



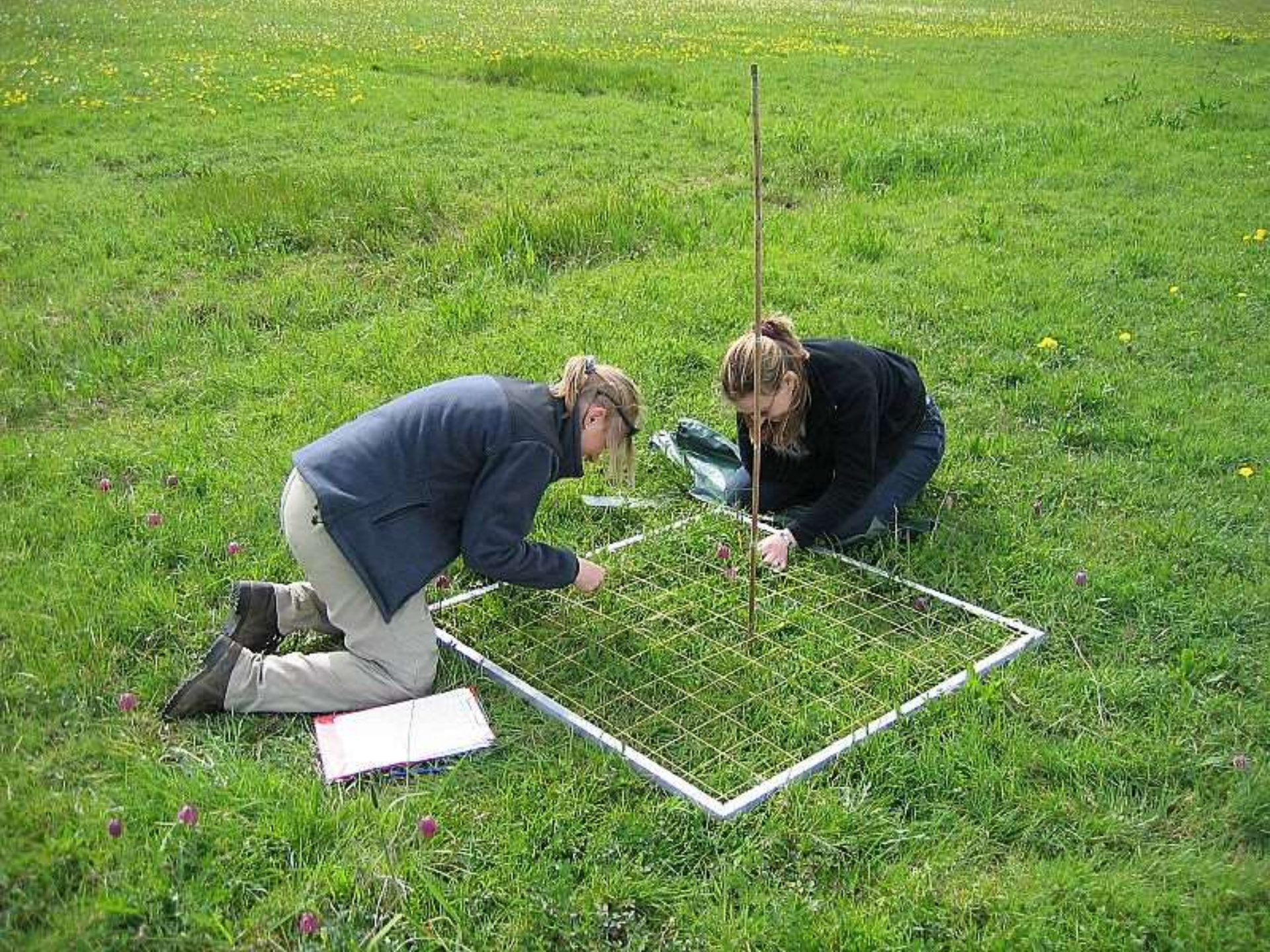
Floodplain meadows: eco hydrological research

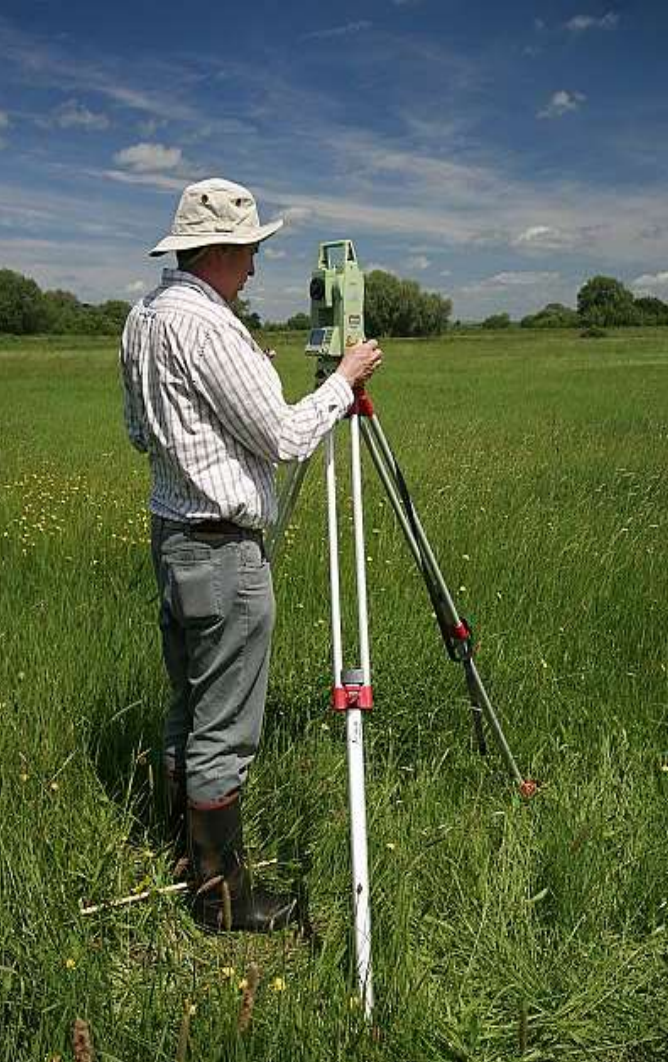
David Gowing
Floodplain Meadows Partnership
Open University







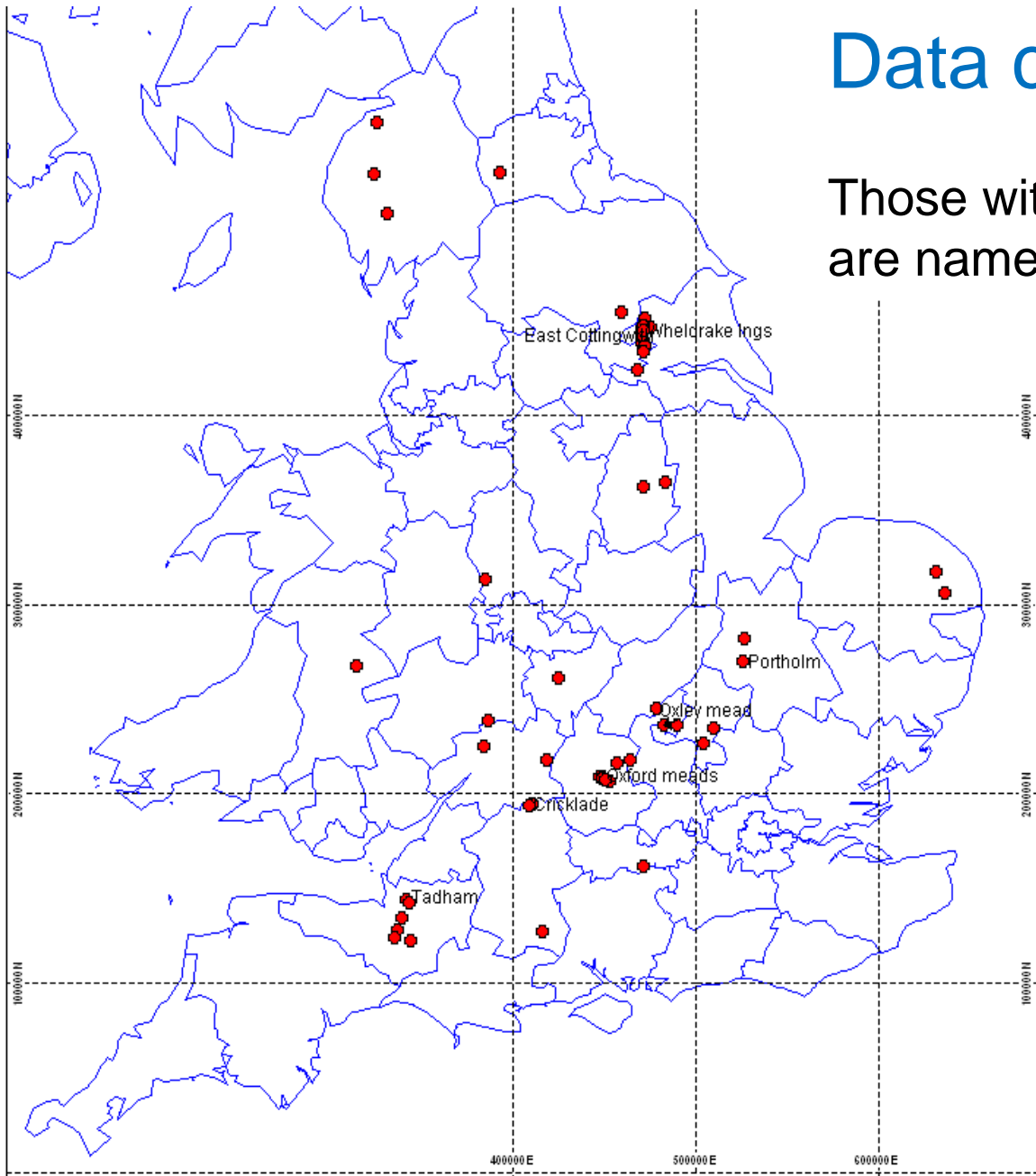




Hydrological fieldwork

Data collection sites

Those with long-term data sets are named





The UK Floodplain Meadows database

- 68 sites across England and Wales
- >21,000 quadrats
- 2 million modelled weekly water-table depths
- >400 analyses of soil and plant-tissue nutrient status
- Botanical data spans 1986 to 2022

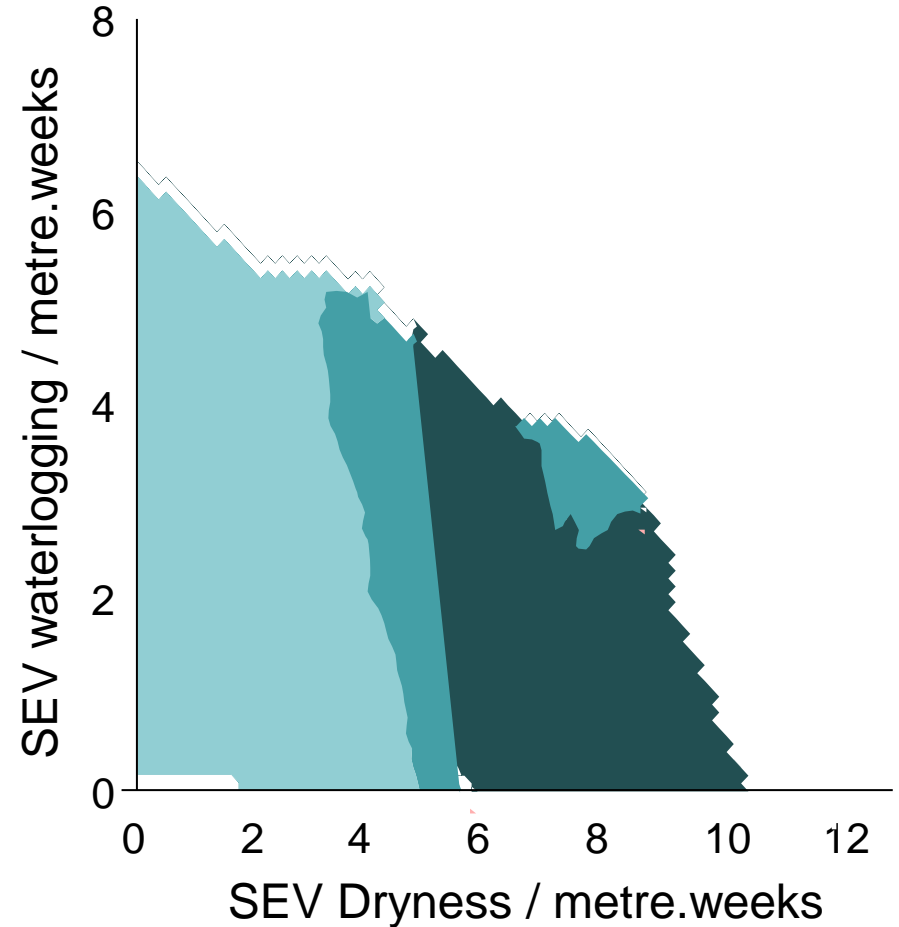


Species water-regime tolerances

Meadow vetchling (*Lathyrus pratensis*) frequency relative to soil water regime



- Data compiled from >3000 sample positions from 7 sites across England with contrasting soils

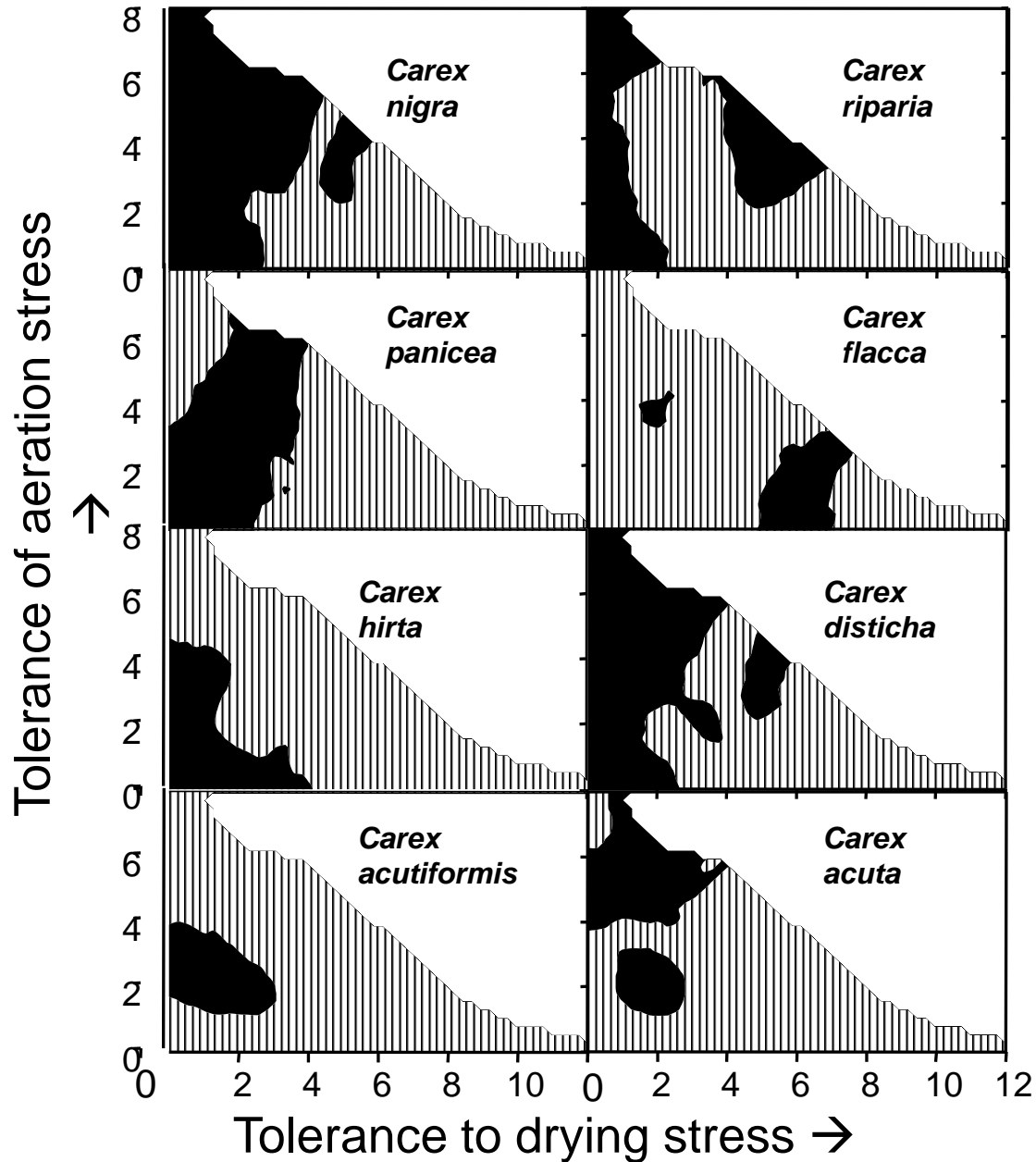


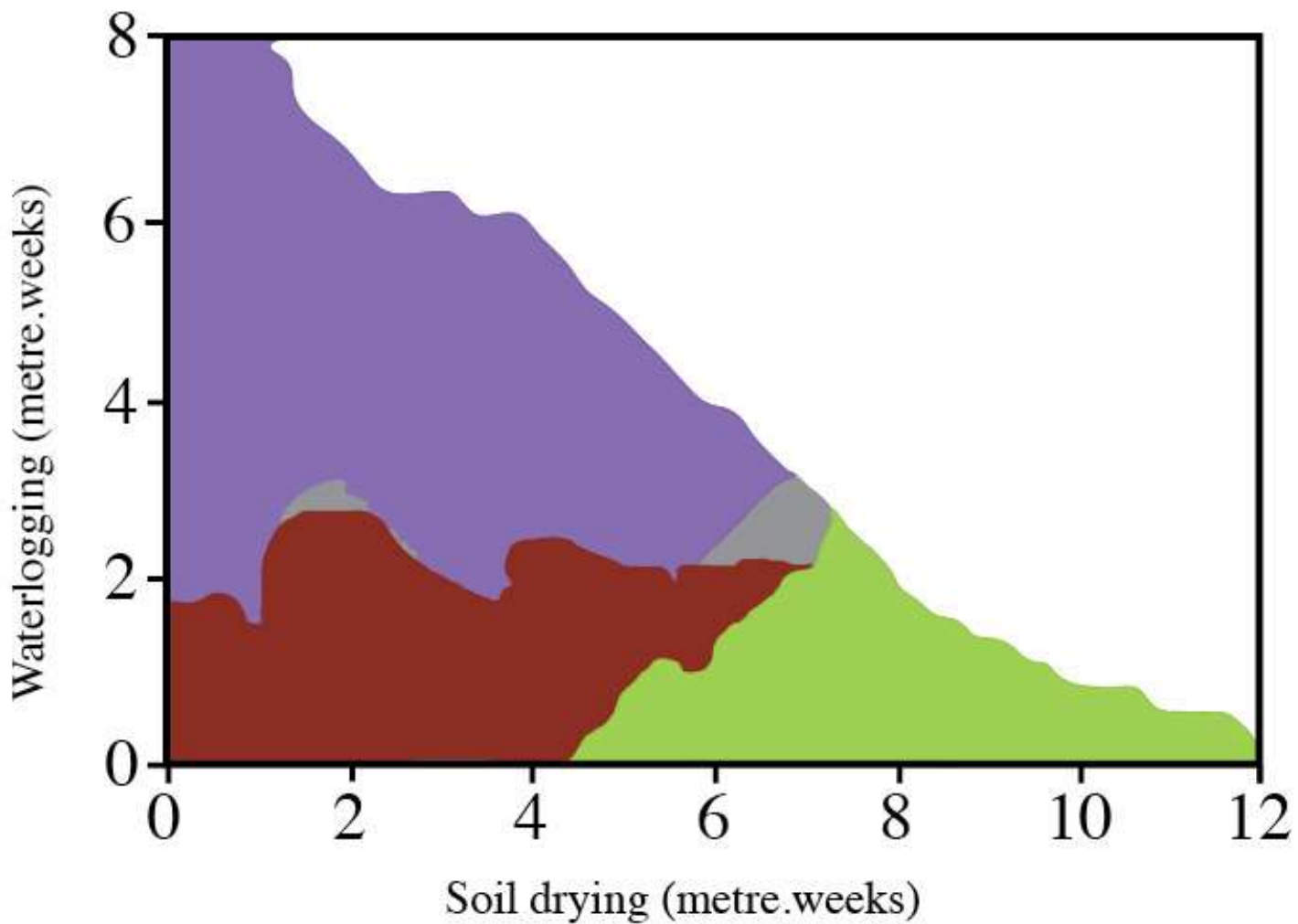
 Less frequent than by chance

 Expected frequency by chance

 More frequent than by chance

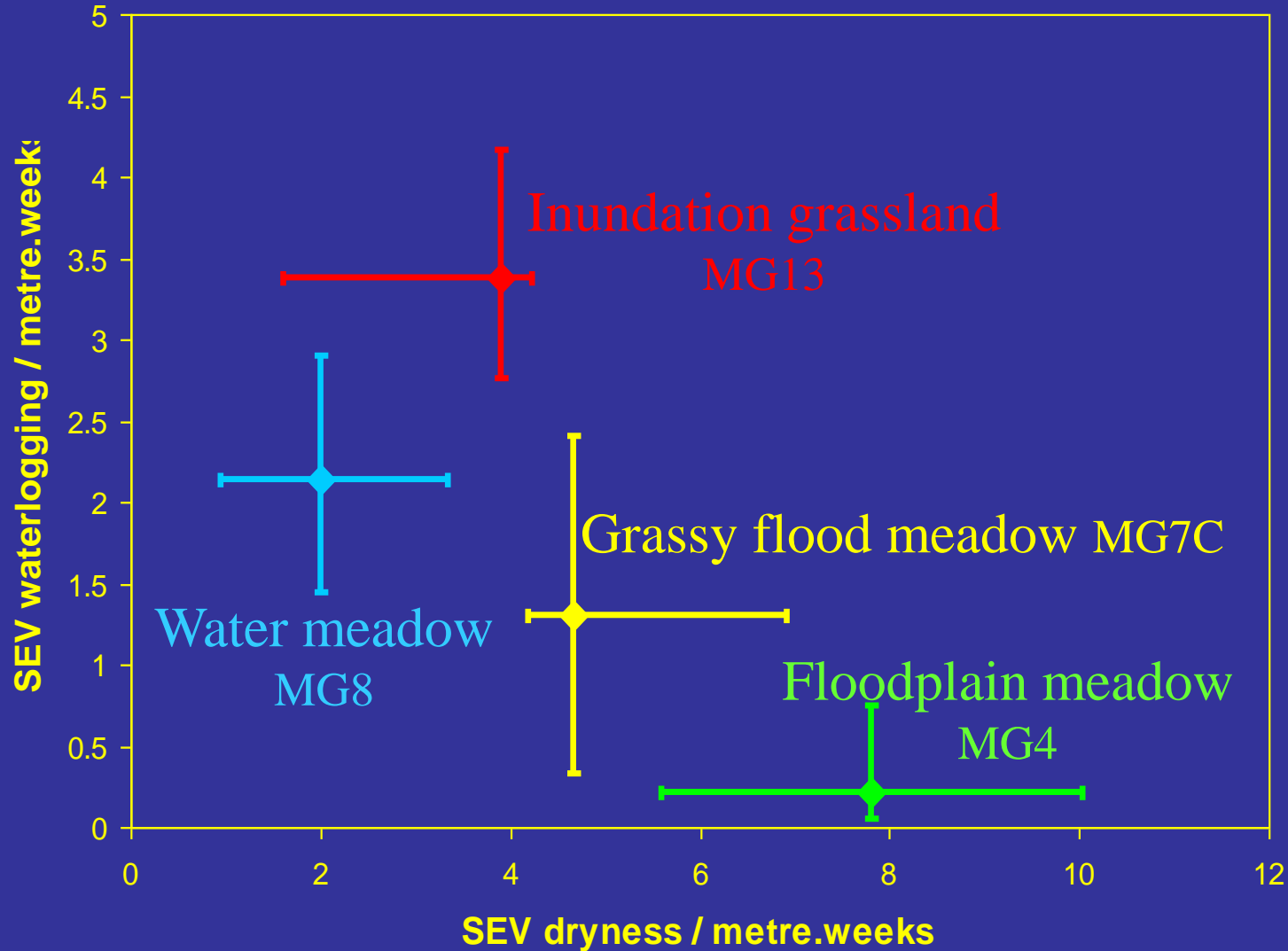
Hydrological niches of eight species of sedge



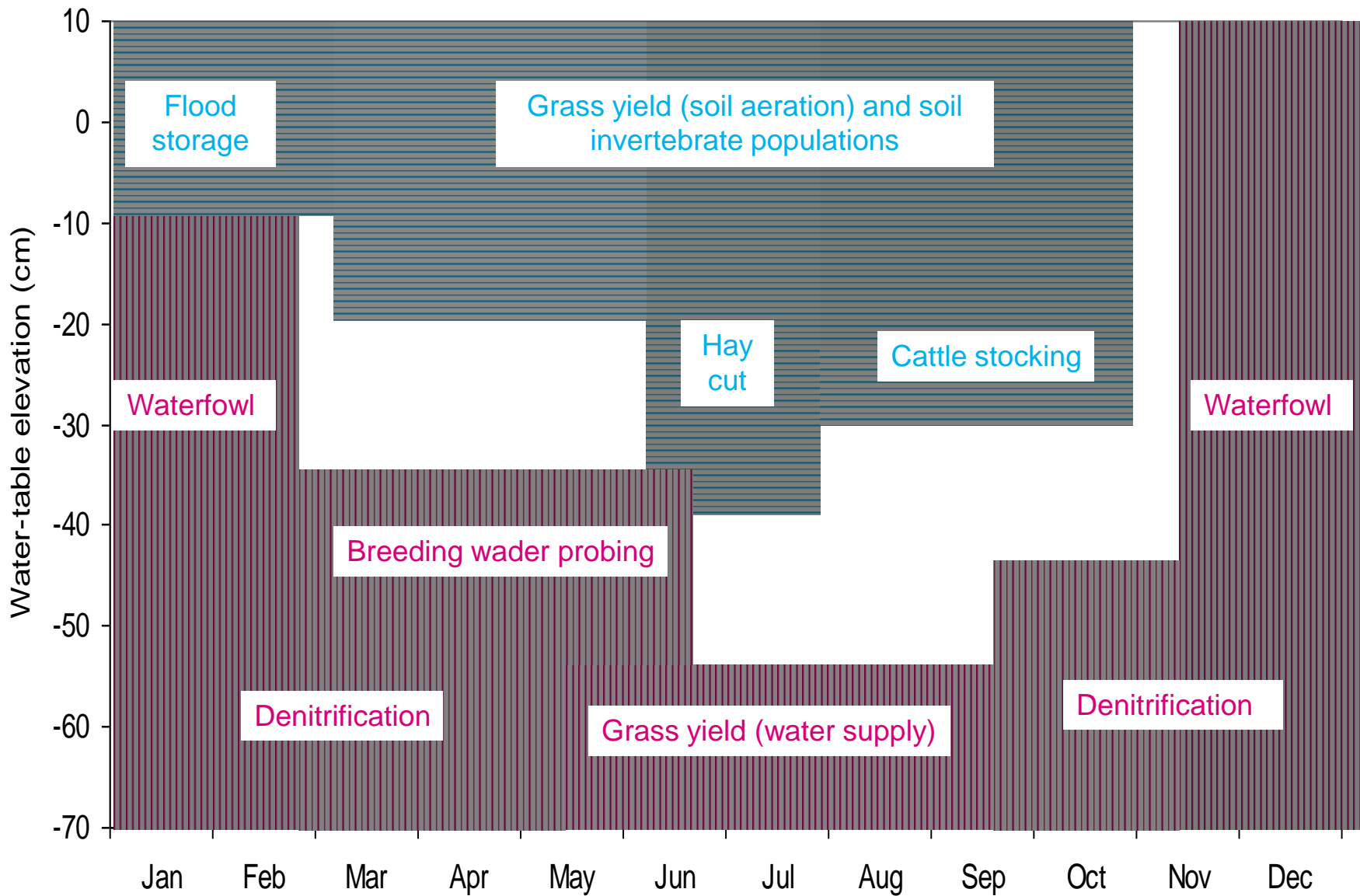


Community tolerance ranges

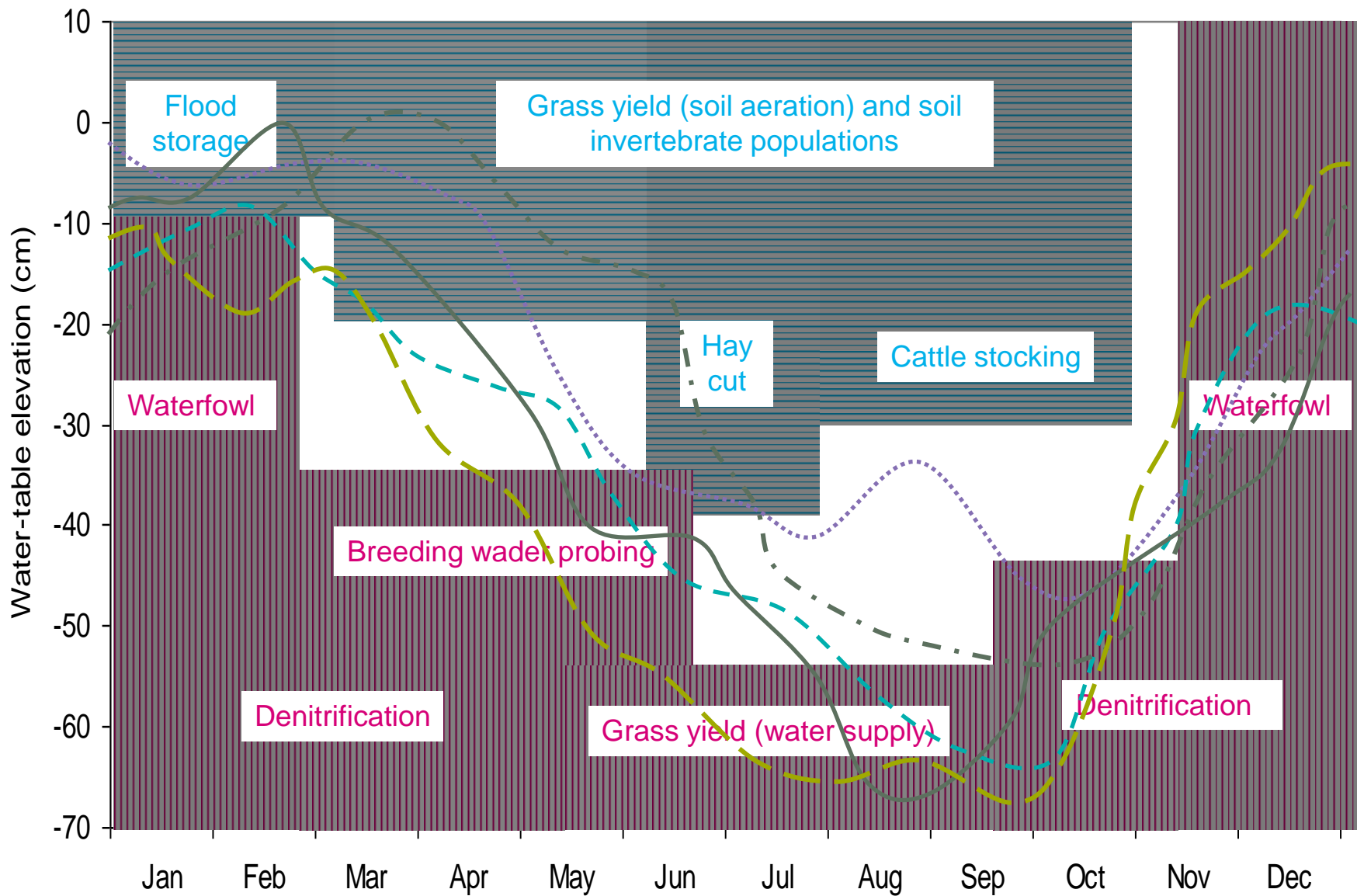
median and inter-quartile range



Combining multiple requirements



Importance of inter-annual variation



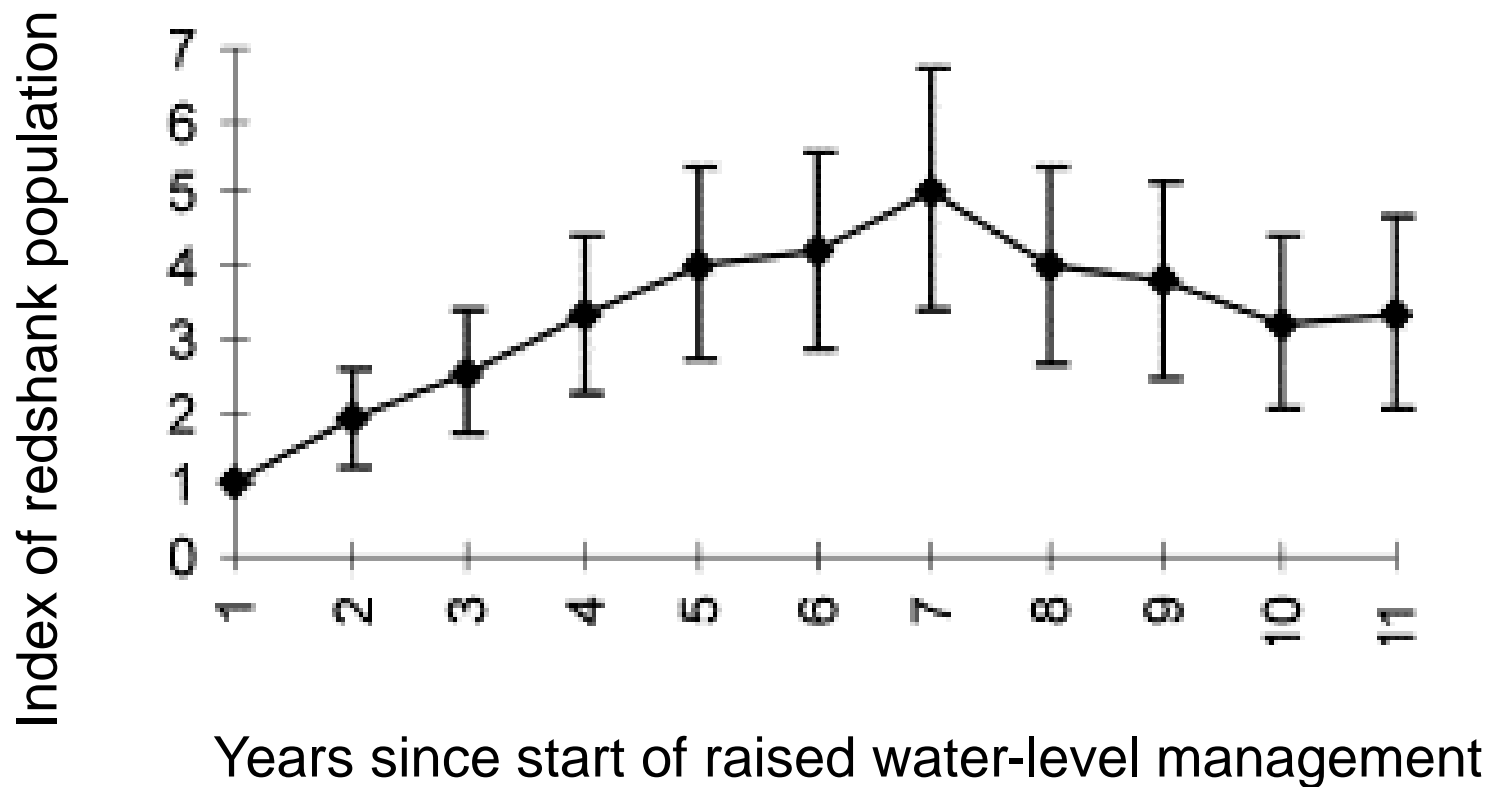


Redshank (*Tringa totanus*)

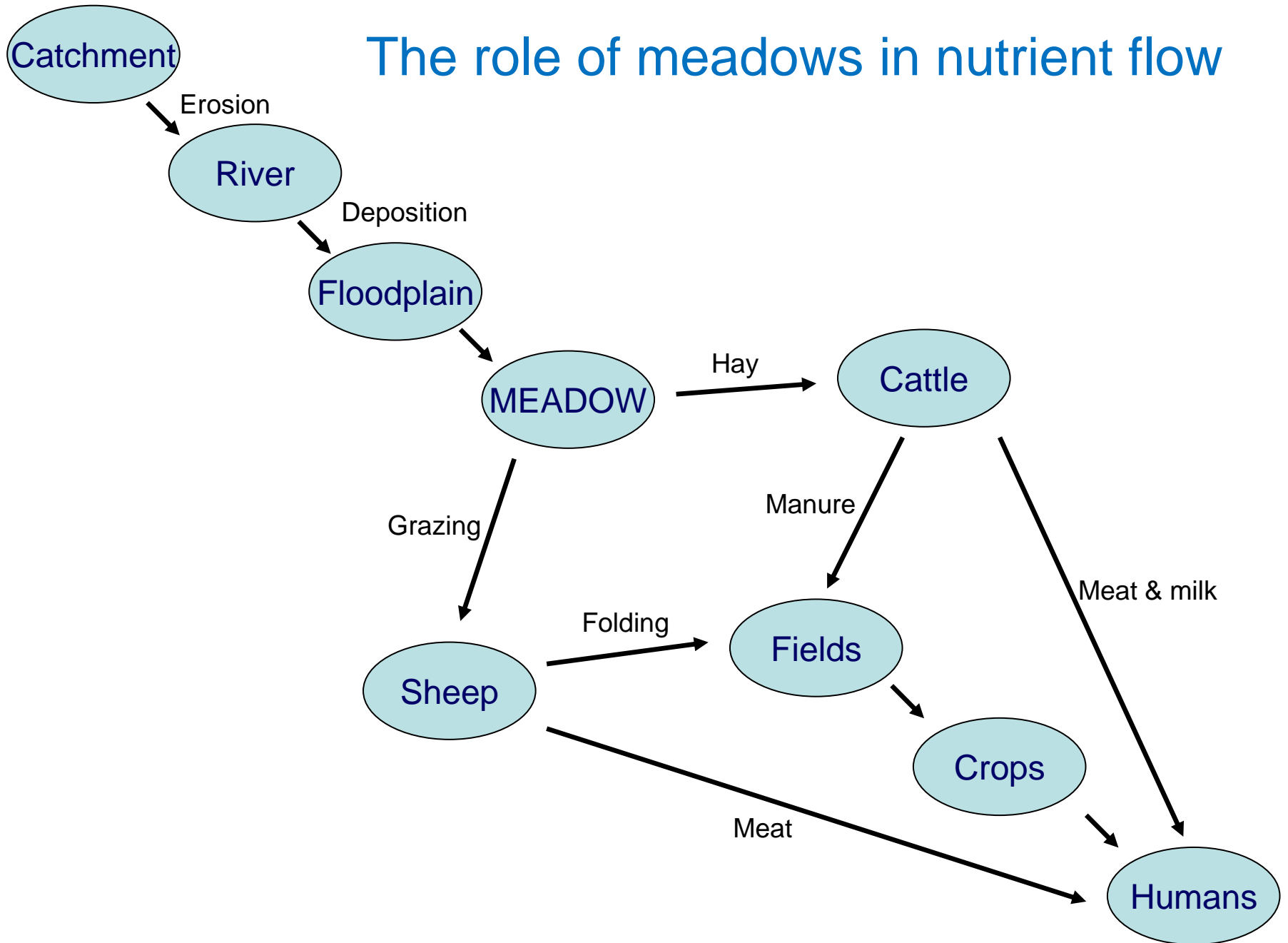




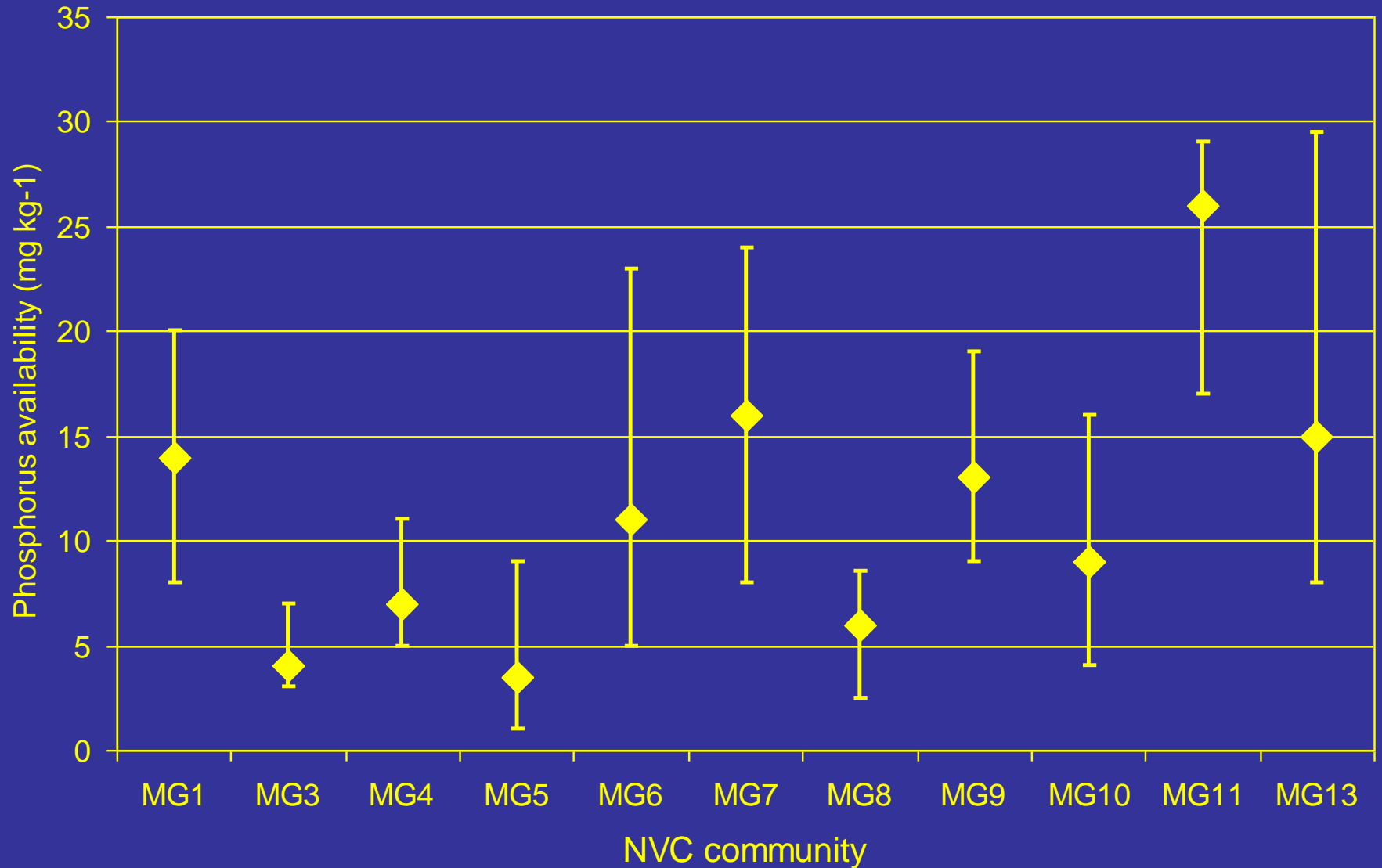
Long-term response of wader populations to altered water regime



The role of meadows in nutrient flow



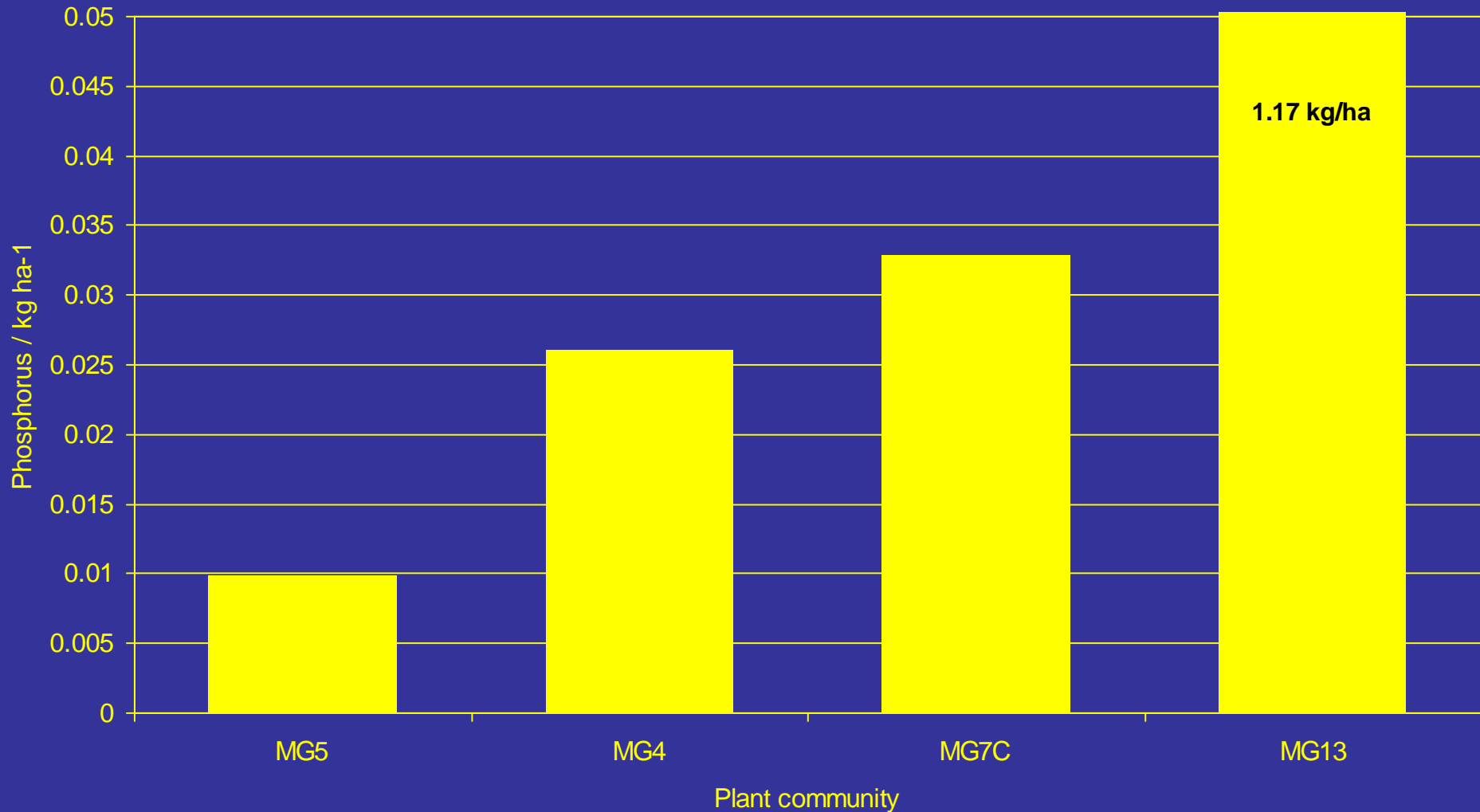
Soil phosphorus availability by community type



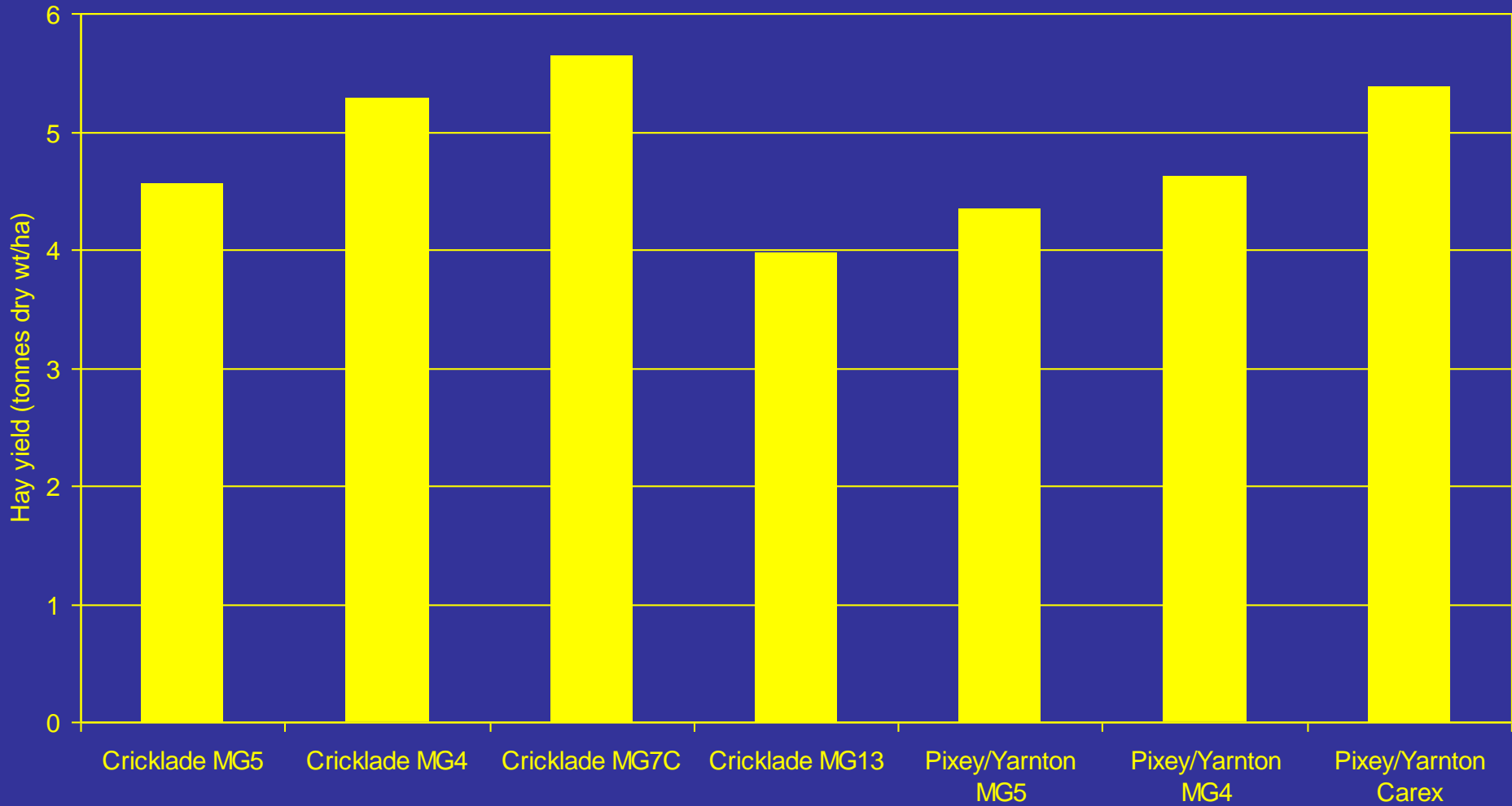


Cricklade North Meadow NNR following a flood
note sediment traps

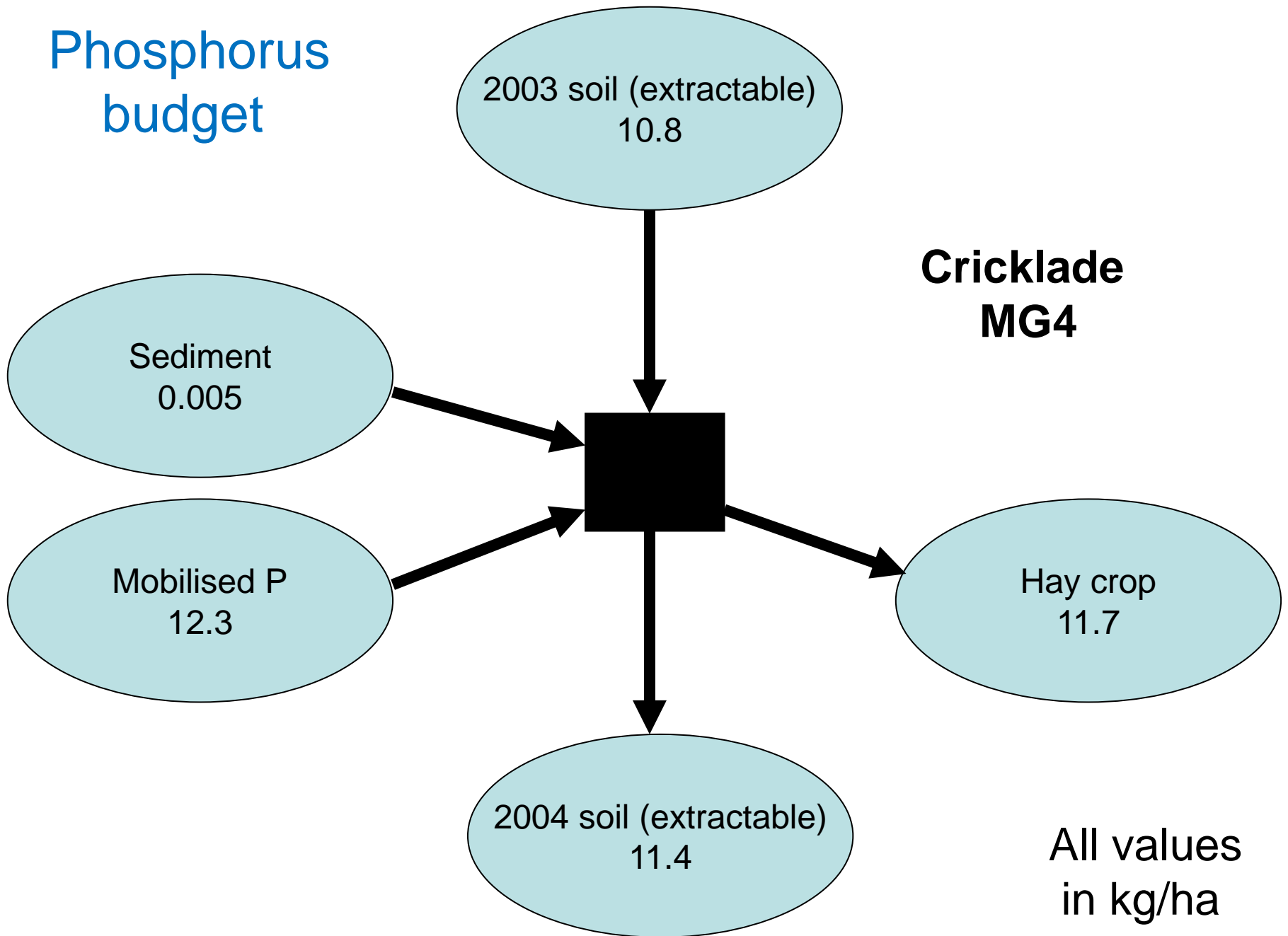
Deposition of phosphorus at Cricklade North Meadow



Productivity of different communities (June harvest)



Phosphorus budget



A wide-angle photograph of a lush green field filled with various wildflowers, including white daisies, yellow dandelions, and purple thistles. The field extends to a distant treeline under a clear blue sky. The word "Questions" is overlaid in the center in a large, blue, sans-serif font.

Questions