Routledge
Taylor & Francis Group

Human Dimensions of Wildlife

An International Journal

ISSN: 1087-1209 (Print) 1533-158X (Online) Journal homepage: http://www.tandfonline.com/loi/uhdw20

Using policy goals to evaluate red wolf reintroduction in eastern North Carolina

Christopher Serenari, David T Cobb & Deidre M Peroff

To cite this article: Christopher Serenari, David T Cobb & Deidre M Peroff (2018): Using policy goals to evaluate red wolf reintroduction in eastern North Carolina, Human Dimensions of Wildlife

To link to this article: https://doi.org/10.1080/10871209.2018.1444827

Published online: 07 Mar 2018.

HUMAN DIMENSIONS OF WILDLIFE
https://doi.org/10.1080/10871209.2018.1444827

Routledge
Taylor & Francis Group

Using policy goals to evaluate red wolf reintroduction in eastern North Carolina

Christopher Serenari[a], David T Cobb[a], and Deidre M Peroff[b]

[a]Wildlife Management Division, North Carolina Wildlife Resources Commission, Raleigh, NC, USA; [b]Water Resources Institute, University of Wisconsin Sea Grant, Milwaukee, WI, USA

ABSTRACT

Despite being politicized in its early stages, the Red Wolf (*Canis rufus*) Recovery Program (RWRP) existed for 30 years in eastern North Carolina with little attention paid to finding common ground between policy contestants. We situated our data from 62 key informant interviews within Stone's (2002) policy goals framework to evaluate red wolf recovery in eastern North Carolina, United States. Four goals underpin U.S. political culture and offer common ground with which to begin negotiation among policy contestants. Our results highlight challenges to achieving one definition prescribing how to treat each policy goal. The future of recovery within the red wolf's historic range could hinge on decision-makers' willingness to prioritize policy design over policy tool evaluation, developing a process by which to achieve an agreed-upon set of values underscoring red wolf recovery. This process must reconcile disagreements about what is fair or equitable treatment of landowners and include local-level experiences.

KEYWORDS

coyotes; endangered species; large carnivores; policy; red wolf; sociopolitical

Introduction

Wolf reintroductions embody the union of social and political dimensions, evoking very public and emotive responses by policy makers, citizens, and interest groups that often originate from historical beliefs about values and human principles, as well as struggles over government authority, policy legitimacy, knowledge, and power (Clark & Brunner, 2002; Clark, Curlee, & Reading, 1996; Nie, 2001). These events tend to heighten the need for stakeholders to understand the sociopolitical context, or the nexus of social values and goals, decision-making, legal structure, and politics (Yaffee, 1994). Within this context, legal, political, and social dimensions are linked, and their chemistry dictates policy outcomes (Nie, 2001). Understanding the sociopolitical context of wolf recovery reveals how humans might adapt to the presence of wolves (Ripple et al., 2014) and promotes long-range and robust appraisals of large carnivore reintroduction management through organizational learning, adaptation to social conflict, and finding common ground (Clark & Rutherford, 2014).

Wolf reintroductions are a matter of the allocation of predominant values and ideas that project what an ideal landscape looks like (Nie, 2002). Evaluation of reintroductions is critical for determining how that allocation has benefited humans and wildlife, progressing toward policy goals that should have been considered during the design phase (Birkland, 2015). A novel way to evaluate this allocation within the context of wolf reintroduction is to study the goals of policy. Stone (2002) theorized that four policy goals drive policy

CONTACT Christopher Serenari cserenari@gmail.com 1751 Varsity Dr., Raleigh, NC 27606

discourse and conflict in society: equity, liberty, efficiency, and security. She argued that they are the objects of political struggle, socially constructed, interconnected, and fundamental to political culture in the United States.

In this paper, we explored the understudied sociopolitical context of the Red Wolf Recovery Program (RWRP) on the Albemarle Peninsula (AP) in eastern North Carolina to fill a knowledge gap concerning wolf recovery in the United States. Additionally, increased consideration of public land privatization (e.g., More, 2007), parcelization, and habitat fragmentation drew our attention to the important role of private landowners in the future of species conservation. The AP case helped us understand the nexus of private property and wolf recovery in the southeastern United States. We employed Stone's (2002) framework to evaluate red wolf recovery within the context of policy goals. This approach helped us identify, validate, and compare conflicting and imbricated claims and perspectives of farmers; small and big game hunters; absentee and local landowners; wolf advocates; public and private land managers; local, state, and federal government institutions; and others about the red wolf recovery effort.

Conceptual framework

Stone's (2002) policy goals provided a conceptual mooring in which to articulate how policy contestants, or those competing to secure policy-maker support for their values, frame their positions, interpret success and failure, and compete for the realization of these policy goals. These goals also function as criteria for policy program review and highlight how competing interests lead to policy outcomes that are frequently inadequate for reconciling political struggle (Ascher & Healy, 1990; Brewer & DeLeon, 1983; Primm & Clark, 1996). Stone's (2002) concepts have inspired scholarship in several fields, including education (Pecorella, 2007; Spurr, 2007) and health care (Mah, 2008). A policy goal is subject to conflicting interpretations and dilemmas with others, and, thus, debate and trade-offs are commonplace. For instance, it may be believed that greater security comes from restrictions on liberty, or greater equity is achieved through diminished efficiency. However, the existence of a trade-off can be called into question depending on how one defines a policy goal. Which policy goals and trade-offs are elevated depends on which perspectives and narratives are the most privileged in political decision-making (Stone, 2002).

In the policy sciences, *equity* is a matter of distributional impacts, or who gets what, when, and how (Laswell, 1958). Stone (2002) demonstrated that equity could be viewed in at least eight ways, using economic, statistical, individualized valuation, merit, and other frames. She also noted that equity comprises the recipients (e.g., public), the item being distributed (e.g., law), and the process by which the item is being distributed (e.g., voting, law enforcement). *Liberty* commonly refers to one's right to do what they desire, so long as the activity does not breach the laws of civil society. Liberty encompasses freedom, choice, autonomy, privacy, and individuality, but can clash with other interpretations such as those concerned with elevating the public interest (Birkland, 2015; Boyle, 2001). *Efficiency* frequently refers to inputs and outputs, and accomplishing goals with the allotted resources and skill. This term is salient among those who are concerned about wasteful government spending, smaller government, abuse, or fraud (Birkland, 2015). It can also be interpreted to refer to the achievement of social or human welfare (Stone, 2002). Thus, employing an a priori metric to measure policy efficiency is contestable.

Finally, *security* involves human needs and satisfying these needs. Focusing on absolute (e.g., food) over relative (e.g., cultural) or relational (e.g., dignity) needs can be politically problematic as each are factored into policy (Stone, 2002). A politically effective, but overlooked, dimension of consideration is the prevention of future needs because fear of the unknown fuels emotive responses to policy (Stone, 2002).

Red wolf recovery background

A review of the U.S. Fish and Wildlife Service's (FWS) RWRP by the Wildlife Management Institute (2014) confirmed that social and political aspects of the recovery program were overlooked. The politicization of red wolf recovery was underscored by negative impacts to landowners and hunters within the five North Carolina counties (Beaufort, Dare, Hyde, Tyrrell, and Washington) that comprise the Red Wolf Recovery Zone (RWRZ) (Vaughan, Kelly, Proctor, & Trent, 2011). On April 13, 1995, the FWS amended the special rules for Nonessential Experimental Population of red wolves in North Carolina and Tennessee (60 FR 18940) to allay pet and livestock predation fears, among other landowner concerns. Coyotes (*Canis latrans*), which outnumber red wolves, mated with red wolves, and wolf mortality increased primarily due to motor vehicle crashes, disease, and gunshots, thus breaking up pack structures, producing hybrid offspring, and compromising red wolf genome integrity (Bohling & Waits, 2011; Gese et al., 2015). The FWS's main approach for mitigating conflict was assigning "nonessential" and "experimental" designations to red wolves, promulgated under section 10(j) of the Endangered Species Act (ESA). These designations allowed the FWS to be more flexible in how to sustainably manage red wolves, but proved insufficient for preventing: (a) the erosion of local support for recovery, (b) the red wolf population's decline from an apex of 130 to 150 animals to a two-decade low estimate of 45–60 in 2015, or (c) the scaling back of the RWRP in September 2016.

The state of North Carolina has also addressed citizen concerns over red wolves and coyotes. In 1993, members of the General Assembly of North Carolina submitted a bill to make it legal to shoot red wolves if they wandered onto private property (H.B. 2006; Chapter 635 [amended by 1995 H.B 519; Chapter 83]) despite conflicting with federal regulations prohibiting this activity. Coyotes, viewed as a threat to the rich local hunting resources and culture, stimulated rule-making efforts as well. In 2012, the North Carolina Wildlife Resources Commission (NCWRC) passed temporary rules allowing coyote hunting in all 100 counties with the aid of an artificial light. In response, the Animal Welfare Institute and co-plaintiffs brought forth a lawsuit alleging that the NCWRC violated the North Carolina Administrative Procedure Act, placing an endangered species at greater risk of anthropogenic mortality. The Wake County Superior Court suspended the temporary night hunting rule on November 21, 2012.

A second lawsuit filed on October 17, 2013, addressed the NCWRC's authorization of coyote hunting on private land anytime during the day or night, on public lands during the day without a permit and at night with a permit, and with artificial lights at night (Red Wolf Coalition et al. v. NCWRC, E.D.N.C. 2013, retrieved from https://awionline.org/sites/default/files/uploads/documents/WL-AWI-RedWolf-Order-05132014.pdf). The plaintiffs argued that by authorizing the shooting of coyotes within the recovery area, the Commission triggered unlawful take of red wolves, in violation of the ESA. On May 13, 2014, the United States District Court for the Eastern District of North Carolina Northern Division issued a

preliminary injunction blocking the NCWRC's authorization of coyote hunting in the recovery area. The NCWRC and the Southern Environmental Law Center (SELC) settled the case in December of 2014, agreeing to allow daytime hunting of coyotes, requiring landowners to secure a depredation permit from the agency for troublesome coyotes, and commencing a "Canid Cooperator Program" so the agencies can scientifically analyze large canid populations. However, the ban on coyote hunting in the five counties incited strong opposition to the RWRP among some landowners and triggered political struggle among wolf advocates, the FWS, the NCWRC, and a small but well-organized grassroots group opposing the RWRP.

Methods

We employed selective (key informant) sampling (Beebe, 2001), followed by chain referral sampling (Guest, Namey, & Mitchell, 2013) to obtain perspectives of knowledgeable and experienced stakeholders within the canids network (e.g., public officials, landowners, land managers, hunters, biologists, farmers, wolf advocates). Key informants may have resided or worked within or outside of Beaufort, Dare, Hyde, Tyrell, and Washington counties in North Carolina. Sampling was aimed at interviewing people most knowledgeable about and experienced with red wolves and coyotes and who maximized the range of data elicited by providing diverse perspectives (Beebe, 2001; Lincoln & Guba, 1985) rather than achieving representativeness. We continued interviewing in each county until responses became redundant (i.e., we reached theoretical saturation; Corbin & Strauss, 2008).

We conducted semi-structured interviews, with interview questions falling under three broad research domains: (a) place relations; (b) attitudes, beliefs, and cultural carrying capacity; and (c) peacemaking/drivers of difference. We asked subjects the same questions for both the coyote and red wolf, and requested the subject to specify which animal they were discussing. We did not limit our discussion to just the questions on our interview schedule (i.e., list of questions) because we endeavored to keep interviews conversational. Informant validation took several forms, including designing clarification questions into the interview protocol and asking informants to critique conclusions drawn from preliminary analysis.

We converted interview audio files to text files and then employed thematic analysis (Draucker, Martsolf, Ross, & Rusk, 2007) using QSR International's NVivo qualitative data analysis software (Version 10, 2012) to examine the qualitative data. During this phase, continual movement between data collection and analysis enabled us to evaluate the precision of recorded explanations and encourage the reflexivity that is essential to any explanation of situated social action and encourage reflection on our own involvement in the study (Lincoln & Guba, 1985; Petty, Thomson, & Stew, 2012). The quality of the coding decisions made (i.e., the process of verification) was best evaluated through ways that proactively managed threats to reliability and validity constructively (during the process) rather than evaluatively (post hoc) and accentuated the importance of meaning and context in our analysis. We engaged in the following acts to establish trustworthiness (Guba, 1981): 3 years of persistent engagement and observation – enhancing investigator responsiveness, post-interview debriefings between research team members, iterative analysis and recoding, triangulation (e.g., meetings, peer-reviewed papers, popular press, official reports), and confirmability audits with stakeholders.

Results

A team of two researchers completed most of the 62 interviews (Beaufort [12 interviews]; Dare [6six inland only]; Hyde [18]; Tyrrell [13]; Washington [11]; lived outside the AP [2]) between August and December 2015. Key informants were primarily male (84%), achieved at least a high school education (100%), were over 45 years of age (74%), and self-reported as Caucasian (98%). They lived on the AP for a range of 2–65 years, with most living in the area for 20 years or longer (78%). The following text highlights challenges to achieving a universal definition of each policy goal and outlines the socially constructed situation for sociopolitical conflict about red wolf recovery in northeast North Carolina. To ensure anonymity of respondents, pseudonyms are used in the following text to represent quotes of individual informants from each county (e.g., Hyde-004, Tyrl-012) or representing a government agency (e.g., Official).

Equity

Uneven impacts

Informants believed that AP citizens bore the brunt of red wolf conservation for several reasons. First, informants believed that AP was chosen for red wolf reintroduction efforts due to its remote geography and low human density. However, they perceived that the RWRP added another layer of hardship on an already-arduous existence in this remote area. For example, one program critic pleaded, "don't be introducing more problems" to the citizens of Hyde County (Hyde-004). Another informant perceived that outsiders' (i.e., people not ideologically bound to AP culture) beliefs, values, and interests were infusing the region, creating an "us versus them" dynamic. Critics of the RWRP expressed that the ESA's rigidity and federal court rulings favored wolf advocates. They added that locals' concerns over personal safety, personal property damage and loss (including pets being attacked), diminished game hunting opportunities, and livelihood impacts were disregarded. Lawsuits filed by wolf advocacy groups against the FWS and NCWRC made it clear to landowners feeling insulted that these groups and their supporters were the main adversary: "When you start suing people, then it becomes (an) us-and-them type of situation" (Tyrl-012).

Additionally, red wolves have been an unproven key piece to regional economic development and a movement toward embracing wildlife tourism on the AP. Commercial value legally fortifies the red wolf's existence on the AP based on U.S. District Judge Terrence W. Boyle's decision on December 21, 1998 (No. 497-CV-41-BO, retrieved from https://www.leagle.com/decision/199856231fsupp2d5311503) that under the U.S. Constitution's Commerce Clause (Article I, Section 8, Clause 3) "red wolves are 'things in interstate Commerce'" and "they substantially affect interstate commerce." The Fourth Circuit of the U.S. Court of Appeals upheld the ruling on June 6, 2000 (No. 991218). According to the Fourth Circuit's chief judge, J. Harvie Wilkinson III, no red wolves meant "no red wolf-related tourism, no scientific research, and no commercial trade in pelts" (Masters, 2000). Conversely, some informants found little validity to the argument that red wolves provided commercial benefits because citizens garnered few such benefits in 30 years of the program's existence. Most informants also agreed that red wolf tourism was implausible due to the wolf's reclusive nature.

Asymmetrical ban on taking wildlife

Opposition to the RWRP at the local level reached new heights in 2012 because citizens in the remaining 95 North Carolina counties could hunt coyotes 24 hours a day. A farmer who accidentally killed a red wolf and was a staunch RWRP critic said the moratorium on hunting coyotes at night, when they are the most active, altered local attitudes toward the RWRP:

> There wasn't a whole lot of opposition with the red wolf program until that happened…if we were still allowed to handle the coyote problem, like we were handling it before, I don't think I'd have a problem with the program…up until that point, it wasn't intruding on how we could manage our own property. It has now (Hyde-009).

Judge Boyle presided over two major cases involving the red wolf, with each ruling favoring red wolf existence on the landscape. Some informants went as far to say Judge Boyle was biased, lied to by the plaintiffs, and would rule differently now with new information.

For respondents who lived within a cultural fabric that involves natural resource dependence and shaping the landscape in one's image to ease encumbrance of living there, being able to eliminate threats from wildlife is a way of life. Inhibiting such activities on private lands put people at a "disadvantage" (Beau-011). Coyotes were also viewed to be protected by red wolf recovery, compounding the frustration, bewilderment, and anger. Coyotes were viewed by many as a nonnative, invasive "varmint" or "nuisance" – an "out of control" species that is poised to "take over" the landscape with no benefit to anyone living on the AP except farmers who: (a) do not lease their land for hunting or (b) tolerate red wolves and coyotes because they help them curb deer and rodent damage.

Autonomous decision-making

Informants believed that the FWS largely operated without support from the NCWRC or local governments. The latter were governing bodies that these informants tended to trust. Informants expressed difficulties comprehending why the FWS and NCWRC were not engaged in problem-solving or coproduction of knowledge about large canids. Descriptions of the agencies' relationship ranged from dysfunctional ("a married couple that doesn't get along well" [Beau-004]) to perfunctory ("They've got an excellent opportunity to work here, if they want, but they haven't really shown that they really want to" [Official-002]).

Unequal voice

Informants expressed that their perspectives were suppressed. RWRP critics noted that wolf recovery decision-making was historically antipathetic toward local interests. This resulted in claims that the federal government's approach permitted the red wolf to use private lands. Two grassroots opposition groups retaliated. The first, now defunct, was named Citizens Rights Over Wolves Now (CROWN). This group brought forth an unsuccessful lawsuit (Gibbs v. Babbitt, E.D.N.C. 1998, Owen, 2001) challenging the ESA's imposition upon activities on private lands. A second wave of dissent took root in the last decade and influenced (a) lobbying and petitioning officials and lawmakers at all levels of governance to oppose the RWRP; (b) illegal killing of coyotes and wolves under the "shoot, shovel, and shut up" principle (Beau-003); (c) concern over a wide-spread anti-RWRP "vigilante movement" (Hyde-010); (d) an airplane banner flown during a coyote hunting ban hearing proclaiming a red wolf scandal; (e) private trapping efforts; and (f) a web forum and website promoting critical perspectives and disseminating

Freedom of Information Act findings about the RWRP. This group's efforts resulted in the Department of the Interior's Office of the Inspector General investigating the RWRP for releasing more wolves into the wild than originally planned, releasing wolves on private property when it originally stated it would only release them on federal land, and misreporting mortality data (USDOI, 2016).

Of the one-third of informants supporting the existence of red wolves or coyotes on the AP, several complained that neither agency offered a satisfactory outlet for them to voice their support. Critics of the NCWRC expressed that the agency sided with "the deer hunting lobby" (Hyde-009) that favored night hunting of coyotes and, therefore, disregarded the views of locals who were tolerant or supportive of red wolves or coyotes. A farmer supportive of the recovery effort said, "It is frustrating when we know that the Wildlife Commission is supporting a constituency that we know does not represent a situation on the ground accurately" (Hyde-008), particularly at hearings and meetings. Additionally, numerous informants voiced displeasure with public events, stating they were "like a rally of evangelism" (Hyde-009), representative of "the minority's side" (Tyrl-012), dominated by "anarchists" and "rednecks" (Wash-009), and that "the anti-wolf crowd embarrassed me" (Beau-001). In some cases, red wolf and coyote supporters, particularly among women interviewed, stated that they did not feel they had a safe place to speak out, citing hostile crowds and an unwelcoming atmosphere. Informants stated, for example, that: "there's a lot more people who fall in that middle, but they're afraid to speak up and share" (Tyrl-06) and "it wasn't the place to speak up" because "it wasn't a respectful meeting toward a dissenting voice" (Hyde-009). One informant also sensed "a gang-like atmosphere" (Beau-004). Others also tolerant of wolves and coyotes did not speak up because they were not motivated to fight a vocal, politically connected, and aggressive anti-RWRP campaign for reasons that included uncertainty surrounding red wolf taxonomy and historic range, difficulty changing AP resident minds, contentment with one wolf or 100 wolves, fear of retribution, and saving political voice for natural resource issues with a greater household or individual impact.

Liberty

Government takings

Informants commonly referenced that personal freedoms and peace of mind had been taken away by the federal government. The net results were cultural, material, psychological, and amenity effects and harms. The struggle over liberties dates back to the 1990s when CROWN challenged the federal government's ability to restrict taking of red wolves on private lands under the ESA. On June 6, 2000, the U.S. Court of Appeals for the Fourth Circuit decided, "Because so many members of this threatened species wander on private land, the regulation of takings on private land is essential to the entire program of reintroduction and eventual restoration of the species" (retrieved from http://www.ca4.uscourts.gov/Opinions/Published/991218.P.pdf). Nonetheless, beliefs about government takings in our study centered on increased government control of natural resources. Informants stated, "It's just people rebelling against a government overreach" (Wash-002), "They're goal is they want all of Tyrrell County to be U.S. Fish and Wildlife [land]" (Tyrl-011), and referred to the RWRP as "a federal land grab" (Wash-003). Citing a conflict between local culture prioritizing wildlife with a high utility value and a reticent

or authoritarian approach to wildlife management, one Beaufort farmer said, "We live the land, we are the land, and if you're told you can't do such and such on your land, (we) don't like it – and that's what I think created the problem" (Beau-004). Outcomes for AP residents included frustration and anger over activity restrictions (e.g., killing coyotes), fear that lands will be permanently lost should the red wolf be upgraded to "endangered" status (e.g., "they're not going to take my land" [Tyrl-008]), and debates and bewilderment about what is ethical, legal, and legitimate when it comes to nexus of the ESA and private property rights (e.g., "they have no right to release it on our property" [Hyde-004]; "for man to think they can protect everything and create laws that impact other segments of the surroundings that they have, environment and life, to protect one species, I think is wrong" [Hyde-003]).

Those more tolerant of canids or supportive of red wolves being on the landscape cited different liberties they want upheld compared to RWRP critics, such as the intrinsic value of red wolves and the novelty of having the red wolf on the landscape. Red wolves, for example, were "pretty special" (Wash-004) and "magnificent" (Tyrl-006). Others would tolerate them should they be managed by wildlife agency officials with the help of willing private landowners. Tolerance for canids differed based on informants' notion about the ideal landscape and the role humans and canids play in it. In almost all cases when informants tolerated or supported red wolves or coyotes, they believed these animals were little to no trouble or worth the sacrifice. However, some tolerant informants wanted the ability to shoot or trap the animals at will, especially coyotes. If they could not shoot or trap these canids in defense of people or property, then informants tended to favor the FWS removing red wolves from private to public lands, or a way of distinguishing red wolves from coyotes.

Efficiency

Imperfections in wildlife system management

Informants judged the efficiency of red wolf recovery in different ways. A chief criticism was that decision-makers did not have or disclose complete information about red wolf recovery, which included imprecise assumptions, assessments, research, and information sharing pertaining to red wolf historic range, genetics, behavior, home range, location, diet, breeding habits, or the carrying capacity of refuges. Several of these variables also applied to coyotes, which were incorrectly assumed nonthreatening to the RWRP in the 1980s. Imperfect information yielded self-derived data about red wolves and coyotes, which then served as a foundation for informant and resident beliefs, truths, and social facts about these animals and their management. It also yielded beliefs that conservation decision-making was baffling or concealed. Informants devoted to red wolf recovery were steadfast in their support, but waited for knowledge gaps to be filled. A rancher who lost three calves to one of these animals, but supported the existence of coyotes and red wolves on the AP, summarized information that many informants desired:

> Are we trying to instill balance to the ecosystem? If we're looking at trying to balance the ecosystem show me some data, good data that shows that's what it's done. Are we trying to keep the red wolf from going extinct?…What percentage (or) number of hybrids are out there? What is the total number of red wolf breeding pairs? What has that done? If you look at deer, fawn mortality, is it preventing blue tongue? Is it preventing an overpopulation? How are the red wolves working out within the ecosystem? What good has it done? We spent a

> heck of a lot of money to reintroduce wolves…Has that been money well spent?…What are we trying to do (Beau-009)?

An inability to secure social capital needed for full recovery was a telltale sign of inefficiency for informants. Results highlighted the following drivers: (a) unsatisfactory interaction with landowners; (b) FWS and NCWRC leadership and staff were dismissive of and disrespecting AP landowners by failing to retrieve or help remove red wolves in a timely manner; (c) excluding local officials from decision-making; (d) the FWS reneged on compensating landowner loss or trapping costs; (e) phone calls or emails were not returned and appointments not kept; (f) landowners were left to deal with loss or threats without FWS or NCWRC support; and (g) landowners who believed they had red wolves on their land were not taken seriously. Negative relationships caused by companion wildlife conservation matters (e.g., sea turtles [superfamily *Chelonioidea*], piping plovers [*Charadrius melodus*], fluctuating Mattamuskeet Lake levels) also influenced informant views. For some informants, cultivating personal relationships was more attractive than financial incentives. Good relationships saved wolf lives, even among the species' staunchest opposition. A farmer who lost cattle to red wolves and favored poisoning large canids did not kill what he believed to be a red wolf a few days before our interview. He acted based on his esteem for FWS biologists: they were "very good to work with" and he had "all the respect in the world" for them (Hyde-016).

Additional understandings of efficiency were along more traditional lines. To informants, red wolf recovery suffered from fiscal waste, fraudulent claims, or abuse of power in the form of illegal behavior. A range of informants also cited inadequate capacity of the FWS to handle the social and biological needs and effects of full-scale red wolf recovery. They were perceived to have lacked the commitment to red wolf recovery, conjured perplexing program design and management strategies (e.g., releasing wolves close to places they were caught, flooding wolf habitat, killing deer out of season to feed red wolves), and failed to work with local government or bridge ideological and information divides with the NCWRC. Measuring the value and costs of red wolf recovery in these ways led landowners, for instance, to withdraw from working relationships with the FWS, in some instances, believing that relationships could not be repaired. Several informants stated they used to support or tolerate the program, but now cannot.

Organizational culture

Informants laid blame for some negative outcomes upon a federal technocratic agency culture with a commitment to scientific management and bureaucratic authority, but lacking the same fidelity to citizen relationships. An FWS official speaking to university students observed that inattention to social issues, stemming from a unique professional culture, influenced human behavior that impacted the red wolf population:

> We also do it because of our culture as wildlife professionals. We're focused on biologics. We are not social by nature. An awful lot of wildlife biologists are introverts by nature. We don't like talking to people. We don't like having to have community meetings at town halls and difficult conversations. It's not what we do. So, we focused on the biologics at the expenses of social. That manifested itself into a biological problem. And, we see the response of the community; we see more wolves getting shot and the population declines.

As revealed earlier, governing wildlife actors have not been sufficiently aligned on red wolf recovery goals for nearly 30 years. In the present era of wolf politics, the division among

county, state, and federal governments is ethical-, value-, and practicality-based. It was reified when, in the absence of conclusive evidence indicating the red wolf is recoverable without following Federal rules and intense use of private lands, a board of 19 NCWRC commissioners passed two resolutions on January 29, 2015, one asking the FWS to declare red wolves extinct in the wild and the other requesting that all red wolves be removed from private property. These resolutions were replicated and adopted by Washington and Hyde County governments in January and February of the same year (Hyde County also passed a resolution opposing the RWRP on March 8, 1994, as well as a resolution on December 2, 2013 opposing the ban on killing coyotes at night). Critics of the NCWRC contended that the resolutions "over-generalize our knowledge of the red wolf and reinforce several misconceptions" (March 02, 2015 letter from Bohling and colleagues to the NCWRC) and the agency "reneged" on the November 20, 2013 Memorandum of Collaborative Conservation of Red Wolves and Other Canids on the AP (Red Wolf Coalition, February 23, 2015, retrieved from https://www.facebook.com/pg/redwolfcoalition/posts/).

Hybridization

The perceived insurmountable inevitability and history of coyote–red wolf hybridization and the FWS's inability to solve it through policy and intensive coyote management eroded informants' confidence that the RWRP was ecologically efficient. Per the FWS, human-caused red wolf mortality is due to gunshot and motor vehicle crashes, breaking up pack stability and creating an opportunity for coyotes to breed with red wolves and produce a hybrid. However, decades before the RWRP began, there were debates about the genetic survivability of the red wolf (e.g., McCarley, 1962).

Among critics, hybridization "ruined the red wolf program" (Hyde-010) and was a noteworthy area of concern for other informants ("We don't want these pure magical wolves interbreeding with these garbage-eating coyotes" [Beau-008]). Informants tended to base their knowledge of the phenomenon on self-styled understandings about the complex field of red wolf genetics, frequently referencing vonHoldt et al.'s (2011) findings that "red wolves (n = 12) have, on average, 76.1% ± 0.3 of their genomic composition assigned to coyotes" (p. 1299). Interpretations of this study have manifested alternative understandings of what makes a species a species, as well as of the results themselves. Illustrating our findings, one informant stated, "(Red wolves) were already crossbred to the point that if you take the red wolf genome that they're using, as (the baseline for a) pure red wolf genome, and test it against coyote, it's 76% coyote…A pure red wolf I don't think exists anymore" (Hyde-009). Informants expressed that they would not take kindly to having been deceived by the FWS should the red wolf not be a listable entity under the ESA. A former RWRP supporter stated, "If we've been hoodooed that this animal that was being called a red wolf was technically not a red wolf, which some universities say it is not, then we have a real issue with that" (Hyde-003).

Results revealed that the lawsuits leading to a coyote hunting ban possibly contributed to hybridization because there were more coyotes on the landscape to further disrupt recovery efforts. When asked about this prospect, an informant linked to the lawsuit against the NCWRC stated the plaintiffs "didn't have any thoughts that there would be some biological backlash" from filing the suit. Hybridization impacted projections about the program's future by informants who were supportive, opposed, and undecided. For

example, discourse about hybridization between coyotes and red wolves included conflating the two animals ("all of them are coyotes to me and I treat them as a coyote" [Wash-003]), attitudes about animals that were not "pure" or "100%" red wolves, and policy and management preferences (e.g., opposition favored shooting, trapping, or termination, whereas supporters preferred that the FWS get a handle on problems).

Human-powered versus nature-powered wolves

Informants indicated that Nature-powered predators, such as coyotes, were inevitable and had a right to exist on the landscape, citing ecological "balance" as the primary benefit, with the caveat being that landowners were given the ability to eradicate them as needed. Coyote expansion, as ordered by Nature, was a straightforward concept that did not require tax funds: "The coyote, at least they weren't introduced as a project and at the cost of tax payers" (Beau-08). With most informants understanding that they cannot realistically be eradicated from the landscape, they are prepared to adapt to their presence, stating, "they are here" and "what can we do?" The red wolf is a conservation-reliant species by the FWS, requiring continued human management to persist on the AP landscape, including captive breeding, veterinary care, collaring, and euthanizing hybrids. There is a chance that the species never achieves full recovery. The conservation-reliant nature of the red wolf complicates ideas about what is natural, practical, and acceptable canid management on the AP for some informants. Several informants believed, "You've got to try to let the population do its own thing after a while…let nature take its course" (Dare-001) and, "If you want to introduce him into the wild, that's fine. If he can survive, that's fine. But don't spend billions trying to help him survive" (Tyrl-011).

Security

Game-based livelihoods

Informants, particularly those within Hyde County, cited negative financial impacts. Hunting guides, private land managers, and landowners issuing hunting leases experienced the most impacts in a recovery area that harbors four Tier 1 (most economically depressed) counties and one Tier 2 county (mainland Dare County would likely fall within a Tier 1 designation sans the Outer Banks). Revenue derived from an outstanding abundance and diversity of game hunting opportunities is a boon to local economies. Private gameland managers answer to landowners for lost revenue and diminished client hunting opportunities. Informants widely referenced or complained about a loss of quail, turkey, deer, and other game animals. A private land manager of 6,000 acres questioned the math behind red wolf recovery, stating, "They're killing (deer) at what seems like a disproportionate rate than we're working to preserve…20, 25 wolves at the expense of thousands of other (animals)" (Beau-001). Another land manager stated the decline in game populations hurts him professionally:

> You have to hunt a lot harder than you used to…it looks bad on me because (the owners ask), "What are you doing? You have 10,000 acres to raise deer on. Where are they?" And that, to me personally, is disappointing, to have to explain to him that the red wolf is getting more of them than we are… it hurts their business. In order for them to be able to book hunts, they've

> got to have success ratio of previous hunters, and when the success ratio falls, people don't want to book hunts" (Hyde-002).

A hunting club president articulated how his club's lease value is diminished: "Since red wolves are a protected species and because of the (ban) put in place a couple years ago, my ability to control the coyote population on my property has been impacted, which drives my lease value down" (Beau-011).

The economic impact of red wolves and coyotes was claimed to impact Hyde County, although we were not privy to data supporting the claim. A county official stated:

> A lot of our revenue is from hunters coming to Hyde County…we don't have a lot of huge deer, but we have a large volume of deer, or did. And, when you see that volume declining, you notice the impact on the county. It's made a huge difference (Hyde-010).

These issues also impact those who spend their income hunting via home-grown hunting clubs, which is popular on the AP: "The only way that you're going to probably get to hunt is that you would go to a gameland…or you're going to belong to a hunting club" (Hyde-004).

There was much variability in our data concerning declining game populations, however. In the absence of statistically valid estimates, game populations were measured by hunters with in-the-field observations and official NCWRC harvest reports. Declines were mainly observed in the two to five years prior to data collection. Hunters tended to be open to the idea that other carnivores were also to blame, and some informants admitted that in the absence of scientific data, they did not know what caused perceived population declines. Informants mentioned game changed their behavior as a response to increased carnivore pressure. For instance, deer became smarter, more vigilant, or moved deeper into the forest. Anthropogenic disturbances, such as hunting effort or hunter density, were rarely cited as contributing factors. Other informants contradicted or were critical of those who claimed that game, mainly deer populations, had declined. A Tyrrell farmer who hunted and farmed 1,500 acres exclaimed, "I've got more (deer) than what we know what to do with…come help me shoot some of these deer" (Tyrl-009), whereas a large parcel landowner in Tyrrell stated, "If you believe that the red wolves are eating all your deer and eating all your whatever, then you're just ignorant" (Tyrl-010).

Relative needs

Our results indicated that the act of hunting game equated to heritage and food, and enables people to accomplish things such as leisure or spending time with their children (i.e., an "instrumental need"). A Hyde resident opposing the RWRP touched upon this finding: "Deer (hunting) – that's heritage for us. Not only do the kids enjoy going deer hunting and the adults enjoy going deer hunting, but at the same time, it helps reduce the cost of food in a lot of households" (Hyde-004). A Hyde trapper articulated the importance of game in the diets of citizens who struggle financially: "If you live in Hyde County and you make a dollar – and I don't care if you steal it – you earned it. That's how hard it is to make it here," adding "(the RWRP) ain't worth one child missing one breakfast" (Hyde-005). Another informant articulated that he relished the chance to teach his boys about the "beauty of sitting in the stand" between October and January and how those like him "don't want anything to destroy what they live the whole year for" (Hyde-016). One informant summarized many hunter sentiments stating that the situation "is disheartening" (Hyde-012).

Fear of attacks and disease

Informants regularly referenced a desire to prevent future issues. Red wolf and, principally, coyote population increases were viewed as a growing threat to hunters and public safety. Although attacks on humans by large canids were not reported on the AP, most informants asserted that the growing possibility of negative interactions resulting in an attack, death, or disease transmission was unsettling for both individuals and communities, generating anxiety and fear. We noted that some informants were more sensitive than others to this prospective threat to security. For instance, a Hyde resident asked, "How long is it going to be before a toddler is attacked in a yard?" (Hyde-002), whereas a grain farmer said, "I don't feel like getting out of the combine, walking to my pickup at night." (Wash-005). Others stated the safety issue was a nonissue or exaggerated: "I don't think there's a safety issue" (Hyde-011) and "I don't live in fear that a wolf and a coyote are going to pounce on me when I walk out the door" (Tyrl-006). Informants referenced attacks on pets by coyotes or red wolves. In one instance, an informant told a brief story about how the boundary between pet and personal safety was blurred:

> The majority of the ones who dislike both coyotes and wolves have had bad interactions, like my neighbor down here…he had two come into his garage and kill one of his puppies. And, he's in his garage fighting the things off with a bucket (Wash-003).

Livestock-based livelihoods

Although livestock loss is a familiar impact for those aiming to prescribe policy recommendations and it underpinned wolf political discourse in D.C., this issue is uncommon on the AP. However, livestock loss is relevant for three reasons. First, if attacks occurred, they took a financial and psychological toll. One cattle farmer revealed that he lost over $6,000 when his six calves succumbed to a large canid (Beau-009). He was not compensated by the FWS. Second, informants reporting damage or loss often did not know what animal was responsible unless they witnessed it or had photographic evidence. They reported a range of culprits including, bears, opossums, raccoons, stray dogs, foxes, hawks, and owls. Third, several livestock owners we interviewed were unexpectedly tolerant or supportive of large canids. An informant who lost three calves supported having coyotes and red wolves on the landscape, whereas another who regularly lost sheep to predators, including canids, said, "The wolf, to me, is a different animal altogether. I support whatever they want to do with the wolves. In fact, I told them I'd give up my sheep if that meant leaving the wolf alone" (Beau-003).

Discussion

Should recovery efforts continue, the RWRP will need to overcome political and logistical obstacles to human coexistence with wild wolves (Manganiello, 2009). Our study suggested that one criterion, determinate rule, or definition prescribing how to treat each policy goal does not exist in the AP case. The future of recovery could hinge on decision-makers' willingness and ability to decode the various interpretations of each policy goal, and then debate whether trade-offs among policy goals exist. If trade-offs do exist, an agreed-upon set of values underscoring policy will need to be confirmed and debated in a political setting.

Setting aside the debate about the red wolf's eligibility for protection under the ESA, which hinders consensus about the core goal (i.e., to recover or not), these results highlighted a need for decision-makers to focus on policy design. For instance, there is a need to reconcile how liberty and equity are defined before attempting to reconcile an apparent liberty–equity trade-off. Our data demonstrated that liberty can have contradictory meanings, such as having the opportunity to see or shoot a wolf on one's property. The equity side of the binary involves struggles over private property rights, which have implications for the future of, and private–public partnerships required for, endangered species conservation (Mahoney, Vahldiek, & Soulliere, 2015; Norton, 2000). However, there was substantial disagreement about what is fair or equitable treatment of landowners when private lands are taken for the protection of threatened and endangered species, and their habitats (Dwyer, Murphy, & Ehrlich, 1995). Common regulatory approaches to large carnivore recovery tend to overlook policy design, bypassing an evaluation of policy goals in favor of trade-off evaluations of policy instruments and tools, such as regulatory, market, and volunteer programs (e.g., Kreye & Pienaar, 2015). Under this model, however, sociopolitical struggles abound because they overemphasize efficiency. Perhaps attending to policy design and achieving goal consensus could help redefine what red wolf recovery accomplishes by uncovering the problems hindering recovery and possible strategies and tools to fix these problems.

Culturally grounded interpretations about large canid management dictate the acceptance of these animals on the landscape (Clark & Rutherford, 2014; Manganiello, 2009). Our results illustrated the importance of unity between nature and culture as a lever to improved governance of red wolf recovery. We provided evidence that local experiences and views are needed to better understand those challenges to defining policy goals and, ultimately, the acceptance of red wolf recovery (Treves & Karanth, 2003). Our results suggested that local experiences must be represented in red wolf policy design and decision-making in the future because they have implications for overall policy program efficiency and legitimacy, as well as human security.

Logistically, decision-makers need to approach large canid governance on the AP in a manner that embraces institutional reflexivity (Giddens, 1991) to improve ecological and organizational efficiency, enhance human security and equity, and account for infringement on civil liberties. Research has explained that when wildlife agencies demonstrate efficiency, however it is defined, humans are more likely to tolerate a species (Bruskotter, 2013). Documenting the perceived drivers of efficiency in the AP case, such as an absence of transparency, neglected relationships, and misinformation in carnivore recovery, will allow for targeted changes that have positively influenced reform as it has in business, medical, and other fields. This approach also requires greater involvement of local government officials who might have other notions of efficiency and strategies to offset a broader policy process that "rarely solves problems in an equitable, effective, or efficient manner" (Clark et al., 1996, p. 946).

If large carnivores are critical to the survival of Earth's ecosystems, then overcoming the sociopolitical challenges surrounding large carnivore conservation is paramount (Ripple et al., 2014). Our investigation of the RWRP demonstrated that science-based decision-making, politics, or the education of local people alone will not solve the so-called predator paradox because policy contestants view the world differently and want different outcomes. Problematically, criteria comprising a sustainable large carnivore management model have been slow to emerge (Bruskotter, 2013). Recognizing that red wolf recovery is

politicized and united by the social and political spheres, Stone's (2002) concepts provide criteria in which scholars and decision-makers can conceptualize sustainability (as a process) within contemporary political culture and decision-making contexts. Given that policy contestants, in theory, hold the same four policy values in their elemental form, the policy goals framework may also aid decision-makers who struggle to reconcile value conflicts inherent to wolf recovery by offering a way to evaluate policy before outcomes emerge (Craig, 2003; Nie, 2003). Conducting routine policy program evaluation centered on Stone's (2002) concepts appears to deliver a common ground for which polarized policy contestants can move beyond mediation or talking past each other and into negotiation, but this warrants further study.

References

Ascher, W., & Healy, R. G. (1990). *Natural resource policymaking in developing countries: Environment, economic growth, and income distribution*. Durham, NC: Duke University Press.

Beebe, J. (2001). *Rapid assessment process: An introduction*. Walnut Creek, CA: AltaMira Press.

Birkland, T. (2015). *An introduction to the policy process: Theories, concepts, and models of public policy making*. London, UK: Routledge.

Bohling, J. H., & Waits, L. P. (2011). Assessing the prevalence of hybridization between sympatric canis species surrounding the red wolf (canis rufus) recovery area in North Carolina. *Molecular Ecology*, *20*, 2142–2156.

Boyle, P. (2001). Public problems, values, and choices. *Popular Government*, *1*, 18–23.

Brewer, G. D., & DeLeon, P. (1983). *The foundations of policy analysis*. Belmont, CA: Dorsey Press.

Bruskotter, J. T. (2013). The predator pendulum revisited: Social conflict over wolves and their management in the western United States. *Wildlife Society Bulletin*, *37*, 674–679.

Clark, S. G., & Rutherford, M. B. (2014). *Large carnivore conservation: Integrating science and policy in the North American West*. Chicago, IL: University of Chicago Press.

Clark, T. W., & Brunner, R. D. (2002). Making partnerships work in endangered species conservation: An introduction to the decision process. *Endangered Species Update*, *19*, 74–80.

Clark, T. W., Curlee, A. P., & Reading, R. P. (1996). Crafting effective solutions to the large carnivore conservation problem. *Conservation Biology*, *10*, 940–948.

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Grounded theory procedures and techniques* (3rd ed. ed.). Thousand Oaks, CA: Sage.

Craig, D. I. (2003). Educational reform in athletic training: A policy analysis. *Journal of Athletic Training*, *38*, 351–357.

Draucker, C. B., Martsolf, D. S., Ross, R., & Rusk, T. B. (2007). Theoretical sampling and category development in grounded theory. *Qualitative Health Research*, *17*, 1137–1148.

Dwyer, L. E., Murphy, D. D., & Ehrlich, P. R. (1995). Property rights case law and the challenge to the endangered species act. *Conservation Biology*, *9*, 725–741.

Gese, E. M., Knowlton, F. F., Adams, J. R., Beck, K., Fuller, T. K., Murray, D. L., … Waits, L. P. (2015). Managing hybridization of a recovering endangered species: The red wolf canis rufus as a case study. *Current Zoology*, *61*, 191–205.

Giddens, A. (1991). *Modernity and self-identity: Self and society in the late modern age*. Stanford, CA: Stanford University Press.

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Educational Technology Research and Development*, *29*, 75–91.

Guest, G., Namey, E. E., & Mitchell, M. L. (2013). *Collecting qualitative data: A field manual for applied research*. Thousand Oaks, CA: Sage.

Kreye, M. M., & Pienaar, E. F. (2015). A critical review of efforts to protect Florida panther habitat on private lands. *Land Use Policy*, *48*, 428–436.

Laswell, H. (1958). *Politics: Who gets what, when, how*. New York, NY: Meridian Books.
Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.
Mah, C. L. (2008). What's public? what's private? policy tradeoffs and the debate over mandatory annual influenza vaccination for health care workers. *Canadian Journal of Public Health/Revue Canadienne De Sante'e Publique*, *99*, 192–194.
Mahoney, S. P., Vahldiek, P., & Soulliere, C. E. (2015). Private land: Conservation's new frontier in America. *International Journal of Environmental Studies*, *72*, 869–878.
Manganiello, C. J. (2009). From a howling wilderness to howling safaris: Science, policy, and red wolves in the American south. *Journal of the History of Biology*, *42*, 325–359.
Masters, B. A. (2000, June 7). Court upholds regulations protecting red wolves. The Washington Post. Retrieved September 28, 2016 from: http://proxying.lib.ncsu.edu/index.php?url=/docview/408646038?accountid=12725.
McCarley, H. (1962). The taxonomic status of wild canis (canidae) in the south central United States. *The Southwestern Naturalist*, *7*, 227–235.
More, T. A. (2007). The privatization of public lands. In R. Burns & K. Robinson (Eds)., *Proceedings of the 2006 northeastern recreation research symposium* (pp. 135–141). Newtown Square, PA: US Forest Service.
Nie, M. A. (2001). The sociopolitical dimensions of wolf management and restoration in the United States. *Human Ecology Review*, *8*, 1–12.
Nie, M. A. (2002). Wolf recovery and management as value-based political conflict. *Ethics, Place & Environment*, *5*, 65–71.
Nie, M. A. (2003). *Beyond wolves: The politics of wolf recovery and management*. Minneapolis, MN: University of Minnesota Press.
Norton, D. A. (2000). Conservation and private land: Shifting the focus. *Conservation Biology*, *14*, 1221–1223.
Owen, D. (2001). Gibbs v. Babbitt. Ecology law quarterly, *28*, 377–398.
Pecorella, R. F. (2007). Forests and trees: The role of academics in legislative internships. *Journal of Political Science Education*, *3*, 79–99.
Petty, N. J., Thomson, O. P., & Stew, G. (2012). Ready for a paradigm shift? Part 2: Introducing qualitative research methodologies and methods. *Manual Therapy*, *17*, 378–384.
Primm, S. A., & Clark, T. W. (1996). The Greater Yellowstone policy debate: What is the policy problem? *Policy Sciences*, *29*, 137–166.
Ripple, W. J., Estes, J. A., Beschta, R. L., Wilmers, C. C., Ritchie, E. G., Hebblewhite, M., … Schmitz, O. J. (2014). Status and ecological effects of the world's largest carnivores. *Science*, *343*, 151–163.
Spurr, S. (2007). The politics of policy development to end obesity for Aboriginal youth in the educational environment. *The First Peoples Child & Family Review*, *3*, 72–83.
Stone, D. (2002). *Policy paradox: The art of political decision making (revised edition)*. New York, NY: WW Norton and Company.
Treves, A., & Karanth, K. U. (2003). Human-carnivore conflict and perspectives on carnivore management worldwide. *Conservation Biology*, *17*, 1491–1499.
United States Department of the Interior (USDOI). (2016). Investigative report of the U.S. Fish and Wildlife Service's red wolf recovery program. Washington, D.C.: Author.
Vaughan, M. R., Kelly, M. J., Proctor, C. M., & Trent, J. A. (2011). Evaluating potential effects of widening US 64 on red wolves in Washington, Tyrrell, and Dare Counties, North Carolina. Blacksburg, VA: North Carolina Department of Transportation, Research and Analysis Group.
vonHoldt, B. M., Pollinger, J. P., Earl, D. A., Knowles, J. C., Boyko, A. R., Parker, H., … Greco, C. (2011). A genome-wide perspective on the evolutionary history of enigmatic wolf-like canids. *Genome Research*, *21*, 1294–1305.
Wildlife Management Institute (WMI). (2014). *A comprehensive review and evaluation of the red wolf (canis rufus) recovery program*. Washington, D.C.: Author.
Yaffee, S. L. (1994). The northern spotted owl: An indicator of the importance of sociopolitical context. In T. W. Clark, R. P. Reading, & A. L. Clarke (Eds.), *Endangered species recovery: Finding the lessons, improving the process* (pp. 47–71). Washington, D.C.: Island Press.