THE INFLUENCE OF GENDER ON PARTICIPATION FOR NONRESIDENTIAL BIRDWATCHERS IN NEW YORK STATE

Mary Joyce Sali
SUNY College of Environmental Science and Forestry
1 Forestry Drive
320 Bray Hall
Syracuse, NY 13210

Diane Kuehn
SUNY College of Environmental Science and Forestry

Abstract.—In 2006, New York Sea Grant and the SUNY College of Environmental Science and Forestry conducted a mail survey of 1,000 New York State residents (i.e., 500 males and 500 females) who were members of birdwatching organizations. Respondents were asked about their birdwatching initiation, participation, and activity characteristics. Of the qualified sample of 797 individuals, 232 males and 228 females returned usable surveys for a response rate of 58 percent. Descriptive statistics were used to identify significant differences between genders. The majority of male and female respondents were initiated into birdwatching by themselves and many birdwatch alone. Males reported higher median participation rates than did females for in-state, out-of-state, and total birdwatching trips taken in 2005. Men and women reported choosing similar birdwatching locations but owned somewhat different types of birdwatching equipment.

1.0 INTRODUCTION

Birdwatching is a popular outdoor activity in the United States (Cordell and Herbert, 2002). According to a U. S. Fish and Wildlife Service report (2002), an estimated 46 million Americans, aged 16 years and older, participated in birdwatching (U.S Fish and Wildlife Service, 2002) in 2001. About 88 percent of birdwatchers (approximately 40 million people) were "backyard birders" who watched birds around their homes (La Rouche, 2003). Twenty-six percent of birders (about 18 million people) took birdwatching trips away from home and about 26 percent (12 million people) watched birds both at home and elsewhere. Most birdwatchers (72 percent) were married and 54 percent of birdwatchers were women in 2001 (La Rouche, 2003).

The same U.S. Fish and Wildlife report (2002) breaks birdwatching statistics down by state. In New York State, 2.8 million individuals observed birds around the home and on birdwatching trips in 2001. Eighty-eight percent (approximately 2.48 million individuals) were New York State residents, while 12 percent (approximately 326,000 individuals) were from out of state. A large majority (82 percent or approximately 2.3 million individuals) were residential birdwatchers, while 42 percent (approximately 1.2 million individuals) were reported taking trips away from home to watch birds. These birdwatchers spent an estimated $1.4 billion on trip-related expenditures, equipment, bird-related magazines, membership dues and contributions, land leasing and ownership, and plantings, and are therefore an important economic development force in New York State (U.S. Fish and Wildlife Service & U.S. Census Bureau, 2003).

Previous studies suggest that gender differences exist in birdwatching. Kellert (1985) found that committed birders (as compared to casual birders) were more likely to be male than female. McFarlane and Boxall (1996) found that 60 percent of casual birdwatchers were typically female, while 63 percent of advanced birders were male. Scott et al. (1999) found that 85 percent of participants in one birding competition were male but Scott and Thigpen (2003) found that participants in a different birding competition were disproportionately female (74 percent). Hvenegaard (2002) found that advanced-experienced and advanced-active birders were more likely to be male (82.2 percent and 80 percent, respectively). Finally, La Rouche (2003) showed that, unlike for hunting and

fishing, a slightly higher percentage of birdwatchers (54 percent) were women in 2001. Results of these studies suggest that gender is an important factor to consider in understanding participation in birdwatching.

As wildlife managers and recreation service providers seek strategies to enhance birdwatching opportunities and experiences, information concerning gender differences in birdwatching initiation, participation rates, and characteristics become essential. The objective of this study is to identify similarities and differences in initiation, participation rates, and characteristics of birdwatching between males and females. This manuscript presents the quantitative results of a mixed-methods study on nonresidential birdwatching in New York State conducted by New York Sea Grant and the SUNY College of Environmental Science and Forestry. The results of the first phase of the study (i.e., 64 qualitative interviews with birdwatchers) are presented in a separate article (Sali and Kuehn, 2007).

2.0 METHODS

2.1 Mail survey design

The quantitative portion of this study used a mail survey of 1,000 male and female nonresidential birdwatchers in New York State. Results from the prior qualitative portion of this study were combined with a literature review to guide the development of the survey questionnaire. The survey instrument was composed of 31 short-answer questions related to involvement in birdwatching and respondent demographics. Questions about demographics focused on gender, month and year of birth, years of education, race, marital status, area of residence, whether the respondent had children, and whether the respondent bird-watched with his or her children. The four categories of area of residence were: (1) rural area, hamlet, or village (under 5,000 people in size); (2) small city (5,000 to 24, 999 people in size); (3) medium city (between 25,000 and 99,999 people in size); and (4) large city (over 100,000 people in size). Questions concerning initiation into birdwatching focused on the age at which the respondent started birdwatching, the individual from whom he or she first learned how to bird watch, and characteristics that influenced initial participation in birdwatching. Questions about characteristics of birdwatching activity focused on the respondent's primary birding group, birdwatching-related activities in 2005, type of bird species sought, preferred birdwatching locations, birdwatching equipment used, number of bird species on his or her life list, number of bird species that the respondent could identify without a field guide, number of birdwatching books owned, and number of birdwatching magazine subscriptions. Participation rates were assessed by asking for the number of birdwatching trips (i.e., in-state, out-of-state, and international trips) taken in 2005.

2.2 Mail survey implementation

In the fall of 2005, a letter stating the purpose of the study and requesting mailing lists for birdwatchers was sent to birding organizations in New York State. From the 44 organizations to which request letters were sent, 11 organizations positively responded and sent their mailing lists. The names on all the lists were combined and sorted by New York State American Birding Association (ABA) region. For each of the 20 ABA regions, 50 names (i.e., 25 males and 25 females) were systematically chosen. The final sample was made up of 1,000 individuals (i.e., 500 males and 500 females) representing all 20 New York State ABA regions. An equivalent number of males and females were included in the sample to enable gender comparisons.

The mail survey was conducted in winter, 2006, using a modified Total Design Method (Dillman, 1978). The date of return of surveys was recorded for each respondent to identify response bias. The first question—"During 2005, did you travel a mile or more from home to birdwatch?"—was used to determine if the respondent was a nonresidential birdwatcher. Respondents answering "no" to this question were asked to return their uncompleted survey.

Nonresponse bias was identified by contacting 100 nonrespondents. A one-page questionnaire composed of seven questions about nonrespondents'

participation in birdwatching was sent by certified mail. Comparisons between nonrespondents and respondents were made to identify significant differences in participation in terms of the total number of birdwatching trips taken in 2005 and on the response rates between the two groups.

2.3 Data analysis

Data analyses were conducted in Statistical Package for Social Sciences (SPSS) version 12.0 with an alpha level set at 0.05. Some variables were recoded to create new variables. For example, data for age were recoded to create age categories similar to those used by La Rouche (2003): 44 and below, 45-54, 55-64, and 65 & above. Due to the low number of respondents who belonged to younger age groups, those who belonged to ages 44 and below were categorized in one age group (i.e., 44 and below). Three categories of educational level (i.e., high school diploma or less, undergraduate college education, and graduate degree) were created by recoding the number of years of school completed. The total number of birdwatching trips was derived by summing the in-state, out-of-state, and international birdwatching trips taken by each respondent in 2005.

Descriptive statistics (i.e., frequencies, means, median, mode, standard deviations, standard errors of mean, confidence intervals, variances, variable ranges, minimum values, maximum values, skewness, and kurtosis) were calculated. Two-independent-sample t-tests were used to compare mean ages of initiation for males and females. Two-independent-sample z-tests were used to compare proportions of males and females selecting each categorical answer on the survey. A Mann-Whitney test was used to compare differences in median participation rates (in-state, out-of-state, international, and total number of birdwatching trips taken in 2005), median number of species on the respondent's birding life list, median number of bird species that the respondent could identify without a field guide, median number of birdwatching-related books owned, and median number of birdwatching magazine subscriptions for male and female respondents. The Mann-Whitney test was also used to check nonresponse bias by comparing the median participation (i.e., total number of birdwatching trips taken in 2005) of mail survey respondents with that of non-respondents. A two-independent-sample z-test was used to compare proportions of returned usable surveys between respondent and non-respondent groups. The Spearman's rank correlation test, a nonparametric equivalent of Pearson's correlation test, was used to identify association between the return dates of surveys and respondents' participation to identify potential response biases related to participation.

3.0 RESULTS

3.1 Mail survey

From the original sample of 500 male and 500 female birdwatchers, 172 returned questionnaires that were identified as unusable (i.e., the respondent either did not participate in birdwatching trips in 2005 or was not from New York State); 28 questionnaires were undeliverable and three were duplicates. A qualified sample of 414 male and 383 female respondents remained. From this qualified sample, 460 nonresidential birdwatchers (i.e., 232 males and 228 females) responded for an adjusted response rate of 56 percent and 60 percent, respectively. The final adjusted response rate for males and females combined was 58 percent.

3.2 Nonresponse bias and response bias analyses

Of the 100 nonresponse surveys sent, 26 were identified as unusable (i.e., the respondent did not participate in birdwatching trips in 2005) and 11 were undeliverable. Following the removal of surveys that were unusable and undeliverable, a qualified sample of 63 nonrespondents was identified from the original sample of 100. From this qualified sample, 17 nonresidential birdwatchers completed and returned usable surveys. The response rate for the short nonresponse survey for nonresidential birdwatchers was 27 percent of the qualified respondent sample. The percentage of respondents (N=460) who returned usable surveys (i.e., were non-residential birdwatchers) was significantly different from the percentage of nonrespondents (N=17) who were nonresidential

birdwatchers (58 percent and 27 percent, respectively; $p<0.05$). The lower proportion of those who returned usable surveys from the group of nonrespondents indicates that this group likely includes individuals who are either residential or inactive birdwatchers.

A Mann-Whitney test revealed a significant difference between mail survey respondents (N=457) and the 17 nonrespondents in median participation (U=2396.0, p=0.019). These data indicate that the median participation for the population of nonresidential birdwatchers in New York State may be lower than that of the sample used in this study. However, because this study examines elements that influence participation for male and female nonresidential birdwatchers, the sample is likely to provide results that enable greater insight into the elements influencing higher participation.

A Spearman's correlation coefficient test, used to identify response bias, revealed no significant correlation between the date of return of questionnaires and the respondents' participation (rho=-0.059, N=456, p=0.208). Based on these results, it is unlikely that those who returned questionnaires on earlier dates had higher participation levels than those who returned questionnaires on later dates (i.e., it appears that no response bias existed).

3.3 Respondent demographics

The sample was largely representative of Caucasians (99 percent) who were married (69 percent), highly educated (93 percent had some college education), and residing in rural areas (55 percent) or small cities and suburbs (26 percent). The respondents were also likely to be middle-aged or older (68 percent of the respondents were 55 years of age or older). The sample was almost equally split between males and females. Most respondents (64 percent) had children and 57 percent of those with children indicated that they bird watched with their children.

3.4 Birdwatching initiation

The mean initiation age for male respondents (N=226) was 22 years of age and was not significantly different from the mean initiation age of 23 years for females (N=214; $p \leq 0.05$). Most respondents (54 percent) were initiated into birdwatching by themselves, with no significant difference existing between males and females for the initiator category ($p \leq 0.05$).

Respondents were asked to identify characteristics that influenced their initial participation in birdwatching. "Having easy access to an area where there are birds," "reading books or magazines about birds," "maintaining a bird feeder," and "living in a house surrounded by birds" were the most influential characteristics. Significant differences were identified between the percentage of males (68 percent) and females (78 percent) who were influenced by "having easy access to an area where there are birds" ($p \leq 0.05$). Additional significant differences were found for "maintaining a birdfeeder" (males=47 percent, females=67 percent, $p \leq 0.05$), "living in a house surrounded by birds" (males=30 percent, females= 45 percent, $p \leq 0.05$), and "having experiences in hunting or fishing" (males=28 percent, females= 8 percent, $p \leq 0.05$).

3.5 Participation rates

The Mann-Whitney tests revealed significant differences in participation rates between males and females for median number of birdwatching trips in 2005 (Table 1). Specifically, males reported having a higher median participation rate than females for in-state (U=17788.00, p=0.0005), out-of-state (U=19519.00, p=0.0005), and total birdwatching trips (U=18062.00, p=0.0005) taken in 2005. However, there was no significant difference between males and females for participation rate in international birdwatching trips (U=22597.00, p=0.163).

3.6 Characteristics of birdwatching activity

Both similarities and differences were identified between genders for primary birding groups, birdwatching-related activities in 2005, types of bird species sought, preferred birdwatching locations, types of birdwatching equipment used, number of bird species on birding life list, number of species identified

Table 1.—Differences in participation rates between male and female respondents

Trip category	Gender	N	Median[a]	Mean Rank	Mann-Whitney U	Z-value	p
In-state	M	226	14.00	254.79	17788.000	–5.205	0.0005
	F	220	6.00	191.35			
Out-of-state	M	228	2.00	249.89	19519.000	–4.230	0.0005
	F	221	1.00	199.32			
International	M	224	0.00	227.62	22597.000	–1.396	0.1630
	F	216	0.00	213.12			
BTRIPS[b]	M	231	17.00	263.81	18062.000	–5.701	0.0005
	F	226	9.00	193.42			

[a]Number of birdwatching trips
[b]Sum of in-state, out-of state, and international birdwatching trips taken in 2005

without using a field guide, number of birdwatching books owned, and number of birdwatching magazine subscriptions. Analysis of the primary birding groups of respondents indicates a moderately high percentage of both males (43 percent) and females (33 percent) who participated in birdwatching alone, with no significant difference between genders. Other groups used for birdwatching were "friends and family" and "family only," with no significant differences between genders.

The birdwatching-related activity for 2005 most commonly chosen by male and female respondents was "maintained a birdfeeder or nest box," followed by "kept a list of the bird species I saw" (Table 2). Significant differences between males and females were identified for "led a birdwatching walk or tour" and "gave presentations on birds or birdwatching," with a higher proportion of males for each. Large percentages of male and female respondents searched for songbirds and birds of prey, with no significant differences between males and females. However, significant differences existed between male and female respondents seeking water birds, with a higher proportion of males (84 percent) than females (75 percent) looking for water birds such as herons and shorebirds.

The birdwatching location most preferred by male and female respondents was woodlands (90 percent of both males and females), followed by brush-covered areas and meadows (75 percent of males and 71 percent of females; Table 3). No significant differences were found between males and females for these preferred birdwatching locations.

Table 2.—The proportions of males and females according to birdwatching-related activities in 2005

	Proportion[a]	
Birdwatching-related activity	Males[b]	Females[c]
Maintained a birdfeeder or nest box	0.90	0.88
Kept a list of the bird species I saw	0.69	0.70
Record bird songs	0.05	0.05
Led a birdwatching walk or tour	**0.30**	**0.15**
Attended a birdwatching walk	0.55	0.58
Took part in an organized bird census	0.54	0.47
Kept notes about the activities of birds I saw	0.36	0.31
Took photographs of birds	0.48	0.40
Attended a tour or a presentation on birds and birdwatching	0.50	0.53
Gave presentations on birds or birdwatching	**0.20**	**0.11**
Other	0.07	0.11

[a]Significant differences identified through a two-independent-sample z-test ($p \leq 0.05$) are in bold.
[b]N males=230
[c]N females=228

While almost all of the respondents had a pair of binoculars, significant differences were noted between males and females for birdwatching equipment, such as scopes, spotting cameras, tape recorders, and birdfeeders (Table 4). Specifically, a significantly greater proportion of males than

Table 3.—The proportions of males and females according to preferred birdwatching locations

Birdwatching location	Proportion	
	Males[a]	Females[b]
Woodlands	0.90	0.90
Brush-covered areas	0.75	0.71
Meadows	0.71	0.71
Agricultural lands	0.58	0.51
Landscaped areas	0.51	0.50
Ocean shorelines	0.52	0.48
Lake and stream shorelines	0.52	0.48
Marshes, wetlands, swamps	0.52	0.48
Other	0.20	0.13

[a]N males=232
[b]N females=226

Table 4.—The proportions of males and females according to the types of birdwatching equipment used

Birdwatching equipment	Proportion[a]	
	Males[b]	Females[c]
Binoculars	0.99	1.00
Scope	**0.65**	**0.43**
Spotting camera	**0.65**	**0.57**
Tape recorder	**0.24**	**0.13**
Birdfeeder	**0.84**	**0.90**
Nesting boxes	0.53	0.52
Video camera	0.13	0.08
Boat	0.36	0.40
Parabolic microphone	0.03	0.02
Other	0.07	0.05

[a]Significant differences identified through a two-independent-samples z-test ($p \leq 0.05$) are in bold.
[b]N males=232
[c]N females=228

females reported using a scope (65 percent and 43 percent, respectively), spotting camera (65 percent and 57 percent), and tape recorder (24 percent and 13 percent), while a higher proportion of females (90 percent) than males (84 percent) reported having birdfeeders ($p<0.05$).

Differences were noted between genders concerning birding life lists (i.e., a tally of bird species seen by a birder during his or her lifetime) and bird species identification. The percentage of male respondents (N=232) who kept a life list (72 percent) was significantly higher than the percentage of females (64 percent) who indicated doing so (N=228; $p \leq 0.05$). Males reported a higher median number of species on their birding life list than their female counterparts ($U= 6545.00$, $p=0.0005$). Males also indicated that they were able to identify a higher median number of bird species without using a field ($U= 13078.00$, $p=0.0005$). Finally, males reported that they own a higher median number of books and magazine subscriptions related to birds and birdwatching ($U=18883.00$, $p=0.0005$ and $U=22271.00$, $p=0.0295$, respectively).

4.0 DISCUSSION

Both similarities and differences were identified between males and females for initiation into birdwatching, participation, and characteristics of birdwatching activity. For both men and women, initiation to birdwatching started at similar ages and was influenced greatly by the respondents' interest in birdwatching on their own. The average age at which male and female respondents began to birdwatch were 22 and 23 years of age, respectively, which parallels McFarlane's (1996) findings that the majority of Canadian birders (60 percent) started birding during their adult years (i.e., over 18 years of age). The late start for nonresidential birdwatchers could be linked to the lower proportions of males and females initiated into birdwatching by immediate family members and friends during childhood.

One important difference between genders is that, for a higher proportion of female respondents than males, initiation into birdwatching was influenced by having birdfeeders, living in a house surrounded by birds, and having easy access to areas where there are birds. The initiation of 28 percent of male respondents was influenced by having experiences in hunting and fishing; only 8 percent of female respondents were influenced by these experiences. Birdwatching initiation for females appears to be greatly influenced by having opportunities to watch or observe birds in close proximity to their homes, whereas birdwatching

initiation for males appears to be influenced by having experiences in other wildlife-related recreation activities. The data also reveal differences in participation rates between males and females, with females reporting lower median participation rates for in-state, out-of-state, and total birdwatching trips taken in 2005.

Some similarities were found for the birdwatching habits of male and female respondents. For instance, a moderately high percentage of both males and females participated in birdwatching alone. These findings were similar to McFarlane's (1996) results that the majority of Canadian birdwatchers who started as adults participated in birdwatching alone (53 percent). In addition, the proportions of males and females seeking each type of birdwatching location are similar.

Results also reveal differences between genders in birdwatching activity characteristics. For example, a higher proportion of males owned technical equipment such as scopes, spotting cameras, and tape recorders, while a higher proportion of females owned birdfeeders. These results suggest that females may be more involved in birdwatching around the home than males. In contrast, males might be more involved in birdwatching away from home using highly technical equipment. In terms of avidity, males appeared to have a higher perception of their birdwatching ability as compared to females in terms of the number of species on birding life lists and number of birds identified without using a field guide. Male respondents also reported having a higher median number of birdwatching books and magazine subscriptions, and a higher proportion of males than females participated in educational activities such as "leading a birdwatching walk or tour" and "giving presentations on birds and birdwatching."

5.0 CONCLUSION

Nonresidential birdwatchers are an important constituency in wildlife-related recreation. In order to enhance opportunities and experiences in birdwatching, it is important to examine the effects of gender on birdwatching initiation, participation rates, and characteristics of birdwatching activity of nonresidential birdwatchers. Understanding differences between males and females in relation to these factors can help wildlife managers and recreation service providers improve programs and products for the birdwatching population.

The objective of this study was to identify similarities and differences in the initiation, participation, and characteristics of birdwatching between males and females. Both similarities and differences were identified for birdwatching initiation, with large percentages of both genders starting on their own as adults. It appears that initiation into birdwatching may not be as dependent on childhood participation and support from family and friends as in other recreational activities. Moreover, initiation for males appeared to be influenced by involvement in other wildlife-related recreational activities, while initiation for females was influenced by birdwatching opportunities around the home. Significant differences between males and females were also identified for participation in birdwatching. Both differences and similarities were identified for the various characteristics of birdwatching activities.

This research adds to the existing knowledge on gender and participation in wildlife-related recreational activities, but it is important to note some limitations that decrease the generalizability of the findings. First, since the sample was only composed of nonresidential birdwatchers, this study is not generalizable to all birdwatchers. Second, the sample included only active birdwatchers who are members of birdwatching organizations; other birdwatchers in New York State who are not members of these groups were not represented by the sample. Third, since respondents were asked to recall their participation (i.e., number of in-state, out-of-state, and international birdwatching trips) during the previous year, recall bias may have influenced the results (i.e., there is a possibility that the respondents underestimated or overestimated their participation).

In conclusion, some significant differences were noted for birdwatching initiation, participation rates, and characteristics of birdwatching activity

for males and females. From a promotional or marketing standpoint, males and females might respond differently to marketing strategies targeted at attracting birdwatchers. Males might be motivated by messages that emphasize sharing knowledge about birds and birdwatching with other people, whereas females might be motivated by messages that highlight experiencing birdwatching around the home. In addition, while results suggest that social support may not be that important to nonresidential birdwatchers since many birdwatch alone, sharing knowledge about birds or birdwatching may be important. Programs and other efforts that enable birdwatchers to share their knowledge with others should be considered.

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