



National Cooperators' Coalition Vision and Strategies for the Future of the Cooperative Fish and Wildlife Research Unit System

Background

J. Norwood “Ding” Darling originally championed the Cooperative Fish and Wildlife Research Unit (CFWRU) system in the 1930s. His vision for the CFWRUs, which was born of the same ideals that led to the creation of Land Grant universities, was to facilitate partnerships among researchers, managers, educators, and other stakeholders to provide practical, science-based information to state and federal agencies, private landowners, and the public. This vision also included incorporating real-world project topics and associated management issues and opportunities into the educational experience of CFWRU graduate students. The first CFWRU was established at Iowa State University in 1935. Today, this U.S. Geological Survey (USGS) program consists of 40 CFWRUs in 38 states.

For 70 years, the CFWRU partnership has been a model for the types of cooperative conservation efforts encouraged by the President’s initiative. The CFWRUs capture the collective strengths of co-equal federal, state, university, and non-profit cooperators. The system has two levels of leadership. Each CFWRU is directed by a state-level coordinating committee of its cooperators and national-level administration to ensure consistency among CFWRUs across the country. The result is research, educational, and service opportunities that are synergistic with and additive to existing partner efforts.



Current Environment

Nature of the Partnership

The CFWRUs are true partnerships in which each CFWRU cooperator makes specific contributions that support research, graduate education, undergraduate experiences, continuing education, and technical assistance to cooperators. Cooperators and their contributions include the following:

- University—non-federal support in the form of office space, support staff, and related infrastructure.
- State—funds for research and related infrastructure, and annual operations.
- Federal—Ph.D.-level research scientists with faculty appointments and operational support.
- Wildlife Management Institute—continuity of ideals and general support.

The CFWRUs build on these partner contributions to leverage approximately three dollars for every dollar appropriated to the program by Congress.

Unique Qualities and Values

The CFWRUs engage and serve a broad coalition of stakeholders by linking research, management, and education. They foster excellence by attracting faculty, graduate students, and other professionals employed in research roles. They provide practical and management-oriented research, and experiential graduate student educational opportunities. They provide service in the form of workshops and other professional development activities. The CFWRUs provide science-based solutions to address real world problems because management agencies largely drive their research portfolios.

Annually the CFWRUs engage in over 1,000 research projects for state and federal agencies and other entities, and CFWRU scientists help educate more than 500 graduate students. At full staffing in a typical year, the CFWRUs nationally graduate 120 new natural resource professionals through host university departments, publish 300 articles in peer-reviewed scientific literature, and teach 120 graduate level courses at no cost to the host university.

USGS *Strategic Plan for the Cooperative Research Units*

The USGS has produced its *Strategic Plan for the Cooperative Research Units*, which reinforces the agency's commitment to the successful attributes of the CFWRU program and identifies ways to use available resources to improve administrative structures and operational styles.

Achievement of the goals and priority objectives of the USGS *Strategic Plan for the Cooperative Research Units* relies on the active involvement of the NCC and other cooperators and partners. The USGS plan builds on the key structural elements of the CFWRU program, including its mission, partnerships, responsiveness to natural resource information needs of our partners, and coordination with other programs within and outside of USGS. Though they differ in context, the goals, objectives, and strategies identified in this document are complementary to those in the USGS *Strategic Plan for the Cooperative Research Units*.



Future Environment

The challenges facing fish and wildlife conservation that must be addressed over the next decade are broad and serious. They have direct implications for the future of fish and wildlife resources and human welfare:

Replacement of retiring natural resource professionals

- A large proportion of current natural resource professionals will retire by 2015. These existing positions must be filled with new professionals who can meet the increasing demand for sound science.
- During this turnover, it will be essential to maintain pathways of communication and participation among state, federal, university, and private research efforts.
- It will become increasingly important to develop competent natural resource managers who are well versed in science, capable of working in an interdisciplinary fashion, adept at delivering complex information to diverse audiences, and proficient at integrating science with policy and management.

New research and training challenges

- The grand challenges in environmental sciences identified by the National Research Council include understanding the following—
 - How human and other factors affect biological diversity and ecosystem functioning
 - How changes in human use of antibiotics, agricultural practices, and water use can alter the spread of pathogens and susceptibility of humans, plants, and animals to infection.
 - How changes in land use and land cover affect ecosystem functioning, services, and human welfare
- The Future Challenges Project of the USGS and U.S. Fish and Wildlife Service has identified the need to investigate critical natural resource management questions concerning—
 - Water for ecological needs
 - Global climate change
 - Invasive species
 - Biotechnology
- Other natural resource research needs include understanding ecological outcomes and how to manage the risks associated with energy development, wildfire, and urban development.
- Addressing these identified challenges and others will require—
 - Focused research efforts at the appropriate spatial and temporal scales to answer critical questions in ways that are meaningful in world, national, regional, and local contexts
 - Increased emphasis on integrated approaches to solving natural resource problems
 - Enhanced ability to work on ever more prominent trans-boundary issues among CFWRUs, states, regions, and nations
 - Greater accountability and evaluation of the efficacy of natural resource management and conservation programs

Development and sharing of information for stakeholders

- There will be a need to deliver relevant and timely informational products to a broad array of stakeholders at local, state, regional, national, and international levels.
- There will be an increased need to integrate socio-cultural aspects in natural resource management and conservation.

Vision for the Cooperative Fish and Wildlife Research Units

Through state, regional, and national partnerships that stress science and collaboration, the CFWRUs provide an effective means of addressing the natural resource research, education, and service challenges of the future. Over the next decade, the CFWRUs will build on existing strengths of the partner-based model to add resources and expertise that will address these needs.

- 1) Education: The CFWRUs will play a key role in replacing the natural resource professionals who retire in the next 10 years. The CFWRUs have a demonstrated record of producing high-quality graduates who can help fill these vacancies. **CFWRUs will develop high-quality professionals who are—**

- a. Well versed in science
- b. Grounded in state and federal agency experience
- c. Capable of working in complex interdisciplinary teams
- d. Able to engage with private landowners, members of the public, resource managers, and policy makers
- e. Culturally and gender diverse

The CFWRUs will achieve this objective by teaching formal courses, supervising graduate student research, providing research experiences, and mentoring graduate students.

The CFWRUs will play a key role in maintaining the capabilities of natural resource professionals during their careers by supplementing university fish and wildlife programs, providing workshops, short courses, information, and other continuing education products.



- 2) Research/Training: The CFWRUs will help solve natural resource problems by conducting stakeholder-based research that both provides useful information for managers and prepares the next generation of professionals through graduate education.

CFWRU research and training will—

a. Focus on high priority issues and problems

- i. Address real-world research needs identified by state, university, private, and federal cooperators concerning the following challenges:
 1. Water for ecological needs
 2. Infectious disease and the environment
 3. Invasive species
 4. Energy development and other land use dynamics
 5. Climate variability
 6. Biotechnology
 7. Biodiversity and ecosystem functioning
- ii. Support established state, regional, and national fish and wildlife priorities.

b. Utilize integrated and thematic approaches in scientific investigation

- i. Take integrated, thematic, and prioritized approaches to critical questions at appropriate spatial scales to ensure that results are meaningful in national, regional, state, and local contexts;
 - ii. Utilize the varied but highly specialized skills of CFWRU scientists and faculty in pursuit of integrated and thematic approaches in scientific investigation;
 - iii. Address trans-boundary issues among CFWRUs, states, regions, and nations;
 - iv. Be linked to educational programs;
 - v. Integrate socio-cultural aspects into natural resource management;
 - vi. Integrate the talents and resources of universities, state and federal agencies, and the private sector; and
- vii. Recognize and build on Farm Bill conservation programs and State Comprehensive Wildlife Conservation Strategies.



c. Foster cooperation and accountability

- i. Maintain pathways of communication and participation among state, federal, university, and private research efforts;
- ii. Leverage non-federal resources;
- iii. Deliver enhanced accountability for outcomes through a consistent and measurable information flow to decision-makers;
- iv. Improve accountability and evaluation of the efficacy of natural resource management and conservation programs;
- v. Be relevant to private landowners/private interests as well as to agency clients because efforts are directed by a federal/university/state/private partnership;
- vi. Assist partners and stakeholders with practical information on land stewardship and conservation of fisheries and wildlife resources; and
- vii. Engage stakeholders.

3) Stakeholder Engagement and Coordination: The CFWRUs will engage stakeholders in a partnership. CFWRUs will—

- a. Elucidate assistance needed by stakeholders;
- b. Ensure ongoing relevance by maintaining contact with stakeholders and providing assistance to them;
- c. Share relevant information with a broad array of stakeholders in a timely and effective manner;
- d. Work with the National Cooperators' Coalition; and
- e. Encourage CFWRU scientists to coordinate activities across state and regional boundaries.

Goals, Objectives, and Strategies to Enable the CFWRUs to Meet Future Natural Resource Challenges

The goals, objectives, and strategies described below establish three key interdependent approaches for the NCC and CFWRU program that will enable the CFWRUs to meet future natural resource challenges and fulfill the vision described in this document.

Though they differ in context, these goals, objectives, and strategies are complementary to those in the USGS *Strategic Plan for the Cooperative Research Units*.

Goal 1: Conduct research and train natural resource professionals to answer critical questions concerning the high priority challenges to natural resources management described in the vision statement.

Objective 1: Provide expanded federal and nonfederal funding to conduct high priority research and train natural resource professionals.

Strategy 1: New CFWRU High Priority Research and Training Program. Develop a federal subprogram within the existing CFWRU program that will make available up to \$20 million annually beyond base operational costs to support research and graduate student stipends and training that address key future challenges and to increase the number of natural resource professionals. With establishment of this new program, the CFWRU program will consist of 2 components: 1) the existing \$17.5 million (in 2006 dollars) operational program of CFWRUs and national program coordination and 2) a \$20 million fund to support high priority research and training. Attention will be focused on high priority needs by means of a bottom-up planning approach. Research priorities will be shared upwards, then aggregated and common themes identified. This process also will reinforce the need for regular strategic discussions among cooperators within each CFWRU, thereby maintaining communication channels and local relevance. Each CFWRU will continue to be



governed by its state, university, private, and federal cooperators.

Funding Allocation and Match. CFWRUs generally will compete for available funds. High priority research funding will be made available on a competitive basis for projects approved by the CFWRU Coordinating Committees. A portion of the funding would be made available on a formula basis to ensure that each CRWRU has the opportunity to leverage local cooperator or other resources for problems of sufficient spatial and temporal scales. All federal funding will be required to be matched by nonfederal resources on a 1:1 basis. The non-federal share will be reduced to 25% for regional projects and 10% for national projects when scientists from multiple CFWRUs collaborate on high regional or national priorities.

Goal 2: Provide the capacity needed in the operational program of CFWRUs and national

program coordination to conduct high priority research, train natural resource professionals, and address other future natural resources research challenges while involving stakeholders.

Objective 1: Provide the necessary federal and nonfederal funding to attain the CFWRU program capacity required to address strategic research, training, and stakeholder needs.

Strategy 1: In Fiscal Year 2008, secure sufficient funding to fill all current scientist vacancies in the CFWRUs and restore operational funds for the CFWRUs and national program coordination (approximately \$18 million/year in 2006 dollars). Maintain full operational capacity beyond Fiscal Year 2008 by securing sufficient funding to meet increases in uncontrollable costs, such as mandated salary and benefit increases (\$550,000/year in 2006 dollars).

a. Work with USGS to implement guidelines for filling vacancies in the CFWRU system.

Strategy 2: Within 5 years, secure sufficient federal and non-federal resources to enhance and expand the CFWRU system capacity to meet strategic research and training in critical thematic and geographic areas where capacity is limited or nonexistent (approximately \$3 million/year in fiscal year 2006 dollars).

a. Identify and address attributes of the current CFWRU system that limit the system's ability to meet critical research and training needs and engage stakeholders.

b. Utilize standards and principals for the establishment of new CFWRUs or modification or expansion of existing CFWRUs.

c. Develop appropriate new CFWRU structures and staffing arrangements that extend beyond past models if local needs warrant modification.

d. Develop an implementation plan for modification or expansion of CFWRUs.

Goal 3: Enhance the preparedness of natural resource professionals to meet future challenges.

Objective 1: Create a system-wide leadership development program to assist CFWRU graduates in conservation and management of natural resources.

Strategy 1: Create a module to be offered annually by each CFWRU to incoming graduate students. This program will be designed such that graduate students will have the opportunity to participate early in their graduate program. It will focus on attitudes, ethics, behaviors, and training needs that make valued fish and wildlife leaders.

Strategy 2: Enhance mentorship for CFWRU graduate students by matching them with professional mentors to guide them through their program of study and get them started in the profession.

Strategy 3: Develop a CFWRU electronic network through which information is provided to students and mentors concerning developments in natural resource issues and education.

Strategy 4: Use the Student Temporary Experience Program (STEP) and Student Career Experience Program (SCEP) as a source of leadership development, training, and diversity enhancement.

Strategy 5: Have each CFWRU hold an annual capstone event for CFWRU graduates in conjunction with host universities.

