

Opening the Door to Environmental Goods and Services

A breath of fresh Air

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A decade ago, the agricultural policy agenda in Canada did not reflect the idea that agricultural lands produce ecological goods and services.² This is no longer the case. After a June 2006 meeting of Canada's federal and provincial ministers of agriculture in St. John's, Newfoundland, Agriculture and Agri-Food Canada issued a news release that stated,

Ministers also received a report on progress to date on the development of an Ecological Goods and Services policy framework and agreed to continue policy development and implementation of pilot projects. (Agriculture and Agri-Food Canada, 2006b)

This policy framework is not yet available, but pilot projects are underway, and more are being proposed, to explore the feasibility of provision of

environmental goods and services from rural lands. The Soil Conservation Council of Canada (McKell, no date), the Canadian Federation of Agriculture (no date), and the Christian Farmers Federation of Ontario (2005) have prepared policy statements regarding payments for environmental goods and services. The Agricultural Policy Framework (APF) Review Panel recommended that every future Canadian agricultural policy framework give consideration to “the implementation of society's purchase of Environmental Goods and Services (EGS) from farmers” (APF Review Panel, 2006). The George Morris Centre's Canadian Agri-Products Policy Project included environmental goods and services as one of seven strategic elements of a comprehensive approach to reforming Canadian agricultural policy (Martin and Stiefelmeyer, 2006).

The Commission for Environmental Cooperation (Mayrand and Paquin, 2004) and the Agri-Environmental Policy Branch, Ministère de l'Agriculture, des Pêcheries et de l'Alimentation of the government of Quebec (Gagnon, 2005) have produced extensive international surveys of policies and programs in order to promote the provision of environmental goods and services from agricultural lands. Agriculture and Agri-Food Canada (2006a) organized a national symposium on ecological goods and services in Winnipeg in February 2006. The 2006 annual meeting of the American Agricultural Economics Association included a principle paper

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¹ I would like to thank Nick Schneider and Maria Klimas, as well as two anonymous referees, for their comments on earlier versions of this chapter.

² I will use environmental goods and services and ecological goods and services as synonyms in this chapter. The latter seems to be the preferred term of the federal government while the former is generally used elsewhere.

session on “Cultivating Ecosystem Services from Agriculture” with presentations by Scott Swinton et al. (2006), Katherine Smith (2006), John Antle and Jetse Stoorvogel (2006), and Robert Wolcott (2006).

Several general themes have emerged in policy and academic discussions of this topic in Canada. First, compensation for landowners that is commensurate with their contributions to the provision of environmental goods and services is generally recognized as a legitimate goal, particularly in light of the prevailing approach to policy and regulation in this area. A coalition of farm and environmental organizations is emerging in support of this goal. For the most part, arguments in support of this goal are stated in terms of fairness, rather than efficiency. However, the challenge of arriving at a value for the environmental goods and services provided by farmland owners—a value that would serve as the basis for compensation—is formidable.

There appear to be several motivations for increasing interest in environmental goods and services from rural lands in Canada. Technological change, farm subsidies, and other policy distortions, as well as weather variability and inelastic demand, have contributed to falling and unstable prices for farm products. Opportunities to enhance revenues, or to stabilize incomes through diversification or compensation for providing environmental goods and services, have attracted the attention of farm groups, as well as governments.

The more vigorous application of environmental regulation of agriculture in recent decades has also contributed to this growing interest. In the early 1970s, environmental regulation in Canada and the United States tended to focus on large-scale industrial emissions sources, emissions from the transportation sector, and

municipal waste management. Agriculture was largely overlooked by this first wave of environmental regulation. That began to change in the mid- to late 1980s as agriculture began to be seen as both a source of emissions and a category of land use that created tradeoffs with habitat protection for endangered species. More recently, regulation of agricultural production activities to protect ground and surface water has been introduced in many jurisdictions. In addition, disputes over odour and other environmental issues surrounding the development of large-scale livestock production facilities have become more common and more acrimonious.

This rise in policy attention has not gone unnoticed in rural areas. An increasingly vocal rural property rights movement is one expression of a reaction to this shift in policy. Rural landowners speak more frequently about regulatory takings³ under this emerging environmental policy regime, and leading farm organizations have called for compensation. Opportunities to generate revenue for the provision of environmental goods and services have been seen as a way to resolve emerging conflicts in this area.

James Buchanan (1964) and Carl Dahlman (1979) have both argued that the primary purpose of economic research should be to identify opportunities to extend market exchange relationships into realms where they

³ The term “regulatory takings” has been applied to many types of government actions. In general, the term is applied to situations where government regulation of property use reduces the market value of land. It is beyond the scope of this chapter to review the depth and breadth of the controversies found in the regulatory takings literature. A seminal contribution to this literature is Richard Epstein’s 1985 book, *Takings*. For a Canadian perspective on some of these issues, please consult Schwindt (1992).

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do not currently exist. One implication of this view is that the common practice of economists to distinguish between market goods and non-market goods is at best a short-term distinction. Innovations in institutions and technology, as well as changes in values or ideology, can move this boundary. It is generally accepted in Canadian discussions that ecological goods and services currently fall into the non-market category. But the international surveys of experiences compiled by Mayrand and Paquin (2004) and Gagnon (2005) illustrate that there is no intrinsic characteristic of environmental goods and services that relegates them permanently to this fate.

Much of the literature on environmental goods and services, and the closely related literature on natural capital from which it is derived, is metaphorical. According to this metaphor, natural capital is somewhat like capital and environmental goods and services are somewhat like the goods and services that are exchanged in markets. This metaphor helps us to appreciate that these things have value to humans. The purpose of this chapter is to explore how we can move beyond the metaphor and facilitate the transformation of environmental goods and services in Canada from non-market goods to market goods.

Environmental goods and services

Agriculture and Agri-food Canada defines ecological goods and services as “the benefits that human populations derive, directly or indirectly, from healthy functioning ecosystems, which encompass air, water, soil and biodiversity” (qtd. in McKell, no date). The Soil Conservation Council of Canada identifies ecological

goods as potable water, quality food, fuel, wood, fibres, genetic resources, pharmaceuticals, and ecological services such as greenhouse gas mitigation, carbon sequestration, erosion control, soil quality improvement, ecosystem enhancement, water purification, and waste treatment. Other definitions and taxonomies have been proposed by Olewiler (2004), Gagnon (2005), and Mayrand and Paquin (2004).

In general, the terms “environmental goods and services” or “ecological services” are used to describe a wide range of items. From a property rights perspective, it is important to distinguish between two subcategories of environmental goods and services. The first subcategory includes reductions in what Rothbard (1982) describes as physical invasions of persons or their justly owned property by others. Such situations include trespassing, making a nuisance, and violating riparian rights under customary common law (see Brubaker, 1995, and Yandle, 1997). Agricultural examples that fall under this subcategory include a reduction in off-farm water quality due to soil erosion, manure storage and application, or farm chemical use; a reduction in off-farm air quality due to dust or odour; and noise from transportation or production activities. The second subcategory of environmental goods and services includes the protection of wildlife and endangered species habitats; outdoor recreation; the maintenance of scenic views; the prevention of the conversion of farmland to non-farm uses; and most forms of wetland protection.

The distinction between these two types of environmental goods and services is critical to understanding the potential role of market exchanges in the provision of those goods and services. This distinction also helps clarify the nature of regulatory takings. Government

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regulations that impose sanctions on things that would qualify as nuisances under customary common law should not be described as regulatory takings because the right to private property does not include the right to commit trespasses or nuisances against other property owners. Many air and water emissions regulations fall under this category and thus do not qualify as regulatory takings. Determining whether an apparent pollution trespass or nuisance is an actual trespass or nuisance depends on history (Rothbard, 1982).

Wetland protection policies occupy a grey area with respect to regulatory takings. In some instances, regulation to protect wetlands can constitute a measure to protect the riparian rights of downstream property owners, and this type of regulation would not constitute a regulatory taking. However, not all wetland protection policy is justified under this rationale. Wetland regulation that is intended to provide wildlife habitat or scenic amenities would constitute a regulatory taking.

Approaches to promoting environmental goods and services

There are two broad categories of approaches to promoting the provision of environmental goods and services: taxpayer-financed government programs and beneficiary-financed market programs. These two categories could also be described as government regulatory approaches and free-market environmentalist⁴

⁴ The term “free market environmentalism” has been used by Terry Anderson and Donald Leal in their 1992 book *Free Market Environmentalism*, published as a second edition in 2001 and further

approaches. The first category would include government ownership of land and other resources, as well as regulatory takings and taxpayer-financed payments to landowners for the provision of environmental goods and services.

Government regulatory approaches

When a regulatory takings approach is adopted, the resulting prosecution, implementation, and enforcement are financed by taxpayers. However, compliance costs, including losses in property values, are borne by property owners. If property owners are compensated for these costs and losses, then the policy comes closer to an expropriation approach. Variations on this approach⁵ include expropriation of land for parks, conservation areas, and wildlife preserves; purchase of development rights and conservation easements; full or partial cost-sharing programs; income, capital gains, estate, property, or other tax credits; differential property tax rates⁶; conservation set-aside payments; and multi-functionality payments.⁷ The terms of these measures may take the

developed in their 1997 book *Enviro-Capitalists: Doing Good While Doing Well*, to represent a market-based approach to environmental stewardship.

⁵ Some of these methods, such as the purchase of development rights or conservation easements, can also be used by private voluntary associations. In this case, these methods would fall under the free-market environmentalist category as club goods.

⁶ Typically, for property tax purposes agricultural land is subject to a lower assessment rate than residential, commercial, or industrial land.

⁷ Multi-functionality is a term that has been popular in the European Union. The term has become controversial in international

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form of purchases, involving a one-time lump sum payment for a permanent commitment, or a lease or rental arrangement that secures a commitment for a limited time period. Terms of sale or lease arrangements sometimes involve competitive bidding processes.

One type of government program, which is sometimes misleadingly described as a “quasi-market” (or even a market) approach, is emissions permit trading schemes. This approach was first proposed by University of Toronto economist John Dales in 1968. There are several variations on emissions trading schemes, but the general idea is that a regulatory agency sets an overall level for emissions of a particular type for a water body or region. The then government issues emissions permits, which are usually based on historical levels of emissions from sources in the relevant area or location. These permits can be bought and sold. If the cost of reducing their emissions is low, emitters have an incentive to adopt those mitigation practices and sell their excess permits. If non-emitters were allowed to participate in permit markets, they would be able to buy permits and retire them, reducing the overall level of emissions in the area. Furthermore, the government agency response for the program sometimes assesses a tax on traded permits, so that some proportion of the emissions allowed under a permit reverts to the regulatory agency each time a permit is exchanged, a process that also leads to an overall reduction in emissions over time.

Some further government-based approaches to promoting the provision of environmental goods and

services include moral suasion, technical assistance, and technology development or education and training. Under these types of approaches, firms and land owners are presented with taxpayer-financed information, new technologies or production systems, and advice that is meant to encourage them to adopt management and production practices that reduce environmental “bads” or increase the supply of environmental goods and services.

Free-market environmentalist approaches

There are three main free market environmentalist approaches to promoting the provision of environmental goods and services: club goods, bundled goods, and litigation. These approaches are based on the classical liberal or libertarian understanding of the right to private property, which includes the rights of self-defence against trespass and nuisance, as well as alienation rights. The economics of club goods is generally traced to a paper by James Buchanan (1965). Cornes and Sandler (1986: 159) define a club as a voluntary group that pools the resources of its members and provides an excludable benefit to those members. However, I have in mind a more expansive idea of a club in the present context. In North America, there are voluntary associations that provide financial and in-kind support for environmental goods and services, and this support generates benefits that are not exclusive to club members.⁸ But a club is

⁸ The provision of non-excludable benefits is not unique to environmental stewardship initiatives. Any club that stands ready to admit new members in the future provides an option value for potential future membership that is not exclusive to current members. Current

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trade discussions, however. The United States, in particular, views these types of payments (at least when they are made in the EU) as thinly disguised agricultural subsidies.

still, in the way that I will use the term here, a voluntary organization. Individuals may choose to affiliate themselves with the club—which usually entails a cash contribution or similar support—or they may choose not to affiliate themselves. Examples of environmental goods and services provided as club goods include the programs of Ducks Unlimited and Delta Waterfowl, which use club revenues to provide payments to landowners in exchange for maintenance of wetland areas. As well, there are many types of recreation-based clubs and associations that either own or lease land that is used to provide environmentally based recreation.

In general, bundled goods combine the provision of an environmental good or service with the sale of a conventional good or service to enhance the value of that conventional good or service on the basis of the attributes of the product or the production process. Examples of bundled goods⁹ include organic food, grass-fed beef, free-range poultry, and shade-grown coffee. Bundling can take place through efforts to brand a product or through third party certification.

members, by contributing to the maintenance of the organization, make this benefit available to current non-members.

⁹ I recognize that the environmental goods and services bundled with the products in this list are controversial. Some people believe that positive environmental benefits are associated with these products while others do not. From the vantage point of the subjective theory of value, however, the objective nature of the bundled goods is not of primary concern. The subjective theory of value indicates that the purchasing decisions of buyers are based on their subjective preferences, perceptions, and expectations. Perceptions of environmental benefits, similar to perceptions of other categories of benefits, are subjective and can differ between individuals.

Litigation is the third subcategory of free market environmentalist approaches. Although litigation might appear to be out of place here, I would argue that litigation belongs with club goods and bundled goods. While the relationship between common law and legislative law is currently complex and full of contradictions, Hayek (1973, 1974, 1976) and Benson (1990) have shown that, historically, this has not always been the case. Customary common law emerged as a voluntary conflict mediation process. The alternative to this process was physical self-defence. If a person's neighbour committed a trespass or a nuisance, then the putative victim would retaliate. Customary common law emerged as respected leaders in the community came to provide a mediation service that stopped chains of action, retaliation, and revenge that could continue for several generations. Today, civil or common law is confounded with legislative law and the operation of civil courts is financed by taxpayers.

The litigation approach is limited to what I referred to earlier as the category of environmental goods and services that involves reducing environmental “bads.” Emissions from farms, such as dust, noise, odours, displaced sediment from erosion, and runoff of pesticides and nutrients, could constitute trespasses or nuisances. Thus, affected property owners could seek compensation or injunctive relief under customary common law.

Coming to the nuisance and “right to farm”

The legal history of disputes over agricultural emissions is complex and conflicted. Applying the distinction between government regulatory and market approaches, however, requires at least a limited examination of some critical issues in this controversial

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history. Under customary common law, a question of fundamental importance when adjudicating disputes is, “Who was there first doing what?” Rothbard’s insightful analysis of property rights and air pollution (1982), which he applied in an essay on airports, is applicable here.¹⁰ Rothbard explains that if an airport is established in a remote area, its operation establishes for its owners a “noise homestead” in the air and surrounding land. If people subsequently purchase land adjacent to the airport and construct homes, they have come to the nuisance. They have paid less for their land than they would have paid in the absence of the airport’s noise homestead. Under customary common law, if those new property owners were to litigate against the airport, claiming trespass or nuisance for noise, the airport owners could effectively defend themselves by claiming that the plaintiffs had come to the nuisance. As Rothbard (1982) points out, however, the scale of the historical operations of the airport limits the scale of the noise homestead. If the airport wants to add a runway or otherwise increase capacity at its facility, and that increase in capacity will result in additional noise, then the “coming to the nuisance” defence will not work.

The same argument can be applied, and has been applied in the past (see Brubaker, 1995), in situations involving odours and other emissions from livestock operations. But, for reasons that are not clear to me, at some point courts began to be persuaded by the coming to the nuisance defence less often, abandoning inquiry into the critical question of who was there first doing what. Plaintiffs who arrived after a farm had been in

operation for some time began to be more successful at litigating nuisance complaints. Subsequent political action on the part of the farm community led to so-called right-to-farm laws and agricultural zoning. Under these legislative measures, farm operations in designated areas were largely exempted from liability for nuisance.¹¹ These measures have generally gone beyond the protections previously embodied in customary common law because they did not generally limit operations to the historical scale protected under the coming to the nuisance defence.

For this reason, agricultural zoning and right-to-farm laws currently constitute an impediment to the use of customary common-law approaches to the provision of environmental goods and services since they discourage litigation that is intended to reduce the level of environmental “bads.” Legalized nuisance, a term introduced to the economics literature by Ronald Coase in 1960, shields farms that discharge emissions into air and water and would otherwise be potentially liable for trespass or nuisance.

One of the common criticisms of the litigation approach to the provision of environmental goods and services is that the costs of litigation are high and only the lawyers benefit. This view ignores the incentives that arise once a precedent is established. Once a sufficient number of cases establish the precedent that coming to the nuisance is an effective defence for an enterprise

¹¹ It is beyond the scope of this chapter to discuss the legal and historical development of right-to-farm laws and their implications, but an excellent treatment of the topic, from a primarily Canadian perspective, is available in Brubaker (2007). Brubaker rejects the coming to the nuisance defence on legal positivist grounds.

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¹⁰ Maria Klimas (2006) has developed an application of Rothbard’s (1982) approach to nutrient management planning in agriculture.

whose size and scope has not changed recently, but that it is not an effective defence for an enterprise that has expanded, a message is sent throughout a jurisdiction. There is little incentive to litigate similar cases once a precedent establishes a benchmark. In general, litigation only makes sense economically when there is some uncertainty regarding the outcome. The establishment of precedent significantly reduces that uncertainty.

> Why don't we see many markets for environmental goods and services?

Transactions in environmental goods and services are a relatively new and limited phenomenon in Canada. Normally, we expect that when demand for a good or service becomes stronger, entrepreneurs will perceive this latent opportunity and coordinate factors of production to attempt to serve this emerging market. There are some indications that the demand for environmental goods and services from rural lands is growing, as incomes rise and values change in Canadian society. But the supply side, at least at this point, does not seem to be responding.

The public goods explanation

There may be something peculiar about environmental goods and services that prevents the normal entrepreneurial process from taking place. Economists have frequently suggested that environmental goods and services are examples of what economists call public goods. Perhaps public goods present a situation in which there are incentive problems that discourage

entrepreneurs from supplying them in a normal market fashion. As a result, any firm that attempts to provide a public good will likely fail.

The term “public goods” is used in a variety of ways in policy discussions. It is often designates goods or services that are provided by governments and financed by taxpayers. However, the technical economic definition of a public good is different. These goods are non-rival in consumption in that one person can consume as much of a good or service as he or she wants but this consumption does not reduce the quantity of that good or service available for others to consume. It is costly or impossible to exclude people who have not contributed to the provision of a public good from experiencing the benefits of that good.¹²

Many things that are described as public goods—even by professional economists who ought to know better—do not fit this definition. There are few goods or services that are non-rival in consumption. This is an unusual property, and, despite claims to the contrary in many leading economics textbooks, almost no goods or services fit this definition. It is sometimes claimed that clean air, clean water, and outdoor recreation are public goods. However, two people cannot drink the same glass of clean water at the same time or breathe the same lung-full of clean air simultaneously. Clean air and clean water are rival in consumption and are not, therefore, public goods. Likewise, two cross-country skiers cannot occupy the same spot on the cross-country ski trail at the

¹² There is a persistent inconsistency in the economic literature on public goods, since costly exclusion and impossible exclusion are different concepts. Alan Randall (1985) has pointed out that non-rivalry and costly exclusion are independent characteristics.

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same time, and two canoes cannot occupy the same spot on the river at the same time. Thus, outdoor recreation services are rival in consumption and, therefore, cannot be public goods.

Costly exclusion is also problematic. Exclusion costs are a function of history, culture, and institutions. The ability to exclude non-contributors is directly related to how hard people have worked to exclude others in the past. Furthermore, the extent to which they have had an incentive to devote effort to exclusion is a function of institutions. Consequently, the fact that exclusion may be difficult for a particular good or service at the present time does not actually tell us anything about how difficult exclusion for that good or service might be in the future. Ultimately, there is nothing peculiar about public goods that explains why market transactions in environmental goods and services are underdeveloped.

Five economic explanations for the lack of market transactions in environmental goods and services

Understanding, economically, why market transactions in environmental goods and services are rare can play an important role in designing strategies to facilitate the provision of this category of goods and services. In addition to the public goods explanation, there are five economic explanations for the limited extent of market transactions in environmental goods and services in Canada: transaction costs, insufficient demand (relative to supply), policy constraints, price distortions, and government ownership of natural resources.

The theory of exchange, which dates back to Carl Menger (1871/1994), explains that, at the level of a single voluntary market transaction between two individuals,

if individual A exchanges an item of property for an item of property owned by individual B, then we can safely conclude that individual A valued the item of property formerly owned by B more than the item of property that A owned herself, and vice versa for individual B. Both A and B expected to gain from the exchange, since they both valued what the other person owned more highly than they valued what they owned themselves before the exchange. The subjective theory of value reminds us that it is a fool's errand to try to observe and measure utility, since utility is a subjective magnitude that exists, unobservable and unmeasurable, in the minds of people. Consequently, utilities cannot be added together across individuals and they cannot be compared.¹³ As Hayek (1973, 1974, 1976) and Barnett (1992) have explained, these valuations lie forever hidden from view, with one and only one exception: when voluntary exchanges of private property take place and generate prices. Prices are an objectively measurable magnitude that provide us with a glimpse of that hidden valuation information. Hayek and Barnett acknowledge that this glimpse is not perfect, but it is the only measure we have.

Transaction costs

If an expectation of mutual benefit can be inferred after the fact with voluntary market exchange, and if there is a growing demand for environmental goods and services, then why don't we see markets emerging more robustly?

¹³ It is beyond the scope of this chapter to assess efforts to measure willingness to pay for environmental goods and services which use survey or interview techniques. James Buchanan's (1969) *Cost and Choice*, a book that has not received the recognition it deserves, anticipated many of the more important criticisms of these techniques.

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One factor is transaction costs. Carl Menger (1871/1994) and, more recently, Nobel Prize winner Ronald Coase (1960) explained that there are costs associated with using market exchange relationships as a means of social coordination. Menger referred to these costs as marketing costs. Coase used the term transaction costs. Coase defined transaction costs¹⁴ as the value of the resources used up in making a market exchange. According to Coase's exposition, there are three subcategories of transaction costs: search costs, negotiation costs, and concluding costs. Search costs are incurred during the process of looking for potential partners for a market exchange. These might include the cost of advertising, travel, and communication. Negotiation costs arise when a potential exchange partner is identified and the terms of that exchange are being explored. In a fixed-price retail sale environment, negotiation costs may be inconsequential. For example, most people do not bargain over the price of a lift ticket at a ski hill. This is a familiar type of transaction. But many potential market transactions for environmental goods and services are not so familiar. Negotiating the terms of an agreement with a farmer to maintain a songbird habitat on part of his farm might be a different matter entirely. Concluding costs, according to Coase, arise as the parties verify that the terms of the exchange were met.

14 The term "transaction costs" has been stretched far beyond its original meaning by economists since Coase introduced the term in 1960. Costs involved in the political process, costs of institutional change generally, adjustment costs, and even charges for various types of services have been lumped into this category. In this essay, I attempt to maintain Coase's original definition.

The significance of transaction costs, in the present context, is that even when market conditions appear favourable, market exchanges may not take place if transaction costs are high enough. Therefore, high transaction costs, relative to potential gains from exchange, are one explanation for the limited development of transactions in environmental goods and services in Canada to date. In any emerging market or industry, transaction costs are a significant impediment until potential buyers become aware of potential sellers and vice-versa. In these new markets, communication networks, including advertising, are undeveloped and search costs are high. Furthermore, since transactions in an emerging market are, by definition, novel, negotiation costs can also be high due to the wariness of first-time buyers and first-time sellers. After progress has been made, standardized transactions can be made in less time and with less effort devoted to the negotiation of terms.

Weak demand

Transaction costs are not the only reason why markets do not exist. A second explanation of the lack of emerging markets for environmental goods and services is that, even if demand for these goods and services is growing, that demand may not yet be sufficiently strong to prompt supply. Given the relatively recent emergence of this issue in Canada, it could be the case that there has not been enough time for people to perceive and act on entrepreneurial perceptions of market opportunities. In some cases where demand is strong enough relative to supply conditions, transactions take place in a manner that is not officially reported. These transactions could be arranged through informal networks or through a more organized "black market."

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Policy constraints

Policy constraints are another reason that the development of a market for environmental good and services may not be taking place. Sometimes government regulations prohibit market transactions in environmental goods and services, even on private land. An example would be a regulation that prohibits land owners from charging hunters to hunt game on their land. If the consequences of selling an environmental good or service are negative—for example, fines or imprisonment—it is hardly surprising that such transactions are not commonplace, or that they tend to be done informally when they do occur.

Price distortions

Price distortions are another possible explanation for limited market transactions. Distortions can arise if there is a regulated maximum price for some good or service, as in the case of rent controls or maximum gasoline price regulations. This type of quantity-rationed situation results in buyers wanting to buy more than suppliers are willing to offer at the regulated price.

Price distortions can also arise when the provision of a good or service is subsidized, keeping the price below that which would prevail in a free market. In this case, the government either supplies the goods or services directly, or it subsidizes firms to provide them at a price that does not reflect the full costs of provision. An example of this situation in Canada would be camping services. The national and provincial parks provide recreation services to Canadians, but the user fees that are charged are not enough to allow the parks to recover their costs. There is little incentive for independent operators to compete in this market, since the

subsidized price that prevails because of government provision of this service is so low.

State ownership of natural resources

Finally, a fifth explanation of the lack of market exchanges in environmental goods and services is state ownership of natural resources. Government ownership of natural resources in Canada is extensive. Governments act differently than private citizens and voluntary associations when they participate in markets. Because they have the power to tax, governments are not subject to the financial constraints that private citizens and voluntary associations face. Moreover, governments in Canada have often been reluctant to sell these resources, at least in the twentieth century.

Diagnosis and treatment

Determining what is responsible for a lack of observed market transactions in environmental goods and services is a challenging undertaking. Economists have not devoted much effort to this diagnostic task. The subjective theory of value reminds us of this difficulty. According to this theory, if preferences are subjective mental states that exist only in human minds, whether these are the minds of buyers or sellers, then the economist must acknowledge that there is no objective process for measuring these valuations, independent of observed actions.¹⁵ Therefore, it could be that, in the absence of market exchanges, the subjective valuations of buyers

¹⁵ Murray Rothbard's (1956/1997) "Toward a Reconstruction of Utility and Welfare Economics" examines this issue in detail.

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are not high enough to result in attractive terms relative to the subjective valuations of sellers. Or, it could be that the subjective valuations of buyers and sellers are not high enough jointly to overcome the subjective valuations of transaction costs.

Unfortunately, very little economic research has been undertaken to identify factors that influence the magnitude of transaction costs, let alone how to reduce them. However, it is possible to identify some legislative and regulatory barriers that discourage transactions. Government ownership of natural resources and the subsidized provision of competing goods or services are probably the easiest barriers to observe.

> Policy issues

For political, financial, and environmental reasons, rural lands in Canada are attracting increasing attention as a source of environmental goods and services. At the same time, the traditional regulatory takings approach is facing increasing resistance from rural land owners. However, current discussions of alternative approaches to facilitating the provision of environmental goods and services have not made a careful enough distinction between taxpayer-funded programs and beneficiary-funded (user-pay) market programs. Beneficiary-funded programs, which take a free-market environmentalist approach, enjoy a critical informational advantage over government-funded programs when it comes to the identification of the value of environmental goods and services.

To illustrate the nature of this advantage, these two approaches can be compared to what Hayek called a planned order and a spontaneous order. A spontaneous

order, which corresponds to the free-market approach, is a pattern of human social interaction that is the product of human action, but not the product of human design. There is no one in charge of a spontaneous order. Hayek's 1945 essay, "The Use of Knowledge in Society," comparing spontaneous and planned orders illustrates the informational advantages of spontaneous orders, especially when the subjective theory of value is taken into account. If preferences are subjective and can't be objectively measured, and if information about preferences, expectations, and opportunities is widely dispersed among the members of a society, then the coordination of human action under a planned order approach faces significant challenges. How can the coordinating agency possibly know what it needs to know about this inaccessible information?

Contrary to many suggestions in policy statements about environmental goods and services, this is not a matter of scientific approach, nor is it a hurdle that can be overcome with comprehensive consultation. Hayek's insight, clarified later by Barnett (1992), is that voluntary transactions among consenting adults—that is, market exchanges—offer us an opportunity to see aspects of this subjective and dispersed information, to which we would otherwise not have access. Historical prices are our only window into this subjective knowledge. Without access to this price information, how could we possibly know what specific environmental goods or services were worth, and to whom? Hayek's essay may have been concerned with the problems of comprehensive economic and social planning, but his concerns are equally applicable to the task of facilitating the provision of environmental goods and services from rural lands.

The challenge is to determine what institutional changes are needed to allow spontaneous order

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approaches to emerge. What role should research play in resolving this issue? James Buchanan (1964) argued that the primary purpose of economic research should be to identify ways to extend market exchange relationships into realms where they have not previously operated. Carl Dahlman (1979) suggested that the primary focus of economic research should be to find institutional innovations that would reduce transaction costs so that more potential market exchange arrangements could lead to the realization of the latent mutual gains from exchanges that markets make possible. Both views are relevant to the topic of environmental goods and services and the role of economic research in terms of facilitating the interaction of the willing buyers and sellers of those goods and services. Case studies, pilot projects, and feasibility studies may help identify the institutional changes that would be required to extend market exchange relationships more deeply into the realm of environmental goods and services.

In addition to its information disadvantage, the planned order approach to the provision of environmental goods and services faces another challenge. Ultimately, this approach relies on tax revenues to operate. This pits the provision of environmental goods and services against other increasingly strong demands for tax revenues. It puts environmental goods and services in competition with health care and education. In the long run, it is likely that other demands for revenues will win.

Conclusion

In order to advance the agenda on environmental goods and services in Canada, we must take a number of steps.

First, we need to acquire a better understanding of the critical differences between planned order and spontaneous order approaches to the provision of environmental goods and services. Access to personal subjective valuation information is necessary to address the question of how much these goods and services are worth. Second, trial markets and pilot programs should be implemented, as they are a good, practical first step towards exploring alternative approaches. These social experiments may lead to a reform of the policy-based impediments to the emergence of market approaches discussed earlier. Third, the government may have some role in reducing transaction costs by helping to develop communication and advertising tools. This function, however, may also be accomplished by other types of organizations such as associations and cooperatives composed of similar interests. Either way, transaction costs are likely to decrease as markets develop. Fourth, if the culprit turns out to be insufficient demand, then, at least for now, we may need to accept that it would not be beneficial to coerce transactions. Finally, we should take steps to restore customary common law, following Elizabeth Brubaker's (1995) agenda, which in this context would include a repeal of right-to-farm legislation and agricultural zoning.

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References

- Agriculture and Agri-Food Canada (2006a). *Ecological Goods and Services*. <<http://www.agr.gc.ca/pol/egsbse/>>, as of November 6, 2006.
- Agriculture and Agri-Food Canada (2006b). Agriculture Ministers Focus on New Opportunities for the Sector at Their Annual Conference. News release (June 27). <http://www.agr.gc.ca/cb/index_e.php?s1=n&s2=2006&page=n60627>.
- Anderson, Terry, and Donald Leal (1997). *Enviro-Capitalists: Doing Good While Doing Well*. Rowman and Littlefield.
- Anderson, Terry, and Donald Leal (2001). *Free Market Environmentalism* (rev. ed.). Palgrave.
- Antle, John, and Jetse Stoorvogel (2006). Predicting the Supply of Ecosystem Services from Agriculture. *American Journal of Agricultural Economics* 88, 5 (December): 1174–80.
- APF Review Panel (2006). *Assessing Progress: APF Review Panel Policy Report: APF Review Overview and Conclusions and Recommendations*. Agriculture and Agri-Food Canada.
- Barnett, Richard (1992). The Function of Several Property and Freedom of Contract. In Ellen Frankel Paul, Fred Miller and Jeffrey Paul (eds.), *Economic Rights* (Cambridge University Press): 62–94.
- Benson, Bruce (1990). *The Enterprise of Law*. Pacific Research Institute.
- Brubaker, Elizabeth (1995). *Property Rights in the Defence of Nature*. Earthscan Press.
- Brubaker, Elizabeth (2007). *Greener Pastures: Decentralizing the Regulation of Agricultural Pollution*. University of Toronto Press.
- Buchanan, James (1964). What Should Economists Do? *The Southern Economic Journal* 30, 3: 213–22.
- Buchanan, James (1965). An Economic Theory of Clubs. *Economica* 32: 1–14.
- Buchanan, James (1969). *Cost and Choice*. University of Chicago Press.
- Canadian Federation of Agriculture (no date). *Environment Policy Statement*. <http://www.cfa-fca.ca/pages/index.php?main_id=22>, as of November 30, 2006.
- Canadian Federation of Agriculture (2005). *Agriculture Policy Framework II - A Farm Bill for Canada*. <<http://www.cfa-fca.ca/upload/APF%20II%20-%20Strategic%20Growth%20for%20Agriculture%20-%20Draft7.pdf>>, as of November 28, 2006.
- Christian Farmers Federation of Ontario (2005). *Alternative Land Use Services (ALUS) (Payments for Environmental Goods and Services): A Policy Statement of the Christian Farmers Federation*.

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Provincial Council, Christian Farmers Federation of Ontario.

Coase, Ronald (1960). The Problem of Social Cost. *Journal of Law and Economics* 3 (October): 1–44.

Cornes, Richard, and Todd Sandler (1986). *The Theory of Externalities, Public Goods and Club Goods*. Cambridge University Press.

Dahlman, Carl (1979). The Problem of Externality. *Journal of Law and Economics*, 22, 1: 141–62.

Dales, John (1968). *Pollution, Property and Prices*. University of Toronto Press.

Epstein, Richard (1985). *Takings*. Harvard University Press.

Gagnon, Benoît (2005). *Remuneration for Ecological Goods and Services Produced by Agriculture: Elements for a Quebec Analysis*. Agri-Environmental Policy Branch, Ministère de l'Agriculture, des Pêcheries et de l'Alimentation, Government of Quebec.

Hayek, Friedrich (1973, 1974, 1976). *Law, Legislation and Liberty* (Vols. 1-3). University of Chicago Press.

Klimas, Maria (2006). *Managing Nutrients with Property Rights: An Evaluation of Nutrient Management under Central Planning and the Market*. IBL Working Paper, presented at the Third Mises Seminar, Istituto Bruno Leoni, Sestri Levante, Italy, October 5-6, 2006.

Martin, Larry, and Kate Stiefelmeyer (2006). *Canadian Agri-Products Policy Project: Vision, Mission, Intentions and Instruments*. George Morris Center.

Mayrand, Karel, and Marc Paquin (2004). *Payments for Environmental Goods and Services*. Unisfera International Centre. Prepared for the Commission for Environmental Cooperation.

McKell, Doug (no date). Ecological Goods and Services: A Strategy for Soil Conservation and Agricultural Resource Management. Position paper. Soil Conservation Council of Canada, Indian Head Experimental Farm.

Menger, Carl (1871/1994). *Principles of Economics*. (James Dingwall and Bert Hoselitz, Trans.). Libertarian Press.

Olewiler, Nancy (2004). *The Value of Natural Capital in Settled Areas of Canada*. Ducks Unlimited and the Nature Conservancy of Canada.

Randall, Alan (1985). *Resource Economics*. Wiley and Sons.

Rothbard, Murray (1982). Law, Property Rights and Air Pollution. *Cato Journal* 2, 1: 55–99.

Rothbard, Murray (1956/1997). Toward a Reconstruction of Utility and Welfare Economics. Reprinted in Murray Rothbard, *The Logic of Action One: Method, Money and the Austrian School* (Edward Elgar): 211–55.

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Schwindt, Richard (1992). *Report of the Commission of Inquiry into Compensation for the Taking of Resource Interests*. Government of British Columbia.

Smith, Katherine (2006). Public Payments for Environmental Services from Agriculture: Precedents and Possibilities. *American Journal of Agricultural Economics* 88, 5 (December): 1167–73.

Swinton, Scott, Frank Lupi, G. Phillip Robertson, and Douglas Landis (2006). Ecosystem Services from Agriculture: Looking Beyond the Usual Suspects. *American Journal of Agricultural Economics* 88, 5 (December): 1160–66.

von Mises, Ludwig (1998). *Human Action*. Ludwig von Mises Institute.

Wolcott, Robert (2006). Prospects for Ecosystem Services in the Future Agricultural Economy: Reflections of a Policy Hand. *American Journal of Agricultural Economics* 88, 5 (December): 1181–83.

Yandle, Bruce (1997). *Common Sense and Common Law for the Environment*. Roman and Littlefield.

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