BALCONES CANYONLANDS PRESERVE
LAND MANAGEMENT PLAN

TIER III

TRAVIS COUNTY
STEINER RANCH PRESERVE
NORTH LAKE AUSTIN MACROSITE

August 2007

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1.0 BACKGROUND INFORMATION

Travis County accepted a conservation easement on the 819-acre (331 ha.) Steiner Ranch Preserve in January 2001 from Steiner Ranch Ltd. as partial mitigation under the terms of the Participation Agreement under the Alternative Process of the Balcones Canyonlands Conservation Plan (BCCP), a 10(a) permit issued to Travis County and the City of Austin in May 1996. The "Conservation Easement Agreement" between Steiner Ranch Ltd. and Travis County, as well as the "Steiner Ranch Agreement Regarding Participation Rights and Conservation Easement" (a BCCP Participation Agreement) between the BCCP and Steiner Ranch Ltd., were both completed in January 2001. Under the BCCP process, the U.S. Fish and Wildlife Service approved the amount of acreage required, the location of the Steiner Ranch Preserve mitigation tract and other requirements. The Steiner Ranch Preserve will be managed by Travis County as part of the Balcones Canyonlands Preserve (BCP) as required under the BCCP regional permit.

The Conservation Easement on the tract will remain in effect in perpetuity to limit the uses of the tract to preserve land. This document will not attempt to repeat all the specifics of the Conservation Easement Agreement but summarize that information for general management purposes.

All of the Steiner Ranch Preserve land is currently owned by the Steiner Ranch Master Association (SRMA) and is managed by the County's Parks and Natural Resources Division of the Transportation and Natural Resources Department. There are four areas within the Preserve designated as potential "Preserve Lots" that may be sold to private individuals with Conservation Easement restrictions in place and will continue to be managed by Travis County as part of the Preserve.

The juniper-oak canyons and draws of Steiner Ranch Preserve provide habitat for the federally endangered golden-cheeked warbler (*Dendroica chrysoparia,* hereafter GCWA). A mid-successional shrubland in the northernmost section of the preserve has historically been occupied by the federally endangered black-capped vireo (*Vireo atricapilla,* hereafter BCVI).

Prior to the 1980's when development came to the area, the peninsula on which Steiner Ranch is situated was entirely owned by the Steiner family and used as a cattle ranch. The development of Steiner Ranch began in the mid-1980s. When complete, the development will comprise thousands of residential homes and apartments as well as many businesses.

Steiner Ranch residents and their guests will have access to the Preserve on a few approved trails. Off-trail access is not allowed. A "Steiner Ranch Trail Plan" was prepared for the SRMA and approved by Travis County and will guide the management of the approved trails by the SRMA.

1.1 Description of Tract

1.1.1 Location of Tract

The Steiner Ranch Preserve, comprising 819 acres (331 ha.), is located in western Travis County, approximately nine miles (14 km) west of downtown Austin (Figure 1). The property is located north of Lake Austin and south of RM 620. Access roads are limited to Quinlan Park Road and Steiner Ranch Blvd., both accessed via RM 620. The Steiner Ranch Preserve tract is one of seven Balcones Canyonlands Preserve (BCP) tracts in the North Lake Austin macrosite and is located adjacent to the City of Austin's 1752-acre Cortaña Tract.

The preserve is divided into five separate sections ranging in size from 76 to 310 acres. These sections are situated along a northeast-southwest axis (Figure 2). The northernmost section, or Tract 2 (Vireo Management Area), is bounded to the north by RM 620. The southernmost tract, or J-Canyon Area, is bounded by Lake Austin and has approximately 2100' of river frontage.

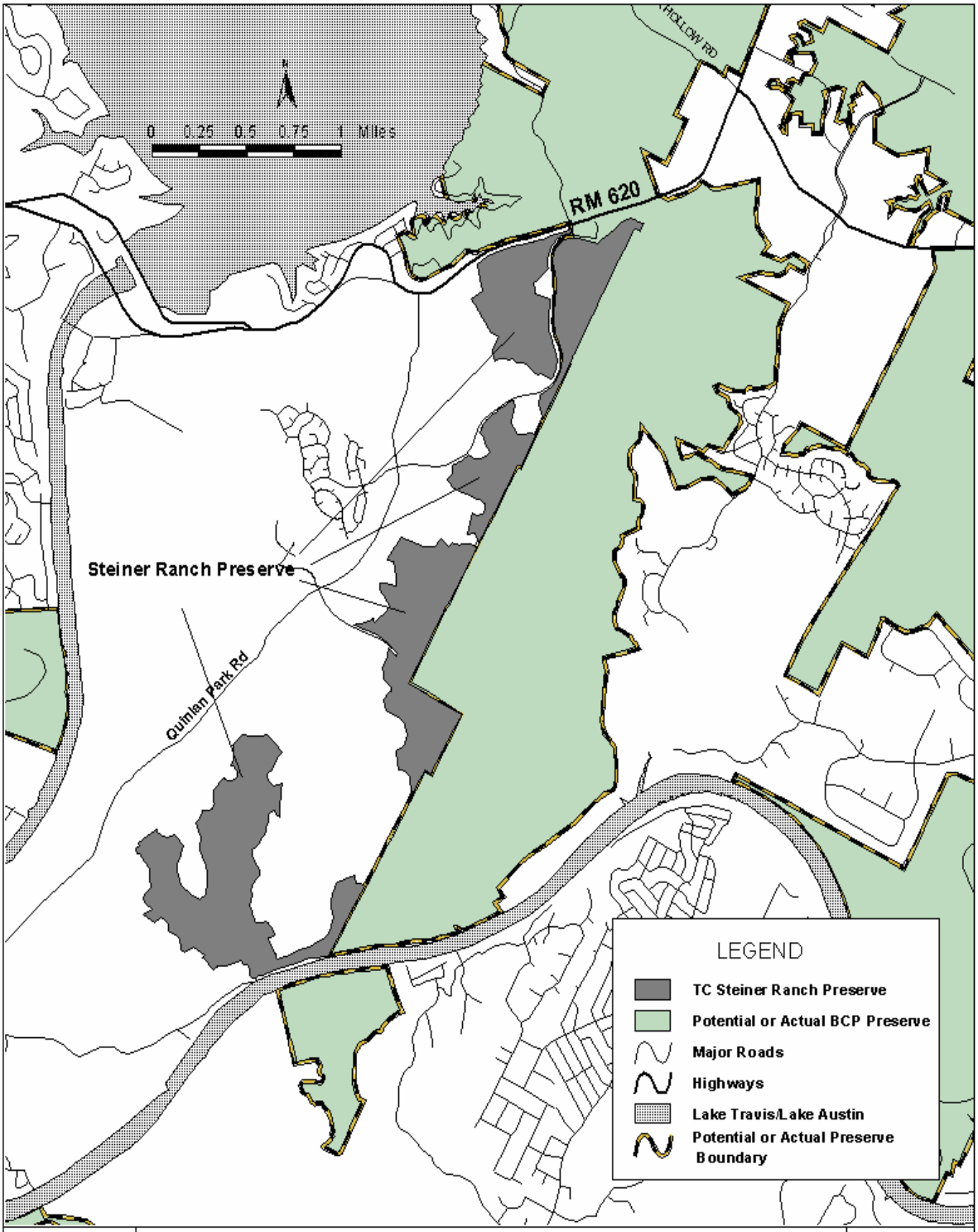
1.1.2 Tract Features

The Preserve has been heavily impacted by humans over the years. Numerous old ranch roads, power lines, trails, old cattle ponds, new retention ponds, old fences and an old railroad bed used during the construction of Mansfield Dam can all be found on the Preserve. Natural features include scenic bluffs overlooking Lake Austin, several creeks and intermittent streams, natural springs, steep canyons, rolling hills, and riparian meadowland.

1.1.3 Land Status

1.1.3.1 Rights-of-Way and Easements

Travis County will undertake compilation of a complete list of right-of-way and easements on BCP preserve property and establish a file entitled "Steiner Ranch Preserve Deed Records" to be maintained by the Transportation and Natural Resources Department.



Steiner Ranch Preserve, Travis County

Date: 4/25/02

BCP Tract Map

Figure 1.

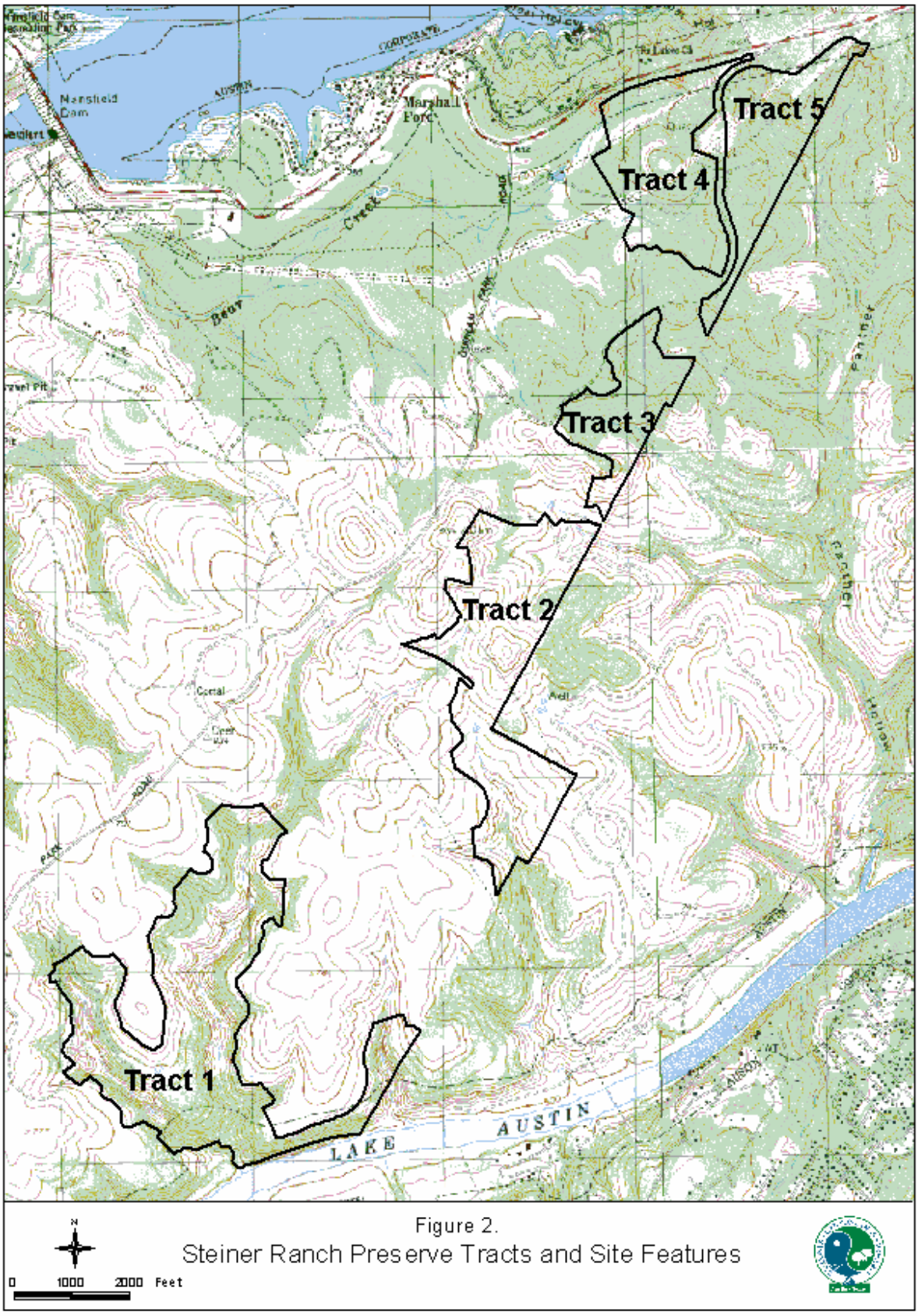


Figure 2.
Steiner Ranch Preserve Tracts and Site Features

1.1.3.2 In-Holdings

All Preserve land is currently owned by the SRMA. There are no inholdings on the preserve at this time. However, the developer has the right to construct infrastructure improvements within four "Proposed Infrastructure Areas" within the current preserve, each not to exceed three acres in size. At the time these are utilized, the developer will pay mitigation fees to the BCCP for these Infrastructure Areas. The developer also has the right to sell four "Preserve Lots" which though privately owned will continue to be managed as part of the Preserve with all developed areas located outside the preserve.

1.1.3.3 Boundary Disputes

There are no known boundary disputes.

1.1.3.3 Regulatory Requirements

Travis County along with the SRMA will develop, post, and enforce rules for trail use on the approved trails. SRMA will also enforce Protective Covenants in the development areas adjacent to the Preserve and other aspects of the Conservation Agreement related to development adjacent to the Preserve. Regulatory requirements of the Balcones Canyonlands Conservation Plan (BCCP) are covered in the BCCP permit and in the Balcones Canyonlands Preserve (BCP) - Land Management Plan Tier II Plan Administration.

1.3.3.4 Deed Restrictions

The County will maintain a file on existing deed restrictions. Steiner Ranch Ltd. has placed Protective Covenants on the development adjacent to the Preserve.

1.3.3.5 Special Agreements

A Conservation Easement Agreement was signed by Steiner Ranch Ltd. and Travis County in January 2001 transferring management of the Preserve to Travis County and detailing the rights and responsibilities of each party. The "Steiner Ranch Agreement Regarding Participation Rights and Conservation Easement" (a BCCP Participation Agreement) between the BCCP and Steiner Ranch Ltd. was also signed at this time. Both documents were recorded in the Real Property Records of Travis County as Document # 2001009450 and Document # 2001009451.

1.3.3.6 Mineral Rights

Steiner Ranch reserved all mineral rights on the tract but waved their rights to extract any minerals from the surface within the Preserve land.

1.3.3.7 Legal Issues

Other than those issues associated with participation in the BCCP, no tract-specific legal issues remain. BCCP requirements are treated elsewhere in this document; see Regulatory Requirements section, above.

1.3.3.8 Financial Issues

As part of the Conservation Easement Agreement, Steiner Ranch Ltd. will make payments to Travis County for operation and maintenance of the Preserve land through 2005 after which Travis County will pay management costs. Additional financial information is listed in the Conservation Easement Agreement.

1.2 Physical Characteristics

Preserve elevation ranges from 1032' on Tract 2 (Vireo Management Area) to 480' along Lake Austin. Topography of the four northern sections comprises upland hills incised by a number of draws along the eastern boundary. Draws contribute to the Panther Hollow drainage or to Lake Austin directly, with water draining generally west to east.

The southernmost section of the preserve encompasses three steep, wooded canyons. Here, residential development is situated on uplands adjacent to preserve land located in the canyons. There are intermittent tributaries in the canyons that drain south into Lake Austin, with many intermittently spring-fed. Boundary lines roughly follow a 760' contour, dropping down to a 700' elevation around the westernmost canyon and to a 660' elevation around the smallest canyon on the eastern side. This smaller canyon is joined to the rest of the tract by a narrow strip of steep bluffs (approximately 285' wide and 2100' long) that drop precipitously into Lake Austin. Steiner Ranch Preserve falls on the Jollyville, Bee Caves and Manfield Dam quadrangle maps (USGS 7.5" topographic maps).

1.2.1 Geology

Outcroppings within the preserve are predominately Cretaceous limestones, chalks, marls, and clays. Geologic units include, from oldest to youngest, the Glen Rose Formation, the Walnut Formation, and the Edwards Group. A majority of the preserve is underlain by the Glen Rose Formation, with Walnut and Edwards formations exposed only at higher elevations at the northeastern end of the property. The Glen Rose Formation consists of thinly-bedded soft and hard limestones, dolomites, and marls. Alternating soft and hard limestones result in a stair-step topography commonly seen in the Hill County of western

Travis County. Within the Walnut formation both Bee Cave marl and Bull Creek limestone occur. These are capped at the highest elevations by relatively resistant Edwards limestone. Quaternary age deposits include unconsolidated gravels, sands, silts, and clays. Lower Colorado River terrace deposits are found along the mouth of J-canyon creek. Fractures and joint systems have been located within the limestone on Steiner Ranch. Horizontal displacement has been limited to generally less than one inch (EH&A 1986).

1.2.2 Hydrology

1.2.2.1 Surface water

The hydrology of Steiner Ranch is characterized by several medium-sized creeks, a number of ephemeral springs and seeps, a man-made pond, and roughly 2100' of river frontage. The Preserve is partially situated on a peninsula formed by a large bend in the Colorado River (Lake Austin). A ridgeline tending northeast-southwest divides the peninsula into two watersheds. The Steiner Ranch Preserve is located southeast of this ridge, and water drains generally in a southerly or southeasterly direction into Lake Austin. A number of ephemeral springs are located at canyon heads and within draws contributing to the larger canyon systems resulting in several medium-sized creeks. Numerous seeps are found within the canyons as well. Seeps also occur on the upland northern sections of the property along draws and drainages. Water flow in the canyon networks appears to be of long-term duration as evidenced by mesic vegetation and sedimentary features. The absence of fish, however, suggests that waterways dry completely during times of drought. There is also evidence that flash flooding occurs frequently. The single permanent water source is a man-made, upland stock pond at the southern end of the preserve. This upland stock-pond may receive water from a spring or seep allowing it to retain water in dry seasons of the year. Waterfowl have been observed using the stock-pond in spring and summer. Although surface water features on the preserve are important for wildlife and humans (in terms of recreational opportunities), surface water comprises a very small portion of the total acreage of the preserve. For reference, the locations of seeps, springs, canyon heads, and knick points are mapped in detail in a 1986 environmental assessment (EH&A 1986).

1.2.2.2 Water quality

A visual inspection of water quality and hydrological features was conducted in 1986 by private consultants. At this time, water quality was judged "very good" based on water clarity and minimal evidence of nutrient loading (EH&A 1986). Flowing water contained numerous aquatic species including tadpoles, insect larvae, and crustaceans. However at that time, the man-made stock pond was described as turbid and green and supporting high levels of

planktonic algae. Areas of backwater flow from the Colorado River into canyon creeks were reported to be "clear." Brownish colored water in backwater locations was attributed to tannic acid from nearby vegetation. No evaluation of water quality has been undertaken since 1986. Since 1986, extensive dense residential development has occurred adjacent to the preserve. The effect of this development on water quality and water flow has not been studied. However, in 2004, the man-made stock pond appears healthy with clear water supporting water plants and is suspected to be spring fed.

1.2.2.3 Sub-surface water

Steiner Ranch Preserve is not located within either the recharge or contributing zones of the Edwards Aquifer. The principal waterbearing unit of Steiner Ranch is the Middle Trinity Aquifer. Recharge occurs through the densely porous Glen Rose limestone or through faults and fractures located in streambeds, creeks, and their tributaries. The formation of travertine structures at seeps and springs is characteristic of the hydrology of the Middle Trinity Aquifer. Like surface water, direction of groundwater flow is roughly south or southeast. Groundwater quality was rated "very good" in a report from Espey, Huston, and Associates, Inc. (EH&A)(1986). Historically, the aquifer has not been utilized to meet water needs on this property. No wells are located on the property. Chemical analysis of spring water on Steiner Ranch conducted in 1983 was within safe drinking water standards (E,H&A 1986). No analysis of ground water quality has been conducted since 1983.

1.2.3 Soils

Predominant soil types on Steiner Ranch include those in the Brackett and Tarrant series (Soil Conservation Service, 1974). Soils in the Brackett series occur throughout the preserve and comprise a large portion of its total acreage. These soils are shallow and well drained with a generally gravelly surface layer. Brackett soils, rolling, (BlD) are located on gently undulating uplands with slopes of 1-12%. Brackett soils and Rock outcrop, steep, (BoF) are found on steeper slopes along creeks or rivers and consist of Brackett soils separated by rock outcroppings. Both Brackett soil types are benched and underlain by limestone and marl.

Tarrant soils are shallow to very shallow, well-drained, stony, and clayey. Like Brackett soils, they are underlain by limestone. Tarrant soils and rock outcrop, steep, (TdF) occur in ravines along major rivers. Slopes are 18-40%. Rock outcrops and limestone fragments comprise up to 50-80% of the coverage. Vertical escarpments are included in this mapping unit. On the preserve, this soil type is limited to steep canyons that drain into the Colorado

River. Tarrant soils, rolling, (TaD) are found in a limited area of the preserve at the head of a canyon network.

Soils in both the Brackett and Tarrant series have moderately slow permeability and low available water capacity. They are suitable for range and wildlife habitat or recreation. A small patch of soils in the Volente complex, 1-8% slopes, (VoD) occurs in the Vireo Restoration Area. These are deep, well-drained soils with concave slopes that occur in narrow valleys. Crops are grown on this soil type, but erosion hazard is high. Important range sites include Adobe, Steep Adobe, Rocky Upland, and Steep Rocky (Soil Conservation Service 1974).

1.2.4 Caves and subsurface features

The majority of Steiner Ranch Preserve is underlain by Glen Rose limestone, which due to its density, is not conducive to the formation of karst features. In Travis County, such features are generally limited to areas underlain by Edwards limestone, which is more susceptible to dissolution by groundwater due to its porosity. Edwards limestone is restricted to two small areas at the far northeastern end of the preserve. No caves or subsurface features have been located in this area or elsewhere on the property. The preserve falls entirely outside of Karst Zones as designated by the USFWS for the Balcones Canyonlands Conservation Plan Permit Area. A “potential cave” was located by SWCA personnel in 1998 and included in their list of CEF’s for the City of Austin (SWCA 1998). The feature is described as a “potential” cave at the base of a waterfall in the drainage bottom. The opening is small (roughly 1 foot by 1.5 feet) and may require excavation to determine if it qualifies as a CEF. The location was not mapped digitally or topographically, and it may or may not be located within preserve boundaries. No other karst features have been documented on the preserve.

1.3 Biological Characteristics

1.3.1 Vegetation currently on tract

Steiner Ranch is located in the Edwards Plateau vegetative region**.** A majority of the preserve comprises upland savannah or grassland habitat with extensive Ashe juniper (*Juniperus ashei*) and mesquite (*Prosopis glandulosa*). Dominant grasses include little bluestem *(Schizachyrium scoparium*), silver bluestem (*Bothriochloa saccharoides*), gramas (*Bouteloua spp.*) and *Panicum sp*. (EH&A 1986). Due to historic land use patterns, it is unlikely that grassland habitats contain remnant native prairie. Terraced areas and areas of gently sloping topography are relatively open, but have been colonized by young Ashe juniper. On steeper slopes, junipers form dense brakes. The Vireo Management Area supports a small, but

unique mix of shrubby species with moderate understory cover. Woody species, such as evergreen sumac (*Rhus virens*), redbud (*Cercis canadensis*), elbow bush (*Forestiera pubescens*), and shin oak (*Quercus sinuata*), create a patchy physiognomy with a high amount of edge. Canyons and mesic slopes support closed canopy, juniper-oak woodlands with a mix of hardwoods including cedar elm (*Ulmus crassifolia*), American elm (*U. americana*), black cherry (*Prunus serotina*), Texas ash (*Fraxius texensis*), hackberry (*Celtis sp.*), and Spanish oak (*Quercus buckleyi*). Riparian vegetation includes sycamore (*Plantanus occidentalus*), willow (*Salix nigra*), and baldcypress (*Taxodium distichum*). A mesic floodplain at the mouth of Tract 5 (J-Canyon) supports very large individuals of live oak, pecan (*Carya illinoensis*), and baldcypress. Numerous seeps and springs support a variety of mesic vegetation, including sedges, mosses and ferns. An index of vascular plants observed on Steiner Ranch (encompassing both current preserve land and developed areas) can be found in EH&A 1986. A subset of these species will be found on the preserve proper.

1.3.2 Animal species currently on tract

Forty-eight avian species, twelve mammalian species and eight amphibian and reptile species were recorded during wildlife surveys conducted in 1985 and 1986 on the development and preserve areas of Steiner Ranch (E,H&A, Inc. 1986). Species of interest include the endangered golden-cheeked warbler and black-capped vireo. A number of bird species on the Audubon Watch List for Texas, 2001, have been observed on the preserve. These include the Yellow-billed Cuckoo, Northern Bobwhite, Black-chinned Hummingbird, Scissor-tailed Flycatcher, Painted Bunting, and Rufous-crowned Sparrow. A large population of deer and feral hogs also occur on the preserve.

1.3.3 Endangered species and species of concern

1.3.3.1 Golden-cheeked Warbler

Prime nesting habitat for the golden-cheeked warbler (GCWA) occurs in the three canyons that comprise Tract 1, at the head of a large canyon on the eastern boundary of Tract 2, and along slopes and in ravines on Tracts 4 and 5. GCWA have not been found in Tract 3. Prime GCWA habitat contains large, mature junipers and a mix of deciduous hardwoods in a closed-canopy woodland.

Previous warbler survey data is given in Table 1 for the years 1993-2003. Surveys were conducted by SWCA, Inc. (SWCA 1994; 1995; 1996; 1997;1999a; 1999b) or Espey, Huston, and Associates, Inc. (EH&A 1994) for the entire Steiner Ranch development area (circa 4800 acres) and include current preserve land. Travis County conducted surveys in the Preserve

area in 2001; 2002; and 2003. The table below includes an enumeration only of territories that fell within current preserve boundaries based on maps provided by the consultants.

Table 1. Results of golden-cheeked warbler surveys, 1993-2006

Year	Survey Consultants	No. of Territories
1993	EH&A	19
1994	SWCA	9
1995	SWCA	9
1996	SWCA	15
1997	SWCA	13
1998	SWCA	17
1999	SWCA	12
2000	Not surveyed	
2001	Travis County	18, plus several territories undetermined
2002	Travis County	3, most areas not surveyed
2003	Travis County	24, plus several territories undetermined
2004	Travis County	6, several territories undetermined and most areas not surveyed
2005	Travis County	7, several territories undetermined and most areas not surveyed
2006	Travis County	14, several territories undetermined and most areas not surveyed

1.3.3.2 Black-capped Vireo

Surveys conducted by Travis County field staff in 2001-2003 found no Black-capped vireos (BCVI) breeding in the Preserve. In 2003, one BCVI male was present for about 2 weeks and also one BCVI male nesting on the Cortana tract had a portion of its territory on Steiner Ranch land just outside of the Preserve tract. In 2004 and 2005 BCVIs were occasionally observed by City of Austin biologists surveying on the adjacent Cortana tract to have a portion of their territories in this area of Steiner Ranch, just outside the Preserve tract. In January 2005, Travis County did BCVI restoration work on about six acres on Steiner Ranch Preserve and Steiner Ranch land to provide additional BCVI habitat adjacent to the areas where they were seen in 2004. In 2006, one BCVI male was observed using this new restoration area but usage was short lived and he did not establish a territory. On-sight surveys have revealed that some potential vireo breeding habitat does occur on the Steiner Ranch Preserve tracts in other areas and these areas are monitored for this species. Important characteristics of BCVI habitat include shrubby species including some species of oak (*Quercus sp.*), dense vegetative cover to two meters above the ground, and structural patchiness resulting in high amounts of edge. The City of Austin section of the BCCP Annual

Report reported that in 2006 there were five breeding territories of BCVI located on the Cortaña Tract near the boundary with Steiner Ranch Preserve (City of Austin, 2005).

Surveys were conducted by SWCA, Inc. (1994; 1995; 1996; 1997; 1999a; 1999b) or EH&A (1994) and covered the entire Steiner Ranch development area (circa 4800 acres) (Table 2). Surveys were conducted by Travis County within the preserve area in 2001 – 2006 though not all areas were surveyed each year). The table below includes an enumeration only of territories that fell within current preserve boundaries based on maps provided by the consultants. Prior to 1993, BCVIs were present every year from 1986 to 1992 on tracts 4 and 5 and appear to have nested in greater numbers than were detected on any of the following years. BCVI were also located outside of the Preserve Tracts 4 and 5 in adjacent Steiner Ranch land and along cliffs on the west side of the Steiner Ranch peninsula. There appear to have been as many as 12 territories on the entire Steiner Ranch development area during 1988 and their numbers varied in other years during this period (EH&A 1994).

Table 2. Results of black-capped vireo surveys within the Preserve area, 1993-2006.

Year	Surveyor	No. of Territories
1993	EH&A	3
1994	SWCA	1
1995	SWCA	1
1996	SWCA	1
1997	SWCA	1
1998	SWCA	1
1999	SWCA	2
2000	Not Surveyed	
2001	Travis County	0
2002	Travis County	0
2003	Travis County	0
2004	Travis County	0, portions of territories
2005	Travis County	0, portions of territories
2006	Travis County	0, City of Austin data currently unknown

1.3.3.3 Karst species

No karst species covered under the regional permit (BCCP) are known to occur on this preserve.

1.3.3.4 Plant species

No plant species covered under the regional permit (BCCP) are known to occur on this preserve.

1.3.3.5 Other species of concern

No other species of concern are known to occur on this preserve.

1.4 Land Uses

1.4.1 Pre-historic

Cultural resources investigations were conducted in 1986 and 1988 on the Steiner Ranch development area (EHA, Inc. 1986, 1988). Areas surveyed in 1986 included a small portion of current preserve land (canyon slopes of Tract 5). Nothing of archeological significance was located at this study site; however, other surveyed areas yielded significant prehistoric and historic findings. Archeological surveys conducted in 1988 located three sites of archeological significance, but none within preserve boundaries. Sampling covered only a portion of the entire development area (including the preserve area), hence, sites of archeological or historic importance may still be located in the future. It is not known if there are historical or pre-historical sites within the preserve. Some surveys were conducted and historic and pre-historic sites were found by EH&A. within a portion of Steiner Ranch but only a small portion of the ranch was surveyed and it is not clear if these known sites are within the preserve area. The prehistoric sites were predominantly surface scatters and appear to have been small campsites or lithic procurement areas. The historic period sites appear to represent late nineteenth/early twentieth century ranching occupations.

Travis County is committed to conserving archeological sites within the preserve. Should the necessity arise for land management activities potentially harmful to cultural resources, Travis County will make every effort to locate and avoid destruction of any such resources and will consult with the Texas Historical Commission.

1.4.2 Historic

The Steiner Ranch Development lies within the area of early historical land patents to numerous individuals. These landowners included the names Royal, Bradford, Jackson, Wade, Hughes, Blankston, Hadley, Chote, Fritz, and the D. and W. Railroad Company. Bounty grants were given for actual months of service in the Army of the Republic of Texas and much of this area was given as land grants to individuals by the Republic of Texas (ES&A, Inc. 1988) in the 1830's. By 1900, a portion of the ranch was owned by the

Hancock family. T.C. Steiner acquired portions of the ranch in 1944, 1945 and 1959. The land was acquired for development in 1995 (Southwestern Laboratories, Inc. 1992).

1.4.3 Current

1.4.3.1 On-site land use

Steiner Ranch Preserve was set aside and protected as preserve land and has no other uses with the exception of several approved trails for use only by Steiner Ranch residents. Other than these approved trails, the tract is restricted to county management staff. Four areas known as "Preserve Lots" may be sold to private owners who will continue to be bound by the conservation easement protection requirements on their land.

1.4.3.2 Adjacent land use

The Steiner Ranch Preserve abuts the Steiner Ranch development that consists of single family residences, apartments, commercial lots, and open space. It is bounded by RM 620 on the north and the Cortaña Tract on the east.

2.0 MANAGEMENT PROGRAM

2.1 Plan Administration

See Tier II-B Plan Administration for the description of Travis County as a managing entity, County staffing levels, equipment inventory, budget and annual reports as they pertain to the County's management of BCP lands.

2.2 Management Goals

2.2.1 Primary Management Goals

- Maintain or improve vegetation quality and coverage to provide habitat area for the GCWA and BCVI.
- Participate in the development and implementation of the BCP long-term biological monitoring program in conjunction with other preserves within the macrosite and with other BCP agencies.
- Manage the preserve in accordance with applicable BCP Land Management Plan sections, including the Tier II-A Management Handbook.

2.2.1.2 Golden-cheeked Warbler

Management for golden-cheeked warblers will include limiting human disturbance of potential habitat areas and maintaining or improving existing habitat. The preserve will be surveyed for golden-cheeked warblers to measure the success of management activities.

2.2.1.3 Black-capped Vireo

Management for black-capped vireos will include limiting human disturbance of potential habitat areas and maintaining, improving existing habitat, and restoring habitat. Potential black-capped vireo habitat on the preserve will be surveyed to measure the success of management activities. BCVI habitat restoration is planned on approximately 25 – 100 acres in Tract 4 (Vireo Management Area) and Tract 5.

2.2.1.4 Federally listed karst species

None are known to occur on this tract. The preserve staff will continue to monitor for possible occurrence.

2.2.1.5 Species of concern

None are known to occur on this tract. The preserve staff will continue to monitor for possible occurrence.

2.2.2 Secondary Management Goals

Secondary management goals include habitat restoration, erosion controls where needed, and control of invasive species.

2.3 Issues

(a) The Conservation Easement Agreement between Travis County (Grantee) and Taylor Woodrow Community - Steiner Ranch (Grantor) was completed in Jan. 2001. Detailed aspects of this agreement will require active cooperation between the parties. The SRMA was not a party to the agreement since at the time of signing, the SRMA was controlled by the Grantor. When turned over to the homeowners, the SRMA will take on increased responsibilities under the terms of the agreement.

(b) The approved trails within the Preserves are constructed and maintained by the Grantor. The enforcement of trail rules will require active cooperation between Travis County and the Grantor/SRMA.

(c) The Agreement details fencing requirements, including the requirement of back-of-lot fences (with no gates) in newly developed areas. The Agreement map shows locations of fencing responsibility by each party. Travis County may construct additional fencing in areas as needed. These fencing details will require active cooperation between Travis County and the Grantor/SRMA.

(d) The Agreement details requirements concerning "Preserve Lots". As these lots are sold, active cooperation between Travis County, the Grantor/SRMA and the new landowners will be required.

2.4 Management Objectives

The main objectives for this macrosite (North Lake Austin Macrosite) are, in the order of priority:

- Protection of endangered species and species of concern, the land and water;
- Management of endangered species and species of concern and their habitats;
- Monitoring of the habitats for endangered species and species of concern; and
- Enhancement of the habitats for endangered species and species of concern;
- Public education and outreach about endangered species and species of concern and their habitats.

The macrosite land management plan details how activities are prioritized under the objectives (see Tier II-C North Lake Austin Macrosite). Following are the four categories with associated activities listed.

Vegetation Management:

(a) Monitor oaks for oak wilt and regeneration to assess action needed.
(b) Maintain, enhance and restore GCWA and BCVI habitat to the extent possible.
(c) Monitor encroachment of invasive and/or non-native species throughout the preserve and control as needed.
(d) Inventory plants in the preserve.
(e) Map vegetation zones and significant occurrences.
(f) Monitor changes in vegetation over time to the extent possible.

Animal Management:

(a) Continue to monitor GCWA and BCVI habitat use within the preserve.
(b) Monitor other species' impacts on GCWA and BCVI to assess action needed.
(c) Inventory animals (native and non-native) in the preserve.
(d) Implement a control plan for native and non-native wildlife (brown-headed cowbirds, deer, feral hogs, fire ants, cats, dogs, etc.).

Physical and Cultural Management:

(a) Monitor erosion and sedimentation sources and stabilize/restore as needed.
(b) Conduct archeological assessments as needed and protect cultural resources.

Visitor Management and Education:

(a) Monitor the boundary for signs of fence damage or trespass, and take appropriate action.
(b) Work with the SRMA to implement the Steiner Ranch Trail Plan and work with the SRMA to update the plan as needed.
(c) Monitor trespass impacts to the preserve.
(d) Increase public awareness of BCP and endangered species protection through use of tours, brochures, kiosk displays and signs. Increase Steiner residents' awareness of BCP and inform them of BCP access, education and outreach opportunities.

2.5 Specific Implementation Strategies

(See BCP Land Management Plan, Tier II-A Management Handbook for more detailed guidance and applicable strategies and constraints.)

2.5.1 Vegetation management procedures

2.5.1.1 Control methods

Invasive and non-native vegetation will normally be controlled with hand tools, digging, or, in rare cases, occasional herbicide applications. Other methods such as mowing and drill seeding may be incorporated to boost native species' competitive edge against non-native and/or invasive species.

2.5.1.2 Oak wilt

The County will continue to monitor the preserve's oaks and take appropriate action should oak wilt be discovered.

2.5.1.3 Prescribed fire and wildfires

No prescribed fires are planned and all wildfires will be controlled.

2.5.1.4 Restoration and protection efforts

Areas within the preserve found to have erosion problems will be stabilized, revegetated and/or restored to the extent possible. Where appropriate, old roads and trails will be restored to habitat.

2.5.1.5 Protection efforts for species of concern

No species of concern are known to occur on the preserve.

2.5.2 Animal Management Procedures

2.5.2.1 Golden-cheeked Warbler

Bird surveys will be conducted no more than once per week during the nesting season. The vegetation will be managed to maintain/enhance closed-canopy woodland to the extent applicable.

2.5.2.2 Black-capped Vireo

Bird surveys will be conducted no more than once per week during the nesting season. The enhancement or restoration of Black-capped vireo habitat is planned for 25 – 100 acres in Tract 4 (Vireo Management Area) and Tract 5.

2.5.2.3 Karst Invertebrates

None are known to occur on this tract. Surveys will be conducted if any karst formations known to support karst species are found.

2.5.2.4 Browsing animals

Deer populations and regeneration of woody species will be monitored. Removal of deer will be considered if necessary and feasible; or, areas may be secured from deer where possible.

2.5.2.5 Feral animals

Presence of feral animals will be monitored and feral animals will be removed from the preserve whenever possible.

2.5.2.6 Predation and parasitism

The Brown-headed cowbird population will be monitored and any GCWA or BCVI feeding cowbirds will be noted. Cowbird trapping will be conducted when necessary. Red imported fire ants will be monitored and controlled with approved methods.

2.5.3 Physical and Cultural Management Procedures

2.5.3.1 Hydrology and water quality

Contamination of water both via run-off and via groundwater sources will be minimized to the greatest extent possible through cooperative efforts with neighboring landowners.

2.5.3.2 Geology (caves)

If any caves or other karst features are found, surveys will be conducted for endangered species. The areas will be managed in accordance with the BCP Land Management Plan for karst protection.

2.5.3.3 Soils

Areas of soil loss will be stabilized/restored to the extent possible.

2.5.3.4 Cultural resource protection

Cultural resources will be protected through careful management and any new project planning and monitoring. The Texas Historical Commission will be consulted prior to taking any action which might impact archeological or historical resources.

2.5.4 Visitor Management Procedures

2.5.4.1 Access control

There are several approved trails that traverse the Steiner Ranch Preserve for use by Steiner Ranch residents only. Both Steiner Ranch and Travis County staff will enforce the trail rules. There is no access allowed off of these trails.

2.5.4.2 Individual or independent group use

Non-commercial use

There is no non-commercial use anticipated.

Commercial use

There is no commercial use anticipated.

2.5.4.3 User/resource conflicts

Steiner Ranch residents are allowed to use the approved trails under specific conditions outlined in the Steiner Ranch Conservation Easement Agreement. There are “Self-help Rights” in this agreement that allow Travis County to close the trails if conditions exist that threaten the endangered species.

3.0 MANAGEMENT PROGRAM MONITORING

The County will monitor and evaluate habitat management in accordance with applicable biological monitoring procedures as defined in BCP Land Management Plan, Tier II-A Management Handbook. Evaluation and reporting procedures will comply with applicable portions of the Tier II-B Plan Administration.

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