

February 11, 2005

Kingwood Prairie Management Recommendations

The Kingwood Prairie is approximately a 150-acre opening in a mixed hardwood pine forest in Northeast Harris County, bordered by Interstate 59 and the San Jacinto River. The opening is not a natural, undisturbed prairie. The area was used for excess fill in the early development of Kingwood. The native grass and forb seedbank is under as much as 7 feet of fill in one corner of the park. Despite the added fill, a number of desirable prairie grasses have become established in the prairie.

Throughout North America, agricultural expansion, range management practices, and urban development have led to profound losses to native prairies. Over the past 20 years there has been increased concern for grassland bird species due to continued loss and degradation of native grassland habitat. Since European settlement, tallgrass prairie losses are estimated at 90%. East of the Missouri River, losses are estimated at greater than 99%. Consequently, grassland ecosystems and the associated wildlife are among North America's most endangered ecosystems. The U.S. Department of Agriculture lists Texas as the nation's leader in the loss of undeveloped land.

Loss of habitat is thought to be the major factor contributing to grassland bird declines. As a management goal, two significantly declining bird species, the Henslow's sparrow (*Ammodramus henslowii*) and the Le Conte's sparrow (*Ammodramus leconteii*), are good target species for management and monitoring of the Kingwood Prairie health and productivity.

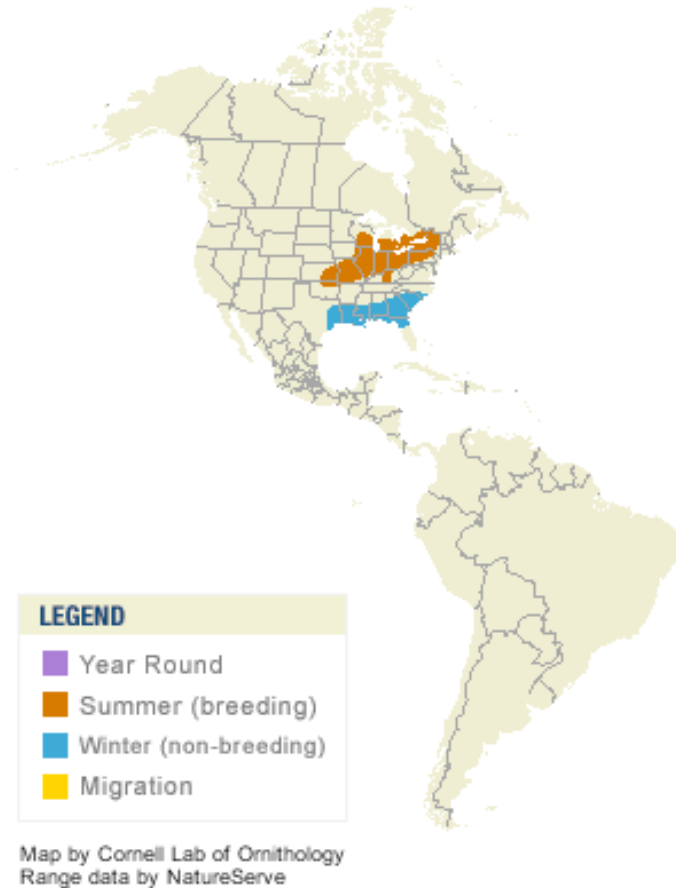
The Henslow's sparrow is a species of tallgrass prairies, agricultural grasslands, and pine savannas of the eastern U.S. This small sparrow has declined by more than 80% since 1966. Its native tallgrass prairie breeding habitat has declined by more than 90%. Henslow's sparrows migrate south to spend the non-breeding season in the native pine savanna habitats of the southeastern U.S.

Henslow's sparrows have recently been identified as the highest priority for grassland conservation in eastern and mid-western North America. The species long-term population decline (-7.5%) is attributed to the loss, draining, and degradation of grassland habitats throughout its range. This is the steepest decline for any species of grassland bird in North America (*The Birds of North America*, No. 672, 2002). Henslow's Sparrow does not have federally protected status in the United States, but is listed as Endangered in seven states, as well as Canada. PIF is promoting establishment of large grassland conservation areas for this and other species.

Henslow's sparrow specifics:

Henslow's Sparrow

Ammodramus henslowii



- **Winter Range:** Winters in the southeastern United States, from the North Carolina coast to Florida and along the Gulf Coast states to east Texas.
- **Habitat:** Large, flat fields with no woody plants, and with tall, dense grass, a dense litter layer, and standing dead vegetation.
- **Food:** Insects, mostly grasshoppers and beetles. Winter diet includes foraging on the ground for seeds and insects. In January and February, small grass seeds, primarily *Aristida* sp. have been found in Henslow's sparrows.

Personal observation of Henslow's sparrows when disturbed or flushed from their grassy habitat includes short flights to nearby understory (for example yaupon holly) or to pine overstory. To manage for Henslow's the open grassland habitat should be maintained with only a few immature pines scattered throughout the park for the bird to escape to when its habitat is disturbed.

1. Mowing regime: The prairie should be mowed regularly to deter woody encroachment. The over-wintering sparrows are potentially present in the park from November 1st to April 1st. Mowing should be avoided during this 5 month time period.

Wildflowers follow in the spring, and desirable bluestem grasses are beginning to bloom in late summer. Mid-July may be a good month to mow the entire tract rather than creating a rotational mowing schedule. If the prairie becomes too rank (overgrown with weedy species) in other seasons, then rotational mowing should be considered. My impression of the 2-acre entrance to the park is that the mower was set too low for maintaining a prairie. Mowing this low is equivalent to overgrazing a rangeland and may allow disturbance species an opportunity to become established in the prairie.

Recommendation: Additional input from area refuge managers (Anahuac NWF, Texas Mid-Coast NWR System) is needed to determine a preferred mowing height. Armand Bayou has also maintained a coastal prairie and is a good resource for maintenance information.

2. Selective tree removal: Woody vegetation will continue to increase in the Kingwood Park Prairie without either mowing, prescribed burning, or light grazing. Due to the close proximity of residential sites, and the undesirability of livestock grazing in the park, mowing will likely remain the preferred management tool for the park.

A number of immature loblolly pine (*Pinus taeda*) are scattered throughout the prairie. Reduction of the number of trees is needed to avoid shading the prairie plants that need full sun, plus removal will prevent more encroachment by additional pines.

Recommendation: Leave only 3-4 immature pines in the prairie, removing the rest by chainsawing and subsequent mowing.

3. Invasive species removal: Chinese tallow (*Sapium sebiferum*) trees have invaded several isolated areas within the park and need to be eliminated. Chinese tallow can rapidly displace native vegetation in wetlands by forming dense monospecific stands. Chinese tallow is an extremely invasive, non-native tree that will dominate a landscape if left untreated.

Recommendation: The trees should be cut down and an herbicide (one that is approved for use near a waterway, like Garlon 4) should be used to paint the remaining stumps to prevent regrowth.

4. Additional invasive species removal: *Cyperus entriarianus* (Deep-rooted sedge) has become established in several areas in the prairie. Deep-rooted sedge is native to temperate South America. It was introduced into the United States with rice agriculture in the early 1990s. This invasive weed has dispersed throughout much of the lower coastal plain of the southeastern United States, where it ranges from coastal Georgia into eastern Texas. Deep-rooted sedge forms extensive stands in ditches, coastal prairies, fields and disturbed sites in low flatwoods. Currently deep-rooted sedge is beginning to displace native vegetation, even in undisturbed habitats. Without widespread control it will likely continue to spread rapidly, infesting agricultural, urban, forested, riparian, and other natural areas. There is no single treatment that selectively eliminates deep-rooted sedge infestations without potentially affecting at least some native plants. Large plants can

produce a million viable seeds per year, and this aggressive perennial can over-winter in much of the south.

Recommendation: Contract a licensed herbicide applicator to individually spray the deep-rooted sedge infestations throughout the park. Use a sedge-specific herbicide like Manage for the best rate of eradication success. Once the infestation has been herbicided, monitor any re-emerging plants and pull them out with the root system in tact. Reapplying the herbicide may become necessary if the plant is not eradicated. Replant with established desirable prairie grasses or forbs or re-seed the area with native grass or wildflower seeds.

5. Track desirable species: Since this is a relatively new prairie, recording the desirable grasses and forbs will give baseline data at the park's inception.

Recommendation: Establish 5-6 transects randomly located throughout the park for flora and fauna surveys. Vegetation surveys will need to occur at least 4 times a year, to understand the seasonal diversity of the prairie. Surveying for sparrows should occur at least once during the winter months. The surveys can be used as an indicator on management successes and failures.

6. Introduce desirable tallgrass species: More native species should be introduced to ensure the establishment of additional coastal prairie plants.

Recommendation: Increase the diversity of prairie grasses and forbs by introducing established plants of *Sorghastrum nutans* (Yellow indiangrass), *Andropogon gerardii* (Big bluestem), *Schizachyrium scoparium* (Little bluestem) along with native grass and wildflower seeds. Native American Seeds sells both.

7. Close park to all motorized vehicles: ATV use will damage the park by compacting the soil, cause soil erosion in areas leading to the river, open the park to invasive species, fragment the habitat, and deter growth of desired grasses and forbs. As a management principal for over-wintering sparrows, ATVs should be considered a disturbance that will alter the sparrow's site selection.

Recommendation: If ATV use increases the park board should consider a fence with a pedestrian turnstile and a large padlock gate for mowers.

8. Leash dogs November 1 to April 1: Dogs will naturally chase birds which stresses over-wintering sparrows. Unleashed dogs may possibly alter sparrow habitat selection.

Recommendation: Add a sign asking the area residents to leash their dogs from November 1st to April 1st. To ensure more park user compliance, the sign should explain why they are being asked to change their behavior.

Observed Species During a Site Visit to the Kingwood Prairie February 4, 2005

The ground was wet following several rain events; the temperature was in the mid-50's
The approximate 2-acre entrance to the prairie had been recently mowed. The rest of the
150-acre prairie has not been mowed in 10+ years.

Grasses

- **Andropogon glomeratus* (Bushy bluestem)
- **Aristida oligantha* (Oldfield threeawn)
- Tridens strictus* (Longspike tridens)
- Dichanthelium* sp. (Rosettegrass)
- Eragrostis spectabilis* (Purple lovegrass)
- Andropogon virginicus* (Broomsedge)
- Chloris canterai*
- Paspalum urvillei* (Vaseygrass)
- Panicum virgatum* (Switchgrass)
- Stenotaphrum secundatum* (St. Augustinegrass) or *Axonopus fissifolius* (Common carpetgrass) no inflorescence available; grass found only around one stand of young loblolly pines

Rushes and Sedges

- Juncus validus* (Rush)
- Cyperus entrerianus* (Deep-rooted sedge)

Trees and shrubs

- Baccharis halimifolia* (Sea-myrtle)
- Gleditsia aquatica* (Water locust)
- Pinus taeda* (Loblolly pine)
- Ilex vomitoria* (Yaupon holly)
- Rubus* sp. (Blackberry)
- Sapium sebiferum*, syn. *Triadica sinensis* (Chinese tallow)
- Crataegus* sp. (Hawthorne)
- Sesbania drummondii* (Rattlebox)

* Dominant species

Vegetation and litter heights from random samplings: Bushy bluestem ht. 11.5 cm. with 2 cm. litter depth; Vaseygrass stand ht. 25 cm. with 5 cm. litter depth; *Aristida* (no height recorded) litter depth 2 cm.

Additional wildlife observed:

- Red-shouldered hawk
- Swamp sparrow
- Savannah sparrow

Le Conte's sparrow (several)
Sedge wren (several)
Pileated woodpecker
Downy woodpecker

Recommendation made by Flo Hannah, Sanctuary Steward, Houston Audubon Society