Sphagnum Moss Provides *Resilience* in Restoration

Sadie Manning & Andrew Davidson

Overview

Sadie

- Carbon Benefits of Sphagnum
- Methane Benefits of Sphagnum
- Additional Benefits to Ecosystem Services

Andrew

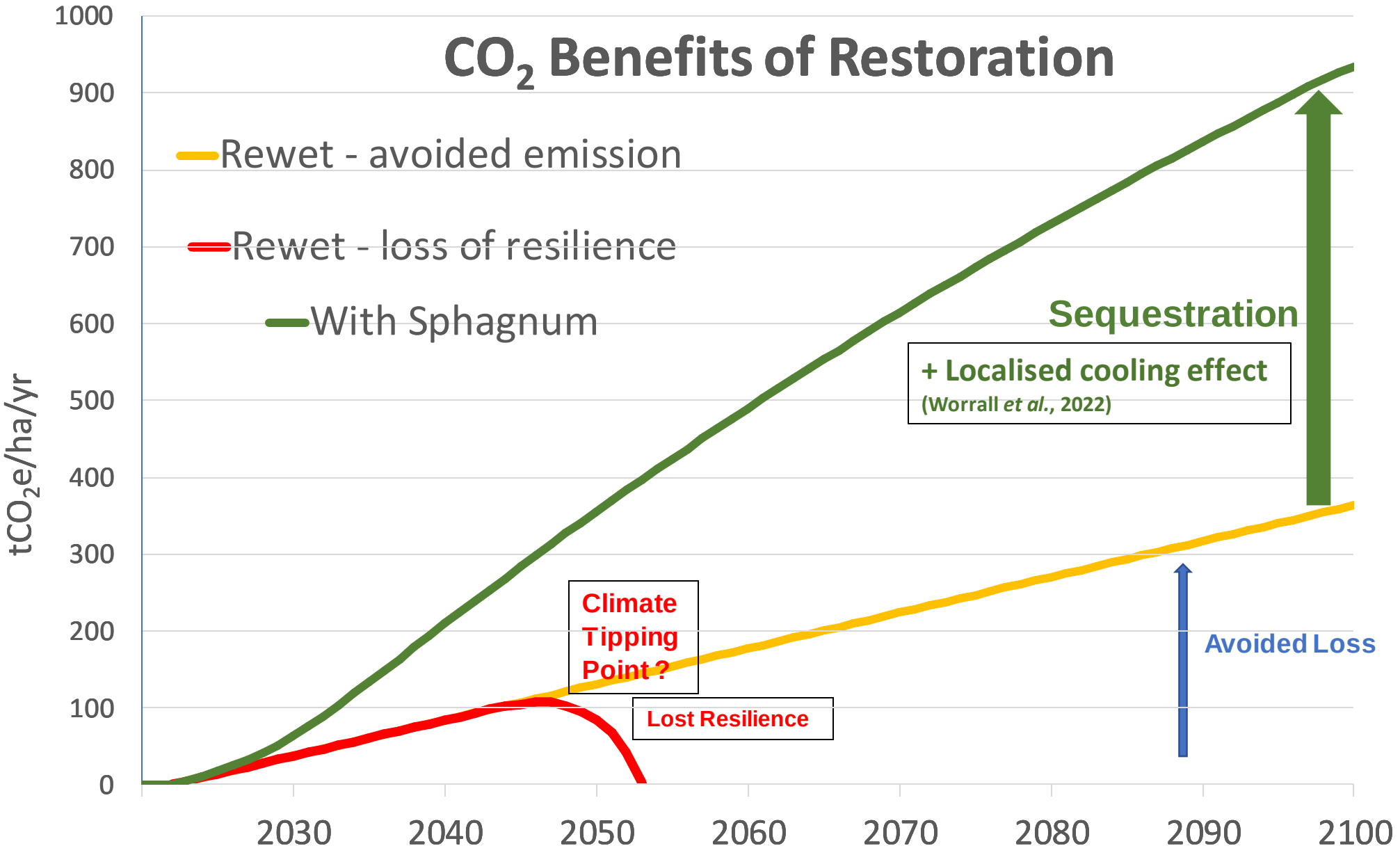
- Sustainable Sphagnum – BeadaHumok®
- Growth in Restoration
- Micropropagation and Photosynthesis

Micropropagated BeadaMoss® Sustainable Sphagnum

Estimating the Carbon Benefit of Sphagnum

- Sphagnum planting on damaged peatlands can produce an 8-10cm layer of white peat over a 3.5-year period (B-Ware, 2017)
- ~60 tC/ha can be stored in a 20cm Sphagnum acrotelm (R. Lindsay, 2010)
- ∴ 24-36 tC/ha could be sequestered within 3.5 years through planting Sphagnum

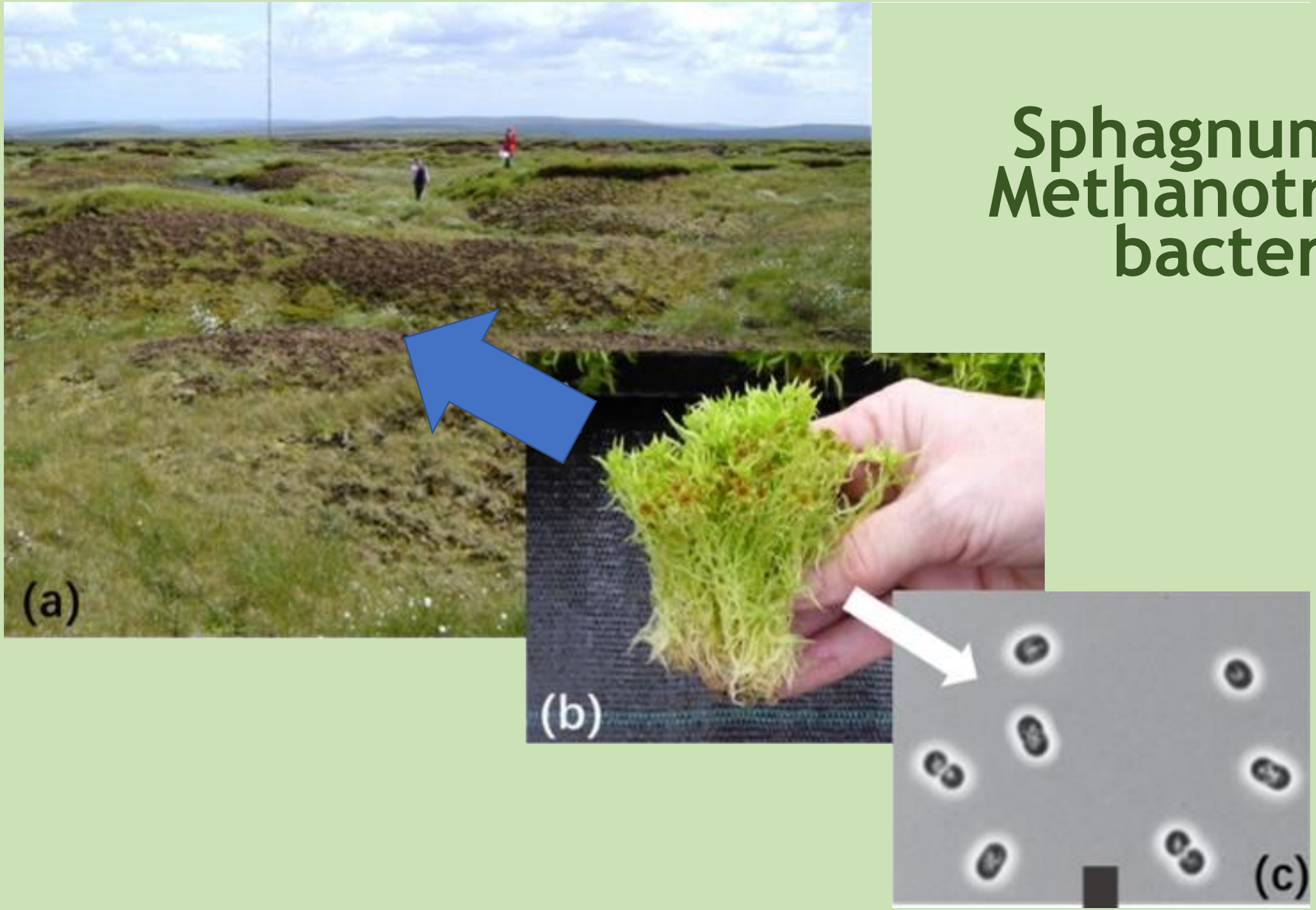
Micropropagated BeadaMoss® Sustainable Sphagnum



Assumptions: 10 year vegetation establishment, long term NPP 4tCO_2e/ha/yr, decomposition rate 0.035/yr – as per Evans IUCN 2021 Eroded Modified Bog emissions factor

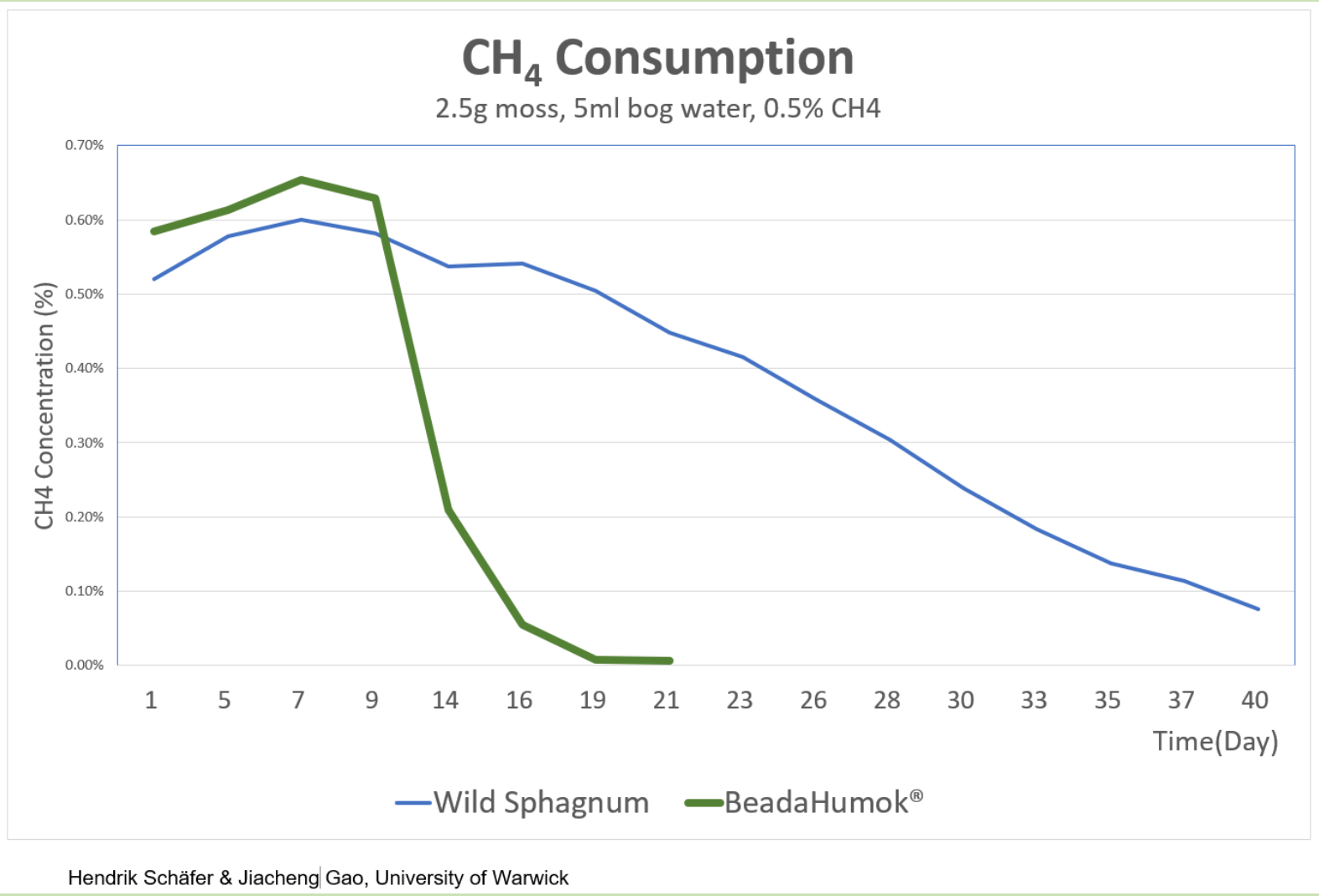
Micropropagated BeadaMoss® Sustainable Sphagnum

Sphagnum and Methanotrophic bacteria



Micropropagated BeadaMoss® Sustainable Sphagnum

Sphagnum and Methane



Hendrik Schäfer & Jiacheng Gao, University of Warwick

Greater methane consumption rate associated with micropropagated Sphagnum

Micropropagated BeadaMoss® Sustainable Sphagnum

Additional Benefits of Sphagnum in Restoration

- **Ecosystem engineer** – Boosts biodiversity
- Flood management and protection against wildfire
- Improves catchment water quality
- Encourages localised resilience to climate fluctuations

Micropropagated BeadaMoss® Sustainable Sphagnum

Sustainable production of BeadaHumok®

Grown Peat-Free

- Solar Panels
- Ground Source Heat Pumps
- Heat Recovery System
- Rainwater Harvesting

BeadaHumok®

A mixed species BeadaHumok®

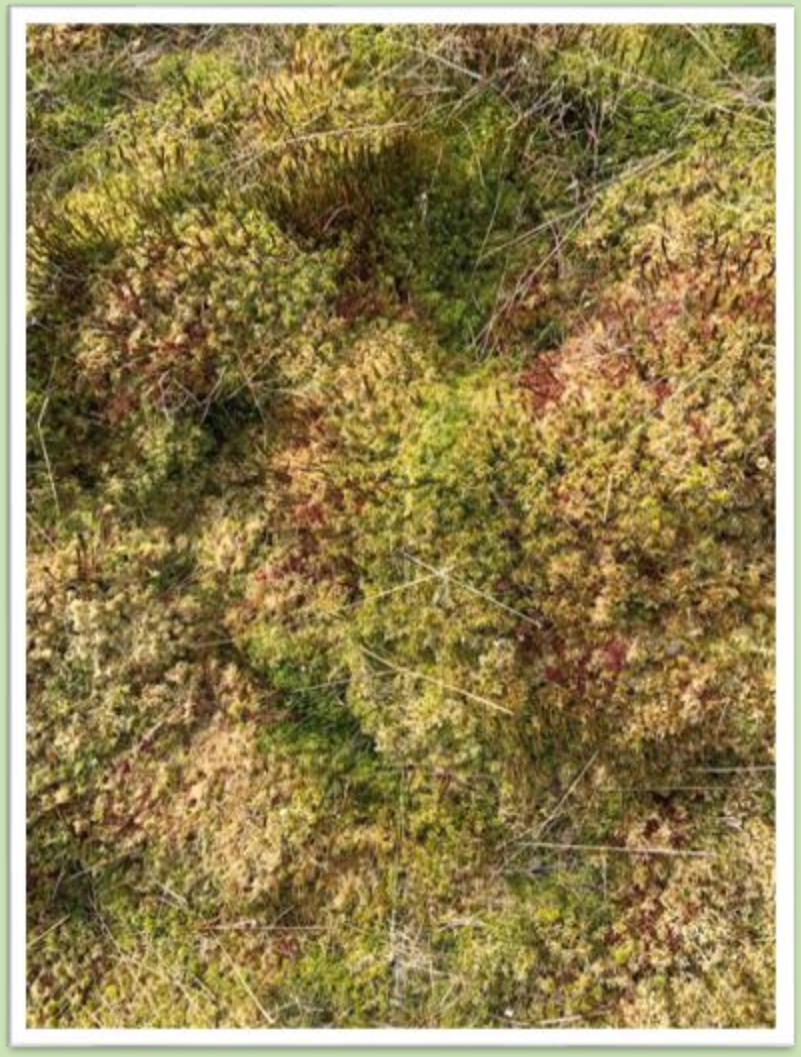
Supplied in rolls of
20 BeadaHumok®

Micropropagated BeadaMoss® Sustainable Sphagnum

Establishment and Growth

BeadaHumok® planted on Kinder Scout (Peak District)
3 years

Micropropagated BeadaMoss® Sustainable Sphagnum

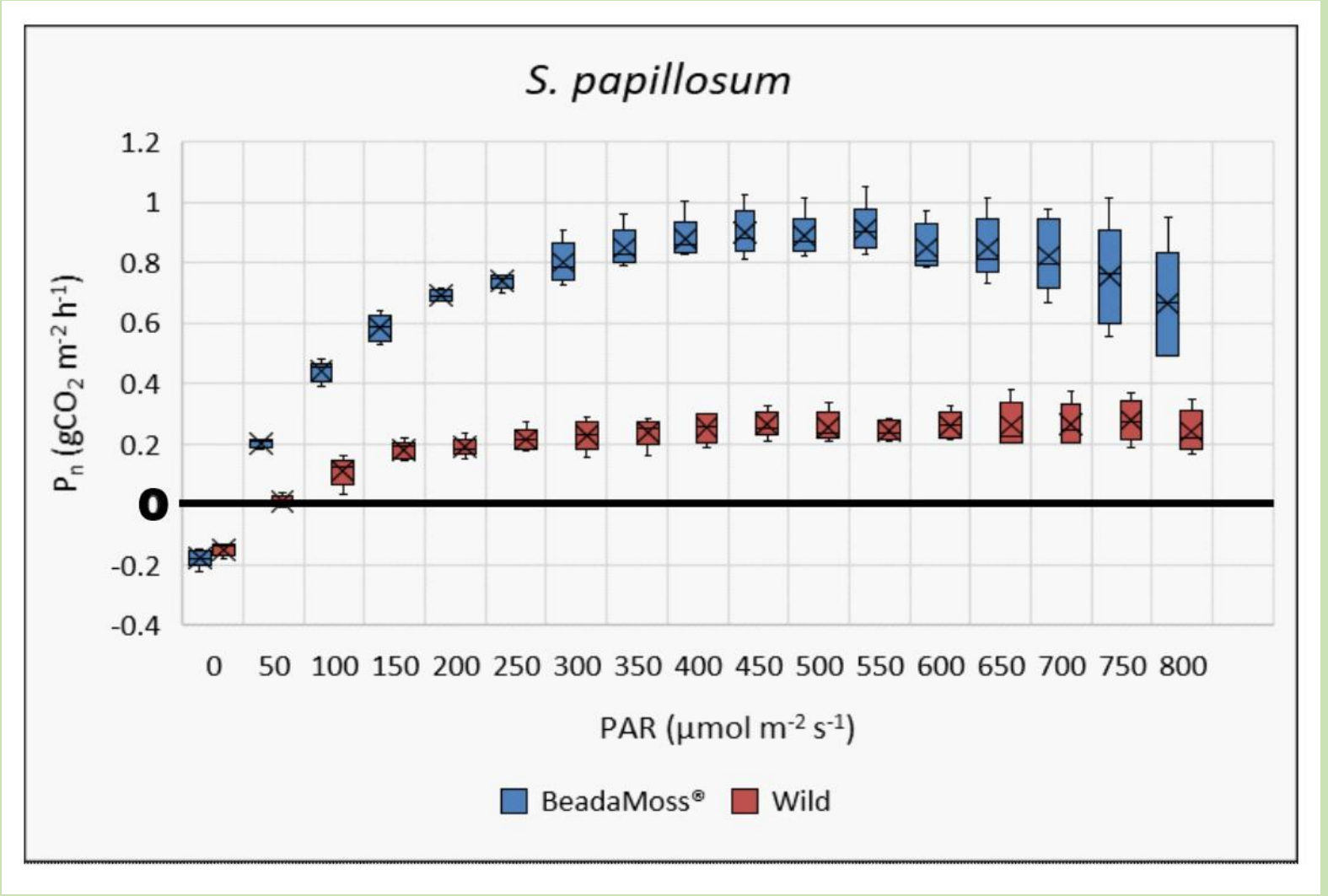


Photos from Kinder Scout, which is being restored and managed by Moors for the Future

Micropropagated BeadaMoss® Sustainable Sphagnum

Photosynthesis-Proxy-Carbon

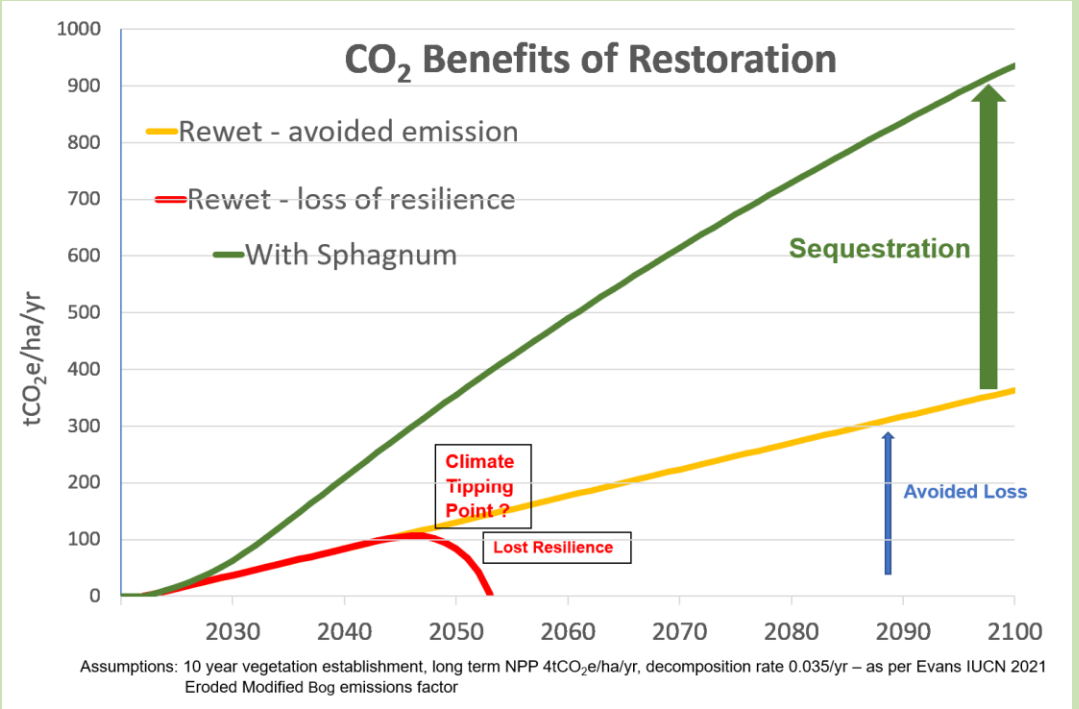
BeadaHumok® vs Wild *Sphagnum*



Data from Anna Keightley, MMU

Micropropagated BeadaMoss® Sustainable Sphagnum

Kinder Scout



Micropropagated BeadaMoss® Sustainable Sphagnum

Summary

Sadie

- Carbon Benefits of Sphagnum
- Methane Benefits of Sphagnum
- Additional Benefits to Ecosystem Services

Andrew

- Sustainable Sphagnum – BeadaHumok®
- Growth in Restoration
- Micropropagation and Photosynthesis

Micropropagated BeadaMoss® Sustainable Sphagnum


Micropropagated
BeadaMoss®
Sustainable Sphagnum
THANK YOU
Sadie Manning and Andrew Davidson
Andrew@beadamoss.co.uk