



Canadian  
**URBAN**  
Institute

# *Nature Count\$: Valuing Southern Ontario's Natural Heritage*

## **Final Report**

Prepared by the Canadian Urban Institute  
for the Natural Spaces Leadership Alliance



*Submitted to:*  
*Ministry of Natural Resources – Natural Spaces Program*

March 2006

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***ACKNOWLEDGEMENTS:***

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## **Preamble**

The Natural Spaces program was launched on August 2, 2005 by Ontario Premier Dalton McGuinty, the Honourable David Ramsay, Minister of Natural Resources, and the Honourable Madeleine Meilleur, the then Minister of Culture.

The mandate of Natural Spaces is to encourage greater stewardship and conservation of southern Ontario's natural areas by providing the strategic focus and tools necessary to enhance the green infrastructure that helps sustain our communities.

At the announcement, the Natural Spaces Leadership Alliance was introduced as an advisory group of conservation representatives appointed by the Minister of Natural Resources to work with a staff team from the Ministry to develop the program over two years.

Early in its mandate, the Alliance identified the need for a better understanding of the socio-economic benefits of southern Ontario's natural areas. Currently, there is insufficient recognition of the social and economic value of nature. As a result, conservation and stewardship are not appropriately supported by society as a whole, and individual, community and political decisions are made without knowledge of the scope of nature's contribution to southern Ontario's wealth and health.

This paper was commissioned to review the full suite of socio-economic benefits provided by natural and rural areas as a first step toward promoting and raising awareness of these benefits more broadly. This project is meant to provide a wide-ranging overview and a starting point for further research specific to southern Ontario. A fresh examination of the socio-economic climate, trends and opportunities affecting rural southern Ontario is particularly relevant given that stewardship and conservation in settled landscapes rely on influence models to engage private landowners.

It is hoped that an examination of trends, and speculation about potential implications, might provide some useful and provocative action items and point to some new directions for conservation, resource management, the voluntary sector and local economic development.

The primary audiences for this discussion paper are municipal and provincial decision makers and stewardship and conservation professionals. Interested members of the public may also find this paper provides a useful perspective.

For more information on the Natural Spaces Program, and the Natural Spaces Leadership Alliance, please go to [www.naturalspaces@mnr.gov.on.ca](mailto:www.naturalspaces@mnr.gov.on.ca).

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## **Acknowledgements**

Direction and support was provided to the Canadian Urban Institute researchers by a Steering Committee established by the Natural Spaces Leadership Alliance. Their suggestions and detailed comments on early drafts helped shape this report. The Steering Committee included the following conservation organization representatives and Ministry of Natural Resources (MNR) staff:

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Ms. Handyside, who had overall management of this project for the Alliance, and research assistant Anna Wu, also contributed extensively to the inter-jurisdictional scan, bibliography and editorial work. Lynne Peterson, Natural Spaces Director, provided editorial direction.

**This paper is for discussion purposes only and does not represent Ministry of Natural Resources policy.**

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## **Table of Contents**

Executive Summary .....	1
1. Introduction .....	5
2. Rural Demographics in Ontario: Trends, Implications, Challenges and Opportunities .....	7
2.1. High levels of growth will continue to put pressure on rural areas adjacent to urban centres ....	7
2.2. Rapid population growth in Southern Ontario is driven by immigration .....	8
2.3. Southern Ontario’s population is aging and on the rural rebound .....	9
2.4. Relatively small numbers of early retirees could impact on the rural economy .....	10
2.5. Socio-demographic changes may influence attitudes to charity with respect to the environment.....	12
3. The Economic Benefits of Natural Heritage .....	14
3.1. Private Land Forestry: Significant contributor to our economy .....	14
3.2. Resource-Based Tourism represents an exceptional opportunity for value-added branding.....	15
3.3. Agriculture has the potential to contribute to the rural economy in surprising ways .....	17
3.4. Alternative and renewable energy can benefit private landowners .....	18
4. The Social Benefits of Natural Heritage are far reaching .....	21
4.1. Nature’s intrinsic benefits to individual and societal well-being .....	21
4.2. Nature can play an important role in reducing health care costs .....	22
4.3. Recreation in nature has a valuable economic impact.....	24
5. Natural Capital: The Basis for a High Quality of Life .....	26
5.1. Viewing southern Ontario’s ecosystem as an asset .....	26
5.2. Greenspaces are our Green Infrastructure .....	28
6. Conclusions .....	31
Bibliography .....	34

## **List of Figures**

Figure 1 Total Population by Age for Norfolk and Haldimand Counties 1991, 1996 and 2001 .....	11
Figure 2 Total Population by Age for Select Communities of Simcoe County 1991, 1996 and 2001 .....	12

## **List of Tables**

Table 1 Regional Population Trends and Forecasts for Ontario.....	8
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## Executive Summary

Concern over clean water and record breaking smog days are but two of the issues driving home the essential connections between healthy greenspace and healthy communities. At the same time, rural Ontario is seeking new local economic development strategies to counter recent shifts in the rural economy. Out of this context, a new nature agenda is emerging. This agenda links the natural environment with a holistic vision of the good life, which includes economic success, personal health, active stewardship and enjoyment of our natural areas.

Southern Ontario is poised to experience rapid increases in population over the next 20 years, with urbanization and population growth having noticeable impacts on air, water and ecosystem quality. Appreciation of the social and economic benefits of greenspace is growing almost as rapidly, and has evolved to include discussions of natural areas as ‘natural capital’ or ‘green infrastructure’. This presents opportunities for policy makers, municipal and community leaders to work toward an integrated vision of town and country, one that balances growth with greenspace conservation, and which uses greenspace as an economic attractor for growth.

The *Nature Count\$* study is a step along this path. With major emphases on recent rural demographic and economic changes, human health, social benefits and the importance of natural assets to the rural and provincial economies, *Nature Count\$* provides a review of the socio-economic contributions of natural areas in southern Ontario. The study also presents a preview of research needs for a comprehensive investigation of greenspace benefits.

### **Rural Demographics Set the Stage**

Migration and an aging baby-boomer cohort are setting the stage for new opportunities for conservation and stewardship.

Some conservation groups have begun to actively explore the cultural and social attachments of new Ontarians to the rural landscape, a process that will inform the stewardship agenda and better engage people with natural places. Other newcomers to rural southern Ontario are urban retirees. This ‘rural rebound’ of the baby boom generation - a group with higher than average rates of volunteerism - provides an opportunity to promote conservation and stewardship of natural areas. While demographic and economic shifts put pressure on rural communities, newcomers and those on the rural rebound provide positive opportunities to advance the conservation agenda and support local economies. The implications of these trends suggest it is important to:

- Provide municipalities with the tools to identify major natural heritage systems for protection and restoration, critical in light of current growth pressures and vital as a foundation for local conservation and stewardship activities.
- Build on the work of urban and near-urban conservation authorities and municipalities to better engage newcomers to southern Ontario in conservation and stewardship in their adopted communities.

- Explore farm and non-farm landowner connections and interfaces for opportunities of mutual benefit, and engage both sectors in stewardship of shared natural heritage systems and preservation of local agricultural economies.

### **Taking Greenspace to the Bank**

Agriculture, private land forestry and small manufacturing are the traditional building blocks of the rural economy in southern Ontario. The success of the forestry and agriculture industries has long been dependent on the wise stewardship of private landowners.

New types of rural entrepreneurship including eco- and agri-tourism, boutique agriculture, and even alternative energy, are taking a growing appetite for and appreciation of southern Ontario's greenspace to the bank. These burgeoning industries provide strong signs that long-term rural economic success may be found in a growing sector of economic activity that capitalizes on natural assets and the interests of a public focused on quality of life. The key to success in developing these types of commercial endeavours depends upon a healthy ecosystem across southern Ontario.

Municipal leaders are beginning to grasp the value of developing an integrated economic vision that builds on the unique natural strengths of their region. In facilitating long-term solutions to the challenges facing southern Ontario's rural economy, it is necessary to:

- Monitor and support emerging shifts in southern Ontario's rural agricultural economies toward new crops (biomass and medicinals) and other and niche-market agriculture that takes advantage of growing urban markets.
- Promote eco-tourism and agri-tourism - the combination of agriculture, natural areas and tourism - in local economic development strategies as well as other approaches that capitalize on natural assets.
- In areas of declining population, explore with municipalities, economic development and stewardship organizations, the implications and opportunities of an emerging minor "rural rebound" of retired baby boomers on local economies, local recreational services and volunteer stewardship.
- Support southern Ontario forestry with mechanisms for identifying opportunities to expand forests and better utilize marginal lands; engage landowners with incentives, tools and extension services; increase the availability of native tree seedlings and ensure the right species are planted in the right places.
- Promote the potential for alternative energy to enhance rural economic viability as well as environmental quality.

## **Nature Has Positive Side Effects!**

We depend on greenspace not only to drive vibrant local economies, but also for human health benefits, though these benefits are often taken for granted. Emerging research shows that individually and collectively Ontarians are better off when they are able to experience nature in some form. Natural areas can facilitate greater social interaction, encourage faster recovery times from illness or surgery and elicit higher rates of employee productivity. Nature's side effects are positive: greenspace provides opportunities for outdoor recreation, healthy lifestyle choices and stress mitigation, resulting in reduced hypertension, cardiovascular disease and osteoporosis.

To better understand how greenspace can advance the goals of health promotion – and reduce health care costs, it would be helpful to:

- Further explore linkages between individual well-being, reduced health care costs, improved physical, mental and emotional health and southern Ontario's greenspace.
- Explore how increasing urban densities require careful planning for sufficient “green services” to serve a larger population – parks, trails, sports fields, urban forests and natural areas provide an essential human service.

## **Green Thinking: Valuing Natural Capital**

There is a growing interest in re-casting the way we think about nature using a new economic language in which nature is clearly recognized as a form of capital, or green infrastructure, with substantial value. This realization is generating a new economic case for conservation and stewardship – one built on an understanding of how natural capital supports both a healthy society and a healthy economy.

Recent studies have noted that the conversion of some natural areas to other uses may be inefficient from an economic viewpoint when all costs and benefits are considered. If the conversion from natural to built space is continued over the long-term, society may have to seek out more expensive substitutes for the benefits our green infrastructure so efficiently provides for comparatively modest maintenance costs.

Supporting green infrastructure will also prove a wise investment in the competitiveness challenges of the twenty-first century. To continue to build the economic case for conservation, provincial and municipal leaders could:

- Explore and document low-cost “green infrastructure” alternatives to new or expanded water and sewage treatment facilities; use of storm ponds and maintenance of wetlands and forests as drought and flood management systems.
- Develop tools for municipalities to identify opportunities to use natural heritage to maximize property values and property assessment through careful site planning, and to minimize servicing costs.

- Develop tools for municipalities to document the value of natural heritage as a foundation for their local economies, and approaches to maximize community economic development strategies.

Finding ways to value greenspace and effectively communicate these values to decision-makers and the public is of critical importance to the future quality of life in southern Ontario. *Nature Count\$* is but the first step in this education and communication process. Your help in monitoring and contributing to the evolution of green economics in southern Ontario will ensure that nature really does count.

# 1. Introduction

The current high level of interest in understanding the socio-economic benefits of natural areas and our environment is unprecedented. What a decade or so ago was a lively but relatively limited discussion among academics and special interest groups is gaining momentum and has matured into a wide-ranging dialogue among environmentalists, policy makers, and other stakeholders. Interests range from academics, to those earning their living off the land, municipal economic development officers, committed conservationists and others devoted to the cause of stewardship and conservation. Appreciation of the significance and broader social and economic value of greenspace<sup>1</sup> (also referred to as natural heritage) is finally entering the mainstream.

The global social and economic value of nature, and how human activities can affect that value, was illustrated in the 2005 United Nations report, *Ecosystems and Human Well Being*. The report argues that while the world is clearly better off as a result of economic progress since the Industrial Revolution, continued widespread degradation of the world's essential ecosystems now risks undermining those gains in human well being. The report also suggests that the persistent decrease in the capacity of ecosystems to deliver services such as clean water and air and productive soils, as well other forms of green infrastructure, will create climate of increasing uncertainty in the twenty-first century.<sup>2</sup>

Most worrying is the unprecedented growth in pressures on our ecosystems, including resource use and depletion, population growth, and urban sprawl. In countries like Canada, the risks may not yet be apparent. As an affluent country, Canada is able to import food and resources from other parts of Canada or abroad and has highly developed infrastructure systems to deliver services such as drinking water. However, even here, though the “relative importance of agriculture, fishing and forestry is declining,” the importance of “other ecosystem services, such as the aesthetics and enjoyment and recreational options is growing.”<sup>3</sup>

In Ontario, concerns about the sustainability of our ecosystems are particularly acute in the area of focus for this report – southern Ontario. Here, concerns are driven by the realization that high rates of urban growth and development, coupled with the historic changes in natural landcover, could threaten the viability of southern Ontario's natural systems.

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<sup>1</sup> For the purposes of this discussion paper, greenspace is defined as “lands, forests and water that are predominantly undeveloped and that have a high natural value or may have high values for recreation, enjoyment, or sustainable use.” The term greenspace used interchangeably throughout this paper with other general terms like “natural areas” and is not meant to denote any formal designation in land use planning. Although the term “natural heritage” is specifically defined in Ontario's Provincial Policy Statement under the *Planning Act*, the term is used in this paper in a general sense, synonymous with “natural areas” or “greenspace”.

<sup>2</sup> United Nations. Mooney, Harold, et al. *Ecosystems and Human Well-Being: Synthesis. A Report of the Millennium Ecosystem Assessment*. Washington DC USA, The Centre for Resource Economics, 2005.

<sup>3</sup> Ibid.

The viability of these natural systems is of concern not only from a natural, aesthetic or recreational perspective. We are beginning to see natural systems as foundational to broad socio-economic success, as the green infrastructure that sustains our communities' health and wellbeing and is central to sustaining economic opportunity. As urbanization puts more pressure on air, water and soil quality, the green infrastructure of our natural systems will become an increasingly important component to service future growth. By losing greenspace areas – or not managing them as a critical asset – we could also lose high-value knowledge workers not willing to compromise quality of life and thus also lose new opportunities for economic investment.

The need to understand the socio-economic role of natural areas in southern Ontario is important not only because of expectations for growth, but also because of the type of land ownership in this part of the Province. With most natural heritage assets in southern Ontario privately-owned, an effective response to the challenge of greenspace loss will depend heavily on the voluntary actions of private landowners – and, by extension, in convincing local politicians and the general public that meeting the goals for stewardship and conservation is in the interest of everyone.

Demonstrating the socio-economic value of natural areas is a critical step in communicating the importance of greenspace with decision makers and new audiences. In *Nature Count\$*, our main purpose is to illustrate the socio-economic value of natural areas in order to ensure that the important contributions of stewardship and conservation are appropriately recognized. This report documents recent trends and findings related to demographics, economics and business opportunities, societal wellbeing and health and natural capital. We have examined what is happening in this fast-changing field in southern Ontario, the rest of Canada, North America and globally. We hope this report provides useful examples and credible evidence which will help expand the support for the conservation and stewardship agendas.

## 2. Rural Demographics in Ontario: Trends, Implications, Challenges and Opportunities

Protecting and enhancing the natural systems of Southern Ontario will be extremely challenging over the next 25 years.

High rates of population growth and continued urbanization, particularly in the Greater Golden Horseshoe, will result in physical impacts to the ecological and natural systems of Southern Ontario. At the same time, changes in the demographic makeup of southern Ontario are forecast to dramatically change both the nature of the rural economy and the way in which Ontarians interact with the countryside.

The principal driver of population growth will be a combination of immigration and in-migration from other provinces. There will also be a steady influx of people relocating from Northern Ontario. Although the average age of Ontarians is forecast to increase significantly over the next 25 years, the impact will be moderated by the arrival of a new generation of immigrants with higher birth rates, a younger age profile and a global outlook. These evolutionary changes, taken together with the projected cultural and economic impact of ex-urban retirees moving to the country, will stimulate changes in personal recreational priorities and affect public attitudes towards the environment.

These trends also dovetail with increasing public concern about nature. The 2005 *Environmental Monitor* noted that Canadians believe that there is sufficient land being set aside for parks and wilderness. However, according to the Monitor, three-quarters of Canadians indicate they are dissatisfied to varying degrees with the steps being taken to protect natural ecosystems. This is of particular concern to women in younger age groups. Interestingly, concern for the environment appears to be higher in Ontario than in environmentally-conscious British Columbia. Recent rates of growth in Southern Ontario may in part feed this concern.

### ***2.1. High levels of growth will continue to put pressure on rural areas adjacent to urban centres***

Although Ontario's population has grown steadily in the post-war period, the rate of growth in the past 20 years has been exceptional, resulting in a 33 percent increase in population since 1986. The provincial government forecasts growth over the next 25 years to continue at much the same rate, which will bring Ontario's population in 2031 to between 14.5 and 18 million.<sup>4</sup>

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<sup>4</sup> Ontario Ministry of Finance. (2006) *Ontario Populations Projections Update, 2005 – 2031*. Toronto: Queen's Printer for Ontario.

As illustrated in

Table 1, the highest rates of growth have been in the Greater Toronto Area, and this trend is expected to continue, putting significant pressure on regional natural heritage features such as the Oak Ridges Moraine and prime agricultural land, either side of the Moraine and the Niagara Escarpment. Between 1976 and 2001, some 160,000 acres of farmland was converted to urban uses in the GTA.

**Table 1 Regional Population Trends and Forecasts for Ontario**

Regional Trends for Ontario				Regional Population Forecasts for Ontario		
Region	1986 Population	2004 Population	% Change	2006	2026	% Change
GTA	3,903,128	5,654,345	44.9	5,858,000	7,748,000	32.3
Central	2,059,316	2,711,416	31.7	2,781,000	3,437,000	23.6
East	1,316,788	1,629,060	23.7	1,679,000	2,008,000	19.6
Southwest	1,331,205	1,569,111	17.9	1,594,000	1,851,000	16.1
Northeast	583,611	566,309	-3.0	560,000	524,000	-6.5
Northwest	244,084	244,057	0.0	242,000	228,000	-5.5
<b>Total</b>	<b>9,438,132</b>	<b>12,374,298</b>	<b>31.1</b>	<b>12,713,000</b>	<b>15,795,000</b>	<b>24.2</b>

Source: Modified table. Ontario Ministry of Finance. (2005, February). *Ontario Population Projections 2004-2031*. Ontario: Queen's Printer.

As documented in background papers prepared for *Places to Grow*, much of the growth in the Greater Golden Horseshoe will occur on the fringes of existing urban centres on greenfield sites. The Ontario Ministry of Public Infrastructure Renewal estimates that over the next 25 years, the GTA and Hamilton will grow by 2.7 million people, and that the population of the outer ring of the Greater Golden Horseshoe (GGH) will increase by 900,000. The GGH will also need to accommodate about 1.5 million new jobs, 370,000 of which will be located beyond the Niagara Escarpment, the Greenbelt and Oak Ridges Moraine.<sup>5</sup>

## **2.2. Rapid population growth in Southern Ontario is driven by immigration**

The principal source of population growth in Ontario is immigration. The impacts have largely been felt in Canada's three major metropolitan areas, Toronto, Vancouver and Montreal, which have served as the catchment areas for virtually all immigration over the past 30 years. The GTA and Hamilton attract the highest level of immigration of all, more than 50 percent of the total. Assuming that current rates continue, it is forecast that the Greater Golden Horseshoe Area will be home to at least one million new immigrants by 2031 with the majority coming from the West Indies, Hong Kong, the Philippines and southeast Asia.

<sup>5</sup> Ontario Ministry of Public Infrastructure and Renewal. (2006) *Growth Plan for the Greater Golden Horseshoe*.

As a result of these trends, the proportion of visible minorities in the Greater Toronto Area continues to increase. According to Statscan, “despite the rapid increase in the number of Canadians born in this country, the proportion of visible minorities born outside of Canada will remain above two thirds between now [2005] and 2017.”<sup>6</sup>

A study carried out by Parks Canada ranked reasons cited by immigrants for choosing to locate in one of Canada’s three metropolitan areas. The principal reason cited was to be close to family and friends, and to a lesser extent, economic opportunity and education. Interestingly, immigrants selecting Vancouver ranked climate and lifestyle as the third most important reason for their choice, while fewer than five percent of immigrants cited lifestyle as a reason for selecting Toronto.<sup>7</sup> This could have potentially serious implications for its ability to compete globally for talent and investment.

It cannot be assumed that newcomers to Ontario, from elsewhere in Canada and around the world, will have the same knowledge of and cultural attachment to, southern Ontario’s rural countryside. Likewise it cannot be assumed that the current services provided by conservation groups and agencies will be appropriate for an increasingly diverse population. For example, services may need to be provided in more than one language. There also may be opportunities for conservation and stewardship agencies to reach out and partner with non-traditional partner agencies such as new Canadians centres.

Some conservation authorities in southern Ontario have already begun to offer a diverse range of recreational and educational services to appeal to visitors from nearby urban centres, many of whom are likely to be new immigrants. This builds on the experience of the former Toronto Metro Parks department and the Toronto Region Conservation Authority in encouraging the use of trails and open space by newcomers to the area. These resources are well used by culturally diverse residents for family gatherings, barbeques and informal sporting activities, and the ways in which these groups use the parks and open space so easily accessible within Toronto continue to evolve in keeping with the changing ethnicity of the population.

### ***2.3. Southern Ontario’s population is aging and on the rural rebound***

Within the next 25 years, the proportion of seniors in Ontario’s population (65+) will increase from about 13 percent to 22 percent. Of particular interest to this report is that the proportion of people over the age of 50 will also change significantly, increasing by 60 percent between 2006

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<sup>6</sup> R.A.L. Consulting Ltd. (2005) *Demographic Trends in Ontario: Impacts and Implications for the Mandated Activities and Work Force of the Ministry of Natural Resources.*

<sup>7</sup> Parks Canada. (2003) Minister’s Roundtable.

and 2026 compared to 8.5 percent for the under 50 segment. By 2026, the 50+ population will represent over 42 percent of Ontario's total population.<sup>8</sup>

As pointed by RAL Consulting, age is a principal determinant of how people are likely to spend their income and their time. 71percent of surveyed Canadians have ranked "appreciation of the natural environment" over employment and national security. The same study found that the propensity to hold such views is highest among people aged 44-65 and that the degree of support for the environment increased with levels of education.<sup>9</sup>

An aging baby boomer cohort nearing retirement represents an extraordinary opportunity for conservation and stewardship activities. These trends suggest natural heritage tourism, recreation and stewardship activities have great potential to be influenced by these demographic changes. Of particular significance as the population ages is shift in interest away from strenuous outdoor experiences such as canoeing and white water rafting to more passive activities such as bird watching and walking.

In a 2002 report commissioned by the Ontario Ministry of Tourism entitled, *If the Future Were Now...Impacts of Aging the Canadian Market on Tourism in Toronto*, specific concerns were raised about the impact of an aging population on wilderness recreation. The report noted that to retain interest in traditional outdoor activities, services within parks will need to be enhanced by the provision of more amenities for seniors, and less demanding activities. The report concludes that marketing initiatives will also need to appeal to the interests of new immigrant communities in order to increase appreciation for wilderness related activities.<sup>10</sup>

#### ***2.4. Relatively small numbers of early retirees could impact on the rural economy***

Both Haldimand-Norfolk and Simcoe counties have experienced a decline in agricultural uses in recent years, as well as loss of manufacturing jobs and an increased reliance on tourism and recreational activities in the local economies. A time-series analysis of Norfolk and Haldimand and Simcoe Counties demonstrates that a upwardly mobile baby-boomers have recently relocated to these counties from elsewhere.

The demographic profile of each county was analyzed over three consecutive census periods, and adjusted for changes in boundaries. As illustrated by Figure 1 and Figure 2, both areas experienced an increase in the 44-65 age cohort that cannot be explained by natural aging. Since

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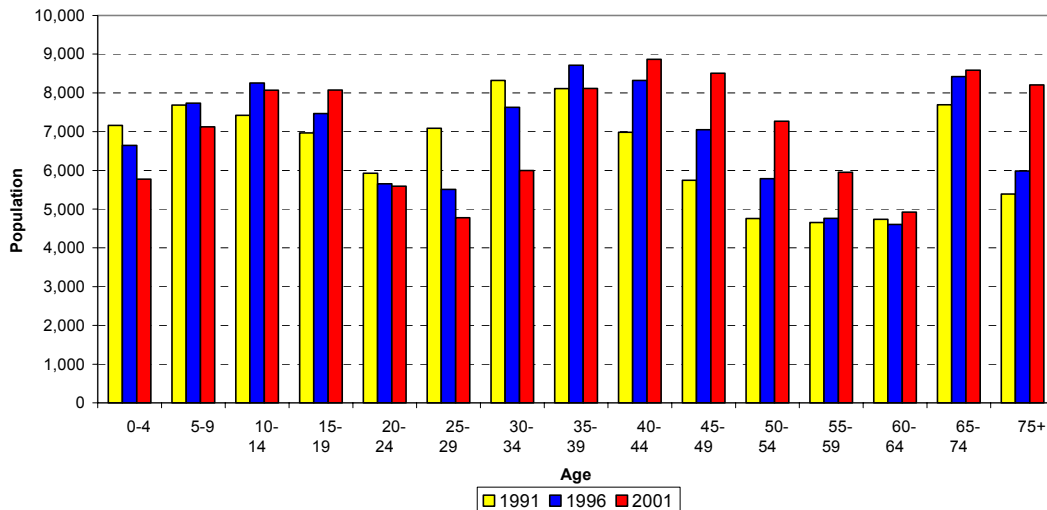
<sup>8</sup> R.A.L. Consulting Ltd. (2005) *Demographic Trends in Ontario*.

<sup>9</sup> R.A.L. Consulting Ltd. (2005) *Demographic Trends in Ontario*.

<sup>10</sup> TAMS Travel Activities and Motivation Survey. (2002) *If the Future Were Now... Impacts of Aging the Canadian Market on Tourism in Ontario: A Special Analysis*.

we know that 95 percent of immigrants gravitate to the urban centres, it follows that the source of increased population in this age bracket is out-migration from urban centres.

**Figure 1 Total Population by Age for Norfolk and Haldimand Counties 1991, 1996 and 2001**

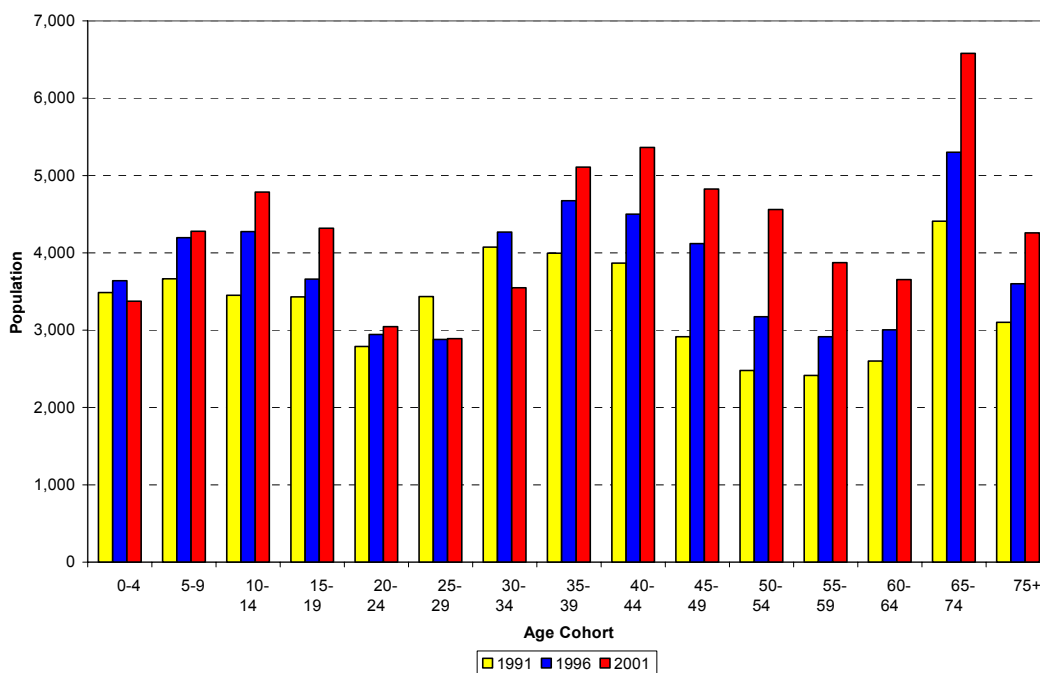


Source: Statistics Canada. Census Subdivisions for Ontario 1991, 1996, and 2001. Note: Prior to 2001, Norfolk and Haldimand counties were combined under the municipality of Haldimand-Norfolk. The restructuring of the municipality resulted in the redrafting of census tracts in 2001. To develop a consistent population trend, all census tracts were used for 1996, 1998 and 2001 irrespective of their former municipal delineations.

The likely motivating factors for this rural rebound are as diverse as the people moving. However, a survey of consumer relocation preferences by the Canada Mortgage and Housing Corporation (CMHC) cites the desire for a retirement lifestyle that is less stressful, increased access to outdoor recreational opportunities, the desire to live in a lower-paced, less expensive and more natural environment. CMHC reports that Simcoe County is one of the country's top ten most popular relocation destinations.<sup>11</sup> The growth rate in this county between 1996 and 2001 was more than twice that of the province overall. As baby boomers start to reach their retirement years, another factor bringing boomers to the countryside may be the benefits of cashing out on valuable urban real estate.

<sup>11</sup> Canada Mortgage House Corporation. *Consumer Relocation Preference Surveys*.

**Figure 2 Total Population by Age for Select Communities of Simcoe County 1991, 1996 and 2001**



Source: Statistics Canada. Census Subdivisions for Ontario 1991, 1996, and 2001. Note: Only the following select communities of Simcoe County are included in the analysis: Blue Mountain, Collingwood, Springwater and Clearview. Prior to 1996, the Springwater was divided among three census tracts 43041, 43061 and 43062, while Clearview was divided among census tracts 43029, 43032, 43034 and 43036.

According to the Survey of Financial Security produced by Statistics Canada, the propensity for the purchase of second homes for recreational purposes is slowly increasing as a proportion of the population; this trend will likely continue because the baby boom generation can afford to invest in second properties as a result of having reached peak earning years, receiving inheritance capital and paying off the mortgage on their primary residences.

It is difficult to predict how extensive this trend towards a ‘rural rebound’ might become as baby boomers reach retirement age over the next two decades. A major determinant may be the availability of health care services in small-town Ontario.

### ***2.5. Socio-demographic changes may influence attitudes to charity with respect to the environment***

Volunteers and donors play a vital role in the conservation and stewardship of natural heritage. For example, Ducks Unlimited Canada reports that 8,200 people across Canada volunteer with the organization.<sup>12</sup>

<sup>12</sup> Ducks Unlimited Canada. (2004) *2004 Annual Report*.

However, a survey on giving and volunteering by Imagine Canada and Volunteer Canada found that Ontarians do not rank environmental organizations high on their lists of charitable causes. Only two per cent of charitable donations in Canada are directed towards the environment.<sup>13</sup>

On a more positive note, the organization reports that people who are engaged in other activities supporting environmental causes are more likely to make donations to environmental groups. Volunteers who give their time to support such causes may therefore be a potential source of additional funds. According to the survey, many organizations do not currently ask their volunteers to donate money as well.

Currently, any prospective donor can support conservation and stewardship in a number of ways. They can make bequests of money or property. They can place conservation easements on their properties or make financial donations that take advantage of tax rules. And they can give financial support for environmental causes through the Nature Conservancy of Canada, Ontario Nature, Ducks Unlimited Canada and many other organizations.

In addition, author David Foot, in his book *Boom Bust & Echo*, has suggested that volunteerism rates increase with age and with higher levels of education.<sup>14</sup> The large number of well-educated baby boomers approaching their retirement years may therefore provide a pool of potential environmental volunteers.

Ontario high schools are another possible source of future conservation volunteers. High school students must log a specific number of hours of community service to graduate, and many conservation and environmental organizations provide opportunities for student volunteers. As these young people get older, they may maintain their interest in volunteering with conservation and stewardship organizations.

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<sup>13</sup> Imagine Canada and Volunteer Canada. (2004) *Canada Survey of Giving, Volunteering and Participating*. Statistics Canada.

<sup>14</sup> Foot, David K. , and Daniel Stoffman. (1996) *Boom, Bust & Echo: How to Profit from the Coming Demographic Shift*.

### 3. The Economic Benefits of Natural Heritage

Although not well documented, there are indications that Ontario's rural economy is changing, perhaps faster than its urban cousin. These changes are being driven by a suite of factors including challenges faced by farmers and rural businesses competing in a global economy, demographic changes, and shifting consumer preferences.

The traditional building blocks of the rural economy – agriculture, forestry and small manufacturing – are increasingly complemented by a second income stream that relies on natural assets for its success. Wealth is being generated by landowners who are using sustainable methods to unlock the economic potential of marginal lands and woodlots; by businesses devoted to serving the burgeoning ecological tourism market; and by entrepreneurs finding new ways to meet the recreational demands of an aging and intellectually curious citizenry.

This evolving rural economy is developing out of a fresh appreciation of Southern Ontario's natural environment. Local municipal leaders are beginning to grasp the value of developing an integrated vision that builds on unique local strengths, including the natural environment. A key task for the conservation and stewardship sectors will be to link with local economic and business sectors to contribute to the common objective of sustainable development.

#### *3.1. Private Land Forestry: Significant contributor to our economy*

The forests of southern Ontario are a resource of growing importance to the overall volume and value of forestry practiced today in the province.

Ontario has 5.6 million hectares of productive forests under private ownership. This represents 14 percent of the province's inventoried productive forest land base. Approximately 95 percent (1.9 million hectares) of the productive forest south of the Area of the Undertaking (Southern Ontario) is privately owned. Private forests account for 13.5 percent of Ontario's growing stock, including almost one-half of the gross total volume of hard maple and other hardwoods. Since 1999, the volume of private hardwood harvested in Ontario has increased from just over 1,700,000 m<sup>3</sup> to over 2,500,000 m<sup>3</sup> – an increase of over 45 percent.<sup>15</sup>

Snapshot research conducted by the Ontario Ministry of Natural Resources has attempted to quantify the economic contribution of forests on private lands. In 2002, annual returns from forest resource processing facilities indicate that 9 percent of the gross total coniferous volume

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<sup>15</sup> Ontario Ministry of Natural Resources. (2005) Unpublished Discussion Paper.

and 28 percent of the gross total deciduous volume processed in Ontario originated from private land. This equals 15 percent of the total volume processed.<sup>16</sup>

Per hectare, private land forests are generally more valuable than Crown land forests; southern Ontario's forests produce 64 percent of Ontario's hardwood – which has a higher market value - and they are closer to value-added economic activity such as furniture producers.<sup>17</sup>

The approximate total economic activity generated by forestry in southern Ontario, including direct, indirect and induced effects, is \$2.7 billion, of which private land forestry constitutes 64.6 percent, or \$1.7 billion. The net economic contribution represented in terms of value added, is estimated to be almost \$1.2 billion, again with private land resources contributing two-thirds of the impact. Employment in logging, wood and paper industries in southern Ontario connected directly to private land resources is estimated to be almost 11,000, but is closer to 60,000 when value-added economic impact is included. The total federal, provincial and local tax contribution of this sector is estimated to be \$275 million.<sup>18</sup>

There may be good economic reasons for landowners to pursue private land forestry rather than convert their woodlots to agricultural production. A report entitled *Making Lemonade from Trees... How the Domtar Pulp Mill Shut Down is Creating New Opportunities for Eastern Ontario* compares the long-term income and costs for typical agricultural commodity crops with a variety of private woodlot management options. The bottom line finding is that many landowners can achieve higher returns from their woodlot compared to agriculture when costs and income are averaged over time and the costs of clearing the land are included in the assessment.<sup>19</sup>

It is more difficult to determine accurate market values on woodlot benefits and activities such as recreation, aesthetics and environmental protection. However, the more immediate challenges that must be addressed are the economic context for agriculture, logging pressure on resources, rogue loggers and poor consultants, lack of training opportunities, generational change, and, inevitably in southern Ontario, development pressures.

### ***3.2. Resource-Based Tourism represents an exceptional opportunity for value-added branding***

The value of global tourism is estimated at almost \$4 trillion (US), approximately 9.8 percent of the world's GDP. One of the largest sources of demand is located immediately south of our

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<sup>16</sup> *ibid*

<sup>17</sup> *ibid*

<sup>18</sup> *ibid*

<sup>19</sup> Barkley, Brian and Sandra Lawn. (2005) *Making Lemonade From Trees... How the Domtar Pulp Mill Shutdown is Creating New Opportunities for Eastern Ontario*.

border, yet, according to *Ontario's Tourism Strategy*, “there is very low awareness in the U.S. of travel opportunities in Ontario. Ontario barely registers in the minds of international travelers.”<sup>20</sup> This gives rise to the question, “What image does southern Ontario want to cultivate for itself?”

This is not to underplay the economic impact of the tourism industry. In 2004-05, province-wide revenues for the industry reached \$ 21.4 billion with provincial tax revenues from tourism reaching \$2.4 billion and municipal tax revenues adding up to \$198 million. Furthermore, one in five businesses in Ontario is a tourism related business. Yet total tourism receipts in Ontario barely exceed four percent of provincial GDP. The provincial ratio of tourism value-added a modest 2.2 percent relating to employment of 3.3 percent, compared to the global ratio of 3.8 percent to 2.7 percent. There would seem to be ample room for improvement and the potential to warrant investment in re-branding and repositioning to improve the province's global standing.

The 2004 *Ontario Tourism Strategy* takes direct aim at the untapped potential of Ontario's tourism industry and the challenges it faces. The low relative provincial tourism returns and the under-utilized natural assets are both a challenge and an opportunity that call for long-term, sustained efforts to improve marketing. With the industry dominated by small and medium enterprises, there are ample opportunities for local creativity. The industry seems poised to take advantage of the fact that eco-tourism is one of the fastest growing segments of the industry.<sup>21</sup> Although it offers limited opportunities for wilderness and adventure travel, southern Ontario's ecotourism industry could grow considerably due to increasing numbers of baby boomers interested in tourism focused on environmental education.

The American Center for Rural Affairs notes potential for using rural policy to support community development by combining the stewardship of greenspace and rural entrepreneurship. The Center highlights the high potential for investment in rural entrepreneurship. Agricultural communities often have extraordinarily high rates of self-employment – two to three times the rate of metropolitan areas. By exploring how best to match up individual creativity and rural hospitality with the full potential of southern Ontario's natural heritage, many unrecognized opportunities may well emerge.

The *Ontario Tourism Strategy* provides a strategic framework for developing tools for smaller communities and rural entrepreneurs to more effectively market their regional resource and natural heritage attractions. The potential for this type of community amenity branding and marketing is demonstrated by the Hills of the Headwaters Tourism Association.<sup>22</sup> Based in the Credit, Nottawasaga, Humber and Grand River area, the Association cites natural heritage as the area's number one asset. The Association shares local resources to leverage their collective on-

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<sup>20</sup> Ontario Ministry of Tourism. (2004) *Ontario Tourism Strategy*.

<sup>21</sup> *ibid*

<sup>22</sup> Hills of the Headwaters Tourism Association. [www.headwaterstourism.com](http://www.headwaterstourism.com)

line marketing presence in association with organizations like the Wine Council of Ontario, the Bruce Trail Association, and the Canadian Biosphere Reserves Association. As a result, the communities have been able to enhance their overall tourism capacity and strengthen local economies by marketing the area's natural environment.

Another good example of the broad spectrum of tourism opportunities natural areas can offer is documented in *Profiles from Working Woodlands: Exploring Forest-based Enterprise in Western Massachusetts*.<sup>23</sup> The author shows how private woodlot owners can develop niche markets and services for urban and overseas visitors. The extensive list of possible services ranges from the more traditional maple syrup production, cross-country skiing and wildlife and bird watching to recreational training and environmental education. More recently, the popularity of less traditional services has increased including country weddings, writing retreats, yoga and meditation centres, spas, aboriginal attractions, homeopathic herbal products, photography instruction and field work, and similar experiential ecotourism and educational heritage destination activities.

Diversifying local economies and individual businesses by promoting natural heritage amenities can help keep rural areas competitive in today's global tourism market.

### ***3.3. Agriculture has the potential to contribute to the rural economy in surprising ways***

Agriculture warrants special consideration in any discussion concerning southern Ontario's natural areas. Natural features and systems are intertwined with Ontario's agricultural areas and agricultural landowners are significant stewards of these resources.

Because Canada is a nation with large amounts of agricultural land, people dramatically undervalue the rich agricultural lands of southern Ontario. Yet much of Canada's most prized agricultural land is located in the heartland of southern Ontario – the area of the province subject to the most significant pressures of urban sprawl and environmental stress.

A rurbanizing<sup>24</sup> southern Ontario presents a number of challenges to the traditional agricultural economy, not the least of which is that formerly distant urban and rural sensibilities have been brought into close proximity. These parties might be encouraged to come to a common base of understanding by recognizing how natural heritage interests and agricultural interests are, at least in some economic sense, two sides of the same coin. For example, a growing proportion of

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<sup>23</sup> Campbell, Susan. (date) *Profiles from Working Woodlands: Exploring Forest-Based Enterprises in Western Massachusetts*. Massachusetts Woodlands Institute.

<sup>24</sup> 'Rurbanizing' is a term coined by Wayne Caldwell of the University of Guelph and refers to the process of very low density rural sprawl with residential or small-scale commercial development occurring in rural areas, often along arterial highways.

southern Ontario's food buying preferences are for organic produce, locally grown speciality crops and boutique or craft food production. There is additional economic potential of integrating the value chain and harmonizing agriculture with food processing or expanding into beverage and culinary tourism.<sup>25</sup>

Diversification may assist in enabling southern Ontario agricultural producers to satisfy their financial needs in ways that complement or contribute to greenspace. New bio-tech crops like Canada Yew are being directed towards medicinal and genetic applications, and local specialty products like organic food products are developing specialized retail services to bring the general public to the farm gate.<sup>26</sup> This is the type of agricultural entrepreneurship that lies ahead for southern Ontario agricultural landowners who wish to take advantage of their proximity to growing metropolitan markets.

An excellent primer for this type of development is the work of the National Center for Appropriate Technology based in Arkansas, Montana, and California. They develop methods for starting high value-added entertainment farming and agri-tourism for what they call the New Agricultural Entrepreneurs. These encompass the development of attractions such as educational tours, historical re-creations, processing demonstrations, rural theme parks, crop art, festivals, pageants, special events, workshops and farm schools, petting zoos and pick-your-own.<sup>27</sup>

The economic potential of harmonizing agriculture with food processing, and in turn with food, beverage and culinary tourism, is just now becoming clear in the Greater Golden Horseshoe. One example is the Greater Toronto Area Agricultural Action Plan which attempts to build linkages between agricultural and the broader food services sector to build a stronger foundation for success.<sup>28</sup>

Once the value of the agricultural and natural heritage land base is better understood, communities can better market local products and services, identify new economic development opportunities based on natural heritage, and make more informed land-use planning decisions.

### ***3.4. Alternative and renewable energy can benefit private landowners***

Ontarians have long-benefited from renewable energy. More than a century ago, the province's first electricity generating stations used the power of falling water to produce hydro-electricity and until 1950 all of Ontario's electricity demand was met using waterpower. Today, Ontario's growing economy and population base strain province's electricity and service infrastructure.

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<sup>25</sup> Geerts, Helma. (2005). *The GTA Agricultural Action Plan from Soup to Nuts: Serving Up the 100 Mile Meal in the GTA*.

<sup>26</sup> Ontario Woodlot Association. (2004). *Canada Yew: Not a traditional forest product*.

<sup>27</sup> National Centre for Appropriate Technology. Entertainment Farming and Agri-Tourism Methodologies.

<sup>28</sup> Geerts, Helma. (2005). *The GTA Agricultural Action Plan*.

Demand for electricity in the province continues to grow at about one percent annually, with the bulk of this growth occurring in southern Ontario.<sup>29</sup>

Ontario has considerable potential to meet its future energy needs through the use of renewable energy technologies such as wind power, waterpower, agricultural and forest biomass and solar photovoltaics. The opportunities sustainably use natural assets and tread lightly on southern Ontario's ecosystem.

The Ontario government has recently directed the Ontario Power Authority (OPA) to prepare a long-term electricity plan for the province that doubles the energy coming from renewable sources to 15,700 MegaWatts (MW) by 2025.

Over the last decade, wind power has become one of the fastest growing source of renewable energy worldwide.<sup>30</sup> Wind power projects provide opportunities to generate electricity more cleanly and nearer its point of use. A report prepared for the OPA suggests there is about 5,300 MW of developable wind energy potential in southern Ontario.<sup>31</sup>

Landowners too can benefit from wind power projects, either by leasing their land, or developing projects themselves. The revenue from long-term leases can help offset property taxes or be a second income. Depending on the price of energy, a one MW turbine could provide a landowner with an income of \$2,500.00 per year from leasing the land.<sup>32</sup>

Local distribution companies are now required to offer electricity consumers the option of net metering – selling electricity back to the grid – on the electricity generated by alternative or renewable energy projects up to 500 KiloWatts (KW). This can reduce electricity bills by up to \$270 a month.<sup>33</sup> Alternatively, renewable energy projects of up to 10 MW may be eligible for a long-term standard offer contract now being offered by the OPA.

Biomass from trees, plants, agricultural crops and municipal waste also presents an opportunity to meet energy and heating demands while developing new income streams for southern Ontario landowners and communities.

Across Ontario, nearly two million cubic metres of forest residues such as bark, sawdust and tree limbs, are being used by mills to generate electricity and heat. For example, the co-generation facility in Chapleau, Ontario uses these residues to reduce the mill's electricity purchases from

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<sup>29</sup> Electricity Conservation & Supply Task Force. (2004). *Tough Choices: Addressing Ontario's Power Needs*.

<sup>30</sup> Statistics Canada. 2004. *Human Activity and the Environment*. Annual Statistics 2004.

<sup>31</sup> Helimax Inc. 2005. *Analysis of Wind Power Potential in Ontario*.

<sup>32</sup> Etcheverry, Jose. 2004. *Smart Generation: Powering Ontario with Renewable Energy*. Vancouver. The David Suzuki Foundation.

<sup>33</sup> Pape, Andrew E. 1999. *Clean Power at Home*. Vancouver. The David Suzuki Foundation.

the grid and supply some heating needs. It also sells about \$1 million a year in electricity to the grid.<sup>34</sup>

While the agricultural biomass industry is not as highly developed, as fossil fuel prices, rise, crops such as switchgrass are expected to become increasingly attractive for generating heat and electricity for use in various settings. Resource Efficient Agricultural Production Canada estimated the size of the Ontario switchgrass pellet heating market at \$159 million in 2001.<sup>35</sup>

With many sites with good hydraulic energy potential already developed, southern Ontario has about 140 MW of waterpower potential remaining. About 30 of these sites are classified as small (1 MW to 10 MW) 150 are mini (100 KW to 1 MW) and more than 400 are micro (100 KW or less). Some of these sites are existing water control structures owned by the Ministry of Natural Resources, conservation authorities or other dam owners.

In summary, there is considerable potential to meet the province's energy requirements in a way that complements natural heritage.

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<sup>34</sup> Natural Resources Canada. Canadian Renewable Energy Network.  
[http://www.canren.gc.ca/renew\\_ene/index.asp?CaID=47&PgID=1194](http://www.canren.gc.ca/renew_ene/index.asp?CaID=47&PgID=1194)

<sup>35</sup> Jannasch, Rupert, R. Samson, A. de Maio, and A. Helwig. (2001) *Switchgrass Fuel Pellet Production in Eastern Ontario: A Market Study*.

## 4. The Social Benefits of Natural Heritage are far reaching

Canada's International Development Research Centre has reported that "it is increasingly obvious that health is not an isolated problem, but one of environmental, societal and global concern – humans need healthy environments in order to be healthy themselves." The World Health Organization has also argued that the "conservation of natural resources is essential in any health promotion strategy."<sup>36</sup>

However, many of the twentieth century's small and large urban communities were not built with the link between natural areas and human health in mind. With more than 80 percent of Canadians now living in urban and suburban areas, the opportunity to access or benefit from nature can no longer be assumed to be available to everyone in equal measure. Many people are starting to argue that human health has suffered as a result.

This chapter explores emerging research that sees nature as inherently important in supporting our physical, emotional and mental health.

### 4.1. Nature's intrinsic benefits to individual and societal well-being

"People and plants are entwined by threads that reach back to our earliest experience as individuals and as a species" according to Dr. Kathleen Wolf, a leading researcher of the psychological link between people and nature.<sup>37</sup> As a result, there are many benefits of seeing or interacting with nature that we might not suspect.

For example, research illustrates that the presence of trees encourages people to come out of their homes to experience public open space and interact more with their community.<sup>38</sup> Other studies undertaken at the Human-Environment Research Lab at the University of Illinois have linked higher levels of vegetation cover to decline of and lower crime rates and associate exposure to nature to reduced aggression by prison inmates.<sup>39</sup> Research has also documented the benefits of simply being able to view nature: hospital patients recover faster if they can see greenspace and workers are more productive and report greater job satisfaction if they can see nature.<sup>40</sup>

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<sup>36</sup> Cited in Taylor, Dr. Robert, and Karen Gowanlock. *Healthy Communities through Nature: Linking Quality of Life to managing the Natural Environment*. Unpublished Discussion Paper – Ontario Ministry of Natural Resources. January 2003.

<sup>37</sup> Wolf, Kathleen L. (2003). *Ergonomics of the City: Green Infrastructure and Social Benefits*.

<sup>38</sup> Kaplan, Rachel, and Stephen Kaplan. (1989). *The Experience of Nature: A Psychological Perspective*. New York: Cambridge University Press.

<sup>39</sup> Kuo, Frances E., and William C. Sullivan. (2001) *Aggression and Violence in the Inner City: Effects of Environment Via Mental Fatigue*. USA: Sage Publications.

<sup>40</sup> Kaplan cited in Wolf, Kathleen L. *Ergonomics of the City: Green Infrastructure and Social Benefits*.

Some researchers have gone beyond the conception of nature as merely beneficial and view either active interaction or passive contemplation of nature as *essential* to human well-being. Advocates of the biophilia theory argue that since humans evolved in the company of other living organisms, we continue to rely intellectually, emotionally, physically, and spiritually on our affiliations with nature.<sup>41</sup>

The broad healing effects of wilderness are captured in the discipline of ecopsychology, which explores how contact with nature can complement and counterbalance the effects of personal life-stress. Quiet, non-urban, natural places can be deeply restorative. The emerging practice of wilderness therapy is demonstrating that recreation or quiet contemplation in a natural setting has a powerful effect as a type of intervention treatment.<sup>42</sup>

#### 4.2. *Nature can play an important role in reducing health care costs*

Although a less-tangible contributor to human health than hospitals or direct health care services, there is mounting evidence of how the human experience of nature may in fact prevent disease, beyond simply encouraging general well-being. A healthy environment and interaction with nature may not only improve individual human health and quality of life, but reduce the costs of health care borne by society as a whole.

Fully realizing these costs savings will involve something of a paradigm shift in health care. Health has usually been conceived of as the absence of disease or the absence of the need for health care. However, this narrow conception of health - with diagnosis and treatment the priority - is being replaced by a broader focus on disease prevention and the general promotion of well-being. Greenspace has a key role to play in this kind of health strategy by helping to keep people active and healthy.<sup>43</sup>

The *Green Gym*, a program in the United Kingdom, is an example of the forward thinking in this regard. Researchers have found that situating exercise programs in a natural setting improves the success rate for participants, not only in terms of their performance but also with respect to sustaining ongoing interest in exercise programs, their spiritual well-being and their appreciation of quality of life. The resulting health benefits include reduced hypertension, cardiovascular disease, osteoporosis and other diseases.<sup>44</sup>

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<sup>41</sup> Taylor, Dr. Robert, and Karen Gowanlock. *Healthy Communities through Nature: Linking Quality of Life to managing the Natural Environment*. Unpublished Discussion Paper – Ontario Ministry of Natural Resources. January 2003.

<sup>42</sup> Duncan, Garrett. *The Psychological Benefits of Wilderness*. Ecopsychology on-Line 1998-09, no. 6 (2006)

<sup>43</sup> Taylor, Dr. Robert, and Karen Gowanlock. *Healthy Communities through Nature: Linking Quality of Life to managing the Natural Environment*. Unpublished Discussion Paper – Ontario Ministry of Natural Resources. January 2003.

<sup>44</sup> Bird, Dr. William. *Green Gym*. <http://www.greengym.org.uk/>

Locally, studies by the Bruce Trail Association show that walking three kilometres a day can reduce the chance of premature death, suggesting significant benefits of access to trails and other types of natural resources.<sup>45</sup>

In Japan, there are indications that “shinrin-yoku” or wood air bathing, allows participants to ingest natural substances released by forests that stimulate the blood stream and brain. Studies by Professor Joan Maloof in the Sierra Nevada in California also suggest that patients with diabetes experience reductions in blood sugar as a result of exposure to exercise in mountain or forest air.<sup>46</sup>

In urban areas or heavily settled landscapes like southern Ontario, the health care costs associated with pollution are substantial. The Ontario Medical Association estimates these care costs are in the order of \$500 million each year in Ontario, based on hospital admissions and emergency room visits. Add the resulting worker sick days, and there is an additional \$500 million cost to the province’s employers.<sup>47</sup> More natural areas and the clean air that they help to provide may help mitigate both smog’s negative health effects and the accompanying costs.

The treatment of childhood diseases has also been linked to natural areas. Children exposed to nature exhibit fewer symptoms of Attention Deficit Disorder than those whose environment does not include open space, trees or some other example of natural space. Studies in 2003 by Nancy Wells, with the New York State College for Human Ecology, noted profound differences in the ability of children to concentrate when exposed to nature. She notes that “green spaces may enable children to think more clearly and cope more effectively with life stress.”<sup>48</sup>

Encouraging people to establish healthy lifestyles earlier in life could have significant benefits in health care savings over time as the population ages. Today’s aging baby boomer cohort is expected to put additional pressure on Ontario’s health care system. But natural areas may assist in reducing that impact. Older people in particular are more likely to devote more time to exercise if it takes place in a natural setting with beneficial results on body mass indices, blood pressure and similar physiological indicators.

Overall, this may also suggest an untapped market in natural spaces retreats, where the quiet and serenity of natural settings could be marketed to an increasingly urban population – to the benefit of both urban and rural communities.

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<sup>45</sup> The Bruce Trail Association. *Media Facts and Figures*.

<sup>46</sup> Maloof, Dr. Joan. *Old Growth Air*. Terrain.Org no.14

<sup>47</sup> Ontario Medical Association. *Costs Associated with Smog Emissions*. Ontario Medical Association.

<sup>48</sup> Cited in Luov, Richard. (2005) *Last Child in the Woods: Saving Our Children from Nature Deficit Disorder*. Algonquin Books.

### 4.3. *Recreation in nature has a valuable economic impact*

In many developed countries, the baby boom generation is entering retirement years with more wealth, better health and higher levels of education than before – all factors likely to stoke interest in experiencing nature. A study by Eagles et al in 1995 (*International Trends in Park Tourism*) calculated that annual visitation to parks and wilderness areas in North America exceeds 2.6 billion days of use.<sup>49</sup>

An important insight from Eagles' research is the fundamental role of parks visitation in fostering public support for government investment in programs and resources in all areas of natural heritage. Eagles describes a virtuous circle whereby increased parks visitation leads to personal gains, leading to an appreciation of parks, and finally resulting in greater support for the conservation agenda.

This argument appears to be borne out in practice as well. Recent studies of parks usage in British Columbia found that 90 percent of respondents state that parks are very important to their quality of life.<sup>50</sup> Park users cite the value of parks as personal recreation opportunities, acknowledge their value as buffers to development, appreciate their importance as places to experience nature, and conclude that an extensive system of parks as a protected natural environment is a highly valued personal priority. The study also suggested that these opinions are reinforced by patterns of repeat usage.

A further illustration of the importance of nature in our lives is the \$11 billion dollars spent annually by Canadians on nature related activities.<sup>51</sup> This not only demonstrates the importance of nature to people as individuals, but highlights how nature-related recreation overall as contributes to our economic well-being.

In Ontario alone, combined expenditures of Ontario Parks and visitors supported a value-added total of \$377.4 million and a gross total output of \$705.4 million according to *The Economic Impact of Ontario Parks*. The total initial expenditure also supported \$247.5 million in wages and salaries and 7,316.5 person years of employment. Finally, the total provincial, federal and municipal taxes amounted to \$125.6 million.<sup>52</sup>

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<sup>49</sup> Eagles, Paul F. J. *Understanding the Market for Sustainable Tourism*. USA: USDA Forest Service, 1995a.

<sup>50</sup> Ibid.

<sup>51</sup> Federal Provincial Task Force on the Importance of Nature to Canadians. (1999) *The Importance of Nature to Canadians: The Economic Significance of Nature-related Activities*. Environment Canada.

<sup>52</sup> Ontario Parks. (2002) *The Economic Impact of Ontario Parks: A Summary Report for Fiscal 2000-01*. Unpublished Discussion Paper.

Parks and natural areas can play a significant role in local economics as well. In 2003, in the Kawartha Highlands Signature Site near Peterborough, expenditures by cottagers resulted in a value-added impact of \$7.37 million, 117 person years of employment and approximately \$4 million in wages and salaries. Spending by canoeists spent resulted in \$1.1 million in value-added, \$2.8 million in total gross sales and 18.5 person years of employment. Anglers' expenditures generated \$230,000 in value-added, \$600,000 in total gross sales and 4.5 person years of employment. Hunters spent \$170,000 million resulting in the same amount of value added, \$410,000 million in total gross sales and 3.3 person years of employment.<sup>53</sup>

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<sup>53</sup> Ontario Parks. 2001. *Study of the Economic and Social Benefits of the Nine Ontario Living Legacy Signature Sites*. Unpublished Discussion Paper.

## 5. Natural Capital: The Basis for a High Quality of Life

Decisions about how communities should develop and grow tend to be made without consideration of the long-term or cumulative effects on natural areas. As the built environment expands and land uses change, valuable natural resources and high quality agricultural lands are consumed. We generally assume that this loss in natural areas is a necessary trade-off for economic well-being and the success of our communities. However, many planners, economists and decision-makers from a variety of backgrounds are starting to argue that this so-called necessary trade-off is built on a set of false assumptions, including the perception that nature has no inherent economic value.

A growing body of evidence is starting to illustrate the economic value of our environment and views natural areas and the general countryside as a critical asset, or in more economic terms, as natural capital. An approach to development that recognizes the role that natural capital plays in economic well-being and saved infrastructure costs will contribute to the long-term success of southern Ontario.

### 5.1. *Viewing southern Ontario's ecosystem as an asset*

There is growing attention to how the conversion of natural landscapes to other uses may be inefficient from an economic point of view.

Natural landscapes provide society with important elements of natural capital – renewable and non-renewable resources, ecosystems providing key services like water and air purification, and land or the space in which human activities take place as defined by Nancy Olewiler, author of *The Value of Natural Capital in Settled Areas in Canada*. Olewiler goes on to argue that society certainly requires land for homes, jobs and commerce, yet “by destroying natural capital we must seek substitutes” and “in some cases the substitutes for natural capital may be far more expensive to build and operate than those provided by nature.”<sup>54</sup>

Globally, we are only just beginning to understand the multiple and complex array of benefits that come from natural assets like wetlands, grasslands, forests, natural corridors and coastal and riparian areas. What is known is that many of the services offered by natural heritage are often taken for granted, such as clean air, the hydrological cycle of water, control of pest populations and invasive species, and the provision of significant raw materials for virtually every good and medicine produced.

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<sup>54</sup> Olewiler, N. (2004). *The Value of Natural Capital in Settled Areas of Canada*. Published by Ducks Unlimited Canada and the Nature Conservancy of Canada.

According to the National Round Table on the Environment and the Economy (NRTEE), “we understand neither the true value of ecosystem services nor what it would cost to replace them. Not understanding these costs is compromising our ability to make decisions about the balance between future consumption and industrial development.”<sup>55</sup>

In Canada, a small but growing number of studies attempt to define the economic value of the services that we receive from nature. A recent study of Canada’s Boreal services by the Pembina Institute estimated the value of “un-priced” services to Canadians to be worth \$93 billion. In particular, the report found that keeping the boreal forest intact could prevent the need for significant forms of manufactured services, such as flood control and water filtering (\$77 billion), pest control (\$5.4 billion), carbon sequestration (\$1.85 billion) and the like.<sup>56</sup>

In the settled lower mainland of British Columbia, the waste assimilation services provided by wetlands in the lower Fraser Valley are calculated to be worth \$230 million annually in saved water treatment costs.<sup>57</sup>

Closer to home, in the Grand River watershed, costs associated with flood damage are estimated to fall by 20% when tilled agricultural lands are converted to permanent vegetative cover. Municipalities may also benefit from reduced water treatment costs by restoring agricultural land. By filtering sediment and phosphorus, lands in permanent vegetative cover are estimated to reduce the cost of filtering sediment in municipal drinking by \$5.60 per hectare per year and phosphorus reduction costs by \$23.50 per hectare per year.<sup>58</sup>

Recent work by Wilder Research on “The Economic Value of Open Space” offers a framework for analysing the contributions of open space to different policy goals and mandates of different levels of government. At a local level, many things influence the effectiveness of land use decisions. However, as the report notes, the “lack of comprehensive financial analysis makes it difficult to factor the full value of open space into the decision calculus of local land decisions.”<sup>59</sup>

Yet even in our nascent understanding there is an awareness that, in many circumstances, putting dollar values on these ecosystem services may be misleading. Entire ecosystems cannot simply

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<sup>55</sup> The National Round Table on the Environment and the Economy (NRTEE). *Securing Canada’s Natural Capital: A Vision for Nature Conservation in the 21<sup>st</sup> Century*. 2003.

<sup>56</sup> Anielski, Mark, and Sara Wilson. *Counting Canada’s Natural Capital: Assessing the Real Value of Canada’s Boreal Ecosystem*. Canada: Pembina Institute. 2005.

<sup>57</sup> Olewiler, N. (2004). *The Value of Natural Capital in Settled Areas of Canada*. Published by Ducks Unlimited Canada and the Nature Conservancy of Canada.

<sup>58</sup> Ibid.

<sup>59</sup> Anton, Paul. *The Economic Value of Open Space: Implications for Land Use Decisions*. USA: Wilder Research, 2005.

be duplicated or replaced like any other purchase we would make. The financial cost to society and the sheer complexity and size of the systems involved would prohibit such an endeavour.

Biosphere II is a helpful illustration of this point. Built in the late 1980s, it was an attempt to create a comprehensive ecological system enclosed within a glass structure in the Arizona desert. In this experiment, the cost of duplicating nature amounted to \$83 million dollars an acre. Yet, the project was unable to recreate a functioning ecosystem capable of supporting human life.<sup>60</sup>

## 5.2. Greenspaces are our Green Infrastructure

A rapidly growing southern Ontario faces serious infrastructure challenges. But seeing value in green infrastructure over grey infrastructure could result in significant cost savings for tax payers, municipalities and the province.

The term ‘green infrastructure’ generally refers to natural features or ecosystems when they are managed to provide a specific function such as flood control or water filtration that built or grey infrastructure usually provides in today’s developed urban communities.<sup>61</sup>

The interest in green infrastructure stems in large part of the significant cost to municipalities and tax payers of maintaining, expanding or replacing grey infrastructure as urban and sub-urban populations grow. Wisely targeted conservation and stewardship activities can significantly reduce the costs of public works by making use of the services which nature can provide more efficiently, sometimes at a fraction of the costs of built infrastructure.

Supporters of this approach seek to integrate conservation values with land development and growth management. Designing natural solutions to problems we would have previously addressed through built solutions can achieve multiple benefits, including reduced expenditures, increased habitat for biodiversity & opportunities for recreational greenspace areas, as well as the broader social value of having more natural areas at hand. Recognizing that nature provides valuable and cost-effective public services can be factored into land use decisions to help make more fully informed decisions that include the benefits of green infrastructure, as well as the built environment.

This approach is gaining popularity across the United States with some municipalities now actively investing in the purchase of lands for the purpose of preserving ecosystem services and deferring the need to install capital intensive grey infrastructure. For instance, New York City

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<sup>60</sup> Olewiler, N. Presentation. Canadian Society for Ecological Economics 2005 Conference, *Windows of Opportunities for Advancing Ecological Economics*. York University, Toronto, Ontario.

<sup>61</sup> Benedict, M. and E. McMahon. *Green Infrastructure: Smart Conservation for the 21<sup>st</sup> Century*. Sprawlwatch Clearinghouse Monograph Series, 2002.

estimates that paying approximately \$1.8 billion to private landowners to protect some 70,000 acres near the Catskills watershed has saved the city nearly \$8 billion in capital outlays for the development of a new water filtration plant, as well as additional \$200-300 million per year in operating costs.<sup>62</sup>

While Canadian jurisdictions tend to rely on strong land-use planning systems rather than purchasing power, the investment approach by municipalities and land owners in the U.S. is beginning to assign tangible monetary values to preserving nature which, in turn, can assist with efforts in Canada to quantify the diverse benefits of natural heritage.

The challenge of preserving natural heritage will be to encourage decision makers and private land owners to look beyond immediate returns and recognize the potential for capital returns from investing in, maintaining and enhancing natural assets. Some jurisdictions in Ontario have already begun pioneering work in this regard. For example, the Region of Waterloo has worked with the Grand River Conservation Authority to invest in stewardship on rural agricultural lands as an alternative to expensive urban-based infrastructure improvements to address water quality issues.

Much has been learned in Ontario regarding the environmental impacts of excessive channelization, such as overflows and sedimentary pollution. Channelling rivers and storm water runoff areas, can lead to extensive damage from flooding during heavy runoffs. With Hurricane Hazel in 1954, damages from flooding in Toronto were estimated at nearly \$25 million or roughly \$170 million in 2000 dollars. Although the channelling of waterways at the time was the primary method for controlling erosion, local authorities decided to purchase lands from private landowners at a cost of \$11.6 million to assist with erosion control and runoff along major waterways courses and wetlands throughout the Toronto area.<sup>63</sup>

The potentially devastating impact of channelization is nowhere better understood than in Louisiana. The state contains over 40 percent of the US wetlands and since 1950's engineers have been cutting more than 8,000 miles of canals through marsh lands to explore potential petroleum resources and improve the flow of shipping traffic. The result for the environment has been serious, with significant soil erosion and intrusion by salt water into sensitive fresh water breeding and aqua fish grounds. The state, on average, loses roughly 25 square miles of wetland annually. Many have argued that the extensive alteration to the areas in and around New Orleans was a significant factor in the severity of the effects of Hurricane Katrina and may have

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<sup>62</sup> Saur, A. The Value of Conservation Easements: The Importance of Protection Nature and Open Space. World Resources Institute Discussion Paper. 2002.

<sup>63</sup> Toronto and Region Conservation Authority. *The History of Flood Control in the TRCA*.  
[http://www.trca.on.ca/water\\_protection/protection/default.asp](http://www.trca.on.ca/water_protection/protection/default.asp)

exacerbated the clean-up costs which insurance industry experts now expect to add up to \$100 billion.<sup>64</sup>

In many cases, environmental damage or natural disasters actually reflect a positive contribution to our economy in our wealth accounting systems. A good example of how poorly Gross Domestic Product (GDP) reflects the value of natural heritage is the 1998 ice storm. As a result of the ice storm, Canadian GDP is said to have increased because of a net increase in all goods and services sold, such as emergency power generators, reconstruction of electricity lines and other infrastructure and home repairs. However, the loss of two million trees, damaged ecosystems and lost biodiversity was not accounted for.<sup>65</sup>

Incorporating the fundamental concepts of natural capital into decision making may be assisted by a revised accounting system for the current stock of natural assets. Statistics Canada is in the early stages of developing a system of environmental and resource accounts which could ultimately contribute to this type of analysis. This is not a green GDP measure or a Genuine Progress Indicator, however, this will begin to assist us in understanding how our decisions today affect the natural legacy that we will pass on to future generations.<sup>66</sup>

When human engineering systems fail and catastrophes, such as Walkerton or New Orleans occur, there is often an initial sense that the force of Mother Nature in some way overwhelmed our communities. In underestimating the role of natural capital and believing we can replicate green infrastructure we indirectly encourage communities to continue to compromise the protective natural envelope. Only after the fact does it become clear that many of these types of disasters were preventable, or that the scale of the effects could have been mitigated. Incrementally improving understanding about the importance of local stewardship and conservation is an essential first step toward an environmentally sustainable future grounded in the lessons of the past.

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<sup>64</sup> MSNBC “How Hurricane Katrina’s Costs Are Adding Up”. <http://www.msnbc.msn.com/id/9329293/> September 13, 2005.

<sup>65</sup> McGuinty, David J. *Natural Capital: A Critical Basis for Improving Canada’s Standard of Living*. Canada: The National Round Table on the Environment and the Economy (NRTEE), 2002.

<sup>66</sup> Ibid.

## 6. Conclusions

### *Valuing Natural Spaces: The Stakes Are Rising*

At the beginning of this report, we cited increased interest around the world among a variety of stakeholders in achieving a better understanding of the socio-economic benefits of natural spaces. In the course of completing our research we have come to realize that, notwithstanding the positive implications of such a movement, concerns about the direction and velocity of current trends affecting the environment, globally and locally, are finding their way into the public's consciousness. This presents unique opportunities for the future of southern Ontario's natural spaces.

To take advantage of fast-changing sensibilities, it is clear that the energy to restore and successfully leverage efforts to promote stewardship and conservation of natural spaces must come from the grassroots. While there is obviously a critical role to be played by government in developing the necessary tools to support and guide these initiatives, it is local success stories that inspire, and which offer the hopeful stimulus needed to translate many individual actions into collective progress.

This underscores the importance of communications: ways will need to be found to accommodate diversity of opinion, satisfy competing demands for resources and settle contentious issues with sensitivity, all the while staying focused on the big picture. The reason is simple. Treated separately, the needs of individual stakeholder and interest groups will inevitably exceed the capacity of society to absorb or adjust to competing demands. Only by acknowledging that the diverse physical and natural space resources of southern Ontario represent a single integrated platform upon which to build a common vision can we hope to move beyond platitudes. The window of opportunity stems from the blurring of traditional distinctions between urban and rural, but is driven by demographic change and rooted in economic innovation.

#### *Demographic trends:*

- Population growth continues to put pressure on natural heritage in areas of high development pressure. In southern Ontario's fragmented landscape, identifying major natural heritage systems for protection and restoration in advance of development applications is critical.
- Build on the work of urban and near-urban conservation authorities and municipalities to explore the cultural and social values, needs and aspirations of immigrant communities

relating to natural heritage. This will enable conservation organizations to better engage, educate and serve southern Ontario's growing population.

- Explore farm and non-farm landowner connections and interfaces for opportunities of mutual benefits, and to engage both in stewardship of shared natural heritage systems and preservation of local agricultural economies.

### *Economic trends:*

- Monitor emerging shifts in southern Ontario's rural agricultural economies toward new crops (biomass and medicinal uses); organic goods and other niche-market agriculture that takes advantage of growing urban markets.
- Promote eco-tourism and agri-tourism – the combination of agriculture, natural heritage and tourism – in local development strategies. Promote local community economic development approaches based on natural heritage.
- In areas of declining population, explore with municipalities, economic development and stewardship organizations, the implications and opportunities of an emerging minor rural rebound of retired baby boomers on local economies, local recreational services and volunteer stewardship.
- Support southern Ontario forestry with mechanisms for identifying opportunities to expand forests and better utilize marginal lands; engage landowners with incentives tools and extension services; increase the availability of native tree seedlings and ensure the right species are planted in the right places.
- Monitor the potential for alternative energy to enhance rural economic viability as well as environmental quality.

### *Social/health trends:*

- Increasing urban densities require careful planning for sufficient green services for a larger population – parks, trails sports fields, urban forests and natural areas provide an essential human service.
- Explore linkages between reduced health care costs and greenspace – physical, emotional and mental.

### *Natural Capital:*

- Explore and document low-cost green infrastructure alternatives to new or expanded water and sewage treatment facilities; use of storm ponds and maintenance of wetlands and forests and drought and flood management systems; urban forests and green roofs for temperature control, etc.
- Develop tools for municipalities to identify opportunities to use natural heritage to maximize property values and property assessment through careful site planning, and to minimize servicing costs.
- Develop tools for municipalities to document the value of natural heritage as a foundation for their local economies, and approaches to maximize community economic development strategies.

### *Future Research:*

Finding ways to value natural heritage and to effectively communicate natural heritage values to decision-makers and the public is an emerging interest of many academic, government and conservation organization. Monitoring and contributing to its evolution will, in future, make sure that Nature Counts.

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