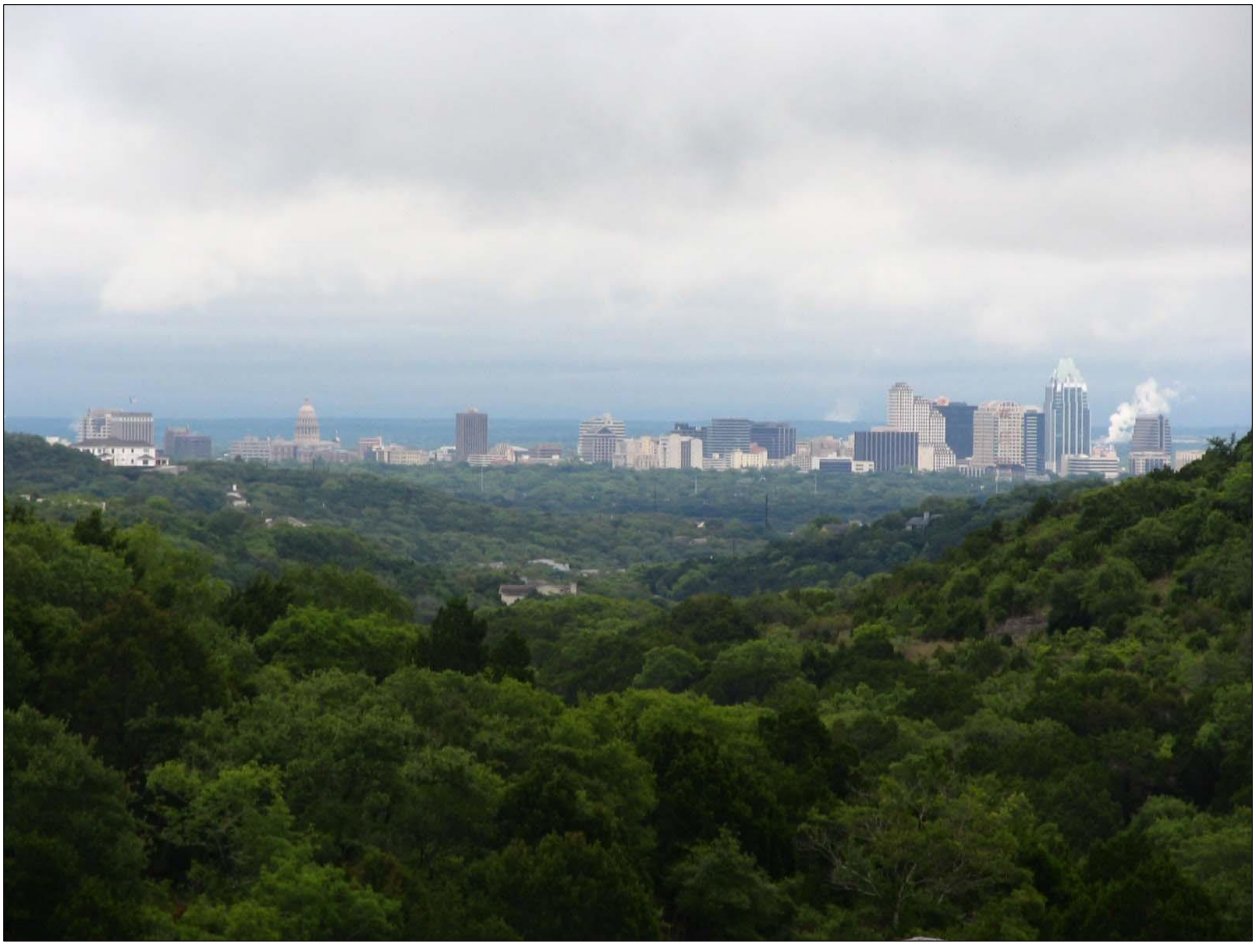
History of Fire Incidents On and Near Balcones Canyonlands Preserve Western Travis County, Texas April 1961–April 2020

Balcones Canyonland Preserve Investigative Report IP 202002



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Executive Summary: Recent wildfires that have occurred both locally and internationally have raised concerns about risks along the wildland-urban interface. The Balcones Canyonlands Preserve (BCP), which was created in 1996 to provide mitigation for take of federally protected species incidental to development in western Travis County, currently contains over 32,000 acres of wildlands with an increasing urban interface. Reducing wildfire risk on both sides of the interface protects our neighbors and the many species that depend on the BCP. The purpose of this document is to contribute to the current state of knowledge about fire incidents on the BCP and serve as part of the continuing discussion regarding how BCP staff and community partners can work together to better understand, mitigate, and minimize wildfire risk.

To better understand wildfire risks on the BCP, staff compiled fire incident information for 27 known fires on or adjacent to BCP properties since 1961. Fire incident size, ignition source, vegetation type, and land use change history within the burned areas were recorded in a GIS database and analyzed. These fire behavior and ecological characteristics are interrelated in terms of risk of ignition and fire severity and, when analyzed together, can help elucidate the most relevant factors to focus on for minimization and mitigation of wildfire risk. Major findings include:

- Approximately 41% of the 27 fire incidents recorded in the database were confirmed to have started due to human ignition sources, including arson, campfire, cigarette, fireworks, mowing, utility line, and welding. A natural ignition source (lightning) was reported for 7% of the fire incidents and 52% had unknown ignition sources. Of the 14 fires with an unknown ignition source, 86% are suspected to have been human-caused.
- Grass was the primary vegetation type for 70% of the fire incidents, with known fire sizes ranging from 0.01–17 acres. Most of these burned sites have a history of land conversion from forest to grass or grass-shrub communities. The size of the 1961 Westbank fire is uncertain but also followed extensive clearcutting and piling of brush.
- Ashe juniper (also known as “cedar”)-oak woodland/forest was the primary vegetation type for 22% of the fire incidents and ranged from one tree to 0.22 acres in size. Even though fire occurred in this vegetation type, the tree canopy did not extensively carry the fire and most incidents burned only a single tree or understory vegetation.
- These findings are consistent with other research indicating that the Ashe juniper-oak woodland/forest on the BCP has a very low wildfire risk evaluated by hazard, severity, and fire behavior measures. Mature Ashe juniper-oak woodland/forest is more fire-resistant compared to other vegetation types and can provide a buffer from the higher frequency burns occurring in grassland and shrubland.

While the risk of wildfire in Ashe juniper woodlands/forests is very low, and human sources of wildland fires are far more common than lightning-caused fires, these findings are not widely understood. To help develop a common understanding of risks, we recommend improved coordination for fire incident reporting and data collection on BCP lands, updating wildfire risk models with incident data, as well as continuing and expanding community-based measures to minimize and mitigate wildfire risks. We also recommend continued fire ecology studies to assess whether wildfire risks change with changing climatic conditions and refine prevention strategies as needed to minimize those risks to protect neighboring communities and habitat for federally protected species. With comprehensive documentation of wildland fire incidents and scientific data, new perspectives and models can be developed that reduce future vulnerability to wildfire, maintain our wildland ecosystems, and protect our neighbors.

Introduction: As Austin continues to grow and more structures are being built at the wildland-urban interface, there is a need to better understand wildfire risks and the most effective approaches to minimize these risks (Bowman 2014). We compiled historical records of wildland fires that have occurred within and proximal to the Balcones Canyonlands Preserve (BCP) in western Travis County to evaluate whether ignition sources were primarily natural (i.e., lightning strikes) or due to human activities that could be reduced to prevent future fires. We then evaluated whether a pattern exists in the size of fire incidents, types of vegetation burned, and land use history. Additionally, this historical fire information can be used in future work to assess the accuracy of existing fire risk models and inform future modeling efforts and management to reduce fire risk.

The intent of this document is to contribute to the current state of knowledge regarding wildfire risks on the BCP and assist with prioritizing strategies to reduce those risks. This document can also serve as part of the continuing discussion regarding how BCP staff and community partners can work together to better understand, mitigate, and minimize wildfire risk.

Site Description: The BCP is a 32,000-acre network of preserves established under a federal endangered species permit in 1996 to protect habitat for endangered and rare species in exchange for a streamlined development process in western Travis County. The preserves are owned and operated by the permit holders (City of Austin, Travis County) and other managing entities, including The Nature Conservancy (TNC), Travis Audubon, Lower Colorado River Authority, St. Edwards University, and private landowners. The BCP is not a contiguous piece of land but is instead composed of tracts of preserve land separated by an expanding urban and suburban landscape.

Located on the eastern edge of the Edwards Plateau, the climate of the BCP is subtropical subhumid, and the topography is characterized by steep limestone terrain, where wooded canyons and riparian corridors dissect drier upland vegetation. The vegetation is predominantly mature closed-canopy woodland and forest consisting of Ashe juniper (*Juniperus ashei*), plateau live oak (*Quercus fusiformis*), shin oak (*Q. sinuata* var. *breviloba*), Texas red oak (*Q. buckleyi*), escarpment black cherry (*Prunus serotina* var. *eximia*), Texas ash (*Fraxinus texensis*), and cedar elm (*Ulmus crassifolia*). Aside from seedlings of the canopy trees, common understory species include Carolina buckthorn (*Frangula caroliniana*), yaupon holly (*Ilex vomitoria*), agarita (*Berberis trifoliolata*), mountain laurel (*Dermatophyllum secundiflorum*), Lindheimer silk-tassel (*Garrya ovata* var. *lindheimeri*), evergreen sumac (*Rhus virens*), Mexican-buckeye (*Ungnadia speciosa*), and elbowbush (*Forestiera pubescens*). In addition to woodland/forest, other vegetation communities include more open canopy Ashe juniper-oak vegetation types and shrublands. Land use history of this area from 1700–1900 is described in O'Donnell et al. (2019).

Methods:

Geodatabase Development – City of Austin BCP staff created a spatial database in ArcGIS (v. 10.6.1) detailing the burn perimeters and attributes of known fire incidents primarily within and adjacent to BCP tracts from April 1961 to April 2020. Incidents were included if a polygon of the burn perimeter was available from ground or aerial surveys or could be approximated based on inspection of aerial photographs with associated written records and/or staff memory. Attribute data for each fire incident include start date, ignition source, size, and vegetation type within the burned area. Information from BCP records, including written reports, field notes, newspaper articles, maps, and photographs, were reviewed and the fire attribute data were extracted when available.

BCP staff record fire incidents in one of three ways: 1) staff are notified of fire incidents by responding emergency personnel and perform post-fire evaluation and reporting; 2) staff record any burn scars observed during regular patrolling of properties and while conducting other land management activities; and 3) staff conduct helicopter surveys of City of Austin BCP tracts every two years for management purposes and document fire incidents that were previously unrecorded, following up with documentation via ground surveys.

Historic weather data were obtained from Weather Underground (2020), fuel moisture data from the Texas National Fuel Moisture Database (USFS 2020), and lightning strikes from a severe weather inventory (NOAA 2020).

Aerial photos from 1940–2020 (City of Austin 2020) were used to assess and record land use changes and vegetation communities (woodland/forest, shrub, grass) within each burned area.

Additional fire incident data from 2005–2019 were acquired from the Texas A&M Forest Service (TFS) to visually compare the distribution of fire incidents in western Travis County outside of the BCP (TFS 2020) to the records of fire incidents within and adjacent to the BCP during this same time frame.

Data Analyses**:** Attribute data for fire incidents were summarized and are reported, including incident size (acres), ignition source, vegetation type, and land use change history within the burned area. An exception was made for the 1961 Westbank Peninsula fire, where fire size is excluded from the analyses due to discrepancy between reported fire sizes and aerial photograph inspection (Appendix A); all other attributes of the Westbank Peninsula fire are included in the analyses. Analysis of fire frequency over time was not conducted for this dataset as historical fire incident information is too sparse and incomplete for an accurate assessment.

Fire incidents documented by the TFS in western Travis County from 2005–2019, as well as fire incidents from BCP records for the same time frame, were mapped for heuristic review.

In addition to reporting the summarized information, Appendix A contains detailed information for each fire incident, photos, aerial photography, and additional reports available from the BCP files. Appendix B summarizes two larger fires (Steiner Ranch, Pinnacle) that occurred farther (0.6 and 1.8 miles) from the BCP boundary. Appendix C provides a suggested template for fire incident reports.

Results and Discussion: The 1961 Westbank Peninsula fire was the largest fire incident recorded on what is now BCP property. While the acreage burned is uncertain, it is estimated at approximately 540 acres. This incident occurred after extensive clearcutting and piling of brush, along with a strong cold front, in and around what are today the Wild Basin and Vireo Preserve tracts of the BCP (Appendix A). The fire carried mainly in grass and brush piles, and there were active suppression efforts over a period of days. Larger cut and dead fuels, known as slash or brush piles, can contribute to greater fire intensity and duration once ignited due to the fact that they are stacked together in a dense pile (NWCG 2007). The presence of these brush piles likely contributed to the large size of this wildfire.

Of the 27 fire incidents included in our analyses, 20 occurred inside the preserve boundary, six occurred along the edge, and one was in a stand of woodland/forest contiguous with the BCP (Table 1, Figure 1). Twenty-one incidents had active suppression efforts, two had no suppression efforts, and four are unknown (Appendix A).

The fire incidents with known size (n=26) ranged from a portion of a single tree (n=3; 0.001–0.002 acres) to approximately 17 acres. The two largest fire incidents burned predominantly grass, with shrubs present (Table 1). An early 1990s fire on the JJ&T tract of the BCP was the largest incident (approximately 17 acres). Corresponding weather conditions are unknown due to uncertainty for date of ignition (Table 2). The second largest fire incident was an 8.5-acre fire on the Cortaña tract of the BCP in 2005, with a confirmed human ignition source (Table 1). The majority of fire incidents (73%; n=19) burned less than 1 acre (Table 1), 12% (n=3) burned over 1 to 2 acres, and 15% (n=4) were greater than 3.5 acres.

Approximately 41% (n=11) of the 27 fire incidents recorded in the database were confirmed to be started due to human ignition sources, including arson, campfire, cigarette, fireworks, mowing, utility line, and welding (Table 1). A natural ignition source (lightning) was reported for 7% (n=2) of the fire incidents, and 52% (n=14) have unknown ignition sources. For fires with an unknown cause, 86% (n=12) are suspected to have been human-caused, one may have been natural or human-caused, and one may have been caused by lightning (burned the middle of a single tree). Out of the 27 fire incidents recorded, five (19%) started within a major road right-of-way (State Highway 71, RM 2222, Murfin Road, Spicewood Springs Road). For comparison, the Austin-Travis County Community Wildfire Protection Plan summarized fire incident data for all of Travis County from 1998 through 2012, and found that 66% of the fire incidents were human-caused, 3% were attributed to natural ignitions, 30% had an unknown ignition source, and 1% were still under investigation (Bowman 2014).

The 11 fire incidents with confirmed human ignition sources ranged in size from 0.01–8.5 acres. These fires burned within grass, shrub, and woodland/forest vegetation types. Of the two fires with lightning confirmed as the ignition source, one burned a single tree in Ashe juniper-oak forest, and one burned approximately 3.5 acres of mostly grassland in a shrub matrix. The 14 fires with unknown ignition sources ranged from 0.001–17 acres. Ten of these fires primarily burned within grass, one burned grass and brush piles, one burned a single Ashe juniper, one burned understory woodland vegetation, and one burned a log pile (Table 1).

Nineteen of the 27 documented fire incidents burned primarily in grass (70%), two of which also had brush piles documented (Table 1). Secondary vegetation types burned in the grass fires included shrubs (n=7), trees (n=4), or shrubs and trees (n=3). The size of these fires ranged from 0.01–8.5 acres. Of the 27 fire incidents, 85% (n=23, Table 3) have a history of land conversion from forest to grass and/or shrub communities, resulting in increased fine fuels (e.g., grass) that are more easily ignited than larger timber fuel. Rasmussen and Wright (1989), Reemts and Hansen (2013), and Miller et al. (2017) also reported that large juniper trees are less likely to burn. Provided the fuel moisture levels are high (greater than 70%), Ashe juniper-oak woodland/forest can serve as natural firebreaks (Armstrong 2004). For example, the 2009 Lime Creek fire, totaling 6.5 acres, started in and burned approximately 5.5 acres of grass and shrubs with a history of woody vegetation removal, and stopped within a narrow (~85–150 feet wide) strip of older-growth Ashe juniper-oak forest of which approximately one acre burned. Additionally, three grass fires documented to have originated along roadways stopped at adjacent tree lines.

The six fires that originated within Ashe juniper-oak woodland/forest on or adjacent to the BCP (22%) ranged from one tree to 0.22 acres in size (Table 1). One Ashe juniper tree burned following a lightning strike, but the fire did not spread into the surrounding forest. BCP staff have made similar observations in the field but not recorded them, indicating these types of incidents may occur more frequently than reported here but go undetected due to their low impact. The 2018 Barton Creek Greenbelt fire was a series of seven fires started by an arsonist who cut and stacked vegetation and used lighter fluid in an

unsuccessful attempt to get the forest to burn. Two other fires reportedly started from campfires that burned small sections of Ashe juniper-oak forest in Barton Creek Wilderness Park and Emma Long Metropolitan Park. Two fires primarily burned understory vegetation and did not spread to the canopy.

These reports are consistent with field observations of Miller et al. (2017), who found that closed canopy juniper forests are difficult to burn, and the findings of White et al. (2009), who used FARSITE (Fire Area Simulator) and FlamMap models to simulate and assess fire behaviors within the BCP. The major findings of White et al. (2009) included:

- The fuel types dominated by Ashe juniper woodlands differ considerably from California chaparral communities based on fuel structure and predicted fire behavior.
- Tree species diversity present within the Ashe juniper-oak woodlands of the BCP constrains spread of canopy fires in the preserve area.
- Active canopy fires are potentially very rare in this fuel matrix.
- Ignitions and fire originating in BCP lands typically have slow rates of spread that could be effectively handled by emergency responders.
- Woodland preserve tracts located in the central and western portions of Austin have minimal probability of burn compared to grasslands along the western edge of Travis County and northern Hays County.
- Shrublands and savannas have the highest relative frequency of burn followed by grasslands.
- Presence of heavy woodland and forest where BCP property borders private land has the lowest risk evaluated by hazard, severity, and fire behavior measures.
- Presence of woodland and forest canopies with diverse species composition reduces fire spread and lowers probability of burn. Fires are prevalent in any wildland landscape; however, the central wooded tracts of the BCP show low potential for burn. When wildfires occur, severity and behavior is likely to be limited.
- Though shaded fuel breaks do not reduce wildfire risk in all circumstances, they should be utilized along boundaries where fire intensity could result in loss of structures.

Thus, under normally occurring weather conditions and limited human ignition sources, the risk of large, high-severity wildfire incidents within Ashe juniper-oak woodland/forest is low. This vegetation type can provide a buffer from higher-frequency burns in grasslands and shrublands (Armstrong 2004). Both live and dead vegetation can contribute fuel toward a fire and fine fuels respond more rapidly to changing weather conditions. As such, they dry out more quickly under high temperatures, low humidity, exposure to the sun, low precipitation, and high wind speeds (NWCG 2007). This characteristic makes them more susceptible to ignition than larger timber fuels under the same conditions. For more detailed information on this topic, the Austin-Travis County Community Wildfire Protection Plan describes the vegetation types present in Travis County, and effects of weather, season, and climate on these vegetation types as it relates to fire risk (Bowman 2014, see Section 3).

During the extreme drought of 2011, two fire incidents were documented within the BCP -- affecting 0.002 and 0.1 acres -- and occurred within Ashe juniper-oak woodlands. These two fires did not spread and were limited in extent to a single tree and understory vegetation (Table 1).

Two other 2011 wildfires, the Steiner Ranch fire and the Pinnacle fire, were 0.6 and 1.8 miles from the nearest BCP tract (Appendix B). The Steiner Ranch fire was a patchy burn in a grass/shrub/tree matrix, which started on the north side of RM 620 from a utility pole. Strong winds carried embers across RM

620 to the Steiner Ranch subdivision, where it ignited fine fuels then spread from house to house. Vegetation changes apparent on aerial photographs indicate the fire burned an area about half the size (approximately 86 acres) of the burn perimeter (approximately 153 acres). Most of the woodland/forest between the ignition site and the subdivision did not burn.

The Pinnacle fire burned approximately 57 acres of Ashe juniper-oak woodland/forest. Compared to the large patches of woodland/forest on the BCP, the Pinnacle site was a small patch (approximately 120 acres) surrounded by urban edge. This may have resulted in higher temperatures and lower humidity within these woodlands, as is typical of edge effects. Aerial photographs show trails crisscrossing the site, and a campfire was reported as the cause. Whether the site had cut brush or other factors that could have further decreased its fire resistance is unknown.

The Steiner Ranch and Pinnacle fires provide evidence that while wildfire risk on and near the BCP is very low, especially in woodland/forest, it can happen during extreme weather events. Supporting documentation on the Steiner Ranch fire showed strong winds transporting fires between widely spaced houses with limited burned forest within the defined burn area. The presence of unburned forest adjacent to burning houses is a common occurrence according to Cohen and Stromaier (2020), suggesting that simply clearing forests is not an effective solution for wildfire prevention. Additionally, both of these incidents had confirmed human ignition sources (utility line and campfire), emphasizing the need to manage access to wildlands, for patrols to identify and prevent ignition sources and community participation to help mitigate and minimize risk. These fires are shown in Figure 2, along with other fire incidents in western Travis County from 2005–2019 both within and outside of the BCP. Appendix B provides more detailed summaries of the Steiner and Pinnacle fires.

Management and Research Recommendations: Examination of fire incidents on the BCP show that Ashe juniper woodlands/forests are a low risk of ignition, and that human sources of wildland fires are far more common than lightning-caused fires, both of which are commonly misunderstood. To help combat misperceptions, we recommend more detailed examination of the circumstances of incidents that occur within and near the BCP, continued efforts to reduce future incidents, and expanded data collection, including:

<u>Fire Incident Reporting</u> –

- Appendix C provides a suggested template for reports of fire incidents on the BCP that includes:
  - Exact ignition point, as well as it can be determined using GPS coordinates. Pinpointing the ignition will permit determination of the fuel that allowed the fire to start.
  - Source of ignition, whether human or natural, if that can be determined. Wildland fires caused by people are far more common than those with natural causes. They tend, therefore, to be located along boundaries with human infrastructure.
  - Time of ignition and weather conditions during the fire.
  - The primary fuel that carried the fire: tall grass, a mix of grass and shrubs or trees, lawn, unbroken cedar brake, or mature mixed forest. Also important is whether "jackpot" fuels such as brush piles or dumped yard waste played a role. This information is critical for determining the actual risk of wildfire in different types of wildland/urban interface.
  - Ensuring the local fire department and BCP staff are notified of each incident and receive a copy of each report.

- This information should be collected into a spatial database. BCP staff created a GIS database to compile this report, and can continue to maintain it with shared reports and data from partners.

- All reports and data should be shared among partners including Travis County Fire Marshal, Austin Fire Department, other local fire department, TFS, and BCP.

Mitigating and Minimizing Wildfire Risk –

- Information gathered and synthesized through fire incident reporting can be incorporated into ongoing cooperative and collaborative education and outreach efforts by the Travis County Fire Marshal, Austin Fire Department, other local fire departments, TFS, and BCP partners to continue to inform communities about specifics of fire risks and steps to minimize those risks.
  - For example, development of a coordinated Wildfire Communication Plan for the BCP that outlines the current state of knowledge regarding fire ecology and wildfire risks, along with potential mitigation measures and collaborative efforts to manage wildfire risks.
  - At a more local scale, the continued development of individual community wildfire protection plans for the BCP using the guidance and templates provided in the Austin-Travis County Wildfire Protection Plan can provide tailored outreach information relevant to each community.

- Identify and prevent ignition sources. Efforts to minimize immediate and known wildfire risk should focus on identifying and preventing ignition sources in advance of seasons when conditions for high severity wildfires are greatest (e.g., decommission any unnecessary utility lines, frequent inspections of utility lines, no welding on red flag days, patrols for human-caused ignition sources).

- Routinely update fire risk models with fire incident data. Information, including the 27 incidents in this report, can be used to evaluate the accuracy of fire model predictions.

- Implement shaded fuel breaks along the wildland-urban interface where warranted. Refinements to shaded fuel breaks and other prevention strategies can be learned by examining wildland fire behavior, such as how deep they should be (distance from urban boundary), how high above the ground to remove "ladder fuels," and where such fuel breaks are most effective.

Fire Ecology Studies –

- To provide for a better assessment of wildfire risks, effectiveness of wildfire prevention strategies, and whether wildfire risks change over time with changing environmental and climatic conditions, we recommend expanding fuel moisture sampling to include a more comprehensive array of vegetation types, including woodland/forest interior and edge, as well as shaded fuel breaks, to better understand how these variables change with fuel type, corresponding vegetation community, and weather data.
  - It has been suggested that closed canopy forest, particularly with large trees (Miller et al. 2017), high species diversity (White et al., 2009, Jacktel et al. 2017), and fuel moisture greater than 70% (Armstrong 2004) are resistant to burning and can serve as natural firebreaks and a strategy to help minimize fire risk. The expanded fuel moisture data would allow objective evaluation of these assertions within the BCP.

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Table 1. Known history of fire incidents on and near the Balcones Canyonlands Preserve (BCP), western Travis County, Texas (1961–2020).

Fire Incident Location	Proximity to BCP	Date	Ignition Source 1	Ignition Source 2	Approx. Area Burned (acres)	Primary Vegetation Type Burned	Secondary Vegetation Type Burned	BCP Macrosite
Westbank Peninsula	Inside	4/14/1961	Cigarette or arson	Human	540*	Grass, brush piles	Ashe juniper-oak shrubs, trees	West Austin
JJ&T, north of Murfin Road	Inside	1993–1996?	Unknown	Human?	17	Grass	Shrubs	South Lake Austin
3M/Spicewood Springs Road	Edge	Late summer/fall 1998	Welding	Human	1	Grass	Ashe juniper-oak trees	Bull Creek
Cortaña	Inside	5/31/2005	Kids burning ants with magnifying glass	Human	8.5	Grass	Ashe juniper-oak shrubs	North Lake Austin
Bohls	Inside	6/27/2005	SEEPI hit a rock	Human	0.11	Grass	Shrub	South Lake Austin
Barton Creek Wilderness	Inside	8/9/2006	Unknown	Human	0.1	Grass	NA	Barton Creek
RM 2222 ROW	Edge	8/12/2006	Unknown	Human?	1.9	Grass	Ashe juniper-oak trees	Bull Creek
St. Edwards Park	Contiguous	7/5/2008	Fireworks	Human	0.3	Grass	Ashe juniper-oak shrubs	Bull Creek
Spicewood Springs Road	Edge	7/14/2008	Unknown	Human?	0.2	Grass	Ashe juniper-oak trees	Bull Creek
Canyon Creek fenceline	Inside	9/9/2008	Welding	Human	0.02	Grass	NA	Bull Creek
Lime Creek	Inside	4/9/2009	Unknown	Human?	6.5	Grass	Ashe juniper-oak shrubs, trees	Cypress Creek
Barton Creek substation	Edge	Staff noted fresh burn scar 7/17/2009	Unknown	Human?	0.03	Grass	NA	Barton Creek
Emma Long Park, CCC Road	Inside	7/21/2009	Unknown	Human?	1.3	Grass, brush piles	Ashe juniper-oak shrubs, trees	North Lake Austin
Barton Creek Hill of Life	Inside	2/6/2011	Campfire	Human	0.1	Understory oaks and juniper	NA	Barton Creek
Reicher Ranch	Inside	5/10/2011	Lightning	Natural	0.002	One large Ashe juniper tree	NA	South Lake Austin
Emma Long	Inside	4/26/2013	Campfire	Human	0.01	Juniper-oak woodland	NA	North Lake Austin

Fire Incident Location	Proximity to BCP	Date	Ignition Source 1	Ignition Source 2	Approx. Area Burned (acres)	Primary Vegetation Type Burned	Secondary Vegetation Type Burned	BCP Macrosite
JJ&T	Inside	2014	Utility line	Human	0.002	Shrub (portion of one mesquite tree)	NA	South Lake Austin
Ribelin	Inside	6/15/2014	Unknown	Human?	0.06	Grass	Shrubs	Bull Creek
Steiner Ranch Conservation Easement	Inside	7/4/2014	Unknown	Human?	0.005	Pile of logs	NA	North Lake Austin
Grandview Hills	Inside and contiguous	3/28/2015	Unknown	Human?	0.22	Understory vegetation	Grass, Shrubs	Cypress Creek
Vireo Ridge	Inside	6/25/2017	Unknown	Human?	0.7	Grass	Shrubs	Cypress Creek
Barton Creek Habitat Preserve	Inside	7/23/2017	Lightning	Natural	3.5	Grass	Ashe juniper shrubs	Barton Creek
Barton Creek Greenbelt & vicinity	Inside and contiguous	3/8/2018	Arson	Human	0.06	Juniper-oak woodland/forest	NA	Barton Creek
Cortaña	Inside	6/13/2018	Unknown	Human?	1.2	Grass	Ashe juniper shrubs	North Lake Austin
RM 2222 ROW	Edge	5/14/2019	Unknown	Human?	0.01	Grass	Ashe juniper-oak trees	Bull Creek
JJ&T	Inside	Staff noted burn scar 12/17/2019	Unknown	Natural?	0.001	Portion of one juniper tree	NA	South Lake Austin
Hwy 71 ROW	Edge	1/6/2020	Mower	Human	0.3	Grass	NA	Barton Creek

*The size of the Westbank Peninsula fire is uncertain; it is based on inspection of aerial photographs and is not included in the data analysis (see Appendix A).

Figure 1. Locations of known fire incidents on and near the Balcones Canyonlands Preserve, western Travis County, Texas (1961–2020).

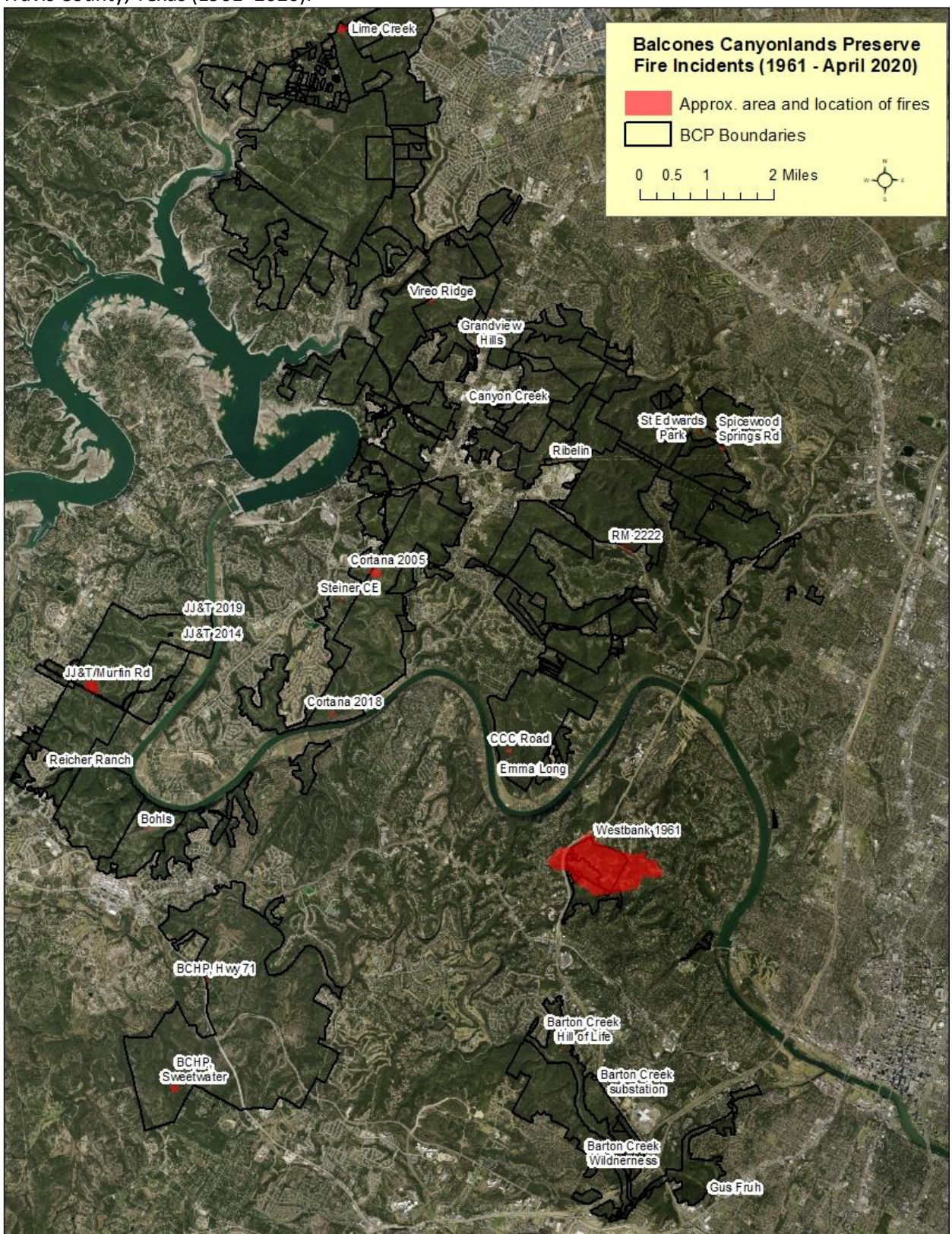


Table 2. Weather data for fire incidents on and near the Balcones Canyonlands Preserve (BCP), western Travis County, Texas (1961–2020).

Fire Incident Location	Incident Date	Ignition Source	Temperature high/low (F)	Relative Humidity high/low (%)	Wind speed max/max gust/avg direction (mph)	Rainfall (inches)	Fuel Moisture (Ashe juniper)			Lightning Strikes
							Collection Site	Date	FM	
Westbank Peninsula	4/14/1961	Cigarette or arson	93/57	90/8	17/--/10 SSW	0	NA	NA	NA	NA
JJ&T, north of Murfin Road	1993–1996?	Unknown	NA	NA	NA	NA	NA	NA	NA	NA
3M/Spicewood Springs Road	Late summer/fall 1998	Welding	NA	NA	NA	NA	NA	NA	NA	NA
Cortaña	5/31/2005	Kids burning ants with magnifying glass	88/69	97/46	9/13/3 NE	0	BCNWR*	5/27/2005	152	0
Bohls	6/27/2005	SEPPI hit a rock	95/70	93/37	12/--/6 SSE	0	BCNWR*	6/23/2005	127	0
Barton Creek Wilderness	8/9/2006	Unknown	101/76	94/29	14/20/6 S	0	BCNWR*	8/20/2006	65	0
RM 2222 ROW	8/12/2006	Unknown	102/76	87/29	15/23/7 SSE	0	BCNWR*	8/20/2006	65	0
St. Edwards Park	7/5/2008	Fireworks	97/71	90/33	17/33/5 S	0	Cortaña	7/7/2008	136	0
Spicewood Springs Road	7/14/2008	Unknown	105/75	82/25	17/30/3 E	0	Cortaña	7/7/2008	136	0
Canyon Creek fenceline	9/9/2008	Welding	97/75	94/34	10/16/3 SE	0	Cortaña	9/24/2008	76	0
Lime Creek	4/9/2009	Unknown	95/63	90/6	15/26/7 SSW	0	Cortaña	4/10/2009	98	2
Barton Creek substation	Staff noted fresh burn scar 7/17/2009	Unknown	NA	NA	NA	NA	NA	NA	NA	NA
Emma Long Park, CCC Road	7/21/2009	Unknown	103/78	85/31	12/22/6 S	0	Cortaña	7/22/2009	69	0
Barton Creek Hill of Life	2/6/2011	Campfire	74/41	70/17	18/29/8 WNW	0	Cortaña	2/8/2011	99	0
Reicher Ranch	5/10/2011	Lightning	95/75	82/33	17/28/8 SSE	0.02	Cortaña	5/4/2011	83	2
Emma Long	4/26/2013	Campfire	79/60	100/48	13/22/5 SSE	0.03	Cortaña	4/12/2013	98	0

Fire Incident Location	Incident Date	Ignition Source	Temperature high/low (F)	Relative Humidity high/low (%)	Wind speed Max/max gust/avg direction (mph)	Rainfall (inches)	Fuel Moisture (Ashe juniper) Collection Site	Date	FM	Lightning Strikes
JJ&T	2014	Utility line	NA	NA	NA	NA	NA	NA	NA	NA
Ribelin	6/15/2014	Unknown	93/76**	91/45**	21/26/14 SSE**	0.00**	Cortaña	6/18/2014	117	0
Steiner Ranch Conservation Easement	7/4/2014	Unknown	92/70**	96/41**	16/24/11 ESE**	0.00**	Cortaña	6/18/2014	117	0
Grandview Hills	3/28/2015	Unknown	80/42**	97/27**	21/32/9 SSW**	0.00**	Cortaña	3/19/2015	96	0
Vireo Ridge	6/25/2017	Unknown	89/75**	90/52**	17/26/7 NE**	0.06**	Cortaña	6/21/2017	97	0
Barton Creek Habitat Preserve	7/23/2017	Lightning	103/77	85/31	13/24/4 WNW[2]	0.04[2]	Cortaña	7/20/2017	89	6
Barton Creek Greenbelt & vicinity	3/8/2018	Arson	71/49	62/18	15/22/6 SE	0	Cortaña	4/18/2018	102	0
Cortaña	6/13/2018	Unknown	99/78	85/31	13/22/6 SSE	0	Cortaña	6/5/2018	103	0
RM 2222 ROW	5/14/2019	Unknown	82/63	93/50	12/18/6 SSE	0	Cortaña	5/6/2019	134	0
JJ&T	Staff noted burn scar 12/17/2019	Unknown	NA	NA	NA	NA	NA	NA	NA	NA
Hwy 71 ROW	1/6/2020	Mower	76/42	82/33	16/31/2 N	0	Cortaña	1/6/2020	92	0

*BCNWR = Balcones Canyonlands National Wildlife Refuge

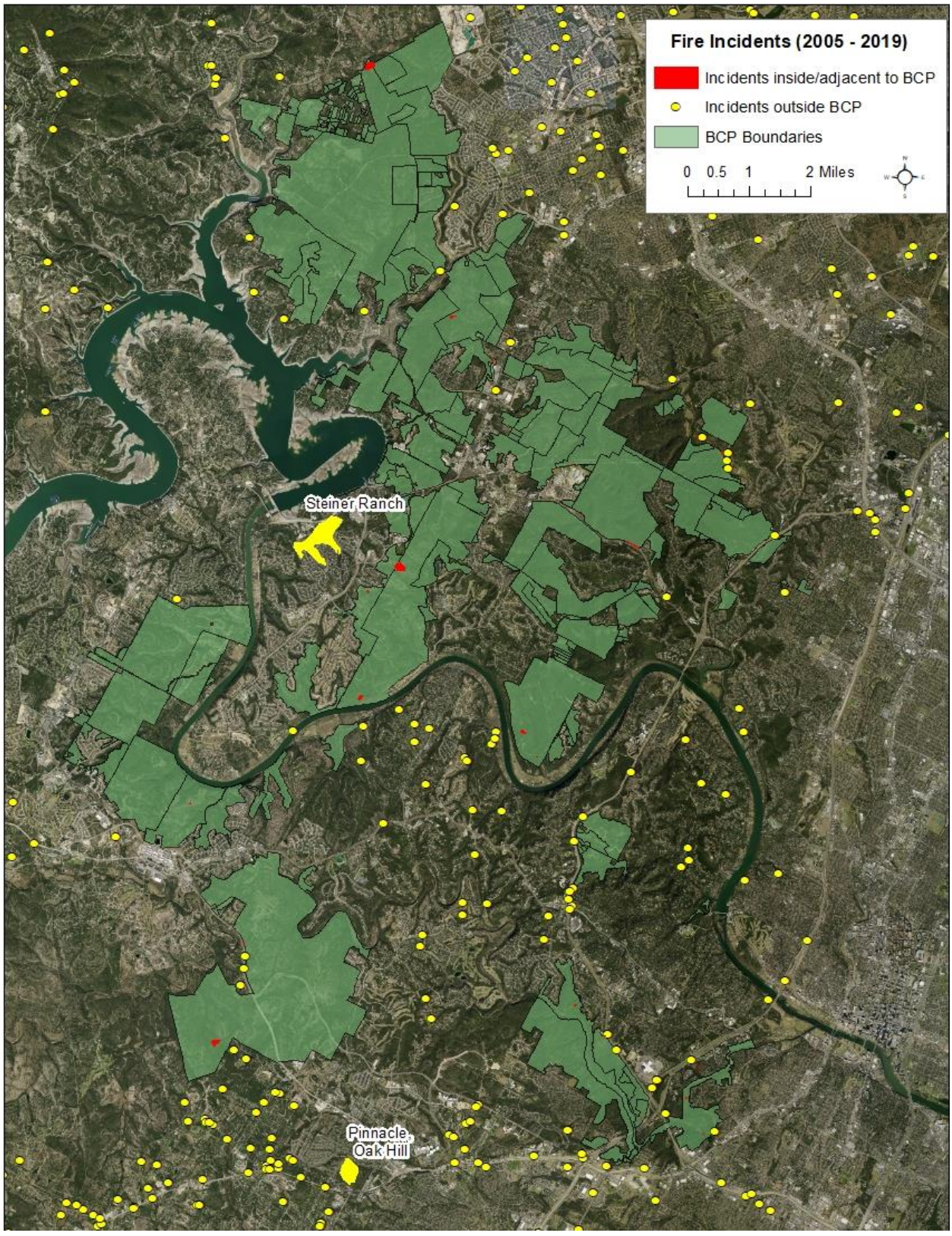
**Data from Austin-Bergstrom International Airport (all other data from Camp Mabry; this webpage was not accessible on or after 24 June 2020)

Table 3. Analysis of aerial photo imagery from 1940–2020 for vegetation community conversions within burn perimeters on and near the Balcones Canyonlands Preserve (BCP), western Travis County, Texas (1961–2020).

Fire Incident Location	Incident Date	Primary vegetation (1940)	Secondary vegetation (1940)	Primary vegetation (1958-1965)	Secondary vegetation (1958-1965)	Primary vegetation (1997-2019)	Secondary vegetation (1997-2019)	Conversion	Documented mode of conversion
Westbank Peninsula	4/14/1961	Woodland/ Forest	Shrub	Grass	Woodland/ Forest, Shrub	NA	NA	Yes	Clearing for cattle ranch prior to 1958
JJ&T, north of Murfin Road	1993–1996?	Grass	Shrub	Grass	Shrub	NA	NA	Yes	Clearing prior to 1940
3M/Spicewood Springs Road	Late summer/fall 1998	Grass	none	Grass	none	Grass	Shrub	Yes	Clearing prior to 1940
Cortaña	~5/31/2005	Grass	Shrub, Woodland	Grass	Shrub	Grass	Shrub	Yes	Clearing prior to 1940 and 1958
Bohls	6/27/2005	Grass	Shrub	Grass	Shrub	Grass	Shrub	Yes	Clearing in 2005 for Black-capped Vireo habitat
Barton Creek Wilderness	8/9/2006	Grass	none	Grass	Shrub	Grass	Shrub	Yes	Clearing prior to 1940
RM 2222 ROW	8/12/2006	Woodland/ Forest	Grass	Woodland/ Forest	Grass	Grass	Woodland/ Forest	Yes	Clearing prior to 1940 and 1997 for RM 2222
St. Edwards Park	7/5/2008	Grass	none	Grass	none	Grass	Shrub	Yes	Clearing prior to 1940
Spicewood Springs Road	7/14/2008	Grass	none	Grass	none	Grass	Shrub	Yes	Clearing prior to 1940
Canyon Creek fenceline	9/9/2008	Dirt road	Shrub, Woodland/ Forest	Dirt road	Shrub, Woodland/ Forest	Dirt road	Grass, Woodland/ Forest	Yes	Clearing prior to 1940 and 1997
Lime Creek	4/9/2009	Shrub	Grass, Woodland/ Forest	Grass	Shrub, Forest	Shrub	Woodland/ Forest	Yes	Clearing prior to 1940 and 1958
Barton Creek substation	Staff noted fresh burn scar 7/17/2009	Shrub, Woodland/ Forest	Grass	Shrub, Woodland/ Forest	Grass	Grass	Shrub	Yes	Clearing prior to 1940 and 1977
Emma Long Park, CCC Road	7/21/2009	CCC camp	NA	Grass	Shrub, Woodland/ Forest	Grass	Shrub, Woodland/ Forest	Yes	Clearing prior to 1940 for CCC camp
Barton Creek Hill of Life	2/6/2011	NA	NA	Woodland/ Forest	none	Woodland/ Forest	none	No	NA

Fire Incident Location	Incident Date	Primary vegetation (1940)	Secondary vegetation (1940)	Primary vegetation (1958-1965)	Secondary vegetation (1958-1965)	Primary vegetation (1997-2019)	Secondary vegetation (1997-2019)	Conversion	Documented mode of conversion
Reicher Ranch	5/10/2011	Woodland/ Forest	none	Woodland/ Forest	none	Woodland/ Forest	none	No	NA
Emma Long	4/26/2013	Woodland/ Forest	none	Woodland/ Forest	none	Woodland/ Forest	none	No	NA
Ribelin	6/15/2014	Grass	Shrub	Grass	Shrub	Grass	Shrub	Yes	Clearing prior to 1940
Steiner Ranch Conservation Easement	7/4/2014	Trees/shrubs	Shrub	Grass	Shrub	Shrub	Grass	Yes	Clearing prior to 1940 and 1958
Grandview Hills	3/28/2015	Trees/shrubs	Grass	Grass	Shrub	Trees/shrubs	Grass	Yes	Clearing prior to 1958 and 1965
Vireo Ridge	6/25/2017	Grass	Shrub	Grass	None	Grass	Shrub	Yes	Clearing prior to 1940
Barton Creek Habitat Preserve	7/23/2017	Shrub	Grass	Shrub	Grass	Shrub	Grass	Yes	Thinning/clearing prior to 1940
Barton Creek Greenbelt & vicinity	3/8/2018	Woodland/ Forest	Shrub	Woodland/ Forest	Shrub	Woodland/ Forest	none	No	NA
Cortaña	6/13/2018	Grass	Shrub, Woodland/ Forest	Grass	Shrub	Grass	Shrub, Woodland/ Forest	Yes	Clearing prior to 1940 and 1958
RM 2222 ROW	5/14/2019	NA	NA	Grass	Woodland/ Forest	Grass	none	Yes	Clearing prior to 1940 and 1997 for RM 2222
JJ&T	Staff noted burn scar 12/17/2019	Grass	Shrub	Grass	Shrub	Shrub	Grass	Yes	Clearing prior to 1950 and 1965
Hwy 71 ROW	1/6/2020	Dirt road	Shrubs, Grass	Dirt road	Shrub, Grass	Grass	Shrub	Yes	Clearing prior to 1940 for roads

Figure 2. Fire incidents within and adjacent to Balcones Canyonlands Preserve (BCP) properties, and incidents outside BCP properties for western Travis County, Texas from 2005–2019. Data for incidents outside BCP were obtained from Texas A&M Forest Service.



Appendix A:

Summary of each fire incident on and near Balcones Canyonlands Preserve, western Travis County, Texas (1961–2020)*

*includes selected photographs and reports (where available)

Westbank Peninsula Fire, April 1961

Property: In and around what is currently the Vireo Preserve and Wild Basin tracts of the BCP.

Balcones Canyonlands Preserve Macrosite: West Austin

Initiation Date: April 14, 1961

Ignition Source: Austin American-Statesman articles suggest arson as a suspected, but unsubstantiated, cause of the fire. The "Fire History of the Westbank" article attributes the ignition source to a cigarette tossed from a car along St. Stephens Road. Emmett Shelton's article does not state the source but said the fire "was on St. Stephens School Road up near where the old Austin City Dump was."

Weather Conditions: Emmett Shelton wrote that the fire was initially "small enough at that time to fight, but with a high North wind and about 15 or 20% humidity it was taking off." The Austin American-Statesman articles reported the fire spread rapidly due to the arrival of a cold front. High temperature of 93 °F, low relative humidity for the day of 8%, maximum winds at 17 mph.

Approximate Area Burned: Reports of the fire size range from 200 to 4,000 acres. Based on the written accounts and examination of aerial photographs in ArcGIS, the fire may have been approximately 540 acres.

Vegetation Burned: Grass, brush piles, shrub, and woodlands. According to the Austin American-Statesman, many big trees, including Ashe juniper trees, did not burn.

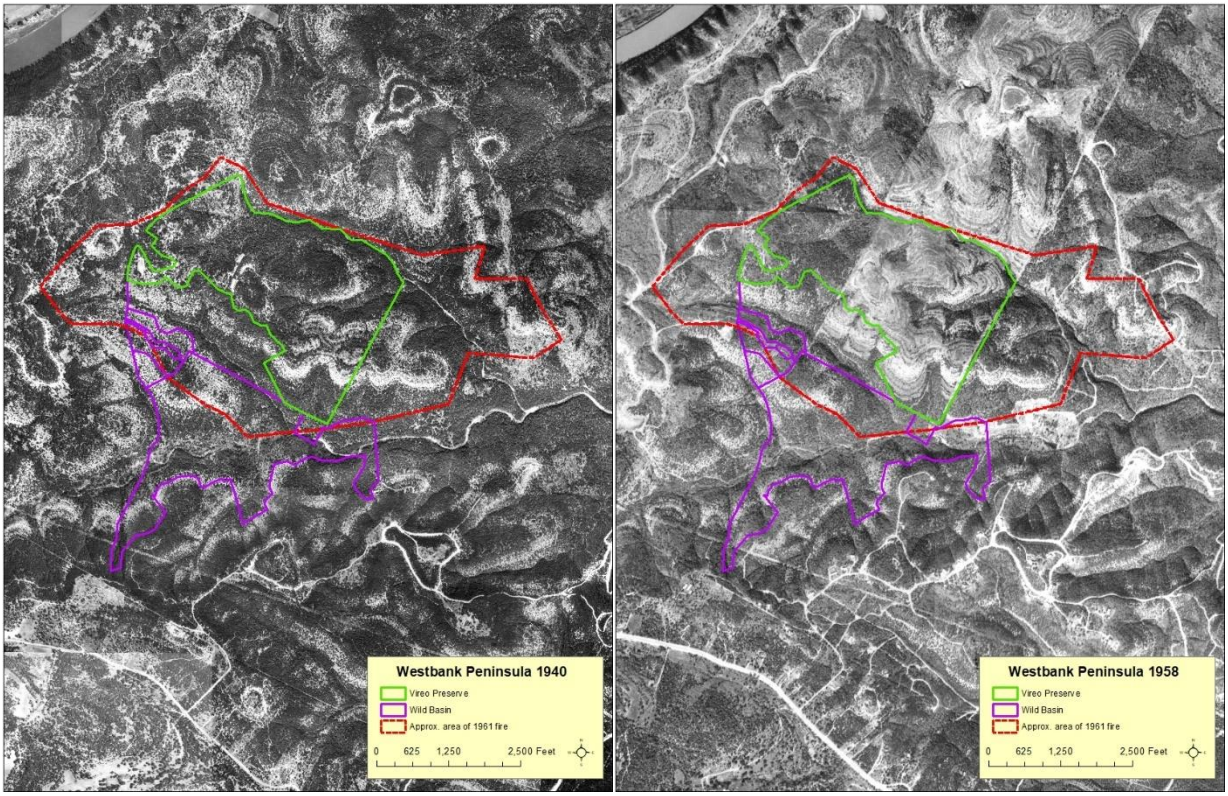
Conditions Contributing to the Burn: Emmett Shelton, Jr. wrote that the fire spread rapidly due to the arrival of a cold front and "huge brush piles [that] were stacked across the land." Similar accounts from Emmett Shelton, Sr. are recorded in the 1999 Tier III land management plan for the Black-capped Vireo Research Area (now referred to as Vireo Preserve). The "Fire History of the Westbank" article cites the following factors influenced the rate of spread of the fire: "(1) the extremely dry conditions preceding the fire (Jan. to March had been drier than the same period at any time during the drought of the 50s); (2) the wind shift to the west, and then the strong cold front that brought winds, NNW and N up to 25 knots; (3) the difficulty of getting into the canyons with equipment; and (4) the piles of brush on Davenport Ranch."

Historical Changes in Vegetation Types: Inspection of a 1958 aerial photo verifies extensive clear-cutting in this area when compared to the 1940 aerial photo of the same area.

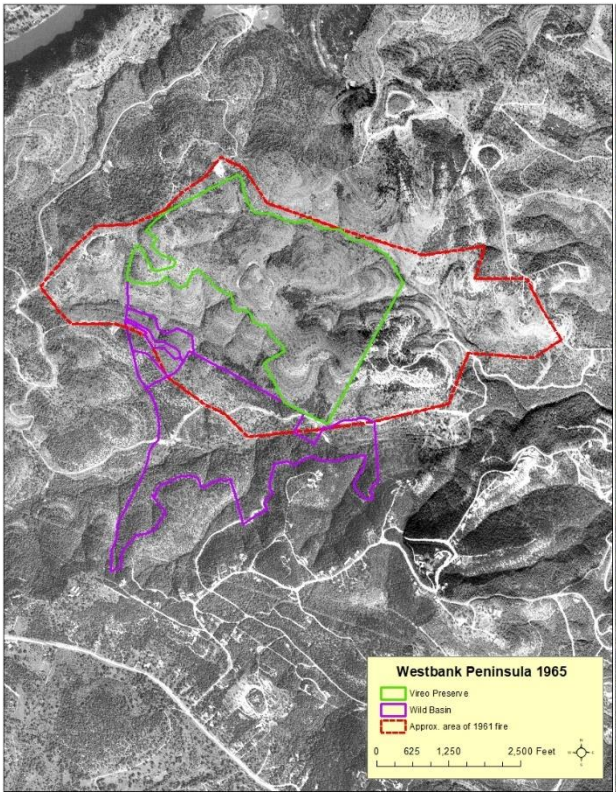
Active Fire Suppression: Yes

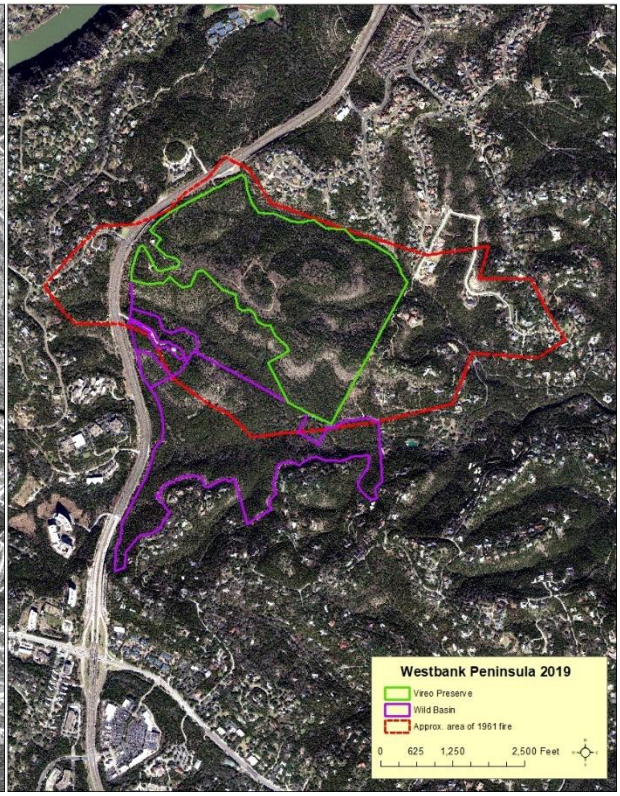
Other notes: The fire was under control by April 16 and stopped just north of Bee Creek in what is today Wild Basin. Emmett Shelton, Sr. stated that Wild Basin Ledge Road was built to contain the fire.

Information Sources: "Fire History of the Westbank" (no author or date provided, https://www.westlakehills.org/DocumentCenter/View/48/Fire-History-of-the-Westbank?bidId=); Austin American-Statesman articles, 15-16 April 1961; undated notes titled "Westland Hills and Fire Protection" from Shelton, Emmett, Jr; 1999 Tier III Land Management Plan, West Austin Macrosite, Black-capped Vireo Research Area, City of Austin, Balcones Canyonlands Preserve.


Westbank Peninsula 1940
Vireo Preserve
Wild Basin
Approx. area of 1961 fire
0 625 1,250 2,500 Feet

Westbank Peninsula 1958
Vireo Preserve
Wild Basin
Approx. area of 1961 fire
0 625 1,250 2,500 Feet


Westbank Peninsula 1965
Vireo Preserve
Wild Basin
Approx. area of 1961 fire
0 625 1,250 2,500 Feet


Westbank Peninsula 2019
Vireo Preserve
Wild Basin
Approx. area of 1961 fire
0 625 1,250 2,500 Feet

Fire History of the Westbank
http://www.westlakehills.org/DocumentCenter/View/48

In 1947, Osceola Heard Davenport, a wealthy Rio Grande Valley widow of an oilman, came to Austin to buy land to start a ranch. The Walsh brothers, owners of the Thomas Chambers Survey (1280 acres) asked Emmett Shelton, Sr. to show Mrs. Davenport the property. Mrs. Davenport always dressed the part and on this occasion was outfitted as a cowgirl with boots, fringed buckskin and a cowboy hat.

The Chambers survey is a long, narrow rectangle, fronting on Lake Austin. They traveled by pickup truck out Bee Cave Road to the Roy Ranch, then crosscountry along an old trail to the highest hilltop to view the land. Mrs. Davenport was pleased and when told the price was $40,000 declared she would take it and paid cash. With a handshake to seal the deal, she then pulled a flask of whiskey from her hip pocket, took a swig and passed it among the men. Returning to town, Mrs. Davenport complained that the purchase price of the ranch would take a whole month¹s income.

Emmett Shelton told her that she couldn¹t put more than a single head to a hundred acres because the land was so thick with trees and shrubs. The new ranch owner set about having the property cleared. Huge brush piles were stacked across the land. She employed workers to cut trees and stack them for burning. Many of these stacks of drying timer and brush when burned set sparks flying onto the property of others like Emmett Shelton who had moved into the West Lake Hills area.

Mrs. Davenport built a small stone ranch house, but despite her efforts the only area where cattle could graze were the same 200 acres at the far north end of the peninsula used by the Walsh brothers. She soon grew tired of her venture and never put any cattle on any other areas of the land.

When Emmett Shelton returned from World War II, he wrote Mrs. Davenport a letter warning her of serious consequences if she were to keep burning brush and causing fires. She quit burning the brush piles that were still there in 1961 and caused considerable impact on the vegetation, extending into the part of the ranch now included in the Wild Basin preserve. [Information compiled by Kathryn Respess with anecdotal information from Emmett Shelton, Sr. April 14, 1961]

About 9 a.m. on Friday, April 14, 1961, a motorist traveling along St. Stephens School Road on the western boundary of the Roy Ranch carelessly tossed a lighted cigarette out the window and ignited a grass fire. A strong wind out of the west quickly spread the flames east across the Roy Ranch and onto Davenport Ranch. There the fire leaped from one old brush pile to another and fed on dried vegetation in canyons and ravines leading southward. There were no roads into the area and at least a dozen contractors in town sent bulldozers to help build a fire lane and to try to control the inferno.

More than two hundred students from The University of Texas and St. Edward¹s University volunteered to fight the fire. An intensive two-day community effort stopped the fire short of Bee Creek. All of Wild Basin north of a line parallel to Bee Creek and just north of the creek, burned in the fire. However, many big trees, including cedar trees, did not burn [newspaper account, April 18, 1961]. Shelton regards the woods along Bee Creek as having been untouched by any disturbance, cutting or fire.

The halting of the fire¹s progress at the line north of Bee Creek was by means of a fire lane, cut by bulldozers. The ¹61 fire came only four years after the end of the worst drought in weather department records for the area. When the fire began just east of St. Stephen¹s School Road, Emmett Shelton, Jr.

thought they could put it out by stamping or beating it, but the grass fire quickly ignited the brush and it was too late for quick action.

Some main factors affecting the fire which spread to about 4000 acres were: (1) the extremely dry conditions preceding the fire (Jan. to March had been drier than the same period at any time during the drought of the 50s); (2) the wind shift to the west, and then the strong cold front that brought winds, NNW and N up to 25 knots; (3) the difficulty of getting into the canyons with equipment; and (4) the piles of brush on the Davenport Ranch.

The fire began about 9 a.m. on Friday, April 14 and was still burning on Sunday evening. Some spots flared up again on Monday, April 17. Emmett Shelton, Sr. reported that the fire tended to follow the canyons, which run roughly east-west and the winds were mostly NW and NNW. He felt the dry leaf litter and Davenport brush piles enabled the fire to spread quickly and remarked that "the large living cedar trees were slow to catch fire, though, when they do, they explode like anti-aircraft fire".

After the fire, the rest of April and the first weeks of May continued to be without rain. However, good rains in May and June appeared to help the trees and shrubs make good growth. The rainfall for '61 and '62 was average; '63 was another drought year; and in '64 the normal rains returned. The environment that developed after the fire, new growth of live oak, Texas oak, evergreen sumac and silk tassel interspersed on open grassland, provides excellent habitat for many birds and animals.

Murfin Road Fire, 1993–1996?

Property: JJ&T, north side of Murfin Road, west of Pecan Drive.

Balcones Canyonlands Preserve Macrosite: South Lake Austin

Initiation Date: 1993–1996?

Ignition Source: Unknown

Weather Conditions: Unknown

Approximate Area Burned: Approximately 17 acres, based on memory of Mark Sanders (City of Austin BCP).

Vegetation Burned: Mostly grass, no obvious signs of burned vegetation on 1997 aerial photo.

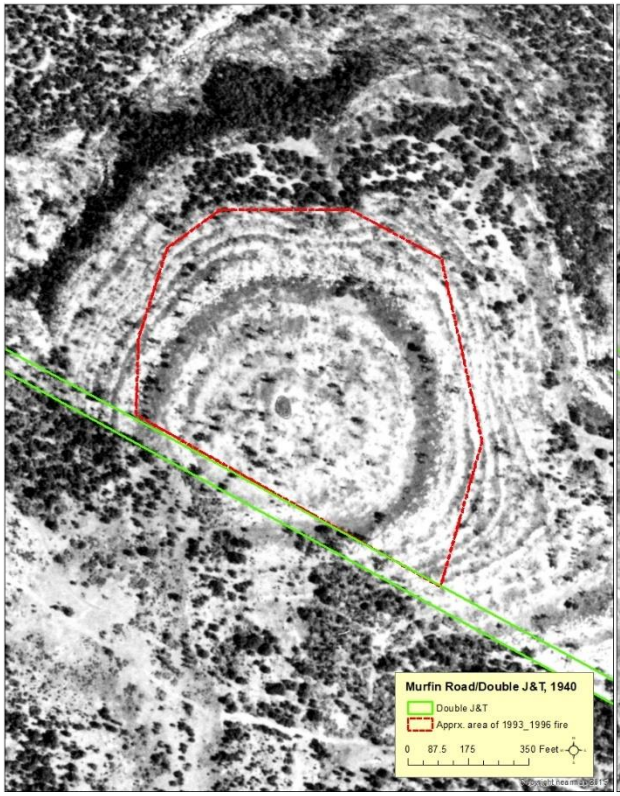
Conditions Contributing to the Burn: Unknown

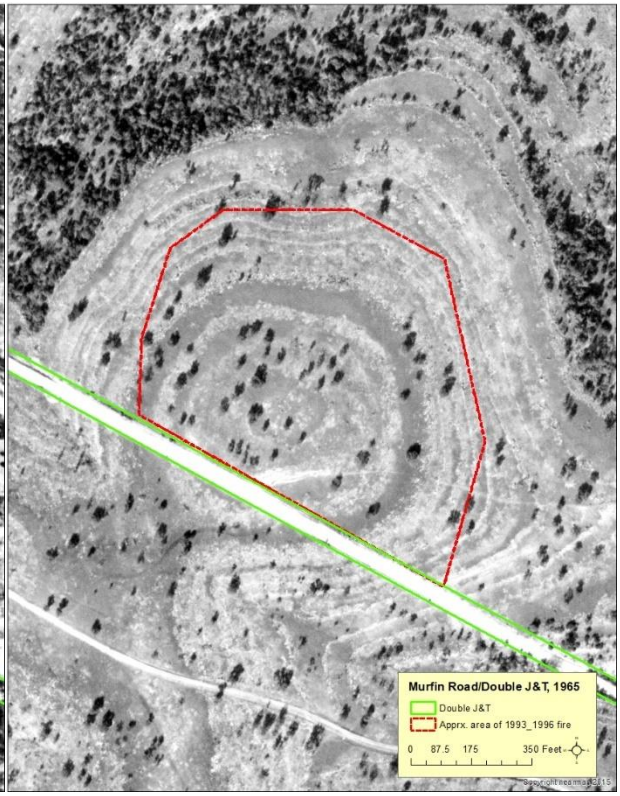
Historical Changes in Vegetation Types: Based on historic aerial photos, this area was clear-cut prior to 1940, with grass and shrubs growing back over time.

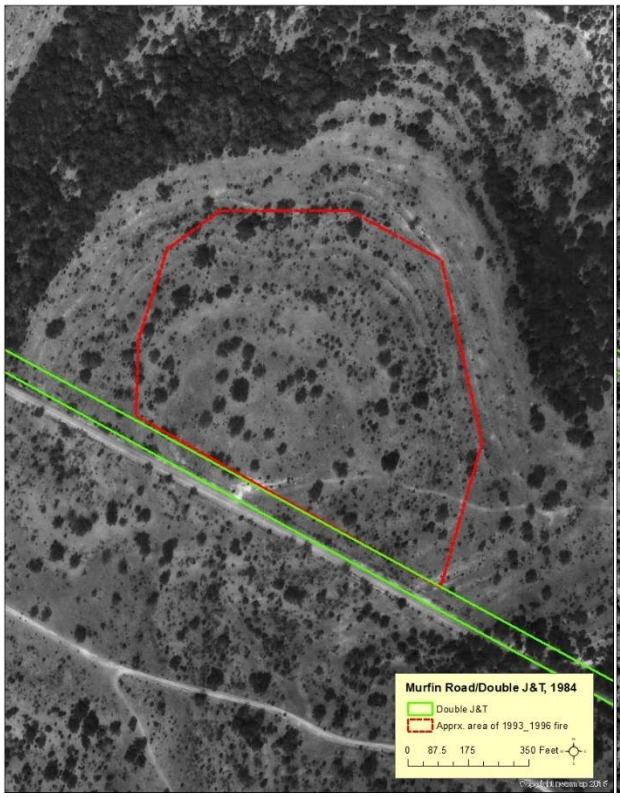
Active Fire Suppression: Yes

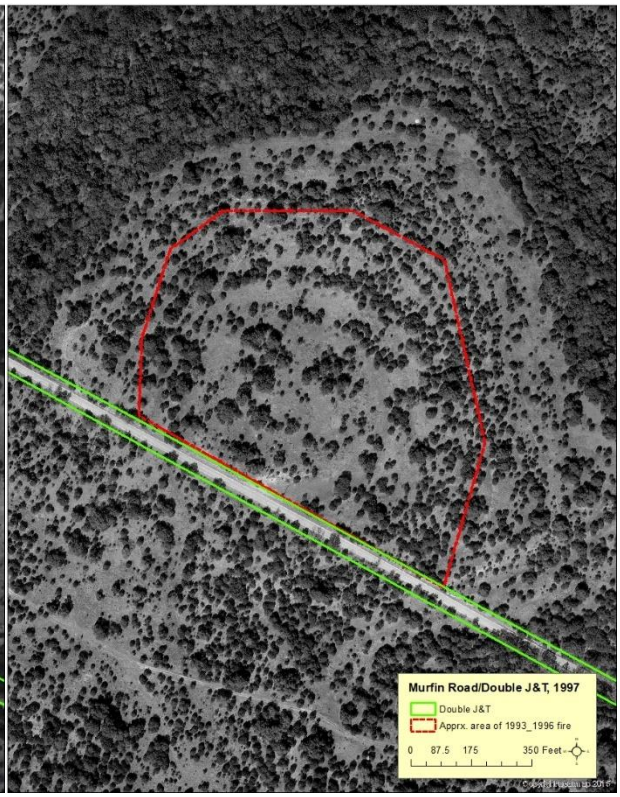
Other notes: The fire apparently started on Murfin road ROW and moved north into the property. It looked like a local volunteer fire department cut the BCP fence to put it out. A neighbor then ran cattle in this area to take advantage of the new grass growth in response to the fire.

Information Sources: Mark Sanders (City of Austin BCP)


Murfin Road/Double J&T, 1940
Double J&T
Apprx. area of 1993_1996 fire
0 87.5 175 350 Feet


Murfin Road/Double J&T, 1965
Double J&T
Apprx. area of 1993_1996 fire
0 87.5 175 350 Feet


Murfin Road/Double J&T, 1984
Double J&T
Apprx. area of 1993_1996 fire
0 87.5 175 350 Feet


Murfin Road/Double J&T, 1997
Double J&T
Apprx. area of 1993_1996 fire
0 87.5 175 350 Feet

3M/Spicewood Springs Road Fire, 1998

Property: Northern boundary of 3M

Balcones Canyonlands Preserve Macrosite: Bull Creek boundary

Initiation Date: Summer or early fall 1998

Ignition Source: Fence crew welding new fence

Weather Conditions: Unknown

Approximate Area Burned: 1 acre

Vegetation Burned: Mostly dead grass along Spicewood Springs Road (West)

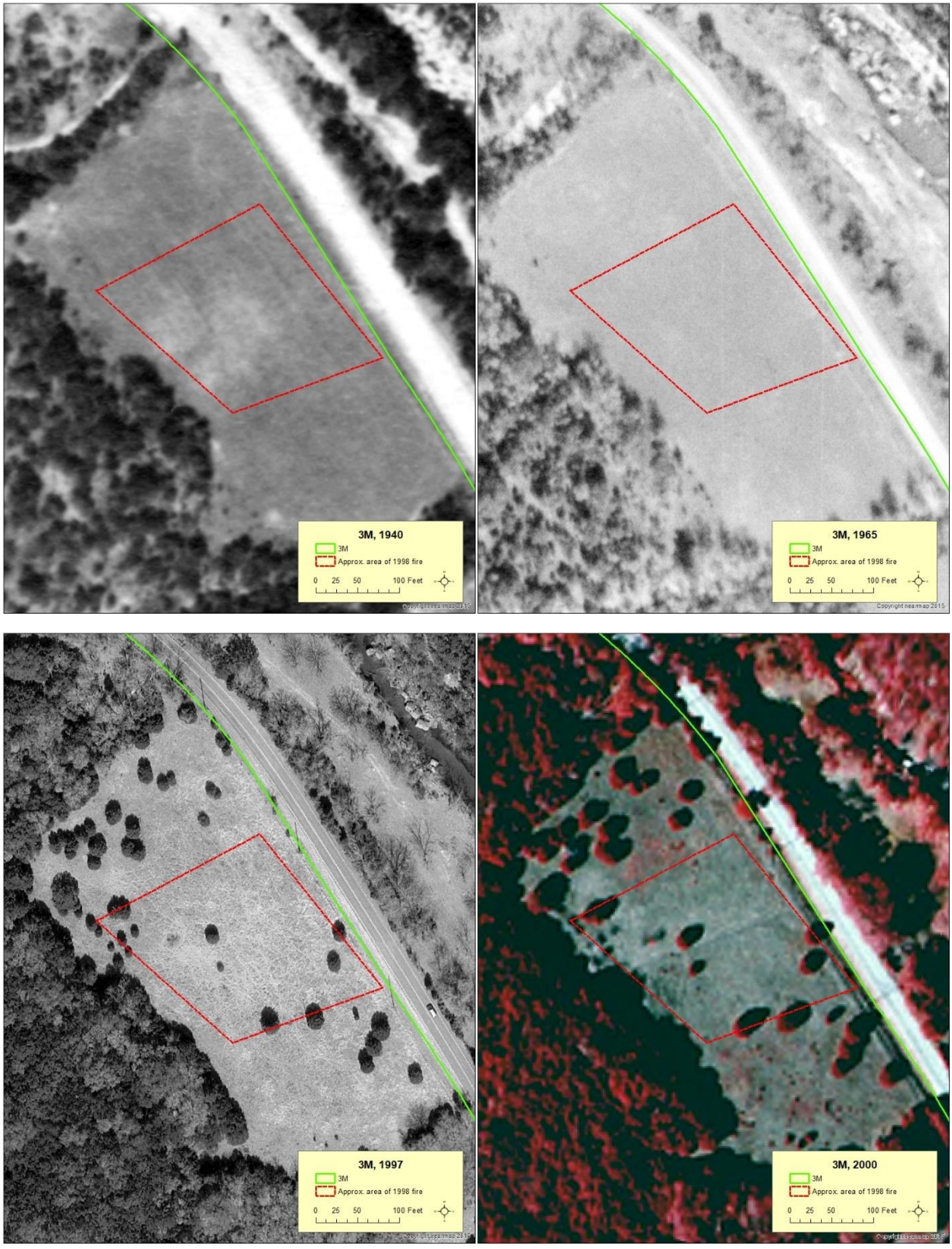
Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: Based on historic aerial photos, this area was a cleared field prior to 1940, with grass and shrubs growing back over time.

Active Fire Suppression: Unknown

Other notes: The fence was installed to create a deer exclosure. The fire stopped when it hit the tree line to the south.

Information Sources: Mark Sanders (City of Austin BCP), photograph


3M, 1940
3M
Approx. area of 1998 fire
0 25 50 100 Feet
3M, 1965
3M
Approx. area of 1998 fire
0 25 50 100 Feet
3M, 1997
3M
Approx. area of 1998 fire
0 25 50 100 Feet
3M, 2000
3M
Approx. area of 1998 fire
0 25 50 100 Feet

Cortaña Fire, 2005

Property: Cortaña

Balcones Canyonlands Preserve Macrosite: North Lake Austin

Initiation Date: Approximately May 31, 2005

Ignition Source: Kids burning ants with magnifying glass

Weather Conditions: High temperature of 88 °F, low relative humidity of 46%, winds gusting to 13 mph.

Approximate Area Burned: 8.5 acres

Vegetation Burned: Grass and shrubs

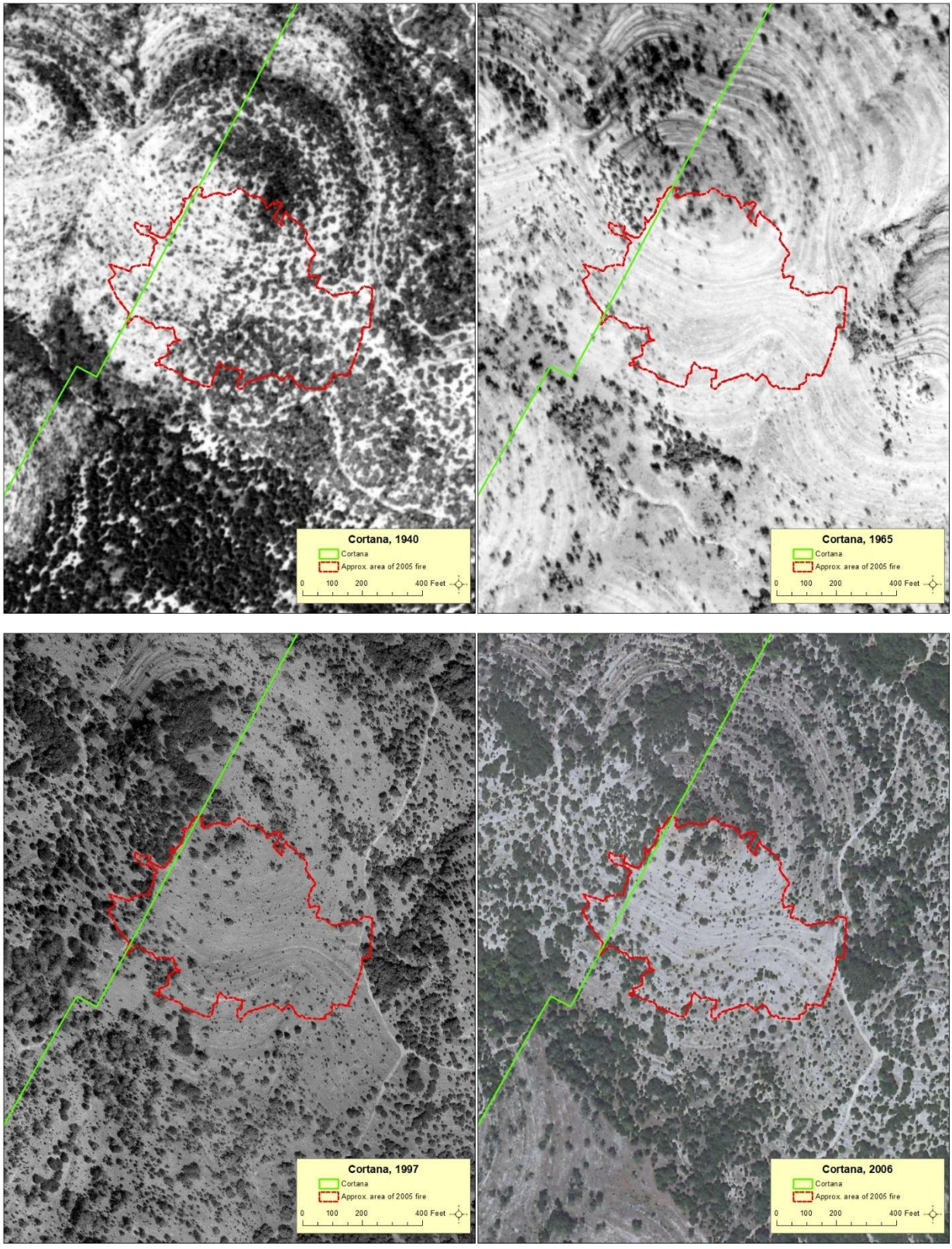
Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: Based on historic aerial photos, this area was clear-cut between 1940 and 1965, with grass and shrubs growing back over time.

Active Fire Suppression: Yes

Other notes: From 2005 BCP tract reports, compiled by Patty Ramirez: "[BCP] staff provided logistical support and resources to local fire departments in their effort to extinguish 8.5 acre fire that was ignited by neighborhood youth; boundary of wildfire was GPS'd and effects were documented with photos."

Information Sources: 2005 annual report, photographs, shapefile created by Patty Ramirez (City of Austin BCP).


Cortana, 1940
Cortana
Approx. area of 2005 fire
0 100 200 400 Feet
Cortana, 1965
Cortana
Approx. area of 2005 fire
0 100 200 400 Feet
Cortana, 1997
Cortana
Approx. area of 2005 fire
0 100 200 400 Feet
Cortana, 2006
Cortana
Approx. area of 2005 fire
0 100 200 400 Feet

Bohls Fire, 2005

Property: Bohls

Balcones Canyonlands Preserve Macrosite: South Lake Austin

Initiation Date: June 27, 2005

Ignition Source: Contractor operating a SEPPI hit a rock

Weather Conditions: High temperature of 95 °F, low relative humidity of 37%, winds gusting to 12 mph.

Approximate Area Burned: 0.11 acres

Vegetation Burned: Little bluestem grass

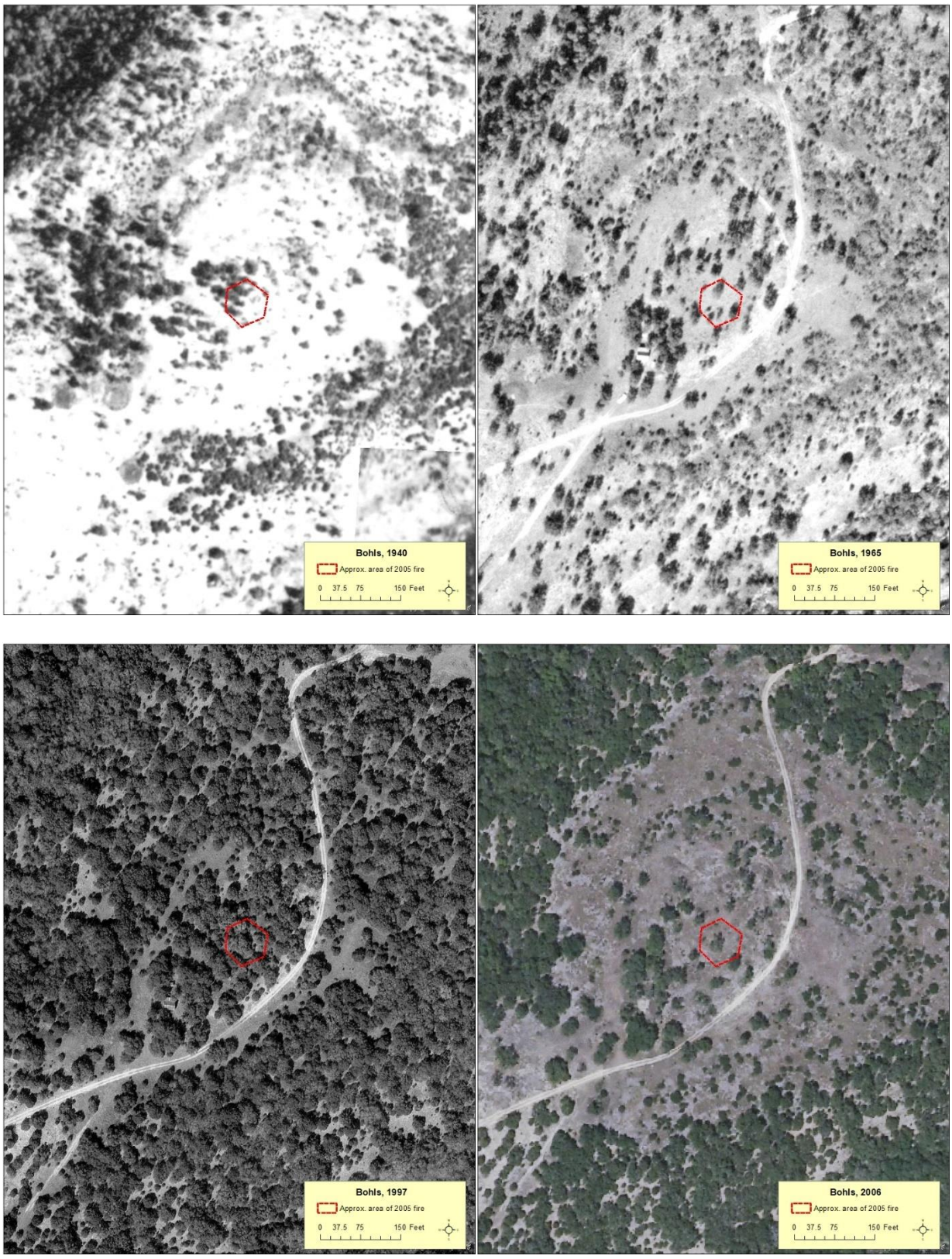
Conditions Contributing to the Burn: Fine fuels, warm weather, and low humidity.

Historical Changes in Vegetation Types: Based on historic aerial photos, area was cleared prior to 1940, with shrubs gradually growing back by 1997 and cleared again in 2005.

Active Fire Suppression: Contractor and BCP staff put out fire.

Other notes: Contractor was cutting surface vegetation to create Black-capped Vireo habitat. Lake Travis Fire Department responded, but fire was put out before they arrived.

Information Sources: John Chenoweth (City of Austin BCP)


Bohls, 1940
Approx. area of 2005 fire
0 37.5 75 150 Feet
Bohls, 1965
Approx. area of 2005 fire
0 37.5 75 150 Feet
Bohls, 1997
Approx. area of 2005 fire
0 37.5 75 150 Feet
Bohls, 2006
Approx. area of 2005 fire
0 37.5 75 150 Feet

Barton Creek Wilderness Fire, 2006

Property: Barton Creek Wilderness Preserve, southwest of State Loop 360 and State Loop 1 intersection, north of the Barton Creek Trailhead

Balcones Canyonlands Preserve Macrosite: Barton Creek

Initiation Date: August 9, 2006

Ignition Source: The cause of ignition could not be determined but believed to be human caused (see August 11, 2006 report).

Weather Conditions: High temperature of 101 °F, low relative humidity of 29%, and wind gusts up to 20 mph from the south.

Approximate Area Burned: 0.07 acres

Vegetation Burned: Primarily grass King Ranch (KR) bluestem and other short stature grasses such as three awns. The majority of the Ashe juniper and oak surrounding the site were scorched by the fire. Scorch heights ranged as high as 20' but were generally less than 15'. There were two locations that showed complete combustion of the green growth on the junipers. These locations were associated with grass that led to either dry brush or dense thickets of juniper reproduction beneath the tree. The KR bluestem appeared to support greater fire intensities and allowed for greater scorch on the trees. Only one tree appeared to be heavily damaged in the fire with at least 50% of the green vegetation consumed on the tree. All other trees suffered less than 25% damage to their living vegetation.

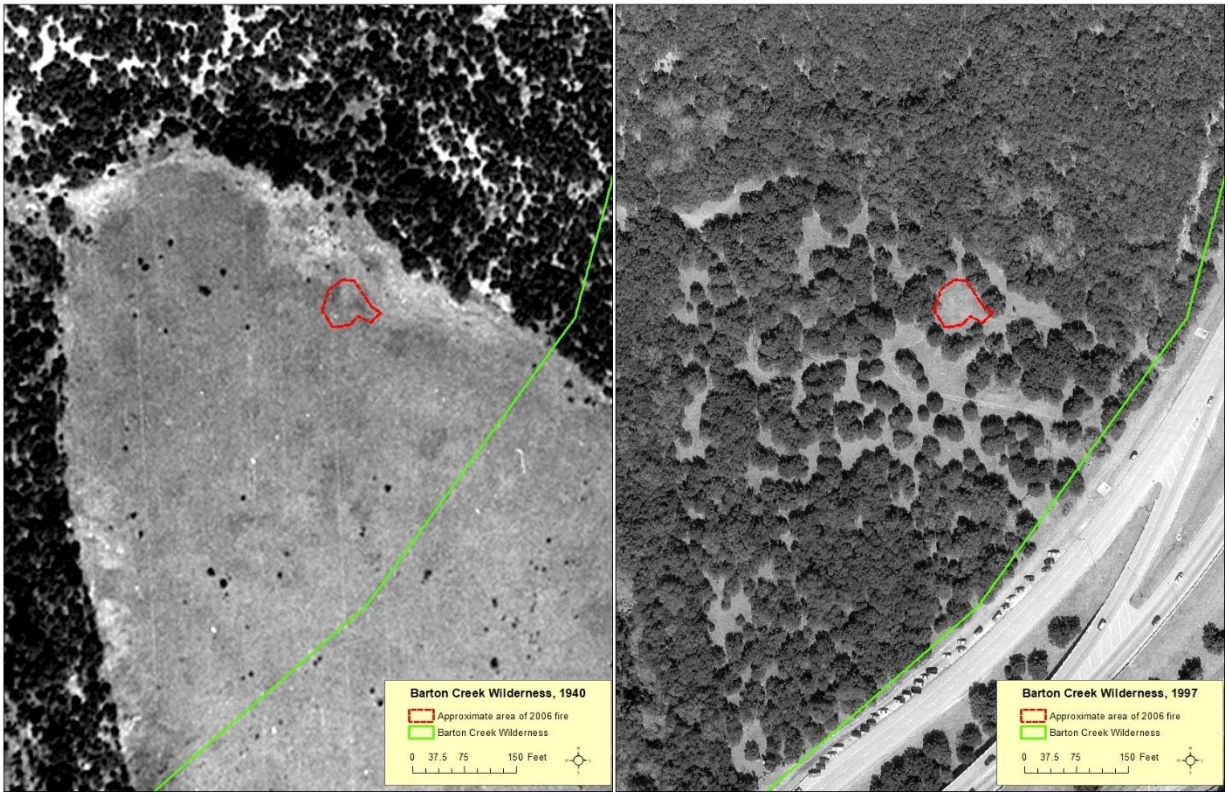
Conditions Contributing to the Burn: Extensive fine fuels, including invasive species, combined with high temperatures, low humidity, and gusty winds. Balcones Canyonlands National Wildlife Refuge reported live fuel moisture measurements of 75% and 83% on August 2, 2006, and 65% on August 20, 2006.

Historical Changes in Vegetation Types: Based on historic aerial photos, this area was a cleared field prior to 1940, with grass and shrubs growing back over time.

Active Fire Suppression: Yes

Other notes: The fire only spread marginally into the timber fuels located below the Ashe juniper and oak canopy. Where the fire did burn into the timber fuels it was confined to the surface layer only and did not burn deeply into the litter or duff.

Information Sources: August 11, 2006 report by Glen Gillman (City of Austin Wildland Conservation Division), photographs


Barton Creek Wilderness, 1940
Approximate area of 2006 fire
Barton Creek Wilderness
0 37.5 75 150 Feet
Barton Creek Wilderness, 1997
Approximate area of 2006 fire
Barton Creek Wilderness
0 37.5 75 150 Feet


Barton Creek Wilderness, April 2006
Approximate area of 2006 fire
Barton Creek Wilderness
0 37.5 75 150 Feet
Barton Creek Wilderness, February 2008
Approximate area of 2006 fire
Barton Creek Wilderness
0 37.5 75 150 Feet

Austin Water Utility
Wildland Conservation Division
Fire Report

Name: Barton Creek Wilderness WX
Date: 08/09/06
Property: Barton Creek Wilderness
Location: SW of HWY 360 and Loop 1 intersection north of the Barton Creek Trailhead.
Lat/Long: N 30.24599 W 097.80899

Prepared by: Glen Gillman
Date: 08/11/06

General

Fire was not reported to AWU-WCD staff. Willy Conrad, Division Manager, was first made aware of the fire at 1700 on 08/09/06 during a meeting with Travis County staff who were alerted via digital pager. Glen Gillman, Fire Management Specialist was notified by Willy Conrad the following morning at 0900. Glen Gillman contacted AFD for information regarding the location of the fire and reconnoitered the fire at 1300 on 09/10/06. Glen Gillman requested that a copy of the AFD report be sent to the AWU-WCD office.

Operation

According to John Doyle, AFD Custodian of Records, AFD responded to the fire at about 1300 on 08/09/06 and remained on scene for two hours. Four AFD units responded, including one brush truck. All operations were conducted on foot.

The fire was contained to grass fuels and the cause was undetermined although a transient camp and an old fire ring were mentioned.

See attached AFD fire report.

Description

The fire was approximately 0.07 acres.

Fuel

The fire burned in grass fuels imbedded within juniper-oak woodland. Grasses appeared to be made up of KR bluestem and other short stature grasses such as three awns. There were a few small (2–8 foot) junipers within the grasslands, some cactus and some old brush without needles. The grassland was surrounded by typical oak-juniper woodlands. Juniper dominated in the immediate area and junipers ranged from 2–25 feet tall. Mature juniper varied greatly in the amount of juniper seedlings below the drip line of the mature trees. Oaks and other hardwoods were less common. Directly north of the burn the vegetation consisted of closed canopy woodland with a greater density of deciduous trees.

Topography

The fire was located north of Barton Creek on a south aspect. The immediate area surrounding the burn had less than 5% slope. Greater slopes were present to the north.

Fire Weather

No weather observations were taken on site.

The following observations were archived by the National Weather Service from the closest weather reporting stations.

Reporting Station	Temperature high/low (F)	Relative Humidity (%)	Wind speed max/max gust/ average/dir (mph)	Precipitation departure from normal since Jun 1/Jan 1
Austin Bergstrom	100/72	94/31	16/21/8/South	-2.47/-4.54
Austin Camp Mabry	101/76	94/29	12/20/5.8/Southeast	-2.72/+2.12

See attached National Weather Service Weather Summary.

Balcones Canyonlands NWR reported live fuel moisture measurements of 75% and 83% on 08/02/06. These samples are probably a little drier than those found at the site of the burn.

Fire Behavior

No fire behavior observations were taken on site.

Fire Effects

The fire burned primarily within the grass fuels. The fire did not penetrate deeply into the timber fuels located below the juniper and oaks. When it did burn into those timber fuels it was confined to the surface and did not burn deeply into the litter or duff.

The majority of the juniper and oak surrounding the site were scorched by the fire. Scorch heights ranged as high as 20' but were generally less than 15'. There were two locations that showed complete combustion of the green growth on the junipers. These locations were associated with grass that led to either dry brush or dense thickets of juniper reproduction beneath the tree. The KR bluestem appeared to support greater fire intensities and allowed for greater scorch on the trees.

Only one tree appeared to be heavily damaged in the fire. At least 50% of the green vegetation was consumed on the tree. All other trees suffered less than 25% damage to their living vegetation.

Other

The cause of ignition could not be determined. This area is heavily used by transients and recreational users and it is most likely human caused. A well used social trail was used to contain the fire to the south. An old journal and book were found partially burned near the northern edge of the burn under a juniper. Pin flags indicating recent survey work were also identified on the north edge of the burn.

See attached photographs.

RM 2222 Fire, 2006

Property: North side of RM 2222, west of Bell Mountain Road, just south of Kent Butler tract

Balcones Canyonlands Preserve Macrosite: Bull Creek

Initiation Date: August 12, 2006

Ignition Source: Unknown

Weather Conditions: High temperature of 102 °F, low relative humidity of 29%, and wind gusts up to 23 mph from the southeast.

Approximate Area Burned: 1.7 acres; The fire was confined to the roadside and may not have burned onto City of Austin BCP property.

Vegetation Burned: The fire burned primarily grass along the road frontage of RM 2222. The grasses appeared to consist primarily of KR bluestem closest to the road. The majority of the Ashe juniper and oak surrounding the site were scorched by the fire. There were two junipers that caught fire and it appears that attached deadwood allowed them to ignite. The ignition was limited to the bark of these trees and the green vegetation was not consumed. In general, less than 25% of each tree was scorched. The *Baccharis* distributed within the grassland was completely scorched but the vegetation was not consumed. The oak shrubland that grew along the upper edge of the road cut exhibited the greatest fire behavior. Approximately 50% of this vegetation supported fire in the crowns. The reminder of the fire was limited to the ground fuels.

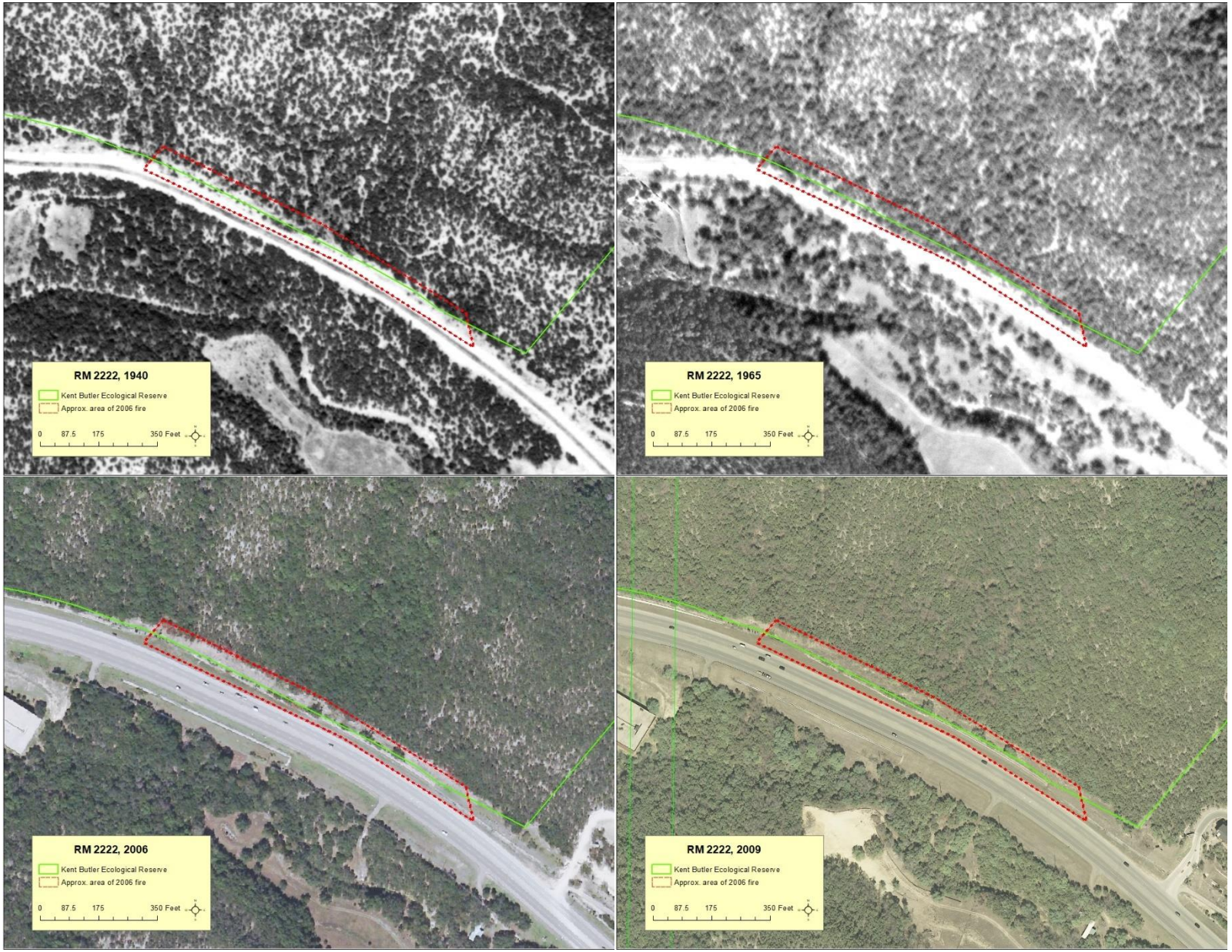
Conditions Contributing to the Burn: High temperatures, low humidity, gusty winds. Balcones Canyonlands National Wildlife Refuge reported live fuel moisture measurements of 75% and 83% on August 2, 2006, and 65% on August 20, 2006.

Historical Changes in Vegetation Types: The 1940 aerial photo shows a narrow strip of grass along RM 2222, which was later widened resulting in increased fine fuels to ignite and carry the fire.

Active Fire Suppression: Yes

Other notes: The fire did not penetrate deeply into the timber fuels located to the north. When it did burn into those timber fuels it was confined to the surface and did not burn deeply into the litter or duff except where heavier fuels allowed heat to remain for an extended period.

Information Sources: August 15, 2006 report by Glen Gillman (City of Austin Wildland Conservation Division), photographs


RM 2222, 1940
Kent Butler Ecological Reserve
Approx. area of 2006 fire
0 87.5 175 350 Feet
RM 2222, 1965
Kent Butler Ecological Reserve
Approx. area of 2006 fire
0 87.5 175 350 Feet
RM 2222, 2006
Kent Butler Ecological Reserve
Approx. area of 2006 fire
0 87.5 175 350 Feet
RM 2222, 2009
Kent Butler Ecological Reserve
Approx. area of 2006 fire
0 87.5 175 350 Feet

Austin Water Utility
Wildland Conservation Division
Fire Report

Name: Ivanhoe [Kent Butler] WX
Date: 08/12/06
Property: Ivanhoe [Kent Butler] roadside
Location: North side of FM 2222 [RM 2222] west of Bell Mountain Road
Lat/Long: N 30.38063 W 097.80851

Prepared by: Glen Gillman
Date: 08/15/06

General

Fire was not reported directly to AWU-WCD staff. Glen Gillman, Fire Management Specialist received a general pager notification about the fire on 08/12/06 after it had been extinguished. Glen Gillman reconnoitered the fire at 1300 on 09/14/06 with Dan Lakey, BCP Conservation Ranger. Glen Gillman requested that a copy of the AFD report be sent to the AWU-WCD office.

Operation

See attached AFD fire report.

Description

The fire was approximately 1.7 acres. The fire was confined to the roadside and may not have burned onto COA property.

Fuel

The fire burned in grass fuels along the road frontage of FM 2222 [RM 2222]. The grasses appeared to consist primarily of KR bluestem closest to the road. Fuel loadings decreased near the woodlands due to past soil disturbance (possibly infrastructure right of way). Short stature grasses and forbs dominated close to the tree line. Baccharis was present on the west side of the burn in the grass fuels and ranged from 6-12 feet in height. Mixed brush, primarily oak, sumac, persimmon and agarita was present just above the road cut. Some isolate large junipers and oaks were present along the road cut. The woodlands to the north were dominated by mature oak juniper woodlands with very little understory vegetation.

Topography

The fire was located along the shoulder of FM 620. The burn was dissected east to west by a road cut to the north and a concrete retaining wall to the south. The immediate area surrounding the burn had less than 5% slope. Greater slopes were present to the north.

Fire Weather

No weather observations were taken on site.

The following observations were archived by the National Weather Service from the closest weather reporting stations.

Reporting Station	Temperature high/low (F)	Relative Humidity (%)	Wind speed max/max gust/ average/dir (mph)	Precipitation departure from normal since Jun 1/Jan 1
Austin Bergstrom	101/74	94/27	20/26/10/Southeast	-2.71/-4.78
Austin Camp Mabry	102/76	87/29	15/23/7.4/South	-2.93/+1.91

See attached National Weather Service Weather Summary.

Balcones Canyonlands NWR reported live fuel moisture measurements of 75% and 83% on 08/02/06. These samples are probably a little drier than those found at the site of the burn.

Fire Behavior

No fire behavior observations were taken on site.

The fire crossed the road cut in multiple locations on the north end of the burn. It burned through oak litter. The fire did not cross the retaining wall to the south.

Fire Effects

The fire burned primarily within the grass fuels. The fire did not penetrate deeply into the timber fuels located to the north. When it did burn into those timber fuels it was confined to the surface and did not burn deeply into the litter or duff except where heavier fuels allowed heat to remain for an extended period.

The majority of the juniper and oak surrounding the site were scorched by the fire. Scorch heights ranged as high as 25' but were generally less than 10'. Higher scorch heights appeared to be associated with dense grass and/or the presence of baccharis. The majority of the scorch affected only the fuels immediately adjacent to the fire but in one location scorch was evident 15 feet inside the woodland. The scorch inside the woodland was not as severe. There were two junipers that caught fire and it appears that attached deadwood allowed them to ignite. The ignition was limited to the bark of these trees and the green vegetation was not consumed. In general, less than 25% of each tree was scorched.

The baccharis distributed within the grassland was completely scorched but the vegetation was not consumed.

The oak shrubland that grew along the upper edge of the road cut exhibited the greatest fire behavior. Approximately 50% of this vegetation supported fire in the crowns. The reminder of the fire was limited to the ground fuels.

Other

The suppression response appeared to cause more damage than the fire. Three hydrants were located within the fire perimeter and it appears that all three were allowed to run. Extensive soil erosion was evident across the unit. Deep vehicle track were noticed in front of one hydrant and litter was identified in the erosion control structures downstream from the fire. At least two inches of soil was removed from one location where a juniper had caught on fire. This was likely due to high pressure water being used to mop-up in the juniper littler.

See attached photographs.

St. Edwards Park Fire, 2008

Property: St. Edwards Park, near parking lot

Balcones Canyonlands Preserve Macrosite: Bull Creek

Initiation Date: July 5, 2008

Ignition Source: Fireworks

Weather Conditions: High temperature of 97 °F, low relative humidity of 33%, and wind gusts up to 33 mph from the south.

Approximate Area Burned: 0.28 acres

Vegetation Burned: Mostly grass in open field

Conditions Contributing to the Burn: Unknown

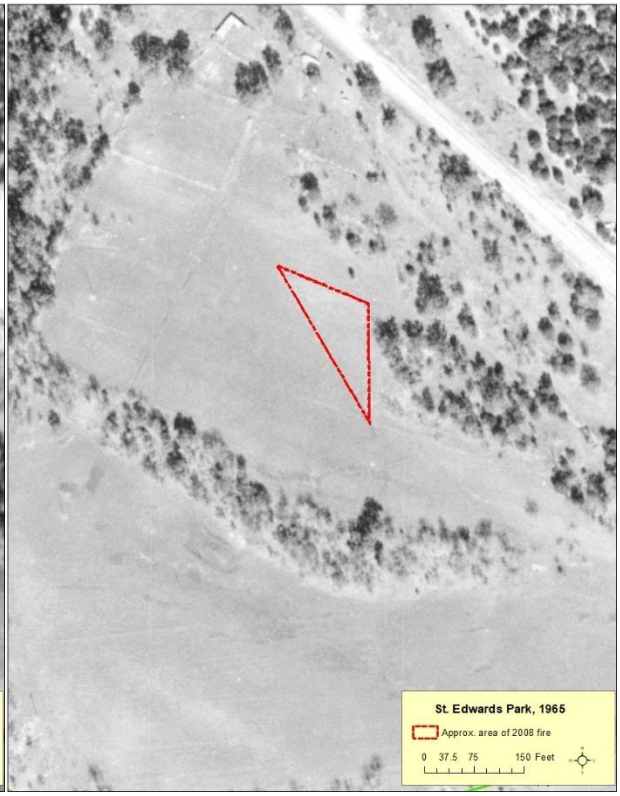
Historical Changes in Vegetation Types: Based on aerial photos, this area has been an open field since before 1940.

Active Fire Suppression: Yes

Other notes: The effects of the fire are not apparent on 2009 aerial photo.

Information Sources: Mark Sanders (City of Austin BCP), photograph, Texas A&M Forest Service database


St. Edwards Park, 1940
Approx. area of 2008 fire
0 37.5 75 150 Feet


St. Edwards Park, 1965
Approx. area of 2008 fire
0 37.5 75 150 Feet


St. Edwards Park, February 2008
Approx. area of 2008 fire
0 37.5 75 150 Feet


St. Edwards Park, February 2009
Approx. area of 2008 fire
0 37.5 75 150 Feet

3M/Spicewood Springs Road Fire, 2008

Property: 3M, northern boundary

Balcones Canyonlands Preserve Macrosite: Bull Creek

Initiation Date: July 14, 2008

Ignition Source: Unknown

Weather Conditions: High temperature of 105 °F, low relative humidity of 25%, and wind gusts of 30 mph from the east.

Approximate Area Burned: 0.25 acres

Vegetation Burned: Mostly dead grass in field along Spicewood Springs Road

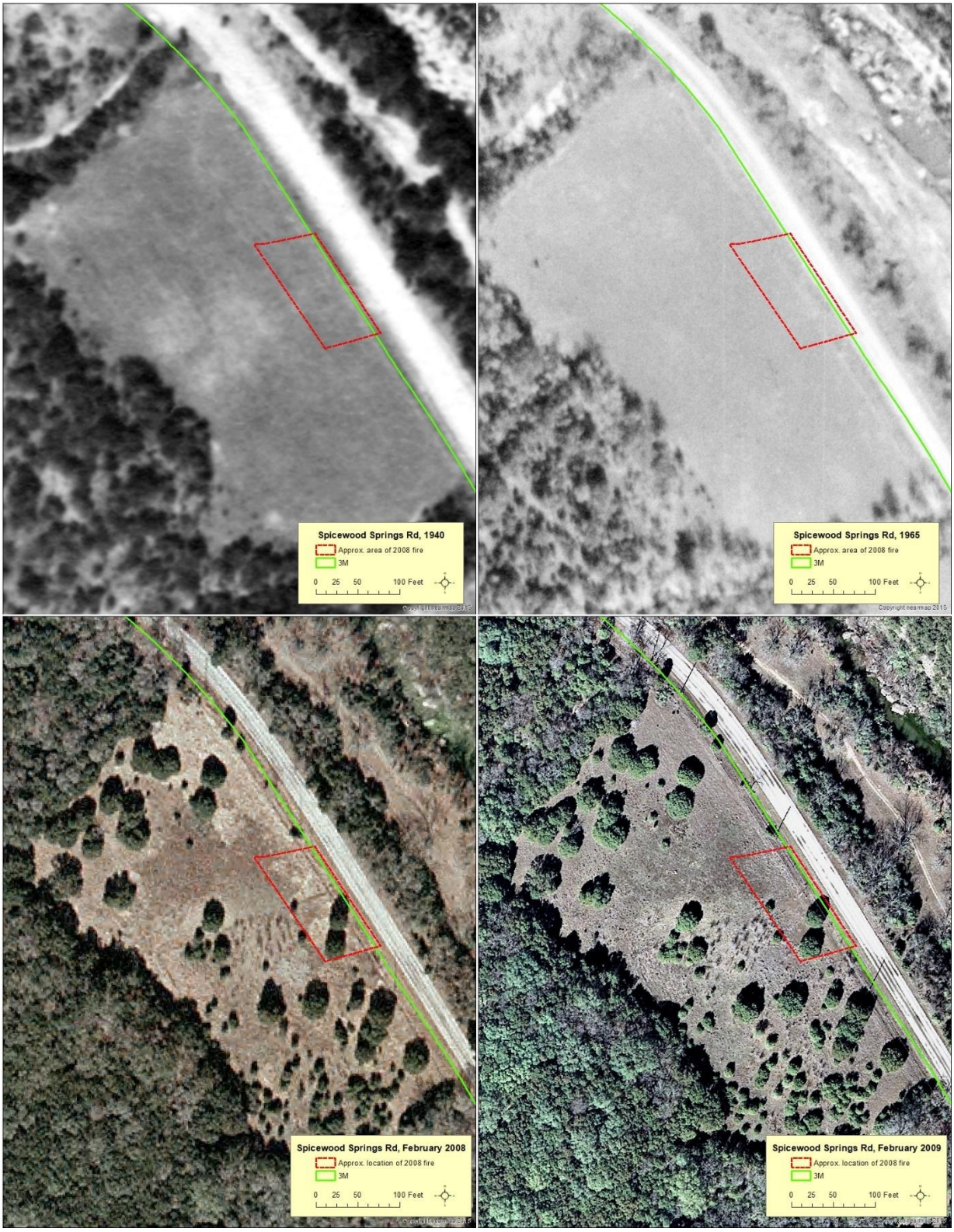
Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: Based on historic aerial photos, this area was a cleared field prior to 1940, with shrubs growing back over time.

Active Fire Suppression: Unknown

Other notes: The effects of the fire are not apparent on 2009 aerial photo.

Information Sources: Mark Sanders (City of Austin BCP), photograph


Spicewood Springs Rd, 1940
Approx. area of 2008 fire
3M
0 25 50 100 Feet
Spicewood Springs Rd, 1965
Approx. area of 2008 fire
3M
0 25 50 100 Feet
Spicewood Springs Rd, February 2008
Approx. location of 2008 fire
3M
0 25 50 100 Feet
Spicewood Springs Rd, February 2009
Approx. location of 2008 fire
3M
0 25 50 100 Feet

Canyon Creek Fire, 2008

Property: Canyon Creek MUD 4, adjacent to Bowman

Balcones Canyonlands Preserve Macrosite: Bull Creek

Initiation Date: September 9, 2008

Ignition Source: Fence crew welding new fence

Weather Conditions: High temperature of 97 °F, low relative humidity of 34%, and wind gusts up to 16 mph from the southeast.

Approximate Area Burned: 0.01 acres

Vegetation Burned: Grass, singed a couple of Ashe juniper shrubs

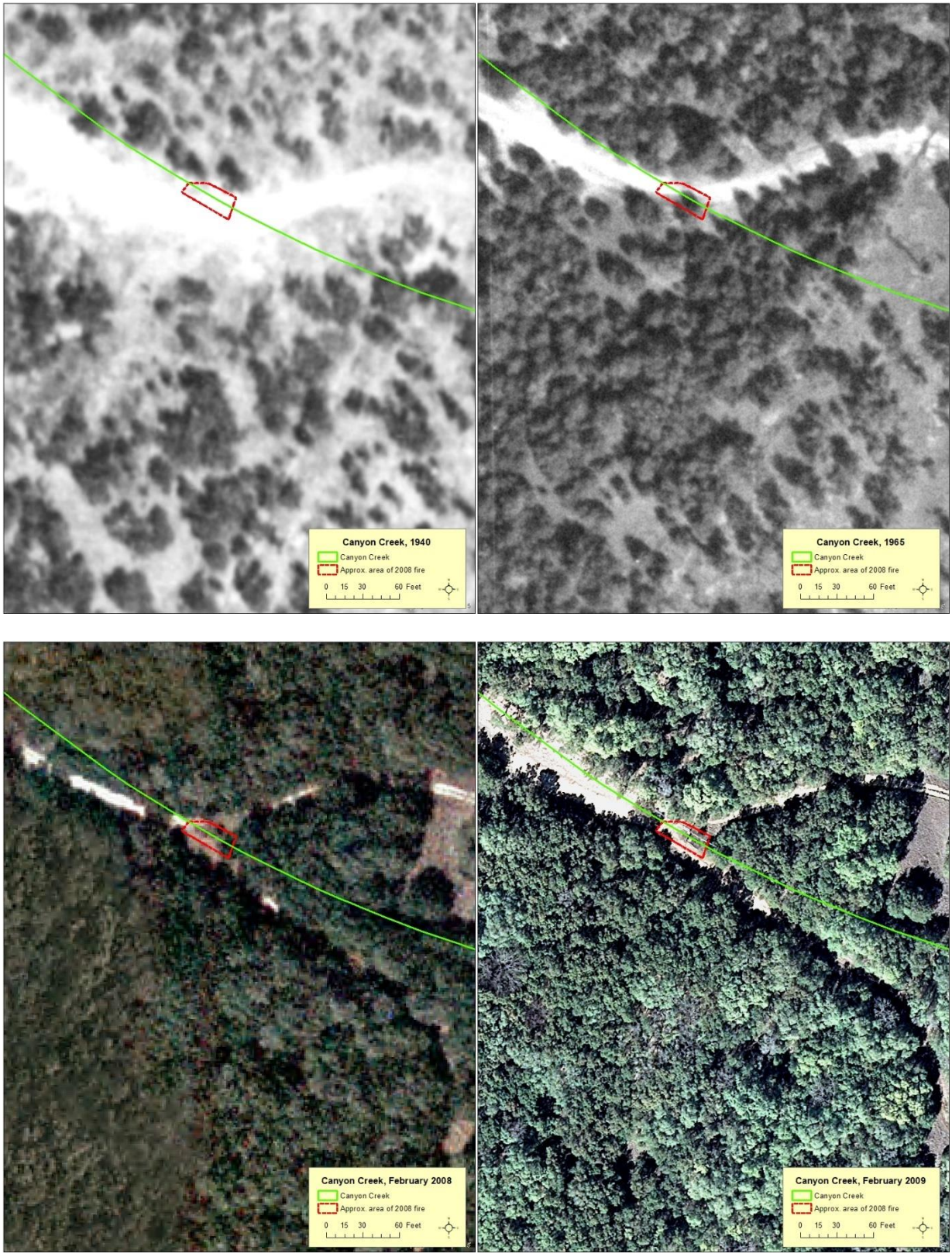
Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: Based on historic aerial photos, this area was cleared for a ranch road prior to 1940.

Active Fire Suppression: Unknown

Other notes: The effects of the fire not apparent on 2009 aerial photo.

Information Sources: Mark Sanders (City of Austin BCP), photograph


Canyon Creek, 1940
Canyon Creek
Approx. area of 2008 fire
0 15 30 60 Feet
Canyon Creek, 1965
Canyon Creek
Approx. area of 2008 fire
0 15 30 60 Feet
Canyon Creek, February 2008
Canyon Creek
Approx. area of 2008 fire
0 15 30 60 Feet
Canyon Creek, February 2009
Canyon Creek
Approx. area of 2008 fire
0 15 30 60 Feet

Lime Creek Fire, 2009

Property: Baker Sanctuary and Austin-Simon tracts

Balcones Canyonlands Preserve Macrosite: Cypress Creek

Initiation Date: April 9, 2009

Ignition Source: Mark Sanders (City of Austin BCP) observed spent fireworks near a camp fire, but officials may have listed it as a lightning strike, with two confirmed strikes in the area.

Weather Conditions: High temperature of 95 °F, low relative humidity of 6%, and wind gusts up to 26 mph from the south-southwest.

Approximate Area Burned: 6.5 acres

Vegetation Burned: Fuels within the fire perimeter included Fuel Model 1 (short grass), Fuel Model 4 (Ashe juniper shrub/savanna) and Fuel Model 8 (Oak/Ashe Juniper Woodlands). The majority of the fuel that was consumed was Fuel Model 1 and activity in the other fuel models was minimal with the exception of a small run at the top of the ridge in Fuel Model 8, where burn severity ratings for forest vegetation ranged up to a 2 indicating moderate burning. The fire was largely limited to surface fuels, particularly grass and leaf litter. Crown scorch was limited in grass fuels. The fire carried into the heavy fuels (Fuel Model 8) from the shrub and grass fuel models and created high burn activity but did not carry far into that fuel type.

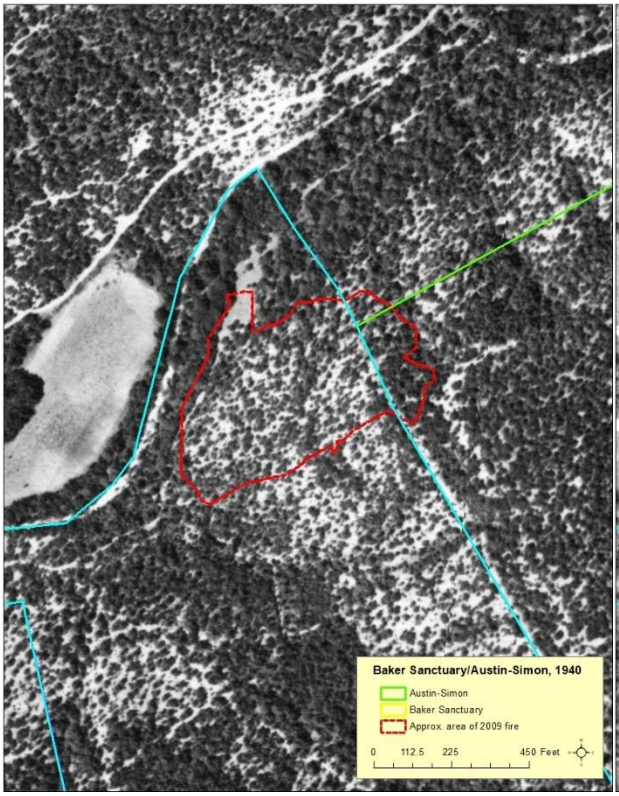
Conditions Contributing to the Burn: Unknown.

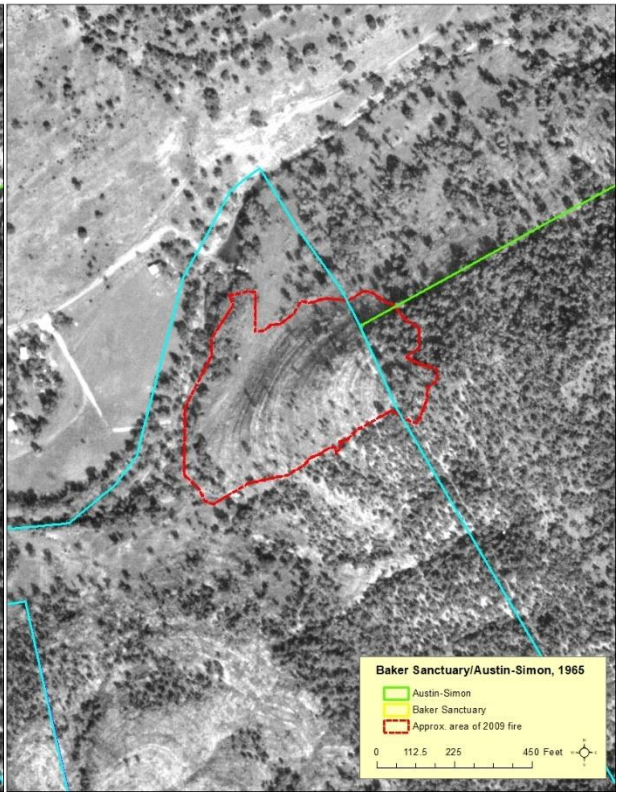
Historical Changes in Vegetation Types: Based on historic aerial photos, the areas adjacent to the Austin-Simon property was clear-cut between 1940 and 1965, with grass and shrubs growing back over time. The approximately one acre of Austin-Simon property that burned has been forested since at least 1940.

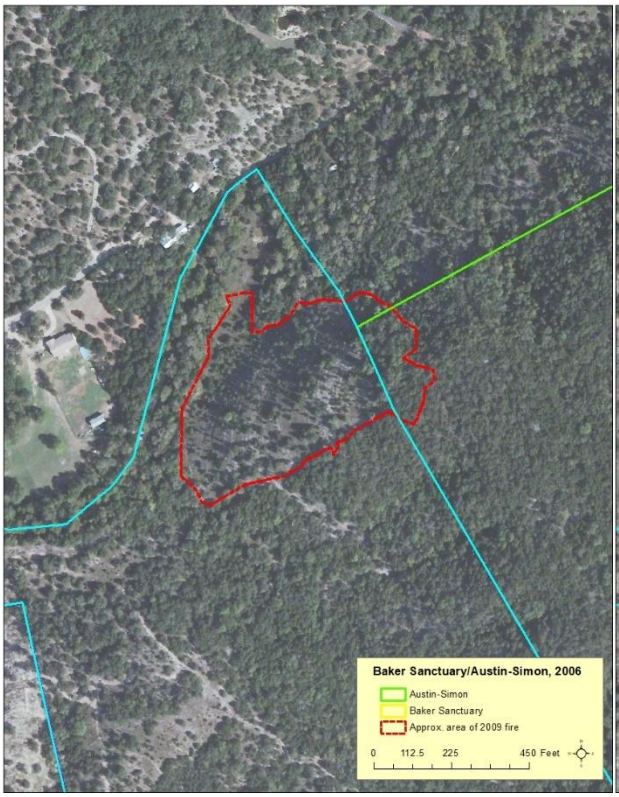
Active Fire Suppression: Yes

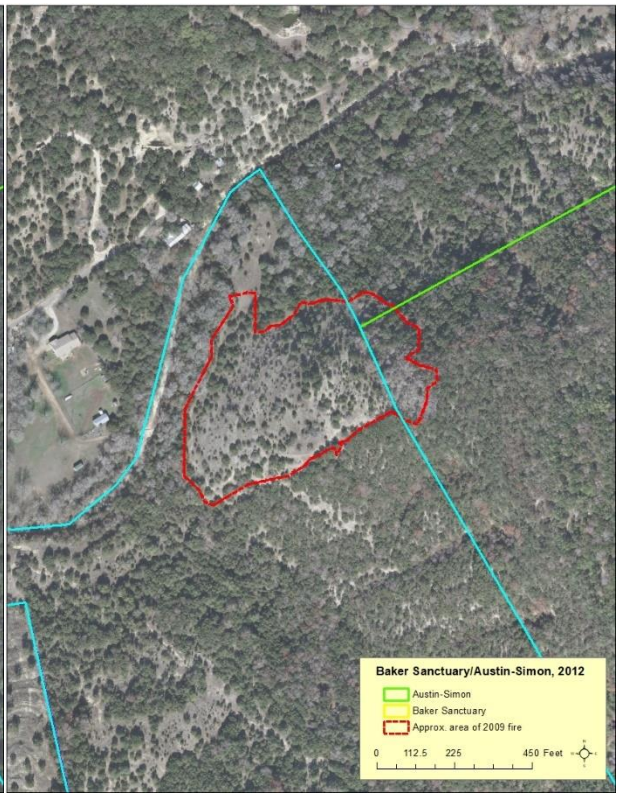
Other notes: The fire started on Baker Sanctuary and carried over onto Austin-Simon. Although the fire occurred on these tracts, City of Austin BCP staff refer to it as the Lime Creek fire.

Information Sources: Notes compiled by Glen Gillman (City of Austin Wildland Conservation Division), Mark Sanders (City of Austin BCP), photographs, City of Austin BCP 2009 Lime Creek Wildfire Monitoring Report (Kelly Nesvacil).


Baker Sanctuary/Austin-Simon, 1940
Austin-Simon
Baker Sanctuary
Approx. area of 2009 fire
0 112.5 225 450 Feet


Baker Sanctuary/Austin-Simon, 1965
Austin-Simon
Baker Sanctuary
Approx. area of 2009 fire
0 112.5 225 450 Feet


Baker Sanctuary/Austin-Simon, 2006
Austin-Simon
Baker Sanctuary
Approx. area of 2009 fire
0 112.5 225 450 Feet


Baker Sanctuary/Austin-Simon, 2012
Austin-Simon
Baker Sanctuary
Approx. area of 2009 fire
0 112.5 225 450 Feet

Barton Creek Substation Fire, 2009

Property: Barton Creek Wilderness Preserve, outside of substation

Balcones Canyonlands Preserve Macrosite: Barton Creek

Initiation Date: Unknown, but fresh burn scars observed on July 17, 2009

Ignition Source: Unknown

Weather Conditions: Unknown

Approximate Area Burned: 0.02 and 0.06 acres; very recent burn scar at base of tower 357925 along driveway between gate and enclosure; grass also burned in small isolated patch on opposite side of drive.

Vegetation Burned: Patchy burn through grasses, only scorched edge of woody cover.

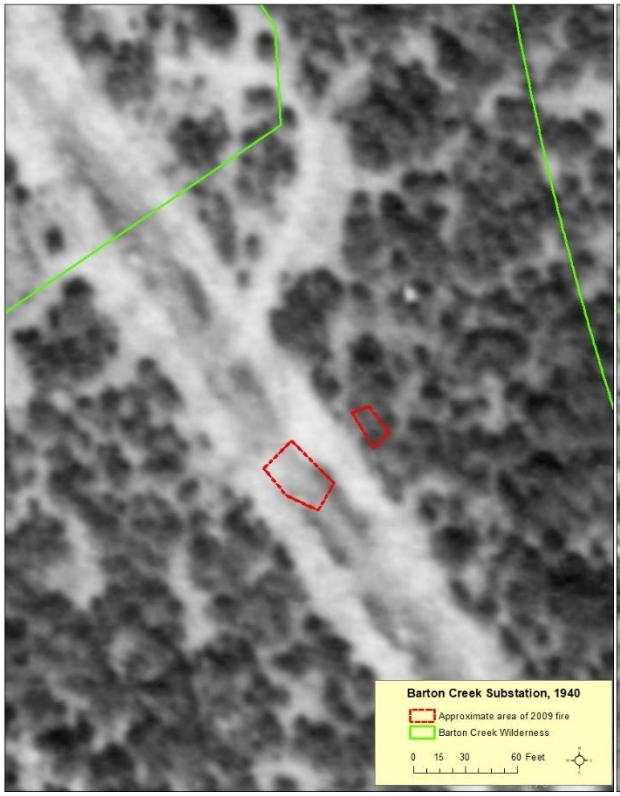
Conditions Contributing to the Burn: Unknown

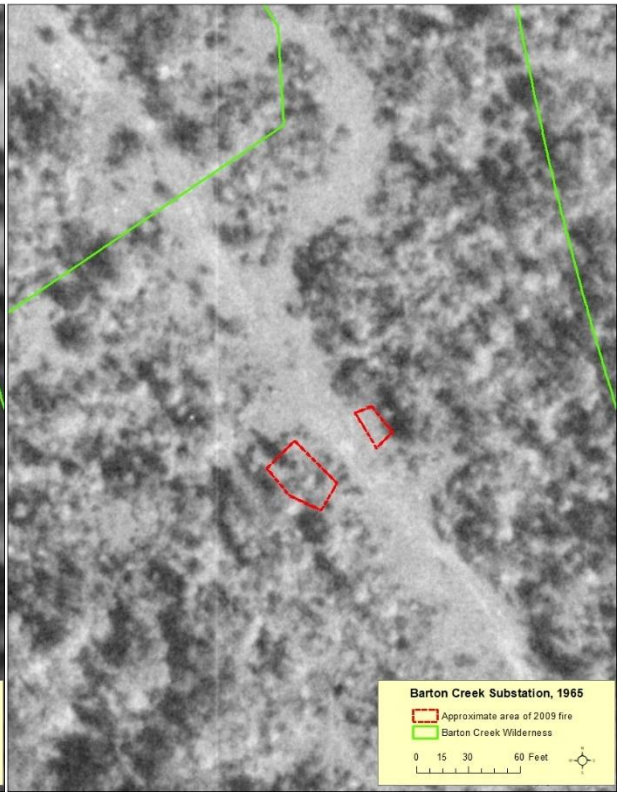
Historical Changes in Vegetation Types: Based on aerial photos, this area was the site of a dirt road in 1940. The substation is visible in a 1977 aerial photo.

Active Fire Suppression: Unknown

Other notes: It is unknown whether fire was stopped by human intervention.

Information Sources: Notes provided by William Reiner (City of Austin BCP)


Barton Creek Substation, 1940
Approximate area of 2009 fire
Barton Creek Wilderness
0 15 30 60 Feet


Barton Creek Substation, 1965
Approximate area of 2009 fire
Barton Creek Wilderness
0 15 30 60 Feet


Barton Creek Substation, February 2009
Approximate area of 2009 fire
Barton Creek Wilderness
0 15 30 60 Feet


Barton Creek Substation, January 2012
Approximate area of 2009 fire
Barton Creek Wilderness
0 15 30 60 Feet

CCC Road Fire, 2009

Property: Emma Long Metropolitan Park

Balcones Canyonlands Preserve Macrosite: North Lake Austin

Initiation Date: July 21, 2009

Ignition Source: Unknown

Weather Conditions: High temperature of 103 °F, low relative humidity of 31%, with wind gusts up to 22 mph from the south.

Approximate Area Burned: 1 acre

Vegetation Burned: Brush piles, grass, a few trees/shrubs

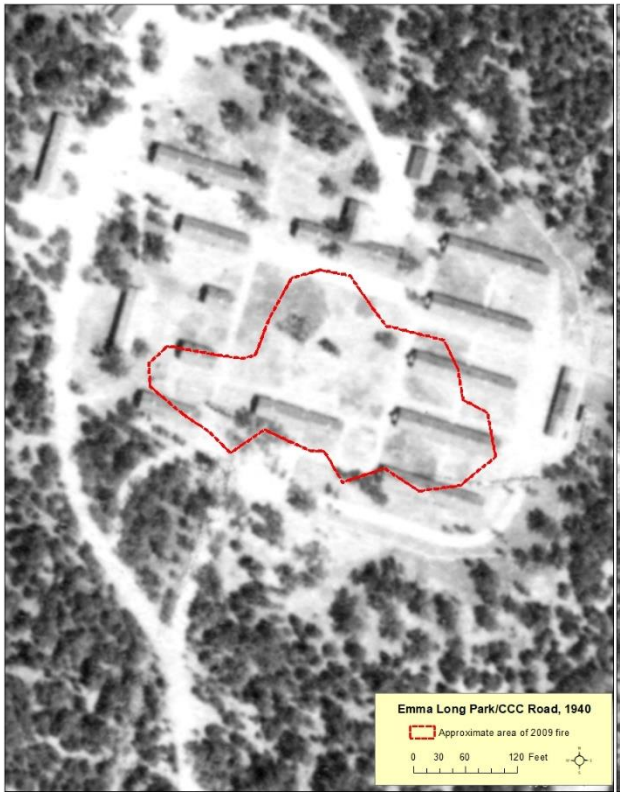
Conditions Contributing to the Burn: Giant pile of debris caught fire, fuel moisture recorded at 69% from Cortaña.

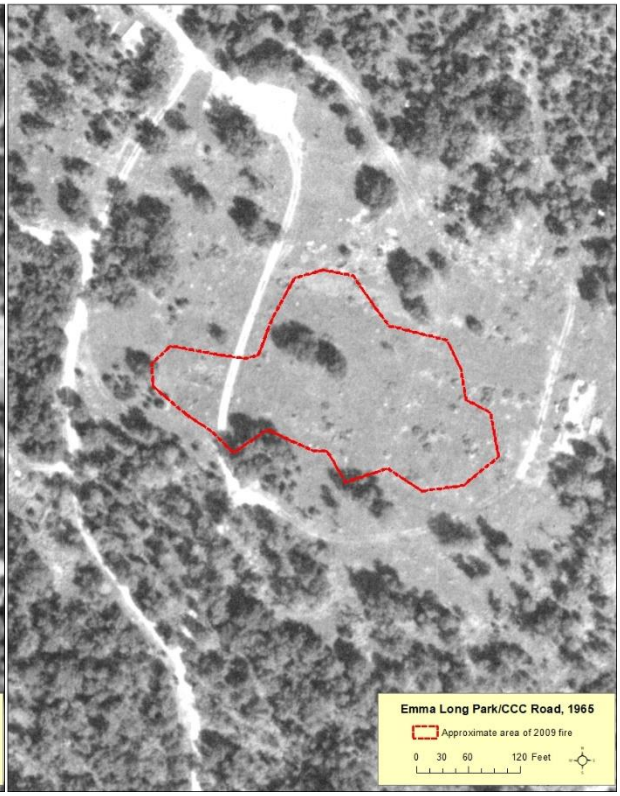
Historical Changes in Vegetation Types: Based on aerial photos, this area was near the site of a Civilian Conservation Corps camp in 1940. Shrubs and trees have gradually filled in over time.

Active Fire Suppression: Yes

Other notes: "We [Cindy Sperry and William Reiner] walked in to find two AT&T employees repairing phone wire that apparently melted from heat of fire. Fire crews spraying down smoldering pile of slash that had been buried by bulldozer (Tuesday). Took several photos and 2 videoclips of damage. Spoke to PARD staff who came in w/bobcat to help spread piles around...." "Aside from wooded 'islands' in clearing, and trees at edge of clearing, few trees burned. May not significantly alter GCWA habitat."

Information Sources: Notes provided by William Reiner (City of Austin BCP), photographs, video


Emma Long Park/CCC Road, 1940
Approximate area of 2009 fire
0 30 60 120 Feet


Emma Long Park/CCC Road, 1965
Approximate area of 2009 fire
0 30 60 120 Feet


Emma Long Park/CCC Road, February 2009
Approximate area of 2009 fire
0 30 60 120 Feet


Emma Long Park/CCC Road, January 2012
Approximate area of 2009 fire
0 30 60 120 Feet

Hill of Life Fire, 2011

Property: Barton Creek Wilderness Preserve

Balcones Canyonlands Preserve Macrosite: Barton Creek

Initiation Date: February 6, 2011

Ignition Source: Unknown, but appeared to be human-caused (see Other notes).

Weather Conditions: High temperature of 74 °F, low relative humidity of 41%, with wind gusts up to 28 mph from the south-southeast.

Approximate Area Burned: 0.14 acres

Vegetation Burned: Ashe juniper-oak woodland. Fire did not appear to reach the canopy. Many Texas red oaks charred at bases (no more than waist height) and Ashe junipers to head-high or a little higher. Many old juniper stumps/snags are charred, and some were cut down. No living tree of any size that was cut down. One small (2-inch dbh) juniper was hacked and pushed down but was still rooted. One small *Rhus virens* was cut down.

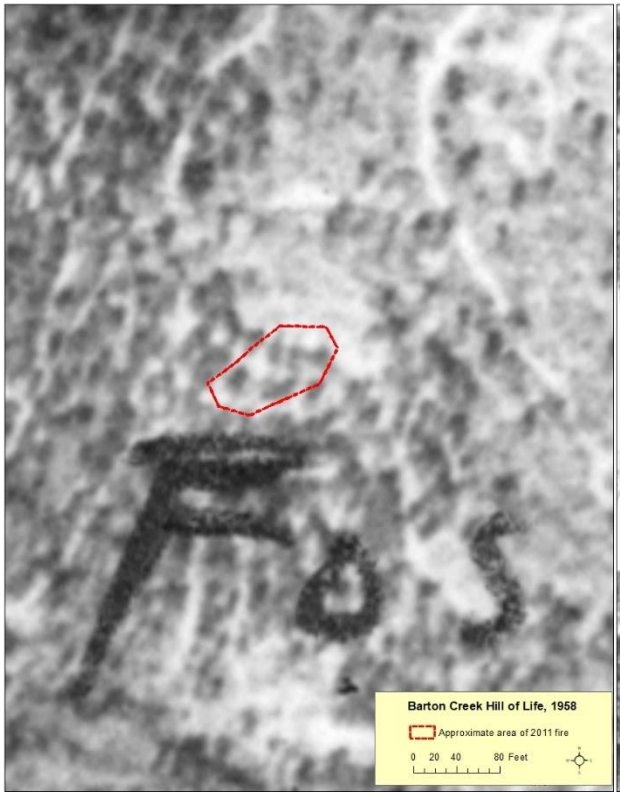
Conditions Contributing to the Burn: Unknown

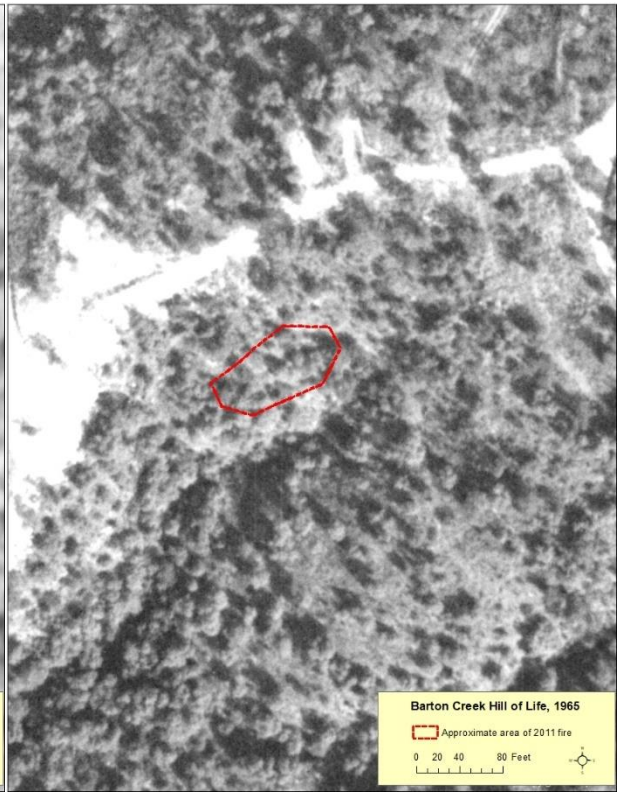
Historical Changes in Vegetation Types: Based on aerial photos, this area appears to have been wooded since 1940.

Active Fire Suppression: Yes

Other notes: William Reiner noted a case of Keystone Light beer and about a dozen cans of same brand are scattered off trail between pink ribbons and burn scar, though he did not know whether these preceded the fire. From the scene, he assumed it was a human-set fire. Higher up Hill of Life trail, he found packaging of an 'Aim 'n Flame' multipurpose lighter, and scraps of paper w/charred edges.

Information Sources: Notes provided by William Reiner (City of Austin BCP)


Barton Creek Hill of Life, 1958
Approximate area of 2011 fire
0 20 40 80 Feet


Barton Creek Hill of Life, 1965
Approximate area of 2011 fire
0 20 40 80 Feet


Barton Creek Hill of Life, February 2009
Approximate area of 2011 fire
0 20 40 80 Feet


Barton Creek Hill of Life, January 2012
Approximate area of 2011 fire
0 20 40 80 Feet

Reicher Ranch Fire, 2011

Property: Reicher Ranch

Balcones Canyonlands Preserve Macrosite: South Lake Austin

Initiation Date: May 10, 2011

Ignition Source: Lightning strike

Weather Conditions: High temperature of 95 °F, low relative humidity of 33%, and wind gusts up to 28 mph from the south-southeast.

Approximate Area Burned: 0.002 acres

Vegetation Burned: One large Ashe juniper tree

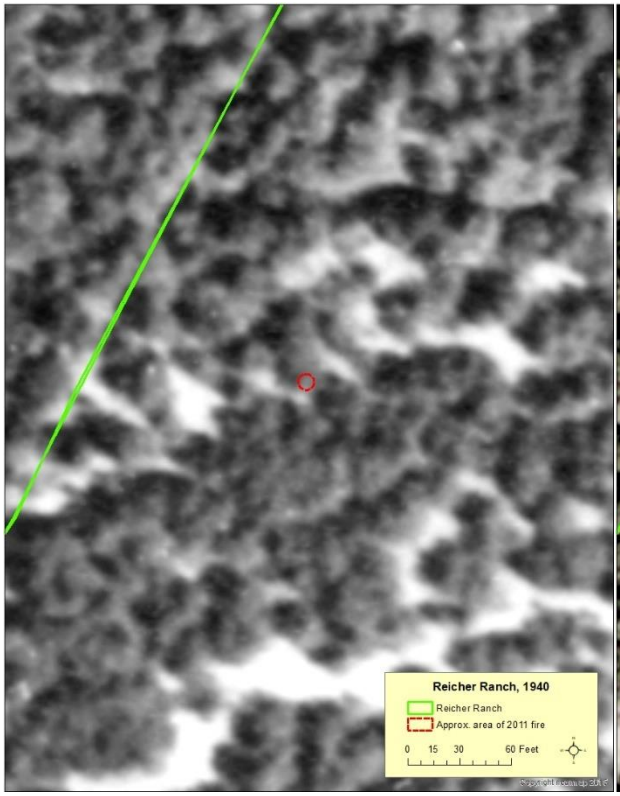
Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: Based on aerial photos, this area has been wooded since before 1940.

Active Fire Suppression: Yes

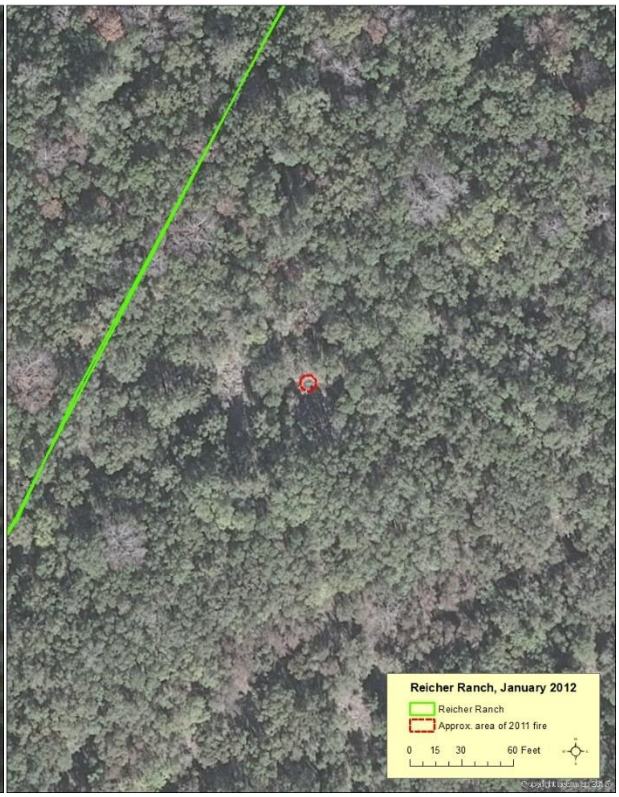
Other notes: None

Information Sources: William Reiner, John Chenoweth, Lisa O'Donnell (City of Austin BCP)


Reicher Ranch, 1940
Reicher Ranch
Approx. area of 2011 fire
0 15 30 60 Feet


Reicher Ranch, 1977
Reicher Ranch
Approx. area of 2011 fire
0 15 30 60 Feet


Reicher Ranch, February 2011
Reicher Ranch
Approx. area of 2011 fire
0 15 30 60 Feet


Reicher Ranch, January 2012
Reicher Ranch
Approx. area of 2011 fire
0 15 30 60 Feet

Emma Long Park Fire, 2013

Property: Emma Long Metropolitan Park

Balcones Canyonlands Preserve Macrosite: North Lake Austin

Initiation Date: April 26, 2013

Ignition Source: Campfire

Weather Conditions: High temperature of 79 °F, low relative humidity of 48%, and wind gusts up to 22 mph from the south-southeast.

Approximate Area Burned: 0.01 acres

Vegetation Burned: Small patch of Ashe juniper-oak woodlands

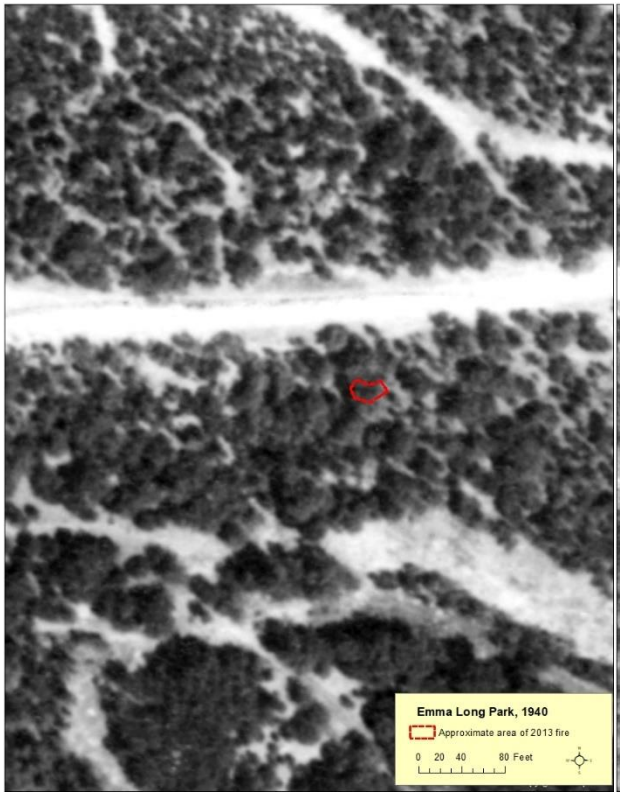
Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: Based on aerial photos this area has been wooded since before the 1940s.

Active Fire Suppression: Yes

Other notes: City of Austin BCP staff were unaware of this fire, so no documentation is available.

Information Sources: Texas A&M Forest Service database


Emma Long Park, 1940
Approximate area of 2013 fire
0 20 40 80 Feet


Emma Long Park, 1965
Approximate area of 2013 fire
0 20 40 80 Feet


Emma Long Park, January 2012
Approximate area of 2013 fire
0 20 40 80 Feet


Emma Long Park, July 2014
Approximate area of 2013 fire
0 20 40 80 Feet

JJ&T Fire, 2014

Property: JJ&T

Balcones Canyonlands Preserve Macrosite: South Lake Austin

Initiation Date: 2014 (exact data unknown)

Ignition Source: Utility line

Weather Conditions: Unknown

Approximate Area Burned: 0.002 acres

Vegetation Burned: One mesquite limb

Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: Based on aerial photos, this area was cleared prior to 1940 and gradually filled in with shrubland.

Active Fire Suppression: Yes; Lake Travis Fire Department removed the limb.

Other notes: Austin Energy decommissioned the utility line.

Information Sources: John Chenoweth (City of Austin BCP)


JJ&T, 1940
Approx. area of 2014 fire
0 15 30 60 Feet
JJ&T, 1965
Approx. area of 2014 fire
0 15 30 60 Feet


JJ&T, January 2012
Approx. area of 2014 fire
0 15 30 60 Feet
JJ&T, February 2015
Approx. area of 2014 fire
0 15 30 60 Feet

Ribelin Fire, 2014

Property: Ribelin

Balcones Canyonlands Preserve Macrosite: Bull Creek

Initiation Date: 6/15/2014

Ignition Source: Unknown

Weather Conditions: High temperature of 93 °F, low relative humidity of 45%, and wind gusts up to 26 mph from the south-southeast

Approximate Area Burned: 50’ x 50’ (0.06 acres)

Vegetation Burned: Grass, shrubs

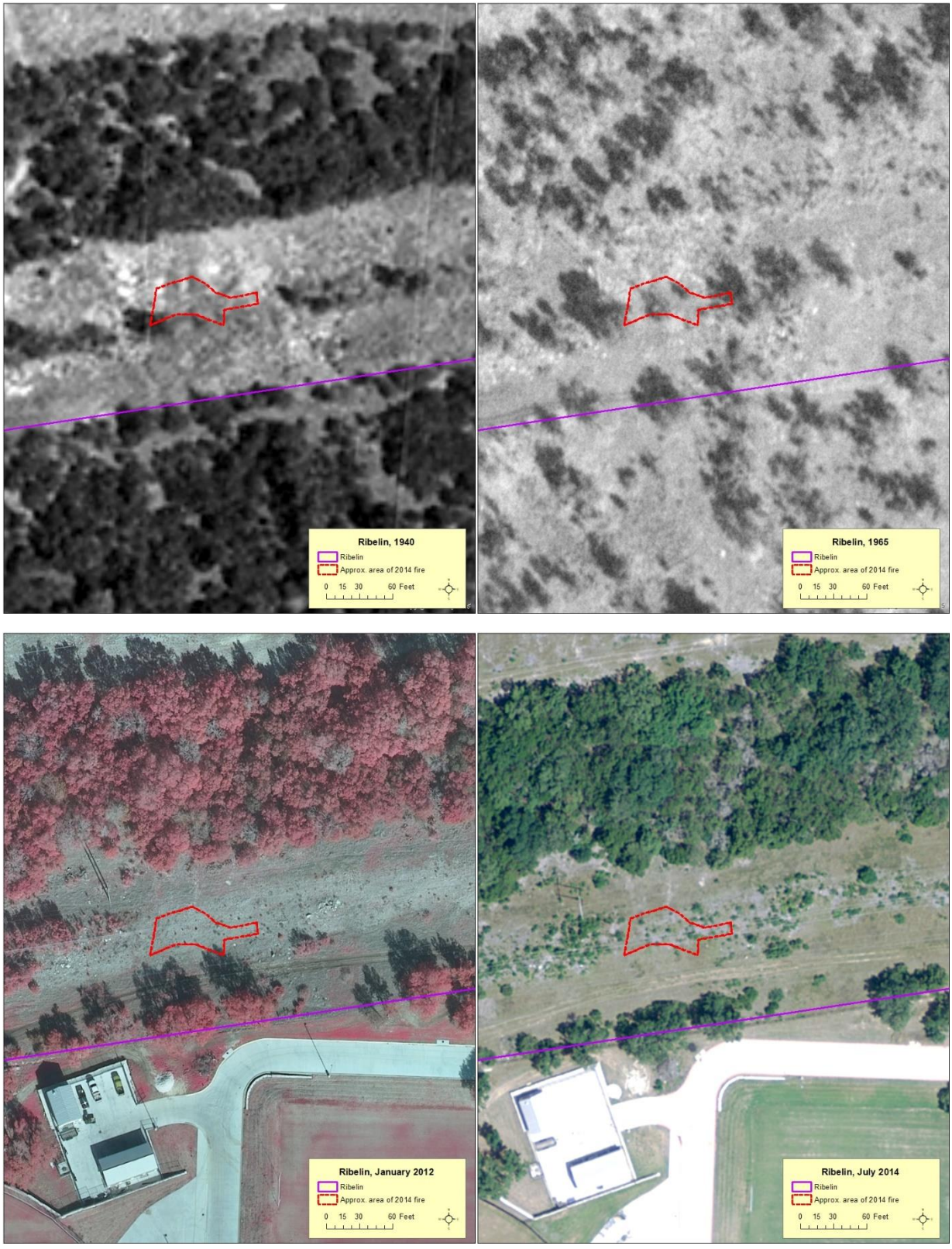
Conditions Contributing to the Burn: Unknown, but fireworks may have been a contributing factor.

Historical Changes in Vegetation Types: Based on historic aerial photos, this area has been cleared and maintained as a utility corridor since before 1940.

Active Fire Suppression: Yes

Other notes: Fire department extinguished on June 15, 2014 (incident report #56560). Sally Wolfe and Erin Cord (Travis County BCP) noticed a recently burned area directly below the powerlines. The burn was patchy in nature and not obvious where it had ignited. A few days prior to the incident, Renee Fields (Travis County BCP) reported spent firework casings and packaging and had removed them from the area.

Information Sources: Sally Wolfe (Travis County BCP), Travis County Parks incident report (#1406241430RI).


Ribelin, 1940
Ribelin
Approx. area of 2014 fire
0 15 30 60 Feet
Ribelin, 1965
Ribelin
Approx. area of 2014 fire
0 15 30 60 Feet
Ribelin, January 2012
Ribelin
Approx. area of 2014 fire
0 15 30 60 Feet
Ribelin, July 2014
Ribelin
Approx. area of 2014 fire
0 15 30 60 Feet

Steiner Ranch CE Fire, 2014

Property: Steiner Ranch Conservation Easement

Balcones Canyonlands Preserve Macrosite: North Lake Austin

Initiation Date: 7/4/2014

Ignition Source: Unknown

Weather Conditions: High temperature of 92 °F, low relative humidity of 41%, and wind gusts up to 24 mph from the east-southeast.

Approximate Area Burned: 15' x 15' (0.005 acres)

Vegetation Burned: Small pile of logs

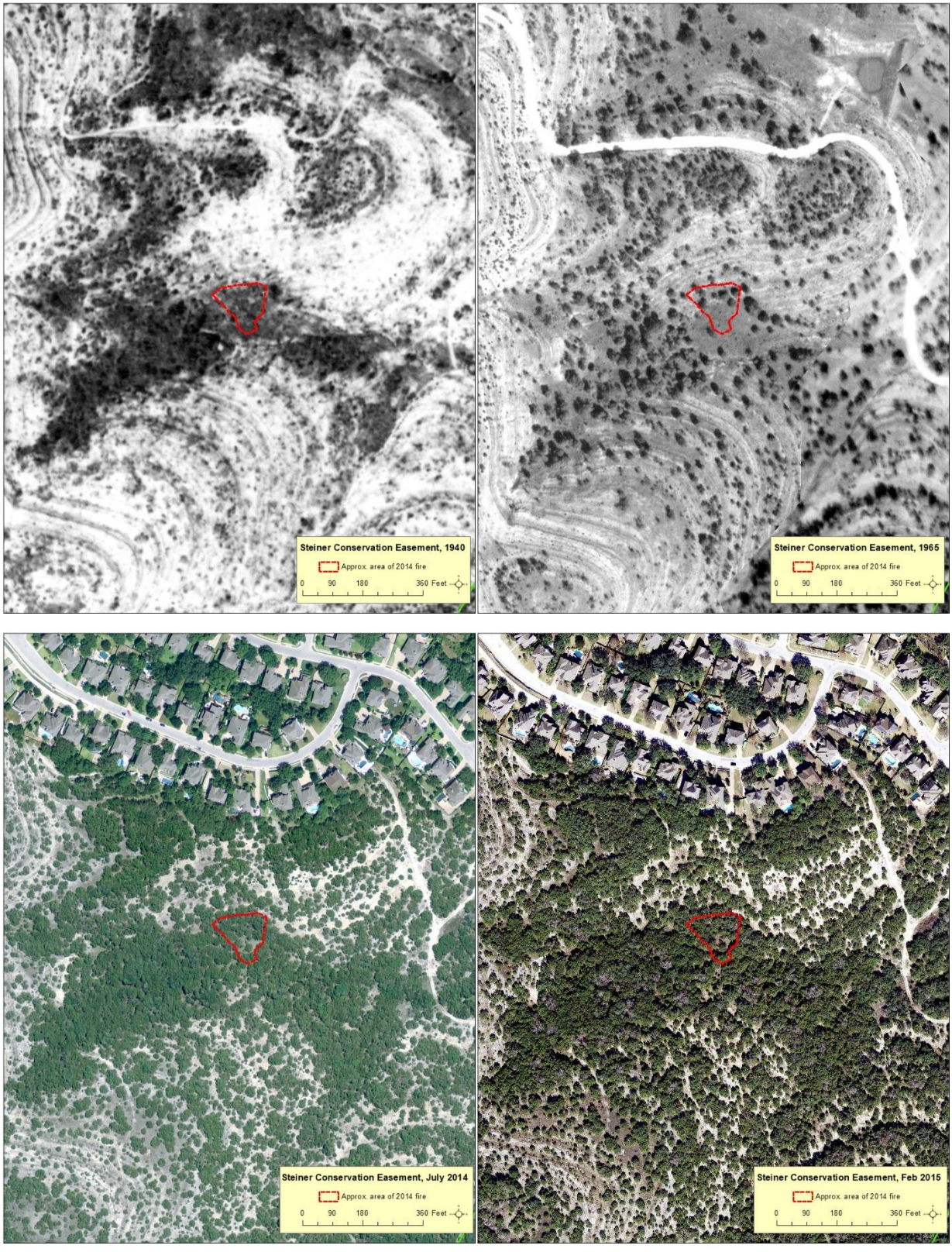
Conditions Contributing to the Burn: Unknown, but fireworks may have been a contributing factor.

Historical Changes in Vegetation Types: Based on historic aerial photos, this area was cleared prior to 1940 and 1958.

Active Fire Suppression: Yes

Other notes: Reportedly a small fire in a pile of logs. Quickly extinguished by the fire department, who cut ~10 foot diameter around the pile. The firefighters who responded denied having found an ignition source but said windblown embers from the previous night's fireworks display at Steiner Ranch could possibly have been a cause.

Information Sources: Sally Wolfe (Travis County BCP), Travis County Parks incident report (#1407040700SI), William Reiner (City of Austin BCP)


Steiner Conservation Easement, 1940
Approx. area of 2014 fire
0 90 180 360 Feet
Steiner Conservation Easement, 1965
Approx. area of 2014 fire
0 90 180 360 Feet
Steiner Conservation Easement, July 2014
Approx. area of 2014 fire
0 90 180 360 Feet
Steiner Conservation Easement, Feb 2015
Approx. area of 2014 fire
0 90 180 360 Feet

Grandview Hills Fire, 2015

Property: Grandview Hills North

Balcones Canyonlands Preserve Macrosite: Cypress Creek

Initiation Date: 3/28/2015

Ignition Source: Unknown

Weather Conditions: High temperature of 80 °F, low relative humidity of 42%, and wind gusts up to 32 mph from the south-southwest.

Approximate Area Burned: 0.22 acres

Vegetation Burned: Understory vegetation, grass, shrubs

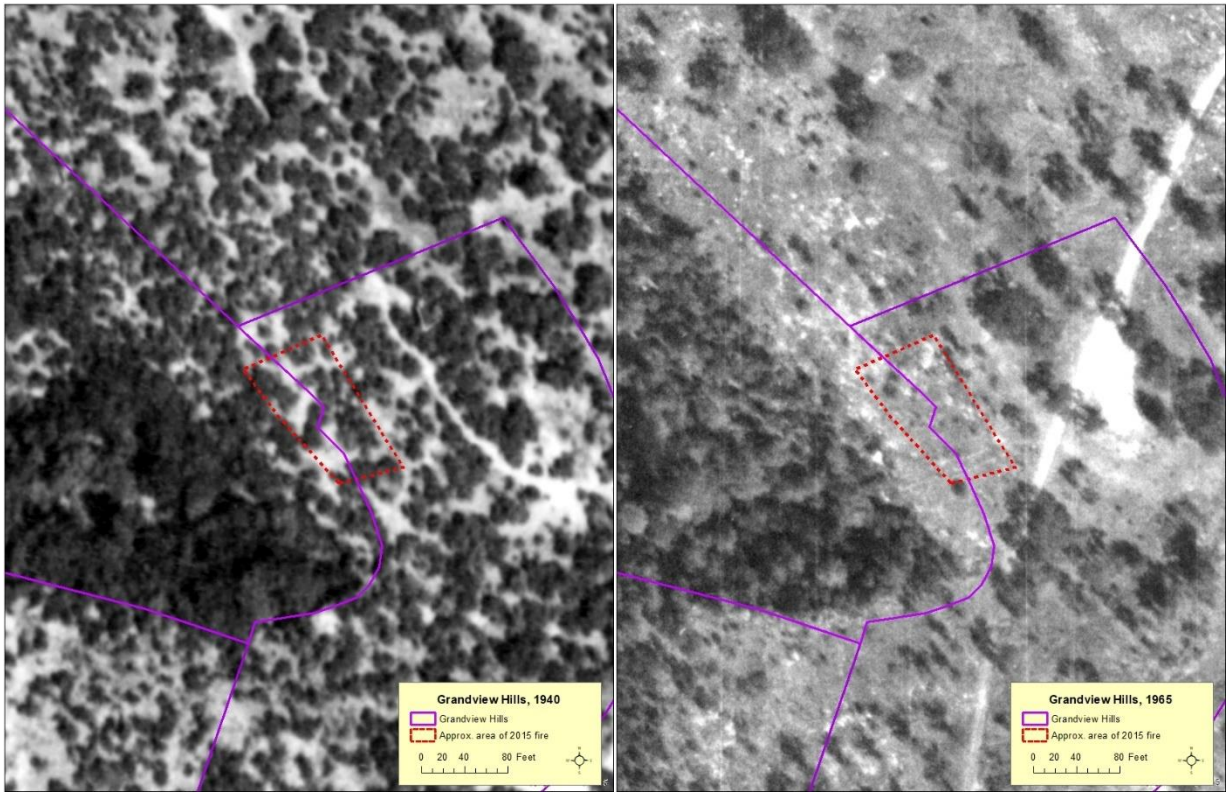
Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: Based on historic aerial photos, this area was cleared prior to 1958 and 1965.

Active Fire Suppression: Yes

Other notes: Fire department extinguished. This fire started next to the apartments and was reported to Travis County BCP staff by Ruthann Panipinto (BCP volunteer). Sally Wolfe (Travis County BCP) investigated the area the next day, 3/29/15, and reported about .11 acres (4800 sq. ft.) burned within the BCP and about the same amount on the other side of the fence at the apartment complex. No obvious source of ignition was found. Lisa O'Donnell (City of Austin BCP) met with Ruthann Panipinto (BCP volunteer) on June 24, 2020 to map the burn perimeter based on the volunteer's memory; no burn scars were evident.

Information Sources: Sally Wolfe (Travis County BCP), Travis County Parks incident report (#1502281830GN).


Grandview Hills, 1940
Grandview Hills
Approx. area of 2015 fire
0 20 40 80 Feet

Grandview Hills, 1965
Grandview Hills
Approx. area of 2015 fire
0 20 40 80 Feet


Grandview Hills, February 2015
Grandview Hills
Approx. area of 2015 fire
0 20 40 80 Feet


Grandview Hills, February 2017
Grandview Hills
Approx. area of 2015 fire
0 20 40 80 Feet

Vireo Ridge Fire, 2017

Property: Vireo Ridge

Balcones Canyonlands Preserve Macrosite: Cypress Creek

Initiation Date: June 25, 2017

Ignition Source: Unknown

Weather Conditions: High temperature of 89 °F, low relative humidity of 52%, and wind gusts up to 26 mph from the northeast; 0.06" precipitation.

Approximate Area Burned: 0.7 acres

Vegetation Burned: Grass

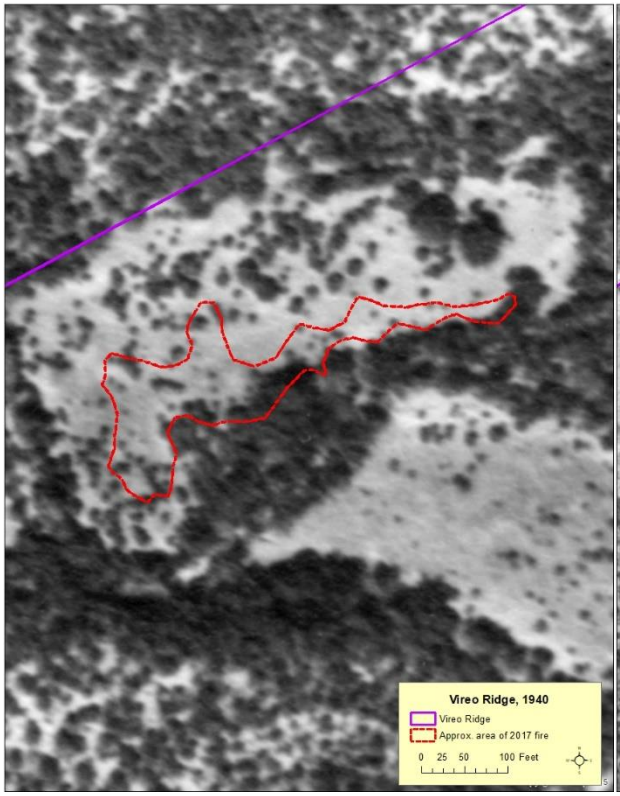
Conditions Contributing to the Burn: Unknown

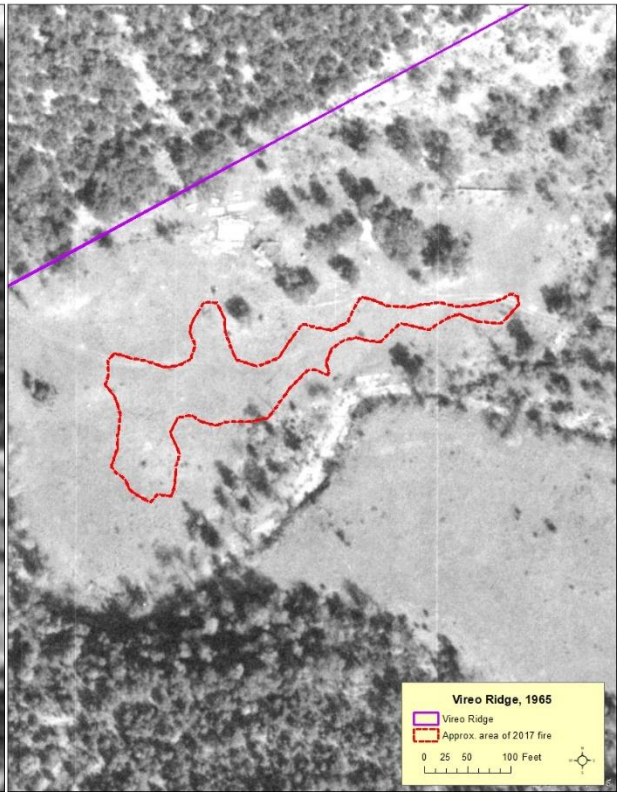
Historical Changes in Vegetation Types: Based on historic aerial photos, this area was cleared prior to 1940.

Active Fire Suppression: No

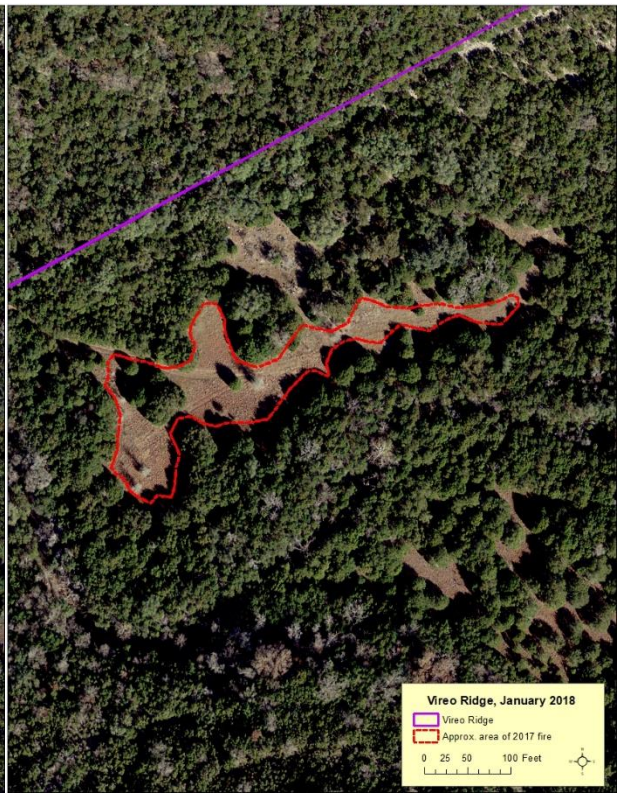
Other notes: During a routine patrol, Sally Wolfe (Travis County BCP) smelled smoke and found the burned area of grass while it was still smoldering. As she contacted park police to report the burn, a heavy downpour passed through the area and fully extinguished the smoldering grass. Travis County BCP staff and fire marshal investigated and determined this was a human-caused fire. Photos from a game camera showed a frequent trespasser who smoked in this area.

Information Sources: Sally Wolfe (Travis County BCP), Travis County Parks incident report (#1706251330VP).


Vireo Ridge, 1940
Vireo Ridge
Approx. area of 2017 fire
0 25 50 100 Feet


Vireo Ridge, 1965
Vireo Ridge
Approx. area of 2017 fire
0 25 50 100 Feet


Vireo Ridge, February 2017
Vireo Ridge
Approx. area of 2017 fire
0 25 50 100 Feet


Vireo Ridge, January 2018
Vireo Ridge
Approx. area of 2017 fire
0 25 50 100 Feet

Barton Creek Habitat Preserve Fire, 2017

Property: Barton Creek Habitat Preserve, Sweetwater tract

Balcones Canyonlands Preserve Macrosite: Barton Creek

Initiation Date: July 23, 2017

Ignition Source: Lightning

Weather Conditions: High temperature of 103 °F, low relative humidity of 31%, and wind gusts up to 24 mph from the northwest, with winds averaging 3.5 mph.

Approximate Area Burned: 3.5 acres

Vegetation Burned: Short grasses and a few Ashe junipers.

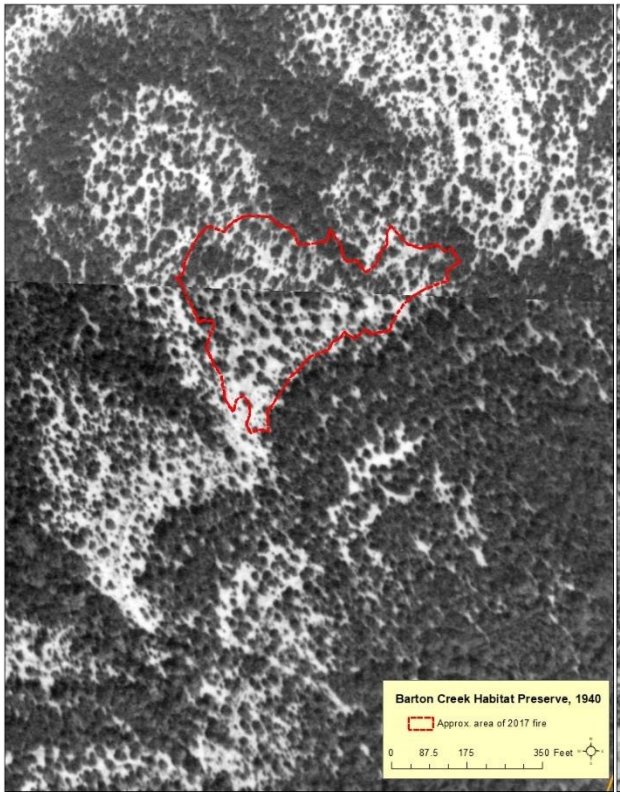
Conditions Contributing to the Burn: Lightning with no notable precipitation.

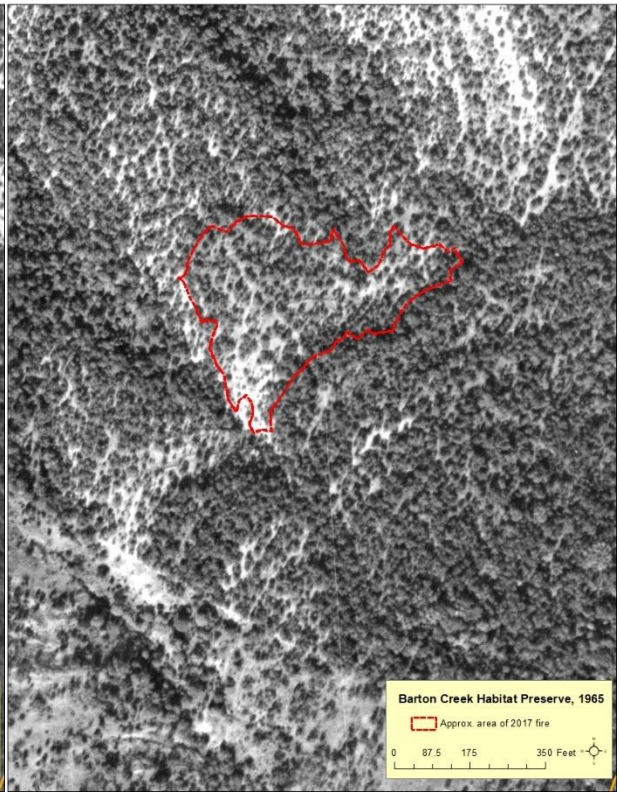
Historical Changes in Vegetation Types: Based on aerial photographs, this area has been an open shrub community with little notable changes since 1940. Clearing appears evident prior to the 1940s.

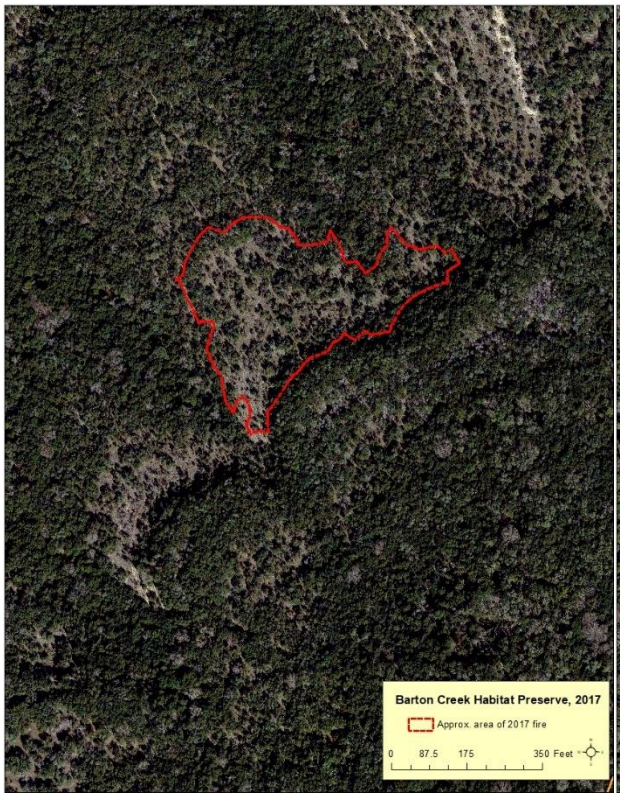
Active Fire Suppression: Yes

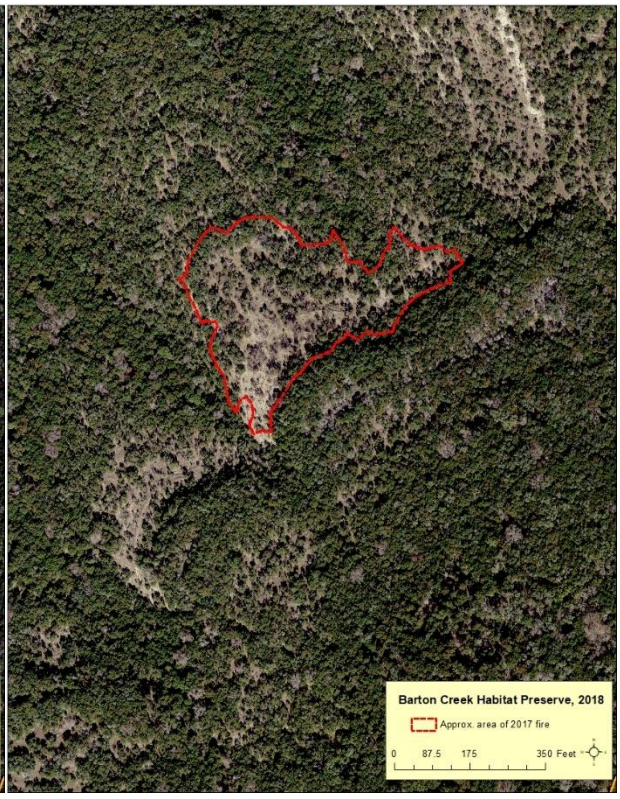
Other notes: Based on personal observations by Brandon Crawford (The Nature Conservancy), the fire carried primarily through a small patch of grass.

Information Sources: Report prepared by Brandon Crawford (The Nature Conservancy)


Barton Creek Habitat Preserve, 1940
Approx. area of 2017 fire
0 87.5 175 350 Feet


Barton Creek Habitat Preserve, 1965
Approx. area of 2017 fire
0 87.5 175 350 Feet


Barton Creek Habitat Preserve, 2017
Approx. area of 2017 fire
0 87.5 175 350 Feet


Barton Creek Habitat Preserve, 2018
Approx. area of 2017 fire
0 87.5 175 350 Feet

The Nature Conservancy
Barton Creek Habitat Preserve
TNC Sweetwater Lightning Fire 7-23-2017

On Sunday the 23rd of July 2017 one of the preserve neighbors in the Blue Hill Subdivision off of Thomas Springs Road was on his back porch watching a big lightning storm blow through when they decided to move into the house. A few minutes later he looked out of his window and noticed smoke from the area they had last seen lightning touch down. A little after 1530 he called 911, within a few minutes the Oak Hill FD Chief made contact for gate codes. Several local fire departments responded to the fire. The storm never developed any notable precipitation. The fire department drove onto the property from the 71 gate as well as coming in from the Zoo Boundary near Rawhide Trail. The fire could not be reached from either access point so they hiked in from Distant View Drive. Without possible vehicular access a helicopter was requested and bucket drops were made. The hand crew was able to mop up. The NWS almanac (Austin Camp Mabry) for July 23rd shows a high of 103 degrees (2pm), low RH of 31% (2 pm), high wind speed of 13mph with gusts to 24 from NW averaging 3.5mph.

On the afternoon of Monday July 24th preserve manager Brandon Crawford hiked to the burned area. The perimeter was marked on GPS, a few stumps had active flames interior but the unit was secure. That evening a different neighbor that made the initial call hiked to the unit, saw the stumps smoldering and called 911 again. AFD made contact and were informed that the fire had been secure at 1630, their crew was already on site and completed mop up. On Tuesday, the unit was checked again by preserve staff and was cold.

GPS indicated that the size of the unit was apx 3 ½ acres. Short grasses along a shelf were the main carrier of the fire, a few Juniper may have torched out, if so it looked to be minimal. The patch of grass was fairly small in that area and likely what kept the burn to a small size.

A freelance photographer went with the crew and posted a link to a video here:
https://vimeo.com/226673711
Pictures that a neighbor captured are attached below. Photo Credit: Ron Going. Report prepared by: Brandon Crawford.

Barton Creek Fire, 2018

Property: Barton Creek Greenbelt, east of State Loop 360 and south of State Loop 1

Balcones Canyonlands Preserve Macrosite: Barton Creek

Initiation Date: March 8, 2018

Ignition Source: Arson

Weather Conditions: High temperature of 71 °F, low relative humidity of 18%, and wind gusts up to 22 mph from the southeast.

Approximate Area Burned: Seven fires ranging in size from 0.0001 to 0.08 acres

Vegetation Burned: Fires were lit in Ashe juniper-oak woodland with little notable damage.

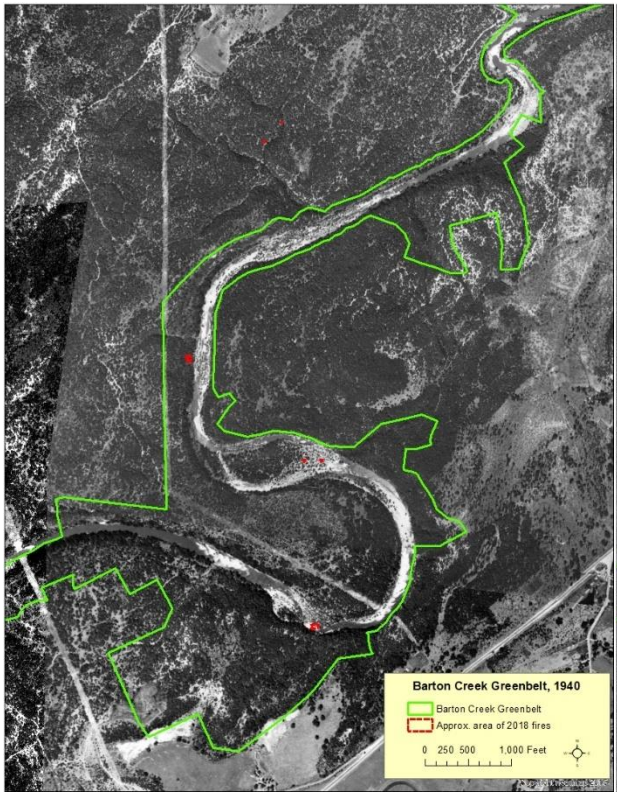
Conditions Contributing to the Burn: Suspect reportedly used a lighter, lighter fluid, and stacked brush.

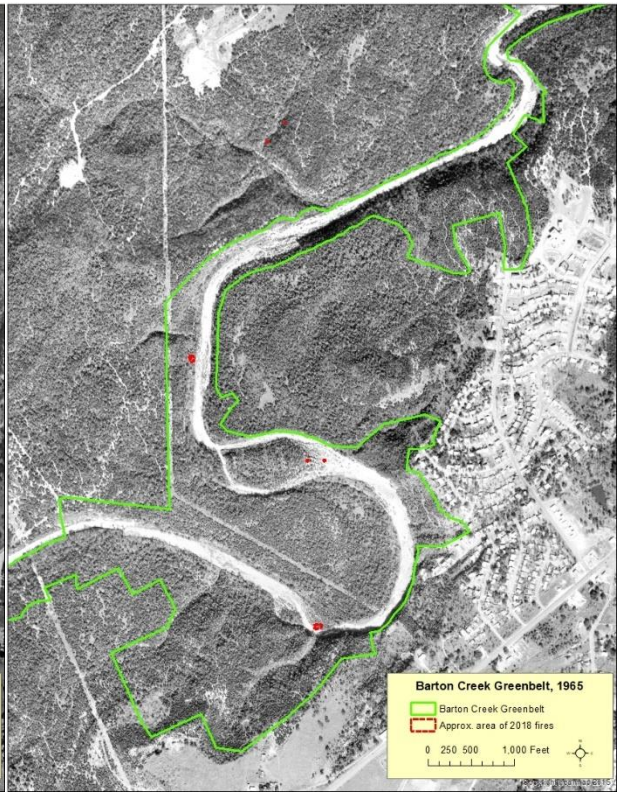
Historical Changes in Vegetation Types: Based on aerial photographs, area has been forested since before 1940.

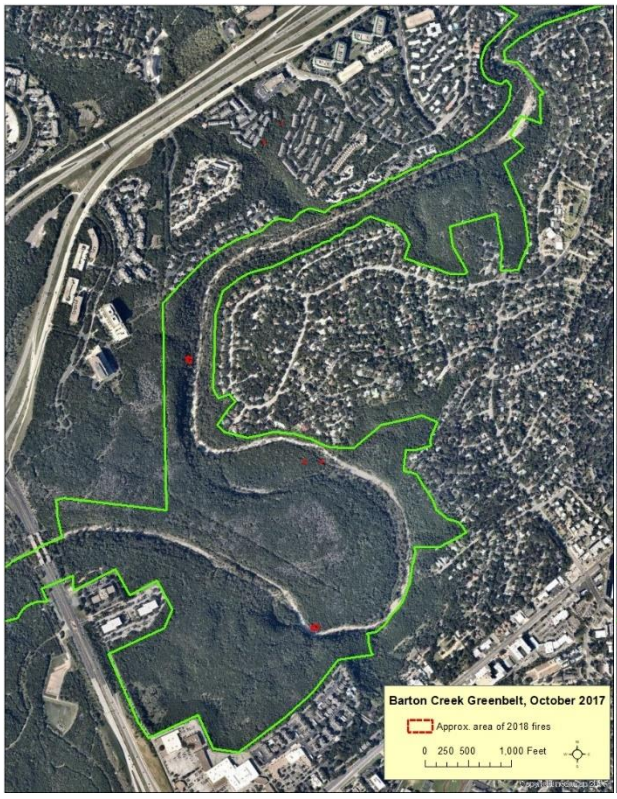
Active Fire Suppression: Yes

Other notes: None

Information Sources: AFD Wildfire Division map, photographs, shapefile of burn areas; Austin American-Statesman and KXAN articles


Barton Creek Greenbelt, 1940
Barton Creek Greenbelt
Approx. area of 2018 fires
0 250 500 1,000 Feet


Barton Creek Greenbelt, 1965
Barton Creek Greenbelt
Approx. area of 2018 fires
0 250 500 1,000 Feet


Barton Creek Greenbelt, October 2017
Approx. area of 2018 fires
0 250 500 1,000 Feet


Barton Creek Greenbelt, May 2018
Approx. area of 2018 fires
0 250 500 1,000 Feet

Cortaña Fire, 2018

Property: Cortaña

Balcones Canyonlands Preserve Macrosite: North Lake Austin

Initiation Date: June 13, 2018

Ignition Source: Unknown

Weather Conditions: High temperature of 99 °F, low relative humidity of 31%, and winds gusting up to 22 mph from the south-southeast.

Approximate Area Burned: 1.25 acres

Vegetation Burned: Grass and trees/shrubs

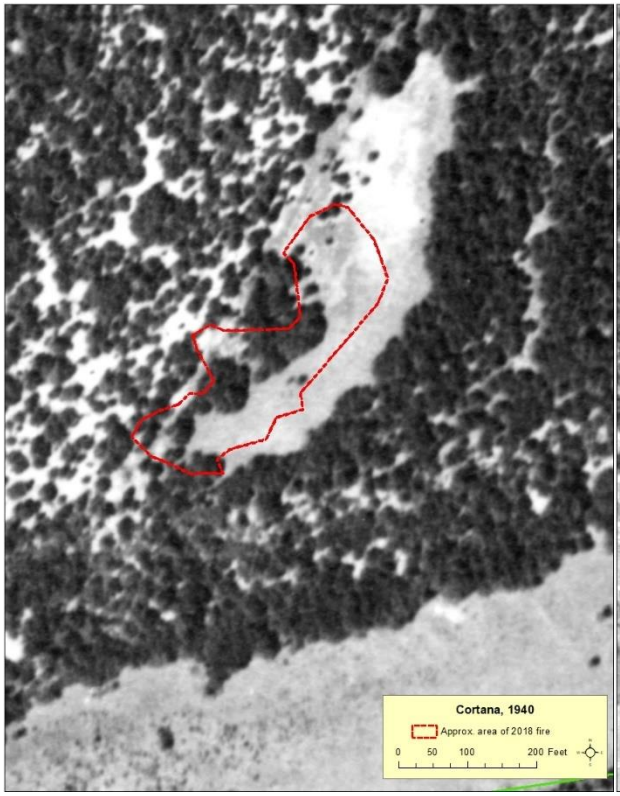
Conditions Contributing to the Burn: Unknown

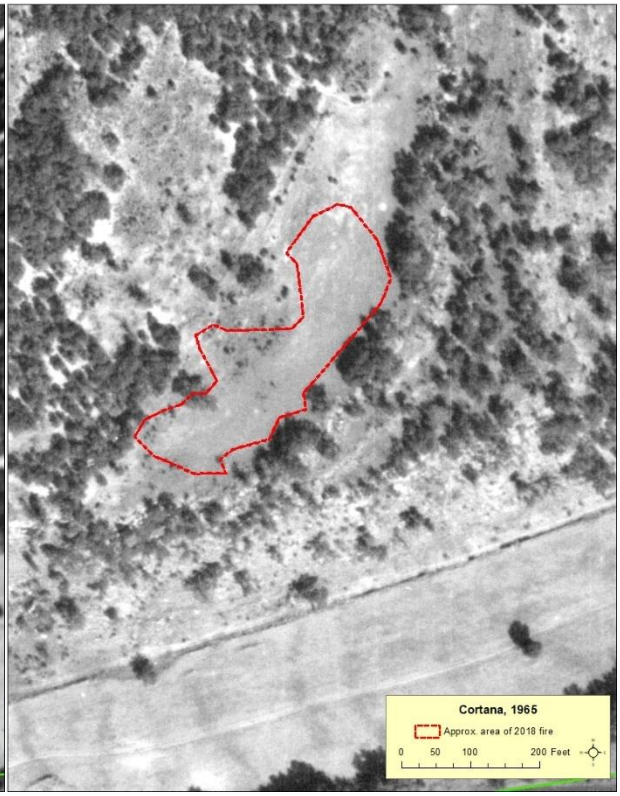
Historical Changes in Vegetation Types: Based on aerial photos, this area has been an open field since before 1940, with a few trees and shrubs growing back over time.

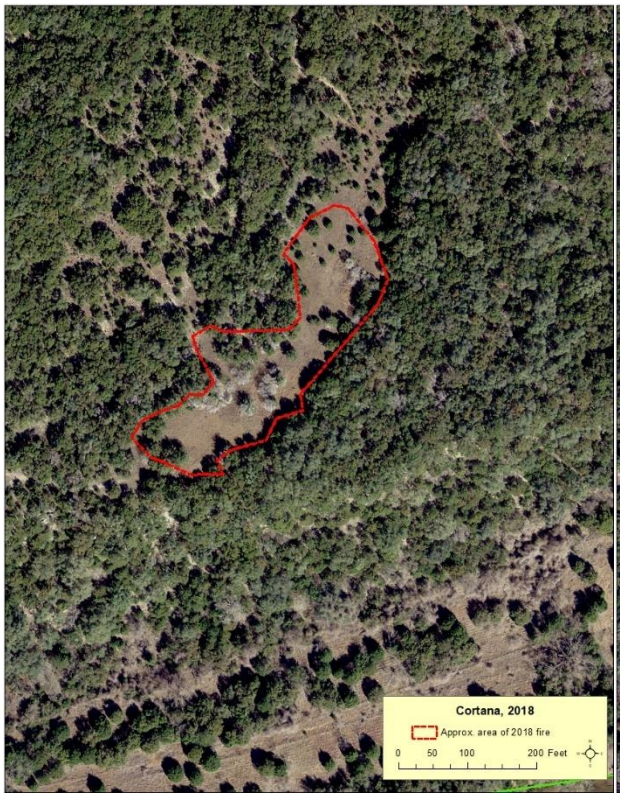
Active Fire Suppression: Yes

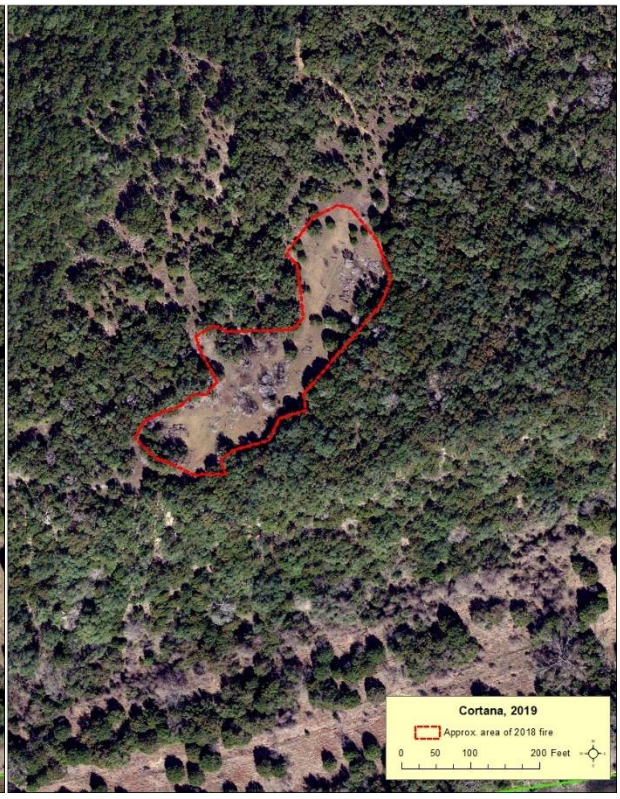
Other notes: Discovered by City of Austin BCP staff on June 26, 2018 during aerial reconnaissance for oak wilt.

Information Sources: William Reiner (City of Austin BCP), photographs; ESD 6 incident report.


Cortana, 1940
Approx. area of 2018 fire
0 50 100 200 Feet


Cortana, 1965
Approx. area of 2018 fire
0 50 100 200 Feet


Cortana, 2018
Approx. area of 2018 fire
0 50 100 200 Feet


Cortana, 2019
Approx. area of 2018 fire
0 50 100 200 Feet

RM 2222 Fire, 2019

Property: North side of RM 2222, west of Bell Mountain Road, just south of Kent Butler tract

Balcones Canyonlands Preserve Macrosite: Bull Creek boundary

Initiation Date: May 14, 2019

Ignition Source: Unknown

Weather Conditions: High temperature of 82 °F, low relative humidity of 50%, and wind gusts up to 18 mph from the south-southeast.

Approximate Area Burned: 0.01 acres

Vegetation Burned: Grass

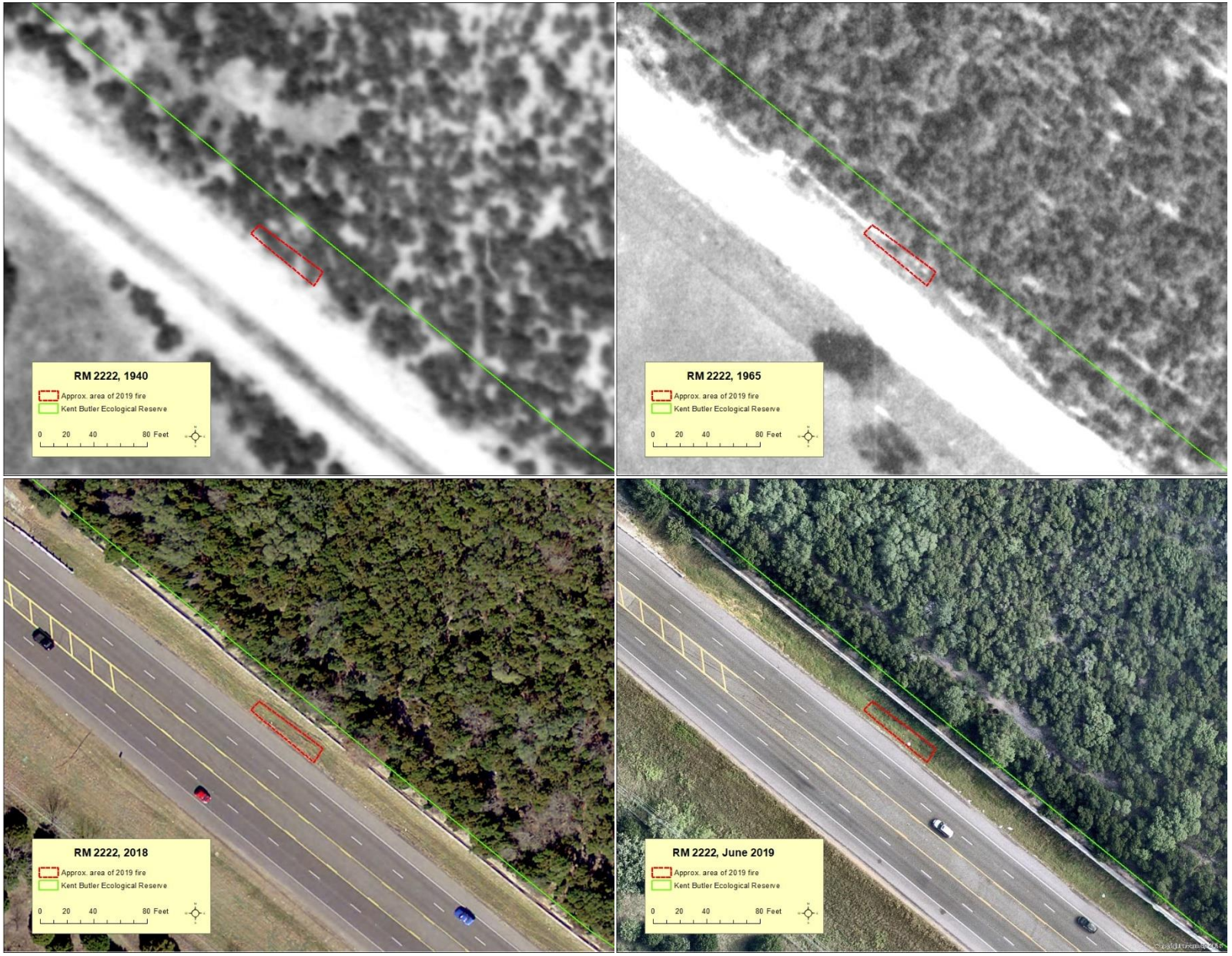
Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: The 1940 aerial photo shows a narrow strip of grass along RM 2222, which was later widened.

Active Fire Suppression: Yes

Other notes: Mark Sanders (City of Austin BCP) noted burned grasses along edge of RM 2222 south of Kent Butler tract. Jonny Scalise (City of Austin BCP) did not observe burned areas on the south side of RM 2222.

Information Sources: Internal emails with City of Austin Wildland Conservation Division and BCP staff


RM 2222, 1940
Approx. area of 2019 fire
Kent Butler Ecological Reserve
0 20 40 80 Feet
RM 2222, 1965
Approx. area of 2019 fire
Kent Butler Ecological Reserve
0 20 40 80 Feet
RM 2222, 2018
Approx. area of 2019 fire
Kent Butler Ecological Reserve
0 20 40 80 Feet
RM 2222, June 2019
Approx. area of 2019 fire
Kent Butler Ecological Reserve
0 20 40 80 Feet

JJ&T Fire, 2019

Property: JJ&T

Balcones Canyonlands Preserve Macrosite: South Lake Austin

Initiation Date: Unknown; City of Austin BCP staff noted burn marks on December 17, 2019

Ignition Source: Unknown, possible lightning strike

Weather Conditions: Unknown

Approximate Area Burned: Portions of one Ashe juniper tree

Vegetation Burned: Obvious burns and scorch marks along the main stem, and bark removed from part of the main stem. There was also some burned duff on the ground under the canopy.

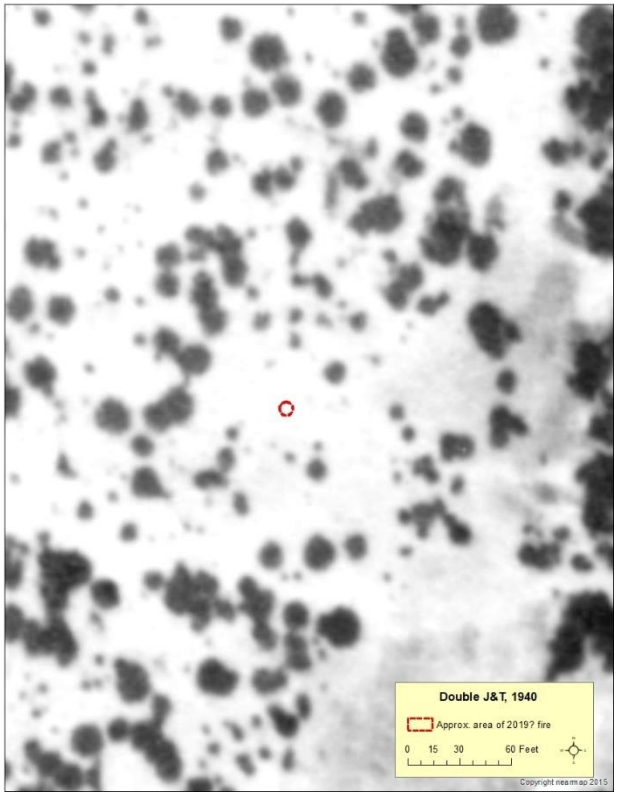
Conditions Contributing to the Burn: Unknown

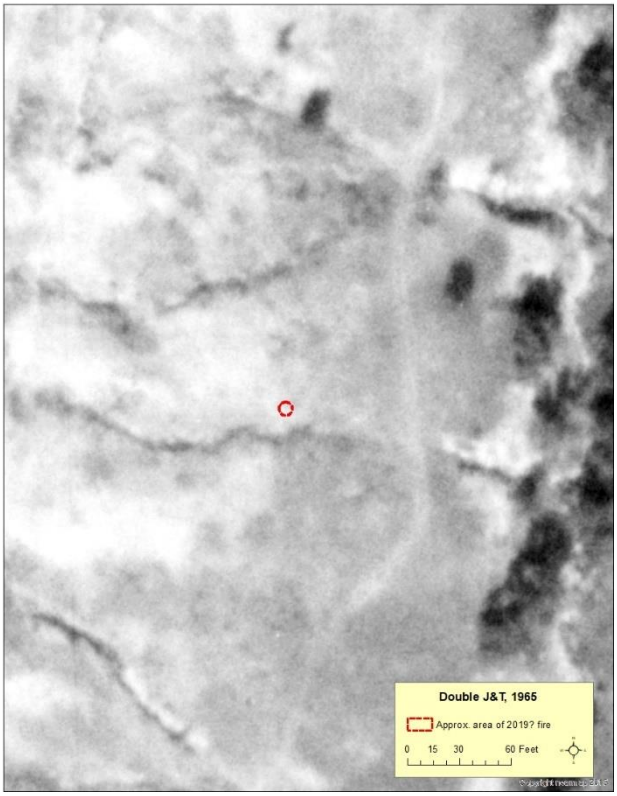
Historical Changes in Vegetation Types: Based on aerial photos, this area was cleared between 1940 and 1965.

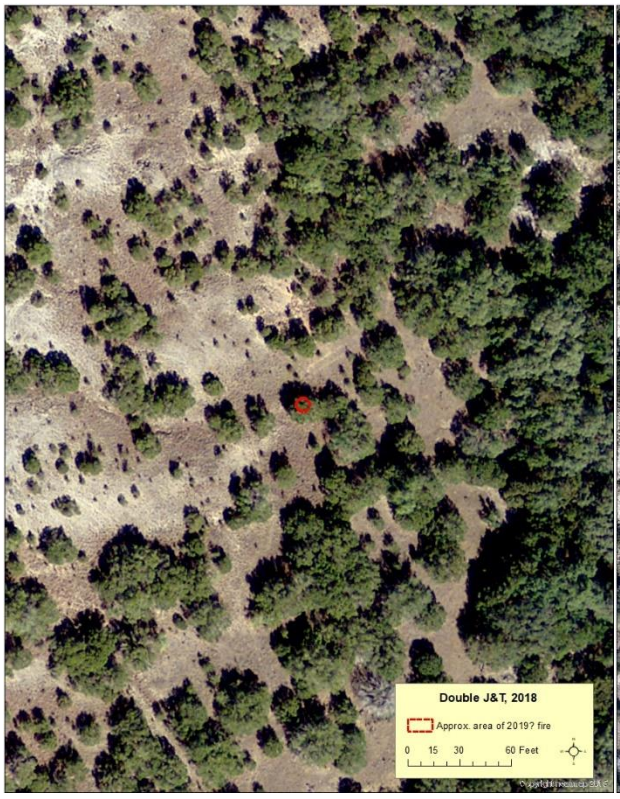
Active Fire Suppression: No

Other notes: None

Information Sources: Emails and photographs from Darrell Hutchinson, Jonathan Scalise (City of Austin BCP)


Double J&T, 1940
Approx. area of 2019? fire
0 15 30 60 Feet


Double J&T, 1965
Approx. area of 2019? fire
0 15 30 60 Feet


Double J&T, 2018
Approx. area of 2019? fire
0 15 30 60 Feet


Double J&T, February 2020
Approx. area of 2019 fire
0 15 30 60 Feet

Highway 71 Fire, 2020

Property: Barton Creek Habitat Preserve

Balcones Canyonlands Preserve Macrosite: Barton Creek

Initiation Date: January 6, 2020

Ignition Source: Texas Department of Transportation mower hit a metal base of a road sign

Weather Conditions: High temperature of 76 °F, low relative humidity of 33%, and wind gusts up to 31 mph from the north.

Approximate Area Burned: 0.25 acres

Vegetation Burned: Short grasses and leaf litter

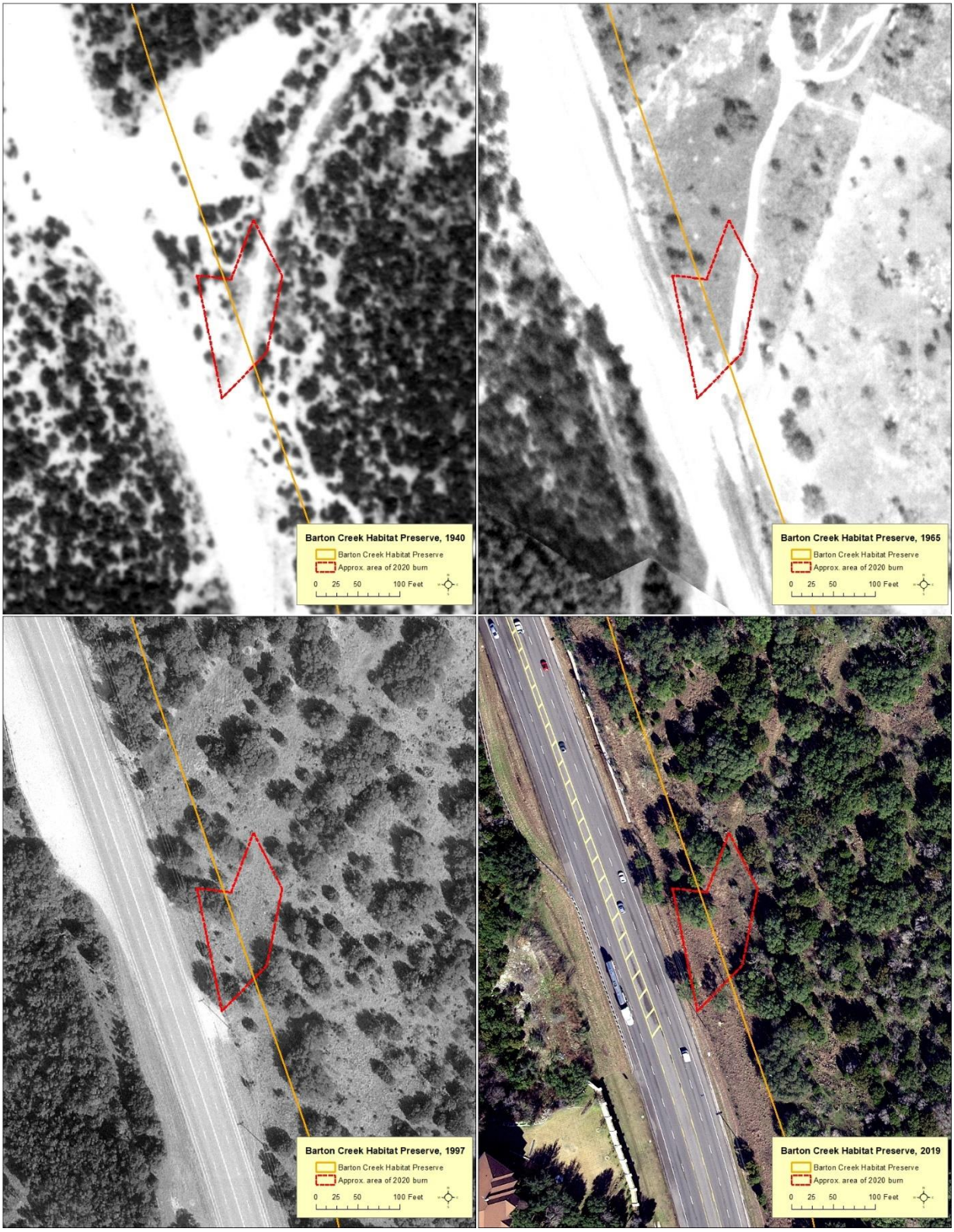
Conditions Contributing to the Burn: Unknown

Historical Changes in Vegetation Types: Based on aerial photos, this area was cleared for roads prior to 1940.

Active Fire Suppression: Yes

Other notes: The fuel in the area was grassy and contiguous near the road and unshaded areas. Vegetation in the shaded areas was fairly green and patchy, they did not look like they would have continued to burn under the canopy.

Information Sources: Report prepared by Brandon Crawford (The Nature Conservancy)


Barton Creek Habitat Preserve, 1940
Barton Creek Habitat Preserve
Approx. area of 2020 burn
0 25 50 100 Feet
Barton Creek Habitat Preserve, 1965
Barton Creek Habitat Preserve
Approx. area of 2020 burn
0 25 50 100 Feet
Barton Creek Habitat Preserve, 1997
Barton Creek Habitat Preserve
Approx. area of 2020 burn
0 25 50 100 Feet
Barton Creek Habitat Preserve, 2019
Barton Creek Habitat Preserve
Approx. area of 2020 burn
0 25 50 100 Feet

The Nature Conservancy
Barton Creek Habitat Preserve
TNC - TXDOT Mower Fire 1-6-2020

On the afternoon of Monday January 6th, the Travis County Fire Marshall's office got a message to me (Brandon Crawford – Preserve Manager) through our downtown office that a wildfire had occurred at our Barton Creek Habitat Preserve.

The notification indicated that a fire was started on the east side of HWY 71 right-of-way when a TXDOT mower hit a metal base for a road sign. At the time I was contacted the fire had been contained and it was mentioned that our fence had been cut in the process. I was not at the preserve the day of the incident but made a site inspection on Tuesday the 7th and patched the fence.

The NWS almanac (Austin Camp Mabry) for Jan 6th shows a high of 76 degrees (3pm), low RH of 33% (3 pm), high wind speed of 16mph with gusts to 31 from the N averaging 3.8 mph for the day.

GPS indicated that the size of the unit was apx ¼ acre. Short grasses and leaf litter had been burned, the fuel in the area was grassy and contiguous near the road and unshaded areas. Vegetation in the shaded areas was fairly green and patchy, they did not look like they would have continued to burn under the canopy.

Appendix B:

Summary of Steiner Ranch and Pinnacle Fire Incidents, 2011

Pinnacle Fire, 2011

Property: West of Austin Community College Pinnacle Campus

Balcones Canyonlands Preserve Macrosite: Outside of BCP; approximately 1.8 miles southeast of Barton Creek Habitat Preserve

Initiation Date: April 17, 2011

Ignition Source: Campfire

Weather Conditions: High temperature of 88 °F, low relative humidity of 20%, and wind gusts up to 30 mph from the south.

Approximate Area Burned: 57 acres

Vegetation Burned: Ashe juniper-oak woodland

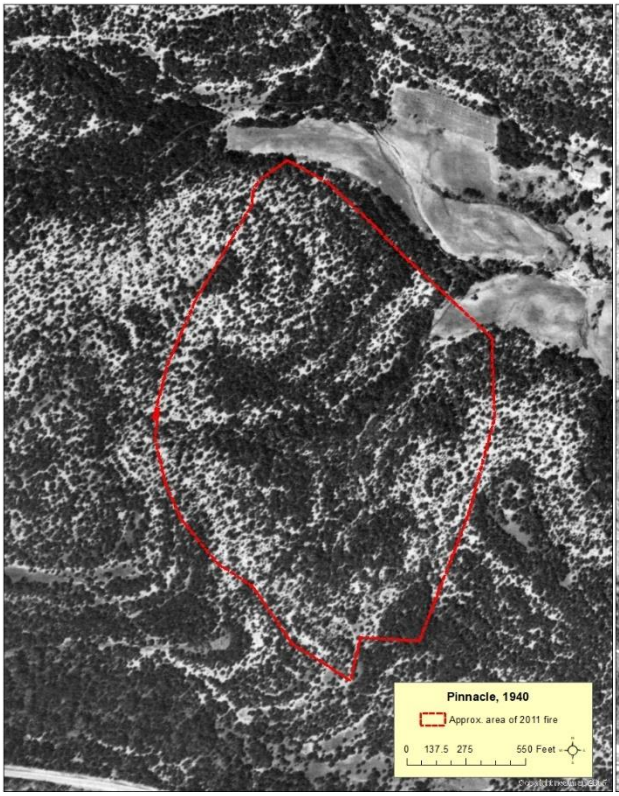
Conditions Contributing to the Burn: Small patch size (approximately 120 acres), low humidity, gusty winds.

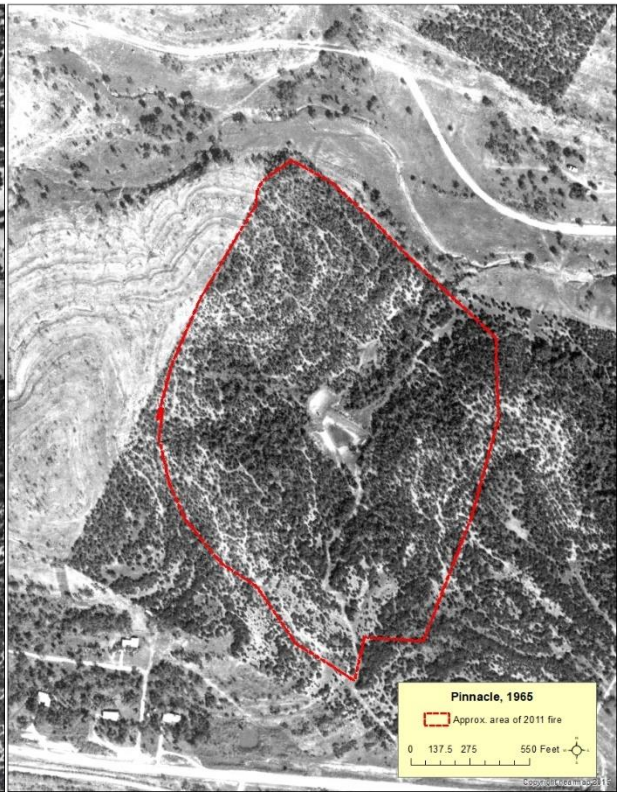
Historical Changes in Vegetation Types: Based on aerial photographs, this area has been wooded since before 1940. Trails crisscross the tract. Understory features prior to the fire, such as density of exotic plants or brush from cut vegetation, are unknown.

Active Fire Suppression: Yes

Other notes: Estimated burned area based on comparison of vegetation on aerial photographs before and after fire. Newspaper articles and Texas A&M Forest Service reported 100 acres burned.

Information Sources: Newspaper articles, aerial photographs, Texas A&M Forest Service report of 2011 wildfires.


Pinnacle, 1940
Approx. area of 2011 fire
0 137.5 275 550 Feet


Pinnacle, 1965
Approx. area of 2011 fire
0 137.5 275 550 Feet


Pinnacle, February 2011
Approx. area of 2011 fire
0 137.5 275 550 Feet


Pinnacle, January 2012
Approx. area of 2011 fire
0 137.5 275 550 Feet

Steiner Ranch Fire, 2011

Property: Steiner Ranch

Balcones Canyonlands Preserve Macrosite: Outside of BCP; approximately 0.6 miles west of Steiner Ranch conservation easement

Initiation Date: September 4, 2011

Ignition Source: Austin Energy utility line on a vacant lot on the north side of RM 620

Weather Conditions: "Travis County has been experiencing a drought for a significant period leading up to the time of the fire. According to the U.S. Drought monitor, Travis County fell within the 'Exceptional Drought' 9 category." On September 4, 2011, a Red Flag Warning had been issued for Central Texas due to a dry front moving through the area from the north. Wind speeds were 25–30 mph with wind gusts above 40 mph. The relative humidity was below 20% and the temperatures were climbing through the high 90s by early afternoon.

Approximate Area Burned: Burn perimeter encompasses approximately 153 acres; however, analysis of aerial photographs suggest approximately 86 acres burned within that area.

Vegetation Burned: Grass, Ashe juniper-oak shrubs/trees. According to the Travis County Fire Marshal report, there was a hot spot in the ravine, with a few smoldering trees that were cut down.

Conditions Contributing to the Burn: Utility line, extreme drought, wind. City of Austin BCP staff reported live fuel moisture measurements of 47% on the Cortaña tract on September 9, 2011.

Historical Changes in Vegetation Types: Based on historic aerial photos, this area had been extensively thinned prior to 1940, with grass, shrubs, and trees growing back over time.

Active Fire Suppression: Yes

Other notes: Mark Sanders (City of Austin BCP, report below) noted that the fire appeared to be spotty, likely hitting natural firebreaks, but with the strong winds, fire brands could travel and catch areas downwind with fine fuels which eventually got to the homes in the Steiner Ranch subdivision. Rose Farmer (Travis County BCP) walked the site with other Travis County BCP staff and local fire department staff following the burn. She noted the fire "burning mostly grassland islands and jumped eventually to burn the houses which spread the fire from house to house. We didn't feel that the few Junipers burned were carrying the fire, mostly jumped from grassland to grassland before going to houses."

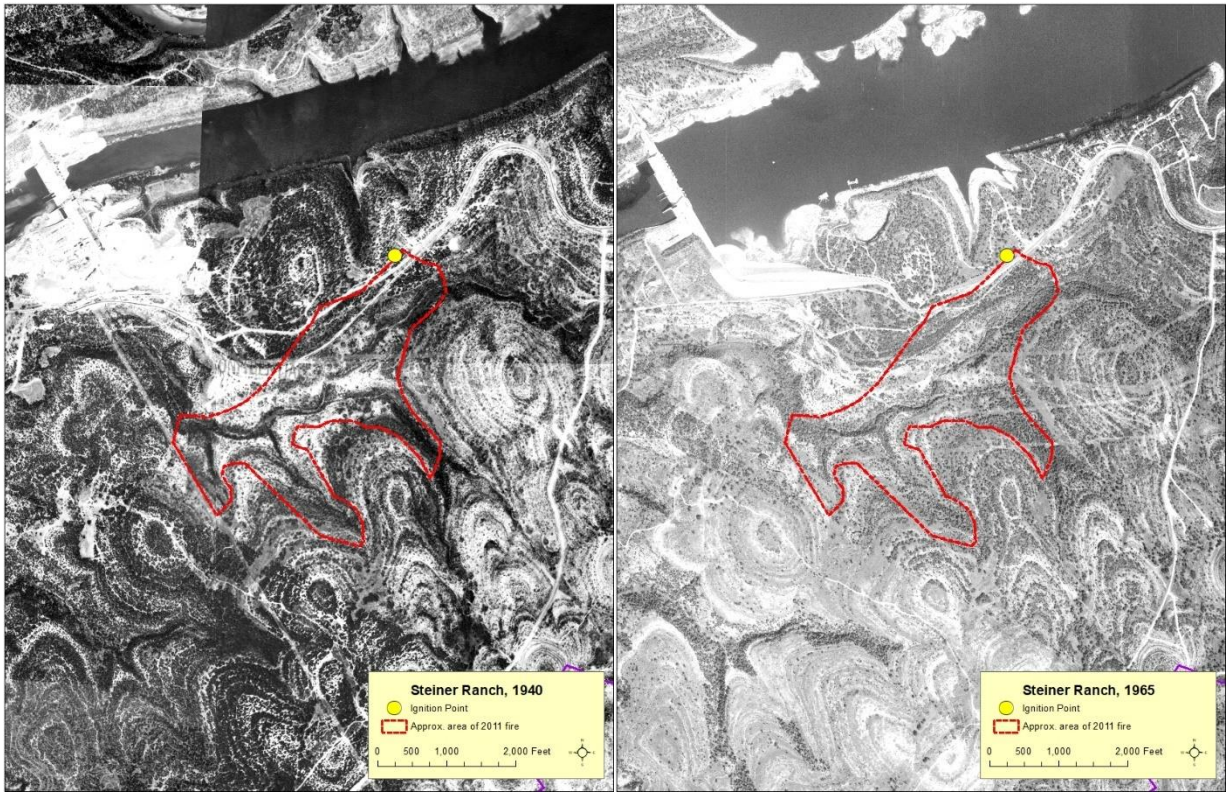
Information Sources: Travis County Fire Marshal's Office Case #13.522090 and 11-22090, January 2020 email from Mark Sanders (City of Austin BCP), April 2020 email from Rose Farmer (Travis County BCP), online videos, and newspaper articles.

Video posted by Jim Freeze from Varner Court (2011 Steiner Ranch Fires - YouTube)

Video posted by David Hawkins from clubhouse at the Monterone Apartments. Available at URL: https://www.youtube.com/watch?time_continue=38&v=PSNu-dKLiHI&feature=emb_logo

Mark Sanders (City of Austin BCP) reported observations from September 6, 2011:

> *"Matt McCaw and I were called in to help put out any hot spots on 9/6/2011 (a day or so after the fire).*
>
> *We checked in at Steiner Ranch elementary school and got our assignments, we were initially on our own, we had our own vehicle (brush truck), radios to communicate with IC, and both of us had full fire gear/ PPE, plus red card training.*
>
> *Initially we went directly to several of the homes that had burned and then looked in the vicinity for any smoldering, hot areas and did not find much of anything. I don't remember the precise street names but it was likely Schleicher Trail, northern end of Medina River Way, and Varner Ct. I talked to a homeowner who said he defied the mandatory evacuation order, he said he walked from house to house, opening up the gates on the wooden privacy fences to prevent the fire (burning privacy fence) to reach the decks that were attached to the homes, he claimed that he saved many homes.*
>
> *Soon after that we met an AFD crew working chainsaws to put out a hot spot in the ravine due north of the homes, so basically the area north of the homes and south of RR 620.*
>
> *It was just a few smoldering trees, some of which had cavities smoldering, all of which were cut down.*
>
> *After that, there was nothing obvious to do so we were given the green light to leave.*
>
> *It definitely looked like the fire was quite spotty, likely hitting natural firebreaks (areas that lacked fine fuels to carry the fire), but with the strong winds, fire brands could travel and catch areas downwind with fine fuels which eventually got to the homes."*


Steiner Ranch, 1940
Ignition Point
Approx. area of 2011 fire
0 500 1,000 2,000 Feet

Steiner Ranch, 1965
Ignition Point
Approx. area of 2011 fire
0 500 1,000 2,000 Feet


Steiner Ranch, February 2011
Ignition Point
Approx. area of 2011 fire
0 500 1,000 2,000 Feet


Steiner Ranch, January 2012
Ignition Point
Approx. area of 2011 fire
0 500 1,000 2,000 Feet

Appendix C:

Recommended information to include in
Balcones Canyonlands Preserve fire incident reports

Balcones Canyonlands Preserve
Fire Incident Report

Reporting staff[1]:

Property:

Balcones Canyonlands Preserve Macrosite:

Location and GPS Coordinates (UTM or Lat/Long)[2]:
- Ignition GPS location entered in GIS database:
- Burn perimeter entered in GIS database:

Initiation Date/Time (estimate):

Ignition Source:

Weather and Fuel Moisture:

Weather Conditions					Fuel Moisture (Ashe juniper)			
Reporting Station	Temperature high/low (F)	Relative Humidity high/low (%)	Wind Speed max/max gust/avg direction (mph)	Rainfall (inches)	Collection Site	Date	FM	Lightning Strikes

Approximate Area Burned (# acres):

Detailed Description of Vegetation Types Burned[3]:

Conditions Contributing to the Burn:

Other notes:

Information Sources:

Attach: Fire department report, map of burn perimeter, photographs, video

[1] Ensure both the responding fire department and BCP staff are notified of the incident and receive a copy of this report.

[2] If possible, record a GPS location for the ignition point and map the burn perimeter in the field. If mapping the perimeter is not possible, record a GPS location at the approximate center of the burn. If ignition point is unknown, please note.

[3] Include ignition vegetation, if possible. If not, please note.