

WMI SCIENCE REVIEWS

The Wildlife Management Institute (WMI) is available to conduct reviews of wildlife and natural resource agency programs and functions. At the request of agencies, WMI has successfully completed over 70 reviews of fish and wildlife programs in more than 40 states and 4 provinces. WMI has also compiled and published national summaries of the organization, authority and programs of state fish and wildlife agencies in 1948, 1968, 1977, 1987 and 1997.

In recent years, WMI has been especially effective in helping fish and wildlife agencies determine the scientific adequacy of their data gathering processes. In today's world of increased scrutiny of wildlife and natural resource agency programs and decisions, it is important that scientific information be accurate, reliable, and defensible when challenged. WMI reviews are structured to assist agencies in delivering these outcomes.

WMI reviews assess decision-making within the agency and classify the scientific foundations needed for each type of agency decision. WMI then assesses the scientific rigor of data gathering activities to insure those decisions that need to be founded on good science are defensible if challenged. WMI also assesses the training, attitudes and application of science activities by agency staff.

The costs for each review vary and depend upon the nature and extent of the review. WMI works closely with each agency in developing appropriate objectives and parameters for the work. WMI guarantees confidentiality and releases review information only to the contracting agency.

Following are some examples of recent scientific reviews:

Title: **Independent Review of the South Dakota Department of Game, Fish, and Parks Division of Wildlife Big Game Management Program**

Description: The South Dakota Office of the Governor contracted with WMI to conduct a review of the big game (deer, elk, antelope, and mountain lion) management programs conducted by the Wildlife Division of the Department of Game, Fish and Parks

Services: WMI completed the review by analyzing over 2,500 documents provided by the Department; holding a series of public "listening sessions" across the state; gathering public input via a dedicated email address; conducting personal interviews with individuals identified by the Governor's Office, current and former Commissioners, current and former Department staff, and circulating an on-line survey administered to Division of Wildlife staff who were not personally interviewed. WMI's review was designed to identify the strengths, weaknesses, and areas of improvement for the South Dakota big game management program. Our goal was to provide valuable information that will improve each of the big game management programs

and to assist the Department in its role as public steward of the wildlife resources that grace South Dakota.

Title: **AN EXAMINATION OF THE PENNSYLVANIA GAME COMMISSION'S DEER MANAGEMENT PROGRAM**

Description: The Pennsylvania Legislative Finance and Budget Committee contracted with WMI in 2010 to conduct an evaluation and study of the Pennsylvania Game Commission's current deer management program and practices.

Services: WMI analyzed the scientific basis of deer management in the Commonwealth, including the scientific foundation of deer management goals, deer population and habitat measurements and citizen input procedures. The analysis was designed to judge the adequacy of the methods employed by the PGC to provide the agency and the public with an independent evaluation of how the deer management goals were chosen and measured, and how they affected deer management.

Title: **A COMPREHENSIVE REVIEW AND EVALUATION OF THE TENNESSEE WILDLIFE RESOURCES AGENCY**

Description: The Executive Director of the Tennessee Wildlife Resources Agency contracted with WMI in 2008 to provide an evaluation of the agency. Effective fish and wildlife agencies operate under five principles: agencies must be structured appropriately to achieve efficiency and effectiveness, agencies must represent a balance between natural resource management and service to the public, natural resource management must be grounded in good science, agencies must have effective human resource administration, and agencies must establish priorities and fund accordingly. In an effort to assess the TWRA compliance with these principles, the leadership of TWRA asked the Wildlife Management Institute (WMI) to conduct a comprehensive review and evaluation of the TWRA.

Services: WMI reviewed pertinent literature and documents; conducted Commissioner, employee, and stakeholder interviews and surveys; analyzed scientific methodology and survey efforts; and consulted leadership from other state fish and wildlife agencies to evaluate the current status of the agency. Based on our evaluation, WMI found that the majority of TWRA employees were hard-working, dedicated resource professionals who wanted TWRA to continuously improve its ability to serve the fish and wildlife resources of Tennessee and its citizens. For decades, the Director of TWRA provided national leadership on several of the most important fish and wildlife conservation initiatives including the:

North American Waterfowl Management Plan, Teaming with Wildlife and State Wildlife Action Plans, North American Bird Conservation Initiative, and National Fish Habitat Plan. TWRA Commissioners valued quality management of the state's fish and wildlife resources as their first priority and sincerely wanted the TWRA to be the best state fish and wildlife agency in the country.

Title: **A REVIEW OF MONTANA FISH, WILDLIFE AND PARKS DEPARTMENT HUNTING AND HARVEST SURVEYS AND STATEWIDE ANGLING PRESSURE SURVEY**

Description: Montana Fish, Wildlife and Parks Department contracted with WMI in March of 2006 to provide an evaluation of agency hunting and angling surveys. The scope of the evaluation was described as performing the necessary tasks to: 1) Evaluate the current Angling and Hunter Harvest Survey systems for information gathering, analysis and reporting. 2) Explore alternative systems for information gathering, analysis and reporting for more efficient, cost effective and defensible methods. 3) Develop recommendations and provide a report on the most appropriate, effective, efficient and timely Angling and Hunter Harvest Survey system for MFWP.

Services: WMI reviewed methodology and use of surveys for hunter harvest of black bear, deer, elk, antelope, moose, bighorn sheep, mountain goat, mountain lion harvest, mountain lion sightings, upland game birds, furbearers, and turkey and for angling pressure and satisfaction.

WMI explored alternative systems to the MFWP system for harvest information gathering, analysis, and reporting for more efficient, cost effective, and defensible methods. Alternatives were structured with information gleaned from WMI's analysis of current MFWP survey methodologies, examination of other state fish and wildlife agency survey systems, and conversations with private vendors offering survey products. The final report was delivered in November, 2006 and included responses to clarifications made by agency staff.

Title: **A COMPREHENSIVE REVIEW OF SCIENCE-BASED METHODS AND PROCESSES OF THE WILDLIFE AND PARKS DIVISIONS OF THE TEXAS PARKS AND WILDLIFE DEPARTMENT**

Description: Texas Parks and Wildlife Department (TPWD) contracted with WMI to provide a broad review of science-based activities of the Wildlife Division

and State Parks Division. The review was intended to answer the following questions: 1) Why are we doing what we are doing? 2) Is what we are doing being done well (i.e., are we using the best science available)? 3) Are there critical data gaps that will improve our ability to manage wildlife resources?

Services: Over the course of six months, WMI completed extensive document and method review, field interviews of field and program biologists and analysis of employee opinions to obtain an understanding of use of scientific data to guide management programs for wildlife in Texas. The WMI analysis, findings and recommendations were delivered orally in November 2004. The final report included responses to clarifications made by program staff.

Title: **AN EVALUATION OF THE DECISION MAKING PROCESSES OF THE CENTRAL ARIZONA PROJECT FUND TRANSFER PROGRAM**

Description: The 1994 and 2001 Fish and Wildlife Service biological opinions on transfers of non-native fishes from the Central Arizona Project aqueduct to the Gila River basin called for the Bureau of Reclamation to transfer funds to the Service to fulfill two major purposes: 1) achieve conservation actions (recovery and protection) for federally listed or candidate fish species by implementing existing and future recovery plans, and 2) accomplish research on, and control of, non-native aquatic species. The resultant CAP Fund Transfer Program produced a document entitled Long-term Direction, Project Allocation Guidance, and Rationale (guidance document) that describes in detail the program's purposes, goals, priorities, and project selection processes. A 5-year strategic plan also was produced that provides specific objectives to assist with the near-term implementation of the program. Policy and technical committees established to oversee the program determined that an external review of these documents should be conducted to gain additional independent input into the program's processes, goals, assumptions, and objectives.

Services: In 2005, WMI completed extensive document review, field interviews of current and past committee members and analysis of contracts let under the program. The WMI analysis, findings and recommendations were delivered orally in October 2005. The final report included responses to clarifications made by program staff.

Title: **FEASIBILITY OF RESTORING WILD POPULATIONS OF RING-NECKED PHEASANT IN PENNSYLVANIA**

Description: Ring-necked pheasant abundance in Pennsylvania has declined despite the Pennsylvania Game Commission's management of wild pheasant populations and provision of an extensive stocking program. WMI was asked to review the efforts completed to date, assess current and future habitat conditions and threats, and advise the agency on whether stocking programs were an adequate replacement for, or supplement to, wild populations.

Services: In 2000, WMI completed extensive assessment of field conditions, including interviews of Commissioners, agency staff and land managers. The WMI analysis, findings and recommendations were delivered to the Executive Director of the PA Game Commission in 2000.

Title: **AN EVALUATION OF BIG GAME MANAGEMENT IN WYOMING**

Description: The Wyoming Game and Fish Department requested a WMI review of the scientific foundations of big game management techniques. Included in the WMI assessment was harvest and population surveys, hunter preference surveys, environmental management models, and use, reporting and administration of big game data. WMI conducted extensive interviews at different locations in WY. Both agency staff and members of the public were interviewed.

Services: In 1995, WMI completed extensive document and method review, field interviews of field and program biologists and analysis of employee opinions to obtain an understanding of use of scientific data to guide management programs for big game in Wyoming. The WMI analysis, findings and recommendations were delivered orally in November 1995 to the Wyoming Board of Commissioners. The final report included responses to clarifications made by program staff.

COMPLETE LIST OF WMI REVIEWS

AGENCY	YEAR	REVIEW TYPE
SD Game, Fish & Parks	2013	Big Game Management Program
PA Game Commission	2010	Deer Management
Tennessee WRA	2008	Agency Review
Montana	2007	Big Game Harvest Survey
Bureau of Reclamation	2005	Central Arizona Project
Texas	2004	Wildlife Division Use of Science
Pennsylvania	2000	Restoration of Pheasant
All States	1997	Organization, Authority and Programs of State Fish and Wildlife Agencies
Wyoming	1995	Big Game Management Program
Oklahoma	1991	Complete -- Game and Fish
US Fish and Wildlife Service	1991	Patuxent Wildlife Research Center
USDA Forest Service	1990	Fish and Wildlife Program
USDA Forest Service	1990	Special -- Wildlife and Livestock
Colorado	1988	Complete -- Game and Fish
New Mexico	1988	Complete -- Game and Fish
USFS	1988	Quachita National Forest
Texas	1988	Complete -- Game and Fish
Wyoming	1988	Complete -- Game and Fish
Hawaii	1988	Forestry and Wildlife
All States	1987	Organization, Authority and Programs of State Fish and Wildlife Agencies
Delaware	1986	Complete -- Game and Fish
Indiana	1986	Complete -- Game and Fish
Minnesota	1986	Complete -- Game and Fish
Louisiana	1985	Complete -- Game and Fish
Illinois	1984	Complete -- Game and Fish
Arkansas	1983	Complete -- Game and Fish
Minnesota	1983	Complete -- Game and Fish
South Carolina	1983	Complete -- Game and Fish
Virginia	1982	Complete -- Game and Fish
Bureau of Land Management	1981	Fish and Wildlife Program
Washington	1980	Complete -- Game and Fish
USDA Forest Service	1979	Fish and Wildlife Program
Arizona	1977	Complete -- Game and Fish
Arizona	1977	Complete -- Game and Fish
All States	1977	Organization, Authority and Programs of State Fish and Wildlife Agencies
Maryland	1976	Special Study
New Jersey	1975	Complete -- Game and Fish

Oklahoma	1975	Complete -- Game and Fish
New Mexico	1974	Resurvey -- Game and Fish
New Brunswick	1973	Complete -- Game and Fish
Massachusetts	1972	Special Study
Ohio	1972	Partial Wildlife Division Only
Utah	1971	Finances Only -- Game and Fish
WAFA	1971	Non-resident Hunting and Angling
Illinois	1970	Technical Assistance -- Game and Fish
Michigan	1970	Resurvey -- Game and Fish
Minnesota	1969	Technical Assistance -- Game and Fish
Washington	1969	Complete -- Game and Fish
All States	1968	Organization, Authority and Programs of State Fish and Wildlife Agencies
Kansas	1967	Complete -- Game and Fish
Maryland	1966	Complete -- Game and Fish
Georgia	1964	Partial -- Game and Fish
Delaware	1963	Resurvey -- Game and Fish
Michigan	1963	Complete -- Game and Fish
Pennsylvania	1962	Complete -- Game and Fish
Wyoming	1962	Laws Only -- Game and Fish
Utah	1961	Technical Assistance -- Game and Fish
Manitoba	1959	Complete -- Game and Fish
Colorado	1958	Complete -- Game and Fish
Iowa	1958	Ten - Year Conservation Program
Arizona	1957	Resurvey -- Game and Fish
Colorado	1957	Policies Only -- Game and Fish
Kentucky	1957	Complete -- Game and Fish
New Mexico	1957	Resurvey -- Game and Fish
Maine	1956	Complete -- Game and Fish
South Dakota	1956	Complete -- Game and Fish
Oregon	1955	Resurvey -- Game Only
Delaware	1954	Complete -- Game and Fish
Iowa	1954	Resurvey -- Game and Fish
Lousiana	1954	Complete -- Game and Fish
Wisconsin	1954	Special -- Eau Pleine Reservoir Report
Newfoundland	1954	Complete -- Game and Fish
Missouri	1953	Complete -- Game and Fish
North Dakota	1953	Complete -- Game and Fish
Rhode Island	1953	Complete -- Game and Fish
Connecticut	1952	Technical Assistance -- Game and Fish
Idaho	1952	Complete -- Game and Fish
South Carolina	1952	Complete -- Game and Fish

Arizona	1951	Complete -- Game and Fish
New York	1951	Complete -- Game and Fish
Texas	1951	Complete -- Game and Fish
Wyoming	1951	Complete -- Game and Fish
New Brunswick	1951	Technical Assistance -- Game and Fish
Florida	1950	Complete -- Game and Fish
Illinois	1950	Complete -- Game and Fish
Nevada	1950	Complete -- Game and Fish
North Carolina	1950	Technical Assistance -- Game and Fish
Tennessee	1950	Complete -- Game and Fish
Nova Scotia	1950	Technical Assistance -- Game and Fish
New Mexico	1949	Complete -- Game and Fish
Oklahoma	1949	Complete -- Game and Fish
Montana	1948	Complete -- Game and Fish
New Mexico	1948	Laws Only -- Game and Fish
Oregon	1948	Partial -- Game Only
All States	1948	Organization, Authority and Programs of State Fish and Wildlife Agencies
Iowa	1947	Complete -- Game and Fish
Massachusetts	1947	Complete -- Game and Fish
Wisconsin	1940	Technical Assistance -- Game and Fish