

# Northwest Science Forum

R. Gerald Wright, Cooperative Fish and Wildlife Research Unit, Department of Wildlife Resources, University of Idaho, Moscow, Idaho 83844-1136

## "Science" in *Northwest Science*: Changes in Journal Content Over the Past 70 Years and What It Tells Us

### Introduction

The Northwest Scientific Association (NWSA) was founded in 1923 in Spokane, Washington by academic teachers and scientists primarily from colleges and universities in the inland Northwest. The mission of the association was to "promote scientific research and the diffusion of scientific knowledge". These efforts were centered around a yearly meeting held at various locations in the inland Northwest. In 1927 the journal *Northwest Science* (NWS) was begun. The journal was also to provide a forum for the dissemination of scientific information of interest to scientists in the region as well as a method to communicate events of interest to scientists and teachers in the region. An important component of the journal was to document the discussions and papers given at the annual meetings, and since the beginning, one issue (or a portion thereof) a year has been devoted to abstracts of the oral presentations.

Like most scientific journals, NWS science has undergone several format changes over the years. However, most of the alterations have been largely cosmetic, involving changes in the format of the cover. Between 1944 and 1959 the cover depicted a beaker and flask reflecting an orientation toward the laboratory sciences that was reflected in the journal content as illustrated in Table 2. Contents of the journal were first put on the cover in 1944. In 1959 the cover changed to one containing a map of the Northwest, a characteristic retained in the most recent change which streamlined the cover in 1995.

From its inception, the editors of NWS encouraged the submission of and received articles from

a wide range of disciplines. The purpose of this paper is to illustrate the scope of the subject matter published in the journal, and to reflect on what this reveals about the direction in which NWSA is heading. In doing so, I hope it stimulates members of the society to rethink or reaffirm the mission of the society.

### Methods

The data for this article were compiled by placing all citations from issues of NWS from 1927 through May 1996 in the commercial bibliographic computer software Pro-Cite. Each article was assigned relatively broad keyword(s), reflecting subject content as interpreted by this author. These keywords and terms in the article title were used in the subsequent searches. It is recognized that there is some inherent subjectivity in the terms used. However, the author has had extensive experience in directing programs to catalog resource studies in the national parks - compiling to date over 20,000 records. A list of the terms that occurred in at least .01% of the total number of records is given in Table 1.

### Results

Between 1927 and May of 1996, 1634 articles appeared in NWS. The abstracts of the papers given at the national meetings were not included in this analysis. As shown in Table 1, these articles covered a broad range of subjects. To analyze the changes in journal contents over time, the time span was arbitrarily divided into six categories shown in Table 2. Included in this analysis were only those subject classes that had >2% of the total citations.

TABLE 1. The number of citations found for various subject categories in *Northwest Science* between 1927 and 1996.

Subject Category	Subject Matter Included	Number of Articles
agriculture	primarily crop production, irrigation and tillage methods, effects of fertilization	56
amphibians		17
anthropology	primarily Native Americans	8
birds	upland game birds, passerines, raptors, water birds	86
chemistry		42
climate/weather		34
economics		22
education/training		34
fish	primarily salmonids	96
forestry	coniferous species, silviculture, disease control, re-forestation	242
fire	includes use of fire in site preparation	33
fungi		31
geography	primarily descriptions of places	19
geology	structural and descriptive geology, mineralogy	154
glaciers and glaciation		17
health and human disease		39
hydrology		28
lakes and reservoirs		68
limnology		39
mammals	See Table 3	222
plants	primarily non-coniferous species, includes grasses, shrubs individual species accounts	222
physiology	primarily vertebrate	24
rangelands	includes grazing relations of domestic and native animals	64
reptiles		17
soils	both forest and agricultural	77

## Discussion

It is clear from an examination of Table 2 that there have been significant changes in journal content over the years. Articles dealing with educational issues and the training of students were much more common in the early days, probably reflecting the orientation of many of the members towards teaching at the high school and college levels. Today these articles are virtually absent. Likewise, articles dealing with agriculture and chemistry have also greatly declined—the latter

probably reflecting the development of more specialized journals for that material.

NWS has long been associated with the disciplines of forestry and geology and articles dealing with those subjects predominated all but the last two time periods. Probably the greatest increase in recent years has been in the number of articles dealing with mammals. Almost a quarter of all articles published in the last 25 years have concerned mammalian species. A compilation of the species is given in Table 3. This change may

TABLE 2. Distribution of records by subject category and time period. Figures are the percent of the total number of records in each time period.

Category	1927-39	1940-50	1951-60	1961-70	1971-80	1981-96
records (#)	241	168	166	183	343	533
agriculture	9	7	7	2	<1	<1
birds	2	1	4	1	5	10
chemistry	9	3	4	4	<1	<1
education	9	5	<1	0	0	<1
fish	4	<1	0	4	8	10
forestry	15	17	20	14	13	13
geology	15	9	9	19	6	6
history	5	2	2	3	2	2
mammals	<1	1	4	4	23	24
plants	7	11	5	13	18	18

TABLE 3. Distribution of mammal studies between 1971-1996 among classes of mammals.

Category	Example Types	Percent of Studies (1971-1996)
small mammals	mice, shrews, voles, pocket gophers, moles, woodrat	40
mid-sized mammals	rabbit, badger, ground squirrel, mountain beaver, porcupine, skunk	16
large grazing-browsing mammals	black and white-tailed deer, elk, moose, mountain caribou, mountain goat, bighorn sheep	28
bears and carnivores	black and grizzly bear, coyote, fox, wolf, bobcat, cougar	13

in part reflect a positive feedback, i.e., one paper on a given subject encourages others to submit additional papers on the same subject. However, a more important factor, in my opinion, is that there is a growing cadre of ecologically trained scientists (and an ecologically oriented public) in the Northwest resulting in more studies of natural components of ecosystems, be they birds, fish, mammals, or flora. This trend can be seen in the pages of NWS along with a diminishment of contributions from the physical and laboratory sciences, as well as engineering, economics, social science, health, and history. Again a negative feedback may be operating here, i.e., a lack of papers in a discipline area discourages readership and submission of papers from individuals in those disciplines.

Given this strong and probably on-going trend, I believe that NWSA should reconsider its mission. The society needs to question the premise, in this era of increasingly fragmented disciplines with a wide variety of scientific journals, of whether it is possible for a society to cover all disciplines. Is NWSA, as currently structured, relevant today? If the journal is an accurate reflection of member's interests (and indeed at least one author of an article must be a member), then I would argue that the society and the journal is not relevant today to chemists, physicists, economists, historians, agricultural scientists, and a host of other disciplines embraced by NWSA. Perhaps changes in the mission of NWSA to more clearly focus only on the biological/ecological sciences are both desirable and necessary to preserve and enhance the society.