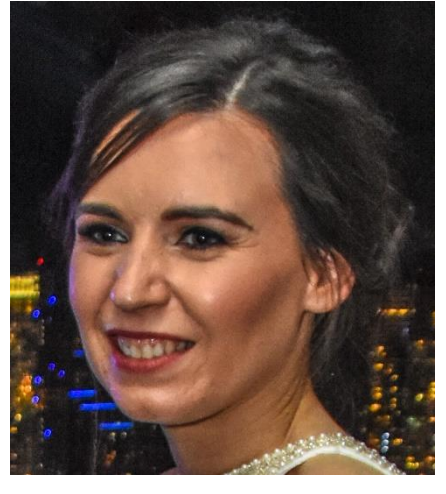


Spatial and Temporal Relationships between and among badgers and cattle during the grazing season



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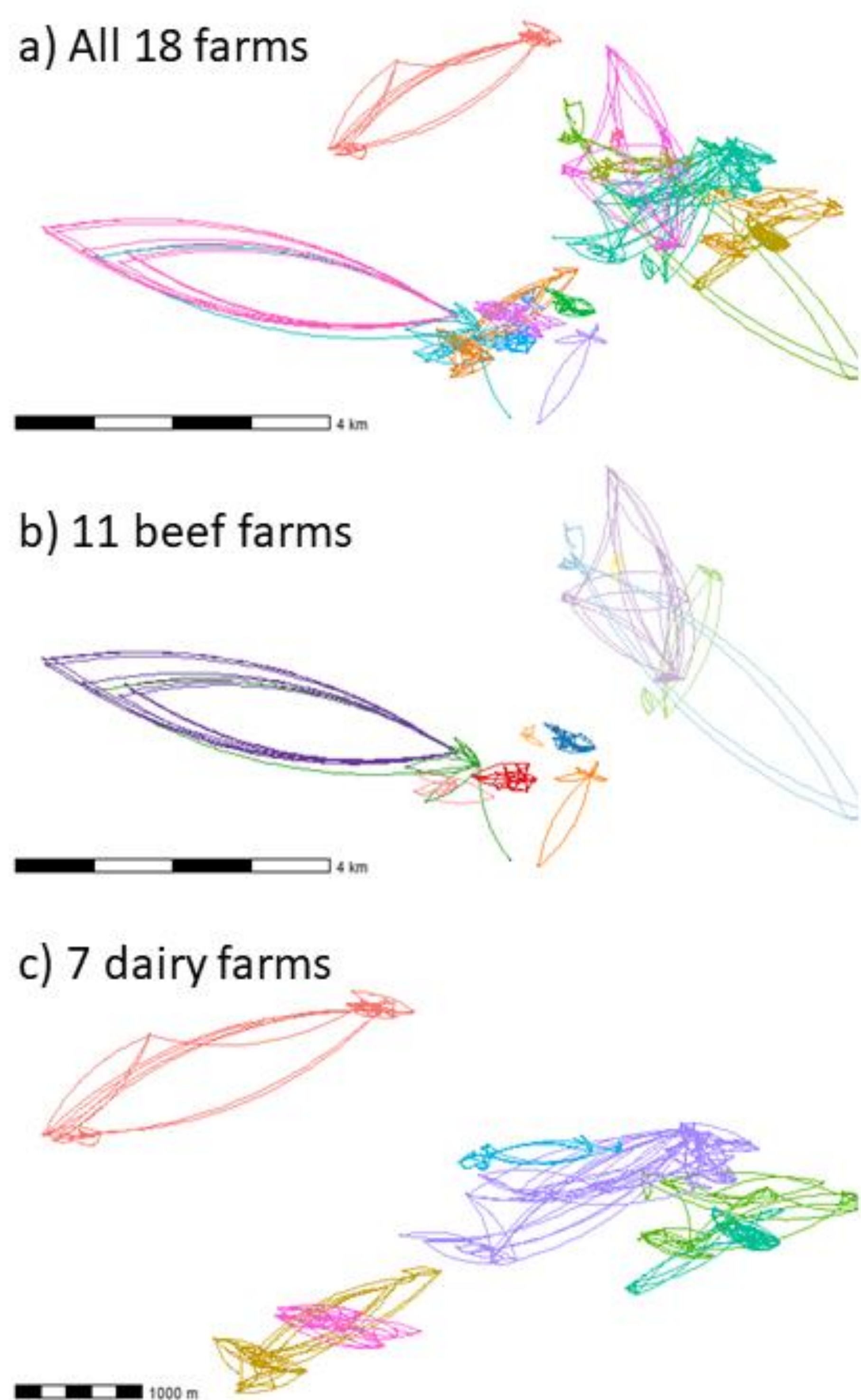
Introduction and methods

- Bovine tuberculosis is endemic in Northern Ireland, with a current herd prevalence of 8%.
- The causative agent is *Mycobacterium bovis*.
- Badgers (*Meles meles*) are a reservoir of disease, which can hinder eradication efforts.
- Cattle farmers recorded the movements of all cattle for a grazing season, including the presence of neighbouring cattle.
- Land surveys collected information on the presence of badger setts and latrines.

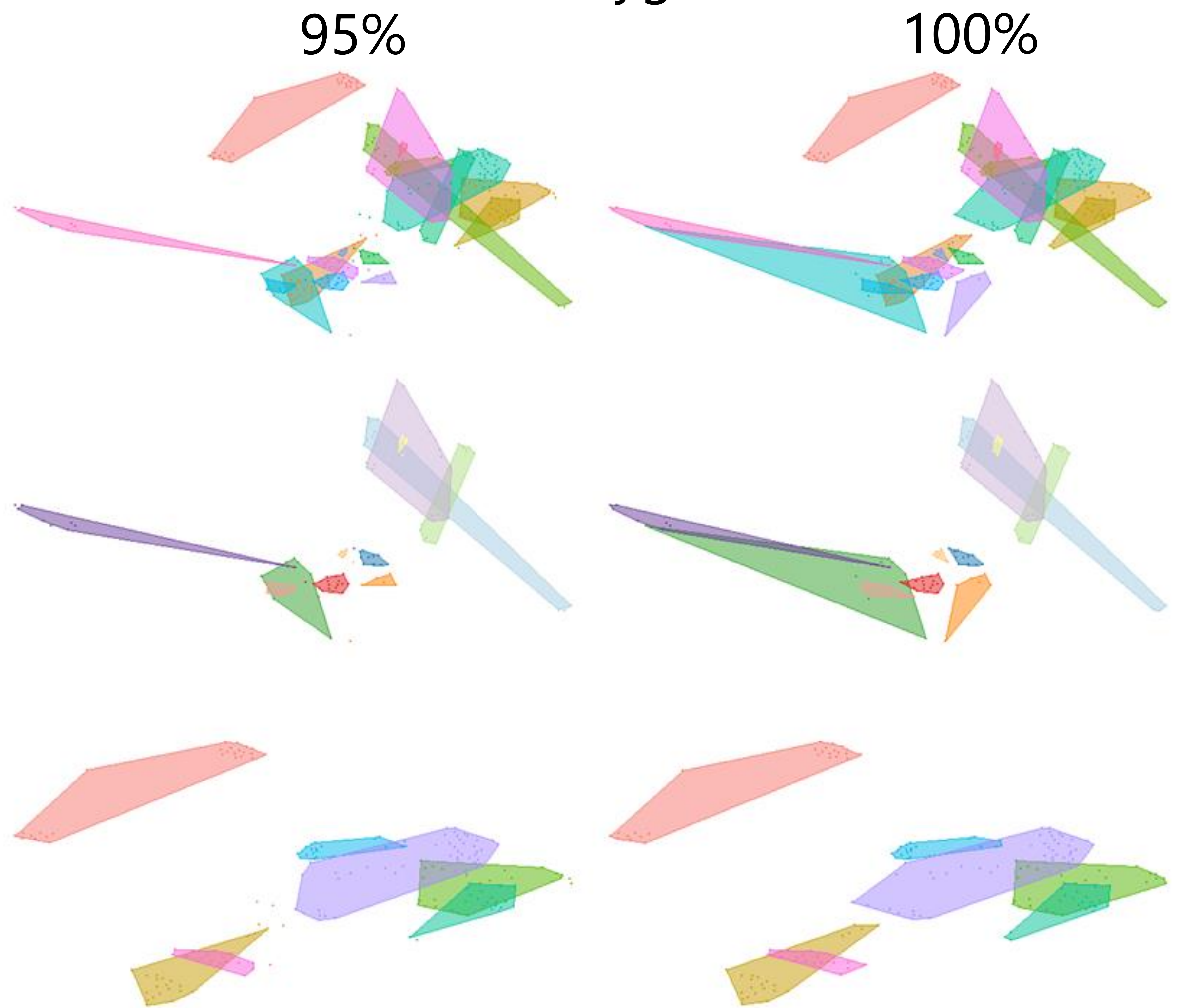
Results

- 18 farms participated (11 beef and 7 dairy).
- Dairy cattle more likely to co-occur with setts and latrines than beef cattle.
- Cattle in the study spent 18% of days in a field adjacent to neighbouring cattle (single fence).
- Dairy cows grazed at higher stocking densities than any other batch of cattle.
- Beef cattle spent the most time on fragmented land.
- There was a median of 44 moves of cattle/farm (95%CI 21-83, range 10-149) over the grazing season. With dairy farms having statistically more moves (22 beef vs 89 dairy).

Cattle movements



Minimum Convex Polygons of Farm Movements



Discussion

- Setts and latrines are not being avoided when grazing cattle, these features should be avoided and if not possible, fencing erected to minimise contact.
- Cattle spend nearly a fifth of the grazing season beside neighbouring cattle, not only risking transmission of bovine tuberculosis but other infectious diseases (BVDV, IBR etc.).
- Cattle are moved numerous times over the grazing season covering a median distance of 28km/farm, if cattle are infected with bTB movements over distance could expose new herds to bTB.
- As can be seen from Figure a) there is a large amount of spatial overlap between farms during the grazing season.