

LIVE OAK/ASHE JUNIPER ECOSYSTEM



Left: 1938 aerial photograph reproduced from Geological & Environmental Consultants Plate No. 1 in Phil Hardberger Park Master Plan . Right: author's photo

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The Live Oak/Ashe Juniper ecosystem occurs in shallow limestone soils on hills and *escarpments* in the Edwards Plateau ecological region of Texas. Escarpments are steep areas or cliffs that separate one level of terrain from another.

Prior to European settlement the vegetation on the land which is now Phil Hardberger Park was primarily a mosaic of grassland and scattered trees (especially Live Oaks), a savanna--an expanse of grassland with scattered trees. Grasses were grazed by native animals such as the nomadic bison, which grazed an area very intensely, then moved on, giving the prairie grasses time to recover. In addition, natural fires and fires set by Native Americans killed woody plants, thereby promoting growth of native prairie grasses. The cycle of grazing, periodic fire, and recovery maintained prairie and savanna ecosystems for thousands of years.

The beautiful and majestic Live Oak in central Texas is the Plateau Live Oak (*Quercus fusiformis*). Live oaks sprout from the roots, forming groups of trees known as "mottes." Individual trees in these oak mottes are genetically identical and remain connected through their root systems. *Live Oak trees with trunk diameters up to 45 inches have been measured at Phil Hardberger Park!*

It is difficult for us to know the exact distribution and abundance of Ashe Juniper in central Texas at the time of European settlement. Early settlers recorded very dense, nearly closed-canopy "cedar brakes," especially on slopes and rocky canyon-lands, while also noting large expanses of savanna grasslands. When early settlers in Texas began to suppress wildfires and to fence livestock, Ashe Juniper became established in areas previously dominated by grasses. Thus, many areas that were originally Live Oak savanna became Live Oak/Ashe Juniper woodlands.

Look around the area where you are now standing. Can you see the extensive tree canopy of the dominant Live Oak/Ashe Juniper ecosystem?

Both Live Oaks and Ashe Junipers are important tree species for many reasons. Live Oaks provide cover and shelter for deer and other wildlife; oil-rich acorns are an important food source for numerous species, including white-tailed deer, squirrels, javelina, and bobwhite quail. Even the endangered Whooping Cranes eat acorns during their annual migration from Canada to the Aransas Wildlife Refuge. Songbirds feed on the spiders, insects, and caterpillars that live in Live Oak canopies.

Ashe Junipers provide nesting space and cover for many species of songbirds. The blue berries (actually "cones") produced in the fall are an important energy source for many native and migrant birds during the winter months. Strips of peeling bark on mature Ashe Junipers are the key nesting material for the endangered Golden-cheeked Warbler, which breeds only in a limited range in Central Texas.

Like any natural ecosystem, the Live Oak/Ashe Juniper community contains a diversity of trees, shrubs, grasses and wildflowers. Common species in this ecosystem include Texas Oak, Cedar Elm, and Escarpment Black Cherry (especially along creeks), as well as shrubs such as Texas Persimmon, Evergreen Sumac, Texas Mountain Laurel, Agarita, and Twist-leaf Yucca.

Cedar Sedge commonly occurs in the areas shaded by Live Oaks and Ashe Junipers and is often the only herbaceous species growing under them. *A thick layer of Ashe Juniper leaf litter inhibits germination and growth of seedlings—possibly because the hydrophobic (water-repelling) litter sheds water.* Sunnier areas can support a variety of grasses such as Little Bluestem, Texas Grama, Curly Mesquite, and Seep Muhly.

The Live Oak/Ashe Juniper ecosystem can be managed to improve its value for wildlife. Land managers may create openings in woodland areas (*senderos*) to encourage the growth of grassland species and to provide "edge" habitats (where two habitat types such as grasslands and woodlands come together) for wildlife species such as white-tailed deer and wild turkeys. Natural resource managers at Phil Hardberger Park are re-creating savanna communities and "edge" habitats by selective clearing of Ashe Junipers and other woody species, along with re-planting native grass and wildflower species.

References:

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