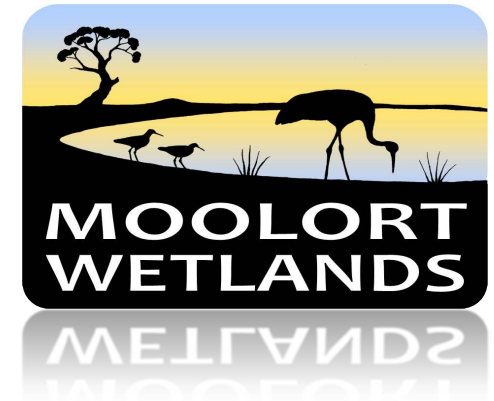


***Maintaining the charge for ecosystem
service flows – an economic approach
referencing the Moolort Wetlands
Project, Central Victoria, Australia***



Laura Levetan
University of Melbourne PhD Research

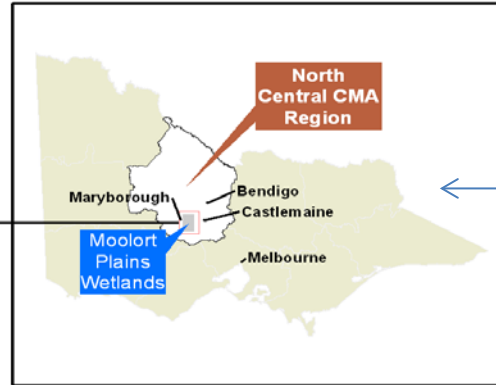
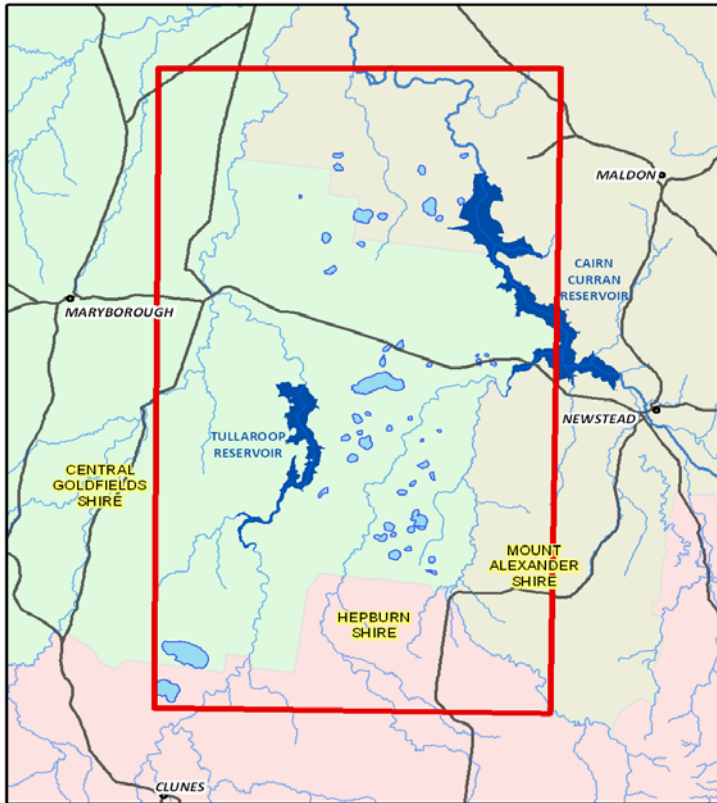


***ITTO-FAO 'Payment for Environmental Services — An
innovative way to sustain forests and people's livelihoods
in protected areas'
Stream 4/J11: Innovative financing of ecosystem services***



Case study – Moolort Wetlands Project

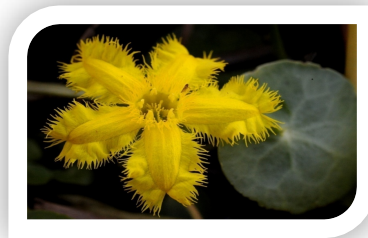
Project data & photos : North Central Catchment Management Authority (NCCMA) - Nick Layne



- NCCMA - regional watershed authority
- Sub-Bioregion - Victorian Volcanic Plains
- Ecological Vegetation Classes (EVCs) - Plains Grassy Woodland & Wetland , and others
- Moolort Wetlands - the only exclusively Victorian biodiversity hotspot (nesting water birds and Red Gums for bird & mammal nesting : 160 bird species, 38 threatened)

Moolort Wetlands Project - context

- **Funded by Australian Federal Government's 'Caring for Country' program**
- **Co-ordinated & implemented by NCCMA from 2011**
- **\$500,000 for restoration works & stewardship payments to some landowners**
 - Re-vegetation, fencing, livestock exclusion, sediment and nutrient management, pest species eradication
 - Total wetland area = 1,097ha.
 - Target restoration areas prioritised on ecological value (size, ecological condition, biodiversity, connectivity) – restored 387ha. (35% of total wetland)
 - Stewardship payment of \$900/ha. to landowners for 116ha. - under covenant
 - 94ha. without payment but under NCCMA 10-year stewardship agreement
 - Balance of 177ha. was public land
 - Public–private land combination for restoration was vital (connectivity & grazing licenses)
- **Operational & transaction costs can be high**



Entire Marshwort (*Nymphoides germinata*) Source: NCCMA

Entire Marshwort, a very rare water lily – found during fieldwork and propagated!

A potential payment model for Plains Grassy Woodlands & Wetlands - 1

| Indicator type | Quantity example | Payment model |
|--|---|--|
| 1. Area extent | | |
| <p>Total wetland = 1,097 ha.</p> <ul style="list-style-type: none"> • 29% public land (56% restored) • 71% private land (67% prioritised & 40% of this restored) | <p>Ex. Total 1,097ha.</p> <ul style="list-style-type: none"> • $[(56\% \times 318) + (\{67\% \times 779\} \times 40\%)] = 387\text{ha.}$ restored & under conservation management: 35% of total • ~ 35 'units' of land use change | <ul style="list-style-type: none"> • \$500,000- paid in cash & value of works 'BEFORE' |

A potential payment model for Plains Grassy Woodlands & Wetlands - 2

| Indicator type | Quantity example | Payment model |
|--|--|---|
| 2. Ecosystem health | | |
| <p>Actual data from Middle Swamp</p> <ul style="list-style-type: none"> Index of Wetland Condition (IWC) = 6 EVC condition (ECOND) = 9 | <ul style="list-style-type: none"> Assume certifiable improvement of 25% (unweighted) in IWC & EVC scores due to restoration: BEFORE: [IWC 6 + ECOND 9] = 15 AFTER: [(IWC 6 X 1.25) + (ECOND 9 X 1.25)] = 18.75 ~ +3.75 units | <ul style="list-style-type: none"> $(35 + 3.75) = 38.75$ units = 10.7% increase on 1. Area only Rationale for additionality payment $\\$500,000 \times 1.107 = \text{\textcolor{red}{\\$553,000}}$ 'AFTER' |

A potential payment model for Plains Grassy Woodlands & Wetlands - 3

| Indicator type | Quantity example | Payment model |
|---|--|---|
| C. Ecosystem services (ES) flow | | |
| <ul style="list-style-type: none"> Maintaining nursery populations & habitat/refugia; Intellectual use of plants, animals, & landscapes; etc. Assume 20 (equivalent) total units supplied before restoration | <ul style="list-style-type: none"> Assume an improvement of 30% in ES flow: BEFORE: [ES1+ES2..ESn] = 20 units (not remunerated) AFTER : [(ES1 + ES2..ESn) X 1.30] = 26 units Total units = 46: rationale for additional payment from wider set of beneficiaries | <ul style="list-style-type: none"> $(35 + 3.75 + 46) = 84.75$ = 142% increase on 1. Area only Re-think source of finance for greater potential $\\$500k \times 2.42 = \text{\textcolor{red}{\\$1,21m}}$ 'BEFORE & AFTER' |

Summary

- Simplified approach shown to illustrate the concept, many issues and variables not discussed – assumptions debatable
- **1. Conservation area extent and conservation significance** - the starting point for setting goals, determining the scale and source of conservation finance, and undertaking activities
- **2. Ecosystem health** - payments that consider ecological outcomes (additionality) can enhance financial supply to conservation areas
- **3. Ecosystem service flows** - can further enhance income streams to providers, include payments from beneficiaries on a wider spatial and temporal scale, and incentivise long-term maintenance of conservation areas



Source: NCCMA

Conclusions

- Area and ecological health indicators **and** ecosystem service units based on biophysical quantification can form the basis for enhanced conservation finance flows over time – maintaining the charge
- Total payments committed and anticipated can be determined by a combination of policy goals and economic analysis aimed at pricing ecosystem services
- Payments could be risk weighted to account for natural fluctuations and disruption of ecosystem service flows
- Payments for additionality of ecological health and ES can be a way of maintaining the charge, and act as incentive to continue conservation practice



QUESTIONS?



Source: NCCMA

THANK YOU