Monitoring and Management of Plant Species of Concern located on the Balcones Canyonlands Preserve in FY2002

Travis County Parks and Natural Resources
Project Numbers 0810-02907, 0810-02904



INTRODUCTION

On May 2, 1996, the City of Austin and Travis County were jointly issued a U.S. Fish and Wildlife Service (USFWS) regional permit (the Permit) referred to as the Balcones Canyonlands Conservation Plan (BCCP) that allows incidental "take" of eight locally occurring endangered species under Section 10(a)1(b) of the Endangered Species Act (U. S. Department of the Interior, Fish and Wildlife Service, 1996a). The thirty-year permit covers western Travis County outside of proposed Preserve boundaries identified in the Habitat Conservation Plan and Final Environmental Impact Statement (HCP/FEIS) (U. S. Department of the Interior, Fish and Wildlife Service, 1996b). The permit also covers incidental take of 27 species of concern should any become listed as threatened or endangered during the life of the permit.

The City of Austin and Travis County (the Permit Holders) are required by the terms of the Permit to assemble and manage suitable habitat for two endangered bird species and six karst invertebrates. This system of managed and protected habitats is known as the Balcones Canyonlands Preserve (BCP). In addition to establishing the BCP, the Permit Holders agreed to protect and manage populations of unique or endemic plant species of concern found within the proposed preserve boundaries as well as on other City and County managed tracts. Species protected include canyon mock-orange *(Philadelphus ernestii),* Texabama croton (*Croton alabamensis var. texensis*), Bracted twistflower (*Streptanthus bracteatus*) and Texas indigo-bush amorpha *(Amorpha roemerana)*.

Non-native and invasive plant species found on preserve lands are managed in accordance with the BCP Land Management Plan and Travis County's Wildlife and Vegetation Management Guidelines. Invasive plants are species whose introduction has caused or is likely to cause harm to human health or economic or environmental harm. All Travis County BCP lands are inventoried for the presence of non-native and invasive species. When located, these species are assessed for potential impacts to native plant and wildlife populations. Plant species constituting a threat are prioritized for management action. Control methods employed to manage non-native species may include (but are not limited to) manual removal, application of approved site-appropriate herbicides performed by qualified staff with current applicator's licenses, and use of prescribed fire. Non-native and invasive species of concern on BCP tracts include common fig *(Ficus carica)*, Johnsongrass *(Sorghum halepense)*, chinaberry *(Melia azerdarach)*, heavenly bamboo *(Nandina domestica),* periwinkle *(Vinca major),* multiflora rosa *(Rosa multiflora*) and exotic wisteria (*Wisteria* sp.).

SPECIES OF CONCERN

Texabama Croton

Texabama croton is a thicket-forming woody species typically occurring as an understory shrub in mesic limestone canyon woodlands associated with live oak (*Quercus fusiformis*) mottes. As reported by Carr (1996), DLS Associates first observed the species at Pace Bend Park in 1994. Pace Bend Park consists of 1520 acres owned by the Lower Colorado River Authority (LCRA) and managed by Travis County's Transportation and Natural Resources Department Parks Division. The tract is located in western Travis County, approximately twelve miles (19.3 km) northwest of downtown Austin. The property is located approximately 11 miles northwest of Bee Cave, north of State Highway 71 at the terminus of Ranch Road 2322. Pace Bend Park is found on the Pace Bend USGS 7.5" quadrangle maps.

Carr reported finding 19 colonies containing 190 plants in 1996. Colonies are defined as two or more plants growing in close proximity to one another. In 1999 and 2000, nine new colonies were located by County staff for a total of 28 colonies. Field investigations conducted in 2001 did not locate any new colonies.

In 2002 all known colonies at Pace Bend Park were mapped using a Global Positioning System (Figure 1) and field studies to locate new plants were conducted. Additionally, all located plants were checked for overall health. Three categories were used in classifying health: "poor" - plant or colony that showed significant damage from insects, deer, or other animals or appeared to be diseased, "fair" - plant or colony that showed marginal signs of damage or disease, and "good" - vigorous plant or colony that showed no signs of damage or disease. Previously located colonies that covered a large area were subdivided to allow for more precise mapping. Subdivided colonies were identified using an alphanumeric system based on the colony's original identification number (e.g. colony 11 is now 11a, 11b…). As a result, the original 28 colonies were subdivided into 62 colonies.

Search efforts in 2002 located three new colonies, yielding a total of 65 colonies at Pace Bend Park. These colonies contained a total of approximately 614 individual plants. Approximately 69% of the Texabama croton colonies were categorized as being in good health, 23% were considered in fair health, and 8% were found to be in poor health. Field investigations for Texabama croton are conducted on a three-year cycle, and the next inventories are scheduled for 2005. Protection of Texabama croton is enhanced through park staff education and training, which will include colony locations and good management techniques.

Canyon mock-orange

Canyon mock-orange is a deciduous shrub typically associated with Cow Creek and Edwards limestone formations in both xeric and mesic juniper woodlands. The arching branched shrub is often found with elbowbush (*Forstiera pubescaens*), shrubby boneset (*Eupatorium havanense*), fragrant sumac (*Rhus aromatica*), and yaupon holly (*Ilex vomitoria*) as an understory species beneath shin oak (*Quercus sinuata*), Texas mulberry (*Morus microphylla*) and Ashe juniper (*Juniperus ashei*).

In 1996 and 1999 (Figure 2), canyon mock-orange individuals were mapped and surveyed at Hamilton Pool Preserve. Hamilton Pool Preserve consists of 232 acres owned and managed by Travis County's Transportation and Natural Resources Department, Parks Division. The tract is located east of Hammett's Crossing on Hamilton Creek, a tributary of the Pedernales River in western Travis County. The property is located approximately 13 miles South of State Highway 71 on Hamilton Pool Road (FM 3238). Hamilton Pool Preserve is found on the Hammett's Crossing USGS 7.5" quadrangle maps.

In 1999, 154 canyon mock-orange individuals were located. In 2002, the overall health of canyon mock-orange individuals at Hamilton Pool Preserve was monitored and categorized as "good", "fair", or poor" as described above. During this evaluation a total of 150 plants were located (145 previously located individuals and 5 new individuals). Nine individuals previously recorded were unable to be located in 2002. A total of 67% were found to be in good health, 20% were in fair health, and 12% were in poor health. Field investigations for canyon mock-orange are conducted on a three-year cycle, and the next inventories are scheduled for 2005.

The majority of canyon mock-orange individuals are located in protected areas away from public hiking trails. Protection of this species therefore includes enforcement of preserve rules that require visitors walk only on designated hiking trails. Travis County Natural Resources staff cooperate with staff at Hamilton Pool Preserve to educate the public about this species and how best to assist in its protection.

Bracted twistflower

The bracted twistflower is an inconspicuous herbaceous annual occurring on thin clay soils typically described in association with oak-juniper woodlands on sites near permanently flowing water. Most populations throughout Travis County occur in areas with thick, dense brush that is believed to provide a mechanical barrier to browsing white-tailed deer (*Odocoileus virginianus*). Bracted twistflower is often found in association with evergreen

sumac (*Rhus virens*), Lindheimer's silktassel (*Garrya ovata* var. *lindheimeri*), shin oak, elbowbush, and myrtlecroton (*Bernardia myricaefolia*).

In cooperation with the U. S. Fish and Wildlife Service, Texas Parks and Wildlife Department, the Lower Colorado River Authority, the Ladybird Johnson Wildflower Center and the Nature Conservancy of Texas, County Natural Resources staff attended multiple training opportunities during 2002 to learn to identify this inconspicuous species. Two days of field observations were devoted in May of 2002 to locate bracted twistflower on Travis County Parks or preserve lands. In addition, Natural Resources staff performed additional field investigations during the species blooming period while on BCP properties. Despite these efforts, this species has yet to be confirmed on any Travis County managed lands. Natural Resources staff will continue training and field investigations to locate any populations of this species on Travis County Parks and preserves throughout the coming year.

NON-NATIVE SPECIES

In 2002 Travis County Natural Resources staff prioritized by species and by tract areas with non-native and invasive plant concerns (see Table 1). High priority was given to locations and species considered the greatest threat to human health or economic or environmental harm.

Table 1. Non-native and invasive plant species of concern on BCP tracts.

Species	Location	Removal methods
Chinaberry (*Melia azerdarach*)	BU, VR	cut and treat
Periwinkle (*Vinca major*)	BU	spray
Common fig (*Ficus carica*)	BU, HPP	cut and treat
Bamboo sp.	BU	cut
Johnson Grass (*Sorghum halepense*)	HPP	pick, treat
Common Chaste tree (*Vitex agnes-castus*)	BU	cut and treat
Chinese Tallow (*Sapium sebiferum*)	BU	cut and treat
Multiflora rose (*Rosa multiflora*)	BU	cut and treat
Exotic Wisteria (*Wisteria* spp.)	BU	cut and treat

BU= Jollyville Unit Bunten tract, HPP= Hamilton Pool Preserve, VR= Jollyville Unit Vireo Ridge tract

Travis County's Jollyville Unit of the BCP comprises 1620 acres (655.6 ha.) located 13 miles (21 km) northwest of downtown Austin on FM 2769. Vireo Ridge is a 490-acre (198.3 ha.) tract of the Jollyville Unit of the BCP that supports multiple endangered species including the golden-cheeked warbler (*Dendrioca chrysoparia*) and the black-capped vireo (*Vireo*

atricapillus). Significant effort was expended to cut and treat non-native chinaberry trees located on the Vireo Ridge tract in 2002.

The 170 acre (68.8 ha.) Bunten tract, acquired by Travis County for inclusion into the Jollyville Unit in January 2001, hosts a number of highly invasive species. Due to prior land use activities, approximately two acres of this tract contain high densities of non-native and invasive plant species. This tract also provides habitat for the golden-cheeked warbler, as well as for a USFWS Species of Concern, the Jollyville Plateau salamander (*Eurycea tonokawae*). Any management actions taken to address invasive plant concerns must take into account effects upon these protected species. During FY2002, chinaberry, common chaste tree, periwinkle, multiflora rose, common fig, and exotic wisteria populations were cut and treated with approved site-specific herbicides. Non-native bamboo was cut but not treated with herbicide due to proximity of a water feature supporting Jollyville Plateau salamanders. Effective control of this invasive species will require repeated mechanical removal in the future. The significant threats posed by non-native and invasive species at this location will obligate ongoing management efforts for the next several years.

Hamilton Pool Preserve hosts multiple colonies of johnsongrass and two colonies of common fig. One johnsongrass colony was treated with herbicide and another was manually removed in 2002. Additionally, one fig colony was cut and treated with herbicide. Monitoring of these treated areas will continue, and additional management actions will be implemented as required.

RECOMMENDATIONS

- Continue to collect baseline data on unique endemic plant species. Unusual species previously unrecorded will be assessed for degree of rarity and protected as appropriate.
- Initiate surveys for previously unrecorded populations, map and protect Texas indigo-bush amorpha throughout Travis County BCP and Park properties.
- Continue efforts to locate, map and protect populations of bracted twistflower on County BCP and Park lands.
- Continue to collect baseline data on non-native and invasive plant species on all current and newly acquired County properties.
- Prioritize BCP properties for removal of exotics, and initiate management activities.
- Priority targets for removal on the Bunten tract in FY2003 will include periwinkle, bamboo, and common chaste tree. Though other non-natives exist on this tract, these species are highly invasive and will therefore be aggressively targeted in 2003. Manual

and chemical control methods may be utilized. Special care will be taken in areas adjacent to any waterways containing populations of Jollyville Plateau salamanders. If deemed necessary, only approved site-specific chemicals will be applied by licensed applicators.

- Continue to prioritize management of Johnsongrass, common fig and other invasive species at Hamilton Pool Preserve.

Literature Cited

Carr, W.R. 1996. Rare plant survey and general plant inventory of Travis County parks west of the Balcones Escarpment, summer 1996. Travis County Natural Resources, unpublished document.

U. S. Department of the Interior, Fish and Wildlife Service. 1996. Federal Fish and Wildlife Permit No. PRT-788841.

U. S. Department of the Interior, Fish and Wildlife Service. 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.

Figures

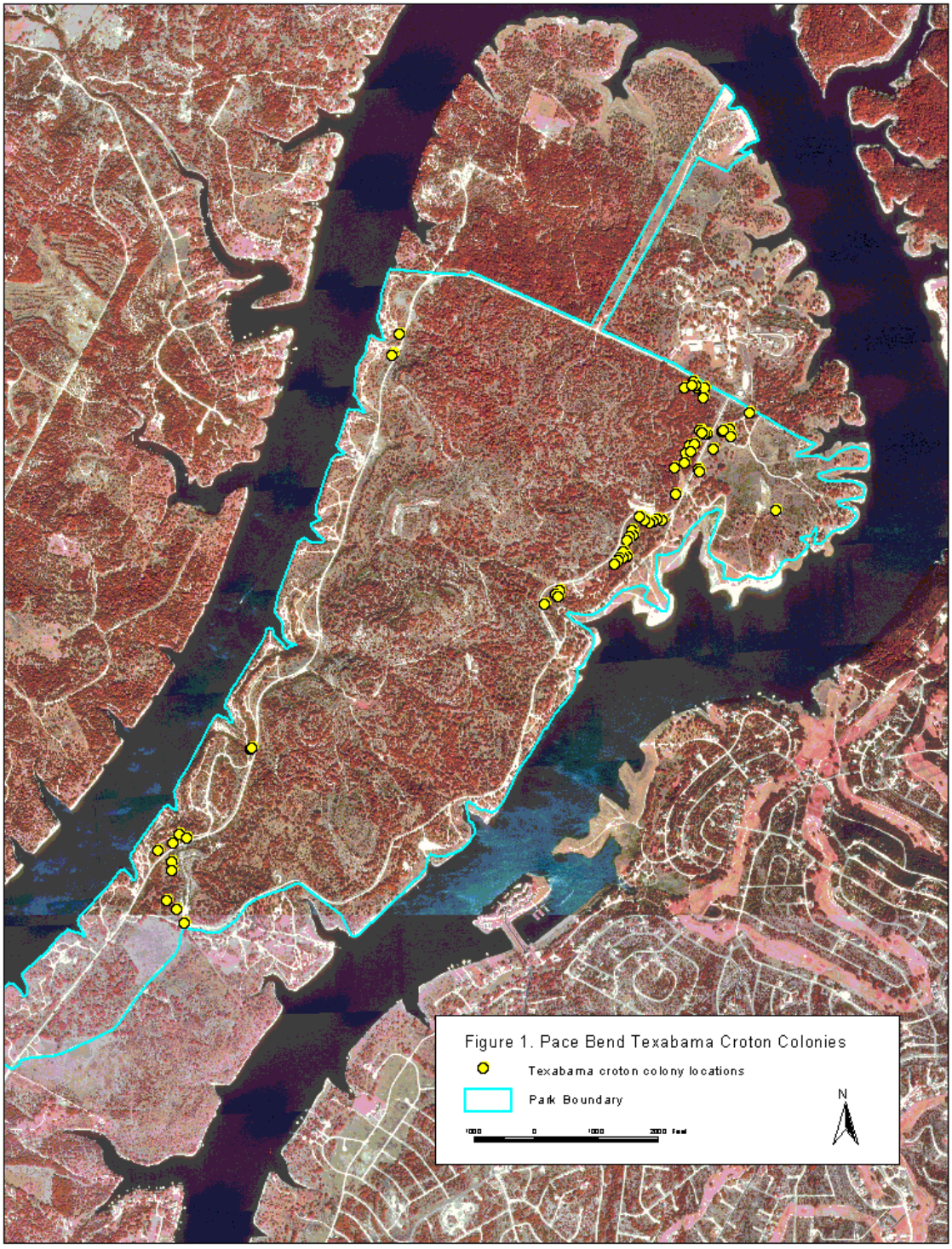
Figure 1. Pace Bend Texabama Croton Colonies
Texabama croton colony locations
Park Boundary
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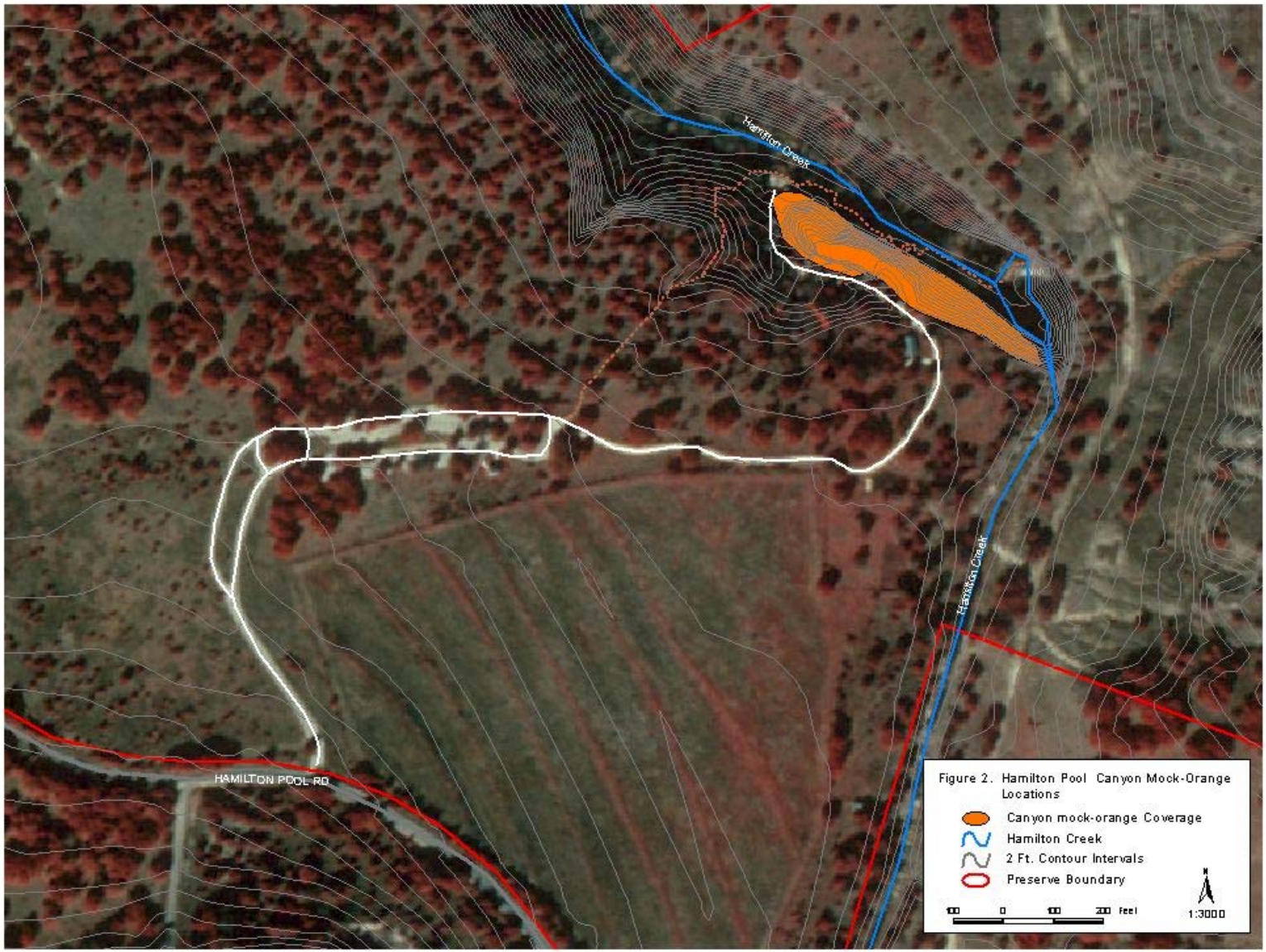

Figure 2. Hamilton Pool Canyon-mock orange locations, Hamilton Pool Preserve, Travis County, Texas, 2002