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...From the CCEA Chair

David MacKinnon, CCEA Chair

The Aichi Biodiversity Targets

It was encouraging to see so much media attention paid to the Tenth Conference of the Parties (COP 10) to the United Nations Convention on Biological Diversity (UN-CBD), held in Nagoya, Aichi Prefecture, Japan in November, 2010. For the better part of a week, and in spite of competing priorities for media coverage, the world learned through 'mainstream media' outlets about the biodiversity crisis. We heard frank discussion about our collective failure to meet previous international commitments to protect, conserve, and sustainably use the ecosystems which support us, and the implications of these failures, not only for biodiversity, but for human societies, going forward. Countries were able to overcome differences in priorities to agree to a number of significant new targets which, if achieved, will help to stem the onrushing tide of biodiversity loss.

The Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets – a major outcome of the COP 10 meetings - commits UN-CBD signatories to "take effective and urgent action to halt the loss of biodiversity in order to ensure that by 2020, ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being and poverty eradication".

Of key interest to Canadian protected area supporters, researchers, and practitioners is Target 11 (see <http://www.cbd.int/decision/cop/?id=12268>):

"By 2020, at least 17 per cent of terrestrial and inland water areas, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into wider landscapes and seascapes."

A quick glance at the online Conservation Areas Reporting and Tracking System (CARTS) on the CCEA website (http://www.ccea.org/en_cartsreports.html) indicates that about 6.5 per cent of Canada terrestrial and marine territory is currently protected. Clearly, our work is cut out for us.

Since November, media attention has shifted away from the biodiversity crisis to newer, more interesting, or more sensational developments in the world. Given our global track record in meeting international environmental commitments, it is easy to be cynical about the likelihood of success in achieving the Aichi targets. But if we think back to Canada's ratification of the UN-CBD in 1992, which led to the development of the Canadian Biodiversity Strategy, and then to the commitment by all federal, provincial, and territorial jurisdictions to establish representative networks of terrestrial and marine protected areas, the potential value of the Aichi Biodiversity Targets becomes clear.

Admittedly, we didn't achieve our goal to have representative terrestrial protected area networks in place by the year 2000. And progress on the marine side has been sluggish, to say the least. But the period 1992-2000 saw protected areas systems in nearly all jurisdictions grow by leaps and bounds, providing lasting benefits to Canadians. In some jurisdictions, the momentum to build the system has continued through to the present day.

Judging by the attention we see being paid to CARTS and to a newly invigorated marine protected areas network-building process, decision-makers are paying attention to how well Canada lives up to its international commitments. As 2020 approaches, we are likely to see pressure will build, both to make progress, and to appear to make progress, on meeting the Aichi targets. The pace at which protected area planning and establishment occurs will need to be ramped up, as it was leading up to 2000. Planning processes will need to be adapted to the 2020 targets, and progress needs to be continuous. But urgently, there is a need to translate Canada's 2020 commitments at the international level into 2020 commitments at the federal, provincial, territorial, First Nations, and NGO levels. This broad-spectrum buy-in was a key accomplishment of the Canadian Biodiversity Strategy, and the time has come for a new Canadian Biodiversity Strategy – 2011 to 2020 to plot the roadmap for Canada to meet the Aichi Biodiversity Targets

CCEA's mission "to facilitate and assist Canadians with the establishment and management of a comprehensive network of protected areas representative of Canada's terrestrial and aquatic ecological natural diversity", and we will help Canadians to meet the new Aichi Biodiversity Targets in any way we can.

CCEA Gold Leaf Award 2010

Ottawa, Ontario

Terra Nostra Québec has received the 2010 Gold Leaf Award at the latest CCEA Conference, held in Ottawa on November 3-5. This year, the theme was Future Planning for Protected Areas - Responding to Climate Change. This prize was awarded in the "individuals" category in recognition of civic education initiative in the framework of the International Year of Biodiversity.

In January 2010, six citizens seized the moment to create the Terra Nostra initiative, a photographic project committed to showcasing Québec's biodiversity, to raising public awareness of its fragility and to promoting the importance of protected areas. This award recognizes the contribution

of volunteers who set an example and show us how citizens can contribute to nature conservation and drawing daily inspiration from the natural world that surrounds us.

Mr. Rodolph Balej, Nelson Boisvert, and Eric Le Bel have accepted this award on behalf of the group of six citizens. The award was presented by Mr. David MacKinnon, Chair of the Canadian Council on Ecological Areas

The Canadian Council on Ecological Areas's Gold Leaf Awards acknowledge the contribution of individuals, industry, universities, programs or groups. These awards notably highlight those actions which focus on the establishment of a network of protected areas which is representative of ecosystems and landscapes diversity for the whole country, as well as the type of contributions which are necessary to attain, encourage and guide the establishment of a comprehensive network of protected areas for all of Canada.

Récipiendaires du prix Feuille d'Or

Le collectif citoyen Terra Nostra Québec a reçu le prix reconnaissance « Feuille d'Or » 2010 lors d'une conférence tenu à Ottawa sous le thème Planification future des aires protégées - Comment répondre aux changements climatiques, du 3 au 5 novembre 2010. Ce prix lui a été décerné dans la catégorie "Particulier", en reconnaissance pour cette initiative citoyenne éducative, dans le cadre de l'Année internationale de la biodiversité.

En Janvier 2010, six citoyens ont saisi le moment de créer l'initiative Terra Nostra, un projet photographique visant à faire connaître la biodiversité du Québec, à conscientiser le grand public aux menaces qui pèsent sur elle et à sensibiliser au rôle des aires protégées. Ce prix témoigne de la contribution bénévole de citoyens, qui nous donne l'exemple à l'effet qu'il est possible de contribuer à la conservation de la nature par une sensibilisation quotidienne du grand public à la beauté, la diversité et la fragilité du vivant qui nous entoure

Messieurs Rodolph Balej, Nelson Boisvert et Éric Le Bel ont accepté ce prix au nom du collectif des six citoyens. Ce prix été remis par M. David Mackinnon, président du Conseil canadien des aires écologiques.

Les prix « Feuille d'Or » du Conseil canadien des aires écologiques reconnaissent les réalisations des particuliers, d'industrie, d'universitaires, organisations, programmes ou de groupes. Ces prix soulignent notamment les réalisations visant à établir un réseau d'aires protégées à la grandeur du pays qui soient représentatives de la diversité des écosystème, des paysages du Canada, et les types de contributions nécessaires afin d'atteindre, d'encourager et de guider la mise sur pied d'un système exhaustif d'aires protégées à l'échelle canadienne.

National Marine Protected Areas Network Workshop

Mary Rothfels, Fisheries and Oceans Canada

On 2 November 2010, federal, provincial and territorial marine protected area (MPA) network practitioners met



Mr. Rodolph Balej, Nelson Boisvert, and Eric Le Bel accepted their Gold Leaf award, presented by Mr. David MacKinnon, Chair of the Canadian Council on Ecological Areas.

for a one-day National Marine Protected Areas Network Workshop. The objectives of this workshop were to discuss in detail steps 1-5 of the 8-step process for bioregional MPA network planning (as articulated in the draft National Framework for Canada's Network of Marine Protected Areas) and to gather information to inform drafting of technical guidelines for bioregional network planning.

Mary Rothfels (DFO-NHQ) and Marty King (DFO-Maritimes) began the day with introductory presentations on the 8-step approach to bioregional network planning. To inform Step 1: Identify and involve stakeholders – Isabelle Turcotte (EC NHQ) presented on governance options for bioregions, based on the governance concepts used in Large Oceans Management Areas. To inform Step 2: Compile ecological and socio-economic data – guest presenter Karin Bodtker (Living Oceans Society) described the BC Marine Conservation Analysis (BCMCA) initiative, the atlas of ecological features and humans uses in the Pacific they are producing, and the Marxan analysis they carried out to identify marine areas of high conservation value and areas important to human use. To inform Step 3: Set network objectives for bioregion – Hilary Ibey (DFO-Pacific) presented, also on behalf of Karen Topelko (BC), on development of the Canada-BC MPA Strategy. Guest presenter Jake Rice (DFO-NHQ Science) presented on the international (CBD) definition of representativity and why it is an important part of MPA planning. Doug Yurick (Parks Canada-NHQ) described Parks Canada's mandate for representation and its likely role in the national MPA network. To inform Steps 4 and 5: Set conservation targets, apply CBD design principles, review existing protected areas, and perform gap analysis – Jessica Mitchell (DFO-NHQ) presented on how to define an MPA in the MPA network context, and Isabelle Turcotte summarized the report from the federal Marxan workshop hosted by PacMARA in Ottawa in June; this report is still in preparation and will feed into the MPA Network Technical Guidelines.

In terms of next steps, the aim is to have a minimum of two Bioregional Action Plans in place by 2012 (in addition to the National Framework and Technical Guidelines being finalized). It should be possible, at a minimum, to proceed with the first three steps of bioregional network planning this coming year. A launching point for regional participation could be to begin discussions on bioregional network objectives.

Please note that the draft National Framework for Canada's Network of Marine Protected Areas has now been posted online for a 60-day public review period. Please visit: www.isdm-gdsi.gc.ca/oceans/publications/dmpaf-eczpm/form-eng.asp to tell us what you think.

Protected Areas Data Needs and Data Management Workshop

Jessica Mitchell, Fisheries and Oceans Canada

On 3 November 2010, federal, provincial and territorial protected area practitioners and data managers gathered for a one day Protected Areas Data Needs and Data Management workshop. Most participants were part of the Canadian

Council on Ecological Areas (CCEA) or the Technical Experts Committee (TEC). TEC is a federal-provincial-territorial committee that worked collaboratively with Fisheries and Oceans Canada to draft the National Framework for Canada's Network of Marine Protected Areas (MPAs).

The workshop's primary objectives were to: (1) create a common understanding of national reporting tools and mapping platforms for TEC and CCEA members; (2) develop mapping and reporting standards for Canada's protected areas; and (3) streamline communication between TEC and CCEA members in order to improve consistency in protected area reporting.

To set the context for the rest of the day, the workshop began with the description of two protected area databases. Robert Hélie (EC NHQ) introduced the Conservation Areas Reporting and Tracking System (CARTS), which is a CCEA product that has been developed for analysis and reporting of core protected area data. Jessica Mitchell (DFO-NHQ) and Thierry Fisette (AAFC NHQ) introduced the Marine Protected Area Inventory (MPAIn), which is a database developed for MPA network planning and network reporting that includes a subset of marine data from CARTS, in addition to MPA data collected through TEC colleagues.

Next, led by Robert Hélie and Jessica Mitchell, workshop participants discussed ways to increase national consistency in protected area reporting. It was suggested that jurisdictions develop their own management processes to facilitate increased TEC and CCEA interaction.

Robert Hélie described CISPA (Canadian Information System for Protected Areas) – a web mapping platform that is currently used by the Canadian Wildlife Service of Environment Canada to display their protected areas and run queries. There are plans to use CISPA as the web mapping platform for CARTS data, and also for MPAIn data. Isabelle Turcotte (EC NHQ) explained that the MPAIn web mapping platform would have additional functionalities added over time to facilitate MPA network planning. Jessica Mitchell solicited participant feedback about whether a future web mapping platform to facilitate both land-use and marine planning would be of interest. The consensus was that a national platform would be too coarse-scale for land-use planning, although incorporating some land-based information into a platform for MPA network planning platform could be useful.

Robert Hélie and Diane Blanchard (PC NHQ) engaged workshop participants in a discussion about whether to categorize Great Lakes as "marine" or "freshwater". CARTS will continue to categorize Great Lakes as terrestrial since there is no policy driver for reporting by freshwater biome. However, since Great Lakes protected areas are considered to be MPAs for national MPA network planning purposes, all MPA network-specific reporting will categorize Great Lake protected areas as "marine," with an asterisk to explain their inclusion.

This workshop provided a valuable opportunity to discuss data management issues and reach consensus on several points, but most importantly it provided a venue for dialogue between TEC and CCEA members on the topic of protected area reporting.

Mapping and Tracking Canada's Protected Areas

Robert Vanderkam, Environment Canada

CARTS has continued to grow and reach new milestones. In 2009, the database resolved long-standing data management and analysis issues by making use of KML, a new digital format standard. KML provided a way to make the data accessible to the community and public in general without requiring the larger infrastructure needed to manage a traditional online database.

The CARTS was released on the CCEA web site as a summary table of national and jurisdictional statistics and as a digital map layer that could be viewed in Google Earth or other digital globes. The summary data were used for various national and international reports and provided the first known single location for all authoritative and current protected areas data for Canada. These services, with their ability to allow users to dynamically interact with the data, provided both professional planners and the public the ability to visualize and report on protected areas in Canada from a single source.

Last year, in 2010, two additional large strides were made in the continued development of CARTS. Firstly, in response to the increasing prioritisation of Canada's marine protected areas planning work, all CARTS protected areas boundaries were split along a single national marine shoreline. This work allowed the number and surface area of all of Canada's marine protected area to be assessed and reported for the first time from a single authoritative database in a repeatable way. It was found that approximately 1% of Canada's marine territory is located within either pelagic or coastal marine waters.

Secondly, in 2010, the CCEA was able to make nearly the entire database available for download to the public. Only Quebec data, due to legal requirements, must still be accessed separately. By making the database downloadable, the workload on the CCEA has been dramatically reduced. Requests for the database for various reporting and visualisation projects around the world have been eliminated as well, users of the database are no longer required to wait for approvals from all CCEA jurisdictions for every new analysis or application.

CARTS is now the flagship product for IUCN-classed protected areas in Canada. That message is being received across the global biodiversity and habitat conservation community, as CARTS and its derived products begin to appear on numerous web sites and online applications. For example, Canada's marine protected areas are listed and mapped on the NAFTA Commission on Environmental Cooperation protected areas

web site, and the World Conservation Union (IUCN) and a number of Canadian NGOs have accessed the database for use in their reporting and planning programs.

In 2011, the goal of the CARTS team will be to review the fundamentals of the CARTS management model in order to ensure that the stamp of "authoritative and current" remains true. We thank the CCEA for their work to date and look forward to their continued cooperation with this important work.

Future Planning for Protected Areas: Responding to Climate Change

Karen Beazley, Dalhousie University & CCEA Director

CCEA's plenary on Future Planning for Protected Areas: Responding to Climate Change arose from CCEA's interest in climate change over the past three years and a plethora of other developments over the past year or so. It was organized in collaboration with Parks Canada Agency, through Karen Keenleyside, and with Environment Canada, through Kathryn Lindsay.

Last year, at our annual workshop and AGM in Ottawa, CCEA rolled out its Strategic Plan for the next ten years. In this plan, we outlined five high-level strategic priorities. We intentionally did not single out climate change as a separate priority: instead, we believe that it crosscuts, permeates and underlies every single strategic priority. This year, we have developed our Implementation Plan for the strategic priorities for the coming three years. Several Action Items in this plan specifically address climate change research, planning and management for protected area networks – terrestrial, freshwater and marine.

Environment Canada has played a major role in supporting the work of CCEA. Robert McLean, Acting Director General, Environment Canada, spoke to our mutual objectives around climate change and other challenges and opportunities. These issues extend to the global arena, as described by Nik Loupoukin in his presentation on the IUCN's role and initiatives.

CCEA has been working collaboratively with Environment Canada, Parks Canada Agency and others on climate change research. This year, CCEA has published a report on Protected Areas and Climate Change in Canada, outlining challenges and opportunities for adaptation. This culminates several years of work with the University of Waterloo that involved all jurisdictions. Chris Lemieux, lead researcher and author of the report presented key findings and key components for climate change adaptation planning. Many participants in the plenary contributed to the report, with thanks from CCEA. During the past year, CCEA, with Kathy Lindsay and Jean-Francois Gobeil of Environment Canada's Canadian Wildlife Service, and Josh Lawlor, University of Washington, has undertaken a new study. In this study, we are examining species turnover rates (losses and gains in species) in protected area networks in Canada. These turnover rates are based on projected range shifts for vertebrates in response to modeled climate change. This CCEA publica-

tion will be available in the coming year. Kathy Lindsay and Adam Fenech of Environment Canada presented results from this and other research on modeled ecological shifts in response to climate change.

Many jurisdictions with mandates and responsibilities for protected areas are grappling with socio-political and biophysical issues of climate change. CCEA had heard from jurisdictional representatives that climate change is a cross-cutting factor in their protected areas planning and management. Some of the jurisdictional responses to these issues in Ontario were presented by Karen Hartley and Paul Gray and in British Columbia by Pamela Wright. Norm Henderson described the British approach to conservation and lessons that may be applied in a Canadian context. The Canadian Parks Council also has an interest in climate change and protected areas. This past summer, at their meeting in Norris Point, NL, Canadian Parks Council initiated a process, to be led by Parks Canada Agency, to work collaboratively with Environment Canada and others to develop a Joint Statement on Climate Change and Protected Areas. Parks Canada Agency's leadership role in responding to climate change was presented by Karen Keenleyside. Issues and challenges around climate change and protected areas also extend to private lands and to the efforts of the non-government sector. John Riley of The Nature Conservancy of Canada and Allison Woodley of the Canadian Parks and Wilderness Society described actions their organizations are taking.

CCEA's plenary provided a network and a forum for discussions that respond to these various initiatives. The presentations provided a solid context for the discussions. Many of these presentations are summarized in this newsletter. Facilitated discussions (also summarized in this newsletter) explored opportunities for a path, or paths, forward, including the potential for a joint statement on protected areas and climate change. These discussions fostered greater mutual understanding and revealed strong interest in further collaboration. CCEA, Environment Canada, Parks Canada Agency, Canadian Parks Council and others can work together where it makes sense to do so, creating synergies and avoiding contradictions and unnecessary duplication. A key directive for CCEA is what we should include on climate change and protected areas in our operating plan for the next year or two. In collaboration with jurisdictions, other organizations and the Canadian Parks Council, CCEA can provide a network and forum for research and a coordinating role around these issues and initiatives.

Protected areas and climate change in Canada - Challenges and opportunities for adaptation

Christopher J. Lemieux, University of Waterloo

Recent suggestions by the World Commission on Protected Areas (WCPA) that conservation actions are likely to fail unless they are adjusted to take account of climate change, emphasize the need for protected areas agencies to begin mainstreaming climate change into policy, planning, and management. This article presents the results of a Univer-

sity of Waterloo and Canadian Council on Ecological Areas survey on the state of climate change adaptation in Canada's protected areas sector. Specifically, the survey examined: (1) what climate change impacts are currently perceived to be affecting and/or are anticipated to affect protected areas across Canada; (2) the perceived importance of climate change relative to other protected areas management issues within Canadian jurisdictions; and, (3) what policy, planning and management responses (i.e., adaptations) have been developed or are being considered by protected areas agencies across Canada. The survey, which included 35 agencies and organizations responsible for protected areas in Canada, including all federal, provincial, and territorial jurisdictions, revealed several important findings. First, three quarters of agencies surveyed reported that climate change impacts were already occurring within their respective protected areas systems, with changes in species composition and disturbance regimes being the most commonly reported. Second, climate change was perceived by 94 percent of respondents to be an issue that will substantially alter protected areas policy and planning over the next 25 years. Third, despite the perceived future importance of climate change, little policy, planning, management or research response is currently being undertaken by most agencies. A large majority (94 percent) of respondents indicated that more information on strategies for managerial response to climate change is required to facilitate adaptation. Overall, with 91 percent of the agencies conceding that they currently do not have the capacity necessary to effectively respond to climate change, the survey revealed an important gap between the perceived salience of climate change and the capacity of protected areas agencies to adapt. Constraints such as limited financial resources, limited internal capacity, and lack of understanding of real or anticipated climate change impacts will need to be overcome if Canada's protected areas agencies are to be able to deliver on their various protected areas- and biodiversity-related mandates, such as the perpetual protection of representative elements of Canada's natural heritage, in an era of rapid climate change.

Understanding Past and Future Climate Changes for Protected Areas Research

Adam Fenech and Neil Comer

For understanding past climate changes, one needs to consider: the length of record (30 years of data is a minimum for trend analysis); only continuous climate records; climate records that come up to the present; records taken from a representative climate station; and determine how often extreme events have happened in the past. Observed historical climate data in its non-adjusted form can be obtained from Environment Canada at Canada's National Climate Data and Information Archive (climate.weatheroffice.gc.ca); while Environment Canada's Adjusted and Homogenized Canadian Climate Data (ec.gc.ca/dccha-ahccd/) incorporate a number of adjustments applied to the original station data to address shifts due to changes in instruments and in observing procedures.

For understanding future climate changes, there are about 72 possible future outcomes when using the 24 Global Climate Models used in the Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report and the three standard greenhouse gas emission scenarios (A2, A1B, B1). Choosing which climate model to use is an important question more easily addressed with the advent of the Canadian Climate Change Scenarios Network (CCCSN.CA), Environment Canada's tool for accessing global climate model results. The CCCSN.CA translates the tera-bytes of global climate model output into useable information displayed in readable map and graphics formats from all two dozen international global climate models, and several regional climate models, with customized results for all regions of Canada.

There are three approaches that have been developed in order to provide some direction for determining which of the ~72 future projections of climate from the IPCC 4AR should be used in planning – the extremes (max/min) approach; the ensemble approach; and the validation approach. The extremes (max/min) approach suggests that it is best to plan within the full range of possibilities that the ~72 GCMs present. The approach takes the projection for the maximum change, as well as the projection for the minimum change, and uses both as the extreme of considerations when planning. The ensemble approach suggests that it is best to plan for the average change of all the models. The approach uses a mean or median of all the models (or many models) to reduce the uncertainty associated with any individual model. The validation approach suggests that those models that compare well to historical climate observations should be the ones used for planning. The approach takes the historical climate observations over a thirty-year period from a global gridded dataset (for example, the National Centres for Environmental Prediction (NCEP)) and compares this against all models to see which ones reproduce the values best. Subsequently, only the four or five best-agreement models are used to produce the validated projections for planning.

To eliminate the “guesswork” as to which models to use, a new tool at the CCCSN.CA called the “Localizer” allows for a quick and easy overview of projected local climate changes displayed through maps and graphs after in-putting a city/town name or postal code. The results are an average of all 24 models calculated as an ensemble for the standard three greenhouse gas emission scenarios (A2-high, A1B-middle and B1-low). The standard deviation for each month is shown to give an idea of model uncertainty; and the monthly change in temperature and precipitation for the 2020s, 2050s and 2080s from the closest long-term EC observation station is also provided. The figure below shows an example of the type of output available.

Climate Change Resiliency: British and Canadian Nature Conservation Contrasted

Norm Henderson, University of Regina

In Britain, nature conservation is a highly activist enterprise – the target landscape is subject to much manipulation and constant intervention. This contrasts sharply with Canada, where the ideal is to leave things alone. In Britain, the alterna-

tive to constant landscape intervention, i.e. to just let nature take its natural course, is viewed as laughably simplistic and naïve. The view is that this would result in a “derelict landscape”.

Yet wilderness landscapes do exist in Britain and their historic composition and functioning is knowable. The Caledonian Forest of Scotland is essentially a wilderness landscape, but is thought of as rather dull and uninteresting by most Britons. Old growth (i.e. pre-1600) hardwood woodlands of southern Britain are viewed with more affection, but are not left unmanaged – they may be coppiced or pollarded, for example. Wetland landscapes are also managed – the ideal is that the landscape be used in some economic or cultural way, for example, by a regular harvest of thatching reed from the marsh. Manipulated, or “improved” landscapes, are thought better than those left unmanaged.

The British makes little distinction between the preservation of ecologic elements in the landscape, and the preservation of the built environment, such as stone fences or barns or churches. The landscape is viewed as a single entity. Canadians might ponder whether a six or seven hundred year old hedge in Britain is a natural landscape element, or really just a human construct. The British do not care.

Exotics and invasive species do not greatly trouble the British. Firstly, the British will be out managing the landscape anyway. Secondly, they have centuries of experience of bringing all manner of species home from the Empire to be let loose on the landscape, with little planning or ecological foresight. Interestingly, the result has not been an eco-disaster; the contrary would be closer to the truth. Most British people consider the widespread presence of many exotics (e.g. all conifers excepting Scots Pine are non-native to Britain) as landscape enhancements.

British practice can cope with climate change impacts on natural ecosystems much more easily than North American practice, which fears human-driven ecosystem changes. As old ecosystems change or disappear under climate change and other stressors, the British will intervene. For example, as sea levels rise in southeast England, freshwater marshes will suffer saltwater intrusion. The British will manage this with a policy of managed retreat, and create replacement freshwater marshes further inland, if useful. They are also open to the idea that any completely new ecosystems that may develop as a result of climate change may have an upside. New species are viewed as likely to be enhancements as detrimental.

For the British, there is no idealised wilderness landscape to protect, and all aspects of an ecosystem are negotiable and open to manipulation. As landscapes are already cultural products, the addition of one more cultural influence – anthropogenic climate change – is just one more human factor overlain on many that have gone before. Compared to typical North American perspectives, the British view makes coping with climate-change driven ecosystem change relatively painless.

Summary of Facilitated Discussion Future Planning for Protected Areas: Responding to Climate Change

Karen Beazley, Dalhousie University & CCEA Director

We facilitated a discussion among participants near the end of CCEA's plenary on Future Planning for Protected Areas: Responding to Climate Change. The discussion was organized around three questions.

- What have we achieved so far?
- What do we need to achieve?
- What are our next steps?

Key points from each of these are summarized, along with directives on what CCEA can do in the next year or two.

What have we achieved so far?

1. A good understanding of the general (and in some locations, the specific) impacts to protected areas and other ecosystems from climate changes
2. Within the protected-area community, growing awareness of the importance of:
 - Protection, connection and restoration; and,
 - Planning and action for resilience, mitigation and adaptation
3. Some (limited but important) high-level political support
4. A few key pilot adaptation strategies (e.g., Lake Simcoe watershed)
5. An awareness of the value of collaboration and initiatives that work towards it (e.g., Canadian Parks Council's, Parks-Canada-Agency (CPC-PCA)-led, joint statement, workshop, and framework)
6. Good models and tools relevant to protected areas and climate change planning (e.g., NCC's approach for identifying areas of 'persistent climate' and potential temporal corridors)
7. Good research with recommendations for action (e.g., CCEA's report on Protected Areas and Climate Change, by Lemieux et al., 2010)

What do we need to achieve?

1. A "more ambitious coordinated approach" (as quoted from a speech from the Throne) to protected areas in a climate change context
2. Greater progress towards resilience, connectivity and restoration, for climate change mitigation and adaptation:
 - Planning and management plans, models and tools; and,
 - More and larger protection on the ground (e.g., 17%, 30%, 50%)
3. Broader political and public awareness, support and engagement
4. Greater awareness of the role of protected areas in climate change mitigation and adaptation

5. Immediate and longer-term adaptation "action" (not just planning)
6. Greater collaboration within and beyond the protected-area community (e.g., with the medical community, industry, Aboriginal people, general public)
7. Monitoring, reporting and adaptive planning and management
8. New resources towards these efforts

What are our next steps?

1. Engage others in lobbying for biodiversity conservation and carbon sequestration:
 - For more and larger protected areas (new cores, connected, buffered); and,
 - For Ministerial commitment
2. Articulate the role of protected areas in climate change mitigation, adaptation and carbon sequestration:
 - Foster positioning and messaging; and,
 - Communicate this role outside of the protected-area community
3. Participate in the CPC-PCA-led collaborative initiative
4. Provide information for the Ministerial level (while momentum and timing is good):
 - Plenary Charter: Whereas, ... (from the experts; what we heard);
 - 2-page CPC-PCA-led statement, workshop results, framework; and,
 - "Nuggets" of compelling information about ecological effects of climate change, particularly on ecological life support and ecosystem services (e.g., ecosystems are the most vulnerable component to climate change; soil adaptation requires more time than does seed dispersal)
5. Build political support for and foster announcement of adaptation strategy development and implementation:
 - Foster and enhance support for a National Conservation Strategy;
 - Look for opportunities for collective statements and strategies at provincial and territorial levels; and,
 - Coordinate with other collective statements to foster consistent messaging around protected areas and climate change (e.g., National Forest Strategy)
6. Provide means (network, process, fora) for greater collaboration:
 - To foster development of adaptation plans, strategies and actions; and,
 - To develop evaluation criteria and reporting guidelines for conservation lands and other measures
7. Develop approaches and tools for protected-area planning based on probability of resilience and biodiversity conservation (e.g., climate refugia; temporal corridors)
8. Explore area requirements (30%; 50%?) for protected areas for resilience, mitigation and adaptation

What can CCEA do in a year or two?

1. Provide a network and forum for jurisdictional collaboration to support development of plans, monitoring, reporting:
 - Develop a data base of protected area and climate change experts and contacts in agencies and jurisdictions;
 - draft a concept/white paper on connectivity (what it is; how to implement it; potential models, e.g., Far North Initiative, OMNR)
2. Participate in the CPC-PCA-led collaborative initiative (explore CCEA representation)
3. Develop commentary for Ministers:
 - Charter: Whereas, ... (from the experts; what we heard); and,
 - 'Nuggets' of compelling protected area and climate change information (e.g., ecological effects of climate change, particularly on ecological life support and ecosystem services)
4. Create a science forum on the web (e.g., portal for sharing data, research, advances, initiatives)
5. Work on means to evaluate and account for private and Aboriginal conservation lands and other measures in CARTS and other reporting fora

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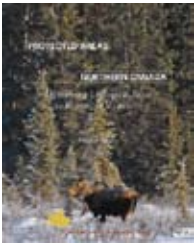
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Protected Areas in Northern Canada: Identifying Ecological Areas to Represent Mammals (NPA 2)

Building on the conclusions of NPA1, this report is a case study of the Western Canadian Mammalian Province, which is largely coincident with Canada's boreal ecozones east of the cordillera. The focus of this casestudy is the testing of an optimization model for representing disturbance sensitive mammalian species in protected areas large enough to maintain species diversity. This paper contains potential applications by protected area agencies and ENGOS conducting gap analyses throughout this region. 45 pgs, CCEA 2007



Canadian Guidebook for the Application of IUCN Protected Area Categories

This guidebook has been prepared by experts from protected area agencies across Canada to provide further explanation to the World Conservation Union (IUCN) Guidelines of 1994, an international system to categorize and report on protected areas at the global level. This guidebook reflects current Canadian thinking on the IUCN classification system and provides a common tool for all Canadian jurisdictions to improve consistency in classifying protected areas and encourages cooperation in protected areas assessment and reporting. 66 pgs, CCEA Occasional Paper #18 2008 (English or French)



Publication #19 - Protected Areas and Climate Change in Canada 2010: Challenges and Opportunities for Adaptation

This publication, sponsored by the Canadian Council on Ecological Areas (CCEA) in collaboration with the University of Waterloo, reports on the results of the first national synthesis on the state of climate change adaptation in Canada's expansive protected areas sector. The report covers five aspects: 1) provides an overview of global and Canadian climate change issues and impacts and their implications for protected areas in Canada; 2) summarizes the results of a national survey to report issues, needs and constraints facing protected areas agencies and organizations across Canada; 3) reports case work on selected jurisdictional activities and initiatives in Canada, currently underway or planned, that are directly relevant to protected areas; 4) offers provisional thinking on issues, mitigation and adaptation strategies regarding critical aspects of policy, planning and management for protected areas; and, 5) provokes a call to action for protected areas agencies in Canada to develop a coordinated approach to climate change adaptation. 2010 (English), 170 pgs.

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