

RARE PLANT SURVEY AND GENERAL PLANT INVENTORY
OF SANDY CREEK COUNTY PARK, TRAVIS COUNTY, TEXAS,
SUMMER 1996

24 September 1996 Draft

During the summer of 1996, botanical surveys were conducted on all Travis County parks west of the Balcones Escarpment. The goals of these surveys were to locate populations of rare, unusual, or management sensitive plant species and, at each park, to conduct a general inventory resulting in an annotated checklist of all plant species observed. Sandy Creek Park was visited for approximately three hours on 2 July 1996, two hours on 29 July 1996, and one hour or less on 12 August 1996 and 29 August 1996.

Location/Physical Setting

Sandy Creek Park occupies 25 acres on gentle to moderate slopes between Lime Creek Road and the shoreline of the Sandy Creek Arm of Lake Travis just south of the mouth of Lime Creek. Although the boundaries between this county park and adjacent properties administered by the Lower Colorado River Authority are indicated by a dashed line on the Mansfield Dam Quadrangle (USGS, 1986), such distinctions are not at all apparent in the field¹. Vehicle access to the site is via a public entrance on the west side of Lime Creek Road ca. 4.0-4.1 roadmiles north of its junction with R. M. 2769 in Volente Beach.

Topography within the park varies from nearly level to gently sloping in higher portions of the park, e.g., those along Lime Creek Road, to steeply sloping in proximity to Lake Travis. Two significant ravines are present, one in the northeast corner containing an intermittent stream and one at the southern edge of the property containing an apparently perennial spring, the only surface water within the park. According to the Mansfield Dam Quadrangle, elevation ranges from about 790 feet along Lime Creek Road down to 681 feet, the normal pool level of Lake Travis.

Like most county parks on the shoreline of Lake Travis, Sandy Creek Park is underlain by the Glen Rose Formation (Garner et al., 1980; Proctor et al., 1981). This Cretaceous formation is composed of alternating layers of hard limestone and soft marl which typically erode into a stairstep topography; this feature is readily apparent in many areas along Lime Creek Road if less so within the park itself.

¹ These surveys operated under the assumption that the mapped boundaries are correct—normally a trifling decision but in this case significant because this arrangement includes two mesic limestone canyons, one draining north into the inlet of an unnamed tributary of Lake Travis at the north end of the park, and the other draining southwest into a different inlet at the south end of the park. These two canyons harbor biological resources not found elsewhere within the park.

On sheet 32 in the Travis County soil survey (Werchan et al., 1974), two soils units are mapped within the park. Those of slopes nearest the lake are mapped as Tarrant soils and Rock outcrop, steep. Tarrant soils are shallow to very shallow stony clays of limestone uplands. The surface layer is dark grayish-brown stony clay about 8 inches thick; the underlying layer is limestone. These soils are well drained, calcareous, moderately alkaline Lithic Haplustolls. Soils of this particular unit are assigned to the Steep Rocky range site. Soils of higher slopes (within a few meters of Lime Creek Road) are mapped as Brackett soils and Rock outcrop, steep. Brackett soils are shallow, well drained soils of limestone uplands. The surface layer is light brownish-gray gravelly clay loam or gravelly loam about 4 inches thick; the next layer, about 10 inches thick, is pale brown clay loam. These soils are calcareous, moderately alkaline Typic Ustochrepts and are assigned to the Steep Adobe range site.

Vegetation

The vegetation of the entire park could be considered juniper-oak woodland, although the ratio of coverage by trees to coverage by grasses varies considerably. Greatest density of the dominant woody plants, including Ashe juniper (*Juniperus ashei*), plateau live oak (*Quercus fusiformis*), Texas oak (*Quercus buckleyi*), and Texas ash (*Fraxinus texensis*), is found on the north-facing slope at the northern end of the park. In this area the canopy is nearly closed, few shrubs are present, and the ground layer is composed mostly of a few species such as cedar sedge (*Carex planostachys*) that are both shade tolerant and capable of growth in deep juniper-needle duff. Diversity in all strata of this woodland increases greatly in proximity to the mesic canyon in the northeastern corner of the park.

Elsewhere the woodland is represented by clusters of junipers, oaks and a wide variety of shrubs interspersed with grassland openings. Conspicuous shrubs include Texas kidneywood (*Eysenhardtia texana*), evergreen sumac (*Rhus virens*), Texas persimmon (*Diospyros texana*), fragrant mimosa (*Mimosa borealis*), agarito (*Berberis trifoliolata*), twistleaf yucca (*Yucca rupicola*), and fragrant sumac (*Rhus trilobata*). The grassland component is quite varied, including many late-successional midgrasses such as little bluestem (*Schizachyrium scoparium*) and, particularly in regularly-mown areas close to Lime Creek Road, a host of early-successional species.

Vegetational departures from this juniper-oak woodland/grassland mosaic can be found along the shoreline of Lake Travis, particularly along the cove at the north end of the park. A riparian thicket of roughleaf dogwood (*Cornus drummondii*), buttonbush (*Cephalanthus occidentalis*), and winterberry (*Ilex decidua*) lines the bank at and just above the high water line. Downslope, on gravel to sand and mud flats exposed during periods of low lake levels, is an assemblage of mostly annual grasses, sedges and forbs.

Target Rare Plant Species

Six rare plant species were sought in appropriate habitat at all of the sixteen parks included for

survey during this project: Texas amorphia (*Amorpha roemerana*), Texabama croton (*Croton alabamensis* var. *texensis*), Glass Mountains coral-root (*Hexalectris nitida*), Heller marbleseed (*Onosmodium helleri*), canyon mock-orange (*Philadelphus ernestii*), and Buckley tridens (*Tridens buckleyanus*). A seventh rare plant species, bracted twistflower (*Streptanthus bracteatus*), cannot be detected during summer of a drought year and was essentially omitted from this project. Information about the relatively rarity, distribution, habitat, etc., of each of these species will be provided in a separate appendix at the end of the set of park reports.

Results of Rare Plant Surveys

Two of the target rare plant species, Glass Mountains coral-root and Texas amorphia, were encountered during these surveys; populations of both species are discussed below. A third target, Heller's marbleseed, was reported from an unspecified location within the park by DLS Associates (1994) but could not be located during the summer of 1996.

The other target shrub species, Texabama croton and canyon mock-orange, are apparently absent from the park. The status of the other herbaceous targets, bracted twistflower and Buckley tridens, awaits surveys during more appropriate seasons.

GLASS MOUNTAINS CORAL-ROOT AT SANDY CREEK PARK. On 29 July 1996 most of the juniper-dominated woodland on upper slopes at the northern tip of the park was examined in an effort to determine the presence of this rare orchid. Two stems, probably emanating from the same rhizome, were encountered near the eastern tip of this woodland (see Figure 3). One stem measured 7 inches in height and had 5 mature (but "closed") flowers and a larger undetermined number of buds; the other stem measured 5 inches in height and bore only a cluster of immature buds. No voucher specimen was collected; field determination was based on examination of the labellum (lower petal) of one flower, which in these "closed flower" forms is possible only by prying open the three sepals and similar upper two petals. The labellum was less than 10 mm long and white with rose-purple highlights on raised striations that ran from the base of the labellum to the apex; the lateral lobes were much smaller and solid white, i.e., completely devoid of striations; the sinuses separating the central lobe from the two lateral lobes were less than 1 mm deep. This site was revisited on 12 August 1996, at which time the larger stem was 9 1/2 inches tall and bore 1 immature fruit, 1 partially open flower, and ten buds of various maturity. The smaller stem was 5 3/4 inches tall and bore four distinct buds. On 29 August 1996, the larger stem was 10 inches tall and bore 4 dead flowers without fruit, 2 recently dried flowers, 4 mature flowers, and 3 buds. The smaller stem measured 6 inches tall and bore 1 dried flower, 2 mature flowers, and 1 bud.

This site lies on a very gentle slope a few yards west of the steeper slope into the canyon on the park's northeastern boundary. Vegetation is a rather low-diversity juniper-dominated woodland with, at least in the immediate area, no significant oak component. The only other woody plant within a few meters of the coral-root is Lindheimer silk tassel (*Garrya ovata* subsp. *lindheimeri*),

which is represented mostly by scattered single stems less than 1 meter tall. The ground layer is extremely sparse, consisting of widely scattered clumps of cedar sedge (*Carex planostachys*). Underlying geology is Glen Rose Limestone, and soils are very shallow calcareous gravelly clay loams covered to a variable depth with slowly decaying Ashe juniper scales.

This habitat is similar to that at other known Glass Mountains coral-root sites on the eastern Edwards Plateau, particularly in terms of geology, soils, leaf litter, topography, and composition of the plant community. Structure of the plant community is somewhat unusual here; this orchid is more often encountered in juniper woodlands with a higher, more closed canopy similar to that found a few tens of meters to the north and northwest. It is extremely likely that during more favorable (wetter?) years, Glass Mountains coral-root will turn up in small numbers in that and possibly other areas of the park. It is also likely that reports of crested coral-root (*Hexalectris spicata*) by DLS Associates (1994) are based on observations of Glass Mountains coral-root. The three coral-root locations indicated on the DLS map, all of which appear to involve isolated junipers in grasslands along the shoulder of Lime Creek Road, were examined on 29 July 1996. The ground layer in all three locations had been mown earlier in the summer and no *Hexalectris* of any sort were observed.

To locate the known site of Glass Mountains coral-root in Sandy Creek Park, begin by finding the picnic table closest to the junction of Lime Creek Road and the paved park road in the northeastern corner of the park. This junction was blocked several years ago by several large limestone boulders. From the south side of the picnic table walk 25 steps at 144° down an old gravel roadbed at the end of which is an unsanctioned fire pit, then 43 steps at 164° along a faint trail, sticking to the trail rather than to the exact compass bearing while passing under and around various juniper branches. At 43 steps look for Glass Mountains coral-root under the Ashe juniper on the right (roughly west) side of the trail. A low branch of this juniper is flagged with a strip of red tape.

TEXAS AMORPHA AT SANDY CREEK PARK. Texas amorpha was not reported from Sandy Creek Park by McNeal (1989) but was apparently discovered in 1993 by DLS Associates (1994), who mapped no specific locations. Terri Siegenthaler (pers. comm., 1996) provided directions to some of the park's amorpha shrubs; these and others were examined on 2 July 1996.

Cluster 1 (see Figure 4). E side of a N-S paved dead-end road on bench about halfway between upland and lake, E of an "island" surrounded by blacktop and supporting 3 small Ashe junipers in an E-W row. One shrub with 1 stem ca. 5 feet tall, bending toward light from under a plateau live oak with lots of small Ashe juniper under drip line. This shrub is ca. 6 steps N of a permanently mounted trash can at the edge of a poorly defined gravel parking area. Three additional shrubs bearing 8 stems 2-4 feet tall were observed about 15 steps N of the first shrub, also on the W edge of this oak-juniper motte.

Cluster 2. W side of foot trail just S of S end of same paved dead-end road described above. One shrub with two stems less than 2 feet tall. Like the shrubs in cluster 1, these stems are under a plateau live oak in the company of numerous young Ashe junipers.

Cluster 3. E side of paved road to lake, along its N-S stretch, ca. 10 feet N of its jct. with a paved cul-de-sac leading S from curve. Two shrubs 20 feet E of road, in broken shade of Ashe junipers. One shrub with 1 stem 4 1/2 feet tall; another shrub with 1 stem 6 feet tall. Four more shrubs were found several yards to more (downslope along road), under a Texas oak ca. 15 feet E of road 15 feet N of a No Parking sign. One shrub had 4 stems 4-6 feet tall; one shrub had two stems 2 feet tall; the third shrub had 1 stem 3 feet tall; and the fourth shrub had 1 stem ca. 3 1/2 feet tall.

Cluster 4. N-facing slope on S side of inlet at N edge of park, E of paved road to lake. All plants observed were above (i.e., S of) foot-trail that runs along inlet just above normal pool level of Lake Travis. One shrub with two stems 4-5 feet tall was observed about 15 feet S of the trail at about the point where the juniper-oak woodland of the slope meets the dogwood-cedar elm thicket of the shoreline. Two additional shrubs were seen at the edge of a small open grassy area at the point where the trail descends from this ledge down to the bed of the lake. Both had single stems 1 1/2 to 2 feet tall. A truly huge amorpha was encountered E of the curve in the inlet, on a steep rocky slope where its juniper-oak woodland meets the dogwood-cedar elm thicket of the shoreline. This shrub had 4 stems, some 10 feet tall and 1 1/2 inches in diameter at base.

Additional clusters will undoubtedly be found during later surveys. Management concerns include maintenance of appropriate successional woodland sites and protection of known plants from inadvertent destruction by maintenance workers and park visitors.

HELLER'S MARBLESEED AT SANDY CREEK PARK. Although not considered a species of conservation concern during earlier BCCP surveys, Heller's marbleseed (*Onosmodium helleri*) should receive custodial attention from county parks staff. This Texas endemic is known from Bandera, Bexar, Comal, Hays, Kendall, Kerr and Travis counties, but within that range it is seldom encountered consistently except in the northwestern quarter of Travis County, particularly in the Bull Creek, Cypress Creek and Lake Travis watersheds. If plant species conservation is deemed more viable within the heartland of a species distribution than along its periphery, then perhaps conservation of Heller's marbleseed populations in Travis County should be a priority.

Heller's marbleseed was reported from Sandy Creek Park by DLS Associates (1994) without location. No populations of this species were encountered during surveys conducted on 2 July 1996 and 29 July 1996. It should be sought in and on slopes along the relatively mesic canyon in the northeastern corner of the park.

Results of General Plant Inventory

Approximately 238 plant species have been observed to date at Sandy Creek Park, most of them reported by DLS Associates (1994) after multi-season visits during 1993. This number includes sixteen species that are endemic to Texas; most are in fact essentially endemic to the Edwards Plateau. Two, Texas amorpha and Heller's marbleseed, were mentioned above. The other

fourteen endemics are plateau gerardia (*Agalinis edwardsiana*), plateau wild-mercury (*Argythamnia simulans*), canyon sedge (*Carex edwardsiana*), blackfoot spurge (*Chamaesyce angusta*), scarlet clematis (*Clematis texensis*), Stanfield prairie-clover (*Dalea tenuis*), meadow daucosma (*Daucosma laciniatum*), plateau milkvine (*Matelea edwardsensis*), canyon muhly (*Muhlenbergia lindheimeri*), devil's shoestring (*Nolina lindheimeri*), sevenleaf creeper (*Parthenocissus heptaphylla*), big-stipule scurfpea (*Pediomelum latestipulatum* var. *appressum*), Lindheimer crownbeard (*Verbesina lindheimeri*), mountain grape (*Vitis monticola*), and twistleaf yucca (*Yucca rupicola*). None is considered a species of conservation concern. Information about the local status of these endemics and other plant species is provided in the preliminary checklist attached to this report.