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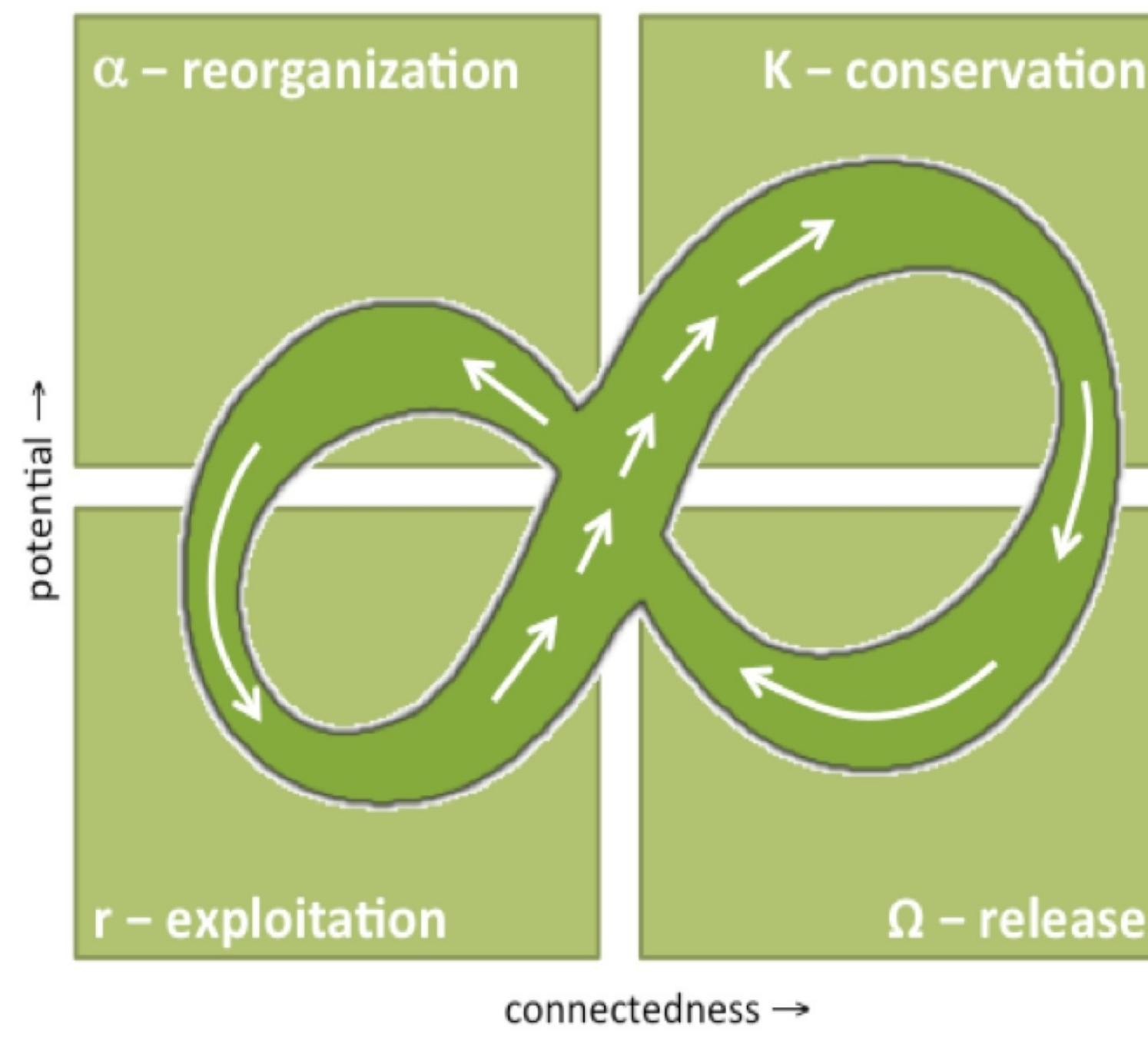
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Spatial discontinuities and panarchy theory : for a better management of agriculture/forest interfaces

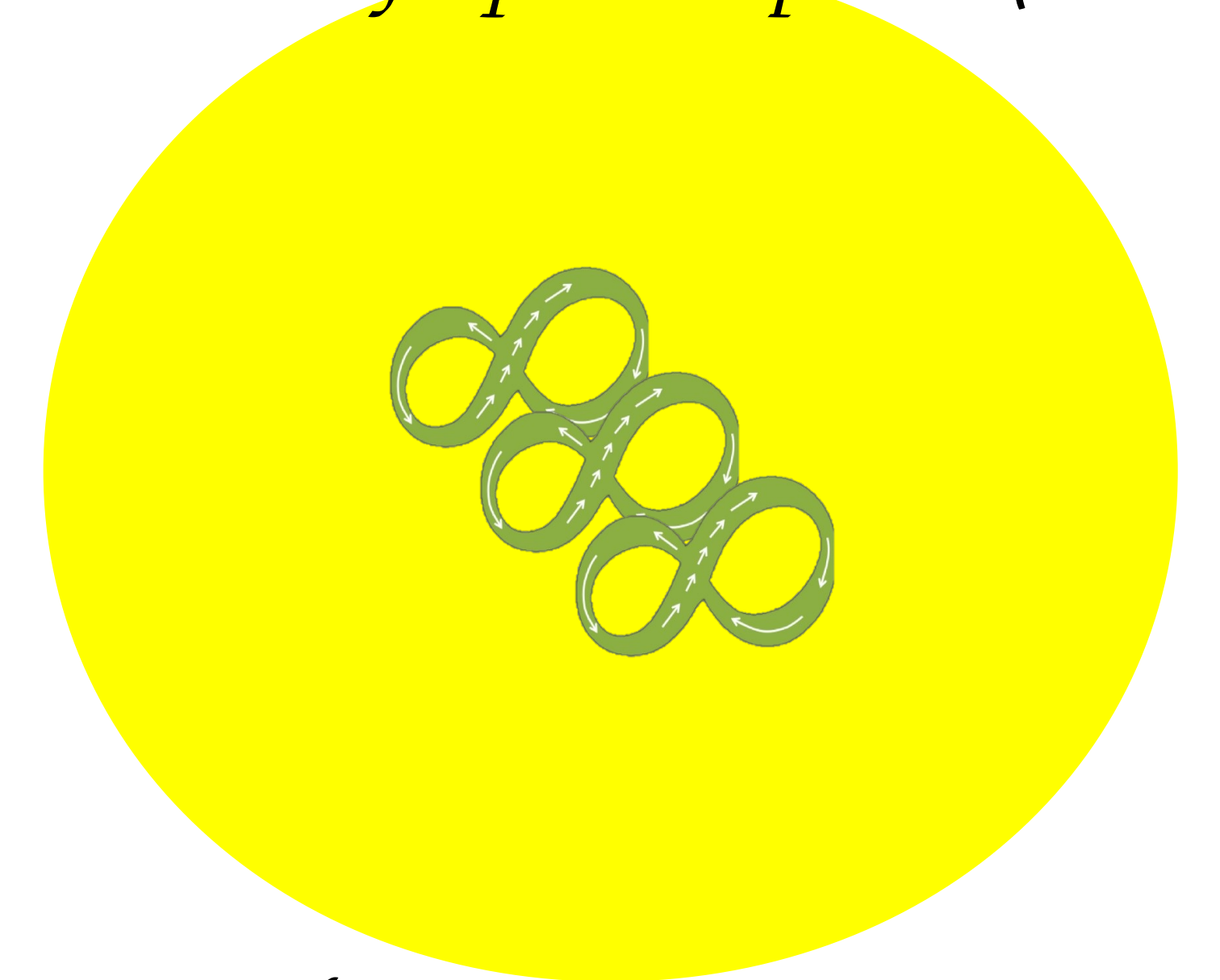
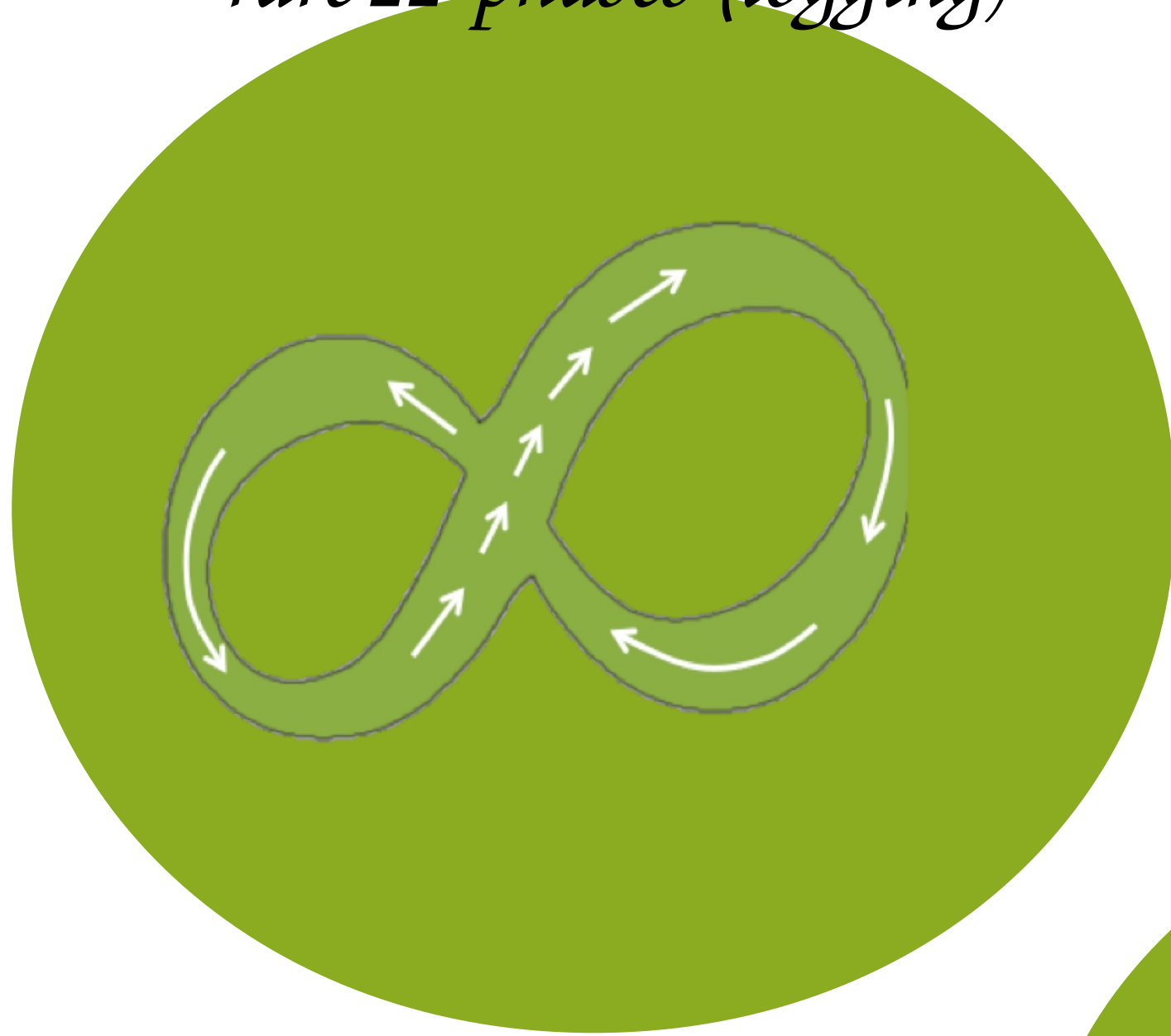
System dynamics:
adaptive cycle



Forest: slow system
Long \mathcal{K} phase,
rare Ω phases (logging)



Crop: fast system
Short \mathcal{K} phase,
frequent Ω phases (harvesting)

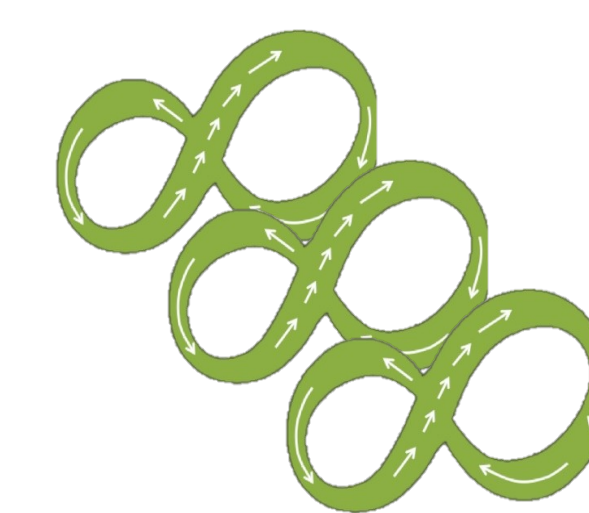
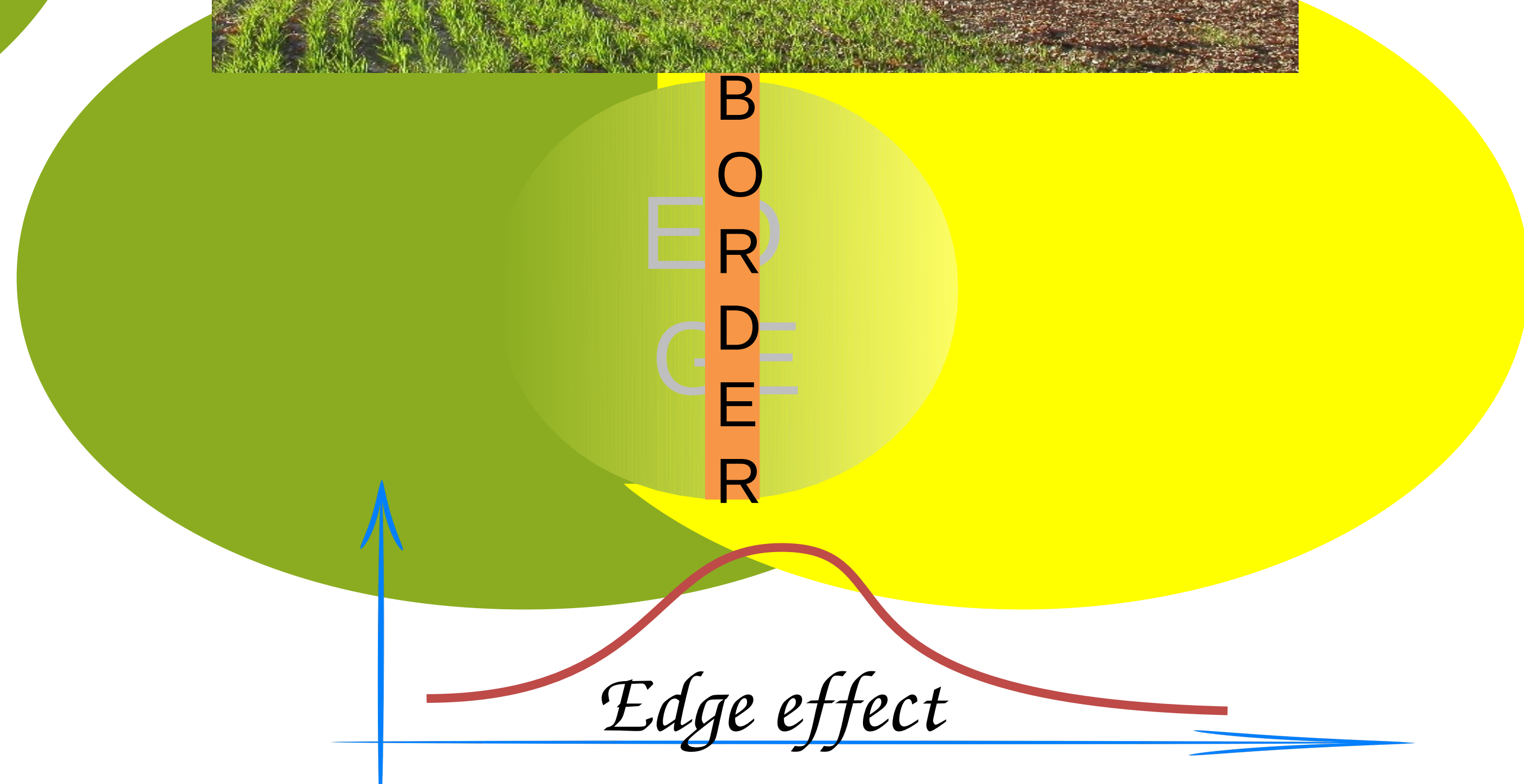


Both habitats are influenced near
their shared border.

Edge is the area of influence.

Biodiversity, ecosystem services,
resource usages are modified by edge
effects.

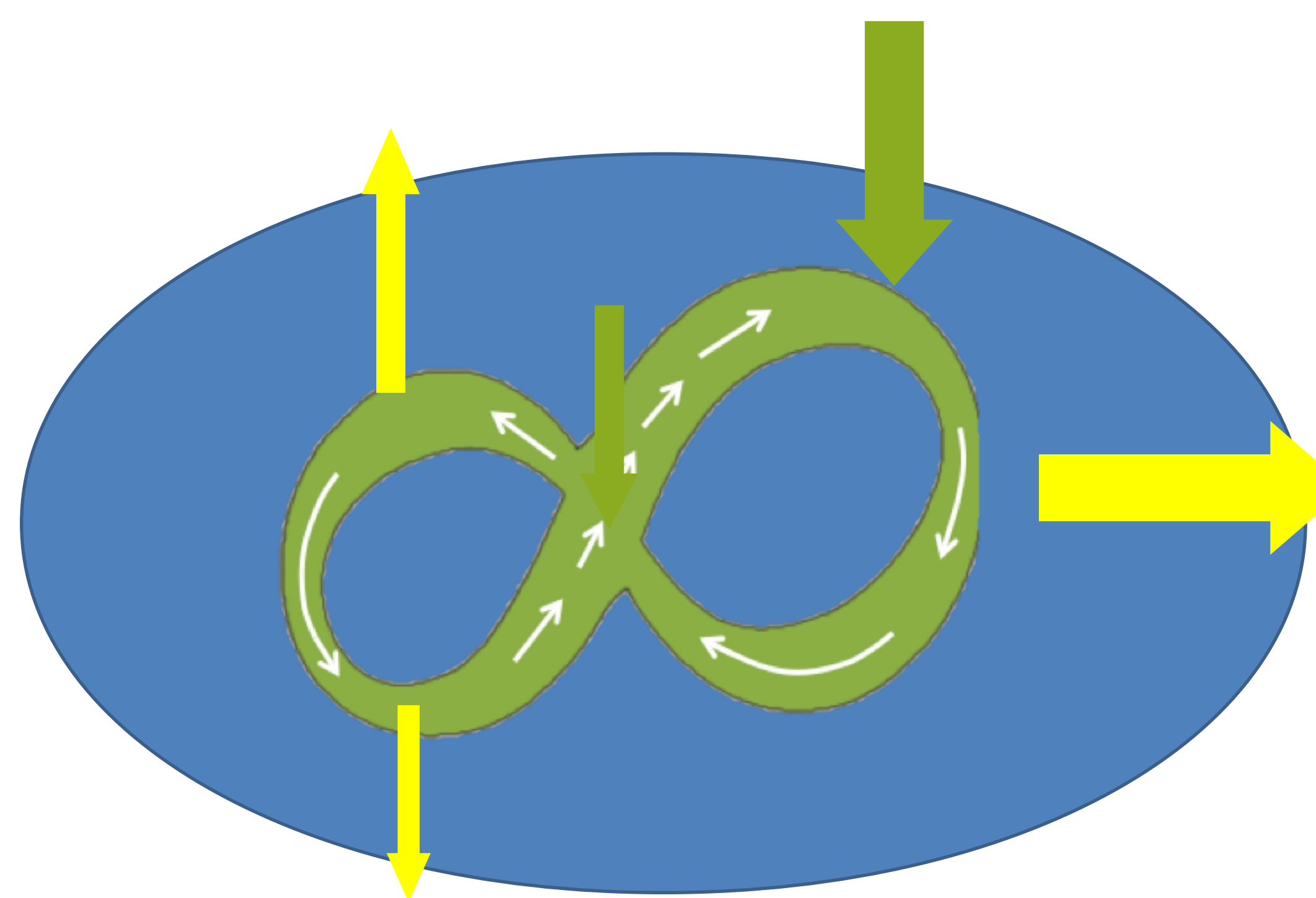
Controlling edge effect is crucial for a
better land management



How do the slow and the fast systems spatially interact ?

During the \mathcal{K} phase, the connectedness of the
system increases: it influences its outside.
During the other phases, the system is more
open and is influenced by its outside:

- Strong influence may trigger Ω phase
- Lower influences contribute to α and r phases, providing novelty and resources



Forest influences crop dynamics
most of the time (long \mathcal{K} phase).

Crop may influence forest
dynamics during regeneration
phases (Ω , α , r)

Spatial interface of the complex system