Te Kāwanatanga o Aotearoa
New Zealand Government

Restoring wetlands Out of scope

in support of climate and biodiversity goals

Out of scope

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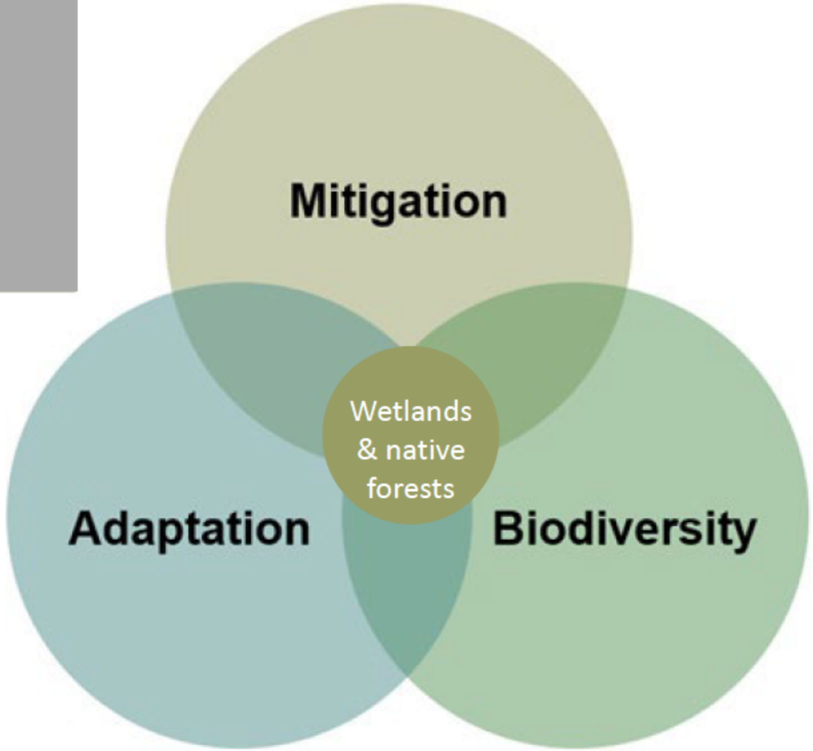

Summary of strategic opportunities and issues

- Timeframe: Immediate emissions reduction benefit of rewetting drained peatlands. Longer-term sequestration benefit from wetland restoration Out of scope
- Trade-off between meeting domestic and international targets: Wetland restoration Out of scope will help us achieve our domestic targets. 9(2)(f)(iv)
- Out of scope
- Funding: There is a lack of clear funding sources to restore wetlands Out of scope

	Crown land	Marginal private land
Wetlands	**Opportunity:** Potential to provide immediate and relatively low-cost emissions reductions, and sequestration over the longer term. Restoration also offers adaptation and biodiversity benefits. **Trade-off:** Would need to consider funding mechanisms; current ETS settings do not include wetland restoration or Crown land.	**Opportunity:** Support landowners to do wetland restoration and transition away from land uses that are becoming unviable due to climate change. Rewetting peatland has the potential to provide immediate and relatively low-cost emissions reductions, and sequestration over the longer term. Restoration also offers adaptation and biodiversity benefits. Out of scope **Trade-off:** Need to consider funding mechanisms; current ETS settings do not include wetland restoration.

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Wetlands - Current state of play

- Three types of wetlands: peatlands, inland wetlands and coastal wetlands.
- Around 90% of freshwater wetland area has been lost in the last 150 years.
- Healthy wetlands are generally net carbon stores, and support biodiversity and resilience. New wetlands are a source of methane until vegetation sequesters sufficient carbon for the wetland to be a carbon sink. Drained peatlands are a significant source of emissions.
- The previous Government agreed to look at bringing net emissions from wetlands into NZ's NDC, which would increase our ambition – making it harder in the short-term to meet our NDC with current land use patterns. Ministers may take decisions on the NDC expansion next year. Work is underway to improve the accuracy of wetlands and drained wetlands reporting in the national inventory.
- Climate change is making some agricultural land less productive due to increased wetness or inundation and ongoing drainage more challenging for some areas which are actively drained.
- There is interest in restoring/creating wetlands by Māori, ENGOs, community groups, farmers/ broader farming industry and increasingly, business.
- Costs are higher for wetland restoration/creation on private land due to opportunity costs, stock exclusion (fencing), and potentially a more degraded state.
- Government agencies contribute to wetland restoration through various programmes, but we lack a targeted and coordinated approach.
- Out of scope

Wetlands – Abatement potential and

	Abatement Potential on Crown land	Abatement Timeframe[4]	Ecosystem service value	Cost to restore/rewet
Out of scope				
Inland wetlands – Peatlands (organic) Carbon-rich wetlands that include raised bogs (Waikato), blanket bogs (Southland), pakihi wetlands (West Coast) and Gumlands (Northland). They are dominated by peat-forming plants that store carbon in organic soils.	Stopping emissions: 24 t CO2-e/ha/pa[3] Sequestration (begins ~15 years after restoration happens): 5 t CO2-e/ha/pa[3] Hectares practical to restore (PCL and other crown land): 10,000-20,000 ha[2]	**EB1:** 0.24 – 0.48 MtCO2-e (of real-world abatement, accounted for abatement will depend on the timeframes of updating NDC to include non-forest land use) **EB2:** 1.2 – 2.4 Mt CO2-e **EB3:** 1.2 – 2.4 Mt CO2-e **NDC (total abatement to 2030):** 1.440 – 2.88 Mt CO2-e **2050 (point year):** 0.29 – 0.58 MtCO2-e **Total abatement 2025-2050**: 6.5 – 13 Mt CO2-e **Total abatement 2025-2100**: 17.4 – 34.8 Mt CO2-e	$63,004 per hectare per year in 2023 dollars (based on CBAx model)[5]	$3,000 per hectare[6] Equivalent to: 2035 (end of EB3): $12.5 per tonne 2050: $4.62 per tonne 2100: $1.72 per tonne Plus (where relevant) the opportunity cost of other land use. A small proportion of this land is leased for other uses such as grazing.
Out of scope				

Notes/ references:

Out of scope

2. Conservative estimate of area practical and most cost-effective to restore. More work is needed to map wetlands to understand cost of restoration.

3. Based on the IPCC Wetland Supplement (2013).

4. Assumes restoration of 10,000-15,000 ha of coastal wetlands and 10,000-20,000 ha of peatlands begins in 2024 and is completed before 2025.

5. Essential Freshwater Reforms (Interim RIS, Part II, Appendix 13, MfE 2019).

6. These estimates are conservative and based on higher possible cost. They are based on work done to develop a budget bid in 2023, DOC can provide more information on request.

Classification

Wetlands – Abatement potential and costs on private land

	Abatement Potential on Private land	Abatement Timeframe	Cost of lost production	Cost to restore/create/rewet	Externalities
Out of scope					
Rewetting peatlands (organic soils) Drained wetlands under grassland and cropland.	Stopping emissions: up to 33 t CO2-e/ha/pa, a total of 4 Mt CO2-e/ha/pa (between 7.6% and 9.8% of national net greenhouse gas emissions)[2] on an immediate and permanent basis. Following rewetting, the wetland will initially emit methane until it becomes a net carbon sink. Net sequestration (begins ~15-100 years after rewetting): 4 t CO2-e/ha/pa[3] Hectares currently under agriculture[4]: • 167,800 ha grassland	Need to commission research to estimate potential abatement timeframes, including full economic analysis and opportunities for paludiculture (wet agriculture) such as growing biofuels and farming water buffalo.	Highly productive peatland farm where the farmer has no intention to retire land due to low risk of inundation or active drainage is financially viable: c.$3,900/ha[6] Marginal land with low productivity and/or frequent inundation: c.$158/ha[5]	Costs currently unknown but likely to include management over time to balance nutrients and establish indigenous vegetation. Drainage mechanisms are location-specific and in some instances will require subsurface irrigation to maintain water table level in the summer, at least initially.	Negative: Impacts on supply chains, agricultural support services and rural communities Positive: Reduced subsidence, increased resilience to floods, drought and extreme weather events, improved water quality, increased habitat for indigenous biodiversity including at-risk species.
Out of scope					

Notes/ references:

1. Out of scope
2. *Pronger et al. (2022), calculated using the IPCC 2013 Wetland Supplement. Current research is determining New Zealand-specific emission factors for adoption of the 2013 Wetland Supplement in the national GHG Inventory.*
3. *Based on Kopuatai Peat Dome, the largest unaltered peat bog in New Zealand located on the Hauraki Plains.*
4. *MfE (2021).*
5. *Using the average economic farm surplus of a Class 4 North Island Hard Hill Country Sheep & Beef farm in the Northland-Waikato-Bay of Plenty region 2021-2022 as a proxy (Beef + Lamb New Zealand Economic Service, 2023)*
6. *Average of operating profit per hectare for the 2022 dairy season for a medium input dairy farm in the Waikato Region*

Classification [redacted]

Wetlands - barriers, levers and big plays

Barriers

Direct costs and opportunity costs of restoration. These vary widely depending on land use and extent of degradation.

Non-forest land use emissions/removals don't yet count towards New Zealand's NDC. 9(2)(f)(iv) [redacted]

The externalities of wetlands are not priced into private decision-making or factored into climate policy development. This means the cost of restoring wetlands, while lower than the wider benefits of wetland restoration in many cases, currently outweighs any private benefits to landowners.

9(2)(g)(i) [redacted]

Wetlands often traverse multiple property types and owners.

No clear or coordinated plan in place for action to restore wetlands.

Levers

Strategy and direction

ERP2 Pathways to 2050, Global Biodiversity Framework implementation.

Market-based methods

9(2)(f)(iv) [redacted]

Severe weather event recovery

Wetland restoration could be supported through funding for severe weather recovery and resilience planning.

Climate adaptation policy Wetland restoration could be supported through climate adaptation policy.

Spatial planning - RM system mechanisms/reform

RM changes could be made that promote wetland restoration/reduce barriers to restoration.

Evidence base

Economic analysis of peatland rewetting on private farmland and options for paludiculture (wet agriculture) industry development, which has the potential to provide both economic and sequestration benefits.

Big Plays

Short-term
Target restoration on Crown land, through:

- Policy change to facilitate investment through carbon and/or biodiversity markets;
- Direct funding for restoration projects on Crown land.

This could provide abatement of:
EB1: 0.094– 0.141 Mt CO2-e
EB2: 0.47 – 0.705 Mt CO2-e
EB3: 0.47 – 0.705 Mt CO2-e

At a cost of $45.54 per tonne CO2-e.

- This would inform restoration on private land.

Medium term
Target restoration on marginal private land. Partner with interested landowners to identify suitable areas.

Land area that falls in this category is currently unknown, and more work is needed to understand its extent and location, and therefore total abatement potential.

The opportunity cost of restoring wetlands on private land will fall on a spectrum, with land that is increasingly becoming inundated by flooding having a low opportunity cost as other activities become less feasible.

Out of scope

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Appendix 1: Relevant National Party commitments

The Blueprint for a Better Environment, National’s plan for Environment and Conservation says: *“Actions such as riparian planning by farmers along waterways or wetlands rehabilitation can deliver multiple benefits for water quality, carbon sequestration, and biodiversity… A cohesive, integrated approach to environmental regulation is crucial. National is committed to upholding our Bluegreen principles with policies that foster climate resilience, cleaner water and improved biodiversity. National will take a joined-up approach to environmental management to deliver environmental policies are complementary and mutually re-enforcing.”*

Wetlands

The *Blueprint for a Better Environment* recognises the role of wetlands in enhancing biodiversity, intercepting sediment runoff, bolstering resilience to floods, and storing greenhouse gases. The *Blueprint* states that it will support wetland rehabilitation by:

- **Eliminating resource consents to establish new wetlands** by making the creation and maintenance of wetlands a permitted activity under the RMA.
- **Consider including wetlands in the ETS** so land owners who establish new wetlands will earn ETS credits for the carbon stored in their wetlands.
- **Investigate biodiversity credits to reward the creation of new wetlands**, recognising the enormous potential of wetlands to increase biodiversity.

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