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Public attitudes toward threatened and endangered species and management options in the Southeastern United States

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ABSTRACT

Amid rapid population growth, the fate of many threatened and endangered (T&E) species in the Southeast is closely tied to conservation actions on private lands. Therefore, it is critical to understand how the public values wildlife and public attitudes toward T&E species and management approaches, such as Habitat Conservation Plans (HCPs) - a voluntary approach for private landowners to comply with the Endangered Species Act (ESA). We conducted a mail survey to examine attitudes toward T&E species and HCPs, as well as wildlife value orientations (WVOs), among the general public in four study locations in the Southeast: Charlotte Co. (FL), Cumberland Co. (TN), the Etowah Watershed (GA), and the Lower Flint River Basin (GA). Overall, respondent attitudes toward T&E species and the ESA were positive. However, respondents did not believe the U.S. Fish and Wildlife Service would make good decisions regarding endangered species management without public input. Species attitudes, WVOs and ESA knowledge were all significant influences on public support for the ESA; and species attitudes, beliefs about involvement of local communities, and support for the ESA significantly influenced perceptions about HCPs. We conclude that HCPs represent an opportunity to capitalize on support for T&E species and rebuild trust in the U.S. Fish and Wildlife Service by engaging the public in endangered species management.

1. Introduction

As stewards of public trust resources, wildlife managers are ultimately responsible for ensuring their management actions reflect the values and attitudes of the public. Scholars have utilized the cognitive hierarchy framework to relate widely held value orientations with specific attitudes (Whittaker et al., 2006). Much of this work has focused on large, charismatic species or broader landscape management choices. However, less work has been done to link wildlife value orientations (WVOs) with attitudes toward T&E species and non-charismatic species have been largely ignored, although recent research has found WVOs can be predictors of attitudes toward these species as well (George et al., 2016; Hartel et al., 2015, Perry-Hill et al., 2015). With the increasing adoption of stakeholder-driven resource management efforts, it is perhaps more important than ever to understand public value orientations and attitudes toward species, including non-charismatic T&E species, and possible management approaches such as Habitat Conservation Plans (HCPs).

In 1982, Congress amended the Endangered Species Act (ESA) introducing HCPs, whereby the U.S. Fish and Wildlife Service (USFWS) can foster creative partnerships among stakeholders to protect T&E species (16 U.S.C. § 1539(a)(1)(B)). HCPs are a tool to address potential conflict between economic development and species conservation on private lands by enabling private landowners to comply with the ESA. Following approval of an HCP submitted by a landowner (the Applicant), the USFWS shall issue a permit to cover incidental take of T&E species that occurs as a result of otherwise lawful activities. A “no surprises” policy was established to reduce future uncertainty for the Applicant, by assuring they will not be responsible for any additional conservation actions that are needed based on unforeseen circumstances (50 CFR § 17). Unforeseen circumstances are defined as changes that affect a species or area covered by an HCP that could not be reasonably foreseen by the applicant or USFWS at the time of the HCPs development (50 CFR § 17). Critics have opposed HCPs for a number of reasons, ranging from philosophical opposition to permitting take of T&E species to questions over the biological foundation on which long-term assurances are granted to landowners (Noss et al., 1997). However, there is general agreement that species benefit from conservation efforts under an HCP and the number of HCPs has grown considerably in the last 20 years (Langpap & Kerkvliet, 2012, USFWS, 2016). There

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has also been a greater focus on creating landscape-scale HCPs at the county or regional level that take an ecosystem approach, further highlighting the need to understand stakeholder values and attitudes (USFWS, 2016).

Engaging stakeholders in a meaningful way during creation of a landscape-scale HCP requires an understanding of public value orientations and attitudes related to T&E species, management options, and the USFWS. This is recognized in the revised HCP handbook published by the USFWS (2016): "*It is important to understand a stakeholder's interests, motivations, and power bases… and their understanding and attitude toward HCPs, the Endangered Species Act (ESA) and the Services; as well as their expectation for involvement in the HCP project.*" To date, social science research on public perceptions of HCPs and the USFWS has been limited. For notable examples of research on stakeholders involved in HCP efforts, see Ostermeier et al. (2000) and Peterson et al. (2004).

To advance understanding of public perceptions of T&E species issues in the Southeast, we examined public WVOs and attitudes toward T&E species and HCPs in four study locations in the Southeast: Charlotte Co. (FL); Cumberland Co. (TN); the Etowah Watershed (GA); and the Lower Flint River Basin (GA). Our objective was to investigate how WVOs and attitudes toward T&E species relate to perceptions of endangered species management, particularly HCPs. Specifically, we tested four hypotheses that build on previous literature (e.g., Hartel, et al., 2015):

H1. Community members with more knowledge and familiarity with T&E species and the Endangered Species Act will hold more positive attitudes toward endangered species and the ESA.

H2. Community members who hold a more mutualistic WVO will hold more positive attitudes toward the ESA.

H3. Community members who hold positive attitudes toward T&E species and the ESA will believe in the importance of public involvement in endangered species management.

H4. Community members that hold positive attitudes about public involvement and balanced views on the ESA and economy will believe that an HCP is more likely to achieve desirable outcomes.

Questions regarding public involvement in HCPs refer to the role of the public in providing input on endangered species management. Though limited to specific geographies, this research provides an initial blueprint for how future HCP development processes could use survey methodology to explore influential social-psychological factors of communities, and incorporate that information to efficiently develop a plan reflective of local views.

2. Study area

We surveyed the general public in four locations across the Southeast: Charlotte Co. (FL); Cumberland Co. (TN); the Etowah Watershed (GA); and Lower Flint River Basin (GA) (Fig. 1). These locations were selected for three reasons. First, they are focal points for HCP development as indicated by receiving HCP planning assistance grants from the USFWS. Second, HCP development in these areas consist of a "public" applicant (such as a city or county). Third, these locations represent different stages of HCP development as described below.

Charlotte County is located on Florida's Gulf coast and received approval in December of 2014 for an HCP covering multiple listed species threatened by expanding housing development pressures. On the Cumberland Plateau in Tennessee, stakeholders are currently developing an HCP to cover a number of T&E species in the county, most notably bats affected by white-nose syndrome and habitat loss. An ultimately unsuccessful effort was made to develop an HCP in the early 2000's that would have spanned multiple counties and local municipalities in the Etowah Watershed, north of metro Atlanta, which is home to three federally protected fish species threatened by development impacts. Stakeholders in the Lower Flint River Basin in southwest Georgia initiated development of an HCP to address on-going challenges balancing the water needs of aquatic species with an agricultural economy. Two study locations are predominately rural (Cumberland and Lower Flint), while Charlotte County and the Etowah Watershed include significant urban areas: Port Charlotte and Punta Gorda, and metro Atlanta, respectively. A complete list of covered species can be found in the Methods below.

3. Methods

To examine how the public relates to wildlife and attitudes of the general public toward T&E species and their management, we developed a mail survey covering: (1) WVOs, (2) species familiarity and attitudes toward T&E species and the ESA, and (3) attitudes toward HCPs and public involvement in endangered species management. All topical questions are Likert-scale type, consisting of a five-point scale with the least positive or lowest answer listed first (i.e. 1 = strongly disagree or not at all important) and the most positive or greatest answer listed last (i.e. 5 = strongly agree or very important). The survey also included demographic questions that correspond to data collected in the U.S. Census. A survey draft was shared with: academic experts in sociology, human dimensions of wildlife, and wildlife biology; state and federal natural resource agency staff; and members of the public involved with HCP development to solicit feedback and revisions made accordingly. Unique versions of the survey were created for each study location featuring a color photo from the area on the front cover and color pictures of local species with two descriptive facts per species on the inside front cover. For example, a photo of the purple bean mussel was accompanied by the following statement, "A freshwater mussel with dark shell and purple interior." Local species were used in questions focused on attitudes at the species level. Otherwise, the surveys were identical across the four study locations.

We administered the survey following a modified Dillman approach (Dillman et al., 2014). A four-wave mailing consisted of an advance letter, an initial survey with cover letter and business reply envelope, a reminder postcard, and a second survey with a different cover letter and

Fig. 1. Location of areas selected as study locations based on the presence of an HCP development effort.