Section 1. Wildlife Action Plan

Guiding principles

From the outset, Arkansas' CWCS teams chose to focus on developing a living planning tool, rather than a static funding document, that could be useful to professional partners, citizen conservationists and land managers. At the core of Arkansas' plan are teams of scientists who have populated a database which stores and links information and makes possible the calculation of priorities. The result is a database that can be readily updated as data gaps are filled and conservation actions are accomplished. With every update, the status of species of greatest conservation need and the relationships between species, habitats and conservation actions can be reexamined in an efficient manner that will demonstrate progress over time.

Science-based decision making relies on making accurate information accessible and usable. In Arkansas, scientific teams, the general public, nonprofit groups, government agencies and land managers will rely on database-managed priorities communicated online at www.WildlifeArkansas.com.

Implementing Arkansas' Comprehensive Wildlife Conservation Strategy

State Wildlife Grants support activities promoting the betterment of Arkansas' designated species of greatest conservation need (SGCN) (Section 2, pages 5-1082). Because there is much more to do to conserve SGCN than can be funded in a given year, Arkansas developed a science-based prioritization process to make the most efficient use of available funds. The process relies on a database framework for organizing, analyzing, storing and retrieving data. Each step in the process receives expert input from the plan's partners and stakeholders. Projects funded by State Wildlife Grants will be chosen from a list of implementation needs that are generated from the database, coarse-filtered by Science Teams, then fine-filtered by the Steering Committee and the Implementation Team. This process is described on pages xxxi-xxvi.

Table 1.1 contains a list of completed and ongoing SWG-funded projects involving SGCN and associated habitats in Arkansas that were chosen prior to approval of the CWCS. Although these projects have provided a great deal of information and moved conservation forward, they did not have the backing of CWCS-generated

priorities to make certain that the most efficient use of available funding and effort occurred. Future projects will be assessed according the prioritization process.

Given the current limits to the available resources, doing our best for species of greatest conservation need means that funds must be targeted with an eye to optimizing results. The process will rely on a database framework for organizing, analyzing, storing and retrieving data and it will rely on input from biologists, landowners, scientific teams, the general public, researchers, nonprofits, and the many partners whose involvement has contributed so much.

Monitoring and adaptive management are key elements of the conservation effort. Agencies and partners cannot afford to undertake large scale habitat protection, restoration or enhancement endeavors, only to discover after years of management that actions were ineffective or even counterproductive. Monitoring helps evaluate:

- assumptions made in species-habitat models and decision support tools;
- habitat responses to conservation actions;
- population responses to conservation actions; and
- progress toward habitat and population objectives.

New information generated from research and monitoring only becomes useful if it influences future conservation decisions and actions. These benefits are most pronounced when the elements are iterative and ongoing rather, than static or episodic. Thus, habitat conservation strategies are most appropriately viewed as living strategies that are continually developing in response to targeted research and monitoring results.

A continuous feedback loop is part of effective implementation. Successful application will depend upon sharing information and incorporating it into the overall body of knowledge held by the CWCS.

EFFECTIVE IMPLEMENTATION

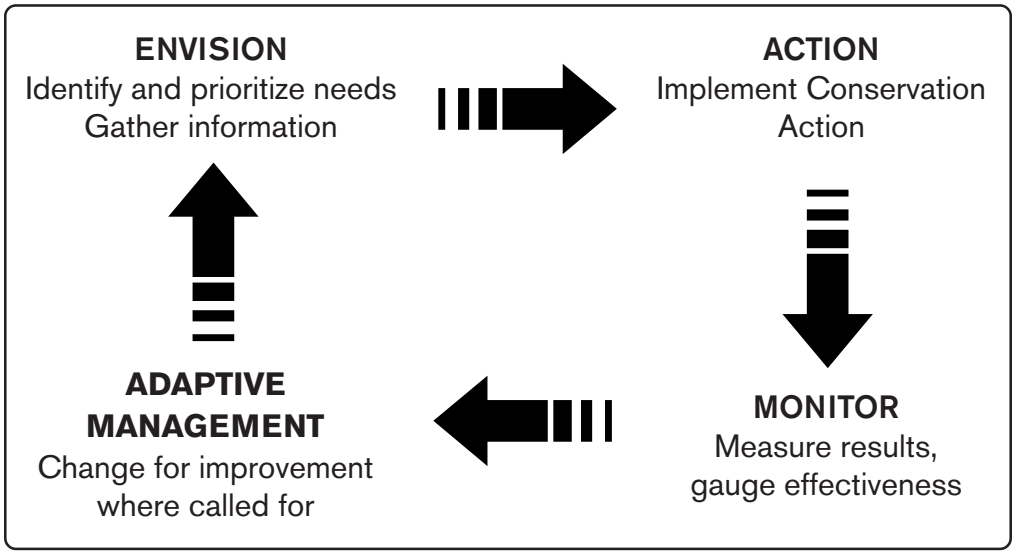

Table 1.1 Projects funded by State Wildlife Grants prior to approval of Comprehensive Wildlife Conservation Strategy

Habitat Change for Arkansas and White Rivers

Arkansas and White River Bear Population Radio Collars

White River/Felsenthal Bear Survey

Bat Monitoring

Desert Shrew Status Survey

Passerine Bird Study

Quail/Bluestem Monitoring

Distribution and Ecology of the Swamp Rabbit

Arkansas River Paddlefish population ecology

Swallow-tailed kite study

Ozark Hellbender study

Alligator survey

Arkansas Breeding Bird Atlas

Effect of introduced crayfish, *Orconectes neglectus,* on native crayfish in Spring River drainage

Inventory and assessment of species of concern at the Cossatot River State Park and Hobbs State Management Area

Stream crayfish NW Arkansas with emphasis on *Orconectes williamsi*

Genetic study of Illinois Chorus Frog (*Pseudacris streckeri illinoensis)* in Arkansas

Home range and habitat use of Eastern Spotted Skunk in the Ouachita Mountains

Status and genetics of Ouachita Mtn. crayfish of the genus *Procambarus*

Distribution and abundance of the Queen Snake - *Regina septemvittata*

Longterm monitoring of the Ozark hellbender in Arkansas

Large river fisheries monitoring, Shovelnose sturgeon and alligator gar

Status and distribution of the endemic crayfish, *Bouchardina robisoni*

Status and distribution of mussels, crayfish and salamanders of Spring River

Survey of breeding secretive marsh birds in the delta region of Arkansas

Preliminary analysis for identification, distribution and conservation status of *mussel species Pleurobema* and *Fusconaia* in Arkansas

Ozark Pocket Gopher Survey

Data assembly GIS analysis

GIS for data acquisition watershed modeling, analysis

Assessing ecological threats to the Upper Saline River

Site conservation planning for the Lower Ouachita Terraces Landscape

Age, growth and reproductive biology of the Blue Sucker, *Cycleptus elongates,* in the Red River

Development of an online tracking and mapping system (Internet mapping with CAST)

Synthesis of species plan info GIS modelling

Bird Management impacts at two Natural Areas

Description/Taxonomic analysis Cave Invertebrates

Status review of Arkansas Mammals

Status and genetics of *Procambarus ferrugineus*

Table 1.1 Projects funded by State Wildlife Grants prior to approval of Comprehensive Wildlife Conservation Strategy

Rafinesque's big-eared bat and southeastern bat study

Cataloguing of AGFC-collected fish and crayfish

Status survey of Ouachita Creekshell

Swallow-tailed kite study

Electronic database of Arkansas herpetofauna voucher specimens

Swainson's Warbler Study

Cerulean Warbler Study

Status Survey of Grassland birds in Arkansas

Conservation status and genetic variation of the Diana Fritillary in Arkansas

Home range, dispersal and survival of the Ozark Pocket Gopher

Home Range and Habitat Use of the Eastern Spotted Skunk in the Ouachita Mountains

Abundance and Distribution of Fishes in Floodplain wetlands of the Arkansas River

Status report on the Southern Cavefish (*Typhlichthys subterraneus*)

Systematics of the genus *Orconectes* in the Ozarks

Gene Flow and Genetic Structuring of Yellowcheek Darters (*Etheostoma moorei*) in the Little Red River watershed

Hidden Diversity in Arkansas Freshwater Mussels: Description of new species and Genera with Determination of Species Ranges for the Genus *Lampsilis*

Long-term Groundwater Quality Monitoring program for Cave Springs Cave

Diversity and Distribution of Freshwater Gastropods of the Ozarks

Status, distribution and genetics of Burrowing Crayfish of Southwest Arkansas

Stream Crayfish of the NE Arkansas Ozarks

Mapping the Distribution, Habitat and Threats of Karst species

Assessing Ecological Threats to the Spring River watershed

Reassessment of Species Boundaries in the Endemic Arkansas Salamanders of the *Plethodon ouachitae* Complex Using Molecular Phylogeographic Techniques

Demography, Causes of Nesting Failures and Habitat of Swallow-tailed and Mississippi Kites in the White River NWR

Prairie and grassland bird habitat restoration at Stuttgart Airport

Enhancing habitat for Northern Bobwhite and Bachman's Sparrow in the Arkansas Delta

Preserving and enhancing aquatic habitat in the Strawberry River through sediment reduction

Kingsland Prairie Conservation Area Plan: fire and woodland habitat restoration to benefit grassland bird species of conservation concern with monitoring of habitat effects

Blackland prairie ecosystem habitat restoration to benefit multiple species of greatest concern

A strategic approach for addressing and prioritizing multiple implementation needs

Assemble information

Implementation Step 1. As described in Sections 2, 3,4 and 5, the Science Teams (Taxa Association Teams and Habitat Teams) populated the CWCS database with information on 369 species of greatest conservation need ranked by species priority score. The teams linked species to ecoregion, ecobasin and habitats and weighted the relative importance of those relationships. The spatial relationships between ecobasins, habitats and ecoregions were mapped. For each species, Science Teams described problems faced, threats and sources, data gaps then recommended conservation actions and monitoring strategies.

Generate implementation priorities

Implementation Step 2. The purpose of Step 2 is to use the information gathered and prioritized in Step 1 to promote efficient and scientific evaluation and to prioritize the allocation of resources, Arkansas uses a systematic approach to ranking **implementation needs**. Implementation needs are categorized into three groups:

• **Data Gaps**: Survey or basic research needs identified during the planning process as requiring attention before further action can be taken. Examples are additional biological information needed for understanding of life history, population ecology or distribution of SGCN prior to developing a conservation action.

• **Conservation Actions:** the protection, management and restoration activities that directly affect SGCN, often at the habitat management level. These are called for in the CWCS.

• **Monitoring Needs:** Measuring how SGCN and habitats change over time. Of particular interest are those changes affected by the implementation of conservation actions. Monitoring drives the adaptive management process, guiding improvements in procedure along with the identification and prioritization of additional data gaps and conservation actions.

On a 10-year cycle, beginning in 2006, a list of implementation needs is generated from the CWCS database using these data sets:

- Ranked list of all data gaps
- Ranked list of all conservation actions
- Ranked list of all monitoring needs

Prior to generating the list of implementation needs, the database will be updated with information gathered since last revision, including information about previously implemented and ongoing research, conservation actions, and monitoring activities. Priority rankings associated with database-generated lists will be derived from an automated computation of the weights and rankings associated with SGCN, habitat, key factor, and indicator records. The information on this list is sorted and provided to teams representing these groupings: bird, mammal, fish, insect, crayfish, mussel, herpetofauna, other invertebrates, karst species, aquatic habitats, and terrestrial habitats.

Concurrently, a list of recent, current and planned statewide monitoring, inventory and research actions affecting SGCN or habitats within Arkansas is solicited from partners, researchers and interested parties (Appendices 1.2a-1.2k). This list has been reconciled with the database-generated list of monitoring needs (Appendix 1.3) to minimize duplication, to provide synergy and to identify coordination opportunities. Comparing these two lists assists the Science Teams in identifying species that need more information prior to recommending monitoring efforts.

Develop ten-year draft implementation schedule

Implementation Step 3. Each team will develop a ten-year implementation instrument to be used as a coarse-scale tool to help teams sort priorities and facilitate the creation of subsequent finer-scale priority action lists (Appendices 1.4-1.6). This step will be repeated biennially. Science Teams will convene to review and synthesize implementation needs. The result is a draft of implementation for the next ten years based on:

- Urgency
- Feasibility and scale
- Cost
- Capacity and funding availability
- Partnership/leverage opportunities
- Other factors as circumstances warrant

Science Teams prioritize implementation needs

Implementation Step 4. Every two years, the continuously-updated CWCS database will provide Science Teams with an updated versions of the following lists within each area of expertise (Appendices 1.4-1.6).

- Ranked list of Data Gaps
- Ranked list of Conservation Actions
- Ranked list of Monitoring needs

After comparing the ranked lists with the existing ten-year implementation plan, and taking into account new information that warrants consideration, each teams will identify a "top ten" in each category (Appendices 1.7-1.9).

Taking these 30 identified needs, each Team's task is to then narrow the list to a "Hot List" of the highest priority needs that should be funded in the next two years if a proposal is submitted. The Hot Lists from each team include a mix of data gaps, conservation actions and monitoring needs that reflects their best judgement for that point in time.

A Hot List from each Team is provided to the Steering Committee for further consideration (Appendix 1.10).

Steering Committee recommends annual action items

Implementation Step 5. Each year, (beginning in 2006), the Steering Committee reviews the Hot Lists provided from each Science Team. At this time, the Steering Committee considers any new information or opportunities to develop a set of Annual Action Items ((Appendix 1.11).

Priorities the Steering Committee uses to evaluate implementation needs are determined through a combination of factors: relevance to species of greatest conservation concern and/or habitat priorities identified in the CWCS, project design, feasibility and cost, and the amount of currently available funding. Members of the Steering Committee will rank project proposals using the above set of defined criteria.

The final list of data gaps, conservation actions and monitoring needs captured will vary from year to year as biological, ecological, and programmatic circumstances warrant. So too will the mix of species and habitats vary from year to year.

Preproposals requested to meet Annual Action Items

Implementation Step 6. With this list of needs selected, the State Wildlife Action Plan Coordinator will issue a Request For Preproposals, i.e. project descriptions including preliminary budgets, non-federal funding match opportunities and monitoring elements. Preproposals should address the implementation priorities selected by the Steering Committee.

Implementation Team selects projects for funding

Implementation Step 7. The Implementation Team is composed of decision makers who have considerable vision and influence in deciding how SWG funds, agency budgets and Partner budgets can be used most effectively. The team is composed of Deputy Director for Conservation, Wildlife Management Chief, Fisheries Chief and the leaders of two partner organizations (on a rotation).

Each January, they will select from an array of preproposals that were solicited in Implementation Step 6. After the projects are selected, the budget will be presented to the Commission Budget Committee for review and approval.

Those projects that make the final cut will have agreements and contracts drawn up. The projects will be submitted to the U. S. Fish and Wildlife Service for approval.

Monitoring and Performance Measures

Methodologies

Implementation Step 8. Monitoring is essential to making effective management decisions and evaluating the outcomes of those decisions. Arkansas is approaching the challenge of developing quality performance measures by participating in the Natural Resource Monitoring Partnership (www.nbii.gov/nrmp). This is a collaborative effort of the natural resource management community to improve monitoring efforts.

The Natural Resource Monitoring Partnership is developing two collaborative, internet-based tools to foster coordination and collaboration of monitoring efforts. One of these, the Monitoring Protocol Library, is a searchable database that provides information on monitoring protocols and resource assessment methodologies. The second of these is a GIS application that will allow us to identify what natural resource monitoring efforts are being conducted within a particular area

(e.g., state, ecoregion, or other geographic area). This is expected to go online by the end of 2006.

Similarly, a watershed monitoring planner in development by NOAA will provide a tool for aquatic health and aquatic species monitoring effort (Howard Schnabolk, *pers. comm.*, howard.schnabolk@noaa.gov). This will go online in 2007.

Short-term performance measures

Performance measures to ensure the effectiveness of projects will be requirement of each project selected for SWG funding. Performance measures are quantifiable results that relate to implementation actions and make it possible to revise conservation actions by responding to new information or changing conditions for species-specific actions. Project results and performance measures will be reported to the Science Teams, Steering Committee, CWCS partners and stakeholders annually, and compiled and presented at the biennial Wildlife Action Plan Symposium.

Examples of short-term performance measures

• 65 acres of Arkansas Valley Prairie and Woodland were burned in spring for 3 years. This is an obligate habitat for Greater Prairie Chicken (*Tympanuchus cupido*) and the Prairie Mole Cricket (*Gryllotalpa major)*.

• 122 acres of stream habitat sheltering the Arkansas darter was protected with a conservation easement.

• 2000 yards of Eleven Point River was stabilized and restored, instream and streambank. This is important habitat for the Ozark hellbender.

Long term Performance Measures

While short term performance measures quantify effort expended, to be adaptive, we need to tie efforts back to the effects on the status of SGCN. A long term view is required because effects on target species may be difficult to measure or may not be noticeable for years after the conservation action was taken.

Long term effects will be reflected in the:

• Priority Scores (page 11) of each SGCN, which are reviewed and updated by the Science Teams

• Lists of priority data gaps, conservation actions, and monitoring needs recommended by the Teams. (See Implementation Step 4).

Example of long-term performance measure: Burning projects in the Arkansas Valley Prairie and Woodland have had a generally beneficial effect on SGCN. Narrative describes how biologists interpret these trends.

	Species Priority Score		
Impact on key SGCN associated with project area	2006	2008	2010
Greater Prairie Chicken (Tympanuchus cupido)	33	27	25
Prairie Mole Cricket (Gryllotalpa major)	32	31	8
Impact on statewide populations of SGCN associated with this habitat			
Henslow's Sparrow (Ammodramus henslowii)	33	33	33
Strecker's Chorus Frog (Pseudacris streckeri)	19	14	14
Northern Crawfish Frog (Rana areolata circulosa)	23	23	19
Hurter's Spadefoot (Scaphiopus hurterii)	19	19	14
Ornate Box Turtle (Terrapene ornata ornata)	19	6	6
Western Slender Glass Lizard (Ophisaurus attenuatus)	15	15	15
red milkweed beetle (Tetraopes quinquemaculatus)	21	21	15
Texas milkweed beetle (Tetraopes texanus)	21	21	15
Southern Prairie Skink (Eumeces obtusirostris)	19	17	15
Painted Bunting (Passerina ciris)	11	23	34
Le Conte's Sparrow (Ammodramus leconteii)	17	15	14
lace bug (Acalypta lillianus)	19	15	14

Note: A higher score indicates a greater degree of imperilment

A commitment to revision in 2015

Implementation Step 9. The steps of the implementation process incorporate consistency in managing changing priorities from 2006 to 2015. CWCS teams and the Wildlife Action Plan staff will continually update the CWCS database and communicate priorities with partners and stakeholders.

AGFC commits to completing a comprehensive review and revision of the CWCS process and Wildlife Action plan by October 1, 2015. At that time, not only will the functional process be evaluated, but the database, protocols and fundamental logic behind assumptions will be reassessed.

Summary of Implementation Steps

Step 1:

Populate CWCS database with best science available

Responsibility
Science teams, AGFC State Wildlife Action Plan Staff

Frequency
Updating and correcting database is ongoing

Status
Completed 2005.

Step 2:

Use CWCS database to generate a ranked list of implementation needs based on weights and rankings assigned in Step 1 (Appendices 1.4-1.6). Reconcile monitoring needs with existing monitoring (Appendices1.2a - 1.2k and Appendix1.3).

Responsibility
AGFC State Wildlife Action Plan Staff

Frequency
Every two years (August)

Status
Completed 2006

Step 3:

Develop a draft 10-year implementation schedule (Appendices 1.4-1.6).

Responsibility
Science teams; State Wildlife Action Plan Staff

Frequency
Revise every two years (September)

Status
Completed 2006

Step 4:

Identify and rank two-year implementation priorities (Appendices 1.7-1.9). Select "Top 10" within these three categories: Data Gap, Conservation Action and Monitoring need. Each team then creates a "Hot List" of its top 10 implementation priorities covering all three categories. The Hot List is provided by each Science Team to the Steering Committee. (Appendix 1.10)

Responsibility
Science teams, State Wildlife Action Plan Staff

Frequency:
The Wildlife Action Plan Symposium. Every two years (September)

Status
Completed 2006

Step 5:

Refine Hot Lists from Teams to manageable annual list (Appendix 1.11).

Responsibility
Steering Committee;

Frequency:
Annually in October.

Status
Completed 2006

Step 6:

Request preproposals that address the implementation priorities selected in Step 5.

Responsibility
AGFC: State Wildlife Action Plan Staff

Frequency:
Annually in November. Deadline is December 31.

Status
Not complete 2006

Step 7:

Implementation Team selects projects for funding from preproposals submitted. AGFC staff takes these to AGFC Commission in budget process. Any emerging priorities for funding may also be addressed at this time.

Responsibility
Implementation Team: Deputy Director for Conservation, Wildlife Management Chief, Fisheries Chief and Leaders of two partner organizations (on a rotation)

Frequency
Annually in January

Status
Not complete 2007

Step 8:

CWCS Database is updated continuously. Implementation strategies are revised on an ongoing basis as Conservation Actions, Data Gaps, and Monitoring issues are considered and addressed.

Responsibility
State Wildlife Action Plan Staff, Science Teams. Researchers,
Partners

Frequency
Ongoing involvement by State Wildlife Action Plan Staff in incorporating project results into database and communicating to partners and stakeholders.

Step 9:

Review and revise entire CWCS process as needed, from top to bottom, including database, protocols and fundamental logic.

Responsibility
AGFC and Partners

Frequency
Every ten years, beginning in 2015.