

# Cofcca

Congo Basin Forests and Climate Change Adaptation

N E W S L E T T E R

No. 8 March 2010



## Editorial

# Synergy is required to preserve biodiversity and to adapt to climate change in Central Africa

**Denis J. Sonwa**

The UN General Assembly named 2010 the International Year of Biodiversity in hopes of raising public awareness about the importance of species diversity in an era when the numbers and varieties of the world's species are rapidly diminishing. The Congo River Basin contains 30% of the African continent's water resources and is famous for its diversity. It has close to 500 mammalian species, 1000 bird species and over 10 000 plant species, of which 3000 are endemic. But a thousand of these species are on the International Union for Conservation of Nature (IUCN) Red List of Threatened Species. Factors that contribute to species decline are slash-and-burn agriculture, timber removal, especially at the industrial scale, poaching and mining. Climate change is the single factor not regularly mentioned as a threat to the Congo Basin. Too few studies have been carried out in this region to determine scientifically that climate change is causing species decline. Some 50 botanists work mainly on classical systematics (based on morphological criteria of plants). There are too few researchers working consistently on other taxa such as mammals and birds.



Photo by Terry Sunderland

Climate variability and change generally manifest themselves as extremes of either drought or deluge. Increased temperature translates into greater incidence of infectious disease.

Strategies for addressing climatic factors have been discussed with village communities through the Congo Basin Forests and Climate Change Adaptation (CoFCCA) project. Not only do climate factors affect humans, they also affect animal and plant life. Species vary greatly in their ability to adapt to climate change. An IUCN global study on birds, amphibians and corals shows that 70–80% of endangered species are sensitive to climate change. Of those not yet on the IUCN Red List, between 28 and 71% are sensitive to climate change. Climatic disturbances make endangered species more fragile. Even those species not considered endangered are rendered more vulnerable.

Climatic phenomena have influenced habitat and species distribution in the Congo Basin in the past. The effects of glaciation are well known, but those events were non-anthropogenic – that is they were not caused by human activity over the course the last century. When natural phenomenon cause climate or resource conditions to change, species adapt or migrate to areas that are more hospitable. Migration is difficult if the landscape is fragmented. Species that cannot adapt reduce their range or may even become extinct. In this situation, the most vulnerable species are the ones with small populations, limited range and small climatic margins. Madagascar is one example (discussed below, in the review section). At the present rate of climate change, habitable ranges in that country are expected to expand for 18% of the species, and contract for 45%. If the transition between forestland is not well managed, Madagascar will lose about 11–27% of its current habitat. If the transition is not well planned, the figure will be almost double. In general, the mangroves, the forest canopy and the high mountains are the most vulnerable habitats, although there is are considerable populations of endemic and endangered species living in the high mountain areas of Central Africa, that is, the Albertine Rift and the highlands of West Cameroon.

The Central African forests are gradually becoming fragmented. Between 1990 and 2000, annual gross deforestation (0.17%) and degradation (0.15%) disrupted the forest habitat and its biodiversity. The 341 protected areas (IUCN Categories I to VI) extending over 14% of the lands of the Basin countries, were pillars of biodiversity conservation, offering havens to species trying to adapt to climate change. Species that could migrate from one zone to the other were better able to resist the resource

and climate upheavals taking place their habitats. It is important to protect the forestlands in an area like the Congo Basin where 70–90% of rainwater is recycled by the regional forests. Biodiversity is not only self-sustaining but it is also instrumental in maintaining the structure and dynamics of the forest. Climate change disturbs animals and insects that play a role in pollinating forest plants. If the Central African forests become as fragmented as those in West Africa, climate change will speed up, and increase the fragility of plant and animal life.

The international community actively promotes conservation in this part of the world. The Congo Basin Forest Partnership (CBFP), working with the Central African Forests Commission (COMIFAC) clearly reflects international concern for the lasting protection and sound management of the Congo Basin's biodiversity. In 2010, CBFP facilitation shifts to Canada, a country at the vanguard of climate change adaptation. The review section of this newsletter describes the natural history of British Columbia, the province that has the greatest species diversity in Canada. British Columbia is exemplary when it comes to demonstrating the benefits of synergy between conservation and adaptation to climate change.

In Central Africa, the CBFP is trying to reconcile biodiversity conservation with the well-being of the twenty-nine million people living in the Congo Basin forests. Through this partnership, twelve landscapes, extending over 685 000 km<sup>2</sup> (36% of the forestlands of Central Africa) have been designated. With support from Canada's International Development Research Centre (IDRC), activities have been launched to promote conservation and sustainable use of the forest whilst preserving biodiversity. CoFCCA decided to work in two of these landscapes, using a participatory approach to develop climate change adaptation strategies. The project includes working on agro-biodiversity using both external (e.g. with IITA for cassava), and in-house varieties. This activity focuses on promoting growth and commerce for complementary, non-wood forest products in an effort to promote wildlife biodiversity and preserve forest habitat.

Forests are vital not only for the well-being of populations whose lives depend on them but also for the environment. Forests store carbon, recycle water and stabilise the local climate and climate worldwide. Taking action to protect them is essential. In their efforts to establish national adaptation plans, countries in the CB region can refer to the CB biodiversity conservation vision. Despite changes occurring at various levels in the region (more advanced initiatives relating to biodiversity conservation and early stages of development in adaptation strategies) synergy will

be required in preserving and using the biodiversity at the sub-regional level. The CoFCCA project creates the groundwork for regional and national work in the forests of the Congo Basin, which, as time goes on, we hope will be just one of many initiatives that will identify geographic areas that are the most sensitive to climate change. We hope to be catalysts

in this field. For prospective actions, there is an urgent need to identify the geographic areas that are the most sensitive to climate change.

May 2010 be a good year for biodiversity and climate change adaptation in Central Africa!

## Modeling: How to predict the future climate in the Congo Basin

**Wilfried Pokam**

For future climate change adaptation policies to be effective, including the local characteristics of the Congo Basin in climate models is key. The CoFCCA project has included an atmospheric modeling component that draws on a regional model called PRECIS. The Intergovernmental Panel on Climate Change (IPCC) presented simulations of future climate using General Circulation Models that can be applied in planet-wide studies. For regional climate change scenarios, e.g. the Congo Basin, models are needed with a higher resolution to depict regional situations, such as the topography, more accurately. Regional models do just that. The Met Office's PRECIS regional circulation model reproduces the results of General Circulation Models but provides more detailed coverage of the specific characteristics of the region under study.

The Met Office provided the latest version of PRECIS model (version 1.8.2) and validation data. After the new material was installed, the first model validation step began. All the simulations will be made using data from a geographic area (a window) in the Congo Basin. Windows of different sizes are currently being modeled through short simulations. Upon completion, the window whose data best approximates the model will be selected, as simulations of this window will reflect the specific characteristics of the sub-region.

The future climate simulations are expected to produce data that can be used to identify vulnerable zones in the Congo Basin. These areas may be prone to flooding, drought or to major temperature variations, any and all of which can affect human health.

## CoFCCA presents Congo Basin climate change policy issues to tropical foresters at Yale University

**Olufunso Somorin**

I attended the 15th Annual Conference of the International Society of Tropical Foresters at Yale University in the United States on 11-13 February, 2010. This year's theme was 'Tropical Forests and Climate Change: linking impacts, adaptation and mitigation'. My paper, 'Sustaining the Congo Basin forests in a changing climate: policy discourse on adaptation and mitigation', discussed emerging science surrounding the policy objectives of adaptation and mitigation in the forest sector. It emphasised how adaptation and mitigation strategies are framed for policy deliberation and development and how different actors are converging around these discussions.

The audience included about 100 scholars. Professors Thomas Lovejoy and Ariel Lugo were guest speakers.

My presentation was well received. It was amongst the few selected for a special issue in Yale's Journal of Sustainable Forestry.

I also participated in a panel on adaptation during the conference that addressed the science and policy of adaptation in the forest sector. I emphasised vulnerability and adaptive capacities of the social system and the forest ecosystem, and how to assess them. The panel also stressed the value of mainstreaming adaptation into national development policy.

## News

### Capitalising on Participatory Action Research experiences

**Denis Sonwa**

A workshop to summarise experiences with Participatory Action Research (PAR) was held at the El Marsa Hotel in Algiers from 1 to 5 March 2010 as part of the IDRC monitoring process. It allowed selected mentors to work with the ACCA program teams in the field. The CoFCCA project's PAR activities were supervised by Dr. Anne-Marie Tiani, Denis Sonwa from Cameroon and Bruno Bokoto from CAR. Two CoFCCA members also attended. Laura German of CIFOR, who is the senior leader of the teams' monitoring processes, served as the workshop facilitator, together with the mentors.

Teams assessed progress in their PAR activities and then, together, thought about ways to capitalise on their experiences for publication. It was suggested that the participants contribute case studies to the PAR methodology manual, which was designed at the very first PAR workshop that Youssoufa (Cameroon) and Émile (DRC) attended. Providing examples of

projects underway would benefit the manual. Many proposals were made during the discussion, amongst them, the possibility of producing a book on the project's experiences. Laura then led the workshop in producing policy briefs, an exercise that can be carried out quickly.

Since the mentoring process was scheduled to end officially on 6 April 2010, Henri Lo, the Chief Program Administrator in charge of PAR at IDRC asked the participants to start thinking about the IDRC proposal on post-mentoring. Mentoring had served COFCCA project members well. It had enabled Dr Anne-Marie Tiani to provide major support to the CoFCCA project. The workshop concluded with this suggested strategy: When back in their countries, participants should focus their projects on producing publications. Laura, who is coordinating the capitalisation process, is anxious to receive them... let's get to work!

## International Women's Day

### Land tenure and climate change come to Obala

**Edith Abilogo**

From 11 to 13 March 2010, a workshop for discussion and training on 'Gender, land tenure and the vulnerability of women facing climate change in the Lékié Department' was held in Obala. It was co-organised by the CoFCCA project, Women Organising for Change in Agriculture and Natural Resource Management (WOCAN), and the African Women's Network for Sustainable Development (REFADD).

The event aimed to advance understanding of the challenges presented by current land tenure and forestry laws in Cameroon. Discussions were aimed at identifying gender discrepancies in these laws and examining how these discrepancies make women more vulnerable to climate change. Participants conferred on strategies and opportunities for women to advocate for gender parity in the new forestry laws in Cameroon and in Central Africa.

Twenty women from Lékié Department held discussions with the local authorities. They drew attention to the gender issues in laws, institutions, programs and policies. They pointed out urgent problems of land and forestry rights and climate change adaptation. They discussed the attenuation efforts currently underway.

It became clear that very few women had access to land. This has socio-economic and political effects since over 70% of the people working in the agricultural and natural resources sectors in Cameroon are women. An exercise to identify men's and women's activities and resources in the village brought out the disparities. Men's work, for instance, is not highly diversified or fragmented since men work mainly on the cash crops. Their work, however, seemed tougher than women's work. Women carry out several activities

simultaneously, ranging from household chores to field work. But because of the devastating effects of bush fires on the equilibrium of the forests and, hence, the climate, both groups practice slash-and-burn agriculture, for the cash crops and the food crops.

A survey of the women participants showed that close to 90% were not consulted on land or forestry matters because the men felt it was their domain. The need for equal ownership laws should be considered from the angle of the women's increasing importance in the Cameroonian economy. Men manage real estate and forestland as their personal property despite Art. 390 of the Civil Code that gives women usufruct and inheritance rights and the right to bequeath properties to their children, regardless of gender. Furthermore, gender is an important factor in the discussion of climate change. Women play a key role

in current adaptation and attenuation strategies. During the discussions amongst the women, men and local traditional authorities, the level of vulnerability of each of the groups appeared to depend heavily on the group's status and social responsibilities. These factors in turn affect each group's capacity to respond to climate change. Women, for instance, feel that their experience is different from that of men and that they are vulnerable because of their social roles and poverty.

The discussion ended with the following assessment: allowing women to manage Lékié forestland would protect against the increasing resource scarcity which, by itself, is leading to accelerated forest degradation and, ultimately, detrimental effects that lead to climate change.

## Third PAR Workshop in Kisangani and Mambassa

### Yousoufa Bele

From 12 to 25 March 2010, a sub-regional workshop on Participatory Action Research (PAR) was held as part of the 'Congo Basin Forests and Climate Change Adaptation in Central Africa' (CoFCCA) project in Kisangani and Mambassa, Democratic Republic of Congo. The purpose of this workshop, (the third of its kind) was to assess progress in implementing the PAR in three countries where the project is being implemented. More specifically, the aim was to:

- help the teams examine progress;
- identify challenges and successes, and lessons learned;
- intensify thought on the conceptual basis of PAR and climate change adaptation;
- facilitate studies on field activities;
- plan the next steps; and
- hold discussions with the teams preparing the IDRC reports, articles for publication and other public products on PAR for various audiences.

The workshop resulted in the final selection of adaptation strategies identified by the villages and the preparation of an outline for partnerships with CIFOR. The following criteria were used in the selection of strategies:

- feasibility in terms of time (short, medium, or long term);
- project duration: 1 year;
- connection with the CIFOR mission and the project;
- connection with the forest, local populations, and climate change adaptation;
- reasonable cost; and
- experimental status.

In Kisangani, the activities selected were related to improved maize seed, improved cassava seed, and the establishment of a worm tree nursery. Half-hectare showcase plots of maize and cassava will be installed for each of the three areas of research. Further, seed will be shared amongst representatives from the sample villages and a nursery will be created for at least 3000 worm trees.

In Mambassa, strategies included training in bee-keeping and the supply of improved cassava and banana seed. At least 80 members of the villages participating in the research will be trained in bee-keeping and each one will be given a beehive. Further, one hectare cassava and banana show-case plots will be planted to produce new seed.

## Development research : Training the media to have more impact on the public in Cameroon

**Edith Abilogo**

The International Development Research Centre and the Cameroon Union of Journalists organised a 3-day capacity building workshop for 16 journalists from the North West, South West and Central Regions of Cameroon at the end of March. Five researchers also attended, including CoFCCA researcher Olufunso Somorin.

This training is part of the capacity building and outreach activities of the Journalists Union. They seek to 'increase the number of research-related newspaper articles and radio and TV programs from about 24 a year to 24 a month'. The Union also was working to strengthen journalists' capacity to systematise media coverage of development research whilst sharpening research institutions' capacity to work well with the media.

Workshop participants produced a series of model news stories and radio programs on research to take back to their regions. They were encouraged to build

a toolkit for future reference; to review background information when reporting on the impacts of research on development and on poverty reduction; and to review ways to identify credible sources for gaining information on development research in Cameroon rapidly.

Journalists learned to bridge the gap to science, and participating researchers likewise worked to communicate their research findings using non-scientific language. Olufunso Somorin spoke with the journalists about how to report on forest and adaptation issues in a way that would meet both scientists' and the public's interests.

Day 2 was dedicated to a field trip to a regional agriculture and development research center near Buea. Journalists wrote stories based on the visit, which were shared for discussions about story angle, style and language, sourcing and news value.

## National Forum on Forests

### Dynamic of forests and climate change in Cameroon over the last decade

**Yousoufa Bele**

The Third Cameroon National Forum on Forests, organised by the Ministry of Forests and Nature Conservation (MINFOF) together with several other conservation organisations was held at the Palais des Congrès in Yaoundé, Cameroon from 28 March to 1 April 2010. During the forum, a side event was held by the Center for International Forestry Research (CIFOR) through its projects 'Congo Basin Forests and Climate Change Adaptation in Central Africa - CoFCCA' and 'Domestic Timber Exploitation' (Exploitation Domestique des bois). The purpose was to present and discuss the dynamics of forests and climate change in Cameroon over the last decade.

During this event, Dr Bernard Foahom of Institute for Research and Development (IRAD) gave a presentation on 'The Stakes of the Copenhagen Summit for Climate Change: implications for Cameroon'. In recapitulating the stakes and challenges of COP15 (Copenhagen, Denmark, December 2009) he pointed out that COP15 was part of the meeting of parties at the UNFCCC, but was special because negotiations were supposed

to be held on a planet-wide agreement to control greenhouse emissions, as a follow-through to the first Kyoto Protocol (KP) commitment period. The negotiations addressed challenges related to five key points, namely:

1. mitigation level;
2. the future of the KP and the nature of the appropriate mechanism;
3. follow up to promises fulfilled;
4. the place of the tropical forests; and
5. the commitment and conditions of financial support by the countries of the North.

The accord that was ultimately signed did not live up to the expectations of most of the parties, especially those of the developing countries, e.g. Cameroon, since it held no binding legal commitment for the countries of the North, no precise decision on the Kyoto Protocol, and no specific information on the level of support for the climate change adaptation effort or on the contours of the REDD mechanism.

### Waiting until Mexico for a far-reaching, equitable global agreement

The forum reached several conclusions:

1. Cameroon should make good use of all national and sub-regional initiatives in order to optimise the vital synergy of action;
2. it should avoid isolated working conditions since the challenge ahead is very complex;
3. it must develop a coordinated national research strategy on climate change to prevent the dispersal of energy and insufficient impact of achievements; and

4. it should establish a MINRESI -coordinated national research program on climate change that allows all the stakeholders to maximise the results.

As a conclusion, Dr Foahom explained that climate change ranked amongst the major stakes of the day. The consequences are unanimously recognised, but contradictory interests make negotiations difficult. Science should continue its search for knowledge and continue developing management tools to cope with these challenges, especially referring to the role of forests.

## On gender equality in Canadian facilitation of CBFP

**Denis J. Sonwa**

Members of the government of Canada will now be responsible for facilitating the Congo Basin Forest Partnership (CBFP). Françoise Nduwimana, Gender Specialist with the Canadian International Development Agency (CIDA), accompanied by Jean Albert Onana Ekembéné, Development Officer at the Canadian High Commission, visited CIFOR on 15 March 2010. Françoise was anxious to hear about CIFOR's gender activities and wanted to find out how gender equality could be included in proposal designs for CBFP. Cyrie (CIFOR-Central Africa coordinator), Jane (WOCAN-Central Africa) and I received Françoise at the CIFOR office in Yaoundé. Cyrie explained CIFOR's fields of research and management's interest in including

gender in research activities, e.g. at the gender workshop held for researchers recently in Bogor and the workshop on land tenure, gender and climate change adaptation organised by WOCAN, REFADD and CoFCCA. Jane and Denis explained how gender was accommodated in CoFCCA projects.

The CoFCCA experience will provide inspiration for Canada's facilitation effort. The CoFCCA project places great emphasis on gender issues and works together regularly with other partners on initiatives designed to promote gender parity in projects and throughout the sub-region.

## Assessment of PAR in Cameroon during the first quarter of 2010

**Yousoufa Bele**

Participatory Action Research (PAR) in Cameroon, under the CoFCCA 'Congo Basin Forests and Climate Change Adaptation in Central Africa' program from January to March, focused on negotiations for the implementation of adaptation methods in the project's pilot communities. Examples include: improved cassava cuttings have been distributed to members of the Nkol-Evodo community, one of the

project sites; similarly, training on growing gnetum (vegetable) will be provided in the near future in Yokodouma and Nkol-Evodo. Negotiations are underway to provide training on raising grasscutters (cane rats) in Yokadouma and on growing mushrooms in Nkol-Evodo.

## Institutional adaptive capacity and climate change response in the Congo Basin forests of Cameroon

**Youssoufa Bele**

Carolyn Peach Brown of the University of Guelph in Canada, along with Johnson Nkem, Denis Sonwa and Youssoufa Bele, all from CIFOR, recently published an article in the journal *Mitigation and Adaptation Strategies for Global Change* (15:3: 263–282) titled 'Institutional adaptive capacity and climate change response in the Congo Basin forests of Cameroon.' It examined climate change in the context of institutional response. Here's a brief overview of some of the issues the authors raised and conclusions they reached:

Climate change presents additional challenges to a diverse country like Cameroon that is part of the Congo Basin rainforest. Not only is the population vulnerable to the direct effects of climate change but forest-dependent communities are also vulnerable to changing environmental policies that may affect their access to forest resources.

Using a qualitative approach to data collection through semi-structured interviews and content analysis of relevant documents, the authors analysed decision-makers' and stakeholders' perceptions of the complex challenges of climate change in the

Congo Basin forest of Cameroon. Results indicate that whilst decision makers' awareness of climate change is high, concrete institutional response is only marginal. Cameroon has low adaptive capacity that is further constrained by weak linkages amongst government institutions nationally, amongst different levels of government and between government and communities. Civil institutions play a role in enhancing the government's ability to respond, particularly in relation to new international policies on climate change and forests.

Adaptive capacity would be further enhanced by facilitating institutional linkages and coordinating multilevel responses across all boundaries of government, as well as within the private sector and civil society. The article authors recommend that collaborative capacity building could foster the transfer, acceptance and integration of knowledge across networks, and ultimately build long-term collaborative problem-solving capacity in Cameroon.

Similar studies have been carried in Central Africa and Democratic Republic of Congo.

### Calendar of events

- International Open Science Conference, 24-28 October 2011, Denver, Colorado, USA
- Scientific conference on 'Gender, durability and climate change', 24-26 November 2010, Sweden
- Commonwealth Climate Change Communication Conference, 24-26 November 2010, London, UK
- UNFCCC, 16th Conference of the Parties, 30 November 2010, Cancún, Mexico

### In the media

#### CoFCCA's webpage is updated

New documents and publications have just been posted on CoFCCA's webpage including: Participatory Action Research activity reports; annual meeting reports; all issues of this newsletter; and the posters presented by project researchers at forums and conferences.

General information on the project has also been updated on the webpage, in particular the names of the people with responsibilities and those of the new members joining the team.

The CoFCCA webpage is accessible here:  
[http://www.cifor.cgiar.org/cofcca/\\_ref/home/index.htm](http://www.cifor.cgiar.org/cofcca/_ref/home/index.htm).

## Publications

### Climate change adaptation and biodiversity conservation: An example from Madagascar

Denis J. Sonwa

An article published in *Biology Letters* in 2008 provides a practical illustration of a climate change adaptation plan for biodiversity conservation. In this paper, Lee Hammah of Conservation International and 19 of his colleagues present:

1. the biological response to past climate change;
2. responses to future climate changes; and
3. costs of adaptation actions.

Climate change during past glaciation periods has affected the species distribution in Madagascar. The fragmentation of remaining forestland reduces potential migration of species in the event of climate change. Migratory patterns provide information on the importance of maintaining corridors between the isolated forests to enable the species to withstand climate change.

Climate change projections indicate temperature increases of 1.1 to 2.6°C with concurrent changes in rainfall patterns. Further, projections indicate that with good species dispersal, e.g. through corridors, Madagascar will lose 11-27% of its current habitat but if species dispersal is bad, the habitat loss will be 17-50%. Habitat range is expected to expand for 18% of the species and contract for 45%.

Since biodiversity in Madagascar is found in the forests, adaptation efforts mainly concern the preservation

of forests and their connectivity, especially in zones with major genetic divergences between forest blocks. The authors feel that the equivalent of 30% of natural forest is needed outside the protected area network to provide forest products and income for local people. They estimate the costs for managing such an area in Madagascar.

This article gives a practical example of the type of studies that can be conducted in biodiversity conservation and climate change adaptation. It provides practical information for politicians charged with taking decisions on adapting biodiversity conservation to climate change. It is high time for similar studies to prepare the way for biodiversity conservation in the Congo Basin.

To access the report, click on the following link: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2610084/pdf/rsbl20080270.pdf>

**Source:** Hannah, L., Dave, R., Lowry, P.P., Andelman, S., Andrianarisata, M., Andriamaro, L., Cameron, A., Hijmans, R., Kremen, C., MacKinnon, J. *et al.* 2008. Climate change adaptation for conservation in Madagascar. *Biology Letters*, 4(5): 590-594.

### Climate change adaptation and biodiversity conservation: An example of a summary report from British Columbia

Denis J. Sonwa

Understanding the link between climate change adaptation and biodiversity is a prerequisite to finding solutions to problems. Few reports convey this message adequately. Eric Kimmel's lucid and readable summary report has done just this for British Columbia (BC), in Canada. He presents information crucial to understanding the problems and challenges climate change and loss of diversity pose to the province.

Of all the Canadian provinces, BC has the greatest species diversity. It is home to over 3000 species of which one-third are endangered, threatened or in some way considered vulnerable. This background summary presents information on biodiversity and climate with emphasis on the vulnerability of biodiversity to climate change. Most importantly, it proposes potential adaptation strategies. Kimmel's 60-page report focuses on:

1. the impact of climate change on biodiversity;
2. the impact of climate change on plant and animal ecosystems;
3. adaptation to climate change; and
4. how to increase the adaptation capacity in BC.

The main threats to biodiversity include habitat loss and fragmentation, invading species and pollution. Climate change adds an additional threat. The author observes that daily temperatures are rising, annual rainfall is increasing, glaciers are melting, water temperature is rising, fire regimes are being extended, flowering and bud break are occurring earlier, and forest habitat losses are being reported. The author discusses the impact climate change will have on natural, institutional and economic systems, including wetlands, grasslands, parks, forests and indigenous populations.

The report takes a particular look at the existing political framework and systematically considers the limits to current laws that affect anthropogenic climate change. The author presents the theoretical basis for each assessment before analysing the current situation. This report equips the reader to understand the concepts the author presents, and encourages others to initiate research and take decisions that facilitate the adaptation of biodiversity conservation to our changing climate.

To access the report, click on the following link:  
[http://www.sfu.ca/act/documents/ACT\\_Biodiversity\\_Summary\\_Recommendations\\_final.pdf](http://www.sfu.ca/act/documents/ACT_Biodiversity_Summary_Recommendations_final.pdf)

**Source:** O'Riordan, J. 2008 Climate Change Adaptation and Biodiversity: Transitioning to an Ecosystem- Based Economy in British Columbia (summary report), Adaptation to Climate Change Team Simon Fraser University. [www.sfu.ca/ACT](http://www.sfu.ca/ACT).



[www.cifor.cgiar.org](http://www.cifor.cgiar.org)

[www.ForestClimateChange.org](http://www.ForestClimateChange.org)



**Center for International Forestry Research**

CIFOR advances human wellbeing, environmental conservation and equity by conducting research to inform policies and practices that affect forests in developing countries. CIFOR is one of 15 centres within the Consultative Group on International Agricultural Research (CGIAR). CIFOR's headquarters are in Bogor, Indonesia. It also has offices in Asia, Africa and South America.

