



Family legacies and community networks shape private forest management in the western Upper Peninsula of Michigan (USA)



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ABSTRACT

Nonindustrial private forest (NIPF) owners make thousands of uncoordinated land use decisions that collectively and critically impact forest ecology. Prior research generally assumes private land use decisions adhere to the rational choice paradigm, driven primarily by cost–benefit calculations, such as financial considerations. Thus, when aiming to coordinate land use change in landscapes dominated by private property, policy makers often use economic or educational incentives to encourage enrollment in voluntary programs. Despite these incentives, enrollment in voluntary programs is notoriously low. The current study offers a possible explanation for this problem. It highlights the role of social influence in shaping NIPF land use decision-making. Our research draws on qualitative data gathered from interviews with 37 landowners in the western Upper Peninsula of Michigan, USA, to discover how social influence affects land management practices, such as decisions to join voluntary programs. We find evidence that family traditions, community relationships, and locally defined social norms play key roles in shaping the land use decision options available to individual landowners. Local norms against clear cutting and trust (or lack thereof) in local experts and organizations were found to be particularly important. We also found evidence of cognitive dissonance associated with conflict between Scandinavian versus American traditions of public access to private lands.

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Introduction

Forestland ownership in the United States (US) transitioned over the past few decades as the forest industry divested a significant portion of land to nonindustrial private owners. These non-industrial private forest owners (NIPF owners, a.k.a., family forest owners or smallholders; Harrison et al., 2002) now own and manage over a third of US forestlands, accounting for roughly 1.2 million km² (Butler and Leatherberry, 2004; Smith et al., 2007). Researchers and land managers in North America and Europe are particularly interested in the collective influence these NIPF owners have on land use and land cover change at large scales (Kittredge, 2003; Boon et al., 2004; Zhang et al., 2005; Barua et al., 2011; Korhonen et al., 2012, 2013; Jonsson et al., 2013). There

is a clear need to coordinate the land management practices of these thousands of individual, autonomous NIPF owners to mitigate landscape level problems, such as forest fragmentation and loss of ecosystem functions and services (Kittredge et al., 2013). Yet, such coordination is difficult and plagued with limitations (Sampson and DeCoster, 2000). For example, US private property laws typically prevent land management agencies from directly restricting land use activities on NIPF lands, despite the fact that forests are natural systems with important ecological and economic functions (Butler & Leatherberry, 2004; McShea et al., 2007) that do not follow private property boundaries. However, when landowners engage with professional foresters and loggers, they must follow state and federal harvesting laws, as well as the protection of habitats of species listed as endangered or threatened. This is why agencies often use voluntary incentive programs (VIPs; Sampson and DeCoster, 1997; Mayer and Tikka, 2006) as an alternative to top-down control to coordinate large-scale land use from the bottom-up. These VIPs attempt to “encourage” rather than impose sustainable land use practices across the landscape.

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VIPs are highly dependent upon enrollment rates due to their decentralized and voluntary nature. This means that recruitment and retainment strategies are critical to their success. However, most VIPs rely on overly simplistic rational choice incentives, such as tax breaks, cost-share options, or free technical advice to encourage or maintain participation (Korhonen et al., 2013). These financial incentives are intended to tip the scale in favor of VIP preferred land management practices under the rational choice assumption that individuals use cost–benefit analysis to choose the most advantageous management option to meet ownership objectives among all possible known alternatives. This approach is sound in theory but, in practice, enrollment in VIPs has been notoriously low (Erickson et al., 2002; Mayer and Tikka, 2006; Ma et al., 2012). Although it is possible that the financial incentives of VIPs are simply too low to illicit significant levels of voluntary cooperation, we argue that low enrollment is also due to the effects of social influence on landowner choices and decision-making (Bliss and Martin, 1989; Bieling, 2004). We show below that understanding this process requires a more contextualized investigation of land use than the simplistic rational choice approach of current VIPs (e.g., Young and Reichenbach, 1987; Amacher et al., 2003; Beach et al., 2005; Potter-Witter, 2005; Barua et al., 2011).

Rational choice theory works well when actors possess full information and preference ranking is straightforward (Hechter and Kanazawa, 1997). In reality, these two conditions are rarely fulfilled (Ostrom, 2010). NIPF owners are typically aware of only a narrow range of land use alternatives. Also, the potential consequences of implementing each alternative (marginal costs included) often have a variety of impacts along incomparable dimensions. For example, concrete financial gains must be weighed against more abstract social and ecological concerns simultaneously with only a vague conception of long run impacts (Ekbia and Evans, 2009). Therefore, actual (as opposed to theoretical) decision-makers (NIPF owners included) tend to use socially informed heuristics to simplify this process (Cialdini and Goldstein, 2004). It is through the medium of social influence that decision-makers become aware of alternatives and come to establish “rules of thumb” regarding preference rankings.

Social influence impacts decision-making in two ways: direct and indirect. Direct social influence is typically strongest in direct personal interactions with those perceived to be experts (or otherwise of high social status) and among those whom individuals have close regular contact, particularly those perceived to be similar in character (Sedikides and Jackson, 1990; Latané, 1996; Cialdini and Goldstein, 2004). Indirect or normative social influence occurs when behavioral expectations emerge and take hold within a community over time. Individuals tend to conform to these widely accepted social standards in an effort to maintain one’s identity as an “upstanding” member of a given norm community (Kelman, 1958). It is through these two forms of social influence (direct and indirect) that we believe NIPF owners “fill the gaps” in their decision-making to establish reliable land use decision-making heuristics.

A developing body of land use research shows that social influence does affect the way landowners manage their lands. For example, a social norm in Catalonia for maintaining land ownership within the family constrains land use to historic patterns, driven mostly by family traditions (Domínguez and Shannon, 2011). Strongly rooted stigmas against clear cutting forested lands also exist in many communities in the US and Finland (Young and Reichenbach, 1987; Knoot et al., 2009; Valkeapää and Karppinen, 2013). Several recent studies suggest that, as a consequence of these social influences, peer-to-peer dissemination of land management information is more effective than top-down bureaucratic strategies (Gootee et al., 2010; Knoot and Rickenbach, 2011; Ma et al., 2012; Schubert and Mayer, 2012). While rational choice continues

to be the focus of many NIPF owner case studies (particularly those focused on land use policy), a growing body of evidence suggests that social influence should also be considered in policy development (Knoot and Rickenbach, 2011). Our study contributes to this emerging body of research by exploring how social influence affects land use decision-making among NIPF owners in Michigan’s Upper Peninsula (USA).

Materials and methods

Our project focused on NIPF landowners in the western six counties of the Upper Peninsula (UP) of Michigan, covering a total area of 22,265 km². The Western UP is sparsely populated (average of 7.5 people per km²) and heavily forested (forest cover is 72%). Approximately one-third of the land in this region is owned and managed by a population of approximately 30,000 NIPF owners (defined as private individuals/families with at least 10 acres (4 ha) of forest land; Schubert and Mayer, 2012).

We conducted a total of 37 semi-structured interviews with these NIPF landowners. The majority of these owners were male (78%), the average age was 60 years old (range: 37–90 years), the most common income range reported was \$60,000–\$79,000 per year, and average forest size owned was 716 acres (289 ha; median: 120 acres (48 ha); range: 7–12,000 acres (2–4856 ha)). Interviews were comprised primarily of open-ended questions soliciting information on land tenure, current and future management intentions, social and community relationships, VIP knowledge and participation, sources of advice and information on management and programs, and knowledge of land management on neighboring properties (see Appendix A for interview protocol). The average interview was approximately 1 h in length. Two short interviews (15–30 min) involved participants who provided only brief responses and chose not to elaborate when asked further probing questions. Lengthier interviews lasted up to 2 h with VIP program participants who were asked additional questions about program participation, or involved the landowner taking the interviewer onto their land to demonstrate land management practices.

The interview selection strategy involved some stratification to ensure that we interviewed a sufficient number of participants in VIPs, non-participants, and a balanced number from each county. To target VIP participants, we randomly selected individuals from the commercial forest reserve (CFR) and landowner incentive (LIP) programs. CFR participant lists are publically available, and an LIP participant list was provided by the Michigan Department of Natural Resources, which manages the program. The CFR program requires participants to have an official management plan and to allow open access to the public on foot in order to receive a property tax break, whereas the LIP provides advice and technical support to create and manage habitat for rare or declining species (see Appendix B for more details). Non-participants were randomly selected using an electronic, GIS parcel map/plat book overlaid with remote sensing imagery to identify forested, privately owned parcels with at least 10 acres (4 ha) of forest. If the chosen interviewee refused an interview or could not be contacted, a replacement was selected in the same manner. Ultimately, we interviewed at least one randomly selected VIP participant and at least one non-participant in each county. Ten of our interviewees were absentee owners who had a primary residence outside the study area.

Overall, our selection process generated a list of 597 properties. No contact information or invalid contact information was discovered for 28.6% of this sample. Additionally, 46.2% did not respond to an initial phone call or follow up call, and 109 (18.3%) declined to participate in the study, typically citing lack of time or interest. The low response rate hinders our ability to make generalizable claims about how important social influence is in comparison with other

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