

Editors

Ankita Hirenmath

Ashoka Trust for Research in Ecology and the Environment, India

Kartik Shanker

Centre for Ecological Sciences, Indian Institute of Science, Bangalore, India & Ashoka Trust for Research in Ecology and the Environment, India

Editorial Board

Javier Arce-Nazario, University of California at Berkeley, USA

Rohan Arthur, Nature Conservation Foundation, India

Bram Buscher, Vrije Universiteit, Netherlands

Brian Child, University of Florida, USA

Vikram Dayal, Institute of Economic Growth, India

Jose Alexandre Diniz-Filho, Universidade Federal de Goiás, Brazil

Brendan Godley, University of Exeter, UK

Ferenc Jordan, Hungarian Academy of Sciences, Hungary

John Mathew, Harvard University, USA

Harini Nagendra, Indiana University, USA & Ashoka Trust for Research in Ecology and the Environment, India

Fred Nelson, University of Michigan, USA

Meera Anna Dommen, Ashoka Trust for Research in Ecology and the Environment, India

Samrat Pawar, University of Texas at Austin, USA

Suhel Quader, National Centre for Biological Sciences, India

Madhu Rao, Wildlife Conservation Society, Singapore

Ana Rodrigues, University of Cambridge, UK

Jane Southworth, University of Florida, USA

Design Editor

Saravanakumar

Ecotone, India

Ecotone
www.ecotone.com

Current Conservation

Issue no - 2.2

Apr 2008



Bird migration and climate change

Nicklas Jonzén, Torbjörn Egeén, Andreas Lindén, Nils Chr. Stenseth 4

A New Conservation and Development Frontier

David Barten Bray, Elvira Durán, Salvador Anla, Gary J. Martin, and Fernando Monbradón 7

Parks and Poverty: the Political Ecology of Conservation

William M. Adams and Joni Hutton 9

Satellite-tracked migrations by Galápagos green turtles

Jeffrey A. Seminoff and Patricia Zarate 11

The burden of history and the mirage of permanent boundaries Chaitre, A. 13

The Fire-Lantana Cycle Hypothesis in Indian Forests Bharathi Sundaram 14

Effect of Rural Biomass Extraction on Bird Communities in Sariska Tiger Reserve Raman, Kumar and Ghazala Shahabuddin 16

How Natural Resources Agency Personnel feel about Black-Tailed Prairie Dogs Lauren McCain, Richard P. Reading, and David Stern 17

Fire and sub-tropical deciduous forests of India Soumiti Saha 18

Whims of the Winds of Time? Emerging Trends in Biodiversity Conservation Bram Büchler 20

Where Community Based Water Resource Management Has Gone Too Far Marcus, R. 21

Copyright:

All articles in Current Conservation, unless otherwise noted, are licensed under a Creative Commons Attribution 2.5 License. The full text of this license is available at: <http://creativecommons.org/licenses/by/2.5/>

Attribution 2.5

You are free:

- to Share — to copy, distribute and transmit the work
- to Remix — to adapt the work

Under the following conditions:

- Attribution. You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).
- For any reuse or distribution, you must make clear to others the license terms of this work. The best way to do this is with a link to this web page.
- Any of the above conditions can be waived if you get permission from the copyright holder.
- Nothing in this license impairs or restricts the author's moral rights.

CURRENT CONSERVATION ONLINE IS AVAILABLE AT <http://conservationandsociety.org/currentconservation.html>

Cover Photo - Fred Nelson

northern Europe can be explained by improved environmental conditions en route. Therefore, the adaptation of breeding time to an advancement of optimal conditions may be constrained by the migration strategy in long-distance migrants. We think that it is time to revise some details of that picture.

Though the importance of endogenous control and photoperiod as a trigger of migratory restlessness is beyond doubt, there is a growing number of studies pointing at the importance of interannual variation in winter climate as a predictor of arrival time in the summer quarters. Hence the timing of migration may be pretty flexible even in long-distance migratory birds, and the detailed studies of the American redstart *Setophaga ruticilla* suggest that not only the speed of migration, but also the departure date can be affected by winter climate through its effect on habitat quality and, thus, the time needed to prepare for migration.

There are also observations that are not easily explained by a simple phenotypic response. For instance, the earlier arrival of African migrants on Capri cannot be fully explained by the climatic variables investigated so far. It has been suggested that the lack of explanation for the advanced arrival on Capri may be an indication of micro-evolution, but there are potential pitfalls to make any claims about micro-evolution premature. Another interesting observation that is not easily attributed to phenotypic plasticity only is the increased response to temperature in SW Europe in the sand martin *Riparia riparia*, which has resulted in earlier arrival in the UK at the same temperature as before. Again, the data at hand do not allow any formal test of the involvement of any micro-evolutionary processes, but they cannot be excluded either.

but no consensus has yet emerged. Theoretical modelling may help us to get a better idea about the selection pressures involved in adapting to climate change and to know what to expect. However, as several of the contributed papers have pointed out, what we also need is more individual-based data and clever experiments to reveal the relative importance of the range of processes affecting how climate change shapes the timing of biological events and, consequently, the distribution and abundance of organisms.

This article introduces and summarises a special theme issue on bird migration and climate change in *Climate Research*, an Inter-Research Publication.

Originally published as :

(Eds.) Niclas Jonzén, Torbjørn Ergon, Andreas Lindén, Nils Chr. Stenseth. 2007. Bird Migration and Climate Change. *Climate Research*, Vol.35, No. 1-2.

This is article is a summary of a series of scholarly articles published under the *Climate Research* Special 'Bird Migration and Climate Change' (open access)

Niclas Jonzén is an Associate Professor at the Department of Theoretical Ecology, Lund University, 22362 Lund, Sweden (Niclas.Jonzén@teorekol.lu.se).

Torbjørn Ergon is a Researcher and Post-Doctoral Research Fellow at the Centre for Ecological and Evolutionary Synthesis (CEES), Department of Biology, University of Oslo, Norway (torbjorn.ergon@bio.uio.no).

Andreas Lindén is at the Department of Biological and Environmental Sciences, Integrative Ecology Unit, Helsinki University, Finland.

Nils Christian Stenseth is a Professor at the Centre for Ecological and Evolutionary Synthesis (CEES), Department of Biology, University of Oslo, Norway (n.c.stenseth@bio.uio.no).

One may ask why we still lack conclusive evidence for evolutionary change despite selection for earlier arrival and the presence of genetic variation in the timing of migration, and plausible answers to this critical question are given by Pulido (2007, this volume). To some extent it is a data problem. Based on arrival data from bird observatories, we are not in position to differentiate between the relative roles of phenotypic plasticity and evolutionary responses, data do not unambiguously support or refute either of the 2 (not mutually exclusive) hypotheses. Interannual arrival data on individual birds, measured with high precision, would be useful for this purpose. Unfortunately, that kind of data is very scarce. However, there are other reasons why it is inherently difficult to find conclusive evidence for micro-evolution. For instance, to what extent changes in wind directions and speed can explain the earlier arrival of migratory birds is largely unexplored. Furthermore, since the physical condition of birds can affect departure time, we clearly need experimental studies on the wintering grounds to better understand the importance of carry-over effects that may persist over several generations. Hence, we need to appreciate the whole life cycle of events and not only to study spring migration as an isolated phenomenon. In that respect the timing of autumn migration and how it relates to the timing of spring migration, and the selection pressures involved, is of course of interest and has not received the attention it deserves.

In conclusion, we are now moving beyond the mere description of patterns and starting to think about the underlying mechanisms. Therefore, it is not surprising that we find ourselves in a situation where the importance of different processes (e.g. phenotypic plasticity and micro-evolution) are being discussed.

A New Conservation and Development Frontier: Community Protected Areas in Oaxaca, Mexico

David Barton Bray, Elvira Duran, Salvador Anta, Gary J. Martin, and Fernando Mondragón

Most protected areas in the world are inhabited by people. Recent figures suggest that around 11.5% of the global terrestrial area is in protected areas but some 90% of these are in IUCN categories III-VI that allow degrees of human presence and use. In addition, some 11% of forests globally have been devolved to local communities to varying degrees by government. Thus, the vast majority of protected areas in the world have human presence in them, although frequently with unclear rights to forests and their products when they are present.

Mexico is in the forefront of countries where local communities have direct ownership rights of their forests, with an estimated 56-80% of national forests directly owned by communities, with extraction activities regulated by Mexican environmental law. This process of devolution occurred as a result of a sweeping agrarian reform that took place through most of the 20th century, and has had as one result that Mexican forest communities have gained decades of experience in managing their forests for the commercial production of timber. A recent study suggested that an estimated 2300 communities

have commercial logging permits with varying degrees of vertical integration and sustainable forest management.

However, not all Mexican forest communities have commercially valuable forests and others have forest areas which are mostly inaccessible. Further, the dominance of community ownership of rural lands means that there are few opportunities for expansion of Mexico's public protected areas that do not conflict with pre-existing community ownership. These realities have led some communities to become pioneers in taking advantage of a new policy opening from the Mexican government, the possibility of officially recognized protected areas on community owned lands.

The authors, in varying combinations, have been conducting research in a subregion of the Sierra Norte known as the

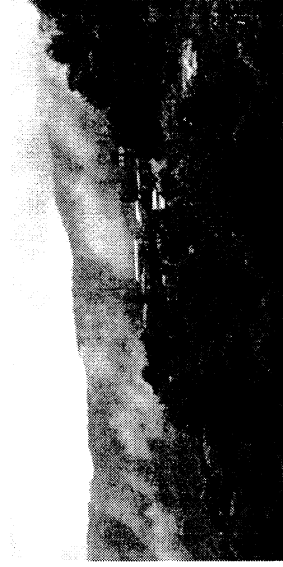


Photo: David Barton Bray

Chinantla for many years. The Chinantla is the home region of the Chinantec indigenous peoples, who have been resident in the region for at least a thousand years, and have been historically isolated and marginalized. We are focusing currently on six Chinantec communities occupying a total of 33,921 ha with a population of only 2,039 inhabitants. These communities have within their lands some of the largest intact areas of montane tropical forest and cloud forest anywhere in Mesoamerica, first identified in 1978 by Mexico's most distinguished botanist, the Polish-born Jerzy Rzedowski, and have been well documented for their unique floristic associations and endemic species.

The community of Santa Cruz Tepetitlan, the only one of the six communities which is accessible by road, has emerged as the leader of a six-community organization, the Natural Resource Committee of the Upper Chinantla (CORENCHI). The micro-political history of Santa Cruz is of particular note. This community has spent most of its many centuries in existence far from the nearest road, achieving direct communication to the outside world only in 2003. Since the 1980s, there have been intense micro-political struggles between different factions in the community over land use policy connected to different economic interests in the community, which more recently has led to the emergence of new conservation-oriented institutions and rules.

In the 1990s, a coalition of community reformers, inspired by association with ecologists who had conducted vegetation surveys in the region and other factors, became dominant in the community and began pushing for very

conservation-oriented community land use policies. As a result of this process, new regional management institutions are beginning to emerge, and a remarkable portfolio of sustainable land use practices and projects has been assembled. In recent years, some community members have made the transition to organic coffee and have banned hunting except for pest animals that attack their corn fields. Four of the communities have been certified by the government as placing over 20,000 ha of their lands in community protected areas, with additional areas in the other two communities in the process of certification. They also successfully competed for a Mexican government program for payment for hydrological services for the period 2004-2008 that covers 7,860 hectares. The National Forestry Commission (CONAFOR) also recently approved a renewal of the hydrological services program for five years for nearly 1.5 million dollars for the six communities of CORENCHI. The organization is also in discussions over hydrological service payments with Mexico's largest brewery, which depends on water generated by this watershed for its product. The brewery is also currently co-financing the construction of research and ecotourism center in Santa Cruz.

The CIIDIR-FIU program, with funds from the U.S. Fish and Wildlife Service granted to Geoconservation, is currently working with students to document the history of how Santa Cruz came to adopt remarkably conservation-oriented land use policies, analyzing community attitudes towards wildlife, carrying out camera-trapping surveys of wildlife, particularly jaguars and their prey, and studying potential habitat for jaguars. It is also beginning studies of interactions between emigration, land use, land use cover change, vegetation mosaics and landscape ecology.

The Global Diversity Foundation (GDF), a UK-based charitable organization, has received funding through the British Embassy in Mexico to build local capacity to manage the CORENCHI community conserved areas. Under the program, which is part of the UK government's Sustainable Development Dialogues, British and Mexican specialists will offer training for community members on the sustainability of non-timber forest products, scientific tourism, participatory video and legal frameworks for community conservation. The effort will foster collaboration between local people and outside researchers at the community biological station and refuges that are being established. One result of the project will be participatory biodiversity registers that will assist communities to defend their traditional resource rights and to identify plant resources of potential economic value. Selected community members will be able to broaden their experience

by participating in cross-visits with other communities in Oaxaca that are also working on community-based conservation and scientific tourism.

We will be exploring the issue of establishing a carbon sequestration project in voluntary markets in this region. Under the Kyoto Protocol, the forests of the Chinantla, although of great value for a variety of ecosystem services, do not qualify for carbon credits because they are both intact and unthreatened due to community protection. Under current Kyoto rules, carbon credits can only be given for "additionality", i.e. new forest plantings or, possibly in the future, for "avoided deforestation" projects that reduce the risk of deforestation.

The forests of CORENCHI, the larger Chinantla region, and others like them

throughout Mexico and elsewhere present a challenge for the world community. Here we have intact forests with high biodiversity value owned and actively protected by poor indigenous peoples, yet they are being told that they have no value for the carbon maintained in the standing stock of the forest because of the additionality and avoided deforestation requirements. This is carbon storage and biodiversity protection for free accepted from poor rural people. This is a problem of environmental justice and carbon markets, and requires more creative thinking about mechanisms that address global warming, forest and biodiversity conservation, poverty alleviation, and environmental justice as one package. One possible response is that of receiving payment for environmental services (PES) for the protection of the region's unique biodiversity or payments for 'pure preservation' now being developed by the Chicago Climate

Originally published as :

David Barton Bray is a Professor at the Department of Environmental Studies, Florida International University, as well as Director, Institute for Sustainability Science in Latin America and the Caribbean (ISSLAC), Florida International University, USA (brayd@fiu.edu).

Parks and Poverty: the Political Ecology of Conservation

William M. Adams and Jon Hutton

In 2004, the government of Ethiopia moved 500 people out of the Nech Sar National Park in the south of the country, before handing it over to be managed by the Dutch NGO African Parks. The following year, African Parks signed another contract to manage the Omo National Park. The issue of evictions in these parks quickly became the

The place of people in protected areas has been much discussed by academic researchers and human rights activists. For whom are parks set aside? On whose authority? At whose cost?

Debate about people and parks is typical of much wider questions about the social impacts of conservation on human welfare, including the compatibility of conservation and poverty alleviation and the feasibility of 'win-win' policy strategies. Action to conserve biodiversity, particularly in the creation of protected areas, is inherently political. Yet most writing about conservation draws to only a limited extent on an explicit understanding of the political and economic dimensions of conservation policy.