

## **Connectivity Conservation Management: A Global Guide**

Author: Carver, Steve

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## Connectivity Conservation Management: A Global Guide

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*The first rule of intelligent tinkering is to  
keep all the parts.*

Aldo Leopold (1949)

Since the establishment of the first national parks, conservation worldwide has largely focused on protecting species and ecosystems within the confines of relatively small areas of land set aside and formally protected from the worst impacts of human activity. Some of the earliest known protected areas were forest reserves, or *rāhui*, created by the Māori in New Zealand in the vain attempt to protect the huge flightless moa bird from overhunting and extinction. As we now know, the Māori were unsuccessful. Many other species have since gone the way of the moa, largely because of overexploitation or, perhaps more importantly, destruction of their habitat by forestry, agriculture, resource extraction, and urban expansion.

Habitat loss results in fragmentation of the remaining natural areas. Ultimately, the small, isolated fragments become unsustainable because of the limited gene pool of small populations, lack of interactions with other populations, and physical restrictions on natural processes. Without connectivity to the other remaining areas of natural habitat, these smaller isolated pockets are in danger or falling into irreversible decline without active human intervention. Although Aldo Leopold is correct in his assertion that we must keep all component parts of the world's many and varied natural

ecosystems, keeping them connected and in the correct order is the key to a fully functioning and resilient system.

As of 2009, 11% of Earth's land surface and 1% of its marine areas were under some form of conservation protection and management, but with current extinction rates and human population predicted to expand to 9.3 billion by 2050, this is not enough. This book focuses on a new paradigm of conservation management, that of connectivity. Its basic premise is that, without physical connections among the world's patchwork of conservation areas, our ability to protect and maintain healthy ecosystems and wildlife populations will be severely limited.

Connectivity among protected areas must be reestablished across all scales from local to global. This can be achieved using the now popular "cores, corridors, and carnivores" model that recognizes that protected areas (cores) can be reconnected using systems of protected wildlife corridors and stepping stones (smaller refuges between larger protected areas) that act as conduits for the movement of species. Where physical corridors are not possible, wildlife-friendly land management practices can be used to create landscapes that are more permeable to wildlife movements. The top predators in an ecosystem are often cited as barometers of general ecosystem health: if large carnivores are present in sufficient number and in good condition, and are able to move freely across the landscape and between cores using corridors and stepping stones, this is indicative that the rest of the ecosystem must be in good health.

The book itself is presented in 3 parts, following a preface and a foreword, provided by Nikita Lopoukhine, chair of the International Union for the Conservation of Nature's World Commission on Protected Areas (WCPA), and Gary Tabor of the Centre for Large

Landscape Conservation at the Yellowstone to Yukon Conservation Initiative, respectively. Part 1 sets the context of connectivity in conservation management. Three chapters discuss the need for connectivity, the science behind the idea, and the practical issues facing conservation planners and managers when trying to create and maintain conservation area networks. These provide an excellent overview and foundation for the rest of the book. Anyone who is new to the field or just wants a refresher to stimulate new thinking would do well to study these chapters in detail.

Part 2 provides a comprehensive overview of case study material covering the major biogeographical regions of the world. There are 6 separate chapters on Afrotropical, Australian, Indomalayan, Nearctic, Neotropical, and Palearctic areas (Oceania and Antarctica are absent). Helpfully, these are written using a common structure and template that allows us to dip in and out with ease. Subsections within these chapters are written by different authors with firsthand practical knowledge of the case study material, and each case study follows the same pattern, providing information on the setting, the initiative, the management employed, and the lessons learned. Each case study is well illustrated in monochrome with relevant maps, photographs, tables, and diagrams.

The result is, in a single volume, a one-stop shop for information, issues, problems, triumphs, trends, and experience in the field of connectivity conservation management. Part 3 of the book provides a synthesis in 2 chapters: one on the management framework and key tasks and one on the challenges and opportunities presented in connectivity conservation. A list of abbreviations and a useful glossary complete the text.

More than 50 individuals and organizations contributed to this book, all with new and original material. The editors did a remark-

able job of bringing this together based on the work of a wide-ranging global network of participants at a series of WCPA workshops held in Banff, Canada (2004); Papallacta, Ecuador (2006); and Dhulikhel, Nepal (2008). Poignantly, the book is dedicated to Mingma Sherpa and Chandra Gurung of the World Wildlife Fund (WWF), who died in a helicop-

ter crash along with 20 others in the Himalaya just 2 months before they were due to attend the 2006 workshop. Education scholarships for young Nepalis have been set up by the WWF in their honor, and a memorial fund has been set up at Lincoln University in New Zealand. The book itself is a fitting tribute to their work and will serve as both

inspiration and guide in taking their work further.

**AUTHOR****Steve Carver***s.j.carver@leeds.ac.uk**Wildland Research Institute, University of  
Leeds, Leeds LS2 9JT, United Kingdom*

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