



# Values and Functions of Scientific Societies

## MEMBERSHIP, PARTICIPATION, AND PERCEPTIONS OF USFWS AND USGS-BRD WILDLIFE BIOLOGISTS

By Eric J. Taylor and Bruce Lauber



Courtesy of Eric Taylor

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Despite professional workload, administrative burdens, and declining budgets, wildlife biologists—like professionals in other fields—do what they can to maintain and enhance their professional expertise. They may join scientific societies, or attend seminars, workshops, short courses, and conferences. They might also read scientific literature and monitor listserves and databases via the Internet for the latest research, management, or policy news. Regardless of the time allotted to these kinds of activities, most agree that engaging in professional development activities is crucial over the course of a career.

In June 2004, The Wildlife Society (TWS), the U.S. Fish and Wildlife Service (USFWS), and the U.S. Geological Survey Biological Resources Discipline (USGS) signed an agreement to promote excellence in wildlife science, policy, and education by increasing the exchange of scientific information, advancing professionalism, and supporting continuing education for wildlife biologists and managers. Because involvement in scientific societies is one way to maintain and enhance scientific knowledge, we conducted an Internet-based survey of USFWS and USGS employees to:

1. assess membership and participation in scientific societies, particularly TWS and the American Fisheries Society (AFS)
2. identify the professional needs met through participation in scientific societies
3. assess the importance and relevancy of TWS and AFS publications, conferences, certification programs, and policies
4. identify factors that influence membership and participation in TWS and AFS

Here, we discuss the preliminary results of this survey. Two manuscripts with complete descriptions of levels of participation and

factors that influence involvement in scientific societies are being prepared for *The Journal of Wildlife Management*.

The survey was conducted in May 2006 via the Internet, and was sent to about 3,800 USFWS employees across six programs: endangered species, fisheries and habitat conservation, refuges, migratory birds, federal aid, international affairs, and law enforcement. Simultaneously, we surveyed 900 USGS employees in 17 Science Centers and 40 Cooperative Research Units. USFWS and USGS survey recipients included wildlife biologists with expertise in migratory birds, endangered species, refuges, habitat conservation, forensics, and international affairs as well as other professionals working in fisheries, coastal restoration, state wildlife grants, economics, botany, genetics, forestry, law enforcement, statistics, freshwater ecology, and marine biology.

The response rates were remarkably high as 74 percent of USFWS employees and 68 percent of USGS employees completed the survey—an indication that employees in both agencies were very interested in professional development needs, including participation in scientific societies. Wildlife biologists comprised 69 percent of the USFWS respondents and 39 percent of the USGS.

### Professional Needs of USFWS and USGS Employees

USFWS and USGS employees were asked to rank the importance of each of 12 possible professional needs. For USFWS, the most important needs were strengthening their scientific knowledge (75 percent considered this “very important”); keeping informed of new research methods, results, and their management implica-



tions (65 percent); and keeping informed about natural resource policy issues (59 percent). USGS employees' highest priorities were similar but not identical with strengthening scientific knowledge (88 percent), sharing research results and their management implications with other professionals (85 percent), and keeping informed of new research methods, results, and their management implications (83 percent) at the top of their list.

### PROFESSIONAL NEEDS OF USFWS AND USGS EMPLOYEES

Professional Need	FWS	USGS
Strengthen my scientific knowledge	75 <sup>1</sup>	88
Keep informed of new research	65	83
Keep informed of natural resource policy	59	42
Network with other professionals	58	60
Influence natural resource policy	52	34
Support others in my profession	47	46
Develop leadership skills	47	32
Demonstrate commitment to profession	46	41
Share my research results with others	45	85
Solidify my opinion through discussion	40	39
Enhance credibility in my profession	40	47
Enhance credibility outside my profession	36	29

<sup>1</sup> Percentage stating professional need was "Very Important"

## Membership in Scientific Societies

Overall, about 50 percent of USFWS wildlife biologists and 91 percent of USGS wildlife biologists belong to at least one scientific society. Based on membership, TWS was the most important scientific society to USFWS and USGS wildlife biologists.

### MEMBERSHIP IN SCIENTIFIC SOCIETIES BY USFWS AND USGS WILDLIFE BIOLOGISTS

	FWS (%)	USGS (%)
The Wildlife Society	19.3	52.2
Society for Conservation Biology	7.7	23.7
American Ornithologists Union	4.7	28.6
Cooper Ornithological Society	3.1	24.1
Ecological Society of America	1.5	24.5
Any Scientific Society	50.2	91.4

We found that both USFWS and USGS wildlife biologists joined TWS in particular to meet a variety of their professional needs, among the most important being staying informed of new research and management implications, strengthening scientific knowledge, and networking. USFWS wildlife biologists also joined TWS to help them stay informed of natural resource policy. Sharing research results and management implications with other professionals was an important reason for joining TWS among USGS wildlife biologists but not for those in USFWS.

Although the reasons USFWS and USGS wildlife biologists cited for joining TWS were similar, levels of participation of TWS members in Society activities varied both within and between agencies. For example, subscription rates to the management-oriented journal the *Wildlife Society Bulletin* (which ceased publication in 2006) was approximately the same for TWS members in USFWS (62 percent) and USGS (67 percent). However, more TWS members in USGS (78 percent) received *The Journal of Wildlife Management* than TWS members in USFWS (52 percent).

For TWS members, twice as many USGS wildlife biologists (64 percent) as USFWS (30 percent) had attended the national annual meeting between 2001 and 2005, and twice as many in USGS (44 percent compared to 22 percent) considered the meeting very important. The proportion of USGS wildlife biologists (60 percent) presenting at the annual meeting was almost five times that of USFWS (13 percent). Similarly, a greater proportion of TWS members in the USGS participated in TWS national level activities, such as serving as an officer and working on a committee. At the same time, however, more TWS members who worked for the USFWS participated in TWS chapters.

## Certification

Since 1977, TWS has offered a Professional Certification Program to further advance its mission of excellence in wildlife stewardship. The proportions of wildlife biologists who were Society members with some level of certification varied between USFWS and USGS. In the USFWS, 29 percent were Certified Wildlife Biologists and six percent were Certified Associate Wildlife Biologists. In the USGS, 18 percent



were Certified Wildlife Biologists and three percent were Certified Associate Wildlife Biologists. Over half (52 percent) of USFWS TWS members and nearly three-quarters (74 percent) of USGS TWS members were not certified and have no intention to apply for certification. TWS members in both agencies do not believe certification increases the probability of professional advancement. In fact, TWS members in the USGS indicated that they do not believe certification enhances credibility in the profession or is supported by USGS, and think that certification is irrelevant to their position.

### Factors Correlated with Membership in TWS

TWS membership increased with level of education in both USFWS and USGS. A larger proportion of wildlife biologists with doctoral degrees were TWS members than wildlife biologists with Master's or Bachelor's.

	TWS Membership (%)		
	Bachelor	Master	Doctorate
FWS	11	25	35
USGS	–	38	61

The youngest wildlife biologists (26 to 35 years old) in USFWS and USGS were least likely to be members of TWS. The proportion of USFWS wildlife biologists that were TWS members generally increased with salary. TWS membership also varied by position: two-thirds (66 percent) of the USGS research grade-evaluated wildlife biologists belonged to TWS compared to 31 percent of USGS wildlife biologists in other positions.

USFWS employees stated that USFWS neither encouraged nor discouraged membership and participation in scientific societies. However, USGS employees were more likely to believe their agency supported membership in scientific societies as well as a variety of related activities such as attending and presenting at scientific meetings, publishing in peer-reviewed journals, and organizing workshops.

Wildlife biologists from both agencies were much more likely to be members of TWS if their supervisors and coworkers were members.

### SUPERVISOR AND AGENCY SUPPORT OF PROFESSIONAL ACTIVITIES DURING WORK

Activity	Supervisor		Agency	
	FWS	USGS	FWS	USGS
Collaborating on scientific studies	51 <sup>1</sup>	85	51	89
Conducting scientific studies	43	87	44	92
Presenting at scientific meetings	45	80	40	78
Attending scientific meetings	50	73	40	57
Reading scientific literature	43	60	47	62
Publishing government documents	34	49	45	69
Belonging to scientific societies	22	49	25	49
Publishing in peer-reviewed journals	24	86	31	90
Organizing workshops	25	50	21	50
Leadership in scientific societies	13	39	14	44
Participating on committees	13	33	12	32
Becoming certified	9	8	10	10
Working on position statements	10	9	12	19

<sup>1</sup> Percentage encouraged or strongly encouraged to undertake activity

The survey asked respondents to indicate the importance of various factors that could constrain their membership or activities in scientific societies. In both agencies, wildlife biologists primarily felt restricted by their current workload, and those in USFWS also felt that the cost associated with attending meetings and the lack of agency support for their participation were constraints. The lack of agency support for attending meetings was a concern that surfaced repeatedly during interviews with USFWS biologists.

The higher proportion of USGS wildlife biologists belonging to scientific societies, and their greater involvement at the national level is likely due—in part at least—to the agency's mandate to conduct and publish research. Over half (61 percent) of the USGS wildlife biologists in our sample were research grade-evaluated scientists, a job description that does not exist in the USFWS. The higher level of society membership in USGS is likely also because of a higher average degree of education. Education is positively correlated with society membership, and more USGS wildlife biologists had doctoral degrees (71 percent) than USFWS wildlife biologists had



Master's and doctoral degrees combined (57 percent). However, USGS had a higher percentage of wildlife biologists joining TWS than USFWS at all education levels.

Acknowledging these differences, one might reasonably ask if the levels of participation we report would be acceptable to either agency, or do the agencies want to consider steps to encourage and facilitate greater participation. The USFWS policy on membership and participation in professional societies states that "... membership, involvement, and participation in professional societies are ... important for the purposes of maintaining and enhancing our capabilities in professional resource management." While USGS has no formal policy on scientific society involvement, Jim Fleming, Deputy Chief, USGS Cooperative Fish and Wildlife Research Units and Rick Kearney, Wildlife Program Coordinator, emphasized that USGS not only encourages, but expects its scientists to participate in scientific societies, related to their professions.

## What's Next

Because our results and the interpretations of their meaning are preliminary, we are reluctant to recommend specific actions for the USFWS and USGS to take if increasing employee involvement in scientific societies is a priority.

However, our data demonstrate that USFWS and USGS employees participate in TWS to maintain and enhance scientific knowledge, keep informed about new research and its management implications, network with professional colleagues, and demonstrate their commitment to the wildlife profession. We expect that USFWS and USGS directorates may feel that meeting these professional needs is critical to attain their missions. If employee engagement in scientific societies is a priority to federal agencies, what steps might be considered to increase employee memberships and participation? Guidance should be informed by our understanding that membership and involvement are positively correlated with peer and supervisor membership in scientific societies and with supervisor and agency support, but that they are constrained by workload. Therefore, if increased membership and involvement in scientific societies are deemed priorities, our preliminary recommendations are:

1. Federal agencies should develop official policies that provide explicit guidance to their employees and their supervisors toward membership and all aspects of participation in scientific societies.
2. Supervisors should encourage and support their employees to join and participate in scientific societies by creating a culture where reading scientific journals, publishing, attending local and national scientific conferences, and participating in other professional activities are expected and recognized in the workplace.
3. The USFWS should establish a process for employees to attend national and international conferences that is transparent and serves to promote scientific excellence and employee development.
4. The USFWS should require an advanced degree for all new employees who conduct or supervise scientific activities for the USFWS, or who compile and translate scientific information into formats used by USFWS management.

The responsibility to increase participation of federal employees in scientific societies does not rest entirely with agencies. Unless scientific societies address current and relevant interests of the profession for which they were founded, we cannot expect that changes adopted by federal agencies will attain their full potential. To that end, our future publications will also report USFWS and USGS perceptions of TWS publications, the annual conference, and other membership services to provide TWS the opportunity to address their needs. ■