



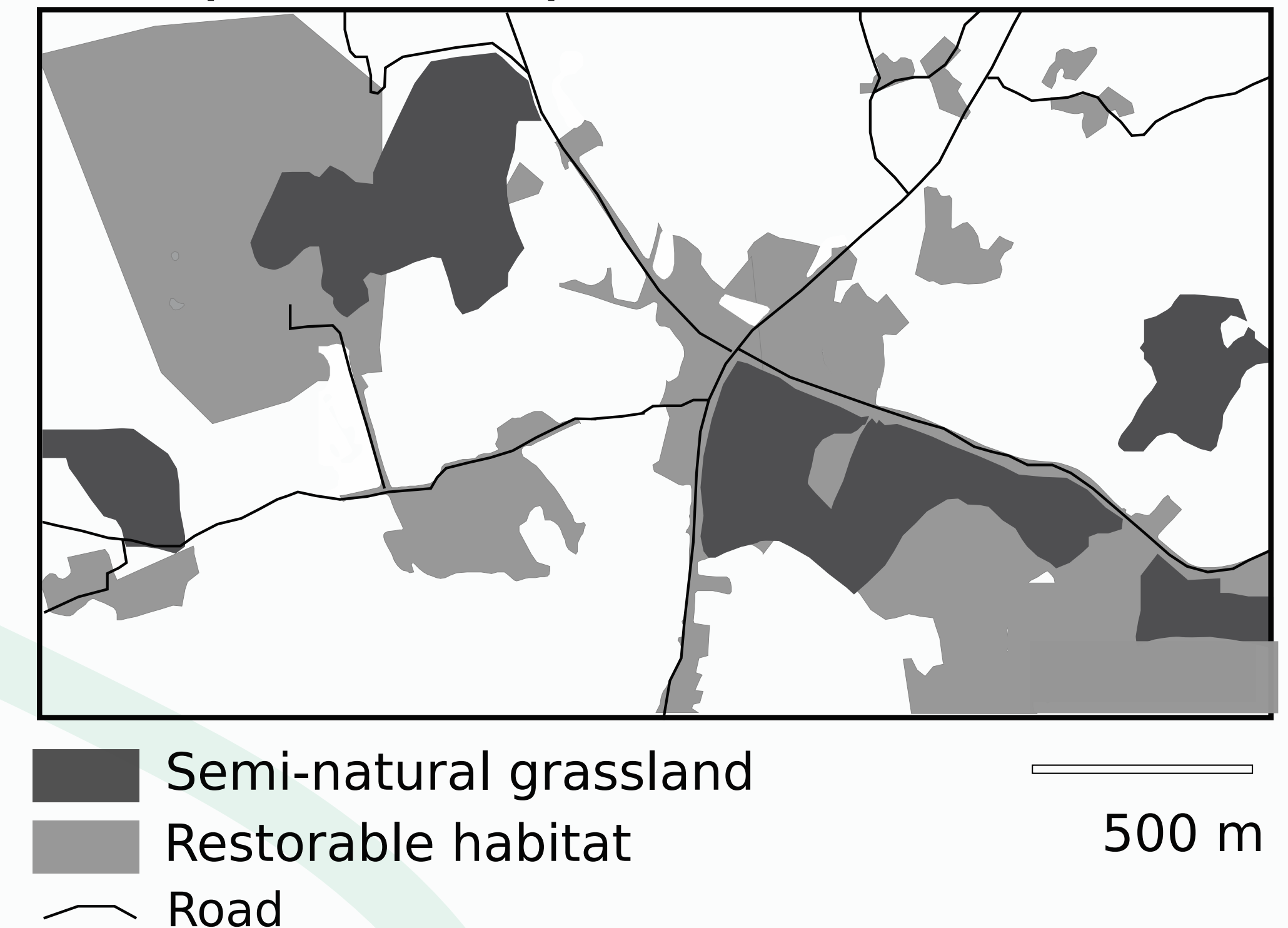
# Putting seed dispersal on the map

## Understanding and managing the role of human-mediated dispersal in rural landscapes

### Background

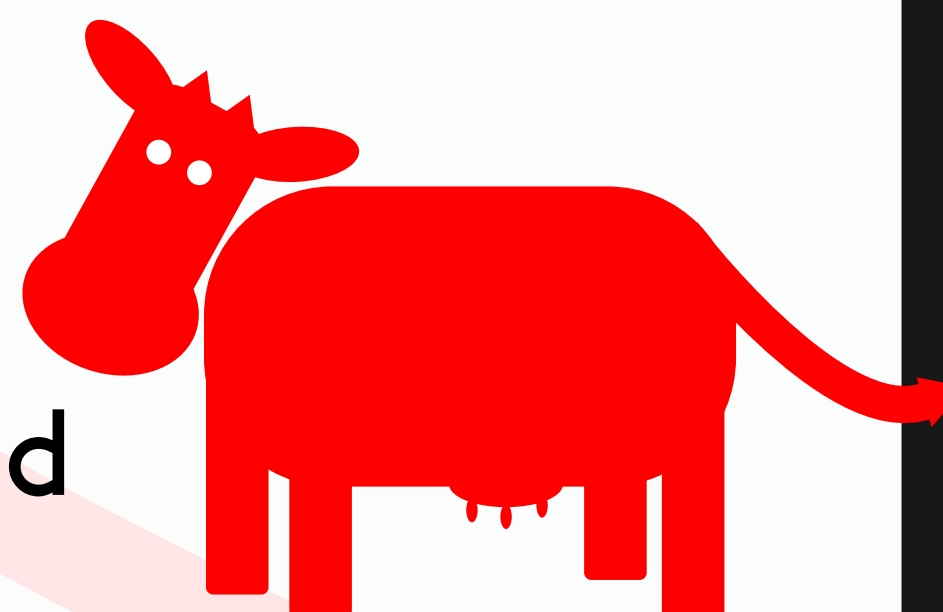
- Ecologically valuable pastures and meadows in rural landscapes are today small and isolated. They are often located alongside restorable habitat in an arable matrix (see map to the right).
- Seed dispersal is a limiting factor in grassland conservation and restoration, but is rarely incorporated into management plans.
- Long-distance dispersal in rural landscapes often occurs via human-mediated vectors such as livestock, vehicles and people.
- By identifying and understanding how these vectors disperse seeds, and how they move and interact with the landscape, we can try to manage and facilitate dispersal for conservation.

### Example landscape



### Livestock

- **18-24%** of available species dispersed in manure.
- Many seeds and many grassland specialists
- Movement usually restricted to one pasture, limiting dispersal potential.



Auffret et al. 2012, J Veg Sci; Auffret & Cousins 2013, Ecography

### Motor vehicles

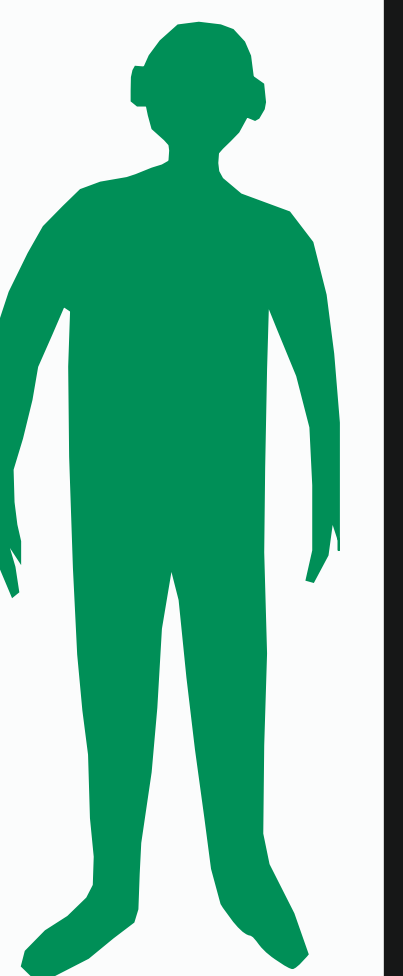
- **18%** of a landscape's species dispersed.
- Typical and specialist grassland species and few invasives.
- Move along roads, where verges provide connectivity between many rural grasslands.



Auffret & Cousins 2013, Ecography

### Humans

- **34%** of available species dispersed from meadow.
- More activity equals more dispersal.
- Activity in rural landscapes is quite limited today compared to pre-intensification.



Auffret & Cousins 2013, PLoS ONE

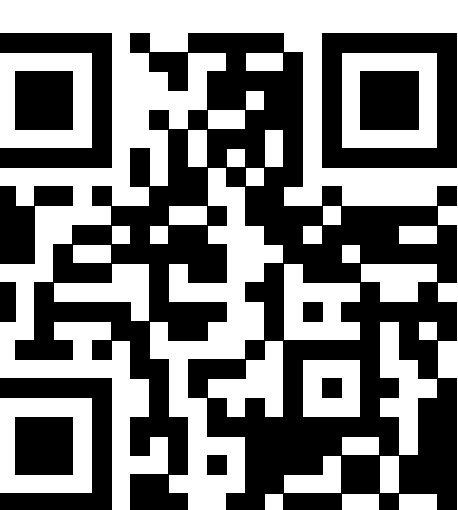
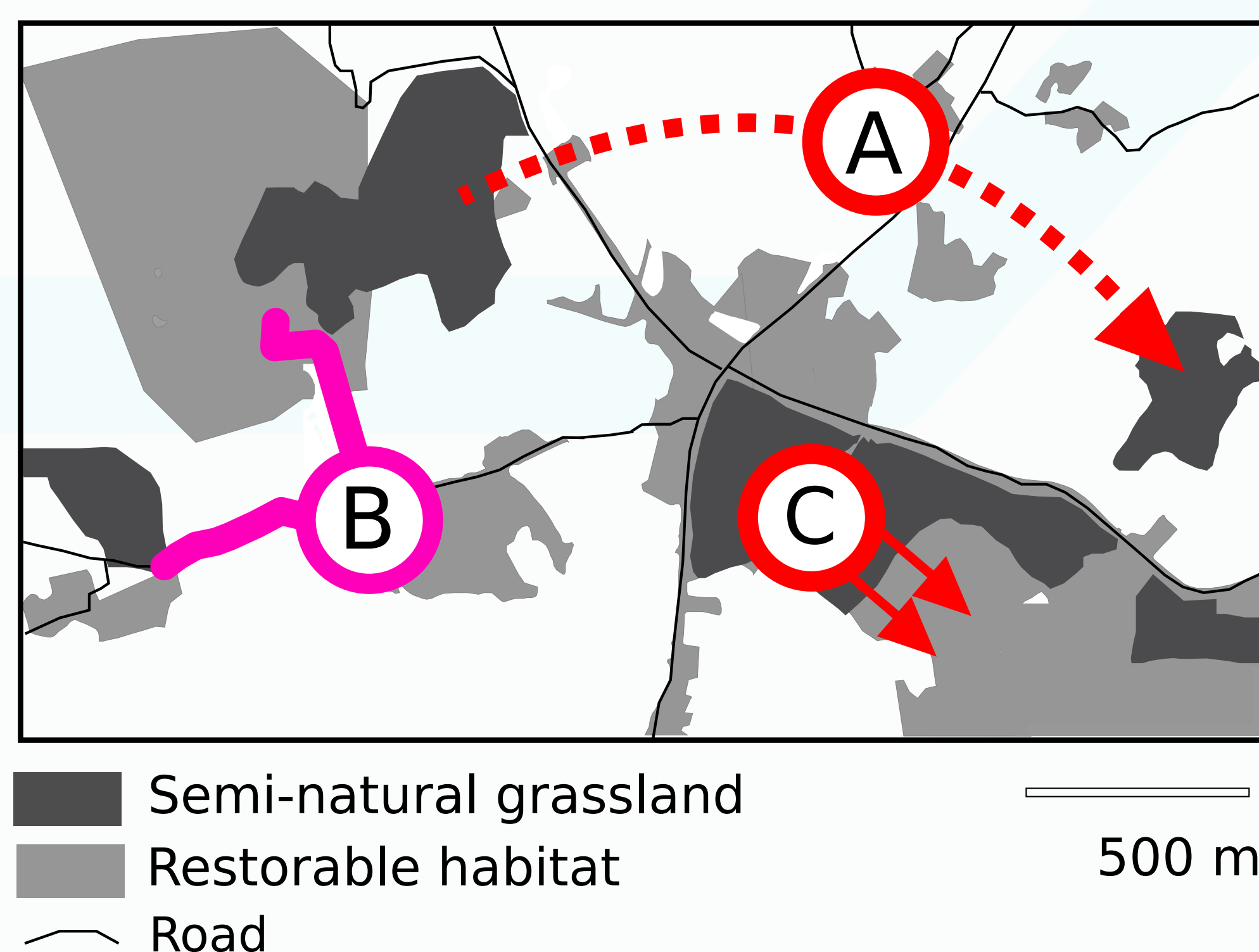
### Management

Combining our knowledge of dispersal and the landscape we can identify where dispersal is particularly limited and make recommendations to facilitate the flow of seeds (see map to the left).

- (A) Dispersal today is largely limited to within-habitat movement of livestock, but functional connectivity can be improved by moving livestock between pastures.
- (B) Road verges connecting grasslands can be managed to improve their suitability as grassland habitat, allowing dispersal along the verge or with the help of motor vehicles.
- (C) Boundaries between current and potential habitat can be opened up to improve dispersal between them.

This approach could be used in any landscape where there is a knowledge of local dispersal vectors, including sensitive areas where the spread of invasive species is an issue.

### Concrete management in specific locations



Scan the code for a pdf of the poster and links to the papers.