Design and delivery of voluntary biodiversity credit markets: Eight difficult problems

Questions from the LinkOnline Webinar: 8 July 2025

1. **What do you read into the changed central government messaging that's moved from biodiversity credit system to nature credits?**

   That's probably best answered by someone from central government. However, we are not reading too much into it: the term 'nature markets' is being increasingly used across the world for essentially the same thing. It likely conveys a recognition of the interplay of biodiversity and climate change, and/or addresses the fact that 'biodiversity' is seen by some as a technical term that the general population may be less likely to understand than 'nature'.

   The most recent release from Ministry for the Environment contains draft principles and other information that may be of interest Scaling-Up-Voluntary-Nature-Credits-Market-Activity-in-New-Zealand-Proposed-Government-Roles.pdf

2. **When talking about Problem 1 you mentioned the need for "like for like" biodiversity projects in the 'compliance' space: How achievable is like for like in NZ?**

   It's not achievable within realistic human timeframes except for in young or disturbance-dependent ecosystems. We have written about this in an earlier paper (Walker et al. 2021: https://newzealandecology.org/nzje/3445). Steps should be taken in any offsetting scenario to avoid the loss of biodiversity where a 'like for like' exchange is unlikely to be possible. To proceed ensures loss of the values at stake.

3. **Has your framing of the problem/opportunity been "market tested" with funders who are willing to buy/pay for credits?**

No. However, we didn't interview potential buyers. We did speak with a number of those who have set up early versions of markets in New Zealand, and all but the very newest had been 'market tested'. We also spoke with practitioners and regulators with longer experience in markets overseas.

At present buyers interested in purchasing credits for reputational or philanthropic reasons will be weighing up their (or their customers) expectations for what a high-integrity credit is with what is available in the market.

We are urging caution due the problems with voluntary carbon credits that have been exposed in recent years. The voluntary carbon market is facing scrutiny because some credits have been shown to be fraudulent and/or low integrity, and there are 'greenwash' court cases related to carbon credits in some countries.

We are already seeing the biodiversity market globally trying to get ahead of any issues that may arise from low integrity credits, e.g. International Advisory Panel on Biodiversity Credits (https://www.iapbiocredits.org/framework) or Biodiversity Credit Alliance (https://www.biodiversitycreditalliance.org/). This likely means bigger buyers will be approaching any voluntary market more cautiously, which will potentially damp demand. Creating a system that requires and can demonstrate high integrity is likely to provide more confidence for buyers.

4. Given the problems, what are the potential solutions, if any?

We think some of the problems are intractable – they are risks that will have to be managed in the design and delivery of markets. For others the solutions are embedded in the discussion – for example in the case of data deficit there would need to be investment to improve the quality of the data to support the market. Our next policy brief (in prep.) is focussed on solutions to the eight problems, where they are available or possible.

We also think New Zealand needs to have realistic expectations of the market demand for biodiversity credits. We suggest that not all eggs should be put into the one mechanism. Instead, a range of mechanisms should be designed and

funded to sit alongside voluntary markets to support existing and ongoing projects. If a voluntary biodiversity credit market is to be successful, it should be seen as just a part of an overall system (and the integrity of that market will need to be upheld for it to succeed). When credits were originally mooted in 2023, it was as part of a package of measures including better regulation, not a standalone proposal

(https://www.beehive.govt.nz/release/government-launches-comprehensive-package-measures-protect-native-biodiversity)

5. **Can you clarify your additionality comment about using existing projects, since I imagine many of those see BCs as a way of getting funding?**

We have a real challenge in making sure that projects in New Zealand are truly additional (would not happen or have happened without funding from a credit). We agree that a lot of projects on the ground are looking for new or top up sources of revenue. However, many of those projects may not meet an additionality test because the biodiversity already exists or the activities are already being undertaken (and/or have demonstrably been undertaken in the past) without funding from the credit.

Additionality tests can be multi-pronged and complex depending on the project standards and any obligations they are assessed against. Project standards should contain a treatment of additionality that is transparent to inform potential buyers and evaluators.

An area of particular complexity for New Zealand is that ongoing action is essential to protect many species and ecosystems. The additionality of these actions needs to be carefully considered. For example, underlying statutory or other legal obligations to manage the threats to the area may nullify additionality. These might include obligations to carry out weed and pest control in legislation, including of listed organisms under the Biosecurity Act 1993 and other management actions in existing covenants and public protected areas. However, in reality such obligations commonly go unmet due to lack of funding

or political priority. Therefore, pragmatism is needed while also ensuring that obligated parties are held to account, and moral hazard is avoided.

Buyers will no doubt consider how 'new' the gains are when deciding whether to purchase. The main thing is that the principle is clearly addressed and adherence to the principle is fully explained.

6. **We now have organisations like Ekos in New Zealand that seem to be making progress in developing and selling biodiversity credits bundled with carbon credits or offsets. What do you think the future holds for these, given the key problems you've mentioned?**

To address some of the problems we have identified, the creation of a joint market where both carbon, biodiversity (and potentially even water quality) are bundled from the outset will mean projects will be more easily able to demonstrate that integrity principles like additionality are met.

A challenge will arise where a project is receiving carbon credits and then decides to try and sell the same action into a separate biodiversity credit market. In this instance, additionality will be an issue.

This is where a more purposeful approach to environmental markets could be of benefit where the complementarity of environmental markets is considered, how existing markets can work together and if and how to bring markets for different environmental attributes together.

7. **Have you made an assessment on how much of the SNA work that districts have done under the RMA would be robust enough to support this market mechanism? If so, how much is useful? If not, is there an intention to investigate this?**

No, we have not specifically investigated the interplay of SNA work and biodiversity credits. It isn't clear from government releases to date what is intended either. Available and accessible data from those SNA processes might address some data deficits at the council level. It is highly unlikely to supplant the

need for a site-based analysis to support credits, however. Although SNA assessments are commonly ground-truthed, the purpose of assessment would have been different.

8. **If you have a right to remove biodiversity eg through vegetation clearance, but then you don't, would that be considered a biodiversity credit?**

Averted loss (saving things that might be cut down or removed) is one way credits are secured in some systems overseas, but there needs to be a genuine risk of loss. A lot of the remaining indigenous vegetation in New Zealand is not economic to clear under current conditions, or it would have probably already gone. If the area in reality faces little risk of clearance, then it is not considered 'additional' to save it.

The collapse of the voluntary carbon market in 2023 was caused by this very problem. Credits were supposed to be purchased to avoid deforestation, but the forests were revealed to have in fact been at little risk of clearance, so there was no gain for the climate.

Averted loss also brings moral hazard and invites gaming (there will be incentive to claim an intent to clear an area, in order to argue additionality). Such fraudulent claims could not be verified objectively and would therefore undermine market integrity and reputation. For these reasons we do not recommend that averted loss is used in New Zealand voluntary biodiversity credit markets.

9. Are there examples of other countries where you consider biodiversity credits have been successful? Are these market designs transferable to NZ?

Nature markets face a fairly consistent and predictable array of challenges. Our brief is predicated on the notion that most design issues globally are transferable to New Zealand and that we are not somehow immune to the issues all other jurisdictions have grappled with. They tend to be inherent in the mechanism itself, rather than where it is being launched.

However, New Zealand does have some particular vulnerabilities that need to be considered, such as our reliance on pest control (and the fact that biodiversity gains from that are easily reversed), our high proportion of private and protected land that receives no management; the extent of remaining and important biodiversity on private land and of course the unique and constitutional nature of the Treaty Partnership.

Our subsequent brief will explore some guardrails that are informed by where these mechanisms have been useful additions to the policy toolkit.

10. Kia ora, thanks for your work. How do you see the international high integrity principles for "indigenous people" operating in Aotearoa?

There is some good guidance in the literature, written by people far more expert in this area than the authors (e.g. Cubas-Baez 2025, who provide eight principles: https://www.cabidigitallibrary.org/doi/epdf/10.1079/cabireviews.2025.0025). And there may be some good models already operating in New Zealand (for example, being implemented by certain ecosanctuaries and community projects).

With the government intending to be generally hands-off, how any integrity principles related to indigenous people are implemented will likely be up to each project. How best practice evolves will be very interesting. Dispute resolution processes to provide procedural protection will be important.

11. **Have you looked at valuing the 'ecosystem services' associated with the vegetation and management, so tying in the value of biodiversity, carbon, water yield (and potentially pest management, if applicable).**

    No, we have not. There have been several studies looking at the value (via willingness to pay) for biodiversity and freshwater outcomes by us (the Bioeconomy Sciences Institute – Manaaki Whenua Landcare Research). These values are regional but are not appropriate for use in a market (primarily because these valuation studies don't consider the ecosystem service benefits associated with the specific projects).

    Building on our response to question 6, including the impact on wider ecosystem services can certainly be a way to guide the development of more impactful projects where projects not only provide biodiversity benefits but also other environmental (and potentially social) benefits. This will also help identify potential negative impacts of any project as well (not all projects will be win-win). There are two challenges here 1) (as with biodiversity itself) how to measure these other benefits and 2) how to price the aggregation of benefits in a market. These conversations have been skirted around since the mid-2000s.

12. **You mentioned leakage as one of the key problems. What opportunities exist or have been explored around allowing large domestic and/or international 'funders' (whom may cause harm) to offset that harm through funding significant long term products to stimulate market demand?**

    The problem with leakage is more about shifting the harm rather than offsetting it: a project is undertaken but the (harmful) land use activities which used to occur there is simply moved because demand for the products does not decrease (and if supply goes down, prices go up). Those shifted activities then harm biodiversity elsewhere.

    Some commentators see the only realistic fix is that biodiversity projects go hand in hand with initiatives that reduce demand for products. For example, retiring land from grazing would need to be coupled with an initiative to reduce demand

for beef – which is especially problematic when production and trade are globalised.

You could imagine demand reduction working better in certain local circumstances than others. For example, protecting a savannah against logging for firewood might be coupled with a mechanism that introduces a different and affordable fuel source. A recent review by Balmford and others in Science is a good source of information on leakage (see https://eprints.whiterose.ac.uk/id/eprint/223903/1/Leakage_essay_revised.pdf).

13. **What is your dream for this credit system? I'm thinking of the ETS which is a big beast and quite complicated for everyone to use and manage.**

We don't think that it is reasonable to expect less complexity than in the ETS, because biodiversity is very much more complex than carbon. It seems likely at this stage that a voluntary market will be made up of several different projects, initiated by different entities. These will have different offerings and may compete for the same potential buyers. The extent to which government will provide guidelines and integrity standards to support and protect a high integrity market and its participants is unclear – we read the signals at this stage as preparation to be quite hands-off.

There are certain aspects of the ETS which are likely to be actually easier than for a biodiversity market. The ETS for small projects (i.e. small areas) has a look up table for the amount of carbon sequestered. Larger projects need to be measured. However, for biodiversity the measurement of an outcome to sell is more complex and there is currently no sanctioned approach being proposed for what a metric may be, or how to identify what metric(s) to use. There is also a verification step, which is essential, but which may be more complex than anything needed in the ETS.

14. Any thoughts on the role of local government - how the role of councils in maintaining indigenous biodiversity might relate to a credit system?

We have had some thoughts about potential roles for local government in a mandatory (non-voluntary) credit market, (e.g. developing biobanks for offset needs in their jurisdiction). In a voluntary market, the role of local government will depend on parameters and eligibility. For instance, in some jurisdictions, council owned land is eligible for planting as a project, and councils need to meet the same principles and standards as everyone else. Further, regulatory instruments to secure biodiversity gains may also include a regulatory role for councils (e.g. Reserves Act covenants).

Whatever role local government plays in the market will sit alongside their statutory roles in environmental regulation, curation and management of public assets, and in monitoring. Councils will need to consider this interplay carefully.

The regional sector plays a significant role in biodiversity monitoring and management and may be able to support a market with some data and information (subject to funding being available to support that). We are not aware of the nature and content of any discussions between central and local government in this regard but assume they have occurred.

15. You have described these as problems for voluntary markets, but many seem to be problems that also need to be addressed in a government led market. Is this a correct understanding? If so, what are the ones unique to voluntary markets?

The problems are generally universal regardless of the purpose of the market or who is developing the rules of the market.

In a voluntary market there are fewer interventions to address poor players and much less oversight. Compliance markets are underpinned by legal requirements (e.g. consents or in some countries prosecution powers by an agency for non-compliance). Transactions in a voluntary market should be underpinned by a

contractual agreement which clearly state who holds liability for non-compliance, but these may be more expensive to oversee and to challenge.

Commonly, a regulated (or compliance) market (e.g. mandatory biodiversity compensation) is pursued to scale a voluntary market (i.e. to create more demand). We are not suggesting that as a solution because of the challenges experienced in regulated settings.

It is important to recognise that governments have a role in both and that notions of 'leaving it to the market' are generally dangerous for nature.

16. **The cost of entry seems like a really important message for the many community groups that are interested in using these markets to help fund their ongoing work. Have you been discussing these 8 problems with community groups, and how have they responded?**

No, today was the first time we have presented this work. As we said, part of our motivation was to counsel caution, as we have been very aware of the interest from community groups and rural landowners. It is important that the costs of participation are made clear, because most conservation projects have scant resources and time. Costs will include the set-up costs, and the transactions themselves, but also endeavours like marketing to find buyers. You can read more about the funding situation for community groups and landowners in this 2024 report by Marie, one of the authors of our policy brief (especially "Key shift 4" in that report).

Community conservation is facing a funding crisis so there are lots of groups out there hoping credits will be a viable and long-term income source. Investors have a wide array of options, including from projects that have dedicated decades to protecting special places and species. A high integrity market with sufficient support and oversight will help them, but we do encourage caution and for projects to ensure other funding sources are still pursued in case it doesn't work out.

Our next policy brief will touch on additional things that we hope will be helpful for community groups considering these markets.

Is this taking the onus off government to have to actively participate in biodiversity conservation? So then there is no public push for it, or influence on the importance of it.

Attracting nature finance from the private sector is often put forward to diminish the responsibility on government for funding biodiversity. We have some real reservations about that given the extent of cuts to environmental funds and causes in the last 12-18 months here in Aotearoa.

It is very important that we recognise that effective funding of nature from government *together with other sources* is crucial for nature. This is especially true if the market does not raise significant funding, the cost shifting that may happen behind the scenes will leave conservation worse off. Keeping an eye on these wider risks is critical.

17. **Do you know how compatible these credits are with certifications or tool such as the cool farm? Taking in consideration that some international markets are getting more strict in terms of sustainability?**

Tools like Cool Farm tool is unlikely to be sufficient for a market. This is a qualitative tool that farmers themselves apply. It would therefore be challenging to validate and verify. High integrity credits are likely to require rigorous quantification and high levels of transparency. There may be other certification tools available that could be appropriate to use but we are not aware of any in common usage right now.

18. **Will biodiversity credits financially support the change of farmland into pines for carbon farming?**

That seems a long shot to us, because pines are an exotic species that don't necessarily improve indigenous biodiversity. It is more credible that biodiversity credits would support permanent native afforestation. There is also new

legislation being developed that will limit exotic afforestation (via whole farm conversion) on agricultural land on Land Use Classes 1 – 6. This will restrict any conversion opportunities regardless of a market (carbon or otherwise).

19. **Do you see limits for what can go in the market in terms of land ownership. Are there issues around benefit sharing that you can see?**

    Yes, there are likely to be problems with showing additionality on public land that is set aside to be managed for conservation (even if it isn't in practice, because conservation is underfunded by government).

    Securing biodiversity gains over some forms of tenure can be very challenging, especially where there is no title or a complex collective ownership model. These limitations may be navigable but any work needs to be undertaken carefully.

    Benefit sharing is a challenge that will vary with context. Each project will need to consider its interplay with Treaty matters, especially where the work will be undertaken to land that may be returned as part of settlements or contains culturally important sites and values.

20. **Can you comment the suitability of biodiversity credits and programmes on large hold private land and government held land like the DOC estate.**

    As noted above, there are likely to be problems with showing that projects on conservation land are additional, or where private land obligations exist**.** Large private land holdings will need to navigate the eight problems and others not discussed like everyone else. There may be some economies of scale when navigating auditing and verification however, so large-scale projects may have some advantages over smaller ones when it comes to cost.

21. **Do you have any views on how we can best design biodiversity crediting in NZ to generate new, additional funding for biodiversity conservation, on public or private land – in simple ways that inspire public confidence and investment? E.g., sell shares in building new predator-free fencing, or by focusing on similar, no-regrets actions?**

Certainly pest-proof sanctuaries are a stand-out in New Zealand – they are very well proven to work and to produce exceptional biodiversity outcomes, especially if larger. They also have substantial ongoing maintenance costs which may not be covered by visitors. There have been no new large sanctuaries for a considerable time now, and there is certainly room for more.

There will also be other achievable, long-lasting, high worth, no-regrets actions and projects. Good examples would be the removal of all sources of some key weed species from certain regions, with long term benefits not only to biodiversity but also in some cases to local economies. For example, such projects might include systematically eliminating all wilding conifer seed sources where biodiversity is threatened by spread (e.g. the Mackenzie basin) or lupins from braided riverbeds in certain regions.

To inspire public confidence in markets is probably most reliably demonstrated by high transparency, including why a project is additional, what is being proposed to ensure permanence and avoid leakage, and how the benefits are being demonstrated. On-going confidence will likely be preserved by the measurement of benefits overtime.

It maybe some of these are covered off by adherence to a standard and the verification of the project against that standard. Where this is the case then who developed the standard, the stakeholder engagement in the development of standard and what testing was undertaken of the standard is likely to drive how the public views any standard being used.

As we noted, we suggest New Zealand should be considering a range of mechanisms for both protecting and enhancing biodiversity. For biodiversity projects that don't meet integrity principles, other options may be more appropriate. There are a big range of possible options you can read about here:

https://www.landcareresearch.co.nz/assets/Publications/Science-series/LRSS_42_Policy_Instruments_for_Ecosystem_Services.pdf

22. Has there been any thought into what types of new/improved measurement techniques might be required for measuring and proving biodiversity increase over time?

The newer advanced techniques that come to mind are eDNA and remote sensing, but these have important limitations and will often not show information at the resolution needed. Unfortunately, we think there is no substitute for investing in systematic survey and measurement by knowledgeable people with boots on the ground. But demonstrating outcomes is far from straightforward: Hannah Wauchope's paper on measurement (cited in the Policy Brief) is a very good reference which sets out some of the challenges of measuring improvements in biodiversity for credit markets.