

North American Birdwatching Survey: Summary Report Pacific Flyway 2018



A cooperative study completed by:

Minnesota Cooperative Fish and Wildlife Research Unit
University of Minnesota

and

The Ohio State University

for the

National Flyway Council

North American Birdwatching Survey: Summary Report Pacific Flyway 2018

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Section 1. Introduction and Overview

BACKGROUND

The National Flyway Council, in cooperation with the four Flyway Councils, the North American Waterfowl Management Plan (NAWMP) Committee, and non-governmental agencies initiated the formation of a Human Dimensions Working Group (HDWG) to obtain and incorporate human dimensions information and approaches into migratory bird conservation programs, policies and practices.

The 2012 NAWMP Revision *Vision Statement* provides a new vision of waterfowl management that emphasizes a growing and supportive core of waterfowl hunters and an engaged conservation community inspired by waterfowl and wetlands. The goal is to have a public supportive of waterfowl and wetlands conservation that have strong emotional and pragmatic ties to waterfowl and wetlands. To achieve this goal, NAWMP partners must engage both the traditional waterfowl hunting community and the broader nontraditional stakeholder groups who are interested in waterfowl and the conservation of waterfowl and wetlands. To facilitate this engagement, the NFC's HDWG and other NAWMP partners developed a research proposal for North American stakeholder and general public surveys that will inform: 1) NAWMP objectives; 2) harvest objectives and strategies; 3) habitat management; and 4) public engagement strategies.

STUDY OBJECTIVES

The key objectives of the stakeholder and general public surveys were to:

- 1) Assess what hunters and other waterfowl conservationists (i.e., birders) most desire from their natural resource based management and social settings to inform NAWMP objectives and select habitat and population management alternatives.
- 2) Establish baseline measures that can be repeated to inform the development of a Public Engagement Strategy and monitor trends in achieving the NAWMP goal of "growing numbers of waterfowl hunters, other conservationists, and citizens who enjoy and actively support waterfowl and wetlands conservation."
- 3) Assess waterfowl hunters' and conservationists' knowledge, preferences, levels of use and support for waterfowl and wetlands conservation.
- 4) Assess the general public's participation in waterfowl-associated recreation and how much they support waterfowl and wetlands conservation.

5) Assess the general public's awareness and their perceptions regarding the importance of the benefits and values (i.e., Ecological Goods and Services - EGS) provided by waterfowl and wetlands conservation.

6) Assess waterfowl professionals' perspectives on the levels of waterfowl populations and habitats needed to support hunter and viewer use opportunities.

The expected outcomes of these studies were:

1) Quantified measures of stakeholder preferences;

2) A greater likelihood of developing NAWMP objectives and management actions that are informed by waterfowl and wetland stakeholders;

3) A focus on harvest management actions that will provide the greatest benefits in terms of stakeholder preferences within the context of what is biologically feasible.

The key research was completed by a collaborative research team at the U.S. Geological Survey's Fort Collins Science Center, the Minnesota Cooperative Research Unit located at the University of Minnesota, and the University of Alberta. Data analysis and report writing was completed by collaborators at The Ohio State University with review and technical assistance from the Minnesota Cooperative Research Unit.

STUDY DESIGN AND METHODS

Survey Questionnaires

The project included three surveys – a general public survey, a waterfowl hunter survey, a birdwatcher survey. The general public survey was mailed to 5000 individuals throughout the continental United States with a completed sample size target of 1200. A separate summary report is available for that effort (U.S. Geological Survey 2017). Throughout the rest of this report the waterfowl hunter survey is referred to as the National Survey of Waterfowl Hunters (NSWH) and the birdwatcher survey is referred to as the North American Birdwatching Survey (NABS).

The stakeholder studies involved multiple phases and research activities. A core portion of the waterfowl hunter and viewer surveys involved discrete stated choice experiments (DCE). The DCEs allow identification of key attributes and levels on those attributes that most influence hunter and viewer preferences for waterfowl hunting and viewing. The attributes used in the DCEs were identified through a series of workshops with stakeholders conducted by researchers from the U.S. Geological Survey Fort Collins Science Center.

Design and implementation of the U.S. stakeholder workshops began in November 2014 and was completed in June 2015. A total of 12 workshops with hunters and 12 with viewers were completed in key geographic locations across the Flyways in the U.S. to provide a diverse representation of important ecological characteristics and social traditions of the waterfowl hunting and viewing opportunities. A similar approach was taken in Canada. The primary outcome of the workshops was identification of key attributes of waterfowl hunting and bird viewing experiences. This information was used in the design of the DCEs in both the NSWH and NABS studies.

The NSWH and NABS surveys were designed between June 2015 and September 2016. In addition to the stakeholder workshops, the survey design involved multiple workshops, meetings, webinars, and reviews and comments from representatives of key partners including:

The core design team for the waterfowl hunter survey included Human Dimensions Working Group members from the Atlantic, Mississippi, Central and Pacific Flyways. These team held multiple meetings and webinars to identify appropriate sampling and questionnaire design. In addition to achieving the previously identified objects and implementing DCEs on hunting and viewing preferences, the hunter and viewer surveys also include questions targeting three areas identified by the HDWG as important:

- A. Decisions: Individual decisions to participate in viewing, hunting, and conservation are reflected in participation patterns. This series of questions would determine baseline participation levels in viewing, hunting, and conservation and offer the potential to identify stakeholder segments based on participation levels as well as types of participation.
- B. Identity: Measures of identity formation will focus on determining the degree to which hunters, viewers, and conservationists have developed personal identities associated with an activity or social role. (i.e., the individual's progression in formation of their identity as a hunter, viewer, etc.).
- C. Capacity: The NAWMP suggests the long-term sustainability of waterfowl and wetlands will depend on building support and relevancy. In essence, it is a matter of maintaining or increasing the capacity to grow waterfowl populations, protect and restore habitat, and the activities people enjoy that involve waterfowl and wetlands. Social science research suggests that institutional capacity can be thought of in terms of the social, political, economic, and human capital ("capital" can be defined as the available resources that can be used to effect action and outcomes). This survey will include questions to identify the levels of social, political, economic, and human capital that hunters, viewers, and the general public are providing to the institution of waterfowl and wetland conservation.

Additionally, the NABS study included questions concerning constraints to participating in birdwatching. The survey questionnaire items and wording were developing in close collaboration with a core design team representing the HDWG. A question-by-objective table is presented in Appendix A along with a copy of the waterfowl hunter survey. The table summarizes the objective addressed by each question and provides information concerning the source of the questions.

Sampling Design

The target population for the NABS included all U.S. resident hunters 18 years of age who participate in birding and birdwatching. The research proposal for the study also directed data collection to occur using web-based surveys with e-mail contacts. Consideration was given to using commercial vendors for a listing of birdwatchers/birders but no large national lists were commercially available. Suggestions from the HDWG focused on using integrated membership lists from the national Audubon Society and The Cornell Lab of Ornithology's eBird membership list. Both organizations expressed interest in the study but we were only able to obtain permission to use the eBird membership list.

Developed and launched by the Cornell Lab of Ornithology in 2002, eBird is a real-time, online checklist program used by more than 100,000 birders in the United States and Canada. Individuals provide their e-mail address when they create an online account. They also have the option to provide a physical mailing address. The online tools available through eBird allow individuals to maintain information about their personal birding activities and keeps them engaged in using the site. The list of names, e-mails and physical addresses available through eBird represented a useful sampling frame for contacting potential respondents to the NABS throughout the United States and Canada.

The eBird sample can only be used to generalize back to eBird members and cannot be used to generalize back to the larger population of birdwatchers in the U.S. In subsequent reports, the data were weighted to reflect the distribution of eBird membership across the states. We applied the stratification scheme from the 2005 National Survey of Duck Hunters and the NSWH for regional and national reports (Table 1.1), and applied weights accordingly (weights for all states are available in the appendices of the regional reports for NABS).

We obtained the complete list of eBird members on October 24, 2016. We selected only respondents who indicated they lived within the United States, provided a seemingly valid e-mail address and who had logged into eBird no longer ago than January 1, 2012. After removing identifiably duplicate members, we obtained a final list of 134,111 eBird members living within the United States at the time of their last log in to eBird (Table 1.2). These individuals were distributed throughout the United States relatively proportional to the populations of the states, but California, Texas, and Florida were all under-represented in eBird relative to their population size.

Data Collection

We adapted procedures outlined in Dillman, Smyth, and Christian (2014) for web and mobile surveys survey implementation using up to five e-mail contacts. The initial contact was made on November 16, 2017 using the University of Minnesota's mass e-mail program with an information banner from the, "College, of Food, Agricultural and Natural Resources Sciences." The initial e-mail contact had the subject of, "Birdwatching for eBird." It provided information about the purpose of the study and the entities conducting the study. We provided recipients with a clickable link to the survey labeled, "Birdwatcher Survey" and a unique 7-digit access code. Individuals were also provided an e-mail that they could contact to receive an automated reply e-mail with the web address included that they could click or enter into a web browser to connect to the survey. Of the 134, 111 e-mail addresses in the initial sample, a total of 126,083 (94.4%) could be delivered to the intended recipients. We completed up to 4 additional contacts to encourage response, removing the e-mail addresses for those who had already completed the survey each time we sent out a new e-mail invitation.

By January 6, 2017, a total of 32,818 respondents had at least partially completed the survey and we closed data collection. However, we had not yet reached the target of $n = 400$ for Arkansas and re-opened the survey on February 13, 2017 and made 3 additional e-mail contacts only to eBird members residing in Arkansas on February 13, 15, and 21, 2017. In addition, we contacted all non-respondents in Arkansas the first week of March with a contact letter mailed through the U.S. Postal Service that indicated we had attempted to contact them through e-mail. We provided them with background information and the web address of the survey along with their 7-digit access code and a \$1 incentive. We made a second mailed contact to any remaining non-respondents the second week of March and we stopped data collection on March 23, 2017. A total of 33, 071 surveys were at least partially completed and recorded, providing a response rate of 24.7%. Individual state response rates are reported in Table 1.3, and the weights calculated and applied for the substrata and Flyway level estimates reported in this summary are in Table 1.4.

A web-based survey was used to reduce costs and to facilitate the implementation of the DCE portion of the survey. Discrete choice experiments can be cumbersome to implement in traditional paper-and-pencil surveys due to their complexity of design and the amount of space required to present questions. Data were collected using Sawtooth Software's Lighthouse Studio (<https://www.sawtoothsoftware.com>). Sawtooth Software was chosen for data collection because it allows for the design, hosting, implementation, data collection and analysis of DCE data using Choice Based Conjoint (CBC) software.

To conduct a non-response assessment, we drew a proportional random sample of 16,000 non-respondents left in the initial sample. These 16,000 individuals were sent a shortened survey questionnaire the second week of April 2017, and asked to respond by mail. Completed non-response surveys were collected through May 31, 2017. Data on key questions concerning birdwatching experiences, identity, and demographics were collected from non-respondents to assess if there are any substantive differences between people who completed the full-length online survey and those who did not respond to it. A total of 3,730 (23.3%) individuals returned a completed non-response survey. Key questions concerning waterfowl hunting experiences,

identity, and demographics were collected from non-respondents to assess if there are any substantive differences between people who completed the complete survey and those who did not respond to it. Summary results of the non-response survey are reported in a separate addendum to this report.

Where appropriate we report results of statistical tests in summary tables. We use the following convention when reporting statistical significance for these tests: * $p \leq 0.05$, ** $p \leq 0.01$, and *** $p \leq 0.001$.

Table 1.1 Stratification for North American Birdwatching Survey

Flyway	Sub-regions	States
Atlantic	Lower Atlantic	FL, GA, NC, SC
	Middle Atlantic	DE, MD, NJ, PA, VA, WV
	Upper Atlantic	CT, ME, MA, NH, NY, RI, VT
Mississippi	Lower Mississippi	AL, AR, LA, MS, TN
	Middle Mississippi	IL, IN, IA, KY, MO OH
	Upper Mississippi	MI, MN, WI
Central	Lower Central	NM, OK, TX
	Middle Central	CO, KS, NE, WY
	Upper Central	MT (ZIP 59000-59699), ND, SD
Pacific	Lower Pacific	AZ, NV, UT
	Middle Pacific	CA
	Upper Pacific	AK, ID, MT (ZIP 59700-59999), OR, WA

Figure 1.1 Flyway map



Table 1.2 Distribution of eBird membership across the United States

State	Initial Sample Size	State/ Sample	State/ USA	State	Initial Sample Size	State/ Sample	State/ USA
Alabama	1332	0.0099	0.0151	Montana	872	0.0065	0.0032
Alaska	860	0.0064	0.0023	Nebraska	679	0.0051	0.0059
Arizona	1948	0.0145	0.0215	Nevada	539	0.0040	0.0091
Arkansas	1312	0.0098	0.0093	New Hampshire	1577	0.0118	0.0041
California	11444	0.0853	0.1215	New Jersey	3631	0.0271	0.0277
Colorado	2892	0.0216	0.0172	New Mexico	1238	0.0092	0.0064
Connecticut	2226	0.0166	0.0111	New York	8691	0.0648	0.0611
Delaware	642	0.0048	0.003	North Carolina	4886	0.0364	0.0314
Florida	5602	0.0417	0.0638	North Dakota	247	0.0018	0.0024
Georgia	4030	0.0300	0.0319	Ohio	5380	0.0401	0.0359
Hawaii	155	0.0012	0.0044	Oklahoma	1078	0.0080	0.0121
Idaho	831	0.0062	0.0052	Oregon	3069	0.0229	0.0127
Illinois	3923	0.0293	0.0396	Pennsylvania	7387	0.0551	0.0396
Indiana	2307	0.0172	0.0205	Rhode Island	410	0.0031	0.0033
Iowa	1121	0.0084	0.0097	South Carolina	2282	0.0170	0.0154
Kansas	1244	0.0093	0.009	South Dakota	326	0.0024	0.0027
Kentucky	1155	0.0086	0.0137	Tennessee	2827	0.0211	0.0206
Louisiana	920	0.0069	0.0145	Texas	7057	0.0526	0.0862
Maine	1657	0.0124	0.0041	Utah	1024	0.0076	0.0094
Maryland/DC	3807	0.0284	0.0207	Vermont	1531	0.0114	0.0019
Massachusetts	4176	0.0311	0.0211	Virginia	4906	0.0366	0.026
Michigan	5128	0.0382	0.0307	Washington	4159	0.0310	0.0226
Minnesota	2924	0.0218	0.0171	West Virginia	775	0.0058	0.0057
Mississippi	710	0.0053	0.0093	Wisconsin	4627	0.0345	0.0179
Missouri	2162	0.0161	0.0189	Wyoming	405	0.0030	0.0018
Total Sample					134111		
Without Hawaii					133956		

Table 1.3 Response rates for states in the Pacific Flyway

State	Flyway Stratum	eBird Sample	Number Returned	Response Rate
AZ	PL	1948	551	28.3%
NV	PL	539	125	23.2%
UT	PL	1024	254	24.8%
TOTAL		3511	930	26.5%
CA	PM	11444	2891	25.3%
ID	PU	831	239	28.8%
MT				
West	PU	553	176	31.8%
OR	PU	3069	723	23.6%
WA	PU	4159	1113	26.8%
AK	PU	860	195	22.7%
TOTAL		9472	2446	25.8%
Pacific Total		24427	6267	25.7%
Nationwide		133956	33071	24.7%

Table 1.4 Response and weights applied to each state-level response

State	Flyway Stratum	eBird Sample	Substrata Proportion	Flyway Proportion	National Proportion	Number Returned	Substrata Weight	Flyway Weight	National Weight
AZ	PL	1948	0.5548	0.0797	0.0145	551	0.9365	0.9070	0.8728
NV	PL	539	0.1535	0.0221	0.0040	125	1.1422	1.1063	1.0645
UT	PL	1024	0.2917	0.0419	0.0076	254	1.0679	1.0343	0.9953
TOTAL		3511	1.0000	0.1437	0.0262	930			
CA	PM	11444		0.4685	0.0854	2891		1.0156	0.9773
ID	PU	831	0.0877	0.0340	0.0062	239	0.8979	0.8921	0.8584
MT									
West	PU	553	0.0584	0.0226	0.0041	176	0.8114	0.8061	0.7757
OR	PU	3069	0.3240	0.1256	0.0229	723	1.0962	1.0891	1.0480
WA	PU	4159	0.4391	0.1703	0.0310	1113	0.9650	0.9587	0.9225
AK	PU	860	0.0908	0.0352	0.0064	195	1.1389	1.1315	1.0888
TOTAL		9472	1.0000	0.3878	0.0707	2446			
Pacific Total		24427		1.0000	0.1824	6267			
Nationwide		133956				33071			1

Section 2. Participation

BIRDING

Nearly all respondents indicated participating in birdwatching or birding (Table 2.1).

Respondents replying “no” skipped to a page thanking them for their time and they did not respond to any further questions.

Nearly all respondents in each flyway substrata reported watching birds at their home in the past 12 months (99-100%), watching birds away from home (98%), and only slightly fewer reported keeping track of birds they saw on a list (83-86%; Table 2.2). Feeding birds at home in the past 12 months was significantly less reported in the Middle Pacific (79%) than in either the Lower (88%) or Upper Pacific (86%), while more respondents indicated installing nest boxes for birds in the Upper Pacific (47%) than in either the Lower (30%) or Middle Pacific (31%; Table 2.2a).

Nearly all respondents reported watching waterfowl (92-95%; Table 2.3), waterbirds (91-95%; Table 2.5), birds of prey (98%; Table 2.6), hummingbirds (94-98%; Table 2.7), songbirds (99%; Table 2.8), and other birds (83-84%; Table 2.9). Between 40-60% of respondents reported photographing all birds except other game birds (29-36%; Table 2.4). There were significant differences between the substrata in feeding songbirds (Upper: 69%, Middle: 55%, Lower: 64%, Tables 2.8a) and feeding other game birds (Upper: 7%, Middle: 4.3%, Lower: 10%; Tables 2.4a). Other differences between the substrata were significant but small (Tables 2.3a-2.9a).

Most respondents (83-86%) indicated they took a trip in the previous 12 months further than 1 mile from their home in order to watch birds (Table 2.10). Respondents indicated the number of trips taken in the past 12 months, and the median across the substrata was between 12-15 trips. Data were heavily skewed with a small number of respondents reporting trips nearly every day (365 trips per year), so the median is reported here (Table 2.10).

Across the substrata, respondents indicated the highest agreement with the statement, “I typically use binoculars to view birds,” (\bar{x} = 4.1-4.2; Table 2.11, 2.11a), and the lowest agreement was with the statement, “I tend to take photos of birds for the primary purpose of having someone help me identify them,” (\bar{x} = 2.2-2.3). While there were a few significant differences between substrata, effect sizes suggest these were small (Table 2.11b).

OTHER ACTIVITIES

Participation in consumptive recreation in the past 12 months was highest for fishing (85%-90%; Table 2.12) and lowest for hunting migratory birds other than waterfowl (5%-10%). Hunting game animals other than birds was the most frequently reported hunting activity (Upper:27%, Middle: 11%, Lower: 25%); analyses suggest differences between the substrata were significant but small (Table 2.12a).

Across substrata, over 90% of respondents reported in the past 12 months spending time in nature away from home, viewing wildlife, participating in non-motorized outdoor recreation activities, and participating in backyard/at-home nature activities, while over 80% reported learning about nature (Table 2.13). Around one-quarter or less reported participating in consumptive wildlife-based activities, motorized outdoor recreation, and other remaining activities not specifically mentioned. Analyses suggest significant but small differences between the substrata, notably in participation in consumptive wildlife-based activities (Upper: 26%, Middle: 12%, Lower: 19%; Tables 2.13a).

Table 2.1 Birdwatching or birding participation

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Do you ever participate in birdwatching or birding?	Yes	99.8%	99.7%	99.8%	99.7%
	No	.2%	.3%	.2%	.3%
	Valid N	927	2859	2428	6213

Table 2.2 Wild Bird Activities

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
	Watching birds at my home	99.4%	98.8%	99.6%	99.2%
	Feeding birds at my home	88.0%	79.1%	88.5%	84.0%
	Watching birds away from my home	97.7%	97.5%	98.1%	97.8%
Wild bird activities	Photographing or filming birds	78.7%	72.8%	73.5%	74.0%
	Counting/monitoring birds	68.0%	71.5%	71.2%	70.9%
	Keeping track of the birds you see on a list	85.6%	82.4%	82.9%	83.1%
	Installing or maintaining nest boxes for birds	30.0%	30.8%	47.3%	37.1%
	Valid N	927	2859	2428	6213

Table 2.2a Wild bird activities significance tests

		Chi-Square	df	Cramer's V
Wild bird activities	Watching birds at my home	9.81*	2	.04*
	Feeding birds at my home	93.12*	2	.12*
	Watching birds away from my home	1.11	2	.01
	Photographing or filming birds	13.97*	2	.05*
	Counting/monitoring birds	4.23	2	.03
	Keeping track of the birds you see on a list	4.96	2	.03
	Installing or maintaining nest boxes for birds	171.25*	2	.17*

*p < 0.05

Table 2.3 Waterfowl Activities

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Waterfowl activities	Waterfowl watching	91.7%	92.9%	95.1%	93.6%
	Waterfowl feeding	6.2%	4.3%	6.1%	5.3%
	Waterfowl photographing	49.5%	47.4%	48.6%	48.2%
	Waterfowl did not do any activities	7.8%	6.2%	3.9%	5.5%
	Valid N	927	2859	2428	6213

Table 2.3a Waterfowl Activities significance tests

		Chi-Square	df	Cramer's V
Waterfowl activities	Waterfowl watching	16.17*	2	.05*
	Waterfowl feeding	10.27*	2	.04*
	Waterfowl photographing	1.57	2	.02
	Waterfowl did not do any activities	24.53*	2	.06*

*p < 0.05

Table 2.4 Other game bird activities

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Other game bird activities	Other game birds watching	75.6%	68.6%	72.2%	71.0%
	Other game birds feeding	10.3%	4.3%	7.0%	6.2%
	Other game birds photographing	35.9%	28.6%	29.2%	29.9%
	Other game birds did not do any activities	23.2%	30.6%	26.7%	28.0%
Valid N		927	2859	2428	6213

Table 2.4a Other game bird activities significance tests

		Chi-Square	df	Cramer's V
Other game bird activities	Other game birds watching	17.98*	2	.05*
	Other game birds feeding	45.35*	2	.09*
	Other game birds photographing	18.35*	2	.05*
	Other game birds did not do any activities	21.84*	2	.06*

*p < 0.05

Table 2.5 Water Bird Activities

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Water bird activities	Water birds watching	91.4%	93.7%	94.7%	93.8%
	Water birds feeding	.3%	.9%	1.4%	1.0%
	Water birds photographing	50.8%	49.5%	48.9%	49.5%
	Water birds did not do any activities	7.9%	5.4%	4.3%	5.4%
	Valid N	927	2859	2428	6213

Table 2.5a Waterbird activities significance tests

		Chi-Square	df	Cramer's V
Water bird activities	Water birds watching	15.68*	2	.05*
	Water birds feeding	8.04*	2	.04*
	Water birds photographing	.68	2	.01
	Water birds did not do any activities	16.26*	2	.05*

*p < 0.05

Table 2.6 Bird of prey activities

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Bird of prey activities	Birds of prey watching	97.9%	98.0%	98.1%	98.0%
	Birds of prey feeding	2.1%	1.8%	2.6%	2.2%
	Birds of prey photographing	54.0%	47.2%	48.0%	48.5%
	Birds of prey did not do any activities	1.5%	1.5%	1.3%	1.4%
	Valid N	927	2859	2428	6213

Table 2.6a Bird of prey activities significance tests

		Chi-Square	df	Cramer's V
Bird of prey activities	Birds of prey watching	.77	2	.01
	Birds of prey feeding	4.19	2	.03
	Birds of prey photographing	13.87*	2	.05*
	Birds of prey did not do any activities	.13	2	.01

*p < 0.05

Table 2.7 Hummingbird activities

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Hummingbird activities	Hummingbirds watching	98.0%	97.9%	94.2%	96.5%
	Hummingbirds feeding	64.7%	53.5%	60.4%	57.9%
	Hummingbirds photographing	55.1%	44.8%	43.7%	45.9%
	Hummingbirds did not do any activities	1.0%	1.0%	4.6%	2.4%
	Valid N	927	2859	2428	6213

Table 2.7a Hummingbird activities significance tests

		Chi-Square	df	Cramer's V
Hummingbird activities	Hummingbirds watching	67.11*	2	.10*
	Hummingbirds feeding	44.42*	2	.09*
	Hummingbirds photographing	39.03*	2	.08*
	Hummingbirds did not do any activities	79.27*	2	.11*

*p < 0.05

Table 2.8 Songbird activities

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Songbird activities	Song birds watching	98.5%	98.7%	98.8%	98.7%
	Song birds feeding	64.3%	55.0%	68.9%	61.7%
	Song birds photographing	58.2%	51.6%	53.1%	53.2%
	Song birds did not do any activities	.6%	.2%	.2%	.3%
	Valid N	927	2859	2428	6213

Table 2.8a Songbirds activities significance tests

		Chi-Square	df	Cramer's V
Songbird activities	Song birds watching	.54	2	.01
	Song birds feeding	110.03*	2	.13*
	Song birds photographing	12.21*	2	.04*
	Song birds did not do any activities	2.35	2	.02

*p < 0.05

Table 2.9 Other bird activities

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Other bird activities	Other birds watching	84.0%	82.8%	82.9%	83.0%
	Other birds feeding	20.4%	15.1%	23.2%	18.9%
	Other birds photographing	45.5%	40.1%	38.7%	40.4%
	Other birds did not do any activities	14.5%	15.8%	15.9%	15.7%
	Valid N	927	2859	2428	6213

Table 2.9a Other birds activities significance tests

		Chi-Square	df	Cramer's V
Other bird activities	Other birds watching	8.15*	2	.04*
	Other birds feeding	27.61*	2	.07*
	Other birds photographing	11.91*	2	.04*
	Other birds did not do any activities	1.35	2	.02

*p < 0.05

Table 2.10 Percent taking birding trips >1 mile from home and median number of trips taken in past year by flyway substrata

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
In past 12 months, did you take any trips at least 1 mile or more from your home primarily for birdwatching?	Yes	86.2%	83.4%	82.7%	83.5%
	No	13.8%	16.6%	17.3%	16.5%
In the past 12 months, about how many trips at least 1 mile from your home did you take primarily for birdwatching?		13.0	15.0	12.0	12.0
Valid N		921	2842	2412	6174
Trips taken Y/N significance:		$\chi^2 (2) = 6.03^*$			Cramer's V = .03
# of trips significance:		F (2, 5115) = 3.84*			$\eta^2 = .00$

Table 2.11 Types of participation in birding

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N
I can identify most birds I see in the field	3.8	.91	879	3.8	.93	2703	3.8	.87	2308	3.8	.91	5889
I can readily identify many birds in the field by sound	3.1	1.16	878	3.1	1.17	2701	3.2	1.15	2309	3.1	1.16	5888
I tend to take photos of birds for the primary purpose of having someone help me identify them	2.3	1.02	879	2.2	.99	2696	2.2	.98	2314	2.2	.99	5888
I tend to need to use a field guide (paper or electronic) to identify birds	3.5	1.02	881	3.4	1.06	2704	3.4	1.03	2313	3.4	1.04	5897
I often use websites, social media or ID apps such as Merlin to identify birds	3.3	1.16	880	3.2	1.20	2699	3.2	1.21	2312	3.2	1.20	5890
I photograph birds as a way to watch them	3.1	1.27	878	2.9	1.32	2695	3.0	1.27	2307	3.0	1.29	5879

Table 2.11 Types of participation in birding, cont.

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N
I typically use binoculars to view birds	4.2	1.03	881	4.2	1.05	2698	4.1	1.01	2311	4.2	1.03	5889
I often use a camera instead of using binoculars	2.5	1.23	882	2.3	1.20	2697	2.3	1.20	2314	2.3	1.21	5891
I tend to just watch birds without using any special equipment	2.7	1.12	879	2.7	1.16	2699	2.7	1.14	2308	2.7	1.15	5885
I use eBird to report my birdwatching experiences	3.4	1.28	878	3.3	1.30	2694	3.1	1.28	2309	3.2	1.29	5879

Scale from 1=Strongly Disagree to 5=Strongly Agree

Table 2.11a Types of participation in birding response distribution

Item	Response					Valid N
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
I tend to take photos of birds for the primary purpose of having someone help me identify them	1.3%	8.9%	17.4%	51.9%	20.4%	5889
I can readily identify many birds in the field by sound	8.1%	25.8%	20.6%	34.2%	11.3%	5888
I photograph birds as way to watch them	25.2%	41.7%	20.7%	10.9%	1.5%	5888
I typically use binoculars to view birds	3.1%	19.1%	24.6%	39.7%	13.4%	5897
I often use websites, social media or ID apps such as Merlin to identify birds	9.7%	22.0%	20.0%	35.3%	13.0%	5890
I tend to need to use a field guide (paper or electronic) to identify birds	15.9%	24.6%	18.8%	28.0%	12.7%	5879
I can identify most birds I see in the field	2.5%	6.9%	10.7%	31.6%	48.3%	5889
I tend to just watch birds without using any special equipment	27.8%	37.2%	15.2%	13.0%	6.9%	5891
I often use a camera instead of using binoculars	14.7%	35.1%	21.3%	22.9%	6.0%	5885
I use eBird to report my birdwatching experiences	10.6%	22.5%	20.3%	26.2%	20.4%	5879

Table 2.11b Types of participation in birding ANOVA tests

		Sum of Squares	df	Mean Square	F	Sig.	η^2
I can identify most birds I see in the field.	Between Groups	4.09	2	2.05	2.50	.08	
	Within Groups	4825.87	5887	.82			
	Total	4829.96	5889				.00
I can readily identify many birds in the field by sound	Between Groups	10.61	2	5.30	3.92	.02	
	Within Groups	7962.26	5886	1.35			
	Total	7972.87	5888				.00
I tend to take photos of birds for the primary purpose of having someone help me identify them	Between Groups	6.016	2	3.01	3.06	.05	
	Within Groups	5780.113	5886	.98			
	Total	5786.129	5888				.00
I tend to need to use a field guide (paper or electronic) to identify birds.	Between Groups	1.563	2	.78	.72	.49	
	Within Groups	6374.99	5895	1.08			
	Total	6376.56	5897				.00
I often use websites, social media or ID apps such as Merlin to identify birds	Between Groups	3.98	2	1.99	1.38	.25	
	Within Groups	8480.13	5888	1.44			
	Total	8484.11	5890				.00
I photograph birds as way to watch them	Between Groups	9.99	2	4.99	2.99	.05	
	Within Groups	9813.57	5877	1.67			
	Total	9823.55	5879				.00
I typically use binoculars to view birds	Between Groups	3.45	2	1.73	1.63	.20	
	Within Groups	6249.78	5888	1.06			
	Total	6253.23	5890				.00
I often use a camera instead of using binoculars	Between Groups	15.97	2	7.98	5.49	.00	
	Within Groups	8560.17	5890	1.45			
	Total	8576.14	5892				.00
I tend to just watch birds without using any special equipment	Between Groups	4.77	2	2.39	1.80	.17	
	Within Groups	7778.01	5884	1.32			
	Total	7782.78	5886				.00
I use eBird to report my birdwatching experiences	Between Groups	46.83	2	23.41	14.04	.00	
	Within Groups	9802.94	5878	1.67			
	Total	9849.77	5880				.00

Table 2.12 Participation in consumptive recreation

	Flyway substrata			Flyway
	Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Fishing (last 12 months)	85.1%	90.2%	89.4%	89.0%
Hunting waterfowl (last 12 months)	12.1%	7.2%	10.8%	9.8%
Hunting other migratory birds (last 12 months)	10.1%	6.9%	5.1%	6.5%
Hunting other game birds (last 12 months)	18.3%	9.8%	19.1%	15.9%
Hunting any other game animals (last 12 months)	24.8%	10.8%	26.8%	21.3%
Other	7.7%	8.6%	9.6%	9.0%
Valid N	927	2859	2428	6213

Table 2.12a Participation in consumptive recreation significance tests

	Chi-Square	df	Cramer's V
Fishing (last 12 months)	120.61*	2	.14*
Hunting waterfowl (last 12 months)	27.87*	2	.07*
Hunting other migratory birds (last 12 months)	8.09*	2	.04
Hunting other game birds (last 12 months)	63.89*	2	.11*
Hunting any other game animals (last 12 months)	111.06*	2	.14*
Other	17.79*	2	.08*

*p < 0.05

Table 2.13 Nature Based Recreation

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Activity	Spending time in nature away from home	97.5%	95.9%	97.2%	96.7%
	Non-motorized outdoor recreation activities	92.4%	90.4%	91.5%	91.1%
	Motorized outdoor recreation activities	19.0%	13.3%	19.1%	16.4%
	Viewing wildlife	99.8%	99.3%	99.5%	99.5%
	Consumptive wildlife-based activities	18.7%	12.4%	25.5%	18.4%
	Learning about nature	83.1%	84.7%	83.9%	84.2%
	Backyard/at-home nature activities	93.2%	91.5%	94.1%	92.8%
	Other	18.9%	21.2%	21.8%	21.1%
	Valid N	927	2859	2428	6213

Table 2.13a Nature Based Recreation significance tests

		Chi-Square	df	Cramer's V
Activity	Spending time in nature away from home	9.89*	2	.04*
	Non-motorized outdoor recreation activities	3.81	2	.03
	Motorized outdoor recreation activities	38.04*	2	.08*
	Viewing wildlife	2.29	2	.02
	Consumptive wildlife-based activities	149.98*	2	.16*
	Learning about nature	1.73	2	.02
	Backyard/at-home nature activities	11.27*	2	.04*
	Other	8.80*	2	.06*

*p < 0.05

Section 3. Avidity and Constraints

AVIDITY

Avidity can refer to several aspects of a recreational experience (Scott & Shafer 2001)—here, it was assessed via the centrality or importance it holds for the individual, in addition to the equipment they use and their self-assessed expertise as a birdwatcher. Respondents reported strong agreement with the following statements: “Birdwatching is one of the most enjoyable activities I do,” “Being in nature is an important part of birdwatching,” “The sights and sounds of nature are important to birdwatching,” “Getting to enjoy the natural environment through birdwatching is important,” “Developing my skills and abilities in birdwatching is important to me,” (\bar{x} = 4.3-4.6; Table 3.1, 3.1a). Agreement was weakest for the following statements: “If I couldn't go birdwatching I am not sure what I would do instead”, “Most of my friends are in some way connected with birdwatching,” (\bar{x} = 2.4-2.6). Though there were significant differences between the substrata on a few items (Table 3.1b), effect sizes suggest these differences are small

A small portion of respondents reported not owning any equipment for birdwatching (4-5%, Table 3.2), while most reported owning binoculars (92-94%). There were small differences between the substrata in ownership of cameras and spotting scopes for birdwatching, but effect sizes suggest these differences are small (Table X).

Respondents were asked to rate their ability to observe and identify birds on a scale from 1 = Novice to 7 = Expert, and averaged around a rating of 4.5 across the substrata (Table 3.3). While differences were significant, effect size suggests the differences were small.

CONSTRAINTS

Respondents' average rating across substrata for all of the barriers fell below 2 (“slight barrier”), suggesting that overall, barriers to participation are either not serious for eBird participants, or they have found ways to navigate these barriers already and they no longer impede participation (Table 3.3, 3.3a). While analyses revealed significant differences between the substrata on several items, effect sizes suggest none of the differences small (Table 3.3b).

Table 3.1 Importance of birdwatching

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N
Birdwatching is one of the most enjoyable activities I do	4.3	.82	883	4.3	.79	2706	4.3	.79	2321	4.3	.79	5909
Most of my friends are in some way connected with birdwatching	2.6	1.04	880	2.5	1.03	2708	2.6	.99	2319	2.6	1.01	5907
Birdwatching has central role in my life	3.6	1.08	879	3.6	1.08	2705	3.6	1.07	2323	3.6	1.08	5905
A lot of my life is organized around birdwatching	3.1	1.15	877	3.1	1.14	2705	3.1	1.11	2320	3.1	1.13	5902
If I couldn't go birdwatching I am not sure what I would do instead	2.5	1.08	881	2.4	1.07	2707	2.5	1.08	2319	2.5	1.07	5906
Developing my skills and abilities in birdwatching is important to me	4.1	.76	881	4.1	.77	2708	4.1	.76	2318	4.1	.76	5906

Table 3.1 Importance of birdwatching, cont.

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N
Getting a chance to add a new bird to my life list is important to me	3.8	.97	882	3.7	.99	2707	3.7	1.00	2325	3.7	.99	5912
Using new techniques, technology and equipment to help me identify more birds is important to me	3.4	.98	882	3.4	.98	2707	3.3	.97	2325	3.4	.98	5912
Challenging my birdwatching skills is important	3.8	.92	881	3.7	.93	2705	3.7	.95	2321	3.7	.93	5906
Being in nature is an important part of birdwatching	4.5	.64	881	4.5	.69	2705	4.5	.66	2320	4.5	.67	5905
The sights and sounds of nature are important to birdwatching	4.6	.61	879	4.6	.62	2708	4.6	.65	2321	4.6	.63	5907
Getting to enjoy the natural environment through birdwatching is important	4.6	.60	881	4.6	.63	2707	4.5	.65	2323	4.5	.63	5910

Scale from 1=Strongly Disagree to 5=Strongly Agree

Table 3.1a Importance of birdwatching response distribution

Item	Response					Valid N
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Developing my skills and abilities in birdwatching is important to me	0.5%	2.9%	9.6%	42.8%	44.2%	5909
If I couldn't go birdwatching I am not sure what I would do instead	13.1%	39.9%	28.0%	15.5%	3.4%	5907
Birdwatching has central role in my life	3.6%	12.7%	23.7%	37.2%	22.6%	5905
Birdwatching is one of the most enjoyable activities I do	7.8%	26.0%	28.4%	26.5%	11.3%	5902
Challenging my birdwatching skills is important	18.9%	38.4%	25.0%	13.4%	4.3%	5906
Most of my friends are in some way connected with birdwatching	0.7%	2.4%	14.0%	53.0%	30.0%	5906
Using new techniques, technology and equipment to help me identify more birds is important to me	3.2%	8.7%	22.8%	44.3%	20.9%	5912
The sights and sounds of nature are important to birdwatching	3.8%	14.5%	34.5%	36.9%	10.3%	5912
Getting to enjoy the natural environment through birdwatching is important	1.8%	8.6%	25.6%	44.7%	19.3%	5906
Getting a chance to add a new bird to my life list is important to me	0.4%	0.9%	4.8%	31.5%	62.4%	5905
A lot of my life is organized around birdwatching	0.4%	0.6%	3.4%	33.8%	61.9%	5907
Being in nature is an important part of birdwatching	0.5%	0.4%	3.4%	35.2%	60.5%	5910

Table 3.1b Importance of birdwatching ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig .	η^2
Developing my skills and abilities in birdwatching is important to me	Between Groups	.30	2	.15	.24	.79	
	Within Groups	3700.03	5907	.63			
	Total	3700.33	5909				.00
If I couldn't go birdwatching I am not sure what I would do instead	Between Groups	5.23	2	2.62	2.55	.08	
	Within Groups	6052.93	5905	1.03			
	Total	6058.17	5907				.00
Birdwatching has central role in my life	Between Groups	.113	2	.06	.05	.95	
	Within Groups	6852.74	5903	1.16			
	Total	6852.85	5905				.00
Birdwatching is one of the most enjoyable activities I do	Between Groups	2.77	2	1.38	1.08	.34	
	Within Groups	7575.85	5900	1.28			
	Total	7578.66	5902				.00
Challenging my birdwatching skills is important	Between Groups	3.39	2	1.69	1.47	.23	
	Within Groups	6821	5904	1.16			
	Total	6824.38	5906				.00
Most of my friends are in some way connected with birdwatching	Between Groups	1.33	2	.66	1.14	.32	
	Within Groups	3450.90	5904	.59			
	Total	3452.22	5906				.00
Using new techniques, technology and equipment to help me identify more birds is important to me	Between Groups	17.601	2	8.80	8.92	.00	
	Within Groups	5831.56	5911	.99			
	Total	5849.16	5913				.00
The sights and sounds of nature are important to birdwatching	Between Groups	6.27	2	3.13	3.29	.04	
	Within Groups	5634.22	5911	.95			
	Total	5640.49	5913				.00
Getting to enjoy the natural environment through birdwatching is important	Between Groups	7.56	2	3.78	4.33	.01	
	Within Groups	5152.92	5904	.87			
	Total	5160.48	5906				.00
Getting a chance to add a new bird to my life list is important to me	Between Groups	.11	2	.05	.12	.89	
	Within Groups	2657.63	5904	.45			
	Total	2657.73	5906				.00
A lot of my life is organized around birdwatching	Between Groups	.14	2	.07	.178	.84	
	Within Groups	2328.91	5905	.39			
	Total	2329.05	5907				.00
Being in nature is an important part of birdwatching	Between Groups	.23	2	.11	.28	.76	
	Within Groups	2363.45	5908	.40			
	Total	2363.68	5910				.00

Table 3.2 Equipment Owned

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Equipment owned	Own binoculars for birdwatching	92.4%	93.4%	93.9%	93.5%
	Own cameras for birdwatching	54.2%	48.6%	47.4%	49.0%
	Own spotting scopes for birdwatching	46.5%	45.0%	50.9%	47.5%
	Do not own any special equipment for birdwatching	5.4%	4.4%	4.5%	4.6%
	Valid N	882	2700	2320	5901

Table 3.2a Equipment owned significance tests

		Chi-Square	df	Cramer's V
Equipment owned	Own binoculars for birdwatching	1.86	2	.02
	Own cameras for birdwatching	12.12*	2	.05*
	Own spotting scopes for birdwatching	18.37*	2	.06*
	Do not own any special equipment for birdwatching	1.82	2	.02

*p < 0.05

Table 3.3 Personal rating of ability to observe and identify birds on scale from 1=Novice to 7=Expert

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
How would you rate your own ability to observe and identify birds?	Mean	4.7	4.5	4.6	4.5
	SD	1.38	1.37	1.30	1.34
	Valid N	878	2702	2318	5897
Significance:		F (2,5895) = 8.59*		$\eta^2=.00$	

Table 3.3 Barriers to participation

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N
Don't feel welcome in bird viewing areas	1.3	.71	876	1.3	.68	2667	1.3	.65	2291	1.3	.67	5833
Areas are too crowded	1.8	.93	872	1.8	.92	2663	1.7	.86	2287	1.8	.90	5821
Lack of birds in my area	1.4	.73	872	1.4	.70	2659	1.4	.67	2279	1.4	.69	5809
Poor quality of the natural habitat in my area	1.4	.72	877	1.4	.75	2666	1.3	.66	2288	1.4	.71	5830
Poor quality of facilities in my area	1.3	.62	870	1.3	.60	2656	1.3	.55	2280	1.3	.58	5805
Don't have the skills	1.3	.62	873	1.3	.64	2667	1.3	.60	2288	1.3	.62	5827
Don't have the companions/people to go with	1.5	.77	873	1.5	.76	2669	1.5	.76	2291	1.5	.76	5832
Public areas to go to are too far away	1.4	.65	876	1.4	.65	2667	1.4	.64	2289	1.4	.65	5831
It costs too much to do	1.3	.57	876	1.2	.56	2664	1.2	.57	2288	1.2	.56	5827

Table 3.3 Barriers to participation (cont.)

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid	Mean	SD	Valid	Mean	SD	Valid	Mean	SD	Valid
			N			N			N			N
Don't have time to go	1.9	.96	875	2.0	1.01	2669	1.9	.98	2291	1.9	.99	5834
Don't feel safe in bird viewing areas	1.2	.57	875	1.3	.60	2668	1.2	.56	2287	1.3	.58	5829
Restrictions on public lands due to hunting	1.5	.81	871	1.5	.84	2651	1.7	.86	2285	1.6	.84	5806
Access is too difficult (no auto tour options, walking trails, open gates, etc.)	1.5	.73	875	1.5	.76	2659	1.5	.72	2289	1.5	.74	5822
Expense of access fees/permits	1.3	.62	873	1.3	.63	2661	1.3	.60	2289	1.3	.61	5822

Scale of 1=Not at all to 4=Large barrier

Table 3.3a Barriers to participation response distribution

Item	Response				Valid N
	Not at all a barrier	Slight barrier	Moderate barrier	Large barrier	
Don't feel welcome in bird viewing areas	80.1%	12.6%	5.0%	2.4%	5833
Areas are too crowded	49.6%	30.4%	14.2%	5.7%	5821
Lack of birds in my area	73.4%	18.0%	6.8%	1.8%	5809
Poor quality of the natural habitat in my area	71.7%	19.1%	7.0%	2.2%	5830
Poor quality of facilities in my area	76.8%	18.1%	4.2%	0.8%	5805
Don't have the skills	74.1%	19.7%	5.2%	1.0%	5827
Don't have the companions/people to go with	64.4%	24.2%	8.9%	2.4%	5832
Public areas to go to are too far away	72.1%	20.8%	6.0%	1.2%	5831
It costs too much to do	82.7%	12.5%	3.6%	1.1%	5827
Don't have time to go	43.4%	29.1%	18.0%	9.4%	5834
Don't feel safe in bird viewing areas	80.1%	15.2%	3.5%	1.3%	5829
Restrictions on public lands due to hunting	59.6%	26.9%	8.5%	5.0%	5806
Access is too difficult (no auto tour options, walking trails, open gates, etc.)	66.5%	24.1%	6.6%	2.7%	5822
Expense of access fees/permits	76.9%	17.5%	4.2%	1.4%	5822

Table 3.3b Barriers to participation ANOVA tests

		Sum of Squares	df	Mean Square	F	Sig.	η^2
Don't feel welcome in bird viewing areas	Between Groups	2.73	2.00	1.36	3.01	0.05	0.00
	Within Groups	2637.23	5831.23	0.45			
	Total	2639.95	5833.23				
Areas are too crowded	Between Groups	24.67	2.00	12.33	15.28	0.00	0.01
	Within Groups	4696.56	5819.16	0.81			
	Total	4721.22	5821.16				
Lack of birds in my area	Between Groups	3.02	2.00	1.51	3.16	0.04	0.00
	Within Groups	2778.73	5807.30	0.48			
	Total	2781.75	5809.30				
Poor quality of the natural habitat in my area	Between Groups	18.39	2.00	9.19	18.14	0.00	0.01
	Within Groups	2953.88	5828.58	0.51			
	Total	2972.27	5830.58				
Poor quality of facilities in my area	Between Groups	5.11	2.00	2.56	7.56	0.00	0.00
	Within Groups	1961.53	5803.39	0.34			
	Total	1966.64	5805.39				
Don't have the skills	Between Groups	0.49	2.00	0.25	0.64	0.53	0.00
	Within Groups	2232.74	5824.93	0.38			
	Total	2233.23	5826.93				
Don't have the companions/people to go with	Between Groups	0.74	2.00	0.37	0.64	0.53	0.00
	Within Groups	3355.33	5830.14	0.58			
	Total	3356.07	5832.14				
Public areas to go to are too far away	Between Groups	0.43	2.00	0.22	0.51	0.60	0.00
	Within Groups	2450.87	5829.05	0.42			
	Total	2451.31	5831.05				

Table 3.3b Barriers to participation ANOVA tests, (cont.)

		Sum of Squares	df	Mean Square	F	Sig.	η^2
It costs too much to do	Between Groups	0.65	2.00	0.32	1.02	0.36	0.00
	Within Groups	1852.97	5825.00	0.32			
	Total	1853.62	5827.00				
Don't have time to go	Between Groups	3.60	2.00	1.80	1.82	0.16	0.00
	Within Groups	5757.63	5832.01	0.99			
	Total	5761.24	5834.01				
Don't feel safe in bird viewing areas	Between Groups	4.25	2.00	2.12	6.31	0.00	0.00
	Within Groups	1960.25	5826.85	0.34			
	Total	1964.49	5828.85				
Restrictions on public lands due to hunting	Between Groups	16.14	2.00	8.07	11.41	0.00	0.00
	Within Groups	4106.22	5804.08	0.71			
	Total	4122.36	5806.08				
Access is too difficult (no auto tour options, walking trails, open gates, etc.)	Between Groups	0.11	2.00	0.05	0.10	0.90	0.00
	Within Groups	3160.36	5820.29	0.54			
	Total	3160.46	5822.29				
Expense of access fees/permits	Between Groups	1.29	2.00	0.65	1.71	0.18	0.00
	Within Groups	2200.64	5820.44	0.38			
	Total	2201.93	5822.44				

Section 4. Place

PREFERENCES

Most respondents did their birdwatching within the flyway substrata in which they resided, with a plurality of the flyway birdwatching in California (45%; Table 4.1).

Nearly all respondents knew of wetlands nearby (94-98%; Table 4.2), and had visited wetlands in the past 12 months (91-95%). Analyses suggested significant but small differences between the flyways.

ECOSYSTEM SERVICES

Overall, the lowest average levels of concern for loss of ecological benefits was for hunting opportunities ($\bar{x} = 1.5-1.7$; Table 4.3, 4.3a), and highest for providing home for wildlife ($\bar{x} = 3.8-3.9$) and providing a home for animals such as butterflies and bees that pollinate plants and crops ($\bar{x} = 3.8$). While analyses revealed significant differences between the substrata on several items, effect sizes suggest these were small (Table 4.3b).

Across the substrata, respondents most frequently reported being least concerned with losing the benefit of hunting opportunities (75%, Table 4.4), and analyses suggest significant but small differences between the substrata. Respondent most frequently reported being most concerned with losing the benefit of providing a home for wildlife (52%, Table 4.5), and analyses suggest significant but small differences between the substrata.

Table 4.1 State where most of respondent birdwatching occurred

		Flyway substrata			Flyway Pacific
		Lower Pacific	Middle Pacific	Upper Pacific	
In which state do you go birdwatching most often?	AK	.3%	.1%	8.6%	3.4%
	AZ	50.6%	.5%	.5%	7.9%
	CA	2.0%	95.6%	.9%	45.1%
	NV	13.4%	.0%	0.0%	2.0%
	OR	.3%	.6%	30.8%	12.3%
	UT	26.4%	.0%	.0%	3.9%
	WA	.6%	.5%	42.5%	16.8%
	Valid N	860	2598	2218	5674

Table 4.2 Knowledge and visitation of wetlands

		Flyway substrata			Flyway Pacific
		Lower Pacific	Middle Pacific	Upper Pacific	
Do you know of any wetlands in your local area or community?	Yes	93.5%	95.2%	97.6%	95.9%
	No	6.5%	4.8%	2.4%	4.1%
	Valid N	864	2620	2235	5717
Have you visited any wetlands in the last 12 months?	Yes	90.8%	90.6%	94.8%	92.2%
	No	9.2%	9.4%	5.2%	7.8%
	Valid N	865	2621	2238	5722
Knowledge significance:		$\chi^2 = 31.72^*$		Cramer's V=.07*	
Visit significance:		$\chi^2 = 32.54^*$		Cramer's V=.08*	

Table 4.3 Level of concern for ecological benefits

	Flyway substrata									Flyway		
	Lower Pacific			Middle Pacific			Upper Pacific			Pacific		
	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N
Flooding Protection	3.1	.95	855	3.3	.86	2590	3.3	.84	2215	3.3	.87	5658
Erosion Protection	3.3	.84	859	3.4	.78	2593	3.5	.73	2215	3.4	.77	5666
Wildlife viewing and birdwatching	3.7	.54	856	3.7	.54	2594	3.7	.55	2217	3.7	.54	5666
Hunting opportunities	1.7	.93	857	1.5	.83	2580	1.7	.96	2209	1.6	.91	5645
Storage of greenhouse gases, such as carbon	3.1	.96	859	3.3	.93	2580	3.3	.90	2206	3.3	.92	5643
Clean water	3.7	.58	858	3.7	.59	2598	3.8	.56	2220	3.7	.58	5675
Clean air	3.7	.64	859	3.7	.62	2597	3.7	.65	2218	3.7	.64	5673
Providing home for wildlife	3.8	.43	859	3.9	.37	2594	3.8	.42	2225	3.9	.40	5677
Providing a home for animals such as butterflies and bees that pollinate plants and crops	3.8	.52	858	3.8	.45	2597	3.8	.48	2224	3.8	.47	5678
Scenic places for inspiration or spiritual renewal	3.4	.81	858	3.5	.79	2599	3.4	.80	2221	3.4	.80	56777

Scale from 1=Not at all concerned to 4=Very concerned

Table 4.3a Level of concern for ecological benefits response distribution

Item	Response				Valid N
	Not at all concerned	Slightly concerned	Somewhat concerned	Very concerned	
Flooding Protection	4.5%	13.4%	29.2%	52.8%	5658
Erosion Protection	2.6%	9.8%	30.1%	57.4%	5666
Wildlife viewing and birdwatching	0.6%	3.0%	19.3%	77.1%	5666
Hunting opportunities	62.4%	20.9%	10.4%	6.2%	5645
Storage of greenhouse gases, such as carbon	6.5%	13.0%	26.6%	53.9%	5643
Clean water	1.2%	3.5%	15.6%	79.8%	5675
Clean air	1.5%	4.9%	17.8%	75.8%	5673
Providing home for wildlife	0.3%	1.1%	11.1%	87.5%	5677
Providing a home for animals such as butterflies and bees that pollinate plants and crops	0.4%	2.1%	13.8%	83.6%	5678
Scenic places for inspiration or spiritual renewal	3.2%	10.1%	26.4%	60.3%	5677

Table 4.3a Level of concern for ecological benefits ANOVA tests

		Sum of Squares	df	Mean Square	F	Sig.	η^2
Flooding Protection	Between Groups	26.14	2	13.07	17.46	.00	
	Within Groups	4234.33	5657	.75			
	Total	4260.48	5659				0.00
Erosion Protection	Between Groups	15.50	2	7.75	13.04	.00	
	Within Groups	3368.63	5665	.60			
	Total	3384.14	5667				0.00
Wildlife viewing and birdwatching	Between Groups	.33	2	.16	.55	.58	
	Within Groups	1671.10	5665	.30			
	Total	1671.42	5667				0.00
Hunting opportunities	Between Groups	81.67	2	40.83	50.51	.00	
	Within Groups	4562.53	5644	.81			
	Total	4644.19	5646				0.02
Storage of greenhouse gases, such as carbon	Between Groups	17.319	2	8.66	10.20	.00	
	Within Groups	4787.68	5642	.85			
	Total	4804.10	5644				0.00
Clean water	Between Groups	.90	2	.45	1.36	.26	
	Within Groups	1884.90	5674	.33			
	Total	1885.80	5676				0.00
Clean air	Between Groups	.31	2	.15	.379	.69	
	Within Groups	2300.66	5671	.41			
	Total	2300.97	5673				0.00
Providing home for wildlife	Between Groups	1.50	2	.75	4.66	.01	
	Within Groups	911.88	5675	.16			
	Total	913.38	5677				0.00
Providing a home for animals such as butterflies and bees that pollinate plants and crops	Between Groups	2.39	2	1.20	5.37	.01	
	Within Groups	1263.95	5676	.22			
	Total	1266.34	5678				0.00
Scenic places for inspiration or spiritual renewal	Between Groups	2.83	2	1.42	2.20	.11	
	Within Groups	3643.64	5675	.64			
	Total	3646.47	5677				0.00

Table 4.4 Ecological services least concerned about losing

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Least concerned about losing	Flooding Protection	7.7%	5.4%	6.3%	6.1%
	Erosion Protection	3.7%	2.7%	2.5%	2.8%
	Wildlife viewing and birdwatching	.6%	.7%	.8%	.7%
	Hunting opportunities	69.5%	78.9%	71.9%	74.8%
	Storage of greenhouse gases	10.6%	6.3%	9.3%	8.1%
	Clean water	.4%	.2%	.4%	.3%
	Clean air	.8%	1.1%	1.6%	1.3%
	Providing a home for wildlife	.4%	.6%	.4%	.5%
	Providing a home for butterflies and bees (pollinators)	.6%	.2%	.4%	.3%
	Scenic places for inspiration and spiritual renewal	5.8%	3.9%	6.5%	5.2%
	Valid N	851	2570	2198	5617
	Significance:	$\chi^2 = 67.12^*$		Cramer's V=.08*	

Table 4.5 Ecological services most concerned about losing

	Flyway substrata			Flyway	
	Lower Pacific	Middle Pacific	Upper Pacific	Pacific	
Most concerned about losing					
	Flooding Protection	3.3%	5.3%	6.0%	5.3%
	Erosion Protection	1.8%	1.3%	2.2%	1.7%
	Wildlife viewing and birdwatching	22.8%	16.1%	14.0%	16.2%
	Hunting opportunities	1.2%	.4%	.8%	.7%
	Storage of greenhouse gases	.9%	1.5%	1.7%	1.5%
	Clean water	15.7%	12.0%	17.9%	14.8%
	Clean air	2.8%	2.2%	2.2%	2.3%
	Providing a home for wildlife	45.5%	55.5%	49.9%	51.9%
	Providing a home for butterflies and bees (pollinators)	3.2%	3.5%	3.4%	3.4%
	Scenic places for inspiration and spiritual renewal	2.8%	2.2%	2.1%	2.2%
	Valid N	851	2584	2196	5629
Significance:	$\chi^2 = 99.11^*$		Cramer's V=.09*		

Section 5. Discrete Choice Models for Preferred Trips

This study included a discrete choice experiment (DCE) examining the preferences of birdwatchers concerning different potential combinations of birdwatching experiences. Choice models present hypothetical scenarios to respondents to derive individuals' preferences for alternatives composed of multiple resource and management attributes (Adamowicz, Louviere & Williams 1994; Louviere, Hensher & Swait 2000; Oh et al. 2005). The approach depends on the imperfect relationship between behavioral intention and behavior (Ajzen & Fishbein 1980), yet allows estimation of the effects of all parameters of interest independently. Individuals are assumed to be utility maximizers, and respondents' choices reflect the perceived utility of the alternatives presented (McFadden 1981). Individual respondent choices reflect the personal utility of attributes and attribute levels, and are aggregated to estimate the utility of attributes and attribute levels in a population (McFadden 1981). In an economic sense, utility is simply a measure of the perceived usefulness of something to an individual. The degree to which someone chooses one circumstance over another provides the ability to measure its perceived usefulness, or utility, to that person. In general, the utility of an attribute level may be considered a reflection of relative desirability (Orme 2014).

Alternatives presented in this season choice experiment consisted of seven attributes:

- 1) Diversity:** How many kind or species of birds you see
- 2) Rarity:** Whether there are rare or unusual species of birds
- 3) Number of birds:** The total number of birds you see
- 4) Ease of access:** How difficult it is to get into and around an area
- 5) Wetlands:** Whether the area contains wetland habitat (shallow ponds or marshes) and wetland species
- 6) Naturalness:** The degree to which the area is in a natural condition or has been developed
- 7) Travel distance:** Total distance from home to the location (one-way).

Response levels varied from 2 to 5 for each attribute (Table 5.1). In order to have adequate power to conduct this experiment, we developed 10 survey versions. In each, respondents were presented with 10 different hypothetical comparisons of birdwatching experiences and asked to choose one option. Each scenario included two viewing option choices plus a "none" (i.e., I would not go if these were my only choices). The background explanation of the DCE and an example of the choice scenarios are presented in Figures 5.1 and 5.2.

Results for the hierarchical Bayes model (Table 5.2 and 5.3), including average utilities, or usefulness, for each attribute level, summarize the preference among birdwatchers. The attribute importances (Table 5.2) provide a summary of how important each of the 7 attributes were in respondents' choices.

The utilities of each level for each attribute are summarized in Table 5.3. The larger the range in the part-worth utilities (i.e. the average utilities across levels within that attribute) for an attribute, the more influential that attribute is on respondents' choices and the greater the importance of that attribute. The set of part-worth utilities for each attribute is scaled to sum to zero, so some part-worth utilities are necessarily negative numbers for some levels. A negative part-worth utility does not mean that the level has a negative utility; but the larger the number, the higher the utility. This means that a large positive number has higher utility than a large negative number.

The most important attributes in the choice of birdwatching trips were: 1) travel distance; 2) chance to see rare or unusual bird species; and 3) the naturalness of the area. The levels with the highest utility included: 1) travel distance of 2 miles or less; 2) travel distance of less than 25 miles; 3) chance to see rare/unusual species; 4) natural setting; and 5) wetlands with waterfowl/wetland birds.

Table 5.1 Possible trip choice characteristics in discrete choice experiment

Attribute	Possible levels
Diversity: How many kind or species of birds you see	<ul style="list-style-type: none"> - Observe 10 or fewer species - Observe 20 species - Observe 30 species - Observe 40 or more species
Rarity: Whether there are rare or unusual species of birds	<ul style="list-style-type: none"> - No rare or unusual species - Chance to see rare or unusual species
Number of birds: The total number of birds you see	<ul style="list-style-type: none"> - Less than 100 birds - Hundreds of birds - Thousands of birds
Ease of access: How difficult it is to get into and around an area	<ul style="list-style-type: none"> - Easy access with paved trails and roads - Moderate access with some paved trails - Difficult access with unpaved trails and paths
Wetlands: Whether the area contains wetland habitat (shallow ponds or marshes) and wetland species	<ul style="list-style-type: none"> -No wetland habitats -Wetlands but NO waterfowl/wetland birds -Wetlands with waterfowl/wetland birds
Naturalness: The degree to which the area is in a natural condition or has been developed	<ul style="list-style-type: none"> - Area is developed - Natural habitat and setting
Travel distance: Total distance from home to the location (one-way)	<ul style="list-style-type: none"> - 2 miles or less - 25 miles - 50 miles - 100 miles - 200 miles

Figure 5.1 Background for Discrete Choice Experiment for birdwatching

introCBCq12

BIRDWATCHING CHOICES


Birdwatching experiences can vary across many different areas and situations. We are interested in knowing what experiences and conditions influence where you decide to watch birds on a given trip. On the next few pages, we present 10 different hypothetical comparisons of birdwatching experiences you could choose to have.

These experiences vary on 7 conditions:

- 1) Diversity: How many kinds or species of birds you see**
- 2) Rarity: Whether there are rare or unusual species of birds**
- 3) Number of birds: The total number of birds you see**
- 4) Ease of access: How difficult it is to get into and around the area**
- 5) Wetlands: Whether the area contains wetland habitat (shallow ponds or marshes) and wetland species**
- 6) Naturalness: The degree to which the area is in a natural condition or has been developed**
- 7) Travel distance: Total distance from home to the location (one-way)**

Some of these scenarios might seem unlikely to you, or neither option matches to what you would want to do, but we are still interested in understanding which described experiences you would choose. Your opinions about these comparisons will help managers better understand birdwatching preferences.

For each scenario, select the one choice you would make if these were your only options.



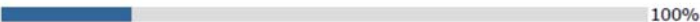
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Figure 5.2 Example of choice scenario for birdwatching DCE

BirdviewChoice_Random1

If these were your only options, which would you choose?
Choose by clicking one of the buttons below:

(1 of 10)

	Option 1	Option 2	Would not go
Diversity: How many kinds or species of birds you see	Observe 10 or fewer species	Observe 40 or more species	NONE: I would not go if these were my only choices.
Rarity: Whether there are rare or unusual species of birds	Chance to see rare or unusual species	No rare or unusual species	
Number of birds: The total number of birds you see	Hundreds of birds	Less than 100 birds	
Ease of access: How difficult it is to get into and around the area	Difficult access with unpaved trails and paths	Easy access with paved trails and roads	
Wetlands: Whether the area contains wetland habitat (shallow ponds or marshes) and wetland species	No wetland habitats	Wetlands but NO waterfowl/wetland birds	
Naturalness: The degree to which the area is in a natural condition or has been developed	Area is developed	Natural habitat and setting	
Travel distance: Total distance from home to the location (one-way)	200 miles	25 miles	
Choose one option	BirdviewChoice_Random1=1 <input type="radio"/>	BirdviewChoice_Random1=2 <input type="radio"/>	BirdviewChoice_Random1=3 <input type="radio"/>

Table 5.2 Relative attribute importance derived from hierarchical Bayes estimation

Season choice attribute	Importances	SD
Diversity	9.85	4.74
Rarity	17.90	10.34
Number of birds	5.68	2.52
Ease of access	8.59	6.67
Wetlands	9.91	4.56
Naturalness	14.47	7.75
Travel Distance	33.58	15.53

Notes: n = 5, 092

Table 5.3 Results of the hierarchical Bayes model for trip choice for birdwatching

Choice attribute - level	Average utilities	SD
Diversity		
- Observe 10 or fewer species	-34.49	21.44
- Observe 20 species	-5.54	11.36
- Observe 30 species	11.50	10.96
- Observe 40 or more species	28.53	21.14
Rarity		
- No rare or unusual species	-61.79	37.66
- Chance to see rare or unusual species	61.79	37.66
Number of birds		
- Less than 100	-17.75	10.99
- Hundreds	1.27	11.43
- Thousands	16.48	13.56
Ease of Access		
- Easy access with paved trails and roads	2.13	28.94
- Moderate access with some paved trails	12.67	17.58
- Difficult access with unpaved trails and paths	-14.80	42.53
Wetlands		
- No wetland habitats	-23.60	15.03
- Wetlands but NO waterfowl/wetland birds	-16.97	13.92
- Wetlands with waterfowl/wetland birds	40.58	20.37
Naturalness		
- Area is developed	-50.51	27.40
- Natural habitat and setting	50.51	27.40
Travel Distance		
- 2 miles or less	89.70	65.93
- 25 miles	62.16	37.25
- 50 miles	25.09	20.88
- 100 miles	-48.85	37.84
- 200 miles	-128.09	72.80
None	-208.35	164.93

Notes: n = 5, 092

Section 6. Engagement

COMMUNITY

The highest average identification with several different social groups (birdwatcher, waterfowl hunter, other type of hunter, conservationist) was as a birdwatcher ($\bar{x} = 4.1$; Table 6.1, 6.1a) or a conservationist ($\bar{x} = 4.0-4.1$). Identification as any type of hunter was relatively low ($\bar{x} = 1.1-1.3$). While analyses revealed significant differences between the substrata on several items, effect sizes suggest these were small (Table 6.1b).

Membership in National Audubon Society was split roughly in half, with significantly fewer respondents in the Lower Pacific indicating membership (44%; Table 6.2), although this difference was small.

Highest levels of involvement in bird-related organizations are with bird conservation groups ($\bar{x} = 2.4$; Table 6.3, 6.3a) and lowest levels are with ornithological societies ($\bar{x} = 1.5$). While analyses revealed significant differences between the substrata on several items, effect sizes suggest none of the differences are small (Table 6.3b).

Across the substrata, few respondents reported that participating in eBird was not at all important (11%, Table 6.4); analyses suggest significant but small differences.

Respondents reported the frequency of conservation activities, and reported most often making their yard more desirable to wildlife ($\bar{x} = 3.9-4.1$; Table 6.5, 6.5a), and least often volunteering to improve wildlife habitat in their community in the past year ($\bar{x} = 2.4$); analyses suggest significant but small differences between the substrata on several items (Table 6.5b). Respondents also reported wetland conservation activities in the past year, and reported most often voting for candidates or ballot issues to support wetlands or waterfowl conservation ($\bar{x} = 2.6-2.9$; Table 6.6, 6.6a), and least often working on land improvement project related to wetlands or waterfowl conservation, volunteering my personal time and effort to conserve wetlands and waterfowl, attending meetings about wetlands or waterfowl conservation, contacting elected officials or government agencies about wetlands and waterfowl conservation ($\bar{x} = 1.5-1.7$). Analyses suggest significant but small differences between the substrata for most conservation activities (Table 6.6b).

We used a social network approach to understand the diversity of relationships and connections that individuals have in their personal networks (Harshaw and Tindall 2005; Lin, Fu & Hsung 2001). Respondents were presented with a list of 24 avocational, occupational, and

organizational structural positions and asked what relationship if any they had associated with the position through an acquaintance, close friend, relative, or self. The percentage of respondents reporting ties to the positions at each level of relationship are summarized in Tables 6.7a through 6.7f.

TRUST

Respondents indicated highest levels of trust in birding/birdwatching organizations (\bar{x} = 4.0-4.1; Table 6.8, 6.8a), and university researchers and scientists (\bar{x} = 3.6-3.7) and other conservation organizations (\bar{x} = 3.6), and lowest levels of trust for elected officials (\bar{x} = 1.6-1.8). While analyses revealed significant differences between the substrata on several items, effect sizes suggest differences were small (Table 6.8b).

CONSERVATION SUPPORT

Monetary support for conservation can take the form of donations, permit purchases, and fees. Respondents were asked about their previous support in the past year to wetland or waterfowl conservation, conservation of other birds, birdwatching and related issues, and waterfowl hunting. Possible responses to this item were \$0, less than \$250, \$250-\$999, \$1000-\$2499, \$2500-\$4999, \$5000-\$9999, and \$10,000 or more. Because of the non-normal distribution of donations (see Tables 6.9b-6.9e), responses were dichotomized as \$0 donation or more than \$0. Most respondents reported having donated to birdwatching and related issues (82-83%; Table 6.9), as well as conservation of other birds (75-79%). Few reported donating to causes related to waterfowl hunting (8-12%). Analyses revealed small but significant differences (Table 6.9a), particularly in donations to wetland or waterfowl conservation (Upper and Middle: 50%, Lower: 43%).

Most respondents indicated having paid a State Park access permit or fee (83-90%; Table 6.10), while relatively few respondents reported purchasing a Federal Migratory Bird Hunting and Conservation Stamp (13-15%). Analyses revealed significant but small differences in purchasing behavior between substrata (Table 6.10a), notably State Wildlife Management Area access permit or fee (Upper: 48%, Middle: 31%, Lower: 36%), County/Local Conservation Land access fees (Upper: 26%, Middle: 43%, Lower: 28%).

A majority of respondents indicated a willingness to pay all permits and fees in the next 12 months except for the Federal Migratory Bird Hunting and Conservation Stamp (Upper: 39%, Middle: 37%, Lower: 41%; Table 6.11). Analyses revealed significant but small differences in

willingness to pay between substrata (Table 6.11a), most notably for County/Local Conservation Land access fees (Upper: 70%, Middle: 83%, Lower: 76%).

Table 6.1 Level of social identification with group types

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid	Mean	SD	Valid	Mean	SD	Valid	Mean	SD	Valid
			N			N			N			N
Identify yourself as a birdwatcher	4.1	.97	875	4.1	.96	2669	4.1	.94	2290	4.1	.95	5833
Identify yourself as a waterfowl hunter	1.1	.49	840	1.1	.41	2562	1.1	.52	2219	1.1	.47	5620
Identify yourself as other type of hunter	1.3	.76	842	1.1	.51	2562	1.3	.85	2220	1.2	.70	5623
Identify yourself as a conservationist	4.0	1.02	868	4.1	1.00	2642	4.1	.97	2276	4.1	.99	5784

Scale of 1=Not at all to 5=Very strongly

Table 6.1a Level of social identification with group types response distribution

Item	Response					Valid N
	Not at all	Slightly	Moderately	Strongly	Very strongly	
Identify yourself as a birdwatcher	0.3%	6.1%	21.6%	28.6%	43.4%	5833
Identify yourself as a waterfowl hunter	94.1%	3.3%	1.4%	0.7%	0.5%	5620
Identify yourself as other type of hunter	89.1%	4.8%	3.1%	1.5%	1.5%	5623
Identify yourself as a conservationist	1.2%	6.5%	17.7%	30.0%	44.6%	5784

Table 6.1b Level of social identification with group types ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.	η^2
Identify yourself as a birdwatcher	Between Groups	.47	2	.24	.26	.77	
	Within Groups	5315.11	5831	.91			
	Total	5315.58	5833				0.00
Identify yourself as a waterfowl hunter	Between Groups	4.23	2	2.11	9.66	.00	
	Within Groups	1228.95	5618	.22			
	Total	1233.18	5620				0.00
Identify yourself as other type of hunter	Between Groups	50.49	2	25.24	51.51	.00	
	Within Groups	2754.65	5621	.49			
	Total	2805.13	5623				0.02
Identify yourself as a conservationist	Between Groups	6.98	2	3.49	3.57	.03	
	Within Groups	5661.14	5783	.98			
	Total	5668.12	5785				0.00

Table 6.2 National Audubon Society Member

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Are you a member of the National Audubon Society?	Yes	44.0%	52.6%	47.2%	49.2%
	No	56.0%	47.4%	52.8%	50.8%
	Valid N	863	2611	2230	5702
Significance:		$\chi^2 = 24.91^*$		Cramer's V=.07*	

Table 6.3 Level of involvement in bird groups

	Flyway substrata									Flyway Pacific		
	Lower Pacific			Middle Pacific			Upper Pacific			Mean	SD	Valid N
	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N			
Involvement with birding and birdwatching groups	1.9	.93	833	1.9	.92	2523	1.8	.89	2146	1.8	.91	5501
Involvement with bird conservation groups	2.4	.91	858	2.4	.92	2609	2.4	.92	2232	2.4	.92	5697
Involvement with ornithological societies	1.5	.78	791	1.5	.82	2363	1.5	.78	2000	1.5	.80	5152
Involvement with local naturalist orgs	1.9	.96	812	2.0	1.00	2472	1.9	.95	2066	2.0	.98	5349

Scale of 1=No involvement to 4=High involvement

Table 6.3a Level of involvement in bird groups response distribution

Item	Response				Valid N
	No involvement	Slight involvement	Moderate Involvement	High involvement	
Involvement with birding and birdwatching groups	43.7%	33.6%	16.5%	6.1%	5501
Involvement with bird conservation groups	15.5%	42.3%	27.7%	14.5%	5697
Involvement with ornithological societies	66.5%	20.7%	9.5%	3.3%	5152
Involvement with local naturalist orgs	40.9%	32.4%	17.4%	9.3%	5349

Table 6.3b Level of involvement in bird groups ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.	η^2
Involvement with birding and birdwatching groups	Between Groups	10.76	2	5.38	6.54	.00	
	Within Groups	4522.32	5499	.82			
	Total	4533.08	5501				0.00
Involvement with bird conservation groups	Between Groups	3.50	2	1.75	2.08	.13	
	Within Groups	4795.54	5696	.84			
	Total	4799.03	5698				0.00
Involvement with ornithological societies	Between Groups	2.88	2	1.44	2.27	.10	
	Within Groups	3268.76	5151	.64			
	Total	3271.64	5153				0.00
Involvement with local naturalist orgs	Between Groups	17.92	2	8.96	9.44	.00	
	Within Groups	5076.04	5347	.95			
	Total	5093.96	5349				0.00

Table 6.4 Importance of eBird

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
How important is participating in eBird to you?	Not at all important	8.6%	10.6%	12.2%	10.9%
	Slightly important	30.9%	34.3%	35.2%	34.2%
	Moderately important	33.6%	30.8%	32.6%	31.9%
	Very important	26.9%	24.3%	20.0%	23.0%
Total	Respondent	863	2611	2227	5699
Significance:		$\chi^2 = 30.01^*$		Cramer's V=.05*	

Table 6.5 Participation in conservation activities in past year

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N
Made my yard or land more desirable to wildlife	4.0	1.08	867	3.9	1.18	2612	4.1	1.05	2240	4.0	1.12	5717
Volunteered to improve wildlife habitat in my community	2.4	1.29	859	2.4	1.28	2587	2.4	1.27	2227	2.4	1.28	5671
Talked to others in my community about conservation issues	3.1	1.26	865	3.2	1.24	2604	3.1	1.20	2235	3.1	1.23	5702
Participated as an active member in a nature, outdoor, or conservation group	2.8	1.44	863	3.0	1.45	2608	2.9	1.45	2232	2.9	1.45	5702
Donated money to support wildlife/habitat conservation	2.9	1.29	865	3.2	1.30	2617	3.0	1.30	2231	3.1	1.30	5711

Scale of 1=Never to 5=Very often

Table 6.5a Participation in conservation activities response distribution

Item	Response				Very often	Valid N
	Never	Rarely	Sometimes	Often		
Made my yard or land more desirable to wildlife	5.2%	4.2%	18.6%	30.0%	42.0%	5717
Volunteered to improve wildlife habitat in my community	33.5%	23.0%	25.4%	8.7%	9.4%	5671
Talked to others in my community about conservation issues	12.7%	14.6%	34.5%	21.8%	16.4%	5702
Participated as an active member in a nature, outdoor, or conservation group	23.9%	18.3%	21.9%	15.4%	20.5%	5702
Donated money to support wildlife/habitat conservation	15.6%	15.8%	32.2%	18.3%	18.1%	5711

Table 6.5b Participation in conservation activities ANOVA tests

		Sum of Squares	df	Mean Square	F	Sig.	η^2
Made my yard or land more desirable to wildlife	Between Groups	32.14	2	16.07	12.99	.000	
	Within Groups	7073.42	5716	1.24			
	Total	7105.56	5718				0.00
Volunteered to improve wildlife habitat in my community	Between Groups	.21	2	.10	.06	.940	
	Within Groups	9316.28	5670	1.64			
	Total	9316.48	5672				0.00
Talked to others in my community about conservation issues	Between Groups	3.55	2	1.78	1.18	.308	
	Within Groups	8593.16	5701	1.5			
	Total	8596.71	5703				0.00
Participated as an active member in a nature, outdoor, or conservation group	Between Groups	17.33	2	8.67	4.13	.016	
	Within Groups	11974.94	5700	2.10			
	Total	11992.28	5702				0.00
Donated money to support wildlife/habitat conservation	Between Groups	40.20	2	20.10	11.98	.000	
	Within Groups	9583.02	5709	1.68			
	Total	9623.22	5711				0.00

Table 6.6 Participation in wetland conservation activities in past year

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid	Mean	SD	Valid	Mean	SD	Valid	Mean	SD	Valid
			N			N			N			N
Worked on land improvement project related to wetlands or waterfowl conservation	1.5	.97	858	1.6	.99	2593	1.6	1.00	2218	1.6	.99	5667
Attended meetings about wetlands or waterfowl conservation	1.6	.99	854	1.7	1.01	2591	1.7	.99	2218	1.7	1.00	5662
Volunteered my personal time and effort to conserve wetlands and waterfowl	1.5	.92	850	1.6	1.03	2581	1.6	1.01	2208	1.6	1.00	5637
Contacted elected officials or government agencies about wetlands and waterfowl conservation	1.6	.95	856	1.7	1.05	2584	1.7	1.04	2215	1.7	1.03	5654
Voted for candidates or ballot issues to support wetlands or waterfowl conservation	2.6	1.48	854	2.9	1.48	2586	2.9	1.45	2211	2.9	1.47	5650
Advocated for political action to conserve wetlands and waterfowl	2.2	1.34	857	2.4	1.39	2587	2.4	1.39	2214	2.3	1.38	5656

Scale of 1=Never to 5=Very often

Table 6.6a Participation in conservation activities response distribution

Item	Response				Valid often	Valid N
	Never	Rarely	Sometimes	Often		
Worked on land improvement project related to wetlands or waterfowl conservation	68.1%	14.5%	11.3%	3.6%	2.5%	5667
Attended meetings about wetlands or waterfowl conservation	62.3%	17.3%	14.5%	3.8%	2.2%	5662
Volunteered my personal time and effort to conserve wetlands and waterfowl	67.1%	15.3%	11.2%	3.8%	2.6%	5637
Contacted elected officials or government agencies about wetlands and waterfowl conservation	62.8%	14.9%	15.6%	4.3%	2.3%	5654
Voted for candidates or ballot issues to support wetlands or waterfowl conservation	30.1%	7.6%	23.6%	21.6%	17.1%	5650
Advocated for political action to conserve wetlands and waterfowl	42.5%	13.2%	21.6%	13.0%	9.7%	5656

Table 6.6b Participation in wetland conservation activities ANOVA tests

		Sum of Squares	df	Mean Square	F	Sig.	η^2
Worked on land improvement project related to wetlands or waterfowl conservation	Between Groups	6.584	2	3.292	3.341	.035	0.00
	Within Groups	5583.052	5583.052	5666	.985		
	Total	5589.635	5589.635	5668			
Attended meetings about wetlands or waterfowl conservation	Between Groups	2.352	2	1.176	1.175	.309	0.00
	Within Groups	5666.709	5666.709	5660	1.001		
	Total	5669.061	5669.061	5662			
Volunteered my personal time and effort to conserve wetlands and waterfowl	Between Groups	8.042	2	4.021	3.999	.018	0.00
	Within Groups	5667.244	5667.244	5636	1.006		
	Total	5675.286	5675.286	5638			
Contacted elected officials or government agencies about wetlands and waterfowl conservation	Between Groups	14.221	2	7.111	6.719	.001	0.00
	Within Groups	5981.665	5981.665	5652	1.058		
	Total	5995.886	5995.886	5654			
Voted for candidates or ballot issues to support wetlands or waterfowl conservation	Between Groups	61.617	2	30.808	14.291	.000	0.01
	Within Groups	12176.239	12176.239	5648	2.156		
	Total	12237.855	12237.855	5650			
Advocated for political action to conserve wetlands and waterfowl	Between Groups	16.553	2	8.276	4.326	.013	0.00
	Within Groups	10817.544	10817.544	5655	1.913		
	Total	10834.096	10834.096	5657			

Table 6.7a Personal community: Recreation

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Personal Community: Birdwatcher	Acquaintance	56.2%	56.9%	59.8%	57.9%
	Close Friend	62.1%	60.2%	63.4%	61.7%
	Relative	45.7%	44.4%	51.6%	47.4%
	Myself	89.2%	87.3%	88.6%	88.1%
	Valid N	861	2628	2262	5750
Personal Community: Angler	Acquaintance	56.6%	53.4%	59.7%	56.6%
	Close Friend	41.7%	38.0%	51.2%	44.3%
	Relative	55.1%	51.9%	56.6%	54.4%
	Myself	27.8%	19.9%	30.6%	25.7%
	Valid N	675	1841	1938	4448
Personal Community: Waterfowl Hunter	Acquaintance	68.7%	64.2%	72.7%	68.7%
	Close Friend	33.5%	28.9%	33.4%	31.7%
	Relative	36.8%	35.3%	32.8%	34.4%
	Myself	8.2%	4.7%	8.3%	6.9%
	Valid N	458	1137	1325	2914
Personal Community: Other hunter	Acquaintance	67.1%	59.6%	68.1%	64.7%
	Close Friend	39.3%	30.1%	43.2%	37.6%
	Relative	45.4%	42.5%	46.4%	44.8%
	Myself	12.3%	5.9%	14.1%	10.7%
	Valid N	614	1331	1599	3535

Table 6.7b Personal community: Agencies

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Personal Community: State/provincial park manager/employee	Acquaintance	82.3%	83.7%	86.7%	84.6%
	Close Friend	24.5%	26.2%	24.5%	25.3%
	Relative	6.6%	5.3%	5.8%	5.7%
	Myself	2.3%	3.9%	2.7%	3.2%
	Valid N	345	1007	816	2167
Personal Community: National Park Manager/Employee	Acquaintance	80.7%	81.1%	82.1%	81.4%
	Close Friend	29.7%	28.7%	31.8%	30.1%
	Relative	9.4%	6.6%	8.7%	7.9%
	Myself	4.4%	3.8%	4.5%	4.2%
	Valid N	412	1046	945	2400
Personal Community: Federal wildlife agency manager/employee	Acquaintance	82.9%	85.7%	84.8%	84.9%
	Close Friend	29.1%	26.8%	33.9%	30.2%
	Relative	8.7%	5.0%	7.1%	6.5%
	Myself	9.1%	4.8%	9.0%	7.3%
	Valid N	344	826	890	2056
Personal Community: State/provincial wildlife agency manager/employee	Acquaintance	83.6%	85.9%	87.2%	86.1%
	Close Friend	29.7%	26.3%	30.9%	28.9%
	Relative	6.5%	4.4%	7.2%	5.9%
	Myself	4.5%	4.0%	6.1%	5.0%
	Valid N	394	882	947	2218

Table 6.7c Personal community: Environmental Occupations

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Personal Community: Farmer/Rancher	Acquaintance	69.8%	67.5%	70.0%	68.9%
	Close Friend	28.1%	27.4%	30.8%	29.0%
	Relative	30.1%	29.8%	32.1%	30.9%
	Myself	5.3%	7.5%	8.7%	7.7%
	Valid N	500	1307	1382	3184
Personal Community: Outdoor Educator	Acquaintance	74.8%	72.9%	78.0%	75.2%
	Close Friend	41.3%	40.9%	41.2%	41.1%
	Relative	11.1%	10.6%	11.1%	10.9%
	Myself	23.6%	24.1%	21.9%	23.1%
	Valid N	563	1711	1455	3729
Personal Community: Wildlife artist	Acquaintance	72.8%	72.7%	72.7%	72.7%
	Close Friend	29.5%	30.0%	32.0%	30.7%
	Relative	12.5%	9.4%	11.9%	10.9%
	Myself	15.5%	14.7%	15.1%	15.0%
	Valid N	461	1320	1212	2990
Personal Community: Wildlife biologist	Acquaintance	70.9%	73.4%	76.1%	74.1%
	Close Friend	45.0%	41.7%	44.8%	43.4%
	Relative	12.5%	12.3%	13.3%	12.7%
	Myself	23.8%	18.7%	18.6%	19.4%
	Valid N	558	1636	1455	3648
Personal Community: Wildlife photographer	Acquaintance	66.2%	64.8%	68.6%	66.5%
	Close Friend	42.6%	41.1%	43.1%	42.1%
	Relative	21.5%	18.4%	21.6%	20.1%
	Myself	47.1%	41.0%	43.4%	42.8%
	Valid N	677	2087	1779	4543

Table 6.7d Personal community: Conservation organizations

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Personal Community: Member of fishing/conservation organizations	Acquaintance	65.8%	64.4%	69.9%	67.2%
	Close Friend	33.8%	37.0%	44.2%	40.0%
	Relative	25.9%	29.5%	30.1%	29.3%
	Myself	24.6%	24.9%	30.0%	27.2%
	Valid N	304	905	1074	2281
Personal Community: Member of national conservation organization	Acquaintance	60.1%	58.4%	60.2%	59.3%
	Close Friend	49.6%	50.4%	49.4%	49.9%
	Relative	29.6%	34.9%	34.0%	33.8%
	Myself	65.0%	68.4%	65.3%	66.8%
	Valid N	607	2004	1611	4223
Personal Community: Member of local conservation organization	Acquaintance	68.9%	64.4%	68.1%	66.5%
	Close Friend	46.9%	51.2%	51.1%	50.5%
	Relative	24.4%	25.5%	29.7%	27.0%
	Myself	60.5%	67.3%	62.5%	64.5%
	Valid N	469	1471	1229	3169
Personal Community: Member of local naturalist organization	Acquaintance	67.8%	65.3%	68.8%	66.9%
	Close Friend	50.1%	50.3%	46.3%	48.8%
	Relative	16.4%	20.5%	20.4%	19.9%
	Myself	54.3%	60.3%	53.6%	57.0%
	Valid N	399	1373	1081	2854

Table 6.7e Personal community: Hunting organizations

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Personal Community: Member of Ducks Unlimited	Acquaintance	65.5%	63.8%	71.0%	67.1%
	Close Friend	28.1%	29.2%	30.5%	29.6%
	Relative	22.2%	25.5%	22.8%	23.9%
	Myself	12.6%	10.9%	10.8%	11.1%
	Valid N	266	768	780	1812
Personal Community: Member of Delta Waterfowl	Acquaintance	76.1%	83.8%	84.5%	83.0%
	Close Friend	18.5%	20.4%	26.7%	22.1%
	Relative	13.3%	8.4%	7.3%	8.7%
	Myself	12.0%	3.6%	5.2%	5.2%
	Valid N	44	167	101	312
Personal Community: Member of state waterfowl association	Acquaintance	77.1%	76.1%	82.0%	78.5%
	Close Friend	18.8%	27.0%	28.9%	26.5%
	Relative	16.1%	14.2%	13.7%	14.3%
	Myself	6.5%	8.8%	7.4%	7.9%
	Valid N	102	318	252	672
Personal Community: Member of non-waterfowl hunting organization	Acquaintance	73.3%	68.3%	72.3%	71.2%
	Close Friend	31.1%	29.0%	36.7%	33.2%
	Relative	23.9%	24.7%	25.7%	25.1%
	Myself	12.6%	7.8%	12.7%	11.1%
	Valid N	223	372	589	1179

Table 6.7f Personal community: Bird groups

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Personal Community: Member of birding group	Acquaintance	66.5%	66.8%	67.4%	67.0%
	Close Friend	53.9%	54.3%	52.8%	53.7%
	Relative	19.5%	21.5%	23.3%	21.9%
	Myself	58.4%	61.6%	58.9%	60.1%
	Valid N	641	1916	1604	4160
Personal Community: Member of bird conservation group	Acquaintance	60.3%	59.2%	60.0%	59.7%
	Close Friend	51.5%	52.1%	52.8%	52.3%
	Relative	25.3%	27.6%	30.1%	28.3%
	Myself	75.1%	80.7%	78.6%	79.1%
	Valid N	748	2280	1960	4987
Personal Communication: Member of ornithological group	Acquaintance	70.7%	70.9%	74.2%	72.1%
	Close Friend	49.1%	47.9%	45.5%	47.2%
	Relative	9.2%	13.0%	13.3%	12.5%
	Myself	41.2%	42.8%	41.2%	42.0%
	Valid N	443	1361	1047	2851

Table 6.8 Trust in various institutions

	Lower Pacific			Flyway substrata Middle Pacific			Upper Pacific			Flyway Pacific		
	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N	Mean	SD	Valid N
State wildlife agencies	3.0	.93	861	3.1	.87	2596	3.1	.92	2238	3.1	.90	5694
Federal wildlife and land management agencies	3.1	.96	855	3.0	.93	2592	3.1	.95	2236	3.0	.95	5681
Elected officials	1.6	.72	862	1.8	.79	2598	1.8	.79	2221	1.8	.78	5679
Waterfowl hunting/conservation organizations	2.8	.94	851	2.7	.96	2559	2.8	.96	2194	2.8	.96	5602
Birding/bird conservation organizations	4.0	.75	862	4.1	.69	2612	4.0	.72	2238	4.0	.71	5710
Other conservation organizations	3.6	.82	837	3.6	.79	2555	3.6	.82	2170	3.6	.80	5561
University researchers/scientists	3.6	.93	857	3.7	.87	2597	3.7	.88	2221	3.7	.88	5673

Scale of 1=Do not trust at all to 5=Trust completely

Table 6.8a Trust in various institutions response distribution

Item	Response					Valid N
	Do not trust at all	Trust a little	Trust somewhat	Trust a lot	Trust completely	
State wildlife agencies	5.1%	19.3%	42.6%	30.0%	3.1%	5694
Federal wildlife and land management agencies	6.1%	20.4%	40.9%	28.5%	4.1%	5681
Elected officials	41.6%	39.1%	17.9%	1.4%	0.1%	5679
Waterfowl hunting/conservation organizations	10.2%	28.8%	38.7%	20.2%	2.0%	5602
Birding/bird conservation organizations	0.2%	2.4%	14.8%	57.9%	24.7%	5710
Other conservation organizations	1.1%	7.1%	34.1%	47.8%	10.0%	5561
University researchers/scientists	1.6%	7.7%	26.8%	48.4%	15.5%	5673

Table 6.8b Trust in various institutions ANOVA tests

		Sum of Squares	df	Mean Square	F	Sig.	η^2
State wildlife agencies	Between Groups	10.00	2	5.00	6.16	.00	
	Within Groups	4621.89	5692	.81			
	Total	4631.88	5694				0.00
Federal wildlife and land management agencies	Between Groups	10.243	2	5.12	5.73	.00	
	Within Groups	5078.12	5680	.89			
	Total	5088.36	5682				0.00
Elected officials	Between Groups	33.36	2	16.68	27.38	.00	
	Within Groups	3458.23	5677	.61			
	Total	3491.59	5679				0.01
Waterfowl hunting/conservation organizations	Between Groups	10.00	2	5.00	5.47	.00	
	Within Groups	5122.12	5600	.92			
	Total	5132.13	5602				0.00
Birding/bird conservation organizations	Between Groups	3.95	2	1.98	3.90	.02	
	Within Groups	2892.10	5709	.51			
	Total	2896.05	5711				0.00
Other conservation organizations	Between Groups	3.505	2	1.75	2.71	.07	
	Within Groups	3596.86	5559	.65			
	Total	3600.36	5561				0.00
University researchers/scientists	Between Groups	6.27	2	3.13	4.04	.02	
	Within Groups	4398.08	5672	.78			
	Total	4404.34	5674				0.00

Table 6.9 Percent making donation greater than \$0 in past year

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Percent making donation greater than \$0 in past year	Wetland or Waterfowl conservation	42.6%	49.8%	50.2%	48.9%
	Conservation of other birds	75.3%	79.3%	76.2%	77.5%
	Birdwatching and related issues	83.3%	81.7%	82.1%	82.1%
	Waterfowl hunting	10.5%	8.2%	12.1%	10.1%
Valid N		632	1981	1672	4284

Table 6.9a Percent making donation greater than \$0 in past year significance tests

		Chi-Square	df	Cramer's V
Percent making donation greater than \$0 in past year	Wetland or Waterfowl conservation	16.14*	2	.06*
	Conservation of other birds	9.89*	2	.04*
	Birdwatching and related issues	.52	2	.01
	Waterfowl hunting	13.17*	2	.05*

*p < 0.05

Table 6.9b Donations to wetland or waterfowl conservation

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Wetland or waterfowl conservation	\$0	67.6%	60.2%	60.2%	61.3%
	Less than \$250	29.1%	33.6%	35.7%	33.7%
	\$250 to \$999	2.9%	4.6%	3.3%	3.8%
	\$1000 to \$2499	0.2%	1.3%	0.6%	0.9%
	\$2500 to \$4999	0.1%	0.2%	0.2%	0.2%
	\$5000 to \$9999	0.0%	0.0%	0.0%	0.0%
	\$10,000 or more	0.1%	0.2%	0.0%	0.1%
	Valid N	828	2475	2109	5411

Table 6.9c Donations to conservation of other bird species

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Conservation of other bird species	\$0	43.3%	37.6%	40.6%	39.6%
	Less than \$250	45.9%	48.4%	48.3%	48.0%
	\$250 to \$999	8.1%	10.4%	8.8%	9.4%
	\$1000 to \$2499	1.4%	2.7%	1.6%	2.1%
	\$2500 to \$4999	0.6%	0.6%	0.2%	0.5%
	\$5000 to \$9999	0.5%	0.2%	0.4%	0.3%
	\$10,000 or more	0.2%	0.2%	0.0%	0.1%
	Valid N	839	2517	2145	5499

Table 6.9d Donations to birdwatching and related issues

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Birdwatching and relating issues	\$0	37.2%	36.0%	36.6%	36.4%
	Less than \$250	51.0%	50.4%	52.4%	51.2%
	\$250 to \$999	9.5%	10.3%	8.6%	9.5%
	\$1000 to \$2499	1.3%	2.5%	1.4%	1.9%
	\$2500 to \$4999	0.6%	0.7%	0.6%	0.6%
	\$5000 to \$9999	0.1%	0.0%	0.2%	0.1%
	\$10,000 or more	0.2%	0.2%	0.2%	0.2%
	Valid N	838	2528	2168	5532

Table 6.9f Donations to waterfowl hunting and hunting related issues

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Waterfowl hunting and hunting related issues	\$0	91.7%	93.2%	90.2%	91.8%
	Less than \$250	6.9%	6.1%	9.0%	7.3%
	\$250 to \$999	0.9%	0.5%	0.7%	0.6%
	\$1000 to \$2499	0.2%	0.2%	0.2%	0.2%
	\$2500 to \$4999	0.1%	0.1%	0.0%	0.1%
	\$5000 to \$9999	0.0%	0.0%	0.0%	0.0%
	\$10,000 or more	0.0%	0.0%	0.0%	0.0%
	Valid N	809	2369	2052	5227

Table 6.10 Permits purchased and fees paid in the past 12 months

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Fees/Permits paid for in past 12 months	Federal Migratory Bird Hunting and Conservation Stamp	14.6%	12.7%	14.1%	13.5%
	National Wildlife Refuge access fees	47.6%	45.4%	54.0%	49.1%
	State Park access permit or fee	88.9%	83.0%	88.6%	86.1%
	State Wildlife Management Area access permit or fee	35.5%	31.4%	48.0%	38.5%
	County/local Conservation Land access fees	27.5%	42.7%	25.5%	33.7%
	Access fees for land owned by non-governmental conservation organizations	24.7%	19.0%	14.4%	18.0%
	National Park pass	72.9%	63.8%	68.4%	66.9%
	Valid N	927	2859	2428	6213

Table 6.10a Permits purchased and fees paid significance tests

		Chi-Square	df	Cramer's V
Fees/Permits paid for in past 12 months	Federal Migratory Bird Hunting and Conservation Stamp	4.15	2	.03
	National Wildlife Refuge access fees	39.46*	2	.08*
	State Park access permit or fee	34.75*	2	.08*
	State Wildlife Management Area access permit or fee	130.76*	2	.15*
	County/local Conservation Land access fees	123.30*	2	.15*
	Access fees for land owned by non-governmental conservation organizations	35.84*	2	.08*
	National Park pass	25.48*	2	.07*

*p < 0.05

Table 6.11 Willingness to pay for permits and fees in the next 12 months

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Fees/Permits willing to pay for in next 12 months	Federal Migratory Bird Hunting and conservation Stamp	41.3%	37.4%	39.0%	38.6%
	National Wildlife Refuge access fees	86.2%	86.6%	86.2%	86.4%
	State Park access permit or fee	94.1%	94.3%	93.1%	93.8%
	State Wildlife Management Area access permit or fee	81.6%	81.7%	81.2%	81.5%
	County/local Conservation Land access fees	75.8%	82.9%	70.3%	76.9%
	Access fees for land owned by non-governmental conservation organizations	70.2%	73.8%	65.0%	69.8%
	National Park pass	90.6%	85.6%	87.9%	87.2%
	Valid N	927	2859	2428	6213

Table 6.11a Willingness to pay for permits and fees significance tests

		Chi-Square	df	Cramer's V
Fees/Permits willing to pay for in next 12 months	Federal Migratory Bird Hunting and conservation Stamp	5.35	2	.03
	National Wildlife Refuge access fees	.46	2	.01
	State Park access permit or fee	2.09	2	.02
	State Wildlife Management Area access permit or fee	.46	2	.01
	County/local Conservation Land access fees	67.45*	2	.11*
	Access fees for land owned by non- governmental conservation organizations	28.55*	2	.07*
	National Park pass	16.46*	2	.05*

*p < 0.05

Section 7. Respondent characteristics

Respondents answered a series of sociodemographic questions regarding race, ethnicity, gender, age, education, profession, rural land ownership, urban/rural residence, urban/rural upbringing, income, and state of residence. Respondents were largely white (96-99%; Tables 7.1, 7.1a), and non-Hispanic (97-99%; Table 7.2). Respondents were slightly more likely to be female in the Middle and Upper Pacific (56%; Table 7.3) than in the Lower Pacific (51%), but this difference is small.

After removing any respondents under the age of 18, the average age of respondents was 60 years old, with no differences between the substrata (Table 7.4). Roughly half of respondents reported graduate or professional-level education (48-50%; Table 7.5), and another third reported holding a Bachelor's degree (32-33%). Analyses showed significant but small differences in education between the substrata. Most respondents indicated that a nature related profession was not their primary source of personal income across substrata (78-82%), with significant but small differences between substrata (Table 7.6). Across substrata, 48-61% made less than \$75,000 per year in personal income, while 8-15% made more than \$150,000 (Table 7.7). Analyses indicate significantly higher incomes in the Middle Pacific substrata, with lower representation in the lower income brackets and higher representation in the higher income brackets than either the Upper or Lower Pacific substrata, but these differences were small according to effect size.

A majority of respondents did not own rural land (64-78%), and those that did owned an average of 821 acres to 1382 acres (Table 7.8). There were significant differences in rural land ownership between the substrata, with respondents in the Lower Pacific most likely to own land (36%) and respondents in the Middle Pacific least likely to own land (23%), however, there was no significant difference between substrata in the number of acres owned. In each substrata, about half of respondents reported living in a medium or large urban area, with significantly more rural residents in the Upper Pacific (Upper: 19%, Middle and Lower: 10%; Table 7.9), but effect sizes suggest these differences are small. Respondents also reported the population size of the area where they grew up, and around half grew up in a medium or large urban area, with a large urban upbringing being most common for those in the Middle Pacific (31% vs. 22% in Upper and 23% in Lower; Table 7.10). Differences in upbringing were statistically significant, but effect sizes were small.

Table 7.1 Percent reporting race

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
	American Indian/Native American	1.2%	2.5%	2.6%	2.3%
	Asian	1.2%	3.6%	2.0%	2.6%
Race	Black or African American	0.0%	.6%	.5%	.5%
	Native Hawaiian or Pacific Islander	.1%	.2%	.3%	.3%
	White	99.0%	96.2%	98.1%	97.4%
	Valid N	825	2521	2158	5503

Table 7.1a Race significance tests

		Chi-Square	df	Cramer's V
	American Indian/Native American	5.53	2	.03
	Asian	19.75*	2	.06*
Race	Black or African American	4.92	2	.03
	Native Hawaiian or Pacific Islander	1.03	2	.01
	White	6.46*	2	.03*

*p < 0.05

Table 7.2 Ethnicity

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Hispanic or Latino	Yes	2.9%	3.4%	1.0%	2.4%
	No	97.1%	96.6%	99.0%	97.6%
	Valid N	834	2546	2170	5549
Significance:		$\chi^2 = 29.48^*$		Cramer's V=.07*	

Table 7.3 Gender

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Gender	Male	49.2%	44.3%	44.0%	44.9%
	Female	50.8%	55.7%	56.0%	55.1%
	Valid N	858	2586	2212	5655
Significance:		$\chi^2 = 7.47^*$		Cramer's V=.04*	

Table 7.4 Age

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
	Mean	59	60	60	60
Age	SD	14.11	13.83	13.50	13.75
	Range	73	80	76	80
	Valid N	847	2563	2197	5605
Significance:		F (2,5606)= 2.49		$\eta^2=.00$	

Table 7.5 Education

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
	Some high school or less	.3%	.8%	.4%	.6%
	High school diploma or GED	.5%	1.2%	1.9%	1.4%
	Some college (no degree)	10.6%	9.9%	10.8%	10.4%
	Associate's degree (2 years)	6.2%	6.3%	6.7%	6.4%
	Bachelors degree (4 years)	32.5%	31.6%	32.7%	32.1%
	Graduate or professional school	49.9%	50.2%	47.5%	49.1%
	Valid N	861	2598	2218	5675
Significance:		$\chi^2 = 17.50^*$		Cramer's V=.04*	

Table 7.6 Nature-related profession

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Is a nature-related profession primary source of personal income?	Yes	22.4%	17.6%	20.8%	19.6%
	No	77.6%	82.4%	79.2%	80.4%
	Valid N	863	2607	2226	5694
Significance:		$\chi^2 = 12.59^*$		Cramer's V=.05*	

Table 7.7 Income

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Personal income	Less than \$24,999	12.5%	11.3%	13.9%	12.5%
	\$25,000 to \$49,999	26.3%	17.2%	24.4%	21.4%
	\$50,000 to \$74,999	21.0%	19.6%	22.5%	20.9%
	\$75,000 to \$99,999	15.7%	17.1%	16.2%	16.5%
	\$100,000 to \$124,999	11.5%	13.0%	9.9%	11.6%
	\$125,000 to \$149,999	3.6%	6.2%	4.9%	5.3%
	\$150,000 to \$199,999	4.6%	7.5%	3.9%	5.7%
	\$200,000 to \$249,999	1.7%	3.3%	1.8%	2.4%
	\$250,000 to \$299,999	.8%	1.7%	.9%	1.3%
	\$300,000 or more	2.3%	3.1%	1.6%	2.4%
Valid N		782	2327	1999	5106
Significance:		$\chi^2 = 119.24^*$		Cramer's V=.11*	

Table 7.8 Rural land ownership

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Do you own land in a rural area	Yes	27.2%	22.5%	35.7%	28.3%
	No	72.8%	77.5%	64.3%	71.7%
	Mean	1,382	975	821	956
How many acres of rural land?	SD	7,312.44	6,055.24	5,764.66	6,107.64
	Range	42,798	42,743	42,798	42,798
	Valid N	863	2603	2229	5693
Own land Y/N significance:		$\chi^2 = 102.99^*$		Cramer's V=.13*	
Acreage owned significance:		F (2,5606)= 0.71		$\eta^2=.00$	

Table 7.9 Urban vs Rural Residence

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Where you live now	Large Urban area (500,000 or more)	35.1%	36.5%	21.7%	30.5%
	Medium Urban area (50,000 to 499,999)	25.5%	27.5%	26.8%	26.9%
	Small city (10,000 to 49,999)	16.4%	16.2%	18.5%	17.2%
	Small town (2,000 to 9,999)	13.4%	9.7%	14.2%	12.0%
	Rural area (less than 2,000)	9.6%	10.1%	18.7%	13.4%
	Valid N	860	2597	2226	5681
Significance:		$\chi^2 = 195.58^*$		Cramer's V=.13*	

Table 7.10 Urban vs Rural Upbringing

		Flyway substrata			Flyway
		Lower Pacific	Middle Pacific	Upper Pacific	Pacific
Where you grew up	Large Urban area (500,000 or more)	23.9%	30.7%	22.3%	26.4%
	Medium Urban area (50,000 to 499,999)	25.5%	26.1%	23.7%	25.1%
	Small city (10,000 to 49,999)	19.9%	21.3%	22.1%	21.4%
	Small town (2,000 to 9,999)	17.3%	12.7%	17.4%	15.2%
	Rural area (less than 2,000)	13.3%	9.2%	14.6%	11.9%
	Valid N	846	2558	2199	5601
Significance:		$\chi^2 = 87.97^*$		Cramer's V=.09*	

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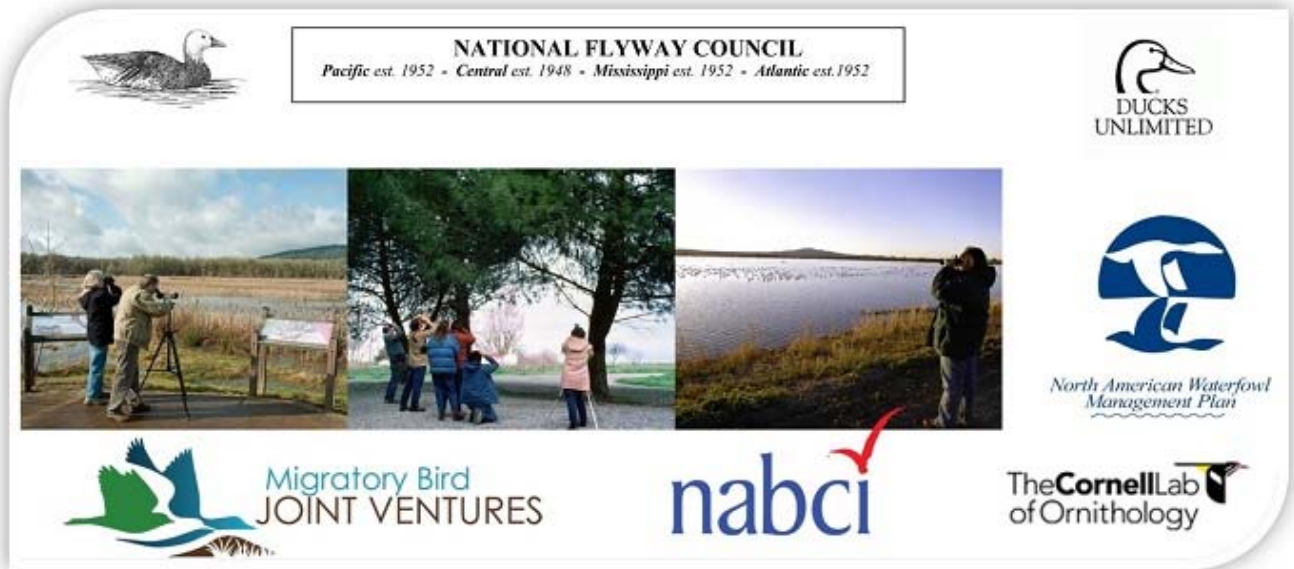
Appendices

Appendix A: Survey Instrument

Please refer to separate Appendix for a copy of the North American Birdwatching Survey.

Appendix B: Non-response Survey Instrument

North American Birdwatching Survey



1. Do you ever participate in birdwatching or birding? (Check only one)

- YES
- NO → **GO TO QUESTION 7**

2. In the past 12 months, did you take any trips at least 1 mile or more from your home primarily for birdwatching?

- YES
- NO → **GO TO QUESTION 4**

3. In the past 12 months, about how many trips at least 1 mile from your home did you take primarily for birdwatching?

_____ (write in number)

4. How would you rate your own ability to observe and identify birds? Please respond on a scale where 1= novice to 7 = expert. (Please circle one number).

Novice								Expert
1	2	3	4	5	6	7		

5. Other than at your home, where do most of your birdwatching activities occur? (Please select only one).

- Privately-owned lands with no general public access
- Publicly-accessible lands

- I only watch birds at my home
- I'm not sure

6. We are interested in knowing how much birdwatching means to you. Please indicate how much you disagree or agree with the following statements about your involvement in birdwatching. (Check one for each)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Developing my skills and abilities in birdwatching is important to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If I couldn't go birdwatching I am not sure what I would do instead.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Birdwatching has a central role in my life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Birdwatching is one of the most enjoyable activities I do.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Challenging my birdwatching skills is important.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Most of my friends are in some way connected with birdwatching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using new techniques, technology and equipment to help me identify more birds is important to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The sights and sounds of nature are important to birdwatching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Getting to enjoy the natural environment through birdwatching is important.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Getting a chance to add a new bird to my life list is important to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A lot of my life is organized around birdwatching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being in nature is an important part of birdwatching.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. In the last 12 months, have you participated in the following nature-based activities? Please check Yes or No for each.

<input type="checkbox"/> Yes <input type="checkbox"/> No	Spending time in nature away from home (e.g., picnicking, relaxing in nature, camping, hiking, climbing)
<input type="checkbox"/> Yes <input type="checkbox"/> No	Viewing wildlife (e.g., wildlife watching, bird watching, bird feeding, wildlife photography)
<input type="checkbox"/> Yes <input type="checkbox"/> No	Learning about nature (e.g., attending festivals or lectures, visiting a nature center)
<input type="checkbox"/> Yes <input type="checkbox"/> No	Backyard/at-home nature activities (e.g., gardening, landscaping)
<input type="checkbox"/> Yes <input type="checkbox"/> No	Fishing
<input type="checkbox"/> Yes <input type="checkbox"/> No	Hunting other migratory birds (doves, woodcock, rail, etc.)
<input type="checkbox"/> Yes <input type="checkbox"/> No	Hunting other game birds (grouse, pheasants)
<input type="checkbox"/> Yes <input type="checkbox"/> No	Hunting all other game animals (deer, elk, rabbit, etc.)
<input type="checkbox"/> Yes <input type="checkbox"/> No	Watching birds at my home
<input type="checkbox"/> Yes <input type="checkbox"/> No	Feeding birds at my home
<input type="checkbox"/> Yes <input type="checkbox"/> No	Watching birds away from my home
<input type="checkbox"/> Yes <input type="checkbox"/> No	Photographing or filming birds
<input type="checkbox"/> Yes <input type="checkbox"/> No	Counting/monitoring birds (e.g., Christmas or Backyard Bird Count)

Yes No Recording the birds you see on a list, online or on paper

Yes No Installing or maintaining nest boxes for birds

8. A person can think of themselves in a variety of ways. On a scale of “1” to “7”, where “1” is “not at all” and “7” is “completely”, how much would you identify yourself as the following? (Please circle one number for each)

	Not at all		Moderately				Completely	
	1	2	3	4	5	6	7	
Birdwatcher	1	2	3	4	5	6	7	
Duck Hunter	1	2	3	4	5	6	7	
Goose Hunter	1	2	3	4	5	6	7	
Other hunter	1	2	3	4	5	6	7	
Conservationist	1	2	3	4	5	6	7	

9. How important is participating in eBird to you? (Check one)

- Not at all important
- Slightly Important
- Moderately Important
- Very Important

10. Are you a member of the National Audubon Society? (Check one)

- YES
- NO

About You To help us compare your responses to those of others, we have some questions about you. Please be assured that all of your answers will remain completely confidential.

11. In what year were you born? 19_____

12. Are you...? Male Female

13. What is the highest level of education you have completed? (Check one).

- Some high school or less
- High school diploma or GED
- Some college (no degree)
- Associate’s degree (2 years)
- Bachelor’s degree (4 years)
- Graduate or professional school

14. Do you own land in a rural area (outside of an urban or suburban area)?

No Yes → If YES how many acres do you own in total _____ ACRES

15. Which of these categories best describes the place where you live now? (Check one)

- Large urban area (population of 500,000 or more)

- Medium urban area (population between 50,000 and 499,999)
- Small city (population between 10,000 and 49,999)
- Small town (population between 2,000 and 9,999)
- Rural area (population less than 2,000)

16. Please indicate which of the following categories applies to your personal income for the last 12 months? (*Check one*).

- | | | |
|---|--|--|
| <input type="checkbox"/> Less than \$24,999 | <input type="checkbox"/> \$75,000-\$99,999 | <input type="checkbox"/> \$200,000-\$249,999 |
| <input type="checkbox"/> \$25,000-\$49,999 | <input type="checkbox"/> \$100,000-\$149,999 | <input type="checkbox"/> \$250,000-\$299,999 |
| <input type="checkbox"/> \$50,000-\$74,999 | <input type="checkbox"/> \$150,000-\$199,999 | <input type="checkbox"/> \$300,000 or more |

17. What ethnicity do you consider yourself? (*Check one*).

- Hispanic or Latino
- Not Hispanic or Latino

18. From what racial origin(s) do you consider yourself? (*Please check all that apply*).

- American Indian or Alaskan Native
- Asian
- Black or African American
- Native Hawaiian or other Pacific Islander
- White

19. Please let us know why you chose not to complete the survey online earlier? (*Check all that apply*)

- I didn't receive or notice the e-mail invitation
- I seldom or do not use the e-mail address provided to eBird
- I couldn't open the website even though I have internet access
- I didn't have time to complete the study earlier
- I was concerned that the invitation was a phishing scam
- I don't watch birds
- I didn't think the survey applied to me

Appendix C: Contact E-mails

Participate in the birdwatcher survey.

November 16, 2016

Is this email not displaying correctly?

[View it in your browser.](#)



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

College of Food, Agricultural and Natural Resource Sciences

Dear ,

We are contacting you to ask for your help in a national study of birding and birdwatching. The University of Minnesota and eBird at the Cornell Lab of Ornithology are working closely with the National Flyway Council (NFC), the North American Bird Conservation Initiative (NABCI), and your state wildlife agency to complete this study. We are contacting you because you participate in birding or birdwatching, and we believe you have an important point-of-view to share about bird conservation.

The survey will only take about 15 minutes to complete. To begin the survey, please click on this link:

[Birdwatcher Survey](#)

And then type in the following Access Code: JSY5526

This survey is confidential. Your participation is voluntary, and if you come to any question you prefer not to answer please skip it and go on to the next.

If you should have any questions please e-mail us at umn.birdwatcher@gmail.com or call [612-625-3718](tel:612-625-3718) and leave a detailed message.

Your participation is very important to the study and will help improve bird management and conservation across North America. We greatly appreciate your help with this study!

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This message was sent from:

CFANS Research
1420 Eckles Avenue
St. Paul, MN, 55108
USA

Participate in the birdwatcher survey.

November 21, 2016

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correctly?
[View it in your browser.](#)



College of Food, Agricultural and Natural Resource Sciences

Dear ,

Recently, we sent you an e-mail asking you to complete an online survey about your experiences birding or birdwatching. We are collaborating with the folks at eBird at the Cornell Lab of Ornithology on the study. If you have completed this survey, we would like to thank you very much. We truly appreciate your help.

If you have not answered the questionnaire yet, we'd like to urge you to do so. It should only take about 15 minutes to complete. Simply click on the link below and use your access code to begin answering questions:

[Birdwatcher Survey](#)

Access Code: NPJUB33

This first of its kind nationwide study is important to anyone concerned with bird management and conservation. Results will be used in planning to help improve bird management and conservation across North America.

If you should have any questions please e-mail the study director at umn.birdwatcher@gmail.com or call [612-625-3718](tel:612-625-3718) and leave a detailed message.

Your response is voluntary, and we greatly appreciate your help on this study!

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This message was sent from:

CFANS Research
1420 Eckles Avenue
St. Paul, MN, 55108
USA

Participate in the birdwatcher survey.

November 30, 2016

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[View it in your browser.](#)



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

College of Food, Agricultural and Natural Resource Sciences

Dear ,

A few days ago we sent an e-mail to you asking for your participation in a study of birding and birdwatching. If you completed it, thank you! If not we hope you can now.

We hope that providing the link to the survey makes it easier for you to respond. To begin the survey, simply click on this link:

[Birdwatcher Survey](#)

And then type in the following Access Code: 6HDW3G2

We had reports that some folks could not complete the survey due to the volume of response at the server. If you encounter a server error while taking the survey, you can return later and complete it from where you left off.

Your participation is very important to the study and will help improve bird management and conservation across North America.

Your response is voluntary, and we greatly appreciate your help on this study!

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This message was sent from:

CFANS Research
1420 Eckles Avenue
St. Paul, MN, 55108
USA

Participate in the birdwatcher survey.

December 7, 2016

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correctly?
[View it in your browser.](#)



College of Food, Agricultural and Natural Resource Sciences

Dear ,

In November we contacted you asking for your help with the North American Birdwatching Survey. We are writing to you again because our ability to better understand birdwatching depends on hearing back from those people who have not yet responded. We need your help to ensure the results are as representative as possible.

If you have not answered the questionnaire yet, we ask that you do so now. To complete the study, click on the secure web address link below and use your access code to begin answering questions:

<http://birdwatcher-survey.org/login.html>

Access Code: GH5TAYG

The survey is hosted at our vendor's (Sawtooth Software) server and does not have an UMN.EDU address for that reason.

Responses to this survey are confidential and will not be connected to you in any reports of the data. If you should have any questions please e-mail the study director, Jason Spaeth, at birdsurvey@umn.edu or call [612-625-3718](tel:612-625-3718) and leave a detailed message.

Thank you so much for considering this request, we greatly appreciate your help on this study!

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This message was sent from:

CFANS Research
1420 Eckles Avenue
St. Paul, MN, 55108
USA

Participate in the birdwatcher survey.

December 15, 2017

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correctly?
[View it in your browser.](#)



UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

College of Food, Agricultural and Natural Resource Sciences

Dear ,

We are writing to follow up on the message we sent last week asking you to participate in the North American Birdwatching Survey. This study is drawing to a close, and we really would like to hear from you before we run out of time.

The URL link and your personal access code are included below to provide an easy link to the survey website:

<http://birdwatcher-survey.org/login.html>

Access Code: 427WK86

We truly hope you will be able to share your opinions with us!

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The University of Minnesota is an equal opportunity educator and employer.

This message was sent from:

CFANS Research
1420 Eckles Avenue
St. Paul, MN, 55108
USA


Appendix D: Institutional Review Board Determination

DETERMINATION OF HUMAN SUBJECT RESEARCH

Version 1.2

Updated June 2014, check <http://www.irb.umn.edu> for the latest version

Route this form to: See instructions below.	U Wide Form: June 2014
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<p>This form is used to help researchers determine if a project requires IRB review. It also provided documentation that the IRB has reviewed the project description and issued a determination.</p> <p>Additional information that may assist you in determining whether or not to submit an application can be found on the IRB website. See Does My Research Need IRB Review? and Guidance and FAQs IRB Review of Exempt Research.</p> <p>Please allow up to five (5) business days for review and response.</p> <p>Email completed form to irb@umn.edu</p>	<p>Based on the information provided, this project does not meet the regulatory definition of human subjects research. Additional IRB review is NOT required.</p> <div style="text-align: right; border: 1px solid black; padding: 5px;">  </div>
--	---

Project Title

Provide the grant title below if the project is funded.

Assessing the preferences of stakeholders and waterfowl management professionals to inform the implementation of the North American Waterfowl Management Plan

Section 1 Contact Information

Name (last name, First name MI) Fulton, David C.		Highest Earned Degree: PhD
Preferred contact information: <input type="checkbox"/> dcfulton@umn.edu <input type="checkbox"/> Preferred email at which you may be contacted by IRB staff.		
Affiliation and contact information <input checked="" type="checkbox"/> University of Minnesota Fairview Gillette		
U of M Required Contact information	U of M Internet ID (x.500):	dcfulton
	University Department:	FWCB

Section 2 Summary of Activities

2.1 Provide a brief description of your project. Include a description of what any participants will be asked to do and a description of the data accessed and/or collected (1,000 character limit).

Individuals will be asked to complete an online survey focused on waterfowl hunting regulations, conditions that influence the choice of waterfowl hunting or bird viewing recreational trips, importance of hunting and viewing, beliefs about wetland conservation, and some demographics including income within broad categories. We are targeting 10,000 completed surveys nationwide. The data will be aggregated at the regional and national levels and market analysis will be conducted to better understand the preferences for hunting and viewing experiences among different segments of the study population. This information will be used to help set objectives for national level management plans of waterfowl, wetlands, and other bird species related to wetlands.

2.2 Are all of the data used in this project publicly available, e.g. blog, aggregate data, etc.?

Yes No

Section 3 Is this Project Human Subjects Research as Defined by Federal Regulations?

Research is defined in the [Code of Federal Regulations, 45CFR46.102\(d\)](#), as *a systematic investigation designed to develop or contribute to generalizable knowledge*

The Belmont report states "...the term 'research' designates an activity designed to test a hypothesis or answer a research question(s) [and] permit conclusions to be drawn... Research is usually described in a formal protocol that sets forth an objective and a set of procedures to reach that objective."

Research generally does **not** include operational activities such as routine outbreak investigations and disease monitoring and studies for internal management purposes such as program evaluation, quality assurance, quality improvement, fiscal or program audits, marketing studies or contracted-for services.

Generalizable knowledge is information where the intended use of the research findings can be applied to populations or situations beyond that studied. Note that publishing the results of a project does not automatically meet the definition of generalizable knowledge.

3.1 Do you have a specific research question or hypothesis?

Yes No

3.2 Is your primary intent to generate knowledge that can be applied broadly to the group/condition under study?

Yes No

Human subject is defined in the Code of Federal Regulations, 45CFR46.102(f)(1or2), as a living individual about whom an investigator obtains data through intervention or interaction or identifiable private information.

The specimen(s)/data/information must be collected from or be **about** live subjects. Research on cadavers, autopsy specimens or specimens/information from subjects now deceased is not human subjects research.

3.3 Does this project involve intervention or interaction with a living individual or group of individuals? (e.g. confidential surveys, interviews, medical or educational testing)

Yes No

3.4 Does this project involve access to identifiable private data or specimens from living individuals?

Yes No

3.5 Does this project consist exclusively of interviewing or surveying subjects about his/her area of expertise, with a focus on policies, practices, and/or procedures (e.g. the collected data does not focus on personal opinion or private information)?

Yes No

3.6 Is the project meant to record the stories, knowledge or experiences of individuals? Oral histories typically do not intend to answer a research question or hypothesis.

Yes No

If a protocol exists for this project it must be submitted for review. Submit this request along with any supplemental documents that may aid in review of your project to the University of Minnesota IRB at irb@umn.edu.