

RARE PLANT SURVEY AND GENERAL PLANT INVENTORY  
OF HAMILTON POOL PRESERVE, TRAVIS COUNTY, TEXAS,  
SUMMER 1996

21 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.

Since the rare plant resources of Hamilton Pool Preserve were already comparatively well known at the onset of this project, little time was spent in this botanically interesting area. Visits of 26 June 1996, 26 July 1996, 6 September 1996, and 19 September 1996 were all brief and focussed on evaluation of the preserve's known population of canyon mock-orange (*Philadelphus ernestii*).

### **Location/Physical Setting**

Hamilton Pool Preserve occupies — acres on the east bank of the north-south stretch of the Pedernales River just upstream from (north of) Hammetts crossing, the low water crossing on Hamilton Pool Road (Figure 1). It includes part of the channel of Hamilton Creek north of the road and all of the limestone collapse grotto and pool for which the preserve is famous.

Most of the park lies on a relatively flat bench underlain by the Hensell Sand (Barnes, 1982; see Figure 2). Slopes of Glen Rose Limestone rise above this bench in the northeast corner of the property. To the north and west the bench drops off precipitously into the canyons of the Pedernales River and Hamilton Creek respectively, where layers of Cow Creek Limestone, Hammett Shale, and Sycamore Sand are exposed. Vertical relief is rather spectacular along the canyons, particularly at Hamilton Pool, where Hamilton Creek drops as a waterfall 40 or 50 feet into a plunge pool. Contributions from nearly perennial Hamilton Creek and seepage from surrounding Cow Creek Limestone cliff faces maintain a rather constant level of water in the plunge pool. Elevation in the preserve ranges from about 930 feet on Glen Rose slopes in the northeast down to about 690 feet along the Pedernales River at the mouth of Hamilton Creek.

Soils of the preserve are mapped on sheet 39 of the Travis County soil survey (Werchan et al., 1974; see Figure 3). Soils of Glen Rose slopes are mostly mapped as Brackett soils, rolling. 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; this mapping unit is assigned to the Adobe range site. Soils of relatively level areas just below the Glen Rose slopes are mapped as Volente complex, 1 to 8 percent slopes. Volente

soils are deep, well drained soils that developed in slope alluvium. The surface layer is dark grayish-brown silty clay loam; the underlying layer is silty clay. These soils are calcareous, moderately alkaline Pachic Haplustolls and are assigned to the Deep Upland range site. Soils of the lower part of the bench, i.e., those closer to the bluffs along the creek and river canyons, are mapped as Tarrant soils, rolling. 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 and are assigned to the Rocky Upland range site. Soils of canyon slopes and bottoms are not mapped separately.

## **Vegetation**

Tine did not allow an examination of the plant communities at Hamilton Pool. However, a coarse description can be attempted now and modified later. Highest parts of the park, the Glen Rose slopes in the northeast corner of the park, support patches of midgrass grassland composed primarily of seep muhly (*Muhlenbergia reverchonii*), tall grama (*Bouteloua pectinata*), little bluestem (*Schizachyrium scoparium*) and woodlands composed primarily of plateau live oak (*Quercus fusiformis*), Ashe juniper (*Juniperus ashei*) and various other species. Plateau live oak and Ashe juniper are also important species in the woodland/grassland mosaic on the Hensell Sand bench, although composition of the ground layer is probably significantly different. Steep rocky slopes within Hamilton Creek canyon below the pool support a mixed evergreen/deciduous woodland of diverse and variable composition. Characteristic canopy species include Texas oak (*Quercus buckleyi*), Arizona walnut (*Juglans major*), Texas ash (*Fraxinus texensis*), escarpment black cherry (*Prunus serotina* subsp. *eximia*), and cedar elm (*Ulmus crassifolia*). It is likely that all of the shrub and small tree species reported from the park are present in the understory, the most unusual of which is redbay (*Persea borbonia*). Moist soils along the creek support a strip of gallery woodland dominated by large baldcypress (*Taxodium distichum*). Drier rocky west-facing slopes along the Pedernales support a patches of juniper woodland and shrublands composed at least in part of species tolerant of more xeric habitats, including such conspicuous species as Spanish dagger (*Yucca treculeana*) and sotol (*Dasylirion texanum*).

## **Target Rare Plant Species**

Six globally-rare plant species were sought in appropriate habitat at all of the sixteen parks included for survey during this project: Texas amorpha (*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 relative 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

Years of investigation by Texas botanists has revealed the presence of a small population of what may be the rarest of these seven target species, canyon mock-orange. This population is found on north-facing Cow Creek limestone bluffs and on rubble slopes below along a short stretch of the creek canyon between the pool and the access road a few hundred feet to the west (Figure 4). The date of and the names of those responsible for the initial discovery of this population are lost to antiquity, but many have come to observe it. Sometime during the early 1990's Jackie Poole, a botanist with the Texas Natural Heritage Program, used the site to demonstrate rare plant monitoring techniques to attendees of a seminar. During this demonstration, 95 canyon mock-orange plants were tallied. A more detailed census and investigation of long-term monitoring strategies are planned for the fall of 1996.

None of the other target species has come to light. In the opinion of this observer, any such population could not have escaped the attention of the myriad botanists who have visited the preserve since the 1920's. One possible exception is Buckley tridens, a grass which blooms so late in the season and is so scarcely distinguishable from more common relatives as to be routinely overlooked. It should be sought during October and November in partially shaded areas in and along the margins of juniper-oak woodlands within the canyon and on uplands.

## Results of General Plant Inventory

A total of 417 plant taxa have been reported to date from Hamilton Pool Preserve. This total includes 16 species that are endemic to (found only in) Texas, most of which are actually endemic to the Edwards Plateau:

- canyon anemone (*Anemone edwardsiana* var. *edwardsiana*)
- tall wildmercury (*Argythamnia simulans*)
- Texas barberry (*Berberis swaseyi*)
- wand butterflybush (*Buddleja racemosa*)
- blackfoot spurge (*Chamaesyce angusta*)
- netleaf bundleflower (*Desmanthus reticulatus*)
- white lestdaisy (*Chaetopappa bellidifolia*)
- widow's tears (*Commelinantia anomala*)
- slender dwarf-dandelion (*Krigia gracilis*)
- canyon muhly (*Muhlenbergia involuta*)
- stemless scurfpea (*Pediomelum hypogaeum*)
- canyon mock-orange (*Philadelphus ernestii*)
- goldeneye phlox (*Phlox roemeriana*)
- Drummond wild-petunia (*Ruellia drummondiana*)
- Lindheimer crownbeard (*Verbesina lindheimeri*)
- twistleaf yucca (*Yucca rupicola*)

Aside from canyon mock-orange, none of these endemic is generally considered a species of conservation concern. However, the population of Texas barberry is certainly of global significance and is the only known occurrence on public land in Travis County. General information about each of these endemic species will be presented in a separate appendix at the end of the set of park reports.

A few other species are neither endemic nor globally rare but are of interest nonetheless. Foremost on this list would be redbay (*Persea borbonia*), which is locally abundant on wooded slopes within the canyon of Hamilton Creek. This is the only known occurrence of redbay in central Texas, and it is reportedly 160 kilometers northwest of the nearest population on the Texas Gulf Coastal Plain. Its abundance here, well beyond its “normal” range to the east, as well as its absence from similar canyons along the Pedernales River, is inexplicable. The flora of Hamilton Pool also includes a large number of western species at or near the eastern edge of their respective ranges. Conspicuous among such species are sotol (*Dasyilirion texanum*), Trecul yucca (*Yucca treculeana*), and Lindheimer rock-daisy (*Perityle lindheimeri*).