



environmental defender's office
new south wales

Submission on Biodiversity Certification and Banking in Coastal and Growth Areas

13th September 2005

The EDO Mission Statement

To empower the community to protect the environment through law, recognising:

- the importance of public participation in environmental decision making in achieving environmental protection
 - the importance of fostering close links with the community
- that the EDO has an obligation to provide representation in important matters in response to community needs as well as areas the EDO considers to be important for law reform
 - the importance of indigenous involvement in protection of the environment.

Submitted to:

Simon Smith
Deputy Director General
**Environment Protection and Regulation Division **
Department of Environment and Conservation
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Dear Simon,

The Environmental Defender's Office of NSW (EDO) welcomes the opportunity to provide preliminary comment on the DEC Discussion Paper on *Biodiversity Certification and Banking in Coastal and Growth Areas*, July 2005 ("Discussion Paper").

At the outset, we note three preliminary issues. First, that the EDO has grave concerns about the applicability of a trading/banking scheme to biodiversity. We have previously given qualified support to pollution offset schemes involving clearly quantifiable units of pollutants. This notwithstanding, we remain concerned that such an approach for pollutant management may not translate directly and effectively for biodiversity conservation.

Second, the EDO is unable to provide any endorsement for a proposed biodiversity scheme in the absence of specific detail as to how the scheme will work - for example, how biodiversity units will be measured.

Third, we reiterate our previous objection to the "glossy brochure" approach to public consultation. The EDO would prefer to respond to "frank and fearless" discussion papers that outline potential benefits and pitfalls of various approaches. The lack of specific detail in this Discussion Paper regarding preferred regulatory provisions and assessment tools makes specific comment difficult.

The EDO, through both our policy and science sections, would be happy to provide further detailed comment once regulatory provisions have been drafted, and a clearer framework for the proposed methodology has been

developed.

We base the following general comments on the concepts included in the Discussion Paper and on issues raised at a number of information forums run by DEC, which were attended by EDO representatives. Our comments are in relation to both the legal framework and the scientific considerations:

1. General guiding principles for the use of offsets

2. The regulatory framework

2.1 The legislative context of biodiversity certification

2.2 The proposed biodiversity banking scheme

3. Scientific considerations

3.1 Biodiversity certification

3.2 Biodiversity banking

4. Regulatory principles and recommendations

1. General guiding principles for the use of offsets

The EDO has previously provided comment on the "*Green Offsets for Sustainable Development - Concept Paper*," April 2002. That Paper set out the following principles:

Principles of offsets:

- Environmental impacts must be avoided first by using all cost-effective prevention and mitigation measures on-site. Offsets are then only used to address remaining loads of pollutants.
- All standard regulatory requirements must still be met.
- Offsets must never reward ongoing poor environmental performance.
- Offsets will complement other government programs.
- Offsets must result in no net increase of target pollutants.

Offsets must be:

- *Enduring* - they must offset the impact of the development for the period that the impact occurs.
- *Quantifiable* - the impacts and benefits must be reliably estimated.
- *Targeted* - they must offset the impacts on a 'like for like' basis, e.g. a measure that reduces nitrogen must be used to offset nitrogen.
- *Located appropriately* - they must offset the impact in the same area.
- *Supplementary* - they must be beyond existing requirements and not already being funded under another scheme.
- *Enforceable* - they must be enforceable through development consent conditions, licence conditions, covenants or a contract.

The EDO supported these general principles, particularly in the context of pollution offset pilot schemes. The principles provide sound guidance and clear parameters for the creation of schemes such as the Hunter River Salinity Trading Scheme and the South Creek Nutrient Offset Pilot in Western Sydney. These principles were clearly designed to apply to pollution offset schemes.

The examples provided of successful schemes and models to draw upon in designing a biodiversity offset scheme (as referred to in the Discussion Paper, page 7) and at DEC forums, are all pollution offset schemes.

The EDO submits that such principles and pilots cannot apply directly to biodiversity conservation. For example, essential offset attributes such as "quantifiable" impacts and "targeted" attributes on a like for like basis, are more complicated when applied to biodiversity. Quantities of salt or nutrients in a water body at a given point can be measured and confidently quantified. The whole gamut of biodiversity cannot. What works for pollution, with clearly measurable quantifiable units, does not directly translate for biodiversity. These problems are discussed further below.

2. The regulatory framework

We note that the scheme will be piloted in the Lower Hunter and Far North Coast regions. The EDO supports the pilot approach provided that there is proper evaluation of the scheme, including all negative results; and transparency of all aspects of the scheme. It is unclear on page 3 of the Discussion Paper whether the pilots refer to the banking scheme, certification, or both (this is discussed further below).

We make the following general comments, first about the legislative context in NSW, and second, in relation to principles for designing an appropriate regulatory structure for offsets.

2.1 The legislative context of biodiversity certification

Threatened Species Act amendments

As noted in the Discussion Paper (page 9) the *Threatened Species Amendment Act 2004* provides that the Minister for the Environment can confer biodiversity certification on environmental planning instruments ("EPIs"). EPIs may only be certified where the Minister is satisfied that the EPI and relevant measures will lead to "the overall improvement or maintenance of biodiversity values (including threatened species, populations, communities and their habitats)."

According to the DEC website the rationale of the amendments is, in urban and coastal areas, the integration of biodiversity into strategic land-use planning, improvements to the development assessment process, and the accreditation of flora and fauna consultants.

Four key concerns with bio-certification relate to: coordination of plans at a regional and sub-regional level; timeframes for the development of the various plans, strategies and instruments; quality and comprehensiveness of the data underpinning the certified plans; and the longevity of certification.

It is indicated on page 4 of the Discussion Paper that a Regional Conservation Plan will be made first as a part of a Regional Strategy, with input from a Catchment Action Plan. The EPI (which will generally be a Local Environment Planning ("LEP") already in existence) must then be compatible with the Regional Conservation Plan. It is assumed that this will require the amendment of existing LEPs or that new LEPs be made. While we note that amendments to the *Threatened Species Conservation Act 1995* require the Minister to have regard to: "conservation outcomes outside the plan- including strategies, plans, agreements and other instruments," there is a lack of detail as to the timeframe for this to occur and exactly how plans will be prioritised and coordinated.

Page 10 of the Discussion Paper also refers to "Regional Biodiversity Agreements". It is unclear what these are, who is party to such agreements, and how they fit with the Regional Strategy, Regional Conservation Plan, relevant EPIs and any landholder agreements.

While the EDO supports targeted certification, the main premise is that biodiversity certification is voluntary. Where there are several Local Government Areas ("LGAs") in a biodiversity "region", it is unclear what happens where one Local Council may choose not to apply for certification. We assume certification will be compulsory in pilot areas. (The problems relating to "regions" are discussed further below).

The certification will generally last for ten years, as stated on page 5 of the Discussion Paper. There is an assumption that the plans and certification will therefore be based on comprehensive and adequate data for an area. There is a risk involved in this approach, as very few areas have comprehensive biodiversity datasets at this time. Certification for ten years does not take into account any new species discovered in an area.

A fundamental problem with the *TSC Act 1997* to date has been the lack of investment and commitment to biodiversity conservation at a planning stage, and at a recovery planning stage. From experience it is clear that the Government needs to make a substantial monetary commitment to investing in science to support effective strategic planning. Without investment in gathering comprehensive data and coordinating the myriad of instruments, the bio-certification process will result in inconsistent and potentially poor environmental outcomes.

Planning reform implications

As noted above, for an EPI such as an LEP to be consistent with a Regional Conservation Plan, it may need significant amendment. Most Councils will imminently be required to amend their LEPs to be consistent with the proposed LEP template, as being developed currently by the Department of Planning. We understand a revised public consultation draft of the template will be released in September. Some Councils have recently completed comprehensive updates of their LEPs, while other Councils are at a preliminary stage of amendment. There are significant time and resource implications for Local Councils responding to different requirements to amend their instruments.

The development of Regional Strategies and Catchment Action Plans are at different stages in different regions. Similarly, there are significant differences between local government areas in terms of LEP revision. There must

be clear inter-agency co-ordination of all plans and instruments, with a clear timeframe for completing the plans and strategies. It is vital that DEC oversee the consistency between instruments in relation to biodiversity.

Native Vegetation Reforms

The *Native Vegetation Act 2003* provides for offsets to be used to allow broadscale clearing where the clearing, combined with the offset, will result in improving or maintaining environmental outcomes.

While the proposed biodiversity banking scheme is focusing on coastal and growth areas, it is possible that there may be some overlap with land subject to native vegetation laws. The Discussion Paper provides no reference as to whether offset approaches in one region under the native vegetation reforms and under the proposed biodiversity scheme will be coordinated. During negotiations on the native vegetation reforms, DIPNR supported the future development of "offset pools" which are to be coordinated by Catchment Management Authorities (CMAs). Will these be compatible with the DEC scheme or apply to entirely different land?

Our concerns with the use of the BioMetric Assessment tool, as developed to aid implementation of the *Native Vegetation Regulation 2005* (not commenced), is discussed below.

Federal threatened species law

The streamlining of assessment processes cannot and must not exclude considerations under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth).

2.2 The proposed biodiversity banking scheme

As is apparent, a primary concern of the EDO is whether it is practical, desirable or even possible to translate biodiversity values into tradeable units. A key problem is that "biodiversity value" is a global term, and a concept which needs greater debate and consideration. A requirement to "maintain or improve" biodiversity values (as noted above in relation to native vegetation) at one level facilitates improved environmental outcomes (with improved valuation and pricing as per ESD); but at another level, still allows a developer to buy biodiversity loss. Our concerns about calculating value are discussed further below.

It was indicated at the DEC information forums, that the preferred 'rule-based methodology' or tool for the scheme would be the BioMetric tool as developed to aid implementation of the *Native Vegetation Regulation 2005* (not commenced). The EDO has a number of concerns about this. First, the BioMetric tool has been field tested on some trial sites, but not comprehensively used as a regulatory tool in regional areas, by regional staff. There is therefore no data available as to the accuracy of the tool. Second, the BioMetric was designed to measure one of 4 landscape elements (biodiversity - the other 3 elements being soil, water and salinity) to be considered as part of a Property Vegetation Plan (PVP). It was developed to produce a landscape score. It was not developed to calculate a quantifiable and tradeable unit of biodiversity. Our concerns regarding the assessment methodology are discussed further below.

On page 7 of the Discussion Paper it is suggested that banking may be undertaken by "not for profit conservation brokers". There is a lack of detail regarding liability and cost. Should these entities 'emerge' it is unclear whether the costs of government deregulation will be transferred to NGOs. The model promoted at the DEC forums by Craig Denisoff was one of private for-profit companies, making a profit from this emerging market. He also noted the significant ongoing management costs involved (the liability for which may rest with the "broker") for example, the need for a \$1 million trust fund to generate \$50,000 interest a year to cover ongoing management of an offset site. It is interesting to note the limits of the current Nature Conservation Trust budget in this context, and in the context of inadequate Government spending on threatened species as noted above.

The EDO submits that due to the significant costs involved, the margin for error (as such schemes are not proven in Australia), the irreversibility of the consequences, and the lack of clarity around liability for costs and management; it is appropriate that DEC, or a statutory body under the auspices of DEC, manages the pilot schemes. Until the schemes have been properly evaluated, it is inappropriate to introduce private consultants, certifiers and brokers.

Further detail is required as to what "potentially significant tax advantages" may be available to landholders who enter Voluntary Conservation Agreements ("VCAs"), as suggested on page 9 of the Discussion Paper.

Page 11 of the Discussion Paper concludes that "it is expected that biodiversity banking will provide financial incentives to private landholders for the improvement of biodiversity values." The scheme will succeed or fail according to such assumptions. There is no detail of how this will occur, what legal safeguards will be in place, and how a potential biodiversity result will correlate with a guaranteed financial result.

Recommendations regarding the specific regulatory detail required are included in relation to 10 key scheme elements, in Part 4 below.

3. Scientific concerns

As noted, the Discussion Paper is written in very general terms only and is consequently unclear in relation to many important scientific issues. The discussion here is based on only very limited information and must be read in that context.

The ability of the proposed scheme to protect biodiversity is likely to be primarily determined by two key aspects of the proposal: the rule-based methodology for valuing biodiversity and the success of ecological restoration projects. Our key scientific concerns with the proposal relate to the scientific uncertainty surrounding these two aspects. Due to this scientific uncertainty, there is a significant risk that the proposed scheme would not protect biodiversity and that such failures may go undetected by regulatory authorities. To minimise this risk, it is considered that strict and comprehensive rules should be set down to establish the framework within which the proposal would operate. These key concerns and others are discussed below.

3.1 Biodiversity Certification

The biodiversity certification process is clearly vital to the effectiveness of the policy proposal in protecting biodiversity because this process determines 'green-light', 'amber-light' and 'red-light' areas, which are subject to different levels of protection. Without accurate identification of biodiversity values within a region, there is a high risk the policy proposal will fail to protect biodiversity.

Definition of biodiversity values

The Discussion Paper does not define the meaning of the term "biodiversity value," and provides no criteria by which value will be assessed. It is unclear whether the term will refer exclusively or partly to threatened species, populations or ecological communities, or whether the term will be used more broadly to refer to other possible indices of biodiversity value such as species richness. Similarly, there is no indication as to whether other values such as intrinsic value (philosophical), taxonomic value, or ecosystem value of keystone species, will be included in what may be valued by Government or community members.

Definition of a region

The DEC has indicated that the proposed schemes will operate within defined regions. However, the term 'region' has not been defined. It is vitally important to define regions appropriately to ensure effective rehabilitation of landscapes. Briggs (2001) ¹ has identified the importance of matching natural resource management boundaries with ecological boundaries for effective landscape rehabilitation. In NSW, there has typically been a lack of adequate consideration of scales for landscape and ecological processes in defining management boundaries, and this has seriously hampered rehabilitation of degraded landscapes. Landscape and ecological processes such as habitats for flora and fauna must be managed at the scales at which they operate. For example, managing single sites in isolation does not necessarily protect species that require particular parts of a landscape on a seasonal basis, or various habitat types across large areas. Such species require management actions integrated across an appropriately defined region.

Identifying biodiversity values within a region

The Discussion Paper is unclear about the process of identifying the biodiversity values within a region, and the timeframe over which this process will be undertaken. Identifying the values of a region will be a difficult and complex task which will require significant scientific input in relation to tasks such as data collection, data analysis, identification of data gaps, and habitat modeling. In addition, the process will take a substantial period of time. The task is made more difficult by the large number of existing and superseded natural resource management 'regions' that have been established across NSW, including IBRA regions, regional vegetation management plan regions, comprehensive regional assessment regions, Catchment Management Areas and Local Government Areas. Much existing flora and fauna data has been collected within each of these different regions and for a number of different purposes. Reconciling this data for the purposes of identifying biodiversity values within an apparently newly defined 'region' will be difficult.

The Discussion Paper is also unclear about what will generally comprise 'green-light', 'amber-light' and 'red-light' areas and how these areas will be identified. This process is vitally important because it establishes which areas within the region will be subject to biodiversity banking. For example, will over-cleared landscapes, or vegetation types that have been over-cleared within the region, or important habitat types such as riparian zones or roadside vegetation corridors, be regarded as 'green-light', 'amber-light' or 'red-light' areas? Will an area of generally 'low' biodiversity values containing a small number of individuals of a threatened species be classified as a 'green-light', 'amber-light' or 'red-light' area?

3.2 Biodiversity Banking

Scope of biodiversity banking

The Discussion Paper is unclear in relation to the scope of biodiversity banking. A number of important aspects of the proposed scheme are unclear. For example:

- In what situations will biodiversity banking be able to occur? In relation to wetland mitigation in the USA, biodiversity banking may generally only be undertaken after all feasible avoidance and minimisation measures have been investigated ². This is also the position of the Western Australian Environment Protection Authority ³.
- Will the protection of existing habitat potentially generate biodiversity credits or will credits only be potentially generated by ecological restoration projects? The general position in relation to wetland mitigation in the USA is that the protection of an existing wetland can only generate credits in exceptional circumstances. In California, protection of an existing wetland cannot generate credits, while in some other States credits may only be generated when large compensation ratios are applied ⁴. This position recognises that an existing natural area is already providing habitat and so its protection *per se* would not contribute to the maintenance of biodiversity values in the short term.
- Will it be possible for biodiversity units to be traded between vegetation types with fundamentally different qualitative and quantitative features (such as structure, species composition, species richness)? For example, will the biodiversity debits generated by destroying a wetland be able to be offset by biodiversity credits generated by the protection or restoration of a rainforest or grassland? How is "like for like" to be guaranteed?
- How will a monetary value be put on biodiversity units (credits and debits)? What controls will be in place to ensure that the monetary value of the biodiversity unit at least reflects the biodiversity value of that unit?

Methodology to value biodiversity

As noted, the Discussion Paper does not provide any detail on how biodiversity value will be measured for the purposes of determining biodiversity units (credits and debits) for trade. It is considered that quantification of biodiversity value will be required to enable the determination of biodiversity units. Accurate quantification of biodiversity value is vital to the success of the policy proposal in protecting biodiversity.

Quantification of ecological biodiversity value is a difficult and complex task requiring substantial scientific input.

The biodiversity value of a site will depend on a wide range of highly complex ecological processes and relationships ⁵. It must be recognised that such processes and relationships are generally not well understood by scientists, and consequently, any methodology will necessarily be simplistic and cannot hope to account for the complexity of natural ecosystems and thus 'true' ecological biodiversity value.

A number of rule-based methodologies exist in Australia for determining the ecological biodiversity value of a site, including the BioMetric scheme (NSW) ⁶ (as noted above), the Environmental Services Scheme (NSW), ⁷ and the Habitat Hectares scheme (Victoria) ⁸. These methodologies utilise surrogate measures of biodiversity value and assess value against benchmarks.

The effectiveness of surrogate measures of biodiversity value is currently subject to much scientific debate and uncertainty ⁹. Due to the complexity of ecological relationships and processes, there is currently no scientific consensus and very little real data on the ecological variables that best reflect the biodiversity value of a site ¹⁰.

For example:

- Relationships between ecological structure (numbers and types of species present) and ecological function (for example, food webs, productivity) are typically unclear. Restoring structure does not necessarily restore function ¹¹.
- Each of the three rule-based methodologies measures different suites of different ecological variables to determine the biodiversity value of a site. For example, the BioMetric scheme measures ten site condition variables and four landscape context variables, while the Habitat Hectares scheme measures eight site condition variables and three landscape context variables ¹².

The ecological validity of assessing biodiversity value against benchmarks based on long undisturbed sites has also been questioned by a number of scientists. In particular, natural ecosystems are constantly evolving and may never move consistently towards a prescribed end-point state, ¹³ and consequently, there is no scientific logic in choosing one ecological state over another as the desired end-point ¹⁴. Additional problems with using benchmarks based on long undisturbed sites relate to the following: ¹⁵

- The difficulty in identifying meaningful benchmarks due to lack of existing data and because natural ecosystems rarely reach end-point states.
- A failure to recognise the importance of disturbance regimes in determining biodiversity values. Disturbances are known to affect spatial and temporal variability in abundances and species richness in many diverse habitats

- The invalid assumption that optimal habitat condition is obtained a long time after disturbance.

A further potential problem with a rule-based methodology relates to inconsistencies in logic in calculating the scores of various ecological variables to give the total biodiversity value score. McCarthy et al. (2004) has identified this as a problem with the Habitat Hectares scheme. Sites comprising different habitat attributes (and therefore likely to be of different value to different flora and fauna species) may score the same in relation to biodiversity value. A potential consequence of this is the loss of certain habitat attributes within a landscape (and therefore the likely loss of certain flora and fauna species, including threatened species) in cases where offsetting is undertaken only with the aim of achieving the total credit required.

The science of restoration ecology

The success of the proposed banking scheme in protecting biodiversity is likely to be heavily dependent on the success of ecological restoration projects. It must be recognised that restoration ecology is a new and immature branch of ecology and the science unpinning restoration ecology is undeveloped and subject to much uncertainty¹⁷. Restoration projects in Australia have typically been characterised by inadequate scientific input, and consequently, inadequate design, monitoring, and evaluation. As a result, it is generally unclear whether restoration projects are meeting biodiversity objectives and very little has been learnt to potentially improve the success of projects¹⁸. This is unacceptable in the context of the proposed scheme. It means, as one scientist has put it, that:

'the only certain outcome of [restoring habitat as a compensatory measure] is the loss of an existing stand of the community against the possible, but no means certain, gain of another stand at some time in the future'¹⁹.

Ambrose (2000) reviewed a number of studies of wetland mitigation projects in the USA and indicated overall that while such projects have significantly reduced the rate of wetland loss, the required goal of no net loss of wetland functions and values has not been achieved. While monitoring data was limited, both qualitative and quantitative studies indicated a general failure of restoration projects to replace wetland functions and values. A quantitative assessment of the functionality of 40 restoration projects in California, based on the functional capacity of reference sites, showed that none of the projects were successful from a functional perspective²⁰. This is supported by a more recent (2001) report by the National Research Council (NRC), which showed that mitigation wetlands generally have not replaced the ecological value of the wetlands that were destroyed²¹.

Ambrose also identified a number of scientific issues in relation to monitoring wetland mitigation projects in the USA, including:

- Lack of quantitative and scientifically rigorous monitoring methodologies to enable accurate assessment of the success of projects. Existing assessment methodologies are typically subjective and based on best professional judgment.
- Lack of clear and measurable targets set out in permit conditions to use as the basis for determining the success of projects. Restoration targets are often made in vague or general terms.

Substantial scientific input is required to effectively measure the success of restoration projects for the purposes of determining biodiversity credits. Chapman and Underwood (2000) have argued that scientific input to restoration projects must be based on rigorous scientific methodology and experimental procedure that addresses the aims, implementation, and evaluation of projects, and have set out the basis for such a methodology in their paper²².

4. Regulatory Design Principles and Recommendations

As noted, the lack of regulatory detail, combined with the substantial scientific uncertainties in relation to the functioning of natural ecosystems, valuing biodiversity, and restoration ecology, means there is a significant risk that the proposed scheme may not protect biodiversity and that such failure may go undetected by regulatory authorities. To minimise this risk, it is considered that strict and comprehensive rules should be set down to establish the framework within which the proposal would operate.

Sheahan (2001) identifies ten "essential elements" of schemes operating in the US²³. The EDO would like to see specific drafting of regulatory clauses to detail each of these ten elements, as applied to coastal and growth areas in NSW, in a revised Discussion Paper. The key elements, and potential issues requiring regulatory provisions, are as follows:

1. **Legislation and regulation** - for example, stand alone legislation should be drafted to establish a statutory body to operate as the bank, for the purpose of the pilots;
2. **Data Inventory, habitat classification, and planning** - including criteria and standards for comprehensive data to underpin plans; provision for independent review of data; and specification of the hierarchy of instruments;

3. **Permitting and the requirement for mitigation** - for example including clear provisions specifying when offsetting is not appropriate;
4. **Valuing debits at the impact site** - for example, a requirement that the assessment methodology must be gazetted with the Regulation (similar to the NSW native vegetation model);
5. **Valuing credits at the bank site** - including a requirement for significant mandatory compensation ratios at the offset site;
6. **Long term land management of the bank site** - including a requirement for oversight by DEC for the pilot schemes, clear provision for allocation of risk, costs and liability, and establishment of a trust fund with interest to pay for ongoing management;
7. **Securing the conservation status of the bank site** - including legal requirements for perpetual conservation covenants to run with the title of the land, and provision for independent audit of sites;
8. **Developing an agreement between all parties** - including provision for mandatory conditions to be included in contracts, and a requirement for there to be a public register of agreements;
9. **Establishing systems for credit sale** - including establishment of a statutory body, and provisions to ensure transparency of credit sale agreements;
10. **Monitoring and Compliance** - including requirements for independent audits of offset sites, compulsory review and evaluation of pilot schemes, and provision of relevant penalties for breaches of agreements

Obviously this is not an exhaustive list of the required regulatory detail.

Furthermore, the EDO submits that the following general principles should be taken into account when designing the appropriate regulatory structure:

- Biodiversity banking must only be undertaken after all feasible avoidance measures and minimisation measures have been investigated (consistent with the DEC *Green Offsets* principle);
- There are certain species and areas where it is never appropriate to offset, and plans, regulations and development controls must reflect this. For instance, there need to be very clear red zones or specific rules regarding rare and threatened species, populations, and ecological communities; over-cleared landscapes; vegetation types that have been over-cleared within the region; and important habitat types such as riparian zones or roadside vegetation corridors;
- Every stage (including initial consultation, regulatory design, implementation, monitoring and evaluation) must be transparent with information made publicly available;
- All offset areas must be protected and managed in perpetuity, for example by the use of conservation covenants that run with the title (consistent with the DEC *Green Offsets* principle);
- Sufficient funds must be committed and made available for continuing management of offset sites;
- There must be independent audit of offset sites to ensure required management actions continue to be carried out (ie, that the conservation value of the site is preserved).
- The bank for the pilot schemes must be independent statutory body (not a private for-profit organisation);
- There should be no private certifiers or brokers engaged for the pilot schemes. DEC must retain the oversight responsibility. Any future engagement of private certifiers or flora/fauna consultants must be subject to an accreditation scheme;
- There must be clear rules delineating whether biodiversity credits may be generated from the protection of existing habitat (in exceptional circumstances except where substantial offset ratios are applied) as opposed to being generated only by habitat restoration;
- Trade in biodiversity units must only be undertaken within clearly defined management areas identified with scientific input on the basis of landscape and ecological processes;
- Biodiversity units must not be traded between vegetation types with fundamentally different qualitative and quantitative features (such as structure, species composition, species richness);
- The application of offset ratios must be debated further. Any ratio must be weighted significantly in favour of restoration;
- The rule-based methodology to value biodiversity must be comprehensive and reflect as much as possible the complexity of natural ecosystems. Extensive scientific input and consultation must be sought on this.

On the detail provided so far, the EDO is not satisfied as to the viability of a biodiversity banking scheme. As elucidated by at a DEC forum,²⁴ a successful trading market has to have a clear model (ie mandatory or voluntary market, cap and trade system etc) and clear elements: a fungible currency unit or credit, supplementarity, permanence, additionality, and clear rules as to property rights, contractual rights, and the allocation of risk. There are models for several of these elements in relation to carbon trading schemes. However, we reiterate our concerns that such schemes do not translate automatically to biodiversity.

As noted above, the EDO would be happy to comment in more detail when specific regulatory provisions have been drafted, and when a clearer assessment methodology has been developed.

Should you require any further information, please contact Rachel Walmsley on 02 9262 6989.

Yours sincerely,

Environmental Defender's Office

[signed]

Jeff Smith
Director

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2. Sheahan, M. (2001) *Credit for conservation - a report on conservation and mitigation banking in the USA, and its applicability to New South Wales*. Winston Churchill Memorial Trust of Australia, Canberra
3. Environmental Protection Authority (2004) *Environmental Offsets* Preliminary Position Statement No 9 Government of Western Australia.
4. Sheahan, M. (2001) *op cit*.
5. Begon, M., Harper, J.L. and Townsend, C.R. (1996) *Ecology: Individuals, Populations and Communities* Blackwell Science, Oxford.
6. Draft Native Vegetation Regulation 2004: Environmental Outcomes Assessment Methodology.
7. Oliver I (2004) A framework and toolkit for scoring the biodiversity value of habitat, and the biodiversity benefits of land use change *Ecological Management and Restoration* 5, 75 - 77.
8. The Environmental Services Scheme draws heavily on the habitat hectares approach.
9. For example, see Lindenmayer D.B. *et al* (2000) The focal-species approach and landscape restoration: a critique *Conservation Biology* 16, 338-345; Chapman M.G. and Underwood A.J. (2000) The need for a practical scientific protocol to measure successful restoration *Wetlands (Australia)* 19(1), 28-45; McCarthy M.A et al (2004) The habitat hectares approach to vegetation assessment: an evaluation and suggestions for improvement *Ecological Management and Restoration* 5, 24-27.
10. For example, see McCarthy M.A et al (2004) *ibid* ; Draft Native Vegetation Regulation 2004: Environmental Outcomes Assessment Methodology; Chapman M.G. and Underwood A.J. (2000) *ibid*.
11. Chapman M.G. and Underwood A.J. (2000) *ibid*.
12. See McCarthy et al (2004) *op cit*.
13. *Ibid*.
14. Chapman M.G. and Underwood A.J. (2000) *op cit*.
15. McCarthy M.A et al (2004) *op cit* ; Chapman M.G. and Underwood A.J. (2000) *ibid*.
16. Chapman M.G. and Underwood A.J. (2000) *ibid*.
17. Lake, P.S. On the maturing of restoration: linking ecological research and restoration *Ecological Management and Restoration* 2, 110-115; Chapman M.G. and Underwood A.J. (2000) The need for a practical scientific protocol to measure successful restoration *Wetlands (Australia)* 19(1), 28-45.

18. Lake, P.S. *ibid.*

19. Adam. P. (2001) A role for restoration ecologists in endangered community conservation? *Ecological Management and Restoration* 2 165-166.

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21. Kaiser J. Recreated wetlands no match for original *Science* 293, 25.

22. Chapman M.G. and Underwood A.J. (2000) *op cit.*

23. Mark Sheahan, (2001) *op cit.*

24. Paul Curnow, Baker and McKenzie, Green Capital Breakfast Forum, 3 rd August 2005, Wentworth Hotel Sydney.



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