

D. Measuring Strategy Success

Success of the Louisiana CWCS will rest on implementation of the various conservation actions or strategies developed in the writing of the plan. These strategies present explicit and concise approaches to addressing the identified threats to Louisiana's species of conservation concern and their associated habitats. The conservation actions or strategies fall into several categories including:

- Land protection efforts
- Information management
- Partnerships
- Education and outreach
- Technical interactions
- Restoration efforts
- Surveys and research
- Monitoring
- Conservation design

In order to accurately measure the success of these strategies, a series of performance indicators was devised (Tables 8.3 through 8.7). These performance indicators give concrete, quantitative measures on which LDWF can base its evaluation of the success of the CWCS. A specific schedule for reporting on the implementation of strategies and a database of the corresponding performance indicators is essential. Tables 8.8 and 8.9 present the schedules for accomplishing these tasks.

Table 8.3. Performance indicators for general conservation actions.

Strategy	Performance Indicator (tracked annually)
Surveys and research	# of areas surveyed; # of new survey sites; # of species located; # of new locations of species of concern; new estimates of population size; measures of life history metrics; # of technical committee meetings/workshops
Monitoring	# of new monitoring sites or species protocols established; # of species for which trend information can be assessed; # of species for which population targets can be assigned; trends in habitats necessary for species of conservation concern; # of projects for which monitoring information led to adaptive management
Land protection efforts	# of acres protected through conservation servitudes, acquisition, etc. by LDWF or other partner; # Natural Areas Registry sites enrolled; # of cooperative projects with LDWF and partners
Information management	# of species tracked; # of species with new data being collected; # of data exchanges with partners or users; # of projects completed for species of concern
Partnerships	# of partnerships extended or created; # of information exchanges via meetings, reports, data, etc: # of MOUs developed or renewed
Education and outreach	# of news releases; # of public presentations; # of participants in Natural Areas Registry Program; # of reports generated; # of positive/negative comments from public and partners
Technical interactions	# of private lands visited to discuss species of concern; # of measures implemented; # of permits reviewed; # of BMPs developed or recommended
Restoration efforts	# of acres reforested; # of projects funded; # coastal projects funded; # projects implemented; # of restoration projects completed
Conservation design	# of workshops/meetings hosted; # conservation plans written; # recovery plans developed

Table 8.4. Goal 1. Species Conservation.

Goal	Objectives	Strategies	Performance Indicators	Threats Addressed
<p>Provide the habitat and ecosystem functions that support healthy and viable populations of all species, avoiding the need to list additional species under the Endangered Species Act</p>	<p>Conduct a comprehensive review of the current status of all wildlife in Louisiana with a focus on species of conservation concern</p>	<p>Inventory and survey for species of conservation concern which have limited or no baseline occurrence data</p> <p>Inventory and survey for species of conservation concern to update historic occurrence data</p> <p>Support research which focuses on life history, reproductive success, and mortality factors for species of conservation concern</p> <p>Support research on the diversity and ecology of the lesser-known groups of invertebrates such as butterflies and moths, aquatic insects, snails, arachnids, beetles, etc.</p>	<p># of species for which baseline data has been collected</p> <p># of species for which threats are definitively identified</p> <p># new and updated species EOs entered into database</p> <p># of species for which life history, reproductive success, and mortality factors are assessed</p> <p># of research projects focusing on lesser-known species</p>	<p>Data gaps</p> <p>Limited knowledge</p> <p>Lack of data</p>
	<p>Develop concrete management strategies which focus on species of conservation concern and their associated habitats identified in the CWCS</p>	<p>Expand current knowledge of habitat trends and priority habitat needs for species of conservation concern</p> <p>Continue and expand monitoring of priority species/groups to formulate conservation strategies and management decisions</p> <p>Conduct geographical analysis to identify gaps where managed areas are lacking in the state, relative to protection needs of Tier 1 habitats and important focal areas discussed in the habitat accounts in Chapter 4</p> <p>Produce maps showing areas where land acquisition and the establishment of conservation areas would be the most valuable conservation tool</p>	<p># of habitats assessed</p> <p># of habitat threats for which specific strategies have been developed and implemented</p> <p># of species/populations monitored</p> <p># of new monitoring strategies developed</p> <p># of projects initiated</p> <p># of identified areas</p> <p># of maps produced</p>	<p>Data gaps</p> <p>Limited knowledge</p> <p>Lack of data</p> <p>Few defined strategies</p>
	<p>Formulate partnerships with federal and state agencies, national and local non-governmental organizations, universities, businesses, and the public in the development and implementation of these strategies</p>	<p>Continue to develop and improve contacts with all potential partners in the state</p> <p>Hold species strategy meetings and invite all interested partners</p>	<p># of partners contacted</p> <p># of contacts developed</p> <p># of meetings held and commitments given to implement recommended conservation strategies</p>	<p>Lack of species and habitat conservation strategy coordination</p>

Table 8.5. Goal 2. Habitat Conservation.

Goal	Objectives	Strategies	Performance Indicators	Threats Addressed
<p>Identify, conserve, manage, and restore terrestrial and aquatic habitats which are a priority for the continued survival of species of conservation concern</p>	<p>Utilize Natural Heritage Program database to identify habitat types which are important to the conservation of species of concern, and continually evaluate and update the status of these habitats to direct conservation and restoration efforts</p>	<p>Increase data collection in habitats important to species of conservation concern, expanding resources and staff to meet this need</p> <p>Expedite input of field data on habitats of concern, expanding resources and staff to meet this need</p> <p>Improve spatial data available for habitats and species of conservation concern (mapping of species locations and habitat coverages)</p> <p>Utilize the Natural Heritage database and other sources to identify priority sites for habitat conservation and restoration efforts through acquisition and conservation servitudes</p> <p>Develop and publish species lists (including both wildlife and plants) for WMAs, refuges, and state parks</p> <p>Step-up surveys in aquatic habitats to fill data gaps regarding: Species diversity Rare or endemic species Ecosystem processes Areas critical to survival of species of concern</p>	<p># of new sites surveyed</p> <p># of known sites surveyed to update status</p> <p># field survey days</p> <p># new and updated EOs entered into database</p> <p># of GIS mapping projects initiated</p> <p># of habitats accurately mapped</p> <p># of comprehensive habitat status surveys or research projects initiated</p> <p># of priority sites/acres identified for protection</p> <p># of species publications for WMAs and refuges</p>	<p>Data gaps</p> <p>Limited knowledge</p> <p>Lack of data</p>
	<p>Monitor threats to terrestrial and aquatic habitats of priority concern</p>	<p>Complete habitat threats analysis every 5 years</p> <p>Create a database of threats and continually consider and incorporate new information concerning threats into this database</p>	<p>Documentation of habitat threats analysis</p> <p># of threats identified for key habitats</p> <p>Incorporate information into threats database quarterly or as available</p>	<p>Basing decisions on outdated threat information</p>
	<p>Promote and support terrestrial and aquatic habitat protection efforts</p>	<p>Protect or restore key areas supporting or having the potential to support priority habitats (Table 7.1) through acquisition and conservation servitudes</p> <p>Expand Natural Areas Registry Program to include incentives such as tax breaks, conservation servitudes, management assistance, etc.</p> <p>Provide local and parish planning boards with information regarding sensitive terrestrial and aquatic habitats and species of concern, and work to redirect development of these areas</p> <p>Continue to support LA RCW Safe Harbor Program and associated habitat protection efforts</p>	<p># of sites/acres acquired or protected</p> <p># of long-term cooperative projects initiated to protect priority habitats</p> <p># of active registries/acres in the Natural Areas Registry Program</p> <p># of meetings/contacts with planning boards</p> <p># sites/acres where development redirected</p> <p># acres enrolled in LIP; RCW Safe Harbor Prg</p>	<p>Habitat destruction or conversion</p> <p>Habitat fragmentation</p> <p>Residential and commercial development</p>

Table 8.5. Goal 2. Habitat Conservation cont.

Goal	Objectives	Strategies	Performance Indicators	Threats Addressed
Identify, conserve, manage, and restore terrestrial and aquatic habitats which are a priority to the continued survival of species of conservation concern	Develop and implement terrestrial and aquatic habitat conservation and management recommendations	Provide management guidelines and technical assistance to non-industrial private landowners to benefit habitats and species of conservation concern Provide management guidelines and technical assistance to public agencies/land managers (e.g., state parks, state lands, parish parks) to benefit habitats and species of concern	# of technical guidance interactions with private landowners # of technical guidance interactions with public agencies/land managers	Habitat degradation Incompatible management practices
	Monitor distribution and impacts of invasive/alien species and develop management strategies to abate this threat	Work with Invasive Species Task Force, LA Sea Grant Program and others to monitor occurrences and spread of invasive/alien species Provide public education and support existing efforts/programs regarding invasive species, working through the Invasive Species Task Force Promote use of state and federal cost share programs to address invasive species problems Partner with local hunting clubs through DMAP to support wild hog eradication	# of specimens of invasive plant species collected and deposited in herbaria # of monitoring and survey projects initiated # of technical guidance interactions with private and public land managers # of eradication projects initiated	Altered structure and composition Habitat disturbance
	Promote reintroduction and continued use of prescribed fire in fire-dependent habitats	Educate landowners, adjacent residents, developers, and the general public about the crucial role of prescribed fire in the management of: Longleaf pine systems and imbedded habitats Shortleaf pine-Oak-Hickory Forests Coastal and Calcareous Prairies Coastal Marsh types Western Xeric Sandhill Woodlands Provide additional cost share funds through programs such as FLEP in order to drastically reduce or eliminate landowners' costs associated with conducting prescribed burns Encourage burning on state lands to perpetuate fire-dependent habitats (e.g., state parks, state lands office)	# of educational programs # of sites/acres burned on private lands # of sites/acres burned on state lands Amount of funding for cost share programs used to support prescribe burning on private lands	Altered structure and composition Incompatible forestry practices

Table 8.6. Goal 3. Public Outreach and Education.

Goal	Objectives	Strategies	Performance Indicators	Threats Addressed
Support educational efforts to improve the understanding by the general public and conservation stakeholders regarding species of conservation concern and related habitats	Provide educational information using various media types	<p>Improve, maintain and develop web-based resources to share information on priority habitats and species of conservation concern</p> <p>Develop field guides for habitats and species of conservation concern</p> <p>Develop manual to the flora of Louisiana</p> <p>Develop publication on natural communities of Louisiana</p>	<p># of web-based resources developed or enhanced</p> <p># of "hits" for web-based educational resources</p> <p># of field guides for habitats and species of concern published</p> <p># of audiences reached</p> <p># of requests for educational materials</p>	<p>Inefficient information exchange</p> <p>Public indifference</p> <p>Fear/misunderstanding</p> <p>Lack of information</p>
	Increase direct interactions between biologists and public and private stakeholders regarding species of concern and associated habitats	<p>Provide presentations and workshops to various groups interested in wildlife and plant resources</p> <p>Provide educational field trips for the general public or various organization</p> <p>Meet one-on-one with public and private landowners to discuss possibilities for habitat improvement and management needs (utilize existing programs such as Natural Areas Registry, Forest Stewardship, DMAP, etc.)</p>	<p># of presentations or workshops conducted</p> <p># of educational field trips conducted</p> <p># of landowners interactions</p> <p># of acres enhanced</p>	<p>Public indifference</p> <p>Fear/misunderstanding</p> <p>Lack of information</p>
	Enhance the user's educational experience on WMAs and refuges	Develop animal and plant species lists for WMAs and refuges, and disseminate this information to interested persons	<p># of lists requested</p> <p># of comments regarding lists</p>	<p>Public indifference</p> <p>Lack of information</p>

Table 8.7. Goal 4. Partnerships.

Goals	Objectives	Strategies	Performance Indicators	Threats Addressed
Improve existing partnerships and develop new partnerships between LDWF and State and Federal natural resource agencies, non-governmental organizations and environmental groups, private industry, academia, and the general public	Improve cooperative efforts to achieve common goals, improve efficiency, and prevent duplication of efforts	Develop MOUs regarding species of conservation concern and their habitats Partner with the Louisiana Forestry Association to develop web-based educational materials on target species and their habitats Organize workshops with partners to discuss mutual issues	# of MOUs developed/implemented Completion of web-based material # of workshops held # of partner participants	Habitat fragmentation Habitat conversion/destruction Incompatible forestry practices Altered composition and structure
	Improve data collection, data management, and the dissemination of information between conservation partners	Develop Data Utilization agreements Develop database of research and monitoring projects	# of agreements developed Completion of database	Habitat conversion
	Increase collaboration and communication with local, state, and regional conservation partners	Organize workshops, hold regular meetings, and distribute results through appropriate media releases (print, website, radio, TV, etc.)	# of meetings held # of workshops implemented/attended # news releases sent	Habitat disturbance/destruction/conversion/fragmentation

Table 8.8. Effectiveness of the strategies

Work Level	Time Scale	Types of Evaluation Questions	Conducted By
Individual Projects	Semi-annual reporting	Did the project occur? Did it stay within budget? Did it use funds as planned? Are budgeting proportions accurate? Who did the work?	District Biologists; Program Supervisors, and staff
Adaptive management of project	Annually	Based on evaluation, how should future projects be changed or retained?	District Biologists; Program Supervisors, and staff
CWCS conservation actions (Program-level strategies)	Annually	What is the status of the desired outcomes associated with each activity, as measured by performance indicators? Are the performance indicators valid measures? Are the individual projects meeting the conservation actions called for in the CWCS?	Program supervisors, Core Committee
Adaptive management of conservation actions	Annually	Based on evaluation, how should future program-level activities and projects be changed or retained?	Program supervisors, Core Committee
CWCS goals	Every 10 years	Are the conservation actions meeting the state's goals of the Louisiana CWCS?	Program supervisors, Core Committee

Table 8.9. Evaluation and Reporting Schedule

Component	Time Frame	Methodology
Investments (time and money)	Acquired quarterly, reported annually on fiscal year cycle	Cost accounting system tracking by project cost center
Activities (strategies in Tables 8.2-8.7)	Acquired quarterly, reported annually on fiscal year cycle	Cost accounting system tracking by project cost center
Outputs (see Performance Indicators in Tables 8.2-8.7)	Acquired quarterly, reported annually on fiscal year cycle	District biologists and project managers report on outputs of implementing conservation strategies
Outcomes (improved populations of target species and their habitats; improved public satisfaction)	5-year report 10-year report	Reports based on performance indicators; surveys of public attitudes

E. Adaptive Management

An important aspect, if not the most important aspect, of research and monitoring is to ascertain whether strategies and management approaches that are proven to be beneficial to species of conservation concern are incorporated into LDWF's management practices and promoted among all state and federal natural resource agencies that manage or have an impact on Louisiana's fish and wildlife resources. LDWF's major land management programs are in the coastal marshes and forest habitats (predominantly bottomland hardwoods) which are owned by the department. Forest management has been and will continue to be an important research issue within the CWCS. The LDWF forest management program is an example of how our agency promotes sound habitat management programs. It led the nation in the development of bottomland hardwood restoration techniques and has hosted many workshops and field days to showcase effective management practices. Initial findings of supported research already suggest that the agency's forest management program is moving in the direction that positively impacts many species of conservation concern. The primary objective of LDWF's forest management program is wildlife habitat enhancement, and future research resulting from recommendations in the CWCS will continue to be considered in the development of forest prescriptions. Additionally, longer-term monitoring of avian, amphibian, and reptilian species will continue. As new forest management techniques are implemented, monitoring programs will be implemented concurrently to determine if these techniques provide better habitat for species of conservation concern than older techniques. This is essential since habitat improvement, after all, is the overall goal of our management practices.