Forest & Bird

TE REO O TE TAIAO | *Giving Nature a Voice*

# Native Forests for Climate

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## Contact

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# Native Forests for Climate

## Summary

Aotearoa New Zealand needs a nature-based solutions approach to climate change. Forest & Bird urges the Government and decision-makers to prioritise planting, restoring, and protecting native forests as a key climate action.

Many of our native forests, once vital carbon sinks, may now be releasing carbon due to damage from introduced browsing animals.[1] This weakens our ability to meet our international climate commitments and exacerbates the climate crisis.

While urgent emissions reductions remain the priority, we must also restore public and private native forests to improve carbon storage, build resilience, and protect biodiversity. Achieving this requires a fundamental shift in how forests are managed across the country.

Investing in native forests is a win-win: it benefits the climate, biodiversity, landholders, kaitiaki, and the economy while supporting New Zealand's climate commitments.

## Key recommendations

- **Support native forests**: Provide incentives to protect existing native forests and plant new ones for long-term carbon storage and climate resilience.

- **Balance native and exotic forestry**: Ensure policies prioritise native afforestation while rapidly phasing out exotic carbon forestry for short-term sequestration.

- **Invest in science**: Continue funding scientific research to improve how we measure carbon sequestration and emissions in native forests.

**Forest & Bird's legacy of conservation**

For more than a century, generations of Forest & Bird members have campaigned to protect native forests from logging and degradation by introduced invasive species. Some of Forest & Bird's earliest campaigns were to protect forests for soil and water conservation. The Society has also campaigned for and won improvements in exotic forest management. Forest & Bird is an active manager of 1482 hectares of native habitats from Northland to Southland.

The Society is a signatory to the West Coast Accord, an agreement with the Government, and the New Zealand Forest Accord with the plantation forest industry.

[1] Research in this area is in its early stages. It is understood that possum browse in the canopy and deer and goat browse of seedlings and vegetation up to 2m tall will impede sequestration, and that deer and goats eating leaf litter likely reduces carbon sequestered in the forest floor and ultimately the soil. However, it is difficult to measure the exact amount of this impact due to some of these changes being of a decades-long timescale. In 2020 Forest & Bird produced a report that inferred browsing animals were having an impact upon carbon sequestration in native forests. This has precipitated further and ongoing research by ZIP, DOC, NIWA, and others.

## Background: two crises, one solution

Since human settlement, New Zealand's native forests and wetlands have been decimated, releasing vast amounts of carbon into the atmosphere. The Parliamentary Commissioner for the Environment estimates that since human arrival in Aotearoa, deforestation has released 3,400,000,000 tonnes of carbon.[2]

Healthy native ecosystems – including forests, wetlands, shrublands, and tussock lands – are our most effective long-term carbon stores on land.[3] However, these ecosystems are degraded by introduced browsing animals like possums, deer, goats, wallabies, and pigs, which damage trees, prevent regeneration, and release stored carbon into the atmosphere.[4]

Aotearoa faces two interconnected crises: biodiversity loss and climate change.

The solution is straightforward – by restoring nature, we can tackle both at once. Protecting and regenerating native forests will store more carbon, slow climate change, and rebuild healthy ecosystems.

**Forests and climate action**

Native forests with high quality ongoing pest management offer the greatest long-term carbon storage.[5] While exotic pine plantations sequester carbon rapidly in the short-term, native forests store carbon more permanently with lower fire and erosion risks.[6]

The Zero Carbon Act provides a framework for reducing emissions and adapting to climate change. He Pou a Rangi, the Climate Change Commission, recommends shifting away from reliance on exotic plantations for carbon offsets and prioritising permanent native forest restoration.[7]

Significantly reducing browsing animal populations would allow native forests to absorb millions more tonnes of CO2 each year.

Our international climate commitments require us to achieve emissions reduction targets every five years.[8] Currently, the government is considering purchasing offshore carbon credits to cover the

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[2] Parliamentary Commissioner for the Environment. (2019). *Farms, forests and fossil fuels: The next great landscape transformation?* Parliamentary Commissioner for the Environment. (p.66).

[3] W.S. Walker, S.R. Gorelik, S.C. Cook-Patton, A. Baccini, M.K. Farina, K.K. Solvik, P.W. Ellis, J. Sanderman, R.A. Houghton, S.M. Leavitt, C.R. Schwalm, & B.W. Griscom. (2022). *The global potential for increased storage of carbon on land*, Proceedings of the National Academy of Sciences, U.S.A., 119 (23).

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[5] Pure Advantage. (2021, July 1). *Carbon sequestration by native forest: Setting the record straight*. Pure Advantage.

[6] Sequestration: Engineers For Social Responsibility Inc. (2019, February 26). *Carbon Dynamics in New Zealand's Native Forests,* ESR; Fire Risk: Macinnis-Ng, C. (2020, January 6). […established native forests tend to be less flammable than plantation pine…]. In D. Young, *Burning irony: Climate fix*. Newsroom; Erosion susceptibility: McMillan, A., Dymond, J., Jolly, B., Shepherd, J., & Sutherland, A. (2023, July). *Rapid assessment of land damage – Cyclone Gabrielle*.

[7] Climate Change Commission. (2023). *2023 Draft advice to inform the strategic direction of the Government's second emissions reduction plan*. (pp.126-127).

[8] United Nations Framework Convention on Climate Change. (2015, December 12). *The Paris Agreement*.

shortfall. However, investing in pest control now to restore native habitats and enhance carbon sequestration in our existing forests could reduce this gap domestically – delivering lasting climate benefits while strengthening biodiversity and ecosystem resilience.

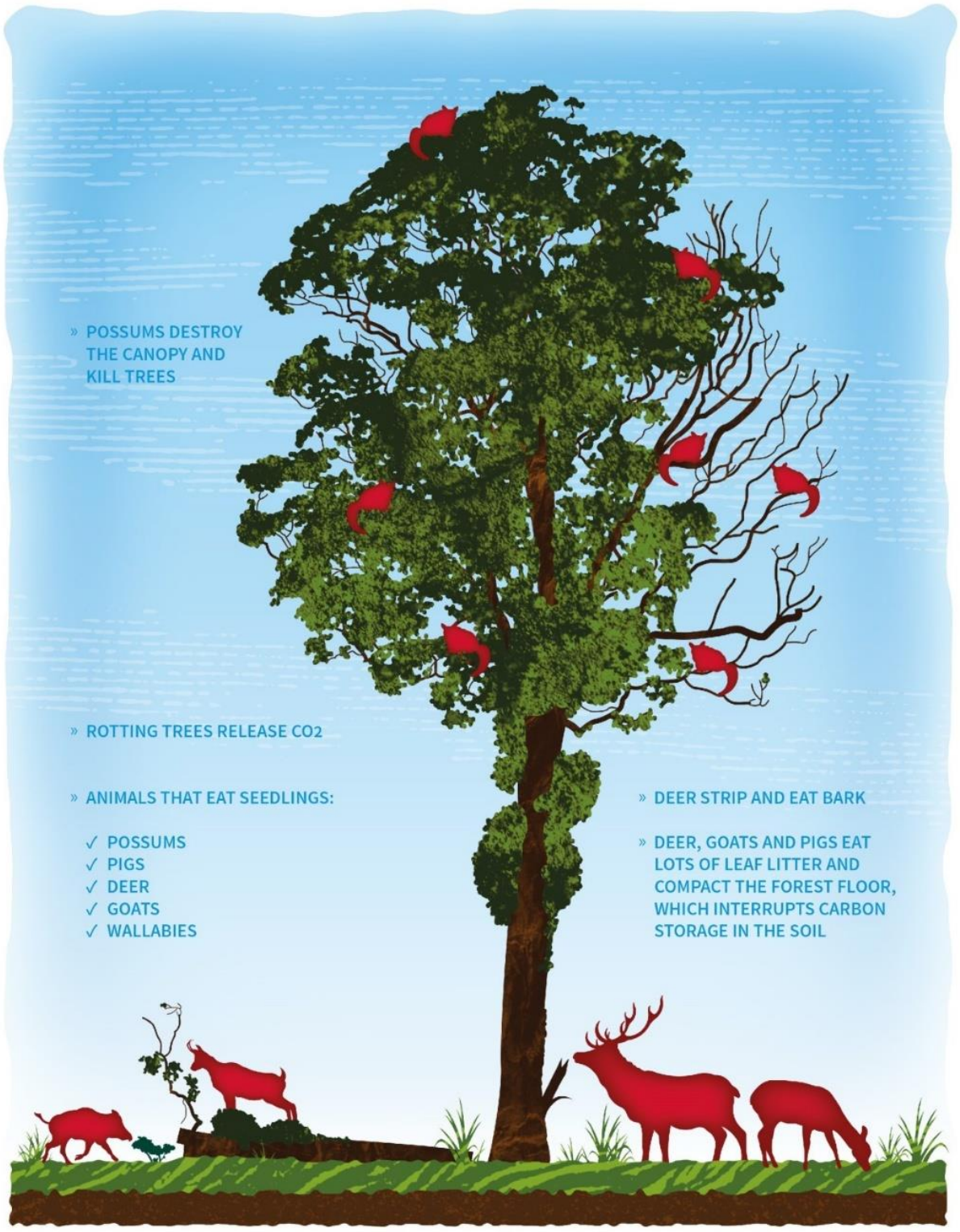


**Figure 1: Pressure from browsing animals.** © D. A. Bolland, Naissant Ltd

**The problem of carbon measurement**

To ensure the integrity of carbon credits both nationally and internationally, we need effective methods for measuring carbon sequestration and emissions from native habitats, especially with pre-1990s native forests. Ideally, these methods would enable annual measurement of carbon per hectare, facilitating accurate financial recognition for landholders within a carbon credit scheme.

Several research projects are currently exploring various tools for carbon measurement, including initiatives by Zero Invasive Predators, TAHI, Scion, Manaaki Whenua, MPI (Maximising Forest Carbon Programme), and NIWA (CarbonWatchNZ).

Finding cost-effective, reliable tools for measuring carbon in diverse native forests across the country is crucial for integrating pre-1990 forests into a carbon credit system. This will not only generate new income for ongoing pest control but also provide data to determine the optimal pest density for maximising carbon sequestration at each site.

Securing stable funding for these research projects is essential to achieving these goals.

## Key principles for native forest policy

The principles that underpin Forest & Bird's proposed approach to the role of native forests in climate change are:

- **Nature-based solutions to the climate crisis**: Addressing the intertwined biodiversity and climate crises with integrated policies will yield the greatest benefits. By tackling both issues simultaneously, we can achieve more effective and comprehensive outcomes.
- **Protecting and restoring native biodiversity**: To ensure that ecosystem functions, including carbon storage, operate at optimal levels, we must protect existing native forests and actively restore them. At the same time, we need to plant and protect new native forests. This dual approach is essential for restoring ecological balance and resilience in a rapidly changing climate. In both cases, the key protection needed is to control introduced browsing mammal populations to the lowest possible levels.
- **Just transitions**: Revising forestry rules will impact rights, responsibilities, economic, and social opportunities. These changes should be implemented in a manner that recognises historical injustices and supports communities in adapting effectively. Rules need to consider the different types of land ownership from multiple-owned Māori trust land blocks through to large farming landholdings to enable the best outcomes.
- **Maximum carbon sequestration**: Even after New Zealand achieves zero gross fossil fuel emissions and makes substantial reductions in biological methane emissions, it will still be crucial to actively remove historical emissions from the atmosphere to limit global heating. That's where protecting native habitats as carbon sinks contributes in tandem with cutting greenhouse gas emissions.
- **Enabling accurate and affordable measurement of carbon sequestration in pre-1990 native forests:** Continued funding commitments are needed to resolve the annual measurements of carbon sequestration and emissions from pre-1990 native forests.
- **Reducing our Nationally Determined Contribution liability:** By investing pre-emptively New Zealand could look after the country's native habitat carbon sinks instead of sending public money overseas for dubious credits.

## Resolving the tensions over forested land use

Forest & Bird believes a preference must be given to native species used in reafforestation because of many co-benefits including:

- Natives offer greater sequestration and 'permanence' over the longer term than *Pinus radiata*.[9]
- Natives are less erosion-prone than exotic forestry or grazing of marginal lands. This provides added climate resilience to downstream communities and businesses.[10]
- Planting natives enhances regional employment potential, as indigenous afforestation would likely employ more people than exotic forestry.[11]
- Increasing native forest habitat will benefit native biodiversity.[12]

Public consultation by successive governments regarding what kinds of forests will be eligible for NZU carbon credits in the Emissions Trading Scheme (ETS), has caused concern and anxiety from a wide variety of landowners. This includes iwi, forestry corporations, carbon farmers, the farming industry, and conservation and environment interests.

Unfortunately, this issue has been simplified in the media and by industry lobbyists as a choice between 'native trees versus pine trees'. Forest & Bird believes there is a more effective approach that can benefit land managers, kaitiaki, and the climate while supporting native biodiversity.

This conflict can be resolved by establishing four distinct categories of forests/carbon sinks (as described on the following pages), each rewarded appropriately and incorporating various habitats and forest management strategies. This approach will provide optimal benefits for land managers, native biodiversity, and climate goals.

Forest & Bird believes the ETS needs to set different prices for different types of forest. Indigenous afforestation requires incentivisation, as the return on investment is over a longer term than exotic forestry. This can be achieved by separating the price emitters pay for units in the ETS from the price that foresters receive. This would allow the government to:

- Incentivise native planting reafforestation by paying a premium over what is paid for exotic forestry units in acknowledgement of the co-benefits of native forests, and the lower initial financial returns and requirement for more and ongoing pest control.
- Maintain the attractiveness of exotic forestry while halting runaway exotic afforestation.
- Establish a clear price pathway for emitters that reduces gross emissions.

*Note:* that this does not change the equivalency of a unit of emissions equalling a unit of sequestration but only the price.

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[9] Engineers For Social Responsibility Inc. (2019, February 26). *Carbon Dynamics in New Zealand's Native Forests*, ESR.
[10] McMillan, A., Dymond, J., Jolly, B., Shepherd, J., & Sutherland, A. (2023, July). Rapid assessment of land damage – Cyclone Gabrielle.
[11] Additional employment would likely be created in nurseries growing a larger variety of seedlings and in browsing pest control or fencing.
[12] Wyse, S. V., Wright, K. A., & Clarkson, B. D. (2020). *Restoring indigenous forests in Aotearoa New Zealand: A review of ecological processes and restoration outcomes*. Ecological Management & Restoration, 21(3). (pp.196-207).

## 1. Permanent native carbon sinks

This category includes pre-1990 old growth (including historically partially logged or mined), naturally regenerating, assisted regeneration, planted permanent native forests, shrublands, mangroves, wetlands, peatlands, and tussock grasslands. This is a broad classification because not all land-based vegetation carbon sinks are forests.

Holistic biodiversity management is important for this category of 'forest' because the more complex an ecosystem is, the more co-benefits it provides, the more stable it is, and the more resilient it is to any disturbance or damage. Keeping native habitats in the best of health is key to maximising both carbon storage at reasonable cost and the natural resilience of these habitats in a changing climate.

All policy in relation to this native habitat classification should be aimed at maintaining and increasing the natural diversity of these habitats and their long-term ability to store carbon, for example:

- Incentives need to be aimed at supporting landowners to take actions that will protect natural habitats and store carbon.
- Forest & Bird would be open to a native biodiversity bonus for these forests although any such proposal should address any issues arising from WAI262.[13]
- There is an opportunity with this category to incentivise the identification of Significant Natural Areas (SNAs) under the Resource Management Act. While currently the identification of SNAs has been paused, in future there could be a requirement that carbon sinks within this category would need to be registered as current SNAs within district or regional plans. This would create alignment between the ETS and RMA. This action would help to achieve Te Mana o te Taiao strategic priority of Getting the system right.
- These permanent native habitat carbon sinks must be fenced or have effective natural pest barriers, with a commitment to ongoing pest control to minimise browsing animals. Grazing by both farmed and feral animals, including deer, cattle, sheep, goats, horses, possums, and pigs, hinders diverse regeneration and reduces the effectiveness of the carbon sink.

## 2. New permanent native forests

Forest & Bird advocates for incentivised native reafforestation for carbon sequestration, habitat, ecosystem connectivity, and climate resilience.

The work of the Climate Change Commission, the Parliamentary Commissioner for the Environment, and Pure Advantage's Recloaking Papatūānuku initiative are aligned with this vision.

The new permanent native forests category needs to include:

- A requirement that when replanting, seed from natural wild habitats in the district are used as a source for growing these plants so the genetic diversity of native plants is protected. Mixing up plants from different regions at scale risks forever damaging the genetic diversity of native plants.
- Resource Management, Crown Pastoral Lands, and Forests Act controls.
- A traceability regime to prevent illegally logged timber from entering the market.

[13] Wai 262 is a landmark Waitangi Tribunal claim addressing Māori rights to tino rangatiratanga (self-determination) over traditional knowledge, cultural heritage, indigenous flora and fauna, and intellectual property.

These permanent native forests would also need to be fenced or have effective natural pest barriers, with a commitment to ongoing pest control to minimise browsing animals. Grazing by both farmed and feral animals, including deer, cattle, sheep, goats, horses, possums, and pigs, hinders diverse regeneration, reduces the effectiveness of the carbon sink and undermines biodiversity.

## 3. Forests in transition

These are nursery areas in transition to future permanent native forests that are currently in one or more of the following land uses:

- planted in exotics
- regenerating mānuka and/or kānuka and/or planted native species
- older pine plantations
- gorse

A ‘forests in transition’ classification would create a pathway for existing exotic carbon forests to transition to permanent native forests. Any policy in relation to these forests should be aimed at expediting the transition to permanent native forests and should:

- Prohibit the extraction of logs from native vegetation within this classification.
- Have a cut-off date: The "Forests in transition" category should apply only to existing exotic plantings and not include newly planted pines or other exotics after December 31, 2025.
- Aim to designate these areas as Significant Natural Areas during the decadal revision of district or regional plans (assuming that SNA identified is resumed under the RMA), once the carbon sink has transitioned to predominantly native cover and the relevant SNA criteria can be met.
- Include a requirement that when replanting, seed from natural wild habitats in the district are used as a source for growing these plants for establishing native vegetation, supplementing natural dispersal by birds and wind.
- Implement a bond to the Crown to ensure the necessary work for transitioning from exotic to native vegetation is completed over the 20–100-year timeframe.
- Ensure compliance with wilding conifer control and land management requirements under the Biosecurity Act, Wild Animal Control Act, Conservation Act, and Crown Pastoral Land Act/Land Act.
- Consider a simplified compliance pathway for small landowners. Eligibility for the (ETS) requires an exotic-to-native forest transition management plan, which includes the above considerations and the registration of a bond.
- Discourage planting exotic transitional forest species in areas where natural regeneration is already occurring rapidly.
- Exclude invasive plant species, such as Douglas fir, sycamore, lilly pilly, and tree privet, which can dominate the canopy and outcompete native species.
- Manage plantations to ensure diverse native seed sources are available and control plant and introduced animal pests to the lowest feasible levels.

**Note:**
We recognise that the “Forests in transition” category may not be suitable for certain regions, such as Canterbury (and much of the eastern South Island) and the Hawke's Bay, where original forest cover and natural seed sources are scarce, making the transition to native forest challenging. This category is more feasible in areas where nearby natural and diverse native forests remain and can support regeneration, potentially supplemented by additional plantings to restore original species diversity.

In dry regions, some exotic species planted as carbon sinks could exacerbate weed problems, which we must carefully avoid. The National Wilding Conifer Control Programme highlights the significant risks and costs associated with planting inappropriate exotic species in unsuitable locations, demonstrating the potential harm to native ecosystems.

## 4. Harvest forestry

These trees, whether exotic or native, are primarily grown for timber, fuel, and fibre in a circular economy rather than for long-term carbon storage. Their main climate benefit lies in supporting New Zealand's transition away from fossil fuels and emissions-intensive materials, providing a less carbon-intensive alternative to other land uses. Consequently, policy should focus on the environmental management of these forests, including:

- Implementing stricter environmental standards and resource management controls on planting, forest management, and harvesting to minimize erosion, sedimentation, fire risk, and the spread of wilding conifers.
- Managing weeds and pests, including preventing wilding conifers.
- Ensuring access to carbon markets without impeding the necessary transformation of industrial and agricultural sectors for climate change mitigation.
- Maintaining the current framework for exotic production plantations and their recognition within the ETS.
- Managing native forests for harvest according to the principle that if you plant it for harvest, you can cut it down carbon in contrast to naturally regenerating or ancient native forests.
- Implementing traceability to prevent illegal timber from entering the market. A key risk with future production native forests is that illegally logged timber could undercut legal supplies due to lower land management and capital costs for illegal loggers.

## What next? How you can help.

To turn this vision into reality, we need collective action. Here's how you can help:

- **Support native forest restoration**: Advocate for government and local council policies that prioritise native afforestation and long-term carbon storage.
- **Engage with other local or national decision-makers:** Urge them to invest in introduced browser pest control for native biodiversity and the climate.
- **Encourage conservation efforts**: Share local volunteer opportunities with your key audiences to help with pest control and reforestation projects.
- **Choose sustainable land management**: If you own or are responsible for managing land, consider transitioning to native forest restoration or supporting regenerative practices.
- **Spread the word**: Look for opportunities to educate local constituencies and ratepayers about the importance of native forests in climate change resilience, carbon storage, and biodiversity protection.

By working together, we can ensure New Zealand's forests continue to protect our climate, wildlife, and future generations.

Feel free to get in touch with Forest & Bird if you have ideas or would like to discuss anything related to *Native Forests for Climate*.

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