IPART Independent Pricing and Regulatory Tribunal | NSW

Biodiversity Credits Market Monitoring

Annual Report 2023-24

December 2024

Acknowledgment of Country

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders both past and present.

We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

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The Independent Pricing and Regulatory Tribunal

IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART's website.

Contents

Chapter 1

Executive Summary

01

Protecting biodiversity is important for the wellbeing of future generations and the planet's ecosystems. We rely on ecosystems for clean drinking water, food, medicine and shelter. With the threat of climate change, supporting the diversity of nature becomes even more important. Biodiversity in NSW is in decline and the number of species considered at risk of extinction continues to rise.[1] The main threats to the survival of species are habitat destruction caused by clearing of native vegetation, and competition and predation by invasive species.[2]

Approaches to biodiversity conservation have evolved over time. Aboriginal communities have deep connections to the lands of what is now NSW and have been custodians of its nature for over 60,000 years. They continue to play an important role in biodiversity conservation through activities such as ranger programs and cultural burning.

In today's society, there is a challenge to conserve biodiversity while also developing housing and infrastructure to support NSW's growing population. NSW is one of the first jurisdictions globally to introduce a market-based mechanism for valuing biodiversity conservation.[3] In 2016, the then NSW Government established the Biodiversity Offsets Scheme (the Scheme) as one of many tools used to manage biodiversity conservation. The Scheme requires development proponents, including government agencies, to offset their impact on biodiversity by buying 'biodiversity credits'. These credits are created by landholders and traded in what is referred to as the 'biodiversity credits market'.

Successive independent reviews identified that the Scheme is not operating as well as it could be. In early 2023, the then NSW Government committed to continuously improving the Scheme to ensure it delivers effective and lasting environmental and economic outcomes for the communities of NSW.[4] In this context, IPART was engaged to independently monitor the market and recommend changes to promote competition and address market failure and inefficiency for a period of 3 years.

In our first Annual Report, for the 2022-23 financial year, we found that the credits market is not operating effectively. We identified key issues that prevent it from functioning and made recommendations to address these issues.

Since releasing our Annual Report for 2022-23 in December last year, we have progressed our information collection and analysis through information requests to Government entities and consultation with a wide range of stakeholders, including the Department of Climate Change, Energy, the Environment and Water and the Biodiversity Conservation Trust (the Trust). In this second annual market monitoring report we re-assess the functioning of the market and build on our findings and recommendations from last year.

NSW Parliament has recently passed the *Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Act 2024* (Amendment Act)[a], which presents the Government's proposed direction to change aspects of the Scheme and market. As the changes set out in this Act have yet to be implemented, there have been no major changes to the settings of the market since our last report.

[a] These amendments have not taken effect at the time of writing.

1.1 The market continues to experience the same fundamental issues we identified last year

In a well-functioning market, credit prices signal the cost of offsetting impacts and give landholders, whether they are seeking to buy or sell credits, the right incentives to develop land or conserve biodiversity. The market would provide a source of information about the costs of developing in different areas and helps development proponents to assess the different options available to them. A well-functioning market might mean that developments that will impact rare or threatened species will not proceed, as the proponents will find it difficult and expensive to obtain credits. However, it should also mean that developments on land that will impact more abundant ecosystems or species can occur without undue cost or delay.

Decisions around land use and participation in the Scheme have serious financial consequences for landholders. A well-functioning market would have the right financial processes and guardrails to support participants to make well-informed decisions. This includes release of appropriate and timely information and an efficient trading process. There also needs to be effective governance to ensure the integrity of the market.

Our analysis of the market over 2023–24 found that the significant issues we identified in last year's annual review remain. The market continues to not operate well in 5 key areas:

1. The option for proponents to pay into the Biodiversity Conservation Fund is preventing the market from developing.
2. High up-front costs and long credit generation times create a lag between credit demand and supply.
3. Market participants lack accurate and timely information.
4. High transaction costs and market complexity discourage participation.
5. Stakeholders lack confidence in market oversight and governance, which hinders their participation in the credits market.

Our key findings and recommendations for this year are therefore very similar to last year. However, there are some areas where we have been able to develop our advice further in light of new information. We are also recommending ongoing, independent market monitoring as policy settings and processes develop.

If the Government continues to let these issues go unaddressed, the market will continue to present undue barriers for development and biodiversity conservation in NSW. While the Amendment Act presents a step in the right direction, further changes are needed to address the underperformance of the market. The following sections present our analysis of the key issues facing the market this year and our recommendations to address them.

1.1.1 The option for proponents to pay into the Biodiversity Conservation Fund restricts market development

Access to the Biodiversity Conservation Fund option at the current pay-in charge continues to stifle the development of the market and prevents it from establishing prices that reflect the balance of demand for and supply of credits.

Most development proponents are still choosing to satisfy their offset obligations by paying into the Biodiversity Conservation Fund rather than purchasing credits in the market and as a result the Trust continues to take on obligations faster than it can acquit them. The Trust has made a significant effort to purchase credits by entering into agreements for future purchases but is increasingly using variation rules to acquit its obligations rather than purchasing like-for-like credits.

The market remains dominated by large infrastructure buyers and the Trust. Market concentration on the buyer side is high and well above the level of concentration on the seller side. Markets that are dominated by few large buyers are likely to result in prices that are lower than what would be observed in a competitive market. While this may be beneficial to development proponents in the short term, it may discourage private landholders from entering into Biodiversity Stewardship Agreements and creating biodiversity credits for sale.

The level of buyer concentration is exacerbated by individual development proponents paying into the Biodiversity Conservation Fund. The Fund currently has limited ability to pay more for credits than it was paid to take on the obligation and no limitation on how long it can hold a credit obligation. The available evidence suggests that developers are preferring to pay into the Fund even where supply for the credits they seek is available for purchase in the market at competitively tendered prices, which suggests that the Fund charge is set too low.

The Trust has stated it does not intend for the Fund charge to set broader market pricing.[5] However, the ease and availability of the Fund pay-in option means that its charges do set an effective price ceiling across the market. Commercially motivated developers will only seek to purchase credits from the market if they can do so at a cheaper price.

All trading mechanisms in the market, including the Biodiversity Credits Supply Fund's (the Supply Fund) reverse auctions, are impacted by the current functioning of the Biodiversity Conservation Fund. The Biodiversity Conservation Fund's price ceiling effects are observable in both reverse auction outcomes and in directly negotiated market transactions.

While the Biodiversity Conservation Fund remains a feature of the market, we recommend action is taken as soon as possible to reduce the impact of the Fund on the market. We support recent legislative amendments that will:

- enable regulations to be made to prescribe the circumstances in which a person cannot pay an amount into the Biodiversity Conservation Fund as an alternative to satisfying a requirement to retire biodiversity credits
- require the Trust to acquit offset obligations paid into the Fund within 3 years, and, when it does not, to enter into an agreement with the Minister about how the Trust will meet its obligation.

We also recommend the Trust should set the pay-in charge at a level that is sufficient to provide a high degree of confidence that it can obtain like-for-like credits within a 3-year period. Based on current market indicators, we consider that this approach would lead to materially higher pay-in charges for most, if not all, credit types. We recommend that where the Biodiversity Conservation Trust is required to take on obligations for which it has little prospect of acquiring a like-for-like credit within this timeframe, pay-in charges should reflect an appropriate risk premium for doing this. This would reduce the likelihood of development occurring without offsetting its impact on biodiversity.

While we acknowledge that raising the Fund price may have an impact on the cost of greenfield development, we consider that it is important that appropriate signals are sent around where development should occur and encourage developers to reduce their impact on the environment wherever possible.

1.1.2 Reverse auctions are not operating as effectively as they could be

We consider that the Supply Fund's reverse auction process has the potential to support the development of the market, if it is conducted in a way that elicits a market-based outcome. In 2023-24, the Supply Fund's reverse auctions facilitated the transfer of 21% of the credits purchased in the market (around a third of the value of all market transactions).

However, the reverse auctions are not operating as effectively as they could be because of the impact of the Biodiversity Conservation Fund charge. When the Supply Fund runs its reverse auctions, it uses the applicable Biodiversity Conservation Fund charge as an indicator of 'value', and only shortlists credits that are offered at a sufficient discount to this charge.

Aside from the impacts of the Biodiversity Conservation Fund charges on auction prices, there are additional elements of the auction design that we consider could be improved. Specifically, we consider that the following elements of the reverse auction process prevent them from functioning as effectively as they could be:

- Different clearing prices for sellers versus buyers creates inconsistent price signals.
- Buyers are unfairly advantaged in the reverse auctions, relative to sellers.
- Sellers feel the auctions discourage direct negotiation between buyers and sellers.

We have recommended changes to the reverse auction process to mitigate price and information asymmetries between buyers and sellers in the auction process.

1.1.3 Market data is poor and does not support participants to make informed decisions

At a high level, our key findings on the availability and quality of information within the market are the same as last year. There are significant deficiencies in the information that is collected and published. There are also policies and practices in place that create information asymmetries, with some buyers having access to more timely pricing information than sellers. This can seriously impact the financial decisions that landholders make to use their land.

Although lack of information is an important issue, we consider that the existence of misleading information is the highest priority to address. Distorted or misleading information undermines the key benefits of the market-based approach to biodiversity offsetting and the Scheme more generally. Unless landholders are able to understand the transaction data and take into account the impact of specific types of transactions, the presence of this data could lead to participants making poor financial and/or land use decisions (around where to develop or conserve land). Poor land use decisions are costly for participants and have long term consequences.

We found that transactions where price data may be misleading make up a large portion of the available market data. These types of transactions include bulk-transactions (where credits are purchased under one 'lump sum' agreement and all display the same unit price), related-entity transactions and transactions that have been negotiated under option arrangements where a credit price may be agreed well in advance of the transaction taking place. These types of transactions are not inherently problematic, but the transactions register should identify such transactions so that market participants are not misinformed.

During consultation for the 2023-24 report, Department staff have told us they are currently planning a range of different programs to improve data quality, however, there were no material improvements between 2022-23 and 2023-24. Until market information is improved, participants will be hindered from making informed decisions and any other reforms to improve the market will not be as effective as they could be.

1.1.4 Transaction and entry costs are high

Several of the issues we identified with transaction and entry costs are consistent with what we found last year. We have not found evidence of any material improvements in trading costs or efficiency since 2022-23, and these issues continue to cause frictions in the market's functioning.

At present there are significant costs to enter, participate and trade in the credits market. These costs could act as a disincentive for landholders to supply credits, but are not a barrier to entry *per se*. However, a concern arises if features of the market mean that the cost of supplying credits is inefficiently high and/or credit prices are not able to increase to a level that enables these costs to be recovered. This relates to our finding that the Biodiversity Conservation Fund charge sets a price ceiling in the market. Additionally, we have heard that credit buyers often prefer to pay into the Biodiversity Conservation Fund to avoid the costs of searching for credits in the market.

We reiterate that the Government should investigate ways to simplify and shorten the transaction process. This could also be supported by establishing or commissioning a centralised trading platform that facilitates transactions and access to price information. The Government should require that all trades be conducted on the exchange platform, and that the platform maintains transparent order book that displays current bid and ask prices. Importantly, introducing a centralised platform with transparent price reporting (including bid and ask prices) would provide the important benefit of supporting the market to send real-time price signals that help guide the activities of future developers and landholders in the market. This should help market participants to make informed decisions and buying or selling credits in a way that does not expose them to unnecessary financial risk.

We caution that while a trading platform can deliver significant benefits in gathering otherwise dispersed market information, it is not capable of delivering sufficient liquidity on its own. Market liquidity might also need to be supported by a market maker to provide liquidity to participants by selling credits to developers and buying them from landholders at published prices, to allow clearing to continue to occur even in periods of temporary demand or supply shortages.

To be effective in this role, a market maker should seek to provide liquidity to buyers and sellers without taking on excessive financial risk and without adversely impacting the ability of the market to freely determine prices. Currently neither of the government agencies involved in facilitating the market effectively perform this function. However, it could potentially be achieved by transitioning existing interventions into an entity with appropriate objectives and operating protocols to enable them to provide this function in a way that supports the proper functioning of the market.

1.1.5 Market participants lack confidence in the governance of the market

A well-functioning market has effective governance and fair practices. Credit buyers, credit sellers and the broader community would have confidence in the market and its sustainability.

Stakeholders continue to lack confidence in the biodiversity credits market's governance. We found last year that stakeholders have concerns about management of conflicts of interest, management of change and regulatory risk, and inadequate engagement over market design. These concerns continue to be reflected in submissions, but there is also a key message that stakeholders lack confidence in the design/effectiveness of the Government's interventions in the market (i.e. the Supply Fund and Biodiversity Conservation Fund). While this confidence may be improved by changes to the design, as discussed in earlier sections, there is also merit to the Government increasing the transparency of the objectives and outcomes of these interventions.

The biodiversity credits market shares many similarities to a financial market, but it is not subject to the same level of oversight to ensure trust and confidence. The market has strict rules to ensure its ecological integrity (e.g. like-for-like rules and the biodiversity assessment process to determine credit obligations) but does not have the same rigour in its governance to ensure market integrity. There are several areas where governance is insufficient to prevent misconduct or the perception of it.

As we noted in our report last year, brokers and other advisors in the market are unregulated and unmonitored. This creates a risk of misconduct but may also prevent market participants from accessing strategic advice that could help them to navigate the market better. Many similar markets, including other biodiversity offsets markets within Australia, regulate brokers to ensure their integrity and effectiveness. We recommend that the Department of Climate Change, Energy, the Environment and Water (the Department) accredits Biodiversity Offsets Scheme advisors through a process similar to that used to accredit assessors.

1.2 There is an opportunity to make the market work better for Aboriginal Land Councils

Whilst we have revisited many of our findings and recommendations from last year, we had a new focus to investigate specific barriers to entry for Aboriginal landholders. This year, we have focused on Local Aboriginal Land Councils (LALCs), but we intend to continue to engage with Aboriginal landholders, including outside of the LALC network, to further understand how the market can support their local priorities.

Aboriginal peoples are custodians of stories, law and ecological knowledge for the management and care of Country. The Government has signalled intent to undertake tailored engagement with Aboriginal people to explore new and better ways to support Aboriginal people to connect with and care for Country.[6]

While we found there is a large appetite for environmental enterprises among LALCs, entering a Biodiversity Stewardship Agreement is seen as an unattractive option. The perspectives of LALCs echo many of the concerns of current market participants, however LALCs experience unique and exacerbated inequities. There are innovative options that the Government could consider to enable Aboriginal communities to manage their lands in a way that supports conservation and economic development.

1.3 List of findings and recommendations

Findings

Market overview

Trading mechanisms and pricing

Recommendations

Trading mechanisms and pricing

1. While the Biodiversity Conservation Fund continues to be a feature of the market, the Biodiversity Conservation Trust should set the pay-in charge at a level that is sufficient to provide a high degree of confidence that it can obtain like-for-like

12.	The Government should work with Aboriginal communities to identify how the market can assist them or support their priorities.	101

Chapter 2

Introduction and context

What is the biodiversity credits market and why is it important?

02

Australia's diverse ecosystems are home to a variety of unique flora and fauna that are not found anywhere else. This rich biodiversity provides a range of ecological, cultural, intrinsic and economic benefits. Maintaining this biodiversity is important for the quality of life of current and future generations. Biodiversity loss can have catastrophic effects on ecological processes, including creating imbalance in food chains, and reducing pollination and nutrient recycling. This can lead to loss of species, and the eventual decline of agriculture, forestry, fisheries and tourism.

Across the world, biodiversity is threatened by habitat loss and degradation. This is caused by the clearing of native vegetation for agriculture, urban development and resource extraction, as well as by climate change, invasive species, disease, pollution and poaching.

In NSW, landholders who want to develop or clear vegetation on their land must offset or compensate for their unavoidable impacts on biodiversity.[7] Proponents of development are required to balance the unavoidable impacts of their actions by supporting the conservation of equivalent biodiversity elsewhere. One way they can do this is by purchasing biodiversity credits from landholders who are willing to enter into a Biodiversity Stewardship Agreement with the NSW Government, to preserve and promote biodiversity on their land in perpetuity. The biodiversity credits market provides a platform for these parties to buy and sell different types of biodiversity credits.

The biodiversity credits market has faced various challenges since its inception, particularly around ensuring adequate in-demand credit supply, market liquidity and stakeholder confidence. In the context of Government reform, IPART was appointed to monitor the biodiversity credits market and make recommendations to improve its efficiency and effectiveness. We have been asked to do this annually for 3 years, from 2022–23 to 2024–25. This report summarises our analysis and provides the findings from our second annual review.

This chapter provides context for the review, explaining how the market works, who the key market participants are, how the market fits into the broader Biodiversity Offsets Scheme (the Scheme), and how the Scheme is evolving. It also explains the process we have undertaken for the review and how the report is structured.

2.1 About the NSW biodiversity credits market

In 2016, the *Biodiversity Conservation Act 2016* (Biodiversity Conservation Act) established the Scheme, which provides a framework to avoid, minimise and offset the impacts of development and native vegetation clearing on biodiversity. One of the key elements of the Scheme is the creation of a market for biodiversity credits, to facilitate trade in ecosystem and species credits.[b]

Under the Scheme:

- Applications for development or clearing must set out how impacts on biodiversity will be avoided and and/or minimised. Remaining impacts can be offset with biodiversity credits.
- Landholders can generate biodiversity credits by establishing Biodiversity Stewardship Agreements on their land. They can sell the credits to earn income and provide the funding to support the long-term management of the stewardship site.

[b] A glossary of key terms relating to the biodiversity credits market can be found in Appendix B.

The biodiversity credits market is a mechanism for proponents of land to find and buy the biodiversity credits they need, and for Biodiversity Stewardship Agreement holders to sell the credits they create. Figure 2.1 provides a simplified illustration of how the market works.

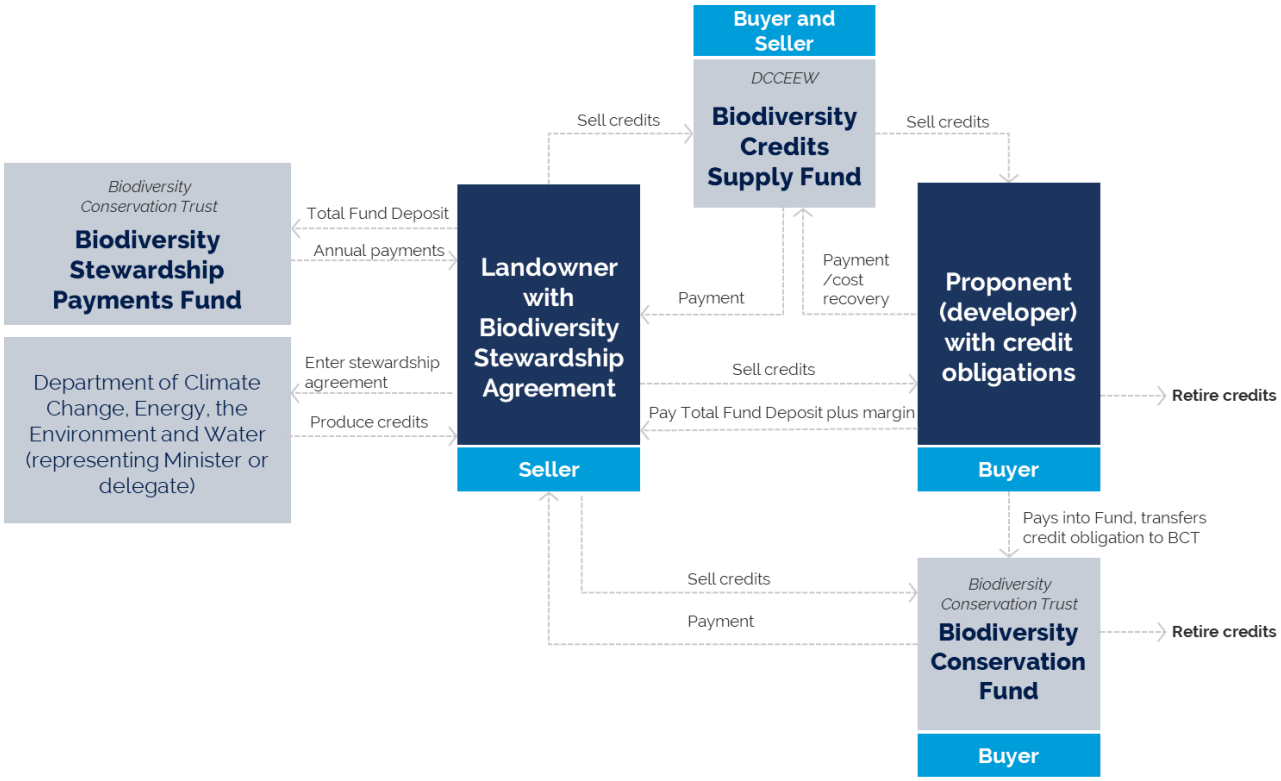
The market is facilitated by the Department of Climate Change, Energy, the Environment and Water (the Department), who among other things also assess Biodiversity Stewardship Agreement applications, administer the Biodiversity Credits Supply Fund (the Supply Fund), and publish key market data.

Not all biodiversity credits created are traded directly by credit buyers and sellers in the market. Development proponents who require credits have 3 options for meeting their credit obligations:

1. **purchasing them in the credits market (either directly from credit sellers or from intermediaries).** When proponents buy credits in the market, they can approach sellers directly or participate in the Supply Fund reverse auctions. In these reverse auctions, the Department acts as a market intermediary by buying in-demand credits from credit sellers, on-selling them to credit buyers and reinvesting the proceeds back into the Fund.
2. **paying into the Biodiversity Conservation Fund** (the Fund).[c] Paying into the Biodiversity Conservation Fund transfers the credit obligation to the government-owned Biodiversity Conservation Trust, which then seeks to buy or create the necessary credits to acquit those obligations.
3. **creating credits themselves on land they own**, by entering into a Biodiversity Stewardship Agreement to generate credits.

[c] To apply to pay into the Fund, a proponent must first request a quote from the Biodiversity Conservation Trust. If a proponent is willing to pay the quoted charge, the Biodiversity Conservation Trust can't refuse a payment into the Fund.

Figure 2.1 Simplified map of the biodiversity credits market



2.2 Why an effective credits market is important

The NSW Government has recognised biodiversity in NSW is in crisis.[8] The Government is seeking ways to halt biodiversity declines and ultimately put nature on a path to recovery through a nature positive approach.[d] [9] At the same time, there is a need for development of housing and essential infrastructure to support our growing population. The Scheme and the biodiversity credits market that sits within it were established to balance these 2 very important outcomes. Using a market-based approach to establish the economic value of biodiversity conservation has several benefits. It encourages the conservation of private land, which makes up around 70% of the land area of NSW.[10] It also minimises the cost of offsetting for proponents (as land with lower value alternative uses will be conserved first) and incentivises responsible development.

Demand for biodiversity credits is growing and this growth is expected to continue. The economic development that is creating this demand is coming from a range of factors, including investment in renewable energy, housing, manufacturing and infrastructure delivery. Governments are rezoning land to boost housing supply due to projected increases in population and concerns around housing affordability.

[d] A nature positive approach means nature is repaired and regenerated, unlike traditional approaches which mainly seek to slow or stabilise the rate of biodiversity loss. In practice, a nature positive approach may mean that development proponents will need to ensure a net gain in biodiversity from their project, for example by buying additional credits.

In a well-functioning market, credit prices signal the cost of offsetting impacts and give landholders, whether they are seeking to buy or sell credits, the right incentives to develop land or conserve biodiversity. The market provides a source of information about the costs of developing in different areas and helps development proponents to assess the different options available to them. A well-functioning market might mean that developments that will impact rare or threatened species will not proceed, as the proponents will find it difficult and expensive to obtain credits. However, it should also encourage developments on land that will impact more abundant ecosystems or species and ensure that they can occur without undue cost or delay.

In NSW, the credits market is just one part of the broader Biodiversity Offsets Scheme and the state-wide framework for conserving biodiversity. The market has been introduced as a tool to send price signals on where and how development occurs, based on the demand and supply of credits, and within the policy framework laid out by the Government.

2.2.1 What a well-functioning credits market would look like

It is important to have a clear idea of what a well-functioning market looks like and what outcomes it achieves to inform our consideration of how the biodiversity credits market is operating. A well-functioning credits market would bring together credit buyers and sellers to enable transactions at a price that signals the true cost of offsetting impacts on biodiversity. When landholders understand these costs, they can make informed decisions about whether and how to develop or preserve their land for the benefit of current and future generations.

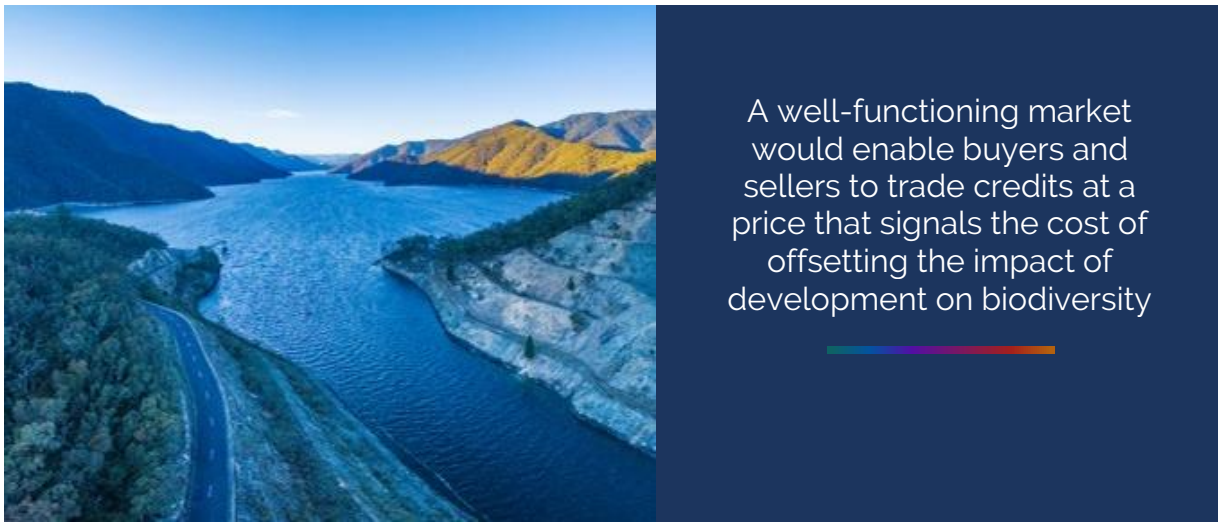


Figure 2.2 below shows some of the key indicators of an effective credits market. It is not an exhaustive list, but rather some of the more important elements that underpin the functioning of the market.

Figure 2.2 Key elements of a well-functioning credits market

	Prices freely adjust based on the demand for, and supply of credits
	Most credit buyers can buy credits in a timeframe that suits their needs and sellers have incentives to create in-demand credits
	Market processes support all parties to engage in fair trading
	No buyer or seller has the power to unduly influence prices
	Market data supports participants to make informed decisions, including where and how development occurs
	Transaction costs and timeframes are minimised
	Barriers to entry for suppliers are minimised
	Participants have confidence in the governance of the market, and in third-party market facilitators

When defining a well-functioning market, we have focused on the way the market operates rather than describing it in terms of the environmental outcomes it achieves. We heard from some stakeholders that they would like us to consider and monitor whether the market is delivering biodiversity outcomes.[11] While the Biodiversity Conservation Act has an overall purpose of maintaining a healthy and resilient environment,[12] this is not necessarily the primary purpose of the market. Offsets (and therefore credit purchasing) are meant to be a genuine last resort for addressing unavoidable impacts from land use.[13] The market can support the efficient delivery of these offsets, but it is the policy settings of the Scheme that are likely to have the largest impact on overall biodiversity outcomes. A credits market with the characteristics set out in Figure 2.2 will maximise the benefits of the market within the existing policy settings.

2.3 IPART's role and approach to market monitoring

IPART was appointed to monitor the biodiversity credits market over a 3-year period, starting in 2022-23. We are monitoring how the market performs within the context of the current policy and legislative landscape to achieve this objective. Our Terms of Reference (see Appendix A) ask us to make findings and recommendations with the aim of:

We are approaching the task by comparing the current functioning of the market to what we consider an effective market would look like (see previous section). Where we have identified areas of the market that are not functioning well, we have sought to make recommendations to bring the market closer to a well-functioning market.

Since releasing our Annual Report for 2022-23 in December last year, we:

- published a Discussion Paper to signal our focus areas for this year and seek out further feedback
- held a series of online workshops for stakeholders to discuss their experiences with the market.

The feedback from these consultations as well as our analysis of market data have informed this year's report.

2.3.1 What we found and recommended last year

We released our first Annual Report on the NSW biodiversity credits market in December 2023. Our analysis of the market over 2022–23 revealed that it is not operating well in 5 key areas:

1. The option for proponents to pay into the Biodiversity Conservation Fund is preventing the market from developing.
2. High up-front costs and long credit generation times create a lag between credit demand and supply.
3. Market participants lack accurate and timely information.
4. High transaction costs and market complexity discourage participation.
5. Stakeholders lack confidence in market oversight and governance, which hinders their participation in the credits market.

These findings were supported by data on credit transactions and key market indicators, as well as through discussions and written submissions from a wide range of market participants. We found that several changes were required to address issues of pricing, competition, transaction costs and barriers to entry, and we recommended 4 priority actions for the Government to improve the performance of the credits market:

1. Government interventions should prioritise facilitating market participation, maintaining integrity and instilling confidence in the market over keeping the cost of offsetting biodiversity impacts low.
2. The option for proponents to pay into the Biodiversity Conservation Fund should be phased out.
3. The Government should put interim measures in place to reduce development proponents' reliance on the Biodiversity Conservation Fund.
4. The Biodiversity Conservation Trust should develop an appropriate strategy for reducing the backlog of unacquitted credits in the Biodiversity Conservation Fund that considers the potential impact of its actions on competition and prices in the market.

Our findings and recommendations from last year continue to be relevant in light of our analysis this year. The market is evolving and in response, we have adapted our approach to monitoring the market since last year. We have revisited some of our analysis but have also considered some new focus areas. Some of new focus areas were raised in last year's review and we decided to examine them in more detail this year, whereas others are emerging areas of importance.

2.4 Changes to improve NSW's Biodiversity Offsets Scheme

The *Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Act 2024* (Amendment Act) was passed by NSW Parliament on 22 November 2024 and assented to on 2 December 2024.[e] The Amendment Act introduces a number of different reforms for the biodiversity offsets scheme. Some of the changes provided for in the Amendment Act include:

- providing for the Scheme to transition to delivering net positive biodiversity outcomes over time
- establishing the "avoid, minimise and offset hierarchy" as the key principle underpinning the approach to avoiding, minimising and offsetting the impacts of actions on biodiversity values
- enabling regulations to be made to prescribe the circumstances in which a person cannot pay an amount into the Biodiversity Conservation Fund as an alternative to satisfying a requirement to retire biodiversity credits
- requiring the Biodiversity Conservation Trust to acquit offset obligations paid into the Fund within 3 years, and, when it does not, to enter into an agreement with the Minister about how the Trust will meet its obligation

[e] The amendments have not yet taken effect at the time of writing.

- introducing new public registers to record specified decisions (such as grant of development consent or approval), conditions on approvals, and measures that have been taken or will be taken to avoid and minimise impact on biodiversity values
- enabling regulations to be made to prove for revised (lower) Scheme entry thresholds for local development.[14]

This Amendment Act provides the Government's high-level direction for the Scheme, with further details to be prescribed in the regulations. We have considered the Government's broad direction for the future of the market indicated by the Amendment Act and the Government's NSW Plan for Nature[15] in developing our recommendations this year.

There do not appear to have been any major changes to the Scheme and market while the Government has been developing and considering the Amendment Act.

2.5 How this report is structured

The rest of this report sets out our analysis of the biodiversity credits market, by key issue:

- Chapter 3 provides an overview of the market in 2023–24 and compares the outcomes we have observed with what would occur in a well-functioning market.
- Chapter 4 discusses the effectiveness of trading mechanisms and pricing in the market, particularly relating to the role of government agency intervention.
- Chapter 5 discusses the availability and timing of information for market participants.
- Chapter 6 discusses the costs of transacting in and entering the market.
- Chapter 7 discusses the level of confidence participants have in the market and how that influences their decisions.
- Chapter 8 explores whether the workings of the market align with Aboriginal land management, with reference to Local Aboriginal Land Councils.

Chapter 3

Market overview for 2023-24

How was the biodiversity credits market working over the past year?

03

This market overview provides a high-level summary of how the biodiversity credits market performed in 2023-24. This chapter does not contain any proposed recommendations for improvement to the Government, but rather presents a broad picture of the market's performance against key metrics. The later chapters of this Report then consider issues on specific topics and make recommendations for improvement to the Government.

3.1 Key points in this chapter

Key performance indicators of the market suggest that the market is not functioning as well as intended.

Overall, the number of credits traded did not increase materially compared with 2022-23. However, there was a significant change in the composition of credits traded in the market, with a rise in the proportion of credits traded that were ecosystem credits and a fall in the proportion of species credits. This change in credit composition led to a rise in both the value of credits traded in the market and the average price of credits traded.

Most development proponents are still choosing to satisfy their offset obligations by paying into the Biodiversity Conservation Fund rather than purchasing credits in the market. The Fund continues to take on obligations faster than it can acquit them. The Fund has made a significant effort to purchase credits by entering into agreements for future purchases but is increasingly using variation rules rather than purchasing like-for-like credits.

The market remains dominated by large infrastructure buyers and the Biodiversity Conservation Trust. Market concentration on the buyer side is high and well above the level of concentration on the seller side. Markets that are dominated by few large buyers are likely to result in prices that are lower than what would be observed in a competitive market. While this may be beneficial to development proponents in the short term, it may discourage private landholders from entering into Biodiversity Stewardship Agreements and creating biodiversity credits for sale.

During 2023-24 more new credits were created than in 2022-23. The available evidence shows that a greater proportion of these new credits were created to satisfy developers own needs for credits rather than generated by landholders for sale in the market.

Box 3.1 Caution should be exercised in interpreting market data

Our analysis and findings in this report are informed by:

- market data received directly from the Biodiversity Conservation Trust, the NSW Department of Climate Change, Energy, the Environment and Water and public sources
- submissions to our Discussion Paper, discussion at our workshops and stakeholder meetings
- outcomes of recent reviews of the Biodiversity Offsets Scheme (the Scheme) and its legislative framework and the broader context of government policy on biodiversity conservation and repair.

In many cases, the data we collected on the market's operation in 2023–24 is incomplete, unable to be disaggregated sufficiently to determine causality or contains too few data points to provide an accurate picture of the state of the market. We note that caution should be exercised in interpreting the data and have added disclaimers to complement interpretation of the data.

3.2 The number of credits created has continued to grow

3.2.1 The supply of credits has grown

At present, 82,000 hectares of land in NSW has been set aside for permanent conservation under Biodiversity Stewardship Agreements (Stewardship Agreements) since the Scheme began. In 2023-24, annual credit creation reached an all-time high with 54 new Stewardship Agreements signed in 2023-24, an increase of 32% compared with the 41 new Stewardship Agreements created in 2022-23.

In 2023-24, 290,000 new credits were created across 143 different credit types, including 68 new credit types that have never been created before. This reflects a continuation of the growth in the supply side of the market that we reported on last year.

This year, we've seen that developers are increasingly setting up their own Stewardship Agreements to offset their impacts on biodiversity. We found that approximately 57% of the total credit retirements since the Scheme's inception came from credits that developers established themselves. This is a notable rise from 29% at this time last year.

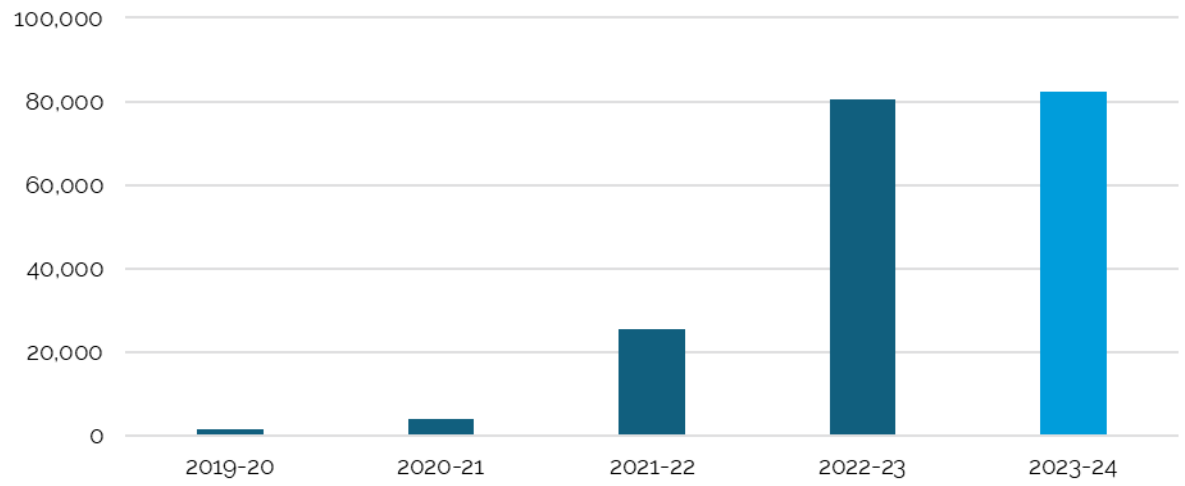
3.3 The overall number of credits traded did not change materially

The number of credits traded in the market in 2023-24 was similar to the number traded in 2022-23.

In our September 2024 Discussion Paper, we reported that on an aggregate scale, transactions data has shown a 26% growth in trade volumes relative to 2022-23. This includes both credits sold between original credit owners and buyers (i.e. primary transactions) as well as those on-sold from intermediaries like the Biodiversity Credits Supply Fund (the Supply Fund) to new buyers (i.e. intermediary transactions). There is an element of double counting in intermediary transactions as the ownership of those credits changes hands twice in a single sale.

When the double counting inherent in these transactions is removed, trading volumes in 2023-24 were similar to 2022-23 levels with a 2% increase in trading volume. For the purpose of this report we refer to the adjusted transfer volume data as 'net transactions', representing the underlying number of credits transferred between buyers and sellers after removing intermediary transfers. Trends in the number of credits within these net transactions are shown in Figure 3.1 below.

Figure 3.1 Trends in the number of credits transferred between buyers and sellers



a. The graph above shows the number of credits traded between buyers and sellers in the market, after removing intermediary transactions including on-sales between the Supply Fund and end-buyers.
b. This figure refers to credit transfers only. Retirement transactions are excluded from the analysis.

Source: IPART analysis, using data from the NSW Department of Climate Change, Energy, the Environment and Water.

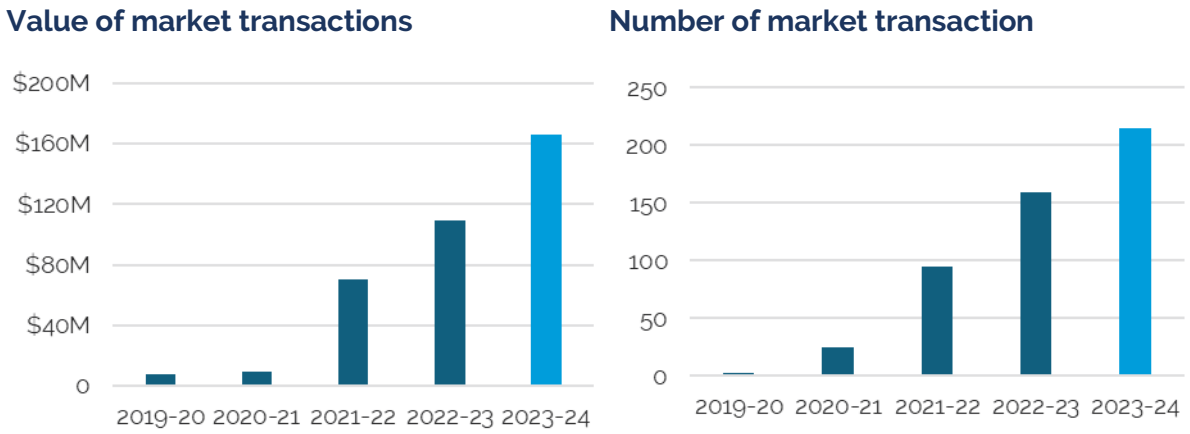
Credit transfer volumes are not a full indicator of market activity

As discussed further in Chapter 5, it is not possible to distinguish transfers between related parties from regular market transactions. Therefore the volume of credit transfers may overstate activity in the credits market. On the other hand, transfers do not include credits from Biodiversity Stewardship Agreements not yet established that have already been committed for purchase.

3.3.1 The number and value of market transactions increased significantly

While the number of credits traded remained steady, both the number and value of transactions has increased with each transaction having fewer credits traded, on average. The total value of traded credits increased by 52% from 2022-23 to 2023-24 to $166 million. Trends in the value and number of market transactions is shown in Figure 3.2.

Figure 3.2 Growth in value and number of market transactions



a. The analysis above shows the value and number of transactions between buyers and sellers in the market, after removing intermediary transactions including on-sales between the Supply Fund and end-buyers.
b. Values shown are in $2023-24 terms.

Source: IPART analysis, using data from the NSW Department of Climate Change, Energy, the Environment and Water.

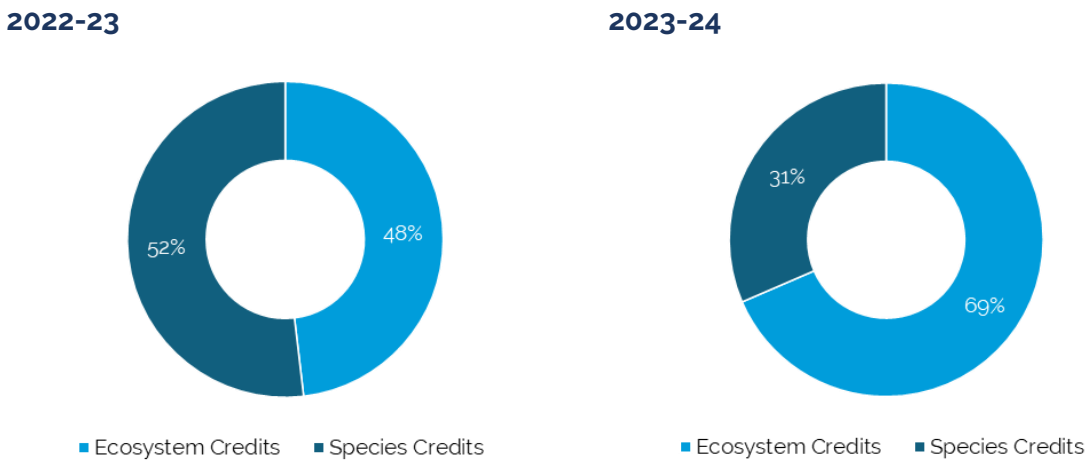
3.3.2 The type of credits traded in the market has changed

Despite steady volumes in net transactions from 2022-23 to 2023-24, there has been a marked (32%) decrease in the volume of species credits transacted and a significant increase in the total number of ecosystem credits traded (it rose by almost two thirds).

It is likely that this change is responsible for the rise in the value of market transactions with an increasing share of higher-value ecosystem credits being traded. The average traded credit price has grown by 48% from $1,363 in 2022-23 to $2,021 in 2023-24. Historically, species credits are traded at a much lower price than ecosystem credits. For example, in 2023-24, the weighted average price of a species credit was $585, compared to $2,787 for an ecosystem credit.

The change in the share of ecosystem and species credits from 2022-23 and 2023-24 is displayed in Figure 3.3.

Figure 3.3 Share of species and ecosystem credits in all market trades



a. The analysis above shows the value and number of transactions between buyers and sellers in the market, after removing intermediary transactions including on-sales between the Supply Fund and end-buyers.

Source: IPART analysis, using data from the NSW Department of Climate Change, Energy, the Environment and Water.

Finding

1. The total number of credits traded in the market remained steady in 2023-24. However, the underlying mix of credits traded in the market has changed, with a substantially higher share of the higher priced ecosystem credits traded.

3.4 Offset obligations transferred to the Biodiversity Conservation Fund continue to be significant

Developers continue to rely heavily on the Biodiversity Conservation Fund to fulfil their credit obligations. Of development proponents with offset obligations, 17% traded directly in the credits market with the remaining 83% offsetting either all or some of their obligations using the Fund option. This figure remains consistent with the proportion of development proponents using the Biodiversity Conservation Fund in 2022-23.

However, both the number and value of credit obligations transferred into the Fund were lower in 2023-24 than they were in 2022-23:

- In 2023-24, developers paid just over $60 million into the Fund. This compares with $166 million dollars' worth of credits that were transacted directly in the market and $80 million dollars' worth of obligations transferred into the Fund in 2022-23.
- In 2023-24, development proponents transferred 10,865 credits worth of obligations into the Fund. This compares with the 82,275 credits traded directly in the market and was around half the number of credits transferred to the Fund in 2022-23.

This suggests that larger development proponents are purchasing credits in the market, while smaller development proponents are choosing to pay into the Fund.

Finding

2. Similar to the previous year, around 80% of development proponents with credit obligations used the Biodiversity Conservation Fund to acquit all or some of them in 2023-24. However, the number of credit obligations transferred to the Fund and the value of payments fell.

3.5 The market continues to be dominated by major buyers and government entities

The market in 2023-24 was again dominated by a few major buyers and government entities. Currently, the 3 largest buyers are the Biodiversity Conservation Trust[f] and 2 development proponents overseeing major infrastructure projects. The Supply Fund is also a significant buyer in the market, but its purchases are made on behalf of other development proponents and on-sold relatively quickly.

Last year we reported on a major infrastructure proponent (Proponent A) purchasing almost two thirds of the total credits traded in the market. This year we saw the emergence of a second major infrastructure proponent (Proponent B), which now makes up the largest share of credits purchased in the market. The market share of both major buyers in the market in 2023-24 was significant. Between them, these 2 major infrastructure proponents purchased over 60% of all credits traded in the market.

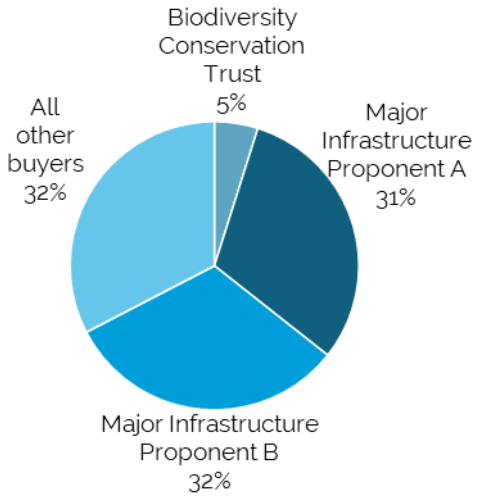
Figure 3.4 below shows the market share of major buyers in the market. Our analysis here excludes reverse auction purchases made by the Supply Fund, which are on-sold to development proponents so as to not double count these transactions. To display the market share of end-buyers the analysis instead includes transactions that involved on-sold credits by the Supply Fund to end-buyers. In 2023-24, the Supply Fund's reverse auctions facilitated the transfer of 21% of the credits purchased in the market (around a third of the value of all market transactions). The major infrastructure proponents tend to source credits using a number of different methods, including participating in the reverse auction process. Proponent A showed a high reliance on the Supply Fund, sourcing roughly 85% of the total value of its credit purchases from the Supply Fund this year.

[f] Market purchases made by the Biodiversity Conservation Trust include payments made for the fulfillment of credit obligations and payments for place-based programs. For example, the $51 million include purchases as part of the Cumberland Plain Conservation Plan and Growth Centres programs. These are government-funded programs and are not purchases from developer payments into the Fund.

Figure 3.4 Market share of major buyers - by total credits purchased and total value of purchases on the market

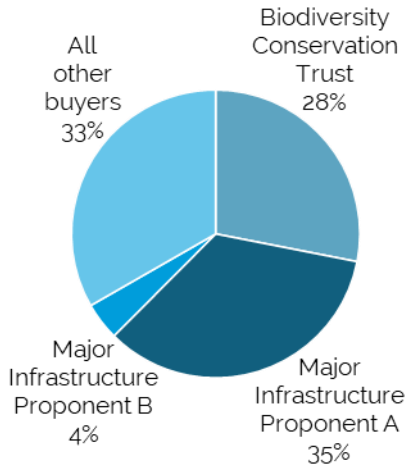
Credits purchased

Total credits purchased: 88,224



Value of purchases

Total value: $183,237,523



a. Figures refer to credit transfers. Retirement transactions are excluded from the analysis.
b. Trade volumes shown above exclude intermediary purchases by the Supply Fund on behalf of other buyers as to not double count the transactions made by the Supply Fund before on-selling these credits. After subtracting those primary purchases by the Supply Fund, we included the secondary on-sales by the Supply Fund to end-buyers, as to show the market share of end buyers without double counting any intermediary purchases in the market.
c. Purchases by the Biodiversity Conservation Trust include purchases made by the Trust for place-based programs.

Source: IPART analysis, using data from the Department of Climate Change, Energy, the Environment and Water

Factors affecting demand in a compliance market

The biodiversity credits market is largely a compliance market, meaning credit buyers do not necessarily control their volume of demand. A high concentration of buyers is not necessarily a problem, unless there are issues resulting from abuse of market power.

While Proponent B purchased 32% of the credits transferred in the market in 2023-24, it contributed to just 4% of the total dollars transacted. The discrepancy could be the result of geographic location of the development and associated credit values, or may result from low priced related party transactions where the development proponent has essentially created credits for itself. Unlike Proponent A, Proponent B did not make any credit purchases through the Supply Fund. Given their low total transaction value, it is likely that they have self-established a substantial portion of their credits.

We found that the third major buyer of credits in the market, the Biodiversity Conservation Trust has increased the value of its market purchases increased from around $8 million to $51 million this year. While it purchased 5% of the credits on the market, it contributed to 28% of the total dollars spent. This means that roughly two thirds of market purchases were undertaken by either the 2 major proponents or the Biodiversity Conservation Trust.

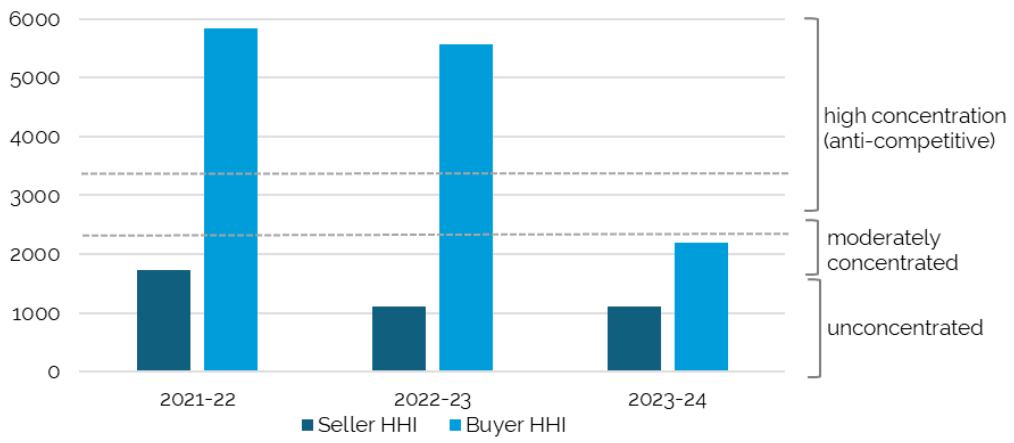
3.5.1 The market concentration of buyers is higher than the concentration of sellers

A high concentration of buyers or sellers occurs when a small number of market players hold a disproportionately high market share. It can lead to poor market outcomes including reduced competition or unfair trading practices. When the concentration of sellers is high, market prices could become artificially high. Conversely, when the concentration of buyers is high, market prices could become artificially low.

We have assessed the concentration of buyers and sellers separately in the credits market using the Herfindahl-Hirschman Index (HHI).[g16] We found that the buyer concentration is high overall and is higher than the concentration of sellers. Markets with a high concentration of buyers are susceptible to anti-competitive outcomes. Where buyers are highly concentrated, particularly relative to the concentration of sellers, the bargaining power of major buyers may put downward pressure on credit prices compared with what you would see in a more competitive market.

On a whole-of-market level (i.e, across all credit types and IBRA sub-regions) – see Figure 3.5,[h] our analysis shows that over the past 3 years there has been high concentration among buyers, indicating poor buy-side competition. The concentration of buyers has improved moderately in 2023-24, but further competition is required on the buy-side. At the same time, the sell-side has seen moderate to low concentration, indicating much healthier levels of competition compared to the buy-side. Both buyers and sellers are becoming less concentrated over time (Figure 3.5).

Figure 3.5 Trends in market concentration over time



g The HHI provides a measure of the market share of all participants, relative to the size of the market they are in. The HHI is used as an indicator of competition, where values below 1500 represent an unconcentrated market, values between 1500 and 2500 represent moderated concentration, and values above 2500 represent high concentration (or anti-competitive outcomes).

h This analysis excludes the market share of the Credits Supply Fund as an intermediary between buyers and sellers. Buyers and sellers participating in the auctions are still included in this analysis.

a. Figure represents the market concentration of completed transactions only. It does not reflect the concentration of unmet supply or demand.

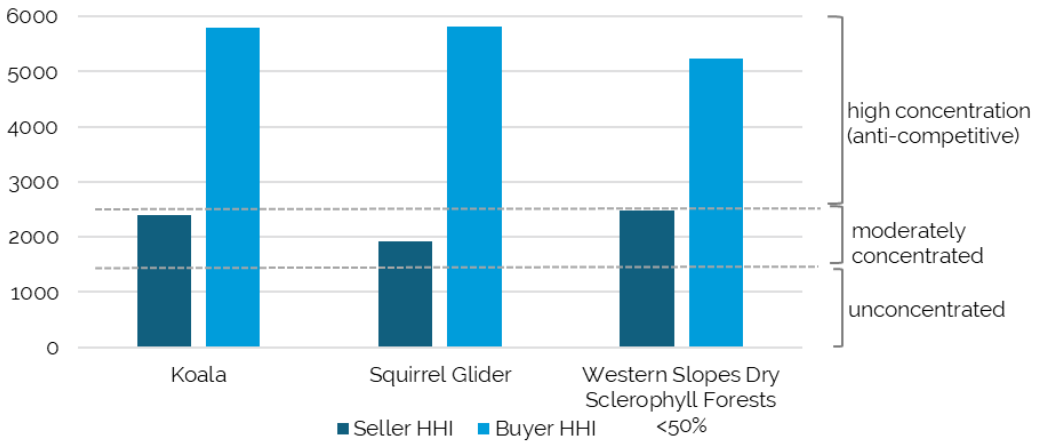
Source: IPART analysis using data from the NSW Department of Climate Change, Energy, the Environment and Water

We also considered the market concentration between individual credit categories by calculating the HHI for the 3 most highly traded credits in the market, which together make up 40% of all credits traded to date. We found that even for these 3 most commonly traded ecosystem and species credits, buyer concentration remains high and exceeds that of sellers (Figure 3.6).

Limited demand data

We typically compared supply and demand through transaction data rather than actual supply and demand in the market. There is limited data on demand in the market and the available data does not provide a full picture of the supply-demand balance in the market.

Figure 3.6 Market concentration of buyers and sellers of top 3 most traded credits



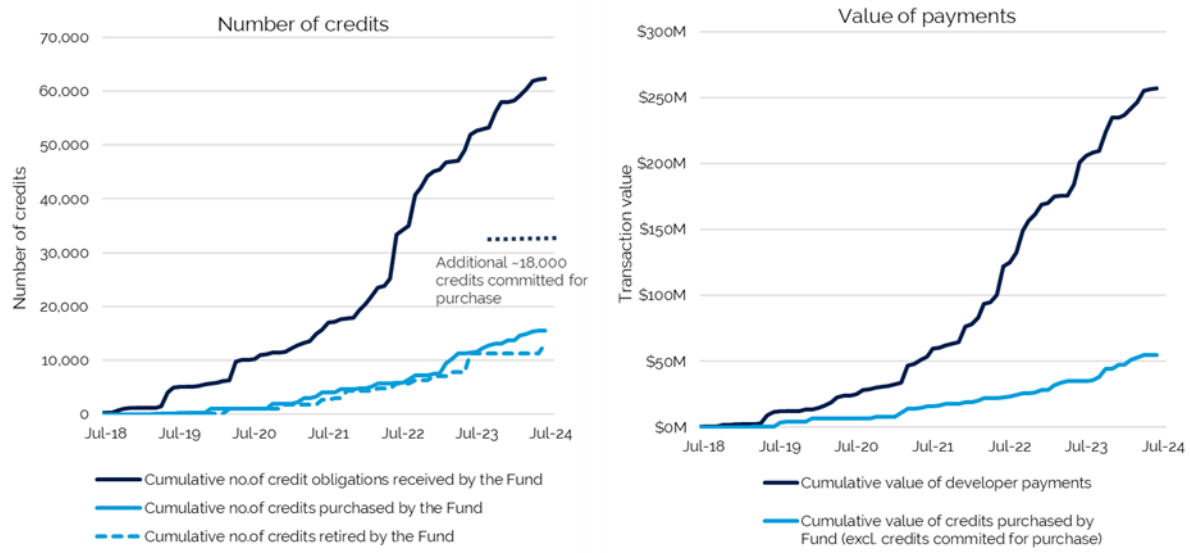
a. Figure represents the market concentration of completed transactions only. It does not reflect the concentration of unmet supply or demand.

Source: IPART analysis, using data from the NSW Department of Climate Change, Energy, the Environment and Water

3.6 Biodiversity Conservation Fund balances continue to grow

Despite being active in the market, the total value of obligations that the Fund accepted exceeded its confirmed purchases for acquittal. The Trust is required to accept obligations even if it has little prospect of acquiring a like-for-like credit. This means that this year, the Trust has continued to take on credit obligations at a faster rate than it has been able to purchase credits to acquit them. The result is that the balance in the Fund has grown. This is shown in Figure 3.7.

Figure 3.7 Biodiversity Conservation Fund obligations versus acquittals



Source: IPART analysis, using data from the Biodiversity Conservation Trust

Minor inaccuracies in Biodiversity Conservation Fund data

We encountered issues in analysing data on Biodiversity Conservation Fund payments and acquittals due to minor inaccuracies in the data. While the overall trends presented here are accurate, actual numbers may differ very slightly.

As of 30 June 2024, the Trust has fully acquitted (i.e., retired) 21% of its credit obligations from the Fund, with nearly 50,000 credits remaining outstanding. The projected timeline for the eventual retirement of the Trust's credit obligations varies. Historically, the Trust has taken 1.5 years on average to acquit an obligation. However, the current average age of the Trust's outstanding obligations is 1.8 years, with almost 20% of its outstanding obligations being over 3 years old.

We have heard from the Trust that it has 'committed for purchase' an additional 18,000 credits (or 28% of its outstanding credit obligations). This refers to instances where the Trust has entered into a contract to purchase credits, or has made a purchase offer via its credit tenders, reverse auctions, or open fixed price offer rounds. but not yet officially transacted. These may include credits that are not yet available, but have been identified at potential new Biodiversity Stewardship Agreement sites. In practice, these credits could take between 1-2 years to be acquired and subsequently retired, or in some cases, may never be acquired if the new stewardship site is not established. Therefore, we have not included these in our calculations of the Trust's purchased credits. However, these credits have been incorporated into Figure 3.7.

Finding

3. The rate at which the Biodiversity Conservation Trust is taking on obligations continues to grow faster than it can acquit them.

3.6.1 The Biodiversity Conservation Trust is increasingly purchasing credits that do not meet like-for-like offsetting rules

Of the 18,000 credits 'committed for purchase' roughly 27% have been done through the exercise of variation rules (that is, they do not meet the like-for-like offsetting rules associated with the credit obligation). This is substantially higher than in previous years, where less than 3% of the Biodiversity Conservation Trust's acquittals were done through the exercise of variation rules. The continued use of variation rules risks biodiversity outcomes not being met, as development will be enabled to clear valuable biodiversity without any adequate offsetting of its impacts occurring on a like-for-like basis.

3.7 Market transactions continue to be concentrated in a few credit types but the number of credit types traded has risen

Activity in the credits market is not evenly spread across the range of credit types. We found that a high percentage of market trades are for just a few key credit types. Activity in the credits market is not evenly spread across locations in NSW.

The Scheme recognises 364 different Offset Trading Groups (sometimes referred to as 'ecosystem credits') and 867 different species credits. Yet only 118 of these have ever been traded. Even within the smaller subset of traded credit types, market transactions are highly concentrated within a few credit types. In fact, just 5 ecosystem credits account for over half of all ecosystem credit volumes traded to date. Over 90% of all species credits traded comprise just 2 species credit types.

Compared with 2022-23, we are seeing a more diverse range of credits being traded this year. In 2023-24 alone, 84 different credit types were traded at least once across 215 transactions. In comparison, just 51 different credit types were traded over the 2022-23 period. As the market is a compliance market (developers need to purchase the particular credit types needed to offset their development activities) these different types of credits traded are likely to be closely related to where development is occurring.

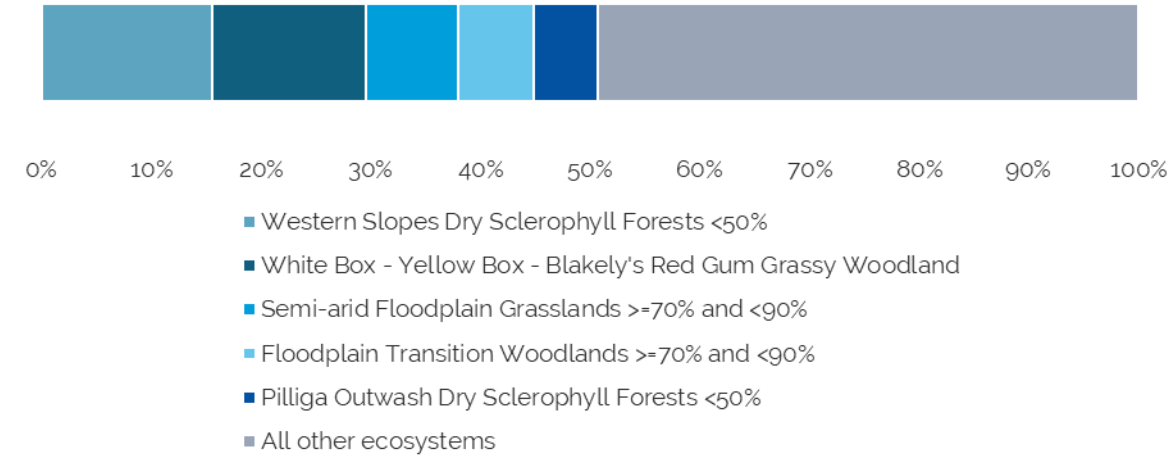
Even with landholders generating a diverse range of 215 different credit types that are available for purchase, only 55% of these credit types have ever been transacted.[ij] Of the 730,000 credits that have been generated on Biodiversity Stewardship sites since the inception of the Scheme, less than 200,000 (26%) have ever been traded.

Among these traded credit types, a small number dominate the market. Out of the 80 different Offset Trading Groups (OTGs) that have ever been traded, just 5 account for over half of all OTG credits ever transacted. Figure 3.8 shows the market share of the top 5 selling credits by number of credits traded.

[i] Stewardship Agreements will naturally include a number of credits that are not in demand but exist on the site.

[j] These are credits generated since the inception of the Biodiversity Offsets Scheme and excludes credit types generated under the old BioBanking scheme due to differences in the available credit types between the old and new scheme.

Figure 3.8 Ecosystem Offset Trading Groups by number of credits traded - All time

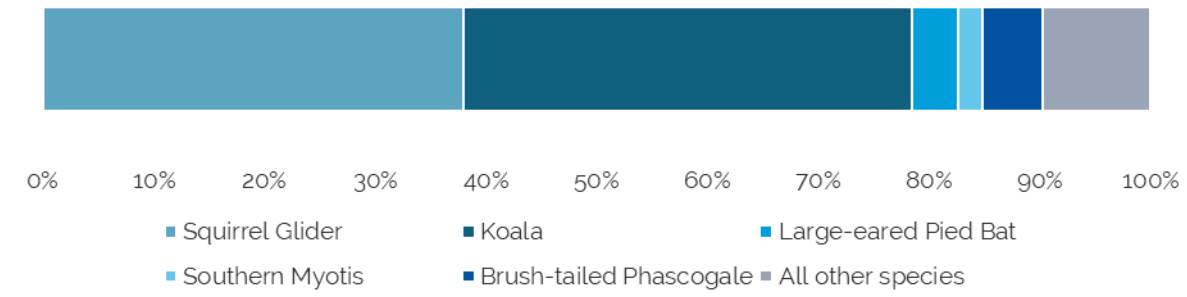


Source:: IPART analysis, using data from the NSW Department of Climate Change, Energy, the Environment and Water.

The 'Western Slopes Dry Sclerophyll Forests <50%' has remained as the top traded all time ecosystem credit, despite experiencing a 66% drop in trading volumes from 2022-23 to 2023-24. The 'Semi-arid Floodplain Grasslands >=70% and <90%' credit was the top traded ecosystem credit in 2023-24 by a large margin. While the 'Western Slopes Dry Sclerophyll Forests <50%' credit makes up 16% of the total credits traded, it represents only 6% of the market value. Despite not being one of the most highly traded in terms of number of credits, the 'Cumberland Plain Woodland in the Sydney Basin Bioregion' represents 20% of the total dollar amount transacted for OTGs in the market.

Species credits are more concentrated than ecosystem credits. There are 2 credit types – the Squirrel Glider and Koala – that dominate species credit sales. Together these credits drive around 3 quarters of species credit purchases, as shown by Figure 3.9, and make up a similar proportion of the dollars spent. Large-eared Pied Bat, Southern Myotis and Brush-tailed Phascogale are the next most traded species credits.

Figure 3.9 Top species credits by total credits traded of transactions – all time



Source: IPART analysis, using data from the Department of Climate Change, Energy, the Environment and Water

Demand for the Koala and Squirrel Glider credits has reduced dramatically. In the past year, total Koala credit purchases have dropped by over 40%, while Squirrel Glider purchases have reduced by roughly 60%. This has echoed the 32% overall reduced demand for species credits.

The fastest growing species credit in 2023-24 was the Large-eared Pied Bat, which saw a 5-fold increase in both the number of credits traded and value of these credits in the last year.

Credit trading activity will occur in regions specific to where development is occurring. We have mapped the most frequently traded regions and included this analysis in Appendix D of this report.

In general, the concentration of the market indicates that for most credit types, there is very limited prior transactions data for participants to refer to when considering trading in the market, and there is likely to be no reliably established market price for the majority of credit types traded. This poses challenges for landholders to estimate expected credit yields, or for developers to estimate offsetting costs when considering credits that have been historically thinly traded.

3.7.1 A wider range of credits were traded in 2023-24

Overall, there was a wider range of credits traded in 2023-24 compared to 2022-23. The market saw 84 different credit types traded, compared to 51 in 2022-23. The most notable change in credit demand occurred for the 'Semi-arid Floodplain Grasslands >=70% and <90%' credit. In 2023-24, transactions involving these credits totalled just over $50 million, marking a 428% increase from approximately $17 million in 2022-23.

In 2023-24, a total of 30 new ecosystem credit types and 18 species credit types were traded for the first time. Of these, the most frequently traded was the 'Central Hunter Ironbark-Spotted Gum-Grey Box Forest in the New South Wales North Coast and Sydney Basin Bioregions' credit. This was traded 8 times for a total of $4.9 million.

Box 3.2 Commonly traded species credits in the market

Squirrel Glider

The adult Squirrel Glider has a head and body length of about 20 centimetres. It has blue-grey to brown-grey fur on its back, white on its belly and the end third of its tail is black.

Conservation status in NSW: Vulnerable

Koala

The Koala is an arboreal marsupial with fur ranging from grey to brown on the back, and white on the stomach. It has large furry ears, a prominent black nose and no tail. It spends most of its time in trees and has long, sharp claws, adapted for climbing.

Conservation status in NSW: Endangered

Brush-tailed Phascogale

The Brush-tailed Phascogale is a tree-dwelling marsupial carnivore. It has a characteristic, black, bushy 'bottlebrush' tail.

Conservation status in NSW: Vulnerable

Sources: NSW Government Office of Environment & Heritage, Squirrel Glider - profile, accessed 4 December 2024; NSW Government Office of Environment & Heritage, Koala - profile, accessed 4 December 2024; NSW Government Office of Environment & Heritage, Brush-tailed Phascogale – profile, accessed 4 December 2024.

Chapter 4

Trading mechanisms and pricing

How does the market bring together demand and supply to determine the price of credits?

04

In an effective market the price of different credits would accurately reflect the balance of supply and demand for each type of credits and would be observable to market participants at the time they are making land use decisions. Market clearing would occur efficiently and on a like-for-like basis, and market mechanisms would support fair trading amongst all participants.

Allowing prices to adjust freely to reflect the balance of demand and supply in the market is important for ensuring that prices signal where it is most desirable for development to occur and where conservation is most valuable, and so that the costs and benefits of conserving biodiversity can compete with alternative land uses. For this to occur effectively, all market trading mechanisms, including market alternatives like the Biodiversity Conservation Fund, must allow market prices to respond to the levels of demand and supply for each type of credit.

This chapter presents our analysis of the key issues reducing the effectiveness of trading mechanisms and supply-demand based pricing in the market. It also makes recommendations to improve the effectiveness of trading mechanisms in the market.

4.1 Key points in this chapter

At a high level, our key findings on the effectiveness of the trading mechanisms and pricing within the market are consistent with last year.

Access to the Biodiversity Conservation Fund option at the current pay-in charge continues to stifle the development of the market and prevents it from establishing prices that reflect the balance of demand for and supply of credits. Market prices are unable to freely adjust beyond the Fund's pay-in charge. As a result, for some credit types we see a concurrence of both uncleared demand and uncleared supply in the market. There is evidence that development proponents are choosing to pay into the Fund in preference to purchasing credits that are readily available in the market.

Access to the Fund is available to all development proponents for all credit types (including those where credit supply is not available). This enables development to occur even in cases where credits are unavailable to offset the impacts of development, or at prices that reflect the cost to landholders of conserving biodiversity on their land in perpetuity.

All trading mechanisms in the market, including the Biodiversity Credits Supply Fund's (the Supply Fund) reverse auctions, are impacted by the current functioning of the Biodiversity Conservation Fund. The Biodiversity Conservation Fund's price ceiling effects are observable in both reverse auction outcomes and in directly negotiated market transactions.

We recommend action being taken as soon as possible to reduce the impact of the Fund on the market. We support recent legislative amendments that will enable regulations to be made to prescribe the circumstances in which a person cannot pay an amount into the Biodiversity Conservation Fund as an alternative to satisfying a requirement to retire biodiversity credits and to require the Biodiversity Conservation Trust (the Trust) to acquit offset obligations paid into the Fund within 3 years, and, when it does not, to enter into an agreement with the Minister about how the Trust will meet its obligation.

We also recommend the Trust should set the pay-in charge at a level that is sufficient to provide a high degree of confidence that it can obtain like-for-like credits within a 3-year period. Based on current market indicators, we consider that this approach would lead to materially higher pay-in charges for most, if not all, credit types. We recommend that where the Biodiversity Conservation Trust is required to take on obligations for which it has little prospect of acquiring a like-for-like credit within this timeframe, pay-in charges should reflect an appropriate risk premium for doing this. This would reduce the likelihood of development occurring without offsetting its impact on biodiversity.

This year we have also undertaken more detailed analysis on the Supply Fund's reverse auctions. Auction prices continue to be determined relative to Biodiversity Conservation Fund charges, and as a result they are prevented from reflecting free market-determined prices. There are also additional elements of the auction design that prevent them from functioning as effectively as they could be. The auctions use different clearing prices for sellers versus buyers, which creates inconsistent price signals and systemic price arbitrages that could be leveraged by market participants and cause market inefficiencies and hinder clearing.

We have also found that the reverse auctions offer buyers greater advantages relative to sellers – particularly because buyers are not required to submit binding offers. We have recommended a number of changes to improve the performance of the auctions, including measures to reduce the impact of the Biodiversity Conservation Fund on auction outcomes and to equalise information disclosure between buyers and sellers.

4.2 The current operation of the Biodiversity Conservation Fund is preventing an effective market from developing

The Biodiversity Conservation Fund provides development proponents the option to make one-off payments that transfer their credit obligations to the Fund, as an alternative to seeking credits in the market. When a proponent makes a payment into the Fund, the Trust takes on the obligation and it must purchase equivalent like-for-like credits to meet that obligation (and if unable to do that, must follow variation rules to purchase similar credits). The Trust cannot refuse a payment into the Fund. The price that the Fund can pay to purchase these credits must be less than the price it received from the developer (i.e. its pay-in charge).

The Biodiversity Conservation Fund pay-in option provides an affordable and expedient means of meeting offset obligations and ensures that essential infrastructure developments are not delayed or prevented by the need to offset biodiversity impacts. The convenience and relative affordability of the Fund payment option has seen high demand from development proponents, with many using the Fund as a preference to generating their own credits or purchasing credits directly in the market.

Consistent with our 2022-23 annual review, there is evidence that the current operation of the Fund has allowed development to occur at the expense of establishing a well-functioning credits market and realising biodiversity outcomes. The Biodiversity Conservation Fund pay-in option continues to stifle the development of the market and prevents the market from establishing prices that reflect the balance of demand and supply of credits. Many stakeholders agree with our finding in last year's report that the Biodiversity Conservation Fund pay-in option sets a price ceiling and disincentivises proponents from purchasing credits directly in the market.[17]

Box 4.1 The broader role of the Biodiversity Conservation Trust

The Biodiversity Conservation Trust was established in August 2017, as part of the NSW Government's biodiversity conservation reforms, to encourage and support landholders across NSW to participate in private land conservation. The Trust's core business is private land conservation. Landholders can apply to enter various types of wildlife refuge or biodiversity conservation agreements through a range of programs and delivery mechanisms offered by the Trust.

As well as supporting private land conservation, the Trust also undertakes other functions to support biodiversity conservation in NSW such as education, landholder support, and promoting citizen science.

At the end of 2023-24, the Trust had protected 250,400 hectares of land and 147 threatened species via agreements with 489 private landholders.

The Biodiversity Conservation Trust also plays several roles in the Biodiversity Offsets Scheme:

- The Trust manages and ensures landholders' compliance with their Biodiversity Stewardship Agreements, for example whether they are undertaking actions set out in their management plan.
- The Trust manages the Biodiversity Stewardship Payments Fund to make annual biodiversity stewardship payments to Biodiversity Stewardship Agreement holders.
- Development proponents can choose to pay into the Biodiversity Conservation Fund to meet their offset obligations. If they do so, the Trust will secure biodiversity credits or fund biodiversity conservation actions on behalf of the proponent.
- Governments can commission and fund the Trust to acquire biodiversity credits under place-based offsets schemes.
- The Trust provides a credit price estimation service for biodiversity credit market participants.

Source: *Biodiversity Conservation Act 2016*, part 10; NSW Biodiversity Conservation Trust, Annual Report Financial Year 2023—24, October 2023.

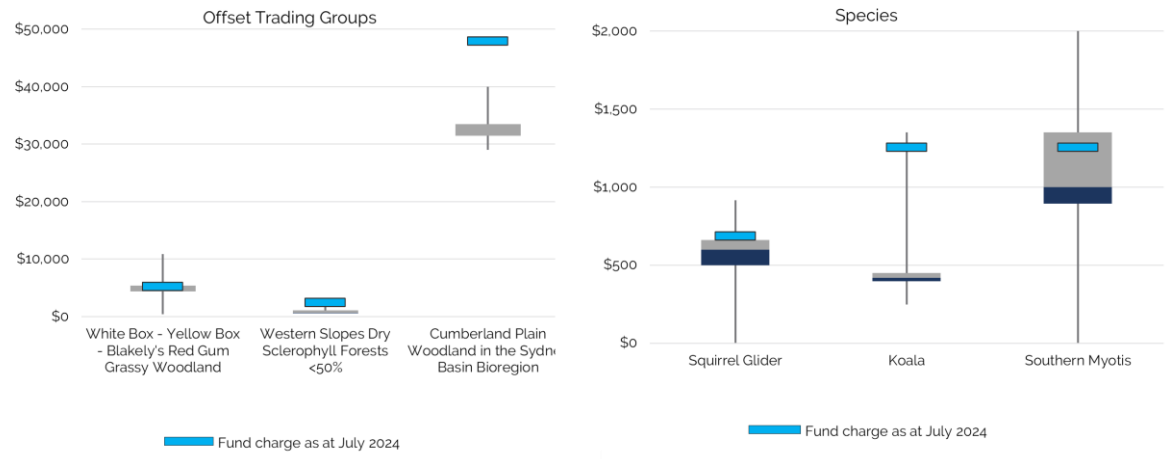
4.2.1 The Biodiversity Conservation Fund pay-in option sets broader market pricing

The Trust does not intend for the Biodiversity Conservation Fund charge system to set broader market pricing.[18] However, the ease and availability of the Fund pay-in option means that its charges do set an effective price ceiling across the market. Commercially motivated developers will only seek to purchase credits from the market if they can do so at a cheaper price, particularly as transaction costs for trading in the market are relatively high.

Figure 4.1 below compares the range of market prices for the 3 top traded ecosystem and species credits in 2022-23 and 2023-24, against the applicable Biodiversity Conservation Fund charge at the end of that period (July 2024). In the last 2 financial years, these top 3 ecosystem credits accounted for 35% of all ecosystem credit transactions, and the top 3 species credits accounted for 57% of all species credit transactions. The data reveals that for most of these credits, the Fund charge remains reasonably consistent with the range of market transactions – suggesting that the Fund pay-in charge competes with prices offered by sellers in the market.

Some Fund pay-in charges were significantly lower earlier in 2023-24 than is shown in the graphs below. For instance, Koala credits were ~$600 for most of 2023-24, and increased to $1,136 only in July 2024.

Figure 4.1 Comparison of recent market prices and Biodiversity Conservation Fund charges for top traded credits



a. Prices shown are in $2023–24 terms
b. Biodiversity Conservation Fund charges shown above include the delivery fee and risk premium as at July 2024.
c. Market prices shown consider transaction data from both FY2022–23 and FY2023-24 (for a sufficient sample size) and exclude transactions involving the Biodiversity Conservation Trust.
d. Trading prices include all transactions including bulk trades, option agreements, agreements to separately fund the Total Fund D and related party transactions, and some of the variation in some credit prices may not provide an accurate picture of purchase prices (see Chapter 4 for further discussion).

Source: IPART analysis, using data from the Biodiversity Conservation Trust and NSW Department of Climate Change, Energy, the Environment and Water

In setting Fund charges, the Trust uses a range of calculation methods (depending on the credit type) including market sounding, cost structure and econometric models. Our analysis shows that around 70% of the Biodiversity Conservation Fund's quotes have been calculated using cost structure models. Where market sounding is used as an input, it is informed by transaction prices, which as shown in Figure 4.1 are themselves heavily influenced by the Fund's existing charges.

The Trust's approach to calculating the Fund charge is complex and attempts to consider the availability of the different types of biodiversity. However, a cost build-up undertaken by a government entity without perfect information is unlikely to be able to better approximate the cost of obtaining credits for offset than the market. Individual landholders will have their own views of the revenue they require from the sale of credits to make biodiversity conservation worthwhile. Individual development proponents will have their own views of what they are willing to pay for credits to make development in a particular area viable. The market itself is designed to bring credit sellers and buyers together in a way that reveals those individual values and allows trade to occur where a mutually beneficial price can be agreed.

While the Trust continues to accept obligations from all developers, for all credit types, at a price that is designed to approximate the cost of obtaining credits, it will continue to influence prices in the broader market, irrespective of when or even whether it publishes Fund pay-in charges. The risk of setting the pay-in charge too low is that credit creation will be discouraged, development will occur without offset and the environmental aims of the Biodiversity Offsets Scheme (the Scheme) will not be met.

4.2.2 There is evidence that Biodiversity Conservation Fund pay-in charges are too low

Allowing the market to set prices based on supply and demand is important for sending signals to suppliers on expected prices in advance of them signing in-perpetuity conservation agreements. For development proponents, the market price guides where and how development can occur in a way that minimises the impact on biodiversity.

A significant concern arises if the Fund's pay-in charge is too low, as:

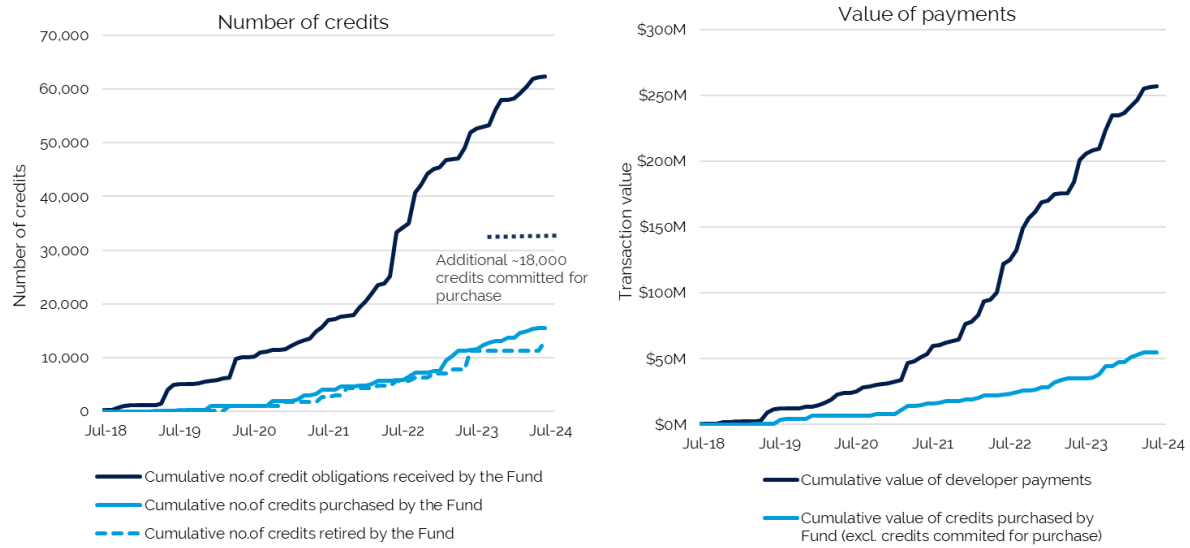
- Market prices will be unable to freely adjust beyond the Fund's pay-in charge, and market clearing will be prevented
- The Trust will be unable to purchase equivalent credits at its required price, and biodiversity outcomes will continue to be delayed until it can do so.

The Fund is accumulating obligations faster than it can acquit them

The rate of growth in new obligations taken on through Biodiversity Conservation Fund payments again outpaced the rate at which the Trust has been able to acquit them. The Trust continues to be unable to purchase credits to satisfy these obligations at a price it considers appropriate with reference to its pay-in charge. At present, 79% of the Trust's credit obligations remain unacquitted. Figure 4.2 (also presented in Chapter 3) shows the number and value of credit obligations acquired and acquitted by the Trust.

The obligations that are being transferred into the Fund have continued to grow, despite recent increases in the pay-in charge for some credits and despite there being a ready supply of these credits available in the market.

Figure 4.2 Trends in number and value of Biodiversity Conservation Fund obligations and acquittals over time



a. Payments shown are in $2023–24 terms

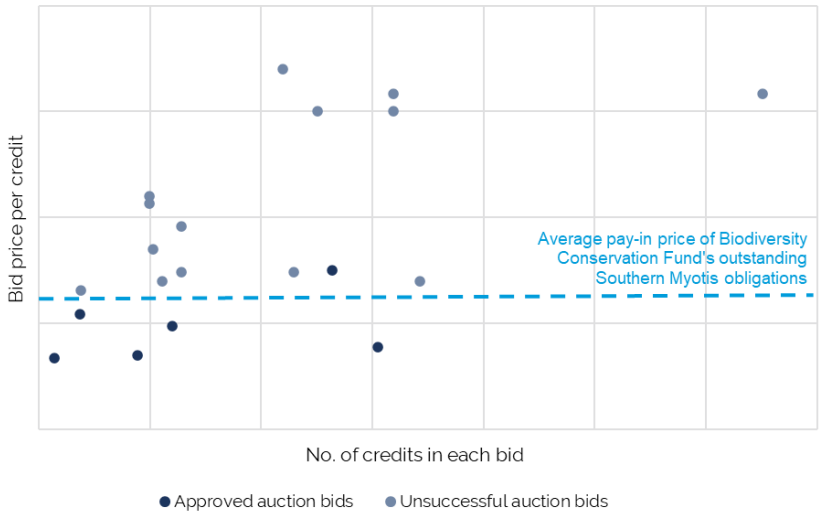
Source: IPART analysis, using data from Biodiversity Conservation Trust

There is both uncleared demand and supply in the market for the same credit types

We have found evidence that, for some credits, the Biodiversity Conservation Fund pay-in charge sits below the range of prices sought by credit suppliers in the market. At present, one of the largest outstanding obligations held by the Biodiversity Conservation Fund is for the Southern Myotis credit – with nearly 2,000 credit obligations remaining outstanding (that is, an underlying demand of 2,000 credits from the Biodiversity Conservation Fund).

In the February 2024 Supply Fund reverse auction, roughly 800 of these credits were entered into the market by landholders seeking to sell them. The auction resulted in the purchase of none of these, either from the Trust or from other development proponents. All additional demand for the Southern Myotis from development proponents who participated in the auction was directed into the Biodiversity Conservation Fund. When comparing the average Fund pay-in charge for Southern Myotis against the range of bids received from sellers in the reverse auctions, we see that the Fund-pay in charge sits almost 10% below the median bid price for Southern Myotis. Figure 4.3 below shows a comparison of reverse auction bids with the average Fund pay-in charge for its outstanding Southern Myotis obligations.

Figure 4.3 Comparison of reverse auction bids with Biodiversity Conservation Fund pay-in charge for Southern Myotis credits

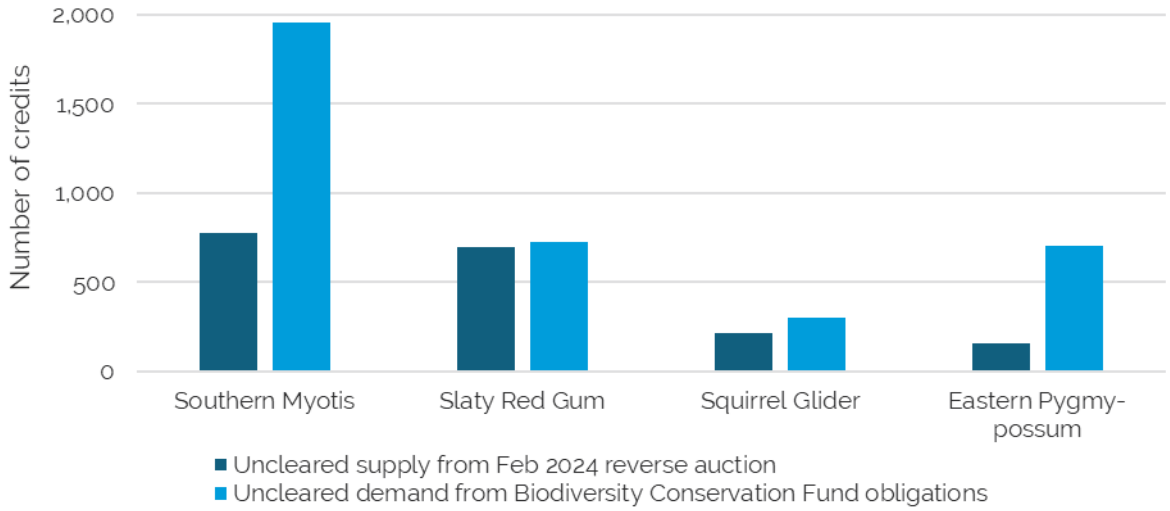


a. Auction bids are aggregated from reverse auctions 1-5. The approved bid that is higher than the average pay-in price of Biodiversity Conservation Fund is from reverse auction 1, when BOPC prices were not available. Since this time the Supply Fund has used applicable Biodiversity Conservation Fund charges as a reference price when assessing bids.
b. The Biodiversity Conservation Fund pay-in charge shown is calculated using the average pay-in price received for all outstanding Southern Myotis obligations

Source: IPART analysis, using data from Biodiversity Credits Supply Fund and Biodiversity Conservation Trust

Figure 4.4 below compares uncleared demand (from outstanding Biodiversity Conservation Fund obligations) with uncleared supply (from unsuccessful Supply Fund reverse auction bids) for 4 species credit types. The concurrence of both uncleared demand and supply for the same credits represents a market inefficiency that could otherwise be resolved in an effective market through market clearing at the optimal clearing price. For the graph below it should be noted that the Trust did not necessarily participate in the reverse auctions to procure enough credits to meet this demand, and uncleared reverse auction supply may be a result of supply volumes exceeding demand volumes. The graph illustrates that there is an opportunity for the market to clear this outstanding demand and supply, if prices are free to adjust to determine a mutually acceptable clearing price.

Figure 4.4 Coexistence of uncleared Supply Fund reverse auction supply with uncleared Biodiversity Conservation Fund demand for species credits



a. Uncleared supply from February 2024 auction represents the number of credits not approved by the Supply Fund for purchase. These could include credits under existing Biodiversity Stewardship Agreement applications that are not yet generated but have been included in reverse auction bids.
b. Uncleared demand from Biodiversity Conservation Fund obligations represents the number of credit obligations outstanding as at 1 July 2024, excluding credits purchased or committed for purchase and pending acquittal. The Biodiversity Conservation Fund did not necessarily participate in the reverse auctions to purchase all these credits, as other acquittal pathways may have been pursued outside the reverse auctions to meet its obligations.

Source: IPART analysis, using data from Biodiversity Credits Supply Fund and Biodiversity Conservation Trust

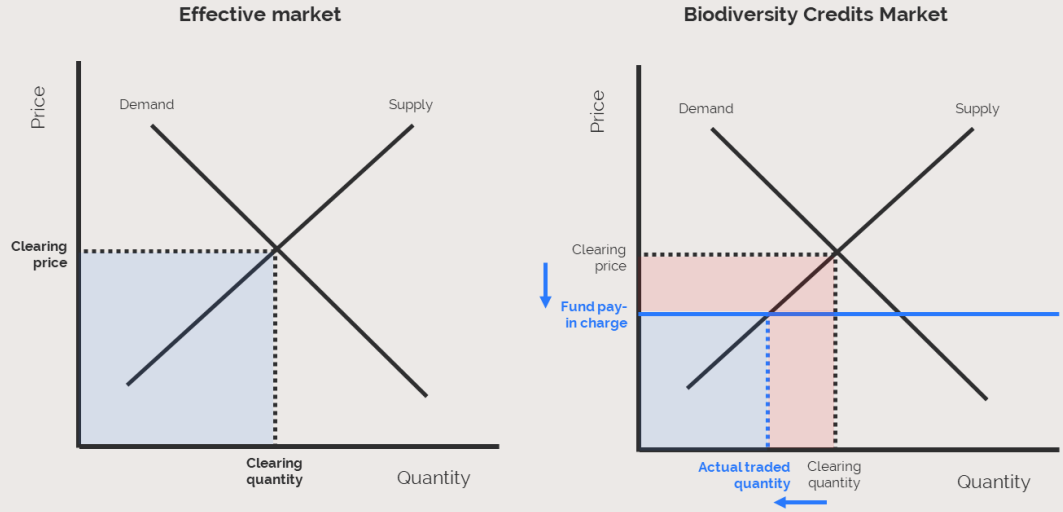
Coexisting supply and demand may not necessarily match

The Biodiversity Conservation Fund may have uncleared demand but also has credits yet to be generated committed for purchase. Uncleared reverse auction supply may be a result of supply volumes exceeding demand volumes within the auction.

Box 4.2 Impact of a pay-in charge that is too low

The impact of a low Biodiversity Conservation Fund pay-in charge is illustrated below. The Fund pay-in charge reduces trading volumes resulting in surplus demand and supply (shown by the red shaded area) that would otherwise have been met at an efficient clearing price in an effective market. The actual traded quantity (shown in blue) does not include payments into the Biodiversity Conservation Fund.

Box 4.2 Impact of a pay-in charge that is too low



Finding

4. The Biodiversity Conservation Fund pay-in charge is too low and it continues to prevent market clearing.

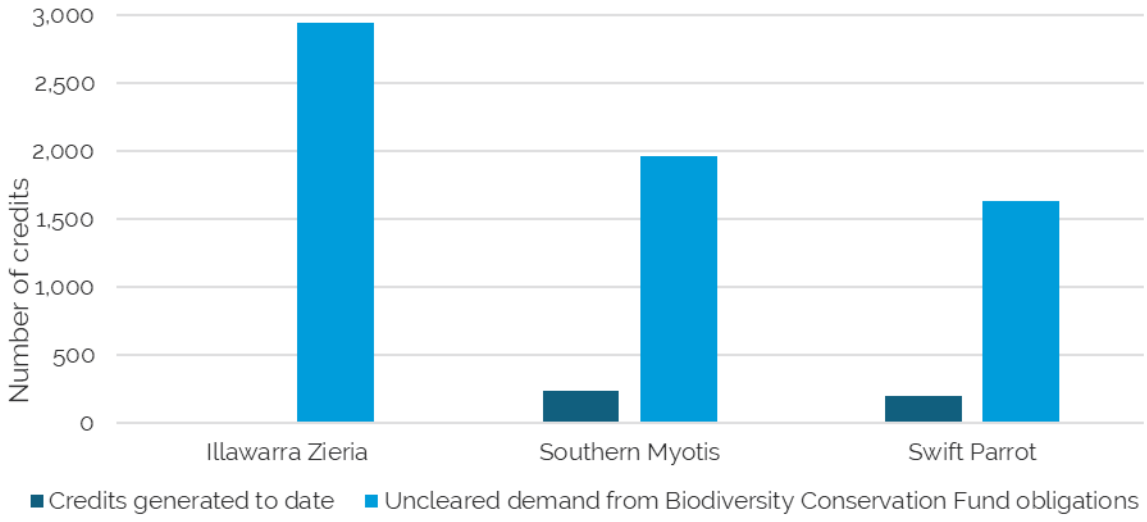
4.2.3 The Biodiversity Conservation Fund guarantees supply for developments where no offset is available

In our 2022-23 review we found that the Biodiversity Conservation Fund provides a credit supply guarantee that prevents prices from reflecting credit scarcity. This is because:

- When a development proponent makes a payment into the Fund, the Trust is required to accept the payments even if supply for that credit is unavailable in the market. This means that the Biodiversity Conservation Fund effectively guarantees a continuous supply of all credit types.
- The Trust can hold its obligations until a future date when supply becomes available, or it can acquit its obligations using variation rules or other conservation actions if credits cannot be procured at a price roughly equal to the Fund charge. This allows the Fund charge to mask the signalling of scarcity that would otherwise be present in market prices.[19]
- The Trust does not currently raise Fund charges materially higher for credits where there is no known supply. In fact, our analysis shows that the Fund continues to take on obligations for credits that have never been generated to date, at prices comparable to those for credits in higher supply.

These issues remain in 2023-24. In fact, our analysis shows that in 2023-24, the largest outstanding Biodiversity Conservation Fund obligation is for a credit type (Illawarra Zieria[k]) that is found in a limited area of the State with no established supply in the market to date. Its second and third largest outstanding obligations (Southern Myotis and Swift Parrot) also greatly exceed all the supply generated in the market since the Scheme commencement. This is shown in Figure 4.5 below.

Figure 4.5 Comparison of credit supply to date with top 3 outstanding Biodiversity Conservation Fund obligations



a. Credits generated to date include all credits generated via Biodiversity Stewardship Agreements since the commencement of the Biodiversity Offsets Scheme. These include credits that may be already be retired, sold or contracted for sale.
b. Uncleared demand from Biodiversity Conservation Fund obligations represents the number of credit obligations outstanding as at 1 July 2024, excluding credits purchased or committed for purchase and pending acquittal.

Source: IPART analysis, using data from Biodiversity Conservation Trust and NSW Department of Climate Change, Energy, the Environment and Water

4.2.4 Current credit prices may be prevented from rising to a level that reflects the inherent costs and risks of supplying credits

While 2023-24 has seen an increase in the number of market transactions, there is no evidence that these transactions have occurred at prices that reflect the actual management costs, opportunity costs and risks of in-perpetuity land management that landholders consider are sufficient to entice them to generate credits on their land. In fact, at our September 2024 consultation workshops, some landholders who had already created credits stated that the Biodiversity Conservation Fund influenced lower sale prices in the market – including at levels that were too low for them to recover their cost base.[20] This aligns with feedback that we received in last year's review that only land that has no other economic value is currently being used to generate biodiversity credits.[21]

[k] About the Illawarra Zieria: This tall shrub, endemic to the Illawarra region, occurs along volcanic rock outcrops and ridges with a highly restricted range of less than 25 kilometres. It is heavily impacted by browsing from goats, cattle and swamp wallabies; and competition from invasive weeds, particularly lantana which often occurs as dense thickets. Saving our Species projects 2016-21: Illawarra zieria (Zieria granulata)

One of the key risks for landholders participating in the credits market is the in-perpetuity nature of their Biodiversity Stewardship Agreements, and the difficulties in terminating or on-selling those agreements to exit the Scheme: i.e., once supply enters the market, it cannot be withdrawn, repurposed or easily on-sold. Additionally, once a Biodiversity Stewardship Agreement is signed, landholders have little ability to influence their cost base, given that management actions are pre-determined and the Total Fund Deposit value is determined by the Trust.

The high degree of market complexity and the in-perpetuity nature of Biodiversity Stewardship Agreements, coupled with the barriers to exiting the market pose the risk that some landholders could be forced into price-taking behaviours[l] because of a lack of alternative uses or avenues for their credits, and that market prices may not reflect the inherent costs and risks of supplying credits. It is important that prices are enabled to freely adjust to account for these risks. Without this, sellers would be unable to recover their full costs of conserving biodiversity in-perpetuity, and other prospective sellers may not enter into Biodiversity Stewardship Agreements to generate credits. In other words, the ability of prices to freely adjust to prevailing market conditions is essential for the long-term sustainability of the credits market.

Finding

5. The ability of prices to freely adjust is essential for the long-term sustainability of the credits market. There is evidence that credit prices are being prevented from rising to a level that reflects the inherent costs and risks of supplying credits.

4.3 Changes must be made to reduce the impact of the Biodiversity Conservation Fund option on the market

In our 2022-23 Annual Review we found that the current Biodiversity Conservation Fund pay-in option was preventing the market from determining equilibrium prices and it was limiting the development of the market. We considered several options for addressing the Fund's adverse impacts on the market, including:

- removing the Fund option
- increasing the Fund pay-in charge and
- limiting the ability for developers to make payments into the Fund.

[l] There is potential for this to occur if a landholder enters into a Biodiversity Stewardship Agreement without having a strong understanding of the full implications of doing so. There are features of the Scheme which make this more likely including the complexity of the Scheme, the lack of information around credit supply, demand and pricing, unregulated broker/assessor activities and the fact that large, dominant buyers are actively approaching landholders who have not previously expressed an interested in participating in the Scheme.

Of these, we found that removing the Fund was the only option that addressed the root cause of the Fund's impacts on the market. This is because making the Fund harder to access or increasing the Fund pay-in charge would still allow development in areas where it impacts rare or threatened species, and as a result, no offset credits are available.[m] Our 2022-23 Annual Report recommended that the Government phase out the option to pay into the Biodiversity Conservation Fund. We also recommended that the Government establish interim measures to reduce proponents' reliance on the Fund until it is fully phased-out, and continue to support the growth of the market during that time.

This year our analysis shows that the Biodiversity Conservation Fund continues to stifle the development of the market and prevent the market from freely establishing prices that signal the balance of demand and supply in the market.

4.3.1 Recent amendments to change the operation of the Biodiversity Conservation Fund are useful interim measures

As flagged earlier in this report, in November 2024 NSW Parliament passed the *Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Act* 2024 (Amendment Act), which lays out a number of changes in relation to the Biodiversity Offsets Scheme. Among other things, the Amendment Act requires the Biodiversity Conservation Trust to acquit offset obligations paid into the Fund within 3 years, and, when it does not, to enter into an agreement with the Minister about how it will meet its obligation.[22]

We consider that the 3-year timeframe for the Trust to meet its obligations is a positive step towards supporting shorter acquittal timeframes that could deliver biodiversity offsets closer to the time of clearing. However, the benefit of this provision depends on whether the Trust takes appropriate measures to ensure it does not continue to accumulate obligations that it cannot acquit on a like-for-like basis, and within the funds it receives from developers.

We also support enabling regulations to be made to prescribe the circumstances in which a person cannot pay an amount into the Biodiversity Conservation Fund as an alternative to satisfying a requirement to retire biodiversity credits. We consider that such circumstances could include reference to the scarcity of particular types of biodiversity, whether the credits are readily available in the market or requiring proponents to provide evidence that they have searched for credits in the market (including participating in a reverse auction). This aligns with the recommendations from the Independent Review of the Biodiversity Conservation Act to restrict access to the Biodiversity Conservation Fund.[23] Doing so would have the added benefit of diverting more buyers to the reverse auctions and the broader market and improving the current lower levels of buy-side competition.

[m] This could be avoided if the Fund was able to identify credits for which there is no likelihood of supply and exclude these obligations being transferred into the Fund or raise the price sufficiently high. However, we noted that there was currently no high-quality information that would allow this to occur in a reliable way.

Recent amendments also allow the Trust to pool funds from the Biodiversity Conservation Fund to purchase credits to meet its obligations, We consider this is a useful measure to allow the Trust greater flexibility in its pricing when purchasing credits from the market and can facilitate more efficient acquittal rates if applied appropriately. However, we also recommend that these measures are combined with changes to the Fund pay-in charge to maximise the benefit of this change.

4.3.2 We recommend that the Biodiversity Conservation Fund charges are also increased as a further interim measure to reduce the impact of the Fund

The continued operation of the Biodiversity Conservation Fund in its current form is detrimental to the effective development of the market, and changes are needed to reduce reliance on the Fund option and minimise its negative impacts. We recommend that while the Biodiversity Conservation Fund remains a feature of the Biodiversity Offsets Scheme, the pay-in charges under the Fund should be increased to be materially higher than current charges. We also recommend that where the Trust is asked to take on obligations for which it has little prospect of acquiring a like-for-like credit within a reasonable timeframe, that the Fund's charges reflect an appropriate risk premium for doing this.

Fund charges should be set at rates that are sufficient to ensure the Trust has a high degree of confidence that it can obtain like-for-like credits within a 3-year period. Based on the current market indicators, we consider that this approach would lead to materially higher pay-in charges for most, if not all, credit types.

It is important that Fund pay-in charges are materially higher than market prices to disincentivise the use of the Fund as a first-choice for developers seeking to meet their obligations. Any price increase that continues to keep the Biodiversity Conservation Fund a competitive alternative to the market, without actually reflecting prevailing market conditions, will continue to have a distortionary effect on market prices and could risk prices being too low to incentivise conservation. It is imperative that any increase to the Fund charge must consider not only the impacts to development, but also the impacts on biodiversity and the continued supply of offset credits, to ensure that the competing priorities of development and conservation are best balanced.

To reduce the risk of the Trust continuing to accept obligations at low prices for credits that are rare, difficult to source, or have no supply, the Trust should increase its use of market sounding as a means of determining predicted supply, using:

- the credit supply register
- data on unretired credits generated through established Biodiversity Stewardship Agreements
- data on credits estimated to be generated through ongoing Biodiversity Stewardship Agreement applications.

Where market sounding indicates there is no existing supply, or no existing Biodiversity Stewardship Agreement applications for a credit type, the Trust should increase its charge. Doing so will ensure that Fund charges continue to rise in accordance with the risk taken by the Fund in accepting obligations for credits with no supply.

We recommend that the Government adopt a precautionary approach by ensuring that prices are high enough to provide the Trust with confidence that it can purchase sufficient credits to offset any new obligations with like-for-like credits within 3 years. Higher Fund charges would begin to signal the Fund as a provider of last resort, with most development proponents paying credit prices that reflect the balance of demand for and supply of credits.

Recommendation

1. While the Biodiversity Conservation Fund continues to be a feature of the market, the Biodiversity Conservation Trust should set the pay-in charge at a level that is sufficient to provide a high degree of confidence that it can obtain like-for-like credits within a 3-year period. Based on current market indicators, we consider that this approach would lead to materially higher pay-in charges for most, if not all, credit types.

2. Where the Biodiversity Conservation Trust is required to take on obligations for which it has little prospect of acquiring a like-for-like credit within this timeframe, pay-in charges should reflect an appropriate risk premium for doing this. This would reduce the likelihood of development occurring without offsetting its impact on biodiversity.

4.4 The Supply Fund's activities are not operating as effectively as they could be

The Supply Fund's reverse auctions have facilitated a significant proportion of transactions in the market. There are elements of the Supply Fund's operations that have the potential to perform effective market making functions. Its reverse auctions encourage the efficient matching of supply with demand (particularly, allowing the market to take advantage of long development timeframes to build credit supply). It provides supply liquidity by facilitating trading via options agreements (including where credits are not yet in supply) and it estimates current and forecast demand levels and facilitates the fast-tracking of corresponding supply through new Biodiversity Stewardship Agreements.

However in practice, the Supply Fund's activities are not functioning as effectively as they could be, and its reverse auctions do not deliver market-determined prices. Many of these issues trace back to the existence and impact of the Biodiversity Conservation Fund option, which is readily available at a cost-effective price.

Box 4.3 Description of the Supply Fund reverse auction process

The Supply Fund's operating protocol allows it to purchase in-demand credits in several ways, but to date it has only used reverse auction processes. Reverse auctions are run around 3 times per year. At a high level, the Supply Fund uses the following process to run its reverse auctions:

1. The Supply Fund invites expressions of interest from potential credit buyers to identity in-demand credits. These expressions of interest are non-binding.
2. The Supply Fund compiles a target credit list and invites existing credit suppliers, or landholders interested in entering into a Biodiversity Stewardship Agreement, to bid the amount for which they would be willing to sell credits. The bids are binding if the Supply Fund accepts them.
3. Bids are evaluated by a panel that is supported by a probity adviser. The panel ranks the bids based on price and other relevant criteria and selects credits to recommend for purchase.
4. The Supply Fund offers credit buyers a price for the credits they are seeking, which is the weighted average of all bids accepted for that credit with an 8% mark-up for cost recovery.
5. The Supply Fund purchases the credits that credit buyers are interested in, to ultimately on-sell to the credit buyers.

The Supply Fund aims for a quick turnaround of the reverse auction process, as the bids from credit sellers are binding. Auction results are typically published around one month after bids close.

Source: NSW Department of Planning and Environment, Biodiversity Credits Supply Fund: Operating Protocol, October 2022, pp 9-12.

4.4.1 The Supply Fund's reverse auctions are hindered by the Biodiversity Conservation Fund charge

In our consultation, we heard stakeholder feedback that the reverse auction process was not working well for credit suppliers. We consider that the Supply Fund's reverse auction process has the potential to support the development of the market, and work well for both buyers and sellers, if it is conducted in a way that elicits a market-based outcome. In an effective reverse auction, prices would reflect the market price based on the balance of demand and supply of credits – and without the imposition of a price ceiling.

When the Supply Fund runs its reverse auctions, it uses the applicable Biodiversity Conservation Fund charge as an indicator of 'value', and only shortlists credits that are offered at a sufficient discount to this charge. In effect, the Fund charge acts as the ceiling price in the auction and prevents prices from reflecting real demand and supply balances, as would otherwise be expected from a competitive auction design. Over time, the reverse auctions could risk placing downward pressure on prices, particularly if Biodiversity Conservation Fund charges factor in transaction prices from the auction.

Finding

6. The Biodiversity Credits Supply Fund's reverse auctions are adversely impacted by the Biodiversity Conservation Fund charge.

4.4.2 There are some issues with the Supply Fund's reverse auctions

Aside from the impacts of the Biodiversity Conservation Fund charges on auction prices, there are additional elements of the auction design that prevent them from functioning as effectively as they could be:

1. **Different clearing prices for sellers versus buyers creates inconsistent price signals and systemic price arbitrages[n]**

- Under the existing reverse auction process, the Supply Fund calculates a weighted average price of successful bids[o] to facilitate clearing. It charges buyers the same weighted average price (plus an administrative markup), however, sellers only receive the value at which they bid at – which could be materially higher or lower than the weighted average price. This means that clearing occurs at 2 different prices for buyers and sellers.
- The different clearing prices for buyers and sellers mean that prices buyers pay may not provide an accurate signal of sell-side bids, and could risk creating false price expectations.
- Importantly, the different clearing prices create systemic price arbitrages in the reverse auctions that could be leveraged by market participants and cause market inefficiencies and hinder clearing (this is discussed further below in Section 4.5).

2. **Buyers are unfairly advantaged in the reverse auctions, relative to sellers**

- When buyers participate in the reverse auctions they are not required to submit offers, and their participation in each round is non-binding. This means that buyers can exit the auction at any time without penalty, including after the weighted average bid price is revealed.
- Conversely, when sellers submit bids they are binding and sellers are unable to withdraw their bids once the auction commences. The weighted average price (i.e., the settlement price for buyers) is not disclosed to sellers until after the auction concludes – which could be several weeks after the price is disclosed to buyers.
- This creates an information asymmetry and allows buyers to exit the auction and progress other bilaterial negotiations, with the benefit of knowing the weighted average price well before it is released to the rest of the market.

[n] A price arbitrage occurs when there are different buy and sell prices for the same product. Where a price arbitrage exists, market participants can simultaneously buy and sell the same product in order to profit from the difference in trade prices. In the Supply Fund reverse auctions, the application of different clearing prices for buyers and sellers sets a *systemic* arbitrage that could be repeatedly exploited by participants to simultaneously sell credits at higher prices and buy them at lower prices.

[o] In this report 'bid' refers to each credit type supplied by a seller in the reverse auction. It is possible that one seller may make a bid for several credit types in an auction, and the outcome for each of those bids can vary. The 'weighted average price of successful bids' is calculated using all shortlisted bids of the same credit type. The weighted average bid price does not average bid prices across different credit types.

- More recently we have heard from the Supply Fund that buyers are leveraging this advantage to use the reverse auctions as a market sounding exercise rather than with genuine interest in participating – which could cause more inefficient auction clearing. The table below provides a summary of the Supply Fund's auction outcomes.

3. Sellers feel the auctions discourage direct negotiation between buyers and sellers

- The reverse auctions have a generally low clearing rate. In fact, the June 2024 reverse auction received 111 bids from sellers across 200,000 credits, of which 6,000 credits were approved for purchase – i.e., just 3% of submitted bids were successful.[24]
- Sellers with unsuccessful bids feel that the Supply Fund provides insufficient feedback on their pricing or the reasons for their bid failure, particularly because weighted average bid prices (i.e., the price paid by buyers for credits) are not revealed to sellers immediately following each auction.[25] In fact, some sellers have expressed that participating in the reverse auctions has been a process of "trial and error" spanning several months and multiple times during which their credits were off the market. [26]
- Many stakeholders have suggested that a more efficient procedure would be to allow interested parties with surplus demand or supply to negotiate bilaterally following the conclusion of each auction.[27] This would mean that some additional clearing can occur without having to wait until the next reverse auction. Currently the Supply Fund does not allow for this as it keeps participants' identity confidential, even if participants opt for otherwise.

Table 4.1 Summary of Supply Fund's reverse auction outcomes

Bid outcome [a]	Reverse Auction 1 (Oct 2022)	Reverse Auction 2 (Feb 2023)	Reverse Auction 3 (Jun 2023)	Reverse Auction 4 (Oct 2023)	Reverse Auction 5 (Feb 2024)
Ineligible [b]	21%	5%	81%	11%	22%
Did not meet price-based assessment criteria	12%	15%	8%	33%	34%
Credit price met price-based criteria	45%	15%	5%	21%	23%
Met price-based criteria but buyer did not proceed [c]	22%	9%	2%	25%	21%
Other [d]	0%	56%	4%	11%	1%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

a. In this table, 'bid' refers to each credit type supplied by a seller in the auction. Where a seller has submitted bids for different credit types, the outcomes of these bids are reported separately.
b. Most 'ineligible' bids are those that did not meet the like-for-like trading criteria needed to match with the credit demand
c. Including when the buyer's demand was met by lower priced bids, or the buyer's interest/demand changed post-approval of the bid
d. Including when a seller's minimum sale volume was not met by the auction outcomes

Source: IPART analysis, using data from Biodiversity Credits Supply Fund

Considerations for Supply Fund reverse auction evaluation

The Supply Fund has many considerations when it evaluates bids, including value for money and the demand for types of credits being offered. Where credits met price-based criteria "but buyer did not proceed" – the credits may still have been approved for purchase "subject to buyer confirmation", and some of these purchases may have occurred between auctions.

4.5 Changes to process could improve the effectiveness of the reverse auctions

The Supply Fund's reverse auctions have the potential to support the effective development of the market and encourage fair and competitive trading. However, some changes are needed to the action process before these benefits can be realised.

Based on our analysis of the reverse auction design and recent auction outcomes (discussed in Section 4.4.2 above), we recommend the following changes to the reverse auctions:

- All buyers should be required to submit binding offers in the reverse auctions
- Auction information disclosure should be equalised between all participating buyers and sellers
- The auctions should use uniform-clearing prices
- The Supply Fund should play a role in facilitating bilateral negotiation between buyers and sellers

All buyers should submit binding offers

At present, buyers participating in the reverse auctions are not required to specify offer prices for credits, and their participation in the auctions is non-binding. These means that buyers are free to exit the auction at any point, without penalty, including after the weighted average bid price is revealed to buyers. Conversely, sellers are required to submit binding bids for their credits, and they must withdraw those credits from other sales avenues (such as Biodiversity Conversation Trust tenders or direct market negotiations) during the duration of the auctions.

To ensure that buyers and sellers both face equal incentives and equal risks of participating in the auctions, we recommend that buyers should be required to submit binding offers as a condition of participating in the auctions. This would have the added benefit of ensuring that buyers participate in the auctions with genuine interest, and would reduce the chances of buyers utilising the auctions as a market sounding exercise and withdrawing mid-way through the auctions. By requiring buyers to submit offers, the auctions can leverage competitive dynamics on both the demand and supply side to yield more competitive, market-based auction outcomes. Additionally, the Supply Fund can collect information on offer stacks to match competitive bids with competitive offers under a uniform-clearing price auction (discussed further below in this chapter).

Auction information disclosure should be equalised

At present, the Supply Fund discloses weighted average prices of successful bids only to participating buyers in the auction, but not to sellers. The Supply Fund's Operating Protocol states that it will publish information on outcomes of the reverse auctions 'as required',[28] however, the last published auction price outcomes were in October 2023. There have been 4 more reverse auctions between October 2023 and December 2024 – of which no prices have been disclosed to sellers to date.

It is important that key pricing information, such as the weighted average price of successful bids (i.e., the price that buyers are charged for credits) is fully disclosed to all participants in a transparent and symmetric manner. This transparency is essential for sellers to assess the price environment accurately and to ensure that the auction mechanism provides accurate price signals to all participants.

We recommend that the Supply Fund disclose the weighted average price of successful bids to all sellers at the time of notifying them of the auction outcomes. This information should be disclosed in a systematic manner to all participating sellers after each auction, and should be published to the broader market in each of the Supply Fund's quarterly market updates. Providing this price guidance to sellers is imperative for supporting their ongoing participation in the reverse auctions, and to facilitate more efficient price discovery and information disclosure in the market.

The auctions should use uniform-clearing prices

The reverse auctions currently utilise different clearing prices for buyers versus sellers:

- Buyers purchase credits at the weighted average price of shortlisted bids
- Successful sellers receive an amount equal to their bid price

As discussed earlier. the co-existence of these different clearing prices for buyers versus sellers sends inconsistent price signals to counterparties and creates a systemic price arbitrage in the auction design.

A price arbitrage occurs when there are different buy and sell prices for the same product. Where a price arbitrage exists, market participants can simultaneously buy and sell the same product in order to profit from the difference in trade prices. In most markets, price arbitrages are short-lived because their opportunities are quickly exploited by willing participants until the gap between buy and sell prices eventually closes.

However, in the Supply Fund reverse auctions, the application of different clearing prices for buyers and sellers sets a *systemic* arbitrage that could be repeatedly exploited by participants to simultaneously sell credits at higher prices and buy them at lower prices.[p] This price arbitrage poses a material risk to the ongoing effectiveness and efficiency of the reverse auctions.

We recommend that the auctions apply uniform-clearing prices to buyers and sellers – i.e., the same clearing price should apply to both buyers and sellers of each credit type. Under this system, the Supply Fund would need to calculate a clearing price using bid and offer stacks for each credit type. Sellers who bid equal to or less than the clearing price would be successful, and buyers who offered equal to or above the clearing price would be successful. Successful buyers and sellers would both benefit the difference between their bid/offer price and the clearing price.

As discussed earlier, at present there is no requirement for buyers to submit offers when participating in the auctions. We have separately recommended that the auctions should require all buyers to submit binding offers as a condition of participating in the auctions. The data collected from these offers can then be used by the Supply Fund to determine a clearing price. The Supply Fund should commence investigating options for implementing uniform-clearing prices, and should publish an updated Operating Protocol detailing the selected auction procedure and framework for allocating credits between participants at a single, uniform price.

The Supply Fund should play a role in facilitating bilateral negotiation between interested buyers and sellers

The Supply Fund routinely brings demand and supply together via its reverse auctions. For many participants, the reverse auctions remove the high search costs that they would otherwise have to incur in finding and negotiating with interested parties in the market. However, the auctions run only 2-3 times per year, and many sellers have reported having to repeatedly participate in several auctions before successfully being able to sell their credits.[29]

[p] This could also occur via related-parties, where known entities simultaneously participate as buyers and sellers.

We consider that the Supply Fund is uniquely placed to facilitate efficient bilateral negotiations between buyers and sellers in between the reverse auctions. For instance, subject to participants' interest and their consent, the Supply Fund could share the contact details of participants who have uncleared demand or supply so that they may negotiate to trade credits in between the auctions. This would allow some uncleared demand and supply from the auctions to be efficiently cleared without needing to wait until the next auction round, or incurring additional search costs to find new buyers/sellers in the market. This would also allow buyers with diversified credit requirements to efficiently negotiate with sellers with similarly diversified portfolios to obtain a "bundled price" for their credits, without needing to individually seek out each of those sellers in the market.

Findings

7. The Biodiversity Credits Supply Fund's reverse auction process gives greater advantages to buyers than sellers.

8. Having different clearing prices for sellers and buyers in the Biodiversity Credits Supply Fund's reverse auction process creates inconsistent price signals and systemic price arbitrages.

Recommendation

3. Various changes should be made to the design of the Biodiversity Credits Supply Fund's reverse auction process:
   a. Buyers should be required to submit binding offers.
   b. Auction clearing prices should be equally disclosed to all participants.
   c. The auctions should apply uniform-clearing prices for both buyers and sellers.
   d. The Supply Fund should play a role in facilitating bilateral negotiation between interested parties after each auction.

4.6 There may be a role for a market maker if it operates with the right objectives

Many successful markets have mechanisms designed to lower the costs of, and improve the efficiency of transacting. In markets with highly diversified products and dispersed buyers and sellers, mechanisms that promote efficiency and liquidity are important for supporting the market to function effectively.

The biodiversity credits market is an example of a market with high search costs owing to its highly dispersed buyers and sellers and the large number of different credit types offered in the market. Being a compliance-driven market, liquidity is an important feature needed for the success of the market. However, the market faces challenges in delivering this liquidity on its own due to the long lead times for supply, and spikes in demand from major infrastructure projects.

We consider that there is potential for a market marker to help the market to deliver this required liquidity and facilitate inter-temporal clearing in periods where there is a mismatch of demand and supply. A market maker could provide standing liquidity to participants by selling credits to developers and buying them from landholders at published prices, to allow clearing to continue to occur even in periods of temporary demand or supply shortages.

4.6.1 The objectives of the Biodiversity Conservation Fund and the Supply Fund prevent them from performing commercially sustainable market making functions

The role of a market maker is similar to some of the roles undertaken by the Biodiversity Conservation Fund (on the demand side) and the Supply Fund (on the supply side). However, the current objectives and operations of these entities limit their ability to deliver sustainable market making functions that do not have unintended consequences on the performance of the market:

- The Biodiversity Conservation Fund offers development proponents the option of transferring their obligations (i.e., their demand) at a fixed pay-in charge to the Fund, but evidence suggests that many of these pay-in charges have been too low for the Fund to purchase credits from suppliers, and as a result its backlog of obligations have continued to grow with time. The Fund is also required to accept pay-in for obligations that it has little or no prospect of purchasing within a reasonable period of time.
- The Supply Fund has objectives to increase supply-side participation by buying credits for resale, including through futures and options contracts before Biodiversity Stewardship Agreements are finalised. However, the offers made to sellers are not always firm or continuously available and offers have been effectively capped at the price at which developers can pay into the Biodiversity Conservation Fund.

It may be possible to transition one of these bodies into an effective market maker and we have made some recommendations that would bring the functioning of these 2 entities more in line with an effective market maker. However, these changes are unlikely to be sufficient.

If the Government aims to deliver market making functions through the Biodiversity Conservation Fund and/or the Supply Fund, then the objectives and practices of these agencies must be changed to align with those of a commercially sustainable market maker. These entities should seek to provide liquidity to buyers and sellers without taking on excessive financial risk and without adversely impacting the ability of the market to freely determine prices. If operating in a more commercially sustainable way, the market maker would not be in a position to guarantee the supply of credits that are unlikely to be available for purchase in the market within a reasonable period of time.

This market making role should be clearly defined, as the intention should not be for the market maker to conduct all (or even most) trades, but rather, to be as a supplier of 'last resort' that is responsive to market signals on the balance between market demand and supply. The market maker should not have the objective of lowering credit prices for development proponents.

We consider that the following would be key features of an effective market maker:

- It should not take on excessive financial risk by guaranteeing the supply of credits for which there is no prospect of purchasing them within a reasonable timeframe, or by holding an inventory of credits that it is unable to sell.
- Its prices should not be set too low to buyers or too high to sellers, but should allow movements in both of these to reflect a scarcity of demand or supply.
- It should operate in a commercial way and with commercial objectives – for example, its strategy of buying, selling and pricing credits should deliver long-term financial sustainability and its operating strategy should be achievable, realistic and time-specific.

As part of next year's review we would like to consider further whether formalising a role of a market maker could assist the development of the market and what changes would be needed to transition one or both of the existing government entities in the market into this role.

Finding

9. The objectives of the Biodiversity Conservation Fund and the Biodiversity Credits Supply Fund prevent them from performing commercially sustainable market making functions.

Chapter 5

Information availability and quality

Does market information support participants to make informed decisions in the market?

05

Decisions around land use and participation in the Biodiversity Offsets Scheme (the Scheme) have serious financial consequences for landholders. At each stage of a buyer and seller's decision making is a raft of information sources that will inform their decisions on whether and where to develop or conserve land, as well as their credit purchasing and selling decisions.

In an effective credits market, participants would be able to access quality market information to inform their decisions around land-use, entry and credit price. This information would cover key elements of the market such as demand for different types of credits, supply of different types of credits and the prices at which those credits are trading in the market. This information would be available on an equal basis to both credit buyers and sellers.

In all years of the Scheme, market participants have struggled to access timely and accurate information on supply, demand, and prices, which hinders their decision-making. As a result, landholders face difficulties in generating priority credits to meet demand, leading to uncertainty and delays for credit buyers in fulfilling their offset obligations.

This chapter investigates the key information issues affecting the market using the data we have available. We outline priority areas for improvements that we consider balance the feasibility and effectiveness of different measures.

5.1 Key points in this chapter

At a high level, our key findings on the availability and quality of information within the market are the same as last year. There are significant deficiencies in the information that is collected and published. There are also policies and practices in place that create information asymmetries, with buyers having access to more timely pricing information than sellers.

Currently, information in the biodiversity credits market is disaggregated, misleading and untimely. It hinders the performance of the market due to participants having insufficient information to participate confidently and to trade credits efficiently. Participants are unable to place a value on credits based on their understanding of the current demand and supply of credits and historical transaction prices.

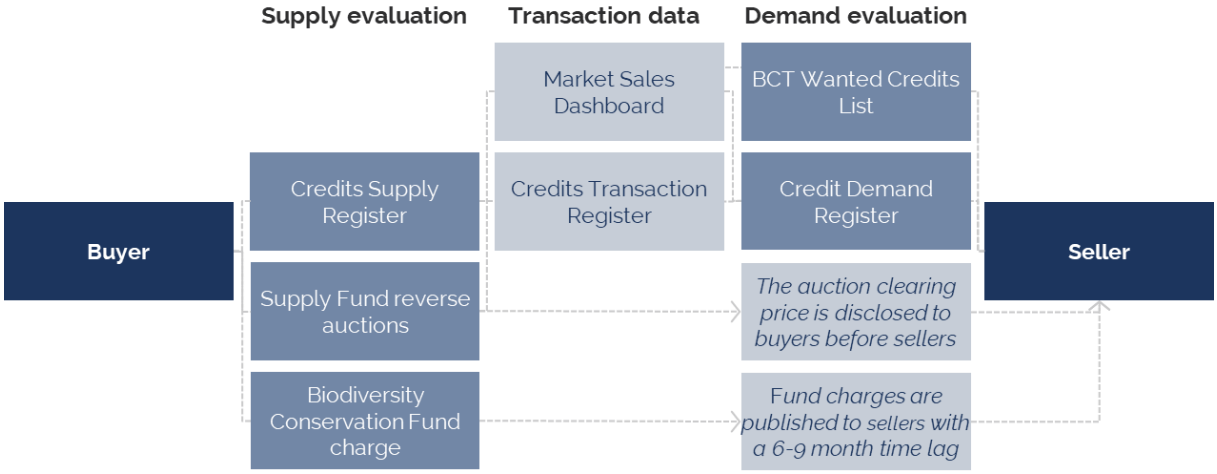
The market is highly complex and as a result, trades occur in many different ways – including as bundled packages of credits, as options and between related parties. These trades are not identifiable within the transaction data and as a result, published transaction data is likely to mislead participants as to the value at which credits are being traded in the market. This lack of transparency is a serious issue that should be addressed as soon as possible.

5.2 Both credit buyers and sellers encounter information deficiencies when approaching the market

Since the Scheme's inception, market participants have struggled to access timely and accurate information on supply, demand and prices, which can mislead, delay or even prevent their participation in the market.

Stakeholders raised several issues around lack of access to good information on which to base their decisions. The market is affected by several areas where information is incomplete, misleading, disaggregated, or a combination of these issues. We have mapped below the considerations that each side of the market must make before transacting with the other, and their sources of information. Figure 5.1 illustrates the breadth of information issues and complexity that affect participants' experiences in the credits market.

Figure 5.1 Buyer and seller market information sources



We refer to the information sources available at each stage of market participation, and their potential complications in the sections below.

5.2.1 Buyers have better access to pricing information than sellers

Buyers in the credits market have several options to fulfill their offset obligations, including purchasing credits directly through sellers in the market, participating in the reverse auctions administered by the Biodiversity Credits Supply Fund (the Supply Fund) or by paying into the Biodiversity Conservation Fund. Proponents can also generate their own credits by entering into a Biodiversity Stewardship Agreement. The market information sources associated with these options guide participants' decision-making around how to meet their obligations and at what price.

The Supply Fund conducts **reverse auctions** to facilitate transactions between buyers who register their demand and sellers who submit a price at which they are willing to sell their credits.[30] At each auction, buyers obtain the 'weighted average bid price' for the particular credit types that they are seeking, which is the weighted average price of the shortlisted credit bids from suppliers. During the auction, this price information is disclosed only to participating buyers. Buyers are not bound to accept the weighted average price to purchase credits.[31]

The **Biodiversity Conservation Fund charge** is calculated via the Biodiversity Offset Payment Calculator (BOPC). Proponents can obtain a quote free of charge if they have submitted a Development Application with a requirement to retire credits and have the relevant approvals.[32] The timeframe for the Fund to issue a charge quote is up to 10 working days for 'small quotes' (<50 credits and/or less than 4 ecosystem credit types), and up to 30 working days for 'large quotes'.[33] Buyers are free to accept the charge quote to transfer their offset obligations or can pursue alternative means of purchasing credits from the market. The fund charge quotes that are sought by developers are published after 6 months from the issue date of the quote.[34]

The **Credits Supply Register** refers buyers to information on issued, pending and potential credits for sale. It has supply details only for sellers who have registered this information, and includes the sellers' contact details. The register is compulsory for sellers and contains all credits created. However, in some instances it does not provide an accurate and accessible representation of supply because:

- Credit naming conventions are inconsistent, which makes it difficult to compare supply data on a credit to other demand or transactions data.
- The availability status of some credits on the register is not clear – for example, some credits have already been contracted for purchase but continue to be shown on the register. Credits that are created to fulfil a development proponent's own obligations are also shown on the register, even though they will never be entered into the market for sale.

5.2.2 Sellers have limited information to evaluate current demand

Credit sellers in the market can offer their credits for sale to the reverse auctions run by the Supply Fund or the tenders run by the Biodiversity Conservation Fund, or sell credits directly to buyers in the market. To inform their price expectations, which is a critical first step in the decision to create credits, they can evaluate demand for credits by credit type and location in the Credit Demand Register. They can also assess the information that emerges out of either tender process.

Like the Credit Supply Register, the **Credit Demand Register** refers sellers to a register of credits that are sought by market participants. Unlike the Supply Register, the Demand Register is voluntary, however. It informs sellers which credits are wanted by buyers and each buyers' contact details. Unlike the Supply Register, the Demand Register is voluntary for buyers. There is a significant lag associated with the creation of credits, as it can take a considerable amount of time to establish a Biodiversity Stewardship Agreement. Development processes also take a significant amount of time. The demand register has the potential to make better use of the development timeline and could be a valuable piece of information in the market.

However, we heard through our consultation that developers do not see any advantage in registering their demand until they are certain of their exact credit requirements (closer to the time of demand). Developers may choose not to enter the register at all, for example, if they choose to pay into the Biodiversity Conservation Fund without undertaking any market sounding first. If developers neglect to use the register at all, the register will only provide information on a portion of actual demand.

Also available to the seller is the Biodiversity Conservation Trust's (the Trust) published '**Wanted Credits List**'. This list shows the credits that are sought by the Trust to acquit offset obligations received from developers paying into the Fund. Some stakeholders told us that both Demand Register and Wanted Credits list are fragmented, unclear, and not up to date.

In the **Supply Fund's reverse auctions**, sellers lack information on the weighted average price of successful bids (i.e. the price charged to buyers for credits) and on the exact criteria the Supply Fund uses to determine whether credits are value for money. Currently sellers do not receive an indication of how close their bid price was to the Supply Fund's weighted average price. In its Operating Protocol, the Supply Fund states that it will publish the weighted average price of successful bids as part of its quarterly reports.[35] However, the Supply Fund's last quarterly report was released in October 2023. Since this time there have been 4 more reverse auctions, of which weighted average prices are yet to be disclosed.[q]

Another important information source available to sellers is the **Fund charge quotes** sought by developers from the Biodiversity Conservation Fund. Sellers can access the pricing of developer quotes that are made to buyers between 180 and 270 days after the charge is issued, as per the BOPC Order 2022.[36] A separate service available to Biodiversity Stewardship Agreement holders is the Fund's price guide for their credits. While proponents with a credit obligation can pay for this service, Stewardship Agreement holders can apply for this service free of charge and at a timeframe that depends on the Fund's current work program.[37] Through this service, Stewardship Agreement holders can apply for a Biodiversity credits price estimate which will deliver them a predicted price, excluding risk premium and delivery fees, for their credits using the BOPC.

We support the disclosure of quote information to all market participants in a timely manner. As noted in Chapter 4, there is strong evidence that Fund charges set broader market pricing. Delayed publication of quote information does not prevent market discovery from occurring, but it does increase search and transaction costs for sellers as they must undertake an iterative process to identify buyers' willingness to pay for particular credits.

Finding

10. Both credit buyers and sellers encounter information deficiencies when approaching the market.

[q] While the weighted average price of accepted bids for the latest reverse auctions are yet to be published, the final purchase prices are disclosed on the transactions register if and when credits are purchased from the Supply Fund.

5.2.3 The available transaction data is deficient for both buyers and sellers

In addition to their evaluation of current supply and demand, buyers and sellers can access historical transaction data. This can help them build their understanding of supply, demand and the value that has been placed on credits in the past. The NSW Department of Climate Change, Energy, the Environment and Water (the Department) collates every transaction, including those involving the Supply Fund, and publishes them in its Credits Transaction Register. The Department's Biodiversity Credits Market Sales Dashboard is a summation of this transaction information, along with successful tenders conducted by the Trust.

The historical transaction and pricing information that would help inform the market is difficult to interpret because of inconsistent data entries and a lack of disclosure about transaction types. Specifically:

- Credit naming conventions are inconsistent, leading to participants being unable to search for the complete information of a particular credit type.
- Certain types of transactions in the market are associated with recorded transaction prices that do not reflect the value of credits traded.

5.3 The most urgent information issues to address are those affecting price expectations

As highlighted above, there are a wide range of information issues affecting the credits market. Most of these issues are consistent with what we heard from stakeholders last year and reported on in our 2022-23 Annual Report. Since this time Department staff have told us they are currently planning a range of different programs to improve data quality, however, there were no material improvements between 2022-23 and 2023-24. Until market information is improved, participants will be hindered from making informed decisions and any other reforms to improve the market will not be as effective as they could be.

Although lack of information is an important issue, we consider that the existence of misleading information is the highest priority to address. Landholder's decisions about whether to conserve or develop land are significant financial decisions. Unless landholders are able to understand the transaction data and take into account the impact of specific types of transactions, the presence of this data could lead to participants making poor financial and/or land use decisions (around where to develop or conserve land). Poor land use decisions are costly for participants and have long term consequences. Distorted or misleading information undermines the key benefits of the market-based approach to biodiversity offsetting and the Scheme more generally.

On the demand side, unreliable information may risk developers having unrealistic price expectations of suppliers or resorting to market alternatives such as the Biodiversity Conservation Fund. Therefore, also influencing a buyer's decision to participate in the market is their understanding of the price of market alternatives such as the Fund charge, Supply Fund reverse auctions and Biodiversity Conservation Trust credit tenders.

On the supply side, information issues can impact a seller's initial Biodiversity Stewardship Agreement establishment decision, pricing decisions, their confidence in the market and their confidence with the interventions of government agencies.

Finding

11. The most urgent information issues to address are those that affect information needed to inform price expectations.

5.3.1 Transactions where price data may be misleading make up a significant portion of the available market data

We heard from stakeholders that there are 4 types of transactions that are potentially creating a misleading picture of credit value in the transaction register, because they are not disclosed. These are:

- bulk-transactions – i.e. groups of credits purchased under one 'lump sum' agreement and all displaying the same unit price
- related-entity transactions
- transactions that have been negotiated under option arrangements where a credit price may be agreed well in advance of the transaction taking place (option agreements)
- transactions where a buyer has separately agreed to fund either the Total Fund Deposit or up-front costs that would normally need to be covered by the purchase price.

The biodiversity credits market is complex and these types of transactions reflect that complexity. They are not problematic in themselves, and each of these types of transactions can be useful and efficient for participants. The issue is that unless participants can identify them on the register, they may not be aware that the price information on which they are relying is not providing an accurate picture of credit prices.

Using the confidential transaction data, which contains more identifying information than the publicly available data, we could not distinguish most of these transactions from others on the transaction register. We could identify transactions on the register that were part of a lump-sum agreement/bulk-transaction (credit transactions that had the same average price and were transacted on the same day between the same buyer and seller).

We found that around a quarter of all recorded market transactions showed evidence that they were negotiated as part of lump-sum agreements. They accounted for over a third (36%) of the credits sold on the market. These transactions have the potential to significantly impact the perceived market price of individual credits, as the price recorded for all of the credits within the transaction is the same irrespective of which individual credits are included. An example of this has been extracted from the transaction register in Table 5.1.

Table 5.1 Example of a bulk-transaction from the published transaction register

Offset Trading Group	Scientific name	Common name	Number of credits	Price per credit (ex-GST)
Western Slopes Dry Sclerophyll Forests <50%			310	$1,814

Offset Trading Group	Scientific name	Common name	Number of credits	Price per credit (ex-GST)
Inland Riverine Forests ≥50% and <70%			59	$1,814
	Hieraaetus morphnoides	Little eagle	52	$1,814
	Ninox connivens	Barking Owl	146	$1,814
	Tyto novaehollandiae	Masked Owl	146	$1,814

Source: NSW Department of Climate Change, Energy, the Environment and Water, Biodiversity Offsets Scheme Credit Transactions Register, accessed 29 November 2024.

The recorded prices in a bulk-transaction for frequently traded credit types can be materially different from their indicative price. This is particularly likely where credits have been averaged across both ecosystem credits and species credits, as the prices for these credits are not usually comparable. For infrequently traded credits, the price could create an entirely new pricing expectation. For example, in the above transaction, the recorded price for:

- "Western Slopes Dry Sclerophyll Forests <50%" is $784 (76%) above the average weighted price for that credit type.
- "Inland Riverine Forests >=50% and >70%" is $183 (10%) below the average weighted price for that credit type.

Finding

12. Transactions where price data may be misleading make up a significant portion of the available market data.

5.3.2 The transactions register should identify transactions that could mislead participants around pricing

To enable market participants to use the transactions register to accurately estimate the market price of credits, it needs to indicate the nature of the transaction. This should identify at a minimum all related entity, option deed and bulk-trades. This would require buyers and sellers to declare if their credit transfer is between related entities or part of option arrangements or bulk-trades. This would appear on the transaction register and observers would be able to filter out these transactions.

As the Department does not currently collect this information, there is no way of retrospectively applying this to the data on the transaction register. We recommend that the Department should begin to collect this information from participants as part of the credit transfer paperwork, and include that information against each transaction in the transactions register as soon as possible. Participants should also be informed around the potential for these transactions to be on the register to make their own judgement.

Recommendation

4. The transactions register should identify all related entity, option deed and bulk-trade negotiations. It should also explain the presence and potential impact of these transactions.

5.4 Some market participants are better informed around prices than others

The approach to information disclosure taken by the Biodiversity Conservation and the Supply Fund also has implications for how buyers and sellers are informed about prices. We have found that the current approach to information disclosure by the Supply Fund (in relation to auction clearing prices) and the Biodiversity Conservation Fund (in relation to its pay-in quotes) creates information asymmetries that unfairly advantages buyers, relative to sellers. These information asymmetries can give certain participants a commercial advantage and can increase the risk of unfair trading practices.

5.4.1 The Supply Fund can play an important role in enabling improved price discovery and transparency

At present, the Supply Fund discloses weighted average prices of successful bids only to participating buyers in the auction. This information is disclosed to buyers after the Supply Fund shortlists successful bids. Since buyers' participation in the auction is non-binding, buyers are free to exit the auction with the benefit of this market information. This information could be used to progress negotiations with other sellers outside of the auctions – well in advance of the auction price information being disclosed to the rest of the market.

The Supply Fund's Operating Protocol states that it will publish information on outcomes of the reverse auctions 'as required',[38] however, the last published auction price outcomes were in October 2023. There have been 4 more reverse auctions between October 2023 and December 2024 – of which no prices have been disclosed to sellers to date, with the exception of finalised purchases from the Supply Fund on the transactions register.

It is important that key pricing information, such as the weighted average price of successful bids (i.e., the price that buyers are charged for credits) is fully disclosed to all participants at the same time. This transparency is essential for sellers to assess the price environment accurately and to ensure that the auction mechanism provides accurate price signals to all participants.

In Chapter 4, we recommended that the Supply Fund should disclose the weighted average price of successful bids to all sellers at the time of notifying them of the auction outcomes. We consider that this information should also be published to the broader market in each of the Supply Fund's quarterly market updates.

In addition to this, we recommend that the Supply Fund also publish information on bid stacks, offer stacks (once that information begins to be collected) and auction clearing prices. This information should be published transparently and equally to all market participants at the same time.

Providing this price information to participants would support ongoing participation in the reverse auctions, and to facilitate more efficient price discovery and information disclosure in the market.

Recommendation

5. The Biodiversity Credits Supply Fund should publish information on bid stacks and clearing prices of credits in each auction round transparently and equally to all market participants at the same time.

5.4.2 The Government should streamline the availability of Biodiversity Conservation Fund pricing information

The Biodiversity Conservation Fund releases its quote information at different times for quote seekers (typically developers) versus the rest of the market. When developers seek a quote, the quote is provided to them within 10 days for smaller projects, and within 30 days for larger projects.[39] However, the Fund only publishes details of all charge quotes issued (irrespective of whether payment is made) to the rest of the market after a period of between 180 to 270 days.[40]

While developers can access a quoted price for their credits, some sellers can access a price estimation free of charge. According to the application form, this will be prepared for them under timeframes that vary by current workflow into the Biodiversity Conservation Trust. We heard from one stakeholder that while developers have direct access to the actual credit price, suppliers may only request and 'estimate' of credit price for a given point in time.[41]

If the nature and timeliness of the Biodiversity Conservation Fund quote seeking process differs for buyers and sellers, then one side of the market can use this information advantageously. Keeping price quotes sought by developers confidential for at least 6 months allows buyers but not sellers to guide their negotiations. As discussed earlier, there is strong evidence that Fund charges set broader market pricing. Delayed publication of quote information does not prevent market discovery from occurring, but it does increase search and transaction costs for sellers as they must undertake an iterative process to identify buyers' willingness to pay for particular credits.

We support the disclosure of quote information to all market participants in a timely manner. Access to pricing information should be straightforward for both sides of the market. Sellers having access to the same information as buyers enables them to understand buyers' willingness to pay for credits. Therefore, we recommend that the Biodiversity Conservation Fund streamline the process for all participants to acquire Fund charge quote price information.

Recommendation

6. The Biodiversity Conservation Trust should streamline the process for all participants to acquire Biodiversity Conservation Fund charge quote price information.

5.5 The Government should consider improvements to lower priority information issues raised by stakeholders

Once the priority information issues discussed above have been addressed, there are a number of other issues that could be considered. Using feedback and ideas from our stakeholder consultation, we outlined several potential solutions to these remaining lower priority concerns. These are outlined in Table 5.2. We consider that the Government is best placed to assess the relative costs and benefits of implementing these solutions. We suggest that the Government consider these solutions in its evaluation of overall information improvements, but these should not be prioritised over the 3 recommendations in this chapter.

Table 5.2 Potential improvements to the lower priority information issues raised by stakeholders

Potential solutions to existing information issues	Benefits to market participants
The Biodiversity Conservation Fund charge pricing report should publish total charges (including risk premiums and administration fees) rather than base prices only	• Market participants will have more accurate expectations of the cost of market alternatives that can better inform the value that they place on credits. • More accurate Fund charge information for market participants.
Unique identifiers should be attached to every generated credit	• Suppliers are able to better track the status of their credit portfolios and individual credit sales or retirements. • Easier administration of credits and less potential for errors • Market participants can better understand current credit supply and no supply will be 'lost'.
There should be a register for landholders who have submitted expressions of interest in Biodiversity Stewardship Agreement establishment	• Market participants will have a better understanding of credit supply.
All public registers should be rolled into one centralised information source.	• More centralised and accessible form of information. • Participants can more easily find all potential information sources
Administrative support should be improved across all mechanisms of the market. This could include face-to-face workshops, information sessions or other technical support networks.	• Information around entry to the market will support more supply and demand. • Buyers will better understand their credit obligations and improve the timing of their market search, potentially leading to less reliance on faster market alternatives such as the Fund.
All systems to transfer and generate credits should be moved online to reduce manual administrative burdens	• The timeliness of credit purchases and market data availability will improve dramatically.

Chapter 6

Transaction and entry costs

What impacts do transaction and entry costs have on incentives to participate in the market?

In a well-functioning market, trades are as efficient as possible and the process of trading credits is simple, timely and easy to navigate. The costs of transacting and entering the market would be reduced where possible, and where this is not possible market prices would adjust to account for these costs. If transactions costs are higher than necessary this may deter landholders from participating in the market and encourage buyers to bypass the market by self-delivering offsets or paying into the Biodiversity Conservation Fund, even where this is not the most efficient outcome.

This chapter considers how easily participants can trade in the market. It considers both the time costs and time (efficiency) of trading and entering the market, and assesses what changes are needed to reduce frictions in market trading and deliver more efficient outcomes.

6.1 Key points in this chapter

Several of the issues we identified with transaction and entry costs are consistent with what we found last year. We have not found evidence of any material improvements in trading costs or efficiency since 2022-23, and these issues continue to cause frictions in the market's functioning.

At present there are significant costs to enter, participate and trade in the credits market. These costs could act as a disincentive for landholders to supply credits, but are not a barrier to entry *per se*. However, a concern arises if features of the market mean that:

- the cost of supplying credits is inefficiently high and/or
- credit prices are not able to increase to a level that enables these costs to be recovered.

Our findings from Chapter 4 indicate that the market is restricted from freely adjusting prices above the Biodiversity Conservation Fund pay-in charge. This raises a risk that prices are not able to increase to a level that enables landholders to recover their costs incurred in entering and trading in the market.

We reiterate our recommendations to the Government from last year, and stress the urgency of addressing these issues given few improvements have been affected since 2022-23:

- The Government should explore ways to simplify and shorten the transaction process, including via the introduction of a centralised trading platform
- The Government should continue its work program to reduce the upfront costs and risks of landholder entry and participation in the market.

6.2 Trading in the market remains costly and inefficient

A well-functioning market requires that search and transactions costs are efficient. To keep transaction costs reasonably low, the process of making trades needs to be:

- simple, even where the market is complex
- timely and easy to navigate, with buyers and sellers finding each other easily and all essential steps flowing smoothly on from each other.

6.2.1 Market participants incur high search costs when finding willing trading partners

It is not easy for buyers and sellers of credits to find willing trading partners under the current arrangements. Landholders seeking to sell credits may do so by:

- engaging a broker to seek willing buyers on their behalf
- negotiating directly with a buyer, for example a developer who approaches the landholder seeking credits
- participating in a Biodiversity Credits Supply Fund (Supply Fund) reverse auction
- participating in a Biodiversity Conservation Fund tender or reverse auction
- accepting a Biodiversity Conservation Fund fixed price offer.

Each of these options involves a different process across a range of locations. For example, information about Biodiversity Conservation Fund tenders and fixed price offers are available on the Biodiversity Conservation Trust (the Trust) website. The NSW Department of Climate Change. Energy, the Environment and Water (the Department) website contains information about Supply Fund reverse auctions. Sellers may need to engage with several processes before finding willing buyers.

The information issues discussed in Chapter 5 also relate to trading efficiency. There is no centralised location for buyers and sellers to access information about offers to buy or sell credits. The Department maintains registers of potential buyers and accredited suppliers, but they are not always reliable. Even if these registers are improved to become more reliable and more complete, they may not be the most efficient way of matching demand and supply in the market.

6.2.2 Credit transfers and retirements remain administratively complex and time intensive

Once credit buyers and sellers have found willing trade partners the credit transfer process is manual and time consuming. As set out in last year's Annual Report, the application to transfer credits requires completion of a MS Word application form, and demonstration of:

- proof of authority to sign
- proof of identity
- providing witnesses to execute the agreement.

Each credit transfer application is manually assessed by the Department, and further information may be requested. This year stakeholders reiterated to us that credit transfer and retirement forms are manual, time intensive and administratively complex.[42]

During consultation we heard the timeframes for credit transfers and retirements influences the willingness of participants to engage in the market. Stakeholders commented that the credit transfer and retirement process is time consuming, with transfer and retirement currently taking six to eight weeks each, adding to the cost and administrative burden of participating in the market compared to the alternative of making payments into the Biodiversity Conservation Fund.[43]

Data from the Department indicates that the average processing time for credit transfers and retirements is approximately 32 days, though these timeframes can vary substantially. Table 6.1 below presents a summary of these processing timeframes.

Table 6.1 Processing timeframes for credit transfers and retirements

Processing time (days, including weekends and public holidays)	Transfers	Retirements
Minimum	1 day	1 day
Maximum	406 days	114 days
Average	**32.4 days**	**32.5 days**

Source: IPART analysis using data from the NSW Department of Climate Change, Energy, the Environment and Water

Difficulty of timing transaction process

It is difficult to measure how long it typically takes for a buyer to find and purchase credits, because it is difficult to define when a buyer first enters the market. Transfer processing times make up only a part of the transaction process.

By comparison, the Trust issues quotes to pay into the Biodiversity Conservation Fund within 3-5 days and can approve for payments to be made shortly thereafter.[44] Developers are disincentivised from participating in the market due to the lengthy processing times for the purchase and retirement of credits.[45] Stakeholders suggested participation in the market could be encouraged by ensuring the timeframe for purchases and acquittals is faster than transferring obligations to the Biodiversity Conservation Fund, and that a single step to transfer and retire credits could reduce overall transaction costs.[46]

Our 2022-23 Annual Report recommended that the Government should explore ways to simplify and shorten the transaction process through automation, determining the appropriate level of delegation, providing more upfront information to avoid resubmissions and improving transparency around credit ownership. Since this time, there is no evidence that the transaction process has improved materially in response to last year's recommendations, and high transactions costs and inefficiencies continue to deter active participation in the market.

There are several opportunities to improve how trading occurs in the market and reducing the existing administrative burden it poses to participants. We consider our recommendation on the transaction process from our 2022-23 Annual Report continues to be relevant.

Finding

13. High transaction costs continue to deter active participation in the market. There is no evidence that these transaction costs and processes have improved in 2023-24.

Recommendation

7. The Government should explore ways to simplify and shorten the transaction process, including by:
   a. automating certain parts of the process
   b. determining the appropriate level of delegation for transaction authorisation
   c. providing more upfront information and support to minimise follow up information requests
   d. providing greater transparency around credit ownership.

6.2.3 Changes are required to improve transaction costs and timeframes

In other markets, mechanisms have evolved to reduce search costs. To assist buyers, firms that sell products directly to consumers use mechanisms including advertising of prices and quality, and branding to establish trust. For markets with more dispersed suppliers, search costs can be reduced through:

- Creating platforms that centralise transactions and information flows
- The actions of market intermediaries (e.g. brokers) that match buyers and sellers. Market intermediaries such as brokers can reduce search costs because they derive benefit from trading and so are motivated to provide information to assist matching of sellers with buyers.
- The actions of market makers, whereby an entity buys and sells on its own account, but with the intention of 'selling high and buying low' rather than providing the products themselves.

The current approach to the biodiversity offsets market in NSW has a mix of all 3 features, but it is limited in important ways.

With respect to centralisation of transactions and information, there is some centralisation of information on past sales through the online Dashboard. But there are limitations as to how well this information reflects current market prices, since not all transactions are captured (e.g. payments into the Biodiversity Conservation Fund are not captured in the Dashboard), not all credits are individually priced (e.g. bulk average transactions) and not all sales are arm's length transactions.

Intermediaries are also present in credit sales. The use of intermediaries can work well in complex markets with many buyers and sellers. If, however, there are multiple intermediaries and few buyers, high costs in finding buyers for particular credit types can persist. That is, the presence of intermediaries alone might not be enough to materially lower search costs for sellers.

The role of a market maker is similar to the roles undertaken by the Biodiversity Conservation Trust (through the Biodiversity Conservation Fund on the demand side) and the Supply Fund (on the supply side). However, the Biodiversity Conservation Fund and Supply Fund do not operate with the objectives and practices that are needed. These issues are discussed in more detail in Chapter 4.

There is a need for a platform to centralise transactions and information flows

Current market arrangements do not promote efficient price discovery and result in high search costs that disincentivize developers' participation in the market. Establishing an accessible platform to centralise all transactions and market information would help to reduce transaction costs and improve the efficiency of trading in the market more generally.

We recommend that the Government establish or commission a centralised platform to address issues of information dispersion and high search costs. The Government should require that all trades be conducted on the exchange platform, and that the platform maintains a transparent order book that displays current bid and ask prices. The goal of this would be to reduce the costs of finding trading partners by enhancing price information to both buyers and sellers of credits, allowing all participants to make more informed and efficient trading decisions. Importantly, introducing a centralised platform with transparent price reporting (including bid and ask prices) would provide the important benefit of supporting the market to send real-time price signals that help guide the activities of future developers and landholders in the market.

Recommendation

8. The Government should consider introducing a centralised trading platform to enhance transparency and price discovery and improve the efficiency of trading in the market.

6.3 There continue to be significant barriers to entry that remain unaddressed

In addition to the high transaction costs and inefficiencies, there are also significant barriers to entering the market. These include:

- the combined costs of credit generation (including lost opportunity cost) outweighing potential income from credit sales
- complexity of the Biodiversity Offsets Scheme and uncertainty of credit yields
- insufficient and/or unclear market information (discussed earlier in Chapter 5).

Each of these issues were discussed in our 2022-23 Annual Report but continue to be barriers that fundamentally affect the functioning of the market. We have made various recommendations in this year's report that we consider will help to create more certainty for market participants and ultimately reduce some of the barriers to entry. Some of these recommendations include:

- various changes to the Biodiversity Conservation Fund and the Supply Fund reverse auctions to allow the market to better reflect changing levels of demand and supply (see Chapter 4)
- improving information disclosure, and promoting transparency in the reporting of trade prices (see Chapter 5)
- introducing a trading platform to centralise transactions and information flows
- ongoing independent monitoring of the credits market (see Chapter 7)
- accreditation of Biodiversity Offsets Scheme advisors, similar to the current accreditation of site assessors (see Chapter 7)

6.3.1 Landholders incur significant upfront and ongoing costs

Landholders will be willing to sell credits if they can be confident they will at least recover the cost of establishing and managing their land as an offset site in perpetuity. These costs include:

- **upfront costs** associated with entering into a Biodiversity Stewardship Agreement
- **opportunity costs** of entering into a Biodiversity Stewardship Agreement
- **search and transaction costs** associated with finding willing buyers and transacting credits
- **ongoing costs** of land management and administration.

In principle, it is not a sign of market inefficiency if some landholders can achieve credit prices which more than recover these costs. Credit pricing premiums which reflect genuine credit scarcity play an important role in incentivising the future supply of in-demand credits.

When selling credits landholders will seek to ensure the expected revenue from the sale of the portfolio of credits across the site recovers these total expected costs, less any private benefits they may want to consider (for example, increased wildlife or amenity, improved biodiversity/wildlife, better erosion control or personal satisfaction).

There are significant costs associated with establishing an offset site and transacting credits. We have heard from landholders that these have deterred them from entering the market as a credit supplier. For example, as is further discussed in Chapter 8, the high costs of establishing a Biodiversity Stewardship Agreement have prevented several Local Aboriginal Land Councils from entering the market.[47]

However, high entry costs are not a *per se* barrier to supply. In an efficient market credit prices would rise to enable landholders to recover these costs, ensuring supply matches demand, where possible. As discussed in Chapter 4, the Biodiversity Conservation Fund pay-in charge continues to act as a price ceiling, preventing market prices from rising above it to reflect the balance of demand, supply, or other prevailing market conditions. If the prices are not free to adjust to recover the costs and risks borne by landholders, the credits market will remain an unattractive option to future participants.

6.3.2 The Government should continue its work program to reduce upfront costs and risks for landholders

In our 2022-23 Annual Report, we recommended that the Government should continue its work program (then carried out by the Credits Supply Taskforce) to reduce the upfront costs and risks of landholder entry and participation in the market. This work involves supporting development proponents to contact the Department in advance so it can better forecast future credit demand, and contacting landholders who may have in-demand credits and providing information about the Biodiversity Offsets Scheme (the Scheme) and reducing some of their upfront costs (for example, by waiving the Biodiversity Stewardship Agreement application fee).

While much of this work has continued, there does not appear to be evidence of any new initiatives carried out by Government to reduce upfront costs. The Government has halted its Stewardship Expression of Interest program, whereby landholders could receive a biodiversity assessment at no upfront cost. This has been replaced by the Stewardship Support Program which only periodically receives applications. Applications for this program were closed at time of writing, and there is currently no indication of when it will reopen.

Recommendation

9. The Government should continue its work program to reduce the upfront costs and risks of landholder entry and participation in the market.

6.3.3 The Total Fund Deposit discount rate impacts the total costs landholders must recover through credit sales

The size of the Total Fund Deposit paid by landholders can be sensitive to the Total Fund Deposit discount rate prevailing at the time a Biodiversity Stewardship Agreement is established.[r] The Total Fund Deposit increases when the discount rate decreases, and vice versa. The Total Fund Deposit discount rate is an important factor in credit prices because it influences the value of management costs that sellers must recover. If landholders do not expect that they can generate sufficient revenue to cover their discounted management costs, that may deter some landholders from supplying credits to the market.

At present, the Total Fund Discount rate is set using the following formula:

$$\text{Discount rate} = \text{Expected BSPF investment returns} - \text{BCT's cost of managing BSPF} - \text{Minister's risk tolerance margin}$$

[r] Changes to the discount rate after a Biodiversity Stewardship Agreement is established do not change the landholder's Total Fund Deposit

The Biodiversity Stewardship Payments Fund (BSPF) is managed by the Biodiversity Conservation Trust. The Trust invests the Total Fund Deposits received to support Biodiversity Stewardship Agreements in the NSW Treasury Corporation Investment Management Long Term Growth Fund (TCorpIM LTGF).[48] The Trust considers that the TCorpIM LTGF[s] balances the Biodiversity Stewardship Payments Fund's exposure to risk and returns as it allows diversification across a pool of assets.[49]

The discount rate is the rate of return used to calculate the present value of future cash flows related to the management of a site subject to a Biodiversity Stewardship Agreement. In other words, the forecasted land management costs are discounted back to the present value, and these present values are added together to determine the Total Fund Deposit. This requires that the discount rate should reflect the *systematic* risk of the cash flows that are being discounted.

Currently, the Total Fund Deposit discount rate reflects the return that the Trust expects to earn by investing the monies contributed by landholders towards their Total Fund Deposit, rather than the return required to compensate for the systematic risk of the cash outflows associated with land management activities. If the latter is greater than the former, then the Total Fund Deposit discount rate will be too low, and Total Fund Deposit that landholders must pay will be set too high. This may inefficiently deter some credit supply that would otherwise have occurred.

The Government should consider the risks reflected in the Total Fund Deposit discount rate in its next discount rate review

The Department's Framework for Reviewing the Total Fund Deposit discount rate provides for a review of the discount rate every 4 years. The Department may also undertake an unscheduled review under special circumstances.[50] The next review of the discount rate is scheduled for the first half of the 2025 calendar year.

In Appendix C, we outline considerations for this upcoming review of the Total Fund Deposit discount rate. As part of the scheduled review, the Government should investigate whether the expected returns from the TCorpIM LTGF are commensurate with the expected return required to compensate for the systematic risk associated with land management activities of stewardship sites. If there is a material difference, the Government should consider ways of improving the discount rate framework to better account for these systematic risks.

[s] The TCorpIM LTGF is a diversified portfolio of investments (with an investment horizon of over 7 years) in cash, Australian nominal bonds, differentiated credit, high yield credit, Australian equities, developed market equities, emerging market equities, core alternatives, and defensive alternatives.

Chapter 7

Confidence in the market

Do market participants have confidence in the governance of the market?

07

A well-functioning market has effective governance and fair practices. Credit buyers, credit sellers and the broader community would have confidence in the market and its sustainability. Market participants would not view government agency interventions with suspicion and would have confidence that assessors and brokers were acting with integrity, without conflicts of interest or undisclosed financial interests. This chapter considers the level of confidence in the market, the factors affecting confidence, and whether the Government could do more to improve it.

The biodiversity credits market shares many similarities to a financial market, but it is not subject to the same level of oversight to ensure trust and confidence. The market has strict rules to ensure its ecological integrity (e.g. like-for-like rules and the biodiversity assessment process to determine credit obligations), but does not have the same rigour in its governance to ensure market integrity. There are several areas where governance is insufficient to prevent misconduct or the perception of it.

Many of the issues affecting stakeholders' confidence in the market interlink with other areas of our analysis. For example, insufficient access to market information can reduce transparency and feed into suspicions of government manipulation. Similarly, the design of government market interventions must reflect the best interests of all market participants. We still consider that there are improvements to be made to market oversight to nurture confidence in it as it undergoes change in the coming years.

7.1 Key points in this chapter

Stakeholders continue to lack confidence in the biodiversity credits market's governance. We found last year that stakeholders have concerns about management of conflicts of interest, management of change and regulatory risk, and inadequate engagement over market design. These concerns continue to be reflected in submissions, but there is also a key message that stakeholders lack confidence in the design/effectiveness of the Government's interventions in the market (i.e. the Biodiversity Credits Supply Fund and Biodiversity Conservation Fund). We consider this can be addressed by increasing transparency in the market through independent oversight as well as better transparency on the designed intentions of government agency interventions.

Brokers and other advisors in the market continue to go unregulated and unmonitored. This creates a risk of misconduct but may also prevent market participants from accessing strategic advice that could help them to navigate the market better. We recommend that the Department of Climate Change, Energy, the Environment and Water (the Department) accredits Biodiversity Offsets Scheme (BOS) advisors through a process similar to that used to accredit assessors.

7.2 There is a lack of confidence in market governance

Many stakeholders have raised concerns about governance of the market, raising issues such as the Government's objectives in administering the market, information asymmetries, and a lack of accountability.

There is an inherent tension between delivering biodiversity outcomes and the Government's objectives around delivering housing supply and infrastructure. The Government has signalled, through its design of the Biodiversity Offsets Scheme (the Scheme) and messaging, that keeping development costs down is a key priority. As a result, many of its actions have focused on keeping credit prices low and allowing development to occur, without supporting development of a market that can deliver price signals on biodiversity outcomes.

For example, the Biodiversity Credits Supply Fund (the Supply Fund) has an explicit objective to 'lower the cost of biodiversity credits, compared to current forecasts, increase certainty and reduce delays for proponents'.[51] Similarly, many stakeholders agree with our finding in last year's report that the Biodiversity Conservation Fund pay-in option sets a price ceiling and disincentivises proponents from purchasing credits directly in the market.[52]

Stakeholders also continued to suggest that there is insufficient separation/definition of the roles of Government as a Scheme administrator, market maker, broker and compliance monitor. For example:

- A landholder argued that the Biodiversity Conservation Trust's various market roles, including as overseer, fund manager, data manager and participant, amount to a conflict of interest.[53]
- The Supply Fund, despite having an objective to improve liquidity and confidence in the biodiversity market, is seen by some landholders to be stifling competition and a form of government price manipulation.[54] This is further exacerbated by a lack of clarity from the Supply Fund on its purchase strategy.[55]
- Some stakeholders incorrectly believe that the Government is making a profit through its operation of the Supply Fund and Biodiversity Conservation Fund.[56]

As discussed in Chapter 4, this is further complicated by the feedback loop between the Biodiversity Conservation Fund pay-in price which affects Supply Fund reverse auction outcomes, while the Biodiversity Conservation Trust is also a credit buyer in reverse auctions.

Currently the Supply Fund only has high level results of its latest reverse auction posted online, whereas the Biodiversity Conservation Trust publishes a report on the outcomes of each credit tender that it runs.[t] Having more detailed reporting of all historic reverse auction outcomes can help credit buyers and sellers to make a more informed decision on participation in the process. The Supply Fund published a market update on its activities in October 2023, as part of a 'commitment to transparent and regular reporting' but has not published a similar update since.[57] Interested reverse auction participants receive an auction participation guide, however this is not available as a resource at all times. Instead, participants must rely on the Supply Fund's Operating Protocol, which provides only high-level descriptions.

[t] For more detail, the Supply Fund high-level auction results are shown on their website here, and the latest Biodiversity Conservation Trust report can be seen here.

There continues to be scrutiny on the NSW biodiversity credits market (and biodiversity markets globally) relating to its ability to actually deliver biodiversity outcomes.[58] We consider that this is an issue of integrity of the Biodiversity Offsets Scheme, rather than integrity of the market. It is difficult to isolate the market's ability to deliver biodiversity outcomes when these outcomes are driven by the policy settings of the Scheme as a whole (for example, the number and type of credits, when and how many need to be acquired to offset development and the management of land under Biodiversity Stewardship Agreements). While issues that relate to the design of the Scheme are out of scope of our review, these broader settings may also impact confidence in the market.

As we noted in last year's report, low confidence in the biodiversity credits market could drive potential credit suppliers elsewhere.[59] This continues to be a risk, especially paired with the complexity and upfront costs of entering the market.

Finding

14. Market participants lack confidence in the governance of the market, with many stakeholders raising concerns around the roles and objectives of government agency interventions.

7.2.1 Confidence in market governance can be increased through monitoring and transparency

There are still many issues impeding the effectiveness of the market, and the changes to be introduced by the *Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Act 2024*[u] could create further uncertainty in the market. For example, one stakeholder described a lack of transparency and continuous shifting goal posts being applied as 'band-aids to a broken system'.[60] Such uncertainty over change management, paired with ongoing issues, could be offset by continued performance monitoring and oversight.

We considered several forms of oversight, which are set out in Table 7.1. On balance, we consider that independent market monitoring is the best option to support confidence in the market. As many of the concerns of stakeholders relate to the interventions of government agencies in the market, we consider it appropriate for oversight to be independent of Government. This would allow stakeholders to have their say more freely, so that market participants' views are considered in assessment of the market's performance.

[u] The amendments have not yet taken effect at the time of writing.

Table 7.1 Options for ongoing monitoring of the market

	Example in other markets	Benefits	Drawbacks
Independent market monitoring	ACCC electricity market monitoring	• Provides transparency as the market undergoes change • Guarantees annual reporting on market performance • Continuity from IPART's 3-year market monitoring role	• More expensive option
Monitoring by independent expert committee	Nature Repair Committee (which is an independent advisory body that supports the integrity of the Commonwealth Nature Repair Market)	• Independent experts would have knowledge to be able to contribute to market improvements • Provides transparency as the market undergoes change	• Additional burden to establish committee • Expertise may not be readily available • It may be difficult to find people who both have expertise and are truly independent
In-house monitoring and reporting by the Department	Clean Energy Regulator's administration of the Australian Carbon Credit Unit Scheme (however Australian Carbon Credit Units are classified as financial products and therefore subject to regulation by the Australian Securities & Investments Commission)	• Less expensive for Department compared to independents • Department has in-house expertise	• Risk of further eroding confidence in the market • Unclear whether Department has resources to incorporate market monitoring into BAU programme • Loss of continuity in a period when the market will be undergoing significant change
No monitoring	n/a	• Least expensive option	• Loss of centralised performance reporting • Risk of further eroding confidence in the market • Loss of continuity in a period when the market will be undergoing significant change

Sources: Australian Competition & Consumer Commission, Electricity market monitoring inquiry 2018-25, accessed 28 November 2024; Australian Department of Climate Change, Energy, the Environment and Water, Nature Repair Committee, accessed 28 November 2024; Clean Energy Regulator, Carbon Credits, accessed 28 November 2024.

Recommendation

10. The biodiversity credits market should be subject to ongoing independent performance monitoring, which reports on indicators relating to matters including competition and efficiency.

Confidence in governance could be improved by greater transparency of the way in which Government entities are trading in the market. Other chapters have already discussed adjacent issues/recommendations, including:

- Changes to the Supply Fund reverse auction mechanism (including a more streamlined trading mechanism and more transparent price disclosure) and the Biodiversity Conservation Fund (to reduce its impact on the market) can help to improve market participants' confidence in their functioning. These changes will also help to prevent these government agency interventions from acting as a price cap, and rather supporting the market.
- More effective and accessible market information will allow market participants to make more informed decisions about how they trade in the market.

There is also a need for better transparency on the design and outcomes of government agency interventions. For example, both the Supply Fund and Biodiversity Conservation Trust should provide clear and accessible credit purchasing strategies that are updated regularly. These strategies should include their intended purpose, mechanics, and outcomes reporting.

The operating protocol of the Supply Fund requires it to undertake an evaluation of its performance and impact against its stated objectives. We suggest that the high-level findings of this evaluation be published to help market participants understand the Supply Fund's performance.

7.3 The role of advisors and brokers in the market is not well-defined

Accredited assessors have a clearly defined role in the *Biodiversity Conservation Act 2016*, however there are many other forms of third-party assistance that market participants can require to navigate the market effectively which are less clearly defined. This means that market participants may miss out on accessing expert advice on navigating the market or receive it from an entity that is not well regulated.

We have heard from many stakeholders that brokers play an important and necessary role in the market because of its complexity, lack of adequate information and difficulty in pricing credits. They are currently not licensed, and the Department has no oversight of broker activity in the market. We heard that accredited assessors to credit suppliers often adopt a broker role for their clients due to lack of information and a perceived shortage of brokers in the market. While accredited assessors must abide by a Code of Conduct, it is not clear whether this still applies to work where they are not acting in an assessor capacity. Anecdotally, we have heard from many ecological consultants that they do not consider themselves "brokers" despite supporting their clients with trading credits.

We foresee that brokers and advisors will continue to have a role in the market, to offer strategic advice on pricing and trading. This assists individual credit buyers and sellers and also supports the market to become more competitive and efficient.

7.3.1 Conduct of third parties continues to be a concern

In last year's report, we noted that many stakeholders and previous reviews have raised concerns about the lack of safeguards to ensure fair conduct.[61] Stakeholders continue to call for greater regulation of accredited assessors and brokers. We have heard this from market participants[62] as well as the Environment Institute of Australia and New Zealand[63], which has a community of practice for accredited assessors. It said that it 'would like to see all brokers registered through an accredited system that sets up some rules they must follow, so that perceived conflicts of interest can be seen to be managed'.[64] It also said that the current Code of Conduct for accredited assessors contains only broad statements on conflicts of interest, rather than advice of what exactly constitutes a perceived or actual conflict of interest.[65]

Stakeholders have raised concerns about potential misuse of insider information and conflicts of interest. Experience from other markets, for example the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry[66], shows that when there are insufficient/ineffective regulations in place, third parties are less likely to act in the best interests of their clients. Specifically, the Royal Commission observed that misconduct is driven by:

- a perverse connection between conduct and reward
- asymmetries of power and information between financial services entities and their customers
- effects of conflicts between duties and interest
- a lack of accountability of entities.[67]

Concerningly, these characteristics can also be identified in the biodiversity credits market. Brokers/advisors have expertise in the market that strongly outweighs their clients' and potentially have access to insider information through their clients. While this is not inherently problematic, the current lack of regulations means these individuals/entities could possibly act against the best interests of their clients without being held to account.

In similar markets, there is greater oversight of brokers and advisors. For example, Victoria and South Australia regulate brokers in their equivalent biodiversity offsets markets.[68] Also, Australian carbon market participants typically require an Australian financial services licence to provide financial advice or support trading of carbon credits.[69] All individuals that have been granted an Australian financial services license have an obligation to provide services efficiently, honestly and fairly.[70]

Finding

15. There is inadequate oversight of advisors and brokers in the market. In financial services markets and similar markets in other jurisdictions, brokers and other third parties are subject to regulation.

7.3.2 There is need for an accreditation of brokers and advisors

Ineffective oversight of brokers and advisors creates potential for misconduct and could reduce market participants' ability to access strategic advice. We recommend that the Department should accredit and monitor Biodiversity Offsets Scheme (BOS) advisors (a catch-all term to include brokers and general advisors), in a way like how it currently accredits and monitors assessors (see Box 7.1).

Box 7.1 Current process for accredited assessors

Accredited assessors are individuals accredited by the Department to apply the Biodiversity Assessment Method to determine credit obligations or generation from projects. To apply to become an accredited assessor, an individual must prove prior experience and qualifications, and undertake the Department's accredited assessor training course. Once accredited, the individual must abide by the accredited assessor code of conduct, which includes requirements such as:

- maintaining high standards of professional conduct when providing independent, consistent and objective advice based on adequate knowledge
- not undertaking professional activities in a manner involving dishonesty, fraud, deceit, misrepresentation or bias
- not acting in circumstances where there is actual, perceived, or potential conflict of interest. The Department has provided guidance on what constitutes a conflict of interest, including that it can arise from private interests, close personal relationships, business relationships or previous Biodiversity Offsets Scheme and non-Biodiversity Offsets Scheme-related work.

Accredited assessors can be subject to audits and compliance management by the Department.

Source: NSW Department of Climate Change, Energy, the Environment and Water, Code of Conduct, accessed 4 November 2024; NSW Department of Climate Change, Energy, the Environment and Water, Conflicts of interest, accessed 4 November 2024.

Accreditation of these individuals has several benefits:

- Increased visibility through a mandatory register of accredited individuals can increase their competitiveness and provide market participants with greater access to high quality strategic advice.
- Accreditation requirements can reduce the risk of misconduct.
- Current brokers and advisors would be greater protected against perceptions of misconduct.
- Accreditation could give the Department greater power to monitor broker activity, including receiving and investigating complaints about conduct.

Our recommendation to accredit brokers and advisors does not include detailed conditions of accreditation, as we consider the Department is best placed to develop these. We recommend the Department considers the following principles for developing the regulatory framework for BOS advisors:

Clarity

01	The accreditation pathways and conditions for assessors and advisors should be as similar as possible.
02	Credit buyers and sellers are easily able to understand the obligations that accreditation places on advisors.
03	Advisors should be qualified to support people to navigate the market. That is, they should be fit and proper persons and have relevant experience.
04	Individuals may hold accreditation as both assessors and advisors. The nature of the market means that a specialised skillset is required to navigate it, which is not held by many people.

Honesty

01	The Department should have a level of oversight of the advisors' activities. For example, it could require broker involvement to be registered on credit transfer applications and advisor involvement to be registered on Biodiversity Stewardship Agreement applications.
02	The Department should provide a clear definition of what constitutes an actual or perceived conflict of interest, and monitor how individual advisors are managing these.[v]

These principles have been designed to balance transparency and oversight with administrative burden. We also consider any accreditation framework should be simple to understand for market participants, so that these consumers clearly know what they can expect from their services.

Recommendation

11. The Department should accredit Biodiversity Offsets Scheme Advisors (including brokers and other advisors) through a process similar to the accreditation of assessors.

[v] An example of this type of guidance can be found in ASIC Regulatory Guide 181: Licensing: Managing Conflicts of interest

Chapter 8

Participation of Aboriginal peoples

How well does the market work for Aboriginal people and communities?

Aboriginal peoples are custodians of stories, law and ecological knowledge for the management and care of Country.[w71] These knowledges, identities and practices include consideration and nurturing of what is now known as biodiversity. Local Aboriginal Land Councils (LALCs), operating under NSW land rights legislation, manage substantial holdings of land with biodiversity and conservation value.

This chapter presents our analysis on whether and how the biodiversity credits market is working for Aboriginal people in NSW, with a specific focus on LALCs. However, Aboriginal participation includes broader considerations of Aboriginal community-controlled organisations/corporations (that may have land holdings, cultural land management programs, or need to engage the market as buyer), Aboriginal businesses, and individuals (including Aboriginal private land holders).

8.1 Key points in this chapter

We engaged the UNSW Indigenous Land and Justice Research Group to survey LALCs in NSW to better understand their perspectives on the biodiversity credits market, how the market relates to LALC priorities, and to identify opportunities to better encourage participation. The UNSW Indigenous Land and Justice Research Group partnered with NSW Aboriginal Land Council (NSWALC) to conduct interviews with LALCs on their environmental work and knowledge of government environmental programs. The study conducted 20 interviews in total, with 19 LALCs spread across the state and NSWALC. The interviewees were mostly CEOs.

The key observations from the study that are relevant to our review were:

- The history of Aboriginal land justice affects contemporary land management.
- LALCs experience similar barriers to other market participants, with unique and exacerbated inequities.
- There is a high appetite from LALCs to care for Country.
- Generating credits through a Biodiversity Stewardship Agreement is not attractive for LALCs.

We have published the full report from the study on our website.

Besides this study, the Government has signalled intent to undertake tailored engagement with Aboriginal people to explore new and better ways to support Aboriginal people to connect with and care for Country.[72] We consider our findings in this chapter provide an overview of what the Government can consider in this engagement relating to the biodiversity credits market. We will continue to engage with Aboriginal landholders next year to better understand whether and how the market aligns with their priorities.

[w] Country refers to culturally defined areas of land, waterways and seas that are connected to a distinct group(s) of Aboriginal peoples. For Aboriginal people, Country represents a complex and interconnected relationship between land, water, culture, law, story, identity, relation, and kin. Connection to Country is very important part of Aboriginal identity, being and culture.

"The vision is clear: biodiversity markets must centre environmental, social, and cultural values, offering a path that not only respects First Nations knowledge but also delivers tangible benefits for communities and Country alike."

Aboriginal Carbon Foundation[73]

8.2 The history of Aboriginal land justice affects contemporary land management

In 1983, NSW Parliament passed the *Aboriginal Land Rights Act 1983* (ALRA). The laws came after nearly 200 years of colonial land dealings and nearly always violent dispossession.[74] The then Minister for Aboriginal Affairs explained that land rights were fundamental for the 'regeneration of Aboriginal culture and dignity, and at the same time laying the basis for a self-reliant and more secure economic future for our continent's Aboriginal custodians'.[75]

Following the ALRA, an Aboriginal Land Council network was created, including NSW Aboriginal Land Council (NSWALC) and LALCs. LALCs carry out a range of activities in service of their members' needs, including cultural and heritage care, supporting communities through Sorry Business, and sometimes providing housing for their members.

Currently, land councils hold around 250,000 hectares of land across NSW, of which around 80% is estimated to be zoned for conservation.[76] At the time of writing, a further 1.12 million hectares of Crown land is subject to land claims from land councils, awaiting determination by the NSW Government.[77] Several land councils, mostly along the east coast, run successful enterprises and have significant land holdings. Most land councils however are one-person organisations with limited access to capital and funding.

Raymond Kelly (the chairperson of NSWALC) testified in a recent Parliamentary Committee hearing:

> Where we are today is we're a thriving industry across the State. We've got land opportunities. We've got land councils with groups of people who are trying to make determinations for themselves in their own community. Then we look at this land opportunity that we have, and we're confronted with how do we manage to create for ourselves a future. It's very difficult when it might require us to put enormous amounts of money to work our way through this biodiversity challenge. We haven't got that money. We haven't got that backing. We haven't had the opportunity.[78]

This represents the challenges faced by LALCs managing reclaimed land: where characteristics of the land estate, and limited associated resources and capital, can create barriers to opportunities for economic development.

8.3 LALCs experience similar barriers to other market participants, with unique and exacerbated inequities

Throughout our market monitoring period we have observed issues around upfront costs and costs for regional development. These issues apply throughout the market, but can affect Aboriginal landholders disproportionately due to the historical impacts of land rights and the nature of land returned under the ALRA.

8.3.1 There are high upfront costs to entering the market as a credit supplier

A large part of upfront costs is the expensive process for landholders to determine what credits they have. Most LALCs have limited resources to undertake biodiversity mapping of their land to better understand biodiversity value. Of the 19 LALCs surveyed, only 2 had undertaken biodiversity mapping. In both cases, the LALCs were relatively large and had done so for land management reasons, related to development applications. The majority of LALCs surveyed have a deep knowledge of their land, including important sites. However, most do not have the data available to know how much of their land is under environmental and conservation zoning, or the specific biodiversity value.

Other examples of biodiversity mapping or surveys undertaken by LALCs have been strategic, for example mapping undertaken due to joint management agreements with the NSW Government. This means that LALCs are not able to identify or assess the potential opportunities of entering into a Biodiversity Stewardship Agreement to generate credits until they pay for the biodiversity assessment.

A group of LALCs also noted upfront uncertainty is exacerbated by a lack of market information and a requirement to pay a Total Fund Deposit.[79]

8.3.2 Lack of credit supply has a disproportionate impact on regional development costs

We have heard concerns from stakeholders about the scarcity of biodiversity credits and the costs of biodiversity offsets in regional NSW, and the effect this has on regional development.[80] Land Councils mostly interact with the Biodiversity Offsets Scheme when there is an opportunity for development on their lands. NSWALC has discussed the burden that biodiversity offset obligations place on developing land, hindering opportunities for delivering economic, social and cultural benefits to communities.[81] LALCs are particularly burdened because:

- A high proportion of LALC land is zoned for conservation, therefore increasing the offset obligations in case of development.
- LALCs have not purchased their land on the free market and must work with the land transferred to them by the Crown. Parcels of land can be under claim for several years with no certainty of when or if the transfer will occur. This is different to a landholder who can do due diligence to understand constraints before purchasing land.
- LALCs are not-for-profit and do not have significant cash holdings.

A group of LALCs stated in a submission to the Independent Review of the *Biodiversity Conservation Act 2016*:

> The [Biodiversity Conservation Act] is stifling LALC development aspirations, devaluing our compensation, and holding back our communities. It is akin to a second dispossession.[82]

Box 8.1 Case study: Darkinjung LALC

Darkinjung LALC is located on the Central Coast of NSW, with a catchment spanning from Lake Munmorah in the north to Patonga in the south. It owns approximately 3700 ha of land, more than half of which is zoned for conservation.

Less than 10% of its land is currently zoned for development. It prepared a Development Delivery Plan (DDP) in 2022 to progress development aspirations, which identifies 31 sites proposed for development.

One of these sites, at Lake Munmorah is intended to be rezoned to support residential, recreation and conservation purposes. The site is meant to support 627 homes. The offset liability for the project is substantial, with 872 ecosystem credits and 1804 species credits. If Darkinjung LALC were to pay into the Biodiversity Conservation Fund, it would make an estimated payment of more than $11.5 million. This would amount to around $18,000 per house.

Darkinjung LALC is pursuing a strategic Biodiversity Certification to overcome biodiversity barriers to the project.

Source: Garvey, N, Are we serious about closing the gap? The role of biodiversity offsets in promoting and thwarting economic and social self-determination for First Nations people, July 2024; Riches, N, Seven year wait ends for final Chain Valley Bay, Crangan Bay development plans, April 2022.

Finding

16. Local Aboriginal Land Councils experience similar barriers to other market participants, with unique and exacerbated inequities.

8.4 There is a strong commitment from LALCs to care for Country

All LALCs are doing some form of work to care for their Country and aspire to further develop expertise and capacity in conservation work. There is a distinct cultural affirmation dimension and desire to align cultural practices with environmental management practices. LALCs also need a suitable business model to meet the costs of this land management work. The current most common environmental enterprises adopted by LALC are ranger programs and cultural burning, which present several cultural and economic co-benefits:

- employment
- education
- partnerships with government
- developing enterprise skills and capacity
- developing knowledge sharing networks with other LALCs.

Awareness and understanding of the Biodiversity Offsets Scheme is generally low among Aboriginal landholders. Many surveyed LALCs reported hearing from the Government about conservation programs but were not certain about the difference between these programs and funding available. The LALC survey identified how land councils are overloaded with information on various government environment-related programs and grants, mainly via email communications. This can make it difficult to distinguish between specific programs, which government department or agency they are associated with, and the value of different opportunities. Staffing and other resource limitations at many LALCs make it particularly challenging to navigate the various programs and associated communications.

Several LALCs identified the need for a more personalised, face-to-face approach including accessible information on programs.

8.5 Generating credits through a Biodiversity Stewardship Agreement is not attractive

While there is a large appetite for environmental enterprises among LALCs, entering a Biodiversity Stewardship Agreement is seen as an unattractive option. As we have previously noted, there are large upfront costs and the market is complex. NSWALC told UNSW researchers that it forwards Department materials on the Biodiversity Offsets Scheme to its network, but does not 'sell' the opportunity as the benefits are uncertain. There are currently no LALCs entered into Stewardship Agreements.

Some LALCs have investigated entering into a Stewardship Agreement but decided against it for 3 key reasons:

- There is uncertainty over the financial value of creating credits through a Biodiversity Stewardship Agreement. This includes not being able to assess potential revenue and the overall burden from land management responsibilities.
- The condition to commit land in perpetuity carries implications for future generations. Many LALCs view locking up land in perpetuity as unfairly making a decision on behalf of future generations.[x]
- Activating land to generate an income stream is a core business to LALCs and the restrictions of a Biodiversity Stewardship Agreement prevent opportunity for future enterprises. For example, Narrabri LALC decided against entering into a Stewardship Agreement as it thought there could be greater advantage negotiating directly with a mining company who seek a range of outcomes, including social license to operate.

"It really locks in what we can do with the land and the money that they pay us to look after that land might not be sufficient"

Representative from Ulladulla LALC[83]

Finding

17. There is a strong commitment from Local Aboriginal Land Councils to care for Country (including protecting and maintaining biodiversity), but generating credits through a Biodiversity Stewardship Agreement is not an attractive option.

[x] Some LALCs include consideration of future generations in their Community Land and Business Plans. The concerns and risks with the condition of committing land in perpetuity is heightened by the fact that individual LALCs only limited total land holdings.

8.6 Aboriginal Land Councils have identified options for the Department to consider

The NSW Department of Climate Change, Energy, the Environment and Water (the Department) and Biodiversity Conservation Trust are both seeking to develop their partnership with and empowerment of Aboriginal people.[84] We observe from our analysis that the current framework of the market does not seem to be compatible with the realities of LALCs and Aboriginal land management. As a representative from NSWALC stated, 'it is simply too big a risk'.[85] We note that both government entities run Aboriginal-specific programs and agreements outside the biodiversity credits market, which is beyond the scope of our report.

As a part of its commitments under the National Agreement on Closing the Gap, the Government should work with Aboriginal communities to identify how the market can assist them or support their priorities. LALCs in NSW and experts supporting them have identified several options for improvement which the Government could consider:

- introducing a financial subsidy to assist with the cost of biodiversity assessment
- giving LALCs access to biodiversity values mapping in the state to help them identify the biodiversity value on their land, in partnership with Crown Lands so that this occurs at the time or close to the time that land is restituted to LALCs
- increasing the credit value of Aboriginal-generated biodiversity credits to recognise the co-benefits of these credits (like the example in Box 8.2)
- resourcing a central 'front-desk' or concierge to assist Aboriginal landholders to understand the various biodiversity conservation programs, funding available, and how to navigate the market. This function should include face-to-face interactions such as regional forums
- supporting a strategic approach that allows LALCs to consider their biodiversity effects cumulatively, allowing offsets to be traded between LALCs.[86]

We suggest that the Department should explore these options further in partnership with Aboriginal communities in NSW. Due to the issues Aboriginal stakeholders have raised with the workings of the Biodiversity Offsets Scheme, it is likely that simple engagement to encourage participation in the market is not enough. Rather, the Department should consider the framework in which the market operates and whether this aligns with Aboriginal ways of managing land and community economic development.

Box 8.2 Case study: Cultural co-benefits in Queensland Land Restoration Fund

The Queensland Land Restoration Fund (LRF) is a government fund that invests in carbon farming projects that generate Australian Carbon Credit Units (ACCUs) and First Nations, socio-economic or environmental co-benefits. The LRF pays a premium for ACCUs from projects that deliver verified co-benefits. This premium is determined on a case-by-case basis.

Box 8.2 Case study: Cultural co-benefits in Queensland Land Restoration Fund

The LRF defines First Nations co-benefits as 'co-benefits that provide on-Country business opportunities and new service delivery businesses for First Nations people, as well as supporting cultural and customary connections'. These can be classed into 2 categories:

- First Nations benefits based on location: Projects that take place on Indigenous land and provide benefits to the relevant First Nations peoples for that land
- First Nations benefits based on participation: Projects that are owned by First Nations peoples or directly involve First Nations participation

An example of a project funded through the LRF is the Reforesting Wawu Dimbi (Place of Spirits) Daintree Project, which is a $1.35 million, 15-year partnership between the Queensland Government and the Gondwana Rainforest Trust. The project will employ 12 Indigenous people to undertake a restoration project on an area of land in northern Queensland. An Aboriginal corporation is partnering with the project to deliver training and employment outcomes for young Kuku Yalanji people working on Country. The project will also restore cleared land into a functional rainforest ecosystem.

Source: Queensland Government, Co-benefits overview, accessed 29 November 2024; Queensland Government, The Land Restoration Fund Co-benefits Standard, March 2023, pp 18-19; Queensland Government, Land Restoration Fund contracted projects: Reforesting Wawu Dimbi (Place of Spirits) Daintree Project—R2033, accessed 29 November 2024.

We are interested in exploring the potential for the market to support Aboriginal land management further. Next year, we will continue to engage with Aboriginal landholders, including outside of the LALC network, to further understand how the market can support their local priorities.

Recommendation

12. The Government should work with Aboriginal communities to identify how the market can assist them or support their priorities.

Appendices

Appendix A

Terms of reference

Terms of reference for IPART to monitor the biodiversity credits market

I, Victor Dominello, Minister for Customer Service and Digital Government, under section 12A of the Independent Pricing and Regulatory Tribunal Act 1992, request the Independent Pricing and Regulatory Tribunal (IPART) to monitor and report on the operation of the biodiversity credits market within the Biodiversity Offsets Scheme (the Scheme).

Background

The Scheme is the NSW framework for offsetting unavoidable impacts on biodiversity from development with biodiversity gains through landholder stewardship agreements.

Applications for development or clearing approvals that enter the Scheme must set out how impacts on biodiversity will be avoided and minimised and remaining residual impacts as identified in the approval must be offset. This can be achieved by retirement of biodiversity credits or payment to the Biodiversity Conservation Fund (BCF) which transfers the offset obligation to the Biodiversity Conservation Trust (BCT).

Landholders can establish Biodiversity Stewardship Agreements (BSAs) to create biodiversity credits. These credits are then available to the market for purchase to offset the impacts of biodiversity by development, by the BCT (through the BCF), the Credit Supply Fund (through the Department of Planning and Environment)[y] or by government or others to secure outcomes for conservation.

Proponents can also establish their own Biodiversity Stewardship Agreements to generate and retire the credits they need to offset their development. Part of the proceeds from credit sales are held in trust by the BCT to support the long-term management of the biodiversity stewardship sites.

The current biodiversity credits market builds on the previous NSW biodiversity credits market created under the Biobanking Scheme. The market is rapidly growing, and this is expected to continue over the next 10 years and beyond because of economic development, including housing, manufacturing and infrastructure delivery.

The task

IPART is requested to:

1. Monitor the performance of and competition within the biodiversity credit market, and make findings and recommendations with the aim of:
    a. maintaining and promoting competition
    b. addressing the interests of existing and potential biodiversity market participants, and supporting fair trading
    c. identifying opportunities to improve market efficiency and address market failure

[y] These Terms of Reference were written prior to a machinery of government change in early 2024, where the Department of Planning and Environment split into the Department of Climate Change, Energy, the Environment and Water and the Department of Planning, Housing and Infrastructure.

2. Report annually on the performance of and competition within the biodiversity market for a period of three years (annual market monitoring report).

Relevant considerations

In undertaking this task, IPART is to have regard to:

1. The purpose and structure of the Scheme
2. The roles and responsibilities of the Department of Planning and Environment, the BCT, local government authorities and other participants
3. The incentives and impacts of the Scheme on existing and potential market participants, including developers, landholders and Biodiversity Stewardship Agreement holders, accredited assessors, local government authorities and other interested parties
4. The impact of government interventions, including the Biodiversity Credits Supply Fund and the BCF
5. Whether there are gaps in data collected or reported on by participants in the market or the timing of making that data available that could help track performance of the market
6. Recent reviews of the Scheme including the parliamentary inquiry into the integrity of the Biodiversity Offsets Scheme and Audit Office report on the effectiveness of the Biodiversity Offsets Scheme
7. Any other matter that IPART considers relevant.

The process

IPART is required to consult with the Department of Planning and Environment, the BCT, developers, BSA holders, accredited biodiversity assessors, local government authorities and other interested parties during the preparation of an annual market monitoring report.

IPART is to publish an annual market monitoring report within six months after the end of each financial year, commencing with an annual report for the 2022-23 financial year.

IPART may also publish reports at other times if it considers appropriate.

Appendix B

Glossary

Term	Description
Accredited assessor	An individual accredited by the NSW Department of Climate Change, Energy, the Environment and Water to apply the Biodiversity Assessment Method.
Active (and passive) management	When a site first has a Biodiversity Stewardship Agreement applied to it, it is under passive management which means the landholder only has to undertake minimal management to conserve what's currently on the site. Once the Biodiversity Stewardship Agreement holder has sold enough credits to meet the Total Fund Deposit, the site enters active management. This means the Biodiversity Stewardship Agreement holder has to undertake the management actions in the Biodiversity Stewardship Agreement's Management Plan and will receive annual payments from the Biodiversity Stewardship Payment Fund to cover management costs.
BioBanking Scheme	The predecessor of the Biodiversity Offsets Scheme. Credits generated under the BioBanking Scheme are tradeable in the Biodiversity Offsets Scheme after an assessment of equivalence has been applied.
Biodiversity Assessment Method (BAM)	The document that outlines how an accredited person assesses impacts on biodiversity at development sites and stewardship sites. This document also provides the method for quantifying the credits associated with these impacts.
Biodiversity Conservation Act 2016	The NSW legislation that sets the provisions for the Biodiversity Offsets Scheme, among other things.
Biodiversity Conservation Amendment (Biodiversity Offsets Scheme) Act 2024	An Act passed by NSW Parliament in November 2024 to amend several aspects of the *Biodiversity Conservation Act 2016*, with aims to reform the Biodiversity Offsets Scheme. It was assented to in December 2024.
Biodiversity Conservation Fund (BCF)	The Fund that proponents can pay into to transfer their credit obligations to the Biodiversity Conservation Trust. The Biodiversity Conservation Trust must use the money earned from the payment to source like-for-like credits in the market, to acquit its liability for these credit obligations.
Biodiversity Conservation Fund Charge System	The method set by the Biodiversity Conservation Trust to calculate the amount of money that a proponent must pay into the Biodiversity Conservation Fund to transfer offset liabilities. This System was preceded by the Biodiversity Offsets Payment Calculator.
Biodiversity Conservation Trust (the Trust)	A non-profit NSW Government organisation tasked to partner with landholders to enhance and conserve biodiversity across NSW. In the Biodiversity Offset Scheme, the Trust's current role is to manage the Biodiversity Conservation Fund, Biodiversity Stewardship Payments Fund and support landholders once they've entered into a Biodiversity Stewardship Agreement.
Biodiversity credit	The standardised unit to measure biodiversity impacts in the Biodiversity Offsets Scheme. Biodiversity credits can be traded on the biodiversity credits market.

Term	Description
Biodiversity Credits Supply Fund (the Supply Fund)	The Fund used by the NSW Government to buy in-demand credits to sell to public or private proponents who need to offset biodiversity impacts. Proceeds are re-invested to buy more credits.
Biodiversity offset	A way to compensate for unavoidable impacts on biodiversity from development or clearing.
Biodiversity Offsets Scheme (the Scheme)	The framework for offsetting unavoidable impacts on biodiversity from development with biodiversity gains through landholder stewardship agreements. The biodiversity credits market forms part of the Biodiversity Offsets Scheme
Biodiversity Stewardship Agreement	An Agreement registered on the title of land to conserve habitat for native species and ecosystems and generate biodiversity credits to be sold to credit buyers who have offset obligations or want to secure conservation. The Agreement is in perpetuity and the sale of credits is meant to fund the management of conservation.
Biodiversity Stewardship Payments Fund	The Fund that provides annual payments to Biodiversity Stewardship Agreement holders for land management costs.
Credit buyer	An individual or organisation seeking to buy biodiversity credits on the market, to meet development consent conditions or some other purpose.
Credit obligation	The need to purchase credits in the market to satisfy biodiversity offset requirements of a development or clearing approval. Credit obligations may be passed on to the Biodiversity Conservation Trust by paying a certain amount into the Biodiversity Conservation Fund.
Credit supplier	A landholder that has entered into a Biodiversity Stewardship Agreement to sell credits on the market and fund conservation management on their land.
NSW Department of Climate Change, Energy, the Environment and Water (the Department)	The NSW Government Department responsible for administering the Biodiversity Offsets Scheme.
Ecosystem credit (and Offset Trading Group)	Biodiversity credit representing impacts on vegetation associated with ecological communities. Ecosystem credits are classified by Offset Trading Groups, which group ecosystem credit types for trading purposes.
IBRA (sub)region	The Interim Biogeographic Regionalisation for Australia, a classification of areas of Australia's land according to common environmental characteristics.
Like-for-like rules	The rules that decide what credits can be used to offset biodiversity impacts, to seek to ensure that biodiversity impacts are offset with biodiversity that is very similar to the biodiversity that is being impacted.
(Local) Aboriginal Land Council	Aboriginal community organisations that provide for the development of land rights for Aboriginal people and serve the broader interests of their local Aboriginal community. The respective functions of NSW Aboriginal Land Council and Local Aboriginal Land Councils are mandated in the *Aboriginal Land Rights Act 1983*.

Term	Description
Market broker	An agent who assists credit buyers and/or sellers to trade in the market.
Market transaction	A transfer of credits between distinct entities in the market.
Nature positive	An approach to development whereby nature is repaired and regenerated, unlike traditional approaches which mainly seek to slow or stabilise the rate of biodiversity loss.
Proponent	An individual or organisation undertaking development according to a development consent. Many proponents will be credit buyers but not all credit buyers are proponents.
Retiring credits	Once someone with a credit obligation has purchased credits, they must retire the credits to prove they have met their credit obligation.
Reverse auction	The tender process used by the Department to purchase in-demand credits to sell to credit buyers through the Credits Supply Fund.
Species credit	Biodiversity credit representing impacts on species of flora or fauna.
Total Fund Deposit (TFD)	The value of money needed to cover future Biodiversity Stewardship Agreement management costs, paid into the Biodiversity Stewardship Payments Fund when a Biodiversity Stewardship Agreement holder sells credits.

Appendix C

Considerations for the review of the Total Fund Deposit discount rate

Our recommended considerations for the scheduled review of the Total Fund Deposit discount rate

The Framework for Reviewing the Total Fund Deposit discount rate provides for a review of the discount rate every 4 years. The next review of the discount rate is scheduled for the first half of the 2025 calendar year.

As part of the scheduled review of the discount rate in 2025, we recommend that the Government investigate whether the expected returns from the NSW Treasury Corporation Investment Management Long Term Growth Fund (TCorpIM LTGF) are commensurate with the expected return required to compensate for the systematic risk associated with land management activities of stewardship sites. If there is a material difference, the Government should investigate and implement ways of improving the discount rate framework to better account for these systematic risks. This Appendix outlines considerations for the upcoming review of the Total Fund Deposit discount rate.

C.1 The Total Fund Deposit discount rate should reflect the systematic risks associated with the costs of land management

It is important that the Total Fund Deposit discount rate accurately reflects the risk of the costs associated with land management actions. At present, the Total Fund Discount rate is set using the following formula:

$$\text{Discount rate} = \text{Expected BSPF investment returns} - \text{BCT's cost of managing BSPF} - \text{Minister's risk tolerance margin}$$

This means that, at present, the Total Fund Deposit discount rate represents the expected return from investing the Total Fund Deposits in the TCorpIM LTGF, allowing for fund management costs and a risk tolerance margin – i.e. it reflects the return that Biodiversity Conservation Trust expects to earn by investing the monies contributed by landholders towards their Total Fund Deposit. However, this may not be the appropriate discount rate to use.

The discount rate is the rate of return used to calculate the present value of future cash flows related to the management of a site subject to a Biodiversity Stewardship Agreement. In other words, the forecasted land management costs are discounted back to the present value, and these present values are added together to determine the Total Fund Deposit. This process is known as 'discounted cash flow analysis' (DCF).

When performing a DCF analysis, there are 2 key principles that are observed as standard practice. The first is that it is the mathematical 'expected' cash flows that are discounted. That is, what is required is the probability-weighted average of the potential future cash flows rather than the cash flow that is most likely to occur. For example, if a particular cash flow would be $100 in a scenario that is likely to occur with 80% probability and $200 in a scenario that occurs with 20% probability, the figure to be discounted is $100 × 0.8 + $200 × 0.2 = $120.

The second key principle is that the discount rate should reflect the systematic risk of the cash flows that are being discounted. This principle has 2 elements:

- It is the risk of a particular cash flow that determines the discount rate that is applied to it. The owner of a stream of cash flows, or the way in which a cash flow might be invested or financed, is not relevant to the discount rate or to the present value of a cash flow. In the context of the Total Fund Deposit discount rate, this principle implies that it is the risk of the forecasted costs associated with future land management, rather than the risk of the TCorpIM LTGF, that should determine the discount rate.
- It is the *systematic* risk of the cash flow that will determine the discount rate to be applied to it. For any cash flow, risk can be separated into *systematic* and *diversifiable* components. Systematic risk measures the extent to which variation in a particular cash flow is related to broad economic conditions. Diversifiable risk refers to variation in a particular cash flow that is unrelated to broad economic conditions. For example, vegetation die-back due to disease is unlikely to be related to the state of the economy. Because investors can eliminate diversifiable risk by holding a diversified portfolio of assets, they do not require compensation for that type of risk. By contrast, systematic risk cannot be eliminated by diversification and therefore requires compensation in the form of a risk premium. In this context, the standard approach is to set the discount rate as the sum of a base risk-free rate and a premium for systematic risk.

C.1.1 The Capital Asset Pricing Model

The most common approach to deriving the discount rate to be used in a DCF analysis is the Capital Asset Pricing Model (CAPM). The CAPM is used in the vast majority of independent expert valuation reports where a discount rate is required, and it is a standard tool used by Australian companies to evaluate investment opportunities and to value existing assets and liabilities.[87]

Under the CAPM, the discount rate is computed as follows:

$$\text{Discount rate} = \text{Risk-free rate} + \text{Beta} \times \text{Market risk premium}$$

where:

- The risk-free rate represents the expected return that is available to investors on an investment that is completely free of risk. Commonwealth Government bonds are usually assumed to be such a risk-free investment;
- The market risk premium represents the amount of extra return (over and above the return on a risk-free asset) that investors would require for investing in an asset of average risk; and
- Beta represents the 'equity beta,' which indicates the extent to which the particular investment has more or less systematic risk than average. For example, an equity beta of 1.2 indicates that the investment is 20% more risky than average, in which case it would require a risk premium that is 20% more than would be required for an investment of average risk.

Under the CAPM, the risk-free rate would be used to discount cash flows that are known with certainty (such as those provided by Commonwealth Government bonds). It would also be used to discount cash flows that are uncertain, but where that uncertainty is not related in any way to economic conditions, the state of the economy or the broad stock market index.

A risk premium would only be added to the base risk-free rate to the extent that the cash flow is uncertain in a way that relates to the state of the broad economy, proxied by a broad stock market index. A cash flow that is likely to be higher than average during economic expansions when the stock market is rising and lower than average during economic contractions when the stock market is falling has positive systematic risk and therefore requires a discount rate above the risk-free rate.

Forecasted land management costs that must be discounted to present value terms largely relate to materials (such as chemicals and fencing materials, etc) and labour. To the extent that these costs are likely to be higher than expected if the broad economy (proxied by a broad stock market index) has performed strongly, or vice versa, a premium for systematic risk would be required.

Currently, the Total Fund Deposit discount rate reflects the return that Biodiversity Conservation Trust expects to earn by investing the monies contributed by landholders to the Biodiversity Stewardship Payments Fund, rather than the return required to compensate for the systematic risk of the cash outflows associated with land management activities. If the latter is greater than the former, then the Total Fund Deposit discount rate will be too low, and Total Fund Deposit that landholders must pay will be set too high (all else remaining equal). This may inefficiently deter some credit supply that would otherwise occur if the Total Fund Deposit discount rate reflected an expected return commensurate with the systematic risk of the land management costs.

C.1.2 The Replicating Portfolio Approach

One way this issue can be addressed is by investing the money available in the Biodiversity Stewardship Payments Fund in such a way as to generate an expected return that matches the return required to compensate for the systematic risk of the cash outflows associated with land management activities. This can be done by investing in what is known as a 'replicating portfolio.'

Consider the case of an expected cash outflow of -$100 due one year hence and where the CAPM parameters are as follows:

$$\begin{aligned}\text{Discount rate} &= \text{Risk-free rate} + \text{Beta} \times \text{Market risk premium} \\ &= 4\% + 0.5 \times 6\% = 7\%\end{aligned}$$

The present value of that cash outflow is:

$$\text{Present value} = \frac{100}{1+7\%} = 93.46.$$

The Total Fund Deposit in this case would be $93.46. That sum can then be invested in a 'replicating' portfolio consisting of 50% in risk-free government bonds and 50% in a broadly diversified market portfolio, to replicate the beta (i.e., the systematic risk of the cash flows) of 0.5.

From the definition of systematic risk (beta), the expected return, conditional on the observed return on the market portfolio is:

$$\text{Expected return} = \text{Risk-free rate} + \text{Beta} \times (\text{Return on the market} - \text{Risk-free rate}).$$

For example, if the market return turns out to be 16%, the expected return is:

$$\text{Expected return} = 4\% + 0.5 \times (16\% - 4\%) = 10\%,$$

and the expected cash flow over the first year in this scenario is:

$$\text{Expected cash flow} = 93.46 \times 1.10 = 102.81.$$

In this case, the payoff on the replicating portfolio is:

$$\underbrace{93.46 \times 0.5 \times 1.04}_{\substack{\text{Expected payoff from} \\ \text{investing in risk-free asset}}} + \underbrace{93.46 \times 0.5 \times 1.16}_{\substack{\text{Expected payoff from} \\ \text{investing in fully diversified} \\ \text{market portfolio}}} = 102.81.$$

That is, the replicating portfolio (selected to match the systematic risk of the cash flow in question) will produce a payoff that matches the expected cash flow. In circumstances where the economy is strong and the value of the market portfolio has increased, the expected cash flow is high and so is the payoff from the replicating portfolio. And in circumstances where the economy is weak and the value of the market portfolio has decreased, the expected cash flow is low and so is the payoff from the replicating portfolio.

C.2 Considerations for the discount rate review

In the upcoming scheduled review of the Total Fund Deposit discount rate, the Government could consider the following:

- Some further empirical research could be undertaken to assess whether the expected returns from investing funds in the TCorpIM LTGF are commensurate with the expected return required to compensate properly for the systematic risk associated with land management activities of stewardship sites. This would entail application of the CAPM to estimate the latter expected rate of return. If the 2 expected returns are similar, then no change is required to the Total Fund Deposit discount rate.
- If there is a material difference, then:
  - the 'Expected BSPF investment returns' term in the Total Fund Deposit discount rate formula could be set equal to the CAPM estimate of the expected return required to compensate properly for the systematic risk associated with land management activities of stewardship sites, rather than the expected return on the TCorpIM LTGF; and
  - The Biodiversity Conservation Trust could consider investing funds (perhaps through TCorp) using a replicating portfolio approach (as described above). This would be necessary to ensure that the expected returns from funds invested matches the expected return required to compensate properly for the systematic risk associated with land management activities of stewardship sites.

Appendix D

Geographic distribution of credit sales

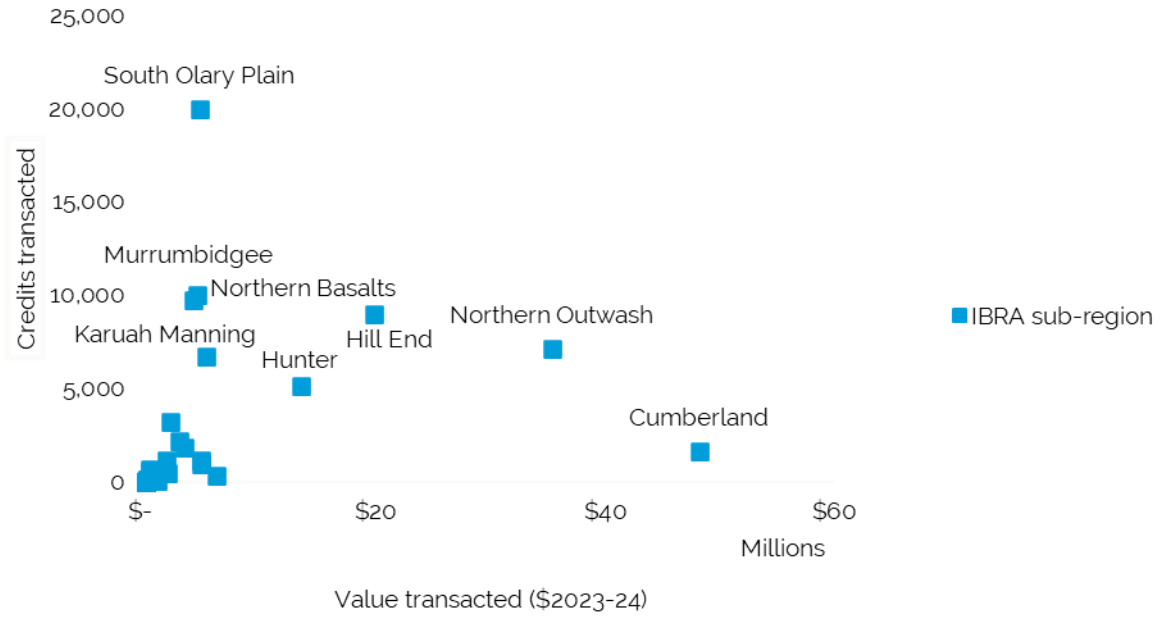
The geographic distribution of the biodiversity credits sold in the NSW market, by IBRA sub-region

Activity in the credits market is not evenly spread across credit types and locations. Previous growth in the market can be isolated to just a few key credit types and a few key areas of NSW. This year we investigated the sparsity of the credits market across NSW, noting that credit trading activity will occur in regions specific to where development is occurring.

For developers to fulfill their offset obligations, they must purchase credits under the like-for-like offset rules specified by the Biodiversity Offsets Scheme (the Scheme). The like-for-like rules for ecosystem credits specify that the biodiversity impacts must be offset with similar biodiversity on near or adjacent sub-regions within 100 kilometres of the outer edge of the impacted site. These sub-regions are defined by the Interim Biogeographic Regionalisation for Australia (IBRA). Therefore, credit trades in each geographic location are dependent on greenfield development occurring in that location and the availability of like-for-like credits available in adjacent sub-regions. There are 131 different sub-regions that span NSW. Just 34 of these have experienced a credit trade in the past.

In 2023-24, the market saw trades in 28 of these sub-regions. Relative to the rest of the market, credit transactions were typically concentrated in a handful of these sub-regions. Figure D.1 shows the top IBRA sub-regions in NSW this year by both total credits transferred and their transaction value. Regions with higher value transferred over less volumes of credits, for example Northern Outwash and Cumberland, show that they typically had more expensive credits. The opposite is the case for regions with more credits transacted for less value, such as South Olary Plain. Some of the regions in Figure D.1 have been mapped as part of our whole of scheme analysis in Figure D.2 and Figure D.3.

Figure D.1 Most traded IBRA sub-regions by credits transferred and total value ($2023-24) since the start of the Scheme



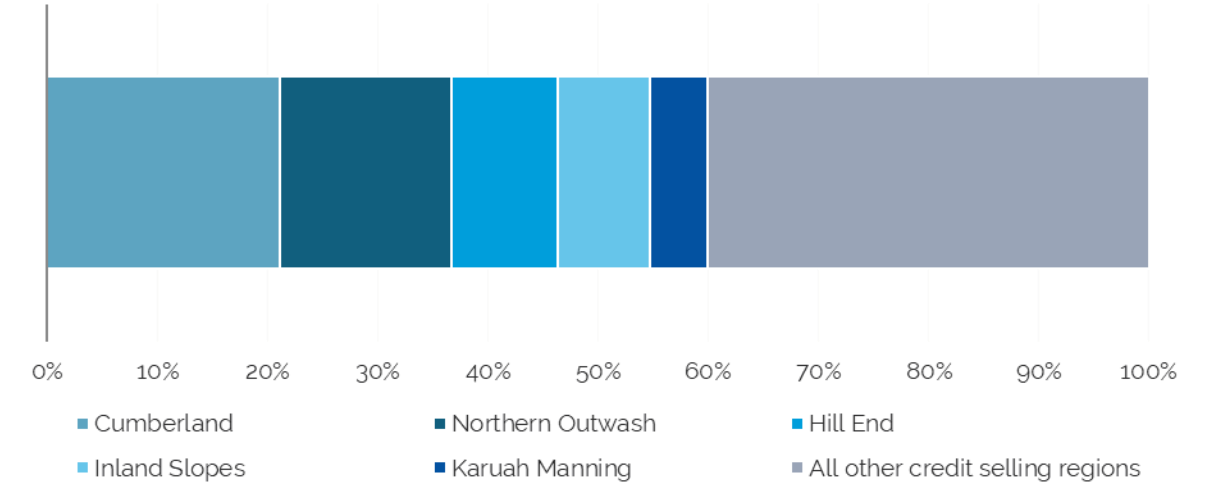
Source: IPART analysis, using data from the NSW Department of Climate Change, Energy, the Environment and Water

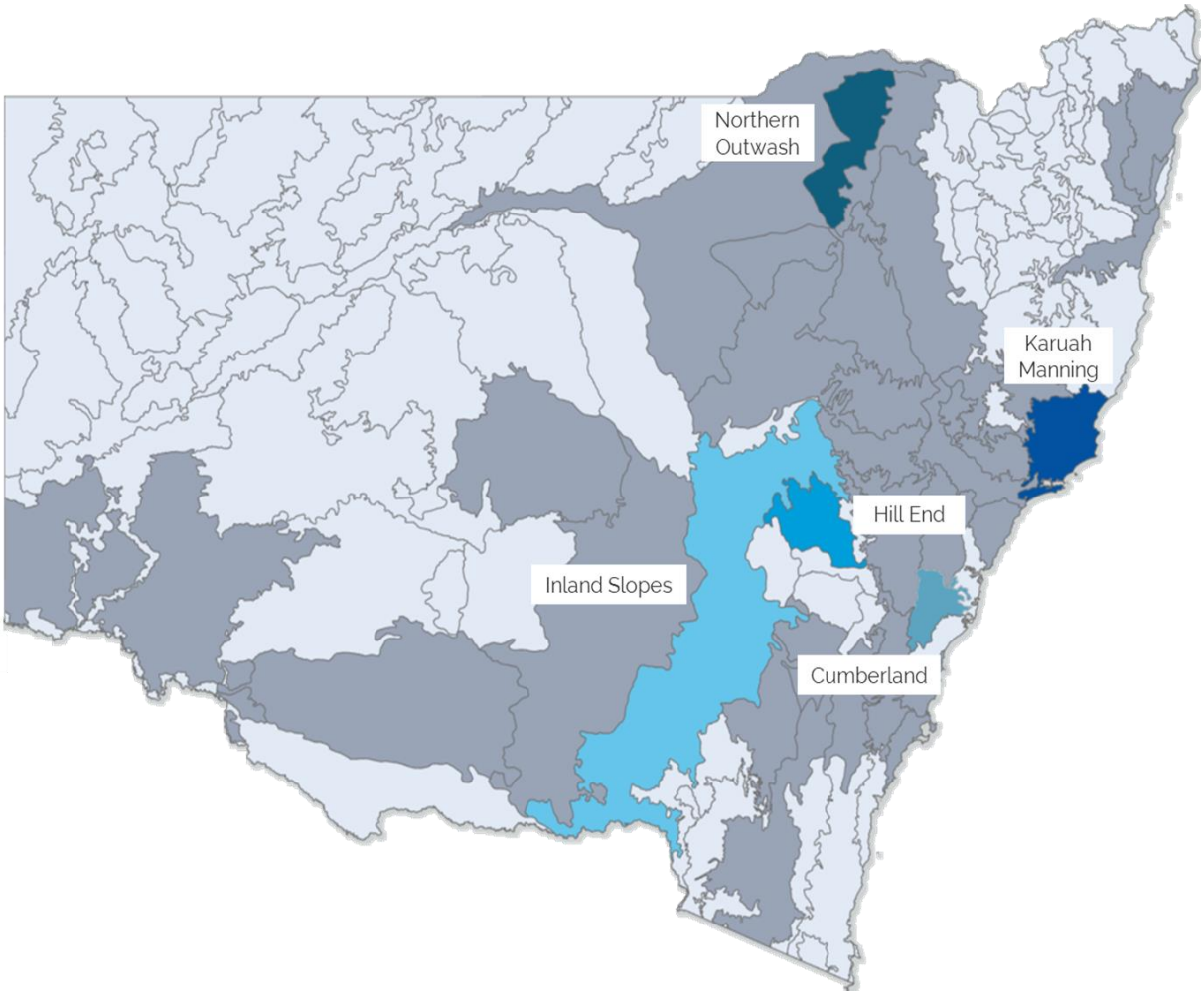
Around 60% of the dollars that have ever been traded in the market were for credits limited to just 5 sub-bioregions in NSW, as suggested by Figure D.2. This concentration is led by the Northern Outwash in central-northern NSW and Cumberland, which covers much of Sydney's development areas. Alongside the top 5 sub-regions in NSW, the mapping in Figure D.2 shows all the sub-regions in NSW that have had a credit transferred in the past, and the remaining sub-regions that are yet to sell a credit.

Factors affecting demand in a compliance market

The biodiversity credits market is largely a compliance market, meaning credit buyers do not necessarily control their volume of demand. A high concentration of buyers in certain locations is not necessarily a sign of an issue with the market.

Figure D.2 Top IBRA Sub-Regions by value of credits transacted ($2023-24) – All time

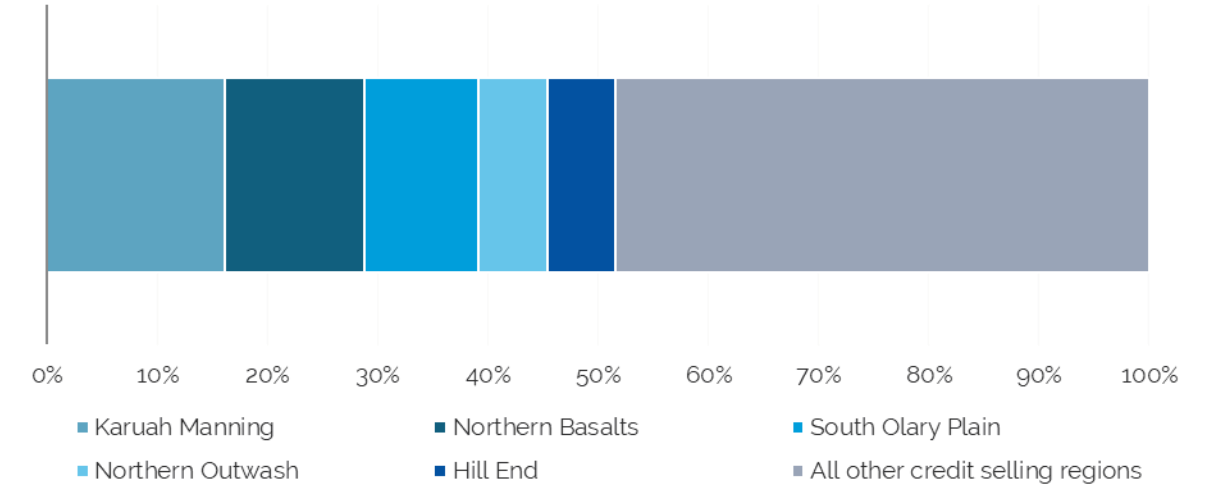


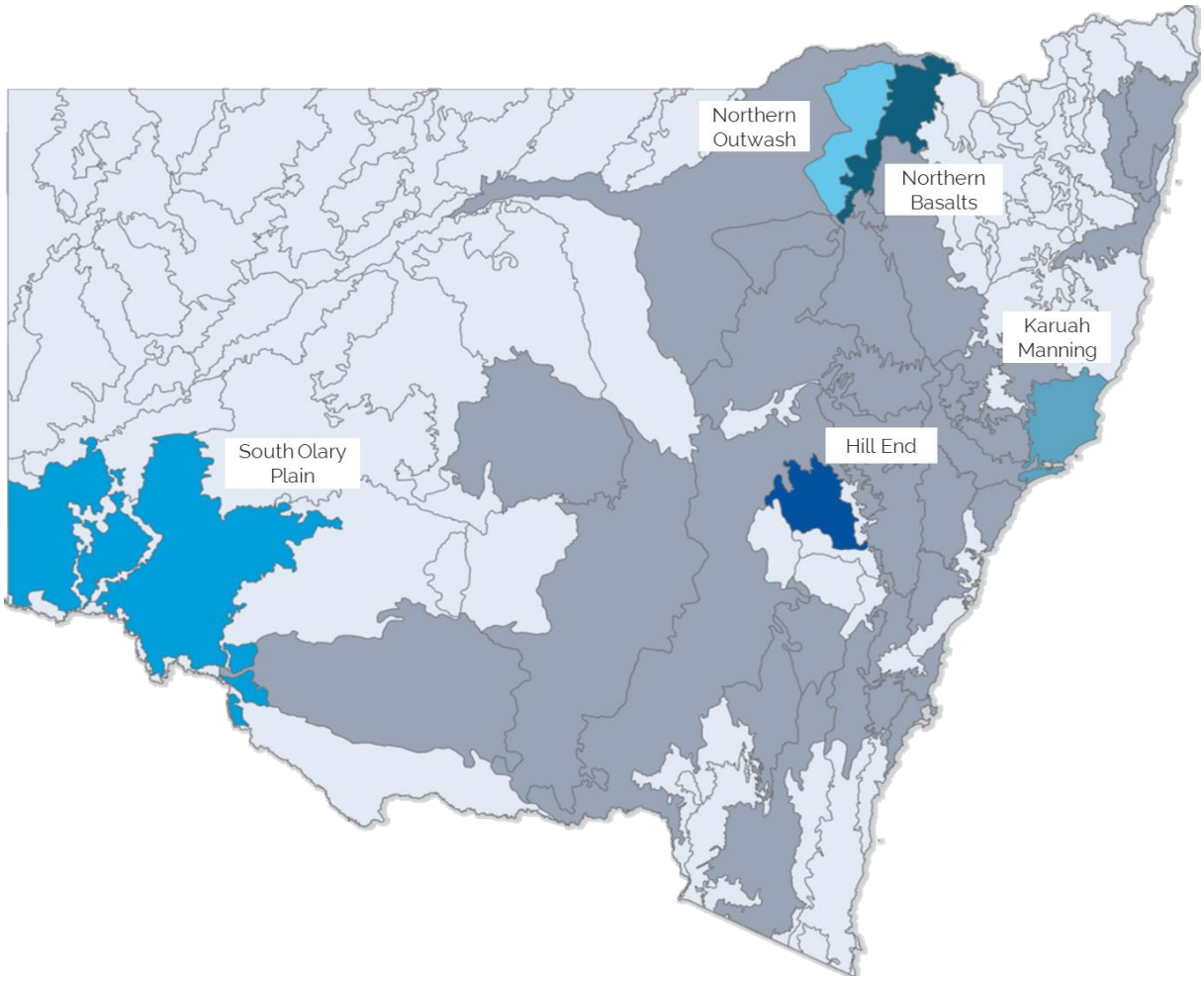


Source: IPART analysis, using data from the NSW Department of Climate Change, Energy, the Environment and Water

As shown by Figure D.3, around 50% of credit sales are concentrated in the top 5 IBRA sub-regions. Around 25% of credits transacted in the market have occurred in the northern sub-regions of Northern Basalts, Northern Outwash, and a third adjacent sub-region – Piliga Outwash.

Figure D.3 Top IBRA Sub-Regions by number of credits transacted – All time





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