APPROACH AND METHODS

Organizational Structure

The planning team for the Idaho Comprehensive Wildlife Conservation Strategy consisted of a coordinator and a core team of individuals from the Idaho Department of Fish and Game. We involved multiple staff levels within the Department and the Director took an active role in the CWCS Leadership Committee, as well as met with stakeholders and gave presentations on CWCS. At the programmatic level, 4 Bureau Chiefs (Fisheries, Natural Resources Policy, Wildlife, and Communications) were directly involved through interactions with their respective program coordinators and staff. In addition, numerous individuals within the Department and one from the University of Idaho assisted with developing species accounts. We also contracted with Boise State University's Environmental Science and Public Policy Research Institute to conduct outreach activities.

Idaho Comprehensive Wildlife Conservation Strategy Coordinator (Rita Dixon)

Role: coordination and oversight of the development of the Idaho CWCS as well as developing sections of the document.

Idaho Comprehensive Wildlife Conservation Strategy Oversight Committee

Role: oversee the Strategy development process; provide programmatic support; develop sections of the document; give final approval of products and processes developed.

Members: Tracey Trent (Natural Resources Policy Bureau Chief), Kevin Church (Idaho Conservation Data Center [IDCDC] Coordinator), Chuck Harris (State Nongame Wildlife Manager).

Idaho Comprehensive Wildlife Conservation Strategy Core Team

Role: assistance with various aspects of CWCS including: species accounts, annotated literature searches, coordination, data management, GIS analysis, conservation status rankings, data entry, prioritization, monitoring, coordination, ecological system condition, issues and actions, public involvement and human dimensions, and mapping.

Members: William Bosworth (Zoologist, IDCDC), Tamara Fields (Zoologist, IDCDC), George Stephens (Zoology Information Manager and Fish and Game Data Coordinator, IDCDC), Angie Schmidt (GIS Analyst, IDCDC), Nikki Wade (Wildlife Technician, IDCDC), Suzin Romin (Nongame Database Manager, IDCDC), Steve Rust (Plant Ecology Staff Biologist, IDCDC), Jennifer Miller (Research Ecologist, IDCDC), Stephanie Mitchell (Ecology Information Manager/Office Manager, IDCDC), Michele Beucler (Staff Biologist–Planning and Human Dimensions), Rex Sallabanks (Nongame Bird Biologist and Partners in Flight Coordinator), Colleen Moulton (Idaho Bird Inventory

and Survey/Idaho Important Bird Areas Coordinator), Tom Hemker (Wildlife Program Coordinator—upland game birds and waterfowl), Paul Makela (Greater Sage–Grouse Planning Coordinator, BLM), Brad Compton (Wildlife Game Manager), Gina Patton (Senior Wildlife Technician specializing in T&E species, at risk species, and furbearers), Jon Beals (State Wildlife Grants Coordinator), Mark Gamblin (State Resident Fishery Manager), Fred Partridge (State Resident Fishery Coordinator).

Idaho Comprehensive Wildlife Conservation Strategy Outreach Coordinator *(Sarah Bigger,* Environmental Science and Public Policy Research Institute, Boise State University)

Role: public involvement and outreach; develop brochure; facilitate CWCS Leadership Committee Meetings.

Public Involvement and Partnerships (Element 8)

The purpose of involving the public in the planning process was to produce a collective set of conservation priorities for the state that will serve as a blueprint for strategic investments and activities that reflect public interest regarding conservation. The Strategy is intended to both integrate and facilitate ongoing activities, and add value to projects already underway by providing a broader context and clearer definition of different roles and responsibilities.

The IDFG used a variety of methods to facilitate public input and involvement in developing CWCS. In 2001, IDFG began measuring public perception and attitudes about conservation issues to: (1) assess the level of public support for nongame programs, (2) identify the types of conservation actions likely to be successful for implementing CWCS, and (3) serve as baseline data for monitoring public perception and attitudes. During the past year, IDFG initiated an outreach program to inform the public about CWCS and invite public input into its development.

Measuring Perception and Attitudes

Focus groups. In 2001, IDFG conducted 35 stakeholder focus–group meetings across the state (five in each of 7 regions). The 5 distinct groups of stakeholders were: (1) hunters, (2) anglers, (3) people with interests in wildlife other than hunting and fishing, (4) landowners, and (5) people with commercial interests in wildlife. Approximately 400 people participated, and ten themes relevant to CWCS were identified:

1) participants wanted more information and education;
2) funding was a major concern of all stakeholder groups except landowners; in general, participants wanted more funding for IDFG paid by all citizens;
3) broad desire for more enforcement of fish and wildlife laws;
4) differing opinions on whether or not the IDFG mission statement, as written, accounts for all fish and wildlife; regardless, many wanted greater emphasis on at–risk species and nongame wildlife.

5) many participants across stakeholder groups wanted IDFG to have more influence in decision–making, particularly related to ESA;
6) many also wanted IDFG to play a leadership role in fish and wildlife issues and in developing partnerships for conservation;
7) varied opinions of how well the IDFG conducts public involvement;
8) landowners and people interested in wildlife other than hunting and fishing feel disenfranchised by the IDFG;
9) protecting wildlife habitat is very important to all 5 stakeholder groups;
10) a sense of frustration with how politics plays into fish and wildlife management; there is an understanding that politics will play a role, but the concern is how it's played out.

Idaho citizen survey. In June 2002, a questionnaire was mailed to 7700 randomly selected households to assess public perception of IDFG activities and programs (McMullin 2003). The overall response rate was 44% (3156 completed surveys), and a non–response check was conducted via telephone interviews with 10 non–respondents in each of 7 regions. The sampling frame was designed to differentiate between hunting and fishing license–buyers and those who don't buy licenses.

Thirteen activities of IDFG were identified by the public as important and which we considered particularly relevant to CWCS. Of these activities, three were considered as being performed well and 10 activities were categorized as being performed poorly (Table 1).

Table 1. Importance–performance assessment of IDFG activities considered relevant to the CWCS.

High Importance & High Performance	**High Importance & Low Performance**
Manage native game fish such as cutthroat trout and sturgeon	Restore habitat for fish
Manage salmon and steelhead	Provide assistance to landowners who want to benefit fish and wildlife
Assist in recovering species listed under the Endangered Species Act	Enforce regulations for off–road vehicles
	Participate in working groups and councils to improve fish and wildlife habitats
	Review and comment on the effects of proposed activities on fish and wildlife
	Purchase easements to protect fish and wildlife habitat
	Purchase land to protect fish and wildlife habitat
	Provide information on fish and wildlife to agencies and local governments

	Participate in programs to compensate for losses of fish, wildlife and habitat
	Manage nongame fish and wildlife

Sixty percent of respondents reported knowing little or nothing about the IDFG nongame program. Surprisingly, wildlife viewers who did not hunt or fish were less knowledgeable than hunters or anglers. Nonetheless, 77% of the public considered nongame wildlife important and only 8% said that nongame wildlife is unimportant to them.

The survey also included questions on allocating funds to different methods of nongame conservation, education and recreation programs (McMullin, 2003). Out of a hypothetical $100 budget for conservation projects, respondents would allocate most ($23) to improving existing habitat, followed by purchasing habitat ($18), recovering endangered wildlife ($17), caring for sick and injured wildlife ($17), gathering information to expand our knowledge about nongame wildlife ($14), and providing information about rare plants and wildlife ($10).

Wildlife values in the West (Pilot). The Human Dimensions Committee of the Western Association of Fish and Wildlife Agencies (WAFWA) in association with the Human Dimensions Research Unit at Colorado State University conducted a regional study of people's values toward fish and wildlife and their management. From March to May 2002, mail–back questionnaires were sent to a representative sample of 1250 households in each of 6 western states following the Tailored Design Method (Dillman 2000). Idaho's response rate was 35% (404 completed surveys), and a non–response check was conducted via telephone interviews to 275 non–respondents in Idaho. Data were weighted for age, sex, and participation in wildlife–related recreation.

A slight majority of Idahoans hold the traditional set of values in terms of wildlife—one in which wildlife are to be used to benefit people. However, Idaho is not isolated from the broad social changes that are occurring in developed countries (Teel et al. 2003). About 19% of Idaho citizens have a "protectionist" set of values in terms of wildlife, and 22% fall in between traditional and protectionist values.

Gigliotti (2003) further analyzed the data and developed a model based on 2 "dimensions": 1) support/opposition toward hunting/fishing oriented wildlife management (such as bag limits); and 2) support/opposition toward broader environmental wildlife management (such as habitat protection). Five distinct "wildlife clusters" were identified and named by Gigliotti (Fig. 1). The vast majority of Idahoans (85%) support both hunting/fishing and broader environmental wildlife management.

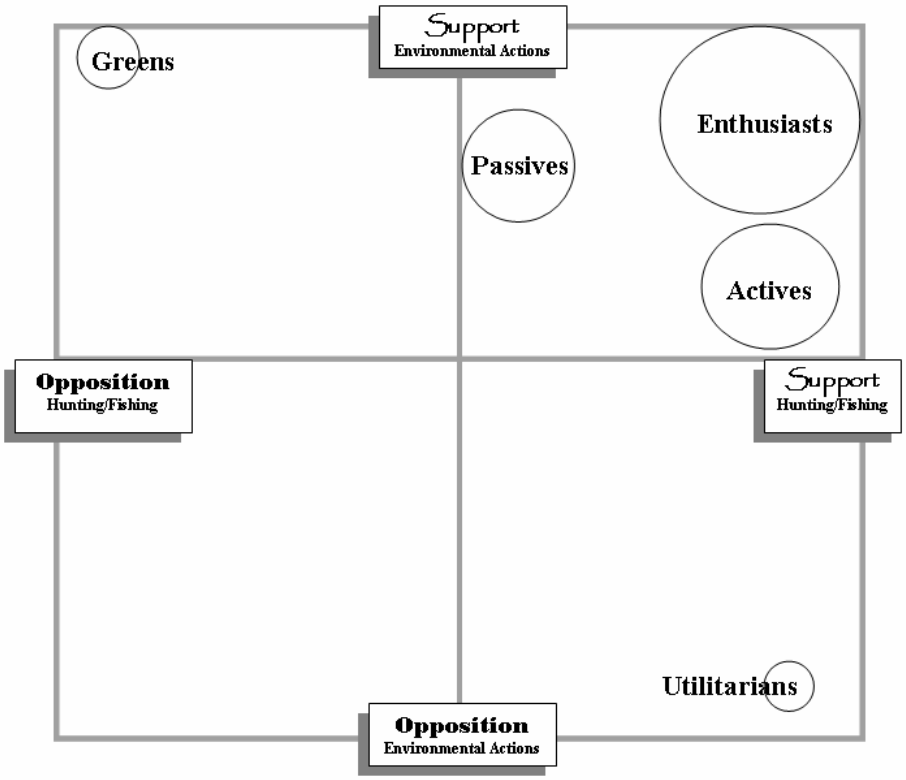

Figure 1. The wildlife cluster model indicating the two dimensions and the five clusters of Idahoans based on their attitudes to managing fish and wildlife (Gigliotti 2003). The size of the circle represents the percentage of respondents in that cluster.

Wildlife values in the West. In October 2004, the Western Association of Fish and Wildlife Agencies sponsored a project involving 19 western states. Again, mail–back questionnaires were used to sample 3000 Idaho households following the Tailored Design Method (Dillman 2000). Overall response rate for Idaho was 30% (828 completed surveys), and data were weighted for age and participation in wildlife–associated recreation.

Questions were asked to determine how people would prioritize species in need of conservation funding based on choices of a species' origin, status, and use. In Idaho, the use (game, nongame) of a species is the most important factor, followed by its status (extirpated, declining, or common), and finally by its origin (native, nonnative). Declining species are more likely to be supported for conservation funding than are common or extirpated species, and common and extirpated species would receive similar support. Native species are more likely to be supported for conservation funding than are nonnative species, and game species are about twice as likely to be supported for conservation funding than are nongame species. Information about public attitudes can be used to design conservation actions for CWCS and to effectively communicate conservation issues with the public.

In Idaho, the Wildlife Values in the West survey also examined the public's attitudes and perceptions regarding the Endangered Species Act (ESA) and the conservation of declining fish and wildlife (Teel and Dayer 2005). About one–third (32%) felt that the ESA was a threat to the nation's economy and 54% were opposed to the idea of doing "everything possible" to prevent endangered fish and wildlife from going extinct even if it meant the local people would lose their jobs. About 43% of respondents felt that private property rights are more important than protecting declining or endangered fish and wildlife, compared to 45% who disagreed. Interestingly, 61% disagreed with the notion of letting endangered fish and wildlife go extinct even if protection negatively affected the local economy. There was very strong support (76%) for preventing declining fish and wildlife from becoming endangered and 62% felt it was more important to spend money to gather information on endangered fish and wildlife than to provide recreational opportunities. Fifty–nine percent trusted the IDFG to make appropriate decisions about declining and endangered fish and wildlife.

Conclusions—the context of conservation in Idaho. Simply stated, Idahoans identify with the importance of wildlife conservation. Wildlife issues are important to 9 out of 10 Idahoans, and they are unimportant to 5%. Nongame wildlife is important to three–quarters of Idahoans—regardless of region. Two out of 3 Idahoans participate in some form of wildlife–based recreation and 90% support legal hunting and fishing. People spend nearly $1 billion in Idaho every year hunting, fishing, and viewing Idaho's wildlife.

Idaho citizens generally agree in the approach toward managing fish and wildlife. Although there is some distinction between "traditional" wildlife management (such as harvest regulation and hatchery production) and broader "environmental–type" management (such as protecting habitat and native species), 85% of Idahoans generally support both. Furthermore, Idahoans' support for a broader funding base for

IDFG, coupled with their concern for nongame wildlife as well as game animals, provides a clear message that IDFG's mission is to manage all wildlife, not just game animals.

That said, people hold diverse and often conflicting views regarding the ESA, at–risk species, and the government agencies that manage them. Attitudes toward ESA–listed wildlife tend to be species–specific. For example, people willingly stand shoulder–to–shoulder to fish for salmon and steelhead, and few would argue against having the opportunities for longer seasons and greater harvests. However, the reestablishment of wolves into Idaho has evoked two extreme and opposite viewpoints.

There is also a small, yet vocal minority of stakeholders who simply feel that wildlife management should be minimal and that the role of IDFG is simply to protect the right to hunt and fish. This group strongly disagrees with the IDFG's involvement in conservation actions for nongame animals and almost certainly plants. It is relevant to note that traditionalists are more likely to attend public meetings and be more involved and informed than those with greater protectionist values.

Because two–thirds of the state is in federal ownership, much of the state's industry and economy—such as logging, mining, and ranching—has relied upon federal land management. Decisions that affect federal land therefore affect the state's economy and many people's livelihoods. Private property also is economically and culturally important in Idaho. Although landowners almost universally consider wildlife a benefit and like to have wildlife around their property, they also tend to have a traditionalist orientation toward wildlife and are concerned about the impacts of conservation actions on their livelihoods and private property rights.

CWCS Public Outreach

IDFG CWCS Web Page. Information about CWCS was put on the IDFG Web site in February 2004. This site will remain the central source of detailed information throughout the public review and development phase of the CWCS document. Upon final acceptance of the Strategy by USFWS, the Strategy will be available online and serve as a reference to individuals and entities interested in third–party State Wildlife Grants.

ESPPRI CWCS Programs. From January 2005 through July 2005, the Environmental Science and Public Policy Research Institute at Boise State University conducted public involvement and outreach activities specifically for CWCS. An Idaho–specific brochure was developed for distribution through IDFG regional offices and at outreach meetings. Presentations were made to 23 organized groups—primarily those involved with natural resources issues—and at several less formal meetings with a limited number of stakeholders across the state. Resource Advisory Committees (RACs) of the USDA Forest Service and Bureau of Land Management were targeted due to the broad nature of interests represented by members. The purpose of the presentations was to inform

stakeholders about the development of CWCS, to gather input, and to encourage participation in implementing the Strategy.

The following points were emphasized:

1. CWCS is being developed to aid species with conservation needs before populations decline and listing under the Endangered Species Act may be warranted;
2. CWCS is a strategy, not a regulation;
3. conservation actions in the Strategy are voluntary and not mandatory; and
4. CWCS is for everyone's use and the public can be a partner in implementing the Strategy.

Discussions following each presentation indicated broad, general support for development of CWCS. Issues expressed were consistent across the state:

1. Land purchases. Several individuals expressed concern that the State Wildlife Grants Program funding might be used for purchasing land in Idaho. With the majority of the state in public ownership, they do not want the State buying any more land from private individuals.
2. Plants. Perspectives on plants varied from individuals that felt they should be included in CWCS, to others who felt that IDFG should not extend the work to include plants.
3. Public involvement. Tribal representatives held there was not enough tribal participation in the process. Several people suggested that private landowners, land developers, and counties should have more involvement.
4. Jurisdictional issues. Many stakeholders questioned the appropriateness of IDFG developing CWCS in lieu of the Governor's Office of Species Conservation.
5. Coordination with other states. Everyone recognized that species do not adhere to state boundaries and coordinating conservation efforts with other states may be necessary.
6. Data. There was discussion in several venues about data quality and the inclusion of data gathered during subbasin planning.
7. Nongame funding. Most meetings had general concurrence that other sources of nongame funding should be created similar to the Pittman–Robertson Act.

Idaho Comprehensive Wildlife Conservation Strategy Leadership Committee

Early in the process of developing the CWCS the IDFG established a Leadership Committee. The membership of the Committee was based on a representative group of agencies and entities that would likely use or implement the CWCS. The group size needed to be small enough to be workable yet represent the variety of interests in the state. The Committee was composed of representatives of:

USDA Forest Service
Idaho Legislature
Idaho Association of Counties

Intermountain Forest Association
USDI Fish and Wildlife Service
Governor's Office of Species Conservation
USDI Bureau of Land Management
Office of Governor Dirk Kempthorne
The Nature Conservancy
Private ranching community
Idaho Conservation League
University of Idaho
Idaho Council on Industry and the Environment
Idaho State Department of Agriculture
Idaho Department of Lands

The purpose of the committee was to:

1. Inform key individuals about the CWCS. We wanted to inform those who were likely to use, implement, or be affected by the CWCS to be aware that it was being prepared, who was preparing it, and how it was being done.
2. Provide suggestions and advice on the CWCS as it was being developed.
3. Disseminate information and receive feedback from other stakeholders on the strategy.

The Committee met four times: June 2004, December 2004, June 2005, and September 2005. The first meeting was an introduction to the CWCS, the timetable for preparation, and how it would be developed. The remaining three meetings were updates on progress. At all the meetings, issues that concerned members were identified and discussed. The key issues that emerged from discussions of the Leadership Committee included how species were selected, how threats and conservation actions were described, the use of predicted distribution maps, dealing with species for which there is little information, how to use the CWCS and how not to use it, and the difference between a strategy and a plan.

Much of the advice and suggestions of the Committee members were incorporated into the development of the CWCS.

Public Involvement in Implementing the Comprehensive Wildlife Conservation Strategy

The Comprehensive Wildlife Conservation Strategy is just that, a strategy, not a plan. The Strategy is not a prescriptive document, it does not require any person or entity to implement conservation actions or dictate how conservation actions should be implemented. It is intended to provide information and general direction that will be useful in developing conservation plans for at–risk species and habitats. The development of conservation plans is likewise a discretionary action and is not required by the CWCS. Landowners, state and federal agencies, private companies, and others voluntarily enter into conservation planning efforts if it suits them.

Conservation plans are more specific documents that spell out what specific conservation actions will be implemented, who will do them and how they will be done. They are typically prepared for a particular location or land ownership and commonly involve multiple partners such as state and/or federal agencies, private landowners, permitees, private companies and the public. As such, conservation planning is a collaborative endeavor involving interested and affected parties. In order to be successful, conservation plans have to be developed by the parties that will ultimately be responsible for implementing the conservation actions, monitoring their effectiveness, and adapting them to achieve the mutually agreed upon results.

In Idaho, collaborative conservation efforts are coordinated through the Governor's Office of Species Conservation (OSC). Under the auspices of the Governor, the OSC brings together the interested and affected parties to develop conservation plans, ensure that the needs of fish, wildlife and people are taken into consideration, and ensure that the plan is implemented. This process has proven to be successful in developing conservation plans for slickspot peppergrass, Chinook salmon in the Lemhi River, grizzly bear, and gray wolf.

Conservation plans can take a variety of different forms. They can be as simple as an agreement between 2 state agencies or between a private landowner and a state agency. If such agreements involve rule–making by the State, public review is incorporated at several steps in the rule–making process. More often they are more complex and involve federal land agencies and include federal permits (Candidate Conservation Agreements with Assurances, Habitat Conservation Plans) and/or federal funds (Landowner Incentive Program, Habitat Conservation Planning Assistance, HCP Land Acquisition, Recovery Land Acquisition, and others). In cases where there is a federal nexus, the National Environmental Policy Act (NEPA) may apply and Environmental Assessments (EA) or Environmental Impact Statements (EIS) are prepared. Public review is required at several steps in the preparation of these documents.

The CWCS identifies information needs for species, habitats, and conservation actions. Little is known about the distribution, abundance and life history in Idaho of many of the species identified in the CWCS as species of greatest conservation need. Citizen science will play an important role in inventory and monitoring of these species and their habitats. For example, GAP can assist states in fostering public participation through its outreach component, NatureMapping. The emphasis of NatureMapping is community participation and the documentation of species' locational information by non–professionals. NatureMapping programs involving students, community members, and natural resource professionals are active in 10 states. Idaho is currently involved in starting a NatureMapping program. Such a program could be used to facilitate involvement of the public in developing and monitoring the results of the Idaho Comprehensive Wildlife Conservation Strategy. Data collected in NatureMapping can be used for scientific inquiry, to foster a sense of stewardship, and to teach biological concepts such as species distributions and habitat associations.

In summary, the public will have many opportunities to be involved in the implementation of the CWCS. Affected publics will be involved in the development of conservation plans. The general public will have the opportunity to review and comment on proposed rules, environmental documents, and plans and permits. Interested publics will be able to participate in on–the–ground conservation efforts, like habitat enhancement projects and inventory and monitoring.

Coordination with Agencies and Tribes *(Element 7)*

The Strategy was coordinated with many individuals, agencies, and organizations other than the Idaho Department of Fish and Game. As required in Element 7 of the 8 Elements, we describe here how we coordinated input from federal, state, and local agencies and Indian tribes that manage significant land and water areas. We have made a good faith effort to collaborate with all relevant agencies, organizations and the public in the development of the Strategy, as well as considered their authorities and abilities to implement recommended strategy conservation actions.

The Idaho CWCS Planning Team began to coordinate early on in the development of the Strategy. Following the regional workshop in April 2003, we began a dialogue internally on "planning to plan" and met with The Nature Conservancy in Idaho and the Bureau of Land Management to discuss their potential involvement in CWCS. We continued to engage others statewide who possessed the knowledge and technical expertise to ensure that we not only used the best available information, but that we also ensured a comprehensive representation of the wildlife and wildlife–related issues in Idaho.

Although we were not required to address coordination with adjoining states in the Strategy, we have nevertheless coordinated with these states on common wildlife conservation issues in developing the Strategies including the sharing of species lists and comparing drafts to look for commonality and consistency. We have also coordinated with adjacent states on a number of proposals, including collaboration with the Wyoming Natural Diversity Database (WYNDD) to model and map the distribution of species–of–interest across the 5 Northwest States as part of the Northwest ReGAP Analysis Project.

In addition, we have coordinated closely with Defenders of Wildlife (DOW) throughout the process of developing CWCS. Defenders organized a meeting to discuss the development of a habitat monitoring framework and subsequently contracted with the Illahee Corporation to develop this framework, which we have adopted in our CWCS.

We coordinated with the Montana State Library/Montana Natural Heritage Program, University of Wyoming/Wyoming Natural Diversity Database, Montana Fish, Wildlife, and Parks, Wyoming Game and Fish Department, and NatureServe on a multi–state proposal to assess climate change in the Rocky Mountains of Idaho, Montana, and Wyoming. The intent of this project was to coordinate efforts to assess the current

state–of–knowledge and to identify the resources available for determining the effects of climate change on alpine animals and plants in the northern and central portions of the Rocky Mountains of the United States.

We coordinated with Oregon State University, the Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Washington Department of Natural Resources, Defenders of Wildlife, and The Nature Conservancy on a multi–state proposal to develop a set of ecoregional portals or Web sites for the Pacific Northwest. The objective of these portals is to provide multi–state, comprehensive wildlife conservation strategy information and data to the public. The sites will also integrate data from other available ecoregional assessments and information from the three State Strategies.

We coordinated with the Washington Department of Fish and Wildlife, Oregon Watershed Enhancement Board, Oregon Department of Fish and Wildlife, and Defenders of Wildlife on a multi–state proposal to scope and design a web–based, spatially explicit, statewide registry of conservation actions. We envision a three–year project, each creating tangible and stand–alone results. The registry will house project information and locations for the broad range of conservation actions in the region, and it will allow the region to better target conservation actions on public and private lands toward priority conservation areas, communicate progress toward meeting strategy goals to decision makers and the public, and create a two–way flow of information across state lines, among agencies, and among the public, conservation organizations, and government.

Likewise, describing collaboration with adjacent countries was not a required element. However, we coordinated with the British Columbia Conservation Data Centre (BCCDC) on the ranking process as well as the species of conservation need shared across boundaries. BCCDC is a leader in applying rigorous techniques for assessing conservation status and provided guidance in this area as we developed CWCS.

In addition to the examples described above, we have coordinated with many other partners in the development, implementation, review and revision of our strategy. We conducted coordination meetings with U.S. Forest Service Regions 1 and 4, U. S. Fish and Wildlife Service, Bureau of Land Management, Nez Perce Tribe, Coeur d'Alene Tribe, U.S. Fish and Wildlife Service, The Nature Conservancy in Idaho, and Idaho Association of Soil Conservation Districts. We have coordinated with the Idaho Department of Lands on developing a Habitat Conservation Plan for their lands in northern Idaho. We have coordinated closely with the Governor's Office of Species Conservation throughout this process and the resulting CWCS will provide the basis for a report that OSC will prepare for the Idaho Legislature.

We coordinated from the beginning with the Idaho Partners in Amphibian and Reptile Conservation, Idaho Bat Working Group, Western Bat Working Group (WBWG), Idaho Partners in Flight, and Intermountain West Joint Venture to obtain input on the identification of species of greatest conservation need, species and habitat priorities,

and the identification of people in the state with particular expertise as well as potential conservation partners. In addition, we coordinated with land trusts and other conservation organizations including the Wood River Land Trust, Teton Regional Land Trust, Sawtooth Science Institute, and others.

We coordinated with the Bureau of Land Management throughout the development of CWCS to ensure consistency between CWCS and BLM's land use planning efforts. We also worked closely with Regions 1 and 4 of the U.S. Forest Service toward obtaining consistency between CWCS and the Forest Plan revision process. In addition, we coordinated with the National Park Service's (NPS) Upper Columbia Basin Network on plans for future inventory and monitoring on NPS sites.

Fundamental to facilitating coordination among adjacent states during the development of CWCS was the formation of regional CWCS Development Assistance Teams (DATs). The purpose of the DATs was to provide advice (online or otherwise) to the States, be customer friendly, and invite open discussion of the emerging strategies. The Region 1 Development Assistance Team (DAT) was led first by Verlyn Ebert, and then Dan Edwards (Federal Assistance employees from FWS Region 1) and included Rocky Beach (WDFW) and Sara Vickerman (Defenders of Wildlife). Throughout the course of CWCS we had monthly conference calls to share information, provide updates, and discuss commonalities. In addition to the formal R1 DAT team, the Northwest States (Oregon, Idaho, and Washington) formed an ad hoc group to share information and coordinate on issues regarding the development of CWCS.

We coordinated with numerous other individuals and agencies throughout the development of CWCS including: Idaho Cooperative Fish and Wildlife Research Unit, Boise State University, University of Idaho Center for Research on Invasive Species and Small Populations (CRISP), and Idaho State University.

The coordination of the Idaho CWCS with tribal partners is particularly important not only because the Tribes play a significant role in managing wildlife in the state, but also because of the Tribal Wildlife Grants Program. Idaho is represented by 6 federally–recognized tribes: Coeur d'Alene Tribe of the Coeur d'Alene Reservation; Kootenai Tribe of Idaho; Nez Perce Tribe of Idaho; Shoshone–Bannock Tribes of the Fort Hall Reservation of Idaho; the Shoshone–Paiute Tribes of the Duck Valley Reservation, and Northwestern Band of Shoshoni Nation of Utah (Washakie). Representatives from the Nez Perce Tribe and Coeur d'Alene Tribe attended a joint CWCS coordination meeting with the U.S. Forest Service and Idaho Department of Fish and Game in December 2004 to discuss CWCS development and to identify shared issues. We also met informally with a biologist from the Shoshone–Paiute Tribes at a joint CWCS and Idaho Partners in Amphibian and Reptile Conservation meeting. In addition, we sought input from all five tribes on draft CWCS materials. It is a priority for us to develop a partnership with the Tribes in Idaho and to ensure that they are engaged in the revision and implementation of CWCS.

Finally, we have coordinated with IAFWA throughout this process and used the supporting materials developed by the TWW work groups to guide the development of our CWCS. In addition, we attended all of the national CWCS meetings held by IAFWA and provided progress reports on our effort.

General Approach: An Ecological Framework

We chose an ecologically–based landscape approach to planning that allowed us to organize the Strategy by geographic regions—referred to as "ecological sections" or simply "sections"—expected to have similar species, habitats, and conservation needs. We provide accompanying maps of resources to delineate these sections and to facilitate the use of the Strategy. We combined this section–level approach with a fine–scale approach of identifying species–level issues and conservation needs. The use of ecological sections as a means of planning appealed to us because of its wide acceptance within the ecological community and its close association to The Nature Conservancy's ecoregional plans and Partners in Flight regional plans. In addition, this unit of organization for the Strategies was also suggested by IAFWA early in the planning process to make it relatively easy for state information to be aggregated into a national synopsis. This facilitates coordination with adjacent states, e.g., Oregon and Washington, who organized their strategies similarly.

Identifying Species in Greatest Need of Conservation and Full Array of Wildlife *(Element 1)*

In addition to the eight required elements defined by Congress, the Strategy was to identify and be focused on the "species in greatest need of conservation," yet also address the "full array of wildlife." For defining the overall focus and scope of species included in the Strategy, we considered the following: (1) full array of wildlife species, (2) species of greatest conservation need, (3) species with low and declining populations, (4) species indicative of the diversity and health of Idaho's wildlife, and (5) species whose needs are not being met through other funding sources or for which we lack basic information on their distribution and abundance.

State species list. To identify the full array of wildlife, we used the Idaho Conservation Data Center Biotics database to compile a list of all species (vertebrate and selected invertebrate) known to occur or known to have occurred in Idaho. Although we recognize that developing a comprehensive list of all the wildlife species that currently exist (or have existed historically) in Idaho is not feasible, we nevertheless strove to include as broad and well–balanced a representation of as many species as possible. This kind of comprehensive listing facilitates the identification of taxa that are at risk (or, conversely, taxa that might pose risks [e.g., invasive species]) in a state and helps to ensure that vulnerable but unfamiliar species are not overlooked. Because vertebrate animals are relatively well known as a group in Idaho, we have listed all known species. In contrast, the status and distribution of invertebrates in Idaho is only sufficiently well known for certain groups including: freshwater mussels, crayfishes, snails, butterflies

and skippers, dragonflies and damselflies, tiger beetles, and certain moth families. Therefore, these are the groups we have included in the Strategy.

To ensure consistency and comparability of data across jurisdictions, the taxonomy and nomenclature in the taxa list were based on standard name references and checklists (or on names published in the scientific literature if more current). Taxonomy for lampreys and ray–finned fishes follows Nelson et al. (2004); taxonomy for amphibians and reptiles generally follows Crother et al. (2000, 2001, 2003); taxonomy for birds follows the American Ornithologists' Union (available at http://www.aou.org/checklist/index.php3); taxonomy for mammals follows Baker et al. (2003); and taxonomy for invertebrates follows NatureServe Explorer (available at http://www.natureserve.org/explorer/).

Prioritizing wildlife: information sources. We considered a wide variety of resources to assist with the prioritization process including:

NatureServe Explorer, an authoritative source for information on more than 65,000 plants, animals, and ecosystems of the United States and Canada. Explorer includes particularly in–depth coverage for rare and endangered species with information on scientific and common names, conservation status (e.g., Global ranks), distribution maps, and life histories and conservation needs (available at http://www.natureserve.org/explorer/).

The Idaho Conservation Data Center (IDCDC) (State–level ranking system and expertise) is part of an expanding international network with NatureServe as the parent organization. Heritage programs have been established in each of the 50 states and more than 14 Conservation Data Centers exist internationally. Each of these programs was started by The Nature Conservancy and all of them manage biological data using standardized methodology. IDCDC provides site–specific information on rare, threatened, and endangered plants and animals, exemplary plant communities, and natural areas is collected and stored in computer files. These files are updated whenever new information becomes available from state and federal agencies, academic institutions, and private corporations (available at http://fishandgame.idaho.gov/cms/tech/CDC/).

- USDI Fish and Wildlife Service federal list of endangered and threatened species under the Endangered Species Act (available at http://www.fws.gov/endangered/wildlife.html#Species).
- State–level endangered, threatened, and protected species, regulations and policy. Idaho Administrative Code, Department of Fish and Game, Classification and Protection of Wildlife.
- IUCN –The World Conservation Union Red List of Threatened Species http://www.redlist.org/
- North American Bird Conservation Initiative
  http://www.nabci–us.org/
  http://birdhabitat.fws.gov/NAWMP/jv.htm (Joint Ventures)

http://www.waterbirdconservation.org/pubs/ContinentalPlan.cfm (Waterbirds)
http://northamerican.fws.gov/NAWMP/nawmphp.htm (Waterfowl)
http://www.partnersinflight.org/pifbcps.htm (Bird Conservation Plans)
http://shorebirdplan.fws.gov/ (Shorebirds)

- Partners in Flight
  http://www.partnersinflight.org/pifbcps.htm (Bird Conservation Plans)
  http://www.rmbo.org/pif/pifdb.html (Species Assessment Database)
- The Nature Conservancy—Conservation by Design/Ecoregional Plans
  http://nature.org/aboutus/howwework/about/art5720.html
- Audubon WatchList http://www.audubon.org/bird/watchlist/
- Audubon Important Bird Areas
  http://www.audubon.org/bird/iba/index.html
- U.S. Fish and Wildlife Service Birds of Conservation Concern
  http://migratorybirds.fws.gov/reports/BCC2002.pdf
- Forest Service Sensitive Species Lists
  http://fs.fed.us/ (see Regional Office Web sites.)
- Bureau of Land Management Sensitive Species Lists
  http://www.blm.gov/nhp/ (see Offices & Centers Web sites.)
- Partners in Amphibian and Reptile Conservation
  http://www.parcplace.org/default.htm (see Regional Working Groups.)
- Western Bat Working Group
- American Fisheries Society
  http://www.fisheries.org/ (Marine Stocks at Risk of Extinction)
- NOAA Anadromous and Marine Fisheries
  http://www.nmfs.noaa.gov/prot_res/PR3/Fish/fishes.html
- Regional Lists and Plans (e.g., Intermountain West Waterbird Plan)
- Local taxa experts
- University faculty
- Specialists in other agencies
- Fish and wildlife scientists and ecologists in neighboring states and countries

Prioritizing wildlife: data development: Natural Heritage Ranks. Determining which plants and animals are secure and which are rare or declining is crucial for targeting conservation toward those species and habitats in greatest need. NatureServe and its Natural Heritage Network member programs have developed a consistent method for evaluating the relative imperilment of both species and ecological communities. These assessments lead to the designation of a conservation status rank. For plant and animal species, these ranks provide an estimate of extinction risk.

Conservation status ranks are based on a 1 to 5 scale, ranging from critically imperiled (G1/S1) to demonstrably secure (G5/S5). Status is assessed and documented at two distinct geographic scales: global or rangewide (G) and state/province (S). These status assessments are based on the best available information, and consider a variety of factors such as abundance, distribution, population trends, and threats.

The conservation status of a species or community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = Global), N = National, and S = Subnational). The numbers have the following meaning:

1 = critically imperiled
2 = imperiled
3 = vulnerable to extirpation or extinction
4 = apparently secure
5 = demonstrably widespread, abundant, and secure.

For example, G1 would indicate that a species is critically imperiled across its entire range (i.e., globally). In this sense, the species as a whole is regarded as being at high risk of extinction. A rank of S3 would indicate the species is vulnerable and at moderate risk within a particular state or province, even though it may be more secure elsewhere.

Extinct or missing species are designated with either an "X" (presumed extinct or extirpated) if there is no expectation that they still survive, or an "H" (possibly extinct or extirpated) if they are known only from historical records but there is a chance they may still exist. Other variants and qualifiers are used to add information or indicate any range of uncertainty. See the following conservation status rank definitions for complete descriptions of ranks and qualifiers.

The overall status of a species is regarded as its "global" status; this rangewide assessment of condition is referred to as its global conservation status rank (G–rank). Because the G–rank refers to the species as a whole, each species has a single global conservation status rank. The condition of a species can vary from one country to another, and national conservation status ranks (N–rank) document its condition in a particular country. A species can have as many N–ranks as countries in which it occurs. Similarly, status can vary by state or province, and thus subnational conservation status ranks (S–rank) document the condition of the species within a particular state or province. Again, there may be as many subnational conservation status ranks as the number of states or provinces in which the species occurs.

National and subnational status ranks must always be equal to or lower than the global rank for a particular species (in this sense a "lower" number indicates greater risk). On the other hand, it is possible for a species to be more imperiled in a given nation or state/province than it is rangewide. As an example, a species may be common and secure globally (G5), vulnerable in the United States as a whole (N3), yet critically imperiled in Idaho (S1). In the United States and Canada, the combination of global and subnational ranks (e.g., G3S1) are widely used to place local priorities within a broader conservation context.

Global conservation status assessments generally are carried out by NatureServe scientists with input from relevant natural heritage member programs and experts on particular taxonomic groups. NatureServe scientists similarly take the lead on national–

level status assessments in the United States and Canada, while state and provincial member programs assess the subnational conservation status for species found in their respective jurisdictions. In Idaho, the Idaho Conservation Data Center is responsible for assessing status.

Status assessments ideally should reflect current conditions and understanding, and NatureServe and its member programs strive to update these assessments with new information from field surveys, monitoring activities, consultation, and scientific publications. NatureServe Explorer users with significant new or additional information are encouraged to contact NatureServe or the relevant natural heritage program.

To ensure that NatureServe's central databases represent the most current knowledge from across the network of member programs, data exchanges are carried out with each natural heritage program at least once a year. The subnational conservation status ranks (S–ranks) presented in NatureServe Explorer are therefore only as current as the last data exchange with each local natural heritage program, coupled with the latest Web site update (shown in the "small print" at the bottom of each NatureServe Explorer report). Although most subnational conservation status ranks do not change frequently, the most current S–ranks can be obtained directly from the relevant local natural heritage program (contact information available at http://www.natureserve.org/visitLocal/index.jsp). Idaho Conservation Data Center (contact information available at http://fishandgame.idaho.gov/cms/tech/CDC/).

Use of standard criteria and rank definitions makes NatureServe conservation status ranks comparable across organism types and political boundaries. Thus, G1 has the same basic meaning whether applied to a salamander, a moss species, or a forest community. Similarly, an S1 has the same meaning whether applied to a species or community in Manitoba, Minnesota, or Mississippi. This standardization in turn allows NatureServe scientists to use the subnational ranks assigned by local natural heritage programs to help determine and refine global conservation status ranks.

Status assessments are based on a combination of quantitative and qualitative information. Criteria for assigning ranks serve as guidelines, however, rather than arithmetic rules. The assessor's overall knowledge of the species allows them to weigh each factor in relation to the others, and to consider all pertinent information. The general factors considered in assessing species and ecological communities are similar, but the relative weight given to each factor differs.

For species, the following factors are considered in assessing conservation status:

- total number and condition of occurrences (e.g., populations)
- population size
- range extent and area of occupancy
- short– and long–term trends in the above factors
- scope, severity, and immediacy of threats
- number of protected and managed occurrences
- intrinsic vulnerability

- environmental specificity

Species known in an area only from historical records are ranked as either H (possibly extirpated/possibly extinct) or X (presumed extirpated/presumed extinct). Other codes, rank variants, and qualifiers are also allowed in order to add information about the element or indicate uncertainty. See the lists of conservation status rank definitions for complete descriptions of ranks and qualifiers.

NatureServe conservation status ranks are a valuable complement to legal status designations assigned by government agencies such as the U. S. Fish and Wildlife Service and the National Marine Fisheries Service in administering the U. S. Endangered Species Act (ESA), and the Canadian Wildlife Service in administering the Species at Risk Act (SARA). NatureServe status ranks, and the documentation that support them, are often used by such agencies in making official determinations, particularly in the identification of candidates for legal protection. Because NatureServe assessment procedures—and subsequent lists of imperiled and vulnerable species—have different criteria, evidence requirements, purposes, and taxonomic coverage than official lists of endangered and threatened species, they do not necessarily coincide.

The IUCN Red List of Threatened Species™ is similar in concept to NatureServe's global conservation status assessments. Due to the independent development of these two systems, however, minor differences exist in their respective criteria and implementation. Recent studies indicate that when applied by experienced assessors using comparable information, the outputs from the two systems are generally concordant. NatureServe is an active participant in the IUCN Red List Programme, and in the region covered by *NatureServe Explorer*, NatureServe status ranks and their underlying documentation often form a basis for Red List threat assessments.

As part of the process for identifying species of greatest conservation need, we also updated state heritage ranks for many of the S1–S3 ranked species. The ranking criteria described in Appendix C were used to develop updated state ranks for selected vertebrate animal species in Idaho as noted above. For the purposes of this process, the term “species” includes all animal entities at the taxonomic level of species (including interspecific hybrids), as well as all subspecies and races. Subspecies and races are collectively termed “infraspecific taxa.” Other subsets of species (e.g., geographically distinct and evolutionarily significant population segments) have also been assessed. Detailed definitions and guidance for use are provided individually for each criterion. We assembled information from multiple reviewers, which was then combined by the Idaho Conservation Data Center (IDCDC) and Idaho Department of Fish and Game staff to compile responses for each criterion. The final state rank was then derived using the process described in Appendix D, with input and review from staff and other experts.

SGCN list development. After consulting the available resources, we defined our list of species of greatest conservation need to include species which met one of the following criteria:

- All full species with ranks of GH, G1, G2, or G3 (imperiled throughout their range)
- All taxa listed as endangered, threatened or candidate under the ESA
- All state–listed endangered and threatened taxa
- All subspecies or populations at risk with global ranks of TH, T1, T2, or T3
- Species ranked S1 or S2 (imperiled in Idaho)
- Endemic species
- Disjunct species
- Vulnerable species
- Species with small, localized "at–risk" populations
- Species with limited dispersal
- Species with fragmented or isolated populations
- Species with regional threats or declining trends
- Taxonomic distinctness, e.g., South Hills Crossbill, *Loxia* sp. [undescribed]
- Focal species (keystone species, wide–ranging species, species with specific needs)
- "Responsibility" species (i.e., species that have their center of range within the state)

After defining our overall species of greatest conservation need list, we further divided it into two parts. The first part consists of species with substantial information pertaining to their status in Idaho. Information related to conservation needs or local population characteristics may be deficient for these species, but this additional information would not be expected to affect conservation priorities. The second part includes species lacking essential information pertaining to their status in Idaho. For these species, the primary need is for information that establishes the current status and conservation priority.

Appendix A contains a list of all known vertebrate and selected invertebrate species known to occur in Idaho. Appendix B is a subset of Appendix A and is arranged as described above. Within these lists, species are listed phylogenetically by class. In cases where phylogeny is incompletely understood, taxonomic units are arranged alphabetically.

Also provided in these lists are current NatureServe global ranks, Idaho Conservation Data Center state ranks, status under the Endangered Species Act of 1973, administrative designations of the USDA Forest Service and USDI Bureau of Land Management, and the State of Idaho classification under the administrative rule.

Distribution and Abundance of Wildlife and Key Issues and Actions

Species Accounts (Elements 1, 2, 3, & 4).

To address elements 1–4 at the species level, we developed summary narratives for each species of greatest conservation need (see Appendix F). The purpose of these accounts was to provide a brief summary of the current state of knowledge in Idaho

about these species. Included in the accounts are maps that depict both the predicted distribution of a species as well as known locations.

Organization of the Accounts. At the top of the account, the English common name is listed with its scientific name beneath. In addition, we have included the class, order, and family, respectively, under the scientific name.

Conservation status/classification. Each account includes the current NatureServe global (rangewide) and state (statewide) ranks, ESA status, USFS regions 1 and 4 statuses, Bureau of Land Management (BLM) status, and Idaho Department of Fish and Game (IDFG) classification. All of these status assignments are described in detail above in the section titled "*Identifying Species of Greatest Conservation Need.*"

Basis for inclusion. Under this heading, we have included a brief statement that describes why the species was identified as a species of greatest conservation need, e.g., state–listed endangered, declining populations, etc.

Taxonomy. This heading includes any relevant taxonomic notes.

Distribution and abundance. Under this heading, we described the distribution of the species in terms of countries of occurrence, subcountry units, e.g., states, provinces, etc.; for inland water taxa, we used the name(s) of the lakes, river systems, etc. that it occurs in; we also included mention of important sites, and if known, specified the extent of occurrence and area of occupancy. We also provided information on population size, abundance (rare, scarce, common, etc.), number and size of subpopulations if known, and the number of locations and degree of fragmentation.

Population trend. Notes on trend, e.g., increasing, decreasing, stable, or unknown.

Habitat and ecology. Notes on habitat associations including particulars about breeding ecology if relevant.

Issues. The main threats (issues) to the species, and if known, the severity and extent.

Recommended actions. Description of recommended actions to address issues that affect the species.

Distribution map. (Element 1)

The map accompanying each species account depicts what is currently known about each species' distribution in Idaho. Where data were available, the maps include both predicted and known distribution. In other cases, we only had predicted distribution or known distribution.

Predicted species distribution. To convey predicted species distributions, we used vertebrate data available from the USGS GAP Analysis Program (GAP) as a component

in addressing Element 1—information on the distribution and abundance of wildlife species. In addition, we used the predicted distribution in an analysis to prioritize species at the section level. These digital species distribution maps and predictive habitat affinity models in digital GIS format predict distribution of each vertebrate species. Predicted habitats contain suitable/ideal ecological conditions within the *known* range of a species and GAP predicted distribution maps construct complex habitat affinities models for each species. Models include information such as all known, probable, and possible occurrences of the species in the state and all possible GIS coverages of features or conditions to which vertebrates can be associated, based on published literature and expert input.

Specifically, we used the Wildlife Habitat Relationship (WHR) models available from the Idaho Gap Analysis Project (ID–GAP; Scott et al. 2002) to represent the predicted distribution of terrestrial vertebrates that regularly breed in Idaho. Intended to aid in state level assessment of natural resources, these data are not intended for use at a scale greater than 1:100,000. For the purposes of CWCS, the predicted distribution provides a reference point and context for the current status of wildlife and habitat in Idaho. The modeling of vertebrate distributions for ID–GAP followed a 7–step process: first, a list of species known to breed in Idaho was compiled; second, occurrence and habitat association data for each species were collected—source data for species included the Idaho Conservation Data Center's Point Occurrence Database (POD, a digital record set of all bird and mammal museum specimens from Idaho) and the element occurrence database (a portion of Biotics, formerly BCD) that tracks the locations of rare or sensitive species (referred to as "elements"). Habitat associations for each species were determined by literature searches and expert reasoned judgment; third, occurrence data were used to approximate the range boundaries of each species in Idaho and then habitat association information on breeding habitats was assembled into a format acceptable by the modeling programs; fifth, the range approximation was combined with the coded habitat associations to produce a Geographic Information Systems (GIS) model of the predicted distribution of each species. The resulting maps were restricted to the areas where the species had been observed (determined by occurrence within 635 km² hexagons); sixth, biologists familiar with the distribution of Idaho's wildlife reviewed the models; finally, each model was subjected to an accuracy assessment with independent occurrence data. Additional information on how these models were developed can be viewed at http://www.wildlife.uidaho.edu/idvmd/idvmd_methods.asp.

Of species recorded in 10 or more of the accuracy assessment areas, 93.69% of the models were assessed to have greater than 80% correct present. For those species listed in 10 or more areas, the percent correct present ranged from 81.82 to 94.44% for amphibians, 55.56 to 100% for birds, 58.82 to 100% for mammals, and 76.47 to 100% for reptiles (Scott et al. 2002). For information on the accuracy of each WHR model for birds, mammals, amphibians, and reptiles, respectively, see Scott et al. (2002).

Known Species Distributions. The second component we used to define the distribution of species of greatest conservation need was known locations of each species in the

state. Point locations used to produce this layer were from a combination of data sources including: centroid element occurrence representations, element occurrence source points, centroid element occurrence source polygons, and point data from the nongame database. Not all point locations distinguish between breeding and non–breeding activities. However, we made judgments on a species by species basis to best represent the actual distribution of a species in the state. For example, we attempted to exclude accidental locations of species in various parts of the state that were not part of the species' regular breeding or nonbreeding distribution. In addition, for some species (e.g., mountain goat and bighorn sheep), we used polygon data developed by IDFG biologists from confirmed observations of goat or sheep for the period 2000–2005. These data show known occupied habitat for these two species.

For gray wolf, we used known wolf pack minimum convex polygons (MCPs) for 2003–2004. MCPs were produced from telemetry and research observations (e.g., rendezvous sites, dens, positive field identifications by biologists). Pack locations for radio–collared packs represent the centroids of MCPs for 2003–2004 modified from the raw MCPs to exclude outliers and packs not together in 2004 (dead or dispersed). Locations for uncollared documented packs are based on observations by wolf biologists. Uncollared suspected pack locations are based on anecdotal information. The gray wolf data also include public observations of wolf activity collected on the Idaho Department of Fish and Game Web site and reviewed by staff biologists.

For greater sage–grouse, we used lek data and distinguished between active and unknown status leks. There were no available ID–GAP WHR models for invertebrates nor for a number of other species, such as kit fox. For those species, we only included known point locations. For migratory birds, we have included point data that represent their breeding range in Idaho. For American white pelican, points correspond to known active breeding colonies. For species that have not been previously tracked in the Idaho Conservation Data Center (e.g., sandhill crane, lesser scaup, northern pintail, grasshopper sparrow, black rosy–finch, Wilson's phalarope, and others), we did not have point data. Therefore, the maps include only the predicted distribution of the species in Idaho. Because the taxonomic distinctness of the South Hills crossbill was only recently discovered, we clipped out the predicted distribution for the red crossbill within the range of the South Hills crossbill—the South Hills and the Albion Mountains.

Overall Species Distributions. To best represent the most current knowledge of the overall distribution of each species in the state—both known and predicted—we overlaid point data as described above with the ID–GAP predicted distribution models. The resulting map can be used to identify knowledge gaps in our current understanding of the distribution of species in Idaho and to help prioritize inventory and survey efforts. For example, in the case where the ID–GAP model predicts a species to occur in certain areas where there are no documented occurrences, surveys may be necessary to determine if the species is present. If the species is not detected, then we can incorporate negative data into future modeling efforts and over time obtain more accurate and meaningful models of predicted species distribution.

Location and Relative Condition of Habitats *(Element 2. Descriptions of locations and relative condition of key habitats and community types)*

Habitat and vegetation classifications are hierarchical systems that describe fine–scale units used for detailed analyses. In general, the higher levels of the hierarchy (e.g., Bailey's ecological sections) provide the landscape–level ecological framework for the finer–scale vegetation units. To develop a strategy that adequately addresses species' habitat needs and the condition of those habitats, we selected a habitat/vegetation classification scheme that supports decision–making at the local level. Habitat conservation is an important component of species conservation because it can improve efficiency in the management of habitats for multiple species and serve as a mechanism for conserving more common species that are not treated individually in the Strategy.

We chose NatureServe's "International Ecological Classification Standard: Terrestrial Ecological Classifications" as our fine–scale habitat classification system (NatureServe 2005) and contracted with NatureServe to develop a GIS coverage that depicted the existing statewide distribution of 55 terrestrial ecological systems (as defined by NatureServe), across Idaho. Although we recognize that a limitation to using this system is the incomplete status of a freshwater aquatic classification system, we nevertheless chose this system because it is understandable and useable to planners, researchers, and project practitioners within our agency. In addition, ecological systems provide "mid–scaled" units as a basis for analyzing existing vegetation patterns, habitat usage by animals and plants, and systems–level comparisons across multiple jurisdictions. They also provide useful, systematically defined, groupings of US–NVC Alliances and Associations, forming the basis of map units where Alliance and/or Association level mapping is impractical (Menard and Lauver 2000; Comer and Schulz 2004).

The coverage (map) was created by using the GAP land cover map completed for Idaho in 2002 (Scott et al. 2002), applying a series of modeling rules (e.g., landform, hydrography, substrate variables, etc.) to the GAP cover types, and reclassifying them into their respective ecological systems. The GIS coverage included two levels of minimum mapping units: one (30–m pixel resolution) for modeled riparian systems and other types that naturally occur as distinctive small patches and a second to map ecological system units where larger minimum mapping units (e.g., ~10 hectares) applied. The resulting spatial data were fundamental to our planning effort and enabled us to not only identify the ecological systems in Idaho, but also to intersect ecological systems data with predicted species distributions, which we used to prioritize habitats, species, and ecological sections. NatureServe included meta–data documentation of the mapping units and the final GIS coverage, which will be valuable for future updates of this layer. The final GIS coverage and meta–data documentation were completed in April 2005.

Not all of the GAP cover types were modeled or mapped into ecological systems. A number of the mapped cover types were land uses in Idaho, including such uses as

urban and agricultural areas, while others were mapped recent disturbance features, such as burned or clearcut areas. These land use categories were retained in the map produced by NatureServe for this project, but only "natural" cover types were modeled and mapped into ecological systems. Hence, descriptions for the land use categories were not provided by NatureServe but were developed by Idaho Conservation Data Center staff for the purposes of CWCS.

In addition, assessments of condition of each ecological system were conducted as part of the requirement for Element 2 of CWCS. Due to continuous change in actual on–the–ground conditions, available information, and technology; assessment of the ecological condition of habitats within Idaho is an ongoing endeavor. Assessments of the condition of ecological systems in Idaho were based on review of the best available data, current literature, and expert opinion. Information on the ecological condition of systems within Idaho was compiled and summarized using the Heritage Data Management System (HDMS) element sub–national ranking protocol. Gathering and resolving information on the condition of ecological systems within Idaho, and the wildlife habitats they represent, will be an important focus of the monitoring and evaluation efforts of the Strategy.

After evaluating the condition of individual ecological systems, we aggregated ecological systems into more generalized habitats, which are described in the State Overview of this document. We also provide maps of these generalized habitats at the statewide level and in the section level summaries. For example, all of the sagebrush ecological systems were combined into the category "southern xeric shrubland and steppe." Descriptions of the individual ecological systems currently reported as occurring or possibly occurring in the state of Idaho are provided in Appendix E. In both the habitat descriptions in the State Overview and in Appendix E, we identify which ecological systems comprise the more generalized habitat categories.

Because we chose ecological systems as our fine–scale habitat unit for CWCS, we are uniquely positioned to participate in the upcoming Northwest ReGAP—beginning in September 2005. USGS has committed to completing Northwest ReGAP and the preliminary landcover map will be grounded in ecological systems (as defined by NatureServe) and covering the entire Northwest ReGAP region. A "ReGAP" analysis is essentially an update of the round 1 Gap Analyses, using multi–state regions (rather than states) as project domains and using updated data and methods for land cover mapping, protected area mapping, species distribution mapping, and analyzing "gaps" in the current protected area network. Northwest ReGAP has been an intended project for several years, has been building momentum for the last year, and was discussed with the five relevant Heritage Programs (including the Idaho Conservation Data Center) at the April 2005 NatureServe Regional Meeting in Washington. USGS has accepted our multi–state proposal for modeling and mapping the distribution of species–of–interest across the 5 Northwest States. Therefore, we will have a mechanism for improving our habitat map for Idaho.

Prioritizing Habitats and Species

We used a two–fold approach to prioritizing habitats and species in the Strategy. From one perspective, we have presented the needs of individual species, which are outlined in the species accounts (see Appendix F). But because we developed the Strategy using an ecological framework, we sought to find a meaningful way in which to prioritize not only individual species, but suites of species. Species richness can provide a rough assessment of the diversity of wildlife within a given area (Scott et al. 2002)—in this case, an ecological section. While species richness as an index of conservation effectiveness is limited (e.g., does not account for representation or rarity, and tends to emphasize habitat and range edges), it is generally useful for characterizing regional biological diversity (Scott et al. 2002). In addition, habitats that support the most at–risk species are generally the habitats most in need of conservation (Beissinger et al. 2000). To this end, our objectives were to: (1) identify the primary ecological section in the state for each ecological system, (2) prioritize habitats (groups of similar ecological systems) within each of the 14 ecological sections, (3) identify the key sections in the state for each species of greatest conservation need, (4) prioritize habitats statewide, and (5) identify which species of greatest conservation need were associated with each priority habitat in each ecological section.

Species and Habitat Matrices

To accomplish the objectives outlined above, we constructed several matrices, described in detail below. We used the following spatial data: (1) ID–GAP predicted distribution ArcInfo GRIDs from the Wildlife Habitat Relationship (WHR) models available from the Idaho Gap Analysis Project (Scott et al. 2002); (2) Bailey's EcoSection shapefile (Interior Columbia Basin Ecosystem Management Project [ICBEMP] 1996); (3) Idaho Ecological Systems ArcInfo GRID (NatureServe January 2005); (4) fish distribution shapefiles and databases (Idaho Fish and Wildlife Information System [IFWIS] 2005); and (5) the Subbasin Hydrologic Unit shapefile (Interior Columbia Basin Ecosystem Management Project 1994). Analyses were limited to those species with available WHRs.

Statewide Ecological System by Ecological Section Matrices. To identify the primary ecological section in the state for each ecological system, we constructed a matrix that plotted ecological section on the x–axis and ecological system on the y–axis. The initial grid cells contained the percentage of the total area in the state that each ecological system occupied in each ecological section. We converted the percentages to ranks and ranked on the x–axis (across sections) to identify which ecological section contained the highest proportion of each ecological system. The purpose of this procedure was to enable us to identify which ecological section has the highest responsibility in the state for a given ecological system. For example, the Owyhee Uplands contains the largest proportion of sagebrush systems among sections. Therefore, an intuitive focus for conservation in that ecological section should be on sagebrush systems and associated species.

To prioritize habitats *within* each of the 14 ecological sections, we constructed a matrix (as described above) that plotted ecological section on the x–axis and ecological system on the y–axis. However, instead of ranking on the x–axis as above, we ranked on the y–axis (across systems within a section) to approximate the relative importance of a given ecological system within a section. We selected the top 5 ranked ecological systems in each section and then grouped similar systems into their respective generalized habitat categories. We summarized this in each of the 14 section–level summaries in the document under the heading "*Priority Habitats and Associated Vertebrate Species*." Although we recognize the limitations of this kind of coarse–scale approach—in that it does not capture rare habitats—we nevertheless assert that it is a useful way to identify key habitats at the section level. As noted above, we have captured fine–scale habitat associations in the individual species accounts found in Appendix F. For example, it was not possible to capture such features as waterfalls in our ecological systems spatial layer. But waterfalls provide important nesting habitat for black swift. We do not currently have the means to identify these kinds of habitats at the appropriate spatial scale. Therefore, these specialized habitats are addressed in individual species accounts. Our intent in using this approach was to apply a systematic, transparent, and repeatable process, which will continue to improve as finer scale land cover data become available.

Statewide Species by Ecological Section Matrix. To identify the key sections in the state for each species of greatest conservation need, we constructed a matrix by plotting species on the x–axis and ecological section on the y–axis. We first intersected the ID–GAP WHR predicted species distribution with the Ecological Sections layer. Initially, each grid cell contained the percentage of the species' range in a given section. We converted the percentages to ranks and ranked grid cells on the y–axis (across sections)—from predicted to occur the most, to predicted to occur the least—based on the proportion of the species' predicted distribution in a given section. Because the intent was to prioritize the relative importance of a section to a species, only sections with ranks of 1 through 3 were selected. After initial inspection, we subjected the results to expert review to further validate the results.

For those species without available ID–GAP WHR models (e.g., invertebrates, lampreys and fishes, kit fox), we used the species distribution maps to identify the key sections in the state for each species. That is, we chose priorities based on the extent of the range of the species in each section. So, for a given species, any section that had a key part of the range was considered to be a priority. In addition, because the species list was dynamic during the course of developing CWCS, some species were added after the matrices had been constructed. Therefore, we used this same process to assign sectional priorities to those species.

In constructing this matrix we purposely identified which ecological sections in the state should be the focus of conservation for particular species. For example, although harlequin duck may occur in several sections, the key sections for this species are the Okanogan Highlands, Bitterroot Mountains, and Idaho Batholith. Thus, not all sections in which a species occurs necessarily make the same contribution to the overall

conservation of the species. For example, although we identify and list which species occur in each ecological section, we also identify which sections are particularly important to these species. In each of the section level summaries, under the heading "*Species of Greatest Conservation Need in the [section name],"* we have placed the superscript "a" after each species for which that section represents a significant portion of its distribution in the state.

Statewide Species by Ecological System Matrix. To prioritize habitats (groups of ecological systems) statewide, we constructed a matrix that displayed species on the x–axis and the ecological systems on the y–axis. For terrestrial vertebrates, we first intersected the ID–GAP predicted species distribution with the Idaho Ecological Systems GRID. This resulted in a statewide GRID of ecological systems that each species was predicted to occur. The purpose of this matrix was to first identify which ecological systems ranked the highest for each individual species at the statewide level. Second, we grouped ecological systems into more generalized habitat categories. Finally we selected those ecological systems as statewide priorities that ranked 1–3 for suites of species. We did not include systems that ranked 1–3 for only one species because we felt that these specialized habitats were better addressed in the individual species accounts.

Section–level Species by Ecological System Matrices. To both prioritize species by ecological system within a section, and to identify suites of species associated with priority habitats identified in each ecological section (as described above), we constructed a matrix for each of the 14 ecological sections by plotting species on the x–axis and ecological systems on the y–axis. For terrestrial vertebrates, we first intersected the ID–GAP WHR predicted species distribution with the Idaho Ecological Systems layer. This resulted in a statewide matrix of ecological systems that each species was predicted to occur. Second, we clipped each GRID result from step one into each of the 14 ecological sections. If a species did not occur in an ecological section, a GRID was not created.

To prioritize fish species, we first intersected each fish distribution layer (arcs) with the polygons of the hydrologic unit layer. This resulted in fish species distribution displayed at the 6th code hydrologic level [hydrologic unit code (HUC)]. Second, we took the statewide GRID of ecological systems and intersected it with each result from step one. This resulted in a fish species distribution containing ecological systems. Third, we took each result from step two and clipped each into individual ecological sections. If a species did not occur in an ecological section, a GRID was not created.

Initially, each grid cell contained the percentage of the species' predicted distribution in a given ecological system. We converted the percentages to ranks—from predicted to occur the most, to predicted to occur the least—based on the proportion of the species' predicted distribution in a given ecological system. Because the intent was to prioritize the relative importance of an ecological system to a species or suite of species, only ecological systems with ranks of 1 through 3 were selected. After we identified the priority ecological systems, we combined ecological systems into the more generalized

habitat categories that we had created. We performed this level of prioritization for each of the 14 ecological sections in the state. The results of these analyses were subjected to expert review. For example, if the matrix indicated that a species occurred in a particular ecological system that someone with knowledge of that species knows that it is not likely to occur in that system, then we excluded the species from that system. Results of these analyses are presented in each of the 14 section–level summaries of the document under the heading *"Priority Habitats and Associated Vertebrate Species."* This process also enabled us to derive a list of all species of greatest conservation need in each of the 14 ecological sections. This information is presented in each of the 14 section–level summaries.

A note on using terrestrial ecological systems to prioritize fish species. Because there is no equivalent classification for aquatic systems as there is for terrestrial systems, we used the terrestrial systems that were adjacent to aquatic systems used by fish species. Our intent was to capture the key ecological systems that bound the aquatic systems important to fish to help us to identify issues and actions in the terrestrial systems that affect the important aquatic systems.

Data Management

A significant accomplishment that strengthened our CWCS planning effort was that we completed the development of a nongame database to serve as the central repository for nongame data statewide. We hired two new staff members to manage and populate the database. During the course of CWCS, we put out numerous data calls and processed data from a variety of sources including: statewide herpetological data from the Idaho Museum of Natural History, data contributed from BLM and USFS, private consulting firms, IDFG biologists, and incidental sightings and survey data.

Identifying Issues and Recommended Actions (*Elements 3 & 4*)

Toward a consistent language of describing issues and conservation actions, we attempted to use the proposed taxonomy of threats and conservation actions outlined in Salafsky et al. (2005). However, we modified it to accommodate more specific issues in Idaho. To identify issues and associated conservation actions for both species and habitats, we reviewed existing literature and species plans, information available on NatureServe Explorer, consulted with species experts in the state, and worked with groups such as Idaho Partners in Amphibian and Reptile Conservation, Idaho Partners in Flight, Idaho Bat Working Group, and others. Issues and recommended actions are addressed in the habitat descriptions in the State Overview section of the document and in the species accounts (Appendix F).

Prioritizing Habitat Issues and Recommended Actions

Priority was assigned to recommended actions based on the experience of IDFG staff over the last 20 years. IDFG staff review hundreds of projects (timber sales, development, grazing allotments, highways, stream and shoreline alterations, water

rights, etc.) each year that have the potential to impact fish and wildlife habitat and populations and prepare letters containing recommendations to avoid, minimize, and mitigate impacts. These letters were reviewed, and based on the frequency of the project type, impacts, and recommendations, judgments were made regarding the priority of actions.

This was a complex task because an activity may not impact or occur in a particular habitat everywhere in the state. Given that, these priorities are offered as a general guide. Local conditions and circumstances need to be taken into account in determining the priority of recommended conservation actions.