

# *Busting myths*



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and Innovation



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L'ortö 'n'te fasce

**Anna Terrats**

*Invited by* PONDERFUL  
Catalan Water Agency

**José F. Martín Duque**

LIFE Ribermine  
Universidad Complutense de Madrid

Under climate change,  
~~dams~~ free-flowing rivers are  
more needed than ever

To have high yield,  
we need to work with ~~fight~~ nature

Too ~~small~~ important  
~~not~~ to be considered

Nature is ~~only~~  
about living organisms  
and their physical environment

## ***Busting myths***

***“Under climate change,  
dams are more needed  
than ever”***



Universida de Vigo

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# Recommended Reading

- Belletti, B., Garcia de Leaniz, C. et al 2020. More than one million barriers fragment Europe's rivers. *Nature*. **588**, 436-441. <https://doi.org/10.1038/s41586-020-3005-2>
- Berg, M. et al. 2024. Assessing the IUCN global standard for nature-based solutions in riverine flood risk mitigation. *Environmental Development*. **51**, 101025. <https://doi.org/10.1016/j.envdev.2024.101025>
- Carolli, M., Garcia de Leaniz, C. et al. 2023. Impacts of existing and planned hydropower dams on river fragmentation in the Balkan Region. *Science of the Total Environment*. **871**. <http://dx.doi.org/10.1016/j.scitotenv.2023.161940>
- Dottori, F. et al., 2023. Cost-effective adaptation strategies to rising river flood risk in Europe. *Nature Climate Change*. **13**, 196-202. <https://doi.org/10.1038/s41558-022-01540-0>
- Garcia de Leaniz, C., O'Hanley, J.R., 2022. Operational methods for prioritizing the removal of river barriers: Synthesis and guidance. *Science of the Total Environment*. **848**, 157471. <https://doi.org/10.1016/j.scitotenv.2022.157471>
- Fluixá-Sanmartín, J., Altarejos-García, L., Morales-Torres, A., Escuder-Bueno, I., 2018. Review article: Climate change impacts on dam safety. *Nat. Hazards Earth Syst. Sci.* **18**, 2471-2488. <https://doi.org/10.5194/nhess-18-2471-2018>
- Li, Y., et al., 2023. Diminishing storage returns of reservoir construction. *Nature Communications*. **14**, 3203. <https://doi.org/10.1038/s41467-023-38843-5>
- Parasiewicz, P. et al 2023. Over 200,000 kilometres of free-flowing river habitat in Europe is altered due to impoundments. *Nature Communications*. **14**, 6289. <https://doi.org/10.1038/s41467-023-40922-6>
- Richter, B.D. et al., 2024. New water accounting reveals why the Colorado River no longer reaches the sea. *Communications Earth & Environment*. **5**, 134. <https://doi.org/10.1038/s43247-024-01291-0>
- Schmitt, R.J.P., Rosa, L., 2024. Dams for hydropower and irrigation: Trends, challenges, and alternatives. *Renewable and Sustainable Energy Reviews*. **199**, 114439. <https://doi.org/10.1016/j.rser.2024.114439>
- Zhou, K., et al., 2024. Urban flood risk management needs nature-based solutions: a coupled social-ecological system perspective. *npj Urban Sustainability*. **4**, 25. <https://doi.org/10.1038/s42949-024-00162-z>

**Under climate change,**  
**dams** free-flowing  
**rivers** are more  
**needed than ever**



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## ***Busting myths***

***“To have high yields, we need to fight nature”***



**Marco Anselmo**

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## Recommended literature

- *Global consequences of land use.* Foley, J. A., DeFries, R., Asner, G. P., Barford, C., Bonan, G., Carpenter, S. R., Chapin, F. S., Coe, M. T., Daily, G. C., Gibbs, H. K., Helkowski, J. H., Holloway, T., Howard, E. A., Kucharik, C. J., Monfreda, C., Patz, J. A., Prentice, I. C., Ramankutty, N., & Snyder, P. K. *Science*, 309(5734), 570–574. (2005).  
<https://doi.org/10.1126/science.1111772>
- *Agroecology: Principles for the conversion and redesign of farming systems.* Nicholls, C. I., Altieri, M. A., & Vazquez, L. (2016). *Journal of Ecosystem & Ecography*, S5(1), 1–8.  
<https://doi.org/10.4172/2157-7625.S5-010>
- *Solutions for a cultivated planet.* Foley, J. A., Ramankutty, N., Brauman, K. A., Cassidy, E. S., Gerber, J. S., Johnston, M., Mueller, N. D., O'Connell, C. S., Ray, D. K., West, P. C., Balzer, C., Bennett, E. M., Carpenter, S. R., Hill, J., Monfreda, C., Polasky, S., Rockström, J., Sheehan, J., Siebert, S., Tilman, D., & Zaks, D. P. M. (2011). *Nature*, 478(7369), 337–342.  
<https://doi.org/10.1038/nature10452>
- *Ecosystem services and agriculture: Tradeoffs and synergies.* Power, A. G. (2010). *Philosophical Transactions of the Royal Society B: Biological Sciences*, 365(1554), 2959–2971. <https://doi.org/10.1098/rstb.2010.0143>

To have  high yields,  
we need to **fight**  
 work **with**  nature 



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## ***Busting myths***

***“Too small  
to be considered”***



**Agència Catalana  
de l'Aigua**



**Generalitat  
de Catalunya**

**Anna Terrats**

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## Recommended literature

- J.Biggs, S. von fumetti and M. Kelly-Quinn. *The importance of small waterbodies for biodiversity and ecosystem services: implications for policy makers. Small water bodies*. Review Paper. Published: 01 November 2016.
- Mancuso, G.; Bencreciuto, G.F.; Lavrni' c, S.; Toscano, A. *Diffuse Water Pollution from Agriculture: A Review of Nature-Based Solutions for Nitrogen Removal and Recovery*. *Water* 2021, 13, 1893. <https://doi.org/10.3390/w13141893>
- ACA-Agència Catalana de l'Aigua. *Caracterització de les masses d'aigua i anàlisi del risc d'incompliment dels objectius de la Directiva Marc de l'Aigua (2000/60/CE) a Catalunya*. Agència Catalana de l'Aigua. Departament de Medi Ambient i Habitatge de la Generalitat de Catalunya, Octubre. 2019. Available online: <https://aca.gencat.cat/ca/plans-i-programes/pla-de-gestio/3r-cicle-de-planificacio-2022-2027/document-impress/index.html>
- ACA-Agència Catalana de l'Aigua. 6. *Desenvolupament d'un índex integral de qualitat ecològica i regionalització ambiental dels sistemes lacustres de Catalunya*. <https://aca.gencat.cat/ca/plans-i-programes/programa-de-seguiment-i-control/>
- ACA-Agència Catalana de l'Aigua. 7. *Caracterització, regionalització i elaboració d'eines d'establiment de l'estat ecològic de les zones humides de Catalunya*. <https://aca.gencat.cat/ca/plans-i-programes/programa-de-seguiment-i-control/>
- ACA-Agència Catalana de l'Aigua. 8. *Avaluació de l'estat ecològic de les zones humides i ajust dels indicadors de qualitat. Índex QAELS, ECELS i EQAT*. <https://aca.gencat.cat/ca/plans-i-programes/programa-de-seguiment-i-control/>

Too ~~small~~  
important not  
to be considered



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## ***Busting myths***

***“Nature is only about  
living organisms”***



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# Recommended websites

This websites include the most globally updated literature and information about GEOMORPHIC RESTORATION.

- LIFE RIBERMINE PROJECT  
<https://liferibermine.com>



- Restauración Geomorfológica  
[www.restauraciongeomorfologica.es](http://www.restauraciongeomorfologica.es)



Nature is ~~only~~ about  
living organisms  
and their physical  
environment



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**Jo O'Hara**  
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**Christian Holzleitner**  
DG CLIMA, European Commission

**Mari Palolill**  
WaterLANDS | University of Tartu,  
Estonian Fund for Nature

11h25 | 11h50

**Undisturbed Nature-rich** forests  
must be the target for forest  
restoration

Urban sprawl ~~can~~  
**cannot** go on for ever

Nature-based carbon removals  
are **NOT** inevitably greenwashing

Preserving and rewetting **Drained**  
forests as climate win

## ***Busting myths***

***“Undisturbed forests  
must be the target for  
restoration in Europe”***



**SUPERB**  
Upscaling Forest Restoration

**Jo O'Hara**

SUPERB – Upscaling Forest Restoration  
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## Recommended literature

- *SUPERB PROJECT.* <https://forest-restoration.eu/>

~~Undisturbed~~ Nature-rich



forests must be



the target for restoration



in Europe



**SUPERB**  
Upscaling Forest Restoration

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***Busting myths***

***“Urban sprawl can  
go on forever”***

**Annelaure WITTMANN**

Ministry of Ecological Transition, France  
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# Recommended literature (1/2)

## Reports

- *Objective "Zero net artificialization": which levers should be used to protect soils?* Julien Fosse. France Stratégie. 2019. <https://www.strategie.gouv.fr/english-articles/objective-zero-net-artificialization-which-levers-should-be-used-protect-soils>
- *Sols artificialisés - Déterminants, impacts et leviers d'action.* Collective scientific expertise. 2019. <https://www.inrae.fr/actualites/sols-artificialises-processus-dartificialisation-sols>

## Data and analyses

- *Portail de l'artificialisation des sols.* Cerema / Ministry of Ecological Transition. <https://artificialisation.developpement-durable.gouv.fr/>
- *L'analyse des déterminants de la consommation d'espace 2009-2022.* Cerema. 2023. [https://artificialisation.developpement-durable.gouv.fr/sites/artificialisation/files/fichiers/2024/07/rapport\\_V4\\_2009-2022-2.pdf](https://artificialisation.developpement-durable.gouv.fr/sites/artificialisation/files/fichiers/2024/07/rapport_V4_2009-2022-2.pdf)

## Laws

- Loi du 22 août 2021 portant lutte contre le dérèglement climatique et renforcement de la résilience face à ses effets. <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000043956924>
- Loi du 20 juillet 2023 visant à faciliter la mise en œuvre des objectifs de lutte contre l'artificialisation des sols et à renforcer l'accompagnement des élus locaux. <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000047866733>

## Recommended literature (2/2)

### Law interpretation and guidelines

- *ZAN – Guide synthétique*. Ministry of Ecological Transition. 2023. <https://artificialisation.developpement-durable.gouv.fr/bibliographie/zan-guide-synthetique>
- *Fascicules de mise en oeuvre de la réforme ZAN (1: définir et observer, 2: planifier, 3: mobiliser les leviers; 4: accompagner)*. Ministry of Ecological Transition. 2024. <https://artificialisation.developpement-durable.gouv.fr/bibliographie/fascicules-mise-en-oeuvre-la-reforme-zan>

### Awareness-raising tools

- *Le “ZAN en 20 questions” : quiz grand public pour comprendre le Zéro Artificialisation Nette*. Agence de la transition écologique (Ademe). 2024. <https://librairie.ademe.fr/7448-le-zan-en-20-questions-quiz-grand-public-pour-comprendre-le-zero-artificialisation-nette.html>
- Videos. Ministry of Ecological Transition. 2024. <https://www.dailymotion.com/playlist/x8e9jg>



**Urban sprawl**



~~can~~ cannot



**go on forever**

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***Busting myths***



***“Nature-based carbon  
removals are inevitably  
greenwashing”***

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**Nature-based  
carbon removals  
are NOT inevitably  
greenwashing**



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## ***Busting myths***

# ***“Drained forests as climate win”***

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NATURE



## Recommended literature

Please provide here relevant links and references (books, reports, links to cases studies, laws) related to your presentation. These links will be shared with the attendees in case they want to explore your topic further.

- *Project WaterLANDS: [www.waterlands.eu](http://www.waterlands.eu)*
- *Articles in regional newspapers:*
  - [\*Veereziimi muutmine võib põhjustada ulatusliku metsade huku 25.01.2024;\*](#)
  - [\*Soometsade taastamine vaid rikub meie elukeskkonda 13.03.2024\*](#)
- [\*Wet forest action plan\*](#) *Estonian min of Climate (to be approved yet)*
- *EU Carbon Permits <https://tradingeconomics.com/commodity/carbon>*
- *Estonian National Inventory Report 2023*



# Preserving and rewetting **drained** forests as climate **win**

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Justice and Sustainability

**Delphine Dupeux**  
European Landowners

**Richard Grayson**  
WaterLANDS | University of Leeds

**Flexible barriers** ~~Rigid walls~~,  
**resilient coasts**

**Ensuring** ~~Improving~~ **secure access**  
**to nature** ~~creates benefits~~ **for all**

**Working for nature is** ~~against~~ **in**  
**landowners' interests**

**Our landscapes**  
**have** ~~not~~ **always looked like this!**

***Busting myths***

***“Rigid walls,  
resilient coasts”***



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# References

- Barriers and enablers for upscaling coastal restoration, Sánchez-Arcilla, A., Cáceres, I., Le Roux, X., et al., Nature-Based Solutions, (2022). <https://doi.org/10.1016/j.nbsj.2022.100032>
- Evaluation of seagrass as a nature-based solution for coastal protection in the german wadden sea, B. Jacob, T. Dolch, A. Wurpts, J. Staneva, Ocean Dynamics 73 (11) (2023) 699–727. <https://doi.org/10.1007/s10236-023-01577-5>
- Evaluating barrier beach protection with numerical modelling. A practical case, Sánchez-Artús, X., Subbiah, B., Gracia, V., Espino, M., Grifoll, M., Espanya, A., & Sánchez-Arcilla, A. (2024), Coastal Engineering, 191, 104522. <https://doi.org/10.1016/j.coastaleng.2024.104522>
- What-if nature-based storm buffers on mitigating coastal erosion, W. Chen, J. Staneva, B. Jacob, X. Sánchez-Artús, A. Wurpts, Science of The Total Environment 928 (2024) 172247. <https://doi.org/10.1016/j.scitotenv.2024.172247>

# Flexible barriers

~~Rigid walls,~~

# resilient coasts



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## ***Busting myths***

***“Improving access to  
nature creates  
benefits for all”***

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Barcelona  
Laboratory for Urban  
Environmental Justice  
and Sustainability



## Recommended literature

- Segregating by Greening: What do We Mean by Green Gentrification?, Anguelovski. I; Connolly, J JT, 2024. Journal of Planning Literature. [LINK](#)
- The Green City and Social Injustice: 21 Tales from North America and Europe. 2021. Anguelovski, J. J. Connolly. Routledge (book)
- Racial Inequity in Green Infrastructure and Gentrification: Challenging Compounded Environmental Racisms in the Green City. 2024. Lewartowska et al. *International Journal of Urban and Regional Research*. [LINK](#)
- Urban green boosterism and city affordability: for whom is the ‘branded’ green city. 2021. Garcia Lamarca et al. Urban Studies. [LINK](#)
- Policy and Planning Tools Urban Green Justice. 2021. BCNUEJ. [LINK](#)
- The Green Divide documentary. 2024. BCNUEJ. [LINK](#)



# Ensuring ~~Improving~~ secure access to nature ~~creates benefits~~ for all



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Barcelona  
Laboratory for Urban  
Environmental Justice  
and Sustainability

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Additional logos

## ***Busting myths***

***“Protecting nature is  
against landowners’  
interests”***

## Recommended literature

- Visit our website <https://europeanlandowners.org/>
- Research paper / report :  
<https://europeanlandowners.org/publications/small-wildlife-of-fields-and-meadows-in-europe/>
- Life programme : <https://enplc.eu/>

[Publications](#): Private Land Conservation in Europe; how to set credits for ecosystems services in the international market?



**Protecting nature is**  
**~~against~~ in landowners'**  
**interests**



## ***Busting myths***

***“Our landscapes  
have always  
looked like this!”***



**Richard Grayson**

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## Recommended literature

- Blundell, A and Holden, J. (2015) Using palaeoecology to support blanket peatland management <https://doi.org/10.1016/j.ecolind.2014.10.006>
- Chambers et al. (1999) Recent rise to dominance of *Molinia caerulea* in environmentally sensitive areas: New perspectives from palaeoecological data <https://doi.org/10.1046/j.1365-2664.1999.00435.x>
- McCarroll et al. (2017) Application of palaeoecology for peatland conservation at Mossdale Moor, UK <https://doi.org/10.1016/j.quaint.2014.12.068>



**Our landscapes  
have **not** always  
looked like this!**



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## ***Busting myths***

***“Data will tell us  
what to do”***



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## Recommended literature

**IPBES Chapter:** Razzaque, Jona, Ingrid Visseren-Hamakers, Ambika Prasad Gautam, Leah R. Gerber, Mine Islar, Md Saiful Karim, Eszter Kelemen, et al. “Chapter 6.options for Decision Makers”. Zenodo, May 31, 2019.

<https://doi.org/10.5281/zenodo.5519491>.

Visseren-Hamakers, I.J. et al. (2021) ‘Transformative governance of biodiversity: insights for sustainable development’, *Current Opinion in Environmental Sustainability*, 53, pp. 20–28. Available at: <https://doi.org/10.1016/j.cosust.2021.06.002>.



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## **Aveliina Helm**

Science advisor to the minister,  
Ministry of Climate, Estonia

## **Micheál O' Cinneide**

Corrib Beo, Ireland

**We will decide what to do with Data**  
~~will tell us what to do~~

**Science as quest**  
~~for objective truth~~ for socially  
actionable and robust knowledge

~~We are too small to make an~~  
~~impact~~ Every action matters

**Citizens aren't interested**  
~~in protecting~~ really do care  
about nature



We will decide what to  
do with the data **will**  
~~tell us what to do~~



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***Busting myths***

***“Science as quest  
for objective truth”***

**MERLIN**  
**MERLIN**

**Sebastian Birk**

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sebastian.birk@uni-due.de

## Recommended literature

Büttner, L., Darbi, M., Haase, A., Jax, K., Lepenies, R., Priess, J., Zeug, W., 2023. Science under pressure: how research is being challenged by the 2030 Agenda. *Sustain. Sci.* 18, 1569–1574.

<https://doi.org/10.1007/s11625-023-01293-5>

Funtowicz, S.O., Ravetz, J.R., 1993. Science for the Post-Normal Age. *Futures* 25, 739–755.

[https://doi.org/https://doi.org/10.1016/0016-3287\(93\)90022-L](https://doi.org/https://doi.org/10.1016/0016-3287(93)90022-L)

Nowotny, H., 2003. Re-Thinking Science: From Reliable Knowledge to Socially Robust Knowledge, in: Lepenies, W. (Ed.), *Entangled Histories and Negotiated Universals: Centers and Peripheries in a Changing World*. Campus Verlag, Frankfurt/New York, pp. 14–31.

# Science for socially actionable and robust knowledge **as** ~~quest for objective truth~~



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## ***Busting myths***

***“We are too small to  
make an impact”***



REPUBLIC OF ESTONIA  
MINISTRY OF CLIMATE



**Aveliina Helm**

*Science Advisor to the Minister, Ministry of Climate, Estonia  
Professor of Restoration Ecology, University of Tartu  
Chair, Society for Ecological Restoration, European chapter*

**Aveliina.Helm@ut.ee X/Twitter: @aveliina**



## **Recommended literature**

- *Greenmeter*. University of Tartu. [greenmeter.eu](http://greenmeter.eu)
- *IPBES assessments*. [ipbes.net](http://ipbes.net)

~~We are too small to~~  
~~make an impact~~ Every  
action matters



REPUBLIC OF ESTONIA  
MINISTRY OF CLIMATE



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## ***Busting myths***

***“Citizens aren’t  
interested in  
protecting nature”***



**Dr. Micheál Ó Cinneide**

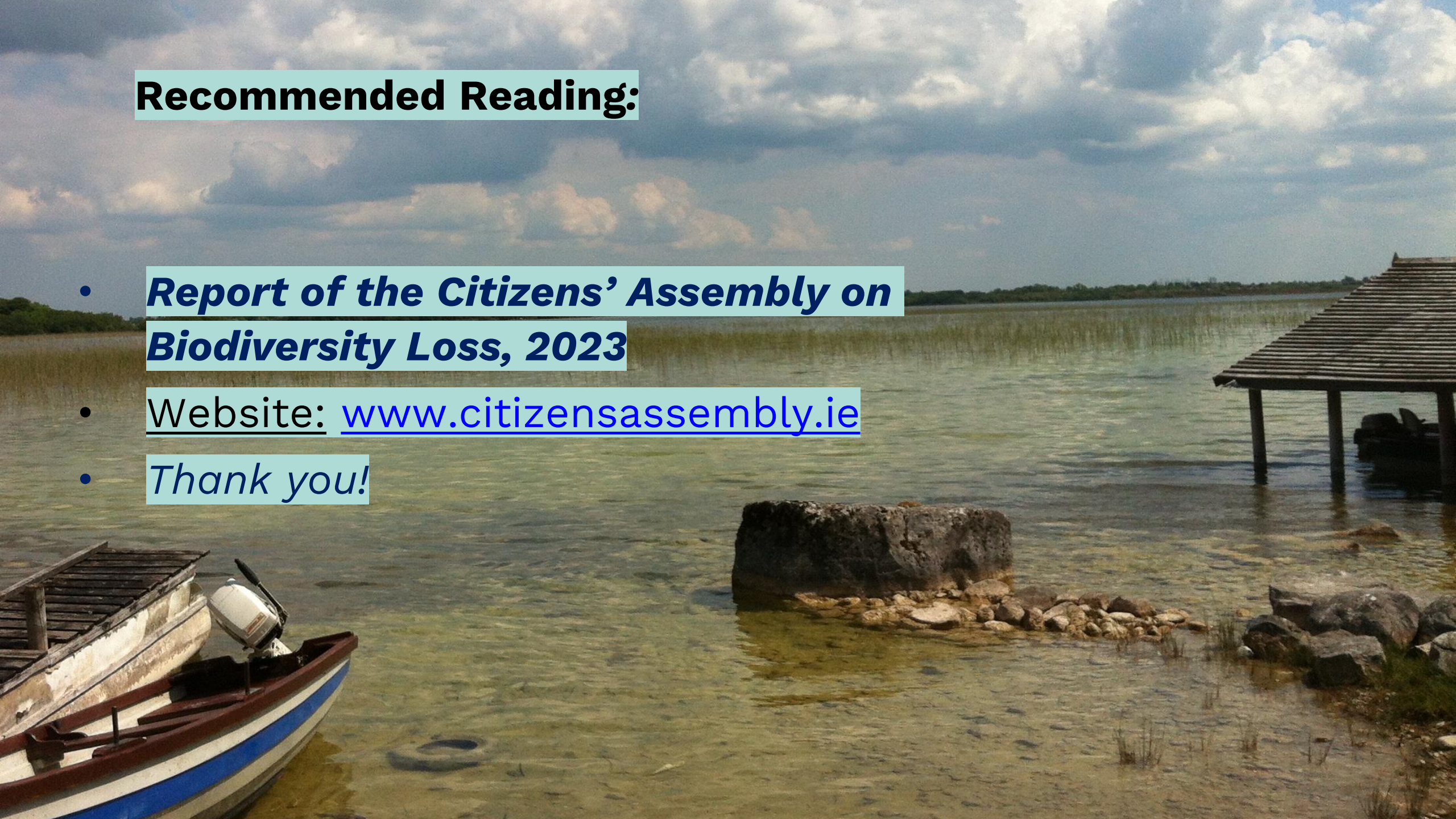
The Citizens' Assembly | Corrib Beo Ireland

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## Recommended Reading:

- ***Report of the Citizens' Assembly on Biodiversity Loss, 2023***
- Website: [www.citizensassembly.ie](http://www.citizensassembly.ie)
- *Thank you!*





**Citizens** aren't  
interested in  
protecting *really* do  
*care about nature*



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**Sander Jacobs**  
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**Mirco Barbero**  
DG ENV, European Commission

**Milena Pereira Kozlowski**  
Generation Climate Europe

**Sjanne Quellhorst**  
PRO Eijsden-Margraten

Valuation of nature  
is a **technical** **political** challenge

~~Nothing there, just dirt~~ Living  
soils provide us with essential  
services

Nature has to come **last** first

~~Only people have~~ Everything  
including nature can have rights

***Busting myths***

***“Valuation of nature  
is a technical  
challenge”***



**RESEARCH INSTITUTE  
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## Recommended literature

- [Diverse values of nature for sustainability](#) U Pascual, P Balvanera, CB Anderson, R Chaplin-Kramer, M Christie, ... Nature 620 (7975), 813-823
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# Valuation of nature



is a ~~technical~~

political challenge



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## ***Busting myths***

***“Nothing there,  
just dirt”***

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~~Nothing there, just dirt~~



Living soils provide us  
with essential services



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## ***Busting myths***

***“Nature has to  
come last”***



**Generation  
Climate  
Europe**

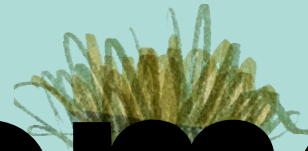
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# Nature has to



# come ~~last~~ first



Generation  
Climate  
Europe

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## ***Busting myths***

***“Only people  
have rights”***



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## Recommended literature

- Rechten voor de Natuur, Jessica den Outer, 2023
- Rechtsgelijkheid voor de natuur, Erik Kaptein, 2021
- <https://www.garn.org/>
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-



 Only people

Everything, including  
nature, can have rights



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~~It is~~ Is it all about immediate profit?

Ecosystem insurance is **not** workable

Biodiversity **makes** ~~or~~ profit

Stability can only be guaranteed when ~~the economy is growing~~ people and planet are prioritised

## ***Busting myths***

***“It’s all about  
immediate profit”***



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Is it ~~It's~~ all about  
immediate profit?

## ***Busting myths***

***“Ecosystem insurance is  
not workable”***



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## Recommended literature

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# Ecosystem insurance **is** ~~not~~ workable



***Busting myths***

# ***“Biodiversity or profit”***



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## Recommended literature

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# Biodiversity or makes profit



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## ***Busting myths***

***“Stability can only be guaranteed when the economy is growing”***

## Recommended literature

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*Stability can **only** be  
guaranteed when **the**  
**economy is growing**  
people and planet are  
**prioritised***



# *Busting myths*



NetworkNature Annual Event

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