planning Toolkit webpage, found at http://arcg.is/4neP before submitting this request. The interactive maps at that site should be used to help answer the questions below.

In this portion of the process, sharing of data will allow stakeholders to understand more about each other's needs as well as helping everyone understand any challenges with meeting the goals and objectives. BCP staff will review this request and contact the trail sponsor to set up a project coordination meeting to discuss the proposal and provide guidance through the rest of the Trail Master Plan process.

1. Applicant Information:

Applicant Name: _____

Company or Agency: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Contact Name: _____ Contact Title: _____

Daytime Phone # (____) ____-_____

Email address: _____

2. Trail Proposal Planned for which Balcones Canyonlands Preserve?

☐ Barton Creek Greenbelt ☐ Barton Creek Wilderness Park ☐ Reicher

☐ Bull Creek Greenbelt ☐ Bull Creek District Park ☐ Forest Ridge

☐ Jester ☐ St. Edwards Park ☐ Stillhouse Hollow Nature Preserve

☐ Cortaña ☐ Emma Long Metropolitan Park ☐ Bohls

☐ Sansom ☐ Commons Ford Ranch Metropolitan Park ☐ Double J & T

3. What is the Trail Proposal Type?

□ Improve the sustainability of an existing trail.

□ Convert an unauthorized trail to an authorized trail.

□ New trail construction.

4. Trail uses will be limited to hiking, hiking with dogs, trail running, and biking, as constrained by grandfathering which is described in the BCCP Public Access Land Management Chapter, and the Trail Master Plan Strategic Vision. What are the proposed trail uses?

□ Hiking □ Hiking with Dogs □ Trail Running □ Mountain Biking

□ Other Grandfathered Use_____

5. Brief Trail Proposal Description. Please include GIS data for the Trail Master Plan trail proposal location or provide a map with this request.

_____
_____
_____
_____
_____

6. Do stakeholders have the funding and staffing resources needed to develop the Trail Master Plan, construct, manage, monitor and enforce the additional public recreation, and provide for additional public outreach and education? ☐ Yes ☐ No
Please explain:

_____
_____
_____
_____

7. Trail Pre-planning Questions

a) Does the proposed trail support connectivity? ☐ Yes ☐ No

b) Does the proposed trail cross through a BCCP Habitat Mitigation Zone? ☐ Yes ☐ No

- If yes, please specify which zone(s):

□ Golden-cheeked Warbler Zone 1 □ Golden-cheeked Warbler Zone 2
□ Black-capped Vireo Zone □ Karst Zone 1 □ Karst Zone 2

c) Does the proposed trail cross through any sensitive feature areas? ☐ Yes ☐ No

- If yes, additional coordination with the City of Austin is required to identify sensitive features near the proposed trail alignment. This allows stakeholders to understand any challenges the project may have with meeting the Trail Master Plan goals and objectives.

d) Does the proposed trail cross any creeks or other water features? ☐ Yes ☐ No

e) **Is the proposed trail sustainable, given the soil and terrain?** ☐ **Yes** ☐ **No**

f) **Does the proposed trail address parking and user amenities, as appropriate to the activities and trail proposed?** ☐ **Yes** ☐ **No**

- Parking ☐ Yes ☐ No ☐ Not Applicable
- Bathrooms ☐ Yes ☐ No ☐ Not Applicable
- Trash disposal and receptacles ☐ Yes ☐ No ☐ Not Applicable
- Other amenities: _____ ☐ Yes ☐ No

8. ADDITIONAL COMMENTS:

_____

_____

_____

I realize that failure to supply complete information with this request may delay processing. I certify that all statements on this request are true and correct to the best of my knowledge.

_____ _____

SIGNATURE of Person Responsible for Submitting Request **DATE Signed**

_____ _____

PRINTED NAME of Person Signing **Sponsor or Agency**

Submit requests to: **BCP Program Manager**
Wildland Conservation Division, Reicher Ranch
Austin Water
3621 South FM 620 Rd.
Austin, Texas 78738
Attn: Nico M. Hauwert, Ph.D., P.G.
BCCP Infrastructure Coordinator

Or email directly to: **Nico M. Hauwert, Ph.D., P.G., BCP Program Manager**
512/972-1661 Nico.Hauwert@austintexas.gov

APPENDIX I - CITY OF AUSTIN BCP TRAIL MASTER PLAN APPLICATION

Balcones Canyonlands Conservation Plan (BCCP)

City of Austin BCP Trail Master Plan Application

This Trail Master Plan Application should be completed collaboratively by the trail sponsor and the land manager(s) to ensure accurate and agreeable answers. This should be submitted after the Trail Sponsor Request to Plan a Proposal has been evaluated by BCP staff, and the GIS database supporting sustainable trail analysis for the proposed project has been completed collaboratively by the trail sponsor and the land manager(s).

1. Applicant Information:

Applicant Name: _____

Company or Agency: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

Contact Name: _____ Contact Title: _____

Daytime Phone # (____) ____-_____

Email address: _____

2. BCP Tract Manager: _____

Contact Name and Department/Division: _____

Mailing Address: _____

City: _____ State: _____ Zip Code: _____

3. Project Information:

Project or Trail Name**:** _____

Street Address or Location Description: _____

Project Manager: _____

Daytime Phone # (____) ____-_____ Email address: _____

On-site Single Point of Contact: _____

Daytime Phone # (____) ____-_____ Email address: _____

4. Trail Proposal Planned for which Balcones Canyonlands Preserve?

□ Barton Creek Greenbelt □ Barton Creek Wilderness Park □ Sansom

□ Bull Creek Greenbelt □ Bull Creek District Park □ Forrest Ridge

□ Jester □ St. Edwards Park □ Stillhouse Hollow Nature Preserve

□ Cortaña □ Emma Long Metropolitan Park □ Bohls

□ Reicher □ Commons Ford Ranch Metropolitan Park □ Double J & T

5. What is the Trail Proposal Type?

□ Improve the sustainability of an existing trail.

□ Convert an unauthorized trail to an authorized trail.

□ New trail construction.

6. Trail uses will be limited to hiking, hiking with dogs, trail running, and biking, as constrained by grandfathering which is described in the BCCP Public Access Land Management Chapter, and the Trail Master Plan Strategic Vision. What are the proposed trail uses?

□ Hiking □ Hiking with Dogs □ Trail Running □ Mountain Biking

□ Other Grandfathered Use_____

7. Brief Trail Description: _____

_____

_____

_____

_____

_____

_____

_____

8. What is the approximate length of the proposed new trail?:_____

_____

9. What is the approximate length of the existing trail to be closed?:_____

_____

10. What resources are the sponsor offering to provide?: _____

_____

_____

_____

11. What resources are the sponsor seeking from the land manager?: _____

_____

_____

_____

_____

_____

_____

_____

12. Design Phase Trail Planning Questions

1. Is the proposed trail sustainable, given the terrain? ☐ Yes ☐ No

    a. Does proposed design meet or exceed the International Mountain Biking Association's standards for trail design? ☐ Yes ☐ No

2. Does the proposed trail avoid fragmenting high quality habitat? ☐ Yes ☐ No

3. Does the proposed trail fragment woodland interiors? ☐ Yes ☐ No

4. Does the proposed trail leave woodland canopies intact? ☐ Yes ☐ No

5. Does the proposed trail avoid occupied habitat? ☐ Yes ☐ No

    a. Proposed trail does not provide access within 100 meters of occupied songbird habitat during breeding/nesting season. ☐ Yes ☐ No

4. Does the proposed trail address parking and user amenities, as appropriate to the activities and trail proposed? ☐ Yes ☐ No

    - Parking ☐ Yes ☐ No ☐ Not Applicable
    - Bathrooms ☐ Yes ☐ No ☐ Not Applicable
    - Trash disposal and receptacles ☐ Yes ☐ No ☐ Not Applicable
    - Other amenities: _____ ☐ Yes ☐ No

5. Does the trail design support or enhance authorized uses and discourage unauthorized uses? ☐ Yes ☐ No
6. Does the trail support connectivity? ☐ Yes ☐ No
7. Does the trail design accommodate ongoing land management activities? ☐ Yes ☐ No

8. Does the trail avoid cultural resources? □ Yes □ No

9. Does the proposed trail avoid cave access or protect karst features? □ Yes □ No

13. Description of Vegetation Disturbance:_____

_____

_____

_____

_____

14. Description of Ground Disturbance:_____

_____

_____

_____

_____

15. Dimensions of Disturbed Areas (length, width, total square feet): _____

_____

16. Total acreage of disturbed area: _____

17. If habitat cannot be avoided, what are the proposed actions to mitigate?: _____

_____

_____

_____

_____

18. If facilities, parking, or impervious cover will be onsite, what are the proposed actions to mitigate?: _____

_____

_____

_____

_____

19. How will intensity of use be managed and/or maintenance be adjusted to address intensity?: __

_____

_____

_____

_____

20. How will enforcement and security be addressed?: _____

_____

_____

21. What design and education components are proposed to keep users on trails?: _____

_____

_____

_____

_____

22. How will long-term maintenance and repairs, enforcement, monitoring, and adaptive management be provided for?: _____

_____

_____

_____

_____

23. How will monitoring of the potential impacts from this trail on protected species, soil, water, and plants be provided for?: _____

_____

_____

_____

_____

24. Please supply with this questionnaire:

- Regional map showing location of project.
- Map delineating total project disturbance area. GIS data preferred.
- Access route map of new trail, including length and width of route. GIS data preferred.
- Map of existing trail proposed for closure. GIS data preferred.

25. ADDITIONAL COMMENTS:

_____

_____

_____

I realize that failure to supply complete information with this application may delay processing. I understand that a copy of this application may be provided to Travis County and the Austin office of the U.S. Fish and Wildlife Service. I certify that all statements on this application are true and correct to the best of my knowledge.

SIGNATURE of Sponsor Responsible for Submitting Application	**DATE Signed**
PRINTED NAME of Person Signing	**Sponsor or Agency**
SIGNATURE of BCP Tract Manager	**DATE Signed**
SIGNATURE of City of Austin BCP Program Manager	**DATE Signed**
SIGNATURE of PARD Tract Manager (if trail is on dual-managed BCP)	**DATE Signed**

Submit applications to: **BCCP Coordinating Committee Secretary**
Wildland Conservation Division, Reicher Ranch
Austin Water
3621 South FM 620 Rd.
Austin, Texas 78738
Attn: Kimberlee Harvey

Or email directly to: **Kimberlee Harvey, BCCP Coordinating Committee Secretary**
(512) 972-1686 Kimberlee.Harvey@austintexas.gov

APPENDIX J - CITY OF AUSTIN BCP TRAIL MASTER PLAN MEMORANDUM OF AGREEMENT TEMPLATE

MEMORANDUM OF AGREEMENT

BETWEEN

CITY of AUSTIN

AUSTIN WATER UTILITY

WILDLAND CONSERVATION DIVISION

BALCONES CANYONLANDS PRESERVE (BCP) PROGRAM

AND

[SPONSOR]

FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF PUBLIC ACCESS TRAILS

ON THE BALCONES CANYONLANDS PRESERVE

[NAME OF BCP PROPERTY] TRACT

Purpose

The purpose of this agreement is to establish roles and responsibilities for parties engaged in implementing public access trails on the City of Austin's Balcones Canyonlands Preserve (BCP)**.** The Balcones Canyonlands Conservation Plan (BCCP) Coordinating Committee approved the BCP Trail Master Plan process on February 18, 2009. It was created to increase opportunities for sustainable recreational trails on City of Austin owned BCP properties.

This approval is meant to help implement the City's philosophy of accommodating the public with access to land in order for them to learn the importance of our wildlands and protected species, how endangered species habitat systems function, and how we manage the land. This access will leverage the City's investment by educating our constituents so that they may protect sensitive endangered species habitat near their homes and businesses.

The trail recommendations for BCP tracts approved by City Council are the result of an extensive collaborative process between trail sponsors and land managers where stakeholders agree to provide implementation resources. This Memorandum of Agreement will also serve to protect the interests of all stakeholders involved in this project, including the City. This relationship between the City of Austin and

the sponsors participating in this Memorandum serves as a model for Public – Private partnerships in Austin and other communities.

The City of Austin Agrees:

1. To make the site on the [BCP PROPERTY] available for planning, construction, operation and maintenance of a public access trail suitable for [TYPE(S) OF USE], access;
2. That prior to construction, the Environmental Conservation Program Manager or designated representative shall review and approve any plans for public access trails;
3. To move plans, etc. through the City's regulatory process by obtaining permits and approvals in cooperation with other signatories to this Memorandum of Agreement;
4. To provide technical assistance on issues related to sensitive and sustainable design, construction, operation, and management of a public access trail on this site;
5. To provide technical assistance to stakeholders on education actions related to the public access trail on this site;
6. To provide advance notice of temporary closures for management or emergencies to the Stakeholder Steering Committee, Trail Administration Subcommittee and the Trail Steward;
7. To keep partners informed of management or policy changes that would affect access, by notifying the Stakeholder Steering Committee, Trail Administration Subcommittee and/or the Trail Steward as appropriate.
8. To monitor public access effects on the welfare of the target species of concern, and impacts to habitat, soil, vegetation, or water resources, etc. and to inform partners and public of results.
9. To conduct research on effects on the welfare of the target species of concern, and impacts to habitat, soil, vegetation, or water resources, as appropriate, and inform partners and the public.
10. To evaluate whether constraints and guiding principles, which are the basis of the original trail recommendations, are being met. When deficiencies are noted the City shall notify the Stakeholder Steering Committee, Trail Administration Subcommittee or the Trail Steward as appropriate of any deficiencies or concerns.
11. Notify partners in a timely manner when conditions may lead to revocation of access so that corrective measures may be planned and implemented.

1. **[SPONSOR] Agrees:** To serve as the sponsor and party responsible for the public access trail on [BCP PROPERTY] with primary fiduciary responsibility for the long term compliance with this memorandum of agreement and the constraints and guidelines contained in the approved public access recommendations;
2. To plan and develop trails for this site including preparation and submission of plans to City of Austin for approval;
3. To serve as the lead to secure and provide funding or other resources necessary to construct, operate, and maintain this trail;
4. To help plan and provide trail construction and maintenance training to stewards, volunteers, or others who work on the trails;
5. To provide volunteers and other inputs for trail work days or other trail related or educational events;
6. To provide leadership for planning and implementing educational components for the trail and other educational activities on the property;

7. To provide annual reports (due November 1) documenting results of educational activities associated with the trail and other educational activities on the property;
8. To provide a representative to the Trail Administration Committee;
9. To assure that trail construction, maintenance, education activities and other trail related projects are completed according to the terms of this memorandum and the constraints and guidelines contained in the BCCP Trail Master Plan process approved public access recommendations;
10. To assist with trail education, construction, operations, and maintenance.

It is Mutually Agreed:

1. That a Trail Administration Subcommittee of the Stakeholder Steering Committee shall be organized. This subcommittee will serve as the entity that is accountable to the City of Austin for the construction, operation and maintenance of all public access trails on the Balcones Canyonlands Preserve.
    a. Purpose - Provide coordinated management for trail building, maintenance, and use policies and serve as a point of contact for trails.
    b. Governance - the subcommittee shall conduct an annual meeting with additional called meetings as needed.
    c. Organization and Individual Responsibilities
        i. Chairperson
            1. Will lead subcommittee and represent the interests of the trail stewards
            2. Point of contact for all trail issues
                a. Will handle trail issues directly or delegate
                b. Will follow up on issues and be responsible for ultimate resolution
                c. Will serve as single point of contact to the City of Austin regarding trail issues
            3. May direct volunteers to areas where help is needed.
            4. Assists with acquiring grants for trail maintenance, etc.
            5. Can call meeting when deemed necessary.
            6. Shall be elected annually from the subcommittee membership.
        ii. Non-City MOA Signatory Representatives - represent interest of specific user groups who have agreed to participate in the MOA and be accountable for its implementation. Interests may include:
            a. [LIST TYPE(S) OF USER GROUPS)]
        iii. Stakeholder Steering Committee Representative - member of the Stakeholder Steering Committee which serves as the public oversight group responsible for assisting the City of Austin with planning public access on the Balcones Canyonlands Preserve.
        iv. Stewardship Committee Representative - member of the stewardship committee. This committee is organized to train and recruit trail stewards and other volunteer leaders assisting the Balcones Canyonlands Preserve.
        v. Trails Stewards – are trained volunteer leaders who are responsible for the day-to-day operations and maintenance on individual trails. They only attend meetings or provide reports on an AS-NEEDED basis.

2. That public access trails or segments of trails may be closed due to trail related issues, concerns or emergencies. Closures will be based on the following Grade/Priority of Threat:

    A. Extreme/Severe = Spill, pipeline threat, natural disaster. An Immediate threat to life or public safety.
        - Requires immediate public notification (upon discovery)
        - Immediate closure of site or segment until resolved
        - City, signatory, or both are responsible for identifying threats, assuring they are addressed and providing notification.
            - The City, with the advice of trail steward, is responsible for making closure determination and providing notification.
            - These threats must be addressed before the trail or segment is reopened.
            - City of Austin representative and Trail Steward must be notified immediately.

    B. Serious/High = Dangerous Trail Conditions. Trail use would cause damage or pose serious threat to public safety.
        - Requires immediate public notification (upon discovery).
        - Requires closure of trail or segment until grade or priority is reduced to lower level.
        - The City, with the advice of trail steward, is responsible for making closure determination and providing notification.
        - Mitigation or correction will be initiated ASAP.
        - City of Austin representative and Trail Steward must be notified immediately.

    C. Concern/Moderate = Trail Maintenance Needs. Observed Habitat Threats
        - Public Notification within 24 hours.
        - Notification of City or Trail Steward within 5 working days.
        - The City and/or the Trail Steward are responsible for making the closure determination and notification.
        - Corrected or mitigated in 14 days.
        - No closings unless further deterioration to next higher grade/priority is expected or occurs.

    D. Routine/Preventative = Trail and Facility Management to Comply with Balcones Canyonlands Conservation Plan Permit and Habitat Conservation Plan
        - Public notice as needed to avoid conflicts
        - The City and/or the Trail Steward are responsible for making the closure determination and notification
        - Address under routine maintenance schedule
        - Closure as needed to avoid non-compliance with BCCP Permit

    E. Closure notifications shall include as appropriate
        - City staff
        - Trail Administrative Subcommittee
        - Stakeholder Steering Committee

- Trail Steward
- MOA Signatories with impacted responsibilities
- Media Outlets
- Law Enforcement and Public Safety agencies
- Trail Users through trail postings

3. That the Trail Administration Subcommittee shall develop rules governing public access and use of the trail supported by this MOA. They must support the constraints and guidelines contained in the public access recommendations. Draft rules shall be presented to the Stakeholder Steering Committee for ratification. Should the stakeholders fail to reach consensus to ratify these rules, the ratification process shall proceed to the second level of the appeals process. All signatories agree to enforce trail rules through monitoring, educational interactions with trail users, and reporting of violations to City of Austin staff. In situations where rules violations or emergencies pose a threat to public health or safety, an appropriate law enforcement agency shall be notified.
4. That it is the decision of the City of Austin to indefinitely close a trail and revoke public access privileges. Revocation shall be through written notification to all signatories of this MOA. This action shall be based upon non-compliance with this MOA, or the constraints, guidelines, or other provisions of the public access recommendations. Revocation will be enforced until non-compliance is corrected. Revocation may be appealed through the appeals process.
5. That there will be periodic review.
    a. The signatories of this agreement will meet to review the status of this agreement annually before its anniversary date. The annual review will confirm that all the obligations of this agreement are being met and that all trail activities are being conducted in compliance with the public access recommendations including the constraints and guidelines. The status of each signatory shall be confirmed. If a signatory organization is no longer able to meet its obligations under this memorandum, a substitute signatory must be added through modification of this agreement.
    b. Following the annual review, the City of Austin shall notify the signatories to this memorandum of the results of the review in writing. Full compliance shall be so noted. Should deficiencies be revealed in the review, the City of Austin shall provide the signatories with written notice that shall also include a performance plan and schedule for correction of deficiencies.
6. That any signatory to this memorandum of agreement may appeal revocation or decisions regarding trails rules. Appeals must be presented in writing to all memorandum of agreement signatories. The first level of appeal shall be to the Stakeholder Steering Committee. The Stakeholder Steering Committee may receive and consider any information from the City of Austin or other signatories to this memorandum regarding the revocation and appeal. An appeal may be decided using the Stakeholder Steering Committee's normal decision-making process of consensus. If the appeal fails in the first level, the decision may be appealed to the City Manager, whose decision is final (Second Level).
7. That any actions must comply with all local, State, Federal, and BCCP Permit regulations.
8. That this MOA may be revised or modified only with consent of all parties.
9. That any signatory may withdraw from this agreement by providing 90 days' notice to all other signatories. Furthermore, if the City of Austin withdraws from this agreement after the trail is constructed and begins operation, the City agrees to maintain public access and assume full responsibility for operation and maintenance. Should other signatories withdraw, they must

provide a substitute for their organization who will join the MOA through modification and assume the obligations of the withdrawing signatory.

10. That the following are contacts regarding this MOA. For the purposes of notice, the addresses of the parties are as follows

The City:

Austin Water /Wildland Conservation Division
P.O. Box # 1088
Austin, Texas 78767-8839
Attention: Sherri Kuhl

[SPONSOR AGENCY]

[SPONSOR NAME]
[SPONSOR ADDRESS]
[SPONSOR ADDRESS]

SIGNATURES

_____Date_____
[NAME]
Deputy City Manager

_____Date_____
[NAME]
[SPONSOR AGENCY]