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# Ecological and social resilience in Western NSW: Insight from seven years of enterprise based conservation

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## Abstract

Two market-based instruments, namely Enterprise Based Conservation, have been operating in western NSW since 2003. These programs provide a cost-effective alternative to the national park estate, with over 130,000 hectares across 18 sites being managed for conservation outcomes for approximately \$2 per hectare per year. Ecological resilience is enhanced through a reduction in total grazing pressure, and through the control of weeds and pest animals. Providing an alternative income to traditional rain-based products improves the economic resilience of participating landholders. Maintaining people in the rural landscape allows rural communities and their services to continue to be supported, sustaining the social resilience of the often diminishing communities in rangeland areas.

## Introduction

Market-based instruments (MBIs) have received increasing attention in recent years as a policy intervention to provide economic incentives to private landholders to manage portions of their land for biodiversity conservation (Moss 2008). Two MBIs have contributed to the social, economic and ecological resilience in the western NSW rangelands. The programs, WEST 2000 Plus Enterprise Based Conservation and its successor, Western Catchment Management Authority (Western CMA) Enterprise Based Conservation have resulted in over 130,000 ha being actively managed for ecological outcomes in the Western Division of NSW on 18 sites.

WEST 2000 Plus was a structural adjustment program jointly funded by the State and Commonwealth governments, implemented in the Western Division from 2001-2008. It included a pilot Enterprise Based Conservation (EBC) program aimed at investigating new and innovative methods for managing natural resources (Shepherd 2006). The program provided two options for participating landholders. One option provided annual incentive payments for excluding domestic stock and actively controlling introduced herbivores and predators. The alternative involved payments for obtaining minimum groundcover thresholds. See Hacker *et al.* (submitted) for a full explanation of the groundcover option. The Western CMA has assumed management of this program until 2012.

The Western CMA EBC program was modelled on the WEST 2000 Plus EBC de-stocking option and involves a term of 15 years, which commenced in 2007/2008.

Resilience concepts provide a framework to assess the relative contribution these EBC programs make to the social, economic and ecological resilience of the participating landholders, their natural resource base and their businesses. Holling (1973) was an early pioneer in resilience thinking, defining resilience as the maintenance of relationships within a system despite changes occurring to the system's parameters. In this definition "resilience is the property of the system and persistence or probability of extinction is the result" (Holling 1973, p.17).

Walker *et al.* (2002) state that the characteristics that define resilience include the amount of change a system can undergo and still retain the same function; the degree to which the system is capable of self organisation; and the degree to which the system expresses capacity for learning and adaptation. The applicability of these concepts to the EBC programs is outlined below.

### *Social resilience*

The importance of maintaining people in a rangeland landscape was a component of these programs. Keeping families living and working on rural properties and assigning a proportion of

those properties to conservation management was an alternative to increasing the national park estate. This not only maintains and improves the social fabric of these remote communities, but also contributes to the economic viability of the local economies. Maintenance of the rate paying base, and contribution to the regional economy through purchase of products and services add to the economic stability of the region (Wilson 2009).

WEST 2000 Plus EBC program participants were supported socially through an annual meeting where landholders met to share ideas, form networks and learn about the latest innovations in conservation and sustainability. These meetings developed strong social capital between landholders and the EBC project officer, and supported these innovative landholders who often felt isolated from other like-minded people. The stimulation of new ideas and contact with others in a similar situation, helped to encourage further personal development for individual participants. Of the participating landholders, three have been awarded Nuffield scholarships; two became NSW Farmers of the Year, one a NSW Young Farmer of the Year and one a finalist.

Incentive payments like those provided through these programs are also a more socially acceptable form of government support to private land management than Exceptional Circumstance payments. According to Cocklin *et al.* (2007) landholders surveyed in Victoria held a strong preference to avoid policies which may be perceived as social welfare. Similarly, the majority of farmers surveyed preferred farm policy mechanisms that supported landholders' independence. Hacker *et al.* (submitted) also argue that the groundcover method is a viable alternative to Exceptional Circumstance payments. Additionally, the government resources required to maintain initiatives like these EBC programs are minimal. Both programs provide incentive payments of approximately \$2 per hectare per year for conservation outcomes across large tracts of western NSW.

### *Ecological resilience*

The EBC programs have conserved threatened species and their habitats, removed stock from riverine corridors and wetlands, reduced total grazing pressure and enhanced groundcover levels, and conserved Aboriginal and European heritage whilst maintaining pastoral production.

However, the boom-bust cycle in the rangelands results in many species responding to high rainfall with quick, sharp population peaks which then decline with the declining conditions (Letnic & Dickman 2006). EBC acts to temper the economic peaks and troughs these cycles create by providing the ability to rest country when conditions are poor. As the need to make an income from rain-based products (eg. livestock) is reduced, vegetation can recover and reproduce and groundcover can be maintained for longer periods. Some participants have noted that management philosophies employed in their conservation areas are now being practised right across their properties as the ecological benefits emerge. One landholder explains it as “giving our rainfall to the land rather than the stock”.

Management of the EBC areas is active rather than passive. Total grazing pressure management is vital and has been achieved through the installation of trapyards on watering points, and in some cases through upgraded fencing. Huge numbers of feral goats have been removed, with over 10,000 removed from one property in the last 12 months. Weeds are monitored and managed. Foxes and feral pigs are regularly baited.

One family at Broken Hill have seen an increase in bluebush (*Maireana* sp.), bladder saltbush (*Atriplex vesicaria*), rosewood (*Alectryon oleifolius*) and leopardwood (*Flindersia maculosa*) regeneration as a result of removing livestock from their area managed for conservation. Another family participating in the groundcover model at Brewarrina has turned once-extensive claypans into vegetated areas using high-density animal impact. Early succession plants like poverty bush and copperburrs (*Sclerolaena* sp.) are now being replaced with annual and some perennial grasses.

Opportunistic fauna surveys have been conducted on some properties. One survey doubled the fauna records previously held on one mapsheet, the capture of a stripe-faced dunnart (*Sminthopsis macroura*) filled in a distribution gap for the species and other bird and reptile species of concern were identified.

### *Economic resilience*

Annual incentive payments provide an additional income source for participating landholders. Given the uncertainty of farm income, the certainty of the annual income incentive payments enhances the economic resilience of the landholders. While not all landholders increased their gross on-farm income through participation in the WEST 2000 Plus scheme, some landholder's gross on-farm income increased by up to 46 per cent (Moss 2008).

The removal of feral animals is a management requirement for the receipt of the annual incentive payment. Several participants received additional income through the harvesting of feral goats from their conservation areas. This supplementary income provides an increase of up to 15 per cent of the participants' annual revenue. In addition, over half of the participants have established other enterprises on their properties since the start of the EBC project. These enterprises include on-farm accommodation, dog breeding, organic meat production, aquaponics, goat and exotic sheep breeds. Diversification of income sources supports the landholders' farm business resilience by limiting the implications of the marginal climatic conditions in the region and fluctuating commodity prices. Several participants highlighted that they have established these enterprises to supplement other farm income sources as a result of joining the EBC. Reasoning included that the EBC emphasized other alternatives that exist to supplement or replace income from traditional enterprises, and EBC provided a forum where ideas for alternate income streams could be discussed with other participants and government bodies.

### **Conclusion**

Implementation of Enterprise Based Conservation (EBC) programs has provided an alternative mechanism for delivering conservation outcomes across an extensive area of western NSW. Incentive payments based on active management ensure that key conservation issues like weed and feral animal management, and total grazing pressure are addressed.

Reliable income from annual EBC payments decreases reliance on rain-based products, and provides some buffer against fluctuating commodity prices. Establishing an alternate income enhances both the ecological and economic resilience of rangeland properties.

Networking opportunities provided by the programs have allowed landholders to feel supported by government, and a feeling of camaraderie among these like-minded people has developed. Maintaining people in the landscape who are managing for ecological outcomes, are socially connected, are utilising rural goods and services and have a diverse income base enhances the social resilience not only of the individuals but also of the rural community as a whole.

Enterprise Based Conservation is an effective mechanism to deliver positive natural resource management outcomes in a cost-efficient manner. A large-scale incentive program of this nature could enhance the ecological, economic and social resilience of rangeland landscapes.

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