Biodiversity is a recent arrival on the world's environmental agenda, prominent only in the last two decades, and especially after the 1992 UN Conference on Environment and Development (the Earth Summit). The Convention on Biological Diversity — one product of the summit — focused attention on our impacts on our living environment. Species are going extinct at a rate likely unequalled since the age of the dinosaurs; countless habitats, from coral reefs to forests, are being lost; we consume an ever-increasing fraction of the world's biological productivity. We are living a crisis in how we relate to other species.

Biodiversity is also attracting the attention of Canadians. Consider some of the events occurring even as I write this. In Alberta the Special Places 2000 program, intended to identify areas worth protecting, is being wound up, having become mired in acrimony and accusations of political manipulation. In Ontario the Lands for Life planning process, after sparking intense reaction by recommending opening all but scattered fragments of the province's forests to industrial use, has led to negotiation of a revised plan to expand protected areas. Meanwhile, off the coast of Nova Scotia the federal government has acted to protect The Gully, an area of the continental shelf especially rich in species, while across the country, environmentalists gear up to lobby Ottawa as plans for a national endangered species act take shape, once again.

These events suggest some of the dimensions of biodiversity issues in Canada. Their urgency reflects perceptions of the impacts already sustained by biodiversity: endangered species, lost or degraded habitats, depleted resources, and diminished wilderness across the nation.
Political conflicts in Alberta and Ontario (and in most other provinces) reflect differences in how biodiversity is valued — in economic, aesthetic, intrinsic, or other terms — as well as contrasting ideas about how biodiversity decisions should be made: by whom, and through what process. Wrapped up in discussions about an endangered species act are questions regarding the actions necessary to conserve biodiversity. Should the focus be on species, or on habitats? Are regulations or incentives most effective? Is conservation the responsibility of governments, resource users, or all citizens? How can scientific expertise be accessed in making political decisions?

Biodiversity is a complex, many-sided concept. This complexity poses a challenge. How can we make sense of the incredible diversity of life and its countless points of contact with human society? The approach taken in this book is to suggest that this complexity can be understood in terms of three dimensions.

The first dimension is ecology, the variety of life itself — the millions of species (each harbouring diversity within itself) that exist in every habitat, the product of four billion years of evolution, together creating our living environment. A second dimension of biodiversity is ideas regarding this diversity. This includes scientific knowledge about individual organisms and their genetic make-up, about species, and about the ecosystems within which species interact. This knowledge is provided in part by scientists; it encompasses as well other perspectives on nature, including those of indigenous peoples and of other groups in society. Ideas of biodiversity also include values: for example, that some species are more valuable than others, economically or intrinsically; that nature itself is worth exploiting, or protecting; and that different groups within society hold conflicting values, particularly concerning the balance between ecological and economic values. Together, these ideas form the lens through which we perceive, understand, and appreciate biodiversity. Finally, the biodiversity concept refers to actions — how we harvest certain species, and destroy habitats, even while protecting other species. Such actions are the product of many factors: policy decisions by every level of government; resource management activities; market forces; business investments; individual and group initiatives.

Through these three dimensions we can combine insights from
diverse perspectives to understand how and why Canadians use, abuse, and sometimes protect other species. The chapters in this book provide many such perspectives; their authors include scientists, activists, historians, anthropologists, lawyers, political scientists, economists, and planners.

**Where We’ve Been**

While the biodiversity concept may have only recently captured our attention, many of the issues it encompasses have a long history. As I describe in the next chapter, Canadians’ attitudes towards their living environment have evolved over the last two centuries. Once something to be subdued and turned to human purpose, nature and biodiversity are now more often valued in their original state. This change has been expressed in many ways: for example, in changing ideas about how parks should be managed; in attitudes towards certain species once seen as “evil,” such as wolves; and in evolving forestry practices. But sometimes change is slow: even a century ago some Canadians were trying to conserve certain species, and even today forestry and fisheries controversies attest to our continuing assault on other species.

Few places exemplify the impact of the past on our present as dramatically as does Banff National Park. The park contains spectacular scenery and wildlife habitat. But there are also the Trans-Canada Highway, a busy railway, and facilities for several million visitors each year. This uneasy juxtaposition of economy and ecology reflects decisions made during the last century, since the park’s creation as an instrument of economic development. Since then some values have changed, but government policies and economic forces have not always kept pace. For example, while amendments to the 1988 National Parks Act made ecological integrity a top priority, development continued, permitted by provisions in many commercial leases as well as by a federal reluctance to act decisively. Banff, as Bob Page concludes in his chapter on this park, is “both a reflection of its history and a prisoner of its past.” In 1996 the Banff-Bow Valley Study, chaired by Page, examined how we could move beyond this history, and restore the park’s ecological integrity. This, as Page explains, will occur only
through a new vision of the park grounded in ecological realities.

**The Ecology of Biodiversity**

When we think of biodiversity, species come most readily to mind: the variety of plants and animals within, say, old-growth forests or coastal tide pools, and their obvious contrast to the impoverished uniformity of manicured urban parks or prairie wheat fields. Our ignorance of essential aspects of biodiversity also is often expressed in terms of species: we don’t even know how many there are in the world (estimates range between five and 100 million), or how many have become extinct in the last day, year, or century.

Biodiversity is about more than species. One common approach to understanding the concept is to identify four levels of biodiversity: genetic, species, ecosystem, and cultural. Individuals of the same species usually vary amongst themselves. These differences, if inherited, reflect genetic diversity, the raw material of evolution. Its continuing erosion may reduce the capacity of many species to adapt to changing environments. On another level, beyond species, the distinct ecological communities we see around us each composed of many interacting species – forests, open fields, or streams – are expressions of ecosystem diversity. Species would not be so numerous without the variety of habitats found within diverse ecosystems. Beyond serving as habitats, many ecosystems also exhibit distinctive properties, such as resilience (the capacity to recover from stress). A forest, for example, may readily recover from disturbances such as fire or wind. This ability to recover reflects the significance of species diversity: an ecosystem may only be resilient if many species are available to fulfill essential roles within that ecosystem. Finally, biodiversity encompasses cultural diversity. Over thousands of years humans have developed many ways of using, conserving, and modifying other species. In consequence, biodiversity, especially in the case of agricultural species, has been enhanced by, and is now at least partly dependent upon, these diverse practices.

The importance of biodiversity at each of these levels also becomes evident when we consider the impacts of our actions. While we tend to think of human impacts only in terms of extinct species, in fact, these
impacts can be severe even when no extinctions occur. Distinct populations within species may be eliminated, reducing genetic diversity. Ecosystems also can be lost without affecting species diversity. For example, the original Carolinian forest has been almost entirely eliminated in southern Ontario, but most of the species originally found within it still survive in isolated pockets of habitat.

The four chapters in this section together provide an extensive account of biodiversity in Canada. Ted Mosquin begins, with an assessment of current status and trends. As he explains, Canadian biodiversity, at every level, is exhibiting the impacts of more than a century of industrial and agricultural activity. These impacts are especially evident if we compare the current state of biodiversity with its state in about 1750, before humans became a powerful presence across the land. The prognosis for the future of biodiversity also is not entirely hopeful. Activities engaged in by certain interests reduce our ability to conserve biodiversity. Among these are the tendency by governments and corporations to obscure the real consequences of their actions. There also is a continuing decline in support for scientific research on biodiversity.

Canada's lakes, rivers, and sea coasts contain a rich array of species, many of which are threatened by a range of human activities. Some threats are obvious, such as destructive fishing gear and inappropriate logging practices. Others are more subtle, but no less pervasive: widespread deformities in frogs may indicate the impacts of pesticides. Equally important, as Don McAllister notes, are the root causes: governments' failure to regulate harvesting effectively; the pressures of a global economy; and continuing growth in the world's human population. Limited scientific knowledge also impedes our ability to protect biodiversity, resulting in a continuing decline in both aquatic species and ecosystems. Almost one-third of Canada's freshwater species are at risk, and more than two-thirds of all wetland habitats have been lost.

Diverse ecological communities only exist because species perform the many functions that make life possible. Some functions are familiar: certain species are food for others, while some act as predators, and others as waste recyclers, ensuring that energy and nutrients are available for further growth. Other functions are less obvious. Vegetation
moderates climate, enhancing the habitats of other species. Trees, and kelp, form three-dimensional ecosystem structures, creating more habitats. Within many ecosystems certain species contribute to stability, resilience, and harmony. As Ted Mosquin explains in his second chapter, these functions, more pervasive, diverse, and complex than generally realized, have enabled the ecosphere – the earth and all living things on it – to survive and flourish. They represent the ultimate, ecological value of biodiversity, far outweighing that of the commodities we harvest.

Natural and cultural diversity connect most closely in agriculture. Building on natural variation, generations of farmers have bred diverse strains of plants and animals and have used this diversity to help ensure resilience in the face of an uncertain environment. As Bob Wildfong describes, however, this diversity is being eroded, as modern agriculture becomes ever more dependent on a diminishing variety of seeds. And as genetic diversity erodes, so does the diversity of those who own these seeds. Thousands of farmers no longer select and save seeds year after year; this task is instead now concentrated amongst relatively few agricultural companies. And as Jy Chiperzak notes, the same pattern of diminished genetic diversity and corporate concentration is evident among livestock. But agricultural diversity can be conserved, if farmers, working with organizations such as Seeds of Diversity Canada, again choose to perpetuate diverse strains or breeds.

**Ideas, Knowledge, and Values**

Humans have developed many perspectives on the world. A scientist describes a forest in terms of flows of nutrients and energy and the distribution and abundance of species. A forest company manager sees the trees as a resource, whose growth can be predicted and modelled and eventually harvested. To an amateur naturalist the forest may be pristine wilderness; to the hunter, habitat for big game. These diverse perspectives, mirroring the qualities of nature, shape how we use, or choose not to use, the living environment.

Scientists, especially, have shaped our perspectives on biodiversity. Geneticists map inherited variation within species. Taxonomists catalogue species and evolutionary biologists explain how they originated.
Wildlife biologists show how grizzly bears and other species require large areas for survival, and demonstrate how salmon streams and other ecosystems have been damaged by logging. Both in Canada and internationally, scientists have helped define biodiversity conservation priorities. Their influence tends to dominate our understanding of the environment, reflecting our tendency to defer to those deemed best able to provide authoritative, reliable facts about the world. As Mosquin and McAllister noted in Part Two, our ability to act effectively to protect biodiversity also is at risk as governments continue to reduce support for scientific research. It is risked, too, when decisions that should be based on scientific grounds, such as determining which species are close to extinction, become subject to political influence.

But science cannot be our sole guide. Scientists cannot now confidently evaluate the significance of many emerging threats to biodiversity, from ozone layer depletion to climate change. We still lack an effective scientific basis for managing fisheries (as recent experience with the east coast cod and west coast salmon indicates). Amphibian populations are declining and coral reefs are dying, and we are not sure why. The replacement of diverse forests with even-aged, single-species stands constitutes a massive experiment, with an outcome still to be determined. Across an array of biodiversity issues, uncertainty is pervasive.

These gaps in our knowledge of biodiversity represent, in part, unfinished business: difficult questions demanding only more time and money. (Although as Canadian science budgets continue to decline, some questions may never be answered.) But some questions may not even have answers. Complex ecosystems can behave chaotically, swayed by apparently insignificant events, rendering predictions unreliable, no matter how much information we gather. And in the meantime crucial decisions — about harvesting biodiversity, or managing parks, or about many other human activities — cannot wait.

While science is important, there are other ways of knowing the world. Experience has shown that better decisions tend to be made through processes open not only to experts, but to diverse perspectives that are more democratic and pluralistic. Therefore, while it is appropriate to draw on scientific knowledge, it is also necessary to be open to other ways of understanding the world. In practice this poses chal-
lenges: to translate public concerns into technical terms, to communicate complex scientific issues in ways that everyone can understand, and to encourage trust between experts and citizens. Scientists and those with other perspectives may be mutually sceptical about the other’s insights.

Such challenges are being encountered more often, as indigenous knowledge becomes more prominent in Canadian environmental affairs. Much wisdom has been accumulated by people who have lived and relied upon the land and its resources for thousands of years. As Russel Barsh explains, this knowledge of biodiversity is more than just observations. It combines ecological explanations and ethical principles, emphasizing forecasting of local phenomena, rather than the universal theories often sought by scientists. It is often the only source of long-term information about changes in the environment. The indigenous perspective also can generate new insights, because its focus on animal behaviour is so different from the emphasis of conventional wildlife science on counting populations and other approaches that rely on numbers.

As Richard Baydack notes, science retains a central role in biodiversity conservation. Within the North American Waterfowl Management Program (NAWMP) — one of the largest conservation programs on the continent — managers must decide which waterfowl habitats should be improved, and where to devote their limited resources. In making such decisions they depend on scientific information about waterfowl populations and their habitat requirements. Much of this information, however, is incomplete. For example, it is not yet precisely known how important particular habitats are to maintaining waterfowl populations. One approach to dealing with uncertain or incomplete knowledge, applied within NAWMP and elsewhere, is adaptive management, in which management activities are designed as learning experiences, subject to modification as new information is gained.

This concept of adaptive management is becoming more influential as awareness grows of the challenges involved in using uncertain and incomplete knowledge as a basis for action. As Nina-Marie Lister and James Kay explain, adaptive management, along with strategies for helping diverse interest groups develop a common vision and learn
collaboratively, can provide the best prospect for conserving natural areas. Through a case study of an area within an urban region, Lister and Kay demonstrate how such strategies are especially important because they provide novel ways of adapting to the persistent tendency of ecosystems to surprise — to change in ways that we do not expect.

Scientific knowledge is one dimension of our ideas about biodiversity. Another is the values we assign to the world. Of course, only a fine line divides knowledge and values. Among indigenous peoples the line is erased, as their knowledge of biodiversity encompasses moral values, assigned to all living and non-living things. Some of the most influential statements of environmental values also combine science and personal conviction. In *Silent Spring* Rachel Carson drew on her knowledge of ecology and toxic chemicals to formulate a powerful statement of our need for an ecological ethic.

One distinction often made is between anthropocentric and biocentric values. Anthropocentric values emphasize the contribution of biodiversity to human well-being, both directly (providing food, fibre, medical materials, recreation) and in terms of those essential ecological services (nutrient cycling, climate regulation, pollination, and so on) that form our global life-support system. Biocentric values, in contrast, emphasize the intrinsic worth of biodiversity, independent of its contribution to human well-being. In practice, both perspectives can sometimes have similar implications: we may protect a region because of its intrinsic value, or because of its value for camping and canoeing; the difference will not be evident to a rare plant or grizzly bear.

But sometimes these contrasting values can have very different implications. When our values change, so, too, may our conduct. National parks, once merely another instrument by which resources could be turned towards human benefit, now have as their first official priority protection of ecological integrity. Our attitudes towards predators have changed: wolves are no longer condemned as bloodthirsty criminals. Wetlands or deserts, once considered wastelands requiring transformation into something useful, are now more often seen as distinctive habitats worth protecting. These changing values reflect the influence of such individuals as Carson, John Muir, and Henry David Thoreau. They may also be the product of scientific knowledge: ecological research has shown, for example, how certain
species once viewed as “useless” in fact play important roles in nature. Changes in society, including greater economic well-being and wider interest in outdoor recreation, also have contributed to changes in values. And with changes in values have come some changes in how we behave towards nature.

Nevertheless, many argue that anthropocentric values continue to compel the elimination of Canada’s biodiversity. The forest industry clearcuts the countryside to extract those few species it considers valuable. Plows convert prairie grasslands, once rich in species, into wheatfields. On the edge of our cities market forces and government subsidies hasten conversion of fields and forests into monotonous malls and subdivisions. Economic values, it is often asserted, drive extinction.

But as Peter Whiting explains, economic values and motivations, properly guided, can encourage us not to eliminate, but to conserve biodiversity. Parks draw tourists, and create jobs; this economic impact may outweigh other, more destructive uses of the landscape, justifying additional parks. Economic incentives can encourage businesses and individuals to conserve biodiversity. We must also, Whiting stresses, be aware of the loss we risk if we neglect the economic value of biodiversity, and we must realize that conserving biodiversity is an investment, not a cost. Demonstrating the value of this investment is a challenge for economists: to measure in dollars and cents the contributions of biodiversity to our well-being — regulating climate, pollinating crops, and a thousand other services — which we do not pay for, but nevertheless depend on.

Pollsters often portray Canadians as preoccupied with economic concerns. But as Loren Vanderlinden and John Eyles explain, public attitudes are actually more complex than this. In particular, attitudes towards biodiversity are grounded in various ideas about the natural world. These ideas emphasize the more engaging species — deer, bears, whales — but also encompass a view of nature as a system of interdependent parts, balanced, but fragile and unpredictable in the face of human interference. Such ideas are derived from many sources, including direct experience (through camping, hiking, bird-watching, and other outdoor activities), and science (communicated through both education and the media). These ideas, along with widely held
cultural values, such as concern for children, help form widely-held attitudes that tend to be anthropocentric, but that also express concern for more than what is of only immediate use. Many Canadians wish to protect nature for future generations and they draw satisfaction from knowing that certain parts of the world are not yet dominated by humans.

**Taking Action**

Knowledge and values shape the politics of biodiversity. For example, scientific awareness of the importance of habitat has led to a focus on endangered ecosystems, not just species. Public interest in the broad diversity of species, and not just those that can be observed down a gun barrel, has led some provinces to replace Game Acts that mention only a few species with Wildlife Acts that refer to all species.

The relation between ideas and action is complex, raising many challenges. How are values — economic or otherwise — to be translated into policy? Who can best protect biodiversity or manage its use: governments, business, environmental organizations? Can biodiversity be protected within an economy based on industrial resource extraction? How do we set priorities when more species and habitats are at risk than can be protected? How can conflicting priorities — to protect, or to exploit biodiversity — be resolved? Such conflicts exist because there are many ways of understanding, and using, the world, and many ways of defining problems and their solutions. The essence of the politics of biodiversity lies in efforts to address these conflicts, whether equitably, or in ways that favour certain interests and values.

As Robert Paehlke explains, action on biodiversity protection faces many challenges. Short-term political perspectives and jurisdictional boundaries slice across the time and space of ecological habitats. Biodiversity loss is slow and undramatic: habitats are chipped away and species disappear without a murmur. Governments, in contrast, tend only to react to emergencies, making it easy for them to dismiss these losses. Inadequate scientific knowledge and lack of a consensus on biodiversity values also impede initiatives. Nevertheless, there are many opportunities for action. Attention to endangered species and their habitats is essential. But cities are also a crucial arena for biodiversity
protection. While resources may be extracted from the wilderness, they are mostly consumed in cities, and reducing consumption offers the best prospect for protecting biodiversity. Appropriate taxes would encourage more efficient resource use. So would compact, liveable cities that Canadians would prefer to the dispersed and environmentally destructive suburbs that now dominate our cities.

Political promises regarding biodiversity sometimes seem disposable: national endangered species protection legislation is not yet a reality, nor have provincial commitments to expand protected areas been met. But once passed, laws do tend to focus our attention. As Ian Attridge notes, biodiversity laws set out what we can and can't do. But they do much more. Legal incentives and penalties encourage or discourage sustainable use of other species, and protection or exploitation of their habitats. Conflicts over resources, and disputes over jurisdiction between governments, can be settled through recourse to laws. Biodiversity law can provide tools for individuals and groups to influence government or industry decisions. Across a wide range of issues, the legal system shapes our impact on the living environment.

Biodiversity law provokes debate and controversy because it raises basic questions about the role of government in society. Much of Canada's biodiversity, particularly in more densely populated areas, is on private land. Governments usually have been reluctant to regulate private property, and notions of "property rights" are still invoked by opponents of the need to balance individual and community needs. But many property owners are committed to biodiversity protection. As a result, voluntary stewardship of private land is becoming more common, encouraged by national organizations like the Nature Conservancy, by local stewardship groups and land trusts, and through legal and economic incentives, such as conservation easements and tax incentives.

Biodiversity policy-making takes place at many levels. Agreements such as the Biodiversity Convention and the Convention on International Trade in Endangered Species set the international context. While not legally binding they at least carry moral authority: failure of governments to fulfill their obligations can be embarrassing. Within Canada, as Attridge outlines, jurisdiction over biodiversity is divided between the federal and provincial governments. This division
is often marked by fractiousness. While the ecological integrity of Banff and other Rocky Mountain national parks may, as Page notes, require that land uses near their borders be compatible, in practice rivalry between Ottawa and Edmonton impedes the co-operation necessary to achieve this.

Canadian provinces are crucial players in biodiversity policy. They have jurisdiction over natural resources, crown land, hunting, fishing, and many parks. Provincial governments determine what municipal governments can do, while the federal government is unlikely to act strongly without provincial co-operation (indeed, the absence of a national endangered species act may reflect in part a long-standing reluctance to step on provincial toes). Jacques Prescott explores one provincial initiative, in his account of the development of a biodiversity policy in Quebec. In response to the 1992 Biodiversity Convention, Quebec has developed an action plan setting out how the province will meet the Convention commitments. A major challenge in implementing this plan is that of bringing together separate departments to implement a comprehensive approach to biodiversity conservation. This has been accomplished through a “global framework,” organizing specific tasks undertaken by government departments and other sectors of Quebec society. A single policy framework for biodiversity, Prescott suggests, can encourage agencies accustomed to acting independently to co-ordinate and co-operate. The complexity of the plan, and the number of agencies involved, reflects the complexity of the biodiversity issue, involving, among other areas, wildlife, forestry, agriculture, mineral resources, the urban environment, and biotechnology.

But biodiversity politics in Canada now encompasses far more than government initiatives. Indeed, that governments have acted to protect biodiversity at all is to some extent because individuals and groups have insisted they do so. National organizations, such as the Canadian Parks and Wilderness Society, regional groups, such as the Manitoba Naturalists Society, and neighbourhood groups meeting around a kitchen table have identified areas of ecological interest, built support for their protection, even acted as stewards of some areas. As Jerry DeMarco and Anne Bell explain, these organizations employ limited resources in creative ways, evolving new roles, moving beyond nature...
appreciation, embracing advocacy. Some groups are highly visible, and confrontational, such as Greenpeace. Some emphasize habitat protection (the Endangered Spaces Program of the World Wildlife Fund and the Canadian Parks and Wilderness Society is one example). Others focus on particular species, such as whales, seals, or birds. Biodiversity advocacy groups sometimes act in concert with governments: the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is one example of long-standing co-operation with government by other organizations. These organizations are becoming ever more essential in the face of budget cuts, weakened environmental laws, and the perception that governments are unable or unwilling to respond effectively to public concerns.

The existence of these organizations demonstrates how the public is becoming more reluctant to defer to decisions made behind closed doors. Another consequence of this reluctance is increasing recourse to round tables and similar forms of public consultation in which representatives of different interests are brought together to agree on a plan of action. British Columbia’s Commission on Resources and Environment was one example; the Lands for Life planning process in Ontario was another. Such processes are seen as attractive because they can potentially reduce conflict and ensure that eventual decisions are more widely acceptable. But they carry their own risks. The Lands for Life process illustrated both the concept (three round tables made recommendations concerning the future of much of Ontario’s forests), and a major risk: when the round tables recommended in November 1998 that most forests, even within parks, be open to resource extraction, it became obvious that the process had adhered too closely to the interests of resource industries. In the face of thousands of letters, phone calls, and e-mails expressing opposition to these plans, the provincial government reopened negotiations with the forest industry and environmental organizations, hammering out by March 1999 an agreement to protect significantly more land within parks. While this outcome has been acclaimed by both industry and environmentalists, it is nevertheless ironic: a flawed system of public consultation led to crucial decisions over protected areas once again being made through secret negotiations.

In Alberta the Special Places 2000 program has encountered even
greater difficulties. Initiated in 1992, Special Places was intended to identify areas deserving protected status. But the program has had a troubled history, and several environmental groups have pulled out. As Lorna Stefanick and Kathleen Wells demonstrate in their analysis of Special Places in Alberta's Castle-Crown Wilderness Area, participatory processes risk collapse if they fail to ensure that all interests are represented, if some interests are perceived as having undue influence, or if decisions are not seen as balanced, fair, and legitimate.

The Special Places program was intended to balance diverse interests, defusing conflict. In fact, the process (as also occurred in Ontario) has itself generated conflict, because of doubts that all interests were represented, that those facilitating the process were truly neutral, and that the process was autonomous from government. Instead, it appeared to be subject to political interference — a thinly disguised effort to manipulate the public agenda to achieve the goals of particular interests. Attention to process, as Stefanick and Wells show, is crucial, if decisions are to be seen as legitimate.

But can conflicts over biodiversity protection or exploitation be resolved at all, given the economic importance of industrial resource extraction? Can biodiversity be protected in Alberta, where a powerful petroleum industry seeks to maintain access to almost the entire province? Can Ontarians agree on protected areas, when several communities remain dependent on timber and mining, even as recreational interests become increasingly influential?

These conundrums might be soluble, if we are open to new ways of thinking. In Ontario a coalition of environmental organizations, working with forestry experts, presented to the Lands for Life process a proposal, “Planning for Prosperity,” that outlined how 20 per cent of forested land could be protected, while maintaining timber production, and creating several thousand new jobs in northern Ontario. Such a plan demonstrates how the supposed conflict between economic and environmental priorities can be resolved, if we are willing to re-think how we use biodiversity resources.

But as Michael M'Gonigle argues, failure to do this rethinking, and to move beyond the conventional model of industrial forestry, is ensuring that British Columbia will neither protect enough of the province's biodiversity nor maintain a sustainable forest economy. In
recent years a provincial Forest Practices Code, funds for “forest renewal,” and innovative management schemes have appeared, intended to balance protection and industry needs. But the benefits of these innovations are largely an illusion. Real change and genuine sustainability will come about only by reshaping the industry beyond the current structure in which authority is held by large corporations and by the provincial forest ministry and in which the chief priority is timber production. Most crucial, M’Gonigle suggests, is greater local control over forests. Communities, not corporations, should be allocated long-term access to forests with the authority to manage and harvest them so as to meet community goals. The province would remain an essential player in forest management, but it would support, not displace, community authority by monitoring and reporting on the state of the environment, and by ensuring transparency and access to government decisions and information.

**Understanding Biodiversity**

Biodiversity is an issue today because it is now accepted that many topics once viewed as separate — protection of endangered species; management of renewable resources, such as trees or fish; design of parks; sustainable agriculture — are in fact aspects of a single challenge: to learn to co-exist with other species. This book is intended to reflect this singular nature of biodiversity. I believe that the dimensions of ecology, ideas, and action can be the basis for a synthetic perspective on biodiversity, transcending the disciplines more often used to organize our understanding of the environment.

Biodiversity issues usually encompass all three dimensions. Consider again the recent Lands for Life process in Ontario. The role of ecology can be seen in concerns that the proposed parks and reserves were too small to protect the habitats required by many species and in predictions that forests would not be able to meet the future demands of the Ontario wood industry. Ideas about biodiversity have been expressed throughout the process, as in debates over how much land should be opened for development and how much should be maintained for tourism or wilderness protection. The significance of action can be seen in controversies regarding how the public has been con-
sulted, in the ways that diverse interest groups have participated, in how conflicts over the future of Ontario's forests were exacerbated, and in the evident political impact of public concerns, compelling the provincial government to seek a plan that would protect more land.

Biodiversity, like many environmental issues, can be fully understood by applying an interdisciplinary perspective. Similarly, achieving environmental sustainability depends on change in many spheres of human thought and action. Conserving biodiversity is not just a matter of getting the science right, or adopting the right system of values, or ensuring that certain interests prevail in political debate.

Each year I am impressed by how many of my students choose environmental studies because they want to find solutions to environmental problems – they want to create change. In that spirit, many of the authors in this book present innovative ways of coexisting with other species. By examining all the dimensions of biodiversity we can better understand the prospects for coexistence.

Notes

3. This plan, prepared in 1998 by the Partnership for Public Lands, is available at: http://www.web.net/wild/planfor1.htm