

A Strategy for Conserving Canada's Natural Capital

Canada's natural capital is essential to our environmental and economic well-being. However, we continue to lose our natural capital because existing markets, policies and programs don't effectively encourage the retention of these assets. Ducks Unlimited Canada (DUC) has created a new series of fact sheets entitled A Strategy for Conserving Canada's Natural Capital that highlights DUC's recommendations for advancing the conservation of Canada's natural capital. This new series builds upon the previous fact sheet series, Natural Values: Linking the Environment to the Economy, which focused on the economic and environmental benefits of natural capital. Both series are available at www.ducks.ca/conserves/wetland_values/conserves.html

4 Success Stories from other Countries

In recent decades, governments have directed more public funds to enhance the provision of ecological goods and services (EGS) from rural landscapes. The United States (US), England and Australia stand out in this movement; not only because they commit considerable resources to EGS programs, but also because their programs have evolved over time. By examining this evolution, other countries can benefit by adopting program elements that work while avoiding those that don't. The following highlights some successful elements of EGS programs in the US, England and Australia, as well as some common challenges. Rather than providing a comprehensive review of every program, we present a selection of elements that can guide development of an EGS strategy in Canada.

Although most of the programs discussed here are voluntary payment programs, it is important to note that strong regulatory elements are also essential to EGS program success. By establishing a broader EGS policy framework, governments provide the foundation to support viable incentive programs. Non-payment policy instruments can also enhance program success. For example, cross-compliance requirements maximize environmental benefits by making eligibility for EGS programs contingent on complying with existing environmental regulations.

Integrated Water Resources Management (IWRM) has been used to successfully address EGS issues in New York. Rather than building a US\$8 billion filtration plant to treat drinking water supplied by upstream watersheds, New York City (NYC) entered into a long-term watershed protection initiative with upstream stakeholders. At an estimated cost of US\$507 million, this initiative is viewed as cost effective and politically acceptable by NYC water users, who finance the program through water bill taxes¹.

Long-term protection of drinking water was ensured via state and federal regulatory changes, in addition to a portfolio of non-regulatory instruments, including: conservation easements; stewardship incentives (taxes, permits, subsidies); and new EGS markets (eco-labelling, certification). Partnership programs were also created to meet the needs of all stakeholders while providing local leadership. Among these, the Watershed Agricultural Program (WAP) promoted whole farm plans that protect water quality and maintain farming as a preferred land use. As of 2006, 96% of the commercial farms in the watershed were enrolled in WAP, and 99% of these had whole farm plan agreements¹.

This [NYC] program was the first upstream/downstream collaboration to link water quality protection goals with an economic objective – preservation of the watershed's farming economy... The key to success of this program is stakeholder involvement in a participatory process guided by local leadership.

USAID, 2006¹



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EGS Programs in the United States

Established in the 1985 Farm Bill, the [Conservation Reserve Program \(CRP\)](#) is a voluntary land retirement program that provides financial incentives to agricultural producers to convert environmentally sensitive lands to EGS-conserving vegetative cover². Although the original intent of the CRP was to raise commodity prices and address soil erosion issues, it has evolved to put more emphasis on wildlife habitat, air and water quality, and carbon sequestration. With a 2007 budget of over US\$2 billion, CRP is the largest federally funded conservation program in the US². As of 2006, approximately 10% of the cropland in the US was enrolled in the CRP, although this has declined in recent years³.

Highlights:

- Through a general sign-up subprogram, producers compete in a national **auction** to enrol in 10-15 year CRP contracts. Successful bidders receive **annual payments**, and may also receive **cost-share payments** to establish conservation practices.
- Contracts are selected using a **benefit-cost targeting** tool, the environmental benefits index (EBI), which evaluates bids based on environmental indicators and cost. When the EBI was adopted in 1991, some environmental benefits of the CRP were almost doubled while program costs were essentially unchanged⁴.
- Program **outcomes are demonstrated** regularly. The EGS provided by CRP lands are quantified annually, and commissioned studies estimate social and economic benefits as well. These studies indicate that the CRP is the largest contributor of carbon sequestration benefits of all federally administered programs in the US and that it generates over US\$500 million per year in recreation benefits alone⁴.
- Other CRP **subprograms**, including the Continuous Sign-up, the Conservation Reserve Enhancement Program and the Farmable Wetland Program, target high priority practices.



The CRP has been popular with producers, but over 20 million acres of CRP contracts are due to expire by 2012⁵. Although these contracts are eligible for re-enrolment and possible extension, the benefits may not be sustained over the long term. In addition to increasing food prices that have triggered demands to make more CRP lands available for crop production, new markets (e.g. for biofuels) have also created incentives to bring lands back into production. To remedy this, some suggest that CRP payments should match incentives for re-cropping, while others favour alternative EGS instruments such as permanent easements⁵.

Permanent easements remove cropping rights and allow compatible uses, like grazing or forestry, on certain acres but let the farmer use the remaining land in perpetuity while retaining ownership. In hindsight, a program of permanent easements might have avoided some of the problems now facing CRP—by guaranteeing an immediate transition to less intensive uses and costing less than the recurrent rental contracts.

Heimlich, 2008⁵



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EGS Programs in the United States (cont.)

initiated in the 1990 Farm Bill, the [Wetlands Reserve Program \(WRP\)](#) is a voluntary land retirement program that provides producers with technical and financial assistance to protect, restore and enhance wetlands². WRP enrollment has increased by over 100,000 acres per year since the program was introduced³. While the 2008 Farm Bill downsized several other federal conservation programs, including the CRP, it raised the WRP acreage cap to accommodate growing interest in this program².

Highlights:

- In comparison to CRP, WRP emphasizes long-term conservation through three subprograms: permanent **easements**, 30-year easements, and restoration **cost-share agreements**. Almost 75% of WRP contracts are permanent easements³.
- All enrolment options offer financial incentives to restore wetlands. Technical staff work with landowners to prepare a **restoration plan** for each proposed WRP site, so **producers learn** about EGS benefits whether their bid is successful or not.
- **Environmental benefits** are similar to the CRP, and studies have confirmed that the wildlife habitat provided by WRP-restored wetlands is comparable to naturally occurring wetlands³.



Photo of WRP site, courtesy of USDA NRCS.

Although land-retirement programs have long been favored in [the US], the focus of agri-environmental policy is gradually shifting toward working lands conservation. For example, the 2008 Farm Bill considerably increased the role of the Environmental Quality Incentives Program (EQIP), [which has the goal of making] farming more environmentally friendly without completely retiring land from agriculture. Working land programs broaden the scope of agricultural conservation beyond land retirement, and their prominence in agri-environmental policy likely will continue to increase.*

Ferris and Siikamäki, 2009³

* The 2008 US Farm Bill also launched a new working land program, the Conservation Stewardship Program, which replaced the Conservation Security Program.



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EGS Programs in England

Launched in 2005, the **Environmental Stewardship Scheme (ESS)** is a voluntary working land program that offers financial incentives to landholders who deliver effective environmental management on their land⁶. When the ESS began as a pilot program, Natural England set a target to have 60% of England's total agricultural area subject to ESS agreements by 2007⁷. As of 2009, nearly two thirds of England's agricultural lands were enrolled in over 60,000 ESS agreements⁶.

Highlights:

- Includes **cross-compliance** requirements, so participants must comply with existing environmental legislation before enrolling.
- Participants sign 5–10 year agreements and are paid a **fixed rate**, which is determined according to a **tiered** system. Those enrolled in lower tiers select environmental targets using a points system. Producers in the highest tier must already be enrolled in a lower level tier and their point targets are based on a **management plan** that is negotiated with an appointed ESS **technical advisor**. They may also receive payments for **capital works**, such as pond creation projects.
- Takes a **targeted** approach, to ensure that higher level tiers are concentrated in areas where environmental improvements are needed most.
- **Monitoring** inspections are carried out for a subset of agreements.

To maximize the net benefit of voluntary EGS payment programs, policy-makers need to target those practices and lands that yield the greatest environmental benefit⁸, and they should link conservation actions to indicators that can be monitored. The ESS is employing these methods, although they are largely focussed on the highest tier, which only accounts for less than 25% of ESS agreements.

Net benefits of EGS programs are also maximized by setting payments at the minimum level producers would be willing to accept to adopt desired practices⁸. Rather than providing fixed-rate payments, programs like the ESS could improve their environmental cost-effectiveness by using an auction-based competitive bidding system⁸ or something similar.

Through competitive bidding, policy makers can learn what land producers are willing to offer for program enrolment, which practices they are willing to adopt, and what level of payment they are willing to accept.

Claassen et al, 2008⁸

[A]uctions have been used to purchase environmental goods from private landowners. Under this system, landowners bid to supply a pre-determined environmental outcome. The tenders are then ranked according to which is the most competitive (i.e., achieves the desired results at least cost). This process allocates limited resources for the best outcomes at the least cost to the taxpayer.

Rae, 2007⁹



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EGS Programs in Australia

The Victoria government launched **BushTender™** in 2001, as a market-based instruments (MBI) pilot program to increase provision of biodiversity¹⁰. This voluntary working land program uses auctions to promote the protection and improvement of native vegetation on private lands. Targeting smaller regions around Victoria, BushTender™ has enrolled over 116 landholders on almost 12,000 acres¹¹.

Highlights:

- Auction bids are assessed using a habitat service score (HSS) and a biodiversity benefits score (BBS), which target based on both **on-site and landscape-scale** information. This improves investment decisions, because variation among sites is accounted for without overlooking the bioregional context.
- Successful bidders sign fixed-term contracts (usually for 5 years), but are offered additional financial incentives to opt for **permanent protection** of their land.
- With an explicit focus on building **landholder trust and engagement**, BushTender™ provides landowners with the technical support to draft a management plan for their bid. This results in a high rate of compliance among successful bidders, many of whom continue conservation practices after their contracts end⁹.
- To **evaluate program outcomes**, technical staff monitor sites regularly and landowners must submit annual reports to receive payments.



BushTender™ has demonstrated significant cost savings compared to other grant-based and fixed-price approaches. In fact, estimates indicate that an auction-based approach can achieve biodiversity targets at one seventh the cost of a fixed-price scheme¹⁰. However, advocates for BushTender™ still recognize that the design of this relatively new EGS program can be improved upon.

One of the most interesting design issues with the [BushTender™ auction] was the extent to which information was made known to landholders prior to formulation of their bids. For the pilot auction, information about the BSS was withheld from landholders but the HSS was fully revealed to bidders. . . . Although the strategy to withhold information was adopted for cost-effectiveness reasons, other considerations suggest that full disclosure of information about biodiversity significance may be appropriate.

Stoneham et al, 2003¹⁰



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EGS Programs in Australia (cont.)

Encouraged by the success of BushTender™, the Australian government has funded other auction-based MBI pilots including RiverTender™, HabitatTender™, and EcoTender™. Launched in 2005, EcoTender™ adopted the successful elements of BushTender™ and added a number of important innovations as well. Under this voluntary working land program, landholders bid to deliver multiple environmental benefits and a more detailed way to evaluate bids was introduced. Successful bids covered 70% of the total area targeted in the first year of the EcoTender™ pilot¹².

Highlights:

- Multiple EGS (water quality, carbon sequestration, biodiversity, and salinity) were targeted within one auction. This recognized that EGS are jointly supplied, and maximized environmental benefits per dollar spent by **purchasing EGS in bundles**. In the first year of EcoTender™, 97% of successful bids offered two or more environmental outcomes¹².
- Compared to BushTender™, the EcoTender™ **auction revealed more information** to bidders regarding the EGS value of their property relative to other bids. This fostered a stronger sense of trust and transparency¹².
- A **modelling framework** was developed to link both on- and off-site environmental outcomes with on-site actions on private land. Government could use these models to measure and predict environmental benefits, while educating landholders, optimizing bid selection and reducing transaction costs¹².



- To **evaluate interactions with other environmental markets**, EcoTender™ assumed that landholders could sell carbon into an emissions trading system and paid them a fixed price per tonne of carbon sequestration¹².

Even if auctions are a useful tool for conservation contracts on private land. . . a government using an auction needs to think hard about what it is trying to achieve, and to design the auction so that it achieves its aims.

Eigenraam et al, 2006¹²



Conclusion



AS discussed, a variety of EGS instruments can be used to conserve natural capital, and hence the EGS benefits it provides, within an agriculturally dominated landscape. Other tools, not discussed here, also promote EGS in both rural and urban settings. For example, various countries use such market-based approaches as: wetland mitigation banks; endangered species banks; tradable water quality permits; transferable development credits; biodiversity offsets; carbon cap-and-trade schemes; and eco-labelling and certification systems that create market incentives for increased provision of EGS^{13,14}.

It is important to evaluate EGS programs to make sure they reflect EGS principles. For instance, when payments made to producers are based on rental rates, they are not actually EGS instruments because they don't reflect the value of EGS derived from that producer's land. Also, although individual tools are effective, successful programs often integrate multiple EGS instruments and policy mechanisms to conserve natural capital. Examples of integration can be found in the US, at the local level (see IWRM box on page 1) as well as at the national level with the recent establishment of the USDA Office of Ecosystem Markets and Services¹⁵.

It is difficult to label any one EGS program as an absolute success. Despite the relative strengths of the programs discussed here, they also share some common weaknesses. Among these, ineffective targeting, monitoring and evaluation of expenditure and ecological outcomes are often cited as major barriers to program success¹¹. Also, although some programs have used benefit-cost targeting and auctions to improve program efficiency, these tools still require further refinement to maximize environmental benefits and minimize transaction costs associated with such complex programs^{8,11}. These challenges can be addressed, primarily by economic techniques and scientific models that link investment activities to environmental outcomes. Ultimately, EGS program administrators will ensure success by continually evaluating program outcomes and adapting their strategies accordingly.

As we move forward with an EGS strategy in Canada, we can gain valuable insight from other countries, but we must also recognize that EGS programs are not "ones size fits all". We will have to tailor our made-in-Canada approach to our own circumstances and objectives. The next - and last - fact sheet in this series discusses how we can begin to do this.

Endnotes

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