

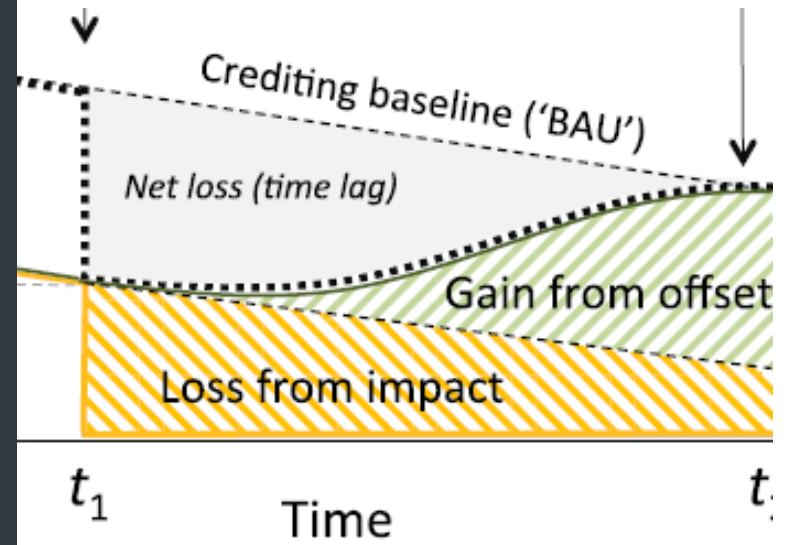
The background of the slide is a close-up photograph of a peatland bog. The image shows a dense carpet of vibrant green mosses and grasses, with some taller, thin blades of grass interspersed. The lighting is natural, highlighting the textures and colors of the vegetation. The text is overlaid on this background.

**Critical questions in biodiversity  
offsets for peatland and forests**  
a case study for the AA Sakatti mine project

**Atte Moilanen, Univ. Helsinki**  
**Janne Kotiaho, Univ. Jyväskylä**

A

# About offsets



# A

## Offsets

### What is biodiversity offsetting?

Compensation for ecological damage caused by infrastructure projects or other development

4<sup>th</sup> step of the *mitigation hierarchy*:

- (i) avoid
- (ii) minimize
- (iii) restore locally
- (iv) offset elsewhere

A

Offsets

Sakatti mine?

Viiankiaapa N2000  
peatland area

Ore deposit &  
underground mine

Kuusivaara infra area  
(managed forest)



# A

## Offsets

### Offsets for the potential Sakatti mine

- *Sakatti mining is committed to no-net-loss and better (net positive impact)*
- => Offset strategies needed for both peatland and forest

# A

## Outline

# 15 key decisions

### Central decisions / factors in the planning of biodiversity offsets

#### Space

- 4. Extent of implementation
- 5. Spatial context of valuation

#### Objectives

- 1. Degree of adherence to the mitigation hierarchy
- 2. Definition of NNL
- 3. Degree on NNL required

#### Time

- 6. Permanence
- 7. Time frame
- 8. Time discounting

#### Actions

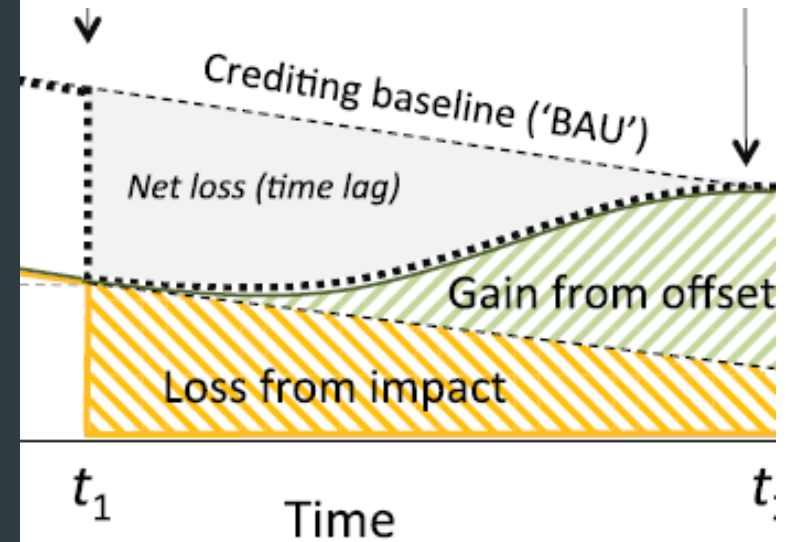
- 11. Additionality
- 12. **PEATLAND** action offsets
- 13. Effectiveness of avoided loss offsets
- 14. **FORESTS**
- 15. Leakage

#### Biodiversity

- 9. Biodiversity measurement
- 10. Trading up

B

# Offsets for peatland vs (managed) forest





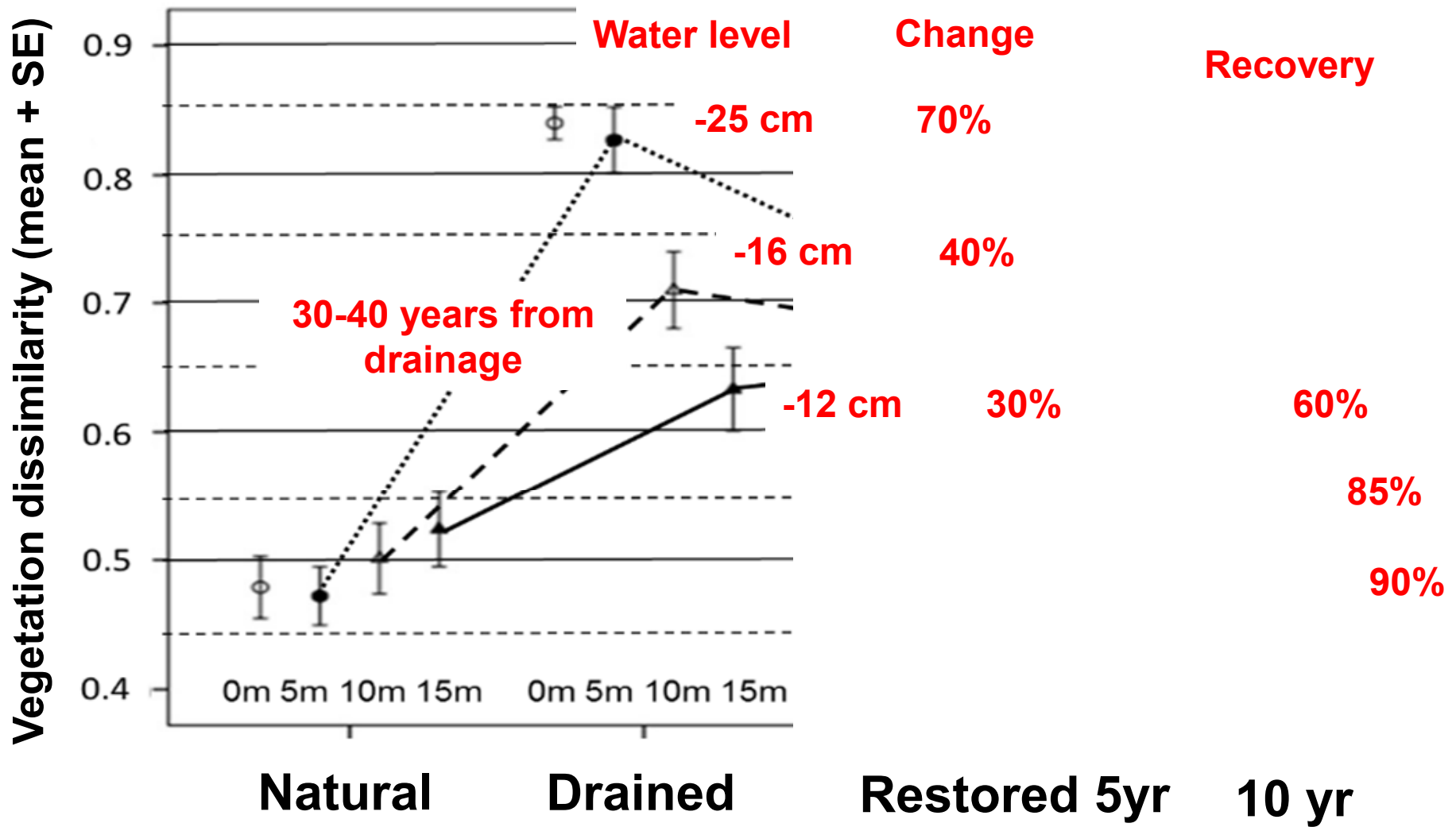
# PEATLAND





# B1

## Restoration offset Drainage, restoration & recovery

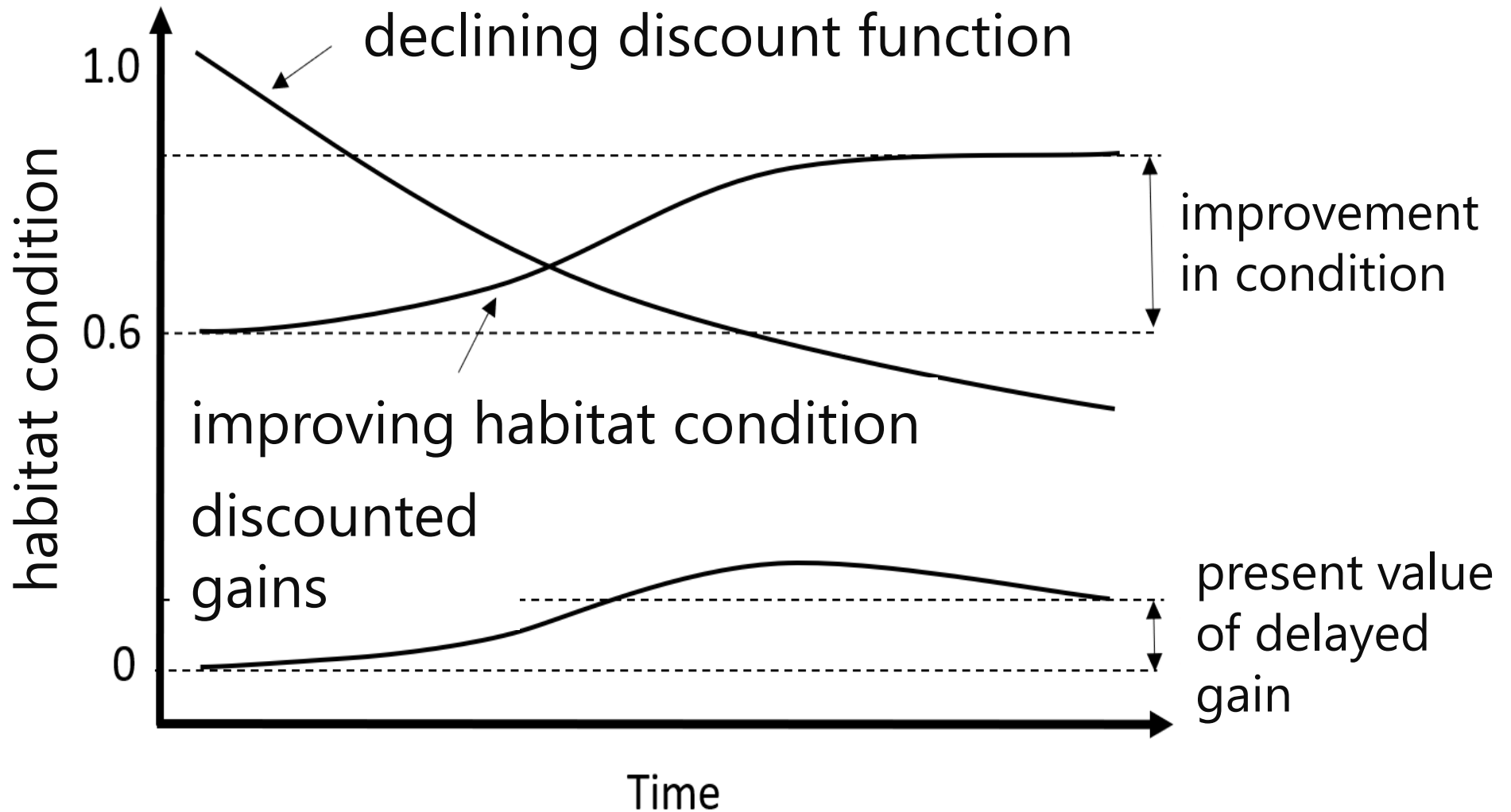


Haapalehto, et al. 2017. Recovery of plant communities after restoration of forestry-drained peatlands. Ecology and Evolution

B1

Time

# Delayed (restoration) gains & time discounting





**FOREST**

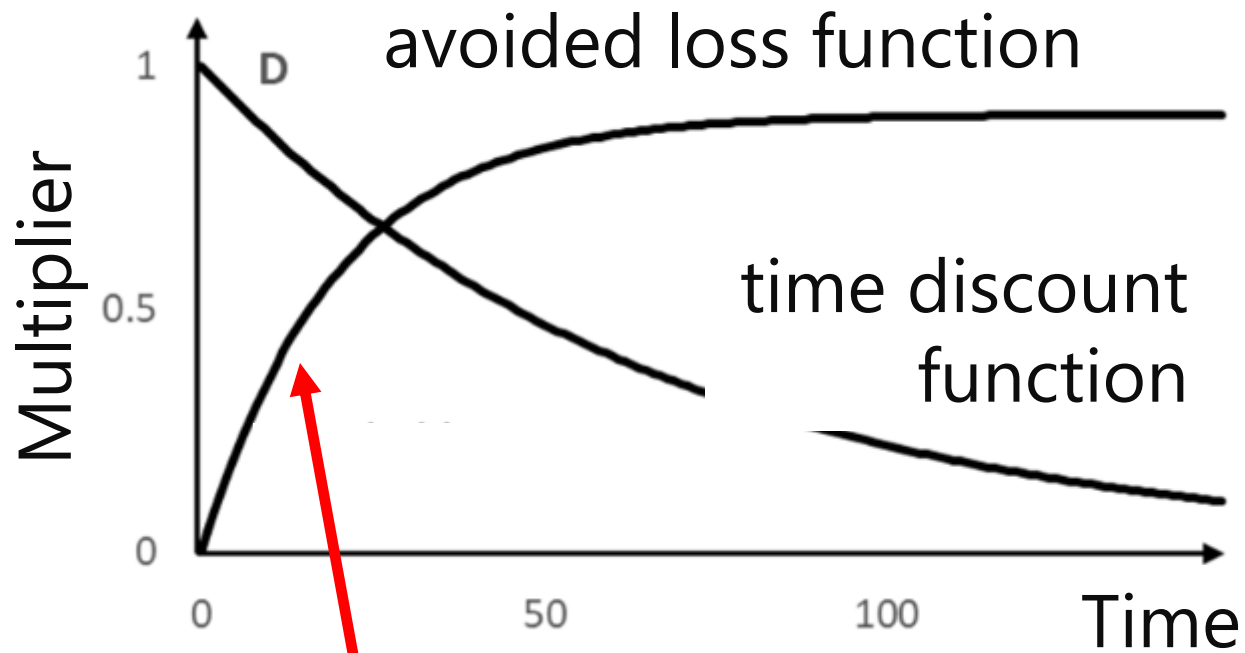
Restoration and protection both viable actions

Slow maturation, time delays

Major utilization pressures; 7% harvest rate for mature forest!

**=> Leakage!**

## Avoided loss: components

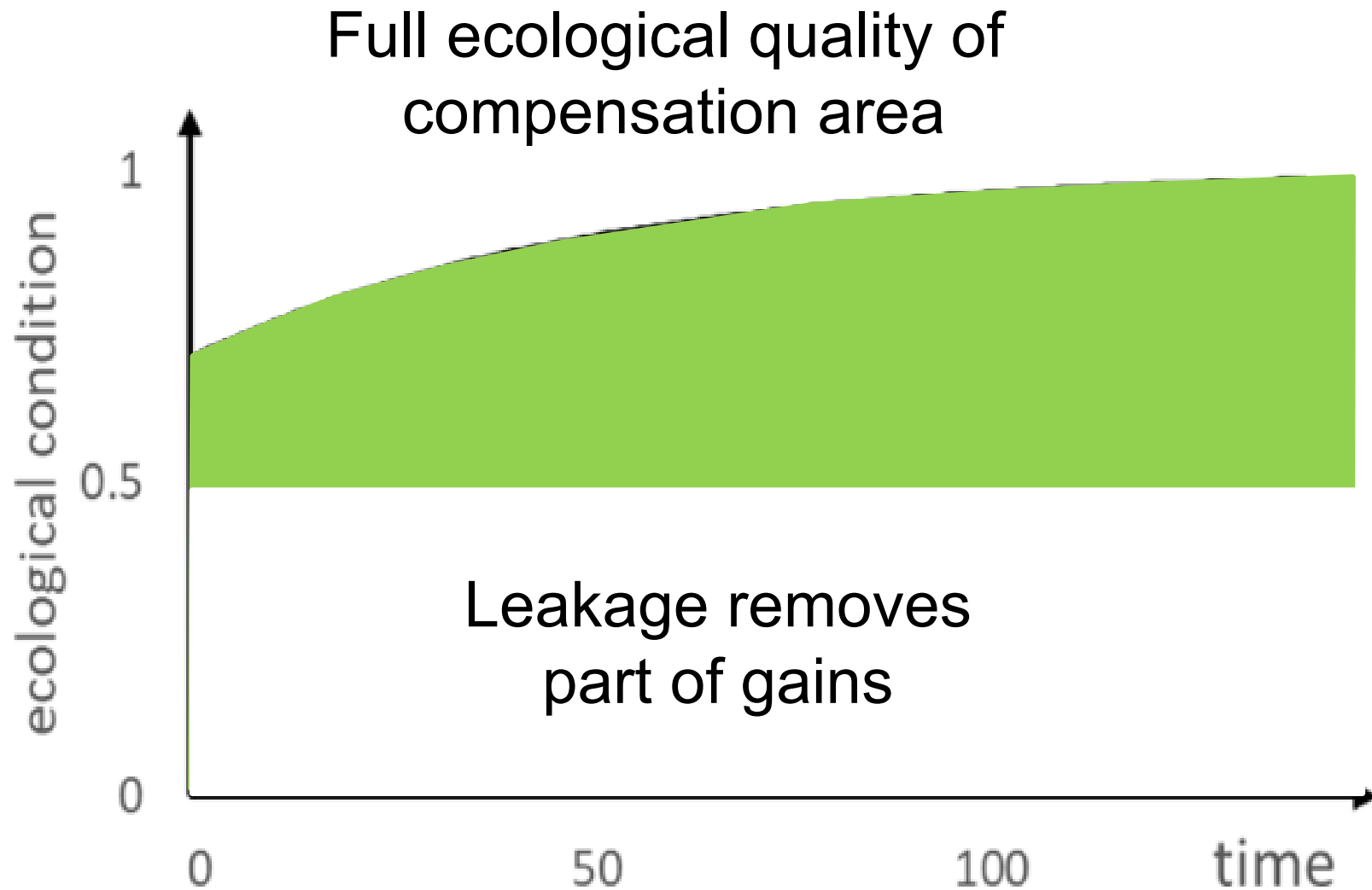


From 7% yearly  
cut rate!

B2

Forests

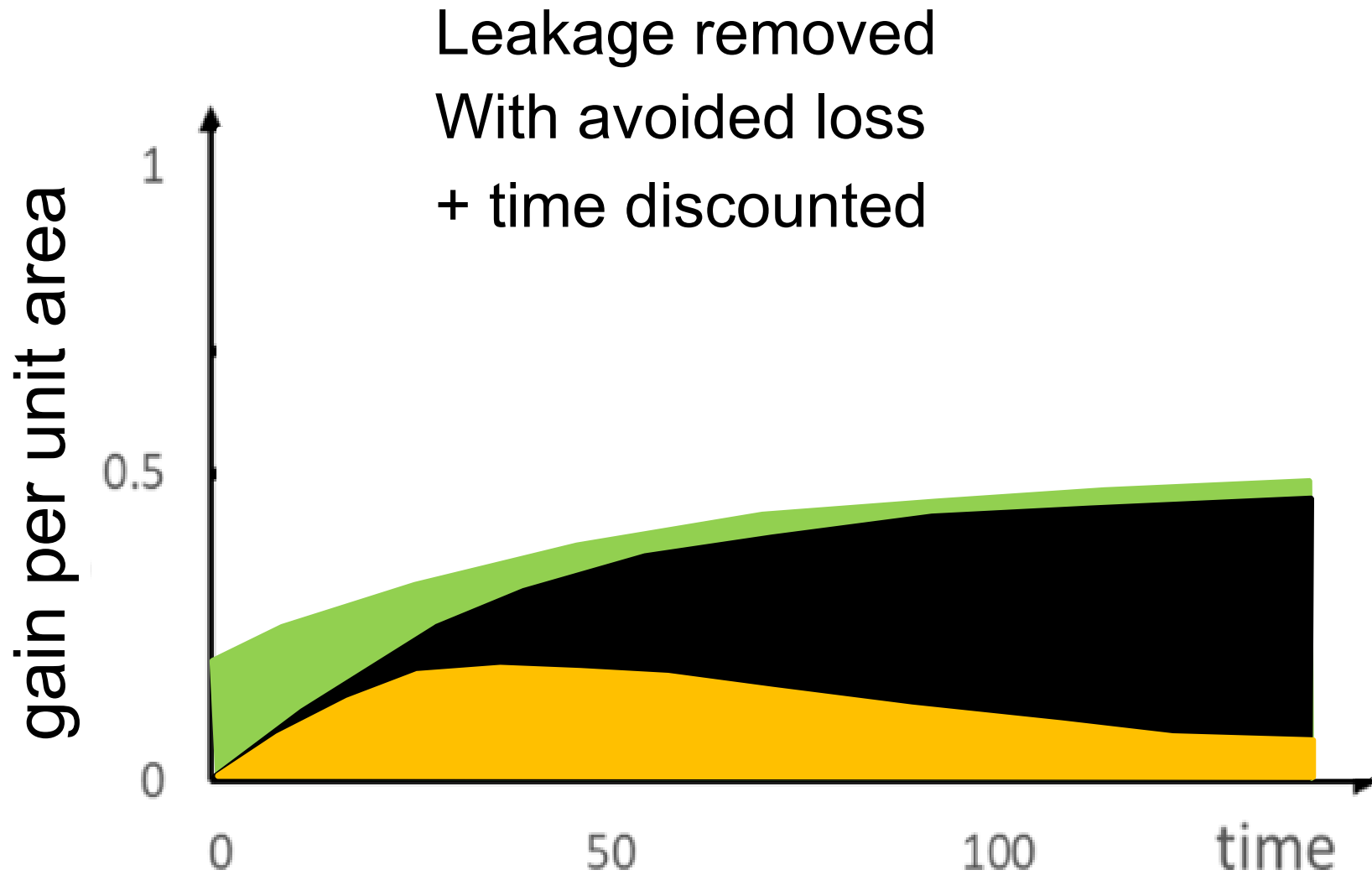
Net gains for forest protection



B2

Forests

Net gains for forest protection



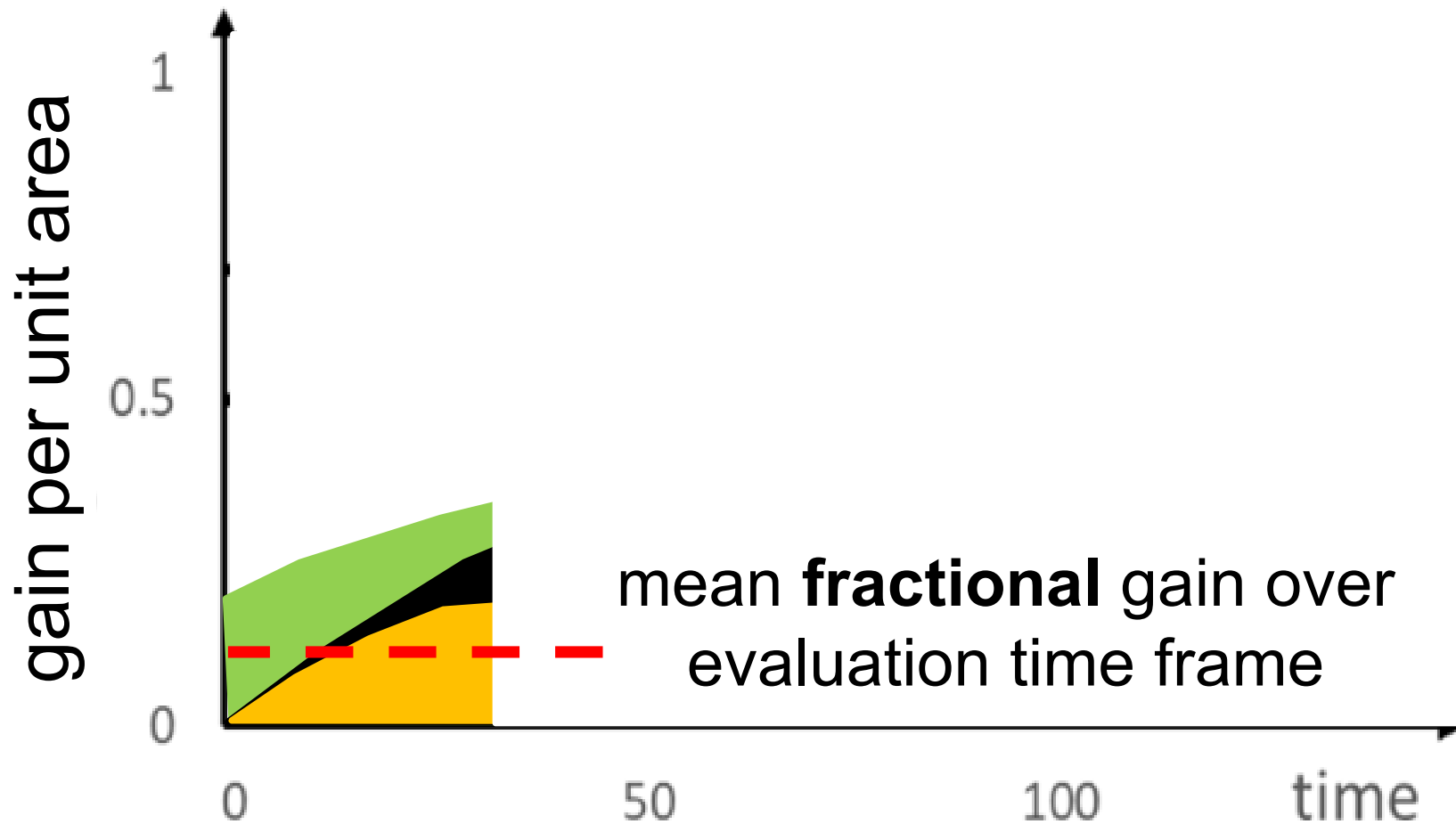


B55

Forests

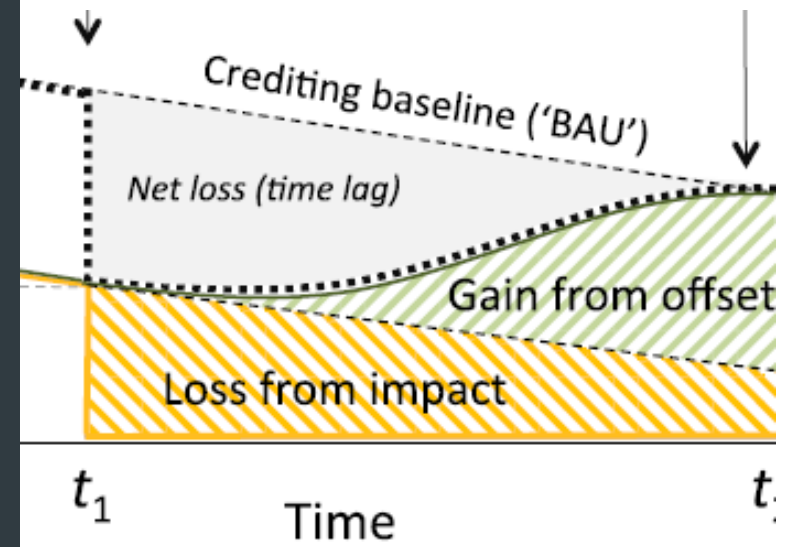
Net gains for forest protection

cut to evaluation time frame



C

# Conclusion





# Conclusion

Peatland restoration and forest protection can be used as offset actions

NNL/NPI calculations will be doable

SUOMEN YMPÄRISTÖ 5 | 2017

## Ekologisen kompensaation määrittämisen tärkeät operatiiviset päätökset

Atte Moilanen ja Janne S. Kotiaho

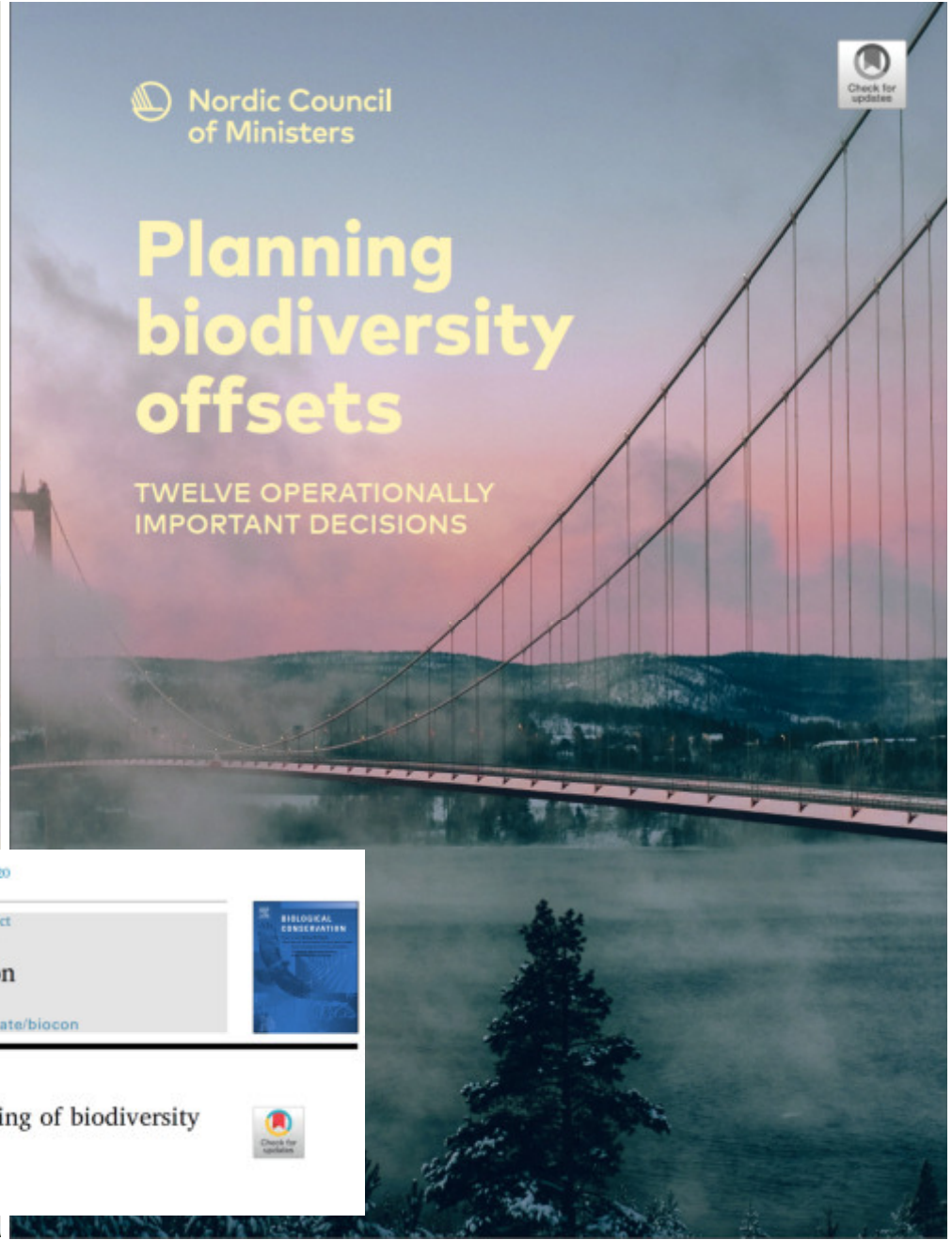


 Nordic Council of Ministers



# Planning biodiversity offsets

TWELVE OPERATIONALLY IMPORTANT DECISIONS



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Perspective

Fifteen operationally important decisions in the planning of biodiversity offsets

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YMPÄRISTÖN