Monitoring of the Jollyville Plateau Salamander (*Eurycea tonkawae*) on Travis County tracts of the Balcones Canyonlands Preserve

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INTRODUCTION

The Jollyville Plateau salamander (*Eurycea tonkawae*, Chippendale *et al.* 2000) is among the unique vertebrate fauna of the Balcones Canyonlands region of central Texas. A number of endemic organisms associated with subterranean karst and spring habitats are afforded protection under the 1996 Balcones Canyonlands Conservation Plan (BCCP), a Habitat Conservation Plan (U. S. Department of the Interior, Fish and Wildlife Service, 1996a) jointly held by Travis County and the City of Austin (U. S. Department of the Interior, Fish and Wildlife Service, 1996b). Six of these organisms have been listed as endangered by the U. S. Fish and Wildlife Service (USFWS), and twenty-five additional species are covered under the plan as Species of Concern. Though not covered by the BCCP, the Jollyville Plateau salamander is also considered a Species of Concern by the USFWS (Matt Lechner, pers com).

The Jollyville Plateau salamander (JPS) is known to occur in springs and spring runs of tributaries draining the Jollyville Plateau in Travis and Williamson counties, including the drainages of Brushy Creek, Bull Creek, Cypress Creek, Long Hollow Creek, Shoal Creek and Walnut Creek (Chippendale *et al.* 2000). In fiscal year 2002, Travis County's land acquisitions as part of the Balcones Canyonlands Preserve (BCP) comprised approximately 948 acres (383.6 ha.) in the Jollyville Plateau area. Surveys were conducted during the 2002 field season to identify JPS habitats and confirm presence of the species.

BACKGROUND

Following the 1995 proposed listing of the Barton Springs salamander (*Eurycea sosorum*) under the Endangered Species Act, the City of Austin (CoA) and the Texas Parks and Wildlife Department (TPWD) entered into an interlocal agreement establishing the Aquatic Biological Advisory Team (ABAT). Composed of nationally recognized experts in aquatic biology, stream ecology, geohydrology, amphibian ecophysiology, and water quality management practices, the ABAT was charged with reviewing the body of knowledge related to neotinic *Eurycea* species found in the Barton Creek and Bull Creek watersheds and making recommendations to guide future research, management, and conservation efforts (Bowles 1995). ABAT recommendations included further studies of JPS population abundance and distribution, habitat preferences, life history information, and potential threats to species viability, as well as development of management plans to guide conservation efforts (Hutchison 1995).

Through land acquisition associated with protection of habitats for species protected under the BCCP, Travis County has assembled significant contiguous portions of the Jollyville Plateau known to support recent or historic JPS sightings. County managed tracts include the MacDonald Well site (Figure 1), known from a JPS specimen collected in the early 1980's from the collections of the Museum of Vertebrate Zoology at the University of California at Berkeley (Sweet 1982). The County also manages multiple sights located along an unnamed tributary forming the property boundary with a preserve neighbor interested in the ongoing well being and protection of the species. In an attempt to better define distribution data in accordance with the ABAT guidelines, these localities and associated tributaries were surveyed for the presence of JPS in 2002.

SITE DESCRIPTION

Travis County's Jollyville Unit comprises 1620 acres (655.6 ha.) located 13 miles (21 km) northwest of downtown Austin on FM 2769. The MacDonald Well site (Figure 1) is located approximately 500' SSE of FM 2769 on an unnamed tributary draining into Cypress Creek on the Bunten tract of the Jollyville Unit. The site is marked by a large concrete structure that impounds natural spring flows running into the adjacent creek.

The SAS Canyon sites (Figure 2) are located approximately 600' NNE (site 1) and approximately 1000' NNE (site 2) of the head of a canyon located approximately 1 mile due North of the intersections of Highway 620 and FM2222. Site 1 is located near an intermittent spring feature beneath a wooden pedestrian footbridge. Site 2 is near a spring feature located approximately 400' down slope within the boundaries of an intermittent stream that connects the two sites during periods of significant rainfall.

METHODS

Field activities followed the study protocols established by CoA Watershed Protection Department (City of Austin 1999). Surveys were conducted by searching springs and spring run habitats, including wetted surfaces under available cover (rocks, woody debris, leaves, etc.) and in the top layer of sediment or detritus. Clear plastic trays or bowls were used as viewing devices to minimize surface turbulence and glare (City of Austin 1999). In an effort to avoid the spread of parasites and disease causing agents between isolated populations, field investigators follow the USGS Declining Amphibian Population Task Force Fieldwork Code of Practice (USGS 2001) whenever possible. Care was taken to minimize habitat disturbances, and to our knowledge, no salamanders were harmed through these sampling efforts.

RESULTS

JPS were verified at the MacDonald Well location on at least six site visits throughout the year (Figure 1). Adult, large juvenile and small juveniles (classification from City of Austin 1999) were observed, though populations were not quantified.

JPS were verified at the SAS Canyon sites during informal surveys conducted in conjunction with endangered bird monitoring activities throughout the spring and summer months. No efforts were made in the course of these field investigations to collect life history or population data.

DISCUSSION

Dry periods in early summer and again in early autumn permitted sites above and below MacDonald Well and at the SAS Canyon sites to dry completely. No JPS have been observed at these locations when these conditions predominate, though individuals are again observed in these areas once suitable rainfall events permitted flow into and through these sites. These findings further support the conclusions reached by the CoA (1999) that JPS may retreat to the hyporheos or spring refuges when flow rates decrease.

Unseasonable rain events throughout the summer 2002 ensured high spring flows and suitable aboveground habitats for JPS for a significant portion of the year. These same conditions, however, hampered surveys somewhat as access to study sites was limited by road and field conditions. Expanded investigations including additional population and life history data collection are planned for the coming field season.

RECOMMENDATIONS

A JPS field investigation and survey schedule that addresses the monitoring recommendations of the ABAT is under development and will be implemented on Travis County managed BCP tracts in FY2003.

Significant portions of the Jollyville Plateau were incorporated into the BCP by Travis County in FY2002, and land acquisition activities in the area continue to date. As Travis County acquires additional tracts in the area, springs and spring runs will be mapped and surveyed in an effort to further define distribution for the species.

In an effort to achieve the research and conservation recommendations of the ABAT, an integrated and cooperative approach to ongoing research, fieldwork, data collection, and conservation efforts among CoA, TPWD, Travis County, the Lower Colorado River Authority, and other agencies and private landowners is encouraged.

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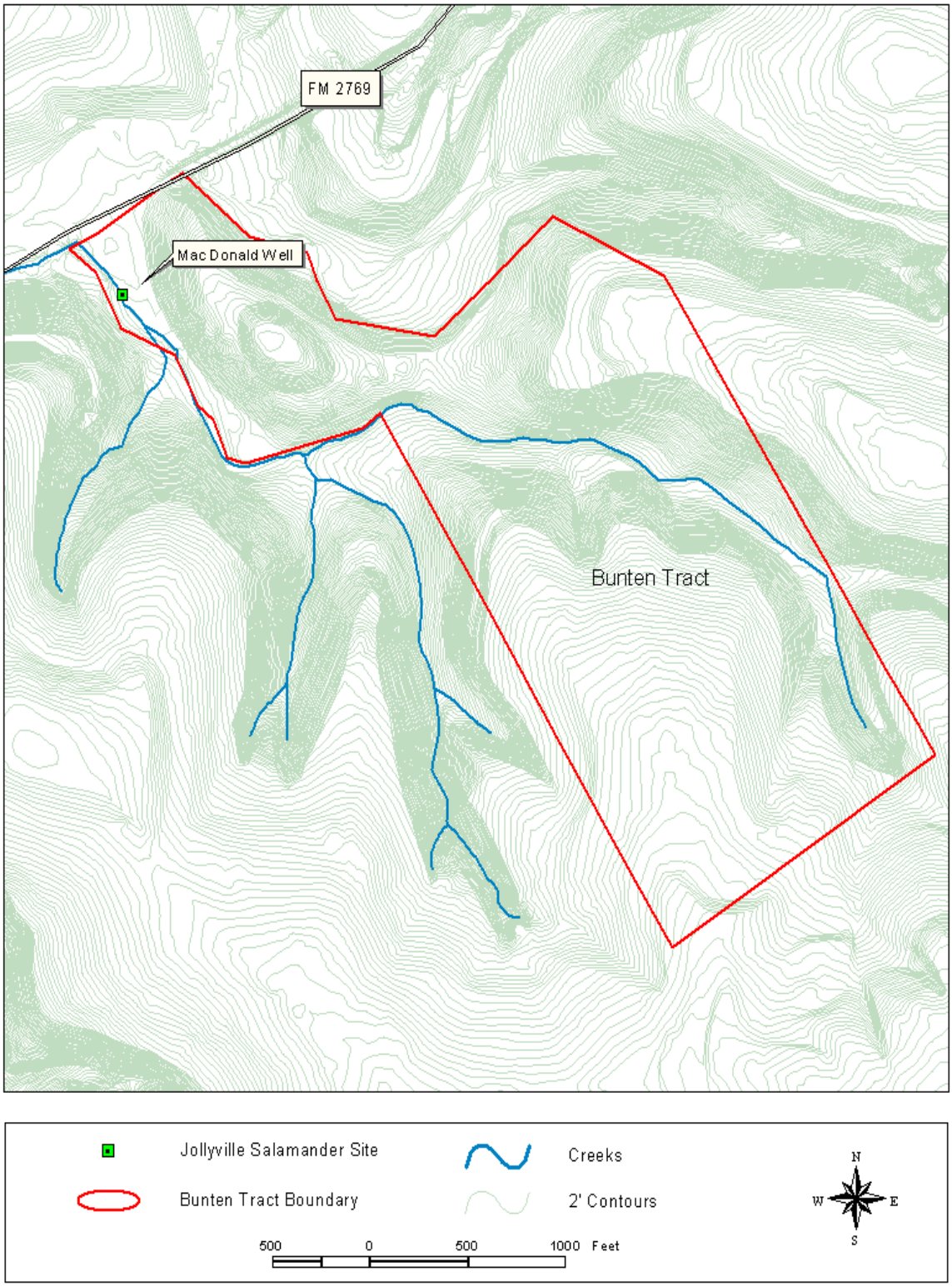

Figure 1. The MacDonald Well Site on the Bunten Tract of the Jollyville Unit of the BCP.

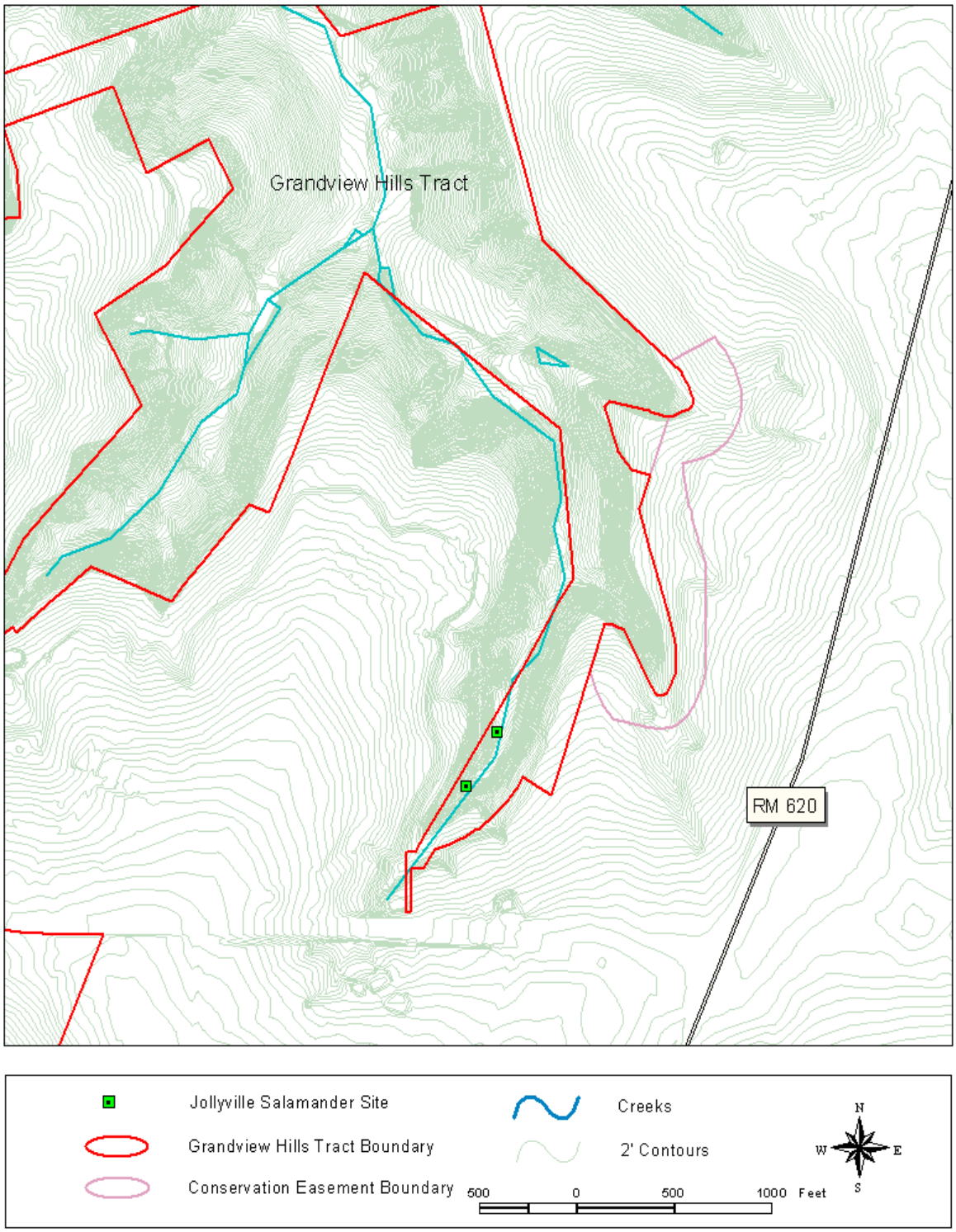

Figure 2. SAS Canyon Sites on the Grandview Hills Tract of the Jollyville Unit of the BCP.