The Ontario Endangered Species Act: Understanding the Incentives, Implications, and Alternatives

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September 2010

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Introduction

In 2007, the Province of Ontario passed a new Endangered Species Act (ESA). Following a year-long review process with stakeholders, the Ontario government, led by the Ministry of Natural Resources (MNR) developed this legislation, which identifies Ontario as the North American leader in species-at-risk protection and recovery, and claims to be the first to combine science-based listing of species at risk with mandatory habitat protection and mandatory recovery planning. This is consistent with an election campaign promise made by the Ontario Liberal party. Regulations guiding the implementation of the new legislation have been approved, along with an expansion in the number of species to be covered, changed roles for affected landowners/land users, and changed impacts on both protected species at risk habitat and on affected landowners in Ontario. The legislation is now being implemented and enforced.

The purpose of this paper is to describe the provisions of the Ontario ESA, provide an economic analysis of these provisions, and make recommendations for improvements.

Significant literature has been compiled on the science of determining the status of endangered species and the provision of habitat (Findley *et al.*, 2009; Hodges and Elder, 2008). Especially important is the literature on the effects of scientific uncertainty in the criteria used to assign species' designations, and suggestions about how it might be managed (e.g. Mace 1999, Andelman et al. 2004, Lukey and Crawford 2009). Within the last decade an increasing amount of economic and social science literature has focused on the effectiveness of endangered species acts in different jurisdictions (Shogren, 1999; Robinson, 2008; Quigley and Swoboda, 2007; Richardson and Loomis, 2009; Illicallm and Harrison, 2007; Ferraro, 2007) and issues surrounding legal interpretations of 'critical habitat' and socio-economic impacts (e.g., Walton 2009).

It is beyond the scope of this paper to evaluate the developing literature on this topic. However, there have been evaluations of Ontario's ESA that are noteworthy. A report by Save Ontario's Species (2009) argued that habitat loss was the number one threat to endangered species. It was sharply critical of the full application of scientific knowledge in developing endangered species habitat regulations, and in implementing recommendations from habitat recovery teams into those regulations. Gaps were also observed in the implementation of habitat plans for Woodland Caribou, American Badger, and the Barn Owl. Truesdell and Hayes' (2009) used a textual data and key informant interview to consider the application of the ESA in Haliburton County in Ontario. Its focus was on data collection and interpretation, rather than economic incentives and benefits and costs of the ESA.

As the ESA is implemented, the responsibility for maintaining habitat for endangered species will increasingly fall on private landowners. Notwithstanding the emphasis on encouraging stewardship in cooperation with affected parties (Endangered Species Act Review Advisory Panel 2006), this has sparked concern on behalf of farmers, foresters, and other rural landowners. A focus on the potential for conflict between landowners and endangered species obscures more fundamental questions:

- How best can we protect endangered species?
- What are the incentive effects on private land owners and managers supporting endangered species habitat due to the rules under the ESA?
- Are there opportunities to improve endangered species protection rules and achieve desired objectives and address private landowner/manager concerns?

Ontario Endangered Species Act - *Nature and Objectives*

The multi-purpose approach of the ESA:

1. "To identify species at risk based on the best available scientific information, including information obtained from community knowledge and aboriginal traditional knowledge.
2. To protect species that are at risk and their habitats, and to promote the recovery of species that are at risk.
3. To promote stewardship activities to assist in the protection and recovery of species at risk.[2]" (Ontario Endangered Species Act, 2007).

A species determined to be "at risk" in the province will be reviewed by the Committee on the Status of Species at Risk in Ontario (COSSARO). The COSSARO consists of 11 members from private and public sectors, where a minimum of five members are from outside the Ontario government and have a strong science background. At the national level, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) identifies species and recommends national designations. The COSSARO reviews species in Ontario and reports the risk classifications back to the Minister of Natural Resources.

Once a species is classified as being "at risk", it is added to the Species at Risk in Ontario (SARO) list.[3] The Act provides for two distinctive definitions of habitat: general and regulated. General habitat refers to the habitat a species depends on, such as areas for breeding, feeding, rearing, migration and hibernation. Protection remains in place until a species-specific habitat regulation is created. The regulated habitat is species-specific and provides more detailed definition of the habitat by describing features and geographic boundaries, and areas that may impact species recovery.

Species Habitat Implementation and Timeline

The original endangered species legislation in Ontario dated from 1971 and went through several revisions to list endangered species, most recently in 2006. It identified 19 animal species and 24 plant species as endangered[4]. It prohibited the destruction of endangered species and/or interference with endangered species habitat. It did not contain specific habitat regulations and lacked the reach and scope of the new legislation.

[2] http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_07e06_e.htm
[3] http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/276722.html
[4] http://www.canlii.org/en/on/laws/regu/rro-1990-reg-328/7091/rro-1990-reg-328.html#history

The new ESA came into force on June 30, 2008, and at that time notifications were sent out on specific species to be protected. There are strict timelines associated with creating habitat regulations. For species listed after June 30, 2008, regulated habitat must be identified within 2 years for endangered species, and within 3 years for those listed as threatened. Unless a regulated habitat for a species has been defined, the general habitat protection remains in place.

When a species is newly listed as endangered or threatened on the SARO list, its habitat is also protected under the ESA. The area of habitat protected is based on a general habitat definition found in the Act. The definition of general habitat applies to areas that a species currently depends on. These areas may include dens and nests, wetlands, forests and other areas essential for breeding, rearing, feeding, hibernation and migration.
Thus the ESA provides a clear definition of "habitat" that gives landowners and others guidelines regarding the types of activities that may be harmful to species at risk.

Powers Enabled Under the ESA

The ESA prohibits damage or destruction of habitat for species at risk. The ESA sanctions far-reaching powers of enforcement and habitat mitigation. Conservation officers are authorized to conduct searches, literally anywhere, without warrant. If enforcement staff observe destruction of or damage to endangered species habitat, they are authorized to order a stop of such activity. Their powers extend to issuance of fines, seizure, and forfeiture of property for lack of compliance. Permits can also be granted for exemption to the ESA under specified conditions.

The general nature of regulated habitat relates to protected setback areas:

> *A habitat regulation provides greater certainty of what is meant by a species habitat. It may describe features of the area (e.g., a creek, a cliff, or beach, or a human-made feature such as a barn) or geographic boundaries. The description may include areas where the species is found, has been found in the past, as well as areas that may be important to a species' recovery*[5].

For example, the American Badger regulated habitat protects:

> *Dens that are being used or have been used in the past 12 months by a badger, plus woodchuck (groundhog) and Franklin's ground squirrel burrows within 850 metres of the den. A 5-metre radius around the entrance to all badger dens is also protected*[6].

Implementation and Enforcement of Regulations

Much remains to be determined with regard to actual implementation of the ESA. On the surface, it would appear that enforcement will be complaint-based. So, where an endangered species is observed and reported, the ESA could provide the rationale to apply the regulations.

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[5] http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/244438.html
[6] http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/268554.html

Municipal planning processes do not obviously interface with the ESA, so it is unclear whether an ESA clearance will be part of the municipal development planning process. Finally, it is unclear how the ESA relates to the provincial forest tenure planning process and featured species management that is implemented as part of it.

Currently, 202 species are classified as being at risk in Ontario. Ninety of these species are classified as endangered (facing imminent extinction), 51 as threatened species (at risk of becoming endangered) and 48 are vulnerable or listed under special concern (a species that is sensitive to natural events and human activities). There are 13 species listed that no longer exist in Ontario, but still do occur elsewhere. [7]

Ten species at risk are currently subject to regulated habitat rules:

- American Badger
- Barn Owl
- Eastern Prairie Fringed-orchid
- Engelmann's Quillwort
- Few-flowered Club-rush
- Jefferson Salamander
- Peregrine Falcon
- Western Silvery Aster
- Wood Turtle
- Woodland Caribou [8].

The ESA became law in June 2008 so, given its mandated time frame, the process of developing habitat strategies and regulations is well behind schedule. This lag is understandable, given the magnitude of work implied and the implementation issues described below.

Ontario Endangered Species Act: An Economic Analysis

There are two elements relevant in analyzing the ESA as public policy: the economics of the policy itself, and the implementation of the regulations. The policy analysis essentially asks the question "Is the policy consistent with the preferences and actions of those charged with carrying it out?" Implementation speaks to the efficacy of the policy- given the plans for carrying out the policy, will it work? These questions are discussed below.

Economics of ESA

In Ontario, as in other Canadian provinces, natural resources like fish and wildlife are held in trust on behalf of citizens by provincial government (the Crown). The habitat these resources exist upon is a mix of private land, Crown land that is leased for use by the private sector, and Crown land managed by government. Most of the rural land that supports habitat in southern,

[7] http://www.search.e-laws.gov.on.ca/en/isysquery/b2013383-3668-4091-b052-dd871b7de03e/7/doc/?search=browseStatutes&context=#hit1

[8] http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/268554.html

central, and eastern Ontario is privately owned, and much of the rural land that supports habitat in Northern Ontario is publicly owned but leased to the private sector under the forest tenure system. Thus, the private sector owns, or manages under lease, a significant portion of the habitat used by publicly owned natural resources. Some of these natural resources (fish and wildlife) are mobile and transient.

There are well developed concepts in economics regarding property rights, incentives, and stewardship. Ownership of property embodies the right to exclude (Fox, 1995), which is consistent with the right to recover the benefits from investments made in one's property. This in turn influences incentives- the greatest incentives to invest or commit effort occur where the largest benefits may be recovered from doing so. Natural resource "stewardship" can be defined as the correlation between conservation effort and value; the greatest effort is exerted to conserve the resources society values most.

Property Rights, Incentives, and Habitat Provision

The stewardship challenge engaged by the ESA is as follows. Land under private ownership or management provides the habitat for endangered species, which are publicly owned. The incentive for stewardship of endangered species on behalf of the private sector is circumscribed by private valuation of endangered species to which they can claim no exclusive benefits. This is not to suggest that conservation effort has not occurred on private land to promote public natural resources - it clearly has - but the incentive to do so is limited by the separation of property rights. Thus, in order to improve conservation effort and protect endangered species, action by private landowners and managers is critical, and finding ways to create private incentives to protect this public resource is fundamental.

However, rather than engage this dynamic, the ESA attempts to circumvent it. The incentive problem is ignored by regulating and imposing compliance, with limited opportunity for landowner mitigation. In reality, private landowners and land managers have essentially three alternatives under the ESA - comply with it, make no effort to comply with it, or don't comply with it. If the private sector perceives that there are contingent liabilities associated with compliance- such as an inspector imposing expensive changes in land management under habitat management rules - then compliance will not be regarded as a good alternative. This leaves the options of ignorance of it (make no effort) or directly act in contravention of it as alternatives. The perverse result is that landowners wishing to rid themselves of the contingent liability of ESA penalties and mandated compliance costs may find it in their rational self interest to remove endangered species from their property if they are found. This perverse incentive did not exist prior to the contingent liability introduced by the ESA, and is clearly an unintended consequence- but one that should have been anticipated in advance.

The ESA attempts to circumvent the basic question, "how can we create improved incentives to protect endangered species on privately owned and managed land?" by mandating a regulated solution. But, in so doing it fails to anticipate the incentives and rational responses of the private landowners and managers that are liable to be inconsistent with its intent.

Finally, it cannot be lost that the costs associated with the ESA are focused on a relatively small minority who live and work in rural areas, on properties that support endangered species habitat. Most urban areas, almost by definition, were long ago denuded of endangered species, so the costs imposed by the ESA rules on urbanites are negligible. The voting demographics are such that, with a large urban majority, the ESA found and continues to find broad support from many citizens who do not face any of the costs of the regulation.

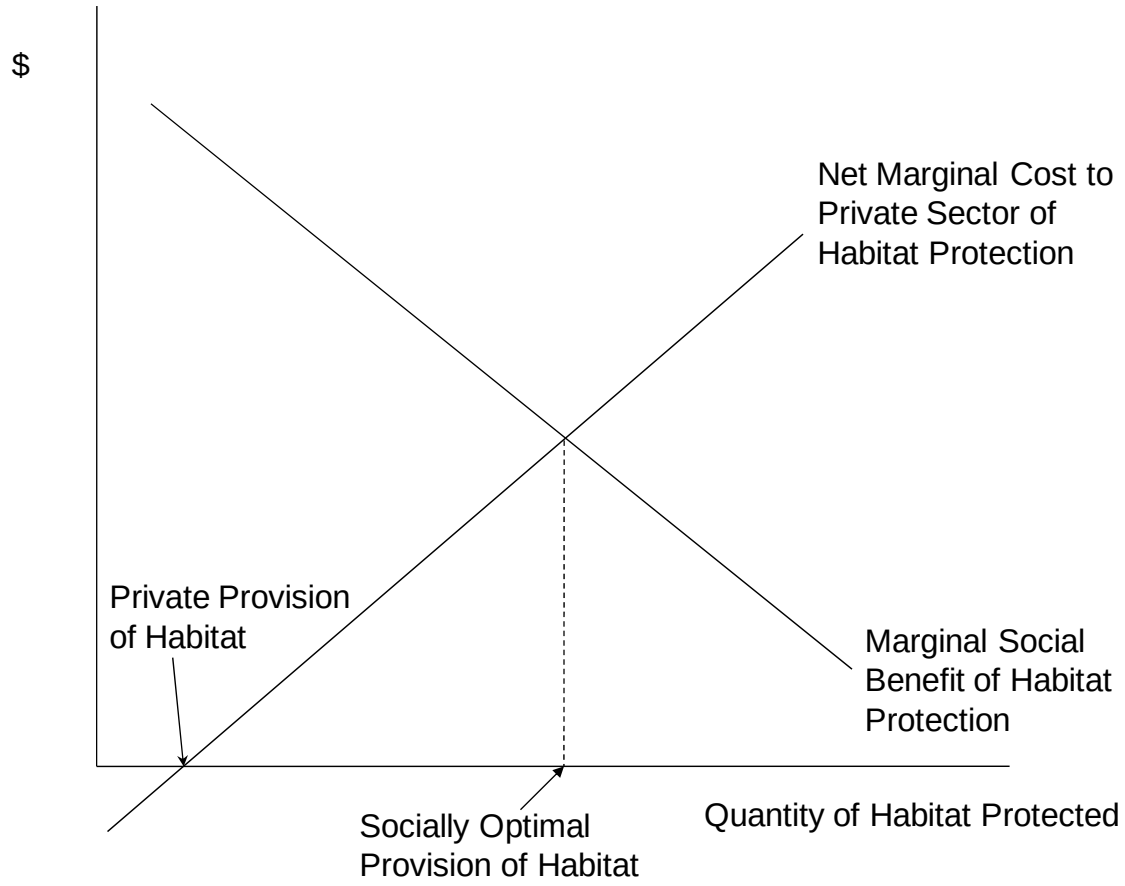
Opportunity Costs of Regulated Habitat Provision

In order to implement individual species' regulated habitat, land use conversion may eventually occur. For example, where American Badger habitat is observed, land in a radius of 850 metres will fall under habitat regulation; if the existing land use is agricultural, the implication is that cropping patterns may need to change due to the habitat regulation. This change in land use may be costly to the individual landowner or private land manager. Moreover, it may be costly to broader Canadian society as land use is consumed in regulated habitat provision rather than competing commercial uses, such as agriculture, forestry, aggregate extraction, or mining operations, As more and more endangered species habitat becomes protected, presumably the incremental value of protecting more habitat decreases. The ESA invokes no notion of social tradeoff in protecting endangered species with these other land use outputs.

A framework exists within which to consider these tradeoffs. For example, recent work by De Laporte *et al* (2010) considers tradeoffs between protection of wetlands and agricultural use. The opportunity cost of protecting wetlands is the latent net revenue in agricultural use less the cost of drainage; the social benefit of wetland protection relates to water quality maintenance and the provision of wildlife habitat. Conversely, the net cost of endangered species habitat protection is the private benefit of habitat protection less the forgone net revenue from existing or alternative land uses. The social benefit is a decreasing function of the volume of habitat (and presumably, species) protected.

This is illustrated in Figure 3.1 below. The vertical axis represents unit costs and benefits, and the horizontal axis gives the quantity of habitat protected. The figure shows that as more and more habitat is protected, the incremental value placed on additional habitat protected falls. The private cost of converting land use to habitat protection increases as more habitat is protected; as anticipated from the discussion above, private landowners and managers obtain benefits from providing habitat services, but they are circumscribed.

Figure 3.1 Efficient Protection of Endangered Species Habitat



Thus, the private provision of endangered species habitat, which occurs where the private benefit is equal to the incremental opportunity cost of habitat protection, is lower than the social optimum. But the social optimum also reflects the opportunity cost of habitat protection in terms of forgone agricultural and natural resource output and compliance costs. In its contemplation of species protection, the ESA does not invoke a notion of social preference in ascribing a target level of habitat protection- there is no accounting of the accumulated volume of habitat protected for a given species, or a signal that indicates that there is "enough". With an un-priced resource such as endangered species, there may not be the tight habitat protection relationship envisioned in the figure above, but its basic logic carries through.

ESA Implementation

Policy implementation relates to the following:

- Objectives - the extent to which the desired outcomes of regulation are articulated and can be properly measured is critical for the success of policy implemented by regulation, and influences its long-term cost.

- Scope for compliance - If those being regulated broadly lack information with which to comply, and if the rules are excessively prescriptive or, in turn, give excessive discretion to individual inspectors, the effective compliance cost of regulation increases.
- Transparency in process – more clarity regarding what regulated parties are supposed to do, how the act is coordinated with related regulations, and the process for conflict resolution and appeals, means a lower cost of compliance.
- Transparency in implementation - the greater the perceived credibility and efficacy of rules and the greater the extent of credible data available, the less likely it is that regulated parties will misrepresent themselves or act at variance with the intent of the regulation, thus, the greater the effectiveness and potential benefit of the regulation.

ESA Objectives

As described above, the objectives of the ESA are to identify at-risk species, to protect these species and their habitats, and to promote stewardship. It is hard to be critical of these objectives, as the idea of conserving species is widely held a public good; presumably, nobody is in favour of species extinction. However, the objective lacks precision and transparency. What information is used in identifying species as endangered? Related to this, what information is used in updating the success of the ESA? Presumably, if the ESA regulations are working, some of the species that are listed will be removed from the list over time as they recover.

Species at risk are identified by COSSARO, based on scientific information and on expert opinion. In terms of policy decision making there is likely little choice but to refer to an expert panel. But it must be observed that the species over which they make decisions are, by definition, distributed over vast remote areas. As such, the data to inform these important decisions and to monitor progress is largely lacking. Lack of data surely constrains the certainty with which policy can proceed, and the claims that can be made on what is being accomplished under the ESA. Fundamentally, the ESA places a focus on private landowners to achieve public policy objectives at limited cost to the public but potentially significant cost to individual landowners. This should humble COSSARO members as they must accept that they have little solid information upon which to make decisions with far-reaching consequences, and thus be cautious in adding species to the list.

The structure of the objective is very clear, in that its reference is to identify and protect *species*, as opposed to (for example) habitat categories. The difficulty with targeting species as an objective arises because there is no guarantee that, by addressing individual species, the policy will not come into conflict with itself as multiple endangered species are found in close proximity to one another. In such cases, how would priority be determined? The ESA does not appear to anticipate this.

Compliance Scope under the ESA

The ESA is somewhat remarkable in terms of its implicit assumptions regarding compliance. The onus is on landowners and land managers to ensure that they are in compliance; this by itself is not extraordinary, as ignorance of the law is not held as an excuse for breach of the law. However, under the ESA, the following assumptions are made:

- Land owners/users know the list of species on the list of species at risk
- Land owners/users can identify species at risk
- Land owners/users have up to date awareness and monitoring regarding whether these species exist on land under land under their stewardship
- Land owners/users are aware of the penalties/consequences for non-compliance

This is a contrast with most other types of regulations. By way of comparison, consider a regulation requiring farmers to balance phosphorus and nitrogen loadings with crop uptake. The onus is on the individual to apply fertilizer and manure to match crop removal and any soil residual, and ignorance of the law is no excuse for not doing so. Individuals are held accountable for damage from non-compliance and the penalties if found in contravention are public information. A great deal of information is known about crop/nutrient interaction, and this information is available to farmers. In many cases, government assistance in one form or other is available to help farmers comply, and understand linkages with other aspects of their farm operation, etc.

Clearly, the expectation of individuals is different under the ESA. The landowner is held to know and be able to recognize the species that are at risk. The landowner is held to know whether endangered species are on their property. The landowner is held to know how they are doing so they can determine whether they are injuring them or their habitat (as opposed to changing habitat in such a way that it neutral or an enhancement). The landowner is also held to understand the penalties and or costs associated with habitat restoration, given the current state of the property. It would seem that the implicit assumptions regarding public awareness of the ESA rules are highly optimistic- likely unrealistic.

Secondly, the rules under the ESA are prescriptive, which may limit the practicality of clients to comply. For example, agricultural lots in southern Ontario are commonly laid out in 100 acre parcels; however, some rules relating to species encompass areas that exceed 100 acres. Returning to the badger as an example, the regulated habitat (850 m surrounding the badger hole) exceeds the size of a single property. Because of the large size of this area, the effective returns for an individual farmer from cropping an individual parcel could be reduced significantly, and coordination among multiple landowners becomes necessary. Wildlife species such as a badgers range, and it is possible that different landowners put different levels of effort into compliance, influencing the protection of the species. In the event of a species decline, how then would accountability and penalties be assigned? Thus, the prescriptive nature of ESA rules, if they are implemented as such, is liable to limit the ability of clients for the regulation to comply.

The converse of being too prescriptive is that monitoring and enforcement staff are given broad discretion to interpret the provisions of the ESA, draw conclusions and impose remedies and fines. Under these conditions, the clients for regulation simply have no clear basis upon which to develop expectations regarding their liability for penalties and/or habitat rehabilitation under the ESA. At its worst, clients are subject to the whim or agenda of monitoring/enforcement staff. Ultimately effective compliance rests on a balance between clarity of purpose and expectation, and the flexibility to adapt to specific site conditions within a scope. This is still unclear under the ESA.

Transparency in Process

Effective implementation requires clarity with regard to process and consideration of conflicts with client objectives. With regard to process, regulation should be clear with regard to:

- The steps to be followed in order to be in compliance
- The correspondence between the regulations and related regulations
- Provisions for review and appeals

Under the ESA, there are essentially no proactive steps individuals can take to comply. If endangered species are found on a property, protected zones and habitat regulations will apply, with accompanying rehabilitation requirements and/or penalties. There are provisions to apply for exemption permits, and a lengthy discussion in the ESA legislation is devoted to permits that exempt certain activities from the regulations; however, the conditions under which an exemption could be expected are not well defined.

There is also a lack of clarity regarding the interface between the ESA and municipal planning. For example, there is no link evident between municipal processes to sever or develop properties and the ESA. This presents the prospect that someone could purchase a property, erect a building in compliance with municipal regulations, and then later find out that the building is damaging the habitat of an endangered species, without ever knowing in advance, even applying the most prudent existing due diligence. It is also unclear whether municipalities themselves could be in violation under standard operations. For example, a conservation authority, in the course of standard management of lands for flood control, could be operating in contravention with the ESA. It is unclear how such conflicts would be resolved. Similarly, the forest products industry operates under provincial forest tenures that prescribe specific elements of land use planning well into the future. Where these contravene the ESA, it is unclear how the conflict would be resolved.

The ESA does contain provisions for a hearing, in which an appointed official conducts a hearing at the request of a person charged under the Act. The official completes a report with an opinion forwarded to the minister; the minister has the final authority. There is no provision for appeals to the hearing.

Transparency in Implementation

Endangered species exist in remote areas, so locating them or having any sort of population "inventory", or verification of population estimates is extraordinarily difficult. In this context, enforcement staff is expected to detect violations. Given the remote nature, it is unclear how this can be effective. Moreover, the ESA calls upon conversation officers as the enforcement staff. They are largely engaged in enforcement of hunting and fishing rules; the ESA makes no apparent provision for training of conservation officers to monitor endangered species or prescribe habitat plans.,

The apparent modes of detection of violation boil down to complaints and inspections related to new developments. Random spot checks of lands for endangered species are allowed under the ESA if an inspector has reasonable grounds to expect the presence of endangered species, or habitat destruction thereof. In practice, the complaint-based mode of enforcement and the

reasonable grounds for inspection routes are unlikely to generate much information or observed violations under the ESA. This is also consistent with the observation that people are unlikely to know themselves whether an endangered species is present on their property. The greatest likelihood to generate information related to endangered species being present is when a site is being developed for a new use; which is precisely when compliance is likely to be the most expensive.

Government typically holds some moral suasion with citizens; people generally prefer to act in support of the public good by complying with regulations, and support rules that reflect societal preferences. However, this must surely be tempered with a perception of efficacy and credibility of the rules presented to them. In this latter regard, the following can be observed regarding the ESA:

- Given the above, good data that supports the listing of a species is frequently unavailable
- Data is similarly scarce regarding progress of the regulation; it may be perceived that there will only be more (never fewer) endangered species.
- Is it only habitat change or loss that causes species decline and can mitigate it, or are other factors also influential? For example, some endangered species are endangered because of disease, not habitat loss. The butternut tree, which is subject to a virus and is on the endangered species list, is a clear example.
- If an endangered species is observed, compliance with habitat regulations could be very expensive and restrict land use in ways that people value. Observance of an endangered species could trigger significant liability in both mitigation effort and penalties.

These points suggest that while people naturally feel a civic responsibility to follow the rules, there is reason to think that the lack of information on behalf of the regulator and the potential personal burden of compliance will soften their motivation.

Observations

The above suggests the following. As public policy, the ESA needs the participation of private rural landowners and managers to carry out its intent, but since costs and contingent liabilities associated with compliance are not offset by benefits to participating landowners, there is an incentive gap. The cost of the ESA is focused on rural areas, while the benefits accrue to the dispersed public and largely urban segment of population. There is also no sense of the desired level of endangered species habitat, acknowledging increasing costs and decreasing social benefit.

The merits of the ESA's objective to protect endangered species and habitat are laudable, but important specifics are not well articulated. They are fragmented at a species level and fail to anticipate the prospect of individual species plans coming into conflict with one another. They also lack metrics or data, or even good proxies, to measure progress and success.

The ESA assumes a remarkable level of knowledge and awareness on behalf of regulated parties that is unlikely to be realized. Moreover, based on observed species plans, regulatory compliance appears onerous and quite prescriptive. The process involved in compliance is not

transparent. There is no process for compliance *per se*, as universal compliance is assumed. The reference between the ESA and municipal planning and land use policy is not articulated, and there is reason to think they may be in conflict with one another.

Finally, the means of implementation devised are not consistent with the availability and credibility of information. The relative lack of data will greatly hamper monitoring and enforcement, and will legitimately lead to a questioning of the credibility of the regulations.

Conclusions and Alternatives

This overview and analysis of the ESA paints a rather troubling picture. It appears to be policy crafted largely in the absence of those responsible for carrying it out; it looks good on paper, but it is very light on ways the private suppliers of endangered species habitat can proactively participate or, moreover, reasons they would participate. It ignores the very real incentive problems created for private landowners and managers. In effect, it establishes an infinite price on endangered species, which is not consistent with real tradeoffs that must be made. Its assumptions on the availability and credibility of information to assess species at risk and for monitoring and enforcement are unrealistic. It is also unclear that government has the resources to effectively monitor and enforce it. Similarly unrealistic are the assumptions made on the awareness of individuals expected to comply.

At the same time, its objectives are laudable, and its implementation has begun. Thus, it cannot be written off as simply intractable; government and private landowners and managers must find a way to make it work.

Implementation of the ESA is behind schedule, which could turn out to be fortunate. The lag in implementation can be used to address the changes in the regulations as implementation rolls out. To do so, the following are evident:

- Government should invest more time engaging private landowners and managers on the ESA. It is clear that they are central to its success, but the ignorance of the incentive gap would suggest that they were not fully considered in the development of ESA rules.
- The role of COSSARO could be expanded to assist with implementation. For example, COSSARO could help by establishing targets for the levels of protected habitat for species. It could also be useful in developing alternatives for implementation, such as tradeoffs between habitat loss in one region offset by habitat creation in another
- Rather than develop highly prescriptive rules in advance, ESA rules should be less prescriptive and allowed to evolve as interaction with land owners and managers proceeds. In so doing, the regulations can provide transparency on best practices and accommodate different parcels of land/habitat
- Developing, monitoring, and publicizing measures of results from the ESA, as opposed to action motivated by it, would be greatly beneficial. Doing so could elevate the legislation from largely bold statements to the driver of practical outcomes. Measuring results will also assist in the evolution of the ESA as we learn what works and what doesn't.

- As it stands, the regulatory instruments in the ESA are all sticks and few carrots. In an environment of scarce endangered species, remote locations, and real costs of compliance, it is unrealistic to think that strict compulsion can effectively implement species protection. The issue of cost compensation to induce stewardship effort must be opened up to advance the dialogue. Ontario recently introduced a Species at Risk Stewardship Fund[9] which offers $18 million over four years to encourage stewardship of endangered species habitat, with priority given to cost-shared projects. There is also a Species at Risk Farm Incentive Program[10] to assist with compliance, but it only has funding of $1.2 million and is a 50% cost share program. With cost-share structures and resource limitations these programs are unlikely to induce significant stewardship effort.
- While the ESA contains provision for hearings, decisions ultimately fall to the Minister. The ESA would be strengthened by a meaningful appeal process conducted by an independent body.
- The ESA should be better coordinated with existing instruments affecting land use and (especially) the provision of wildlife habitat. For example, forest management agreements contain provisions for the protection of wildlife habitat, and certain municipal bylaws may have the effect of enhancing endangered species habitat, even if that was not the intended purpose. If these can be coordinated in the implementation of the ESA, the effect of the ESA could end up being complementary, or at least incremental to existing instruments.

In the absence of these or other enhancements to the ESA, its legacy is likely to be one of the following. Either it proves extraordinarily difficult to implement and becomes essentially irrelevant, or it becomes mostly irrelevant but always remains lurking as a contingent liability to rural land owners and managers (with the consequent negative effect on investment), or government implements it and rigorously enforces the ESA, resulting in tremendous economic losses due to the sweeping implications on rural land use and land values. Given its laudable objective, none of these potential outcomes should be regarded as satisfactory or desired.

[9] http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/STEL01_131229.html
[10] http://www.ontariosoilcrop.org/docs/new%20program%20provides%20funds%20for%20on-farm%20protection%20of%20species%20at%20risk.pdf

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