

Local Environmental Groups and the Creation of Social Capital: Evidence from Vermont

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Scholars who have studied local environmental groups in the United States have tended to agree about three related, stylized facts: that such groups are widespread, that they are pursuing a diverse set of activities, and, at least implicitly, that they are creating social capital that significantly affects environmental policy. However, a healthy skepticism about these claims among academics and within the policy community exists due to a lack of significant data to verify them. In this article, (1) we collect and interpret data to demonstrate, in two counties of Vermont, that local environmental groups are indeed pursuing a diverse set of activities, developing a typology of these groups based on their main focus; (2) we show the groups are developing and maintaining social capital; and (3) we illustrate how these methodologies can enhance the literature on local environmental groups by testing claims about the extent and influence of these groups.

Keywords local environmental groups, local organizations, social capital, Vermont

The study of local environmental groups in the United States has generated a considerable literature over the last several decades. Most of this work has focused on cases studies of particular kinds of local groups, for example, collaborative conservation groups (e.g., Brick et al. 2001; Weber 2003) and environmental justice groups (e.g., Shutkin 2000; Szasz 1994). In general, the scholars who have studied local environmental groups and their effects have tended to agree about three related, stylized facts: that such groups are widespread, that they are pursuing a diverse set of activities, and, at least implicitly, that they are creating social capital that significantly affects environmental policy and outcomes. However, a healthy skepticism about these claims among academics and within the policy community exists due to a lack of significant data to verify them.

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This literature has provided significant insights into the workings of these local environmental groups, yet it has been hard to verify any one of these three broadly accepted claims. Although there have been some recent studies that sought to enumerate all such groups in a particular geographic area (e.g., Kempton et al. 2001), Robert Putnam well summarized the state of our knowledge of the existence of such groups across the country when he wrote, “The gentlest verdict on the claim of growing grassroots environmental activism is ‘not proved’” (Putnam 2000, 161). In our previous work (Savage et al. 2005), we offered findings that corroborated those of Kempton et al. (2001)—there are large numbers of such groups and traditional methods of enumerating them (e.g., Internal Revenue Service (IRS) and Secretary of State lists of nonprofit groups, published directories) significantly and systematically undercounted them.

In this article we use the data methodologies of Kempton et al. (2001) and Savage et al. (2005) to address the other two stylized facts of the extant literature on local environmental groups and their workings. First, we demonstrate, in two counties of central Vermont, that local environmental groups are indeed pursuing a diverse set of activities, developing a typology of these groups based on their main focus. Second, we show the groups are developing and maintaining social capital (which may, in turn, affect environmental policy and outcomes). We further illustrate how these methodologies can enhance the literature on local environmental groups by testing claims about the extent and influence of these groups.

Defining and Identifying Social Capital

Recent influential literature on local environmental groups has made use of the concept of social capital. For example, Shutkin states that “without strong reserves of social capital, neighborhoods lack the capacity to assess, monitor and prevent environmental harms” (Shutkin 2000, 77). Furthermore, many scholars in this area have used the case-study method to focus on the importance of certain kinds of local environmental groups, including groups dealing with opposition to local environmental threats (e.g., NIMBY groups), environmental justice groups (e.g., Citizens Committee to End Lead Poisoning), direct action and deep ecology groups (e.g., “Earth First!” type groups), and collaborative conservation groups (Edwards 1995; Freudenberg and Steinsapir 1992; Gottlieb 1993; Taylor 1995; Weber 2003). However, the most compelling case studies cannot be relied on to systematically identify the diversity of group activities, or the relative importance of the social capital that they create. To date, this important literature has not yet connected these important claims with verifiable data that is based on a conceptually grounded definition of social capital.

The premise of the concept of social capital begins with the observation that recurring and patterned social interactions among a set of individuals—in their neighborhoods, their churches and schools, and their local organizations—generate networks and norms that affect a wide range of economic and social decisions (Coleman 1990). In this article, we adopt the definition and approach of Woolcock, who defines social capital as “the norms and networks that facilitate collective action” and argues that the term makes most sense when it is understood as a relational (i.e., sociological), rather than psychological or political, variable since “the best and most coherent empirical research on social capital, *irrespective of discipline* [emphasis added], has operationalized it as a sociological variable” (Woolcock 2002,

22). Likewise, we look to the field of rural sociology in this research, examining the chronological aspects of group formation and the existence of rural groups as precursors to social capital formation (Castle 2002).

How can one measure social capital? For his major study on the transformation of social capital in the United States, Putnam used 14 state-level measures of social capital to construct (using principal components analysis) a single Social Capital Index. Of those 14 measures, 5 are “measures of community organizational life” (Putnam 2000, 291): (1) civic and social organizations per 1000 population; (2) mean number of group memberships; (3) mean number of club meetings attended last year; (4) percent who served on committee of local organization last year; and (5) percent who served as officer of some club or organization in last year.

Consistent with Putnam’s measures, we use measures of the number of different groups, core membership in groups, basic membership in groups, and, for a subset of groups, activities of the groups and its members, to assess forms of social capital associated with local environmental groups in two counties in Vermont. We use these measures as a proxy for social capital, just as proxies are often used for physical capital and human capital. Decades of researchers, for example, have measured investments and education levels while acknowledging that in many cases these assets will be underutilized. We believe that these are good measures of “networks that facilitate collective action” (Woolcock 2002, 22) in this part of the rural Northeast. For example, core members, defined as the “most active [group members], who attend meetings or participate in events or activities” (Kempton et al. 2001, 565), are undoubtedly critical for forming strong networks among group members, between groups, and with individuals in positions of power.

Research Methodology

Vermont provides fertile soil for studying local environmental groups. In addition to being a national leader in participatory local government and nonprofit activity, Vermont is also recognized as a leader in protecting the environment. In the Institute for Southern Studies “Gold and Green” indices of economic and environmental performance, Vermont ranked first on the green scale in both 1994 and 2000 (Institute for Southern Studies 2002). The *1991–1992 Green Index* ranked Vermont third in the nation (Lester 1994). If local environmental groups are as extensive as others have estimated (Brulle 2000; Kempton et al. 2001), and if Vermont is as environmentally oriented as these studies indicate, there should be an abundance of local environmental groups in the state.

In the summer of 2002 we conducted a census of all land-based groups—agricultural groups, outdoor recreational groups, and environmental groups—in Addison and Washington counties in Vermont. We selected Addison County, which has 23 rural towns and a population of 36,000, because of our previous research in the area and its geographic proximity. We selected Washington County, which has 19 towns and a population of 58,000, because it consists of both rural regions and a more densely populated area: It includes the state capital Montpelier and the adjacent city of Barre, which together comprise the third largest urban area in the state. Addison County, which includes the central part of the Champlain Valley on the shore of Lake Champlain, has rich soils that are ideal for agriculture. Washington County, which includes the central part of the Green Mountains, has a well-developed skiing and recreationally oriented tourist industry. Although the population and interests

of these two counties differ, for example, from the much more impoverished Essex County in northeastern Vermont, we believe that the 42 towns in these 2 counties give a representative snapshot of the ecological and cultural contours of Vermont's 249 towns in 15 counties (Klyza and Trombulak 1999).

Group Classifications and Definitions

For the census, we adopted the Kempton et al. definition of an environmental group: "a self-named, voluntary collection of people (or member organizations) who agree on some part of a view of the ethical or appropriate relationship between humans and the world around them, who communicate with each other about this topic, and who perform action in a particular venue in order to advance their view of it" (2001, 561; see Savage et al. (2005) for other subgroup definitions).

We further distinguished between local and nonlocal groups:

- A local group, again following Kempton et al. (2001, 561), is based on "the social criteria of communication, direct participation, and shared venue, which typically but not necessarily imply geographical proximity of members."
- A nonlocal group is based on the political criteria of state, regional, national, or international boundaries, which typically but not necessarily imply geographical distance of members.

Our original census included all local land-based groups in Addison and Washington Counties and four kinds of nonlocal groups: state-, regional-, national-, and international-level groups. For example, Forest Watch is a state-level group based in Montpelier that is dedicated to protecting Vermont's public lands; the ElectroMagnetic Radiation Network is an international-level group based in Marshfield that is dedicated to lowering exposure to electromagnetic radiation throughout the world.

Among local and nonlocal groups, we distinguished between autonomous groups and chapters.

- An autonomous group is a self-formed and self-governed group that, though it may be part of larger networks or coalitions, is not subject to the formal by-laws of a nonlocal group.
- A chapter is typically but not necessarily a self-formed and self-governed group that, in addition to possibly being part of larger networks or coalitions, is subject to the formal by-laws of a nonlocal group of which it is a branch.

For example, the Watershed Center, which is dedicated to increasing land conservation and improving water quality in the town of Bristol, is an autonomous local group. The Ducks Unlimited chapter of Vermont, which is headquartered in Bristol, is a state-level national chapter.

The Creation of the Group Census

In order to analyze the changing composition of land-based groups, we collected data on the history, membership, and objectives of every land-based group in these two counties (Savage et al. 2005).¹ As we began, we compiled all available sources at our disposal from previous research (Isham and Polubinski 2002; Klyza and Trombulak 1999), our classroom teaching, and our personal knowledge of these

two counties. These sources included group directories—the *Vermont Environmental Directory* (VNRC 2000) and the *Vermont Grassroots Directory* (VPJC, 2002)—local newspaper articles and weekly calendars, web sites, and the local telephone book. The directories listed many nonlocal land-based groups; however, they failed to include most local environmental groups.

We then conducted phone interviews with group leaders, our primary source of information, in order to verify whether the group was a land-based group, classify each group, and gather specific information about each group. This included the founding date, mission and activities, current membership numbers, current core membership numbers, operating budget, extent of political activity, and local partnerships (with other groups and institutions). To expand our group list, we asked each group leader whether he or she knew of other land-based groups in the county.²

We quickly realized that we would need to adopt consistent data recording standards when group leaders gave incomplete or indefinite responses, such as a range of membership or an inexact date (see Savage et al. 2005 for standards). For membership and core membership (as defined earlier), our recording standards always yielded an underestimate of membership numbers.

When we were satisfied that we were close to a complete census, we then compared our list to the Vermont Secretary of State's database on active and inactive registered nonprofits. The database produced a new list of possibly active groups in each county. For each of these, we determined whether the group was still active and, if so, then interviewed a group leader. This process yielded seven land-based groups that we had previously missed. Finally, we compared our revised list to all Vermont 501(3)c groups listed in the Business Master Files of the Internal Revenue Service (IRS), which yielded 10 additional land-based groups. As we completed the census, a group was removed from the list if we were unable to contact a group leader by phone after a minimum of two phone calls and we were unsure of a group's existence through other means. When we could not contact anyone in a group that we knew existed, we gave the group zero membership (following Kempton et al. 2001), another standard that led to an underestimation of membership.

A Typology of Local Environmental Groups

Beyond case studies, what is empirically known about what local environmental groups actually do, nationally or in a specific geographic region? A study by Brulle (2000) is the most systematic nationwide examination of local environmental groups. Through examining IRS files on tax-exempt organizations in 1994, he estimated that there were approximately 10,000 environmental organizations registered with the agency, the vast majority of which were located at the local level.³ Brulle did not focus on the distinction between local and national groups in his study, but he did develop a typology of groups based on discourse. These types were wildlife management, conservation, preservation, reform environmentalism, deep ecology, environmental justice, and ecofeminism. Rather than place all 10,000 groups in this typology, Brulle selected 87 national or regional groups to explore the characteristics of the different groups.

A recent systematic study of local environmental groups in the Delmarva Peninsula and North Carolina by Kempton et al. found that “more recent . . . research leads us to suspect that local environmental groups are more diverse and more significant than documented previously” (Kempton et al. 2001, 560). Their study disclosed

that 20–23% of the groups fit into the “opposition to local environmental threats” category, 2–7% were direct action, deep ecology groups, and none of the groups fit into the environmental justice category (Kempton et al. 2001, 572–73). Kempton et al. next developed a rudimentary typology that added animal interests, park or refuge support, wise use or property rights, personal consumption management, and group outings as categories. These new categories captured 30% of the groups in Delmarva and 44% in North Carolina. They concluded, “Perhaps the main lessons to be drawn are that most local environmental groups do not fit the categories claimed in the literature, and that no single activity or group type characterizes more than one-fifth of the groups. They are a diverse lot” (Kempton et al. 2001, 575).

Building on the work of Brulle (2000) and Kempton et al. (2001), we develop a typology of local environmental groups based on the primary focus of their activity. The five types are conservation, environmental quality, land protection, education, and other. Although it can be difficult to make distinctions between these categories, we were able to do so with confidence. Any group that undertook significant activity in more than one of these fields was assigned to the conservation category, which is the home of general groups. If a group focused almost exclusively on one activity, such as land protection by land trusts, it was assigned to the more specific category. We also recognize that these categories may not be appropriate in all sections of the United States. Vermont is, according to the definition used by the U.S. Census Bureau, the most rural state in the nation, and hence more urban states might warrant a different typology.⁴ In other regions, for instance, it might be adjusted by adding new categories (e.g., hazardous waste or environmental justice) and folding existing categories into other categories.

- *Conservation*: These groups are interested in a broad range of issues dealing with human management and relations to nature, including habitat protection, ecological restoration, water quality monitoring, and land protection. When a group was significantly involved in more than one of the typology actions (e.g., land protection *and* education), it was placed in the conservation category. Example: Lewis Creek Association.⁵
- *Environmental quality*: Such groups focus on environmental issues related primarily to human health concerns, such as air pollution, water pollution, hazardous waste, or pesticides. Example: Children’s Environmental Health Project.
- *Land protection*: These groups have a primary focus on land protection, either through direct purchase of land or through the purchase of conservation easements. Such groups could be interested in managed lands (e.g., farmland) or preserved lands (e.g., parks or reserves). Example: Irish Hill Ridgeline Conservation Project.
- *Education*: Groups that focus primarily on education related to the environment, from young children through adults, fit in this category. These include groups based in local schools and colleges. Example: Keewayden Environmental Center.
- *Other*: Groups that do not fit into the preceding categories. For our study, these included groups focused on energy and the environment, international issues, and green business groups. Example: Route 2 Citizen’s Alliance.

Turning to Table 1, for the two counties censused in Vermont, in total 80 local groups were identified. Of these groups, conservation was the leading category with 38 groups (48%), followed by environmental quality with 18 groups (22%). These categories were followed by land protection (9; 11%), education (8; 10%), and other

Table 1. Composition of environmental groups in census area

	Founding year				Membership			
	Total	Pre- 1970	1970- 1985	Post- 1985	Total core members	Median core members	Total members	Median members
Local	80	6	13	61	995	10	6010	12
Conservation	38	4	4	30	384	8	2337	9
Environmental quality	18	1	5	12	309	10	2558	44
Land protection	9	1	1	7	189	10	735	32.5
Education	8	0	2	6	53	6.5	290	10
Other	7	0	1	6	60	8	90	15
Nonlocal	41	6	10	25	534	12	59,467	18
Conservation	11	4	3	4	143	13	14,335	250
Environmental quality	9	0	2	7	88	7	21,942	19
Land protection	6	2	2	2	132	26	22,932	7000
Education	6	0	1	5	79	7	166	7
Other	9	0	2	7	92	12	92	12

Note. See text for definitions of classifications. No founding date available for two local groups and two nonlocal groups.

(7; 9%). The overwhelming majority of these groups were formed since 1985 (61; 76%). As we discuss more fully elsewhere, this snapshot suggests a tremendous growth of local environmental groups in the last two decades (Savage et al. 2005). Among the local groups, there was no significant difference in core membership by category, with median figures ranging from 6.5 for education to 10 for environmental quality and land protection. For total members, however, there is a significant difference. The categories are essentially bimodal, with environmental quality and land protection groups having median membership of 44 and 32.5, while the other groups have medians in the range of 9 to 15.

The pattern of state, regional, national, and international groups based in the two counties was similar to that of the local groups. Conservation (11; 27%) and environmental quality (9; 22%) groups lead the way, followed by other (9; 22%), land protection (6; 15%), and education (6; 15%). There were more nonlocal other groups, many of which had a more narrow focus that required a larger base of operation than a local group (e.g., Clean Energy Group, Institute for Sustainable Communities). As with the local groups, these nonlocal groups were relatively young—61% were founded since 1985 and only 15% existed prior to 1970. Examining membership of these nonlocal groups, it was clear that land protection groups were the largest (26 median core members, double the next largest category, and 7000 median members, nearly 30 times larger than the next highest category). Total membership numbers suggested small groups in the categories of environmental quality, other, and education, with larger numbers for conservation and much larger membership in land protection groups.

One major difference among the local groups is apparent in Table 2. Nearly one-third of conservation groups were chapters of state or national organizations, while

Table 2. Distribution of environmental groups

	Total	Autonomous	Chapter
Local	80	65	15
Conservation	38	26	12
Environmental quality	18	17	1
Land protection	9	7	2
Education	8	8	0
Other	7	7	0
Nonlocal	41	30	11
Conservation	11	3	8
Environmental quality	9	9	0
Land protection	6	4	2
Education	6	5	1
Other	9	9	0

Note. See text for definitions of classifications.

for the other categories 0% to 22% of the groups were chapters.⁶ In other words, for all categories except conservation groups, the vast majority of local environmental groups were autonomous. Among all the local groups, 19% were chapters. Yet if we exclude the 26 conservation groups, only 8% of the local groups were chapters. This general pattern was even more pronounced for nonlocal groups. For conservation groups, 73% were chapters; for the other categories, 0% to 33% were chapters. Overall, among nonlocal groups, 27% were chapters, but among the 30 nonlocal groups outside the conservation category, only 10% were chapters. Through the formation of chapters, national- and state-level environmental organizations did seem to provide the institutional support for citizens with a broad interest in conservation. Citizens interested in more specific environmental goals, including education, land protection, and environmental quality, were more likely to create a new group independent of a larger organization. In other words, local concerns were crucial to autonomous local group formation.

In closing, like Kempton et al. (2001), we found little evidence of the kinds of local groups that were most mentioned in case studies—NIMBY, environmental justice, direct action, or collaborative conservation. Rather, the great bulk of our local groups were in the categories of conservation and environmental quality (70%). For nonlocal groups, conservation and environmental quality groups were also the most common (49%). We found two local NIMBY groups (Route 2 Citizens Alliance and United Barre Against the Dump), and no local environmental justice or direct action groups in the two counties. Brulle's (2000) typology proved slightly more helpful, but of his seven discourse-based categories, we found no local groups in three (deep ecology, environmental justice, and ecofeminism), embraced conservation, and modified his other categories to better reflect the reality that we documented empirically.

Local Environmental Groups and Social Capital

In the vast majority of instances, dealing with environmental problems and achieving environmental goals require collective action. In this section, we examine how the group activity documented in our study contributes to the development of bonding,

bridging, and linking social capital, which in many circumstances are of crucial importance for successful collective action.

Three forms of social capital, following Woolcock's definition, "facilitate collective action" (Woolcock 2002, 22).⁷ *Bonding social capital* refers to networks that are established among family members, close friends, and neighbors. Such social capital allows individuals to defend themselves against undesired economic or social change (Putnam 2000). *Bridging social capital* refers to networks that are established among more distant associates and colleagues who have somewhat different demographic characteristics, irrespective of how well they know one another. Bridging social capital can help different sets of individuals to coordinate their activities by lowering the costs of transactions (through pooling of diverse resources and economies of scale) and diffusing information. *Linking social capital* refers to alliances with sympathetic individuals in positions of power. This type of social capital can help groups to access resources that are unavailable to them, their neighbors, or distant associates.

To collect the information on social capital formation reported and analyzed in this section, we extended our methodology in order to classify and identify networks within and among the groups that we studied. Since we are testing a new approach to measuring social capital within these groups, and given our own resource constraints, we focused this section of our analysis on Addison County. We used membership and core membership data, as well as previous research to identify the most prominent and influential environmental groups in Addison County (Klyza and Trombulak 1999; Savage et al. 2005).⁸ Based on previous research (Ervin 2002; Isham and Polubinski 2002; Klyza and Trombulak 1999; Savage et al. 2005), we are confident that the results presented in this section can be generalized to Washington County and the rest of Vermont.

We sent a survey instrument in the summer of 2003 to a group officer of each of the nine identified groups. In the survey, we asked each respondent to report on all the activities that the group undertook in the last 12 months, indicating frequency and number of participants. For each of the activities that the respondents listed, we asked respondents if the activity could be categorized as social or recreational; whether it involved education, communication, or stewardship; and what partners were involved in the activity (e.g., other environmental groups or government agencies). With some follow-up, we had a 100% completion rate for these surveys.⁹

Based on our analysis, we identified specific forms of bonding, bridging, and linking social capital associated with these groups. Among these local environmental groups, the first prominent source of bonding is *social and recreational activities*. These are planned activities that unite group members and their neighbors through social and recreational enjoyment. Second, *stewardship activities* are planned activities that unite group members and their neighbors through conservation activities. The first source of bridging social capital among these groups is *education and communication*. These are ongoing and one-time campaigns to diffuse information among a variety of concerned citizens. Second, *partnerships* are formal and informal alliances among a variety of environmental and other groups. Finally, the sources of bridging social capital are *public alliances*, formal and informal alliances between environmental groups and public agencies, and *private and nonprofit alliances*, formal and informal alliances between environmental groups and private firms and nonprofit groups.

Table 3 details the background and characteristics of these nine groups: the Lake Dunmore/Fern Lake Association, Spirit in Nature, the Watershed Center, Lewis Creek Association, Middlebury Area Land Trust, New Haven River Anglers

Table 3. Local environmental groups and social capital

Group classification	Founding year and group membership				Characteristics of group activities							
	Date created	Core members	Number of activities	Number of meetings	Number of participants	Bonding			Bridging		Linking	
						Members	recreational	Social or	Education or communication	Partnerships		Public nonprofit
<i>Autonomous groups</i>												
Lake Dunmore/Fern Lake Association	1994	100	365	6	48	1254	17%	33%	100%	17%	83%	0%
Spirit in Nature Watershed Center	1998	30	260	10	52	2789	20%	50%	90%	70%	0%	10%
Lewis Creek Association	1995	20	200	8	25	631	63%	50%	50%	50%	38%	13%
Middlebury Area Land Trust	1990	20	180	5	132	690	20%	40%	60%	100%	100%	20%
New Haven River Anglers Association	1987	30	164	7	142	693	14%	57%	43%	14%	14%	0%
Vermont Family Forests												
<i>All autonomous groups</i>												
Chapters												
Otter Creek Audubon Society	1971	15	208	4	10	932	100%	25%	100%	25%	50%	25%
Green Mountain Club: Bread Loaf Section	1975	75	150	9	62	784	89%	22%	33%	0%	11%	11%
All chapters												
All groups		308	1628	61	510	8249	92%	23%	54%	8%	23%	15%
							39%	44%	69%	41%	33%	11%

Association, Vermont Family Forests, Otter Creek Audubon Society, and the Green Mountain Club (Bread Loaf Section).

The first three data columns in Table 3 detail founding year and group membership. All but three of these groups were founded since 1985. Consistent with the results reported in Savage et al. (2005), most of the environmentally oriented social capital in Addison County was located in groups that were founded in the last 20 years. Many of the core members are “keystone individuals,” leaders of community-based conservation groups in Vermont who “have multiple conservation-related affiliations within their communities and within their professional lives” (Ervin 2002, 109). Their membership roles, most often as board members and officers, are critical for forming strong networks among group members, between groups, and with individuals in positions of power. In eight of these groups, core members comprised at least one-tenth of the overall membership. Based on this finding, we speculate that this is a broader tendency of the most influential local environmental groups in Vermont: A relatively large number of members are very active participants in group activities.

The next three columns of Table 3 illustrate the extent and breadth of activity of these groups. Each activity represents a distinct action that was conceived and sponsored by the group in the previous year. These activities can occur annually or at multiple times throughout the year. For example, the Lake Dunmore/Fern Lake Association had six activities that comprised a total of 48 distinct meetings: an annual meeting (one meeting per year), a trustees meeting (four meetings), a summer picnic (one meeting), two different aquatic weed control programs (14 meetings per year for each program), and a boat safety program (14 meetings per year). All told, 1254 participants were involved in these 45 activities; this figure included each of the distinct time commitments of repeat participants, for examples, each of the 14 weekend commitments of a volunteer who led the weed crews. It also included one-time commitments, such as a neighbor who attended the annual summer picnic.

As illustrated by the results in these three columns, our research illustrates a wide range of activities across these environmental groups, which ultimately involve a large number of Addison County residents. These 9 groups sponsored 61 distinct activities with a total of 510 separate meetings, which involved 8249 participants. Counting only the 1628 members of these groups would drastically underestimate the number of people who are ultimately involved in activities sponsored by these groups.¹⁰

The final six columns of Table 3 illustrate the nature of the social capital created by these nine local groups. The figures in each of these columns, which were calculated from our survey responses, illustrate the share of each group’s activities that comprise this specific form of social capital. For example, the figure of “17%” under the “social or recreational” column for the Lake Dunmore/Fern Lake Association means that 17% of this group’s activities involve social or recreational activities. From these data, we find several tendencies that we think are emblematic of the means by which environmental groups establish social capital. First, bonding through social or recreational activities was infrequent among local autonomous groups. Only one group, the Watershed Center, reported that over 50% of its activities involved socializing or recreational opportunities. By contrast, the two local chapters reported a very high level of social and recreational activities. Local autonomous groups, founded relatively recently, have a focus that transcends the recreational emphasis of more traditional state-level environmental groups like the Audubon Society.

It is rather through stewardship that the members of local autonomous groups form their bonding networks: 5 of the 7 groups reported that at least 40% of their

activities involved stewardship. Even the two local environmental quality groups in this subset, the Lake Dunmore/Fern Lake Association and the New Haven River Anglers Association, reported that one-third of their activities involved stewardship. Among the two chapters, by contrast, stewardship activities were much less common. We speculate that this difference is representative of a broader trend among autonomous local environmental groups nationwide: a dedication to stewardship that bonds many friends and neighbors, distinct from the bonds that are created through socializing and recreation alone.

These survey results also indicated the prevalence of bridging activities among these groups, particularly among the autonomous groups. Seventy-three percent of all activities among autonomous groups involved education or communication, and 50% involved some kind of partnership. For example, 10 times per year the Watershed Center “provides outdoor classrooms for local schools,” with a program that involved students from 2 local colleges and 2 local schools. Six times per year, the group sponsored educational hikes, in partnership with a local college, the town recreation department, and the Otter Creek Audubon Society. While 54% of the activities of the two chapters involved education or communication, only 8% involved partnerships. Chapters of state and national groups were less likely to seek partnerships with other local groups or organizations.

The final notable tendency from these survey data was the prevalence of public linking among so many groups: Only Spirit in Nature (which educates the local community about the nexus between religious traditions and the environment) reported that it had no activities that linked it to public officials in positions of power. Overall, 33% of all the activities of these 9 groups entailed some public linking, as contrasted with 11% for private or nonpublic linking. Public officials, we have found in our research, are very supportive of the activities of these groups (Savage et al. 2005). For example, the Vermont Department of Environmental Conservation provided support for the water testing activities of the New Haven River Anglers. By contrast, the groups received a relatively small amount of support from larger, more powerful private or nonprofit organizations.¹¹

In summary, these survey data illustrate the means by which local environmental organizations create different forms of social capital. Local chapters tended to create bonding networks through their social and recreation activities, bridging networks through education and communication, and linking networks with public agencies. Local autonomous groups tended to create bonding networks through their stewardship activities, bridging networks through their education, communication, and partnerships, and linking networks with public agencies. This evidence suggests that local autonomous groups are generating social capital that is connecting private citizens to each other and to public officials.

Conclusion

In this article we have analyzed empirical evidence of local environmental groups in two Vermont counties. First, we developed a typology of local environmental groups. We found four basic types of groups—conservation, education, environmental quality, and land protection. These categories do not match with those most discussed in case studies of local environmental groups, namely, collaborative conservation groups, direct action groups, environmental justice groups, or NIMBY

groups. Furthermore, these groups have increased dramatically recently—over three-quarters were founded since 1985.

Second, the major groups in Addison County are engaged in significant social capital development through bonding, bridging, and linking. The prevalence and contribution of local environmental groups, particularly local autonomous groups, to the creation of social capital through stewardship activities, education and communication, partnerships with other organizations, and alliances with public officials have been understudied and underappreciated. Although data are limited to a small geographic area at a particular time, these findings suggest a possible countertrend to Putnam's (2000) widely reported thesis on the decline of social capital in the United States.

We think that the results presented in this article help to verify the three related, stylized facts found in the diverse and rich literature on local environmental groups. At the same time, we note that the methodologies used in this study can allow scholars to better and more systematically understand local environmental groups. These findings indicate the need for future research in three main areas. First, we should engage in similar studies in other parts of the country to verify our findings and the general findings of Kempton et al. (2001), as well as to further explore the relationship of local groups and social capital creation. Recognizing the varied nature of the rural United States, we acknowledge that our Vermont findings are not likely to be replicated in all of rural America. However, we think it likely that in certain rural areas, such as on the Pacific Coast, in the Rocky Mountains, in northern New England, and in parts of the Southwest, Upper Midwest, and Appalachian Highlands, similar findings are likely. A second further area for research is to forge a deeper understanding of the relationship of social capital to civic engagement. With a vibrant literature developing related to social capital and civic engagement (e.g., Sirianni and Friedland 2001; Skocpol et al. 2000), scholars of local environmental groups should undertake more work to document this connection and to respond directly to Putnam's "not proved" challenge. Third, and relatedly, we should seek to better understand how these local groups make use of social capital and civic engagement to influence policy outcomes.

Notes

1. Our methodology was similar to those documented in Grønberg and Paarlberg (2001), Kempton et al. (2001), and Smith (2000).
2. For state, national, and international groups, only the board of directors counted as core members. For local groups, core members included the board of directors and those members who served on committees and planned events.
3. Kempton et al. (2001) and Savage et al. (2005) demonstrate that the IRS nonprofit list substantially undercounts local environmental groups.
4. The definition of rural by the Census Bureau changes from time to time. It is currently defined as "all territory, population, and housing units outside of UAs [urbanized area; 50,000 or more people] and UCs [urban cluster; 2500 to 50,000 people]" (U.S. Census Bureau 2003, A15). Based on this definition, Vermont ranked 51st in the 2000 Census among the District of Columbia and the 50 states in terms of percent of population classified as urban residents (as it did in 1980 and 1990), making it the most rural state by this definition (U.S. Census Bureau 2004, Table 20).
5. In Vermont, local towns have the authority to create conservation commissions, bodies of three to nine residents to advise the town select board on conservation matters, and these commissions are classified as conservation groups. They are hybrids between government entities and private nonprofit groups, and in many communities they have played a substantial role in conservation affairs.

6. If we exclude conservation commissions, the majority of local conservation groups are chapters of state or national organizations.
7. As in Savage et al. (2005), we focus on networks in this article, not norms. Although we do not measure norms, we hypothesize that norms of individual and community reciprocity and norms of improved environmental behavior are generated as bonding, bridging, and linking networks within and among these groups grow.
8. Thirty smaller and less influential groups in Addison County were left out of this analysis. By choosing the nine largest and most influential groups, we are illustrating how the most prominent groups, which proportionately affect many more Vermonters in this part of the state, create social capital. In doing so, we do not claim that the smaller groups create social capital in precisely the same fashion.
9. Stewardship activities include any activity that has as its primary focus maintaining or restoring air, land, or water quality. This includes, for example, tree planting, stream monitoring, wildlife monitoring, and trash collection.
10. As discussed in Kempton et al. (2001), there is of course double counting among these 1628 members and 8249 participants. Even if these two figures were halved in order to allow for the possibility of multiple memberships and repeated participation, they would still represent a significant share of the local population.
11. As chapters, the Otter Creek Audubon Society and the Bread Loaf Section of the Green Mountain Club did receive support from their parent organizations. However, we see this less as an example of social capital formation and more as an illustration of the hierarchical nature of these organizations.

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