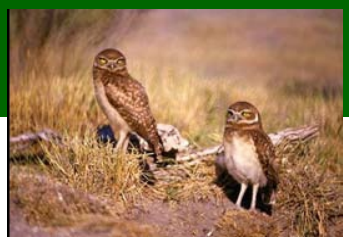

CONSERVATION ACROSS THE LANDSCAPE:

A Review of the State Wildlife Action Plans

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About Defenders of Wildlife

Defenders of Wildlife is a leading conservation organization recognized as one of the nation's most progressive advocates for wildlife and its habitat. Defenders uses education, litigation, research and promotion of conservation policies to protect wild animals and plants in their natural communities. Founded in 1947, Defenders is a 501 (c) (3) organization with 490,000 members and supporters nationwide and headquarters in Washington, D.C.

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DEFENDERS OF WILDLIFE
Washington D.C. ● March 2006

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Over the last 30 years government agencies, non-governmental organizations, and new partnerships have expanded the ability to conduct conservation at the landscape scale in the United States. A sound strategic plan is a critical centerpiece for any effective implementation of large-scale conservation. Numerous statewide and regional planning models exist, created by conservation organizations and innovative state agencies. In 2000, Congress created the State Wildlife Grants Program, presenting an historic opportunity to get ahead of our nation's mounting endangered species challenge. The state wildlife action plans produced in each state and U.S. territory are an important aspect of this program and its greatest hope for success. These new plans and their supporting conservation partners working to expand and implement strategic conservation across the landscape are proactive solutions that should help reverse the decline of species and habitats.

The State Wildlife Grants Program provides the opportunity for states to develop the strategic frameworks linking diverse conservation efforts within states with the resources needed to effectively protect species and habitats. Defenders of Wildlife reviewed all available state wildlife action plans and the majority of U.S. territorial plans to determine how well the plans guide strategic action for wildlife conservation and are likely to lead to successful implementation. Here we present a summary of our findings.

This report highlights the positive aspects of these plans as well as the challenges. We attempt to present an objective assessment of the plans and their utility for achieving on the ground conservation. It is our hope that our observations and recommendations will be instructive toward advancing future versions of the plans and their implementation.

The plans varied widely both in their approach to conservation and in their overall quality. Some states clearly took this opportunity to confront tough conservation issues head on and created plans that truly will move conservation efforts in their states forward. Other states lacked resources, personnel or initiative to go much farther than the bare minimum requirements. Due to these differences, the aggregate plans do not yet collectively add up to a national strategy for conservation. However, there are lessons to be learned from this first round of plans which can be used to help achieve such a national vision. Defenders' review of the plans was supported by the Doris Duke Charitable Foundation which has dedicated its environment program specifically to the advancement of these plans and their use in wildlife conservation nationwide.

States generally did a good job with the assessment portion of their task identifying species of concern, gathering relevant information, and documenting problems or threats to species and habitats. Many realized the need for a habitat approach to wildlife conservation. It was with the strategic aspects of their plans that many states

struggled, often not setting clear and measurable goals, prioritizing actions, identifying focal areas in which to work, coordinating with other agencies or setting up clear monitoring systems for tracking both plan actions and habitat conditions. At least a dozen states produced excellent quality plans that provide a solid foundation for conservation action. Many of these had never produced a state plan until now. They now serve as models to their fellow states.

Many good models for statewide and regional conservation planning were available to states, but went unused. A variety of funding sources which could help implement plans were not considered. To address the pervasive problem of habitat loss, state plans need to inform other land use planning activities at federal, state, and local levels. This integration and coordination will be critical for successful plan implementation, but was missing from many plans. As a result, we felt these were critical missed opportunities.

The report concludes with some recommendations for how the plans and their implementation can be strengthened including goal setting, focal area mapping, prioritization of actions, integration with other planning, comprehensive monitoring systems, and establishing implementation committees.

The state wildlife action plans are a monumental achievement and will improve over time. In Defenders' view, the program is a critical and essential upstream solution to the growing problem of species endangerment. It is a preventative program that complements the Endangered Species Act. Plans can be used to guide the activity of state agencies and partners, their accountability for wildlife conservation, and course correction through adaptive management. Defenders of Wildlife has been committed to this program since its inception and will continue to be strong advocates for the plans and their implementation. We believe the success of the State Wildlife Grants Program is critical to the future of conservation where proactive strategic habitat conservation is needed. These plans could provide the framework to get us there.

> "Conservation, therefore, is a positive exercise of skill and insight, not merely a negative exercise of abstinence and caution . . . prudence never kindled a fire in the human mind; I have no hope for conservation born of fear"
>
> - Aldo Leopold, 1939

INTRODUCTION

There is a great need to address declining species in the U.S. In spite of the struggles by many organizations and policymakers to reverse declines among native animals and plants, the list of species at risk continues to grow. There are currently 1,272 species listed as threatened or endangered under the Endangered Species Act occurring in the U.S. (USFWS, 2006), but an additional estimated 10,000 species are also at risk (NatureServe, 2006). Habitat loss, fragmentation, and degradation are the leading causes of species imperilment (Wilcove et al., 1998), with only 40% of the historic native vegetation remaining in the United States (Bryer et al., 2000). Wildlife habitat loss remains an immediate threat in almost every state. Urban development consumes 2.2 million acres across the country every year (NRCS, 2000), much of it wildlife habitat. To address this problem the State Wildlife Grants Program was created in 2000 by Congress. This new federal program serves as a key preventative program to address species of concern before they require listing under the Endangered Species Act (ESA).

In order to receive federal funding through the State Wildlife Grants Program, each state and U.S. territory was required to complete by October 2005 a comprehensive wildlife conservation plan that addresses species in greatest conservation need and their major threats. The plans, in some states now known as state wildlife action plans, have tremendous potential to change the way conservation is delivered. If the plans are successful, they will lay the groundwork for coordinated and strategic action, serving as the framework for conservation efforts in each state.

Although the State Wildlife Grants Program funds can be used for various wildlife projects, the planning aspect of this program is most critical. With limited conservation dollars, multiple threats, and diverse views on management and priorities, there is a great need for strategic conservation. The conservation literature is rich with discussion about how to set conservation priorities (Olson and Dinerstein, 1998; Mittermeier et al., 1998; Myers et al., 2000; Margules and Pressey, 2000; Groves, 2003). However, large scale conservation efforts are frustrated by a lack of coordination (Halpern et al., 2006). The state plans represent a unique opportunity to apply the principles of conservation biology to a coordinated plan of action on the ground.

Timber Rattlesnake
(Tennessee Wildlife Resources Agency)

The Endangered Species Act has effectively halted extinction for 99% of the species protected under the law, but the Act was never designed to address slowly declining species. It serves as a safety net to prevent extinction, usually invoked only after species have declined to a precarious level (e.g. the desert pupfish, *Cyprinodon macularius*, was listed after losing 95% of its habitat with individuals in less than 100 locations.). Much of the criticism of the Endangered Species Act has centered on its "emergency room" approach and piecemeal application.

Our current system of wildlife management focuses on the very small percentage of species that fall into either game (i.e. those species hunted or fished) or endangered species categories. However, the vast majority of animal species in the United States (i.e. 85%) lie outside these narrow definitions (Paige, 2000). Defenders of Wildlife has been a leader in endangered species conservation since before the ESA was enacted. We believe that these new state plans present a unique opportunity to address large-scale conservation issues to protect and conserve species before they ever become endangered.

The history of the State Wildlife Grants Program goes as far back as 1980 when Congress passed the Fish and Wildlife Conservation Act. That law, like State Wildlife Grants, was designed to focus on declining species not already protected under the Endangered Species Act. Unfortunately, the Fish and Wildlife Conservation Act never generated any long term benefits and suffered from lack of funding. Twenty years passed before we were able to direct attention once again to this collection of unprotected wildlife in need. In the meantime, state wildlife agencies on their own began to develop "wildlife diversity" or "non-game" programs with help from groups like Defenders of Wildlife. Together with the states and others we encouraged watchable wildlife programs, and sought alternative funding sources for wildlife such as tax checkoffs, wildlife license plates and lottery funds, each time trying to bring more attention to this neglected resource. Universally poorly funded and clearly lower priorities within their agencies, the wildlife diversity programs have limped along. An artificial distinction between game and non-game wildlife persists in some states to the detriment of conservation.

In the late 1980s, we supported the development of the U.S. Geological Survey's Gap analysis program designed to help with the task of planning for wildlife conservation by identifying wildlife habitats and the gaps in their protection across the landscape. Numerous research projects were completed in at least 40 states, but in very few cases did a statewide plan for wildlife protection emerge.

In 2000 Congress created two programs, the Wildlife Conservation and Restoration Program, a formula based grant program, and the State Wildlife Grants Program, a competitive program, each with $50 million. By 2002, the programs had been combined into one: the formula based State Wildlife Grants Program with its planning

requirement intact. Annual appropriations for the program over the last few years have been roughly $65 million.

By October 2005, every state and territory finalized a plan and submitted it for approval to the US Fish and Wildlife Service (FWS). Each plan is being measured by a FWS National Advisory & Acceptance Team against the eight required elements spelled out in the Congressional language of the program. Defenders reviewed 54 plans from all 50 states, the District of Columbia and three of the US territories (Puerto Rico, Guam, and the Virgin Islands). This review sought to determine how well these plans assess wildlife, prioritize conservation work, and outline steps for implementation. Our evaluation is based on the eight elements and other factors drawn from additional guidance provided to the states and conservation planning procedures.

This report is a summary of our findings. It is meant to highlight both the positive aspects of these plans as well as identify some of the challenges. Defenders attempts to present here an objective assessment of the plans and their overall utility for conservation. We hope our findings and recommendations help shape future iterations of the plans and their implementation. Defenders' review of the plans was supported by the Doris Duke Charitable Foundation to which we express our appreciation.

Cold Water Stream
(Maryland Wildlife Resource Agency)

METHODS

Defenders reviewed 54 state wildlife action plans (all 50 states, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands) as submitted to the FWS for approval. Additional plans were not available. We evaluated the plans based on the eight required elements and the guidance produced by the International Association of Fish & Wildlife Agencies' (IAFWA) Teaming with Wildlife committee (IAFWA, 2002). This committee was composed of conservationists representing state wildlife agencies and non-profit conservation organizations. The conservation planning literature was used to refine our 15 review categories (Groves, 2003; Margules & Pressey, 2000; Bennett, 1999; Formann, 1995). Although the FWS review being completed by a National Advisory & Acceptance Team is based solely on the eight elements, additional IAFWA guidance was provided to all states during the plan development process, but was not required. Our review used both sets of factors because together we believe they provide a more comprehensive guidance for creating an effective plan.

Table 1 shows the Congressional language for the eight elements required for each wildlife plan. The left column includes headings we have added to indicate review categories used in our discussion:

Table 1: Eight congressionally required elements

Species	(1) Information on the distribution and abundance of species of wildlife, including low and declining populations as the State fish and wildlife agency deems appropriate, that are indicative of the diversity and health of the State's wildlife; and
Habitat	(2) Descriptions of locations and relative condition of key habitats and community types essential to conservation of species identified in (1); and
Threats	(3) Descriptions of problems which may adversely affect species identified in (1) or their habitats, and priority research and survey efforts needed to identify factors which may assist in restoration and improved conservation of these species and habitats; and
Actions	(4) Descriptions of conservation actions proposed to conserve the identified species and habitats and priorities for implementing such actions; and
Monitoring	(5) Proposed plans for monitoring species identified in (1) and their habitats, for monitoring the effectiveness of the conservation actions proposed in (4), and for adapting these conservation actions to respond appropriately to new information or changing conditions; and
Review	(6) Descriptions of procedures to review the State Comprehensive Wildlife Conservation Plan at intervals not to exceed ten years; and
Coordination	(7) Plans for coordinating the development, implementation, review, and revision of the State Comprehensive Wildlife Conservation Plan with Federal, State, and local agencies and Indian tribes that manage significant land and water areas within the State or administer programs that significantly affect the conservation of identified species and habitats.
Public Participation	(8) Congress has affirmed through WCRP and SWG, and other guidance to us and our partners, that broad public participation is an essential element of developing and implementing these Comprehensive Wildlife Conservation Plans, the projects that are carried out while these Plans are developed, and the Species in Greatest Need of Conservation that Congress has indicated such programs and projects are intended to emphasize.

We developed additional review categories in Table 2 based on the 2002 IAFWA guidance and the conservation planning literature:

Table 2: Additional review categories

Goals	Plans should include long term and multiple short term goals that are clear, specific and measurable. Guidance language: "Make the plan readable, understandable and useful with well-defined issues, short and long term goals and objectives, strategies, and realistic measures of performance that enable state agencies and their partners to demonstrate accountability."
Maps	Plans should develop a map of synthesized statewide focal areas for conservation presented as clear priorities for the state. These focal areas should meet the needs of multiple species of concern. The mapping work should also compare the existing network of conservation areas with conservation needs. Guidance language: "Make the plan/strategy spatially explicit, to the extent feasible and appropriate, with a full complement of GIS and other maps".
Methods	Plans should include well-referenced scientific data sources, expert opinion and describe methods of analysis so they can be repeated. Guidance language: "Base the plan/strategy in the principles of best science, best management practices and adaptive management with measurable goals, objectives, strategies, approaches and activities that are complete, realistic feasible, logical and achievable."
Leadership	Plan should establish standing development and implementation committees composed of partners and agency staff. Guidance language: "Involve partners that have the authorities necessary to ensure that the plan/strategy addresses the full range of issues at hand." And also "Build the capacity for cooperative engagement among all partners in the effort."
Policy Connections	Plan should outline steps for integration of state plan priorities into other land use policy. In depth discussion of working with policy makers and planners to implement policy actions. Guidance language: "Make the plan/strategy a driving force in guiding activities under Diverse wildlife and habitat conservation initiatives, and usable for helping to inform land-use decision-making."
Funding	Plan should identify existing funding sources, estimate the costs to cover wildlife needs identified, and outline use of funds for specific actions. Guidance language: "Ensure that the plan/strategy can be implemented i.e. that it is administratively and politically feasible, and that there are sufficient resources (funding and staff) among the partners to accomplish significant gains at a large scale and within an appropriate time frame, to preserve our Nation's wildlife heritage"
Format	Plan should be clear, concise and well-organized, free of jargon, and accessible to non-experts. Guidance language: "The planning processes and the decisions made during planning should be obvious to those who read and use the plan/strategy, and repeatable- document the processes and the decisions so the next planning cycle can build on this one." And also "Make the plan/strategy readily available to the public in a variety of media."

For each of the 15 categories we developed criteria consisting of a scaled ranking system, then reviewed each of the plans against these categories. This review was based solely on the content of the plans themselves. It is not an evaluation of their effectiveness in application which should be measured in the future. Nor is this review a measure of states' ability to implement effective conservation. Defenders knows of excellent programs and capabilities within and among states which were not necessarily reflected in the state plans. This report gives a brief summary of the findings. Detailed information on review categories will become available in a separate, more technical document.

Loess Plain
(Tennessee Wildlife Resource Agency)

Developers of the state wildlife action plans approached the challenge of creating a comprehensive strategy for conserving all wildlife statewide through a diversity of methods, information databases, organizational contexts, and political realities. As a result, each plan had unique characteristics, strengths, and weaknesses. In reviewing each of the plans, general patterns did emerge. Overall, the plans were better assessments of wildlife than they were strategic documents. Since the exercise was to produce the latter, we have teased out key patterns that revealed strengths, weaknesses, and recommendations for improvement.

ASSESSMENTS OF WILDLIFE

Among the eight required elements, states did particularly well on identifying species of greatest conservation need, defining habitats and their condition, and identifying threats contributing to species decline (Elements 1-3). Plans did not in all cases map out important habitats or focal areas which support species of greatest conservation need.

Species

Many states focused significant planning time and attention on determining their species of greatest conservation need. This target selection is crucial in any planning exercise (Groves, 2003). Before the planning process began, species information was present but scattered among a variety of agencies and organizations. The new and comprehensive species summaries in the state wildlife action plans represent a major step forward and a useful tool for coordinating and expanding conservation efforts. One potential product is a national list of species of greatest conservation need.

Forty-four states (81%) used natural heritage program data to identify their species of greatest conservation need. Heritage programs track the status of rare species of animals, plants, and natural communities in every state. To fill any gaps in status of species many states also relied on other assessments and expert opinion gathered from workshops. In particular, the status of birds has been documented using separate assessments (i.e. Partners in Flight, Shorebird Conservation Plans, North American Waterfowl Management Plan, Waterbird Conservation for the Americas, etc.). Washington State's plan includes a thorough presentation of species distribution, status, threats, and proposed actions. Other strong examples of species assessments include New York and Wisconsin.

Habitat

In addition to describing the condition of habitats associated with species of concern, many states organized their plans around habitat types (e.g. 49 states listed threats by habitat type). Many species share the same habitat and ultimately it is the protection and management of habitat that will matter most to saving species. Species by species conservation efforts are often expensive and can be divisive among managers and the public. By

contrast, we find an emphasis on habitats is often cost effective and unifying. The focus of many states on habitats and landscapes is an encouraging development and parallels the evolution under the Endangered Species Act from single species recovery efforts toward multi-species efforts. Although descriptions of habitats were generally comprehensive, only 31 states (57%) included maps of habitat distribution. Plans without such maps will compromise conservation partners from siting their conservation actions in priority habitats (more on this in the mapping discussion below).

Wyoming developed a sophisticated tool for determining habitat condition throughout the state using habitat intactness as a surrogate for habitat quality. The measure of habitat intactness included numerous factors that contribute to loss, fragmentation, or degradation of habitat including road density, mine presence, oil and gas pipeline presence, oil and gas well presence, residential development, dams, impaired streams, surface water use, and the occurrence of invasive species.

Other analytical approaches for measuring habitat condition include New Jersey's Landscape Project

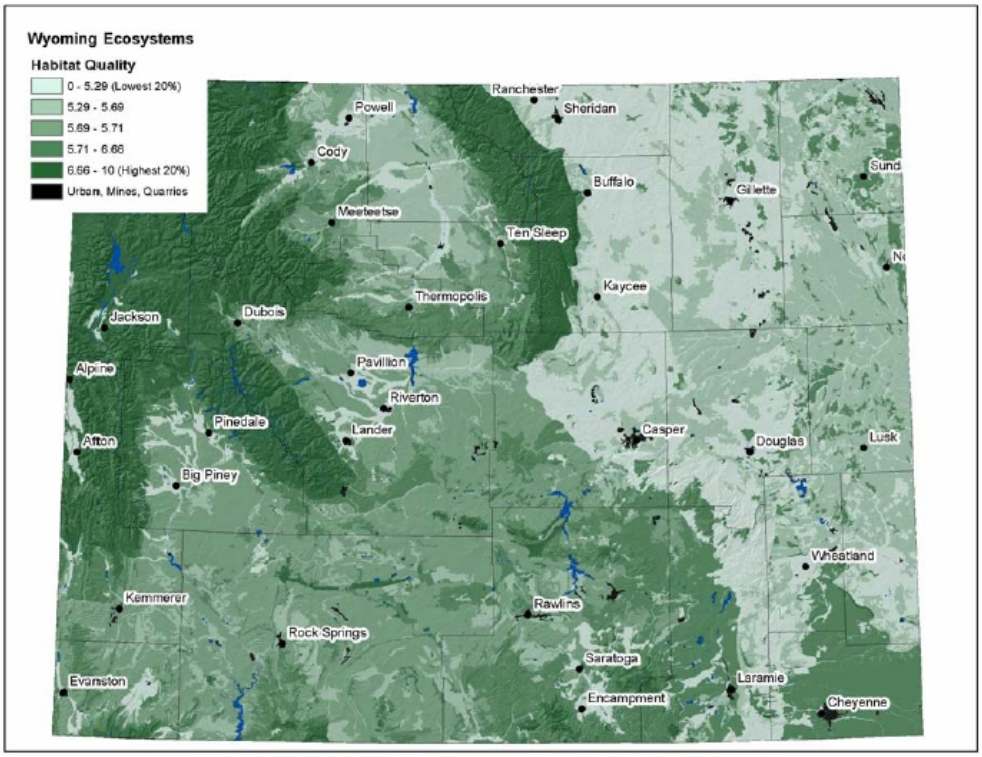

Figure 1: Wyoming Comprehensive Wildlife Conservation Strategy: Map of Average Habitat Quality, Section II, pp. 22 (WGFD, 2005).

which places a value on all habitat areas in the state indicating which areas support the most species of greatest conservation need.

One of the great strengths of these spatial analyses is to direct attention toward habitats that are underrepresented within a state's network of conservation areas. For example, the underground caves of karst-associated ecosystems have a diverse fauna often neglected by many past conservation efforts in the U.S. Tennessee identified focal areas for subterranean habitats in their state wildlife action plan.

Threats

Of all the plan elements we reviewed, on average, states performed best in the threats category. Threat assessments were often inclusive and repeatable procedures. Florida used a threat assessment process that produced a matrix of threats including not only the threat itself, but the magnitude of the threat. New Mexico developed an index of threats attached to a statewide map. (See Figure 2). The majority of states (67%) linked threats to geographic areas such as habitats, ecoregions, or focal areas. Just as species are not distributed evenly across the landscape, different threats apply in different areas. In contrast, 17 plans identified a broad list of threats at the state level. The plans most likely to be effective identified both major statewide threats with descriptions as well as shorter threat lists tailored to more specific geographic areas.

The main threats identified in the state wildlife action plans were habitat loss, degradation, and fragmentation. Every plan included habitat loss as a threat, and 31 emphasized habitat loss as one of the top threats. Other frequently mentioned threats included invasive species (52 states), urban development (52 states), and alterations to hydrologic processes such as impacts to riparian areas, bank hardening, and dams (50 states) (See Figure 3).

Urban development and its associated sprawl stood out as a major threat for 52 plans. Twenty states included explicit language stating that this was *the most serious* issue for wildlife in either the state overall or for a particular habitat or ecoregion. Because these states are distributed throughout the country, including both coasts, the Southwest, Great Lakes States and other Midwestern States, this issue is not confined to a particular region of the country.

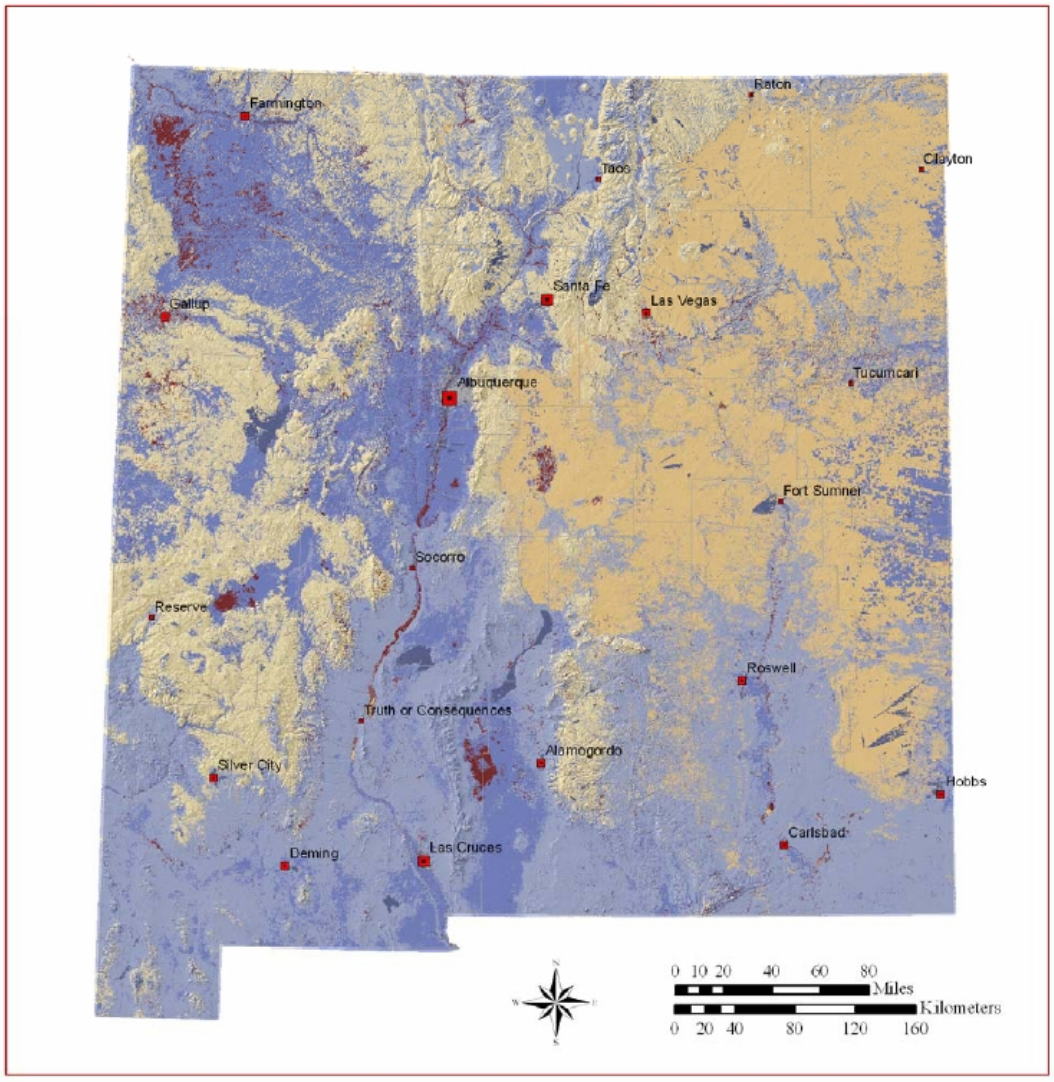

Figure 2: New Mexico Comprehensive Wildlife Conservation Strategy: Synergistic Effects of Factors that Influence Habitat, Chapter 4, pg. 80, Figure 4-7 (NMDGF, 2005)

Maps

Conservation planning is a spatial exercise (Margules and Pressey, 2000). Since habitat loss is the main threat documented in these plans it is best solved by targeting action to places on the ground that are the best opportunities to protect the representation, resiliency, and redundancy of our wildlife populations (Stein and Shaffer, 2000). Wildlife is not distributed evenly across the landscape. Furthermore, complex land use patterns have created a patchy mosaic of habitats some of which have higher conservation value than others. The conservation planning literature is rich with efforts to identify, map, and prioritize these important places. Such efforts include the Nature Conservancy's ecoregional assessments, Audubon's Important Bird Areas, and Conservation International's Biodiversity Hotspots, all of which underscore the importance of knowing the location of priority conservation areas. The IAFWA guiding principles also recognize this significant factor and recommended the following, "Make the Plan/Strategy spatially explicit, to the extent feasible and appropriate, with a full complement of GIS and other maps."

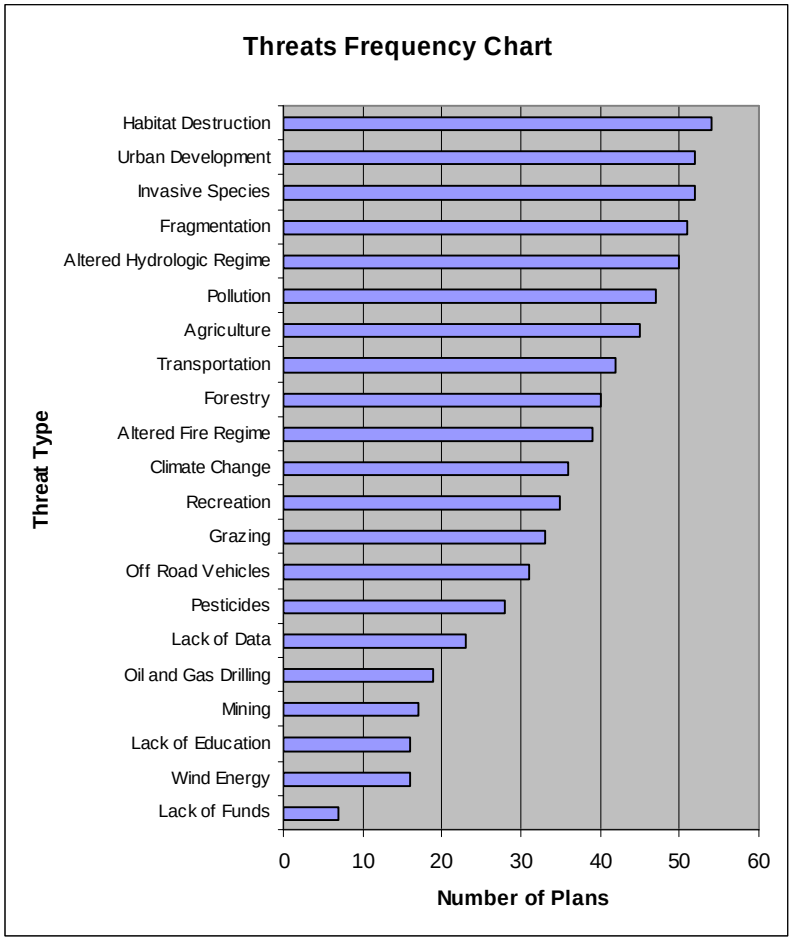

Figure 3: Number of plans that mentioned the threats listed.

Only 22 plans (40%) included maps showing focal areas (See Figure 4). Focal areas are clearly defined geographic units that represent the combination of threat, opportunity, and ecological significance appropriate for directing conservation actions. They might include multiple habitat types. Other states mapped priority habitats, which generally cover larger geographic areas than focal areas and require additional analysis to produce focal areas. Still other plans only included basic vegetation and/or landcover maps or no maps at all. Useful conservation maps provide reference points for the most sensitive and pressured places, allowing conservation partners to spend limited resources strategically. Clearly mapped focal areas facilitate specific conservation actions by creating a pool of prioritized areas for acquisition, easements, landowner incentive programs, off-site mitigation projects, and zoning changes.

State plans like Nebraska's recognized that private lands conservation will be the key in their state and designed their plan around "biologically unique landscapes" (Figure 5). The goals will be to improve habitat conditions in these areas, not necessarily purchase them all for conservation. Likewise North Dakota identified a collection of sites and large landscapes which together will ensure representation of the state's biodiversity.

State plans used a range of methods to select their priority areas. Kentucky's plan used measures of

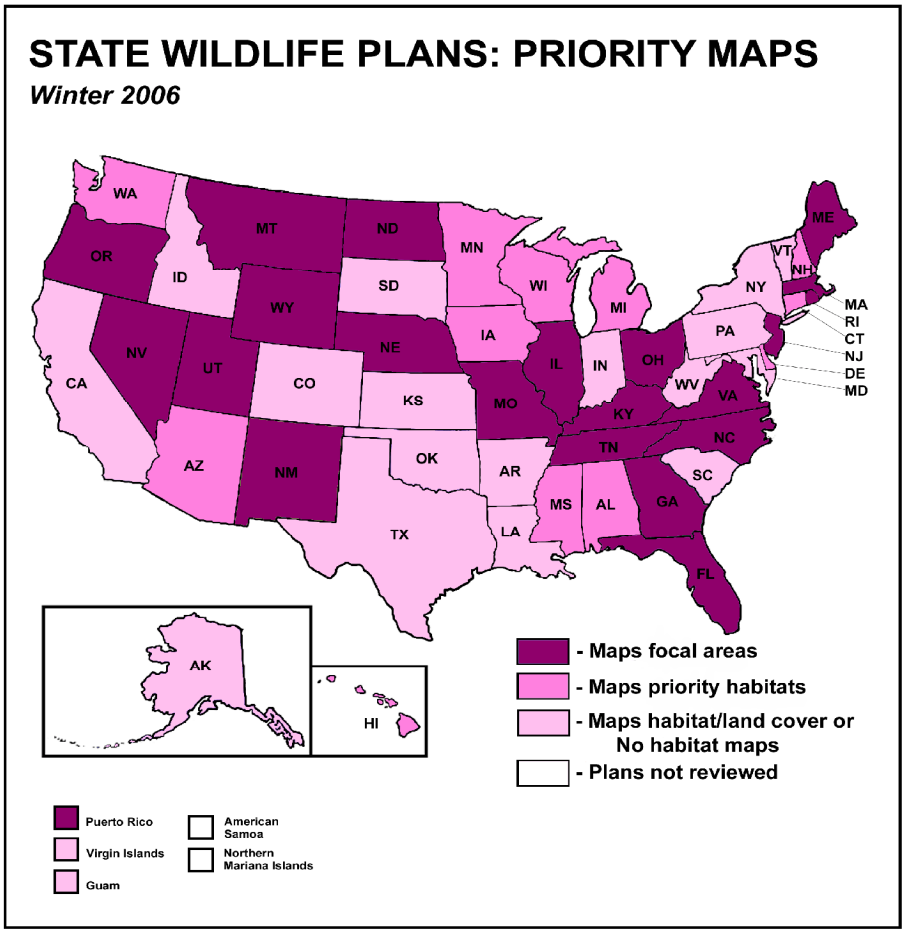

Figure 4: Status of mapping in wildlife plans

species richness to identify the places where the greatest number of species of conservation need occurred. Others, like New Mexico and Georgia, ranked geographic areas based on an index combining factors like habitat quality, pressing threats, proximity to other protected areas, etc. Some states used stakeholders and ranking information to select the most important areas (e.g. Oregon, Missouri, and Nebraska).

Forty-eight plans included either acquisition or easements among their conservation actions. Without focal area maps, limited conservation dollars can be inadvertently directed towards lower priority areas. Maps are also crucial to non-biologists (especially planners that work in other arenas) as they represent a common vocabulary toward making the connections between planning efforts which leads to integration and better decisions. Maps will be especially important for transportation and land use planners looking to avoid siting projects in sensitive locations. Ultimately maps will be critical in reducing conflicts between conservation and development. At least one state in each region of the country produced a focal area map. In one state, resource user groups remarked that mapping priority areas gave clarity to conservation efforts and calmed their concerns that every place in the state was slated for conservation. For those 60% of the states that did not include focal area maps, we believe their plans will be more difficult to use and implement.

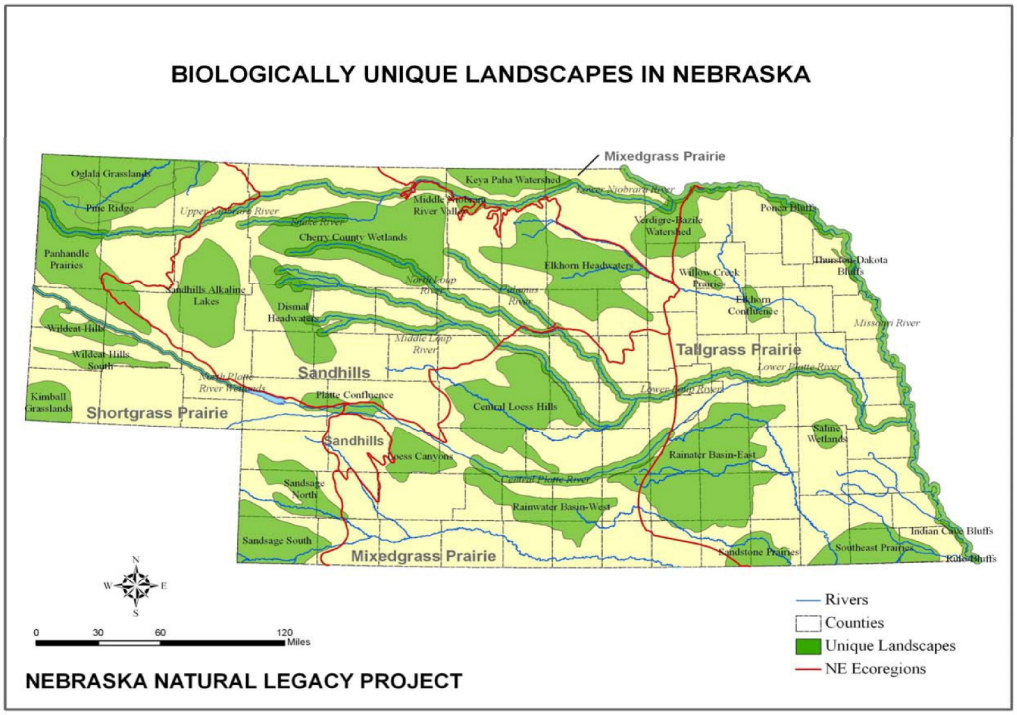

Figure 5: Nebraska Nature Legacy Project: Biologically Unique Landscapes in Nebraska, Chapter 2. pp. 24 (Schneider et al., 2005).

STRATEGIES FOR WILDLIFE AND THEIR IMPLEMENTATION

States tended to struggle more developing the strategic elements of their plans and linking those strategies to a framework for implementation. Among plan weaknesses, we found mixed results in actions, monitoring, coordination, and public participation (required Elements 4, 5, 7, 8). Among the additional review categories reviewed, we found weaknesses in goals, maps, policy connections, and funding.

Goals

Plans ready to be implemented will say what needs to be done, where, and in what order. They will have specific goals for getting there and measurements to track progress along the way. Goals are a critical part of any plan, for conservation or otherwise (Groves, 2003, Margules and Pressey, 2000). According to the IAFWA guidance, goals should be specific, measurable, and have timelines associated with their achievement. The eight elements did not specifically require goals. Only 15 state plans (28%) included well-organized, specific, and clear goals that approach the language in the guidance. Without goals, it is difficult to achieve conservation in regards to representation (types of sites), resiliency (size of sites), and redundancy (number of sites) (Stein and Shaffer, 2000).

The Illinois plan is a good example of a state that included specific, measurable goals with timelines for each conservation opportunity area. For example, the plan's Coastal Plain Natural Division Assessment includes the following wildlife habitat objective:

> *"By 2020, increase land in public ownership within the project area to 60,000 acres; achieve partial reconnection of the Upper and Lower Segments of the Cache River by 2010; reduce peak flows in Big Creek by 25%" (pp. 128).*

Nebraska calculated a desired number of habitat patch "examples" for each habitat type. Criteria for setting these goals include the distribution and the relative historic patch size for that community. These goals were set based on the best available information and the plan acknowledges that they are likely to change as new information becomes available.

Developing both long and short-term goals will help conservation partners shape their immediate actions and their long-term vision for conservation. The more specific and measurable goals are, the easier the plan is to use and track. The majority of states included only long term goals with no measurable features. Quantitative goals are recommended in order to evaluate performance and coordinate action among different groups (Locke et al., 1989). Ideally goals would include acreage targets or at the least, the desired future condition for a habitat type or site (Groves, 2003.). These targets are not necessarily fixed and can adapt as new information becomes available. Timelines will help encourage work toward the goal rather

than let it languish on the books (Matsui et al., 1983).

Actions

Element 4 requires states to prioritize their actions. Every state produced actions, but only 32 made an attempt to prioritize them and fewer were able to do this in a clear and comprehensive way. Most plans included lists of literally hundreds of conservation actions. While comprehensive, long lists without priorities make it difficult for conservation partners to pick strategic starting points. IAFWA's guidance includes a recommendation to "use 'threats analysis,' 'risk and stressor assessments,' and other techniques to help set priorities for goals, objectives, strategies, and activities."

The state wildlife action plans that did prioritize actions generally did so within smaller units, such as for particular ecoregions, habitat types, or focal areas. However, several plans also included statewide lists of priority issues and actions. Prioritizing at multiple levels makes the plan more accessible to a wider audience.

Florida ranked each action within each habitat section based on feasibility, benefits, and cost (Table 3). This emphasis on feasibility and frank inclusion of cost limitations was relatively unique in the plans. For a strategic plan, it is critical to separate out those actions that are most likely to have the greatest impact. Most other state action lists seem to reflect a "perfect world" scenario where unlimited funding and personnel are available. The most important and significant actions get lost in long wish lists of all imaginable actions.

Georgia's plan provides another excellent model of conservation actions in its Appendix L (GA DNR 2005). Each high priority conservation action is tied to a goal, a target species/habitat, a geographic region, funding source, and lead and

Table 3: Florida's Comprehensive Wildlife Conservation Strategy: Actions to address sprawl and development issues, pp. 384 (FFWCC, 2005).

Planning and Standards:

Overall Rank	Action	*Feasibility*	*Benefits*	Cost
H	Explore ways to protect natural lands and commercial forests from conversion that are outside an Urban Service Boundary. Develop incentives to take into consideration wildlife, habitat, and available water resources.	L	VH	M
H	Convene a coalition of appropriate stakeholders (for example, conservationists, state natural resource agencies, agricultural interests, and major development and economic interests in Florida) to develop voluntary and incentive-based opportunities and methods for more ecologically friendly development and to develop additional resources to protect, acquire, and manage natural lands identified in the "Cooperative Conservation Blueprint" process.	M	H	M
M	Support retention of the designations of Areas of Critical State Concern (http://ccgov.carr.org/plan-d/manchester/chapter8.pdf) for the City of Apalachicola, City of Key West, Green Swamp, Florida Keys (Monroe County), Big Cypress Swamp (Miami-Dade, Monroe, and Collier counties).	H	M	L
M	Encourage public/private partnerships to cooperatively help guide development design and implementation with the goal of maximizing protection and proper management of natural habitat identified in the "Cooperative Conservation Blueprint."	M	M	M

cooperating partners. Georgia's analysis answers the question of who is supposed to do what where, with which resources, and toward what end.

Our review tracked 31 types of conservation actions. Figure 6 presents the frequency with which these actions occurred in the plans. Conducting species research, education and outreach, and invasive species management were mentioned most frequently. The prevalence of invasive species management as an action matches well with the magnitude of invasive species as a threat. However, species research and education do little to address habitat loss in the immediate future. Acquisition, easements, and land owner incentives programs were still in the top ten most frequently mentioned actions. Overall there were disconnects between proposed actions and the threat level those actions were designed to address. Many state wildlife agencies have not been traditionally active in land use issues, which may explain why research and education tended to be mentioned more than altering land use patterns.

Policy Connections

Policy actions are a particularly important subset of actions overall. In many cases biodiversity loss does not result from lack of science but from lack of sound policy. For example, Wilcove et al. established in 1998, and the state plans have all supported, that habitat loss is the leading threat to wildlife. The cause of this loss has very little to do with a lack of scientific research and a lot to do with incompatible policy decisions. Habitat loss continues to be the leading threat to wildlife sustainability. Unless we address land use decisions that cause habitat loss we will not save species. Maine recognized that sprawl was a statewide problem, prompting the wildlife agency and conservation partners to create "Beginning with Habitat", a program which provides conservation maps to local communities to guide planning. The maps contain three geographic layers: large contiguous blocks of habitat, riparian corridors, and rare species habitat. This approach protects the identity of rare species, but also gives a planner a specific tool to incorporate conservation into their work. "Beginning with Habitat" is a central component of Maine's wildlife action plan (MDIFW 2005). Implementation of the Massachusetts action plan takes the results of their "BioMap", a spatial analysis which produced conservation focal areas and applies it in the local land use planning context (MDIFW 2005). Figure 7 shows a map of which state plans identify sprawl as a problem and which plans developed sound strategies for addressing the problem.

The placement and construction of transportation infrastructure presents another major land use decision that regularly impacts and fragments wildlife habitat. Forty-two plans included roads as a threat to wildlife, and 31 included actions to deal with this issue. Vermont in particular included a detailed discussion on the importance of integrating wildlife issues with transportation planning. Getting information from state wildlife action plans into the hands of land use and transportation planners early in the planning process is likely to

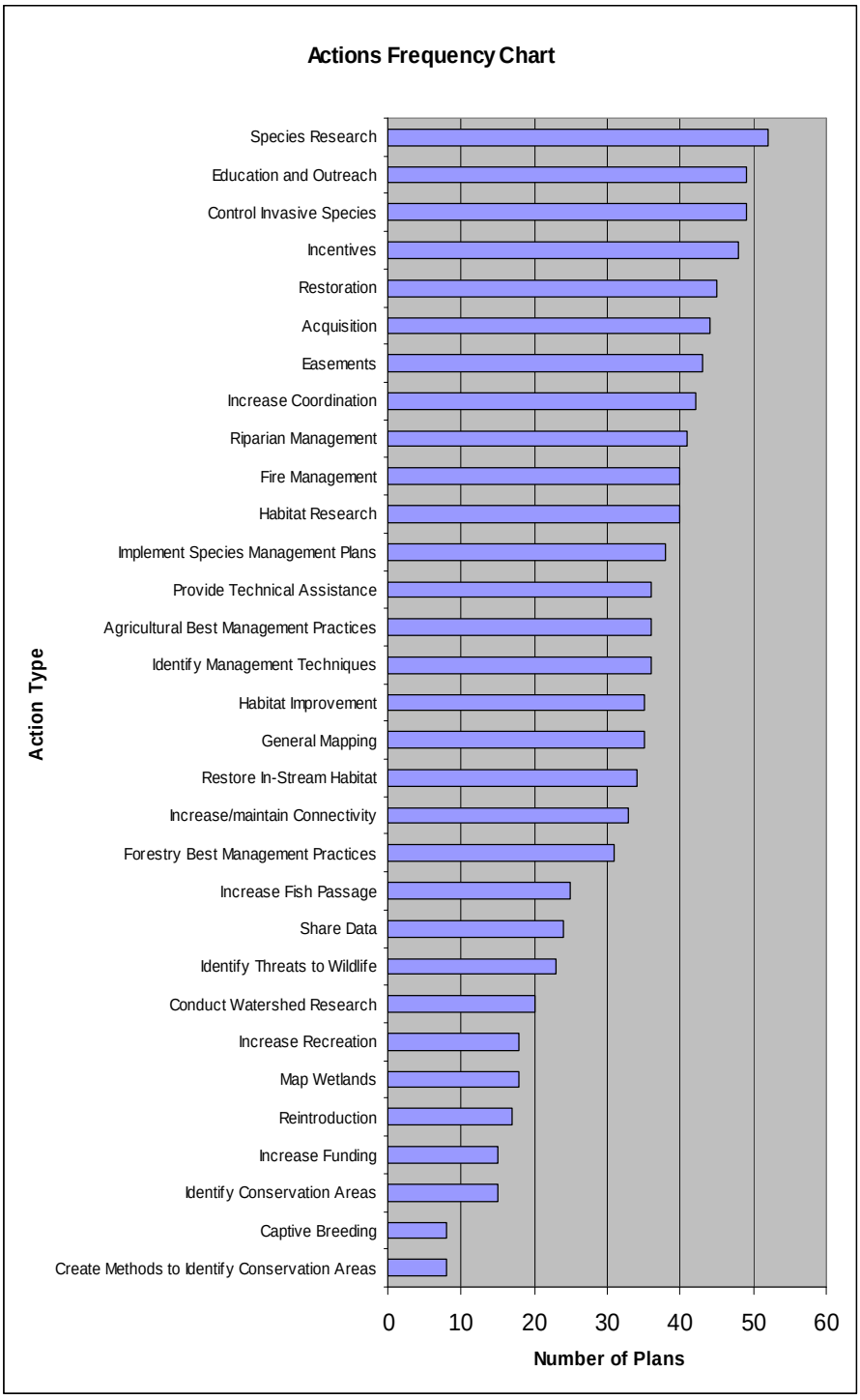

Figure 6: Number of plans that mentioned each of these listed actions.

reduce conflict and improve decisions.

Monitoring

Monitoring is a key component of a successful plan and especially critical for wildlife. The language in the eight elements clearly requires that states monitor species, habitats, and the implementation of actions. All state plans were able to outline species monitoring efforts, but tended to be less clear in determining how to monitor habitat and conservation actions. Three plans failed to include anything but species monitoring, and 14 left out conservation actions monitoring. Only 11 plans included clear and in-depth discussions of a monitoring framework that defined what to monitor, how to maintain information gathering, and the structure of a collaborative statewide monitoring group. Almost every plan included the term "adaptive management", but very few described an adaptive management framework that would dynamically adjust as actions occurred and information emerged. Many plans indicated that existing monitoring programs in the states are adequate for keeping track of their plan. The Illinois and Oregon plans present good examples of comprehensive monitoring frameworks.

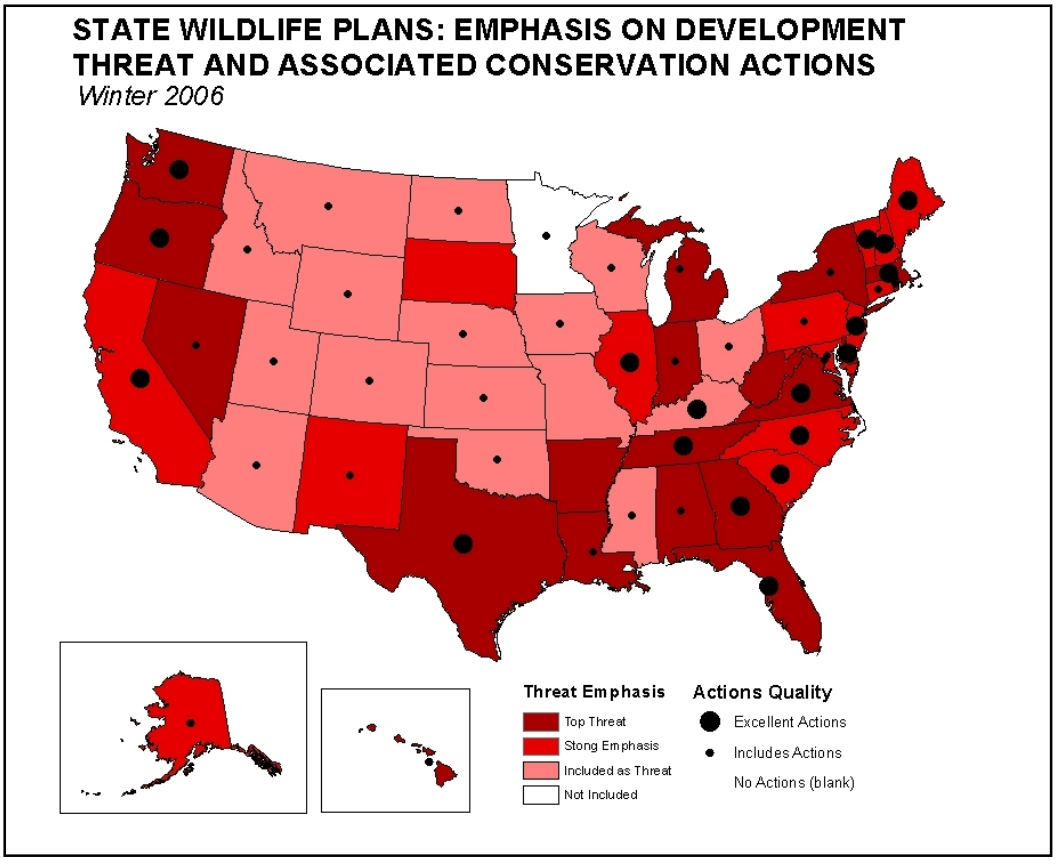

Figure 7: Urban development threats and conservation actions

WILDLIFE PLAN LEADERS

Overall, the review pointed us to a number of state wildlife action plans that exhibit the best quality in most areas and emerge as good models for the future evolution of these documents. The states include: Florida, Georgia, Illinois, Massachusetts, Nebraska, New Hampshire, New Jersey, New Mexico, North Carolina, Oregon, Tennessee, and Virginia. These plans conducted sound assessments, developed clear strategies, and included a framework for successful implementation (See Figure 8). Results indicate state plans fell along a continuum of quality. As should be clear from the earlier discussion, many plans excelled in particular areas, but these leaders either excelled or did well in all review categories.

At least one leader emerged in each of the FWS regions representing a diverse set of habitats, cultural, and socioeconomic characteristics. These plans set goals, direct conservation using maps of focal areas, prioritize actions, and demonstrate a clear commitment to implementation through new or existing programs. Pre-existing experience or planning capacity did not necessarily determine who ended up with a leading plan. Seven of the 12 states identified had never attempted a plan of this magnitude before as a state or state wildlife agency.

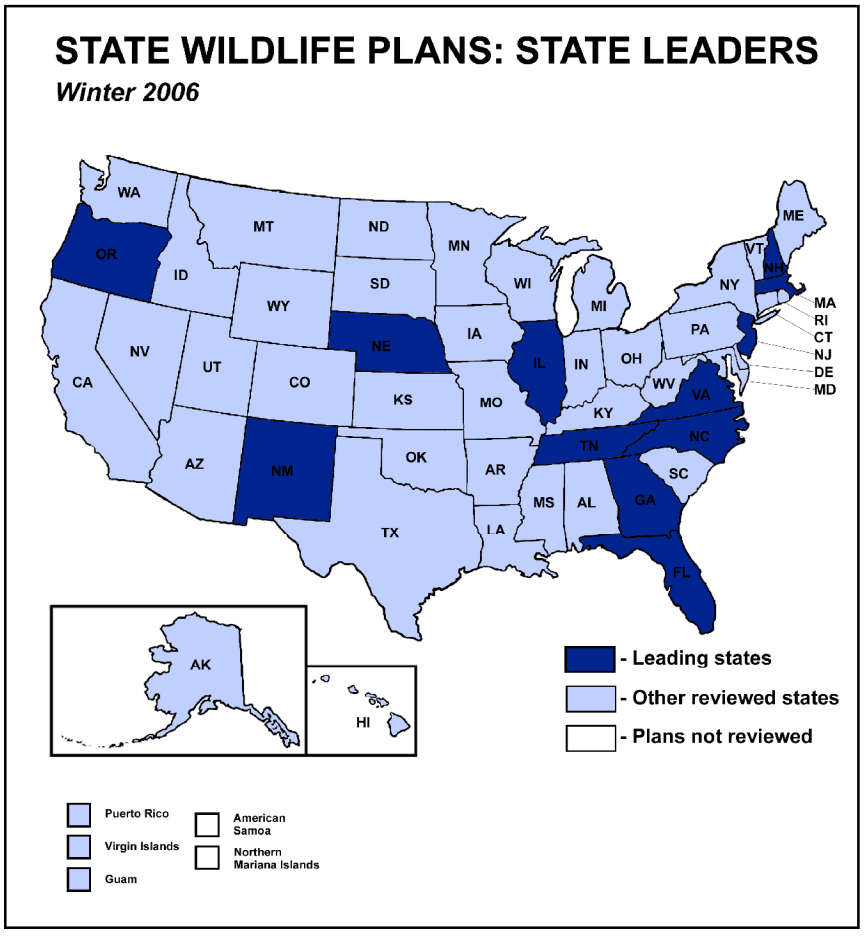

Figure 8: State wildlife plans of the best overall quality

MISSED OPPORTUNITIES

Through the review process we identified some areas that stood out as missed opportunities and could have made the states' planning process easier and improved the overall quality of the plans. These areas include use of previous conservation planning work, making funding connections, coordination with federal, state and local agencies, and the format of the plans. All will be important for successful implementation.

Previous Conservation Planning Efforts

Prior to the State Wildlife Grants Program, several states launched innovative statewide conservation planning efforts. In 1994, the state of Florida produced a landmark assessment of its wildlife resources using a focal species approach coupled with attention to specific native vegetation communities that were at risk. The final product contained a map (See Figure 9) showing the places that were already protected and the places that needed protection (i.e. strategic habitat conservation areas).

For this current planning exercise, every state had the opportunity and the federal funding to develop a strategic framework for all wildlife and for all conservation partners using available models. Although many states consulted other plans that dealt with parts of their state, few produced something of the same caliber and rigor as Florida's 1994 effort.

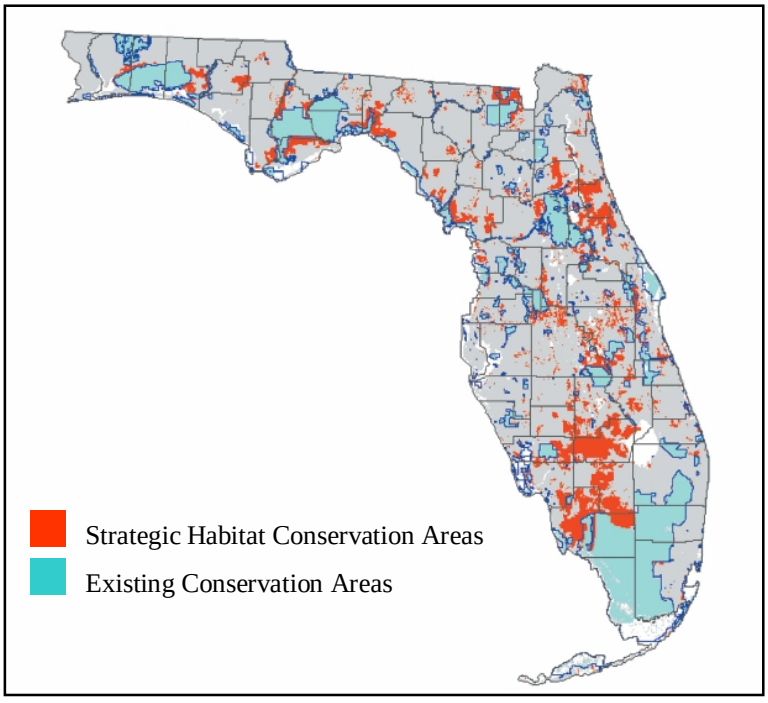

Figure 9: Florida Closing the Gaps map (Cox et al. 1994)

Funding Connections

The State Wildlife Grants Program is not currently funded at the level needed to implement all the priority actions in any of the plans. While we hope the plans justify an increase in funding for the program, the plans will also need funds from other federal, state, and local partners for implementation. Surprisingly, funding was one issue that received very little attention in the plans. Thirteen plans made no mention of funding at all, and 19 plans included some minimal reference to outside funding sources such as the Farm Bill or the FWS-administered Landowner Incentives Program. Nine plans tried to link actions to potential funding sources or provide more detail about each funding source. Only two states made an attempt to estimate what their priority actions would cost and what kinds of funding shortfalls they might face in the future. The State Wildlife Grant Program funds themselves will only cover a small fraction of the conservation costs of these plans and states will need to think creatively about using other existing funding sources that can be used to achieve wildlife objectives.

Iowa's plan was unique in providing a detailed outline of existing revenues, estimated costs of implementing priority conservation actions, and an estimate of the shortfall between the two. This kind of analysis grounds the plan in a reality where there are too few resources to implement every conservation action listed. It starts a serious dialogue about what is possible and hopefully spurs a search for more funding.

Table 4: Iowa's Comprehensive Wildlife Conservation Strategy: Current and Potential Revenue Sources for Short Term Land Protection Efforts, part II, Table 44, pp. 12 (Zohrer 2005).

2003	**Revenue**	
Net Sales Tax Collections	$1,769,151,337	60% for Habitat
Taxable Expenditures	$35,383,026,740	
Potential Sales Tax for Conservation		
1/8 of 1%	$44,228,783	$26,537,270
1/4 of 1%	$88,457,567	$44,228,783
Short term Protection - Existing	**Acres**	**$$**
Federal Farm Programs		
CRP - Whole Field	1,444,085	$130,898,000
CCRP - Buffers	397,830	$56,475,000
CREP	253	$53,000
FWP	52,841	$8,585,000
GRP	2,425	$1,068,000
WHIP	6,881	$1,289,499
Total	**1,904,315**	**$198,368,499**
Short term Protection - Potential		
Federal NRCS - CREP	47,800	$10,000,000

Coordination

Required Element 7 asks the states to coordinate with federal, state, and local agencies that manage significant lands and waters in their states. We found the states reached out to federal resource agencies, but to a lesser extent to other agencies that make decisions that impact habitat at the state level (e.g. departments of transportation) or local level (e.g. land use planners). The state fish and wildlife agencies directly control a relatively small amount of habitat in their states. Depending on the state, large areas of federal or private holdings necessitate working with these landowners to integrate the state plans with their decisions. For private landowners, Farm Bill conservation title programs provide funding for conservation on agricultural lands.

For the federal land management agencies their organic acts (National Forest Management Act, Federal Land Policy Management Act, Refuge Improvement Act, etc.) outline a planning process associated with virtually all their activities that require consideration of wildlife. The challenge for the future will be to integrate the results of these state wildlife action plans into those planning processes. The agencies that did participate in the process provided information, expertise and sometimes support for the effort, but because there was no requirement on their end to participate, evidence of meaningful participation was spotty.

Format

The plans are an ideal opportunity for education. They can be used to educate the public not just about the rich diversity of wildlife in their states, but also what the problems are, solutions, and what the public can do to help out. To do so, however, the plans need to be synthesized into more accessible documents and products. The plans in their current format are often too large and unwieldy for the average user. In this form, the public cannot access the information, solutions, and actions they can take for wildlife. Local governments will have difficultly weaving the state plan priorities into their land use planning decisions, and other partners will be challenged to shape their actions around the plan's strategies. Illinois produced a fairly easy-to-read plan which created a series of issue campaigns to organize conservation action.

CONCLUSIONS

Overall, the states made considerable progress on gathering information and creating plans. In 2000 when this program was created, only five states had done a statewide assessment of biodiversity and a plan for conservation. Now there are 56 plans, 12 of which are excellent. And now there is a network of wildlife planners that can share and compare approaches. Most importantly, a framework exists to build upon with guidelines and a process for improvement over time.

From the above discussion, it should be clear that the performance of the states on the first iteration of their state wildlife action plans was a mixture of new approaches, solid strategies, best intentions, and some missed opportunities. Each state and territory should be commended for submitting a complete plan by the deadline. The fact that each plan used a different methodology makes it difficult to stitch the plans together into a comprehensive, coherent national conservation strategy as some have suggested, but the differences have also yielded innovations that can and should be shared more broadly. The plans are good and important steps in the right direction, but more needs to be done. Following are a number of additional steps that we believe are critical for the long-term success of the plans and ultimately the State Wildlife Grants Program.

NEXT STEPS:

Set Goals

Each plan needs clear and measurable goals. Developing quantitative acreage targets or desired future conditions will be most effective. Timelines will keep strategies on track to achieve the goals.

Produce Focal Area Maps

All states should produce a statewide map showing focal areas to direct conservation as an essential step in conservation planning. The states that did not map focal areas should immediately make use of their baseline information to create maps. All states have access to heritage program data and most have some vegetation and habitat data to identify where protected areas serve species of greatest conservation need and where there are gaps in protection. Numerous state models exist to draw upon for methodology (e.g. Massachusetts BioMap, Florida Closing the Gaps, New Jersey Landscape Project). Some states have created green infrastructure plans or critical areas assessments which could also be included.

Prioritize Actions

As states work to revise and implement their plans, they should focus effort on identifying the most pressing threats and most effective actions and linking these with specific geographic areas within the state. To the extent possible, the prioritization process should be grounded in reality and work within the constraints of what is feasible.

Make Policy Connections

Plans must inform land use decisions that impact habitats if they are to be successful. The new federal transportation bill includes specific

language (Section 6001) requiring departments of transportation to consult state wildlife action plans as they develop their own transportation projects. Local land use planners will use information from state plans if it is in a format they can use at the right scale and in an appropriate spatial format.

Coordinate With Others

Because state wildlife agencies often do not manage significant areas for wildlife habitat, they should make a greater effort to work with other agencies. Linking up the federal land management agencies' planning processes will be important. Many private landowner programs through the Farm Bill also contain a planning component. To more strategically deliver conservation, state wildlife action plans should be clearly coordinated with Natural Resources Conservation Service and Farm Services Agency Farm Bill programs.

Develop Monitoring Systems

Each state needs a comprehensive monitoring program that reports on actions and the condition of habitat over time. Defenders has issued guidance for such a comprehensive monitoring program that includes a statewide monitoring committee, spatially tracking land use/land cover changes, spatially tracking conservation actions in a comprehensive and accessible registry, and involving citizens in monitoring. Reliance on existing monitoring systems is often inadequate.

Establish Implementation Committees

IAFWA has recommended that each state wildlife agency designate an implementation coordinator. Defenders also thinks it is important to maintain a committee of stakeholders who have resources available to apply to implementation. As of this writing we know of 7 states (California, Missouri, North Carolina, Mississippi, Maine, Minnesota, South Carolina) that have set up a formal steering committee for their plan to move things forward. All states need such organization.

For many years the Endangered Species Act has brought attention to species like the bald eagle, northern spotted owl, and gray wolf. Defenders and others have worked long and hard for their recovery. With the state wildlife action plans we introduce a new cast of characters, including the golden eagle, burrowing owl, wolverine, paddlefish, lake sturgeon, spiny softshell turtle, numerous freshwater mussels, and hundreds more. With these species come a new set of habitats and places which have received less attention. Protecting these species before they decline toward Endangered Species Act listing is the intent of these state plans and demonstrates an increasing sophistication with which we approach conservation.

> "Make no little plans. They have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical program, once recorded, will never die, but long after we are gone will be a living thing, asserting itself with growing intensity."
>
> - Words attributed to architect/planner Daniel Hudson Burnham

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