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Report by Mark Sheahan – 2001 Churchill Fellow

Credit for conservation: A report on Conservation Banking and Mitigation Banking in the USA, and its applicability to New South Wales.

VOLUME 1
REPORT

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The views expressed in this report are, unless otherwise sourced, the authors, and do not necessarily represent the views of either the Trust or the Department.

This report is available on the web at
www.transremote.com.au/conservation

Appendices are included as a separate volume with limited distribution.
Copies of some appendices may be available from the author.

Mark Sheahan
PO Box 963, Albury, NSW, 2640

marksheahan@hotmail.com

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Foreword

Market-based systems for natural resource and environmental management are, in Australia, increasingly being recognised as potentially valuable tools to bring about the land-use change that is needed to ensure environmental sustainability. However, Australia has little or no experience in such schemes with regard to biodiversity.

The fellowship allowed me to visit the United States, where programs for trading credits in biodiversity have been in place since the mid 1980's. There are principally two programs in operation, 'mitigation banking' under the Federal *Clean Waters Act*, and 'conservation banking', under California's *Endangered Species Act*.

My study fellowship took place over a five week period in April / May 2001. It consisted of interviews with a range of agency staff (Federal, State and County), stakeholders (conservation groups, farmer organisations, and community groups) and scientists. This was principally in two regions of California, San Diego County, an urban / coastal area with rapid population growth, where conservation banking began; and, Shasta and Yreka Counties in northern California, predominantly rural areas where conservation banking is in its infancy. Interviews were also held with peak bodies and agencies in Sacramento, the State capital, and the San Fransisco Bay Area. I also attended the 4th annual national 'mitigation banking' conference in Florida. A full list of interviewees is listed under 'Personal Communications' at the end of this volume.

The research was facilitated by a fellowship from the Winston Churchill Memorial Trust, supported by the NSW Department of Land and Water Conservation, though the views here (unless otherwise sourced) are my own.

The aim of the report is not to define *the* process of banking and credit-trading, as there are many systems in place, all using different processes. Rather, it is to define and describe some of the key issues which must be considered by those involved in establishing such systems here.

The title of the report indicates that such systems can be seen as giving credit to those involved in the conservation of habitat, through economic reward, rather than just facilitating ongoing impacts from expanded development. Which of these two directions future credit-trading programs take will rely in part on an informed community debate. I hope that this report can contribute to this debate.

Mark Sheahan
Albury NSW
3 September 2001

CREDIT FOR CONSERVATION
Executive Summary

Conservation banking and mitigation banking programs in the USA provide useful examples of the development of market-based systems for habitat, native vegetation, and biodiversity. The US schemes, despite being operated in a range of jurisdictions, share a number of common components – this report identifies and describes 10 'essential elements' of banking schemes.

These are:
1. Legislation and regulation
2. Data inventory, habitat classification, and planning
3. Permitting, and the requirement for mitigation
4. Valuing debits at the impact site
5. Valuing credits at the bank site
6. Long term land management of the bank site
7. Securing the conservation status of the bank site
8. Developing an agreement between all parties
9. Establishing systems for credit sale
10. Monitoring and compliance

All the schemes adhere to the principle that environmental impacts should be avoided, minimised, and mitigated. Where there are impacts, these should be mitigated, and the banking schemes exist to provide for 'off-site' mitigation through credit purchase.

A land management plan for the bank site is developed to ensure these credits are delivered in perpetuity, and this is assured through the execution of a conservation easement, the establishment of an endowment fund for management costs, and ecological monitoring programs. All parties to the bank site enter into a Banking Agreement to ensure commitment to the scheme.

It is apparent that the demand for credits that drives both conservation and mitigation banking is generated from urban development. There is little evidence of either banking scheme being well-established in rural areas. There appear to be a number of reasons for this, including:
- The reach of environmental regulation may not be comprehensive in rural California, meaning that some environmental impacts are not subject to regulatory approval and may not, therefore, require mitigation through credit purchase.
- If rural landholders are required to implement mitigation, it is feasible for them to do so 'on site', given the larger size of rural holdings, rather than driving a demand for credits on the open market.
- Banks which sell credits are only allowed to do so in limited 'service areas', usually 40 miles or less from the bank. If the demand is from urban or near-urban areas, then banks will only be economically viable if established near these areas.

The great attraction for developers in buying credits, and hence creating the demand to protect habitat in banks, is that buy buying a credit, they transfer legal responsibility for environmental mitigation to the banker. This legal responsibility is only onerous where mitigation of impacts is rigorously enforced. Therefore, perhaps the most important aspect of banking and credit-trading is first of all, the valid, consistent assessment of development impacts, and strenuous enforcement of compliance to mitigation of those impacts.

Despite its predominantly urban or semi-urban focus, we have much to learn from the US experience. It highlights a number of issues which need to be addressed in NSW, and these are summarised in recommendations in each chapter of this report. These include:

- The requirement for mitigation of environmental impacts to be scientifically valid, consistently applied and rigorously enforced in all development consents.
- Growing the market by broadening the requirements for mitigation to a range of Acts and jurisdictions, whilst keeping one marketplace and one credit type to enhance trading.
- The need to develop State-wide classification systems of vegetation or habitat that can be applied to credits and debits to enhance trading, where appropriate, across the State.
- The development of credit and debit valuation methods which recognise the complexity of biodiversity yet enable relatively rapid assessment and classification.
- The need to take into account the 'time lag' of mitigation if the goal of 'net ecological gain' is to be achieved.
- The ability of a scheme to protect the greatest area of habitat, and to share the economic benefits to the greatest number of landholders
- The necessity of legal security of the bank site, assured through the execution of a conservation easement, covenant, or registered agreement.
- The necessity of financial security for bank sites to ensure ongoing management of the site – although the US model of endowment funds may not be appropriate for the NSW situation.
- Developing an effective process for Banking Agreements with strict time lines and accountabilities.
- The requirement of administration of a scheme, including adequate databases of credits and debits and the availability of this information to industry and the community.
- The need for clarification of assignment of liability, if mitigation fails

If the delivery of mitigation required to offset environmental impacts is to be assured, then exacting systems for environmental assessment, and financial and environmental monitoring, must be established and adequately resourced. Without these resources, there can be no surety that stated environmental goals are being met.

SECTION ONE
INTRODUCTION: WHY CONSIDER CONSERVATION BANKING

1.1 What is conservation banking?

1.2 The New South Wales context

1.3 Aim and structure of this report

INTRODUCTION: WHY CONSIDER CONSERVATION BANKING? **1.1 What is Conservation Banking?**

Summary:
Conservation banking involves the establishment of land banks dedicated for conservation, which sell credits to developers who are required to purchase them to offset the environmental impacts of approved developments.

The supply of, and demand for credits is directly dependant on government legislation, regulation and policy, and the administrative decisions which flow from it.

Conservation banks are legally protected through a conservation easement, and financially protected by the establishment of an endowment. To finance the bank, a market must exist for its product, the 'conservation credit', so the system requires development approvals to be issued in the banks 'service area'.

Conservation banking is, at its most simplistic, a system whereby the environmental impacts of a project are mitigated off-site on another land-holding, used as a 'conservation bank'.

The developer who proposes the impact pays money to the conservation bank to buy 'credits'. These credits enable the conservation bank to undertake land restoration and protection activities which offset, or mitigate, the impacts of the development.

The demand for credits by developers is completely dependent on regulation. Environmental regulation directly creates the product, through the requirement to 'offset' a development with the purchase of credits.

Demand for credits encourages the establishment of conservation banks, which produce credits. The supply of credits is a direct product of regulation, as agencies determine and approve the number of credits which a bank can sell.

Range of banking programs
Banking and credit trading in the United States is facilitated by a range of programs operated by various jurisdictions to meet the requirements of a variety of statutes.

The most widespread system in place is 'Mitigation Banking'. This flows from section 404 of the federal *Clean Waters Act 1970*, which requires developers to offset the impacts of developments to wetlands and waterways. In 1995, the California Department of Fish and Game (CDFG), which administers the State *Endangered Species Act,* introduced its Conservation Banking program.

A range of other federal, state and county agencies issue permits for developments that require mitigation through the purchase of credits from banks established under these and other programs.

The lines of distinction between the various systems have blurred, and in this paper, 'conservation banking' is used as a generic term.

Aims of banking programs
In considering the number and range of banking schemes, the objects of such systems appear to be 1) The pursuit of environmental objectives, including 'no net loss' (of wetland values and functions). 2) The achievement of successful mitigation off-site at one large bank, rather than many small 'postage stamp' mitigation projects on site. 3) The establishment of a system where

the private sector takes responsibility for its environmental impacts. 4) The creation of an economic value over land where development is currently prohibited by regulation.

Types of banks
There are basically three types of conservation banks:
Institutional banks, where a public authority, such as a roads or utility authority, will establish a bank to offset its own mitigation requirements.
Entrepreneurial banks, where a private landholder will establish a bank to sell credits to a variety of buyers.
Joint ventures, a category which covers a multitude of arrangements between landowners, conservation banking consultants, agencies and non-profit organisations.

Parties to a bank
The parties to a Conservation Banking Agreement will include regulatory agencies, landholders, and others involved in the joint venture. A Review Team, comprising representatives from each of these parties, is established to oversee the establishment of the bank.

In preparing the Agreement, the parties will reach agreement on the biological resources of the bank, the number and types of credits the bank is authorised to sell, the geographic area they can be sold to, legal protection for the bank, a long-term plan of management for the bank (and arrangements to finance this), and mechanisms for financial and ecological monitoring and reporting.

Protection for a bank
Legal protection for the bank site is guaranteed through the execution of a conservation easement on the title of the land on which the bank is established.

Financial protection is assured through the establishment of an endowment account for long-term land management, funded through a percentage of credit sales.

Pre-requisites for a banking system
Ultimately, the establishment of a conservation banking system depends on approved developments requiring mitigation of impacts off site, through the purchase of credits.

Business must have confidence in the ability of all levels of government to provide consistency in environmental regulation, of which mitigation requirements are the tangible product.

Community support and acceptance of such a system is dependent upon outcomes that demonstrate the achievement of environmental goals.

Section 2 of this paper outlines 10 elements of a conservation banking system which must be addressed for successful implementation.

General introductory reading on conservation banking
Full citations are included in the Reference section

Environmental Defense Fund (1999)
Lawhead, D (1997)
Marsh, L *et al* (1996)
Toyon Environmental Consultants (date unk.)

INTRODUCTION: WHY CONSIDER CONSERVATION BANKING? **1.2 The New South Wales context**

Summary:
Three key issues for New South Wales which warrant the investigation of a conservation banking / credit-trading scheme are:

- *the decline in environmental quality, evidenced by biodiversity loss and land and water degradation*
- *equity between all members of the NSW community in paying the costs of environmental management*
- *increasing the resources available for environmental management, and developing mechanisms to reduce the reliance on government funding for environmental management.*

Various policies and strategies commit the Government to implement market-based mechanisms, and some preliminary work to develop these systems has commenced.

Turning around environmental decline.
New South Wales faces serious environmental problems, including declining water quality, salinity, tree decline, land degradation, and biodiversity loss[1]. There is a need to stem the rate of environmental decline, and turn it around so that there is a net gain in environmental quality.

The partnership agreement, between the NSW and Commonwealth Governments, for the Bushcare program under the Natural Heritage Trust[2] has a national goal of "No Net Loss" of native vegetation.

Whilst the Bushcare program provides funding for sustainable management of native vegetation, one of the main regulatory tools for native vegetation management in NSW, the *Native Vegetation Conservation Act 1997*, provides for 'trade-offs', such as tree-planting or improved management and protection of existing vegetation, where a consent to clear is issued.

The aim is that "'trade-offs' should strive to achieve a net environmental benefit whilst meeting landholders needs".[3] The Minister for Land and Water Conservation, Mr. Richard Amery, also supports 'no net loss' outcomes[4]. Given that NSW is still suffering a decline in native vegetation cover, the delivery of a 'net environmental benefit' will, in part, involve a more rigorous system for trade-offs, or 'compensatory mitigation'.

Equity considerations
A consequence of NVCA implementation is that, where clearing is not allowed (as either a refusal of development consent, or as a condition of consent for clearing of other areas) many forms of economic development are prohibited.

In July 2000, the NSW premier, Mr. Bob Carr, announced the exploration of the use of 'offsets' to provide increased flexibility in the implementation of the NVCA[5]. In the following month, the NSW Salinity Strategy[6] was released by the Government. Action 4.3 commits the Government to develop a Discussion Paper, on "how to implement offsets for clearing with negative salinity impacts, and how offsets might be linked to market based solutions"

Such approaches hold the promise that retained areas of native vegetation may provide environmental services which can offset the loss of environmental services elsewhere. If these services are valued and traded, they may realise an alternate income stream for rural landholders[7]. Market-based solutions such as this are being trialled through the Department of Land and Water Conservation's Environmental Services Scheme. 20 trial properties for the scheme

will be selected in the next six months, the owners of which will sell 'environmental services' to the NSW Government.

Funding the costs of management

The need of better management of natural resources, including native vegetation, is generally well accepted[8], but awareness of the costs of doing so is only now being realised. For instance, in a joint paper for the Australian Conservation Foundation and the National Farmers Federation, the cost of tackling salinity is estimated at $64billion[9].

Much of the funding for environmental management is delivered in the form of Government programs, such as the Commonwealth's Natural Heritage Trust, and the State's Native Vegetation Management Fund. These programs are short-term, generally 3-5 years. Whilst there may be community concern that long-term funding is not guaranteed, Government may be concerned about the dependence on its funding, and that a "*quasi* environmental welfare state" is being established which will be a perpetual strain on its financial resources.

There is a need, therefore, to find ways for the private sector to fund environmental management, so that the true costs of development are incorporated into development projects, and to reduce the reliance on government funding. Conservation-banking and credit-trading schemes are one mechanism which may contribute to achieving such an outcome.

Work to date on credit-trading systems

Unless, from this point forward, there are no developments permitted which have an environmental impact, the achievement of a 'net environmental benefit' will be dependent upon appropriate trade-offs or 'offsets' for those impacts.

Work on defining those 'offsets' has commenced. In Victoria, Biosis Research has been commissioned to author a paper[10] on the achievement of 'no net loss'. The unit of measurement for native vegetation credits is the 'habitat hectare', and this is being implemented in a trial with VicRoads in a road construction project. In addition to native vegetation credits, Biodiversity credits are being developed under the State's *Flora and Fauna Guarantee Act 1988*[11].

The NSW Roads and Traffic Authority has developed a draft policy on Compensatory Habitat, to guide the offset of environmental impacts of road construction[12].

Funded from the NSW Government as part of the NSW Salinity Strategy, the NSW National Parks and Wildlife Service has established a project to scientifically benchmark biodiversity as a precursor to credit-trading schemes[13].

The NSW Dept of Land and Water Conservation has prepared a Discussion Paper on Offsets[14]. It discusses the principles for 'offsets' and potential market mechanisms.

Footnotes

Full citations are included in the Reference section

1. Environment Protection Authority NSW (2000)
2. Commonwealth of Australia (1997)
3. Dept. of Land and Water Conservation (1999)
4. Amery, R (2000)
5. Carr, R (2000)
6. Dept. of Land and Water Conservation (2000)
7. Binning, C (2000)
8. Goldney, D *et al* (1995)
9. Madden, B *et al* (2000)
10. Biosis Research (2000)
11. www.nre.vic.gov.au
12. Roads and Traffic Authority NSW (1999)
13. www.cse.csiro.au
14. Dept. of Land and Water Conservation (2001)

INTRODUCTION: WHY CONSIDER CONSERVATION BANKING? **1.3 Aim and structure of this paper**

Summary:
The aim of this paper is to broadly define and describe some of the issues that must be considered by designers and administrators of conservation banking programs, and to facilitate further discussion of these.

This paper is set out as follows:

1. *This section introduces the topic of conservation banking*
2. *Considers 10 essential elements of banking systems, the 'essential planks' of any scheme at any scale*
3. *Considers other ancillary US programs, to provide some context to the scene within which conservation banking occurs*
4. *Summarises the range of options for conservation on private land, and whether conservation banking has been widely adopted.*
5. *Outlines some options for the implementation of such a scheme in NSW.*

There are a number of ways of fashioning such a conservation banking program, and a range of programs exist. Each has different procedures, different stakeholders and partners, applying various tools and instruments, to meet a variety of environmental and landholder needs.

It is therefore difficult to define and set out *the* process for developing a banking system. All the systems, however, share some fundamental elements, common to the range of systems, small scale pilot projects or larger State or National schemes.

The paper aims to define and describe these elements. The following section nominates 10 elements which could be considered as 'essential planks' of biodiversity credit-trading schemes.

Each of these elements could be the subject of far greater description and discussion than the scope of this paper allows. For instance, the question of defining, valuing, and quantifying the services provided by biodiversity, in Chapter 2.5, is central to a bank's conservation outcomes. A number of research teams in Australia and elsewhere are working on this question, and continuing research will undoubtedly be needed.

The aim of this paper is to briefly define and describe some of the issues that must be considered by designers and administrators of conservation banking programs, and to facilitate further discussion of these.

These 'elements', and the banking system as a whole, must be seen in context of the range of other land management and incentive programs active in the United States. These other programs provide choices for landholders other than selling credits as a conservation bank. Whilst not central to the operation of banking systems in the US, they could form part of such a system for NSW. Section 3 sets out these ancillary programs.

Section 4 attempts to provide an overview of the options that landholders have to manage land for conservation, of which conservation banking is just one. Do landholders adopt conservation banking as the favoured option?
Section 5 concludes with some general considerations, and sets out some pre-requisites and options for the introduction of conservation banking in NSW.

SECTION TWO
ESSENTIAL ELEMENTS OF A BANKING SYSTEM

2.1 Legislation and regulation

2.2 Data inventory, classification schemes, and planning

2.3 Permitting, and requirements for mitigation

2.4 The impact site: Valuing debits, and compensation ratios

2.5 The bank site: Valuing credits

2.6 Land management of the bank

2.7 Securing the bank's conservation status

2.8 Conservation Banking Agreement

2.9 Selling credits

2.10 Monitoring and compliance

ESSENTIAL ELEMENTS OF A BANKING SYSTEM.
2.1 Legislation and regulation

Summary:
Conservation Banks have been established without any legislation which refers specifically to banks, credits or credit trading.

Nevertheless, banking systems are dependent upon legislation and regulation requiring assessment and approval of development applications, and for environmental impacts of approved developments to be mitigated.

A number of policy statements have been issued which serve as guidance to agencies in assessment protocols, credit valuation, and bank establishment.

Conservation Banking is growing in the United States. Consequently, federal legislation has been drafted to provide uniformity of approaches to this growing industry, and this may be debated in US Congress this year.

Whilst the establishment and operation of a credit trading system is clearly dependent upon the exercise of environmental regulation, the development of legislation in the US which refers specifically to the creation and trading of credits through banks has been 'after the fact'.

Existing environmental regulation which creates the demand for credits from banks comes (in California) from the federal *Clean Waters Act*, Federal and State *Endangered Species Acts*, and the California *Environmental Quality Act*. What these Acts have in common is the requirement to mitigate environmental impacts. They do not specify standards for mitigation, nor do they specify processes to achieve mitigation, such as conservation banking.
The practice of mitigation and conservation banking arose from agencies, permit applicants and landowners together creating an innovative solution to achieving mitigation. The valuation of credits / debits, the trading system, and the establishment of the first banks all occurred without a single piece of legislation which referred specifically to these processes. Only when the popularity of banking as a mitigation tool was gaining increasing favour by agencies and private enterprise, was there a need to draft legislation to cope with the issues that such a system brought forth.

Legislative background to Wetland Mitigation Banking
In short, the development of a banking system under the federal Clean Waters Act can be summarized as follows[1]:

1. The Clean Waters Act[2] gives the US Army Corps of Engineers ('the Corps') the power to regulate impacts on 'jurisdictional waters' as defined in the Act, including wetlands.
2. An Executive Order[3] (which has a similar effect to the promulgation of a regulation in NSW) was issued under the previous Bush administration, to the effect that there should be 'no net loss' of wetland values and functions.
3. An inter-agency MOU[4], between the Corps, the federal Fish and Wildlife Service, and the federal Environment Protection Agency was drafted to operationalise the Executive Order. It established the provisions for 'sequencing' (refer to Section 2.4).
4. A Federal Guidance[5] was issued in 1995, to guide the Corps in the establishment of banks.
5. Various policy guidances have followed. (Such guidances appear to be 'policy'

which all Corps offices should follow, but in practice, are widely interpreted by the various regional offices of the Corps.)

Still, there is no federal legislation which refers to mitigation banking, to the creation or trading of credits. Yet the mitigation industry is rapidly growing. The experience of bankers is that the absence of such legislation is hampering their business[6]. There are no standard rules which guide the development of a Mitigation Banking Instrument (see Section 2.8), the various Federal and policy guidances issued are widely interpreted, and the agencies involved are not required to complete their considerations within a certain time.

Consequently, legislation[7] has been drafted which recognises the reality of wetland mitigation banking, and to establish some standard processes to guide it.

Despite the fact that wetland mitigation through banks stems from a federal law, the State of California passed the *Sacramento-San Joaquin Valley Wetlands Mitigation Bank Act*[8] in 1993, which regulates the operation of mitigation banks in that part of the State. It defines bank sites, bank operators, permittees and credits.

In 1997, a model statute for mitigation banking[9] was introduced to, and passed by, the California legislature. It had the support of conservation organisations[10], but was vetoed by the (then) State Governor, and never enacted.

A Bill was also introduced in 1999 into the California Legislature, regarding *Coastal Wetland Mitigation Banking*.[11] The bill, as proposed, was not widely supported as it was considered its implementation would lead to different rules for the coast and central valley, and would also limit the scope of conservation banking[12].

However, in 2000, the State legislature enacted legislation[13] that requires the Department of Fish and Game to create a mitigation bank database and to provide a report to the legislature on the status of banks every two years. This had the support of the bankers, who saw it as necessary market information to assist them to sell credits, as well as the environmental community, who saw it as necessary to ensure the transparency of the whole system[14].

Legislation has been drafted which has just been tabled in the Congress regarding wetland mitigation banks. According to the National Mitigation Banking Association [15], the 'American Wetland Restoration Bill'[7] seeks to

- Codify the 1995 Federal Guidance, so that it must be followed by regulators.
- Establish a timeline for agency review of draft banking proposals
- Requires that agencies develop similarly exacting standards for forms of mitigation other than credit purchase (e.g., on-site mitigation; in-lieu fee – refer to Section 2.3)
- Provides for the first time, formal recognition of the Mitigation Banking Industry.

Legislative Background to Conservation Banking

The California *Endangered Species Act* also provides the relevant agency (Dept of Fish and Game) with the power to require mitigation for impacts of developments on listed endangered species. Again, the legislation does not explicitly refer to credit trading or banking[16].

The listing in the Federal ESA of the California Gnat-catcher, a threatened species whose habitat is Coastal Sage Scrub in the San Diego region prompted agencies and private industry to examine the prospect of trading schemes for uplands, not just wetlands as had been the case. The Coastal Sage Scrub habitat was under intense development pressure, and the Bank Of

America had just come into ownership of a parcel. At the same time, CalTrans needed to mitigate a freeway project through adjacent habitat. The two negotiated a deal, and gained Departmental approval[17].

The State Resources Agency simultaneously released the "Official Policy on Conservation Banks" in 1995[18]. Since the release of the policy, no legislation underpinning conservation banks or credit creation and trading has been introduced, with the exception of that section of the California Coastal Wetland Mitigation Banking Bill passed in 2000. (described above).

Legislative Background to Endangered Species Banking under the Federal ESA

Again, the Federal ESA does not refer to the existence of credit trading or banking schemes. It does, however, provide for mitigation of impacts to threatened species. This could include the purchase of credits.

If a permit to 'take' a threatened species is issued by the California field office of the FWS, it routinely includes a requirement that mitigation be expressed as the purchase of *n* bank credits, where a bank offering appropriate credits is known to exist[19].

New South Wales context

The American experience indicates that whilst legislation requiring 'compensatory mitigation' of developments is required, there may not be a need for legislation which specifically refers to 'debits', 'credits', or 'conservation banks'.

In New South Wales, the main instrument through which a mitigation condition could be applied is the *Environmental Planning and Assessment Act 1979*. Determinations under the EPAA are made by a range of Councils and state agencies, including development consents for native vegetation clearing under the NVCA.

Section 80A of the EPAA provides for a condition of development consent to be imposed under a wide range of circumstances, including where the condition relates to any of the assessment matters listed under s79C of that Act.

Sections 99 and 101 of the *Threatened Species Conservation Act 1995* provide for conditions to be attached to licences issued under that Act.

The *Plantations and Re-afforestations Act 1999* provides that authorisation for plantations will not include conditions. However, section 23 of the *draft Plantations Code of Practice Regulation 2000* includes mitigation conditions for the removal of isolated trees. The Code is a critical document, as it could be viewed as establishing a precedent for mitigation requirements.

Sections 66 and 67 of the *Water Management Act 2000* provide for conditions to be attached to licences issued under that Act.

None of these Acts, however, explicitly refers to the requirement for compensatory mitigation of environmental impacts – although that conclusion could be inferred from the objects of each of these Acts, particularly their references to principles of ecologically sustainable development.

Nevertheless, adequate policy directing agencies to require compensatory mitigation of environmental impacts is required.

The NSW Roads and Transport Authority, for example, has developed a draft policy on Compensatory Habitat which provides for habitat to be permanently set aside in lieu of the environmental impacts of road construction.

A credit-trading system is unlikely to be successful if the demand for credits is generated by consents from just one Act. To

create a market which encourages bank establishment, and to ensure that all developments are subject to the same mitigation standards, common approaches to mitigation should be applied under all NSW legislation.

If, after the development of the necessary policy and procedural guidelines, implementation of a banking system is trialled in a pilot region, the need for legislation could be assessed at that time.

Recommendations

2.1.1 That any permit, licence, authority or consent issued under any NSW legislation, which has any impact on biodiversity, should include a requirement for compensatory mitigation, and that standard approaches be developed across all Acts.

2.1.2 That environmental legislation, including the NVCA, WMA, TSCA and EPAA, be reviewed to ensure that a requirement for compensatory mitigation in all development consents is not inconsistent with these Acts.

2.1.3 That policy guidelines be written to enable the establishment of banking / credit trading schemes in pilot areas.

2.1.4 That, if these pilots are successful, an inter-agency review consider whether legislative development is necessary to facilitate banking schemes on a State-wide basis.

Footnotes

Full citations are included in the Reference section

1 D. O'Neill, pers.comm.
2 Clean Waters Act
3 US Federal Register, 1986
4 Department of the Army and the Environmental Protection Agency (1990).
5 US Federal Register (1995).
6 Lew Lautin, pers.comm
7 American Wetland Restoration Act H.R. 1474 http://thomas.loc.gov
8 California State Legislature 1993 Sections 1775-1779.5
9 *Wetlands Mitigation Banking and Restoration Bill*. California Legislature Assembly Bill No. 241, 1997
10 John McCaull, pers.comm.
11 *California Coastal Wetlands Mitigation Banking and Restoration Bill.* California Legislature Assembly Bill No. 642, 1999
12 Craig Denisoff, pers.comm.
13 *Wetlands Mitigation Banking*, Section 1850-1851, California State Legislature, 2000
14 John McCaull, Craig Denisoff, Don Macon, pers.comm.
15 Craig Denisoff, pers.comm.
16 Caitlin Bean, pers.comm
17 Environmental Defense Fund (1999)
18 State of California (1995)
19 Deblyn Mead, pers.comm.

ESSENTIAL ELEMENTS OF A BANKING SYSTEM
2.2 Planning, data inventory, classification schemes

Summary:
A credit trading scheme should be implemented in pursuit of regional conservation goals. Identification of these goals is provided through regional vegetation planning processes. A 'Natural Communities Conservation Planning' process is established to achieve this.

These plans classify vegetation and habitats, identify conservation priorities, and plan a vegetation network consisting of priority zones for conservation (and linkages between them), and other areas suitable for development.

Plans provide for resources for conservation to be transferred from development areas to conservation areas, achieved in part by banking / credit trading schemes.

The plans use an over-arching system for classifying vegetation and habitat. Two systems are used in California for this purpose, enabling vegetation at both impact sites and bank sites to be uniformly described and classified.

Development of planning
Early planning efforts in California were directed to the protection of habitat for a single listed species, usually in response to a development application in a discrete geographic area. These 'Habitat Conservation Plans' did not take a regional approach, but considered how mitigation could be developed to offset a single development.[1]

Later developments included "Multi-Species Conservation Plans", which considered the requirements for a number of listed species in the same area, but these also were reactive to development pressures.

The Natural Communities Conservation Plans (NCCP) "represent a paradigm shift away from existing models of strictly reactive, project-based permitting… toward front-loaded, ecosystem based planning"[2]. By identifying important habitat in advance of development, it provides for resources for conservation, in the form of money realised from the sale of credits, to be directed toward these areas.

Data collection and modelling
The NCCP evaluates the habitat in the plan area by collecting baseline data according to 24 modelling factors, organised into five components[3]:

- Habitat Value Index
- Key Species Models
- Grassland Evaluation
- High priority species locations and vernal pools
- Potential Wildlife Corridors Analysis

A composite model is developed by taking the maximum value of each of the five components for each grid cell in the plan area.

The results are plotted to show areas of 'very high', 'high', 'moderate' and 'low' value habitat, as well as already developed areas. A gap analysis is performed to build the regional protected areas network, it is this network which forms the credit 'sending' area, whilst areas outside this are the credit 'receival' areas.

In addition to the NCCP process, the State of California has embarked upon a program to identify state conservation priorities to strategically guide investment. A draft methodology has been released [4].

Amendments to planning instruments
The NCCP plan is used by local counties and cities to amend their 'general plans'[5] – the planning instruments used by these local governments to guide development. An example is the "Biology Guidelines" incorporated in the Municipal Code of the City of San Diego[6].

Landholder and community support
An important feature of the NCCP is the inclusion of private lands. Ultimately, the planning process may re-zone areas of private land to effect development restrictions. Such decisions are not made arbitrarily, and a consultation process is in place to include the views of landowners in such planning decisions[7].

In general, the identification of parcels of 'private land' in conservation zones is a vexing issue. One planner noted that "as soon as you put people on notice that their land may be what you want, two things happen – the price goes up, and you lose community support"[8].

Landholders in the plan area therefore need to be fully involved in the planning process. Parcels will be identified, but the trading system ensures that those conservation values will lead to an economic return for the landholder, through the credit trading system.

Habitat classification
A critical feature of the plans is their classification of habitat. This allows for credits to be 'typed' according to the habitat they protect. It is self-evident that a trading system is reliant on the use of a common terminology to describe the habitat at both impact and bank sites.

One planner noted: "I don't know how you could work a trading system if the buyers and sellers aren't speaking the same language"[9].

Systems have been developed in California to classify vegetation across the State[10,11,12]. Their use is critical in ensuring that buyers and sellers can talk the same language.

Business planning
Prospective bank owners and operators will want to ensure that their proposed bank will be economically viable.

A feasability study is normally conducted, *before* approvals from agencies are sought or Bank Review Teams appointed.

The feasibility study will examine the likely demand for credits, based on[13]:

- the number of development permits issued by a range of jurisdictions
- forecast development in the region
- forecast trends for issuing of permits
- vegetation types likely to be impacted by these developments,
- the mitigation that agencies are likely to require of developers in these permits.

Formal systems have been developed for forecasting credit demand, including a model for wetland mitigation banks from Ohio[14].

Changes to legislation or policy that would reduce requirements for mitigation, or a reduction in regional development, may adversely affect a bank's viability.

New South Wales context
New South Wales has a strong basis for planning, through the Regional Vegetation Management Planning process established under the NVCA.

These plans have the potential to identify zones in which the 'sending' and 'receival' of conservation credits is appropriate. RVC's are able to conduct sound community consultation, through their diverse membership, and communication activities they initiate. As a planning instrument under the EPAA, RVMP's can ensure that all planning decisions by a range

of State and Local jurisdictions are consistent with the plan.
RVMP's can also establish a vegetation / habitat classification system that can be used to 'type' credits in the plan area. However, the absence of State-wide vegetation classification system which is universally accepted by all agencies is a stumbling block to the transfer of credits between planning areas.

The two-tier system of "Broad Vegetation Types" (BVT's) and "Ecological Vegetation Classes" (EVC's) in place in Victoria[15] is a model which would allow such a universal trading system to be established.

Perhaps the major difference between the NCCP approach in California and the RVMP's in NSW, is the level and detail of biological data collection, and subsequent modelling and gap analysis.

The Native Vegetation Mapping Program underway in various regions of NSW will provide some much-needed data to inform the planning process. Ways in which this mapping program, and the data it is collecting, can:

- contribute to habitat modelling and gap analysis
- assist in developing a two-tiered vegetation classification system

need to be urgently considered.

If a banking system is to be developed, prospective bank operators will need sufficient information to undertake feasibility studies. The system for public reporting of clearing applications under the NVCA may need to be expanded to show the mitigation that was conditioned on development consents. Parallel systems need to be developed for the range of permits and consents issued under other Acts.

Recommendations

2.2.1 That banking and credit-trading systems be consistent with RVMP's, and the aims and objects they set.

2.2.2 That RVMP's identify zones of high (and medium) conservation value, where further loss of habitat should not be sanctioned, but which can 'send' credits to 'receival' areas.

2.2.3 That the data available to RVC's for habitat modelling and gap analysis be reviewed.

2.2.4 That, before a trading system is established in any area, that a system of agreed habitat / vegetation classification is established, similar to the two-tier system used in Victoria. This could be achieved by supporting, and implementing the results of, the Statewide vegetation classification program at the Royal Botanic Gardens.

2.2.5 That such a two-tier classification system be a pre-cursor for State-wide establishment of a banking / credit-trading system.

2.2.6 That mitigation requirements included as conditions of development consents, be publicly available as part of the register of clearing applications under the NVCA; and, also made available by other agencies / councils for permits or consents issued under other Acts.

Footnotes

Full citations are included in the Reference section

1 Noss, R *et al* (1997)
2 Murphy, D (1999)
3 Dept of Fish and Game, CA (2000)
4 Nichols, M (2001)
5 R. Asher, pers.comm.
6 City of San Diego (1997)
7 D. Lawhead, pers.comm
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10 Sawyer, J & Keeler-Wolf, T (1995)
11 Holland, R (1986)
12 www.natureserve.org/
13 C Denisoff, pers.comm.
14 Sutliff, J (2001)
15 www.nre.vic.gov.au

ESSENTIAL ELEMENTS OF A BANKING SYSTEM

2.3 Permitting, and requirements for mitigation

Summary:
A demand for credits must be created. Therefore, development proposals with environmental impacts must seek development approval through an agency or development authority – and that the approval require credit purchase.

The assessment of proposals may result in a proposal being refused, or approved.

Where a development is approved, environmental impacts must be carefully assessed and a requirement to mitigate these impacts must be specified as a condition of approval. In order to provide certainty to industry (and to meet environmental objectives) this ***mitigation must be scientifically valid, consistently applied, and rigorously enforced****. Without this, a developer has no motivation to purchase credits from a bank, and no landholder would have the confidence to invest the funds needed to develop a bank.*

If the reach of environmental regulation increases, there is increased potential for stronger credit demand, and hence increased viability of conservation banks and the banking industry.

Fundamentally, a credit-trading system doesn't work unless there are developments approved which have environmental impacts, which developers must offset with credit purchase.

In its assessments under s404 of the Clean Waters Act, the Corps must undertake what is referred to as 'sequencing'[1]. The agency considers, in sequence,

1. Avoidance of impact to wetlands
2. Minimisation of impacts to wetlands
3. Compensatory Mitigation for 'unavoidable impacts' to wetlands

Where the development is approved, it may be approved without mitigation. As with the 'Best Management Principles' developed by DLWC for the assessment of minimal impact clearing applications, the Corps has developed a range of 'Nationwide Permit' criteria, for which mitigation is not required if the proposal meets those criteria[2].

However, in the vast majority of cases, mitigation is a requirement of the permit. The mitigation may be[3]

- On-site, on the parcel of land approved for development, and at the owners expense.
- Off-site, through
  - -the purchase of credits
  - -the payment of an 'In-Lieu Fee'

The development of a trading system and a banking industry is therefore dependent not only on a project with an environmental impact being approved, but also that the preferred method for mitigation of this project is off-site mitigation.

The payment of an in-lieu fee is preferred where on-site mitigation is not practical or desirable, and where there are no available banks from which credits can be purchased. The fee is paid into a fund, either held by an agency or non-profit environmental organisation, for use in environmental projects. The Army Corps of Engineers has released guidelines on the use of in-lieu fee[4].

Where the purchase of credits is the method to be used for mitigation, these credits are the basis for a private sector banking industry. Therefore, offsets (i.e., mitigation

requirements) need to be consistently assessed between projects, and be scientifically valid. If mitigation is either not routinely required, or (if required on-site) not enforced, then there will be no motivation for a developer to go onto the open market to buy credits.

The banking system, is enhanced when there is a greater demand for credits. This demand can be stimulated in three ways:

- Encouraging philanthropic purchase of credits
- Extending the reach of regulation to include activities which are not currently regulated, and hence not mitigated.
- Providing for activities which are currently prohibited to be approved with a requirement for offsets or mitigation.

The latter of these points has led to some criticism of credit-trading schemes to the effect that 'conservation banking leads to development'. The basis of this assertion is that where a bank exists nearby a development proposal, then that development may be approved where it previously would have been refused, provided that it buys credits from this bank.

However, no evidence has ever been presented that such a decision has in fact been made by a government agency[5], and agencies deny that this ever happens.

Nevertheless, many in the conservation movement have expressed the lingering concern that "the presence of a functioning mitigation bank could indeed make the decision for approval easier than if the regulator had to make a determination of whether the proposed mitigation would work or not."[6]

Given that the potential for such a scenario does exist, it will be necessary to ensure that standards of environmental assessment are not reduced simply because of the presence of a conservation bank. It will also be necessary to identify those impacts which cannot be mitigated –i.e, are prohibited.

Why would regulatory agencies prefer off-site mitigation?

Quite often, they don't. The requirement for 'sequencing' demands that agencies first try to negotiate with developers to modify projects so as to completely avoid environmental impacts; and then, to modify projects to minimise the extent of any impacts. Successful implementation of these options will reduce the requirement for mitigation.

Where projects may be approved which will have an 'unavoidable impact', then mitigation is required. Most agency staff would consider that on-site mitigation is preferable, to ensure that environmental functions and values are maintained in the local area and of the same habitat type.

However, much on-site mitigation has been shown to be unsuccessful. A study in Florida showed that 85% of on-site wetland mitigation had failed[7], and a similar study in Massachussets found that 54% of projects did not meet regulatory requirements, and that 38% produced no wetland at all. In 22% of cases, no wetland had even been attempted to be constructed.[8] The report also noted that the wetlands being created differed significantly from those they were being designed to replace.

The problems of tiny 'postage stamp' mitigation projects has led, inevitably, to failure. Furthermore, it creates large compliance problems for agencies.

This has led to increased interest by agencies in the establishment of larger banks, which are established and / or managed by organisations with expertise in environmental management, and which are larger in scale (and hence potentially more ecologically viable) than smaller on-site mitigation projects [9,10].

'The court is still out' on whether these larger banks are meeting their environmental goals.

Why would a developer prefer to purchase credits for off-site mitigation?
The developer could mitigate the impacts of a project on site. Or, she could pay an in-lieu fee, or buy credits. Both of these latter options are quite costly. Why, therefore, would a developer choose these options over on-site mitigation?

The requirement for on-site mitigation must be detailed and able to be rigorously enforced. If the developer can 'get away with' not implementing the requirement for on-site mitigation, there will be no impetus to purchase credits from bankers as an alternative to this.

Assuming that the on-site mitigation requirement is rigorously enforced, then the developer, who may have no experience in environmental restoration, will be required to meet certain goals. This may require on-going expenditure, and lengthy negotiation with agencies. By buying a credit, they are transferring their responsibility for mitigation to the banker [7,10]. The purchase of a credit is, in reality, a 'no more hassles' option – it is the banker who is left with the task of achieving mitigation, and the developer can get on with her project.

But again, unless a consistent, scientifically defensible, and rigorously enforced requirement for mitigation is in place, there is no impetus for a banking system to develop.

Why does the banking industry prefer off-site mitigation?
Without permits requiring off-site mitigation, there is no banking industry. The National Mitigation Banking Association (NMBA) advocates that off-site mitigation in conservation banks has greater ecological benefits, is easier for agencies to monitor, and is cost-effective for developers [7,10].

Some have commented on the potential for the industry to lobby for approval of projects, and for those approvals to require off-site mitigation. The industry, however, is keen to maintain 'an arms length' from permitting decisions [7,10]. This would be particularly important given that the industry is in its infancy, and needs to build alliances from a broad spectrum of organisations to further develop. Nevertheless, there is concern that, once well-established, the banking industry and agencies may collaborate to achieve mutually agreeable mitigation outcomes.

New South Wales context
For credit-trading to develop in New South Wales, it is critical that development consents issued under a range of statutes require compensatory mitigation for environmental impacts.

This will require standardised systems for the quantification of environmental values at the impact site, and this is discussed in Section 2.4.

The current Staff Guidelines for the assessment of clearing application under the NVC Act[11] provide only broad guidance for staff in recommending 'trade-offs'. There will need to be a more detailed set of guidelines for this purpose.

Nor is it only the NVC Act that is relevant here. For a conservation banking market to flourish, for a greater number of landholders to receive an economic benefit for habitat protection, and for greater areas of habitat to be protected in conservation banks, all consents issued under the EPA Act (including those issued under the NVCA), and the TSC Act, should treat mitigation in a consistent manner.

Similarly, all mitigation implemented by government utilities, such as the RTA, Telstra, and electricity authorities, should be

done in accordance with State-wide policies and procedures for conservation banking.

In its Discussion Paper on Offsets[12], the Dept of Land and Water Conservation considers that "if market mechanisms are to be used, a single trading system would be needed, involving the same register and same marketplace as native vegetation credits."

In doing so, efforts must be made to ensure that, at the least, existing standards of environmental assessment are maintained. In other words, it is critical that the existence of a conservation banking program does not result in developments being approved which would otherwise have been refused.

Guidelines for the assessment of development applications, for all relevant Acts, should entrench the principle of 'avoidance, minimisation, and compensatory mitigation' that is referred to as 'sequencing' in the US. The NSW RTA's draft policy on compensatory habitat, for example, makes this explicit [13].

To provide an incentive for developers to buy credits from banks, it will also be necessary to ensure that mitigation requirements set out in development consents which remain current are subject to a rigorous compliance checks. Only when compliance of mitigation requirements is enforced will developers seek to offload these responsibilities to a conservation bank through the purchase of a credit.

Recommendations

2.3.1 That standards in environmental assessment be maintained, so that the existence of a conservation banking scheme does not influence the determination of applications. The principle of 'avoidance, minimisation, and compensatory mitigation' must be put into effect by all consent authorities and government utilities.

2.3..2 That mitigation requirements are made as conditions to a range of consents, not only to those under the NVC Act, but to all consents issued under the EPA, TSC and WM Acts, among others.

2.3.3 That mitigation requirements included as conditions to development consents which are current, and all future consents issued, be subject to an extensive compliance program.

2.3.4 That mitigation requirements contained in the DLWC Staff Guidelines for the assessment of clearing applications under the NVC Act be reviewed to ensure that these requirements are scientifically valid and consistently applied in all determinations.

2.3.5 That these guidelines be reviewed by an inter-agency review team for implementation by the range of relevant consent authorities and government utilities in NSW.

2.3.6 That development consents be deferred consents, i.e., project commencement should not occur until required credits have been purchased.

Footnotes

Full citations are included in the Reference section

1. Department of the Army & US Environmental Protection Agency (1995)
2. Department of Defense *et al* (1996).
3. D. O'Neill pers.comm.
4. Dept. of Defense *et al* (2000)
5. J. McCaull, pers.comm
6. M. Kraus, pers.comm
7. L. Lautin, pers.comm
8. Brown and Veneman (1998)
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13. Roads and Traffic Authority NSW (1999)

ESSENTIAL ELEMENTS OF A BANKING SYSTEM

2.4 The bank site: valuing debits, and compensation ratios

Summary:
If a development application is

- *approved by a permitting authority*
- *has an environmental impact, and*
- *if the agency considers that the most effective means of mitigating that impact is the purchase of credits from a bank,*

then that approval will indicate the number of credits which must be bought to offset those impacts.

This will flow from an assessment of the environmental values and functions which will be lost as a consequence of the development.

There have been numerous approaches developed in response to this task. Most include two factors – the area to be impacted, and its ecological quality.

Given the difficulty of reducing the complexity of biodiversity to a simple formula, all methods ultimately inform the 'best professional judgement' of agency officers, rather than being infallible empirical tools in their own right.

If a permit is issued, and the environmental impact is to be mitigated through the purchase of credits from a conservation bank, then there must be an assessment of the 'size' of the impact and the number / type of credits which must be bought[1].

Obviously, not all wetlands (or other habitats), even of the same type, are the same. Impact sites will display a range of conditions, and a range of values and functions. If a 'net ecological benfit' is to be achieved, there must be an assessment of the value of the impact site, so that the loss of these values can be offset at the bank site.

To achieve adequate mitigation, each debit point incurred at the impact site must be offset by the purchase of 1 or more credits from a bank. The number of credits that must be purchased from the bank, in relation to the number of debit points incurred at the impact site, is referred to as the Compensation Ratio.

In order to develop these ratios, agencies assessment methods have developed over the last decade.

Methods used by the Corps in s404 permits.

Crude Area methods
Originally, valuation methods used a crude area basis. If one acre of wetland is lost, then one acre of wetland would be purchased, i.e., the compensation ratio was always 1:1[2]. It was realised that this did not recognise the value / functions of wetland lost – a severely degraded wetland with a history of toxic dumping would be rated equally with a wetland in good condition.

If no net loss is to be achieved, then any permit issued for a wetland in good condition would need to have a higher compensation ratio[5]. Accordingly, higher mitigation ratios are applied for the loss of high quality wetlands[2].

Best Professional Judgement
Officers of the Corps were then able to set higher compensation ratios, based on their best professional judgement. For degraded sites, a 1:1 ratio may still be stipulated. For an impact site with a range of values and functions in good condition, a ratio of 3:1 may be stipulated[2,3]. This means that for each acre impacted, 3 credits must be purchased. If the impacted wetland was 1.4

acres, 4.2 credits would need to be purchased from a bank.

Wetland Evaluation Model (WET)
This is a lengthy guideline, which is essentially an assessment checklist (conceptually similar to the Guidelines to the Assessment of Clearing Applications under the NVC Act). However, it does contain a scoring system, so that some elements of the assessment system are weighted unequally to others[4]. Through the use of the scheme, a compensation ratio is developed. It is also common practice for the score assigned by the model to inform Best Professional Judgement, not vice-versa.

Hydro-Geomorphic Model (HGM)
These models also rate hydrological values of wetlands on an empiric scale. They have been developed by the Corps for specific catchments and wetland habitat types[4]. Like WET, it is used by Corps officers to inform and defend their Best Professional Judgement[2,4].

Valuations for Endangered species
The CDFG, under that State's Endangered Species Act, and the federal Fish and Wildlife Service, under the federal Endangered Species Act, may determine that a certain number of credits need to be purchased to mitigate the impact of approved developments.

It must be noted that both are based on the premise that habitat must be occupied (see Section 2.1). Therefore, credits are classified not only by habitat type, but more commonly for individual species[6].

For example, a developer may be required to purchase '4 Red-legged Frog credits'. In permits issued by both DFG under the conservation banking program, for each acre of occupied habitat, one credit for this species must be purchased.

Whilst it is recognised that this does not lead to a 'net ecological gain', it is also true that the NCCP process (see Section 2.2) has identified areas where permits may be granted, and areas where conservation banks are to be established. The former areas are identified through the process of having lower quality, more fragmented habitat. The latter areas are large blocks of habitat of higher quality. Although the compensation ratio is only 1:1, the areas traded off are inevitably of poorer quality than the bank sites from which credits will be purchased[7].

The 'best professional judgement' of the federal FWS is contained within a 'biological opinion'[8]. This opinion is a scientific report, which considers the quality of the habitat on site, records of the species, and relevant literature. It concludes with the number of credits which must be purchased to mitigate those impacts. An example is included in the Appendices. This example cites a 2:1 compensation ratio for credits purchased from a bank (i.e., 2 credits for each acre of habitat impacted) or a 3:1 compensation ratio for land bought outside a bank (i.e., 3 acres to be purchased for each acre of habitat impacted).

The California office of the Federal FWS has developed empirical formula for estimating the number of credits which would be given to a conservation bank to sell. Systems have been developed for impacts on Vernal Pools[9] (ephemeral wetlands which are habitat for endangered invertebrates), and RedLegged Frogs[10]. These are included in the Appedices, and further discussed in Section 2.5.

Consideration of the systems.
Biodiversity is complex and defies simple formulisation. Empirical formulas and assessment criteria may never be able to adequately represent this complexity.

The establishment of a credit-trading system has not been reliant on the development of such systems. However, they do rely on defensible professional judgements based on valid criteria prepared by qualified

professional staff, as they do for a multitude of decisions made for a whole range of functions both in the US and Australia.

Formulas and assessment systems developed to quantify biodiversity on an impact site have been used in the United States to inform best professional judgement, rather than as infallible tools.

It seems inevitable that the area of habitat affected, the quality of that habitat, and its landscape context, will remain the three key considerations in valuing debits at an impact site.

New South Wales context

Any method for valuing or assigning debit points must deal with area, quality and context. This is the basis of the 'habitat hectare' unit developed in Victoria[11].

The work currently underway by NSW NPWS is likely to develop a model for valuing debits and credits in NSW.

Already, compensation ratios have been developed in NSW. Under the Southern Mallee Land Use Agreement[12], there is a ratio of 1:1 for all vegetation types approved for clearing under some circumstances, with the exception of Chenopod Mallee which has a ratio of 2.3:1 (i.e, for each hectare cleared, 2.3 hectares must be legally reserved for conservation). Under the Plains-wanderer Habitat Policy[13], areas of secondary habitat may be cleared under some circumstances with a compensation ration of 1.5:1. Neither policy caters for inter-property trading of debits for credits.

For a trading system to be established, the method for valuing debits must be able to be used by field staff of agencies to assist them to develop their best professional judgement. So that the system can be understood by all involved, a method involving a limited number of compensation ratios (e.g., 1:1, 2;1, 3:1) could be implemented.

The debit valuation made by regulatory agencies should be underpinned by a formal evaluation. This already occurs in the assessment of native vegetation clearing applications under the NVC Act[14], similar in scope to the 'biological opinion' used by the US Fish and Wildlife Service.

The debit valuation will require that a certain category of credit be purchased. This would need to conform to the over-arching credit classification scheme. It is recommended that credits be classified according to one criteria, perhaps based on the units identified in a vegetation classification scheme. (see Section 2.2)

Recommendations:

2.4.1 That, where developments are approved, the area affected be classified according to one criteria only, perhaps derived from a vegetation community classification.

2.4.2 That the debit evaluation be based on the area of habitat affected, its quality and landscape context.

2.4.3 That compensation ratios be developed according to quality and context, i.e., the higher the quality of the vegetation, the greater the compensation ratio.

2.4.4 That a limited range of compensation ratios be used in the system.

2.4.5 That policy on compensation ratios and categories used be developed, based on further research and discussion.

Footnotes

Full citations are included in the reference section

1. Department of the Army (1995)
2. D. O'Neill, pers.comm
3. K. Lawrence, pers.comm
4. Department of Defense (2001)
5. Studt and Sokolove (1996)
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ESSENTIAL ELEMENTS OF A BANKING SYSTEM.

2.5 The bank site: Valuation of credits

Summary:
When a bank is established, the number of credits it can sell needs to be determined. This, in turn, will determine the bank's economic viability.

As with valuation of debits, the two most important factors are area, and quality, of habitat. Ideally, there will be consistency between the systems for valuing debits and credits.

However, an additional factor to be taken into account with credit valuation is the potential for biodiversity to be 'enhanced' over time as a consequence of conservation management. This is an important consideration if 'no net loss' is a goal of the credit-trading scheme.

This enhancement is taken into account through consideration of the type of environmental management activities taking place on the bank site: whether new habitat is being created; poor quality habitat is being restored or enhanced; or existing high quality habitat is being preserved.

These assessments are based on a Biological Resources Report, prepared at the bank owners expense.

Each credit the bank can sell will be classified according to the habitat or species which it protects, and the geographic area in which it can be sold.

The number of credits that a bank is permitted to sell must be determined by the agencies and agreed to by all the parties.

Biological Resources Report
The first step in determining this is the preparation of a Biological Resources Report. This is carried out at the bank owners expense, usually by consultants. It will include a description of the bank's sites physical resources, and the results of ecological surveys to document the species and ecosystems present, and their condition[1]. The report will be used by the agencies and other parties to the agreement to determine the number and types of credits which can be sold.

Where the bank owner intends to sell species-specific credits, the occupation of the site by these species will need to be established[1].

Types of credits
The types of credit which can be sold will depend on the habitat, or species present. There is no such unit as a 'biodiversity credit', as credits are classified according to the more specific biological resources that they protect. For example, this could include 'red-legged frog credits', or 'vernal pool credits', or 'coastal sage scrub credits'[1].

Number of credits. – endangered species habitat.
The number of each of these types of credits which can be sold begins with a consideration of the area of each of these habitat types present on the bank site.

Crude methods of determining the numbers of credits will result in one acre of habitat equalling one credit. This is the method used for California's State Conservation Banks[1]. This takes no account of the quality or condition of the habitat, and may not achieve a 'net ecological benefit' outcome. However, under the NCCP (see Section 2.2) the planning system directs impacts to areas

of lower ecological value, and bank sites to areas of higher ecological value[2].
Some approaches rely on 'best professional judgement' to determine how many credits a bank can sell, based on factors relating to the ecological viability of the site, such as size, connectivity, condition of the habitat, and threats to it from surrounding land uses. The lower the long-term viability of the site, the more acres will be needed to sell one credit.

The Federal Fish and Wildlife Service has developed more formal systems for determining the number of credits a bank can sell for vernal pools[3], and red-legged frog habitat[4]. These are included in the Appendices.

These numerical scoring systems also take into account factors such as bank size and shape, condition and ecological viability of the site. By using these systems, the normal range of outcomes is that each acre of habitat will provide between 0.5 and 1.5 credits, with a maximum of 2 credits per acre[5].

Number of credits – wetland habitats
Given that the goal of the Clean Waters Act is 'no net loss' of wetland functions and values, consideration is given to the net gain that each bank can achieve. The 1995 Federal Guidance[6] considers four types of environmental management that may occur at a bank.

Creation. The establishment of a wetland where none existed before, or where through past bad management, all wetland values and functions had been lost. In this case, it is assumed that (if the project is successful) there will be a 100% increase in wetland value, so that for each acre created, the bank can sell 1 credit.

Restoration. The restoration of a degraded wetland, valued at, say, 20% of full function. This may involve reinstatement of natural flow or drainage features, or the remediation of toxic or noxious substances. It is assumed that there may be a substantial increase in wetland values, say 80%. The bank may sell 0.8 credits for each acre of wetland restored.

Enhancement. The enhancement of a wetland that still retains substantial values / functions, valued at 60% of full function. For instance, the removal of exotic vegetation. This may enhance the value of the wetland by 40%, so the bank can sell 0.4 credits for each acre of wetland enhanced.

Preservation. The preservation of a wetland in good condition. Under the Federal Guidance, this can only generate credits in exceptional circumstances – as it does not contribute to a 'no net loss' outcome. In California, no wetland credits are allowed for preservation[7]. However, in other States, it is provided for with a substantial acreage needed for the sale of one credit. Commonly, this is in the range of 15-30 acres of preserved wetland being needed for the bank to sell one credit[8].

Example of a trade, as practiced under Federal Wetland Mitigation[8]

Impact site
- Developer gets permit for a project which will destroy 2 acres of wetland,
- It is assessed as being in modified, but not degraded, condition, so
- The permit stipulates a compensation ratio of 2:1.
- The developer must therefore buy 4 credits.

Bank site
Developer buys from bank:
- 20 acres of preserved wetland: = 1 credit
- 2 acres of restored wetland: = 1 credit
- 2 acres of created wetland: = 2 credits

4 credits purchased, totalling 24 acres of wetland.

Where can credits be sold?
The guiding principle is that mitigation should occur as close to the impact site as possible. For wetland mitigation, mitigation must occur in the same catchment as the impact[6]. Endangered species mitigation should occur in the same eco-region, or a sub region of these[1,5].

Accordingly, the bank will have a 'service area' in which it can sell credits. For wetland banks, this will be the catchment area, or, in the case of small catchments, a number of adjacent catchment areas.

For endangered species banks, the service area will be delineated according to ecological criteria. Usually, the service area will extend no further than 40 miles from the bank site, although exceptions to this do occur, provided that agreement of the parties has been reached[1,7].

The bank owner will want the service area to be large enough to ensure a sufficient market for the bank's credits.

As stated in Section 2.4, the mitigation must usually be 'in kind', i.e., the credits bought are for the same wetland type as the impact site. However, exceptions to this exist in the NCCP area[2], and in some other cases where agreed by the permitting agency.

Banks with multiple credit types
Because there are a number of systems operating in the US, banks will want to enhance their economic viability be being able to sell credits through multiple market places.

For example, one bank in northern California is authorised to sell credits under the federal *Clean Waters Act* and *Endangered Species Act*, the State *Endangered Species Act*, and to county permit holders as well. Each of these requires different rules for credit valuation, service area delineation, and management and monitoring. Consequently, the development of the Banking Agreement was therefore technically and administratively complex, and the bank only sold its first credit 5 years after the bank site was proposed[9].

The greater the number of schemes and systems are in place, the more complex the operation. This is a clear disincentive to the adoption of conservation banking.

New South wales context
The assessment of debits and compensation ratio at the impact site, and the valuation of credits at the bank site, work together to determine the degree of net ecological benefit or impact.

The valuation of credits should strive to ensure that the ecological gain from one credit is equivalent to the ecological gain from any other credit from any other bank site. This may require different management activities to be ranked accordingly, and for this to be reflected in the number of credits a bank can sell.

- <u>Revegetation on cleared land</u>

If an area of cleared land with little or no resilience is re-planted by traditional re-vegetation techniques (e.g., tubestock planting or direct seeding), it will be many decades before an ecological gain is achieved. For instance, the planting of woodland trees in rural NSW may take 100 years or more to provide adequate mitigation for habitat removal.

Therefore, because of the limitations of this activity to contribute to ecological goals, it is proposed that a large area of revegetation be required to realise one credit, say, 10 hectares. A case could be made to lower this if the revegetation connected, or built upon, existing remnant areas.

- <u>Regeneration and restoration of partially modified vegetaion.</u>

Areas which have been modified through tree-cutting or grazing, and which may

appear to be 'essentially cleared' may have enough 'resilience' or recovery potential to show relatively quick improvement in structure and function with minimal inputs. Such areas may be characterised by remnant trees, and low past fertiliser use. These areas have the greatest potential to mitigate for ecological impacts under a trading system, and should therefore require smaller areas to realise one credit – say, 1-2 hectares.

- 'Preservation' of vegetation in good condition.

An area of native vegetation in good condition will have little potential for an environmental gain that can be translated into credits. For these reasons, 'preservation' cannot normally attract credit sales for wetland mitigation in the US. However, the securing of examples of vegetation communities whose current extent is 'under target' is an important action, especially when these areas may show a slow decline of condition over time even without deliberate clearing. Therefore, it is proposed that 'preservation' should attract credits, but at a rate of, say, 10 hectares per credit sale.

Exact formulas for the management activities to realise one credit sale need to be developed. NSW NPWS is currently working on a project "benchmarking biodiversity credits"[10]. What is essential is that the formula recognise the contribution to ecological gain that various management activities have, and for this to be reflected in the credit-trading system.

These considerations, for a particular bank site, should be based on a Biological Resources Report, which sets out the present extent of vegetation communities and their condition. The cost of preparing the Report would be included in the 'initial establishment costs' of a bank, and recouped through credit sales.

A schedule of available credits, agreed by the Bank Review Team, would be included in the Banking Agreement.

Recommendations:

2.5.1 That a Biological Resources Report be prepared for the bank site as a pre-cursor to consideration of credit valuation.
2.5.2 That this report document the Ecological Vegetation Classes (see Recommendation 2.2.4) on the bank site, and the condition of the vegetation
2.5.3 That the potential for net ecological gain from improved management, based on the condition of the vegetation, be assessed and credits valuation determined accordingly.
2.5.4 That credits be classified according to the vegetation type, with sub-categories (for example) 'conservation of vegetation', 'restoration of resilient land', and 'revegetation of highly modified land' with suitable credit valuations for each based on agreed standards.
2.5.5 That policy development, based on further research and discussion, including the work of the NPWS, be developed relating to the number of hectares that would be required from each of these sub-categories to constitute one credit.
2.5.6 That the number of available credits would be documented in a schedule as part of the Banking Agreement.

Footnotes

Full citations are included in the reference list.

1. C.Bean, pers.comm.
2. D. Lawhead, pers.comm
3. FWS (1999)
4. FWS (2000)
5. D. Mead, pers.comm
6. Dept. of the Army (1995)
7. C. Denisoff, pers.comm
8. K. Lawrence, pers.comm
9. C. Martz, pers.comm
10. Phil Gibbons, NSW NPWS Pers. Comm.

ESSENTIAL ELEMENTS OF A BANKING SYSTEM.

2.6 Land management of the bank

Summary:
The ongoing management of the bank site is a critical factor in ensuring that the mitigation that the banker takes responsibility for is actually achieved.

A qualified land manager is appointed to prepare and implement a Plan of Management.

This identifies on-ground works, and costing of the plan determines the amount required for the Land Management Fund, which is derived from the interest from an endowment account, funded through credit sales.

Usually, the roles of managing the endowment and managing the land management fund (i.e., the interest from the endowment) are separated.

Approvals for credit sales may be dependent upon the bank achieving the performance standards set out in the Plan.

Substantial amounts of capital are now held in endowment accounts so that management in perpetuity is assured.

When a developer buys a credit from a bank, he is transferring the responsibility for his mitigation requirements to the banker[1]. The achievement of this mitigation is dependent upon the bank site being well managed in perpetuity. The role of ongoing management of the bank is therefore a critical element in any conservation banking scheme.

Appointment of Land Manager
Accordingly, parties to the Banking Agreement will agree on the appointment of a 'Land Manager'. This will usually be a 'qualified conservation organisation' – a non-government organisation with skills and experience in conservation land management.

Where such an organisation is also the bank owner, it may fulfil both roles, i.e., bank owner and operator, and bank land manager. It is also possible for a government agency to be appointed as land manager, although this does not happen in the case of privately owned banks[2].

Plan of Management
The Land Manager will prepare a Plan Of Management for the bank site. This will be informed by the Biological Resources report (see Section 2.4). It usually includes[3]

- Initial establishment operations, such as weed knockdown, rubbish removal, fencing, road and track rationalisation.
- Management actions designed to enhance the target species or habitats for which credits will be sold
- Ongoing management actions, such as routine weed and pest control, prescribed burning,
- Provisions for ecological monitoring.

An example of a Plan of Management is included in the Appendices.

Costing the Plan
The Plan Of Management will include a schedule for implementation of each of these actions over the first five or ten years of the life of the bank, and costings based on this schedule will be prepared. A widely used method for completing these costings is the Property Analysis Record (PAR), developed by the Center for Natural Lands Management[4].

The Corps has also developed a computer program to estimate management costs for wetland mitigation banks[5].

Land Management Fund and Endowment Account

The annual schedule of works identified by PAR is used to generate a figure for the costs needed for land management over the long term. The Land Management Fund is used by the land manager to fund the costs of management, including its own expenses. An example of a practical application of the PAR is shown in the Appendices.

The land management fund is derived from the interest generated from the endowment account. If, for example, it is estimated that $5,000 will be needed per annum for land management, and it is assumed that the endowment account will earn 5% interest, then the endowment account will need to have $100,000.

This is funded from credit sales. The Banking Agreement will state that a certain percentage of each credit sale will be invested in the endowment.

To facilitate the high costs of the bank's initial establishment, the Agreement may specify that 50% of funds realised from the first *n* credit sales from the bank will go to the endowment account, and that this percentage will reduce for later credit sales[4] (see Section 2.9)

Management of the Endowment

The management of the endowment is a critical issue. Obviously, various investment portfolios will produce different returns. Land managers generally use a combination of bonds and stocks, and will argue that they have the potential to generate more funds for land management purposes than a Government agency, which is only permitted to invest in bonds[2,4].

Because of the risk involved in investments in stocks, DFG stipulates that it must manage the endowment, as a hedge against a collapse in stock prices. There have, however, been Agreements which have allowed a third party, or the Land Manager, to manage the endowment, provided that DFG has approval over the endowment accounts charter, bylaws and investment portfolio, and that drawing on any principle must also have DFG's approval[2].

Where public utilities are required to mitigate their own projects, there have been instances where they have purchased land and established an endowment for that land. In the case of a new transmission line through Modoc County, the utility purchased a 4,000 acre ranch as a bank, vested it in the DFG, and then put $1m into the endowment, also managed by DFG[6].

The achievement of land management goals, and the use of the Land Management Fund is to be documented in the annual monitoring report. (see Section 2.10)

Issues relating to the endowment

There are now substantial amounts of capital held in endowment accounts across the United States. It is widely accepted that it is critical to ensure proper conservation management of banks over the long-term, and that this should be funded from bank owners – otherwise, it would be true that there was public subsidisation of the costs of mitigation.

Nevertheless, use of endowment accounts for this purpose has raised several issues. These stem from the realisation that to achieve long-term conservation goals, fiscal management is as important as biological management.

Firstly, the quantum of funds needed for the Land Management Fund, and hence that need to be invested in the endowment, are based on current costs.

Perpetuity 'is a long time', and there need to be assurances that the endowment will be

sufficient for management in perpetuity. Some Agreements stipulate that some of the interest generated from the endowment must be put into the principal of the endowment to counter the effects of inflation.

Secondly, who should manage the endowment? Management by an agency is a low-risk but low-return strategy, whereas private management of the endowment could yield greater funds for land management by investment in stocks, but with some risks. What guidance (if any) should be given to the managers of endowments?

Thirdly, is the use of endowments the best approach anyway? One alternative would be for all areas protected through conservation easements (see Section 2.7), including banks, be subject to low-level property taxes or rates, paid into a land management levy (regularly reviewed to reflect cost increases) to be administered by local Counties or State agencies[7]. These bodies could use the levy to retain the services of a Land Manager for all conservation land in their area.

New South Wales context

Land management is a crucial long-term role if banks, and the banking scheme, are to achieve their goals.

The NSW National Parks and Wildlife Service prepares a Plan of Management for areas under Voluntary Conservation Agreement, and the schedule of actions under a Registered Property Agreement achieve much the same ends.

Where a conservation bank is involved, the Plan of Management is even a more critical document, given that the ecological gains are essential if they are to offset impacts elsewhere.

The use of the endowment account is a useful approach to ensure long-term land management. However, the capital realisation from credit sales to ensure the successful operation of an endowment may be a barrier to the endowment account model in rural NSW.

The amount of capital needed to be tied up in these endowment accounts is large, and may not be able to be supported by a relatively small market for credits in rural NSW. As it is funded from credit sales, it may make credit prices too expensive for the market.

Issues related to investment strategies, and the ability of an endowment account to keep up with inflation may also be problematic.

It seems that the Land Management Plan identifies two sorts of costs:

- Initial establishment costs
- Long-term maintenance, management and monitoring

The former could be covered by credit sales, whilst the latter could be covered by the payment of a conservation rate, which funds a 'conservation land management fund' operated either by the local government or the NSW Nature Conservation Trust. This would circumvent the need for the establishment of an expensive endowment account.

Recommendations:

2.6.1 That an organisation which is on the federal Register of Environmental Organisations be appointed as Land Manager, regardless of whether this organisation may also own the land title to the bank site.

2.6.2 That the Land Manager be required to prepare a Plan Of Management, including costings for a period of at least 10 years.

2.6.3 That the Land Management Plan identify and cost 'initial establishment operations' and 'long-term management, maintenance and monitoring operations'.

2.6.4 That 'initial establishment costs' be funded from credit sales, but that long-term management costs be funded from a 'Conservation Land Management Fund' drawn from a minimal annual rate on conservation land.
2.6.5 That the options of the Conservation Land Management Fund being administered by local government, or the NSW Nature Conservation Trust, be investigated.
2.6.6 That the Plan Of Management idenitfy ecological targets or goals which the bank must achieve.

Footnotes

Full citations are included in the Reference section

1. Marsh et al (1996)
2. C. Bean pers.comm.
3. S. Teresa pers.comm
4. Center For Natural Lands Mgt (1994)
5. D. O'Neill pers.comm
6. J. Nelson, pers.comm.
7. J.Rickert, pers.comm

ESSENTIAL ELEMENTS OF A BANKING SYSTEM.

2.7 Securing conservation status of the bank

Summary:
To ensure that the bank site is managed for conservation in perpetuity, it is secured with a conservation easement.

Analogous to a covenant, the easement ensures that the Banking Agreement, including the Plan of Management, is binding on all future successors in title.

In addition to government agencies, any 'qualified conservation organisation' is legally able to place a conservation easement on a parcel of land, provided of course that the owner has consented.

Conservation easements are not standard documents – each is negotiated individually and there exist a huge diversity in easements with relation to resource utilisation and management. For bank sites, however, easement conditions will re-inforce the agreed Plan of Management.

The easement is formally executed when the bank sells its first credit.

In addition to the easement, the Banking Agreement may stipulate that the title to the land will transfer to a government agency or conservation organisation once all credits have been sold, i.e., when the economic value of the land has been exhausted.

The permit received by a developer authorises an environmental impact which is of a permanent nature. When the wetland is filled, or habitat cleared, it is lost forever. Similarly, the mitigation which compensates for that loss should also be of a permanent nature. To ensure this, a 'conservation easement' is executed over the bank site.

A conservation easement ensures that the bank site is managed for its conservation values in perpetuity, and is binding on successors in title. The easement is 'held' by a third party, which is given right of access to the property, and who has the responsibility of ensuring that the management of the site is being conducted in accordance with the Plan of Management.

In banks established under the Californian Conservation Banking program, the easement is usually held by the Department of Fish and Game[1]. The federal Fish and Wildlife Service also holds easements over bank sites[2].

However, as described in Section 3.2, a diverse range of agencies and non-profit organisations are legally entitled to negotiate and hold conservation easements. Some of these non-profits, including land trusts and conservation organisations, also hold easements over some bank sites[1,3].

As with all other arrangements regarding the bank site, the choice of easement holder must ultimately be agreed to by the Review Team.

Easement conditions
As discussed in Section 3.2, a range of conditions may be stipulated as part of a conservation easement. They range from 'open space' easements, which serve principally to prevent subdivision and urban developments, to easements which provide for specified resource use, such as grazing or forestry, to those whose primary goal is biodiversity conservation.

Conditions attaching to the easement will vary according to its primary goal. Where an easement is used to secure a bank site, its conditions will re-inforce the agreed Plan of Management.

Date of execution
Generally, the easement is formally executed and comes into effect when the first credit from the bank is sold[1,4].

Financial incentives
Unlike easements securing non-bank sites (see Section 3.2), the easement will not attract tax benefits, nor will it be 'bought' by any of the parties to the agreement. The authorisation to sell credits represents the economic incentive to the landholder[1].

Transfer of land title
An alternative to a conservation easement is for the title of the land to be transferred to a government agency or conservation organisation.

This can occasionally occur before the bank commences operation as part of a joint venture arrangement, where the landowner will be financially recompensed through the terms of the agreement.

Alternatively, an institutional bank bought by a government utility to meet its mitigation needs may be held by the conservation agency of that government.

More commonly, once the banks credits are sold out, the Agreement may provide for the title to be transferred. In this instance, the bank owner has exhausted economic value of the bank. As the agreement and easement prescribes perpetual conservation management (ruling out other economic developments), the bank owner may simply wish to divest himself of the title.

NSW Context
To provide the security needed by government and the community that a conservation banking scheme is meeting conservation goals, it is essential that banks be managed for conservation in perpetuity.

In NSW, there are already mechanisms to achieve this, either a Voluntary Conservation Agreement under the NPW Act, or a Registered Property Agreement under the NVC Act. These can be operated by the NPWS, DLWC, or the Nature Conservation Trust of NSW.

If credit sales are to be capped at the value equivalent to covenant value plus intital establishment costs (see Section 2.9), landholders would be unlikely to support transfer of the full title to an agency.

Recommendations
2.7.1 That bank sites be secured by a Registered Property Agreement under the *Native Vegetation Conservation Act 1997* or a Voluntary Conservation Agreement under the *National Parks and Wildlife Act 1974*.

2.7.2 That the agreement be negotiated with, and held by, either the Department of Land and Water Conservation, NSW National Parks and Wildlife Service, or the Nature Conservation Trust of NSW.

2.7.3 That the Agreement's term be 'in perpetuity'.

2.7.4 That the Conditions attaching to the Agreement are consistent with, and re-inforce, the agreed Plan of Management.

2.7.5 That the Agreement be executed concurrently with the signing of a Banking Agreement.

Footnotes
Full citations are included in the Reference section
1. C. Bean pers.comm.
2. D. Mead pers.comm
3. S. Teresa, pers.comm
4. Toyon Consultants

ESSENTIAL ELEMENTS OF A BANKING SYSTEM.

2.8 Conservation Banking Agreement

Summary
The establishment of a conservation bank involves a range of stakeholders. They must consider a range of complex financial, environmental, legal and administrative issues.

In order to consider these issues from a range of perspectives, these stakeholders are represented on a Bank Review Team.

The Review Team prepares a Conservation Banking Agreement, and its members will ultimately sign this Agreement once resolution of these issues is achieved.

The Conservation Banking Agreement usually comprises the Instrument of Agreement (Legal Contract) plus

- *Title search*
- *Plan of bank site, inc. bank phases*
- *Biological resources report*
- *Land Management Plan*
- *Conservation easement*
- *Property Analysis Report*
- *Rules relating to endowment account*
- *Schedule of credits*

The time-frames involved in the preparation of the Agreement are lengthy – three years is not uncommon.

According to industry, this is a major disincentive for landowner involvement in conservation banks, and legislation has been introduced to Congress to provide standard procedures, with time-frames, for the operation of Bank Review Teams.

The establishment of a bank is a complex matter. All of the factors dealt with in Section 2 of this report must be considered, and agreement with all the stakeholders must be reached.

To facilitate this process, a Bank Review Team is established in the early stages of negotiation. This will usually occur after the land-owner, or prospective bank-owner or operator, has conducted his own feasability study which concludes that the site is economically viable as a bank.

Membership of the Review Team
The Bank Review Team is usually comprised of[1,2,3]:

- Representatives of agencies which authorise the bank to sell credits to which offset the mitigation requirements they condition in their permits. This could include federal, state and county agencies.
- Parties to the bank, including land owner, bank operator, land manager, endowment manager and any other parties involved.
- Others co-opted for specific purposes, e.g., consultants who prepare the Biological Resources Report.

The Review Team does not usually include representatives from the broader community. However, where a Natural Communities Conservation Plan has been developed with community consultation, banking systems are implemented according to that plan.

Banking Agreement
The Conservation Banking Agreement (referred to as the *Mitigation Banking Instrument* for banks established under the federal *Clean Waters Act*) is a legal contract, the recitals setting out the interest of all parties.

Additionally, it will include the following exhibits or schedules:

- Legal Description and survey plan of the parcel
- Land Title Search report
- Plan showing bank phases, where applicable.
- Biological Resources Report
- Conservation Easement
- Plan of Management
- Property Analysis Record, including details relating to funding of the endowment
- Schedule of credits approved for sale.

Timeframes

The time taken by a Bank Review Team to finalise a Banking Agreement may be anything from 18 months to four years. Timeframes up to three years are not uncommon.

The 'banking industry', represented by the National Mitigation Banking Industry (NMBA), considers that the time taken by Review Teams is a major factor in determining the economic viability of a new bank, and therefore contributes substantially to the cost of credits[4,5]. Reasons for this delay include:

♦ Biological survey

There is an array of classification systems for credits, either wetland credits (with a variety of classifications for different wetland types), habitat types (based on habitat for endangered species), or species-specific credits (e.g., Red-legged frog credits). These classification systems each require a unique survey and verification methodology, and agreement must be reached in the Bank review team as to which parts of the bank can sell which types of credits.

♦ Agency review

Another factor commonly referred to is that government policy to establish and politically support banking systems have not been followed by adequate resources for its agencies to implement the policy. Agency review is therefore a time-consuming factor in the process.

Lack of standard contents

Banking Agreements vary widely across the range of banking schemes which operate in the US. Whilst certain elements are common to all agreements, there is not one standard pro-forma for agreements and necessary exhibits across the programs.

Statutory guidance

As mentioned in Section 2.1, there is no over-arching legislation for conservation or mitigation banking schemes. What legislation does exist deals with specific aspects of banking schemes (e.g., public databases) or refers only to specific regions of some States.

One of the aims of the American Wetland Restoration Bill[6], which has been tabled in Congress, is to cut the time involved in preparing a Bank Agreement. It sets out a process for preparing an agreement, and timelines for each part of the process.

New South Wales context.

A Banking Agreement is a necessary instrument to ensure commitment to the bank by all parties, to ensure that the bank operates in a way that conforms to community expectations, and that it can achieve stated conservation objectives.

If conservation banking is to establish in NSW, it is clear that a Banking Agreement must be able to be negotiated expeditiously.

This would be greatly assisted by the

- adoption of a single uniform classification system for credits, based on vegetation types

- agreement on the standard contents of an Agreement
- by ensuring agency resources are adequate to deal with the demands generated by a banking scheme
- by overarching policy and procedural documents agreed to by all relevant State agencies and local government.

Recommendations

2.8.1 That a Conservation Banking Review Team be established for each proposed Conservation Bank, to prepare a Banking Agreement.

2.8.2 That it comprise representatives of DLWC, NPWS and the relevant local government authority, and all parties to the agreement.

2.8.3 That policy and procedural guidelines be developed, with DLWC the lead agency, to guide the process and provide recommended timelines, standard Agreement contents and pro-formas.

2.8.3 That these guidelines be agreed to by all relevant State agencies and the Local Government and Shires Association of NSW.

2.8.4 Legislation (if deemed necessary) be informed by the implementation of these guidelines.

Footnotes

Full citations are included in the Reference section.

1. C. Bean pers.comm.
2. D. Mead, pers.comm
3. D. O'Neill, pers.comm
4. L. Lautin, pers.comm
5. C. Denisoff, pers.comm
6. American Wetland Restoration Act H.R. 1474 http://thomas.loc.gov

ESSENTIAL ELEMENTS OF A BANKING SYSTEM.

2.9 Credit sales

Summary:
Once the Bank Agreement is signed by all the parties, the bank is authorised to sell credits.

Some banking systems require that the sale of credits be staged, in response to environmental performance criteria being met.

Credits are sold at a value determined by the market. Factors which influence market price are the cost of establishing the bank, such as land purchase, consultants reports, mapping and survey, and site management.

Bank operators, however, need to ensure that the credits they sell are a cost-effective option for potential buyers – that is, they are cheaper than the developers buying and managing their own land for their mitigation needs.

Bank operators may decide to retain the services of a sales agent to sell credits.

The market for credits is driven by urban and industrial expansion, and hence, banking systems are not well-established in rural areas.

Bank operators are required to keep a database of credit sales, for reporting to agencies. Some agencies require that the credit transaction be approved prior to sale. Additionally, agencies are required by law in California to maintain a public register of credit sales.

Once the Bank Agreement is signed, the bank is 'in business' and can sell credits on the open market.

Timing of credit sale
Wetland Mitigation Banking Instruments will specify the environmental criteria which must be met before 'the next batch of credits' can be sold. For instance, a bank may be allowed to sell 20% of its credits each year over 5 years, provided that annual performance criteria are met.[1,2]

Conservation Banks established to meet the requirements of the California DFG may sell all their credits immediately[2].

Price-setting
The price of credits is set by the bank operator in response to market conditions. For the bank to be profitable, the price will reflect the costs of establishing the bank. These include:

- Land purchase (or land value if title is already held)
- Feasibility studies
- Consultants reports, including the Biological Resources Report
- Survey and mapping
- Establishment costs such as constructed wetlands, or other initial environmental remediation
- Agreed contribution to the management endowment
- Marketing costs

In setting credit price, the bank operator will consider the return on investment required to undertake the project, i.e, the anticipated profit margin[3].

The bank operators must be careful to ensure that the cost of credits is a cost-effective option for potential buyers. Potential buyers could buy their own land for their mitigation needs, provided that they also have the long-term management commitment which can meet the goals of the Bank Agreement.

By buying a credit, they are transferring responsibility for mitigation to the bank operator, and need make no long term commitment to meet their own mitigation needs[4]. They by the credit, walk away, and get on with their own development – leaving the mitigation to a bank operator with greater skills and expertise in environmental management.

Though this in itself is attractive to developers, the price of credits needs to also be realistic if the trading system is to be successful.

Credit prices vary considerably across the United States. In southern California and Florida, where land costs are high and development is proceeding apace, a single credit may cost $100,000 or more. In other areas of California, prices tend to range from $40,000 to $70,000 per credit, whilst in rural areas, wetland mitigation credits command between $2,000 and $10,000[3,5].

Credit buyers

The cost of credits in California is generally too high to be attractive to farmers, as the returns from agriculture are insufficient for most agribusinesses – even intensive agriculture –to justify the outlays required for credit purchase[6]. In any case, rural properties may be more able to undertake their own mitigation.

Banking systems in the United States are driven more by urban development. The returns from subdivision and urban development set the market prices for credits. Therefore, credit-trading and banking systems are only well established in the more populous areas of the country, such as southern California, Florida, and the north-east.

Banking systems have been established in response to these demands, and there appears to be far less potential for these systems, as currently framed, to operate in rural areas.

The high price of credits may present an opportunity for farmers to get higher per-acre returns from conservation banking than from farming. However, several factors are at play to make this a difficult proposition, including[6,7]

- The limited service areas to which a bank can sell credits
- A requirement for mitigation to be "in kind"
- Administrative and technical complexity of bank establishment and operation

There is also potential for philanthropic bodies with an interest in conservation to purchase credits to support habitat restoration activities.

Marketing credits

Bank operators need to effectively market their product – conservation credits – if the bank is to get the returns it needs to be viable.

As a relatively new business, effective marketing has been a challenge for some bank operators – especially those outside major development areas where demand is high.

In response, a number of 'mitigation sales' companies have risen, which act on behalf of the bank to market credits to potential clients. Their fee is usually 10% of credit price[1].

The most important market information used by these sales agents are development permits issued by federal, state and county agencies[1,3]. (Analysis of permitting trends is an important part of forecasting sales and in bank feasibility studies – see Section 2.2)

Some bank operators have found that agencies have directly assisted in finding buyers for credits. However, given that the site is permanently protected by conservation easement once the first credit is sold, some bankers find that, after the

easement is executed, agencies are generally more interested in securing additional sites with easements – and that agencies may even direct credit buyers to these newer banks[6,8].

Some have questioned that this is a role for government at all. Issues of government 'interference' in the market place – or 'picking winners' – have been raised.

To overcome this, the California State Congress recently passed legislation to require the Department of Fish and Game to keep a database of all permits issued which require mitigation through credits, and also the credit status of all banks. This database will be publicly available. It will assist bank operators to find buyers for credits, and will make the role of government in the market place more transparent[9].

The legislation was supported by both conservation groups and the banking industry[3,9,10]. It came into effect on July 1, 2001.

New South Wales context

The high price of credits in southern California is driven by the demand from the extraordinary residential growth. It also reflects the technical and administrative costs in establishing a conservation bank.

If credit-trading systems are to be introduced in rural NSW, it is clear that the cost of credits must be realistic to attract rural buyers. This will mean ensuring that costs of bank establishment are minimised, whilst still meeting environmental goals.

The classification of credits according to vegetation type, and the ability for a debit holder to 'trade up' to buy credits of other types of a higher conservation status, would potentially enable rural landholders to sell credits to urban developers.

To facilitate this, a public register of approved debits and credits needs to be maintained.

A goal of such a system must also be to protect significant natural areas, by providing alternative income streams for rural landholders. To achieve this, fuller participation from rural landholders as bankers must be stimulated.

A method for facilitating this involvement could be to cap credit sales from a bank site (provided landholders expenses and opportunity costs have been met) and for any overflow to go to other bank sites.

Recommendations

2.9.1 Credit sales should be notified to government within 30 days.

2.9.2 Government agencies should keep a register of approved credit and debits, which is publicly available, as market information to assist those involved in the scheme, and to facilitate public scrutiny of the scheme's effectiveness.

2.9.3 If the scheme is to be effective across rural NSW, credit service areas (to which a bank is allowed to sell credits) need to be relatively large.

2.9.4 To facilitate greater landholder involvement and to secure conservation goals, credit sales could be capped at a value equal to the bank's covenant value plus initial establishment costs.

Footnotes

Full citations are included in the reference section

1. L. Lautin pers.comm
2. K. Lawrence, pers.comm
3. C. Denisoff, pers.comm
4. Marsh *et al* (1996)
5. K. Lawrence, pers. comm.
6. B. Blodgett, pers.comm
7. J. Rickert, pers.comm
8. D. Macon, pers.comm
9. C. Bean, pers.comm
10. J. McCaull, pers.comm

ESSENTIAL ELEMENTS OF A BANKING SYSTEM.
2.10 Monitoring and reporting

Summary:
When the bank is fully operational, its performance is monitored and reviewed

Environmental monitoring occurs annually to ensure that the Plan of Management is being adhered to, and that the bank's performance goals are being met. Evidence of this may be necessary for agencies to approve the further release of credits for sale.

Financial reporting occurs to ensure that the endowment account, and other moneys, are being managed in accordance with any clauses included in the Agreement.

Bank operators are required to report to agencies on these matters annually. Credit sales are tracked, and the details of credit sales included in a public register.

When a conservation bank is established and operational, the bank operator is required to maintain records to document the functioning of the bank. This documentation must relate to a range of factors:

- demonstration of adherence to Plan of Management
- ecological monitoring
- financial monitoring, both for credit sales and the management of the endowment fund.

Adherence to Land Management Plan
Annual reports must be completed demonstrating adherence to the Plan Of Management. These reports are sent to the Dept. of Fish and Game, who may also carry out a compliance check of the bank[1]. (Banking Agreements provide for right of access to DFG officers).

Ecological monitoring
Additionally, the Land Manager may be responsible for conducting surveys of habitat types and targetted species. The survey will also record the degree of ecological gain that has occurred as a consequence of the implementation of the Plan of Management. These surveys are reported to DFG, who may adjust the land management plan in response to the findings of these surveys.

Generally, general vegetation surveys are conducted annually, with targetted flora and fauna surveys occurring every 3-5 years[1]. Targetted surveys are crucial for banks which sell credits for endangered species[2].

Credit transactions
Bank operators are required to maintain a database of the credits sold and the corresponding amount of area conserved. Annual reports are submitted to DFG showing the year's activity, together with cumulative transactions since the bank began operations.

Agencies also keep a database of credit sales. The Federal Fish and Wildlife Service maintains a comprehensive database for each bank that they authorise to sell credits[2]. DFG is now required to maintain a public database of all credit and debits[3].

Endowment Fund
The land manager may also be required to report on the performance of the endowment fund, both money spent from the fund, and interest received.

Release of credits subject to monitoring.
Under the Mitigation Banking program administered under the federal *Clean Waters Act*, wetland banks may be required to demonstrate environmental performance before credits are approved for release[4,5].

In these banks, the Plan of Management will set out milestones, or performance standards, which must be achieved before the next batch of credits can be approved for sale. For instance, the Everglades Mitigation Bank in Florida (which originally had severe environmental weed problems, notably the Australian *Melaleuca* and *Casuarina*) had to achieve 95% native plant cover by its 5th year[5]. The purpose of the monitoring program is to determine whether these environmental performance standards, as set out in the Banking Agreement (in the Plan of Management) had been met.

The release of their final credits for sale is dependent on this goal being met. Generally, wetland banks have milestones in each of their first 5 years. The percentage of credits which can be released in each of these 5 years varies from bank to bank.

Failure to achieve goals.
Perhaps the greatest danger inherent in any biodiversity credit-trading scheme is that, after credit sale, the anticipated ecological benefits do not occur.

One study on wetland mitigation found that whilst the laws are sufficient to provide for effective mitigation, the documentation in permit files is insufficient to determine whether or not mitigation is, or is not, in compliance[5]. DFG has found that less than 20% of its regional files on conservation banks are adequately maintained to determine compliance[6]. Clearly, agencies need guidelines and resources to undertake and document monitoring and compliance.

If the monitoring program finds that the Plan of Management is not being adhered to, or has not resulted in environmental standards being met, the bank has failed. The assignment of liability is an important issue, but "existing banking schemes are not extremely helpful in specifying liability"[7]. It is not the purchaser, as they have offloaded their mitigation responsibility by buying the credit. Potentially, it could be the bank operator, the land manager, or the agency.

New South Wales context
Monitoring is undertaken with respect to both Property Agreements under the NVC Act, and Conservation Agreements under the NPW Act. DLWC Regions monitor 10% of all agreements annually. Monitoring and compliance functions have been located in Compliance Units in each DLWC Region. It is anticipated that these units would undertake monitoring and compliance functions with respect to bank sites.

Ecological monitoring should be undertaken by the Land Manager, which would ideally be the same organisation which conducts the surveys for the Biological Resource Report.

The task of compiling and maintaining a public database of credit transactions is a critical one and would need to be resourced by government.

Recommendations
2.10.1 That the bank operator, in conjunction with the land manager, be required to furnish an annual report.
2.10.2 That the Land Manager undertake ecological monitoring of the bank site, at least every 5 years.
2.10.3 That conservation banks be subject to a random audit with respect to adherence to the Bank Agreement, and specifically the Land Management Plan.
2.10.4 That a comprehensive database be established to monitor credit transaction from banks, as part of the public register of credits and debits.
2.10.5 That the party that carries liability for the delivery of credits in perpetuity be clearly identified

Footnotes
Full citations are included in the reference section.
1. Toyon Environmental Consultants
2. D. Mead, pers.comm
3. D. O'Neill, pers.comm
4. S. Collins, pers.comm.
5. Ctr for Natural Lands Mgt (1994*)
6. C. Bean, pers.comm
7. McElfish and Nicholas, (1996)

SECTION THREE
ANCILLARY PROGRAMS

3.1 Non-profit organisations

3.2 Conservation easements

3.3 Tax incentives

3.4 Farmland and open space conservation programs

3.5 U.S.D.A. programs

Section 3: ANCILLARY PROGRAMS

3.1 Non-profit organisations

Summary

The successes achieved in private-land nature conservation in the US can be attributed in large measure to the role played by non-government, not-for-profit organisations.

They play a pivotal role in negotiating deals with landholders with none of the attendant suspicions or constraints that characterise similar negotiations with government agencies. Additionally, they are able to secure private investment to a greater degree than government agencies are able to do.

Non-profit agencies include Land Trusts, conservation organisations, and philanthropic foundations. They are fostered by government through provisions of the federal Internal Revenue Board, which sets criteria for non-profit status which enable such bodies to be 'qualified conservation organisations'.

However, no assessment is made of the conservation expertise of monitoring / management standards of these 'qualified conservation organsiations'.

There are a large number of not-for profit, non-government organisations active throughout the US, achieving great things for private land nature conservation – and, their numbers are growing.

They are facilitated by favourable tax legislation, by community interest in land conservation, and by the large amount of private capital in the US, some of which is channelled through philanthropic organisations to secure tax benefits and other corporate goals.

Land Trusts

Land Trusts are predominantly non-profit local, regional or statewide organisations that work with private landowners to protect their land for conservation, recreation, or other public benefit[1]. They work to acquire land, conservation easements, management agreements or other interests to enable public benefit from private land.

Each Land Trust will have its own mission statement, specific to its setting or region. Viewed collectively, Land Trusts can achieve a great deal because of the range of scales at which they operate, and the range of partners with which they work.

The 'Land Trust movement' has shown extraordinary growth over the last 10-20 years. In 1950, there were 50 Land Trusts in the US. By 1980, there were 200, and there are now over 1,200 supported by 900,000 members across the country[1].

In 1998, they collectively owned 828,000 acres of land, held conservation easements over a further 1,385,000 acres, and had acquired 2,487,000 acres which had been transferred to third parties. A further 1,764,000 acres had been protected by other means, including deed restrictions, and purchase of mineral rights, among others[1].

The majority of Land Trusts engage in other activities, such as maintaining public access for recreational purposes, public education and outreach, and land-use planning.

The role of Land Trusts as an access point for landholders seeking options about protecting their land is critical, and their community base makes this role possible.

There are four basic legal requirements that must be met in the formation of a Land Trust[2]. These are:

- That it is an incorporated body
- That it has received federal (and, if applicable, state) tax exempt status under section 501(c)(3) of the Internal Revenue Service Code.
- That it complies with its requirements for retaining its tax-exempt status, including prohibitions on private inurement and political campaign activity.
- That it meet its reporting requirements.

These basic legal requirements do not refer to standards for conservation land management or monitoring compliance – although these are referred to as essential undertakings in the Land Trust standards and practices guidebook[2], prepared by the Land Trust Alliance to guide individual Trusts.

Provided that a Trust complies with these basic legal requirements, it can legally hold easements, regardless of its track record in conservation management.

There is some evidence of lack of compliance in monitoring[3], as discussed in section 3.2 of this paper, and the requirement for auditing of a Trust's conservation functions may be an important next step in the development of the movement.

Whilst the community base of Land Trusts is similar to the Landcare movement in Australia, landcare-type activities are more commonly conducted by Resource Conservation Districts, facilitated by (but independent from) the US Department of Agriculture.

Conservation organisations

The range of conservation organisations in the US, as elsewhere, demonstrates the diversity of niches that must be filled for effective representation of conservation viewpoints.

Increasingly, it seems, conservation organisations are attaching greater importance to the role of 'hands-on', active involvement in the identification, purchase, and management of land.

Whilst some organisations concentrate their efforts on campaigning, a large number are doing deals with landholders and government to secure parcels of important conservation land.

This can create some interesting challenges for the conservation movement.

Issues such as urban sprawl have seen these organisations involved in the purchase of easements to limit development but allow the continuation of ranching. Some have questioned the role of their organisations investing in land where grazing (even with specified limits) continues as a land use[4].

Attaining non-profit status under s501(c)(3) of the IRS Code enables conservation groups to be involved in much the same activities as Land Trusts – but limits party-political activity.

This has led to what could be viewed as a dichotomy of conservation organisations – active party-political campaigners, and active land management practitioners. Both have a legitimate role. The latter seems to be an inevitable consequence of the need to protect more and more areas of America's land from development, and the necessity dictated by that goal of turning stakeholders into partners.

The success of this approach is demonstrated by The Nature Conservancy, which owns 12 million acres of conservation land[5] and is one of the top 10 charities in the US.

Private foundations
Land Trusts and conservation organisations must have access to funding to achieve these goals. Whilst the tax base in the US is large enough to enable governments to make substantial contributions to these groups through various programs, the existence of and role played by private philanthropic organisations is also fundamental to their success.

Several hundred million dollars is donated annually for land and nature conservation purposes in California. One prominent foundation, the Packard Foundation, annually donates US$135m[6].

Philanthropic organisations are encouraged to do so because of the favourable tax status they receive, provided that they donate at least 5% of their capital to charitable organisations each year. Tax incentives are discussed in Section 3.3 of this paper.

NSW Context
Support for community-based conservation in NSW has increased dramatically in the last decade, and has led to the development of over 1,400 Landcare groups throughout the State[7]. Their role includes community education and awareness, the development of catchment plans for improved land management, and the implementation of on-ground works such as re-vegetation, riparian protection, and soil erosion control works. As such, the existence and continuity of the Landcare movement is critical for the achievement of conservation goals.

However, their role does not usually involve legal interests in land. They generally do not buy or sell land, or rights in land, such as conservation covenants, water allocations or mining rights.

Yet the ownership of rights in land is increasingly recognised as fundamental to secure the private and public investment necessary to achieve conservation goals.

Several conservation groups in Australia now have active land acquisition programs.

How can the twin goals of local community involvement on the one hand, and ensuring a legal / institutional capacity to deal in and manage land on the other, be married?

Landcare groups could expand their role, or alternate trusts to deal in land (like the US Land Trusts) could be formed.

The soon-to-be established NSW Nature Conservation Trust could act as umbrella for the formation of regional Trusts, responsive to local conservation priorities, but able to call on the expertise of a State-wide body for assistance with legal and financial transactions. The State-wide body would also provide a quality-assurance role with regard to the conservation management activities of the regional Trusts.

It will also be necessary to develop the role of philanthropic organisations, through appropriate tax treatment for conservation and the marketing of land conservation priorities to these bodies.

Recommendations.
3.1.1 That regional non-profit organisations be established to deal in, and manage, land for conservation purposes.
3.1.2 That consideration be given to the NSW Nature Conservation Trust acting as an umbrella body for these groups.
3.1.3 That the ability of philanthropic organisations be developed to support the activities of conservation organisations and (if established) regional Trusts.

Footnotes
Full citations are included in the reference section
1. Gustanski, 2000
2. Land Trust Alliance, 2000
3. Bay Area Open Space Council, 1999
4. Stolzenburg, 2000
5. www.nature.org
6. S.Teresa, pers.comm.
7. www.dlwc.nsw.gov.au/community/landcare/index.html

ANCILLARY PROGRAMS
3.2 Conservation easements

Summary
The 'Conservation Easement' is a legal instrument used to protect a parcel of land in perpetuity. An easement is, for practical purposes, analagous to a 'conservation covenant' in Australia.

Conservation Easements are widely used, and for a range of purposes. Easements for farmland or open space protection, forest resource use, or biodiversity conservation, are all termed 'conservation easements'. The instrument is the same, but the conditions attaching to it vary.

Methods for valuing easements are widely accepted, and carried out by accredited appraisers. Easements are commonly bought by agencies and non-profit organisations, or alternatively are donated to them by landholders who are encouraged to do so by certain tax advantages.

Easement valuations are central to the success of these instruments, as they form the basis for purchase price and / or tax incentive calculations.

Monitoring and compliance of easement conditions varies widely, and better compliance standards may be needed.

The Conservation Easement (for practical purposes, analogous to a conservation covenant in Australia) is a widely-used tool for land and nature conservation in the US. The holder of the conservation easement has certain rights over the property, in perpetuity, whilst the landholder maintains ownership of land title.

Purposes and conditions of easements
Conservation easements are used for a multitude of purposes. These include[1]

- To retain or protect natural, scenic or open space values
- To ensure the availability of real property for agriculture, forest, recreational or open space use
- To protect natural resources
- To maintain or enhance air or water quality
- To preserve the historical, archaeological, architectural or cultural aspects of real property

Restrictions and obligations
The instrument is the same, but the conditions attaching to it vary to match its purpose. In this way, each and every easement can have "its own set of rules"[1]

This is done by imposing restrictions and limitations on land use within the easement. In some cases, an easement can also create affirmative obligations for landholders (i.e., to perform certain acts), although this can create difficulties with compliance, especially in the long-term[1].

Conditions on conservation easements used by The Nature Conservancy (TNC) in one of its' Californian programs[2] serve as a useful guide to what conditions would attach to a biodiversity conservation easement. In summary, they include (*inter alia*):

- The right of the TNC to enter the property for monitoring and compliance, and to carry out specified land management functions
- The right of the landholder to graze livestock in accordance with specified limits, to maintain identified water points, to maintain existing improvements, and to engage in a range of specified non-commercial uses

- The prohibition of additional specified buildings and infrastructure, dumping of hazardous waste, subdivision, introduction of non-native species, damage to native vegetation or wildlife, among others.

The range and type of conditions attaching to the range of easements (of all types) are innumerable. It is appropriate for easements to be tailor-made for the property, and obviously they will be negotiated to the satisfaction of all parties.

Nevertheless, the plethora of conditions which can apply to easements are apparently growing, and some may give the appearance of being inimical to 'conservation'. This is causing some disquiet[3,4], as it affects the whole perception of the value of easements among landholders, agencies, philanthropic trusts, and the wider community.

Some observers believe that the standardisation of easements into a limited number of categories, such as:
- Conservation easements
- Forestry easements
- Open Space easements
- Agricultural easements

each with standard instruments, but providing for site-specific management plans, is both desirable and inevitable[3,4].

Valuation of easements

In the US, conservation easements are valued according to a set of methodologies which are becoming increasingly well-accepted[5]. Valuation reports are completed by accredited appraisers, or by property valuers. Where an easement is sold at value, the landholder will pay the appraisal fee. Where it is donated, the donee commonly pays.

Easements can be viewed as representing a 'bundle of rights' held by a third party[6]. For instance, an agricultural easement may prohibit urban development, but allow continuing agricultural production, even intensive irrigation. A biodiversity conservation easement may similarly prohibit development, but also limit grazing, woodcutting and certain recreational uses. Hence, a larger 'bundle of rights' is held in the latter example than compared with the former.

Also, the same 'bundle of rights' on two properties may represent a markedly different percentage of the full market value of those properties. This may be due to the varying development potential of the two properties.

Conservation easements are usually valued at 40-60% of full market price[3,7,8]. An easement over land on the city fringe may be valued at more than 75% of market price[3]. The value of a restrictive conservation easement over land in a remote area, with limited development potential may be only 30% of market value. On the same land, an open space easement with no restriction on agriculture may be valued at 10-20% of full market value[3].

It is widely held that easements with a value of <20% of market value are not worth buying. Conversely, where an easement represents >80% of market value, the full title should be secured[3,8].

In order to complete a valuation, an appraiser can use a range of valuation methods. These include[3]:
- Market Approach: What is the difference between existing market value, and the market value with a conservation easement?
- Income approach: What is the income potential under the two scenarios?
- Cost approach: What are the costs of development needed to realise income or market value, versus the costs of implementing conservation?

Valuation reports are a critical factor in the widespread use of easements. On the basis of these reports, the purchase value of an easement is determined. Alternatively,

where the easement is donated, the valuation is used by the donor to determine his or her tax benefits.

A mix of sale / donation for the one easement is possible. These 'bargain sales' will benefit the purchaser who pays less than the easement value[3,8]. The other portion of easement value is donated and the landholder will accrue proportionate tax benefits for that part of the easement which is donated.

Who holds easements?
Easements are bought by a range of bodies, including regulatory or conservation agencies, counties, and non-government organisations, such as conservation groups, farmer groups or timber firms, depending on the easement purpose. The importance of Land Trusts (see Section 3.1) in acting to secure easements is critical.
Landowners who wish to donate an easement will usually favour Land Trusts or conservation organisations.

Monitoring and compliance
Given the public resources that are used to buy easements, and their increasing use to secure conservation outcomes (especially to mitigate the impacts of permitted developments as in a conservation bank), it is self-evident that monitoring compliance with conditions is a critical task. It appears, however, that it is one that may not have received sufficient attention.

A study in the San Fransisco Bay Area[9] found that 51% of easements are regularly monitored. Violations of easement conditions occurred in 14% of cases. This may not seem extreme, but given that two-thirds of easements in the area were less than 9 years old, and that nearly half are not monitored at all, the scope for problems is great.

The report found that easements held by Land Trusts had >60% of all violations, followed by county-held easements (30%), and State and Federal agencies (10%).

This underscores the importance of organisations which can hold easements being accredited not only on the basis of non-profit status, but also as capable of delivering effective conservation management[10].

It also underscores the importance of some regulatory requirement for monitoring and compliance, especially given that public funds are often used to buy easements.

NSW Context
Conservation covenants, either as 'Registered Property Agreements' under the NVCA or 'Voluntary Conservation Agreements' under the NPWA, are available as conservation tools in NSW. Yet their potential to deliver conservation outcomes has barely been realised.

This may be due to a number of factors, including:
- That they are administered by government agencies.
- That they are (in American terms) required to be 'donated'.
- That funding for land management works (through the NVMF) is available sporadically.
- That their economic value is not usually assessed, and that methods for such an assessment have not been developed
- That there are limited tax advantages

The establishment of the NSW Nature Conservation Trust, which can operate both schemes as a non-government organisation, is a welcome development, and will assist the uptake of covenants.

The NSW NCT may be able to foster regional bodies which are responsive to local conservation priorities, and local landholders. This would mirror the success of Land Trusts in the US as a local body,

whilst providing assurances of professional conservation management and monitoring.

However, for the uptake of covenants to reach its full potential, the development of a valuation framework, and realistic tax and rate incentives (see Section 3.3) will be essential.

Whether the valuation of a covenant in Australia will reflect the American experience is not at all clear. Evidence in Queensland, Victoria and South Australia indicates that the execution of a conservation covenant may be either negative, neutral or positive on property valuation, and that this varies widely with regard to the region, and the purpose of the covenant[11].

The situation in NSW is unclear, but is also likely to vary widely across the State. Until there are methods trialed for valuing conservation covenants in various regions of the State, the situation will remain unclear.

Work on the development of a valuation methodology should be a priority to test this. Such a trial could be run in conjunction with the trial of the Environmental Services Scheme.

Recommendations

3.2.1 That conservation agreements or property agreements be negotiated by regional bodies (refer to recommendation 3.1.1)

3.2.2 That methods be developed for valuing covenants and easements in NSW, in consultation with the Real Estate Institute

3.2.3 That these methods be trialed in conjunction with the trial of the Environmental Services Scheme.

Footnotes

Full citations are included in the reference section

1. Mayo, T (2000)
2. J. Jacobsen, pers.comm
3. J. Rickert, pers.comm
4. J. McCaull, pers.comm
5. Land Trust Alliance (2000*)
6. Gustanski, J (2000)
7. D. Macon, pers.comm
8. N. Schaefer, pers.comm
9. Bay Area Open Space Council
10. S. Teresa, pers.comm
11. Skitch, R (2001)

ANCILLARY PROGRAMS
3.3 Tax incentives

Summary
The achievements in private land conservation in the US are underpinned by a comprehensive system of tax incentives. These incentives encourage conservation actions by landholders, and also encourage the growth of philanthropic organisations which support other agencies and organisations.

Whilst a full treatment of US tax provisions with respect to conservation land is beyond the scope of this paper, the issue warrants this separate section to highlight the importance of these initiatives.

The issue has also been raised in Australia by a number of authors and organisations, and the implementation of their recommendations will be central to achieving stated government objectives for 'no net loss' of native vegetation.

The following is not a comprehensive guide to federal US tax law relating to conservation easements, but a summary of the main tax tools used that acts as incentives to landholders.

Charitable gifts:
A gift to a charitable (non-profit) organisation can be deducted from gross income for income tax purposes. The value of a conservation easement, if substantiated by an appraiser and subsequently donated, is such a gift.

The limit for gifts is 30% of gross income, so if the value of the easement exceeds this, the balance can be carried forward for income tax purposes for up to five years[1].

Alternately, if donating property, the value of the property when purchased or inherited can be deducted, up to 50% of gross income over 5 years.

Property taxes
A conservation easement will ensure that property taxes ('rates') are calculated on the value of the property minus the easement value, significantly reducing the burden on landholders.

Estate taxes
As a conservation easement generally lowers the full market value of the land, it will lower the value of the taxable estate[1]. Again, these values are documented in an appraisers report.

Further to this, an additional 40% of the value of the land (even after the easement value is subtracted) may be deducted under certain circumstances[2].

Original Property value:	**$2m**
Easement Value	$1m
Property value with easement	$1m
S2031(c) exclusion of 40%	$400,000
Taxable estate:	**$600,000**

Post-mortem easement donation
Additionally, a conservation easement can be placed on the land by the heirs of the estate. This will reduce estate taxes, even where the deceased had never placed a conservation easement over the property during his or her lifetime[2].

Further reading:
For a fuller discussion of the US tax treatment of conservation land, refer to Small (2001), Gustanski and Squires (2000) and Land Trust Alliance (1999).

New South Wales context
There have been numerous reports and papers documenting the necessary amendments to local, State and Federal taxation laws that are required to encourage nature conservation on private land.

The R&D program of Land and Water Australia and the Centre for Sustainable Ecosystems at CSIRO have been instrumental in providing this analysis. Some reports include:

- Binning and Young (1999) *Talking to the taxman about nature conservation*
- Binning, Young and Cripps (1999) *Beyond roads, rates and rubbish – opportunities for local government to conserve native vegetation*
- Binning and Young (2000) *Philanthropy – conserving the land.*

Full citations are included in the reference list at the end of this report. The latter has a particularly useful summary of the distinctions between US and Australian taxation laws affecting conservation, with a number of recommendations on the necessary amendments required to Australian tax law.

Some recommendations have already been implemented, including:

- Exemption of capital gains tax from sale of land with conservation covenant.
- Apportionment of gifts of conservation land over 5 years
- Recently announced tax incentives for land held under conservation covenant.

However, a number of recommendations remain unaddressed. Additionally, NSW State Land Tax does not have any provisions relating to land covered by a conservation covenant.

Given that financial considerations lie at the heart of most land use decisions by private landholders, the amendment of rate and taxation legislation is essential to reflect stated government objectives of 'no net loss' of native vegetation.

In so doing, we may finally see *'Pitt St farmers encouraged to become Pitt St conservationists'*, as well as enabling the broader community to receive *'good conservation advice from their accountants'*.

Recommendations
3.3.1 That the recommendations of previously commissioned reports regarding Federal taxes and their impact on conservation be implemented
3.3.2 That State Land Tax have separate provision for conservation land.

Footnotes
Full citations are included in the reference section
1. Land Trust Association (1999)
2. Small (2000)

ANCILLARY PROGRAMS
3.4 Farmland and Open Space conservation programs

Summary
The high rate of population growth in California is leading to pressure from urbanisation or 'sprawl'. Innovative schemes have been developed to ensure that the land base for agriculture is maintained, and that open space is protected.

They include government-funded schemes to purchase conservation easements, and schemes in which landholders enter a contract to not subdivide or develop their land, in return for property tax and rate benefits.

The contract-based schemes have been staggeringly successful, with over 16 million acres subject to these contracts.

California's high rate of population growth is fuelling a boom in suburban development. This 'sprawl' is occurring on land which was previously open space, or farmland. For many years, there has been concern that urban sprawl could consume valuable agricultural land that would threaten California's position as the United States' number #1 agricultural producer, and also threaten California's scenic landscapes.

Given that urban subdivision is a lucrative proposition for many landholders, innovative schemes needed to be developed which would protect farmland and open space by providing economic incentives to landholders as an alternative to selling to developers.

Whilst these schemes do not have biodiversity conservation as their primary goal, maintaining large tracts of land as open space is essential in keeping conservation options open. Also, the mechanisms these schemes employ could equally be applied to biodiversity conservation programs.

Easement-based programs
The California Farmland Conservancy Program provides funding for groups and organisations to purchase conservation easements over farm and range lands[1]. Section 3.2 of this paper outlines basics of conservation easements. The conservation easements bought under the CFC Program do not have conditions relating to biodiversity conservation. Indeed, their main intent is to maintain productive farmland into the future. All such easements will have a condition that the land cannot be developed, i.e.[2]:

- Re-zoning is prohibited
- The number of new structures on the farm is limited
- Subdivision is restricted.

The granting of moneys to purchase the easement does not require the grantee to develop a Property Land Use / Conservation Plan[2]. But it would not preclude USDA preparing such a plan for the property. (see section 3.6)

The main applicants for grants under this program are Land Trusts (see Section 3.1). The State of California contributes $6-10m annually for the program, and the Federal US Government contributes $10-20m annually for the whole USA. Approximately 25,000 acres is held under an open-space / agricultural conservation easement in California[2].

Contract-based programs
A somewhat different approach is the use of a contract to secure a property as farmland or open space. The Land Conservation Act (often referred to as the 'Williamson Act', after its proponent) provides for property tax relief for landholders entering the scheme[3].

A landholder enters into a contract with their local government (county) for a 10 year period, which is renewed every year unless termination proceedings are initiated (see below). The landholder agrees not to develop their land, and in return, receives a property tax assessment based on generated income, rather than potential market value of the property[3,4]. This translates to savings of $35.73 per acre for horticultural land, and $5.60 for grazing land (1988/89 values)[4].

Counties receive a partial subvention of foregone revenue from the State government. This amounts to $40m/yr, but as the State also foregoes State property taxes. The total impost on the State is approximately $125m[2].

A landholder may exit the contract, but effectively only with 9 years notice. If the contract is not renewed when due annually, property taxes will gradually increase to their full level over the remaining 9 years of the life of the contract. Alternatively, the landholder may opt out of the contract immediately, but only under specific circumstances, and with the payment of a fee equal to 12% of the full market value of the property[3,4].

The "Williamson" contracts do not preclude a conservation easement being bought over the land, but would significantly reduce the easement value[2]. The system has been extremely successful with 16 million acres, or 50% of all private land in participating counties, being enrolled in the program[3].

The scheme, obviously, comes at a cost to the State Government. But its longevity – approaching 40 years - indicates that it is considered to be a cost-effective option for land conservation by Government. Its success also indicates that it has been, and continues to be, favourably received by landholders.

Perhaps this is because the incentives are attractive to landholders as they are delivered annually, and without requiring an 'in perpetuity' commitment. For government and the wider community, the exit provisions also provide a high degree of certainty over the future of the land base. Importantly, it does not preclude future conservation options, including the use of conservation easements.

NSW Context

The use of easements, or covenants, in NSW is discussed in Section 3.2. The powers of local government to influence conservation outcomes has long been recognised, and the potential to use differential rating schemes is often viewed as a key tool to achieve this[5,6]. However, they have generally not been adopted by NSW Councils. The chief concern of local government to such schemes is the potential loss of rate revenue.

The 'Williamson Act' in California, however, provides an example of a mechanism by which rate relief could be introduced, perhaps in target bio-regions or local government areas, in NSW.

NSW Agriculture is concerned at the potential loss of agricultural land to other forms of development. The use of covenant and contract based schemes may provide examples of possible approaches.

Recommendations

3.4.1 That a contract-based scheme, similar to the 'Williamson Act', be considered as a mechanism for introducing rate relief for private conservation land in NSW.

3.4.2 That consideration be given to establishing trials of the scheme in target bio-regions.

Footnotes

Full citations are included in the reference section

1. California Dept. of Conservation (2000)
2. E. Vink, pers.comm.
3. California Dept. of Conservation (2001)
4. University of California (1989)
5. Binning, (1999)
6. Bateson (2000)

ANCILLARY PROGRAMS
3.5 U.S.D.A. Programs

Summary:
The US Department of Agriculture (USDA) administers a large number of programs which deliver incentives to US farmers. Landholders entering a contract receive generous cost-share for on-ground works, and / or annual lease payments.

The Conservation Reserve Program (CRP), has two delivery modes

- *a competitive bidding program, where bids are assessed against an Environmental Benefits Index, with annual application and sign-up; and,*
- *a continuous sign-up program with pre-set cost-sharing rates for protection of riparian areas.*

Additionally, the Environmental Quality Incentives Program (EQIP) combines a competitive bid process (with reference to an EBI) and a whole-farm planning process, to deliver cost-share arrangements to implement the plan.

A set of technical standards for these on-ground works are locally developed but nationally accredited.

These programs derive from the US Farm Bill. As such, they represent a delivery mechanism for agricultural subsidies.

The Conservation Reserve Program (CRP) administered by the US Department of Agriculture flows from the US Farm Bill, and therefore represents a delivery mechanism for agricultural subsidies.

There are two modes of delivery for the CRP[1]:
Annual CRP: An annual competitive tender process where landholders bids are assessed against an Environmental Benefits Index (EBI)
Continuous CRP: Landholders can sign on at any time to a pre-set cost share arrangement for the protection of riparian areas.

To qualify, land must currently be in agricultural production.

Annual CRP
The annual CRP is targeted to designated counties which have particular environmental problems, such as large areas of land identified as at risk from erosion.

An Environmental Benefits Index is developed to reflect the relative scarcity of environmental services. In effect, it is used to indicate to farmers the value of various environmental management strategies that they might implement on the farm. As they develop their bid, farmers can score their proposal against the EBI[2].

An example of the EBI used by USDA in California is included in the Appendices.

When bids are received, they are assessed against the EBI, and ranked accordingly. Each county office of the USDA will submit a list of bid proposals, including EBI scores, to the State USDA office, which determines a threshold below which proposals will not be funded[2].

Siskiyou County in northern California is one of only two counties in the State where the annual CRP operates. In an area of 6,300 square miles (with 39% in private ownership), 66 contracts had been signed by 1998, protecting 14,490 acres of land, with annual payments of $500,959[3].

Continuous CRP
Landholders can apply to USDA at any time of the year for certain 'high priority practices', which relate to the management of riparian land.

The land must be in agricultural production (i.e., cropped or grazed) and the proposal must improve water quality. Commonly, the proposal will involve fencing, revegetation and de-stocking of riparian areas, with establishment of alternate watering points[1,2].

If the proposal qualifies, the land-holder will receive[2]

- a 50-75% cost-share of on-ground works
- an annual rental payment for the land (market value)
- 'practice incentive payment' representing 40% of total cost of on-ground works
- one-off 'signing incentive payment' calculated at $10/acre/year

An example is a project resulting in the protection of 14.6 acres of riparian land, signed for 10 years. On-ground works are $39,222, for which the landholder receives a 50% cost-share of $19,611, plus a rental payment of $987/yr, plus a 'practice incentive payment' of $15,688, plus the 'signing incentive payment' of $1,460. Over the 10 year life of the agreement, USDA will pay $47,367 for this 14.6 acres[2].

It appears that a landholders 'duty of care' has not been articulated, and that any natural resource management activity can qualify for federal assistance, provided that it matches regional priorities.

Despite these very generous payments (by Australian standards), landholders response to the program has been mixed. In some regions, it is observed that landholders have a reluctance to sign with a government agency. Nevertheless, the area signed up (under both delivery modes) for the entire US is 27,623,611 acres[1].

Environmental Quality Incentives Program (EQIP)
EQIP works in areas identified as 'priority', where there are serious environmental needs and concerns, such as erosion, water quality, wildlife habitat or wetlands[4].

A Local Work Group will identify program priorities, based on these environmental concerns, and translate these into an Environmental Benefits Index.

However, EQIP will only fund farmers who have developed a plan for their whole properties which are referred to as 'conservation plans'. The conservation plans must address the range of natural resource management actions on a property, and identify works to deal with each of them. These plans form the basis for their EQIP bid, and are assessed against the EBI.

The works proposed to implement the plan must conform to one of a large number of 'Technical Practice Standards', e.g., 'fencing', 'firebreaks', 'prescribed burning' or 'tree establishment' These are locally developed and nationally accredited. Any district in the US can adopt one of the accredited standards, or more commonly, choose a sub-set of them which are relevant for their district. A cost-share ratio may be developed for each[2].

A list of these Technical Practice Standards, and copies of some, are included in the Appendices.

Landholders will list the priority actions in their conservation plan, and specify which practices they propose to implement. This, then forms the basis for their bid. The bids are then assessed against the EBI.

If successful, landholders will sign a 5-10 year contract. Payments are limited to $10,000 per year and $50,000 for the life of the contract.

Other USDA cost-share programs.
USDA offers a diverse range of programs, all of which include cost-share assistance for the implementation of works identified in a conservation plan. They include[1]:
Wildlife Habitat Incentives Program, which provides cost-share assistance for the restoration of wildlife habitat (cannot be accessed by conservation banks)
Forest Stewardship Incentives Program which provides cost-share assistance for forest management activities.
Wetlands Reserve Program which provides 75% cost-share assistance for wetland conservation and 100% of conservation easement purchase price.
Conservation Farm Option which consolidates separate payments from CRP, EQIP and WHIP.

NSW Context
The level of support from USDA for conservation programs, and the diversity of programs, is impressive. However, it seems that without a primary commitment to agricultural subsidies, they might not exist. The financial resources necessary to implement these sorts of programs is unlikely to be found within government conservation budgets in Australia.

However, the way in which these programs operate provide useful models for natural resource management programs in NSW. This is particularly relevant as enhanced delivery mechanisms are being sought to deliver programs such as the Environmental Services Scheme (ESS), the National Action Plan on Salinity and Water Quality (NAP) and the Natural Heritage Trust (NHT)

The delivery mechansims which may have relevance for NSW include:
Competitive tendering:
The concept of landholders bidding for natural resource management funding, so that they specify the cost share necessary to complete on-ground works, is being trialled by the Liverpool Plains Land Management Group in northern NSW. It is also being trialled by two catchment management authorities in Victoria. This approach necessitates the development of an EBI.
Walk-in, sign-up
The continuous CRP provides an example of a response to top-priority conservation issues, such as riparian management. The ability to walk in to an agency, sign-up immediately for cost-share assistance for action on urgent issues, as opposed to a lengthy grant application and assessment process, is a model that could be adopted.
Farm-planning
EQIP demonstrates a mechanism that links property planning to incentive payments. The concept could ensure that all the n.r.m. issues in a district can be addressed at farm scale, and that the effectiveness of that property plan in achieving those priorities can be assessed against other property plans.
Technical standards
The cataloguing of technical standards for on-ground works could be a mechanism for quality assurance of funding dispensed. Technical standards could be developed for each of the priority management actions that are detailed in the Catchment Management Board plans currently being developed.

Recommendations
3.5.1 That the implementation of CMB plans have a mix of competitive tendering, based on Property Plans assessed against an EBI, and a 'walk-in sign-up' mode for high-priority actions.
3.5.2 That the Management Actions identified in CMB plans be developed into a series of technical standards.
3.5.3 That cost-share ratios be developed for each Technical Standard, for 'walk-in, sign-up' delivery, and as maximum figures payable for a competitive tender process.

Footnotes
Full citations are included in the reference section

1. USDA, 2000
2. Joe Gassaway, pers.comm
3. Joe Ulics, pers.comm
4. USDA, 2001

SECTION 4:
OPTIONS FOR PRIVATE LAND NATURE CONSERVATION

Summary

Californian landholders have a large number of options if they want to gain financial assistance for conservation on their properties. These include:

- *Conservation banking*
- *Sale of the land*
- *Sale of a conservation easement*
- *Cost-share assistance and annual rental payments from USDA.*

Conservation Banking is just one of those options. Is it a preferred option?

When compared to all the other options, conservation banking appears not to be a favoured option for rural landholders. The reasons for this include:

- *The time and expertise required to establish a conservation bank are considerable, and may not align with the commitments necessary to continue managing a rural property at the same time.*
- *Urban development is the principal driver of the market, and as banks have limited 'service areas', there is little market for credits in rural areas.*
- *Markets for credits are limited because the reach of regulation is limited.*

These issues need to be addressed if conservation banking is to be adopted in NSW.

As stated previously, conservation banking is a concept which includes a multitude of arrangements, to achieve a range of outcomes. This is explored using a range of examples.

1. BANKING OPTIONS

1.1. The entrepreneurial bank.

In this model, an entrepreneur buys land that is suitable for a bank site. This will usually be land that has limited development opportunity because of the impact of environmental regulation.

Because of the existence of credit-trading schemes, a market is created for this land which previously did not exist.

The bank operator will develop their bank using the approaches outlined in Section 2 of this paper. Once all credits are sold, the title to the land may be transferred to a conservation agency.

1.2. The leased bank

In this arrangement, the landholder may lease a part of their property to a bank operator for the purpose of operating a conservation bank. The landholder receives an annual payment for the life of the bank (i.e., until all credits are sold), whilst the bank operator receives profit from the sale of credits.

After the bank is sold out, the landowner retains title to the land. However, the easement remains on the title and the nominated land manager continues the required land management activities using the endowment fund.

1.3. Joint venture partnership

This is a similar arrangement, but instead of the bank operator paying the landholder an annual lease, both the landholder and operator agree on a profit share from credit sales.

1.4. Landholder as bank operator
The landholder may decide to maximise the returns from a conservation bank on his land, by becoming the bank operator.

2. SELLING OPTIONS

2.1 Sale to a non-profit organisation.
The range of conservation organisations and philanthropic foundations makes this option a reality for landholders with highly significant lands.

3.2 Sale to a bank operator
See 1.1 above.

3.EASEMENT OPTIONS

3.1. Selling an easement
Landholders can enter an agreement with a Land Trust or conservation organisation to purchase a conservation easement that protects biodiversity values, but at the same time allows the continuation of the grazing enterprise, with specified limits on agricultural activities.

In this way, the Trust or conservation organisation pays for the easement, commonly between 40-60% of full property value, and, if the property is sold at the same time, the new grazier pays the balance.

This method is enabling farming families to retain ownership of properties whilst protecting identified values and keeping further conservation options open.

3.2 Donating an easement
Landholders can donate an easement to a non-profit organisation in return for significant tax benefits.

3.3 Bargain sale
Landholders can sell a conservation easement to a non-profit organisation for less than its market value. The balance of the market value of the easement that is donated attracts tax benefits.

4. OPEN-SPACE CONTRACTS

4.1 Williamson Act
Landholders can sign a contract under the Williamson Act to ensure their land is not developed. This attracts significant property tax benefits.

5. USDA PROGRAMS

5.1 Cost share programs
Landholders can apply for funding under one of the US Dept of Agriculture cost-share programs, such as CRP, EQIP, FSIP, or WHIP, to receive a cost-share for on-ground works, plus annual rental payments.

5.2 RCD funding
Landholders can apply for funding through their Resource Conservation District.

6. OTHER PROGRAMS
There are many other programs offered by counties and other government agencies which provide assistance to landholders.

WHY CHOOSE CONSERVATION BANKING?

With the vast array of choices that Californian landholders have, why would conservation banking be chosen?

Whilst there is no formal barrier to landholders becoming bank operators, in practice, this is uncommon. The Californian experience suggests that banking is not an option often considered, and more rarely taken up by, rural landholders. The reasons for this appear to include:

- **Resources and expertise**

The time and expertise needed to develop the Banking Agreement requires the landholder to be singularly focussed on the bank. Most landholders would, it seems, prefer to leave that business to an experienced bank operator. Their most important task therefore is to negotiate an attractive lease fee or profit share.

Urban development the driver
Across the United States, conservation banking (and mitigation banking) appear to be driven by urban development. Banks are established to sell credits to urban developers, and because of their limited 'service areas' are located near to where urban development occurs. There are very few conservation banks in rural areas.

- **High price of credits**

The price of credits is high, because the price of on-site mitigation in urban areas is also high. Urban development has a greater capacity to spend more on a credit that does broad-acre agriculture, because of the relative returns of these two enterprises. This means that where development is approved, a rural landholder will prefer to mitigate on-site, so that no market is created for credits in that rural area.

- **Limitations on the market**

Markets for biodiversity credits need to be better developed. In the US, the market principally derives from impacts to 'jurisdictional waters' and in some States, 'habitat occupied by endangered species'. As the reach of regulation extends, so does the requirement for mitigation of impacts, and so does the demand for credits. Market development is a direct product of environmental regulation.

If the object of a conservation banking scheme is to protect large areas of native vegetation and other habitats across the whole of NSW, then

- it needs to be able to be accessed and operated by rural landholders more than is apparent with American schemes.
- It needs to be supported by the development of a market – i.e., any agency which regulates impact to biodiversity should condition any permits or consents issued with a requirement for compensatory mitigation.
- The market that does develop should be used to maximise the effect over a range of different sites, so that a greater number of landholders can benefit and a larger area of native vegetation is protected.
- Credits and debits should be described using a Statewide classification scheme that is as simple as necessary to achieve the task.

Section 5 outlines some options for biodiversity credit-trading in NSW that attempts to incorporate these features.

SECTION 5: CONSIDERATIONS FOR A BIODIVERSITY / NATIVE VEGETATION CREDIT SCHEME IN NSW

Summary

Considerations for a model biodiversity credit-trading scheme are put forward. Schemes in the US may not be appropriate for NSW, for a variety of reasons. These include the potentially smaller market size, the need for such a scheme to protect as large areas as possible, to enable greater involvement by rural landholders, and to create a single register and marketplace. Specifically, the issues that need to be considered are:

- *The desirability of one classification system only for credits.*
- *Should 'Out-of-kind' mitigation be possible?*
- *The activities authorised to realise a credit; the number of hectares of these activities needed to sell one credit;*
- *Deferred consent for developments*
- *Capping credit sales at a value equal to the bank's covenant value plus initial establishment costs.*
- *Long-term land management – how best funded?*
- *Conservation in perpetuity – how best secured?*
- *The process for negotiating a banking agreements – how to ensure realistic time-frames?*

Even if all these factors are resolved, the whole system is dependent on the development of a market. The key action to establish such a scheme is that mitigation requirements are scientifically valid, consistently applied and rigorously enforced by all agencies, councils and authorities throughout NSW.

1. Planning

If a credit-trading scheme is developed for biodiversity or native vegetation:

- It should work to achieve the targets of set out in Regional Vegetation Management Plans and Catchment Management Board Plans.
- Plans should classify vegetation to enable the operation of such a scheme, and to monitor the achievement of targets. Such a classification scheme should be consistent with a Statewide classification scheme. This would enable trading to occur between regions, where appropriate. Targets could also be expressed in maximum debits allowable, or minimum credits realised.
- Unlike US schemes, which have multiple classifications of credits (e.g., wetland types, habitat types, endangered species), one classification type would enhance the operation of the trading scheme.
- Each vegetation type should be classified into one of three 'conservation status' categories, e.g., ">80% cleared", "40-80% cleared", "<40% cleared".
- Plans should identify those sorts of vegetation which are not suitable to be impacted, i.e., where impacts should be completely avoided.

2. Permitting and mitigation requirements.

If a credit-trading scheme is developed for biodiversity or native vegetation:

- In considering development applications, the sequence of considerations should be to
  - ⇒ avoid impacts on biodiversity,
  - ⇒ minimise impacts
  - ⇒ compensate for any impacts.
- Every permit, license, consent or authority issued, by any agency, authority or council, that has an impact on biodiversity, should include a

requirement for mitigation. This would be necessary to develop a demand for credits, and to ensure that Statewide environmental objectives can be met.

- Requirements for mitigation be consistently applied by all agencies, and rigorously enforced.
- Consents for development could be 'deferred' until mitigation actions are implemented and making acceptable progress toward a predicted ecological gain.
- The activities of government agencies and utilities be subject to the same standards.

3. Assessing debits.

If a credit-trading scheme is developed for biodiversity or native vegetation:

- The impacts of any approved development on biodiversity should be assessed with regard to the area of impact, the quality of habitat, including its landscape context. (i.e, 'habitat hectares').
- The basic unit of the debit is a hectare, but this is multiplied by the 'quality' factor. i.e., a compensation ratio is used to ensure that greater impacts are assessed as a greater debit. Models for this are being developed by NPWS.
- The conservation status of the vegetation type determines the type of credits that must be bought to offset the debit. Debits can be offset by the purchase of the required number of credits from the same vegetation type, or one with a higher conservation status. In this way, 'out-of kind' mitigation would be permitted.

N.B. In rural NSW, on-site mitigation (i.e., mitigation on the same landholding as the impact) may be a realistic option, given the large property sizes. This will adversely affect the development of a market for credits, given that the landholder does not have to go on the open market to buy credits.

Compensation Ratio:

If a permit is given for the clearing of 5 hectares of Dry Sclerophyll Forest, then that 5 hectares should be multiplied by a suitable compensation ratio to determine the number of credits required.

For instance:
10:1 for an area in 'near natural condition'
5:1 for an area in modified condition
2:1 for an area in degraded condition
1:1 for individual components, e.g., paddock trees

Example:

- If the 5 hectares has paddock trees only, *then 5 credits would need to be purchased*.
- If the 5 hectares is in near natural condition, and the compensation ration was 10:1, *then 50 credits would need to be purchased*.

Issues relating to compensation formulas is being addressed by NSW NPWS.

Classification and trading of credits

Under the above example, if 50 debit points were to incurred, then these would be classified according to their BVT, e.g., "50 Dry Sclerophyll Forest" credits would need to be purchased. The credits to be bought should be of the same type.

However, in order to secure conservation outcomes for the most threatened vegetation types, the developer could instead buy credits for vegetation types with higher threat status, such as Grassy Box Woodland. In this way, the rule could be stated as **"out-of-kind mitigation is allowed, but only if credits of a higher category are purchased."**

Consideration could be given to a 'discount' for credits of higher threat status, to encourage protection of these vegetation types.

4. Assessing credits

If a credit-trading scheme is developed for biodiversity or native vegetation:

- Bank sites be authorised to sell credits according to their achievement of targets. The number of hectares of a certain activity (e.g., preservation, restoration, revegetation) necessary to sell one credit vary according to the importance of that activity to achieving targets (see box).
- The credits should be described by their vegetation classification, and be sold to buyers with debits of the same or lower conservation status.

How many hectares for one credit?

One credit here
must equal
One credit there

Each credit approved for sale at a bank should result in the same level of ecological benefit as every other credit from any other bank.

Some land management activities
are more equal than others

Some land management activities will result in greater ecological benefit than others. Therefore, a land management activity that results in a great benefit will require less hectares to realise one credit.

Which activities
have a greater ecological benefit?

Selling credits for 'preservation' will not achieve a net ecological gain if traded off for an ecological impact elsewhere. Revegetation ('creation') on cleared land will take significant time periods to achieve ecological outcomes. For these reasons, both 'preservation' and 'revegetation' should require relatively large areas for one credit to be realised – perhaps ***10 hectares required for each credit sale.***

Perhaps a more important activity to achieve targets will be the restoration of modified areas, e.g., areas which retain some resilience and will show relatively quick improvement in ecological structure and function. Accordingly, these should require less hectares for each credit – perhaps ***1-2 hectares required for each credit sale.***

5. Effective long-term land management

If a credit-trading scheme is developed for biodiversity or native vegetation:

- A land management plan must be prepared for the bank site.
- The plan should identify *'initial establishment costs'* such as fencing, initial weed control (knock-down) and initial restoration activities; and, *'long-term maintenance'* activities.
- The plan should identify milestones to be achieved in demonstrating ecological benefit at regular intervals
- Achievement of these milestones may be necessary for release of credits for sale.
- 'Initial establishment works' would be funded from credit sales. Long-term management would be funded from collection of a conservation rate (see #8 below)
- Management would be the responsibility of a nominated organisation which is on the federal Register of Environmental Organisations

6. Conservation Security

If a credit-trading scheme is developed for biodiversity or native vegetation:

- The bank site must be secured by a conservation covenant 'in perpetuity'.
- The covenant could be held either by a government agency, or by the same organisation responsible for land management of the bank. This could be the Nature Conservation Trust of NSW.

7. Agreement of the parties

If a credit-trading scheme is developed for biodiversity or native vegetation:

- A banking agreement should be prepared for each bank site. It should set out:
  - the nature of the vegetation types on site, their extent and condition
  - The land management activities proposed for each area of vegetation
  - The number and classification of credits that can be sold from the site.

- The region to which credits can be sold.
- The ecological milestones which must be achieved for partial release of credits for sale.
- The land management plan
- The conservation covenant, including a valuation report setting out the market value of the covenant.

- The parties to the agreement should include:
  - Bank owner
  - Land manager
  - Govt agencies – DLWC, NPWS
  - NSW Nature Conservation Trust (or affiliated regional body)
  - Local Govt.

8. Credit sales

If a credit-trading scheme is developed for biodiversity or native vegetation:

- A register of approved credits and debits should be kept by DLWC or NPWS, and made publicly available on the agency's web site.
- The trading of credits would be operated in the marketplace, without a direct role for government, however, credit sales would require notification to government.
- A bank would be considered 'sold out' whenever:
  ⇒ It sells all its allocated credits, or
  ⇒ The sale of credits exceeds its covenant value plus 'initial establishment costs' identified in the land management report.
  whichever happens first.
  ⇒ This would ensure that approved debits can be used to secure a greater area of land under covenant across the State. It would also ensure that landholders who establish a conservation bank would be fully compensated for the value of the land set aside, but would limit additional profit from credit sales
- Land management expenses for ongoing maintenance activities would be funded by a nominal annual rate for the land, paid into a 'conservation land management fund' administered either by the local government or the NSW Nature Conservation Trust.

Capping credit sales at a bank site

The purpose of credit sales from a bank site being capped at 'covenant value plus initial establishment costs', is to:

- ensure that any additional potential for profit from credit sales is spread out, or diverted to, other potential bank sites.
- ensure that as many landholders as possible can benefit from the scheme, so that they can receive full market value for a conservation covenant.
- ensure that as much native vegetation as possible can be protected under covenant from the scheme.

Standard methods for valuation of covenants need to be developed, endorsed and adopted.

The 'cap' assumes that the covenant would adversely affect the market value of the land, i.e., covenant value is >20% of full market value. This has not yet been established, and remains an assumption only.

9. Monitoring

If a credit-trading scheme is developed for biodiversity or native vegetation:

- Using the 'conservation land management fund' (see #8 above), annual monitoring of the site should be undertaken by the approved land manager.
- This should include
  ⇒ monitoring of completion of on-ground works identified in the plan of management, and
  ⇒ ecological monitoring against the milestones set out in the plan of management.

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Personal Communications

Robert Asher
County of San Diego
San Diego CA

Caitlin Bean
Dept of Fish and Game
Sacramento CA

Bruce Blodgett
California Farm Bureau
Sacramento CA

Stephen Collins
Everglades Mitigation Bank
Florida City FL

Craig Denisoff
Wildlands Inc.
Sacramento CA

Lynn Dwyer
Environmental Defense
Oakland CA

Joe Gassaway
US Dept. Agriculture
Redding, CA

Kathleen Gilman
Shasta Land Trust
Redding CA

Jake Jacobsen
The Nature Conservancy
Red Bluff CA

Mark Kraus
Audubon Society
Miami FL

Lew Lautin
Florida Wetlandsbank
Fort Lauderdale FL

Dave Lawhead
Dept of Fish and Game
San Diego CA

Karen Lawrence
US Army Corps of Engineers
Omaha NE

Scott Lawson
The Nature Conservancy
Chico CA

Don Macon
California Rangelands Trust
Sacramento CA

Linda Marianito
US Dept of Agriculture
Redding CA

Craig Martz
Dept of Fish and Game
Redding CA

John McCaull
Audubon Society
Sacramento CA

Deblyn Mead
Fed. Fish & Wildlife Service
Sacramento CA

Jim Nelson
Dept of Fish and Game
Redding CA

Debra O'Neill
US Army Corps of Engineers
San Fransisco CA

Daryl Peterson
The Nature Conservancy
Chico CA

Larry Plumb
US Dept. of Agriculture
Davis CA

Jim Rickert
Western Ag Consultants
Fall River CA

Nancy Schaefer
Conservation Fund
Sacramento, CA

Sherry Teresa
Ctr for Natural Lands Mgt.
Fallbrook CA

Joe Ulics
US Dept of Agriculture
Yreka, CA

Eric Vink
Resources Agency
Sacramento, CA

Linda Walton
US Dept of Agriculture
Redding CA

Appendices

Appendices have been compiled in Volume 2, which has limited distribution. Copies of some may be available from the author.

1. State of California – 'Official Policy on Conservation Banks'
2. Federal Guidance for the establishment, use and operation of mitigation banks
3. American Wetland Restoration Act
4. Habitat Evaluation Model, and Gap Analysis methodology, for the Natural Communities Conservation Plan
5. San Diego Municipal Code – Biology Guidelines
6. MOU between US EPA and US Army Corps of Engineers on determination of mitigation
7. US Army Corps of Engineers – Guidelines for habitat mitigation and monitoring
8. Biological opinion of impact of development, including debit valuation.
9. Federal guidance on the use of 'In-Lieu Fee'
10. Methods for determining the number of credits available from Conservation Banks for Red-Legged Frog, and Vernal Pools.
11. Method for determining number and type of credits available – multi-species conservation bank
12. Property Analysis Record template, including method for determining endowment account, and Case Study example
13. Items to be supplied to DFG for processing a Bank Agreement
14. Flow chart showing process for Mitigation Banking Instrument
15. Manchester Ave. Conservation Bank – Banking Agreement
16. Table of contents and exhibits – Kern Conservation Bank Banking Agreement
17. Bill requiring the keeping of a banking database
18. Federal Fish and Wildlife Service – Conservation Banks and Credit-tracking database
19. USDA Conservation Reserve Program – Environmental Benefits Index
20. USDA Conservation Reserve Program – Program Contract
21. USDA Environmental Quality Incentives Program – Application Ranking System
22. USDA List of approved practices. Example of 'approved practice' specification