

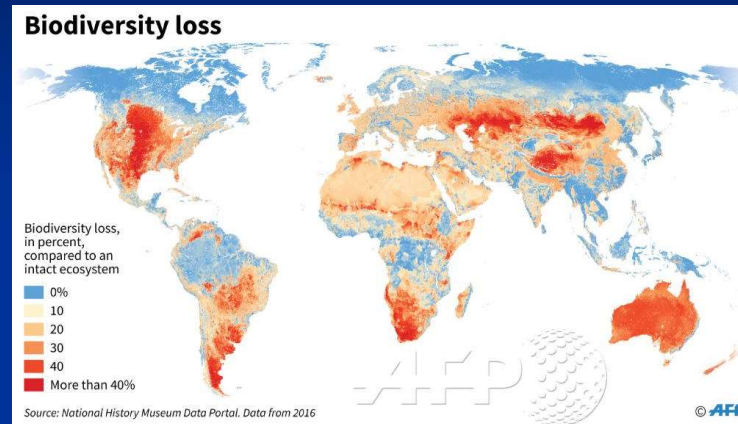
« Fa’atura te Tahatai », a coastal restoration pilot project in the Society Islands (French Polynesia)



Jean-Yves Hiro MEYER, Elena GORCHAKOVA, Olivier PÔTÉ,
Cécile GASPARD & Winiki SAGE



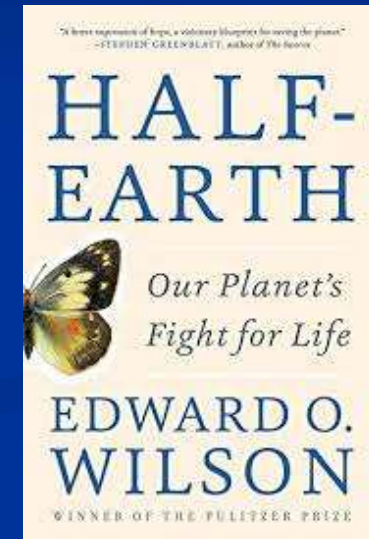
Why restoration ? Conserving what is left vs. restoring what one was...



Hopes for the Future: Restoration Ecology and Conservation Biology

Andy P. Dobson, A. D. Bradshaw, A. J. M. Baker

www.sciencemag.org • SCIENCE • VOL. 277 • 25 JULY 1997

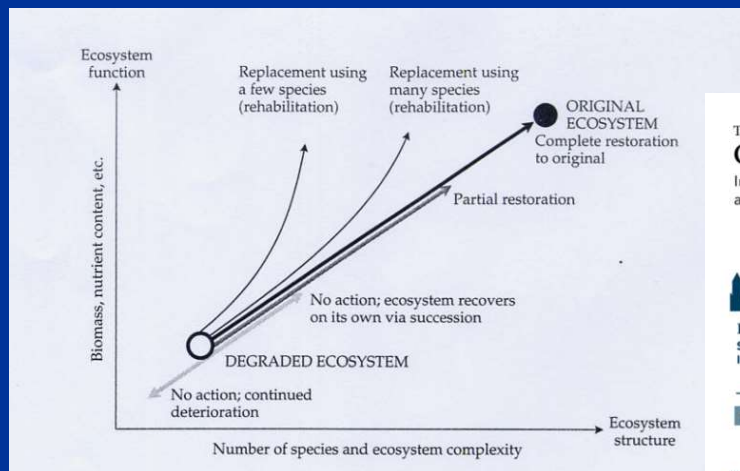


- **COP 15 (2022) :** Kunming-Montreal Global Biodiversity Framework, Target 2 :
“ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration”
- **UN Decade on Ecosystem Restoration (2021-2030)**

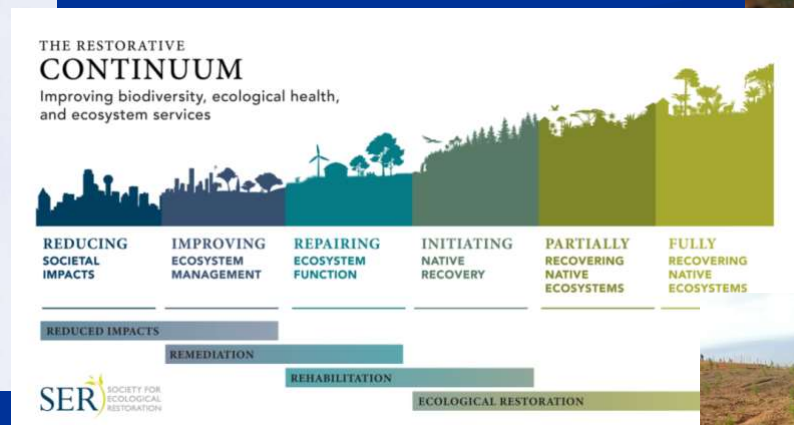


What is ecological restoration ?

- ❖ “the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed” (SER, 2004)
- ❖ “the process of reversing the degradation of ecosystems to regain their ecological functionality, and to improve their productivity and capacity to meet the needs of society” (IUCN)



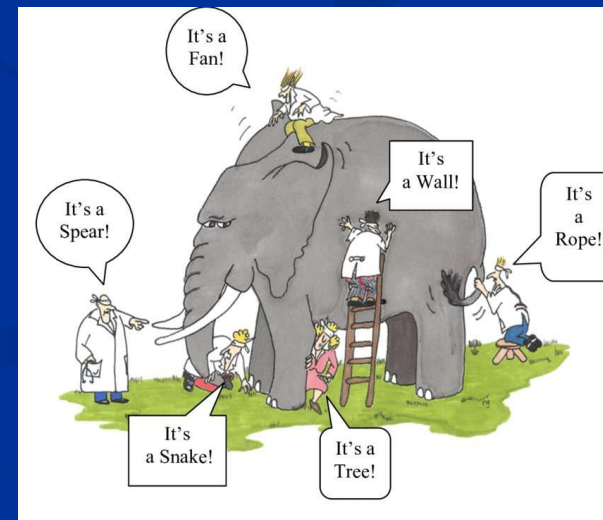
(after Bradshaw, 1990)



Poike, Rapa Nui (2012)

What restoration goals ?

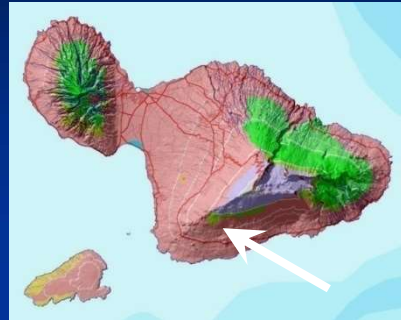
- Physico-chemical parameters
- Species/communities
- Natural ecosystems/socio-ecosystems/landscapes
- Ecological functions/ecosystem services
- Biotic interactions/trophic networks
- Ecosystems or habitats connectivity (“land-sea continuum”)
- Other goals : economic, socio-cultural, spiritual...



From Auwahi, Maui (Hawai’i)...



- Fencing (cattle, feral pigs)
- Weeding & chemical control (“kikuyu” grass)
- Replanting native and endemic tree species
- Improving water resource



1997



Dodonea viscosa



Dry Forest Restoration and Unassisted Native Tree Seedling Recruitment at Auwahi, Maui¹

A. C. Medeiros,^{2,4} E. I. von Allmen,³ and C. G. Chimera³

Pacific Science (2014), vol. 68, no. 1:33–45
doi:10.2984/68.1.3
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2014

► **Hundreds of volunteers !**

www.auwahi.org

... to Maraeti’a, Tahiti (French Polynesia)

- Fencing + rat control + weeding
- Monitoring the recruitment (seedlings) of threatened endemic woody species



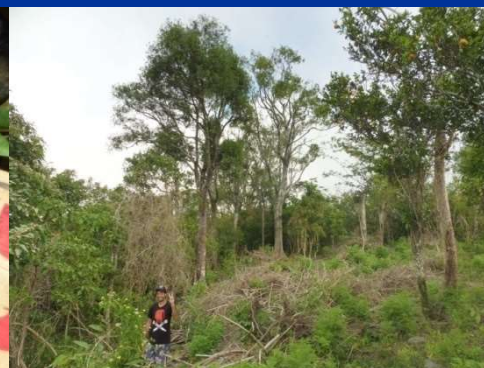
Ochrosia tahitensis (CR)



De Auiwahi (Maui) à Maraeti’a (Tahiti)
L’alliance entre les scientifiques
et les communautés locales
pour la restauration
de forêts naturelles menacées

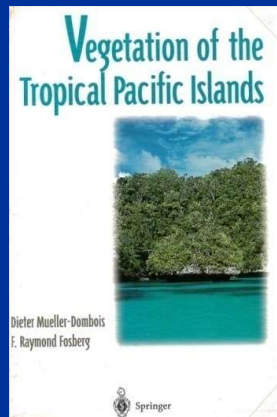
(Medeiros *et al.*, 2018. *Bull. Soc. Etudes Océan.* 346)

- **Difficulty in access for both the restoration team... and the local stakeholders !**

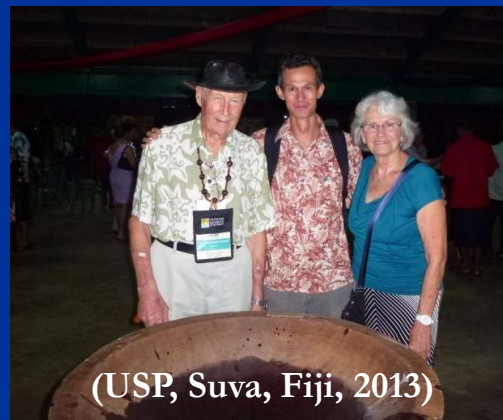


Why coastal areas ?

- Native coastal forests and lowland wetland forests are becoming extremely rare in some Pacific Islands because they have been transformed or degraded by human activities such as agriculture, urbanization, pollutions and invasive species (Mueller-Dombois & Fosberg, 1998)



1998



(USP, Suva, Fiji, 2013)

► ...and relatively easy to access !



Regional Environmental Change (2022) 22:119
<https://doi.org/10.1007/s10113-022-01977-1>

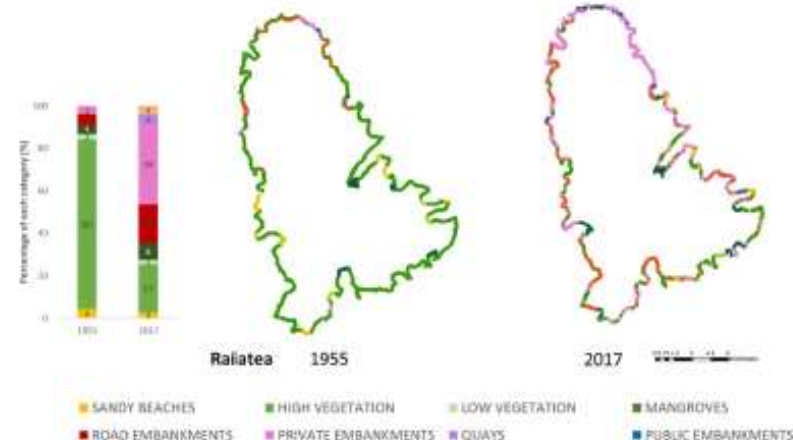
2022

ORIGINAL ARTICLE



Multi-decadal coastal evolution of remote Pacific islands: armouring of Taha'a, Raiatea, Maupiti, and Rangiroa (French Polynesia)

Emma Galrin^{1,2} · Antoine Collin^{3,4} · Dorothée James^{3,4} · Franck Dolique⁵ · Matthieu Jeanson^{6,7} · David Lecchini^{1,3}



Which reference state ?

- A few littoral and swamp forests remain relatively pristine on the east coast of Tahiti Nui and on the peninsula of Tahiti Iti (Florence, 1993)



Te Pari,
Tahiti Iti



Fara *Pandanus*
tectorius

A Comparative Study of the Floristic Diversity and Structure of Relictual Littoral and Swamp Forests in the Island of Tahiti (French Polynesia, South Pacific)¹

Solène Fabre Barroso,^{2,3} Olivier Flores,⁴ Pauline Palmas,⁵
Robin Pouteau,⁶ and Jean-Yves Meyer^{7,8}

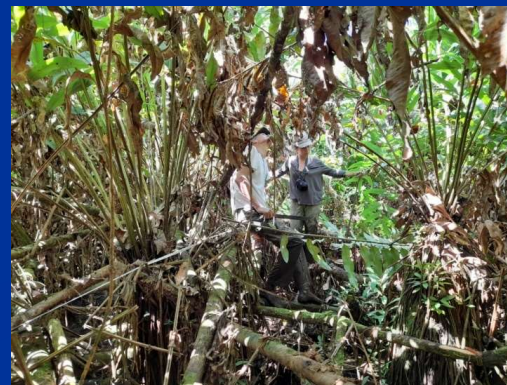
Pacific Science (2023), vol. 77, no. 2–3:233–251
doi:10.2984/77.2.7
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Motu Ahi, Mo’orea



2023

Pohue miti *Ipomoea*
pes-caprae



Mitirapa, Tahiti Iti

Golden leather fern ‘Aoa
Acrostichum aureum

Invasive mangrove in the Society Islands

- Native saltmarshes and swamp forests have been invaded by the introduced *Rhizophora stylosa* in Mo’orea, Tahiti and other Society Islands



Paspalum vaginatum
salt marsh



Tema’e, Mo’orea



Mitirapa, Tahiti Iti

Biol Invasions

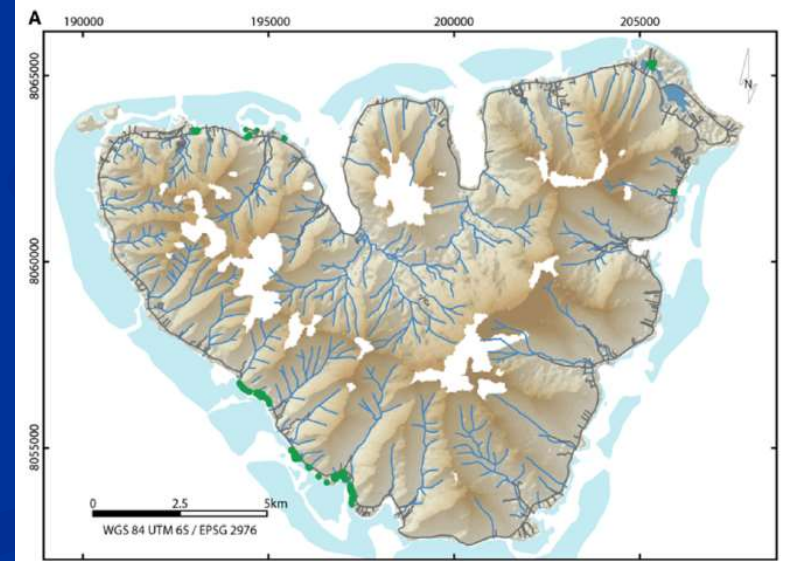
<https://doi.org/10.1007/s10530-021-02520-9>

2021

ORIGINAL PAPER

Introduced mangroves in the Society Islands, French Polynesia (South Pacific): invasive species or novel ecosystem?

Jean-Yves Meyer · Florent Taureau · Laetitia Bisarah · Rakamaly Madi Moussa · Elena Gorchakova · Anne Caillaud



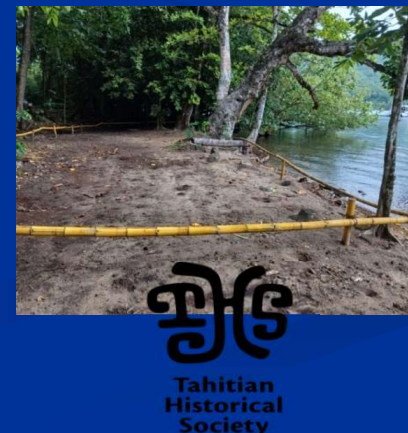
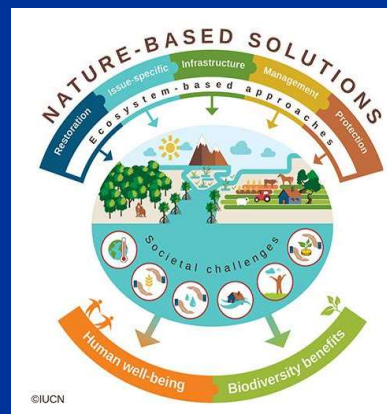
« Fa’atura te Tahatai » : a consortium to protect and restore coastal habitats in the Society Islands



Pā’ea, Tahiti Nui (2021-2023)



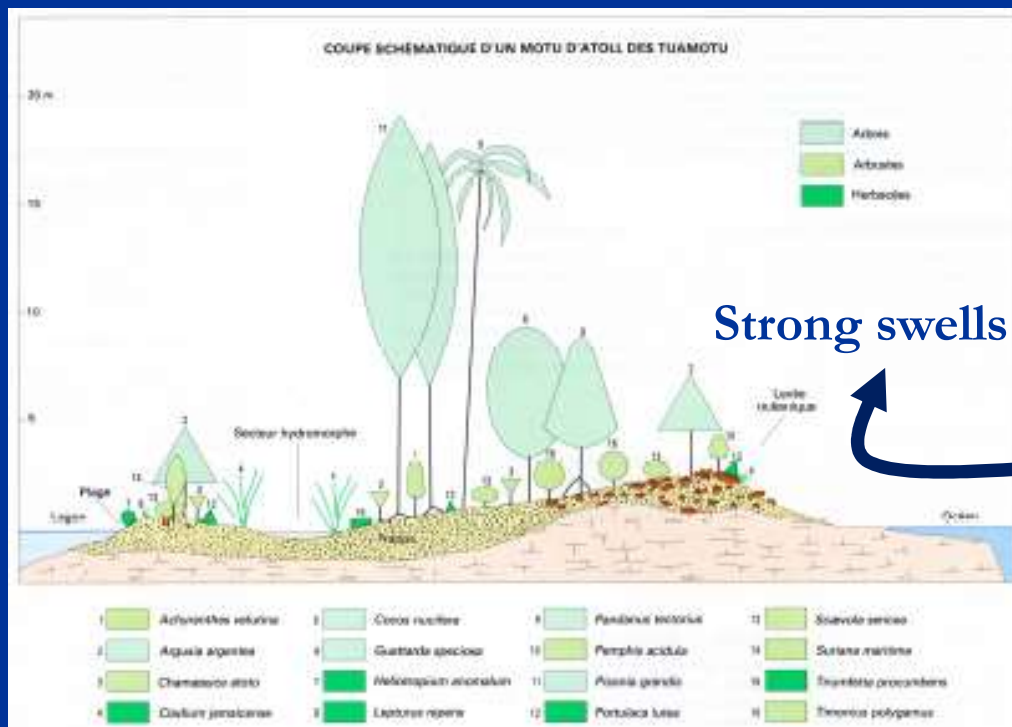
Pā’ea + Mo’orea + Teti’aroa (2024-2026)



Goal 1. Restoring ecosystem services



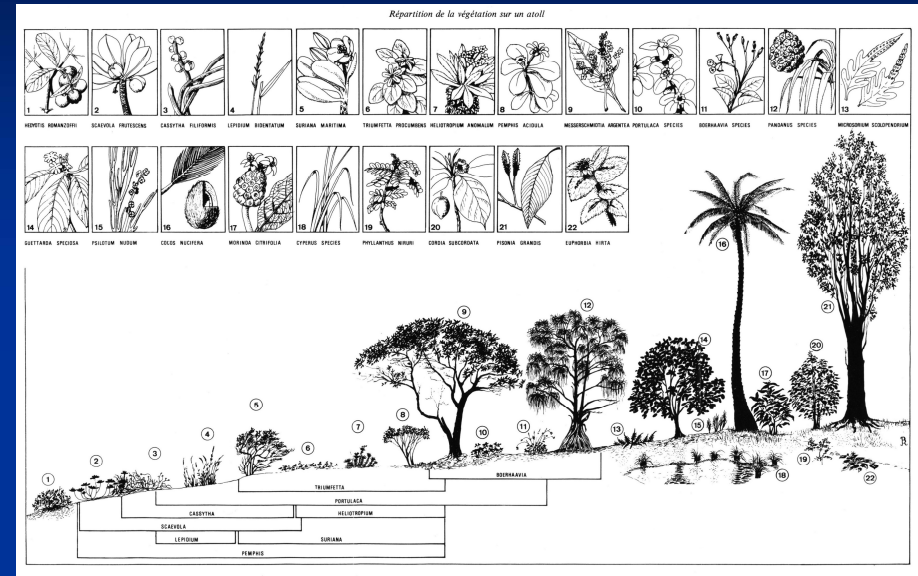
2021



(Florence, 1993. La végétation de quelques îles. Atlas de la Polynésie française, ORSTOM)

Goal 2 . Restoring native plant communities

- Collecting seeds, seedlings and cuttings of common native species
- Propagation in plant nurseries
- Plantation according to life form & ecology (salt and sun-tolerance, substrate type, plant succession...)



(Cayet, 1973. Le Monde Vivant des Atolls)



Scaevola taccada

Guettarda speciosa

Sophora tomentosa

Heliotropium foertherianum



Triumfetta procumbens



Hernandia nymphaeifolia



Goal 3. Restoring native animal communities (birds & insects)



Reef Egret (‘Otu’u) *Egretta sacra*



Pacific Golden plover
(Tore’a) *Pluvialis fulva*



Brown noddy (‘Oio)
Anous stolidus



! Tahiti striated heron (‘Ao)
Butorides striatus patruelis (CR)

Goal 4. Restoring sea turtle nesting sites



Chelonia mydas



Plantations on Motu Onetahi



Plant nursery on Motu Onetahi



Casuarina equisetifolia's invasion on Motu Honuea



The « other goals » : involving the decision-makers and other stakeholders



The French High-Commissioner
& the Mayor of Mo’orea (2024)



The president of the French
Polynesia Assembly, also
Mayor of Pā’ea county (2023)



Senior officials of the
French administration
(2024)



RSMA (French Army) local soldiers
& Tetiaro’a Society volunteers
(2025)

The « other goals » : training the next generation(s)



Schoolchildren from Pape’ete & Puna’auia (2022-2025)



Undergraduate students from the University of French Polynesia (UPF) & UC Berkeley (Feb 2025)



MA students « Art, Culture, Patrimoine et Environnement Polynésien », UPF (Nov 2025)



Lycée agricole protestant, Taravao (2024)



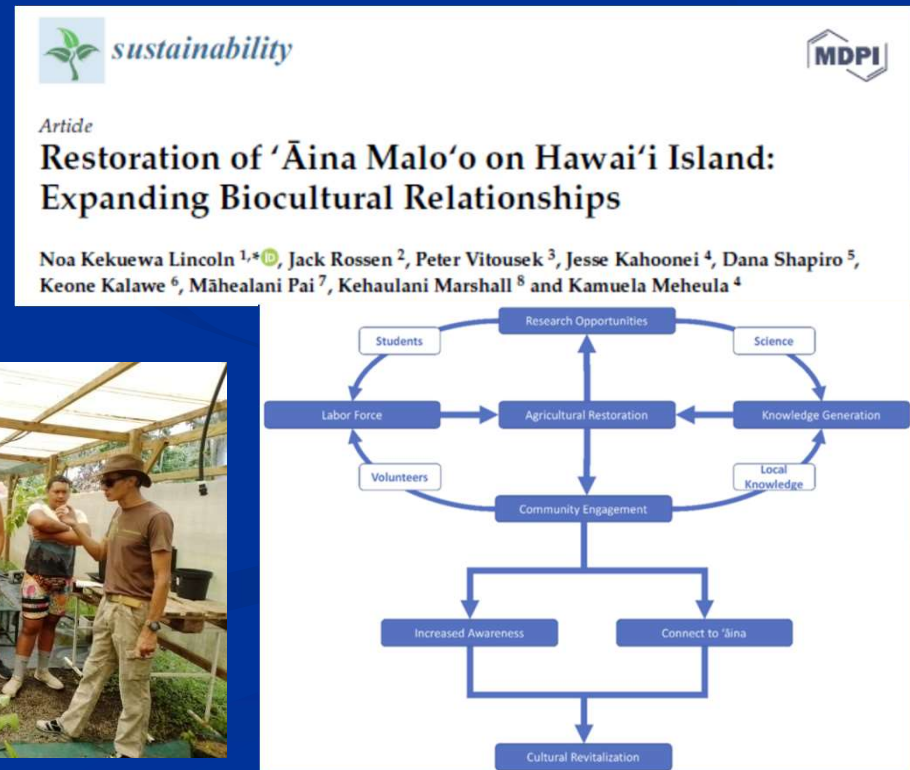
‘Ori Tahiti danse school, Taravao (Nov 2025)

Conclusions: restoration ultimate goals!

- ✓ Restoring collaboration & trust between research scientists, resource manager and local NGOs
- ✓ Restoring bio-cultural values and the (often lost!) links between local communities and biodiversity
- ✓ Restoring the transmission of local knowledge to the young generation(s)



2018



Māuruuru roa, mahalo nui loa



Vaimiti, Ruth & Tea