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Original Article

Hunting and the Local Food Movement: Insights from Central New York State

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ABSTRACT Concerns within the conservation community about declining hunting participation and associated conservation consequences have catalyzed hunter recruitment and retention strategies targeting nontraditional hunting populations. One emerging group of interest includes individuals motived to eat food that is grown, raised, produced, or harvested locally. Sometimes referred to as "locavores," this group has motivated many wildlife agencies and organizations to develop hunting programs focusing on their assumed desire for local wild game. However, little empirical information speaks to locavore interest in harvesting and consuming wild game. We surveyed 1 subgroup: 471 subscribers to a local food-oriented magazine in the Finger Lakes Region of central New York, USA. Most respondents (82%) had eaten wild game at least once, though <20% of respondents did so on a regular basis. Few respondents (8%) personally harvested wild game (most [77%] received it from friends and family), and <10% were active hunters. However, 23% said they would consider hunting, and many (59%) expressed interest in learning about preparing wild game and conservation benefits associated with wild game consumption. Our findings, although limited to one particular population, suggest that, at minimum, the local foods movement could generate indirect conservation impacts through expanding social networks supporting wildlife-based recreation. Future research should explore these possibilities and identify strategies that might foster links between different types of food-motivated stakeholders and hunting.

KEY WORDS food, hunting, local, locavore, wild game.

Declining hunting participation has challenged conservation efforts, making hunter recruitment and retention a high priority within the North American wildlife management community. Historically, efforts have focused on hunter populations oft-labeled by managers as "traditional": white males with rural upbringings, who have been socialized into hunting through family influence (Decker and Enck 1996, Stedman and Heberlein 2001). Through social change, this group has been declining over time (Heberlein and Thomson 1992).

As wildlife managers strive to understand and adapt to the rapidly changing "social habitat" for hunting (Larson et al. 2014*a*), new opportunities are emerging for engaging nontraditional hunting populations. For example, some evidence suggests that the locavore movement, which emphasizes consuming food that is grown, raised, produced, or harvested locally (Tidball et al. 2013), may influence the way many Americans think about wild game and hunting (Larson et al. 2014*b*). As Tidball et al. (2013) and Warnke et al. (2013) suggest, many conservation professionals are intrigued at the potential for this movement to produce more hunting support, and perhaps a more diverse hunter profile. Consequently, some state agencies (e.g., Wisconsin, Michigan, USA) are expanding hunter education programs to attract locavores, among other nontraditional hunting audiences (e.g., women, racial–ethnic minorities; Responsive Management and National Wild Turkey Federation 2011).

Many of these hunter recruitment efforts, however, are constrained by a dearth of research. In most cases, little information speaks to how (and to what extent) emerging hunter groups could contribute to hunting (Larson et al. 2014*a*). To begin to address this critical data gap, we applied a quantitative survey approach, building upon initial qualitative inquiry and literature review, based on questions asked by conservation professionals: can an emphasis on wild game consumption spurred by a local foods movement help recruit the next generation of hunters and anglers, reduce the decline in hunting participation in the United States, and contribute to a broader, more diverse support base?

The Local Foods Movement

Reports from across the United States suggest that interest in consuming food that is grown, raised, produced, or harvested

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locally has increased substantially in the past decade (Cotler 2009, Tidball et al. 2013, National Sustainable Agriculture Coalition 2014). This "locavore" movement has also garnered notable attention in popular circles. Authors such as Michael Pollan (2006), Amy Cotler (2009), and Tovar Cerulli (2012) extol the benefits of eating local foods through their books featuring firsthand accounts. Related stories have also been prominently featured in major newspapers (Ruth-McSwain 2012) and magazines (Andres 2014). A recent review of popular media and use of the term "locavore" in conjunction with the word "hunting" yielded >53,600 search results (Tidball 2016). This rapid growth of interest in the local foods movement has outpaced researchers' knowledge about who locavores are and what influences their preferences and behavior. Nevertheless, some important insights are beginning to emerge.

As one of a larger suite of food-related movements, locavorism emphasizes consumers (and producers) who seek a healthier, more sustainable lifestyle through utilizing localized food systems (see Applewick 2007, Coit 2008, Starr 2010, DeLind 2011, Ikerd 2011, Tidball et al. 2013). For some, eating locally stems from personal ethical beliefs and a rejection of mass-produced or chemically enhanced produce, meat, fish, and poultry (Pollan 2006, Cerulli 2012). Others are drawn to the perceived safety and superior nutritional quality (Tidball et al. 2014*b*) of locally grown foods, and supporting rural communities (Zepeda and Li 2006, Byker et al. 2012, Stanton et al. 2012). However, because many local food sources can be inconvenient, expensive, or difficult to find, accessibility represents a prominent barrier to local food consumption (Lockeretz 1986, Eastwood et al. 1999, Nie and Zepeda 2011). Gender may be important as well; research has shown that females are more likely than males to be motivated by concerns about health, freshness, safety, and ethical food production than their male counterparts (Beardsworth et al. 2002, Nie and Zepeda 2011). Increased recognition of the personal health and conservation benefits associated with consumption of wild-caught, locally harvested fish and game is moving thinking about the subject of local foods beyond its agricultural crop and livestock roots. Many locavores include local wild fish and game in their diets (Pollan 2006, Bruckner 2007, Tidball et al. 2014*a*).

Hunting and Local Foods

Including wild-harvested meat in a local diet creates opportunities and challenges, especially related to procurement. Some have speculated that the locavore movement could be leveraged to help to generate further awareness of, support for, and participation in fishing and hunting (Tidball et al. 2013). Just as locavores prefer to know the source of their fruits and vegetables, personal harvest and subsequent processing of wild animals might provide an additional sense of knowledge and satisfaction for this type of consumer.

Mindful consumption of meat (Cerulli 2012), may affect public perceptions of hunting. For example, studies reveal that "obtaining local, free-range meat" is consistently ranked among the most acceptable reasons for hunting (Duda et al. 2010, Ljung et al. 2012, Decker et al. 2015). Food-related hunting motivations may be particularly important to women (Gigliotti and Metcalf 2016). Some evidence suggests that an increase in emphasis on local foods may contribute to a recent rise in the U.S. fishing and hunting participation and offer enhanced recruitment opportunities for female hunters (Responsive Management 2013). This connection between hunting and food is not surprising to some, who have long viewed the consistent neglect of wildlife management and harvest in the local food literature as lamentable. According to authors like Rinella (2007), hunters were the "original locavores" (see also Shepard 2011).

Across the United States, a variety of efforts are underway to explore the possibility of bolstering hunter recruitment efforts through links to evolving food culture. In New York, USA, for example, initiatives such as New York State's Wild Harvest Table (Cornell University Cooperative Extension 2016) invite locavores to introduce wild fish and game into their diets and foster ongoing dialogue about the benefits of eating locally harvested meat (Tidball et al. 2013) and the nutritional value of wild game and fish (Tidball et al. 2017). This program highlights health benefits of eating wild game while also emphasizing its connection to environmental stewardship, sustainability, and conservation. Gourmet Gone Wild (2016:1) is a Michigan based "outreach program designed to introduce young professionals to hunting and fishing in an innovative way: tasteful and healthy cuisine." It often goes overlooked that wild meat and fish are some of the most "organic" and "free-range" food choices available. Other examples are found in North Dakota and Pennsylvania, USA (North Dakota State University 2010, Pennsylvania State University Department of Food Science 2016). "Learning to Hunt for Food" workshops geared toward adult-onset hunters have emerged in Wisconsin (Warnke et al. 2013); other states such as Idaho and Michigan, USA, explore potential links between fishing, hunting, and new perspectives on food ecology.

Conservation professionals are responding to these efforts. Recent national meetings of the Association of Fish and Wildlife Agencies and The Wildlife Society have convened workshops and panel discussions that focus on connections among "hunting, fishing, and foodies." For example in 2013, Michigan State University and the Wisconsin Department of Natural Resources hosted the first "Food for Thought" meeting as a special session at The Wildlife Society Annual Conference. Hunters, researchers, managers, and conservation practitioners from across the country discussed ways to develop and coordinate efforts to reach out to those who have become interested in hunting based on the food-oriented motivations described above.

It is crucial to emphasize that although the locavore movement is certainly "real" in the attention that it is garnering, it is not yet clear if it will lead to a sustained increase in fishing and hunting participation. It is also unclear how and to what extent managers can or should act to leverage this enthusiasm. As researchers, we take the importance of the local foods movement not as a given, but as an important area of inquiry. Little systematic knowledge exists about locavores' consumption of wild game,

the factors that influence this, or the potential contributions of the locavore movement to hunting and other forms of wildlife-based recreation. Based on workshops, focus groups, and semistructured interviews, we developed a study that would help to answer these questions in one particular region: the Finger Lakes area of central New York State. Within this context, our specific objectives were to identify a group of people consistent with definition of "locavore," and:

1. Identify the extent to which this group consumes wild game;
2. Examine factors related to their wild game consumption (e.g., preferences, barriers), including potential gender differences;
3. Determine how they learn about procuring, processing, and preparing wild game, including barriers to finding and using this information; and
4. Explore connections between wild game consumption and current (or future) hunting participation.

METHODS

Survey Sample

Finding locavores is a logistical challenge. There is no single behavior or membership list that identifies someone as a locavore. Any particular group thus represents a partial view of the movement, and results should be interpreted accordingly. In addition, there are often elements of social movements that may be interested in not being identified. For example, anecdotal evidence suggests that many individuals engaged in the food movement eschew labels such as "locavore" (Payne 2012). For the purposes of this study, we consulted a variety of entities and organizations embedded within the local food community of the Finger Lakes region of central New York State, an area well-known for its local food emphasis. We conducted semistructured interviews with 40 individual stakeholders from the Finger Lakes, New York, region (locavores, current hunters–anglers, nutrition educators, and food-insecure) to better understand their motivations and barriers to consuming wild game and fish, and facilitated a workshop with 22 stakeholders to discuss hunting, fishing, conservation, consuming game and fish, and local foods (see Gillespie and Sung [2014] for additional detail). We interviewed >200 additional people at local food festivals, such as the Finger Lakes Cork and Fork event, to better understand leveraging the locavore movement for inclusion of wild game and fish. The information gathered through these initial stages helped shape the questions we asked in our larger survey work. Although our initial list of potential partners included local farmers' markets, community-supported agriculture groups, local food-based nongovernmental organizations, and Cooperative Extension networks, few of these groups were willing to share contact information for their constituents. Additionally, as described above, these groups would still provide only partial views of the movement.

We decided to identify potential area locavores through their affiliation with *Edible Finger Lakes* (*EFL*) magazine, a paper publication and online newsletter focused on the local food experience in the Finger Lakes region of central New York (see Tidball et al. 2014*a* for more detail). Our sampling frame included the 1,586 mail and 420 web-based subscribers to the *EFL* magazine and newsletter. We emphasize here that this sample represents one particular element of the movement, in one particular region, rather than an assessment of the movement as a whole.

Survey Instrument

E-mail addresses were available for the entire *EFL* sample, so we implemented the survey via the web, using Qualtrics survey software. Survey themes and questions were based on input from content matter experts and interviews from an earlier phase of participatory research focused on the contributions of wild fish and game to food security in rural communities (Gillespie and Sung 2014). The concept of a "local" foodshed varies widely—from within 100 miles (161 km) of one's place of residence (Rose et al. 2008) to broader criteria that encompass entire states or regions (Conner et al. 2010)—therefore, we defined local food as anything procured within a "half day's drive of an individual's place of residence." Although this definition is subjective, it roughly aligns with that of Rose et al. (2008).

The survey instrument (available online in Supporting Information) included items related to: "general food choices" or motivations to eat food (and meat, specifically) that is "grown, raised, produced or harvested locally"; "wild game consumption"; "wild game procurement"; "wild game consumption preferences and barriers"; and "information sources" on topics such as harvesting, processing, and preparing wild game, and conservation benefits of harvesting wild game; "participation in hunting" (past, current, and future intention); and "socio-demographic information" or gender, age, race–ethnicity, education, income level, current and past place of residence by state–county and type (e.g., rural, suburban, urban).

Survey Implementation

We sent the survey instrument to the 2,006 *EFL* subscribers in a 4-step process that involved separate e-mail contacts at approximately weekly intervals from 11 April to 10 May 2014. The Cornell University Office of Research Integrity and Assurance (IRB Protocol #1203002920) approved the instrument for use with human subjects. Each individual received an e-mail with a unique URL that could be completed only once by that particular individual. Survey links expired 2 weeks after they were first accessed. Once an individual responded to the survey, he–she did not receive follow-up e-mail reminders. After removing 31 undeliverable e-mail addresses, we received 641 responses (generating a 32.5% response rate). Of these respondents, 35 were not current New York residents and 135 did not complete the entire survey.

To assess potential nonresponse bias, we implemented a brief follow-up telephone survey that asked a subset of key questions from the web-based instrument, including motivations to eat local, game consumption frequency (and barriers), interest in learning additional information about wild game consumption, current and future hunting

participation, and demographics. Mailing address information needed for telephone number lookups was available for 891 of the 1,334 nonrespondents (66.8%). After obtaining the phone numbers for these respondents, we called individuals from 22 to 28 May 2014, until we obtained 50 completed telephone surveys.

Data Analysis

We analyzed these data using SPSS (IBM SPSS Statistics 22.0; IBM Corp., Armonk, NY, USA). We assessed differences between respondents and nonrespondents using chi-square and *t*-tests. We used descriptive statistics, including means and frequencies, to characterize general responses to each question in the sample. We used chi-square tests, *t*-tests, and analysis of variance tests to test for differences between key groups at $\alpha = 0.05$. We used Welch–Satterthwaite adjustments to assess the statistical significance of group comparisons when the assumption of equal variances among the groups was not met. We applied Holm–Bonferroni corrections to adjust the familywise error rate for all tests involving multiple comparisons of related outcome variables (Holm 1979). Reflecting the emphasis on women as a potential expansion of the hunting population, and within food circles, our analysis focused in particular on male–female differences for the variables of interest.

RESULTS

Tests for Nonresponse Bias

Respondents and nonrespondents did not differ on key variables (motivation to eat local food, consumption of wild game, and hunting participation). Nor did they differ by gender, education, or place of residence. They differed only in average age: nonrespondents ($\bar{x} = 61.4$ yr, SE = 1.70) were older than respondents ($\bar{x} = 52.9$ yr, SE = 0.59; $t_{513} = 4.5$, $P < 0.001$), reflecting a pattern often observed in web surveys (Vaske et al. 2011). Significant differences between respondents and nonrespondents were not evident for key variables, so we did not reweight these data to correct for potential nonresponse bias.

Descriptive Results

Respondents averaged 52.9 years old (SE = 0.59), 68.4% were female and well-educated, with 47.2% holding graduate or professional degrees, and 42.7% holding an Associate's or Bachelor's degree. Notably, average estimated annual income was US$123,823, with 20% earning ≥US$150,000. Only 3.2% earned <US$25,000. Nearly all (98.1%) of the respondents were white. A majority had grown up in suburban (48.5%) or urban (14.7%) areas; 49.7% currently lived in a rural area.

Nearly all respondents (98.7%) met our definition of locavores, agreeing with the statement: "I am motivated to eat food that is grown, raised, produced, or harvested locally." Fewer (86.9%) were motivated to eat meat that is grown, raised, produced, or harvested locally.

The most important reasons for eating local foods included supporting the local area, personal health, and nature conservation. At least 90% of respondents rated each of these motives as important or extremely important. Self-sufficiency and social interaction, though also extremely important or important (69.0% and 49.0%, respectively), were not as consistently valued.

Consumption of Wild Game

Most respondents (81.9%) had eaten wild game (the survey also asked questions about wild fish consumption, but to keep to the central topic of wildlife and hunting, we only present results for wild game). The percentage of men (81.0%) and women (75.4%) who reported that they had eaten wild game did not differ ($\chi^2_1 = 1.8$, $P = 0.18$). Respondents who ate wild game also indicated their consumption rates for various game species. Most (84.3%) of respondents had consumed deer (*Odocoileus* spp.) at least once, and 15.4% ate it at least once per month. Fewer (37.0%) had consumed waterfowl (e.g., ducks, geese [Anatidae]), small game (30.3%; e.g., rabbit [*Sylvilagus* spp.], squirrel [Sciuridae]) or upland game (31.5%; e.g., grouse [Tetraonidae], pheasants [*Phasianus colchicus*]). Less than 1% of respondents reported regular consumption (i.e., at least once per month) of any of these 3 types.

Procurement of Wild Game

For most respondents, wild game was provided by friends and family; 77.1% of those eating venison reported as such, with only 7.8% reported harvesting it themselves. Slight differences in procurement were observed for small game (a few more people harvested these themselves) and waterfowl (a few more people ate these at potlucks or game dinners), but the general pattern remained the same. Overall, only 15.7% of those eating wild game harvested it themselves. Men were much more likely than women to harvest their own game ($t_{210.4} = 4.7$, $P < 0.001$).

Wild Game Consumption Preferences and Barriers

The most important influences for consumption of wild game included "quality and freshness," rated as important or extremely important by 89.5%, "taste" (81.5%), followed by "sustainable use of natural resources" (76.8%), "support for wildlife conservation" (75.6%), "connection to local food sources" (72.9%), "where game was obtained" (70.1%), and "how game was obtained" (64.0%). Social factors appeared to be less important with the lowest observed importance ratings for "sharing knowledge about hunting and game consumption (23.8%)" and "spending time with others who enjoy eating wild game" (21.4%).

As described earlier, we were especially interested in how patterns vary by gender. After Holm–Bonferroni adjustments for multiple comparisons, women were more likely than men to rate as important: where game was obtained (Mean Diff. = 0.47, SE = 0.13, $t_{201} = -3.5$, $P = 0.001$); how game was obtained (Mean Diff. = 0.45, SE = 0.13, $t_{208.3} = -3.4$, $P = 0.001$); and taste (Mean Diff. = 0.33, SE = 0.12, $t_{227.3} = -2.9$, $P = 0.005$).

All respondents were asked about barriers to game consumption (Table 1). Lack of skills required to "hunt wild game" and "process–prepare wild game" were reported as moderate or major barriers by 51.8% and 51.0% of respondents, respectively. These barriers were especially prominent among nonhunters. Other important barriers

Table 1. Barriers to consumption of wild game, by likelihood of hunting, from a 2014 online survey of subscribers to *Edible Finger Lakes Magazine* ($n = 471$). Scale: 1 = Not a barrier, 2 = Minor barrier, 3 = Moderate barrier, 4 = Major barrier.

	Overall		By hunting participation group				
Factor	$\bar{x}$	SD	Currently hunt	Would consider hunting	Would never hunt	F	P
Lack skills required to hunt wild game	2.52	1.36	1.30	2.60	2.69	22.16	0.00[a]
Lack skills required to process–prepare wild game	2.51	1.32	1.45	2.59	2.64	16.63	0.00[a]
Time required to catch and prepare wild game	2.34	1.26	1.84	2.47	2.34	4.40	0.01[a]
Don't like the act of killing animal	2.25	1.24	1.33	1.70	2.74	59.10	0.00[a]
Concerns about wild game quality–safety and personal health	2.15	1.11	1.82	2.03	2.28	4.75	0.01[a]
Concerns about environmental quality where game was harvested	2.03	1.08	1.80	1.89	2.16	4.24	0.01[a]
Lack people to hunt with and learn from	2.00	1.22	1.30	2.06	2.07	8.31	0.00[a]
Cost of hunting wild game (travel, equipment, etc.)	1.97	1.14	1.57	2.03	2.00	3.06	0.05
Don't like the taste	1.85	1.10	1.23	1.59	2.12	20.90	0.001[a]
Lack info about where to hunt–obtain wild game	1.82	1.12	1.41	1.78	1.92	4.06	0.02
Limited access to land and hunting opportunities	1.82	1.12	1.68	1.85	1.84	0.40	0.67
Cost of hunting license	1.65	0.98	1.67	1.65	1.65	0.02	0.99
Don't know the nutritional content	1.48	0.83	1.27	1.31	1.62	8.56	0.00[a]

[a] Denotes significance of Welch–Satterthwaite analysis of variance at Holm–Bonferroni adjusted $\alpha = 0.05$.

included "time required to catch and prepare wild game" (45.7%), "don't like the act of killing animal" (40.2%), and "concerns about environmental quality where game was caught" (37.0%). Individuals who indicated they would never hunt were more likely to list "don't like the act of killing animal" as a barrier (Table 1). Other, less common barriers to game consumption mentioned by participants in the open-ended answer option included "not interested in hunting," "don't like hunting," and "don't eat meat."

Gender differences were evident in barriers to wild game consumption, with women reporting more significant constraints for every item. The most significant gender differences were observed for "don't like the act of killing animal" (Mean Diff. = 0.54, SE = 0.12, $t_{301.7} = 4.6$, $P = 0.001$) and "lack skills required to hunt wild game" (Mean Diff. = 0.32, SE = 0.14, $t_{292.1} = 2.4$, $P = 0.02$).

Interest and Information Sources Related to Wild Game Consumption

Results indicated substantial interest in topics related to consumption of wild game: 58.7% of respondents were somewhat or very interested in learning more about preparing wild game, and 58.9% in learning more about the conservation benefits of eating wild game. Interest in topics related to game processing (35.4%) and hunting itself (27.2%) was substantially lower.

Even when considering Holm–Bonferroni adjustments, men were significantly more interested in learning about harvesting ($t_{191.5} = 5.7$, $P < 0.001$), processing ($t_{221.2} = 4.6$, $P < 0.001$), and preparing ($t_{248.0} = 2.8$, $P = 0.005$) wild game than women; however, women were equally interested in information about conservation benefits associated with wild game consumption. We also explored the relationship between having consumed wild game and interest in multiple topics related to wild game consumption. Not surprisingly, individuals who had eaten wild game were more interested in learning about harvesting ($t_{315.7} = -5.2$, $P < 0.001$), processing ($t_{278.7} = -6.1$, $P < 0.001$), preparing ($t_{201.1} = -6.2$, $P < 0.001$), and conservation benefits associated with eating wild game ($t_{178.4} = -3.4$, $P = 0.001$) than individuals who had never eaten wild game. Despite these differences, many respondents who had never eaten wild game were also interested in learning about preparing wild-caught game and benefits of consuming wild-caught game (Table 2).

Respondents were also asked about their likelihood of using various sources to obtain information related to game consumption. The most likely sources of information were friends and family (54.4% rated as likely or very likely to use) and general internet sources (47.4%). All other sources were rated on the "unlikely" side of the spectrum. For instance, the number of individuals likely to obtain information about game consumption from county extension offices (24.8%),

Table 2. Interest in wild game harvest and preparation, by previous game consumption, from a 2014 online survey of subscribers to Edible Finger Lakes Magazine ($n = 471$).

	Had consumed wild game ($n = 362$)		Had NOT consumed wild game ($n = 109$)			
Aspect	Not at all interested	Somewhat or very interested	Not at all interested	Somewhat or very interested	t	P
Hunting wild game (hunting skills, approaches, opportunities, etc.)	68.9	31.1	85.7	14.3	−3.97	0.00[a]
Processing wild game (safe handling, cleaning, and storage)	59.1	40.9	82.9	17.1	−5.24	0.00[a]
Preparing wild game (cooking for personal or family consumption)	34.8	65.2	63.1	36.9	−5.22	0.00[a]
Conservation benefits of harvesting and eating wild game	36.9	63.1	54.8	45.2	−3.23	0.02

[a] Denotes significance of χ^2 test at Holm–Bonferroni adjusted $\alpha = 0.05$.

the New York State Department of Environmental Conservation (22.8%), and other hunting-related organizations (20.6%) was substantially lower.

Hunting Participation

Only 7.4% of participants had hunted in the past year. Consistent with national figures, men (16.9%) were more likely than women (3.4%) to have hunted in the past 12 months ($\chi^2_1 = 26.0$, $P < 0.001$). Hunters spent most (88.6%) of their total hunting time within a half-day drive of where they lived.

Regarding future hunting participation, greater than half (57.3%) indicated that they would never go hunting, but 22.7% would consider it. An additional 10.6% had previously hunted and since quit. Men were more likely to actively hunt (19.7%) or consider hunting (45.8%) than women (4.9% and 28.3%, respectively; $\chi^2_2 = 50.0$, $P < 0.001$), though both groups hunted at a rate above the national average (USFWS 2012). Conversely, women (66.8%) were much more likely than men (34.5%) to report that they would never consider hunting. These results suggest that hunting participation is relatively unlikely to change even if additional information and education opportunities were available.

Constraints to wild game consumption also appeared to influence the likelihood of future hunting participation. The most important barrier for respondents who would never hunt was "don't like the act of killing animals" (57.7% reported as moderate or major barrier) compared with <22% for other groups. For respondents who would consider hunting, the most substantial barriers centered on a lack of skills required to hunt (55.4%) or process and prepare (54.2%) wild game. Fostering hunting participation was most likely via additional information about preparing wild game (19.8% reported likely or very likely to increase participation) and information about conservation benefits of harvesting and eating wild game (16.2%), but most people (68.5%) indicated that change was relatively unlikely in both cases.

DISCUSSION

Within the context of our study population (local food-oriented magazine subscribers in the Finger Lakes region of NY), we provide new insights into the links between local foods, wild game consumption, and hunting. Most respondents had eaten wild game (primarily venison) at least once, though <20% did so on a regular basis. As such, wild game was not a dietary staple for most respondents. Most of the game they had eaten was provided by friends or family members, and many seemed to prefer this option to the do-it-yourself alternative. Only approximately 10% harvested their own game and greater than half said they would not consider hunting.

Collectively, findings suggested that a majority of respondents did not currently hunt; many of them indicated they would not take up hunting. The overall proportion of men (34%) and women (67%) who would not consider hunting was approximately equal across our sample and the general U.S. population (Larson et al. 2014*b*). Our hunting participation estimates are somewhat skewed by the large percentage of females in the *EFL* sample (68.4%). When gender groups are analyzed independently, respondents are somewhat more likely to hunt than the national average for their gender (USFWS 2012). For example, 16.9% of male respondents hunted in the past year (vs. 13% nationally), as did 3.4% of female respondents (vs. <2% nationally). These differences might be partially explained by residential characteristics rather than, or in addition to, their desire for local foods. Approximately 6% of the total U.S. population lives outside of metropolitan statistical areas, and approximately 15% of this group hunts (USFWS 2012). Nearly half of the *EFL* sample reported living in a rural area.

Our study revealed some important connections between local food consumption and hunting that go beyond current participation. For example, 23% of respondents said they had never hunted, but would consider hunting in the future; 11% of respondents had previously hunted. This combined numbers of potential hunters (34%) are slightly greater than the national average of 30% using the same measures (Decker et al. 2015) and surprisingly large when one considers that the majority of our respondents were women (28% of women sampled would consider hunting).

What might facilitate these potential hunters' entry into hunting? The most significant barriers cited by those who enjoy game meat and would consider hunting revolved around their absence of skills (and time) needed to hunt, process, and prepare wild game. Fostering these skills via learning and mentoring opportunities could help foster hunting behavior among interested locavores. An interest in cooking and healthy eating has been associated with sustainable, pro-environmental food-consumption patterns (Niva et al. 2014). Part of a larger "Leveraging the Locavore" research project at Cornell University involved collecting and documenting the nutritional value of wild game species in an effort to add validity and normative qualities to wild game dishes and health claims (Tidball et al. 2013). Our results also showed that where and how game meat was obtained were important considerations for those contemplating consumption of wild game. These concerns, along with taste, were especially important to women. Efforts to alleviate concerns about the quality and safety of wild game might remove another potential barrier to hunting for some. Minnesota's Department of Natural Resources has consumer safety information about use of lead ammunition in deer hunting, and many states put out health advisory information for consumption of sportfish every year (The Wildlife Society 2008, Minnesota Department of Natural Resources 2016).

Some locavores who enjoy game may not be not be willing to harvest animals themselves for ethical or personal reasons, making their future hunting participation unlikely. However, most of these individuals eat game provided by family and friends, and as such are part of the broader hunting social world (Stedman and Decker 1996). Strategies for increasing availability of game might emphasize fostering social connectivity between local food consumers and local hunters, perhaps through programs that focus on themes with broad

appeal such as meat preparation and wildlife conservation (Zepeda and Li 2006). This could be an important area of future research and outreach that helps create mechanisms for locavores to contribute to the broader "social habitat" for hunting (Larson et al. 2014*a*), indirectly influencing hunters and hunting participation. In other words, the complex relationship between locavorism and hunting social worlds likely extends well beyond hunting participation itself.

Where might locavores seek information about wild game consumption? Survey results revealed that the most commonly referenced source of information related to wild game consumption was general internet sources such as websites and blogs. These sources of information are rapidly proliferating. One example, the Wild Harvest Table blog (Cornell University Cooperative Extension 2016) of Cornell Cooperative Extension and the Department of Natural Resources provides web-based information about harvesting and cooking wild-caught local meats. As described above, many other states are engaging this area as well (e.g., http://locavore.guide/). Trusted input from family and friends was also important. In fact, "foodie" organizations ranked higher than any other formal group, underscoring the importance of communication and messaging strategies originating within existing social circles (Zepeda and Li 2006). State agencies and related institutions could help facilitate these connections by providing consumers with direct links to sources of trusted information. The programs described above are emerging to address this need.

To this point, our discussion has focused on increasing wild game consumption and hunting participation among locavores who may already have some proclivity toward these activities. What about those who do not? Support for the local economy and dietary concerns revolving around personal health are commonly cited reasons for eating local food (Rinella 2007, Thomas and McIntosh 2013). However, motives related to nature conservation (e.g., doing what is good for the environment) have often been understated in such accounts and could be explored in future studies. Analysis of general motivations and preferences in our sample demonstrated that the top reasons for eating local (rated as important or extremely important by >90% of respondents) were supporting the local area, personal health, and nature conservation. Emphasis on all of these factors might encourage more locavores to regularly consume wild game.

In some, but relatively few cases, basic opposition to killing animals was enough to deter potential wild game consumers. This barrier was more prevalent among female respondents. Although we did not directly ask if respondents were vegetarians or vegans, it is likely that some individuals in the *EFL* sample abstained from consumption of meat or animal products for this reason. Approximately 5% of respondents disagreed or strongly disagreed with the statement "I am motivated to eat meat that is grown, raised, produced, or harvested, locally," and several respondents wrote in "vegetarian" or "I don't eat meat" into the open-ended option for "other" on the barriers to consumption questions. Future studies could investigate support for wild game consumption among vegetarians and vegans, who might not choose to eat meat but support local game harvest for other reasons (e.g., environmental benefits).

There are several key limitations to these findings. First, as already emphasized, the degree to which our *EFL* sample represents other segments of the locavore movement with respect to their views and participation in the consumption of game and hunting is currently unknown. *Edible Finger Lakes* subscribers were older, wealthier, and more-educated than the general population. This demographic profile reflects results of previous research and supports the widely held belief that locavores are generally individuals that possess both disposable time and income (Conner et al. 2010, Nie and Zepeda 2011, Byker et al. 2012, Stanton et al. 2012). However, such studies may not effectively capture a new wave of younger locavores—a growing population of young college graduates whose personal interests and values spark careers in small-scale farming (National Sustainable Agriculture Coalition 2014), as well as urbanites who participate in similar types of community-supported agriculture endeavors (Landis et al. 2010). For example, the term "Hipster" appears in a number of popular press pieces discussing hunting in the 21st century, but it is as of yet unclear how the locavore movement and the hipster movement intersect (Tidball 2016). Writings extolling the virtues of local food-inspired hunting are rapidly proliferating and especially appear to target younger audiences (e.g., Pollan 2006, Landers 2011, Pellegrini 2011, Cerulli 2012, McCaulou 2012). Future studies attempting to characterize food consumption preferences could more explicitly account for awareness and perceptions of hunting and game consumption in this subpopulation. Additional research could also consider populations of low-income individuals who adopt locavore principles and engage in local farming, fishing, and hunting, or utilize venison donation to supplement their food supplies, less by choice than necessity (Corburn 2002, Brown 2011). Little is known about the prevalence and consumption rates of these subsistence locavores, but they likely experience motivations and constraints very different from those identified by respondents in our sample of *EFL* subscribers. Finally, 2 methodological constraints should be noted. First, as described, the study focused on residents of central New York, and characteristics of potential locavores in other geographic regions (including urban areas and other states) might be different. Second, because the e-mail-derived sample mandated a web-based survey approach, the survey method may have inadvertently excluded populations with limited internet access (e.g., residents of very rural areas, older individuals, low-income individuals).

MANAGEMENT IMPLICATIONS

Interest among conservation professionals in potential hunters drawn by their interest in local food has proceeded even in the relative absence of data about the size and scope of the movement. Our study, even if limited in geographic scope and targeted toward one particular element of the locavore movement, represents the first attempt to systematically

investigate and understand this relationship. Respondent consumption and interest in wild game suggest that food may provide a pathway to partnerships between locavores and hunters. Professionals wishing to leverage the local movement through targeted programming need not emphasize overcoming resistance to eating wild game. Respondents' emphasis on venison consumption (far more than waterfowl, small game, etc.) intersects with other areas of interest to conservation professionals, particularly those that focus on curtailing local overabundance of white-tailed deer. Initiatives to increase deer harvest through longer seasons, larger bag limits, or increased access may be supported by locavores in programs designed to provide access to venison. Such efforts also conjoin "civic purposes" of hunting shown to be associated with increased hunting support (Decker et al. 2015): reducing ecological damage of overabundant deer while increasing access to healthy local food.

Eating wild game can be a stepping stone to hunting participation, but previous research (e.g., Stedman and Decker 1996, Larson et al. 2014*a*) has also shown that simply being part of a network of hunters and participating in hunting-related activities, such as eating game meat, is an important part of a wider culture of conservation. The inclusion of those who are unlikely to ever hunt, but who are included as part of a broader culture of conservation, is an underappreciated element of leveraging. Finally, in part as an artifact of our sampling strategy, the female, affluent, well-educated, urban–suburban element of the movement represents a diversifying influence, compared with characteristics of hunters as whole. If conservation professionals are able to leverage this group's interest in consuming wild game, this may both strengthen and diversify support for hunting and conservation.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article at the publisher's website. The supporting material is the online survey instrument on which we based our analysis.