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Laws matter: a foundational approach to biodiversity conservation in Canada

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Abstract

This perspective essay examines the role of conservation law in contributing to biodiversity decline by exploring how current conservation laws exacerbate the challenges Canada faces. We contend that there are three intertwined foundation-setting functions of conservation law: they codify priorities and values, define and influence acceptable conservation behaviour, and drive the establishment of the institutions, programs, and governance arrangements of today's conservation regime. We describe these functions and then assess whether conservation laws in Canada are adequately fulfilling the functions. We find that the federal conservation law regime is sub-optimal and likely incapable of halting and reversing the negative biodiversity trends. Based on this, we suggest a set of conservation legislative principles capable of catalyzing change and supporting the transition to a more sustainable conservation future.

Key words: biodiversity, conservation, law, Species at Risk Act, legislative reform

Introduction

Biodiversity is in sharp decline across most if not all spatial and temporal scales. The costs this decline imposes on our economies and the societal structures and communities that depend upon them are substantial and growing (Buxton et al. 2021; Elbakidze et al. 2022). The health and integrity of most Canadian ecosystems are increasingly imperiled with few signs that negative ecological trends are being halted, to say nothing of being reversed (Canada 2018). While there is no doubt that we are making progress in some areas, there is no comprehensive set of ecosystem indicators that suggests that we are succeeding in conserving and protecting our natural heritage, no matter how one describes success (IPBES 2019; WWF 2020; Desforges et al. 2022). The causes of ecosystem decline are as complex as ecosystems themselves but all stem from the choices we make and the actions we take as a society.

Halting and reversing ecosystem decline is a massive and complex challenge. This perspective essay considers the contribution of Canada's federal conservation laws to meeting this challenge. It offers insights into why conservation laws in general are so vital to efforts to prevent ecosystem decline in the first place and to halting and reversing it when it does occur. Our focus is on Canada's federal conservation regime and the extent to which its legal underpinnings position Canada for conservation successes. Perhaps not surprisingly, we offer the view that in many ways the current legal framework exacerbates the conservation challenges Canada faces and is in urgent need of reform. Accordingly, we identify a suite of attributes that would characterize a modern regime capable of more effectively addressing the conservation challenges we face today and into the future. The writing partnership that has generated the essay brings together a somewhat uncommon mix of professional backgrounds and experience. Olive has two decades experience in university research and teaching around the conservation policy field generally and species at risk in particular. By contrast, Swerdfager only recently joined the academic ranks after a 35-year career in the federal Public Service that included senior executive roles in Environment Canada's Canadian Wildlife Service, in science program leadership, habitat protection and fisheries management with the Department of Fisheries and Oceans, and as head of operations for Parks Canada Agency. The resulting paper reflects a blending of perspectives flowing from these contrasting backgrounds in a manner we hope the reader will find insightful and helpful.

Recent articles in this journal have made calls for new or amended species at risk legislation in BC (Westwood et al. 2019) and ON (Bergman et al. 2020; Bethlenfalvy and Olive 2021; Turcotte et al. 2021) and to other biodiversity laws in Canada (Beazley and Olive 2021; Ray et al. 2021). This essay picks up on those calls but focuses on the federal side with one simple message: laws matter. It begins by briefly describing the respective roles of federal, provincial, territorial, and Indigenous governments in conservation in Canada. It then offers a three-part analytical matrix for considering

the foundational nature of conservation laws in general and then analyses the current body of Canada's federal statutes through the lens of this matrix. Drawing upon this analysis, it pivots to outlining a 10-point framework of what an ideal modern legislative approach to conservation might entail. Our goal in outlining this 10-point framework is not to suggest a specific legislative agenda but rather is to invite and enhance conversation with scholars and practitioners interested in improving national conservation laws in Canada.

Understanding conservation law in Canada

Similar to Ray et al. (2021), we take an expansive approach and consider "conservation law" as encompassing the assemblage of statutes and regulations that directly address the conservation of plants and animals and the broader ecosystems of which they are a part. Implicit in this definition is the notion that "conservation" includes a mix of using and protecting these plants, animals, and ecosystems. For our purposes in this essay, commonly used terms by practitioners in the conservation field such as "biodiversity conservation," "resource conservation," or "marine conservation" and the laws relating to them are captured under this broad umbrella.

In Canada, conservation law is a diverse tapestry woven from multiple jurisdictional threads (Forsey 1980; Becklumb 2013). The constitution divides power between the national and subnational jurisdictions. Of particular importance for our purposes, Section 132 of the constitution assigns the federal government responsibility for the implementation of international treaties signed by Great Britain on behalf of Canada prior to 1932.

The Migratory Birds Convention of 1917 is captured by this clause and gives rise to federal authority for birds listed under the convention (it is important to note that the federal government does not automatically have the authority to pass domestic implementation laws with respect to the subject matter of any international treaty or agreement it signs on to. It can, for example, move to implement any international agreement or treaty Canada signs with respect to fisheries management, given its authority for fisheries as explained below. It cannot, however, pass legislation pertaining to treaties or agreements dealing with matters of shared federal/provincial jurisdiction, which is why, for example, there is no federal omnibus statute implementing the Convention on Biological Diversity that deals with a mix of subjects of federal, provincial, and shared jurisdiction). Section 92.12 of the constitution assigns the federal government authority for "Sea Coast and Inland Fisheries." The Fisheries Act flowing from this section extends this authority to embrace fish habitat (Fisheries Act R.S.C. 1985, c. F-14 2019).

This role, when coupled with federal authority over navigable waters (s. 91.10), establishes federal interests in virtually any development project that includes interaction with a water body. The federal government's criminal law power (s.91.27) underpins much of its environmental protection legislation, such as laws pertaining to pollution or toxic chemicals. And finally, federal authority extends to the management of its own lands (approximately 40% of the country) and to environmental impact assessment decision-making, touching on areas of federal jurisdiction, including oceans and fish (Department of Justice Canada 2012).

Section 92 of the Constitution enumerates provincial heads of power. Provinces are assigned authority over Public Lands (s.5), Property and Civil Rights (s.13), and matters of "merely local or private nature" (s. 16) (Department of Justice Canada 2012). Taken together, these heads of power give rise to provincial authority over essentially all of Canada's biodiversity and land base lying beyond the federal authorities described above. The authorities of Canada's three territorial governments continue to evolve but have reached a point that on conservation matters their role is very similar to that of provinces in 2017 (Sabin 2017; Olive 2019).

Indigenous governments have a mix of authorities on their own lands as well as Aboriginal and(or) treaty rights pertaining to their traditional territories. On reserves across the 10 provinces, the anachronistic and racist Indian Act remains in place and allows for the establishment of a range of environment-related by-laws to be created by First Nation governments with respect to their reserve lands (Indian Act R.S.C. 1985 c. I-5 2019). This gives rise to a diversity of on-reserve environmental regimes that are as varied as the over 600 First Nations that have created them.

In Canada's North, land claim settlements have created a new form of environmental governance in the form of "co-management" (White 2020). Beginning with the James Bay and Northern Quebec Agreement in 1975 (Canada 1975) and the Inuvialuit Final Agreement of 1984 (Department of Indian and Northern Affairs Canada 2005), these agreements established "co-management" systems featuring a sharing of decision-making power between the Indigenous group involved and the federal and territorial governments. While the details of these structures vary across the individual agreements, which cumulatively now cover virtually all of YT, NT, and NU, they all function not as advisory mechanisms but rather as bodies with decision-making authority with respect to the stewardship of most of the biodiversity of the North (White 2020).

Taken together, the federal, provincial, territorial, and Indigenous governments of Canada divide and sometimes share legal jurisdiction over the various elements of the country's biodiversity. The result is a complex web of laws and regulations. Ray et al. (2021) compiled and analyzed an exhaustive inventory of 201 biodiversity-related laws flowing from this constitutional latticework. Their analysis of this collection of laws effectively documents its shortcomings, gaps, and inefficiencies and drives one inexorably to the conclusion that Canada's legal framework for biodiversity conservation and protection is inadequate. They argue that what is needed to remedy this situation is not only statutory reform but strong federal leadership, a more integrated whole-of-government approach to biodiversity conservation, and a cultural shift toward prioritizing biodiversity needs over those of unbridled resource development agendas (Ray et al. 2021).

Having spent 30 years working in the federal Public Service, one author can attest to the frequent presence of conservation-oriented political and bureaucratic leadership

as well as a widespread recognition among these leaders that greater horizontal collaboration and more prominent positioning of biodiversity in the calculus of decision-making is of vital importance. And yet, despite this leadership and recognition, program integration and value shifts have yet to occur at levels sufficient to turn the tide toward greater biodiversity conservation success. This perspective essay argues that, as currently configured, the legal foundation from which more effective leadership, program integration efforts, and conservation-oriented value shifts must begin presents a more formidable obstacle to modern and effective biodiversity conservation than is commonly acknowledged.

Laws matter as foundation

A modern and nuanced consideration of the societal niche occupied by laws generally suggests that they matter deeply (Tarlock 2003; Harel 2015) and that in the context of conservation their impact could be dramatic (see for example Schwartz 2008; Gibbs and Currie 2012; Olive 2014; Valdivia et al. 2019). We contend in this section that there are three intertwined foundation-setting functions of conservation law that can be readily identified. We describe these functions and then assess whether conservation laws in Canada are adequately fulfilling the function. This is summarized in Table 1 below. In our view, conservation laws

1. codify societal priorities, values, and expectations with respect to conservation and serve as clear indications that society cares enough about these subject matters to legislate with respect to them—or not;
2. define and circumscribe acceptable societal and individual conservation-related behaviours; and
3. drive the creation of institutions, governance arrangements (including resources), and program activities that directly affect the achievement of conservation goals and objectives at a variety of temporal and spatial scales.

Laws as statements of societal priorities and values

We contend that peering through a country's legislative window offers tremendous insight into what that nation (or province, First Nation, or municipality) considers to be important to its constituents and citizens. Passing laws is typically a major undertaking and governments give careful thought to selecting topics to which they will devote legislative time and resources. Thus, a law can be seen as a clear testament to the view that topics it deals with are, or were, viewed as important enough to warrant legislative attention. This indication of priority importance pertains not only to de novo legislative proposals but to substantial amendments to existing laws as well. In practical terms, updating long-standing legislation is often challenging, given that over time, many statutes can become such a familiar element of the legislative furniture within a particular community of interests that making changes to it can be as polarizing and difficult as legislative action starting from scratch.

In some cases—such as developments in technology—the pace of change may simply be so rapid as to make it difficult for legislative agendas to keep up and the result is a legislative vacuum that can be described as almost "accidental" in nature (Zimmer 2018). Or it may be that society agrees on the need for legislative attention to a subject, but the matter is so complicated and challenging that the absence of law is more a reflection of this complexity than a view that the issue is unimportant. For the most part, however, topics that do not receive legislative attention can be viewed as lacking the level of societal interest and support needed to motivate legislative action. For example, the lack of stand-alone species at risk legislation in the provinces of SK or PE can be considered reflective of an unmotivated public and government. In short, something is important enough to be the subject of legislation or at minimum of a legislative proposal or it is not.

In addition to confirming the importance of a subject matter, laws also formally codify societal values and expectations with respect to it (Doherty 2003; Harel 2015; Brownlee and Child 2018). In some instances—Canada's Charter of Rights for example—this results in an articulated set of value statements that are immutable and transcendent across subject matters (Department of Justice Canada 2012). At a more granular level, the "whereas" type clauses that often preface the substantive provisions of a particular law are typically more pre-occupied with context setting value statements than operational direction of any kind.

Although we typically tend to focus on what a particular statute articulates with respect to a given topic, legislative silence on a particular value can speak volumes as well. For example, the Canada Elections Act includes 555 clauses spanning over 550 pages setting out Canada's voting rules and procedures in excruciating detail (Canada 2022*a*). It does not address alternate voting systems such as proportional representation, an elected Senate, or other election-related values or systems. This is not an oversight or unintended gap in coverage of electoral approach. On the contrary, the drafting of a statute is typically a very deliberate undertaking and accidental oversights or gaps in coverage are rare, and Canada has clearly chosen not to venture down these alternate electoral trails in law. Thus, implicit in any suite of positive affirmations of a particular value set or program design is the negation of other values or norms that one might reasonably expect to see referenced. Equally, failure to address a particular dimension of an issue or a perspective is typically a deliberate indication of the lack of importance of these aspects of the issue or at least an unwillingness to accept its perceived costs or program delivery challenges.

Canadian laws as values statements

Viewed as a whole, Canada's body of conservation law embraces a range of legislative action since confederation. Canada's legislative activity in this domain began shortly after Canada's birth as a nation in 1867 with the passage of the first Fisheries Act in 1868 and continues over the course of the 20th century through to the passage of SARA in 2002 (Species at Risk Act S.C. 2002 c. 29 2007). It spans the conservation and protection of birds, fish and endangered species, fish

Table 1. Three foundational functions of conservation laws in Canada in the six program streams that make up Canada's federal conservation regime.

Six program streams	Codifiers of priorities and values		Defining and circumscribing acceptable behaviour		Drivers of governance and program structure	
	Function	Weakness	Function	Weakness	Function	Weakness
Protected areas NMCA CWA CNPA OA	• Protection of areas "representative" of an eco-region	• Biodiversity/ ecosystem, protection, federal lands, monitoring, data sharing, science not referenced in law • Critical habitat not a driver of protected area establishment	• Most consumptive use of resources prohibited in parks • Some sustainable use allowed in NWAs • Comprehensive range of controls on behaviour within areas	• No legal incentives to protect land or habitat	• Marine and terrestrial programs in Parks Canada • NWA program in ECCC, MPA program in DFO, no legal links between programs, no common program elements or principles	• No governance structures mandated in law
Species at risk SARA	• Listed species protected by law, independent science advice codified in law	• Biodiversity/ ecosystem, protection, federal lands, monitoring, data sharing, not referenced	• Harming, threatening, harassing, and killing of listed species prohibited. Habitat destruction prohibited in certain circumstances	• Recovery strategy implementation not required	• Split ministerial accountability • Separate program design/delivery in ECCC, DFO, parks	• No common program design, reporting
Fisheries management and habitat protection FA	• Securing a sustainable supply of commercial fish species protects fish habitat • Non-commercially harvested fish, marine biodiversity, and aquatic ecosystems in which there are no fisheries unprotected	• Aquaculture not addressed in statute	• Directly regulates how, when, and where fishing takes place • Sanctions and penalties put in place to punish violations of constraints • Directly regulates behaviour that affects fish habitat		• Leads to the establishment of DFO fisheries management and habitat protection programs	• Does not mandate creation of programming for non-commercial species such as whales, dolphins, or marine aquatic plants

Table 1. (*concluded*).

Six program streams	Codifiers of priorities and values		Defining and circumscribing acceptable behaviour		Drivers of governance and program structure	
	Function	Weakness	Function	Weakness	Function	Weakness
Migratory birds management and habitat protection MBCA CWA	• Most migratory bird species protected but harvesting of birds also permitted • Creation of protected areas for migratory bird habitat authorized (NWAs) • Minister is authorized to create regulations that inter alia allow creation of "sanctuaries" from hunting	• Non-migratory and certain migratory species not protected • Biodiversity, ecosystems, and multi-species conservation not mentioned in law	• MBCA constrains how, when, and where hunting can take place • Sanctions and penalties put in place to punish violations of constraints • All "uses" of NWAs prohibited and then allowed back in via permit	• No measures for incentivizing positive bird conservation behaviour	• Drove establishment of Canadian Wildlife Service • Migratory bird programs focussed on ensuring steady supply of wildlife	• No bird habitat protection mandate outside NWAs
Oceans OA	• Legislative attention to many aspects of ocean conservation via Oceans Act • Most elements of ocean governance covered by "other" Acts for shipping, oil and gas, fishing, etc.		• Very few limits placed on behaviour beyond boundaries of marine protected areas • Behavioural requirements placed on the Minister		• Originally led to creation of an "Oceans Sector" in DFO that has been disbanded • Drove creation of marine spatial planning programs that have since been halted • Drove creation of MPA programming	
Forestry CFA	• Value of forest industry and its productivity entrenched in law • "forests," biodiversity, ecosystems, etc. not addressed		• No limits or constraints on behaviour		• Mandates core program areas of Canadian Forest Service though without direct reference to it • Gave rise to fire management and prevention programs • Limited forest biodiversity programming	

Note: NMCA, National Marine Conservation Areas Act; CWA, Canada Wildlife Act; OA, Oceans Act; FA, Fisheries Act; SARA, Species at Risk Act; CFA, Canadian Forestry Act; MBCA, Migratory Birds Convention Act.

habitat, and the direct safeguarding of specific pieces of geography via several forms of protected areas regimes. More expansively, it includes a range of measures devoted to the primary purpose of protecting human health from direct harm by human industrial activities but with major secondary benefits for environmental health and conservation writ large. It would be difficult to conclude that Canada lacks legislative enthusiasm for conservation.

This enthusiasm appears to have waned in the 21st century. The habitat provisions of the Fisheries Act were amended by the Harper government in 2012 and then in essence "unamended" by the Trudeau government in 2019 (Department of Fisheries and Oceans 2019). Provisions related to sustainable fisheries were included in the Trudeau amendments (Fisheries Act R.S.C. 1985 c. F- 14 2019), and the Trudeau government also added procedural changes to the marine protected area establishment process in the Oceans Act (Oceans Act S.C. 1996 c. 31 2018) that it argued were improvements. That summarizes post-SARA federal legislative activity in the conservation field as of early 2022.

The modest legislative activity this century suggests that several emerging issues and values of potentially significant importance to a modern conservation regime have yet to rise to a priority level sufficient to move them past various policy commitments to being codified in law. Perhaps most notably, despite the establishment of aboriginal land claims settlement regimes covering resource management in almost half the country (White 2020), changes to conservation law to reflect these new arrangements are minimal. Similarly, while Canada has endorsed the United Nations Declaration on the Rights of Indigenous People and passed a law with respect to it, references to Indigenous rights and interests in federal conservation law are limited (Canada 2021*a*).

Further, notwithstanding Canada's endorsement of the Convention on Biological Diversity in 1992, Parliament has yet to devote legislative attention to "biodiversity" beyond a passing reference in the "whereas" clauses of SARA. As Ray et al. (2021) have noted, a wide range of federal laws directly or indirectly touch on aspects of biodiversity, but there are no legislative imperatives to conserve and protect biodiversity at a systemic level, to consider aspects of biodiversity beyond birds or commercially harvested fish species, to adopt ecosystem-based management approaches to biodiversity conservation, or to integrate biodiversity considerations into government decision-making more generally. The Oceans Act is the exception in that it mandates the development of integrated marine spatial plans (Oceans Act S.C. 1996 c. 31 2018). However, as of 2022, only one such plan has been completed (PNCIMA Initiative 2017), and no other federals are in development.

As another example, climate change is not touched on in any thread of the conservation law fabric. Words to the effect that the implications of climate change should be considered in resource management decision-making, protected area establishment, or government research and monitoring programming, for example, are absent from the conservation law canon. Similarly, the role of science in conservation decision-making is not addressed in Canadian conservation law. Ministers are not required to consider best available science or to publicly share any scientific rationale for the conservation decisions they make. No Minister is required to monitor environmental change generally or within the lands and mandate areas assigned to them or to collect and store conservation-related data. Achieving conservation data transparency in Canada remains a matter of policy choice for Ministers and their departments and is not mandated by law as in, for example, the European Union (European Union 2018) or the United States (United States of America 2007).

Laws defining and circumscribing acceptable behaviour

"That's against the law." How often does one hear a statement to that effect in common discourse? Likely the most widely acknowledged function of laws is to render certain behaviours or actions impermissible (Stone 1990; Tyler and Darley 2000). In doing so, they serve to translate societal priorities and values into binding requirements that constrain the behaviour of organizations and individuals by making specific practices and activities illegal (Stone 1990; Harel 2015). In most instances in Canada, they also empower the Executive branch of government to establish enforcement regimes to ensure compliance and maintain order. Some countries have endeavoured to compel certain behaviours—Australia's compulsory voting law, for example (Evans 2006; Australia 2021)—by using prescriptive legislation. More commonly, however, most laws in democratic societies prohibit, with exceptions, behaviours or actions rather than seeking to compel certain actions of its citizens. For example, most societies prohibit murder but then create exceptions to the prohibition for purposes of self-defence (Canada 2022*b*).

Canadian conservation law prohibits the killing, capturing, harassing, or otherwise directly harming most fish and wildlife across the nation (Species at Risk Act S.C. 2002 c. 29 2007; Minister of Justice 2017; Fisheries Act R.S.C. 1985 c. F-14 2019; Canada 2022*c*). These prohibitions extend to plants if they have been designated as endangered, threatened, or special concern under the SARA (Species at Risk Act S.C. 2002 c. 29 2007). Even on private land, one cannot legally kill federally protected fish or wildlife unless one holds a permit for doing so. Live capture and captive breeding of wildlife to be used on game farms for hunting purpose or as attractions in a zoo-like setting is not legal in Canada. And on public lands or in navigable waterways or water bodies bearing fish, direct harm to fish and wildlife and damage to their habitat is prohibited. In short, the legal starting point for biodiversity protection in Canada is a blanket prohibition of wilful direct harm to all animal species and select species of plants.

This prohibition is routinely violated in three ways. First, the same laws that make it illegal to kill fish or wildlife also authorize precisely that activity under the terms of a variety of licences or permits. For example, the Minister of Environment and Climate Change Canada (ECCC) is authorized to develop regulations allowing for hunting of birds in a manner consistent with the purpose of the Migratory Birds Convention Act. Section 4 of the Act notes that its purpose is to protect and conserve migratory birds as populations and as

individual birds (Minister of Justice 2017). While "conserve" is not defined in the Act, the terms of the Act and the Convention it implements make clear Parliament's expectation that harvesting of birds will be managed to ensure the long-term health of harvested species at the population level.

The fisheries regime is different. Section 7 of the Act grants the Minister the "absolute discretion" to issue licences or permits to fish (Fisheries Act R.S.C. 1985 c. F-14 2019). This discretion is not fettered in any way in the Act. Ministers cannot be "held to account" to manage fisheries sustainably because the Act does not make them accountable for doing so. There are no requirements that fisheries be managed sustainably or with broader biodiversity or ecological constraints in mind. As noted below, this has important implications for fisheries management program design and delivery. But for our purposes here, the key point is that blanket prohibition on killing of fish has some very large loopholes in it.

The second way in which the prohibitions are violated is through what is known as "incidental take" on land and as "bycatch" at sea. In both instances, animals are killed as a by-product of another activity. Commercial logging typically involves felling of trees that may be occupied by nesting migratory birds. Spring ploughing of farm fields or late-spring harvesting of hayfields will also typically involve damage to ground-nesting birds. These and similar activities result in nest destruction or outright killing of birds in a manner that is "incidental" to the core activity. Commercial fishing activities directed at harvesting hake or pollock will often catch Northern Cod as "bycatch" in the same nets. In some instances, "incidental take" or bycatch are authorized under a permit regime. In others, they take place in a largely unregulated manner. Thirdly, most conservation laws allow for harvesting of fish, wildlife, or plants for scientific research purposes or, in a very small number of cases, for display in zoos. Scientific permits generally allow for the harvest of only a very small number of individuals at a scale that has neither a local nor population-level impact. To our knowledge, while wild harvest of animals for display in zoos or aquaria is likely still legally feasible, this practice has been largely discontinued in Canada.

Conservation law can be used to foster positive actions, not just the prevention of negative ones. For example, SARA establishes the Committee on the Status of Endangered Wildlife in Canada (Species at Risk Act S.C. 2002 c. 29 2007, sec. 14) with a view to marshalling the best scientific minds around species-listing issues. The Canada Wildlife Act (Canada 2017) authorizes the Minister to develop educational materials, convene conferences, and participate in conservation partnerships. The Minister responsible for the Parks Canada Agency is required to hold a national round table on parks on a regular basis (Parks Canada Agency Act S.C. 1998 c.31 2021). Interestingly, no similar requirements exist in the federal fisheries or oceans domains. And while Ministers are authorized to develop collaborative mechanisms and programs for incentivising positive conservation behaviour, an examination of the departmental plans of ECCC and DFO suggest that when not compelled to deliver programming of this nature, they choose not to (Parks Canada 2020; Minister of Environment and Climate Change Canada 2021; Minister of Fisheries and Oceans and the Canadian Coast Guard 2021). Importantly, nor is any Minister or department required to carry out ecosystem monitoring activities or to publicly share any conservation-related data it does collect.

Conservation law does not require the use of regulation-based tools to motivate positive behaviour either. There are no statutory provisions that direct or require Ministers to put in place regulatory tools designed to incentivize positive environmental behaviour. While nothing legally prevents a Minister from offering, for example, a discounted fishing licence fee to any crab harvester that chooses to use fishing gear proven not to entangle whales, there is not any requirement for the Minister to develop tools of this nature. In short, no statute *directs* Ministers to develop and utilize regulatory or programmatic tools of any kind to foster environmental stewardship and positive behaviour; the focus is predominantly on prohibiting poor behaviour, and such prohibitions are routinely overridden or not enforced, as the examples highlight.

Laws as drivers of governance and program structure

In democracies, government institutions do not just spring up organically. They are created by laws. Indeed, the importance of laws in establishing institutions, or alternatively failing to do so, is central to the enduring effectiveness of government in any sphere (Acemoglu and Robinson 2013; Harel 2015), including that of conservation. Equally, the modifying or updating of these institutions over time is vital if they are to remain effective and avoid the process of decay that Fukuyama (2015) defines as the gradual decline of the effectiveness of institutions that fail to adapt to changing circumstances and expectations.

In tandem with the creation of institutions, laws drive the establishment of the programs that institutions deliver. In a government context, "programs" can be thought of as a collection of activities undertaken by a government agency to achieve a set of goals and objectives or to deliver various services to the public. In many instances, programs and institutional units are essentially synonymous—the government's naval warfare program delivered by the Royal Canadian Navy exclusively within the Department of National Defence and has never been a program of another department and likely never will be. Other program activities are less tied to a particular organizational unit or institution. For example, the Canadian Coast Guard program has been a part of Transport Canada, is now part of the Department of Fisheries and Oceans (Minister of Fisheries and Oceans and the Canadian Coast Guard 2021), and could end up in maritime security organization should one be created.

Thus, not only do laws give rise to particular institutional constructs, but they also drive the formation and delivery of programs as well. To be sure, bureaucratically driven offshoots of legislatively based programs occur as do initiatives flowing uniquely from a government policy, a court decision, or a crisis like a pandemic. But essentially, all enduring government programs have their foundation in legislation. The importance of this linkage is difficult to overstate. In most in-

stances, bureaucracies design their organizational structures and operational programs around a legislative program mandate. This mandate will stem in part from founding laws generally of the form "Department of X Act"—see for example Department of the Environment Act R.S.C. 1985 c. E-10 (Canada 2021*b*) and Parks Canada Agency Act S.C. 1998 c.31 (2021). Additionally, they will draw from more issue-specific laws dealing with topics such as parks, species at risk, fish, and so on. Rare is the case that an institution or an element of a bureaucracy develops and delivers a set of programs that then give rise to subsequent legislative action. Of course, institutions can and do advocate for new programs or amendments to laws, but the institution existed by way of a law in the first place. Governments are far more organic and flowing in design than they might seem from the outside (Wernick 2021), but in this area, the hierarchy is clear; laws drive the establishment of institutions and programs, not the other way around.

Program funding decisions are heavily influenced by legislative foundations. While it is an overstatement to say that automatically "what gets legislated gets funded," programs with no formal or enduring legislative imperatives are rarely the beneficiaries of long-term funding support. This is particularly important in tough financial times, as programs that are not easily linked to legislative mandates are generally the first ones on the chopping block in response to fiscal restraint.

A close alignment between legislative mandates and the design of institutions and the programs they deliver gives rise to a highly programmatic operational posture in most governments. It functions to literally "institutionalize" a mandate-by-mandate or program-by-program approach to issue definition and related solution development. Systems of this nature can effectively channel the operational energies of government agencies and their related stakeholder communities around particular goals and objectives in a defined mandate area. But entrenching institutions and programs aligned around legislated mandates also establishes walls and boundaries between issues and agencies that can make it difficult for governments to deal effectively with matters that either transcend multiple legislative mandates and related institutional structures or that simply have no existing legislative foundation. This problem is compounded when laws and institutions established at various points of the previous century are forced to grapple with issues and challenges of this one and often exhibit the classic symptoms of Fukyama's political decay pathology referenced above (Fukuyama 2015).

Canadian conservation laws as creators of institutions and drivers of program design

Institutions and programs emerge from laws. Broadly speaking, Canada's federal conservation regime consists of six primary program streams: fisheries management and fish habitat protection, ocean stewardship, marine and terrestrial protected areas, migratory birds management and migratory birds habitat protection, species at risk protection and recovery, and forestry research and industry support. As summarized in Table 1, conservation laws codify societal values and priorities in these domains, set out behavioural norms with respect to them, and drive the shape and scope of the programs themselves. Three program areas—migratory birds, species at risk, and protected areas—are discussed in detail here to illustrate the dynamics summarized in the table.

Migratory birds and wildlife management have yet to merit the creation of a dedicated institutional structure at a departmental level. Migratory birds' management has been the core mission of the Canadian Wildlife Service (CWS) since its inception in 1947 (Burnet 2011). The Service historically delivered an integrated program of migratory bird management and research, endangered species protection, protected areas, and international wildlife conservation. These activities were led at the Director-General level reporting to an Assistant Deputy Minister, Deputy Minister, and ultimately a Minister in a variety of departmental constructs.

With the creation of Environment Canada in 1971, CWS became part of a portfolio that included environmental protection, water monitoring and research, weather forecasting, and National Parks (Burnet 2011). In a major organizational shakeup, in 2006 the science arm of CWS was moved into a newly created "Science Sector" of Environment Canada, its enforcement arm was moved into a newly created "Chief Enforcement Officer" sector, and many of its policy elements were moved into corporate policy shops. Its ongoing operational management responsibilities under the Migratory Birds Convention Act, the Canada Wildlife Act, the Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act, and the SARA were left as the core of the once-integrated CWS. In 2018, CWS was re-cast as "Sector" within the newly re-named Environment and Climate Change Canada and granted Assistant Deputy Minister level leadership status (Minister of Environment and Climate Change Canada 2019). Its research and enforcement components remained in other parts of the department.

One result of this organizational evolution is that the alignment between legislative direction and institutional design in the migratory birds domain has been reduced over time. While all elements of the migratory birds program are still housed within a single department, they are now located in several organizational units with no reporting ties between them (Minister of Environment and Climate Change Canada 2021). Moreover, they remain part of a broader organizational setting that includes water and atmospheric research, flood forecasting, chemicals management, pollution prevention, weather forecasting, and climate change.

The species at risk portfolio features another approach to legislative and institutional alignment. Passed in 2002, it demonstrates that even new legislation does necessarily update and modify pre-existing institutions established via older laws. Indeed, SARA was drafted in a manner that reflected, rather than influenced, institutional structures of the day as established under pre-existing law and related institutional structures. The Act reflected the fact that responsibility for species at risk rested with DFO in the aquatic domain and EC in the terrestrial realm. Moreover, it acknowledged that Parks Canada, then part of the Canadian Heritage ministerial portfolio, also had primacy for species inside national parks. The result was that a single statute assigned responsibilities

to three different Ministers. No effort was made to re-align institutional structures to reflect the new Act. Instead, it was the other way around; the new Act was designed around pre-existing laws and structures and quite literally "institutionalized" a fragmented approach to SARA program delivery. The silos that some observers might argue impede effective program design and delivery are cemented into the law. Today, the Minister of ECCC is also responsible for the Parks Canada Agency such that only two Ministers are now responsible for SARA implementation. However, Parks Canada remains a fully separate entity established under the Parks Canada Agency Act and is not part of the Department of ECCC Canada (Minister of Environment and Climate Change Canada 2021; Parks Canada Agency Act S.C. 1998 c.31 2021).

A review of the three agencies' Departmental Plans for 2019, 2020, and 2021 reveals a relentless focus on achieving program outcomes that flow directly from SARA (Minister of Fisheries and Oceans and the Canadian Coast Guard 2017, 2019, 2020, 2021; Minister of Environment and Climate Change Canada 2019, 2020, 2021; Parks Canada 2019, 2020, 2021). The plans depict the different approaches each agency has adopted to its species at risk mandate, including the production of species Recovery Strategies and Action Plans. Multiple observers of SARA implementation have called for a stronger focus on inter alia multi-species management, biodiversity-oriented objective setting, and data transparency (McCune et al. 2013; Kraus et al. 2021; Ray et al. 2021). Yet, notwithstanding the preambular references in SARA to biodiversity and broader ecosystem conservation, these suggestions have gone largely unheeded in federal programming. Moreover, none of the departmental plans draw links to core programs focused on fish or bird species that are not at risk or to provincial/territorial work in this area. While each plan acknowledges the existence of sister departments, there is no reference to combined program design or delivery across agencies. Given the fact that the Act does not assign Ministers any responsibilities for ensuring that SARA Recovery Strategies or Action Plans are *implemented*, it comes as no surprise that the plans are similarly silent on implementation commitments. In sum, the alignment between legislative direction and institutional design and programming is strong.

A similarly fractured model has been adopted in the protected areas domain. Here, both the legislative and institutional construct are divided in nature. The Canadian National Parks Act (Canada National Parks Act S.C. 2002 c. 32 2018) establishes the legislative foundation for Canada's world-renowned system of national parks. The National Marine Conservation Areas Act (Canada National Marine Conservation Areas Act SC 2002 c. 18 2002) creates an aquatic analogue to this statute and is intended to spur creation of a suite of marine protected areas. The Canada Wildlife Act (Canada 2017) authorizes the Minister to establish National Wildlife Areas on land and at sea for the purposes of protecting wildlife habitat, particularly for migratory birds. The Migratory Birds Convention Act (Minister of Justice 2017) authorizes the Minister to establish Migratory Bird Sanctuaries for the protection of migratory birds, though it does not directly protect their habitat in these sanctuaries. The Oceans Act (Oceans Act S.C. 1996 c. 31 2018) authorizes the Minister of Fisheries and Oceans to establish marine protected areas.

The alignment between this five-part palette of legislation and the institutional arrangements for implementing it is strong. National Parks and National Marine Conservation Area creation and management are the sole purview of the Parks Canada Agency. The National Wildlife Area and Migratory Birds Sanctuaries programs are administered exclusively by the Canadian Wildlife Service in ECCC, while the marine protected areas program flowing from the Oceans Act is managed exclusively by DFO. There is a clear and bright line between each of the five protected area statutes and the institutional structures they give rise to. The five statutes were written in different eras spanning the MBCA in 1917, the CWA in 1973 and 1994, the Oceans Act in 1999, and the NMCA in 2002. There is no discernible conceptual consistency among them, no internal reference to each other, and no legislative expectation of any coordinated program delivery in this domain. On the contrary, the five protected-area-related laws have effectively cemented in a fragmented multi-department approach to federal protected areas programming. One author's lived experience as a senior executive in ECCC, DFO, and Parks Canada offered clear insights into the internecine battles for profile and resources and the near total absence of operational coordination among the agencies that this paradigm gives rise to.

Considering Canadian biodiversity conservation law through the lens of our three-part framework

Overall, we contend that in the conservation field, laws matter tremendously because they codify priorities and values, define and influence acceptable conservation behaviour, and drive the establishment of the institutions, programs, and governance arrangements of today's conservation regime. This paper's analysis concludes that viewed through this three-part framework (as summarized in Table 1), the legal foundation underpinning federal conservation efforts is sub-optimal and likely incapable of effectively creating, catalysing, and supporting the modern institutions and programs needed to halt and reverse negative biodiversity trends. At the normative level, the portfolio of federal conservation laws generally does not substantively address broader biodiversity or ecosystem protection and conservation needs or express social values or goals with respect to them. While it obviously does not prohibit attention to such goals, action on them is a matter of policy and program choice and not a legal requirement.

Federal conservation law does not require the establishment of conservation goals, objectives, or measurable outcomes of any kind. In the absence of any outcome-setting requirements, the system obviously does not establish any public accountability or reporting mechanisms for charting progress toward goals or for making programmatic course corrections over time. It does not create any requirements for government to collect and store conservation data or to demonstrate that those have been used in decision-making.

Nor is there any legal requirement for the government to share whatever data it does collect. Achieving conservation data transparency in Canada remains a matter of policy choices made by Ministers and their departments, not something mandated by law. Authors such as Mazzucato (2021) and Raworth (2017) have argued that addressing great societal challenges such as climate change or pandemic prevention and response requires a mindset shift toward the establishment of major societal project or "missions" around which institutions, programs, resources, and partners can be aligned. In the Canadian conservation world, no Minister is required to develop, shape, or influence markets or societal behaviours along these conceptual lines. Instead, conservation institutions and programs are left to function like the proverbial guy with a shovel and bucket following the horses in a parade, cleaning up the messes created by society's conservation misbehaviour or inaction.

Many observers have called for the adoption of more integrated, ecosystem-based conservation solutions that transcend the silos of government programming and agency rivalries (see for recent examples Kraus et al. 2021; Ray et al. 2021). And yet federal conservation law legislatively entrenches exactly the opposite. It features separate legislation for birds, fish, forests, oceans, pollution prevention, impact assessment, and species at risk. It features four separate laws for the establishment of protected areas. If one thinks of the environment as an orange, the federal conservation regime rarely if ever considers the skin before it peels it off, pulls apart the segments, and devours them one by one in a series of programmatic gulps. The orange never gets put back together or managed as an integrated entity.

If this legislative segmentation were just a messy but largely benign dynamic, it would be irritating to some but of no great consequence. But as we have demonstrated above, government institutions and program actions flow directly from legislative foundations. Federally, there are at least six major conservation streams, each with their various subordinate rivulets, operating largely independently. Government agencies and organizational sub-units, each with their own budgetary needs and aspirations, operate within this broad but unorganized conservation portfolio. Fused operational program delivery flowing from shared conservation goals and common policy standards and guidelines is effectively stymied by the fragmented nature of conservation's legislative foundation. Thus, while the call for programmatic fusions and synergies that transcend traditional silos make for appealing rhetorical flourishes, one cannot reasonably be surprised when these calls go largely unheeded in the federal conservation portfolio. Indeed, segmentation of the environment and attendant programmatic and inter-agency fragmentation and competition are legislatively hard-wired into the very structure of the system. It would be nothing short of astonishing for integrated and cohesive policies and program actions to emerge from it.

Our analysis and observations in this essay are focussed on the federal conservation regime. But as we note early in our paper, provincial and territorial governments have a major role in conservation and are responsible for the stewardship of the great majority of the non-aquatic species and public lands of the country. Accordingly, to the extent that there are shortcomings in the federal regime, it may well be that they are the inevitable result of Canada's constitutional circumstances and that they can be effectively addressed by provincial/territorial regimes. Equally, it is certainly possible that our findings with respect to federal conservation systems are uniquely germane to that order of government and have little parallel in the provincial/territorial sphere. With those possibilities acknowledged, we are unaware of a provincial/territorial regime that features a set of laws that drive program fusion, profile biodiversity, and establish modern institutions and governance arrangements for conservation. Indeed, as Ray et al. (2021) so painstakingly document in their inventory of biodiversity-related law in Canada, there is much to suggest that these regimes share many of the pathologies we describe above with respect to the federal scale and that our observations may have relevance beyond the confines of our deliberately federally focused lens.

A potential path forward

At the macro scale, charting a path toward a more sustainable future almost certainly requires deep system change along the lines suggested by big picture thinkers like Mark Carney, Naomi Klein, Marianna Mazzucato, and Kate Raworth to name but a few (Klein 2015; Raworth 2017; Carney 2021; Mazzucato 2021). Systemic change is likely required almost simultaneously at multiple spatial and temporal scales if we are to move to enduring solutions to today's sustainability challenges. Indeed, we must acknowledge that conservation laws exist within a milieu of similarly fragmented environmental and other related (or not) laws, such as those dealing with energy, transportation, health care, and welfare, to name but a few. Even if conservation laws were to become more integrative, they would likely fail without broader integration with non-conservation laws. Legislative and institutional mainstreaming has been suggested by others such as Ray et al. (2021). This is of critical importance, and we suggest that step one is really to ensure that the system upon which conservation relies has a strong foundation before it is integrated with other long-standing government institution and programs.

As important as macro level system change is, if we are to halt and reverse the conditions of ecosystem and biodiversity decline we outlined at the beginning of this essay, it is important that change occurs in the conservation sphere as well. In our view, the role of laws in catalyzing, mandating, and supporting more effective conservation action, at minimum at the federal level, is vital yet likely underappreciated. We have, therefore, sought to make the case that our current suite of conservation laws has brought us to our current juncture in terms of ecosystem decline, and they are unlikely to lead to miraculous turnarounds in conservation program success. On the contrary, we contend that if we are to have a more effective and robust federal conservation system in Canada, we need a more modern and effective legal foundation to underpin it.

Laying out a comprehensive legislative reform agenda and a means for advancing it is beyond the scope of this pa-

per, and our analysis is not intended to lead directly to specific recommendations for change. With that being said, as a pathway forward for discussion, we suggest that a modern conservation legislative regime capable of catalyzing change and supporting the transition to a more sustainable conservation future would

1. acknowledge the primacy of Aboriginal and treaty rights and the importance of engaging Indigenous people in conservation program design, delivery, and decision-making;
2. outline the importance and value of biodiversity and all elements of nature and ecosystems, not just those harvested by humans;
3. indicate that all major uses of the environment are deserving of legislative attention—a "no gaps" approach;
4. mandate evidence-based decision-making and the related sharing of data and information supporting such decision-making;
5. acknowledge the importance of climate change and mandate conservation decision-making and program design and delivery that explicitly address its implications;
6. require the establishment of sustainability-based conservation objectives and the collection, storage, and sharing of data and information needed to measure progress toward them;
7. establish accountability and reporting mechanisms to ensure that legislative requirements and objectives are met and(or) that obstacles to achieving them are identified and addressed;
8. drive the fusion of conservation programs to create cohesive, consistent, and mutually reinforcing program design and delivery paradigms and eliminate inter-agency conflict or competition within the conservation portfolio;
9. establish appropriate prohibitions against activities that exacerbate ecosystem decline and require Ministers to develop and deliver programs that incentivize and reward positive conservation behaviour by citizens and organizations in general and resource users in particular; and
10. establish purpose-built, modern conservation institutions, agencies, and mechanisms for engaging Canadians in conservation decisions affecting them.

One could easily imagine each of these 10 attributes being the subject of a "mini-paper" addressing the evolution of theory and practice with respect to them. Our intent here is to offer them for consideration and further thought as opposed to a fully fleshed out "biodiversity manifesto" of sorts. Our future writings will delve into many of these areas in greater detail and will, no doubt, be well informed by any commentary or insights the current article may generate.

Conclusion

While beauty is always in the eye of the beholder, the most boring and drab part of any building is its foundation. While some may find elegance in the design of massive blocks of concrete and artistry in how they are configured (Agrawal 2019), the appeal of most buildings lies in their superstructures, their facades, and their inner spaces. But as dull as they may be, foundations are vital. They fundamentally condition what can be built on top of them and have huge directional impact on the nature of structures erected upon them. Foundations built to support skyscrapers will not be used to build houses on. And house foundations won't support skyscrapers. Indeed, if foundations are ill-conceived or inadequate in any way, many building design options are simply not viable no matter how artistic and creative design architects may wish them to be and no matter how much the public might admire their work.

Conservation laws are similarly foundational. The legislative foundation of today's federal conservation institutions and programs almost entirely pre-date the internet, the cell phone, social media, or an understanding of climate change. This foundation is not designed to support the modern, integrated, outcome-oriented, and transparent conservation programs of the nature contemplated in our 10-point framework above. They foster and entrench the opposite of all that. The analysis presented in this paper strongly implies that achieving conservation success, no matter how success is defined, will be severely hampered if not outright thwarted by this antiquated conservation legal regime. A new set of legal foundations are likely required to springboard us to success. And they are required now.

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