

Crop Wild Relatives – A manual of *in situ* conservation ©

Conservation strategies - outside protected areas

THE MESSAGE

National parks and other conservation areas cover only 12-13% of the earth's surface; they alone cannot ensure the survival of species and ecological communities.

It is vital that lands outside national reserves and protected areas are managed in ways that promote biodiversity conservation, especially in the face of global change.

CONSERVATION EASEMENTS

Conservation easements are **legal agreements allowing landowners to voluntarily restrict or limit the kinds of development occurring on their lands**^{1, 2, 3}. They are usually voluntary agreements between landowners and a private local or national conservation organization for the preservation and protection of land in its natural, scenic, historic, agricultural, forested or open space condition.

Easements serve as a means of helping protect biodiversity in cases where purchase of the land is not possible. They are legally binding and can afford long-term protection, as they are perpetual and apply to future owners of the land.

The **Nature Conservancy (TNC)** has adopted a broad approach to easements and notes that they can be designed to:

- Protect natural habitat from destruction by conversion to other uses
- Protect natural habitat from destruction by intensive agriculture
- Conserve forests through limitations on forest management and development
- Preserve agriculture and grazing lands from subdivision and development
- Protect water resources by limiting disturbance of lands in the watershed
- Provide for public use and access, such as through trail easements.

1 - Merenlender, A.M., Huntsinger, L., Guthey, G. and Fairfax, S.K. (2004) 'Land trusts and conservation easements: Who is conserving what for whom?', *Conservation Biology*, vol 18, pp 67–75.

2 - TNC (2003) *Conservation Easements - Conserving Land, Water and a Way of Life*, The Nature Conservancy (TNC).

3 - TNC (2008) *Conservation easements: all about conservation easements*, The Nature Conservancy (TNC).

(For links see 'Further information')

The *in situ* conservation of species outside these formally protected areas is known as **off-reserve management**⁴.

A range of actions must be employed to complement protected area systems and offer a higher degree of protection for CWR. Such actions may depend on engaging private landowners in the conservation process and include methods to contain and reduce threats to CWR such as:

- Conservation easements (both voluntary and legal)
- Incentive-based schemes
- Local conservation strategies
- Public and private collaboration for conservation
- Special cases such as conservation in vegetation fragments and micro-reserves
- Habitat conservation planning (HCP) and mitigation banking.

4 - Hale, P. and Lamb, D. (eds) (1997) *Conservation Outside Nature Reserves*. Centre for Conservation Biology, University of Queensland, Brisbane.

OFF-RESERVE MANAGEMENT

Various types of off-reserve management are practiced, such as:

- Production forests
- Agricultural landscapes
- Urban landscapes
- Roadsides
- Transport corridors.

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FOREST GENETIC CONSERVATION OUTSIDE PAs

It is estimated that around 90% of global forest area lies outside of public protected areas. A World Bank study notes that while existing parks and protected areas are the cornerstones of biodiversity conservation, they are insufficient on their own to safeguard tropical forest biodiversity.

Promoting more biodiversity-sensitive management of ecosystems outside protected areas needs to be given high priority, especially in the case of forests which are already subject to some form of management such as for timber production.



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CONSERVATION OF CWR IN TRADITIONAL AGRO-ECOSYSTEMS

CWR are frequently found in disturbed, pre-climax plant communities such as roadsides, field margins and orchards and often occur in traditionally managed agro-ecosystems and agro-forestry systems or in marginal environments. Their conservation in such areas is incidental and not a result of deliberate policy. Steps to enhance or reinforce such incidental conservation of CWR, including the creation of micro-reserves need to be considered.

Public and private collaboration for conservation

Since limited funds are available for the *in situ* conservation of CWR, collaboration between the public and private sectors needs to be developed. Various models of private-public cooperation for conservation of biodiversity have been adopted by different countries.

Set-aside schemes

The majority of wild species have managed to survive outside protected areas. The chances of their survival in the long-term, given the anticipated adverse effects of climate and global change is likely to be jeopardized.

Public areas in which CWR occur will only be protected if they are managed or **set aside** for some non-conservation purpose that does not cause harm to the ecosystem. Examples include land set aside for military use, airport protection zones, and grounds of public and private institutions such as hospitals, universities and commercial companies. Though these areas are valuable, within a broad biodiversity conservation context, they cannot be fully regarded as effective means for *in situ* conservation.

CASE STUDY:

Costa Rica

In Costa Rica, the Legislative Assembly approved a law in 1992 allowing the legal designation of private wildlife reserves. Under this legislation, private wildlife refuges can qualify for designation as government-approved, officially recognized wildlife refuges.

Landowners must develop and adhere to a government-approved management plan specifying restrictions on land and resource use. In return, owners receive:

1. An exemption from property taxes for land declared as a refuge;
2. Access to technical assistance for managing the protected area; and
3. Assistance in the event of a squatter invasion.

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Incentive-based schemes

Incentive-based schemes offer landowners or tenants payments in return for helping conserve or protect areas such as native forests and other vegetation, watersheds or wetlands or ecosystem services. In recent years, the concept of Payment Schemes for Environmental Services (PES) has received considerable attention in various Latin American countries as an innovative tool for the sustainable management of land and water resources ¹.

1 - FAO (2004) *Payment Schemes for Environmental Services in Watersheds - Sistemas de Pago por Servicios Ambientales en Cuencas Hidrográficas*. Land and Water Discussion Paper 3, FAO, Rome.

COLLABORATIVELY MANAGED PROTECTED AREAS

A good example for a collaboratively managed protected area (CMPA) is the **Venezuela–Expanding Partnerships for the National Parks System Project**, the objective of which is to implement a co-management model that guarantees the sustainable management of Canaima National Park through an alliance between indigenous peoples, private sector institutions, and government agencies.

Another example is the **Kaa-Iya del Gran Chaco National Park**, Bolivia's largest protected area with an area which is managed collaboratively between the Capitania de Alto y Bajo Isoso (CABI) indigenous people's organization, working closely with the Wildlife Conservation Society (WCS), and the Bolivian national park service (SERNAP).

Indigenous and Community Conservation Areas (ICCA)

ICCAs have been defined as 'natural and modified ecosystems, containing significant biodiversity values, ecological services, and cultural values, voluntarily conserved by indigenous and local communities, through customary laws or other effective means' ⁵. They are extremely diverse in terms of their governance institutions, their management objectives and ecological and cultural impacts.

ICCAs are natural and modified ecosystems which contain a wide range of important biodiversity, offer ecological services and possess cultural values.

5 - Pathak, N., Bhatt, S., Balasinorwala, T., Kothari, A. and Borrini-Feyerabend, G. (2004) 'Community conserved areas: A bold frontier for conservation' Briefing Note 5, TILCEPA/IUCN, CENESTA, CMWG and WAMIP, Tehran, Iran, http://cmsdata.iucn.org/downloads/cca_briefing_note.pdf.

CASE STUDY:

Victoria, Australia

The BushTender scheme aims to conserve areas of remnant vegetation on private land by using an auction-based process to allocate biodiversity contracts. Officials receive the bids from potential suppliers and the assessed biodiversity importance of each site, so they can calculate which if those bids offers the best value for money. It pays private landowners to enter into contracts to manage and improve the quality or area of native vegetation on their land. Landowners identify what management activities they will undertake, prepare a management plan and submit a bid to the government (of Victoria State).

For an empirical examination of Victoria's BushTender Trial see: <http://een.anu.edu.au/wsprgpap/papers/stoneha1.pdf>.

HABITAT CONSERVATION PLANS AND ENDANGERED SPECIES MITIGATION

In an attempt to resolve conflicts that had arisen regarding the conservation of endangered species on private lands, the U.S. Fish and Wildlife Service has promoted the use of 'habitat conservation plans' whereby the 'take' of some individuals of endangered species or adverse modification of part of their habitat is allowed in exchange for an undertaking to minimize the loss of such habitat to the 'maximum extent practicable' ⁶.

The underlying principle is that some individuals or parts of the habitat can be sacrificed in the short-term, provided enough protection is offered to ensure the long-term recovery of the species. This is known as endangered species mitigation and has proved highly controversial ⁷.

6 - Bonnie, R. (1999) 'Endangered species mitigation banking: Promoting recovery through habitat conservation planning under the Endangered Species Act', *The Science of the Total Environment*, vol 240, pp 11–19.

7 - Wilhere, G.F. (2009) 'Three Paradoxes of Habitat Conservation Plans', *Environmental Management*, vol 44, pp 1089–1098, DOI: 10.1007/s00267-009-9399-0.

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SPECIAL CASES

Conservation in vegetation fragments

Fragmentation of vegetation is common; in the temperate world most habitats are small fragments or remnants of previously much larger and more continuous ecosystems, which is now becoming more common in tropical areas, largely as a result of deforestation. How to best conserve these areas, and whether such efforts are worthwhile, must be seriously considered. Two approaches which might be used to combat fragmentation and conserve CWR are micro-reserves and conservation fields.

Conservation fields

A German project called '100 fields for biodiversity' aims at establishing a nationwide network of conservation fields for wild arable plant species. The project is financially supported by the Deutsche Bundestiftung für Umwelt (DBU) and aims to counter the ongoing loss of species by implementing a network of conservation fields managed without using herbicides use and in tune with the growth preferences of the wild arable plants.

Micro-reserves

These small-scale reserves have been established in various parts of the world to afford protection to threatened species^{8, 9, 10}. In the last 10–15 years, a great deal of interest has been generated by the network of plant micro-reserves established in the Valencia region in Spain, whereby small-scale protected areas, usually less than one or two hectares, have been established. However, their long-term viability remains in question, especially in the light of global change.

8 - Saunders, D.A., Hobbs, R.J. and Margules, C.R. (1991) 'Biological consequences of ecosystem fragmentation: A review', *Conservation Biology*, vol 5, pp 18–32.

9 - Turner, J.M. and Corlett, R.T. (1996) 'The conservation value of small, isolated fragments of lowland tropical rainforest', *Trends in Ecology and Evolution*, vol 11, pp 330–333.

10 - Heywood, V.H. (1999b) 'Is the conservation of vegetation fragments and their biodiversity worth the effort?' in Maltby, E., Holdgate, M., Acreman, M. and Weir, A.G. (eds) *Ecosystem Management: Questions for science and society*, pp 65-76, Royal Holloway Institute for Environmental Research, Royal Holloway, University of London.

Need for monitoring

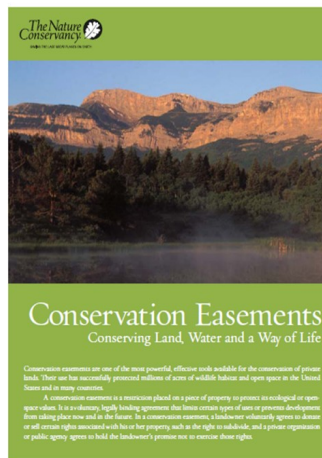
With regards to CWR populations within protected areas, routine monitoring of various activities at areas of off-site conservation is necessary. Monitoring may include:

- evaluation of compliance with the management plan and implementation mechanisms
- evaluation of the biological performance of the management plan
- determining whether the management objectives remain appropriate
- resource monitoring
- monitoring plant and animal population counts
- undertaking phenology studies
- monitoring human activities such as wild-harvesting
- monitoring the spread of invasive species and the effectiveness of the actions to counter control them.

FURTHER INFORMATION

The Nature Conservancy (TNC) website has a section on Conservation easements:

<http://www.nature.org/aboutus/howwework/conservationmethods/privatelands/conservationeasements/>



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