Participation in Select Nature-based Recreational Activities by Rural Mississippi Youth

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Abstract: Recruitment and retention of future conservationists are key issues for many natural resources agencies and organizations. Engaging children in nature-based recreation may contribute to their future participation as adults. Because rural settings and rural cultures can support outdoor recreational engagement for youth, we investigated nature-based recreational habits of rural children through a convenience survey of 608 fifth grade students in eight northeastern Mississippi public and private schools across four counties. Survey results indicate fishing and hunting were the most common outdoor pursuits among the respondents. Camping in recreational vehicles and canoeing or kayaking received the least participation of the eight activities included on the survey instrument. Despite access afforded by the rural environment, lack of opportunity prevented greater involvement by children in some of the outdoor activities on the survey. Engagement in recreational activities varied significantly among gender and racial groups, with greater participation reported by white children and male children of all surveyed races. The study's rural setting was not indicative of substantive engagement in the focal nature-based recreational activities by all segments of the local youth population. Natural resources organizations concerned with recruitment and retention of citizens who support nature-based recreation should consider implementation of actions that intentionally target youth in demographically-diverse rural areas as well as those in often-targeted urban areas.

Key words: outdoor recreation, youth survey, minorities, recruitment

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Recruitment and retention of conservationists are key issues for many natural resources agencies and organizations (e.g., Enck et al. 2000, Adams et al. 2004). Hunting and fishing provide substantial economic benefits to local and state economies (U.S. Fish and Wildlife Service [USFWS] and U.S. Census Bureau 2017). They also provide the primary source of funding for wildlife and fisheries management (USFWS 2000). Although recent survey data indicate 40% of the adult U.S. population participates in wildlife-related activities, concerns remain as hunter numbers continue to decline (USFWS and U.S. Census Bureau 2017). These concerns are exacerbated by evidence for societal shifts away from nature-based recreation (Kareiva 2008, Pergams and Zaradic 2008), especially as urban sprawl expands into rural areas (e.g., Terando et al. 2014). Currently, 80.7% of Americans live in urban areas even though rural areas constitute about 97% of the U.S. land cover (U.S. Census Bureau 2016). People living in urban areas can have attitudes, perceptions, and behaviors regarding wildlife that may not be favorable toward traditional wildlife management (Berenguer et al. 2005, Leong 2009, Cordell 2012, Wilkins et al. 2019), and outcomes resulting from these differences between constituents and wildlife professionals may become exacerbated as urbanization of the U.S. population continues.

Engaging children in nature-based recreation can contribute to their participation in conservation-related behaviors as adults and may be a mechanism for mitigating recruitment issues (Scott and Willits 1998, Kareiva 2008, Cooper et al. 2015, Burger et al. 2018, Larson et al. 2018). Adults who were introduced to the outdoors as children are more likely to participate in outdoor activities during adulthood than those who did not have this childhood exposure (Wells and Lekies 2006, Larson et al. 2011, Outdoor Foundation 2018). Greater awareness and appreciation for natural environments have also been documented in youth with nature experiences (Chawla 1999, Lohr and Pearson-Mims 2005, Chawla 2007).

There is concern, however, that children are now growing up disconnected from nature (Louv 2008, Larson et al. 2019). This may be more severe in urban settings where children face increased access barriers to nature-based recreation (Shinew et al. 2013, Stodolska et al. 2013) and potentially unfavorable human-wildlife interactions that may engender negative perceptions (Dargitz 1988, Leong 2009). Consequently, initiatives to provide positive, outdoor, wildlife-based experiences for youth—often for those living in urban areas—are commonly employed by state and federal resource agencies and non-governmental organizations to engage children and promote recruitment of future conservationists (e.g., Rupert and Dann 1988, DiCamillo and Schaefer 2000, Schultz et al. 2003, Balsman and Shoup 2008).

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Unlike urban areas, rural settings can provide youth with access to natural or semi-natural spaces. Although definitions vary, rural areas are generally characterized by low population densities, small communities distant from metropolitan areas, and local economies based largely on agriculture but also small-scale manufacturing (Hart et al. 2005, Cromartie and Bucholtz 2008). The associated culture of rural areas can provide the social support frameworks that enhance outdoor recreational opportunities for rural people (Bissell et al. 1998, Ryan and Shaw 2011, Larson et al. 2014).

The southeastern United States retains a strong rural personality, and adult participation rates in nature-based recreational activities such as hunting, fishing, and wildlife-watching remain among the highest in the country (USFWS and U.S. Census Bureau 2017). Therefore, one might predict children from this region, particularly those from rural areas, would have recreational habits like those of adults. However, in addition to the impact of "nature deficit disorder" on today's youth (Louv 2008), complex socioeconomic factors present in southeastern states may be impacting youth participation in nature-based recreation. For example, Mississippi is the poorest state in the nation, and several other states in the southeast (e.g., Louisiana and Kentucky) are also ranked in the lowest poverty tier (U.S. Census Bureau 2018). Many of this region's states have substantial Hispanic or Black populations (U.S. Census Bureau 2018), demographic groups in which 41%–65% of children live in single parent homes as compared to 24% of non-Hispanic white children (Annie E. Casey Foundation 2019). Low-income and single-parent home situations are less conducive to supporting the financial, mentoring, or time investments associated with many outdoor recreational pursuits (Sanik and Mauldin 1986, Sundeen 1990, Richards and Schmiege 1993, Shaw 2001).

We were interested in exploring this potential dichotomy between relatively strong, regional participation in nature-based recreation by adults and rising concerns associated with youth disengagement with nature, urban encroachment into rural areas, and changing socioeconomic conditions. Therefore, we leveraged an existing conservation education program to gain access to diverse, rural, upper-elementary school children in order to investigate nature-based recreational habits of Mississippi youth, recognizing that implications from the study may be limited by the relatively small study area and convenience sampling approach. Our objective was to document rural youth participation in regionally available, nature-based recreational activities to better inform future outreach and recruitment efforts by natural resources organizations.

Methods

Survey Instrument

A survey instrument was developed to determine rural children's engagement in eight, nature-centric, outdoor activities selected from the 2009 Outdoor Report (Outdoor Foundation 2009). To provide broader insight to recreational engagement, we included consumptive and non-consumptive activities on the survey. Based upon reported popularity in the 2009 Outdoor Report and expected accessibility to Mississippi youth, focal activities selected for this research were fishing, hunting, hiking, bird or wildlife watching, boating (motorboat, pontoon, etc.), canoeing or kayaking, tent camping, and recreational vehicle (RV) camping (see appendix for the survey instrument). For each activity, checkboxes allowed respondents to self-report participation frequency during the last 12 months by marking one of four categories: "0 times," "1–2 times," "3–4 times," or "5 or more times." To determine if children were not participating in hunting or fishing because of personal choice or because they lacked the opportunity, the survey asked them to report if they would like to go hunting or fishing if they were not already doing so. Students were also asked to indicate who took them hunting or fishing, if appropriate.

Survey participants self-identified their gender (male or female) and race or ethnicity (African American or Black, White, Hispanic or Latino, Asian or Pacific Islander, American Indian, mixed race, or other group) so potential differences in engagement among demographic groups in rural areas could be investigated.

Participation in the federal National School Lunch Program (NSLP), which provides free or reduced-price lunches for students who qualify based on their economic status, was used as a surrogate for school-wide, student socioeconomic status (SES). Because of privacy concerns, data on individual students' qualification for the NSLP were not available; therefore, SES could not be linked to recreational habits. School-wide SES data were obtained from the National Center for Educational Statistics (2019).

Elementary education specialists from Mississippi State University (MSU) reviewed the survey prior to implementation to ensure reading level and structure was appropriate for the target age group.

Sampling

Rural fifth grade students attending eight schools in four, east-central Mississippi counties were studied during February–April 2015, including those from two private schools, four standard public schools, and two magnet public schools. Magnet schools are public schools with specialized instruction (e.g., science and technology or fine arts) in which parents can choose to enroll their child. The counties in the study area, contiguous except for one

which was separated from the others by a county, were composed largely of Black and non-Hispanic white residents. Individual counties ranged from majority Black (72% Black, 27% white) to predominantly white (67% white, 30% Black). Hispanics averaged 2% of the counties' populations, and percentages of Asian, Native American, and other races were even smaller (U.S. Census Bureau 2010).

As part of an MSU Extension Service outreach program, upper-elementary schools were invited to voluntary enroll in a program that offered experiential, environmental science lessons meeting the state's science education requirements. Fifth grade classes were targeted because science achievement by Mississippi public school students is first assessed at this grade, which created a motivating factor for teacher participation in the enrichment program. Prior to initiation of program activities, paper surveys of students' nature-based recreational activities were administered in classrooms by the authors with teacher oversight. Participation in the environmental science educational program was not contingent upon participation in this study on youth recreational activity, and student completion of the survey was voluntary and conditional on parental approval and student assent. Approval from the MSU Institutional Review Board was obtained for the survey protocol, instrument, and associated permission forms (IRB #15-044).

Analysis

Survey instruments that were incomplete (three or more survey items lacked responses) or for which permission documents were lacking were excluded from the analysis. Students, classrooms, and schools were assigned identification codes to anonymize responses. Numbers of students who self-identified as Hispanic or Latino, Asian or Pacific Islander, Native American, mixed race, or other race or ethnicity were small; therefore, a demographic category labeled "Other" was created to incorporate responses from these student groups.

An Environmental Engagement Score (EES) was calculated for each respondent by summing the midpoints of reported frequency categories for each surveyed activity (e.g., "1–2 times" was valued at "1.5" and "3–4 times" was valued at "3.5"; choices for "0 times" and "5 or more times" were valued at "0" and "5," respectively). EES values ranged from a low of 0.0, indicating no participation in any of the activities during the past 12 months, to a maximum of 40.0, indicating participation in each activity five or more times in the last year. Because of the lognormal distribution of EES values, we used a log-transformation on EES+1 to address the 0-inflated nature of the data and avoid undefined natural log scores. Main effects of race, gender, and the two-way interaction of race and gender were included in an analysis of variance to test these sources of variation on EES. School identification code was included as a random effect because students within a school were not independent. The analysis was conducted using IBM Statistical Package for the Social Sciences (SPSS) (IBM Corporation 2017). Residuals were normal, and Levene's Test of Equality indicated variances were homogeneous ($P = 0.75$). An alpha level of 0.05 was chosen *a priori*.

Table 1. Demographic distribution of fifth grade student participants in a survey of select nature-based recreational activities conducted in eight elementary schools in northeast Mississippi, 2016.

School	*N*[a]	*n*[b]	% Male[c]	% Female	% White	% Black	% Other	% Lunch support[d]
Public #1	89	51	49.3	50.7	89.4	0.0	10.6	61.1
Public #2	317	301	52.7	47.3	28.6	58.6	12.8	71.3
Public #3	103	34	51.5	48.5	6.1	72.7	21.2	84.3
Public #4	32	31	48.4	51.6	0.0	96.8	3.2	99.0
Magnet #1	158	118	51.7	48.3	17.5	79.0	3.5	90.0
Magnet #2	38	36	47.4	52.6	0.0	89.7	10.3	85.8
Private #1	13	13	69.2	30.8	84.6	15.4	0.0	n.a.
Private #2	24	24	50.0	50.0	91.7	4.2	4.1	n.a.
Total	774	608	52.5	47.5	39.7	52.1	7.8	81.9

a. Total fifth grade students in the school.
b. Total fifth grade students who participated in the survey.
c. Values represent the demographic characteristics of students with completed surveys used in the analysis.
d. The percent of students in the school who were eligible for the National School Lunch Program, which provides free or reduced price lunches to low-income public school students, was used as a surrogate for school-wide, student socioeconomic status.

Results

Nearly all fifth grade students participating in the MSU-led, environmental science program volunteered to participate in the recreational activity survey ($n = 708$ of 718). Unreturned consent forms and incomplete survey forms resulted in 608 useable surveys (84.7%).

Male and female students were equally represented in the schools except for one private school that had more than twice the number of male students as female students (Table 1). Self-identified racial composition of the public school classrooms in this study ranged from entirely Black students to primarily white children (Table 1). One public school showed greater diversity in its demographic composition: 29% white, 58% Black, and 13% Other. The two private schools were less diverse with white children comprising the majority of the student body.

The public schools involved in this research had large proportions of their students enrolled in the National School Lunch program (NSLP) (Table 1). Reported participation rates in the NSLP ranged from 61.1% to 99%, which indicated that a substantial number of children in the study were living in low-income home environments.

Frequency of student participation in the focal activities is

Table 2. Frequency of participation in nature-based activities by gender and race as reported in a survey of rural Mississippi fifth grade students ($n = 608$).

Activity	Frequency[a]	% (*n*) Male	% (*n*) Female	% (*n*) White	% (*n*) Black	% (*n*) Other
Hunting	0	40.9 (123)	66.8 (185)	47.2 (85)	53.6 (178)	69.6 (39)
	1–2	17.6 (53)	15.5 (43)	15.0 (27)	16.6 (55)	19.6 (11)
	3–4	11.3 (34)	7.2 (20)	10.0 (18)	10.2 (34)	0.0 (0)
	≥5	30.2 (91)	10.5 (29)	27.8 (50)	19.6 (65)	10.7 (6)
Fishing	0	23.0 (70)	35.1 (100)	21.0 (39)	31.8 (107)	37.9 (22)
	1–2	27.2 (83)	29.8 (85)	26.3 (49)	29.1 (98)	31.0 (18)
	3–4	15.7 (48)	13.7 (39)	15.6 (29)	14.8 (50)	10.3 (6)
	≥5	34.1 (104)	21.4 (61)	37.1 (69)	24.3 (82)	20.7 (12)
Bird- or wildlife-watching	0	52.9 (154)	63.9 (175)	49.1 (86)	66.2 (215)	46.3 (25)
	1–2	26.8 (78)	22.6 (62)	26.9 (47)	20.9 (68)	33.3 (18)
	3–4	11.7 (34)	7.3 (20)	12.6 (22)	7.4 (24)	13.0 (7)
	≥5	8.6 (25)	6.2 (17)	11.4 (20)	5.5 (18)	7.4 (4)
Boating	0	50.3 (146)	56.1 (152)	33.7 (60)	65.5 (209)	49.1 (27)
	1–2	29.0 (84)	32.1 (87)	34.8 (62)	26.0 (83)	40.0 (22)
	3–4	10.0 (29)	4.4 (12)	13.5 (24)	4.1 (13)	5.5 (3)
	≥5	10.7 (31)	7.4 (20)	18.0 (32)	28.6 (4.4)	5.5 (3)
Tent Camping	0	61.4 (181)	67.4 (188)	46.4 (85)	74.2 (241)	64.3 (36)
	1–2	19.0 (56)	20.1 (56)	24.6 (45)	16.3 (53)	21.4 (12)
	3–4	8.8 (26)	8.2 (23)	15.3 (28)	4.6 (15)	8.9 (5)
	≥5	10.8 (32)	4.3 (12)	13.7 (25)	4.9 (16)	5.4 (3)
RV Camping	0	81.4 (237)	79.3 (218)	69.3 (122)	85.3 (278)	87.0 (47)
	1–2	7.9 (23)	12.0 (33)	12.5 (22)	9.2 (30)	5.6 (3)
	3–4	5.2 (15)	2.5 (7)	4.5 (8)	3.4 (11)	5.3 (3)
	≥5	5.5 (16)	6.2 (17)	13.6 (24)	2.1 (7)	1.9 (1)
Canoeing or kayaking	0	76.0 (218)	76.9 (210)	58.8 (107)	87.1 (276)	75.5 (40)
	1–2	13.2 (38)	14.3 (39)	24.2 (44)	6.6 (21)	17.0 (9)
	3–4	4.9 (14)	4.8 (13)	8.2 (15)	3.2 (10)	3.8 (2)
	≥5	5.9 (17)	4.0 (11)	8.8 (16)	3.2 (10)	3.8 (2)
Hiking	0	59.5 (175)	70.2 (191)	49.2 (88)	74.8 (241)	56.4 (31)
	1–2	24.5 (72)	17.6 (48)	28.5 (51)	15.5 (50)	29.1 (16)
	3–4	6.5 (19)	7.0 (19)	9.5 (17)	5.5 (3)	5.5 (3)
	≥5	9.5 (28)	5.1 (14)	12.8 (23)	4.3 (14)	9.1 (5)

a. Number of times the respondents participated in the activity during the past 12 months.

presented in Table 2. Regardless of race or gender, fishing was the activity in which the most students (72%) had participated at least once during the past year. About one-fourth (27.1%) indicated they had fished ≥5 times in the last year. Hunting was the second most-common activity; nearly 50% of all students indicated they had participated in one or more hunting trips in the past 12 months. Students reported lower participation rates in hiking (39.8%) and wildlife-watching (45.8%) as compared to hunting and fishing. The activities which had the lowest student participation rates were camping and canoeing/kayaking. Roughly one-third of students reported at least one experience in the last 12 months with tent camping (39.3%), RV camping (25%), or canoeing or kayaking (29.6%). Activities with the greatest frequencies of repeat experiences (three or more times in the past year), indicating at least a moderate affinity for the activity, were fishing and hunting.

Participation rates varied with race and gender among the eight focal activities. Reported frequency of participation in hunting and fishing was generally higher in male students than in female students (Table 2). In contrast, participation rates were more similar between genders in non-consumptive activities such as canoeing or kayaking, hiking, and wildlife-watching. Student engagement levels also differed among the three race groupings; white students generally had the highest participation rates in all activities whereas Black students reported the lowest participation levels.

Hunting by male and female student respondents was done most frequently with an adult male. When only one hunting partner was indicated on the survey, male students ($n = 119$) indicated it was their father (57.1%) or other adult male relative (39.5%) who took them hunting. Similarly, 66% of female students ($n = 68$) reported hunting with their father, and 33.8% indicated they went with another adult male relative. Only one student reported hunting with an adult female relative. Twenty-two percent of respondents indicated multiple adult relatives or friends as hunting partners.

Adult females were more involved in youth fishing than in youth hunting, particularly with female students. When only one fishing partner was reported on the survey, 8.7% of female students ($n = 103$) reported it was their mother who took them fishing, and an additional 7.8% indicated they went fishing with another adult female relative. In contrast, only 3.4% of male students ($n = 147$) reported fishing with their mother, and 5.4% reported fishing with another adult female relative.

Adult males were substantially involved in fishing with the students in this survey. Fifty percent of male students ($n = 147$) stated their father took them fishing, and 38.8% indicated another adult male relative went with them. Female students ($n = 103$) reported similar but slightly lower rates of fishing with their father (40.8%) or other adult male relative (36.9%). Ten percent of students reported going fishing on their own in comparison to 5% who reported hunting alone. Thirty percent of respondents reported combinations of adult relatives or friends as fishing partners.

Lack of opportunity appears to be preventing greater engagement in some outdoor activities. Of the students ($n = 342$) who

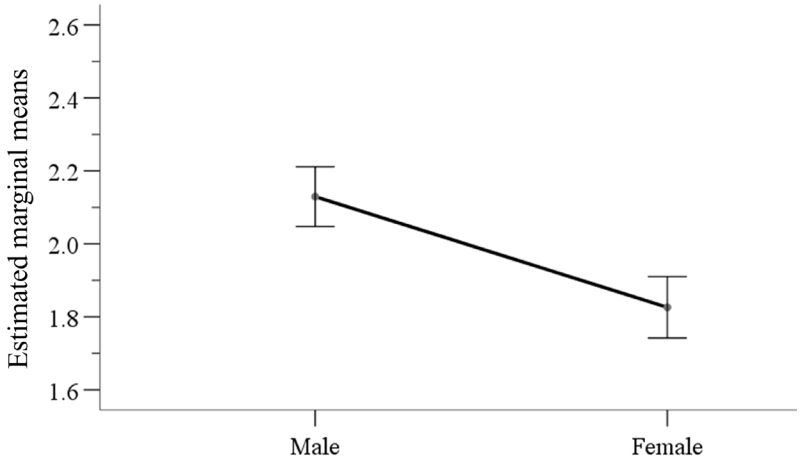

Figure 1. Estimated marginal means (± 1 SE) for Environmental Engagement Score by fifth grade student survey participants' self-reported gender.

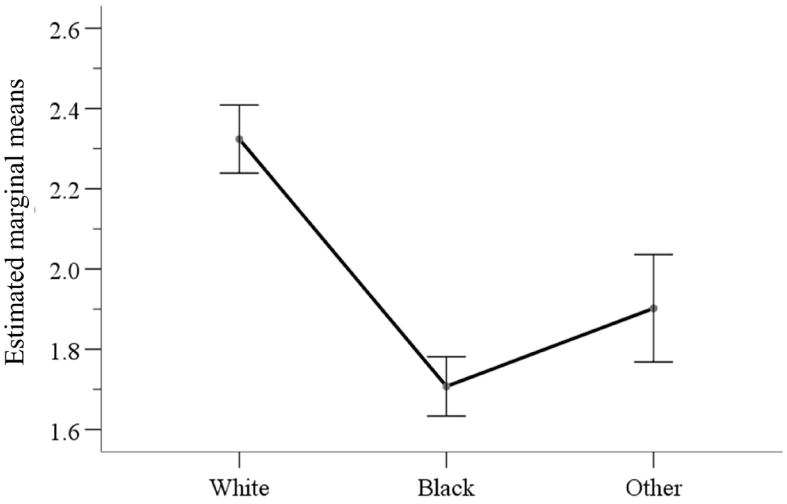

Figure 2. Estimated marginal means (± 1 SE) for Environmental Engagement Score by fifth grade student survey participants' self-reported race.

reported they did not hunt in the 12 months prior to completing the survey, 57.8% indicated they would like to do so if given the chance, including 42.3% who were female and 45.7% who were Black or Other racial/ethnic group. A greater proportion (71.3%) of the non-anglers ($n = 185$) reported a desire to fish.

EES values differed between gender groups ($F = 9.20$, df = 1, 581; $P = 0.003$) and among racial/ethnic groups ($F = 16.54$, df = 2, 581; $P < 0.01$) but not among individual schools. Higher EES were found for male students than for female students (Figure 1). Post hoc comparisons using the Tukey HSD indicated Black and Other students had similar EES values ($P = 0.27$) that were significantly lower than those of white student respondents ($P < 0.01$) (Figure 2).

Discussion

The rural fifth grade students in this study were engaged in nature-based recreational activity, most notably in fishing and hunting, as might be predicted from regional patterns in adult hunting and fishing activity and related expenditures (USFWS and U.S. Census Bureau 2017). The 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation reported participation rates of 65% and 11% in fishing and hunting, respectively, for rural 10- to 12-year-olds from the southeast (USFWS and U.S. Census Bureau 2017). We observed higher participation rates in these two activities, which could result from two possible situations. The USFWS report generated estimates of youth participation rates based upon small sample sizes, in many cases on 10–29 respondents. Our sample of more than 600 similarly aged children was larger and representative of southeastern, rural schoolchildren, even though it was generated by a convenience sample of eight schools in four counties, which may have yielded more accurate estimates. The differences could also be due to acquiescence bias in the Mississippi survey data. Since we asked students to self-report their participation in the recreational activities rather than interviewing adults on behalf of their children, as is done

in the USFWS survey, students may have provided answers they thought were expected rather than those that were truthful (Podsakoff et al. 2003, Scott 2008); however, we did not observe specific evidence to support this hypothesis.

Despite evidence for strong participation in hunting and fishing, rural student engagement in the non-consumptive recreational activities evaluated in this study was relatively low. Although some of these activities have equipment needs that require substantial adult intervention for children to participate (e.g., boating and RV camping), others such as hiking and wildlife-watching are more easily accessible, especially for youth living in rural environments. Although there were a few children who reported hunting and fishing on their own, most children of this age are unlikely to be able to participate in these activities without adult supervision. However, adult interest in these kinds of non-consumptive, nature-based recreational pursuits also appears to be low. The Outdoor Foundation (2018) found the east-south-central region of the United States (comprised of Mississippi, Alabama, Tennessee, and Kentucky) had among the lowest participation rates in a broad suite of outdoor recreational pursuits that included hunting and fishing. This is problematic if adult participation in hunting and fishing continues to decline or remain stagnant (USFWS and U.S. Census Bureau 2017, Outdoor Foundation 2018) and engagement in other forms of nature-based recreation is too low to provide children with the nature experiences that can influence adult pro-environmental behavior (Kellert 1985, Chawla 1998, Chawla 1999, Corcoran 1999, Wells and Lekies 2006).

Rural youth in this study were strongly influenced by adult family members—most frequently men—who were reported as the primary facilitator of the children's nature-based recreational activities. These findings are consistent with other research that points to the mentoring role provided by family members in recruiting and retaining hunters and anglers (Responsive Management 1995, Ryan and Shaw 2011, Lovelock et al. 2016, Burger et al. 2018). However, the increasing number of single-mother homes (Bianchi 1994, Bumpass and Raley 1995), especially among African-American, Latino, and American Indian families (Annie E. Casey Foundation 2019), may further impede engagement by these underrepresented youth by impacting the mentoring element of nature-based recreation. Documented barriers to outdoor recreation include lack of recreational partners (Outdoor Foundation 2018), lack of necessary skills and abilities (Haynes and Jacobson 2015), and concerns for safety (Johnson et al. 2001), all of which could be mitigated through mentorship of youth by adult family members.

The majority of the rural, public school children in this study lived in low-income situations. Many were from single-parent homes, a situation which has been shown to contribute to financial limitations for families (Seccombe 2000). Fiscal constraints can create access barriers to equipment, transportation, and fees associated with outdoor recreation (Ghimire et al. 2014, Lee et al. 2016, Outdoor Foundation 2018). Although hunting and fishing were prevalent activities among a relatively large number of children, overall engagement in nature-based recreation as measured by the Environmental Engagement Score was low, and economic constraints may be a contributing factor.

As documented by others (Bissell et al. 1998, Johnson et al. 2001, Ho et al. 2005, Floyd et al. 2006, Cordell 2012, Lee et al. 2016), we found disparities in recreation participation rates among race and gender groups; the highest levels of engagement occurred in white children and male children of all races. Interestingly, a substantial proportion of surveyed youth wanted to have greater outdoor engagement, specifically in hunting and fishing, but had not been given the opportunity. This desire was seen in female and non-white children, as well as others, a relevant finding that indicates children from rural areas still want to have connections to nature, even those who are traditionally underrepresented as consumptive users of wildlife.

We acknowledge that this research was based upon a convenience sample of students from a relatively small number of schools within a limited area, that the data are largely descriptive in nature, and that our conclusions may be limited. Nevertheless, this opportunity to sample a diverse, rural population has yielded outcomes that can provide greater understanding to conservation organizations and agencies.

Recruitment and retention of an environmentally literate public that is engaged in and supportive of conservation efforts will be key to future success. Involving children in nature-based recreation is a vital step in this process. Rural youth may be engaged currently in hunting and fishing, but threats exist: loss of rural areas to urbanization (Stedman and Heberlein 2001, Terando et al. 2014), changes in family structure (Seccombe 2000), competition with electronic media (Larson et al. 2019), and fluctuation in rural economies (Cromartie and Bucholtz 2008, U.S. Census Bureau 2016). Moreover, the number of rural students connected to nature through non-consumptive, nature-based recreational activities appears to be minimal, which restricts opportunities to build future conservation supporters.

In addition to urban youth programs, conservation organizations should also target rural youth to retain and encourage growth among a stakeholder group that is already supportive and interested. Outreach organizers must consider ways to reduce or remove financial barriers that may be restricting greater engagement by rural children, especially in regions like the southeastern United

States where large segments of the population face significant economic limitations. Intentional efforts need to be made to recruit and mentor rural adult females and people of color in nature-based recreation to enhance citizen engagement and promote greater youth participation. Supporting rural youth engagement in outdoor recreation and building a broader, rural stakeholder base representative of societal demographics will need to be pursued to achieve greater success in recruitment and retention of future conservationists.

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Appendix

Youth Recreation Survey

Thank you for filling out this survey. It will help us find out what students like to do. Please answer as best as you can. Remember, there is no right or wrong answer. No one else will know how you answered. You can also skip questions you do not want to answer.

Which of these activities you have done within the past year? Check the box that matches how many times you have done each activity in the *past 12 months*.

Activity	0 Times	1–2 Times	3–4 Times	5 or More Times
Bird watching or wildlife watching				
Boating (motorboat, pontoon, etc.)				
Camping (in a tent)				
Camping (with a trailer or motorhome)				
Canoeing or kayaking				
Fishing				
Hiking				
Hunting				

If you hunt, who takes you hunting? _____

If you do NOT hunt, would you like to if you were given the chance? (Circle one)

yes no I already hunt

If you fish, who takes you fishing? _____

If you do NOT fish, would you like to if you were given the chance? (Circle one)

yes no I already fish

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