**FY18 Location summary of**

**Texabama croton (*Croton alabamensis var. texensis*) surveys (2014-2018)**

**on the Kotrla Unit, Travis County's Balcones Canyonlands Preserve.**



**Texabama croton in late Fall.**

**Travis County**
**Department of Transportation and Natural Resources**
**Natural Resources and Environmental Quality Division**

1 October 2017 – 30 September 2018

## TABLE OF CONTENTS

Introduction ..... 3

Survey location..... 3

Texabama croton ..... 4

Literature Cited..... 6

### Figures

Figure 1. Location of the Kotrla Unit..... 7

Figure 2. Kotrla Unit Texabama croton locations ……..8

## 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. Fish and Wildlife Service 1996a). The thirty-year permit covers Travis County outside of proposed Preserve boundaries identified in the Habitat Conservation Plan and Final Environmental Impact Statement (HCP/FEIS) (U. S. 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 a minimum of 30,428 acres of suitable habitat for the benefit of these species. This series of protected lands is known as the Balcones Canyonlands Preserve (BCP).

While most of the species of concern listed in the BCCP are karst inverterbrates, two of them are plant species: the canyon mock-orange *(Philadelphus ernestii)* and Texabama croton (*Croton alabamensis var. texensis*).The City of Austin and Travis County protect and manage populations of these two endemic plant species found within preserve boundaries, as well as on other city- and county-managed properties. This report summarizes the locations of Texabama croton on the Kotrla Unit for area search surveys conducted informally from 2014-2018.

## Survey location

The Kotrla Unit is comprised of three contiguous BCP tracts: the Scott and White tract (450 acres), the Kotrla tract (500 acres), and the Endres tract (4 acres). The Kotrla Unit is located in northwestern Travis County, bounded on the west and north by Nameless Road (FM2243) and on the east by County Road 290 (Figure 1). The property is occupied by endangered golden-cheeked warblers (*Setophaga chrysoparia*) and recently delisted, black-capped vireos (Vireo atricapilla). Upland areas contain substantial Texas live oak- Ashe juniper woodlands (*Quercus fusiformis-Juniperus asheii*) as well as areas of concentrated shin oak (*Quercus sinuata* var. *breviloba*) growing in shrub form. Other species include cedar elm (*Ulmus crassifolia*), Texas ash (*Fraxinus albicans*) and Texas oak (*Quercus buckleyi*). Large areas of uplands, particularly on the Kotrla tract, have had much of the woody vegetation removed by former landowners to improve livestock range, and are now classified as savannah. The upland areas are relatively flat and are underlain by the hard gray limestone of the Edwards formation. A long, deep canyon generally separates the two tracts along a

northwest to southeast divide. Much of the understory of this canyon's bottomland is dominated by Texabama croton.

**Texabama Croton**

Texabama croton (hereafter, croton) is a thicket-forming woody species typically occurring as an understory shrub in mesic limestone canyon woodlands associated with live oak mottes. It can grow 2-3 m tall, often with a multiple-branched base. Although this shrub is neither federally nor state listed, it is considered imperiled due to its rarity and restricted range and was, at one point a category 2 candidate for Federal listing (Hayden et al. 2001). This species was discovered in Alabama over 90 years prior to its discovery in Texas in 1989 on Ft. Hood (Van Ee *et al.* 2006). In 1994 the species was first observed at Pace Bend Park (Carr, 1996).

Recent genetic studies indicate that this species of croton has a highly diverged lineage from other *Croton* and that the closest relative is a species endemic to Cuba or other species found in Mexico, Central America, South America or the Caribbean (Van Ee *et al.* 2006). Although not strongly conclusive, the data suggests that the Texas population may be the progenitor of the Alabama population. Regardless, the two American populations are genetically well separated and mutually distinct from one another (Van Ee *et al*. 2006).

In June, 2013 a previously unknown, extensive colony was discovered while Travis County field personnel were conducting a site visit on what would become the Kotrla Unit in 2014-15. The largest croton colonies on the Unit are in the riparian corridor of this canyon where it forms dense, understory thickets. However, rather large colonies and scattered individuals are found throughout the uplands as well. The population is likely one of the largest in Travis County and could rival those colonies on the Balcones Canyonlands National Wildlife Refuge and on Ft. Hood. The Kotrla Unit croton population numbers in the thousands.

For these surveys, all known locations were mapped either as individual(s) (points) or colonies (polygon). A colony is a unique location of multiple plants, generally covering a broad area. Points may actually be numerous plants in a very small area. The crotons located in the canyon are essentially one large colony – however, for mapping purposes these plants were subdivided when a noticeable gap separated groups. Croton surveys on the Kotrla Unit were conducted at various times between 2014 and 2018. The bulk of the locations were documented while staff performed avian surveys over the entire Unit

in 2016. All known individuals or colonies of croton were mapped using a Global Positioning System (GPS) (Figure 2). Croton locations were mapped but measurements or exact counts (primarily for colonies) were not attempted. No other biological data were collected. Search efforts located 73 colonies. Of these, 17 were small enough to get an estimation (or at times, an actual count) indicating at least 1045 individual plants. The remaining 56 colonies are estimated to likely account for over 5000 plants. Additionally, over 555 separate, individual plants or smaller clusters, were located on the Kotrla Unit. Additional plants were located on the adjacent private property and were not included in the data set except for a small cluster of plants located in the east end of the main canyon. It is assumed that over time, additional plants will be discovered and added to this baseline data set.

## Literature Cited

Carr, W. R. 1996. Texabama croton (*Croton alabamensis var. texensis*) at Pace Bend Park, Travis County, Texas. Report for Travis County Transportation and Natural Resources.

Hayden, T. J., J. D. Cornelius, H. J. Weinberg, L. L. Jette, and R. H. Melton. 2001. Endangered Species Management Plan for Ft. Hood, Texas; FY01-05.

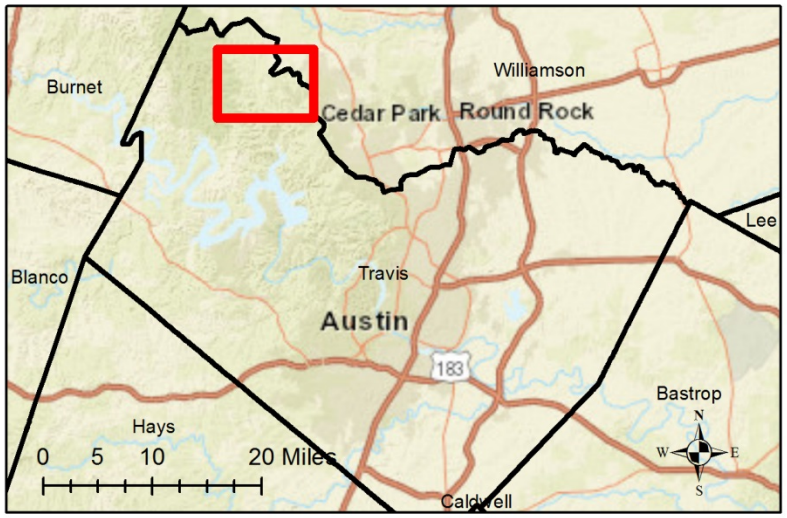
U. S. Fish and Wildlife Service. 1996a. Federal Fish and Wildlife Permit No. PRT-788841.

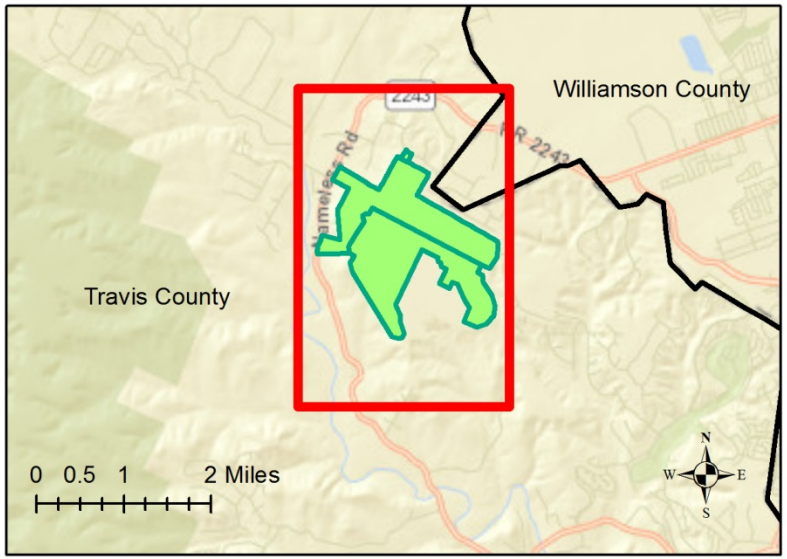
U. S. Fish and Wildlife Service. 1996b. Final Environmental Impact Statement/Habitat Conservation Plan for Proposed Issuance of a Permit to Allow Incidental Take of the Golden-cheeked Warbler, Black-capped Vireo, and six karst invertebrates in Travis County, Texas.

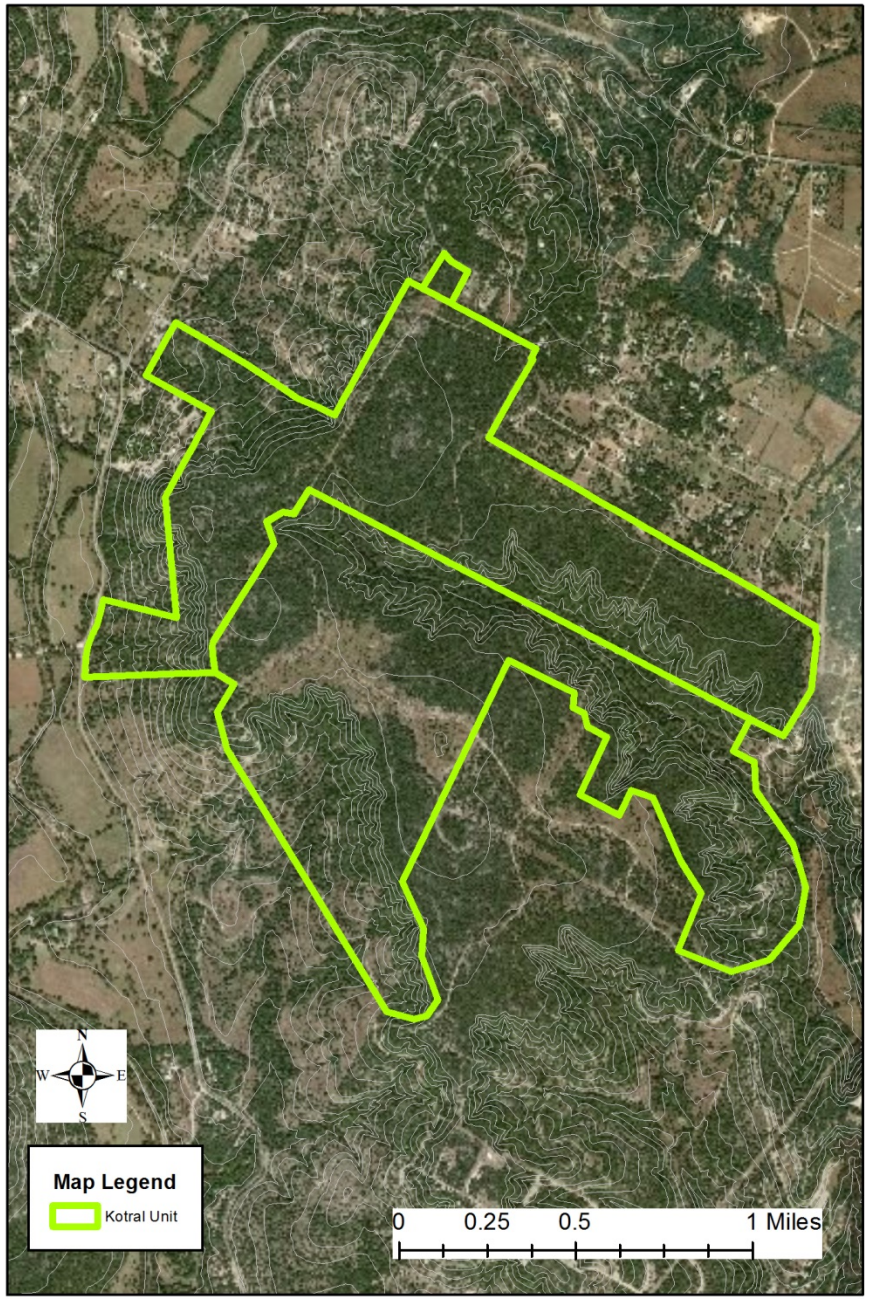
Van Ee, B., N. Jelinski, P.E. Berry, and A.L. Hipps. 2006. Phylogeny and biogeography of *Croton alabamensis* (Euphorbiaceae), a rare shrub from Texas and Alabama, using DNA sequence and AFLP data. Molecular Ecology. 15: 2735-2751.

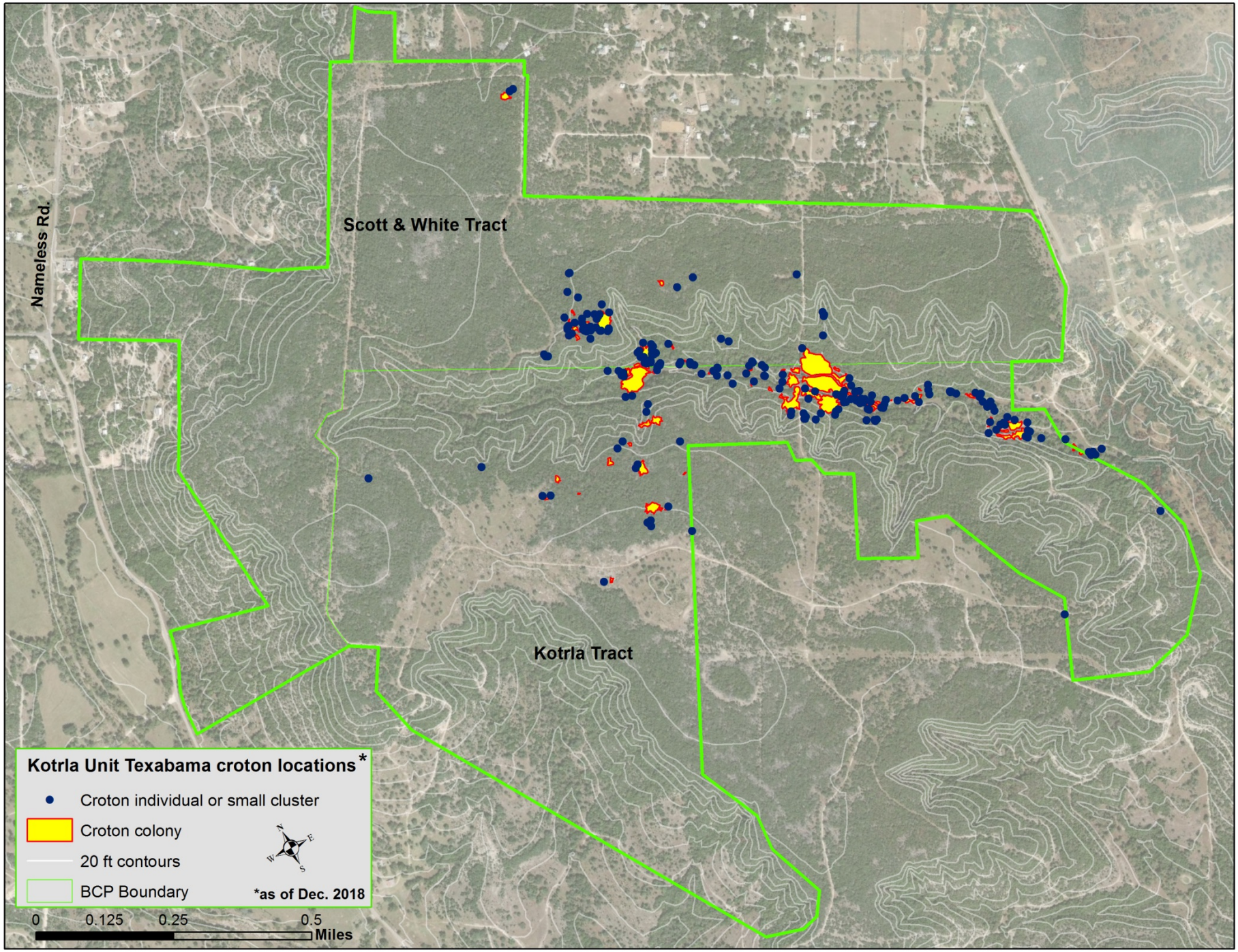
# Figure 1. Location of the Kotrla Unit.

Kotrla Unit - Travis County Balcones Canyonlands Preserve




Nameless Rd.
Scott & White Tract
Kotrla Tract
Kotrla Unit Texabama croton locations*
Croton individual or small cluster
Croton colony
20 ft contours
BCP Boundary
*as of Dec. 2018
N
E
W
S
0
0.125
0.25
0.5
Miles