

Landowners Perceptions of Their Moral and Ethical Stewardship Responsibilities in New Brunswick, Canada, and Maine, USA

Michael R. Quartuch · Thomas M. Beckley

Accepted: 16 October 2012 / Published online: 18 November 2012
© Steve Harrison, John Herbohn 2012

Abstract The province of New Brunswick (NB), Canada and the state of Maine (ME), USA are heavily forested jurisdictions whose forests provide many social, ecological, and economic functions. Roughly a third of NB and ME's forested land is owned by private, non-industrial owners [sometimes called family forests or woodlot owners]. The choices of thousands of individual parcel owners of forest land determine the fate of these ecosystems. Ownership of forest land implies a social contract between the landowners and the rest of society. Previous research has focused on utilitarian conceptions of land use such as landowner rights and motivations. This study contributes to the discussion by inviting small-scale forest landowners in NB and ME to articulate their notions of landowner responsibilities. Through qualitative methods, this study ascertains participants' self-reported behaviors that indicate their overall attitudes about the responsibility of forestland ownership. Respondents from both NB and ME expressed strong sentiments toward using and/or managing their land in ways they considered beneficial to both themselves and to the ecosystems in which they are embedded, or as Leopold (*A sand county almanac: and sketches here and there*. Oxford University Press, New York, 1949) described, the biotic community. Results varied with regard to responsibility to other entities such as: their immediate families, wildlife and the public or broader society. The results offer insight into what and who influences landowners and, what they value.

Keywords Forest landowners · Stewardship · Responsibility · Self-reported behavior · Private property · Ethics

M. R. Quartuch
University of Maine, Orono, ME, USA
e-mail: michael.quartuch@maine.edu

T. M. Beckley (✉)
University of New Brunswick, Fredericton, NB, Canada
e-mail: beckley@unb.ca

Introduction

The province of New Brunswick (NB), Canada and the state of Maine (ME), USA are predominantly forested. Approximately one-third of the forest land in each jurisdiction [30 % in NB and 32 % in ME] is owned by thousands of individuals and families (Butler 2008; Nadeau et al. 2012). NB's private forest land is held by roughly 42,000 owners that own at least 12.5 acres (5 ha) (Floyd et al. 2012). In ME, 120,000 owners hold forest parcels between 10 and 1,000 acres (4 and 405 ha). These individuals are the principal stewards of their property and are responsible for the overall maintenance and function of these ecosystems. Title to land represents a social contract between the landowners and the community at large (Bliss 2003, Krueckeberg 1995). Traditionally, the rights to sell, use, and develop property has enabled individual landowners to make land use decisions with little regard for how these decisions may affect others. Whether they realize it or not, these owners' decisions affect both the forest and the surrounding community. The intent of this paper is to better understand landowners' perceptions of their responsibilities regarding landownership. We asked explicitly about their notion of ethical responsibilities as well as to whom or to what they felt ethical obligations. We defined three potential domains of ethical responsibility; social, biotic community, and spiritual, and asked respondents to self-report the importance of various entities that lie within these domains to their management decision-making.

Private Property Rights in Land

Our interest in landowner responsibilities will begin with a brief review of private property rights as they relate to landowners' ability to use or manage their land how they choose. In the seventeenth century, John Locke argued that an individual gained ownership of property through "the Labour of his Body and the Work of his Hands" (Macpherson 1978, p. 18), a view that has shaped Western conceptions of property. Locke was the first philosopher to justify an individual's personal right to unlimited goods (Macpherson 1978) using natural law as the primary argument. This rights based view of land has come to dominate popular understanding of private property in land. However, as Krueckeberg (1995) points out, property is not a "thing" so much as it is a relationship between an owner and society. Landowners generally perceive that they possess and own the subcomponents of land (soil, trees, rocks, groundwater, etc.) that exist within a defined territory for which they hold a deed. However, the social and relational nature of private property in land becomes apparent when discussing details of what an owner can and cannot do. Rights are separable, and over time through the passage of legislation as society evolves and changes, each right is negotiable. Hence the notion in legal and academic circles that property rights in land are a social contract, commonly described as a "bundle of rights."

Less attention has been given to the reciprocal notion that private property in land also carries with it a bundle of responsibilities. In exchange for rights to certain things, there exists a set of corresponding duties on the part of owners. To whom or

to what owners perceive that they have a duty is not well-understood. In our review of the literature, we have never seen this question asked explicitly. Worrell and Appleby (2000, p. 264) state, "... it is not apparent what the element of responsibility means; to whom or what is a 'steward' responsible." We decided to ask landowners this question explicitly. In doing so, we analyze the perceptions of a small, diverse group of owners, but more generally we hope to open a line of enquiry regarding the responsibility side of the equation regarding private property in land. (Karp, 1993; Cole and Grossman 2002; Schlager and Ostrom 1992; Freyfogle 2007).

Many private forest landowners in North America have the perception that they manage and use their property as they see fit, with few constraints. This is due, however, to the fact that they have ultimately accepted and internalized the fairly extensive limitations of their rights. A landowner might be quick to say, "no one is going to tell me what I can and cannot do on my land," but were you to explain that they cannot build within a certain distance to the road, they cannot mine or dam their stream without a permit, that owner may not see a contradiction. Karp (1993) argues that an individual's right to benefit from personal property should not outweigh another's right to survive. Birch (1986) describes a complex interaction between rights and responsibilities. He believes private owners and the public have responsibilities to one another as well as to the resource. Freyfogle (1998) contends that new institutions may be needed to change our current views about the rights and responsibilities of caring for land. He argues that our property norms and traditions emerged in a "frontier" context of settlement and land use primarily for subsistence and/or economic gain, but that the modern context requires us to rethink those norms and traditions. Freyfogle (2003) also argues that societies may need to reconsider how land is viewed by its owners and find alternative property traditions that will enable conservation efforts while protecting individuals' rights.

Research Question

There is a decided gap in the literature on land stewardship regarding exact and specific reference to entities toward which landowners feel ethical obligations or responsibilities (Worrell and Appleby 2000). In this research, we sought to discover what boundaries owners may impose on themselves due to a sense of duty to other entities. That is, we were curious to discover landowners' conceptions of stewardship and responsibility and how that translated into action. Responsibility represents one component of an individual's stewardship ethic. As such, learning whom or what these landowners feel a sense of responsibility toward will offer greater insight into how they feel forest land should be cared for. Vonhof (2001) defines responsibility as "... accountability without guidance or superior authority" (p. 30). With regard to forest landowners, this definition suggests that they may be influenced by an entity or multiple entities which may, in turn, influence their use or management. Elucidating these entities will enable resource managers and policy makers to better target landowner priorities.

Individuals in similar situations are often said to have a “vested interest” in something, which will indicate the way that he/she is more likely to behave and is, in turn, consistent with his/her attitudes (Sivacek and Crano 1982). First, in general terms, we asked landowners, “To whom or to what do you feel a moral or ethical responsibility when making land use decisions?” We probed more deeply and to further elucidate their stewardship ethics we asked about whether they felt obligations toward elements in three domains; representing the biotic community, social entities, and/or a higher power (spiritual domain). Both the biotic community domain and the social domain are potentially further divided by levels of scale. For example, in the social domain, owners may be motivated only through a sense of duty to themselves or family. However, they might also be motivated by a duty to neighbors, community or to society as a whole. In other words, social entities can be organized at both high (e.g. community) and low (individual/family) scales, but as one moves between scales the concepts may also become more abstract. Most would consider family to be concrete and readily identifiable, while society is more nebulous and somewhat more difficult to define. Similarly, with the biotic community, owners might have stewardship orientations specific to their own land or the wildlife on it, or they may view their responsibilities as connected to the larger watershed in which their parcel is embedded or even to the planet as a whole. In a North American (predominantly monotheistic) context, we did not feel that the “higher power” or spiritual domain scaled, though in some cultures that practice forms of pantheism and animism, it might.

Methods

Given the exploratory nature of this study, a multi-method qualitative approach was chosen using semi-structured, in-depth interviews. By using a flexible, iterative approach (Rubin and Rubin 1995) we hoped to let our participants’ articulate their own attitudes, perspectives and self-reported behaviors. An interview guide was used during each interview to maintain focus while allowing participants to draw from their own experiences and elaborate their management strategies and stewardship ethic in their own words (Patton 1980).

Our interview guide consisted of 33 questions spanning five sections including, land and land use, stewardship, private property, the government’s role in private property, and the social nature of property. These sections were identified because of their applicability to land use and management, and land ownership responsibilities. We found that the overall flow of interviews tended to follow the interview guide relatively closely. In total, 29 interviews were conducted; 15 with landowners in NB and thirteen with landowners from ME and one with a participant who owned land in both jurisdictions. For purpose of this study we considered that participant in the ME pool as that is his primary residence.

We selected participants in each jurisdiction according to four modified strategies: criterion, maximum variation, key informant, and snowball. Each was used in conjunction with one another in order to reach a broad range of interviewees. We identified three demographic characteristics (age, sex, and

primary occupation) and five landowner attributes (acquisition of land, duration of tenure, number of parcels owned, parcel size, and absentee or residential ownership) as potential means to distinguish between respondents. These characteristics and attributes served as a starting point to identify similarities and differences in respondent attitudes and behaviors. Because we wanted to receive considered answers, we shared the interview guide (mostly via email) with respondents in advance of our interviews. The face-to-face interviews took place throughout 2008–2009. They averaged around an hour and ranged from 30 min to 2 h. We took field notes, and the interviews were audio-recorded and subsequently transcribed. The lead author analyzed the transcribed data following Glaser's method of grounded theory and NVivo8 qualitative software was used to store and organize data (Kendall 1999; Glaser 2002; Walker and Myrick 2006; Boychuk Duchscher and Morgan 2004). According to Glaser (2002) Grounded theory "... is the generation of emergent conceptualizations into integrated patterns ... woven together by the constant comparison process, which is designed to generate concepts from all data (p. 2)." Grounded theory is increasingly being utilized as a research method in natural resource and policy settings (Tuler and Webler 1999).

Analysis followed the first phase of Glaser's two-step coding process, which includes two sub-phases, open and selective coding. During open coding, the research team immersed themselves in the data, coding each transcription line by line. Similarities between statements were noted and were placed into various categories. Each category was given a title and brief description (Boychuk Duchscher and Morgan 2004). The second sub-phase, selective coding, allowed us to choose one of the emergent categories and continue to code around it, further refining the codes each time (Walker and Myrick 2006). Only those categories dealing with notions or feelings of responsibility were "selected". Results from both written and verbal responses are discussed below. Emergent or core concepts are emphasized in each of the verbal sections.

Findings

We begin with an overview of the results based on participants' written responses to two responsibility-related questions and then examine the verbal responses from interviews. To gauge participants' overall responsibility with regard to how they use and/or manage their forest land, we provided a list of 12 entities to which they might feel a sense of responsibility and asked them to "check all that apply" (Table 1). The 12 entities were chosen to represent any and all things to which we felt landowners might feel responsible, though we provided ample opportunity for them to name additional items. The 12 entities fell into three broad domains that we defined. These three domains involved biophysical and non-human aspects; wildlife/plants, land itself, and planet/environment which we label as the biotic community domain. Eight related to somewhat hierarchically nested items in the human or social realm; myself, co-owner/joint owner, immediate family, ancestors, neighbors/community, government, society, and future generations which we collectively label as the social domain. The remaining category involved religious

Table 1 Percent responses to “to whom or to what do you feel you have responsibilities and obligations in land ownership?” (number of persons responding to item in parentheses)

To whom or what do you feel you have responsibilities and obligations in landownership (check all that apply and add more if you wish)	New Brunswick (<i>n</i> = 15)	Maine (<i>n</i> = 13)
Biotic community domain		
Wildlife/plants	93.3 (14)	84.6 (11)
Land itself	86.6 (13)	100 (13)
Planet/environment	93.3 (14)	92.3 (12)
Social domain		
Myself	80.0 (12)	92.3 (12)
Co-owner/joint owner	46.6 (7)	38.5 (5)
Immediate family	86.6 (13)	76.9 (10)
Ancestors	66.7 (10)	38.5 (5)
Neighbors/community	93.3 (14)	92.3 (12)
Society	80.0 (12)	84.6 (11)
Future generations	93.3 (14)	100 (13)
Government	26.6 (4)	23.1 (3)
Spiritual domain		
God	53.8 (8)	53.8 (7)
Other	6.67 (1)	7.69 (1)

or spiritual responsibilities: a higher power or God, which we label as the spiritual domain. Respondents were also invited to “write in” additional entities; three blank spaces were provided to convey the idea that they may feel a responsibility to multiple entities that we did not list. They were encouraged to identify these, though few made additions to our list.

Table 1 summarizes the results from the initial checklist. Readers must bear in mind that our sample is not random, nor large enough to perform any statistical tests. Nevertheless, given the broad range of diversity that we sought in our sample, it is interesting to see some trends in these results. Again, the intent of the checklist was, in part, to start the conversation about responsibilities, not to obtain robust quantitative results. Nevertheless, a few points from Table 1 are noteworthy. First, in both our ME and NB samples, most respondents checked most of the items. Only two items were not chosen by a majority of our NB sample and only three were not chosen by a majority of ME respondents. In both NB and ME, eight of 12 entities were chosen by 80 % or more of our respondents. Secondly, the similarities between the two jurisdictions are startling. For only one entity (ancestors), was there more than a 10 % difference in responses.

New Brunswick Participant Checklist and Domain Findings

Fourteen of the 15 NB participants indicated that they felt a responsibility to wildlife and plants, the planet and the environment, future generations, and

neighbours and community (Table 1). Thirteen also selected immediate family and land itself while 12 checked myself. Only four individuals indicated a responsibility to government.

Participants were asked to rank their top three entities. Eight of the 15 respondents chose either themselves or their families as the highest priority followed by non-human or biophysical entities, which received only four votes. Although 14 of the 15 participants chose wildlife and plants when asked to “check all that apply” only one individual placed this category first, when asked to rank them. The entities representing the higher scale societal entities such as community or society were only placed as a priority over lower scale social entities such as myself or my family twice. It appears that most NB respondents feel greater responsibility to lower scale items within the hierarchically nested social and biotic community domains.

As a second method for participants to locate their relative responsibilities we asked them to place a dot or an “x” within a two dimensional triangular space in order to identify where they felt their relative sense of responsibility lay between spiritual, social, and biotic community domains. We did this because the list contained an unbalanced number of entities within each of our three domains. We felt these three domains were substantially different from one another but likely covered the universe of entities toward which our respondents would feel responsibilities.

There was no clear consensus among NB participants regarding a dominant domain (Fig. 1). Ten NB participants placed their mark between the social and biotic community domains. Of these 10 individuals, four placed their mark near the social corner; another four identified the area directly between the social and biotic community domains. The last two individuals placed their mark closer toward the biotic community domain. The five remaining participants identified the spiritual domain as more important to their sense of responsibility. These exercises were not meant to be exact nor comprehensive. They served as a preliminary means to establish a baseline with regard to the participants’ overall self-identification of their own responsibility.

Maine Participant Checklist and Domain Findings

During the first exercise (checking all that apply off the list), all thirteen participants checked land itself and future generations. Twelve individuals placed a mark next to myself, neighbours/community, and planet/environment. Seven interviewees identified God as an entity to whom they felt responsibility while only three acknowledged government (Table 1). One individual wrote in water quality/lake quality. ME participants expressed an attitude of responsibility to primarily the biotic community and social domains.

Unlike NB respondents, six ME participants ranked one of the three biotic community entities as their overall top priority. Self/family received five votes making it the second highest priority. Society was the third overall priority. This also differs from that of the NB participants.

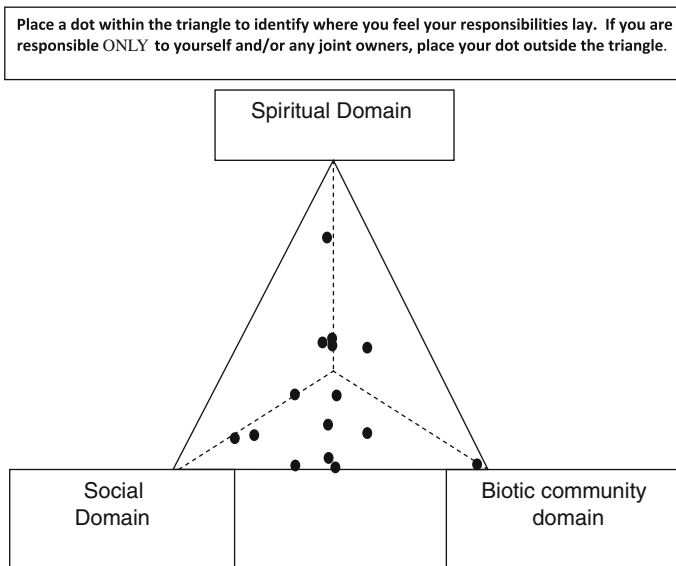


Fig. 1 New Brunswick respondents' self-placement between spiritual, social and biotic community domains

Figure 2 depicts ME participant responses to the domain triangle. Four individuals placed their mark directly in the center, suggesting an equal responsibility toward the three domains. While seven individuals checked off God during the previous question, none placed their mark near the extreme end of the spiritual domain. Four individuals placed their mark between the social and biotic community domains, while two individuals placed their mark solidly in the social domain. Similar to NB respondents, two individuals identified the biotic community as their primary responsibility. Lastly, one individual placed his mark between the spiritual and biotic community domains.

This exercise does not depict how participants are actually behaving, nor was it the intention of this exercise to do so. It is also reasonable to assume that an individual has the capacity to use or manage their land with more than one entity in mind. However, the results from ME participants are consistent with responses to our open-ended questioning. The following section describes many of the actions or activities that respondents describe as good or bad.

Findings: Narrative Data from Open-Ended Questions

The method of constant comparison was used to analyze data during both phases of coding and led to the creation of over 100 general, descriptive categories. Over time, this number was reduced by re-examining and comparing each statement, allowing new or “emergent” themes to surface. Three categories emerged from the narrative data, one in the biotic community domain and two from the social domain (myself/family and the public or broader society). The spiritual domain was not chosen as few

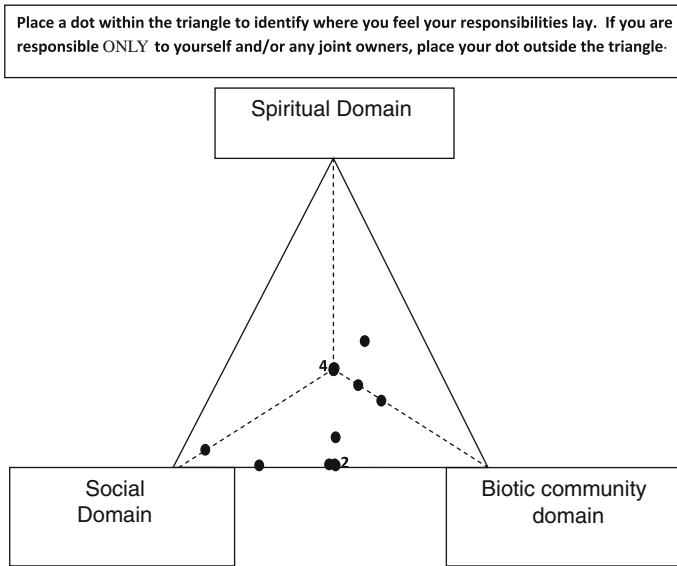


Fig. 2 Maine respondents' self-placement between spiritual, social and biotic community domains

participants discussed this entity. This may not be due to a lack of importance as much as a difficulty in articulating such responsibilities. Because the overarching goal was to discover detail regarding whom or what participants felt a responsibility toward, they were asked numerous follow up questions. To avoid confusion, results are explained separately for each jurisdiction and emergent concepts are denoted in capital letters.

New Brunswick Landowners and Responsibility to the Biotic Community

NB participants expressed an overall attitude of having a responsibility to manage their land in ways that are beneficial to the land and non-human life in three primary ways. This result was derived from participant self-reported behavior when asked about: stewardship, their ideas of “good” or “bad” land use and management, and when asked specifically about things that they may do/do not do because of how these actions may affect the land or biotic community. Participants discussed a responsibility to the land itself or other biophysical characteristics, what Leopold (1949) refers to as the biotic community, in two ways, both of which involved actively using or managing their land. Statements within this category emphasized an obligation to actively monitor, maintain or manage their forest land. These responses led to the creation of the first emergent concept titled, DUTY TO MANAGE. Another means whereby participants expressed a responsibility to the biotic community involved avoiding certain actions or activities that may cause damage or harm to the land. These statements became the catalyst for the creation of the second core concept titled, NO HARM (OWNER). For a detailed outline of all NB emergent concepts (see Fig. 3).

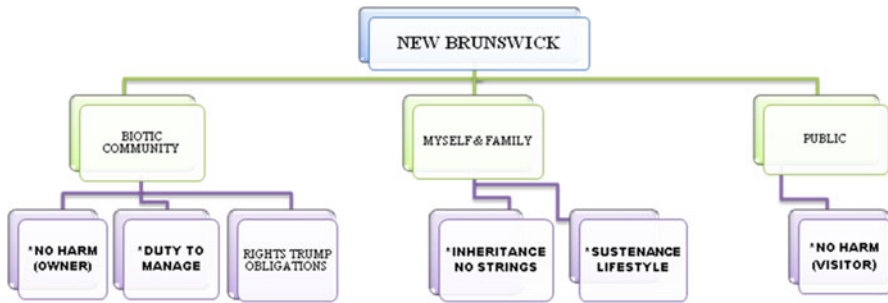


Fig. 3 New Brunswick core concepts. **Bolded titles* indicate a shared similarity with Maine respondents

The first conceptual category, **DUTY TO MANAGE**, illustrates that although participants are actively using their land for a particular reason, they feel compelled to do so in a way that they feel is beneficial for the land, wildlife or other non-human entities. The following quotes from interview transcripts illustrate this sense of responsibility to monitor, actively manage, or maintain their land. It is apparent from the following statements that participants understand that a certain amount of diligence is required to accomplish this goal.

- Interviewer: “... what does ... doing a good job in managing the land, what does that mean to you?”
- NB Participant 14: “Having a healthy and productive landscape. Ya know, clean water and healthy diverse trees and you know ... which provides diverse habitats.”
- NB Participant 1: “Doing a good job means, keeping an eye on it ...”
- NB Participant 4: “Well, when you have a lot of land, you are accessible to four-wheelers and damage. What we do, we do a regular spot check of our land. It might be on the weekend or it might be in the middle of the week. But we’re there ... we keep a pretty close eye on our properties.”
- NB Participant 13: “You know, certainly getting into the woodlot and doing some quality improvement silviculture work ... with the idea of promoting, you know, wildlife habitat at the same time. ... you know, making sure that the watercourses, streams, rivers, and ponds ... lakes are well protected but they’re not compromised

The second emergent concept, **NO HARM (OWNER)**, is closely related to the first as it is essentially the inverse idea. Within this category participants articulated a responsibility to the land and the biotic community by avoiding activities such as certain harvesting methods, road building, pollution and otherwise, unsustainable management. Other participants expressed an aversion to the development of forest land. Examples include:

- NB Participant 13: "... I don't see any need on my land to do any clearcutting, even though I have some stands that might traditionally be considered ... a priority for clearcutting, I won't do that because I don't think it's appropriate. I wouldn't, you know, I wouldn't do any sort of biomass harvest, you know, like a full tree harvest or a full tree harvest type approach. ... I'm sure there's more but ... I don't know, strip mining."
- NB Participant 6: "one of the biggest things you could do on a woodlot or the biggest single impact is building a road eh ... You get a really big piece of equipment, you get a really big mess ... Whereas the guy I've always used runs a small dozer and just does incredible work."
- NB Participant 1: "I mean certain kinds of development that you can do on your land ya know is, I think would be really harmful. Like if you rented it out to be a landfill or if you rented it out to become a gravel pit or something like that."

A third core concept emerged from NB responses and is titled RIGHTS TRUMP OBLIGATION. This concept summarizes participant attitudes toward activities that they would not necessarily undertake themselves but would not attempt to prevent or restrict other landowners from doing. This category is unique to NB respondents. Thirteen of the 15 NB participants cited at least one activity that they do not do themselves. Examples include activities such as: hunting, tree planting, mining, collecting maple syrup, harvesting during detrimental temporal periods, performing silviculture operations on all of their land, dumping of garbage or trash on land (i.e. oil cans, refrigerators, old vehicles), clearcutting, subdividing, bear trapping, creating ruts while harvesting, avoiding cutting all of their land or smaller tree's, building wide roads, using all terrain vehicles (ATV's) or having a bike trail in the wrong place. Although this concept implies a sense of responsibility to respect the property rights of other landowners it is worthwhile to discuss in this section because it also signifies actions or activities that these participants feel are detrimental to the land.

While respondents are able to clearly articulate activities that they would not condone or would not allow on their own land, they expressed that they would not go so far as to try to prevent others from partaking in these activities. This concept suggests that respondents may believe that property rights outweigh the right of society to intercede to protect the land itself or the biotic community. Although the reasons and definitions behind what NB participant's consider "good" or "bad" use and/or management may differ, their self-reported behaviors are indicative of their responsibility to the natural environment and biotic life.

Maine Landowners and Responsibility to and Biotic Community

All 14 of the ME participants expressed a feeling of having a responsibility toward the land and the biotic community. Although the land and the biotic community

seemingly overlap, it became evident during analysis that some ME respondents emphasized the land itself whereas others were more specifically concerned with the living organisms upon and within it. Participants articulated an obligation to responsibly maintain, manage, plan, harvest or hire the services of a professional forester to help plan their activities on their land. Hence, the first core concept emerged and was labelled, DUTY TO MANAGE. This concept is closely related to NB participant responses. ME respondents also emphasized a responsibility to keep their land intact. These statements lead to the creation of the second core concept, NO PARCELIZATION. Responses within this category illustrate a preference toward maintaining larger blocks of unfragmented forest. Respondents also articulated an attitude in congruence with having a responsibility to protect wildlife, habitat or other non-human entities. This led to the creation of the third core concept titled, NO HARM WILDLIFE. Participant’s statements serve as corroborating evidence to describe each core concept. Examples are provided below (Fig. 4).

The first core concept, DUTY TO MANAGE, emerged from ME interviewees through discussions of activities that they either take part in or avoid because they consider them beneficial or harmful to the land. Certain words or phrases were often used when participants reported on their behaviors or what they viewed to be “good” or “bad” use and/or management. Examples include words or phrases such as: steward, forester, maintain, manage, management plan, selective cutting and following the plan. The following statements support this claim:

- Interviewer: “Is it important to you to do a good job in managing your land?”
- ME Participant 13: “I think so. I think ... being a Christian person that I’m a steward of the land. And it’s my responsibility to manage it to the best of my ability. And through the management plan and working with the forester I think that’s what we’re looking at ...”
- Interviewer: “... and then I guess in turn, what rights does that give you?”
- ME Participant 13: “... it gives me the right to either deny or offer permission to someone to use it. It’s a responsibility to me to make sure that I know what my boundaries are, to maintain my boundaries, to have surveyed my land to see that the property, that I have is

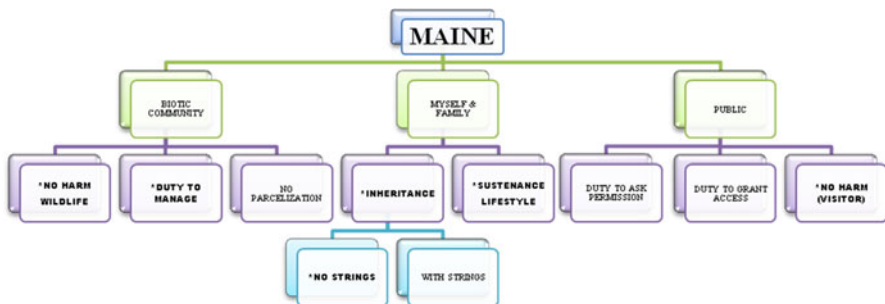


Fig. 4 Maine core concepts. *Bolded titles indicate a shared similarity with New Brunswick respondents

- legally mine and to maintain the survey, have it recorded, and maintain the boundaries ...”
- Interviewer: “... are there specific actions ... that you don’t undertake because you don’t consider them to be good?”
- ME Participant 2: “Well, logging outside of the forestry plan. That’s the big one.”
- ME Participant 4: “You can be a landowner and if you just like to keep your land and walk on it ... perfect. I’m all for it. If you decide, but when you decide to change your environment to actively manage the land then you ought to be doing it in a responsible way.”

The second core concept, NO PARCELIZATION, portrays a responsibility on behalf of the participants to keep the forest intact. This is in response to over two decades of significant (and sometimes highly controversial) residential and recreational development in ME. While there is overlap between this concept and statements illustrating a responsibility to the biotic community many respondents were prompted to discuss this notion when asked about activities that they would not undertake and what will happen to their land after they passed on. Twelve of the 14 individuals addressed this issue. A few examples are provided below:

- Interviewer: “So are there activities or actions that you wouldn’t do, or you wouldn’t undertake at all because you don’t consider them good stewardship?”
- ME Participant 13: “Well, first thing we talked, I’m not dividing it up and nothing’s going to be built on it, okay, so that’s the first thing. It’s forever wild as far as I’m concerned, but open to people who want to use it with permission and as long as it’s not abused it’ll stay that way.”
- ME Participant 12: “... I actually purchased it back ... It was pre-approved as part of a large development and this 52 acres would have had probably 15–20 trophy houses that would have been part of a 100+ unit development using about 400 acres ... I purchased it back from the developer. The incentive that I had for doing that, not only the personal incentives that were there for not having it turn into a subdivision behind me, but also to re-establish the homestead.”
- ME Participant 1: “I’m thinking of having the rest of it go to a conservation organization or a college or something like that ... my idea is to maintain this as a unit, one way or another ... Well, my hope or plan is to keep it as a unit and with conservation.”
- Interviewer: “... what will happen to it after you pass on?”
- ME Participant 3: “Western ME Conservancy ... I believe, or Western Mountain ... I’m not sure exactly what the name is, but I’m pretty sure that’s in our wills currently ... We don’t have any kids. We don’t have anybody to pass it on to and so we do want it to stay as is.”

The third emergent concept, NO HARM WILDLIFE, is comprised of respondent statements that identify wildlife, wildlife habitat and water resources as management priorities. It is evident from the following remarks that the ME participants in this study conveyed an attitude of responsibility toward wildlife and watershed resources.

ME Participant 13: “I mean ... it’s selectively cut, therefore you don’t get the erosion, you keep your wildlife ... What always amazes me are the wildlife trees ... like I said before, with the beaver here we’ve seen it reciprocal that they’ve come back into the area because the regeneration is great.”

ME Participant 1: “I haven’t seen the ... wild turkeys up here yet, but I expect they’re coming.”

Interviewer: “So would you say wildlife is something that you consider in managing for good stewardship?”

ME Participant 1: “Well, when I ... like I leave snags. I make sure that I don’t ... I mean, if I see there’s no snags around, I might leave a tree standing just so that there will be a place for birds.”

ME Participant 10: “... prioritizing wildlife enhancement is really important to me, and keeping the land clean, kind of in its original state or even better.”

“Ya, that’s an interesting question because I used to hate it when the crop sprayers would come over. My honey bees would be out on their flowers helping pollinate their fields and in the meantime, they’re dropping poisons out of the sky that I know are going into Tunk Stream, and it used to bother me a lot ... I was somewhat accepting of it, but I still wished the world didn’t have to be that way.”

ME Participant 5: “... I just maintain corridors for wildlife and that trail that I have, I’ve seen moose, deer, fox trails and I’ve seen hoof prints on the trail. So, I know it’s used by animals.”

“... Ya, I feel an obligation or responsibility that I want to maintain the water quality of the lake because that is an issue ... I talked to the town manager about wind power so they don’t allow that in the lake shore area ... people don’t want to see that along the lake ... we got bald eagles, goshawks, and also the idea that the view of the lake and everything, is, it could really harm the whole area. It could really degrade ... like I said like taking the game fish out of the shallow lake.”

New Brunswick Landowners and Responsibility to Self and Family

Part of our interest in this study was to contrast the degree to which participants expressed concern or responsibility regarding the land and its resources compared to responsibilities to humans (themselves, family, neighbours and society). Results

suggest that NB participants feel a strong responsibility to self and family and, when applicable, co-owners. Participant statements described a responsibility to use their land or “work” their land, in order to maintain their current lifestyle and to provide for their families. This led to the creation of the only core concept within this section titled, SUSTENANCE/LIFESTYLE. This concept signifies a responsibility to sustain their families’ way of life and offers insight into the mechanisms that drive self-reported behaviors and responsibility toward their families. The following quotations illustrate this point:

- Interviewer: “So, as far as a property owner do you feel you have obligations or responsibility in how you manage or treat the land?”
- NB Participant 2: “... I guess it’s two phased. First off to myself and my family, I have obligations to ensure that I am doing something that is in our best interest and that sounds very broad, but that’s, you got to pay the bills.”
- NB Participant 14: “My plan is and my family’s plan is that it stays passed on to family.”
- Interviewer: “And what would you say you use it for? You had mentioned cattle on the land ...”
- NB Participant 14: “Yep, we farm and we cut wood every year. We cut wood, sell wood, as part of our income ... There’s a whole bunch of things that go together to make a living. Plus, we, that’s why you’re so nice and warm today ... (laughter).”
“... You have a whole bunch of jobs to maintain this lifestyle of being able to go to the woods, cut wood ... being able to feed cow’s and sell cow’s. We have a whole bunch of jobs in order to maintain this. ... We worked hard to keep this ... to be able to run this woodland like we want to.”
- NB Participant 4: “It’s a ... To make a living, absolutely to make a living.”
- NB Participant 8: “It tears me up that I’ve got to sell it, or some of it or all of it, but it gets me and my family out of the hole that we’re in and gets us back where I can get a job and make a living, instead of in the forest industry, then if that’s what I have to do ...”

NB respondents expressed an attitude that they feel a responsibility to themselves and their families in multiple ways. One of the predominant means is to support their way of life which may be accomplished by more than one particular use of their forest land. This concept coincides with the written responses as well, which depict respondents’ feelings of responsibility to themselves and their families. Clearly there are trade-offs. In order to earn a living, or part of a living from the land trees may be cut, lots may be sold, pasture land may be grazed, but all the respondents felt that these were not incompatible with good stewardship. You may use the land for the benefit of your family in ways that are not detrimental to the long-term sustainability of the land and the biotic community.

Maine Landowners and Responsibility to Self and Family

While coding participant responses it became clear that ME interviewee's were discussing a responsibility toward themselves (and other entities) in lieu of their immediate family or ancestors. Ten ME participants indicated that their land would be passed to their children or other family members but there is little indication that their sense of responsibility to family was influencing their attitudes or self-reported behaviors. Seven participants suggested that they have even considered placing their development rights or entire parcels into conservation; while two have already done so. It is evident that these participants are comfortable limiting the rights of the future owners of their property suggesting that they either do not trust that their stewardship ethic is shared by their offspring or they simply want to prevent the development of their land. Two concepts emerged from this discussion of inheritance. The first core concept titled, NO STRINGS, serves those owners that are planning to bequeath their land with the right to develop intact. The second concept, WITH STRINGS, applies to landowners that will be passing on their land without development rights or with restricted development rights. Regardless of the condition in which land is inherited or disposed, ME respondents never directly indicated a sense of responsibility to use or manage their land in a way that would be beneficial to family members in the future. The following sentiments explain each of the core concepts:

- ME Participant 2: "Well, if my children want it ... They'll keep it and use it and if they don't they'll sell it. It's what happens to everyone's land when they die. I was a state lawyer for 30 years and I know better, through long personal experience, than to think that the patriarch theme for the family compound is likely to continue. In fact, that will almost certainly not come true."
- ME Participant 4: "... our daughter will inherit the land we, when we pass. We are considering a conservation easement for the development rights on the bulk of it."
- ME Participant 1: "If I do anything, I will either leave it to a family that is interested in it or sell the house ... That's a possibility, if my family's not interested. And then maybe thinking of having the rest of it go to a conservation organization or a college or something like that."
- ME Participant 14: "... But I know, I can deed it to my children. They can inherit, but they can't put buildings on it."

Like NB respondents, ME respondents discussed a responsibility to themselves in the form of using their land for survival and/or enjoyment. The capacity to survive or live off of the land as a means of providing shelter, heat and when applicable, food, coupled with the notion of deriving pleasure from their land (even in doing some of these subsistence activities), became the catalyst for the creation of the third emergent concept, SUSTENANCE/LIFESTYLE. Responses flowed from asking participants how they are primarily using their land. When participants describe their use they are in essence, describing or reporting their own behaviors. This

became a useful tool used to gauge toward whom or what participants feel a responsibility. The following quotations illustrate this notion:

- ME Participant 5: “What I value of the land is I guess, just that I have my firewood resource. I have my resources and my materials that I need to get by in the winter or even fix what I have ... The land first. That’s my survival right there.”
- ME Participant 9: “... Some of it we harvest some firewood from. I got my wood in for the winter. Most of that was harvested off this piece here. And then we use it for hunting.”
- ME Participant 12: “So the land primarily provides my firewood. I harvest ... I burn about five to 7 cords per year and it also has a number of sugar maples on it that I do some sugaring ...”
- ME Participant 6: “So, I plan to shoot coyotes ... Probably a deer a year, ya know, to fill up the freezer.”
- Interviewer: “So what do you primarily use the land for?”
- ME Participant 4: “Well, recreation and firewood. Those two things.”

The ME participants expressed a responsibility to themselves by means of both enjoying the land and for attaining what they need to live or survive off of it. Although we labeled the code for both NB and ME participant’s responsibility to themselves the same, there were subtle differences in how they qualified this obligation. It was evident that ME participants felt less of a responsibility to use and/or manage their land for their immediate family, and when applicable, their children. However, this does not negate the fact that they want to pass on their land in a manner that would benefit future owners.

New Brunswick Landowners and Responsibility to the Broader Society

The process of coding data allows a researcher to group words, phrases or statements, based on similar characteristics. It is equally important, however, for the researcher to be cognizant of what is not being expressed or stated as well. The latter case is evident when analyzing whether NB participants felt a responsibility to use their land for the benefit of the public or the broader society. Six participants mentioned the notion of society as an entity to which they may feel a responsibility toward for varying reasons. For example:

- NB Participant 13: “... on the other side of that coin, I think that ... I mean we have a certain ... level of responsibility that comes out of an ethical ... point of view or moral point of view of ... being members of a society and having a relationship with the land that we are ... connecting, you know, intimately connecting to through ... food ... the air we breathe and water we drink. So, as a society and as members of a society we have a responsibility towards the land collectively and as individuals who have the opportunity to, you

- know, the privilege of owning land, we sort of assume some ethical responsibility there ... to take care of that land.”
- NB Participant 11: “... it’s used as a teaching woodlot on occasion, as well, for the students from MCFT [Maritime College of Forest Technology], just to come out, see a different perspective and maybe you could do plant ID.”
- NB Participant 9: “I suppose in my own case, I provide pleasure to a number of people, not an economic reward to them, but a pleasure to them for using my land.”
- Interviewer: “This outlook you’re saying here is almost the social responsibility to not just let all of your timber fall down and rot into wood.”
- NB Participant 10: “Not when people need jobs. If people need jobs, they need to feed their kids and so it seems like the reasonable thing to do.”

In the previous statements, participant’s 13, 11, and 9 are actually discussing an attitude more closely connected to the maintenance or improvement of the resource itself through collective social action rather than an attitude of responsibility toward the public itself. One concept did emerge that is the inverse of the notion of owners having a responsibility to society, wherein participants expressed that society has a responsibility to them and/or their woodlots. The primary sentiment here was that others should not pollute or damage private land. Responses were placed in the concept labelled, NO HARM (VISITOR). The following quotations articulate this view:

- NB Participant 4: “... the drive-through public. Littering is a ... I just have a real problem with that. Beer cans and beer bottles. When you get into the country, you can do whatever you want. That needs to be changed. You can’t do whatever you want. You need to have the same respect for the land in the country as you do for your acre in Quispam and Rothesay ... that really bothers me.”
- NB Participant 8: “... when I go into either my woodlots or my father’s woodlots and find somebody has backed in and dumped off shingles and garbage and stuff like that. That irks me to no end. The dumping of garbage is my pet peeve.”
- NB Participant 7: “And most of the times we don’t have any problem with people using the land, but occasionally you will get somebody that’s either by mistake or on purpose, does some damage. They’ll go off the road. They’ll go through a plantation or they’ll go into a farm field. And it doesn’t sound like a lot but if an ATV went in this field at the right time of year and drove all through it, it would really compromise the crop value of that field. So that’s the other thing that happens that’s very disheartening.”

Although the interviewee’s did not discuss a sense of responsibility to the broader society at length, it is important to note that five participants stated that they do, in fact, consider their neighbours and community members with regard to their use and/or management.

Maine Landowners and Responsibility to the Broader Society

ME participants also expressed a responsibility to society. Many of the ME respondents expressed having a responsibility to allow public access to their property. This notion is exemplified through statements centered on recreational activities such as snowmobiling and ATV use as well as hunting. This responsibility is viewed as reciprocal in that respondents believe the public also has responsibilities to use private land with care. ME interviewees expressed that those members of society that use others' private land should do one of two things: First, when using private land visitors have a responsibility to not pollute or leave their trash or garbage behind, Second, when recreating on private land, members of the public should ask for permission from the owner, especially when using motorized vehicles. Thus, three new concepts emerged: (1) DUTY TO GRANT ACCESS, (2) DUTY TO ASK PERMISSION and (3) NO HARM (VISITOR). Each concept signifies the complex relationship between landowners and the general public. The first concept, DUTY TO GRANT ACCESS, suggests a responsibility to allow members of society to use their land. The second and third emergent concepts describe the responsibility of visitors that are using private land to ask for permission and to not pollute or damage the land while using it. The following respondent quotations will emphasize each of the emergent concepts in the order each is listed above:

- Interviewer: "... but you said that hunters and ATV users go through it, so is there hunting on the land?"
- ME Participant 2: "Yup. I actually pride myself in keeping it open. There is a long tradition in ME of open land and unless it were really, really abused, and even then I would be only inclined to prohibit individuals ..."
- ME Participant 13: "The land is not posted. I refuse to put up a gate or a chain. People have been more than considerate ... And the people who use it for ATV'ing have asked me permission and I said yes, but just take care of it, remember that as long as it's taken care of, it's going to be open."
- ME Participant 4: "... ask first, just ask. Basically with me that's all you have to do. If I know you're there it's okay."
- Interviewer: "Do you think that the public should have certain responsibilities ... to private land?"
- ME Participant 2: "Yeah, ya know, leave nothing behind. Don't trash it, don't leave visible damage to the land, don't create erosion, but beyond that, use it as if it were your own."

ME interviewees feel a sense of responsibility to members of society however, this responsibility is reciprocal. Those that are using private land need to be respectful by both asking for permission to use other's land and by not leaving refuse behind.

Cross-Case Comparison of New Brunswick and Maine Responses

In answering our question, “To whom or to what do landowners feel a moral or ethical obligation when making land use decisions,” it was evident that participants’ from both NB and ME were expressing an attitude that depicted a sense of responsibility to use or manage their land for the good of the resource itself. This was articulated through participants’ self-reported behavior. Although they also feel that they have an implied right to use their land in ways that they choose, their own land ethic would suggest that they would not act in a way that would be damaging to the land. It is apparent that these landowners consider amenity values of importance. This finding aligns with Butler and Ma’s (2011) analysis of landowner objectives.

NB participants expressed this responsibility in one of three ways: (1) NO HARM (OWNER), (2) DUTY TO MANAGE and (3) RIGHTS TRUMP OBLIGATIONS. The first two concepts listed above were derived from the participants’ capacity to actively utilize their land in way(s) that they believed to be beneficial to the land itself or biotic community. NB interviewee’s felt that they were acting as responsible stewards by not damaging the land and by monitoring, managing, maintaining or otherwise not developing their property. The third concept that emerged from NB participants, RIGHTS TRUMP OBLIGATIONS describe activities that they would not undertake. However, within this core concept, discussion focussed around an understanding of landowner rights in terms of respecting other landowner’s ability to use their land in certain ways.

ME participants expressed a similar attitude with regard to activities that they believe to be in the best interest of the land or the biotic community. This was evident within all three of the concepts that emerged from analysis (i.e. DUTY TO MANAGE, NO PARCELIZATION and NO HARM WILDLIFE). ME respondents did not describe a responsibility to respect other landowner’s rights nor did they emphasize a desire to prohibit certain activities from occurring on someone else’s land, although several were mentioned. Many ME respondents expressed a responsibility to wildlife, wildlife habitat and water resources as evident through the examples of the third emergent concept titled, NO HARM WILDLIFE. This concept is divergent from NB interviewee’s in that the ME participants essentially separated the forest, wildlife, and water resources. Although the reasoning behind participants’ self-reported behaviors may have varied and are beyond the scope of this paper, it is clear that participants in both jurisdictions feel that their land use is not detrimental to the resource itself.

When analyzing whether the NB and ME participants’ felt a responsibility to use or manage their land for themselves or their immediate families, results suggest different means to attain a similar end result (i.e. SUSTENANCE/LIFESTYLE). NB interviewees expressed a responsibility to both themselves and their immediate families in the form of “working” the land in order to maintain their lifestyle. ME participant responses conveyed a desire to utilize the land for both survival and enjoyment purposes. This is not to suggest that NB participants do not enjoy their land nor should it imply that the ME participant’s do not want to maintain their way of life. This was one reason why we felt comfortable allocating the same title to the core concept within each jurisdiction. NB participants included their immediate

family members when discussing their social obligations and responsibilities yet familial obligations were relatively absent from the ME participant responses. ME landowners expressed some suspicion regarding the intentions of their heirs and many were contemplating the idea of “locking in” their stewardship ethic through the use of conservation easements on property that they intended to pass to their children. This notion will be further addressed in the discussion section.

Few NB participants expressed an obligation to use or manage their land for the good of the public or society. Rather, they stated that the public has a responsibility to both forest landowners and to the land itself as indicated through the core concept, NO HARM (VISITOR). We demonstrate this through statements describing the public’s responsibility to not pollute or leave garbage on private land, a sentiment shared by ME participants [i.e. NO HARM (VISITOR)]. Two concepts emerged from ME respondents, DUTY TO GRANT ACCESS and DUTY TO ASK PERMISSION, in contrast to NB interviewees. DUTY TO ASK PERMISSION emphasized the public’s responsibility to ask for permission to use private land. The concept labelled DUTY TO GRANT ACCESS represented a reciprocal responsibility. ME respondents expressed that they have a responsibility to allow the public access to use their land so long as they were asked to do so.

Discussion

The intent of this work was to start a conversation and present some exploratory results around the concepts related to landowner’s sense of moral duties and responsibilities in owning land. Specifically, we asked to whom and to what they felt moral obligations. Respondents from both ME and NB reported feeling responsibility to a broad range of entities. Very few confined themselves to one domain.

Differences between NB and ME respondents were slight. They both clearly are concerned about not causing harm or damage to the land itself or what we labeled the biotic community. The diverse landowners in our sample recognize the interplay between their own use and/or management and the overall structure and function of ecological processes beyond the borders of their holdings. Several individuals articulated how certain activities such as clearcutting or the development of forest land, for example, have the capacity to affect not only their own lives as well as their families but also the well-being of the resource, their neighbours and to an extent, the broader public.

The qualitative approach used throughout this study was both useful and limiting. By selecting respondents and conducting face-to-face, semi-structured interviews we were able to gather rich data from a wide range of forest landowners. It was not our intent to be able to generalize to broader populations of forest landowners within the two jurisdictions. The interview guide also served as a useful tool for both the researchers as well as the interviewees. Sending the interview guide to respondents before the interview was conducted allowed participants’ to contemplate the deep and more complex questions. This study also allowed individuals to articulate their sense of duty and talk about how that duty is manifest in their management

activities. This eliminated the potential of introducing researcher bias during analysis and led to the inductive creation of core categories.

There are, however, limitations and weaknesses to using this approach. For example, it is possible that we failed to identify all of the key characteristics in our sample. Purposefully selecting respondents based on characteristics and attributes also increases that chance of introducing response bias. This approach is not conducive to having a large sample size which prevents us from making broad generalizations from our results. Another weakness deals with using self-reported behaviors. The means by which an individual reports his/her behavior (i.e. self-reported behavior) has been shown to deviate from an individual's actual behavior (Beckley et al. 1999). While it was not the intent of this study to delve into the complex relationship between self-reported behavior and actual behavior we encourage other scholars to examine this phenomenon in greater detail. Previous research on forest landowners has examined such topics as landowner motivations, attitudes and private property rights as separate areas of study. Landowners are not forced to legally act in a responsible manner. This notion has been under-emphasized throughout much of the literature. However, in an attempt to gauge Connecticut landowner's stewardship ethic, Broderick et al. (1994) quantitatively analyzed survey responses to five stewardship related questions. Although rudimentary, the authors were able to show that at least 15 % of their respondents did in fact hold a stewardship ethic. Our study contributes to this topic and found that landowners are motivated by ethical responsibilities to various entities. As land is sold or changes ownership it becomes more difficult to manage these ecosystems at larger scales for longer periods of time. Our findings suggest that our ME respondents claim to be more likely to place their development rights into conservation easements or land trusts than NB landowners. While our research did not emphasize why ME landowners discussed this notion more than those in NB, there is more development pressure on rural land in ME and a great many more land trusts in ME than NB. Clearly, landowners care about a broad range of entities, particularly in the social and biotic community domains. We suggest that future studies continue to examine the relationship between landowners' duties and self-reported moral obligations and their land management behavior.

Conclusion

This research offers insight into the interplay between private property rights and responsibility or moral obligations in land management. It is the first research we know of to attempt to answer Worrell and Appleby's (2000) question "to whom or what is a steward [of land] responsible?" We have recently collected data from a larger sample of forest landowners (in NB) on this same question. Future research should also assess society's perceptions of private land use for recreation and the ecological and non-market benefits society receives from well managed land.

Our small but demographically diverse samples in both NB and ME clearly articulated a sense of obligation toward both social entities and the biotic community in the ethical stewardship of their land. Ethical obligation to a spiritual

domain was present in some respondents, but overall this domain was the least represented in both jurisdictions. Many individuals said that they believe their land use and management is and should be benign, if not beneficial, to the biotic community. Respondents in both jurisdictions also articulated that they have obligations to neighbors and the local community, but also that these social entities also had responsibility toward them and their land. Few of our respondents indicated that they were interested in selling or had plans to develop their property. Landowners that we spoke with in each location consider how their use and management may be affecting their forest parcel(s) and to a lesser degree, society, but landowners also view their role as stewards of the land as one deserving of care and consideration by others. It will be interesting as research in land stewardship progresses to see the degree to which such sentiments are widespread.

Acknowledgments This research was funded by a grant from the Social Science and Humanities Research Council of the federal government of Canada. We would also like to thank our generous research participants, Drs. Solange Nadeau and Don Floyd, and Tom Doak of the Small Woodlot Owners of Maine.

References

- Beckley TM, Boxall PC, Just LK, Wellstead AM (1999) Forest stakeholder attitudes and values: selected social-science contributions. Information report NOR-X-362. Natural Resources Canada, Canadian Forest Service, Northern Forestry Center, Edmonton
- Birch WT (1986) Forest landowners of Maine, 1982. Resource. bull. NE-90. United States Department of Agriculture, Forest Service, Northeastern Forest Experiment Station, Broomall
- Bliss CJ (2003) Sustaining family forests in rural landscapes: rationale, challenges, and an illustration from Oregon, USA. *Small Scale For Econ Manag Policy* 2(1):1–8
- Boychuk Duchscher EJ, Morgan D (2004) Grounded theory: reflections on the emergence vs. forcing debate. *J Adv Nurs* 48(6):605–612
- Broderick SH, Hadden KP et al (1994) The next generation's forest: woodland owners' attitudes toward estate planning and land preservation in Connecticut. *North J Appl For* 11:47–52
- Butler B (2008) Family forest owners of the United States, 2006. Gen. Tech. Rep. NRS-27. US Department of Agriculture, Forest Service, Northern Research Station, Newton Square
- Butler BJ, Ma Z (2011) Family forest owner trends in the Northern United States. *North J Appl For* 28:13–18
- Cole HD, Grossman ZP (2002) The meaning of property rights: law versus economics. *Land Econ* 78(3):317–330
- Crabtree FB, Miller LW (1992) Primary care research: a multi-method typology and qualitative road map. In: Crabtree FB, Miller LW (eds) *Doing qualitative research*. Sage, Newbury Park, pp 3–28
- Floyd DF, Ritchie R, Rotherham T (2012) New approaches for private woodlots: re-framing the forest policy debate. Province of New Brunswick, Fredericton 48 pp
- Freyfogle TE (1998) Bounded people, boundless land. In: Knight LR, Landres BP (eds) *Stewardship across boundaries*. Island Press, Washington, DC, pp 15–37
- Freyfogle TE (2003) *The land we share: private property and the common good*. Island Press, Washington, DC
- Freyfogle TE (2007) *On private property: finding common ground on the ownership of land*. Beacon Press, Boston
- Glaser GB (2002) Conceptualization: on theory and theorizing using grounded theory. *Int J Qual Methods* 1(2):1–31
- Karp PJ (1993) A private property duty of stewardship: changing our land ethic. *Environ Law* 23:735–762
- Kendall J (1999) Axial coding and the grounded theory controversy. *West J Nurs Res* 21(6):743–757
- Krueckeberg AD (1995) The difficult character of property. *J Am Plan Assoc* 61(3):301–310

- Leopold A (1949) *A sand county almanac: and sketches here and there*. Oxford University Press, New York
- Macpherson CB (1978) The meaning of property. In: Macpherson CB (ed) *Property: mainstream and critical positions*. University of Toronto Press, Toronto, pp 1–15
- Maine Land Trust Network Land trusts in Maine (MLTN) Welcome. Web. 27 Aug 2010. http://www.mltn.org/trust_guide/index.php
- Nadeau S, Beckley T, McKendy M, Keess H (2012) A snapshot of new brunswick non-industrial forest owners in 2011: attitudes, behaviour, stewardship and future prospects. New Brunswick Department of Natural Resources, Fredericton, NB, pp 1–91
- Patton QM (1980) *Qualitative evaluation methods*. Sage, Beverly Hills
- Rubin JH, Rubin SI (1995) *Qualitative interviewing: the art of hearing data*. Sage, Thousand Oaks
- Schlager E, Ostrom E (1992) Property-rights regimes and natural resources: a conceptual analysis. *Land Econ* 68(3):249–262
- Sivacek J, Crano W (1982) Vested interest as a moderator of attitude-behavior consistency. *J Pers Soc Psychol* 43:210–304
- Small Woodland Owners Association of Maine [SWOAM] (2012) Accessed 15 Feb 2012. <http://www.swoam.org/>
- Tuler S, Webler T (1999) Voices from the forest: what participants expect of a public participation process. *Soc Nat Res* 12:437–453
- Vonhof S (2001) *Of sticks and seesaws: private property and the stewardship of America's lands and forests*. Doctor of Philosophy Degree, State University of New York, pp 2–300
- Walker D, Myrick F (2006) Grounded theory: an exploration of process and procedure. *Qual Health Res* 16(4):547–559
- Worrell R, Appleby MC (2000) Stewardship of natural resources: definition, ethical and practical aspects. *J Agric Environ Ethics* 12:263–277