

Definition & management of environmental flows: A riverine landscape perspective

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Issue



Current approaches to environmental water allocations are unbalanced.

Focus on the in-channel environment:

- 250 approaches – 2 specifically related to floodplain allocations.

Perspective of floodplain hydrology is limited.

Knowledge of floodplain ecosystem response to wetting and drying is also limited.



Floodplain Hydrology



Simplistic view of floodplain hydrology.

- Floodplains seen as ecotones – gradients of wetting.
- Inappropriate use of flood definition (ARI = 1:2 yrs).
- The bigger the flood the better.

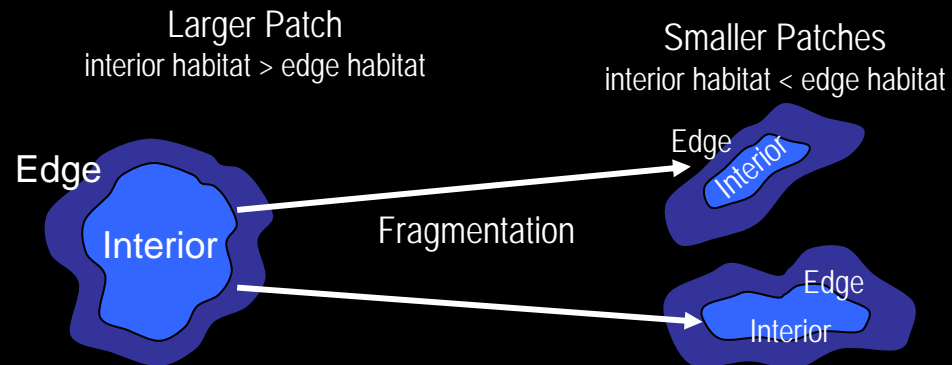


An alternate view



Floodplain inundation produces a mosaic of wet patches.

- Character of the wetted floodplain mosaic is important.
- Floodplain biodiversity is maximised with an optimal mix of patch and edge habitat (Naiman, 1988).

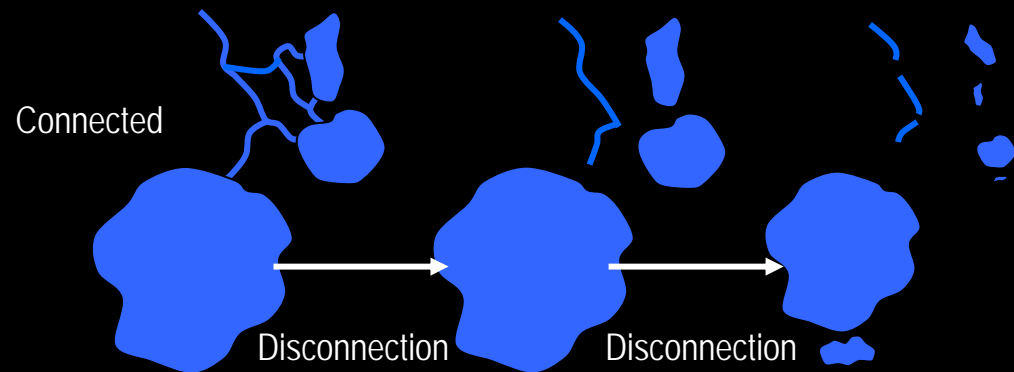


An alternate view

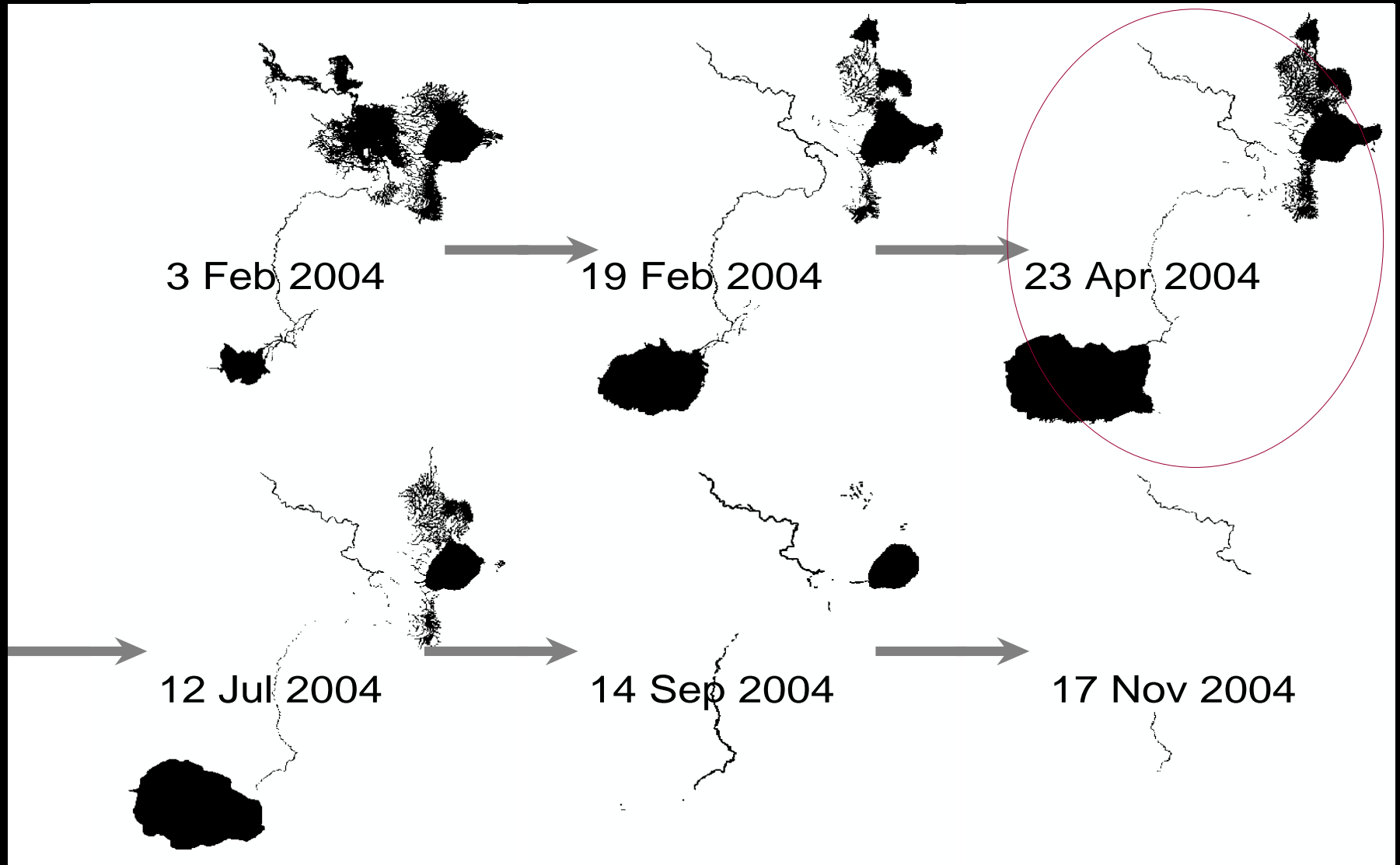


Floodplain inundation produces a mosaic of wet patches.

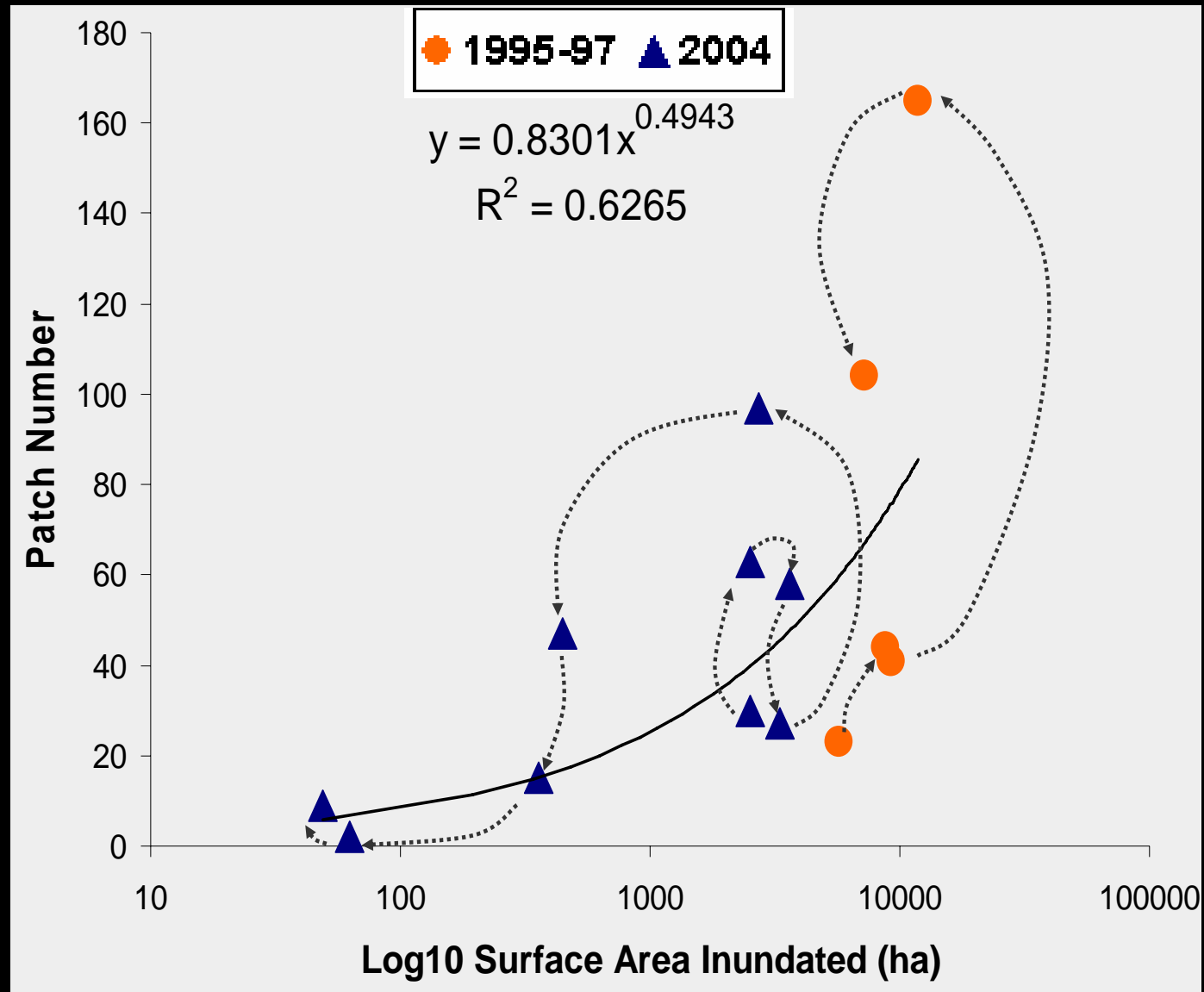
- What is the behaviour of wet patches during floodplain wetting/drying.
- Spatial focus and how this may change overtime during a flood.



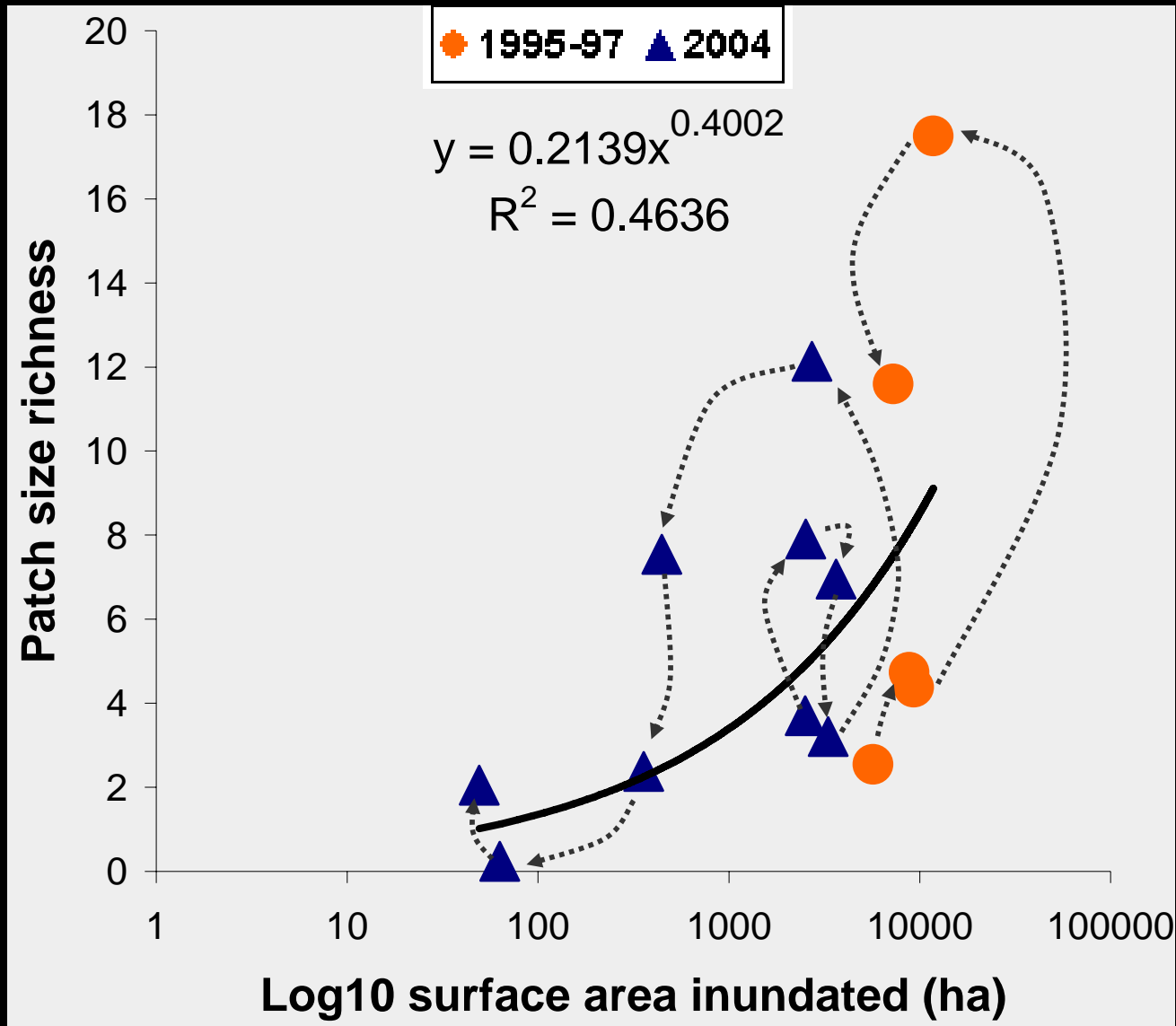
Floodplain inundation sequence



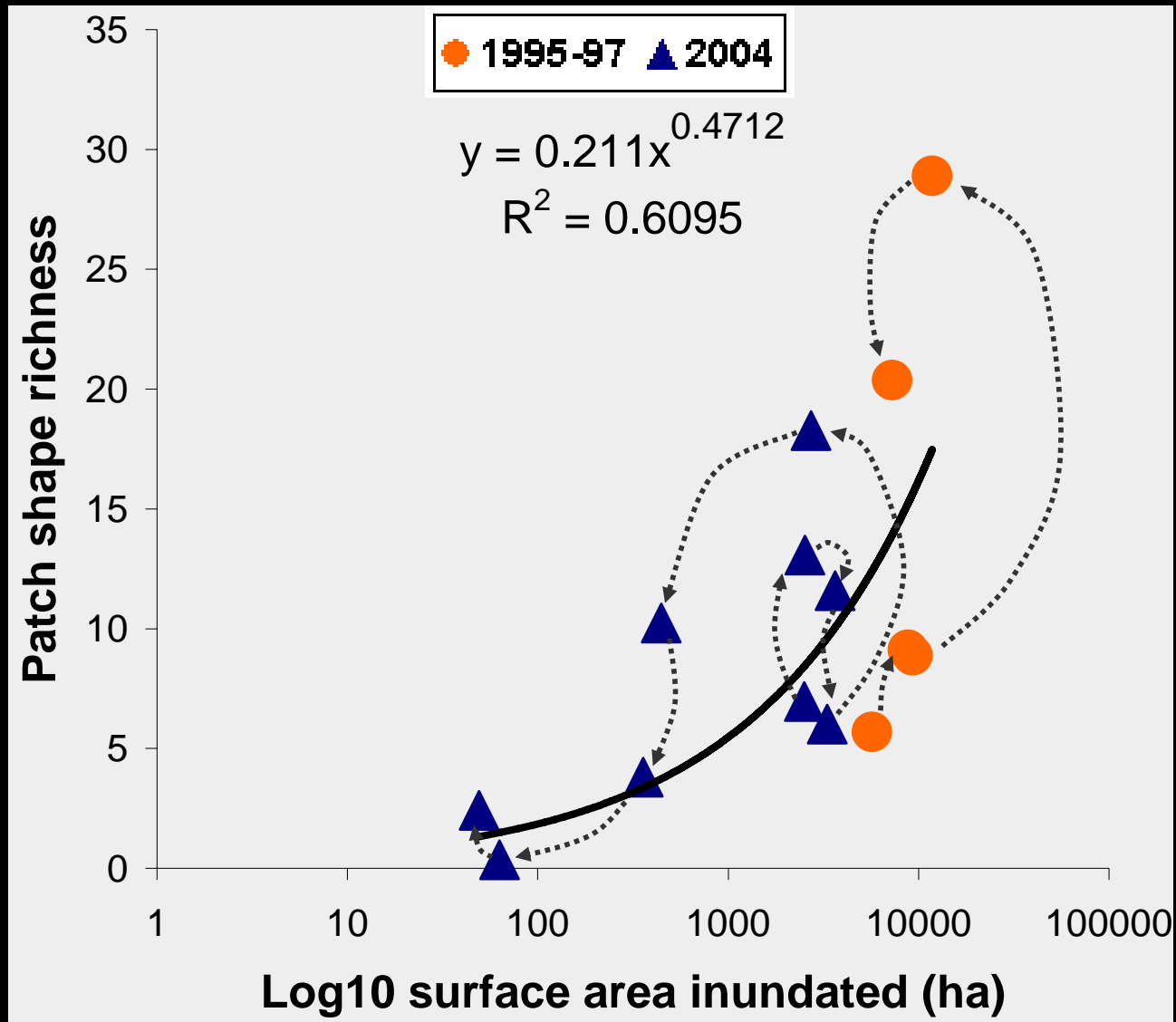
Flood expansion & contraction



Wet patch character



Wet patch character



Summary



- Environmental flows must have a floodplain context in order to maximize their benefit for riverine landscapes.
- Understand floodplain hydrology in terms of what floodwaters do on the floodplain.
- Diversity of wet patches is an important driver of floodplain biodiversity.
- Not all floods are equal and bigger is not always better.
- Contraction of floodwaters is important – high diversity of wet patches.
- Floodplain 'Hotspots' & 'Hot moments'.

