



GULF COAST PRAIRIE

LANDSCAPE CONSERVATION COOPERATIVE

2013 ANNUAL REPORT



Enchanted Rock, istock.com



Aplomado Falcon, Texas Parks and Wildlife Department



Texas horned lizard



Mottled duck, Louisiana Department of Wildlife and Fisheries



Diamondback terrapin, U.S. Fish and Wildlife Service

INTRODUCTION

The Gulf Coast Prairie Landscape Conservation Cooperative was established in 2011 and is based in Lafayette, Louisiana. It is part of a network of 22 similar partnerships that develop science for conserving and managing natural and cultural resources throughout the major geographic regions of the United States and our neighboring countries.

The LCC network was launched in 2009 by the Department of the Interior, primarily through the U.S. Fish and Wildlife Service and U.S. Geological Survey. The work of LCCs is characterized by:

- a high level of collaboration, drawing from a variety of disciplines;
- creative leveraging of public and private sector resources;
- a focus on priorities most likely to result in self-sustaining wildlife populations indicative of healthy ecosystems;
- forecasting and planning for significant future changes to ecological conditions; and
- the application of the best available science, particularly GIS technology and climate science.

The Gulf Coast Prairie LCC steering committee now represents 17 organizations, with many additional public and private partners involved in science projects, work groups, and related activities.

Gulf Coast Prairie LCC covers about 100 million acres, including areas within five states in the United States (Kansas, Louisiana, Mississippi, Oklahoma, and Texas) and portions of three Mexican states (Coahuila, Nuevo Leon, and Tamaulipas).

The majority of the LCC area is in eastern Texas, central Oklahoma, and northeastern Mexico, but it also includes the western coast of the Gulf of Mexico in Mexico eastward through Louisiana and Mississippi, and to the north covering a small part of south-central Kansas.

Gulf Coast Prairie LCC partners recently identified 28 “focal species” that inhabit the LCC area. Focal species are sometimes called “indicator species,” “representative species,” or “surrogate species,” but they all mean generally the same thing—they will receive special attention. LCC science projects that benefit focal species will be given priority. This is because ensuring their health is most likely to result in productive habitats and healthy ecosystems that can support self-sustaining populations of a much broader array of wildlife. Similarly, Gulf Coast Prairie LCC partners also defined 17 characteristic habitats that support focal species and many other natural and cultural resources within the LCC area. These are broadly defined and meant to help direct partners’ efforts to link species to habitat needs, communicate about conservation work, and direct science resources.

Gulf Coast Prairie LCC focal species:

- | | |
|-------------------------------------|---------------------------------------|
| • Alligator gar | • Penaeid shrimp |
| • American oyster | • Red-billed pigeon |
| • Guadalupe bass | • Sea turtles |
| • Mottled duck | • White bass |
| • Northern bobwhite | • Black-capped vireo |
| • Quadrula spp. | • Brazilian (Mexican) free-tailed bat |
| • Black skimmer | • Crawfish frog |
| • Blue crab | • Diamond-backed terrapin |
| • Broadcast-spawning prairie minnow | • Dionda spp. |
| • Brown pelican | • Gulf menhaden |
| • Eastern meadowlark | • Northern pintail |
| • Eurycea spp. (salamanders) | • Rafinesque’s big-eared bat |
| • Golden-cheeked warbler | • River prawns |
| • Little blue heron | • White-tipped dove |

Gulf Coast Prairie LCC characteristic habitats:

- Tidal wetlands
- Floodplain forests, swamps, and riparian systems
- Rivers and lakes
- Headwaters and streams
- Freshwater (non-forested) wetlands
- Tallgrass prairie
- Open bay systems
- Barrier islands and beaches
- Aquifers, springs, and spring-runs
- Mixed deciduous and juniper woodlands
- Oak hardwood and pine forests
- Shrubland and shortgrass (mixedgrass) prairie
- Semi-desert shrub and grassland
- Nearshore Gulf systems
- Caves
- Reservoirs
- Agricultural lands



BUILDING A FIRM FOUNDATION

From its beginning in 2011, the Gulf Coast Prairie Landscape Conservation Cooperative has been built upon a foundation of other well-established cooperative efforts throughout the landscape, including three North American Waterfowl Management Plan joint ventures and two National Fisheries Habitat Initiative partnerships—exemplary efforts for their strategic implementation and public-private leveraging. Many partners who have been a part of these successes are now lending their leadership and experience in support of the Gulf Coast Prairie LCC during its startup phase.

Special partnerships with Texas A&M University and the Wildlife Management Institute, both of which have extensive linkages throughout the region, also are notable for their role in integrating and fortifying the larger Gulf Coast Prairie LCC network. Texas A&M and WMI continue to serve in vital roles related to the development of LCC science projects. When the LCC steering committee identifies science priorities, Texas A&M and WMI convene a technical review team that prepares Requests For Proposals. They then advertise these to the broader science community throughout the region and oversee the review and ranking of proposals received. When the LCC steering committee approves a science project for development, one of the two organizations prepares the formal agreement to make it happen.

DEVELOPING SCIENCE FOR LANDSCAPE-SCALE CONSERVATION

The Gulf Coast Prairie Landscape Conservation Cooperative's steering committee reviews proposals for science projects to fund or otherwise pursue. The following are brief descriptions of science projects the Gulf Coast Prairie LCC has either funded for others to develop, is developing with LCC staff support, or has initiated through collaboration and funding from others. The common denominator is they are all considered important because they support the priority work of LCC partners and advance conservation at a landscape scale.

New Gulf Coast Prairie-Funded LCC Science Projects

Modeling the Impacts of Sea Level Rise on the Gulf Coast

This project, part of a broader effort called the Gulf Coast Vulnerability Assessment (see “Protecting the Gulf Coast” in the “Bringing People and Resources Together for Strategic Advantage” section), will evaluate results of a computer modeling tool that helps characterize the impacts of sea level rise on coastal marshes and the hundreds of species that depend upon these habitats. It will address gaps in geographic coverage and provide a consistent approach across the U.S. portion of the Gulf of Mexico, making Gulf-wide analyses more viable. These new capabilities will have countless applications for ensuring adequate habitat for Gulf Coast fish and wildlife under these changing conditions. Project development is led by Warren Pinnacle Consulting, Inc.

Integrating Data for Protecting Gulf Coast Barrier Islands

This project, also part of the broader Gulf Coast Vulnerability Assessment, will integrate datasets and corresponding metadata required for a Gulf of Mexico-wide assessment of conditions and variables affecting barrier island vulnerability. Morphologic and geospatial datasets will later be incorporated into the Gulf Coast Prairie LCC Conservation Planning Atlas (see related project below, “Improving Conservation Planning”). Fragile barrier islands are important nesting habitat for LCC focal species such as brown pelicans, sea turtles, and black skimmers. Project development is led by the Harte Research Institute for Gulf of Mexico Studies.

Conserving Priority Grasslands

This project involves developing a computer modeling tool using the best available geospatial data to identify priority areas for grassland habitat conservation within the Gulf Coast Prairie LCC area. The tool will help partners determine the best places to invest limited resources in addressing threats such as land conversion and habitat fragmentation affecting LCC focal species such as the northern bobwhite and eastern meadowlark. Project development is led by the Missouri Resource Assessment Partnership and NatureServe.

Studying Fish Habitat Needs in Lake Texoma Reservoir

This project involves evaluating the taxonomic and functional structure of young fish species in the upper end of Lake Texoma, a reservoir in the Red River watershed along the Texas/Oklahoma border. It also involves assessing the hydrological connectivity and other habitat factors that influence the abundance and diversity of young fish in this area. While siltation in the areas between reservoir and riverine ecosystems can damage habitat, there is emerging evidence to suggest certain water management strategies could promote high fish diversity in these areas—but this needs to be further studied. New information will help refine Gulf Coast Prairie LCC priorities relating to several focal species, including alligator gar and white bass. Project development is led by Texas Tech University.

Ongoing Gulf Coast Prairie LCC-Funded Science Projects

Developing Guidance for Conserving Grasslands and Shrublands

This project involves developing Best Management Practices for land managers and private landowners in southwestern Oklahoma and central Texas to conserve grassland-shrubland prairie habitat, benefitting LCC focal species, such as the endangered black-capped vireo, other songbirds such as the painted bunting and Bell’s vireo, and many game species such as turkey and white-tailed deer. It is already helping to bring ranchers, hunters, and conservation partners together to resolve past conflicts and advance mutual interests. The project also provides direction for future monitoring, research, and broader dissemination of information to land managers and landowners. Greater collaboration will greatly expand and improve LCC partners’ efforts to conserve the remaining grassland habitats of the southern Great Plains. Project development is led by Texas A&M University.

Mapping Vegetation in Oklahoma

This project involves filling in critical gaps in information for a broader effort to map landcover throughout the south-central United States. This resource will provide baseline information to support all kinds of conservation efforts for this region, particularly those that involve evaluating the quality of vegetation that contributes to healthy ecological conditions. Project development is led by the Oklahoma Department of Wildlife Conservation.

Managing Changes to Hydrologic Flow

This project involves gathering baseline information on the ways the hydrology of rivers and streams throughout the Gulf Coast Prairie LCC area have been altered and the broader ecological effects of those changes. It also involves prioritizing future research to fill in gaps of crucial information and identifying hydrology-related environmental challenges on which to focus and invest in the future. It will be integrated with similar efforts in surrounding regions for even broader benefit. Project development is led by the Southeast Aquatic Resource Partnership.

Restoring Rio Grande Valley Migration Corridors

This project involves restoring habitats along the Lower Rio Grande Valley in south Texas—one of the largest migratory bird stopovers in North America and a major birding hotspot. Reservoir development allowed controlled flows of the lower Rio Grande River and subsequent agricultural expansion in the valley, resulting in rapid population growth and habitat loss, causing significant declines in fish and wildlife populations. Project partners are studying the responses of different bird species, such as the Altamira oriole, green jay, and olive sparrow, to farmland revegetation in the valley. The project is led by the University of Texas-Pan American.

Studying Sea Level Rise in Coastal Texas

This project involves studying the effects of sea level rise on coastal habitats and birds such as the endangered whooping crane and piping plover. It also involves evaluating potential scenarios for future impacts on a variety of species—including grassland birds, shorebirds, and waterfowl—so that habitat conservation measures can be planned for and developed more effectively. Project development is led by the International Crane Foundation.

Conserving the Mottled Duck

This project involves developing a computer modeling tool to help prioritize habitat conservation for the mottled duck, a non-migratory species residing along the western Gulf Coast in Texas and Louisiana. The mottled duck is an LCC focal species. The tool will help partners target habitat areas that are most likely to boost the duck's breeding success, at the same time benefitting a dozen other grassland- and wetland-dependent species throughout the area. It also will help Texas and Louisiana advance a more unified approach to mottled duck conservation. Project development is led by Texas A&M University.

Gulf Coast Prairie LCC Science Projects Being Developed In-House

Improving Conservation Planning

Gulf Coast Prairie LCC staff are working with the Conservation Biology Institute to build a comprehensive Conservation Planning Atlas, an emerging technology that makes a vast amount of geospatial data more easily accessible and available at no cost to conservation partners. It is the platform that LCC partners will primarily use to serve, deliver, and store data and information for the geospatial components of all Gulf Coast Prairie LCC science projects, improving countless conservation efforts. These capabilities also will be integrated with similar efforts covering other areas for broader benefit.



Williams Prairie, Katy Prairie Conservancy

Protecting the Ecology of the Edwards Plateau

Gulf Coast Prairie LCC staff are bringing partners together specifically to develop priority conservation goals for an area of central Texas where rapid changes, such as population growth, urbanization, land use change, and climate change, are dramatically affecting the ecology. The Edwards Plateau is home to wildlife ranging from golden-cheeked warblers, cedar waxwings, and indigo buntings, to cave-dwelling species such as the Brazilian (Mexican) free-tailed bat and Eurycea salamanders (both LCC focal species), to bobcats, armadillos, turkey, and javelinas. Its unique karst hydrology also feeds the Edwards Aquifer, the primary water source for the city of San Antonio, America's eighth-largest city. Marshalling a network of partners is the first step in building more effective conservation efforts in this area. Datasets with information on habitat, land use, and climate change and urban growth projections will greatly support LCC partners' priority-setting and conservation planning.

Assessing Habitat Fragmentation in Louisiana, Oklahoma, and Texas

Gulf Coast Prairie LCC staff are evaluating methods for measuring how urban, rural, and energy-related development has affected habitat connectivity in Louisiana, Oklahoma, and Texas. This is of particular significance to species that migrate or use extensive land and water areas throughout their life cycle, such as the lesser prairie chicken. This project will support LCC partners in identifying priority areas for habitat conservation and planning for the future.

Synthesizing Urban Growth Models

Gulf Coast Prairie LCC staff are synthesizing, summarizing, and comparing currently available urban growth models. This resource will help partners identify gaps in our knowledge, predict and assess the impacts of future landcover changes, and refine conservation efforts. This is particularly important given the LCC area includes some of the fastest growing population centers in North America.

Supporting Tribes in Adapting to Climate Change

Gulf Coast Prairie LCC staff are working with the Chitimacha Tribe to develop a climate change adaptation plan. This coastal Louisiana tribe is witnessing rapid environmental changes due to coastal development, disasters such as the Deepwater Horizon oil spill, and climate change. The LCC is providing geospatial data and tools, environmental education and outreach, and other assistance to support the tribe in protecting its cultural resources. The adaptation plan may serve as a model for other Gulf Coast tribes facing loss of land, traditional hunter/gatherer foods and medicines, and sacred sites.

Gulf Coast Prairie LCC Science Projects Funded and Primarily Developed by Other Sources

Delineating Marsh Habitats Along the North-Central Gulf Coast

This project involves developing contemporary, baseline information and computer modeling tools related to different marsh types and habitat availability along the Gulf Coast to help partners identify conservation priorities. It will help update and fill in gaps of information that are currently limiting the effectiveness of large-scale conservation efforts in Texas, Louisiana, Mississippi, and Alabama. The information also will enable planning for various scenarios of sea-level rise. The South Central





Wichita Canyon

Climate Science Center is funding and leading the development of this project in collaboration with the Gulf Coast Joint Venture, Gulf Coast Prairie LCC, and Gulf Coastal Plains and Ozarks LCC.

Studying the Impacts of Habitat Fragmentation in the South-Central U.S.

This project involves evaluating habitat connectivity across the south-central United States. Computer modeling tools will predict patterns of connectivity for species with various habitat preferences, methods of habitat selection, and responses to areas between habitats. It also involves evaluating the implications of predicted land-use change and climate change across the study area. This will help resource managers in their decision-making and planning for the future. The South Central Climate Science Center is funding this project and it is being developed by Oklahoma State University in collaboration with Gulf Coast Prairie LCC.

Compiling Data on Submersed Aquatic Vegetation

This project involves compiling consistent baseline data on the occurrence and abundance of submersed aquatic vegetation—a critical component of highly productive coastal ecosystems—within the northern Gulf of Mexico. It also involves assessing and developing a conceptual model of environmental factors affecting vegetation variation. These data will enable predictive modeling of vegetation under different scenarios of landscape and climate change and contribute to the refinement of existing models of ecosystem change. This will in turn contribute to efforts to forecast the effects of climate change on the distribution, abundance, and diversity of these resources and the fish and wildlife that depend on them. The project is funded by the South Central Climate Science Center and is being developed by the U.S. Geological Survey, Louisiana Fish and Wildlife Cooperative Research Unit, in collaboration with Gulf Coast Prairie LCC.

BRINGING PEOPLE AND RESOURCES TOGETHER FOR STRATEGIC ADVANTAGE

Formalizing a Science Strategy

In 2013, the Gulf Coast Prairie Landscape Conservation Cooperative Science Team continued the work it had begun upon its establishment the previous year. The Science Team's greatest accomplishment is the development of a formal LCC Science Strategy building on the thorough evaluation resulting from the 2012 Priority Science Needs Forum. The forum included more than 50 natural resource managers, scientists, and researchers from across the landscape, allowing broad sharing of scientific knowledge and expertise and providing the input needed for a comprehensive strategy to address science needs.

A significant part of the Science Strategy is the identification of 28 focal species and 17 characteristic habitats throughout the Gulf

Coast Prairie landscape. Identifying focal species and characteristic habitats is an important aspect of the modernized approach to conservation that LCCs are leading. It helps ensure LCC partners' investments are maximized.

Overall, the Science Strategy identifies, focuses, and addresses science needs and desired ecological conditions—including focal species population objectives—for the primary habitats within the Gulf Coast Prairie LCC area. It includes short-, medium-, and long-term elements to guide the LCC's priority work over the next decade.

Special thanks to the Gulf Coast Prairie LCC Science Team for this major accomplishment!

- Kyle Balkum, Louisiana Department of Wildlife and Fisheries
- Mike Brasher, Ducks Unlimited & Gulf Coast Joint Venture
- Leonard Brennan, Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville
- Jorge Brenner, The Nature Conservancy
- Kirk Feuerbacher, The Nature Conservancy
- John Foret, National Oceanic and Atmospheric Administration
- Cindy Loeffler, Texas Parks and Wildlife Department
- Sally Palmer, University of Texas, Mission-Aransas National Estuarine Research Reserve
- Scott Robinson, Southeast Aquatic Resource Partnership
- Mark Shafer, Oklahoma Climatological Survey
- Ryan Smith, The Nature Conservancy
- Greg Summers, Oklahoma Department of Wildlife Conservation
- Don Wilhelm, U.S. Fish and Wildlife Service
- Jarrett Woodrow, U.S. Fish and Wildlife Service
- Roger Zimmerman, National Oceanic and Atmospheric Administration

Advancing Climate Science Coordination

In 2013, the Gulf Coast Prairie Landscape Conservation Cooperative; its neighboring LCC, the Gulf Coastal Plains and Ozarks LCC; and the South Central Climate Science Center initiated what will become a regular forum for advancing climate science. This effort gives partners a way to synergize their collective expertise, coordinate landscape-scale research, and avoid duplication.

The two LCCs met with the South Central Climate Science Center consortium researchers from Louisiana State University, reviewing the LCCs' science priorities and learning more about the university's interests and capabilities. The meeting was projected via webinar to consortia members from Gulf of Mexico-area watersheds, laying the groundwork for much broader collaboration in the future.

Protecting the Gulf Coast

In 2013, the Gulf Coast Prairie Landscape Conservation Cooperative continued to provide funding and participate in the Gulf Coast Vulnerability Assessment, taking part in steering committee meetings and other activities and approving two new LCC-funded projects relating to this effort (see "New Gulf Coast Prairie LCC-Funded Science Projects" in the "Developing Science for Landscape-scale Conservation" section above).

One of the most important initiatives relating to conservation in the Gulf of Mexico coastal region, the Gulf Coast Vulnerability Assessment involves identifying and assessing habitat and species vulnerabilities in a consistent manner throughout the Gulf. The effort improves conservation and restoration planning and implementation by providing a better understanding of the effects of climate change, sea-level rise, and land-use change on the Gulf of Mexico coastal ecosystems and species.

It is led by the Gulf of Mexico Alliance, the National Oceanic and Atmospheric Administration, the four LCCs covering areas along the Gulf Coast, and the South Central and Southeast Climate Science Centers.

Engaging American Indian Tribal Governments

In 2013, the Gulf Coast Prairie Landscape Conservation Cooperative and the South Central Climate Science Center initiated an effort to improve communications and collaboration with American Indian tribes throughout the south-central region of the United States, especially to identify cultural and natural resource conservation priorities.

For the area that Gulf Coast Prairie LCC covers, tribal nations' lands amount to about 8 percent of the total. Tribal members have unique knowledge and perspectives about historical ecological conditions and the consequences of more recent large-scale changes to the landscape.

Additional partners involved with this effort include the U.S. Geological Survey's Oklahoma Water Resource Center, the Chickasaw Nation, the Absentee Shawnee Tribe of Oklahoma, and Oklahoma University.

Representatives from the Gulf Coast Prairie LCC, Climate Science Center, and tribes drafted a strategy to improve relations with 64 tribes within the footprint of the South Central Climate Science Center and six LCCs (Gulf Coast Prairie, Gulf Coast Plains and Ozarks, Great Plains, Desert, Southern Rockies, and Eastern Tallgrass Prairie and Big Rivers LCCs). The strategy addresses improving communications, identifying science needs, and advancing regional project planning with landowners, land managers, planners, and scientists.

Gulf Coast Prairie LCC partners participated in a related effort led by Oklahoma University and the South Central Climate Science Center to interview and record the testimonials of 65 people from 33 tribes about traditional ecological knowledge as it relates to climate change and their tribes.

Gulf Coast Prairie LCC staff also initiated a social science project with a Louisiana coastal tribe that could serve as a model for more collaborative work with tribes in the future (see "Supporting Tribes in Adapting to Climate Change" in the "Developing Science for Landscape-scale Conservation" section above).

Conserving Prime Prairie Habitat

In 2013, the Gulf Coast Prairie Landscape Conservation Cooperative, Gulf Coast Joint Venture, and National Wetlands Research Center convened a "prairie partners meeting" to bring together a broad range of grassland and prairie experts from various government agencies, non-profit organizations, and academic institutions. Conserving and restoring grassland and prairie habitats is a priority for several Gulf Coast Prairie LCC partners.





Golden-cheeked warbler, U.S. Fish and Wildlife Service

Gulf Coast Prairie LCC staff shared information on efforts such as the Edwards Plateau working group, the Conservation Planning Atlas, and other science projects related to addressing habitat fragmentation and prioritizing habitat areas on which to focus conservation investments (see above section, “Developing Science for Landscape-scale Conservation). This networking helped the LCC and other partners realize specific ways to improve collaboration for healthy prairie ecosystems.

COMINGS AND GOINGS

The Gulf Coast Prairie Landscape Conservation Cooperative has a total staff of eight, with just two of those positions fully dedicated to the LCC: the LCC Coordinator and the LCC Science Coordinator. In 2013, the Gulf Coast Prairie LCC appointed its first Science Coordinator, Cynthia Kallio Edwards, into this mission-critical position.

Cynthia has more than 10 years of professional experience as a Sustainable Development Specialist with SaskPower and as a Manager of Industry and Government Relations with Ducks Unlimited Canada. She worked in the areas of climate change legislation and carbon market development and research, including the development of carbon offset protocols. She received her MSc and BSc from the University of Saskatchewan in Saskatoon (Agricultural Economics) where her graduate work focused on the development of a market for carbon offsets generated from tillage management practices. Her agricultural background and professional experience have given her a foundation to pursue her interest in the conservation of natural resources and adaptation to climate change across North America.

Also in 2013, Gulf Coast Prairie LCC witnessed a changing of the guard, with a number of the LCC’s biggest contributors moving on to other positions or retiring. The LCC has benefited greatly from the contributions of Susan Baggett, Natural Resources Conservation Service representative, who served on the LCC steering committee; Mike Carloss, Louisiana Department of Wildlife and Fisheries, who served as vice chair of the steering committee; Bruce Moring, U.S. Geological Survey, who was a member of the LCC science support staff; Laurie Rounds, National Oceanic and Atmospheric Administration liaison; and Greg Summers, Oklahoma Department of Wildlife Conservation, who served on the LCC Science Team.

GULF COAST PRAIRIE LANDSCAPE CONSERVATION COOPERATIVE

In 2013, we added another member to the Gulf Coast Prairie Landscape Conservation Cooperative steering committee: the Department of Defense's U.S. Army Corps of Engineers. We now have 17 organizations represented on the LCC steering committee, with many other partners participating in LCC projects and activities.

Federal Agencies:

- Department of Agriculture, Natural Resources Conservation Service
- Department of Commerce, National Oceanic and Atmospheric Administration
- Department of Defense, U.S. Army Corps of Engineers
- Department of the Interior, National Park Service
- Department of the Interior, U.S. Fish and Wildlife Service
- Department of the Interior, U.S. Geological Survey

State Agencies:

- Louisiana Department of Wildlife and Fisheries
- Oklahoma Department of Wildlife Conservation
- Texas Parks and Wildlife Department

Non-governmental Organizations:

- Ducks Unlimited
- The Conservation Fund
- The Nature Conservancy

Partnerships

- Gulf Coast Joint Venture
- Oaks and Prairies Joint Venture
- Reservoir Fisheries Habitat Partnership
- Rio Grande Joint Venture
- Southeast Aquatic Resource Partnership

For More Information

Bill Bartush, Coordinator
Gulf Coast Prairie Landscape Conservation Cooperative
National Wetlands Research Center
700 Cajundome Boulevard
Lafayette, LA 70506
(337) 266-8816
bill_bartush@fws.gov

gulfcoastprairielcc.org



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Landscape Conservation Cooperative

Texas Gulf Coast, Texas Parks and Wildlife Department