Coastal Prairie Management and Conservation (2018)

The coastal prairie region refers to the habitats that occur within the western gulf coast area and includes the coastal prairie grasslands as well as adjacent and included coastal wetlands and gallery forests. Ecological conditions within the coastal prairie region vary from the coast inland and from east to west with major gradients in hydric, saline, and climatic features.

Located along the western gulf coast region of the United States, just inland from the coastal marsh, is the coastal prairie. The coastal prairie is a type of tallgrass prairie and is similar in many ways to the tallgrass prairie of the Midwest United States. This ecosystem once extended from Corpus Christi, Texas, to its eastern limit at the margin of pine savanna along a north to south line running from Opelousas to Lafayette, La. The portion in southwest Louisiana, called the "Cajun prairie," originally extended from a narrow 11-mile (17.7 km) wide neck at the Sabine River and widened to its eastern limit. It is estimated that, in pre-settlement times, the Cajun prairie encompassed as much as 2.5 million acres of land. The Texas portion of the coastal prairie is estimated to have included about 6.5 million acres of habitat that extended in a band along the coast immediately inland from the marsh.

Today, substantially less than one tenth of a percent of the coastal prairie remains in a relatively undisturbed condition. The remaining 99.9 percent has been nearly eliminated for agriculture and development. While much of the former prairie has been converted to pasture for cattle grazing, the vast majority has been altered for the culture of rice and sugarcane. In Louisiana, the few remaining remnants of original upland prairie are found only on narrow strips of land along railroad tracks. Much more coastal prairie remains in southeast Texas; however, much of this prairie has lost species of grasses and wildflowers because of grazing.

The factors that contribute to the establishment and maintenance of prairie are rainfall, soil type, fire, and herbivory. Drought, fire, and competition from adapted grass and forb species combine to prevent the establishment of woody plants and maintain the grass-dominated ecosystem. Many prairie species depend on fire for seed set, satisfying seed dormancy, and the removal of accumulated biomass. Drought can occur in areas of low rainfall (west to central Texas), and in areas of high rainfall as a result of root restriction by a soil hard pan or by low water availability in heavy clay soils during dry summers (east Texas to Louisiana).

Prairie restoration is gaining interest in parts of Texas and Louisiana as well as in parts of the Midwest. Methods vary between geographical areas and individual restorationists, and success varies from year to year. Planting a restoration involves (1) preparation by herbicide, solarization, or tillage; (2) planting by haying, seeding, sodding, or transplanting; and (3) management by mowing, irrigation, grazing, and fire. The best time for planting varies based on location and method.

A similar story is playing out in the Blackland Prarie ecoregion. This ecoregion spans approximately 12 million acres from the Red River in north Texas to near San Antonio in south Texas. The Blackland Prairie, named for the deep, fertile black soils that characterize the area, is part of a tallgrass prairie continuum that stretches from Manitoba to the Texas Coast. The soils supported a tallgrass prairie dominated by tall-growing grasses such as big bluestem, little bluestem, Indiangrass, and switchgrass. Other important grasses were sideoats grama, hairy grama, tall dropseed, silver bluestem and Texas winter-grass. Because of the fertile soils, much of the original prairie was cultivated to produce food and forage crops.

According to the Texas Parks and Wildlife Department, 99.9% of the Blackland Prairie is lost to other land uses, and only a few remnants are protected as hay meadows or conservancy land. Threats to prairie remnants are urbanization, row crop agriculture, invasion by exotic plant species, fragmentation, and loss of landscape-scale processes, especially fire and grazing by large native herbivores such as bison.

There are no simple answers to the question of how we may best preserve a diverse and functioning prairie. Restoration on public land and by concerned citizens on private land and continued research on restoration technology, ecosystem health and control of invasive exotics are crucial if this most endangered community type is to be preserved.

Key Topics:

1. What is a coastal prairie?
2. History of coastal prairie in Texas
3. Multiple uses of coastal prairie
4. Coastal prairie management—principles, strategies and tools
5. Prairie conservation
6. Prairie restoration, seed harvesting and storage
7. Wetlands and flood management—the role of coastal prairie
8. Species recognition
9. Impact of loss of wild spaces, e.g., Nature Deficient Disorder
10. How can coastal prairie management be used to maintain a balanced plant community to support livestock, Attwater's prairie chicken, as well as other wildlife and land uses?
11. How can coastal prairie managers balance livestock production (grazing) with the maintenance of water quality?

Learning Objectives:

Information and examples provided will help Envirothon Teams understand the following:

1. Characteristics (biotic and abiotic) and location of coastal prairie in the Western Gulf region and how it is currently managed.
2. Demonstrate knowledge of how abiotic and biotic factors affect prairie conditions/health and strategies and tools that promote sustainable coastal prairies.
3. Describe the various entities responsible for managing coastal prairies—private, state and federal agencies, and non-governmental organizations (NGOs).
4. Ways to protect water quality within coastal prairie management.
5. Demonstrate knowledge of grazing systems and how grazing is used as an effective management tool to reduce the spread and impact of noxious weeds, reduce catastrophic wildfires, and improve wildlife habitat.
6. Demonstrate knowledge of coastal prairie plants, including identification, growth form, life span, season of growth, origin, and forage value.
7. How different ecosystems (wetland, riparian, and upland areas) within the grasslands interact.
8. How the use of the land by humans, domestic livestock, and wildlife affects the plant community.
9. Demonstrate an understanding of multiple use on prairie (social, economic and ecological values).
10. The rights of private landowners and citizens' related to public land.

Sources

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