Science and Research Information Report IR-03

Successful approaches for landowner contact and partnership: Natural cover monitoring for the Lake Simcoe watershed





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Executive summary

The existing natural vegetation in the Lake Simcoe watershed, which is critical for the maintenance of ecosystem functions and processes, is exposed to many anthropogenic, biotic, and abiotic stresses. By monitoring natural vegetation, spatial and temporal changes can be detected and tracked to determine their causes, magnitudes, and impacts on the ecological functions of natural cover in the watershed.

However, the Lake Simcoe watershed, similar to the rest of southern Ontario, has approximately 80%–90% of land in in private ownership. As a result, the majority of natural areas (forests, wetlands, and other natural vegetation) reside on private lands. Monitoring of natural areas on both private and public lands is necessary to set baseline conditions and to understand and detect changes. For monitoring programs to be representative of the landscape condition, it is essential to have the monitoring plots on private land proportional to the percentage of land in private ownership.

Many levels of government (federal, provincial, and municipal), non-government organizations, conservation authorities, community groups, and other groups are involved in the management, conservation, and planning of natural resources in the Lake Simcoe watershed. There are about 175 local, regional, provincial and national groups active in the area. Each of the 175 organizations was assessed and grouped based on their activities and the spatial extent of their focus. Approximately 35% of all groups are only active within the watershed. An additional 28% of the 175 groups are engaged in conservation at the regional/southern Ontario level. The remaining 64 groups (37%) have broader geographic, national and international, focus.

Within this multi-stakeholder environment and decentralized governance model of natural resources management and conservation, it is necessary to build partnerships to be strategic, efficient, and avoid possible duplication. Partnerships among government and non-government organizations help with engaging private landowners and breaking existing barriers typically held towards government projects. Partnerships also support monitoring and field sampling efforts for the mutual benefit of all groups. There is an opportunity to partner with at least 50 well-known and trusted groups exclusively working within the Lake Simcoe Watershed. Partners could be engaged in range of activities from public education, monitoring to landowner contacts.

In order to ensure success of long-term monitoring program, it is necessary to develop and maintain monitoring program communication material and a webpage. In addition, it is important to keep all partners informed and up to date about filed monitoring efforts and monitoring outcomes. This could be achieved by providing regular learning workshops and training to ensure knowledge transfer to the partners. The existing inventory and monitoring efforts in Ontario, unlike the in the USA, have an inconsistent monitoring frequency and far fewer plots on private lands than the Forest Inventory and Analysis (FIA) program. Nevertheless, Ontario's sampling efforts have about 50% of plots on private lands, which indicate that there is a potential for achieving successful monitoring on private lands. However, acquiring more plots on private lands would require more investments in both the initial land owner contact as well as follow-ups to ensure regular returns and monitoring at the same location.

If a monitoring program is to be successful on private lands, it is critical to inform and engage landowners and the public about the planned monitoring program early in the process. Landowner contact and buy-in into the program is more successful when partnering with neutral agencies. A range of different approaches for landowner contacts, such as face-to-face meetings, phone calls, and printed materials, need to be considered. In addition, communication materials for landowners need to be in a range of formats to suit different users, with questions related to monitoring and land access clearly answered, and emphasizing to landowners that their personal information is kept confidential. Post sampling efforts need to be focused on reporting and program progress and summary results can be posted on a webpage and / or communicated to the landowners in other ways. Finally, it is imperative to recognize and quantify the significant and critical role landowners play in monitoring.

Résumé

La végétation naturelle existante dans le bassin hydrologique du lac Simcoe, laquelle est cruciale pour le maintien des fonctions et des processus écosystémiques, est exposée à de nombreux stress anthropiques, biotiques et abiotiques. En surveillant la végétation naturelle, on peut déceler et suivre les changements spatiaux et temporaux pour déterminer leurs causes et leur ampleur, ainsi que leurs répercussions sur les fonctions écologiques du couvert naturel dans le bassin hydrologique.

Toutefois, de 80 à 90 % des terres dans le bassin hydrologique du lac Simcoe, comme dans le reste du sud de l'Ontario, sont des terres privées. Par conséquent, la plupart des zones naturelles (forêts, terres humides et autre végétation naturelle) se trouvent sur des terres privées. Pour établir un état de référence et comprendre et déceler les changements, il faut surveiller les zones naturelles sur les terres privées et publiques. Pour que les programmes de surveillance soient représentatifs du paysage, le nombre de parcelles sur des terres privées doit être proportionnel à la fraction des terres appartenant à des particuliers.

De nombreux ordres du gouvernement (fédéral, provincial et municipal), organismes non gouvernementaux, offices de protection de la nature, groupes communautaires et autres groupes participent à la gestion, à la conservation et à la planification des ressources naturelles présentes dans le bassin hydrologique du lac Simcoe. Environ 175 groupes locaux, régionaux, provinciaux et nationaux sont actifs dans la région. Chacun des 175 organismes a été évalué et regroupé en fonction de ses activités et de l'étendue spatiale de son secteur d'intervention. Parmi ces 175 organismes, environ 35 % sont actifs uniquement dans le bassin hydrologique, et 28 % participent à la conservation à l'échelle régionale/du sud de l'Ontario. Les soixante-quatre autres groupes (37 %) ont une portée géographique plus vaste.

Dans le cadre de cet environnement multilatéral et de ce modèle de gouvernance décentralisé pour la gestion et la conservation des ressources naturelles, il est nécessaire d'établir des partenariats, de faire preuve de stratégie et d'efficacité et d'éviter les chevauchements possibles. Les partenariats entre les organismes gouvernementaux et non gouvernementaux facilitent la mobilisation des propriétaires de terres privées et favorisent l'élimination des barrières qui existent généralement au sein des projets gouvernementaux. Les partenariats appuient également la surveillance et les activités d'échantillonnage sur le terrain, dans l'intérêt de tous les groupes. C'est possible d'établir des partenariats avec au moins 50 groupes bien connus et considérés comme dignes de confiance qui travaillent exclusivement au sein du bassin hydrologique du lac Simcoe. Les partenaires pourraient participer à diverses activités allant de l'éducation du public aux communications avec les propriétaires fonciers, en passant par la surveillance.

Pour assurer une surveillance et une coordination du programme à long terme, il est nécessaire de tenir à jour un site Web du programme de surveillance et le matériel de communication. De plus, il est important d'informer et de tenir à jour tous les partenaires au sujet de la surveillance et des résultats de celle-ci. On pourrait le faire en présentant régulièrement des ateliers d'apprentissage et des possibilités de formation pour assurer le transfert des connaissances aux partenaires.

Les activités révisées liées à l'inventaire et à la surveillance en Ontario concernent un nombre beaucoup moins élevé de parcelles sur des terres privées que ce qui est indiqué dans le programme américain d'analyse et d'inventaire des forêts, et les fréquences de surveillance ne sont pas constantes. Néanmoins, les activités d'échantillonnage de l'Ontario concernent environ 50 % des parcelles sur des terres privées, ce qui indique qu'il est possible de surveiller efficacement les terres privées. Toutefois, l'acquisition d'un plus grand nombre de parcelles sur des terres privées exigerait un investissement plus important lors des communications initiales avec les propriétaires fonciers et des suivis pour assurer des retours et une surveillance réguliers au même emplacement.

Pour assurer la réussite d'un programme de surveillance sur des terres privées, il est primordial d'informer les propriétaires fonciers et le public au sujet du programme de surveillance prévu et de les mobiliser très tôt durant le processus. Les communications avec les propriétaires fonciers et l'adhésion de ceux-ci au programme sont plus efficaces lorsque les partenariats sont établis avec des organismes neutres. On doit envisager diverses approches pour les communications avec les propriétaires fonciers, notamment des rencontres en personne, des appels téléphoniques et du matériel imprimé. En outre, le matériel de communication pour les propriétaires fonciers doit être en divers formats qui conviennent à différents utilisateurs. Une fois que l'on a clairement répondu à toutes les questions liées à la surveillance et à l'accès aux terres, on doit s'assurer de répéter aux propriétaires fonciers que leurs renseignements personnels resteront confidentiels. Les activités ultérieures à l'échantillonnage doivent porter principalement sur les rapports et l'affichage des progrès du programme et des résultats sommaires sur une page Web ou sur la communication de ces détails aux propriétaires fonciers par d'autres moyens. Enfin, il est essentiel de reconnaître et de quantifier le rôle important et crucial que jouent les propriétaires fonciers dans la surveillance.

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Introduction

The natural vegetation in the Lake Simcoe watershed, which is critical for maintenance of ecosystem functions and processes, is exposed to many biotic, abiotic, and anthropogenic stresses. These stresses include: natural cover fragmentation; vegetation removal; pressures from land development; negative impacts of invasive plants, pathogens, and insects; domestic animals and wildlife browsing; extreme weather conditions (e.g., ice storms, drought); and climate change. These stresses have a variety of individual and cumulative impacts on natural vegetation. By monitoring natural vegetation, it may be possible to determine when and where these impacts are occurring, their causes and magnitudes, and how they are affecting the ecological function of the watershed.

Ecological monitoring is the repetitive measurement of a specified set of variables at one or more locations over a period of time according to prearranged schedules (Vos et al. 2000). Successful monitoring programs are standardized, easily repeatable over space and time, and relevant to decision-making and management actions. Information collected on vegetation structure and composition from such a program makes it possible to: define and set baseline conditions of vegetation; detect and measure changes in vegetation; better understand cause-effect relationships between various stresses and vegetation; define trends in vegetation changes; and forecast future changes. More importantly, the knowledge gained through monitoring, results, trends, and forecasts form the base of adaptive management and thus informed and timely decision-making.

Successful monitoring of natural vegetation in the Lake Simcoe watershed requires repeated access to randomly selected sampling sites across the entire landscape on both private and public lands. Similar to the majority of southern Ontario, 80% to 90% of land in the Lake Simcoe watershed is in private ownership. As a result, the majority of monitoring sites will need to be on private land; therefore, it is necessary to develop a strategic monitoring program that can be implemented proportionally across both private and public lands. Such monitoring would vield less bias and more valuable and applicable information about vegetation structure, composition, and natural area health throughout the watershed. For example, while there are some indications that the abundance of invasive plants is higher on public lands and close to urban areas, it is not known to what extent they are present on private lands. In addition, the Vegetation Sampling Protocol (VSP) inventory efforts in southern Ontario indicate that forest structure, biodiversity, and the abundance of some species at risk may be higher on private lands. However, to be able to make more definite conclusions, widespread vegetation monitoring needs to be strategically planned to include a representative proportion of private lands.

The best approaches for landowner contact to develop successful partnerships with landowners and stakeholders and to build fruitful partnerships and collaboration with conservation groups in the watershed need to be identified for successful monitoring.

This report identifies the best approaches for landowner contact and successful partnership opportunities for the Lake Simcoe watershed by:

- Reviewing landowner approaches from similar projects in other jurisdictions
- Identifying stakeholder, conservation, and community groups in the watershed
- Reviewing successful partnership approaches to monitoring from relevant projects and outlining partnership opportunities

Importance of monitoring on private lands

While vegetation monitoring is part of many research studies, there are a very limited number of publications that discuss access to private lands for long-term monitoring purposes. For example, European countries have had a long tradition of vegetation and forest inventory and monitoring dating back to the late 19th and early 20th century. Access to private lands in most European countries is warranted by law, and it is also understood that representatives of public interest in resource management and conservation are granted access to sample sites on these lands. Within such a framework, it is not necessary to develop special approaches and methods for landowner contact.

However, in a North American context, access to private lands to sample vegetation is very different. In both the United States and Canada, private property rights don't allow land access without the owner's permission. As a result, access to private lands for monitoring and inventory is limited, and repeated access to the same site for monitoring purposes is often not possible. For example, a review of 528 research studies conducted in the United States between 1997 and 2000 found that only 27% of the studies were conducted with at least one site on private lands, whereas 73% were conducted on public lands (Hilty and Merenlender 2003). Considering this sampling preference towards public lands and given that 60% of the total land area in the United States is privately owned (Hilty and Merenlender 2003), it is necessary to increase the number of sampling sites on private lands to have a representative sample.

To understand the state of biodiversity and natural resources across entire landscapes and across ranges of natural and management conditions, monitoring sites must be stratified using the natural characteristics and vegetation itself rather than land ownership. Monitoring efforts focusing primarily on public lands result in information on a limited number of community types, natural environments, pressures, and management regimes. As such, this information has a limited use and cannot be used for broader landscape extrapolations, as it misses samples on more productive and higher quality lands and soils that are typically associated with private lands (Hilty and Merenlender 2003).

Since biodiversity and productivity may differ between private and public lands, monitoring only public lands could lead to inaccurate results and conclusions and consequently to erroneous management decisions. For example, early studies on northern spotted owls, based on information gathered on public land in Oregon, suggested that spotted owls are old-growth dependent and that their main food source is flying squirrels. However, later studies that included habitats in privately owned redwood forests along California's north coast showed that spotted owls live in younger forests stands and eat dusky-footed woodrats. This example is a good illustration of how limited access and sampling design that excluded private lands resulted in a narrow understanding of spotted owl habitat and could have led to inappropriate management and conservation actions.

Similar to the United States, 87% of southern Ontario's lands privately owned (Figure 1) (Strobl and Bland 2000), while the majority of research is conducted on public lands. A few Ontario studies (Lovett-Doust et al. 2003, Lovett-Doust and Kuntz 2001) have shown that land ownership can have an effect on rare species richness. These studies show differences in rare species richness for a small group of globally and regionally rare species between Environmentally Significant Areas (ESA) on private and public lands. While the rare species richness was mainly influenced by the size of the ESA, publicly owned ESAs also showed higher overall species richness. However, as these studies only looked at small portions of the landscape, their results should not be generalized.



Figure 1. Land ownership in southern Ontario (OFA, 2013). Pink areas on the map indicate private lands, green areas indicate protected areas, light green indicates Crown lands, and yellow areas indicate First Nations lands.

Given the potential differences in biodiversity between public and private lands, the current lack of site-level vegetation information on private lands, and the large percentage of land in private ownership in southern Ontario, monitoring on private lands is essential to gain a full understanding of the state of natural vegetation and to detect any changes or trends over time.

A review of the four province-wide forest monitoring programs—the Ecological Monitoring and Assessment Network (EMAN, a discontinued federal initiative), the Ministry of Natural Resources and Forestry's (MNRF) Growth and Yield Program, the Ministry of the Environment and Climate Change's (MOECC) Ontario Forest Biodiversity Network, and the National Forest Inventory (NFI)—showed that the number of monitoring plots on private lands in southern Ontario ranged between 32% and 95% (Puric-Mladenovic et al. 2013). The proportion of plots on private lands varies widely among the programs, from 32% for MNRF's Growth and Yield Program to 90% for the National Forest Inventory program (Figure 2). While 90% of plots on private lands is a desired rate in this landscape, the NFI program does not have an extensive number of plots in southern Ontario, with fewer than 50 plots across the area. These four programs, as well as VSP inventory efforts in southern Ontario, have an average of 50% of plots on private lands (Puric-Mladenovic et al. 2013, 2016), indicating the potential for achieving successful monitoring on private lands in the Lake Simcoe watershed. However, ensuring a high success rate of regular visitation and monitoring on private lands requires more investment in both the initial landowner contact as well as subsequent communication.



Figure 2: Proportion of plots located on public versus private lands (Puric-Mladenovic et al. 2013).

Given the large percentage of private lands of ecological importance in the Lake Simcoe watershed, an effective communication strategy with private landowners is necessary for gaining their trust and access to their lands for monitoring purposes. Cooperation from landowners is critical for ensuring repeated access to the sites over time.

Private land access presents significant challenges for any agency conducting monitoring, not just in the Lake Simcoe watershed, but also in the rest of southern Ontario. It can be particularly challenging for government agencies, which_may be perceived as infringing on private rights despite acting as representatives of public interest when promoting environmental conservation and management. Therefore, bridging the gap between public interests and private rights is critical to the success of any environmental project and working with landowners as stakeholders in the process (Hoffpauir 2005).

Seeking permission to conduct monitoring on private land can be demanding, but success is possible if the project is carefully planned and well executed. The method by

which landowners are contacted and clarity in communicating project goals greatly influences the decision as to whether or not they choose to support monitoring or research on their lands (Hilty and Merenlender 2003).

Research for this project was conducted using two methods in order to understand how to approach private landowners successfully. First, a review of scientific and professional literature was conducted on landowner contact methods to determine successful methods. Secondly, interviews were conducted with professionals and organizations with experience in contacting landowners for monitoring, inventory, and/or stewardship purposes. The organizations interviewed were selected based on the extent of their inventory and monitoring programs as well as longevity and scope of their work. They included government agencies, non-government organizations, conservation authorities, and academic institutions. From these two review steps, the most important points on how to approach landowners and gain access to their lands were identified, and a summary of recommendations was developed.

In the Lake Simcoe watershed, as in the rest of southern Ontario, there are numerous and active local, regional, provincial, and national groups with interests ranging from a very broad environmental scope to a very specific focus. Therefore, it was necessary to determine the identities of these groups and to understand their activities. A database was compiled of all organizations and groups involved in environmental, conservation, natural resources management work, or work related to large professional associations (e.g., agriculture) in the watershed. This database was further used to classify various groups based on their mandate and narrow down the list of potential partners. In addition, a literature review on the importance of forming partnerships and their impacts on the success or failure of monitoring and conservation projects was conducted. These approaches, along with the knowledge from the interviews, enabled a better understanding of the stakeholders in the watershed and the ability to discuss and highlight possible partnership opportunities.

Review of landowner contact approaches for monitoring on private land

A literature review of different landowner contact approaches for long-term access to private lands for monitoring purposes was performed for jurisdictions politically similar to Canada, with a focus on the USA and Australia. These countries were selected as areas with similar private property rights and where landowner permission is required to access private lands for monitoring.

Literature review of landowner contact approaches

The literature review was conducted by reviewing scientific journal articles on the topic of monitoring on private lands. In general, the topic was scarce in scientific journals and published literature. If mentioned, it was in a few words as part of the methods section.

A few published papers discussing access to private lands to support monitoring studies were found. These papers discussed landowner contact in the U.S. and Australia as part of research studies involving short-term monitoring of sites for a maximum of 4 years. These studies touched on long-term access to private lands and provided landowner contact guides related to research studies on wetlands, oak woodlands (Bolsinger 1988; Hilty and Merenlender 2003), usage of remnant wildlife corridors, and populations of mountain plovers (Dreitz and Knopf 2007) and frogs (Carr and Hazell 2006). However, there were no research studies found from Ontario or Canada specifically describing methods of landowner contact or repetitive access to private lands for monitoring purposes.

Due to the limited information about monitoring on private lands, the literature review focused on monitoring programs with implementation experience. This part of the review included a scan of organizations involved in inventory, monitoring, or stewardship on both public and private lands. Organizations in Canada and the United States, such as Green Valley Institute in Connecticut,¹ the Natural Heritage League, and the British Columbia Ministry of Environment, Lands and Parks (Duynstee 1997) have published manuals on landowner approaches for stewardship agreements. The United States Department of Agriculture (USDA) Forest Service, which has been involved in forest inventory and monitoring for over 80 years, did not have published guidelines or papers on methods for landowner contact, but rather general short guidelines on their website. Although landowner contact and land access differ slightly from state to state, the USDA guidelines provided basic information on how landowners are contacted by the Forest Inventory and Analysis (FIA) monitoring program. In addition, the individual states that implement the FIA program did not have published papers or reports that specifically described landowner contact or successful repetitive access to private lands for long-term monitoring.

Monitoring programs require the establishment of permanent plots to be revisited at regular cycles for an open-ended period of time. As a result, unlike research projects, monitoring programs generally have no end date. Research studies and long-term monitoring have different timelines, long-term objectives, and requirements from the landowner. However, they share the initial landowner contact procedures and

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¹ <u>The Green Valley Institute</u>

communication strategies used to access private lands. The initial strategies to contact landowners, for both monitoring and the research studies, are similar and include the following steps:

- a) Compiling a proposed landowner contact list
- b) Developing a plan for contacting landowners
- c) Making initial contact by sending an introductory letter followed by a personal visit
- d) Developing a strategy to build a long-term relationship between the monitoring organization and the landowner

Long-term agreements between landowners and stewardship organizations also provided some suggestions for landowner contact, specifically to educate them about stewardship and ultimately obtain commitment for a stewardship agreement. Approaches from these stewardship activities also provided useful information on encouraging landowners to commit and allow access to their land. These strategies are transferable and easily adoptable to the needs of long-term monitoring programs.

The United States Department of Agriculture's FIA program has been conducting inventory and monitoring on public and private lands for over eight decades. The FIA program was mandated by Congress in 1928. It collects, compiles, archives, analyzes, and publishes state, regional, and national inventory information on forests for all ownership types in the USA (Smith 2002). The FIA program is designed to collect consistent, compatible forest information across all landscapes regardless of ownership, management status, or political boundaries. According to the minimum FIA standards, forest monitoring is conducted on a 7-year cycle for eastern states and a 10-year cycle for western states, but it can be conducted more frequently if resources allow. The FIA currently has approximately 125,000 forest inventory plots across the United States with more than two thirds of these plots located on private land (USDA 2014, 2015) Since the vast majority of forests in the United States is in private ownership and 66% of FIA plots are on private lands, landowners are an essential partner of the FIA program. Development of good relationships and successful landowner-contact mechanisms are cornerstones of the FIA program and its ability to access private lands and collect data (Healey et al 2011, USDA 2014, 2015).

The Environmental Protection Agency's (EPA) Environmental Monitoring and Assessment Program-Wetlands is designed to provide long-term trends in wetland conditions. It also requires repeated and long-term access to wetlands on private lands (Fellows and Buhl 1995). The EPA conducted a pilot study in the Prairie Pothole Region in North Dakota, South Dakota, and Minnesota with the objective of studying issues of private land access by the EPA. The study was conducted between 1992 and 1994, and efforts were made to obtain access to 69 farms containing wetlands. Much of the Prairie Pothole Region is used for agriculture with most of the land in private ownership, controlled by either landowners or tenants. Access to these properties was critical for conducting wetland research and monitoring.

Overview of landowner contact approaches implemented by the Forest Service (for the purposes of Forest Inventory and Analysis) and the Environmental Protection Agency are summarized below.

Forest Service for Forest Inventory and Analysis

Information pertaining to the ownership of each plot was obtained using the publicly accessible county assessor records during the winter before the intended field season.

Letters were sent to landowners in the spring prior to the field season, requesting permission to access the properties for the purposes of plot sampling. E-mail addresses and contact phone numbers were provided in case landowners had any further questions or concerns. Self-addressed, postage-paid postcards and/or envelopes were enclosed with each letter for landowners to reply to the request.

The FIA crew was not permitted to enter the property unless permission had been granted by the landowner either in writing, in person, or over the phone.

The Forest Service emphasized to landowners that any information collected during the inventories was to be kept confidential in accordance with the US Privacy Act of 1974. The FIA does not disclose the exact latitude and longitude of FIA field sample locations and never links the identity of participating private landowners to plot data (Healey et al. 2011). The FIA program ensures that any information regarding rare species discovered on plots is also kept confidential and never disclosed to any party outside of the FIA program.

Landowners are subsequently able to request results from the Forest Service on species inventoried on their property. Other information and general results are also available on the Forest Service website for landowners who might be interested in acquiring more information.

Letters are sent out to landowners prior to the next inventory cycle visit (either 7 or 10 years), and permission is sought for every cycle.

Environmental Protection Agency

Initial contact was made in person (door-to-door) except when landowners were unavailable. In these cases, a telephone call was made to initiate contact, after which follow-up contact was made in person to explain and discuss the project in more detail, particularly when landowners were still undecided

All face-to-face visits were made by a professional who had experience interacting with landowners in the Prairie Pothole Region and was familiar with the region.

To gain public buy-in, the pilot research project was promoted as a US Fish and Wildlife Service project instead an Environmental Protection Agency project. The EPA is regarded as an enforcement agency by private landowners. Thus, if the project was presented in that way, it may have affected the private land access rate in a negative way. The US Fish and Wildlife Service is involved with the local communities. As a result, it is generally regarded as an organization that can provide good and useful information to landowners when necessary.

During landowner visits, the project representative discussed the project background, project objectives, and described what the researchers would be doing during the field visits. It was also emphasized that any damage or loss caused by research activities would be compensated.

The representative left project handouts containing detailed information about the pilot study. This material was given to landowners in case they needed more time to decide whether they wanted to participate or just wanted additional information on the project.

Permission was obtained from both the landowner and tenant (if applicable). If either the landowner or the tenant refused access to the property, then no field work was conducted on that property.

Landowners were offered a choice of two written access agreements, one formal and the other informal. The formal agreement provided the landowner the opportunity to record any restrictions or special conditions. The informal agreement was based on the landowner's word that they would allow access.

After the first field study and the first year of the project, thank-you letters were sent out to all landowners who had allowed access to their properties. Thank-you letters also provided information on any claims that needed to be filed in the case where losses or damage had been caused by the study.

In the following spring (prior to the second field season), telephone contacts were made to remind the landowners that field crews would be coming again and to confirm that the crews were allowed continued access to the properties.

Following this approach for landowner contact, the EPA's pilot study was successful, and they managed to gain access to almost 70% (47 of 69) of farms. The study also

found that access to land was inversely correlated with the intensity of the cropping conducted on the farm (Fellows and Buhl 1995). On farms where high-intensity cropping was conducted, the access rate was 54%, versus an 87% access rate for the farms with low-intensity cropping. The study also found that all landowners opted for the verbal informal agreement and declined to sign the written, formal agreement. The long standing tradition of "handshake agreements" in the upper Midwest coupled with the decision not to "push" agreements during landowner contacts may have been a factor in this decision. The details and inclusion of legal terminology on the agreement forms may also have caused farmers to reject them in fear of the "fine print."

Another research study by Hilty and Merenlender (2003) provided a review of successful methods for contacting landowners using examples from case studies done by Bolsinger (1988) and Hilty and Merenlender (2004). The first study was from the oak woodland project in northwest California (Bolsinger 1988) where more than 80% of California's oak woodlands are in private ownership. The objective of the study was to assess the biodiversity on subdivided land versus undeveloped private land and ranchettes. The project required the researchers to access 12 private properties to collect relevant biodiversity information. The second case study by Hilty and Merenlender (2004) was conducted to determine wildlife use of remnant riparian corridors adjacent to vineyards and required access to 22 private properties. After examining the successes and failures from these two case studies, Hilty and Merenlender (2003) summarized the mechanisms for working successfully on private land as follows:

- When research is to be conducted on private lands, the research design should be chosen with consideration to the landowner's concerns and needs. The fewer visits to the plot required and the less inconvenience caused to the landowner while obtaining data, the better the relationship with the landowner.
- Select more sites than needed to accommodate for landowners who deny access to their land.
- When a site does not meet researchers' criteria and cannot be used in the study, landowners should be given an explanation and thanked for their willingness to cooperate. Explaining why the site was rejected and sending that landowner project updates encourages their enthusiasm and maintains communication.
- Keep landowners informed about project process and results to maintain interest in the project.
- Partner with local groups (e.g., environmental non-governmental organizations, grower associations, and conservation organizations) to contact landowners.

This yields a higher success rate for accessing private lands since these organizations are known to landowners and more trusted by them than an outside group or government agency.

- When partner organizations cannot be used to contact landowners directly, then an initial landowner contact package should include letters of support from known and respected organizations and individuals in the local communities.
- A letter about the project should be brief, general, honest, positive, and addressed to a lay audience. Mention and relate research to topics that would interest the landowner rather than using political terms.
- Within a short time after sending the letters, make follow-up calls to all landowners to ensure positive response.
- It is very important to give landowners a point of contact so that they feel comfortable discussing any concerns they may have (e.g., liability or property damage caused by the field crew).
- Listen to landowners' concerns to ensure trust is established and concerns are addressed. For example, some of the most successful interactions with landowners occurred when the researchers called or visited the landowners before entering the field sites. These interactions provided an opportunity to talk about the study in general and to hear the perspectives, interests, and concerns of the landowners.

Maintaining good relationships with landowners

Building long-term relationships with landowners is critical to the success of monitoring programs where repeated access to a property is required. Maintaining good relationships is not only important for current projects but also for any future projects because dissatisfied landowners may be less likely to support research in the future (Hilty and Merenlender 2003). Hilty and Merenlender (2003) summarize the methods for maintaining long-term relationships with landowners as follows:

- Personal visits or phone calls by researchers and/or the project leader to landowners can be very meaningful as these provide an opportunity to describe the study and to hear landowner perspectives and concerns.
- Additional information such as preliminary results, maps, species lists, photographs, thank-you notes, and any other information related to the project should be sent to landowners to help keep them informed and interested in the project.

 Giving a landowner some sort of recognition or reward for their participation will also increase their cooperation and enthusiasm for research projects on their land. An example of a non-monetary reward is to erect a sign outside the landowner's property thanking them for their cooperation in the project or to recognize and thank them in local newsletters, partner organization correspondence, or other communication material.

Olsen (2000) used material from several studies conducted in Oregon and North Dakota to develop guidelines for organizations that need to contact landowners to obtain access to their lands for sampling purposes. Although these guidelines were written for aquatic sampling surveys, they are relevant to terrestrial or other types of sampling and monitoring where access to private land is required. Olsen (2000) identified four possible approaches for initiating contact with landowners and obtaining signed site access consent and provided a number of more specific suggestions on how to conduct project follow-ups, as detailed below:

Scenario 1: Initiate contact by mail with a letter containing project background information and a site-access permission form. If forms granting permission are not received, conduct a follow-up by telephone

- The package should include a letter summarizing what the project entails and why access to the landowners' property is necessary to conduct the research.
- Telephone calls should be made to any landowners that did not respond to the initial mailed letter. These follow-up calls should be conducted approximately two to four weeks after the letter was mailed to ensure that the information in the letter is still fresh on the landowner's mind.
- A minimum of three telephone calls should be made to every landowner before that landowner is eliminated from the monitoring list.
- Phone calls should be conducted over a range of different times to ensure that the landowner can be reached outside of work and other commitments. The recommended times are once in the morning, once in the afternoon or evening, and then once over a weekend. Varying the telephone call times increases the chances of reaching the landowner at home.
- The telephone interviewer should be well prepared to answer any questions that the landowner may ask them.

Scenario 2: Initiate contact by telephone and then mail.

- Following successful telephone contact and with the landowner's approval, a letter is mailed to the landowner describing the details of the project as well as a consent form allowing access onto the property for the field crew to conduct data collection.
- If there is no response received from the landowner within a specified time, then a minimum of three telephone calls should be conducted before the landowner is eliminated from the list.
- Vary the times of days that the researchers attempt to contact the landowners to ensure they are not at work or other commitments.

Scenario 3: Initiate contact by combining mailed letters and telephone calls.

- Send a letter to each selected landowner to initiate contact and provide preliminary details on the project. The letter should mention that the organization conducting the research will phone them in subsequent weeks to discuss any questions about the project.
- A minimum of three calls should be made at varying times of the day before the landowner is eliminated from the research.
- Once the telephone call has been conducted and with the landowner's permission, a second mailed package is sent to the landowner with more details about the project as well as with a consent form.
- If the landowner has agreed to review the documentation and consent form but has failed to respond, three more additional phone calls should be made to determine why the form has not been returned.
- Mail another consent form to the unresponsive landowner followed by two more calls before eliminating the landowner from the research.

Scenario 4: Initiating contact by mail and then follow up with a visit.

• Mail a letter summarizing the project and the landowner's property selection as a prospective site to each landowner. The letter should explain that a representative from the organization conducting the project will visit the landowner to discuss the study with them. The letter should also contain the approximate date of the visit and inform the landowner that they will receive a phone call prior to the site visit.

- The representative should phone a few days prior to the visit to arrange a time with the landowner.
- The purpose of the visit is for the representative to obtain permission to access their property and to ask the landowner to sign the consent form, as well as to address any of their concerns in person.
- A minimum of three phone calls prior to the site visit should be attempted before the landowner is eliminated from the research.

Dreitz and Knopf (2007) worked on a research project for which monitoring on private lands was instrumental in achieving the set objectives. The purpose of their research was to determine whether the mountain plover (Charadrius montanus) should be listed under the U.S. Endangered Species Act by the U.S. Fish and Wildlife Service. This research presented many challenges as critical information on population and species habitat could only be obtained through two years of detailed biological studies. Gaining access to private lands to study the populations and breeding/nesting habits of these birds was critical as many of the best study areas for mountain plovers are on private agricultural lands. An added challenge was that farming practices and agricultural operations causing destruction of eggs were partly responsible for the decline in the mountain plover populations. The hypothesized reasons for species decline, including farming operations, made farmers apprehensive about possible restrictions and obligations if the species was eventually to be designated as endangered. While incentives were given to farmers to cooperate with information-gathering activities, they were not attractive enough to engage them. All of these factors combined presented a huge challenge in trying to encourage farmers and private landowners to allow access onto their properties to support the study. Despite all the challenges, the research was successful as 22 private landowners in 7 counties allowed access to 40,470 ha of agricultural lands in 2001. By 2003, landowner participation grew to 32 properties in 13 counties with access to 89,034 ha. In addition, the rate of retention of landowner participation over the two study years was greater than 95%. The high access rate for monitoring and research on a species proposed for listing as threatened can be attributed to several factors. First, the U.S. Fish and Wildlife Service partnered with the Colorado Farm Bureau (CFB) to gain the trust of the agricultural community, and the study was presented as a research project undertaken by a collaborative group of different partners. The landowners were more supportive of a collaborative partnership group that included agricultural representatives than a governmental agency conducting the research project on its own.

In addition, instead of using biologists who may not be experts in communication and relationship building, a postdoctoral research assistant, who was born and raised in eastern Colorado and was familiar with the area's agricultural society, was hired to

conduct landowner contacts. The research assistant, who was based out of Colorado State University rather than U.S. Fish and Wildlife Service, also had intimate knowledge of agricultural issues and was able to engage the landowners in species conservation and to understand the farmers' viewpoints. The initial communication with landowners was done over the telephone, was followed by face-to-face meetings where issues and concerns could be further discussed at length. The face-to-face communication, as a more personal approach, enabled trust and stronger relationships between landowners and the postdoctoral research assistant. As a result, many landowners became intrigued with species conservation and granted access to monitoring on their lands.

Carr and Hazell (2006) emphasized the importance of forming long-term relationships with landowners in Australia. Over a five-year period, Carr and Hazell (2006) conducted research on the habitat use and conservation of pond-breeding frogs on the Southern Tablelands of New South Wales in southeastern Australia. Most of this area is used for agriculture, and approximately 60% is in private ownership. Studying the ecology of frogs required long-term monitoring across the landscape and a range of habitats, so gaining repeated access to private lands was critical for the success of the research. Approximately 30 landowners agreed to participate in the research and allowed repeated access to their lands. A successful relationship between ecologists and landowners was achieved through semi-structured interviews about frogs. Through this interaction, landowners shared their experiences, knowledge, and concerns about frogs with the biologist. Carr and Hazell (2006) believed that merely asking permission was not going to establish the basis for a long-term, communicative relationship with landowners and found that informal exchanges served as a better foundation for building trust. Ecologists contributed concepts, theories, analyses, and knowledge, whereas landowners offered local and intimate knowledge of the area, realistic alternatives, and operational details. The ecologist lived in the community in which the study was conducted and was an active member of her local land-care group. Similar to the mountain plover study in Colorado, using a locally known person/researcher to contact landowners proved to be successful. Regular interactions with the community also afforded many opportunities for establishing a local identity and making local contacts. However, both studies reiterated the fact that ecologists interacting with landowners need to have additional training in effective communication since their education and experience does not always prepare them for this role.

Due to the limited number of published papers specific to landowner contact, manuals on contacting landowners for stewardship program participation in British Columbia, Ontario, and the United States were also reviewed. The Landowner Contact Guide for British Columbia (Duynstee 1997), the Natural Heritage Landowner Contact Guide (Hilts et al. 1991), and the Landowner Approach Guide (Levite 2006) were reviewed to gain additional perspectives on landowner contact methods. As both monitoring and stewardship require long-term commitments from landowners and the organization conducting the project, landowner contact methods from stewardship manuals can be adapted for monitoring purposes.

Hilts and Mitchell (1994) define stewardship as caring for the land in ways that benefit or sustain the land while enhancing the rural quality of the life of the landowner, family, friends, and neighbours. Stewardship can take many forms, with the most common being voluntary land management plans, legally binding management agreements, or conservation covenants/easements. Stewardship agreements are used for a wide variety of conservation goals, such as protecting rare ecological features on private land, protecting an area from development, ensuring long-term sustainable forestry and agricultural practices, and achieving other conservation objectives that are mutually agreeable to the landowner and to the organization involved (Banighen 2001). These imply that monitoring can be one component of stewardship programs and can be embedded in some stewardship activities. For example, in conservation agreements or easements, the forest certification process often includes monitoring as a means of measuring the achievements and success of these programs. Monitoring the land that is covered by the stewardship contract is essential to ensure that ecosystems are being protected successfully as per the agreement between the landowner and stewardship organization. In most cases, monitoring stewardship affords a more objective assessment when conducted by the conservation organization involved rather than the landowner (Banighen 2001). In addition, landowners involved in stewardship agreements are likely more willing to allow monitoring organizations permanent access to their properties as they are generally more inclined to be environmentally conscious.

Conservation agreements and monitoring both require long-term commitments from landowners; thus, forming long-term relationships in both cases is critical for the success of the programs. The manuals reviewed were written to help guide organization representatives to build bridges between private property owners and the conservation community. Some of the methods and approaches from these manuals can also be implemented when contacting private landowners for monitoring purposes.

The Landowner Contact Guide from British Columbia (Duynstee 1997) was compiled to help individual and community groups promote voluntary stewardship programs by strategically approaching landowners. The manual puts an emphasis on building a longterm relationship with landowners based on a premise of helping and educating them, rather than telling them what is the best for their land. The Natural Heritage Landowner Contact Manual (Hilts et al. 1991, Hilts and Mitchell 1994) was written to provide information to landowners on protecting natural heritage features through stewardship programs. The manual is based on the experience from various stewardship projects carried out in southern Ontario over a 6-year period, including programs with conservation authorities and the Ministry of Natural Resources and Forestry. The manual builds on these projects and the responses received from over 550 landowners to gain understanding about the success of various stewardship projects. Although this landowner contact guide recommends a process that should be followed to contact landowners successfully, it suggests that a certain amount of flexibility should be practiced as not all landowners will want to participate in programs to the same degree. Hilt's philosophy is based on putting the landowner first, understanding their point of view and taking the time to listen, answering questions, and discussing the details of the program. This is the premise for developing a trusting, respectful, long-term relationship with landowners, which could assist in developing a monitoring program.

The third landowner approach guide that was reviewed was developed by the Green Valley Institute in the United States (Levite 2006). The Green Valley Institute is a non-profit organization that acts as a contact point between landowners and environmental land trusts. Its main objective is to increase conservation efforts on private land through conservation agreements and easements. The Green Valley Institute's guidelines on successful landowner contact and relationship building emphasize the importance of using representatives from organizations, community groups, or other local landowners instead of phone calls and mailing letters. This approach of landowner contact usually yields more trust and increases the chances of landowners' participation in stewardship programs.

Although the three landowner guides have differences in the mechanisms to successfully contact landowners, they share a number of similar steps, which are listed below.

1. Collecting background information and preparation

Background research should begin prior to any initial contact being made with landowners. This includes obtaining postal addresses, email addresses, telephone numbers, and accessing municipal records or membership in various organizations. This phase also includes research necessary to understand the social and ecological fabric of the area and to prepare for the initial contact and related communication. The collected information may be related to the local ecology, common species found in the area, information on the land use types, the social fabric of the area (e.g., urban versus rural community), ecological awareness in the community, any potential issues or concerns that might be expressed by the landowners, and any other necessary information.

The next decision is how the landowners will be contacted. There are a number of ways to do this, from sending letters, making phone calls, or face-to-face contacts. If the organization is contacting landowners directly rather than using a peer contact, the best contact method is determined by the resources available. Alternatively, the organizations can use peer contacts through a mutual organization or group to reach

out to landowners as this has proven very effective. For example, contact can be made through a member of a land trust or other community group, through a state agency that has an existing relationship with the landowner, or through other well-known individuals in the community. If a peer contact is used to reach out to landowners, they are likely to be responsible or co-responsible for the logistics of contacting landowners. Using peer contacts lends a degree of credibility for the program as landowners are more likely to trust the objectives of the intended programs if it comes from a well-regarded source. Whether there is a mutual peer or not, the following process for the initial contact is generally used:

- An introductory letter should explain the following in clear, simple terms: background about the organization; what the project is about; why landowners are contacted; what is expected from the landowners; and what the benefits/incentives are, if any. This is a good opportunity to mention any other successful projects on which the organization has previously worked. Determining whose name is used on the letter will depend on which organization is contacting the landowner and how the monitoring will be conducted. The letter should contain details on when to expect the next point of contact and should be sent 2 to 3 weeks prior to following up with a telephone call.
- Produce maps of the study area and brochures as well as other material about the project and include them in the initial mailed package. The general information in the communication package should include more details on the project, an explanation as to the importance of the project, and why landowner participation is critical for the success of the program. The communication material should also list all the partners involved in the project and how landowners can obtain more information about the project.
- Follow-up telephone calls are conducted to obtain permission from a landowner if they did not respond to the letter mailed. This is also an opportunity for the organization representative to explain the project in more detail and address any concerns that the landowner might have. It is a good idea to start the conversation off by asking the landowner whether they had received the initial mailed letter and whether they have had a chance to read through the material. This is also the time to discuss a site visit and arrange a face-to-face meeting with the landowner. If the representative is unable to convince the landowner to have a face-to-face meeting, then sending a thank you letter and additional information package is highly recommended to make it easier for the landowner to participate in the future should they wish to do so.

2. Landowner visit and initial meeting stage

Where resources and time allow, visiting the site and meeting the landowner in person is recommended to help achieve a high acceptance rate. After the initial meeting is set up, a telephone call a day or two before the visit should be made to the landowner as a reminder about the impending meeting. The representative should be very familiar with the goals of the project and the intended outcome of the meeting. The representative also needs to be cognizant of the fact that the visit is a starting point of a continuous process where information is shared with the landowner. The visit gives both parties the opportunity to exchange information and discuss concerns, and allows the representative to gather more local information from the landowner. Landowners have direct experience with their property and can often offer a wealth of information about the history of land use practices on the property and the area as well as the types of disturbances that have occurred over time. The visit also confirms to the representative whether or not the landowner will participate and allow access to their land.

3. Visit follow-up stage

A follow-up thank you letter should be sent about 2-4 weeks after the visit. The letter gives the organization an opportunity to reiterate the main project objectives and mention points discussed during the visit. This is also an opportunity to add any extra material that the landowner might have requested during the face-to-face visit, information on upcoming events and workshops that are related to the project, or other information that might be of interest. Follow-up contact and the provision of additional information continue to build the relationship between the landowners and the organization involved.

4. Long-term follow-up

Long-term follow-up refers to the communication that should be ongoing with the landowners. As part of the relationship-building process, the organization should act as a point of contact for landowners who have questions or who need information related to the monitoring project. By acting as a contact point, the organization will gain trust from the landowners and develop the relationship in a positive way. Depending on the resources available to the organization, long-term follow-up methods could also consist of phone calls, face-to-face visits, workshops, or training. Whatever method the organization decides to use, long-term follow-up is an integral component of building and maintaining the landowner relationship.

Interviews on landowner contact approaches

In addition to the literature review, semi-structured interviews were conducted with several organizations and individuals experienced in contacting private landowners and accessing their properties for conservation purposes. Professionals from several different organizations in Canada and the United States, with extensive experience in inventory and monitoring, access to private lands, long-term relationships with landowners for stewardship purposes, were interviewed. These interviews were an important part of information gathering since there is a limited amount of published literature on the topic. The list of organizations, groups, and professionals to be interviewed was compiled based on expert advice, a literature review, and an internet search to determine organizations, in and outside of Ontario, for interview. Through interviews with professionals from the initial list, the number of contacts grew based on their referral to other organizations and individuals with experience working on private land (see Appendices C and D for database of organizations and groups interviewed).

The initial interview contacts were sent e-mails containing a brief description of the project and the reason for contacting them (Appendix A). Of a total of 17 interviews, approximately 40% were conducted over the phone and the remainder by e-mail (Table 1). A set of standard questions was sent out to ensure the minimum required information was provided by e-mail interviews (Appendix B).

The semi-structured interviews and a set of standard questions captured the required information. While the set of standard questions ensured that the minimum required information was obtained from the interviews in an organized way, the phone interview process was often open and additional information gained. All the information collected in the interviews was classified, standardized, and entered into a database for further analysis. For example, information in the database was categorized by: type of the project (monitoring, inventory, or stewardship); sampling strategy; number of plots sampled; number of private plots sampled; length of monitoring cycle; landowner contact strategy; partner organizations used; and incentive methods used. In addition to the database, examples of communication material including contact letters, thank you letters, information brochures, and maps provided by the organizations and used as part of their landowner contact were obtained, organized, and assessed.

The professionals interviewed from Ontario were representatives from government and conservation organizations. Interviews were conducted with the Central Lake Ontario Conservation Authority and Credit Valley Conservation Authority, as they have experience with inventory and monitoring on private lands. Interviews were also conducted with professionals from the Ministry of Natural Resources and Forestry and the Ministry of the Environment and Climate Change involved in projects that accessed to private land. These projects included: the Vegetation Sampling Protocol inventory for

the Eco-region 6e-10; the National Forest Inventory; the MNRF Growth and Yield program; the Ecological Monitoring and Assessment Network (discontinued); and the MOECC Ontario Forest Biodiversity Network. In addition, a representative from the MNRF Managed Forest Tax Incentive Program was interviewed (MNR, 2012). While there are a number of one-time visits conducted on private lands by government institutions, regional monitoring programs with repetitive access to private lands are conducted on a limited basis in Ontario. For example, 50% of the plots monitored by the EMAN program and approximately 35% of plots for the Growth and Yield program were located on private lands. The National Forest Inventory program has 50 plots in southern Ontario, 90% of which are located on private lands (Figure 2). While the rate of about 90% of plots on private lands desirable for any natural cover monitoring program in southern Ontario, the application of monitoring information is limited by the extent and number of monitoring plots. Thus, although the NFI has 90% of plots on private lands, due to a small number of plots, this monitoring information can't support landscapescale management and planning at the southern Ontario or the Lake Simcoe watershed scale.

Local community groups were also interviewed about their experiences with landowner contact. The South Lake Simcoe Naturalists Club collects data for a few permanent Ecological Monitoring and Assessment Network plots and also has permanent avian research stations on private lands. Their success was based on their reputation within the local community and the trust that many landowners have in the work that community groups conduct in the area.

Staff outside of Ontario from organizations such as the Alberta Biodiversity Monitoring Institute and the United States Department of Agriculture (USDA) Forest Service was interviewed. The USDA Forest Service conducts long-term forest monitoring across the United States which requires repeated access to private lands. The Alberta Biodiversity Monitoring Institute has 1600 permanent monitoring plots, 30% of which are on private land across Alberta, with visitation planned every 5 years. The Alberta Biodiversity Monitoring Institute has been running this program since 2003 and is hoping to increase the number of permanent plots on private land every year while maintaining relationships with landowners where they have already established permanent plots. They gain access to private lands and maintain their relationship with landowners by partnering with an academic institution and using various communication methods, which include a website, letters, telephone calls, and face-to-face visits.

The USDA Forest Service, which manages the Forest Inventory and Analysis program, has conducted monitoring on private lands since 1930. While the FIA program is governed and designed by the USDA Forest Service, field data collection is mostly carried out by individual state forestry departments or equivalent state organizations,

which are responsible for land owner contact and private land access (USDA 2014, 2015). Once the data has been collected by each state, it is sent back to the USDA Forest Service. As there isn't a set method for FIA landowner contact across the United States, interviews with eight different states were conducted. Each state uses the contact mechanisms that work the best for them and enable them to gain access to private land on a continuing basis. For example, the state of Georgia, with over 5000 FIA monitoring plots on private lands, revisits 1000 plots and contacts hundreds of landowners each year. This requires a planned and strategic approach towards accessing and measuring plots on private lands.

Organization	Location	Project Name	Monitoring	Total Plots	Plots on private land	Monitoring Frequency
Credit Valley Conservation	Ontario	Integrated watershed monitoring	Yes	98	30	2 year cycle
MNRF	Ontario	National Forest Inventory	Yes	105	100	5 year cycle
MNRF	Eastern Ontario	VSP inventory in the Eco-region 6E10	No	1200	600	N/A
Field Naturalist Club	Ontario	Stewardship Agreements	No	450	450	N/A
Central Lake Ontario Conservation Authority	Ontario	Ecological Land Classification	No	125	125	N/A
Private Consultant (Silv-Econ Ltd.)	Ontario	MFTIP qualification	No	300	300	3 year cycle

Table 1: Organizations interviewed that require access to private land.

Organization	Location	Project Name	Monitoring	Total Plots	Plots on private land	Monitoring Frequency
South Lake Simcoe Naturalist	Ontario	EMAN and avian monitoring	Yes	4 EMAN 15-20 avian	4 EMAN 15-20 avian	Annual
Alberta Biodiversity Monitoring Institute	Alberta	Biodiversity monitoring	Yes	1650	550	5 year cycle
Central Lake Ontario Conservation Authority	Ontario	NHS inventory Project	No	0	0	N/A
Georgia Forestry Commission	USA	FIA	Yes	6000	5400	5 year cycle
South Carolina Forestry Commission	USA	FIA	Yes	3452	2200	5 year cycle
Florida Forest Service	USA	FIA	Yes	5000	3750	5 year cycle
Virginia Department of Forestry	USA	FIA	Yes	2000	900	5 year cycle
Kentucky Division of Forestry	USA	FIA	Yes	4330	3600	5 year cycle
East Texas A & M Forest Service	USA	FIA	Yes	3800	3600	5 year cycle
West Texas A & M Forest Service	USA	FIA	Yes	25000	23750	10 year cycle
Alabama Forestry Commission	USA	FIA	Yes	5300	5000	7 year cycle
Oklahoma Dept. of Agriculture, Food & Forestry	USA	FIA	Yes	4500	4000	5-10 year cycle

Interview results

A total of 17 interviews with organizations in Ontario, Alberta, and several states in the United States were conducted. Of the 17 interviews conducted, 70% involved activities specific to long-term monitoring on both private and public lands (Figure 3).

Eight interviews were conducted with the FIA program representatives in different states. The FIA program has approximately 51,850 plots on private lands, which represents over 87% of the total plots monitored in those states. Depending on the state, from 63% to 95% of plots are located on private land, which is indicative of their significant experience and success in contacting landowners and data collection on private lands. Contrary to the USDA Forest Inventory and Analysis program, southern Ontario examples of long-term monitoring are at much shorter temporal scales and with far fewer monitoring plots on private lands. On average, less than 50% of monitoring plots in southern Ontario are on private lands (Puric-Mladenovic et al. 2013).



Figure 3: Percentage of interviewed organizations that contact landowners and require private land access for monitoring, inventory, or stewardship programs.

The interview results also show that partnerships among different groups are often formed to assist with both contacting landowners and conducting data collection (Figure 4). Seventy-two percent of the interviewed organization formed partnerships with other groups, with the majority of those being long-term arrangements. For example, the USDA Forest Service has permanent partnerships with individual state organizations such as the Georgia Forest Commission and the Florida Forest Service. In most cases, the USDA, as a federal organization, provides partnership incentives through funding to the individual state organizations, and the states take on the responsibility of contacting the landowners and data collection within that particular state. The local state agencies are usually known to landowners through other programs and have more than 88% of their plots on private lands.



Figure 1: Percentage of interviewed organizations that form partnerships with other groups.

When conducting inventory using the Vegetation Sampling Protocol methodology in Eco-district 6e10, the Ministry of Natural Resources and Forestry partnered with the local stewardship council to gain access to private lands. The VSP inventory project required hundreds of plots on private lands to ensure representative and unbiased data collection. The stewardship council set up a successful landowner contact program where 600 plots on private lands were sampled. During the landowner contact stage, volunteers from St. Lawrence Islands National Park and the local community conducted the phone calls, which was critical as landowners knew that local volunteers had a full understanding of local issues. Similarly, the Alberta Biodiversity Monitoring Institute, which has about 500 permanent plots on private lands, prefers to use a respected partner for landowner contact. They work with the University of Alberta as their public representative and use the University of Alberta letterhead for communication materials. This partnership approach resulted in a consistently successful consent rate of 90% access to private properties. In Ontario, the Central Lake Conservation Authority and the Credit Valley Conservation Authority approached landowners for their natural areas inventory without a partner as they are perceived as non-governmental organizations. The Credit Valley Conservation Authority had only about 30% of their plots on private land for their Integrated Watershed monitoring program.

The interviews, similar to the literature review, confirmed that landowners are reluctant to allow data collection on their properties as they worry about land-use restrictions and costs to the landowner if species at risk are found there. Landowners are typically concerned, if species at risk or conservation lands are found on their land, that any development would be put on hold or that they would have to incur greater costs to keep the species or habitat protected. Additionally, landowners also worried that there may be a cost incurred if invasive species were discovered and they were required to remove it from their property. All the interviews confirmed that partnering with organizations and groups that are viewed in a more neutral light (rather than government agencies) is the best strategy for contacting landowners and gaining their trust.



Figure 2: Percentage of interviewed organizations with agreements with landowners to access their land.

Agreements with landowners

Agreements with landowners are used to ensure repeated access to monitoring sites and, as such, are critical for a monitoring program's success. However, the interview results indicated that verbal agreements with landowners are far more frequent than formal signed ones (Figure 5). Landowners are more receptive to informal, verbal agreements than formal written agreements, which could put many of them off from participating in monitoring projects. As a result, the majority (76%) of interviewed organizations relied on casual verbal agreements, while only 3 organizations asked for a formal, signed consent form from landowners. The only time that formal written agreements were required between a landowner and an organization was when funding was provided based on the terms in the signed agreement. When discussing landowner contact methods, face-to-face visits were consistently one of the most productive methods of landowner contact and participation in the program. However, the approaches to an initial and a follow-up contact with a landowner differed among the interviewed groups, with 53% of groups mailing letters, 29% carrying out a face-to-face meeting, and 9% using workshops and phone calls (Figure 6). For the second contact, the most common method was face-to-face visits (54%), followed by phone calls (36%).

Of the interviewed organizations, 35% sent follow-up information to landowners after data collection was completed. These groups sent out packages with the monitoring results and/or thank-you letters to the landowners. The rest of the interviewed groups sent out results packages if requested by the landowners (24% of interviewed groups), while the remaining 41% did not send out any follow-up material at all. The Credit Valley Conservation Authority, the Central Lake Ontario Conservation Authority, the Alberta Monitoring Institute, and in some instances the Ministry of Natural Resources and Forestry sent out thank-you letters to landowners as well as results and a list of species found on the particular properties that were monitored.



Figure 6: Initial and follow-up methods used to contact landowners.

Financial rewards for landowners for allowing monitoring or inventories to be conducted on their land were not supported by any of the organizations interviewed. However, almost 60% of the organizations provide some sort of assistance to landowners in other ways, either as part of their mandate, being part of larger organizations that integrate different departments (e.g., USDA forest service), or partnering with other groups providing assistance such as forest management planning and stewardship opportunities. In most cases, the state forestry commissions in the U.S. do not send out any communication related to the FIA program between data collection cycles, but do communicate with landowners on other issues such as fire control management, stewardship projects, and tax rebate opportunities.

The organizations that conduct long-term monitoring always contact landowners again at the beginning of the next monitoring cycle, prior to their intended return visit for data collection, and all follow the same process as they used in the first cycle of data collection. For example, the FIA program, which conducts monitoring on a 7-year cycle for plots in the eastern United States and a 10-year cycle for plots in the western United States, follows the same landowner contact approach for each cycle as it did with the initial contact. For the organizations interviewed in southern Ontario and Alberta, monitoring frequency ranged between 1- and 5-year cycles, with Alberta monitoring on a 5-year cycle and southern Ontario projects monitoring on a yearly cycle (Table 1).

Summary of best approaches for landowner contact

Recommendations for landowner contact approaches were compiled based on the findings from interviews conducted with organizations with experience accessing private land and the literature reviewed.

The recommendations are divided into four different stages as follows:

- 1. Preparation
- 2. Contact and sampling
- 3. Follow up and between monitoring cycles
- 4. Maintaining long-term relationships

Preparation

Organizations need to make a number of decisions and conduct background research before contacting landowners. Some of these decisions are as follows:

- Obtain landowner contact information in Ontario. Landowner contact information needs to be retrieved from municipal offices. However, this can be time consuming and expensive since for each land parcel selected, landowner addresses and information need to be obtained manually unless there is a partnership with municipalities that have easier access to this information. In addition, partnering with other environmental organizations and using their membership lists can help to obtain ownership information.
- Decide which organization should represent the monitoring program. Selecting a representative organization that is well perceived by landowners is a very important part of the planning stage. The success rate of private land access is often largely dependent on landowners' trust and respect for the representative

organization. It is common knowledge that many landowners can be skeptical about government organizations coming onto their land, as they assume they are there to impose some sort of penalty and/or restriction. Partnering for landowner contact with academic institutions, non-profit organizations, and/or community groups to act on behalf of government organizations has proven to be successful. For example, the Ministry of Natural Resources and Forestry used a partnership with a non-government organization to gain access to private lands for VSP sampling in Eco-district 6e10. As a result of this partnership, the landowner response had a positive acceptance rate of 70%, since landowners knew that local volunteers had a full understanding of local issues. Partnering with academia has also proven successful as many landowners are open to research projects. For example, the Alberta Biodiversity Monitoring Institute partnered with the University of Alberta, resulting in 90% success rate in landowner contact. Similarly, MNRF partnered with the University of Toronto for the vegetation sampling protocol pilot project conducted on the Niagara escarpment. Forming partnerships with local groups in the Lake Simcoe region would benefit and strengthen the monitoring program (e.g., groups such as Ladies of the Lake that have a good reputation with the local communities and an understanding of the local area). They understand local residents' concerns, are familiar with the local ecology, and would be able to see issues from the landowners' point of view.

- Engage landowners early in the process. Early involvement of landowners will increase their level of interest in the monitoring program and ensure their long-term support. Landowners can be engaged through workshops, newspapers, newsletters, and information events.
- The frequency of monitoring should be communicated up front. Landowners need to know the frequency of the monitoring cycle and how often they can expect someone coming onto their property to collect data.
- Landowners should be notified as to whether they can continue to use their land without restrictions. In some cases, monitoring projects may require that the landowners refrain from accessing the land where plots have been set up, while in other cases, the landowners can continue to use the land with no restrictions.
- Create a project/program web page. A website should be set up for the project/program. The website should explain the work and the frequency with which monitoring will take place in more detail. The website can also provide the necessary contact details for landowners with concerns or who wish to obtain more detailed information regarding the project. The website should be connected to lead organization's website and should include information on the following topics: the importance of monitoring and biodiversity; project partners

and funding sources; project logistics; how landowners will be contacted; information and maps on sites sampled to date and sites to be sampled in the future; and additional information, including resource links. It can also serve as a central place for landowners to access the data and the results.

- Advertise and promote projects in local newspapers/newsletters. This can be in professional trade publications (e.g., forestry, agricultural, hunters, and other associations), local newspapers, or local business publications (Hilty and Merenlender 2003).
- Set up workshops for landowners. Planning and hosting events that may interest landowners provides an opportunity to talk to landowners directly. In addition, this gives upcoming monitoring projects/programs some public exposure. Workshops are an excellent opportunity to explain the plans to conduct monitoring and hopefully encourage landowners to allow access onto their land and to spread the word to other landowners. The workshops conducted to educate landowners about monitoring could be combined with other topics that would interest and motivate them to attend these workshops (e.g., managing invasive species and tax incentives programs).
- **Train landowner contact staff**. Contact staff should be selected from the local community and should always be professional in conduct and appearance. Staff should be trained to communicate with landowners, ensure that they ask landowners about their concerns, and address any special instructions landowners might have laid out prior to their visit. Some examples of special instruction might be that landowners request all gates must be closed or vehicles not to be driven beyond a certain point.

Contact and sampling

Once the background research has been completed, the contact stage may begin. The recommendations for the best approaches for making initial contact are as follows:

 Introductory letter. Although it has been shown that introductory letters yield little response, it is still an important step in the landowner-contact process as it is the first opportunity for the monitoring organization to alert landowners on their upcoming plans. Sending an introductory letter with the chosen organization's letterhead should be the first step in making landowners aware of the upcoming project. The letter should be clear, concise, and give a brief background on the project and why the property has been selected. It should include a brief description of the organization and direct landowners to where they can find additional information about the project. This could include a link for a website and how to contact a representative that can address any concerns they may have regarding accessing their land. Examples of introductory letters used by several organizations are available on the CD (Appendix 3). Interviews conducted suggest that most letters are sent 3 to 6 months prior to starting the field work. This time frame largely depends on the number of landowners that the organization intends to contact. For larger projects, the organization will need more time to contact them prior to the start of field work.

- Landowner consent. Landowners should be able to choose whether to grant access in writing or verbally. Most landowners shy away from the formal written consent and prefer to use a more casual verbal agreement. Although the written agreement is less popular among landowners, it should still be given as an option for those landowners who prefer to have it in place. The formal consent form can be sent along with the introductory letter, and it should include a stamped, self-addressed envelope to make it easier to return the form. A sample of a consent/permission form used by some organizations is available on the CD (Appendix 3). In addition to the hardcopy consent form, the initial letter should also contain the option for landowners to email their consent or enter their details on a webpage.
- Alternative options to the introductory letter. Alternatively, the introductory letter may state that if a landowner wishes to deny access, then the onus is on the landowner to contact the organization and notify them that access has been denied. Otherwise, it will be assumed that access is granted. This strategy, applied by some states in the United States, requires a lot more effort on the part of the landowner to contact the organization to deny access. This method may be more controversial as it could cause issues with the landowners that forget to call back to deny access or who did not receive the initial letter.
- Contact the landowner by telephone. Since most introductory letters do not yield a good response rate, the next recommended step of contacting the landowner is by telephone. Telephone calls are intended to ensure that the landowner received the introductory letter and to address any issues and concerns they may have regarding the monitoring project. This also gives the organization an opportunity to set up a face-to-face meeting with the landowner in order to further discuss the project in more detail. This step can be omitted and the organization can go straight to visiting the landowner; however this may run the risk of representatives arriving at the property to find nobody at home and then having to return at a later date. Many agencies in the U.S. omit the telephone step and often go directly to visiting the landowner in hope of finding someone at home who will allow them access to the property to conduct data collection immediately. This has worked well for them in most instances.
- Face-to face visit. The face-to face visit is the most important step recommended in the landowner contact process. It is the first opportunity that the

organization has to meet the landowner in person, and it is the first time a landowner can put a "face" to the group. This face-to-face visit gives the organization representative the opportunity to put concerned landowners' minds at ease, provide additional project details, and possibly convince undecided landowners to grant permission to access their lands. It also gives the landowners a chance to ask questions and have any issues addressed. No other form of communication will have a bigger impact than the face-to-face visit. This is also the best time for the organization to convince undecided landowners to allow access over a long-term period. In many cases, face-to-face visits can also be used as an opportunity to conduct the field work immediately, saving both time and money required by a repeat visit. The organization can take this opportunity to explain to landowners that all information gathered is kept confidential and to confirm that sampling on their lands will not have any negative impact on their land taxes. This could also be a good time to confirm that no information on species at risk or invasive species will impact their land use.

- Data collection at first visit. Data collection can be done at the time of the first visit to save time and resources. Alternatively, it can be done at a later stage, and this visit can simply be considered a part of the relationship-building phase. Many of the organizations interviewed used the strategy of collecting data on the first visit to reduce the program cost. If organizations decide to use this strategy, then they must plan to take all the necessary equipment and field staff to the first visit so that they can collect the data if the landowner allows it. Collecting data on the first visit is a good strategy to use because, in many cases, as shown with the FIA program, the landowner is most often willing to allow data collection immediately.
- Additional suggestions for engaging landowners. Inviting landowners to assist with data collection shows that the organization is transparent and makes landowners feel more engaged in the project. Asking landowners questions about their land and offering to provide information on their property is also a good way to engage them.

Follow up between monitoring cycles

The follow-up stage is conducted after the initial sampling is done and before the next sampling stage. Even though the first sampling stage has been completed and access may not be required for another few years, contact needs to be kept up with landowners so that good relationships are maintained and they remain interested in the project/program in the interim.

- Store and organize information obtained. After the field season, it is imperative that all information obtained prior to and during the field season is well organized and stored for future reference. This includes: keeping landowner contact information up to date; updating maps with information on current and future plots; keeping track of species lists found on particular properties so that they can be sent to interested landowners; and information on any difficulties experienced during data collection.
- Follow up letter. Although only 35% of organizations automatically sent out thank-you letters or research results to landowners after the data have been collected and analyzed, it is highly recommended that post-data-collection communication should be continued where resources allow. There should be two different thank you letters constructed: one for landowners that were approached but refused access and one for landowners that allowed access onto their land. The first letter thanks the landowner for allowing the organization to talk to them about the project and afford them the opportunity to join the project at a later stage. The second letter is to thank landowners that did allow access onto their land and advise them of the future monitoring plans. This letter should reiterate the importance of the landowner's contribution to the final objectives of the project and to emphasize that the project would not be possible without their cooperation.
- Follow up on the web page. A central project/program website provides landowners with follow-up information. The web page can be used to provide the results of the monitoring and any other information related to the project. It should be updated regularly between monitoring cycles.
- Maintain a relationship with landowners. Communication with landowners should continue even if it is not directly related to the monitoring project. It can be very beneficial to the organization to establish a good relationship with local communities by assisting with problems and concerns that landowners may encounter on their land from one year to the next. However, this is a more

complex approach and may require partnering between different government programs and the work of several departments, not just the monitoring group.

• Recognize landowners' contributions. Where resources are limited, recognizing landowners' contributions in non-monetary terms can go a long way towards building relationships and gaining landowners' interest in participating in monitoring programs. Non-monetary incentives could include a sign erected outside the landowner's property or recognizing that particular landowner's participation in the ecological monitoring program by publishing an article in the local newspaper or on a community website. Peer recognition goes a long way and could encourage other landowners to participate in the program.

Maintaining long-term relationships

Maintenance of long-term relationships can take many shapes and forms depending on the capacity of the group undertaking the monitoring project, its resources, and its partners. Smaller organizations that do not have the resources to address landowner queries and concerns not related to monitoring could include links on their website where landowners can easily research the information they require. The simplest form of this is providing various web-links, documents, and materials of interest to landowners in an easy-to-follow format. However, if resources allow, assisting and directing landowners with other queries and concerns is a good option. This may include assisting landowners with technical advice with regards to forest management, giving landowners information management options, and providing information on tax incentive programs. This more integrated approach requires the partnering of different government programs and is possible for large organizations.

Hosting events, such as workshops and seminars, on a continuous basis will help to keep landowners informed on conservation issues and upcoming events. These workshops should cover topics that are of interest to landowners to increase turnout. Monitoring updates, other news, research results, and/or future plans can be embedded within these events. Some potential topics include: how to manage invasive species; how to obtain funding for conservation efforts; and how to qualify for tax incentives, and managing forest stands for high productivity. Naturalists clubs, conservation authorities, and community groups can attract members who have an interest in conservation by arranging events and workshops for landowners that cover conservation topics and available stewardship funding opportunities.

Review of partnership approaches from relevant monitoring projects and jurisdictions

Long-term monitoring programs require resources and commitment. As such, they are typically carried out by government organizations that are accountable to the public for resources and can ensure program longevity. For example, the FIA program has been successfully in place for over 80 years. Similar forest-monitoring programs driven by the governments in other parts of the world (e.g., Europe, China, and Japan) have been in existence for decades. However, in southern Ontario many levels of government (federal, provincial, and municipal), non-government organizations, conservation authorities, community groups, and other groups are involved in the management, conservation, and planning of natural resources. Within this multi-stakeholder environment and decentralized governance model of natural resources management and conservation, it is necessary to build partnerships to be strategic, efficient, and avoid possible duplication. Partnerships among government and non-government organizations are formed for numerous reasons, including engaging private landowners and breaking existing barriers typically held towards government projects. However, partnerships are also formed to support field sampling for the mutual benefit of all groups. Therefore, if long-term monitoring with consistent sampling standards is to succeed it is necessary to develop strategic partnerships relevant to southern Ontario.

The examples from long-term studies, stewardship agreements, and monitoring projects on private lands, in both the United States and Canada, show that they would not have been possible without partnerships between collaborating organizations. For example, the success of the United States Endangered Species Act implementation and longterm monitoring of mountain plovers in eastern Colorado is attributed to the partnership of different groups in contacting landowners and accessing their land (Dreitz and Knopf 2007). Particular challenges of this project were that all monitoring sites were on highly productive private lands and that private landowners are often reluctant to take part in research programs targeted at species of risk by government agencies. To overcome these problems and ensure project success, the U.S.A. Fish and Wildlife Service partnered with the Colorado Farm Bureau, which exists to ensure the success of farming, ranching, and shared rural heritage in the state of Colorado. It also seeks to promote and protect the future of agriculture and rural values. Known and trusted by many of the landowners in the area, the Colorado Farm Bureau provided advice for the project from the beginning. It gave direction on how the landowner contact should be conducted and assisted in establishing a communicative relationship with landowners. In addition, endangered species researchers participated in many Colorado Farm Bureau meetings with landowners where they were able to introduce the proposed

study, help landowners to understand the threats to which plovers were exposed, and build their trust.

The importance of partnerships was critical for the success of long-term research on 43 oak woodland parcels in Sonoma County, California. The partnership between the research organization and other organizations that were already known to landowners was essential for conducting landowner contact and gaining access to their land (Hilty and Merenlender 2003). The partnership turned out to be the best way to approach landowners for accessing their land as well as gaining and establishing a level of trust with them. Likewise, Wilcove and Lee (2004), as part of the research to determine what main factors contributed to landowner cooperation, found that forming a partnership with a trusted intermediary to contact landowners was critical for project success. The study looked at methods that increase landowners' involvement in stewardship/incentivebased programs related to restoring endangered species on private lands. Three different incentive-based programs were analyzed and compared: the U.S. Safe Harbour program, Environmental Defense's Landowner Conservation Assistance program, and conservation banking. The Safe Harbour program does not provide financial reward to landowners; however, landowners often receive financial assistance from the state to cover some of the costs associated with habitat restoration. The Landowner Conservation Assistance program is a cost-sharing program where, for example, landowners are compensated for loss of livestock due to wolf predation in return for restoring habitat for these species. The third incentive program is conservation banking, which allows landowners the opportunity to sell credits to developers when the lands have undergone restoration, such as establishing a wetland. Wilcove and Lee (2004) found that the success or failure of these programs appeared to be the person or agency tasked with contacting landowners rather than the incentive offered. This was evident from the success of a number of safe harbour programs that could be traced to individual forestry consultants, Natural Resource Conservation employees, and other professionals who have the trust of the landowners.

Similarly, the results of the interviews conducted with organizations in Canada and the United States show that partnerships play a pivotal role in the success of monitoring, inventory, and stewardship programs. The best example is the USDA's FIA program and its success of partnering with individual states, where they have been working together for many decades. These permanent partnerships are essential to the continuity of the FIA program. However, the critical component for this partnership is the FIA program, as it has steady monitoring funds that are transferred to the states. Field standard data is collected by the states, and in return, the information collected is managed, shared, and analyzed by the FIA program. The high success rate in the number of FIA plots on private lands is attributed to the trust that the landowners have in the local state forestry departments, which in most instances conduct the actual field work and data collection.

MNRF's former Southern Science and Information Section conducted an inventory for parts of southern Ontario using the Vegetation Sampling Protocol (Puric-Mladenovic and Bradley 2012). For the Eco-district 6e10 VSP inventory, MNRF partnered with the St. Lawrence Islands National Park, provincial parks in the area, MNRF Kemptville District, and the local stewardship council. Through this partnership, about 600 geo-referenced VSP plots were sampled on private lands over three summers. Partnering with the local stewardship council, well known and trusted by the local landowners, was critical for the success of this project. Communication with landowners was conducted by the stewardship council, not MNRF. In addition, Gary Nielsen, a well-known and respected stewardship coordinator working in the area for many years, took on the task of contacting all the landowners that had been selected for the study. As a result of his work, a high acceptance rate of 70% from landowners was achieved within an area that is known for its strong views on preserving and protecting the rights of property owners.

Partnership opportunities within the Lake Simcoe watershed

Methods for identifying groups and organizations

The Lake Simcoe watershed, similar to the rest of southern Ontario, has many local, regional, provincial, and national groups active in conservation, management, and stewardship activities. A standardized database was created to determine who those groups were and to better understand their work. The database contains records of 178 organizations involved in environmental, conservation, or management work directly in or related to the watershed. In addition, the database includes some businesses and umbrella organizations that could be useful in communicating the monitoring message. These organizations have diverse management, conservation, stewardship, and/or public engagement goals which range from the local (i.e., Lake Simcoe watershed, specifically) to the national and international level. The full list is available on the CD (Appendix 3). These organizations include academic institutions, non-profit organizations, community groups, local associations, and municipal, provincial, and federal government agencies. In addition, the database contains interested groups and businesses directly or indirectly involved in environmental management that could be useful promoters of the program or help with landowner contact. The database is an ongoing process as new organizations continue to form and others stop being active. Existing organizations are still being researched in more detail.

Each of the groups in the database was assigned and described based on the following categories: location, geographic area of interest, type of organization, rural and/or urban, specific activities, and objectives of the groups. This enabled standardization of information that is otherwise quite descriptive.

Location

Each organization's address and/or a website were entered into the database. In many instances, the address of the location differs from the geographic area that the organization's mandate covers. For example, many organizations have their office in one city, but their mandate may cover the whole of Ontario.

Geographic area of interest

Each organization was assessed for the spatial extent of its activities and assigned one of the following categories: local, regional, provincial, or national. If a group was given a local designation for geographic area of interest, it meant it conducted all its work within the Lake Simcoe watershed (e.g., Ladies of the Lake). Regional referred to organizations that covered the Lake Simcoe watershed but may also have worked in counties just outside of the watershed or in southern Ontario (e.g., Community Stream Steward Program). Provincial geographic area of interest meant that the organization conducted work throughout the whole province, including the Lake Simcoe watershed (e.g., Ontario EcoSchools). Finally, national geographic area of interest referred to organizations with national or international scope (e.g., Ducks Unlimited).

Type of organization

Individual organizations were categorized either as non-profit, academic, community group, government, business, or umbrella organization. Any organizations that were considered federal, provincial, or municipal were categorized as government organizations. Any group where people came together into an organization that acted in their shared self-interest was categorized as a community group. Groups that operated on a non-profit basis were categorized as non-government organizations, and any for-profit organization was categorized as a business entity. This categorization was done to evaluate partnership potential for general monitoring information, land owner contact, and/or for data collection.

A number of interest groups and businesses (e.g., Nursery Sod Growers Association of Ontario, Royal Ontario Golf Association, etc.) that directly or indirectly touch on land management and the outdoor environment were entered into the database. These groups were selected as they have a broad outreach and could potentially help communicate the monitoring program to their members. A number of organizations that serve as umbrella organizations (e.g., Conservation Ontario).were also entered in the database, although they may overlap with other groups or organizations.

Rural and/or Urban organization/group

Each organization was assigned urban, rural, or urban-rural status, based on the land use type on which it had its focus.

Specific activities and objectives of the groups

To understand what each organization was doing and their potential to support monitoring, the specific activities of by each organization were categorized. The categorization in some cases was straightforward, but in some cases it was hard to determine which activity best described the group. In many cases, more than one activity was assigned to one organization. The categories were developed from the description of organizational or group mandate. If that was not available, then it was based on their projects or other information indicating their activities. The main categories assigned to the organizations and groups were:

- Public education: The mandate was to educate the public on environmental issues through community outreach programs.
- School/children education: The mandate was to educate children on environmental issues through community outreach programs at schools and outdoor learning centres.
- Forest management: The mandate included forest management, such as on-theground management by thinning, afforestation, and reforestation.
- Forest, wetland and grassland restoration: The mandate included forest, wetland, and grassland restoration, which involves on-the-ground work to restore these natural areas to their previous natural state.
- Fish management: The mandate included fish management where on-the-ground work managing fish populations occurs.
- Biodiversity conservation: The mandate included general biodiversity conservation through many avenues, not limited to on-the-ground involvement.
- Amphibian/reptile conservation: The mandate included specific involvement in amphibian and reptile conservation where amphibian populations were maintained through habitat restoration and management.
- Bird and wildlife conservation: The mandate included specific involvement in bird and wildlife conservation where populations were maintained through habitat restoration and management.
- Natural areas conservation: The mandate included conservation and protection of natural areas and invasive species management.
- Recreational or lifestyle: The mandate included improving general lifestyle quality for the public.
- Waste management and recycling: The mandate included recycling and waste management.

- Water quality: The mandate included improving water quality for human consumption and for fostering healthy ecosystems.
- Agriculture: The mandate included a focus on agriculture and providing information to farmers. Some of this information may include using more environmentally friendly techniques.

Results for Lake Simcoe watershed organizations

The organization database included 178 groups, including umbrella organizations. Of these, about 131 groups had some conservation and/or environmental focus, while the rest were more business or agriculture-oriented.

Geographical area of interest

When all 178 organizations from the database were assessed by their geographical domain, approximately 39% of them were found to focus their work specifically in the Lake Simcoe watershed. About 27% of them have a regional mandate that may include the Lake Simcoe watershed, 17% engage in conservation activities across the province, and the remaining 9% carry out conservation work across the whole of Canada (Figure 7).



Figure 3: Geographic scope of 178 organizations operating within the Lake Simcoe watershed

Type of Organization

The 178 organizations in the database were divided into organizational type. The majority of these organizations were non-profit organizations and community groups, with 78 organizations categorized as non-profit and 65 as community groups. A total of 26 of the organizations were categorized as federal, provincial, or municipal governmental organizations, including both regional and local municipalities. Approximately 38 organizations were businesses, and 4 were umbrella organizations (Figure 8). While business and agricultural groups might not be directly interested in monitoring, they were included in the list as they touch on environmental management and have a large membership. As such, they could serve to communicate the project or help in approaching members and with outreach.



Figure 4: Breakdown of organizations based on their type.

Rural and/or Urban organization/group

About 43% of the 178 organizations were active in both urban and rural landscapes, whereas 35% were exclusively active in rural areas and 8% exclusively active in urban communities (Figure 9).



Figure 5: Breakdown of 178 organizations by active landscapes.

Specific objectives/mandates of the groups

When examining the mandates of the organizations, a subset from the total 178 organizations was created. This subset consisted of 131 organizations and excluded all organizations that operate as businesses as well as all umbrella groups. The included groups covered a wide range of activities related to conservation, management, stewardship, and public engagement. Although many organizations often had multiple objectives, education, restoration, natural resources management, conservation, and water protection were the most frequent and shared objectives. Public education was one of the mandates that 96% of 131 organizations share. Two-thirds of the 131 groups also had education of school children on environmental and conservation issues in their work outline or mandate. Biodiversity conservation was either in the mandate or activity list of 79% of all groups in the Lake Simcoe watershed (Figure 10). Excluding federal and provincial governments, there was no single group or organization that had monitoring listed as their main mandate or activity.



Figure 6: Mandates of the 131 environmental- and conservation-oriented organizations active in the Lake Simcoe watershed.

Lake Simcoe watershed specific groups

Of the total of 131 organizations and groups, 69 had mandates/objectives specific to the Lake Simcoe watershed. Public and school education, biodiversity conservation, natural areas conservation, and water quality were the most frequent objectives of groups operating in the watershed, appearing in 90% of mandates (Figure 11). Biodiversity conservation, natural areas conservation, and water quality also appeared frequently in the mandates of the 69 groups and were common to about 60% of groups. Forest and wetland restoration were common to about 30% of the groups, while tree planting was shared by 20% of groups.



Figure 11: Mandates of the 69 organizations and groups active in the Lake Simcoe watershed.

Summary of findings for partnership opportunities

The literature review and interviews showed that partnerships with local groups add great value to monitoring projects as they bring local expertise and perspective on the social aspects of the area and other capabilities not available in a single organization (Graziano 1993).

The compiled list of organizations and the analyses of their activities and scopes indicated an opportunity to partner with at least 69 groups that work exclusively in the Lake Simcoe watershed. These groups were already involved in a variety of activities such as education, biodiversity conservation, natural areas conservation, and water quality. Communicating with them about the proposed monitoring project was the first step and helped to narrow down and further target partnerships with specific organizations. Possible mechanisms to initiate the conversation and start the partnership process are listed below.

Send a letter. Send a letter to potential partners informing them about the monitoring project. Inquire if they are willing to find out more about and supporting the project.

Organize an introductory workshop. Present the work, project details, and objectives and open up an opportunity to talk to potential partners. Through interactive sessions, ask if they are willing to partner and support the project and how they see themselves assisting. Based on the workshop results, send customized, post-workshop, follow-up

letters asking if they are willing to partner and whether their name and logo can be added to the project communication material.

Identify well-known and trusted organizations. Well-known organizations such as the Lake Simcoe Conservation Authority, the University of Toronto's Faculty of Forestry, local municipalities, Ladies of the Lake, and the Zephyr Society can be fundamental in different aspects of monitoring projects. For example, these trusted organizations can help with landowner contact since the success of monitoring is highly dependent on gaining access to private land.

Identify and engage partners. Partners can take a part in field sampling and use the collected field information to also support their needs. The potential partners for this type of participation in the Lake Simcoe watershed include: the Lake Simcoe Conservation Authority, the Regional Municipalities of York and Simcoe and their respective forestry departments, local municipalities, non-government organizations that have land holdings in the area (e.g., Ontario Nature, Nature Conservancy Canada), and consultants conducting forest certification and forest management plans.

Encourage other partners to spread the word about the project. Ask partners to share monitoring-related communication materials with their members and/or have the monitoring webpage link to their website.

Engage organizations that specialize in public education for other purposes. With their expertise and networks, public education organizations could help to promote monitoring work. For example, these organizations could present the project at Simcoe County's workshops for landowners on invasive plant management, forest management, or other relevant landowner topics.

Partner with well-known organizations and groups. Partner with organizations, groups, and programs that already have large landowner member lists and maintain regular communication with their members. This partnership could provide a mechanism to distribute the information regarding monitoring projects to their members and landowners. For example, partnering with an organization such as the Ontario Woodlot Association and Managed Forest Tax Incentive Program (MFTIP) (MNR 2012) and Conservation Land Tax Incentive Program (CLTIP), managed by the MNRF, would allow the information to be disseminated to all their members. Landowners participating in the MFTIP program and members of the Ontario Woodlot Association are more likely to be environmentally conscious and possess a greater willingness to participate in long-term monitoring. One of the objectives of the MFTIP program is to increase landowner awareness about forest stewardship (MNR 2012). As such, MFTIP has a mechanism to quickly send educational and related information and material to all their members. When approached, the MFTIP expressed an interest and willingness to broadcast VSP material and Lake Simcoe monitoring material to their members through

their already effective and fast mailing mechanism. In addition, these programs and landowners could benefit from VSP plots and use them for their specific forest management needs.

Form partnerships with local organizations. Partnerships could be formed with local organizations, such as the county cooperative extension or local agricultural and natural resource conservation organizations (e.g., watershed groups, grower associations, or stewardship councils) to help to build trust with landowners.

Take advantage of various partnerships and communication opportunities. Develop monitoring communication material and a webpage as a central communication and project hub. This page can be cross-linked and referenced with partners' webpages and creates an easy way for partners to distribute project information.

Once the potential partner organizations or groups have been identified and partnerships formed, the following steps are suggested:

- Engage partners early in the process. Potential partners should be engaged from the very early stages of the project so that they are fully committed to the monitoring project. This strategy was highlighted in the paper by Dreitz and Knopf (2007), where they attributed the success of the partnership between the U.S. Endangered Species Act and the Colorado Farm Bureau to the Colorado Farm Bureau's early engagement by the Endangered Species Act. By engaging the Colorado Farm Bureau early in the planning process, they were able to establish a relationship with landowners.
- Engage partners in a range of activities from public education and monitoring to landowner contact. If partners are involved in many aspects of the program, they will feel more inclined to contribute. This was emphasized by Dreitz and Knopf (2007), where the Endangered Species Act attended and participated in all the Colorado Farm Bureau's workshops and presentations conducted for landowners. This gave the Endangered Species Act and Colorado Farm Bureau the opportunity to announce the pending research and all the participating partners to the landowners.
- Form and maintain long-term or permanent partnerships with partner organizations. Terrestrial monitoring is a long-term commitment. Establishing continuity and consistency in both data collection and partnership is critical. Forming stable partnerships gives the monitoring project more legitimacy and credibility with other stakeholders and landowners. The permanent partnership method used by the USDA's Forest Inventory and Analysis program and individual states is a successful example.

- Maintain and enhance the database of groups and organizations. The database created for this project can be expanded to add information on partner organizations' involvement in the process (e.g., communication, field work, or other). The database, with information on the role each group plays in the monitoring project, enables effective and targeted communication with the partners and stakeholders. It allows the organization to keep track of what groups are active in monitoring projects and what their mandates encompass. A detailed database containing information on all organizations also makes it easier to target additional relevant organizations for future collaboration.
- Set up a centralized communication site. A centralized communication site should be set up so that all parties and stakeholders know where to obtain information on the monitoring project at all times. In addition to published material such as pamphlets and brochures, a webpage is usually the most convenient way for stakeholders to access relevant information. The webpage should contain basic background information about the monitoring project, including: objectives of the program; results of the project when available; a list of all the partners involved; whom to contact for more information; additional communication materials and relevant links for both landowners and partners; and contact information or links for all partners involved. In addition, it is beneficial to provide links to relevant information on monitoring and conservation that might be of interest to the public. The central web page could have two sections, one for landowners and one for partners, which would make access to the site more strategic. For example, the USDA Forest Inventory and Analysis program and the Alberta Biodiversity Monitoring Institute have detailed webpages dedicated to their monitoring programs that contain general information on monitoring as well as results and maps from monitoring plots.
- Keep partners involved throughout the program. Partners should be kept up to date about the monitoring program, the results, and related science, research, and applications. This can be done by mailing newsletters and information several times a year, updating the partner side of the website and/or through annual workshops and training sessions. Sending project news and updates in the form of newsletters is a cost-effective way to keep in touch with partners. A good example is the i-Tree newsletter sent out by the USDA a few times a year, which gives the latest updates on science and research tools for assessing and managing community forests.
- Provide learning workshops and training to partners to ensure transfer of knowledge, science, and methods. Workshops and training may be used as an incentive to the partners. They may also serve as an opportunity to participate in the planning and implementation of the program by sharing and discussing ideas.

Conclusion

The majority of the land in the Lake Simcoe watershed is under private ownership. In order to establish a successful terrestrial monitoring program, it will be necessary to develop and implement a strategic landowner contact strategy. This report identified the best strategies and approaches for contacting landowners that have been used by organizations and professionals both within Canada and internationally. The recommendations that were provided may serve as a road map for how best to establish a successful landowner outreach strategy in the Lake Simcoe watershed. This research showed that, although the specific landowner contact mechanisms varied between organizations, the need to establish positive long-term relationships with landowners was critical to the success of all monitoring programs. It also showed that gaining the trust of local landowners and communities was a crucial step. This may be achieved by partnering with local groups, well-known organizations, and especially organizations and groups that are viewed as neutral by landowners, rather than government organizations.

The research that was carried out to identify stakeholder, conservation, and community groups in the Lake Simcoe watershed provides identifies opportunities for establishing long-term monitoring partnerships. The study identified 178 organizations and groups involved in some type of environmental, conservation, management, or community work that geographically spans from the local (i.e., Lake Simcoe watershed) to the national and international level. Approximately 39% of the 178 groups focus their work specifically in the Lake Simcoe watershed. These local groups, already involved in a variety of activities such as education, biodiversity conservation, natural areas conservation, and water quality, represent partnership potential. Communicating with them and engaging them in the natural-cover monitoring conversation would help not just partnership building, but, more importantly, it would provide an opportunity to reach out to landowners in the watershed. Furthermore, the mechanisms identified to initiate and maintain these partnerships would help to create a long-term monitoring program in the Lake Simcoe Watershed that is collaborative, strategic, and cost-efficient. This would go a long way in gaining the support of the public and private landowners.

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Appendix A. Sample email sent out to organizations requesting interviews

Dear X,

I was referred to you by (add name) as a possible contact for a project we are currently working on with the Ministry of Natural Resources and Forestry and the Ministry of the Environment.

Terrestrial monitoring has been identified as one of the major gaps of Lake Simcoe's comprehensive monitoring strategy, which supports the Lake Simcoe protection plan and related policies. As part of the terrestrial monitoring program for the Lake Simcoe watershed, we are working on developing landowner and partnership strategies for the watershed. I have been assigned the task of researching the following:

- Identifying best approaches for landowner contact and successful partnership opportunities
- Reviewing landowner approaches from similar projects and jurisdictions and identify the best approaches for landowner contact
- Reviewing successful partnership approaches from relevant monitoring projects and jurisdictions and define partnership opportunities.

I was advised that you have had experience working on private land and contacting private landowners, and I was hoping that I might be able to talk with you regarding your experiences and mechanisms that worked well and those that didn't. Please let me know if you would be able to set some time aside to talk with me and which is the most convenient method of communication for you.

Thank you in advance.

Regards,

*<u>Add Name</u>

Appendix B. List of questions for landowner contact methods

Please briefly describe the project that entailed working with private landowners. How many monitoring plots do you have on private land? When were these monitoring plots set up? How often do you go back to monitor?

Preparation Stage

 What criteria did you use to decide which landowners would be contacted? (I.e.: Was a survey conducted to determine landowner demographics? Was there minimum size of land per owner? Was there a certain type of ecosystem sought?)

Initial Contact Stage

- How many landowners did you have to contact for your project?
- What proportion of research was conducted on private land? Please give the number of plots on private versus other types of land (i.e., public, conservation authorities etc.)
- What organization's name was used in the initial contact letters? Was it government, non-government organizations, or did you use community groups in the area who have a good reputation with local landowners?
- Did you partner with other organizations/individuals? If so, how many and what types of organizations?
- How far in advance of the start of the project did you initiate contact with landowners?
- Did you initiate contact by mail, telephone, or in-person visit?
- If you sent a letter, how did you structure/compose it?
- What other information did your initial contact letter include?
 - Did you require consent forms to be signed by landowners?
 - Did you explain background of project?
 - Did you explain why the project was important, when study would be conducted, why their land was selected?

- Did you include any maps?
- Did you include self-addressed postage paid envelope?
- How long does it usually take for responses to start coming in after mailing?
- What land-access consent rate did you achieve after first contact was made?

Follow-up Stage

- If no response was received from letter, did you follow-up with telephone call or personal visit?
- Was there a better consent rate from follow-ups than initial letters?
- Did you find that the consent rate increased when more information was provided to landowners?
- Did you send follow-up letters to landowners?
- If so, what did you include in these packages (i.e., thank you letters, results of study, data explanation)?
- Did you organize any public events, such as workshops or side presentations, where landowners could attend to learn more or ask questions?
- Do you have methods of showing landowners appreciation, such as giving them a certificate of appreciation or paying additional visits?
- Do you offer any incentives to landowners such as monetary, recognition, or resource assistance?
- What do you do if private land has changed ownership since you initially conducted monitoring? Do you revise letters every few years or do you use the same initial letter?

Appendix C. Contents of CD

- Database of organizations and groups interviewed. This database contains the individuals' names as well as all the information they provided in database format.
- 2) Folders with sample letters as follows:
 - Alberta Biodiversity Monitoring Institute sample brochure for landowners with information on monitoring projects.
 - CLOCA (Central Lake Ontario Conservation Authority) Sample introductory letter and permission letter.
 - CVCA (Credit Valley Conservation Authority) Samples of several introductory letters for different projects as well as a fact sheet.
 - FIA samples of introductory letters, permission cards and factsheets from the states of Alabama, Georgia, Florida, Texas and Oklahoma.
 - NFI sample of introductory letter to landowners.
 - Niagara VSP sample of introductory letter to landowners and FAQ for general information on monitoring program.
- 3) Database containing list of organizations active in the Lake Simcoe watershed and surrounding areas. The database contains information on 178 groups and organizations (including some businesses and umbrella organizations that could be useful in transferring the monitoring message) involved in any environmental, conservation or management type of work in the watershed or related to the watershed in some way
- 4) List of organizations interviewed with program names and website addresses.

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