Land Use Policy 95 (2020) 104629

Contents lists available at ScienceDirect

Land Use Policy

journal homepage: www.elsevier.com/locate/landusepol

"Community developed and farmer delivered." An analysis of the spatial and relational proximities of the Alternative Land Use Services program in Ontario

F. Ouellet[a], P. Mundler[a,*], J. Dupras[b], J. Ruiz[c]

[a] Faculté des sciences de l'agriculture et de l'alimentation, Université Laval, Pavillon Paul-Comtois, 2425, rue de l'Agriculture, Quebec, QC, G1V 0A6, Canada
[b] Département des sciences naturelles, Université du Québec en Outaouais, 58 rue Principale, Ripon, QC, J0V 1V0, Canada
[c] Département des sciences de l'environnement, Université du Québec à Trois-Rivières, CP 500, Trois-Rivières, QC, G9A 5H7, Canada

ARTICLE INFO

Keywords:
Alternative Land Use Services
Bottom-up agri-environment schemes
Proximity analysis framework
Natural resource management
Payments for ecosystem services

ABSTRACT

In Canada, the Alternative Land Use Services (ALUS) program aims to support conservation projects by financially compensating farmers for ecosystem services. The program advocates a bottom-up approach that allows farmers to decide which projects to implement. In this respect, ALUS distinguishes itself from more traditional agri-environment schemes, which are often managed in a top-down fashion. Other unique features of the program include a governance structure based on stakeholder confidence; the provision of annual compensation to members for supplying ecosystem services; and a private, community-based approach to conservation. Using the proximity analysis framework, our research explores whether this model can reshape the values of farmers and encourage them to adopt and maintain environmentally friendly practices. Our results reveal a close proximity among ALUS members in terms of their values, both environmental and economic. However, the ALUS program fails to take full advantage of the geographic and organized proximity of its participants. Specifically, individual projects are not integrated into a spatially coordinated, collective strategy that could have a greater environmental impact. While ALUS has been successful in encouraging farmers to adopt new practices, it mostly attracts participants who already agree with the values it promotes. In this regard, the program is not very different from standard agri-environment schemes.

1. Introduction

Promoting the use of agricultural practices that are less damaging to the environment has become a major policy issue (Stoate et al., 2009; Tanentzap et al., 2015). To address this challenge, the governments of most industrialized countries have introduced various agri-environment schemes (AESs) (Balmford et al., 2008; Buller et al., 2017). These programs, which are generally voluntary based, financially compensate farmers for adopting beneficial management practices that go beyond the environmental norms in place. However, ensuring that a high enough percentage of farmers implement such practices remains a challenge (Uthes and Matzdorf, 2013; Mills et al., 2017). Furthermore, the new practices are often not maintained once the financial compensation offered to farmers through AESs ceases (Pretty, 2003; Mills et al., 2017). Consequently, the impact of these schemes often falls short of expectations (Lawrence et al., 2004; Sparling and Brethour, 2007).

According to many researchers, AESs have been unable to influence the long-term environmental behaviors of farmers (Burton et al., 2008; De Snoo et al., 2013). In addition, the programs in place only appear to be effective at convincing farmers who already have pro-environmental values and behaviors. Consequently, they fail to reach a large percentage of farmers. In order for new practices to be sustainably implemented, certain authors have suggested that the values of farmers need to evolve in such a way that environmentally friendly practices become an integral part of "good" conventional farming (Burton and Paragahawewa, 2011).

One of the reasons given for the shortcomings of AESs is that they offer ready-made solutions to farmers without seeking their involvement. As a result, the programs do not encourage farmers to do more than the minimum necessary to qualify for aid (Deuffic and Candau, 2006; Burton and Paragahawewa, 2011). Furthermore, the practices funded are often similar, regardless of the agro-ecosystem under consideration or the types of producers involved (Pinto-Correia et al., 2006). Consequently, farmers frequently disagree with the

* Corresponding author.
E-mail addresses: fernandeouellet@gmail.com (F. Ouellet), patrick.mundler.1@ulaval.ca (P. Mundler), jerome.dupras@uqo.ca (J. Dupras), Julie.Ruiz@uqtr.ca (J. Ruiz).

https://doi.org/10.1016/j.landusepol.2020.104629
Received 24 June 2019; Received in revised form 29 January 2020; Accepted 23 March 2020
Available online 02 April 2020

environmental assessment that is given and can be reluctant to implement recommendations (Lawrence et al., 2004). The practices prescribed also discourage farmers from finding solutions that are adapted to their farm situation and agro-ecosystem. Moreover, studies have suggested that, when farmers pursue their own solutions, they are more likely to develop pro-environmental values (Burton and Paragahawewa, 2011; De Snoo et al., 2013).

In order to better reflect the local realities of farmers and promote spatially coordinated and effective environmental efforts, different bottom-up approaches have been proposed that mobilize farmers in a participatory manner (Emery and Franks, 2012; Prager et al., 2012; Westerink et al., 2017). Research has shown that such initiatives can change the attitudes and long-term environmental behaviors of participating farmers, (Shaw et al., 2011; Wilson, 2004), and spearhead conservation actions that are spatially coordinated (Campbell et al., 2011; Westerink et al., 2017).

Bottom-up agri-environment schemes have been developed in numerous countries. Example include the Landcare movement in Australia (Wilson, 2004), agri-environmental cooperatives in the Netherlands (Termeer et al., 2013), and voluntary initiatives to rehabilitate watersheds and local partnerships for sustainability in the United States (Campbell et al., 2011; Shaw et al., 2011). These approaches, which have been characterized as grassroots initiatives; community initiatives; or self-governing, self-organized, or self-regulatory arrangements, have been studied by various researchers (Runhaar et al., 2017; Termeer et al., 2013; Westerink et al., 2015; Wilson, 2004; Wiskerke et al., 2003).

The results of these studies indicate that a variety of interconnected factors contribute to the promotion of environmental values among farmers and to the long-term success of these initiatives. Among other factors, the success of such schemes depends on a series of baseline social conditions and the existence of trusting relationships among participants (Church and Prokopy, 2017; Prokopy et al., 2014); the training potential of local agricultural leaders; the promotion of shared leadership between all participating organizations (Lubell, 2004; Termeer et al., 2013); the involvement of an intermediary or mediating organization (Franks and McGloin, 2007; Lubell, 2004; Prager, 2015; Wilson, 2004); and government support, especially financial and technical assistance (Termeer et al., 2013; Wilson, 2004).

Nevertheless, these initiatives have been criticized for their inability to attract farmers who are less convinced of the need for environmental protection (Termeer et al., 2013; Wilson, 2004). Consequently, the issue of low farmer participation persists. As studies have suggested, farmers are not always able or willing to participate in such schemes, for various technical, economic, or cultural reasons (Blackstock et al., 2010; Manta Conroy, 2011).

In Canada, the Alternative Land Use Services (ALUS) program proposes a bottom-up approach that gives farmers a great deal of room to decide which projects to implement. ALUS presents itself as an independent, non-governmental initiative that supports conservation projects. In practice, the program recognizes the monetary value of ecosystem services and financially compensates farmers for supplying them.[1] Initially started in 2006 in Manitoba, the initiative has since spread to various communities (19 in total as of 2016) across six Canadian provinces. ALUS communities are organized locally around a county or watershed and offer annual payments to farmers who build ecosystem-protecting infrastructure on a portion of their farmland. The program currently involves more than 700 farmers who have implemented more than 15,500 projects[2] across Canada on almost 18,000 acres of land (ALUS, 2019). The program's originality lies in its governance structure. Specifically, ALUS communities strongly defend the bottom-up nature of their approach, which they call the "farmer-to-farmer" method. Moreover, the communities independently decide how much compensation participants will receive, and members are free to choose which practices to implement.

The ALUS program has garnered increasing attention from environmental policymakers since it proposes a paradigm change that recognizes, compensates, and values farmers for the role they play in protecting the environment (ALUS, 2019). In addition, ALUS promotes a decentralized, voluntary approach to conservation that can be adapted to the needs of local communities. Nevertheless, there has been little research done on the program, even though its unique features are recognized as factors that contribute to the success of bottom-up initiatives, namely the presence of an intermediary organization; the provision of annual financial compensation to farmers; and the use of a local, associative management structure that involves farm leaders. At the same time, ALUS is different from other programs because it claims to be a private initiative, uses a "farmer-to-farmer" approach, and allows decisions on compensation rules for ecosystem services to be determined locally.

Can the ALUS program's unique features help reshape the values of farmers and encourage them to sustainably maintain environmentally friendly practices? In this article, we explore this question within the context of Ontario, which is currently the province with the most ALUS communities. By utilizing a theoretical framework that analyzes proximity, we highlight the importance of examining coordination from both a spatial and relational standpoint. After presenting the ALUS program and examining the studies that have been conducted on it (Section 2), we outline our theoretical framework (Section 3), the methodology applied (Section 4), and the results obtained (Section 5). This is followed by a general discussion (Section 6) on how relational and geographic proximity within ALUS communities is central to the program's success. In this section, we also explore how the ALUS program, like other types of AESs, struggles to promote spatially coordinated environmental efforts and greater farmer participation.

2. The ALUS program

2.1. The growth of ALUS communities in Ontario

In Canada, water and soil management is mostly the responsibility of the provincial governments. In the case of Ontario, however, the province has progressively withdrawn from its role in managing natural resources (O'Connor, 2002). Up until 2013, successive administrations pursued a policy of deregulation, liberalization, privatization, and replacing regulatory oversight with voluntary programs (Cooper, 1998; Winfield, 2012). Overall, natural resource governance in Ontario is fragmented due to numerous laws and regulatory bodies that fail to offer a coordinated policy approach (Cook, 2011).

As a result of these policy changes, government agencies responsible for the programs that promoted the adoption of environmentally beneficial management practices saw their budgets cut. At the same time, certain counties began reinforcing their regulations around tree cutting and water management, which produced further regulatory fragmentation and created a climate that discouraged collaboration between farmers and public authorities. In this respect, the withdrawal of the state created the opportune conditions for the arrival of ALUS in Ontario. Many farmers welcomed ALUS's private, community-based

[1] Funding was provided by foundations, notably the W. Garfield Weston Foundation and the Ontario Trillium Foundation, in partnership with federal, provincial, and municipal governments. While ALUS communities are partially funded by ALUS Canada, they are required to cover 50% of their annual budget by raising local funds. Like at the national level, local fundraising generally involves donations from both private foundations and public programs.

[2] In the language of ALUS, each environmental improvement activity undertaken by a farmer is called a "project." The ratio of land covered by the program to the number of projects implemented indicates that the average project size was 1.61 acres, equivalent to 0.65 hectares.

focus and its apparent independence from the government.[3]

The first ALUS community in Ontario was created in 2007 in Norfolk County.[4] However, during our field research in 2016, there were five communities present in the province: Norfolk, Lambton, Elgin, Grey-Bruce and Ontario East.[5] As in the rest of Canada, ALUS compensates farmers in Ontario for supplying ecosystem services. Projects are implemented on marginal land with little farming potential, and activities can include revegetating buffer strips or placing hedgerows to act as wind barriers or to provide habitat for pollinators. ALUS projects can cover up to 20 % of the land on each farm, and farmer participation in the program is subject to an agreement, which varies between three to five years.

Farmers seeking to join the program are supported by an ALUS coordinator and organize themselves around a local Partnership Advisory Committee (PAC). These committees are created as joint initiatives between partner organizations and farmers. The partners in question can be municipalities, Conservation Authorities, environmental NGOs, the Ontario Federation of Agriculture,[6] or any other organization involved in natural resource management. According to the rules, at least 50 % of the seats in each PAC are reserved for farmers.[7] Moreover, it is the farmers sitting on the PAC who determine how the program will run, the conditions for joining and leaving the program, compensation levels, and the kinds of ecosystem services that will be recognized. Since participants can decide which practices to implement, each project is a unique endeavor undertaken within a specific context (Mackenzie, 2008).

The project coordinator is employed by ALUS and acts as a liaison between farmers and the ALUS organizers. Furthermore, the coordinator's role is to assist farmers during each step of the project life cycle (drafting the declaration of interest, securing approval for the request, visiting the farm, carrying out evaluations, and providing extension support) (Rosenberg, 2010). In addition, local PACs are supported by technical advisors who are not involved in managing the program (Rosenberg, 2010; France and Campbell, 2015).

Despite the importance of ALUS in Canada, there has been little research conducted on the program. Apart from a select number of published articles (France and Campbell, 2015; Kolinjivadi et al., 2019a), most of the research on the topic comes from master's theses or dissertations (Mackenzie, 2008; Guerra, 2010; Rosenberg, 2010; Johnston, 2012; Campbell, 2014; Holland, 2015; Ouellet, 2018). Likewise, the available studies we consulted essentially focus on two key issues: (1) the economic value of ecosystem services supplied and compensation levels, and (2) the social dynamics created by ALUS.

2.2. Payments for ecosystem service delivery through ALUS

It is often argued that the provision of compensation for ecosystem services can encourage farmers to change their practices since payments resemble market-based transactions that appeal to individual self-interest (Kolinjivadi et al., 2019b). From a theoretical perspective, compensation should equal the monetary value of the ecosystem services delivered. However, this raises the difficult question of how to measure such values, given that most conservation projects represent non-market activities (Power, 2010). In practice, different ways to set compensation have been used that focus more on reaching mutual agreements between stakeholders than on measuring the value of services rendered (Wunder, 2015; Kolinjivadi et al., 2019b).

Even though ALUS promotes "clean air, clean water, wildlife habitat, and other ecosystem services in communities across Canada" (ALUS, 2019), program officials have never insisted that compensation levels should reflect the estimated value of ecosystem services. Such an arrangement would be difficult, they argue, given the lack of data on the monetary value of such services. Instead, ALUS organizers prefer to focus on using available program funding to cover as much land area as possible. Payments are thus intended to provide compensation for farm losses and are often determined based on farmland rental values, although the formula used varies from one community to another.[8] The amount of compensation offered thus depends on the surface area covered by the project ($/acre) rather than on the quality or quantity of services provided. While no environmental impact assessment of the program has yet been carried out (Campbell, 2014; France and Campbell, 2015), a study from 2007 by Tyrchniewicz and Tyrchniewicz did try to estimate the value of ecosystem services created under ALUS. By fixing a price to each service,[9] the authors calculated that ALUS projects generate a value between $9.07[10] and $85.41 per acre, for a total annual value of $820 million, compared to annual costs of $740 million (cost estimates were derived using a lump-sum compensation figure of $20 per acre). As a result of this seminal study, provincial governments began promoting ALUS since the findings showed that the program was successful from a cost-benefit perspective (Guerra, 2010; Rosenberg, 2010).

2.3. ALUS communities as creators of social capital

Different studies have used social capital theory to examine the social dynamics at play within ALUS communities. Despite notable differences between communities in Western Canada (Alberta, Manitoba, and Saskatchewan) and those in Eastern Canada (Ontario and Prince Edward Island), it is possible to identify various common factors behind the program's success.

According to Rosenberg (2010), who studied the ALUS community in Norfolk County, Ontario, the program is effective because it acts as an intermediary between farmers on the one hand and donors and beneficiaries on the other. Drawing chiefly on the works of Coleman (1988) and Putnam (1993), the author defines social capital as "the enhanced capacity to resources, accrued due to relationships within networks, the trust that exists between those individuals, and the norms imposed within those networks" (Rosenberg, 2010, p.37). Rosenberg argues that the ALUS program creates relationships of trust that allow participating stakeholders to successfully coordinate activities and deal with incomplete information when making decisions. Other program features that contribute to social capital creation within ALUS communities were also identified, namely the participation process, a decision-making structure that strengthens community-level capacity-building, streamlined operations, confidentiality rules, strong communication strategies, and effective management of stakeholder

[3] Holland (2015) arrived at the same conclusion regarding the implementation of ALUS in Manitoba.

[4] At the time of writing this article, eight ALUS communities in Ontario were listed on the program's website: https://alus.ca/home/communities/.

[5] The first three communities are located in Norfolk, Lambton and Elgin County respectively, the fourth one straddles two counties (Grey and Bruce), and the fifth one covers the geographic region of Eastern Ontario. A map showing the location of all ALUS communities in Canada is available at: https://alus.ca/home/communities/.

[6] The Ontario Federation of Agriculture is a farmer-led organization that represents Ontario's farming community.

[7] As an example, Norfolk County was the first in Ontario to create a PAC in 2011. At the time, the PAC was made up of 16 members, ten of whom were farmers and six of whom were representatives of different organizations (France and Campbell, 2015).

[8] There is a notable difference in compensation rates between ALUS communities in Western Canada and those in Eastern Canada. According to Campbell (2014), farmers in Alberta receive $5/acre, compared to $150/acre in Norfolk County, Ontario.

[9] The services in question included water-based recreation, recreational fishing, reductions in greenhouse gas emissions, carbon sequestration, hunting, and wildlife watching.

[10] All figures are in Canadian dollars.

expectations. Several of these factors were also highlighted in a study of ALUS communities in Manitoba (Holland, 2015).

According to other research (Campbell, 2014; France and Campbell, 2015), ALUS is effective because it recognizes farmers for their conservation efforts and encourages them to take an interest in environmental issues. These studies also found that the main reason for farmer participation in the program is not financial. Rather, farmers are primarily attracted by the program's ability to reinforce social capital within ALUS communities. The authors also note that the government of Prince Edward Island took over the implementation of ALUS in the province through a top-down approach, although, paradoxically, there was no seemingly negative effect on farmer participation.

This rapid overview of ALUS studies reveals that farmer interest in the program is driven by a combination of financial considerations and social motives, or what Kolinjivadi et al. (2019a) refer to as "moral imperatives." There also appears to be a relative consensus[11] among stakeholders regarding the program's benefits, even if impact assessments have yet to be carried out. While researchers have cited social capital creation as one of the key factors behind ALUS's success, it is noteworthy that studies have not examined the degree of coordination and spatial continuity between projects. Moreover, researchers have yet to explore how ALUS participants might be connected through shared geography, visions, and values. In the rest of this article, we will investigate whether the spatial and relational aspects of proximity within ALUS communities can encourage participation and a long-term commitment to environmental practices among farmers.

3. Theoretical framework: the French school of proximity

The proximity analysis framework was developed at the beginning of the 1990s by a group of French researchers to study economic activities from a territorial perspective (Torre and Gilly, 1999; Carrincazeaux et al., 2008). According to this approach, proximity can be understood as both a relational and spatial concept. The framework focuses on geography and the economy and seeks to identify which factors separate or bring together stakeholders attempting to address an economic problem. In this respect, distance is viewed as not only physical in nature but also cultural, cognitive, and social. The approach, therefore, is useful for analyzing how stakeholders within a given space organize themselves and make decisions (Torre and Gilly, 1999; Torre and Rallet, 2005; Bouba-Olga and Grossetti, 2008). In the context of our study, we use it to analyze the governance of ALUS from the perspective of those who keep the program alive (farmers, ALUS coordinators, and stakeholder representatives).

Several proximity typologies have been put forth by researchers. In this article, we draw on the typology proposed by the interactionist school (Torre and Rallet, 2005; Carrincazeaux et al., 2008), which distinguishes between two forms of proximity: geographic proximity and organized proximity.

The notion of "geographic proximity" refers to the *physical* distance between stakeholders, weighted by each stakeholder's perception of the distance involved, either in terms of travel time or transportation costs (Torre and Rallet, 2005). In this respect, geographic proximity incorporates different functional elements, such as transport infrastructure. The concept thus accounts for both natural and physical features that determine the spatial distances between individuals, as well as economic and social factors that can influence transport time or ease of travel. In contrast, "organized proximity" describes the *relational* distance between stakeholders, as measured by their ability to collaborate. This form of distance can be determined by examining two forms of logic, usually referred to as the "logic of belonging" and the "logic of similarity" (Torre and Rallet, 2005).

The logic of belonging describes ties to organizations or informal networks. However, these connections do not imply that members are necessarily in direct contact with one another. In fact, it is possible for stakeholders to belong to the same organization without knowing or meeting each other (Bouba-Olga and Grossetti, 2008). In such cases, direct relationships can be replaced by what Bouba-Olga and Grossetti (2008) call "mediating resources," which are physical or human elements that strengthen the bonds between an organization and its members.

In contrast, the logic of similarity explores the extent to which people belonging to the same organization or network share similar visions, values, or beliefs. Here, the focus is on adherence to a common frame of reference, which is believed to facilitate the ability of individuals to interact with each other (Torre et Gilly, 1999; Carrincazeaux et al., 2008; Mundler et Rouchier, 2016).

In essence, both geographic and organized proximity are neutral factors that have no impact if they are not "activated". In other words, proximity should be viewed as a *potential* resource that individuals or groups can mobilize for the purpose of achieving an objective. As resources, different forms of proximity can complement each other or even compensate for each other (Kebir and Torre, 2013). Alternatively, they can become constraining factors when stakeholders are forced to share the same space.

The proximity framework has frequently been used to evaluate levels of cooperation between companies, innovation processes, and issues surrounding the location of activities (Boschma, 2005; Gilly et al., 2011; Geldes et al., 2015). More recently, several studies have used the approach to analyze resource conflicts and the way stakeholders organize themselves to address environmental issues (Avilés Benitez and Roque, 2005; Angeon and Caron, 2009; Torre and Zuindeau, 2009). In the case of agriculture, spatially coordinated strategies are crucial for resolving environmental challenges (McKenzie et al., 2013; Prager et al., 2012), and bottom-up initiatives are one way to encourage the development of such strategies. Moreover, there is a clear need to analyze how geographic and organized proximity can be activated to help local stakeholders address agriculture-related conservation issues. We note that the proximity framework proposed can be used to analyze the coordinating role of geographic proximity. As such, it allows researchers to embed social capital within a physical space. In this sense, our analytical approach accounts more for the spatial dimensions of environmental actions and can be used to highlight how different forms of proximity are activated by ALUS communities. Ultimately, the framework is useful for analyzing how categories of proximity interact with each other to encourage or discourage farmers from embracing environmental values and implementing conservation practices.

4. Methods

To evaluate the ALUS program's unique features, we pursued a qualitative research approach involving multiple case studies (Miles and Huberman, 2003; Yin, 2003; Roy, 2009). In total, 45 semi-structured interviews were conducted with different stakeholders in four of the five ALUS communities in Ontario: Norfolk, Lambton, Ontario East, and Elgin. Table 1 provides some background information on each of the communities visited.

We interviewed ALUS farmer participants, including both members (17) and non-members (12) of PACs. The interviews were conducted in person on farms. As well, we visited the offices of ALUS coordinators (7)

[11] We use the term "relative consensus" because the program has also been subject to various criticisms, the main one being that ALUS does not distinguish between the provision of an environmental good and the resolution of an existing environmental problem. Thus, instead of applying the "polluter-pays" principle, ALUS uses a "polluter-paid" system to compensate farmers for repairing environmental damages that they themselves are responsible for causing (Brubaker, 2009). Other critics point out that the program focuses on building natural capital on new land instead of conserving existing areas. It is also argued that the amount of marginal farmland set aside for projects is small compared to the total land area that would be covered if wetlands and already existing habitats were to be protected as well (France and Campbell, 2015).

Table 1
Characteristics of the ALUS communities studied.
Source: our interviews (Ouellet, 2018)

	Norfolk	Lambton	Ontario East	Elgin
Year the community was created	2007	2015 – 2016	2012: pilot project 2017: permanent project	2012: pilot project 2016: expanded to the whole county
Year the first projects were started	2008	2015 – 2016	2014	2013
Number of participants	167	28	33	48
Maximum distance between participants (km)	~ 50	84	not specified	131
Number of ALUS projects (and number of acres covered)	1,031 (1,300 acres)	75 (289 acres)	61 (282 acres)	123 (276 acres)
Type of farming practiced in the county	Arable crops, fruits and vegetables, livestock (beef, poultry, pork, sheep, dairy)	Arable crops, livestock (pork, beef, poultry, dairy)	Arable crops, livestock (beef, dairy, other)	Arable crops, livestock (beef, dairy, poultry, pork, sheep, other), vegetables, and melons
Number of farms in the county	1,307	2,150	3,416	1,363
Average size of farms in the county	150 acres	282 acres	302 acres	276 acres
Number of interviews conducted	21	8	6	10

and PAC members from partner organizations (9) to carry out additional interviews. The same interview guide was used for all participants, and exchanges were organized around three broad themes:

- *Profiles of respondents and their degree of involvement in the ALUS community*: Our goal here was to better understand the values of participants, as well as their professional and social backgrounds, levels of environmental awareness, sense of attachment to the region, etc. Respondents who were farmers were asked during this first part of the interview to describe the projects they had started under ALUS.
- *History of the ALUS community*: During the second part of the interview, participants were queried about their knowledge of the ALUS community to which they belonged. They were also asked to describe the profile of participating farmers and their relationships with other members, as well as give their view on the community's future.
- *Stakeholder perceptions*: During the third and final phase, participants discussed what they knew and thought about ALUS overall; its governance structure, both at the local (community) and provincial level; and the program's spending and fundraising activities.

During the initial phase of our analysis, each interview was recorded, fully transcribed, and coded according to the three themes in the interview guide. This allowed us to organize the answers around a series of recurring sub-themes that emerged. It also made it possible to create a profile for each interviewee, based on such factors as the type of respondent (whether the person was a farmer or ALUS-affiliated professional), farm category (if the respondent was a farmer), and the partner organization (if the respondent was a professional). Our analysis revealed that interviewees shared a common vision regarding the program. Whether they were farmers, partner representatives, or coordinators, respondents all largely agreed on program objectives, the profiles of participants, compensation rules, governance, etc. Consequently, we did not distinguish between different categories of respondents during the subsequent analysis phase.

Following this initial step, each interview was analyzed according to the three main categories of our theoretical framework (geographic proximity, logic of belonging, and logic of similarity). Our goal during this analytical phase was to identify which categories of proximity had been activated and mobilized as resources by ALUS communities. As a result, we were able to understand the ambiguous role that geographic proximity plays in the program (Section 5.1). We also determined ALUS's ability to foster a sense of community attachment (Section 5.2) and confirmed what many interviewees had highlighted, namely that ALUS members are connected through shared values (Section 5.3).

5. Results

5.1. Geographic proximity that is poorly activated as a resource

Three of the ALUS communities visited are county-based (Norfolk, Lambton, and Elgin), and one is organized around a watershed (Ontario East). Interviewees did not feel a sense of attachment to the community area as delineated by ALUS. While participants did express a sentimental connection to the lake or river in their locale (South Nation River, Raisin River, Lake Erie, Saint Lawrence River), most respondents identified with their municipality. Participants certainly pursued environmental efforts because they felt an attachment to their local watercourse and wanted to protect it. Yet, this feeling of belonging did not determine whether someone joined ALUS instead of another program.

Geographic proximity as a feature of ALUS community organizing is evidenced by the willingness of members to address environmental issues by implementing conservation projects that address local needs. As one participant commented, "ALUS really started in Elgin [County] to stop erosion. […] We push for tall grass because of the deep root system that holds the bank" (interview no. 43). Interestingly, the four communities visited all faced similar conservation challenges. As the information presented in Table 2 shows, the projects undertaken were not very different from one community to another, which confirms the findings highlighted by Campbell (2014). This result indicates that the potentially unique geographical conditions at each site are not accounted for when deciding on which environmental practices to propose in each community.

PAC members were queried as to why each ALUS community seemed to be organized in a similar fashion, even though the program was designed to be adaptable to local needs. They explained that the communities had adopted the model used in Norfolk because it had proven to be successful. For this reason, compensation rates were also similar to those found in Norfolk. While more farmers were interested in joining the program than could be accommodated with available funding, none of the four communities considered it necessary to re-evaluate their compensation rules.

It is noteworthy, however, that the program's governance structure reflects the geographic proximity of its members. Indeed, participants valued the fact that ALUS was locally managed by farmers and regional environmental organizations. While members usually did not know each other personally, there was an understanding that everyone in the program was a neighbor with similar environmental concerns. In addition, the organizations holding seats in each PAC had often been involved in the community for many years, and representatives either resided in or were from the area. As a result, members often trusted the program because they knew that participating organizations had a deep understanding of the community, whether from an environmental,

Table 2
Environmental issues, compensation rates and types of projects implemented in each community.
Source: our interviews (Ouellet, 2018)

	Norfolk	Lambton	Ontario-East	Elgin
Local environmental issues	Loss of nutrients, controlling for invasive species, loss of habitat due to deforestation	Water quality, sedimentation, loss of nutrients	Deforestation, loss of wetlands, water quality, quantity of water in tributaries, loss of habitat and biodiversity	Erosion, controlling for the invasive species *Phragmite australis*
Type of projects implemented under ALUS (and number of projects concerned)	Wetland restoration(144) Reforestation (474) Tall prairie grass (407) Other, modified agriculture[a] (6)	Wetland restoration (14) Reforestation (13) Buffer strips/prairie grass (48)	Wetland restoration (3) Reforestation (23) Delaying the hay harvest, modified agriculture (19) Native prairie grass (16)	Wetland restoration (40) Reforestation (35) Native prairie grass, buffer strips, other (38) Soil erosion control structures (10)
Farmland rental value (\$/acre) in the county\$200/acre on average\$275/acre on average\$100/acre on average\$275/acre on averageFarmland sale value (\$/acre) in the county\$\$/acre) in the county	$200/acre on average	$275/acre on average	$100/acre on average	$275/acre on average
Farmland sale value ($/acre) in the county	$8,000/acre on average ($6,000 - $20,000)	$12,100/acre on average ($7,800 - $20,200)	$10,000/acre on average ($3,000 - $15,000)	$13,500/acre on average ($8,000 - $19,500)
Compensation rates for ALUS projects	$150/acre $75/acre if hay is harvested after July 15 $75/acre for modified agriculture	$180/acre on average ($100 - $250/acre, depending on the project)	$100/acre $50/acre for modified agriculture	$150/acre $75/acre if hay is harvested after July 15
Decision-making process	PAC members try to reach consensus on a proposal, which is then submitted to all members for a formal vote.	PAC members try to reach consensus on a proposal, which is then submitted to farmer members only for a formal vote.	PAC members try to reach consensus on a proposal, which is then submitted to farmer members only for a formal vote.	PAC members try to reach consensus on a proposal, which is then submitted to all members for a formal vote.
Contract duration[b]	5 years	5 years	5 years	3 – 5 years

[a] ALUS describes “modified agriculture” as the adoption of practices that benefit the environment but require some form of effort on the part of farmers.
[b] In the case of tree planting projects, agreements with certain partners can last up to 10 years.

historical, economic, or cultural standpoint. Also, since stakeholders were all in geographic proximity to each other, participants could more easily understand the program's relevancy. ALUS's appeal was furthered bolstered by the fact that government agencies were far away and often perceived as uninformed on local issues: "The government approached us to do a project. But the way they went about things and the way they created bad blood between people, we said no. ALUS is successful because it's neighbors dealing with neighbors. They know who they are dealing with" (interview no. 18).

According to the interviewees, the program's local focus makes it easier to adapt projects to the specific needs of individual farmers. In practice, the organizations that hold seats in the PAC not only act as technical advisors but also occasionally finance projects through their own programs. In collaboration with PAC farmer members, these organizations help ensure that ALUS projects address local environmental issues, without overlooking the economic or practical concerns of farmers. The program was also designed to ensure that compensation rates reflect local land prices. According to interviewees, ALUS's local approach played a major role in their decision to join the program. In particular, respondents appreciated the opportunity to create their own projects, an option not usually offered under government programs, which generally operate from outside the community and tend to propose one-size-fits-all solutions. By contrast, the local embeddedness that characterizes ALUS strengthens the program's legitimacy.

Finally, we note that geographic proximity plays an important role in recruiting participants through a "contagion effect" between neighbors. As is often the case in agriculture, farmers adopt new practices after observing and evaluating the actions of other farmers (McGuire et al., 2013). Nonetheless, ALUS projects do not form part of a broader, spatially coordinated initiative, which weakens the community contagion effect and limits the program's environmental impact. Also, the fact that participants were scattered across each territory explains why most of them did not know each other. This leads us to conclude that geographic proximity is not being mobilized as a resource for the purpose of reinforcing community ties.

At the same time, since ALUS members are in geographic proximity to one another, they not only face similar agri-environmental challenges but also share the same history. This form of proximity is strengthened by the sense (logic) of attachment among members to a common territory, which further creates social ties. In this regard, ALUS communities activate geographic proximity as a resource.

Therefore, the local embeddedness of ALUS strengthens its legitimacy and that of its partner organizations. On the other hand, we note that participants usually did not know each other and that the absence of spatial continuity between projects reduced the program's environmental reach. From this perspective, ALUS fails to mobilize geographic proximity by not instilling in community members a sense of belonging to a collective, territorial initiative.

5.2. The logic of belonging: ALUS as a network and organization

ALUS presents itself as a private, community-based program that collaborates with public authorities while maintaining its independence. Many of the farmers interviewed appreciated ALUS's independent approach and were skeptical of government programs, which they viewed as having overly rigid and complicated rules. In the opinion of one interviewee, "For the most part, any governmental program has too much red tape. It's too much bureaucracy" (interview no. 12). Another respondent reinforced this view: "The government, they need 50 people to do the job of one person and a lot of red tape" (interview no. 16).

To highlight the program's independence from the government, ALUS organizers often point to the fact that the location of endangered species identified during projects is kept confidential. Practically speaking, regulations protecting endangered species, which place restrictions on farming within a certain radius around a known habitat, are seldom enforced. Nevertheless, some of the farmers interviewed, although a minority, worried that portions of their farmland could be "virtually expropriated" if the rules were to be applied. This fear was also highlighted by ALUS affiliated professionals during interviews.

When asked about whether ALUS should become a government program, as is the case in Prince Edward Island,[12] respondents argued against such a move, on the grounds that it would compromise the program's simplicity. ALUS's streamlined approach is reflected in the contract design itself (nine clauses that take up only four pages), the short duration of contracts (usually 5 years), the ability of participants to end the agreement simply by providing a written 30 days' notice, the limited number of requirements that must be followed (prepare the site, maintain and not destroy the project, put up a sign with the ALUS logo), and the liaison role that ALUS plays between members and the many donor programs. Furthermore, the expertise and advice delivered through the program help reassure members that implemented projects do not violate regulations and meet donor objectives. In short, ALUS's approach offers farmers a more simplified support structure compared to other available programs. Due to the simplicity of program operations and the quality of support that is offered, all participants hoped that ALUS would be able to renew its funding so that project agreements could be extended over the long run.

The "farmer-to-farmer" approach adopted by ALUS is another feature that strengthens the program's relationship with participants. Under this arrangement, PAC farmer members guide interested candidates in drafting their declaration of interest for ALUS and act as liaisons between participants and the program coordinator. ALUS members strongly appreciate these interpersonal relations: "You need to have a good farm background. […] The farmer liaison is not some kind of police; we keep it friendly" (interview no. 19). The PAC farmer members also conduct annual field monitoring visits and fill out project compliance reports. Many interviewed participants said they trusted the ALUS program precisely because it was promoted in this way by peer farmers.

ALUS describes each local program initiative as a "community". However, there was a noticeable difference between the way participants understood this term and their feeling of attachment to ALUS. Respondents defined community as a group of people who share similar interests, with some adding that such ties could be professional, cultural, religious, or territorial (e.g., a municipal community). However, when interviewees were asked whether ALUS was a community, most responded negatively, arguing that members usually did not know each other and that no meaningful ties among the different ALUS communities existed. Additionally, some respondents acknowledged that they did not participate in the annual activities organized by their PAC, such as visits to other members' projects.

In each PAC, half the seats are reserved for farmers; the other half are held by representatives of environmental organizations. Given that ALUS is locally administered, the provincial or national organizations that hold seats must have some presence in the county or region. However, ALUS Canada allows each community to determine the size of its PAC and the types of organizations that can join. Interviewed PAC members estimated that at least five to six dedicated people are needed to get a committee started. They also stressed the importance of having at least one committee leader who is known and respected locally and who can act as the program's spokesperson. In the words of one interviewee, "[We need] someone who is a strong farmer in the community. It varies in generation and age. Someone who is a respected community member will have more influence on someone like my father" (interview no. 19). In addition, the organizations that do join are required to offer technical assistance, such as funding or other resources via their

[12] As previously mentioned, the ALUS program on Prince Edward Island is managed by the provincial government (Guerra, 2010; Campbell, 2014; Kolinjivadi et al., 2019a).

own programs or a network of useful contacts.

A Conservation Authority and Stewardship Council were also present in each of the four communities visited. Both organizations have been involved in Ontario conservation efforts for many years and, from the beginning, played a major role in the growth of ALUS communities in the province. Professionals affiliated with both groups are actively involved in local PACs. In addition, the Conservation Authorities act as the program's legal entity by providing each community with office space, issuing cheques, operating the accounting system, and sharing a salaried staff member who serves as the local ALUS coordinator. The involvement of both organizations at the local level helped ensure adequate participation in the program since many farmers were already familiar with the work of each group (Inside Ottawa Valley, 2012).

In short, ALUS's success is driven by a sense of familiarity among local stakeholders. However, this does not imply that ALUS communities have activated a sense (or logic) of belonging. As was noted previously, members usually did not know each other and were attracted to the program because it had simple rules and offered quality support. Consequently, there was no connection to ALUS as a "community" since, for participants, such a term would imply the existence of interpersonal relations.

5.3. The logic of similarity: environmental versus economic values

Our analysis of the interviews conducted revealed that ALUS farmers do not all share the same profile. For instance, the sizes of farms varied, and most participants grew field crops or practiced outdoor grazing, as is common in the regions covered by our study. However, respondents identified two categories of ALUS-affiliated farmers, which was confirmed by our own analysis of the interviews.

In the first category of farmers were those who cared about conservation and recognized the environmental and aesthetic benefits of ALUS projects. As one farmer remarked, "I feel that there's a lot of guys that are fairly environmentally sound right now" (interview no. 28). Such farmers were usually at the end of their careers and were either part-time farmers or landowners who rented all or a portion of their land to other producers. Members in this category were viewed as farmers who could more easily be convinced of the program's merits as they already had an "environmental mindset" and supported conservation efforts: "None of them are the type of farmers that are against the environment. Nobody's taking out all of their hedges. Nobody's wiping out forests. […] They all have that kind of environmental mindset" (interview no. 37).

The second category consisted of farmers who mostly dedicated themselves to agriculture full-time. Specialized in crop or dairy production, certain interviewees characterized this group as "hardcore farmers": "The true hardcore farmers will want to hear about the yield and the ecological friendly [ones] will want to hear [our coordinator]" (interview n°19). While not indifferent to environmental issues, these farmers were mostly receptive to economic arguments, given the nature of their business: "I think farming is a business. It's what's feasible in the business plan and the market. I think in some cases, the environment goes to the back burner for the dollar" (interview no. 31). Interviewed members belonging to this group were generally satisfied with their economic situation and appreciated the compensation received through ALUS, although it represented only a small fraction of their overall revenue. According to respondents, they could "afford" to remove a plot of land from production and that doing so did not negatively affect their profits. Some of the farmers in this category had just begun their careers and faced economic pressures due to the start-up investments they had made. However, these farmers were knowledgeable about environmental issues and open to changing their practices. In general, farmers in this second category were more receptive to ALUS's independent approach as they were often mistrustful of government agencies. They also had a greater appreciation for the "farmer-to-farmer" approach.

Regardless of the category to which they belonged, all participants indicated having joined ALUS for both environmental and economic reasons, although the importance of each motive varied from one farmer to another. Environmental concerns were often expressed in terms of ethics: "I think we are just trying to do what's right. It's the right thing to do" (interviews no. 26, 28, and 43). We note that many respondents understood the importance of sustainability and felt they had a moral responsibility to future generations. Some of the economic benefits of joining that members cited included the opportunity to receive technical assistance and annual compensation; the ability to generate greater added value in short supply chains by marketing production as environmentally friendly; greater opportunities for agritourism, as projects could be showcased to visitors; and lower ditch cleaning costs due to better soil erosion control.

By adhering to common values, ALUS members facilitate the running of the program at the community level. For instance, even though local PACs must rely on a series of formal criteria[13] to evaluate participants, the rules allow room for interpretation. The fact that PAC members already share similar values and beliefs makes it easier for them to reach a consensus on what constitutes "good" agricultural practices. Moreover, respondents were critical of farmers with individualistic or "wrong" mindsets, which suggests that program participants openly share a common "correct" mindset. According to interviewees, a wrong mindset is exemplified by certain behaviors considered to be unacceptable, such as growing on all available farmland, demolishing hedgerows, giving farm animals access to a river, and practicing monoculture without crop rotation.

Having a common vision also enabled members to jointly evaluate such things as the environmental benefits of projects compared to basic norms, project risks, and potential challenges involving participants. Likewise, interviewees frequently expressed ethical views that pointed to a shared understanding of who should participate in ALUS. PAC members also said they could easily detect free riders who might want to use the program for their own personal interests, rather than for environmental reasons. Respondents mentioned that free riders could be identified by examining the nature and location of projects (if projects were implemented around ponds rather than wetlands, if a tree line outside the residence was planted instead of hedgerows in the field, etc.), participants' behaviors (if a farmer had tried to destroy hedgerows or wetland areas in the past or had farming practices that were not environmentally friendly and contrary to what a "good" farmer would do) and the types of questions asked (e.g., if a farmer was only interested in knowing about compensation and never inquired about the environmental benefits of the projects proposed by the coordinator). Interviewees highlighted the importance of having the right balance between environmental and economic values. As one participant commented, "If all of their questions are just money, money, money and then you start talking about the environmental side and they're like, 'whatever, I don't care, we'll just put five acres or whatever,' then you're kind of like – the motivation seems to be more financial, […]" (interview no. 41).

In this regard, the proximity in values among participants, especially PAC members, facilitates the use of formal and informal criteria to achieve a consensus. Indeed, a shared vision of the kinds of services that a "good" farmer should provide is what enabled ALUS to create an informal market in the first place. To develop such an exchange, the program had to define the terms of payment for services that, while valued by all stakeholders, could not be measured and priced. This challenge was resolved by curbing project costs and providing annual compensation to farmers. In so doing, the program was able to support the work "service providers" without needing to directly purchase their services through a formal market. By all accounts, the arrangement appears to be successful as members are essentially in agreement on

[13] These criteria were spelled out by ALUS Canada in a document titled *Project Selection Guidelines*.

Table 3
The role of geographic and organized proximity.

	Forms of proximity		
	Geographic	Organized	
		Logic of belonging	Logic of similarity
Activated to organize stakeholders	+ + Geographic proximity allows partner stakeholders to differentiate themselves from the government, which reinforces their legitimacy.	0 Few interactions: the local ALUS office plays a mediating role.	+ + + Strong: members are united through a common environmental mindset.
Activated to encourage farmer participation in the program	+ Weakly activated: any sense of attachment to the territory is not strongly mobilized to encourage farmer participation.	0 Not activated: usually, only PAC members know each other. Members do not feel like stakeholders in the community.	+ + + Strongly activated: participants are united through shared environmental values and a common vision of what it means to be a "good" farmer. They also agree with ALUS's economic approach to conservation.
Activated to ensure farmer commitment to the program over the long term	0 Geographic proximity is not activated to ensure a degree of spatial continuity between projects. In other words, individual projects are not part of a broader, collective, territorial initiative.	+ Since members do not feel like community stakeholders, there is no feeling of attachment to ALUS as an organization. Yet, by providing quality support and services, ALUS can encourage farmers to remain in the program.	0 While participants may share common environmental beliefs, this does not guarantee that individual members will remain in the program. ALUS's practice of providing compensation for ecosystem services could also lead to competition among different conservation programs.
Activated to ensure project sustainability	0 Given the absence of territorial initiatives that engage members collectively, geographic proximity is not a factor in the long-term sustainability of projects.	+ + Farmers receive local program support to develop conservation plans that address their needs, which has a positive effect on project sustainability.	+ + Members do not carry out projects only for economic reasons (i.e., for compensation). Project choices also reflect the environmental values of participants.

how ALUS should operate. The logic of similarity is thus a key building block in ALUS's ability to coordinate its activities.

While some interviewees emphasized environmental considerations more than others, all of them believed in the importance of environmental values. Members also shared economic values that were well reflected in ALUS's policy of issuing compensation for services provided (rather than offering assistance with no strings attached). At the same time, this adherence to a combination of environmental and economic principles could be discriminatory given that all respondents insisted that members needed to hold environment values. As one interviewee said, "ALUS is for everyone, but not everyone is made for ALUS" (interview no. 5).

6. Discussion

Table 3 summarizes the effects that different forms of proximity have on the organization of ALUS communities and on levels of farmer commitment to the program. We organized the proximity typologies examined in the previous sections into columns, while the important dimensions are listed by row. We then chose to qualitatively measure the degree to which the various categories of proximity are activated for each dimension based on the conclusions we arrived at in each subsection of Section 5. The symbol "0" indicates that proximity was not activated while the symbols "+", "+ +", and "+ + +" denote a weak, medium, and strong level of activation respectively. Among the dimensions examined, a distinction is made between the length of farmer participation and the duration of the projects they implement. For instance, projects can be maintained even in the absence of compensation from ALUS if they provide a benefit to the farmers themselves or could be used in the future to obtain payments from other programs (e.g., a carbon market). Nature also renders certain projects self-sustaining after a given number of years.[14] Our analysis indicates that farmer commitment to the program depends on the duration of compensation and the degree to which ALUS is competitive compared to other potential programs. One the other hand, project length is determined more by the types of projects undertaken and by how interested farmers are in maintaining them.

As discussed previously, organized proximity is defined by two forms of "logic": the sense of attachment to an organization and similarity in values. In the ALUS communities studied, geographic proximity was not activated in the service of a common environmental goal. Moreover, the lack of spatial continuity between ALUS projects is potentially problematic as studies have shown that conservation efforts carried out on individual farms cannot, on their own, lead to positive environmental outcomes (McKenzie et al., 2013). Similar to the collaborative governance initiatives described by Westerink et al. (2017), ALUS does not actively foster cooperation among farmers, despite adhering to the "farmer-to-farmer" approach. Instead, the program focuses on supporting participants with their individual projects. Nonetheless, the distances, both physical and perceived, that separate ALUS communities from government agencies (often criticized for their lack of local knowledge) did serve to activate and highlight the geographic proximity among members.

Several studies have shown that establishing collective goals for watershed areas is easier when farmers have ties to a group (McGuire et al., 2013). In the case of ALUS, the program presents itself as an intermediary between farmers who implement environmental projects and the rest of society. By fulfilling this role, ALUS is able to reduce the workloads of farmers, who also benefit from high-quality, personalized support. From a theoretical perspective, the way the program operates aptly illustrates the idea of proximity-based mediation described by Bouba-Olga and Grossetti (2008). Concretely, the local PAC coordinators and farmer liaisons act as mediators, with support from the

[14] For instance, tree planting is subject to an agreement between farmers and the Conservation Authorities who provide the saplings. After 10 years, the trees (*footnote continued*) are fully grown and fall under the *Trees Act* (R.S.O. 1990, c. T.20), which protects them from being cut, thereby ensuring the sustainability of the original planting project.

national office and from representatives of Conservation Authorities and Stewardship Councils. However, since this proximity-based mediation allows farmers to receive individualized project assistance, many of the interactions among members are ineffective at building stakeholdership and a sense of attachment to the organization. This lack of belonging is furthered weakened by the fact that ALUS communities do not sufficiently mobilize geographic proximity, which would enable them to develop spatially continuous, collective projects.

Even though ALUS fails to promote a sense of connection, this is largely compensated for by the similarity in values among members. Indeed, our analysis of proximity confirms what other studies on social capital within ALUS communities have shown (Rosenberg, 2010; France and Campbell, 2015), namely that a common set of values (logic of similarity) encourages member participation, fosters stakeholder confidence, and facilitates the coordination of activities (Torre and Gilly, 1999; Torre and Rallet, 2005; Carrincazeaux et al., 2008). A common set of values also makes it easier to propose local measures that satisfy different stakeholders (Avilés Benitez and Roque, 2005; Torre and Zuindeau, 2009).

The ALUS program's economic approach to environmental protection is a vision that is widely shared by many agricultural professionals who argue that farm-level conservation measures contribute to the collective supply of ecosystem services. Since farmers are compensated for the value of these services, society is able to internalize the positive externalities created by agriculture. This arrangement is also instrumental in mobilizing farmers as it allows them to produce ecosystem services in the same way that they produce wheat, milk, or other products. In this sense, conservation efforts become a symbolic form of production, and the payments received for environmental services are fully compatible with how farmers view their profession.

The "farmer-to-farmer" approach is another shared vision that has been crucial to ALUS's success as it legitimizes the idea that farmers are the best placed to decide which conservation practices to implement. In this regard, the program breaks with the top-down approaches of traditional AESs. By the same token, the supposed independent nature of ALUS is welcomed by many in the agricultural community who defend the "right to farm"[15] and who are often wary of government initiatives.

Paradoxically, the similarity in values among members could also be one of ALUS's major weaknesses as it risks fostering a vision of what constitutes a "good" farmer that is not open to other points of view or ways of doing things. Nevertheless, when interviewed participants stressed that not every farmer was a good candidate for ALUS, their intention was not to exclude anyone, but rather to emphasize the specific values that unite members of the community.

At the same time, two supposed advantages of ALUS are not as clear-cut as proponents of the program would suggest. The first concerns the program's economic benefit to society. ALUS members, partners, and donors all assumed that the benefits were positive, although, as we mentioned, no study has yet been conducted to confirm this. The fact that farmer compensation is modest and based on the rental value of farmland certainly suggests that ALUS's economic impact could be positive. From the perspective of participating farmers, compensation is not tied to the value of ecosystem services delivered. Instead, payments are seen as proportionally related to the amount of farmland taken out of production for conservation projects. Furthermore, the only economic study conducted on the program (Tyrchniewicz and Tyrchniewicz, 2007) concluded that ALUS was profitable from a cost-benefit perspective. However, the authors based their calculations on a lump-sum compensation figure of $20 per acre, which is considerably lower than the amount offered to farmers in the four ALUS communities studied, where the average payment per acre was around $150 (see Table 2). In fact, if the compensation rate per acre observed in Ontario had been applied, the study would have produced the opposite result.

The second assumption concerns ALUS's non-governmental, independent status. Even though a significant part of program funding is secured through private foundations, two caveats should be noted. Firstly, the donor foundations themselves can take advantage of tax benefits and even submit project proposals to public agencies, meaning a portion of their income derives from the government. Secondly, funding from certain donors, such as the Canadian Agricultural Adaptation Council or the Ontario Trillium Foundation, originates exclusively from government sources. Therefore, the extent of ALUS's independence is relative (Rosenberg, 2010) as the program requires a minimum amount of provincial government oversight to operate financially. In fact, representatives of government ministries even hold seats in several PACs. ALUS officials do recognize the need to maintain relations with public agencies – if only for financial reasons. At the same time, when communicating with farmers, they continue to stress the independent nature of the program, since it resonates with many in the agricultural community who are skeptical of government initiatives. This approach has been effective at mobilizing participants because it supports the vision that farmers have long held regarding the uniqueness and independence of their profession and their special relation to nature (Dalecki and Coughenour, 1992). Nevertheless, the approach also reinforces this same vision and risks closing off the program to other types of farmers.

7. Conclusion

The purpose of our study was to determine, using the proximity analysis framework, whether ALUS's unique approach could succeed where traditional AES initiatives have failed. In specific terms, we sought to examine whether ALUS could reshape the values of farmers and convince them to implement and maintain environmentally friendly practices. The results of our analysis were mixed. Firstly, we note that ALUS has been successful because it responds to a pressing need in Ontario where the provincial government divested itself of many of its responsibilities over the last decades. It is also noteworthy that none of the four ALUS communities visited struggled to recruit participants and that funding shortages were the only major growth constraint. Finally, our study shows that ALUS community members are visibly connected through proximity in values, both environmental and economic. However, owing to this proximity, the program often struggles to attract farmers who do not already share these values. Moreover, since ALUS already operates beyond its financial means, coordinators have little incentive to recruit farmers who might have a different mindset. In this regard, ALUS, like most AES initiatives, could be criticized for focusing primarily on farmers who are already convinced of the need for conservation practices.

From an environmental perspective, the ALUS program has limited reach because it fails to fully activate geographic proximity and because participants do not strongly identify with the organization. Furthermore, instead of pursuing a spatially coordinated recruitment strategy, the program simply targets farmers who already express an interest in participating. However, if implemented, such a strategy would bring added environmental benefits by promoting greater spatial continuity between projects. It would also compel ALUS officials to seek out farmers who do not necessarily share the same mindset as those already in the program. Farmers are admittedly attracted by ALUS's offer of personalized support and by its flexible and simplified operating structure. At the same time, this arrangement does not foster a sense of attachment among participants to a larger, collectively defined, territorial initiative. Within ALUS, each PAC sets the rules and

[15] To protect the rights of rural residents, the Government of Ontario in 1998 passed the *Farming and Food Production Protection Act* (FFPPA). The Act states that: (1) farmers are protected from nuisance complaints filed by neighbors, providing they adhere to standard agricultural practices, and (2) no municipal regulation can place limits on agricultural practices normally carried out on a farm. This is commonly referred to as the "right to farm."

determines the types of projects that members can choose to undertake. Nevertheless, the projects themselves are not coordinated with a view to resolving a common environmental problem. Instead, it is simply assumed that the sum of individual projects will have a cumulative positive effect on the environment.

Finally, we note that the program's appeal stems from its offer of compensation for ecosystem services, which produces two potentially contradictory results. On the one hand, it allows farmers to reconcile their values as producers (i.e., their ability to continuously increase production per acre) with their environmental values, which can often conflict with one another (McGuire et al., 2013; Kolinjivadi et al., 2019a). ALUS organizers have used this argument effectively to attract farmers to the program. On the other hand, the focus on compensation, while useful for recruiting new members, exposes ALUS to several dangers. For instance, the program could be perceived as too expensive if it was determined that the value of ecosystem services delivered failed to cover compensation costs. At the other end of the spectrum, the emphasis on compensation could lead to competition from other "buyers" of environmental services (such as through carbon credits).

To summarize, our study confirms that because of ALUS's unique framework – the "farmer-to-farmer" method; relationships of trust; annual compensation; the presence of an intermediary organization; and a private, community-based approach to conservation – participating farmers demonstrate a sustainable commitment to environmentally friendly practices. As we have seen, ALUS-affiliated farmers and partner organizations seek to address global environmental problems by protecting local ecosystems, which explains why certain program officials refer to ALUS as a "coalition of the willing." At the same time, ALUS mainly attracts farmers who are already persuaded that the program is beneficial. In this respect, it is not very different from traditional AESs.

Consequently, the question of how to mobilize farmers who are less convinced of the need to implement conservation practices persists. As such, ALUS faces the same issues relating to farmer participation as other bottom-up initiatives that have been researched (Termeer et al., 2013; Wilson, 2004). While participatory approaches can certainly help ensure that members remain committed to the projects they implement, they have proven ineffective at pushing the agriculture sector as a whole towards better environmental practices. Inevitably, this raises the question of finding new tools that could lead to better outcomes. As it stands, our research indicates that treating agri-environmental issues separately from other aspects of agricultural policy (or, in the case of ALUS, addressing conservation completely independently of agricultural policy) contributes to the disconnect between the economic and environmental performance of farms.

CRediT authorship contribution statement

F. Ouellet: Conceptualization, Formal analysis, Methodology, Investigation, Resources, Writing - review & editing. **P. Mundler:** Conceptualization, Methodology, Supervision, , Writing - original draft. **J. Dupras:** Supervision, Writing - review & editing. **J. Ruiz:** Funding acquisition, Project administration, Supervision, Writing - review & editing.

Acknowledgement

This research project was financially supported by the Social Sciences and Humanities Research Council (SSHRC) of Canada.

References

Alternative Land Use Services (ALUS) Canada (2019). Accessible online at: https://alus.ca.

Angeon, V., Caron, A., 2009. Quel rôle joue la proximité dans l'émergence et la pérennité de modes de gestion durable des ressources naturelles? Natures sciences sociétés 17 (4), 361–372.

Avilés Benitez, A., Roque, O., 2005. Proximité et aménités environnementales produites par l'agriculture. In: Filippi, Maryline (Ed.), Proximités et changements socio-économiques dans les mondes ruraux, pp. 279–295.

Balmford, A., Bruner, A., Cooper, P., Costanza, R., Farber, S., Green, R.E., Jenkins, M., Jefferiss Baylis, K., Peplow, S., Rausser, G., Simon, L., 2008. Agri-environmental policies in the EU and United States: a comparison. Ecol. Econ. 65 (4), 753–764.

Blackstock, K.L., Ingram, J., Burton, R., Brown, K.M., Slee, B., 2010. Understanding and influencing behaviour change by farmers to improve water quality. Sci. Total Environ. 408, 5631–5638.

Boschma, R., 2005. Proximity and innovation: a critical assessment. Reg. Stud. 39 (1), 61–74.

Bouba-Olga, O., Grossetti, M., 2008. Socio-économie de proximité. Revue d'économie régionale & urbaine 3. pp. 311–328.

Brubaker, E., 2009. April 21. ALUS is Gravely Flawed. The Ontario Farmer Vol. 43. pp. 7.

Buller, H., Wilson, G.A., Holl, A., 2017. Agri-environmental Policy in the European. Routledge, Union.

Burton, R.J., Paragahawewa, U.H., 2011. Creating culturally sustainable agri-environmental schemes. J. Rural Stud. 27 (1), 95–104.

Burton, R.J., Kuczera, C., Schwarz, G., 2008. Exploring farmers' cultural resistance to voluntary agri-environmental schemes. Sociol. Ruralis 48 (1), 16–37.

Campbell, J.B., 2014. A Case-study Analysis of the Alternative Land Use Services Program (ALUS). Master's Thesis. Dalhousie University.

Campbell, J.T., Koontz, T.M., Bonnell, J.E., 2011. Does collaboration promote grass-roots behavior change? Farmer adoption of best management practices in two watersheds. Soc. Nat. Resour. 24, 1127–1141.

Carrincazeaux, C., Lung, Y., Vicente, J., 2008. The scientific trajectory of the French school of proximity: interaction-and institution-based approaches to regional innovation systems. Eur. Plan. Stud. 16 (5), 617–628.

Church, S.P., Prokopy, L.S., 2017. The influence of social criteria in mobilizing watershed conservation efforts: a case study of a successful watershed in the Midwestern US. Land Use Policy 61, 353–367.

Coleman, J.S., 1988. Social capital in the creation of human capital. Am. J. Sociol. 94, S95–S120.

Cook, C.L., 2011. Putting the Pieces Together: Tracing Fragmentation in Ontario Water Governance (Doctoral Dissertation). University of British Columbia.

Cooper, K., 1998. Trashing environmental protection – Ontario's four-part strategy. Confronting the Cuts: A Sourcebook for Women in Ontario. Inanna Publications and Education, Toronto, Ontario.

Dalecki, M.G., Coughenour, C.M., 1992. Agrarianism in American society. Rural Sociol. 57 (1), 48–64.

De Snoo, G.R., Herzon, I., Staats, H., Burton, R.J., Schindler, S., van Dijk, J., Lokhorst, A.M., Bullock, J.M., Lobley, M., Wrbka, T., Schwarz, G., Musters, C.J.M., 2013. Toward effective nature conservation on farmland: making farmers matter. Conserv. Lett. 6 (1), 66–72.

Deuffic, P., Candau, J., 2006. Farming and landscape management: how French farmers are coping with the ecologization of their activities. J. Agric. Environ. Ethics 19, 563–585.

Emery, S.B., Franks, J.R., 2012. The potential for collaborative agri-environment schemes in England: can a well-designed collaborative approach address farmers' concerns with current schemes? J. Rural Stud. 28 (3), 218–231.

France, R.L., Campbell, J.B., 2015. Payment for agro-ecosystem services: developmental case-history descriptions of Canada's Grassroots 'ALUS' Programs. Res. J. Agric. Environ. Manage. 4 (September (9)), 405–431.

Franks, J.R., McGloin, A., 2007. Environmental co-operatives as instruments for delivering across-farm environmental and rural policy objectives: lessons for the UK. J. Rural Stud. 23, 472–489.

Geldes, C., Felzensztein, C., Turkina, E., Durand, A., 2015. How does proximity affect interfirm marketing cooperation? A study of an agribusiness cluster. J. Bus. Res. 68 (2), 263–272.

Gilly, J.P., Talbot, D., Zuliani, J.M., 2011. Hub firms and the dynamics of territorial innovation: case studies of Thales and Liebherr in Toulouse. Eur. Plan. Stud. 19 (12), 2009–2024.

Guerra, P., 2010. Investment in the Provision of Ecological Goods and Services on Private Rural Land in Ontario: A Framework for Policy Development. Thesis Presented to the Faculty of Graduate Studies of the University of Guelph, Master of Science.

Holland, K.L., 2015. Transitioning to a New Approach for Sustainability: the Case of Manitoba's ALUS Project. A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy. Department of Political Science, University of Alberta.

Inside Ottawa Valley, 2012. Ontario Stewardship Program Treatened. available at:. https://www.insideottawavalley.com/news-story/3957414-ontario-stewardship-program-threatened/.

Johnston, L., 2012. An Assessment of Prince Edward Island's Alternative Land Use Services (ALUS) Program, 2008-2011. M.SC. Thesis. University of New Brunswick.

Kebir, L., Torre, A., 2013. Geographical proximity and new short supply food chains. In: Lazzeretti, L. (Ed.), Creative Industries and Innovation in Europe, Concepts, Measures, and Comparative Case Studies. Routledge.

Kolinjivadi, V., Mendez, A.Z., Dupras, J., 2019a. Putting nature 'to work' through Payments for Ecosystem Services (PES): tensions between autonomy, voluntary action and the political economy of agri-environmental practice. Land Use Policy 81, 324–336.

Kolinjivadi, V., Van Hecken, G., Almeida, D.V., Dupras, J., Kosoy, N., 2019b. Neoliberal performatives and the 'making' of payments for ecosystem services (PES). Prog. Hum. Geogr. 43 (1), 3–25.

Lawrence, G., Richards, C.A., Cheshire, L., 2004. The environmental enigma: why do

producers professing stewardship continue to practice poor natural resource management? J. Environ. Policy Plan. 6 (3-4), 251–270.
Lubell, M., 2004. Collaborative watershed management: a view from the grassroots. Policy Stud. J. 32 (3), 341–361.
Mackenzie, B.F., 2008. Supporting Environmental Stewardship and Livelihood Benefits in Ontario's Greenbelt: Assessing the Potential Contribution of the Alternative Land Use Services Program. Master's Thesis. University of Waterloo.
Manta Conroy, M., 2011. Influences on Public Participation in Watershed Planning: Why is it still a Struggle? Plan. Pract. Res. 26 (4), 467–479.
McGuire, J., Morton, L.W., Cast, A.D., 2013. Reconstructing the good farmer identity: shifts in farmer identities and farm management practices to improve water quality. Agric. Human Values 30 (1), 57–69.
McKenzie, A.J., Emery, S.B., Franks, J.R., Whittingham, M.J., 2013. Landscape-scale conservation: collaborative agri-environment schemes could benefit both biodiversity and ecosystem services, but will farmers be willing to participate? J. Appl. Ecol. 50 (5) 1274-1128.
Miles, M.B., Huberman, A.M., 2003. Analyse des données qualitatives. De Boeck Supérieur.
Mills, J., Gaskell, P., Ingram, J., Dwyer, J., Reed, M., Short, C., 2017. Engaging farmers in environmental management through a better understanding of behaviour. Agric. Human Values 1–17.
Mundler, P., Rouchier, J., 2016. Alimentation et proximités: jeux d'acteurs et territoires, Educagri éditions, coll. Transversales.
O'Connor, D., 2002. Report of the Walkerton Commission of Inquiry. Ontario Ministry of the Attorney General Chapter 11.
Ouellet, F., 2018. La participation des agriculteurs aux démarches volontaires en agroenvironnement: le cas du programme Alternative Land Use Service (ALUS) en Ontario. Master's thesis. Laval University.
Pinto-Correia, T., Gustavsson, R., Pirnat, J., 2006. Bridging the gap between centrally defined policies and local decisions–Towards more sensitive and creative rural landscape management. Landsc. Ecol. 21 (3), 333–346.
Power, A.G., 2010. Ecosystem services and agriculture: tradeoffs and synergies. Philos. Trans. R. Soc. Lond. B Biol. Sci. 365 (1554), 2959–2971.
Prager, K., 2015. Agri-environmental collaboratives as bridging organisations in landscape management. J. Environ. Manage. 161, 375–384.
Prager, K., Reed, M., Scott, A., 2012. Encouraging collaboration for the provision of ecosystem services at a landscape scale – rethinking agri-environmental payments. Land Use Policy 29, 244–249.
Pretty, J., 2003. Social capital and the collective management of resources. Science 302 (5652), 1912–1914.
Prokopy, L.S., Mullendore, N., Brasier, K., Floress, K., 2014. A typology of catalyst events for collaborative watershed management in the United States. Soc. Nat. Resour. 27, 1177–1191.
Putnam, R., 1993. The Prosperous Community: Social Capital and Public Life. The American Prospect, 13(Spring) Vol. 4 Available online: http://www.prospect.org/print/vol/13.
Rosenberg, J., 2010. An Analysis of the Critical Success Factors for Participation in Agricultural-environmental Programs: A Case Study. Presented to the Faculty of Graduate Studies of the University of Guelph.
Roy, S.N., 2009. L'étude de cas. Dans. In: Gauthier, B. (Ed.), Recherche sociale : de la problématique à la collecte de données, 5th ed. Les Presses de l'Université du Québec, pp. 129–225.
Runhaar, H.A.C., Melman, T.C.P., Boonstra, F.G., Erisman, J.W., Horlings, L.G., de Snoo, G.R., Termeer, C.J.A.M., Wassen, M.J., Westerink, J., Arts, B.J.M., 2017. Promoting nature conservation by Dutch farmers: a governance perspective. Int. J. Agric. Sustain. 15, 264–281.
Shaw, L., Lubell, M., Ohmart, C., 2011. The evolution of local partnerships for sustainable agriculture. Soc. Nat. Resour. 24 (10), 1078–1095.
Sparling, B., Brethour, C., 2007. An Economic Evaluation of Beneficial Management Practices for Crop Nutrients in Canadian Agriculture. Georges Morris Center, Guelph, Ontario.
Stoate, C., Báldi, A., Beja, P., Boatman, N.D., Herzon, I., Van Doorn, A., de Snoo, G.R., Rakosy, L., Ramwell, C., 2009. Ecological impacts of early 21st century agricultural change in Europe–a review. J. Environ. Manage. 91 (1), 22–46.
Tanentzap, A.J., Lamb, A., Walker, S., Farmer, A., 2015. Resolving conflicts between agriculture and the natural environment. PLoS Biol. 13 (9), e1002242.
Termeer, C.J., Stuiver, M., Gerritsen, A., Huntjens, P., 2013. Integrating self-governance in heavily regulated policy fields: insights from a Dutch Farmers' Cooperative. J. Environ. Policy Plan. 15 (2), 285–302.
Torre, A., Gilly, J.P., 1999. On the analytical dimension of Proximity Dynamics. Reg. Stud. 34 (2), 169–180.
Torre, A., Rallet, A., 2005. Proximity and localization. Reg. Stud. 39 (1), 47–59.
Torre, A., Zuindeau, B., 2009. Proximity economics and environment: assessment and prospects. J. Environ. Plan. Manag. 52 (1), 1–24.
Tyrchniewicz, A., Tyrchniewicz, E., 2007. Alternative Land Use Services (ALUS): A Preliminary Overview of Potential Cost Reductions and Financial Benefits to Canada. Tyrchniewicz Consulting, Winnipeg, Manitoba.
Uthes, S., Matzdorf, B., 2013. Studies on agri-environmental measures: a survey of the literature. Environ. Manage. 51 (1), 251–266.
Westerink, J., Melman, D.C., Schrijver, R.A., 2015. Scale and self-governance in agri-environment schemes: experiences with two alternative approaches in the Netherlands. J. Environ. Plan. Manag. 58 (8), 1490–1508.
Westerink, J., Jongeneel, R., Polman, N., Prager, K., Franks, J., Dupraz, P., Mettepenningen, E., 2017. Collaborative governance arrangements to deliver spatially coordinated agri-environmental management. Land Use Policy 69, 176–192.
Wilson, G.A., 2004. The Australian Landcare movement: towards 'post-productivist'rural governance? J. Rural Stud. 20 (4), 461–484.
Winfield, M.S., 2012. Blue-green Province: The Environment and the Political Economy of Ontario. UBC Press, Toronto and Vancouver.
Wiskerke, J.S.C., Bock, B.B., Stuiver, M., Renting, H., 2003. Environmental co-operatives as a new mode of rural governance. NJAS-Wageningen J. Life Sci. 51 (1-2), 9–25.
Wunder, S., 2015. Revisiting the concept of payment for environmental services. Ecol. Econ. 117, 234–243.
Yin, R.K., 2003. Case Study Research Design and Methods. Sage Publications 181 p.