



From large scale movements to local food caches - Variation in space use of non-breeding ravens

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Background and Aim

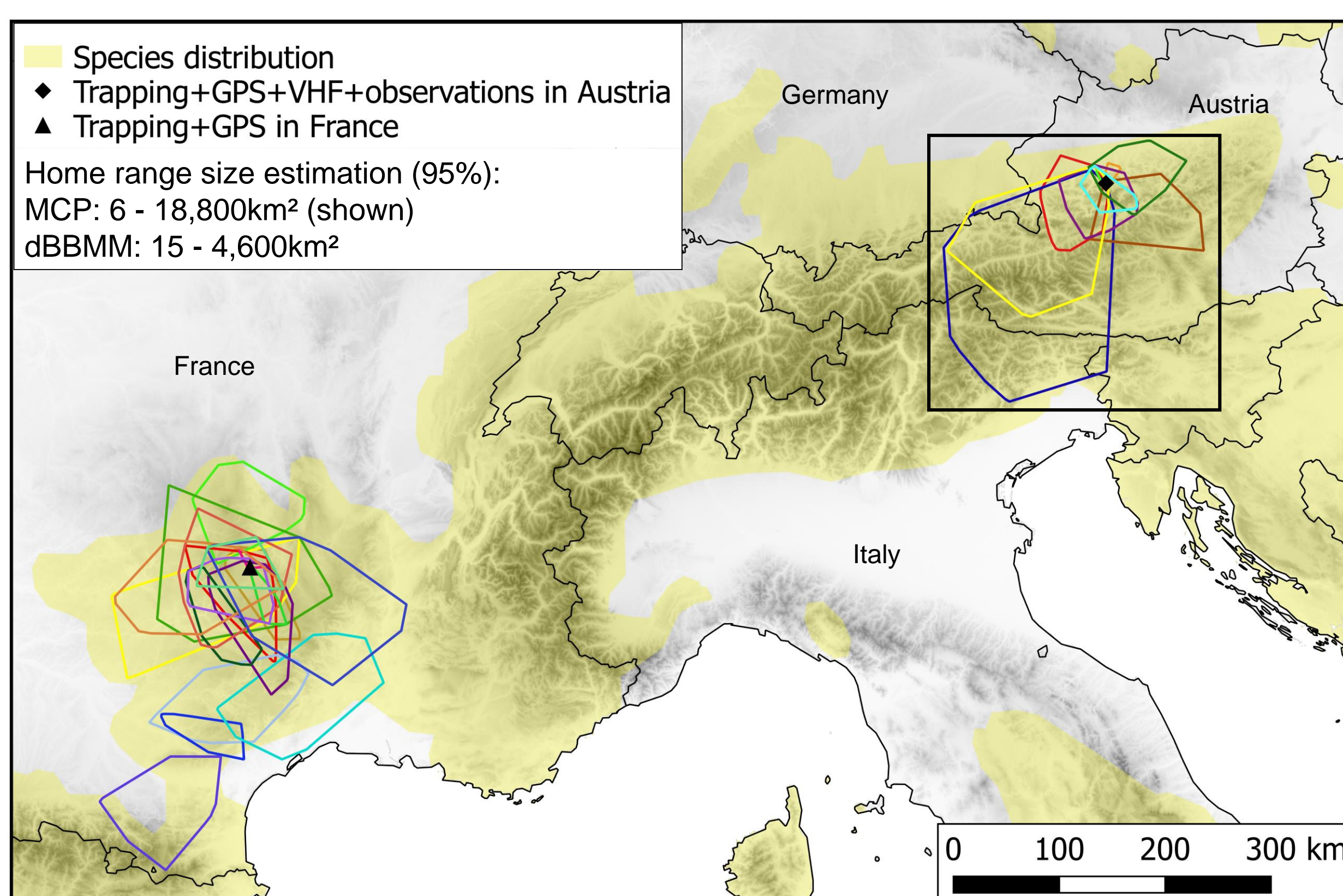
- Little is known about the behaviour of most species' non-breeders, although they can strongly influence population dynamics
- Common ravens (*Corvus corax*) live as non-breeders for their first 3 years; sometimes up to 10 years or more
- We studied individual variation of behavioural strategies in non-breeding ravens across different spatial scales.

Large variation in home range size (HR)

GPS-tracking: n=26 non-breeders, during up to 44 months

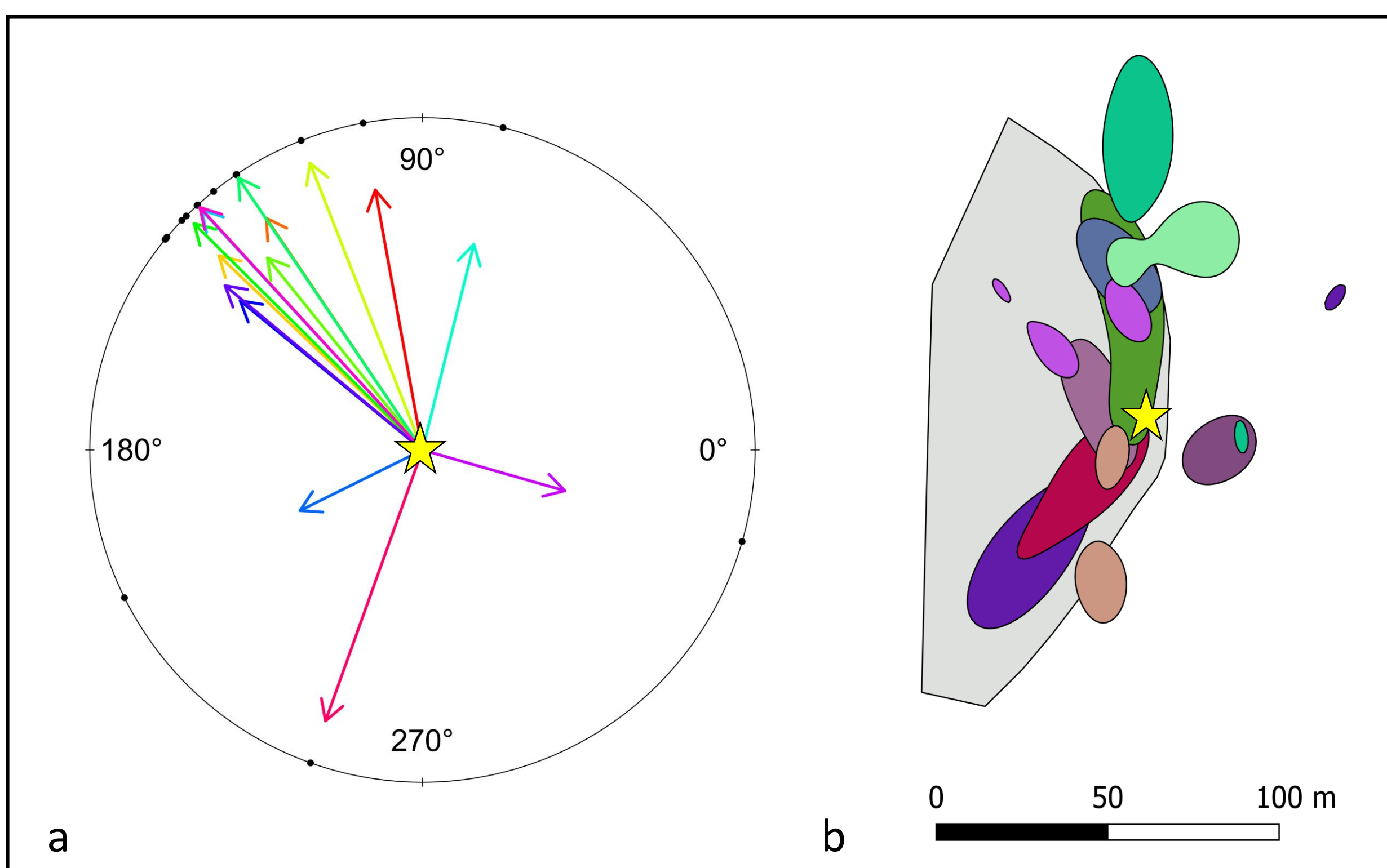
Colours of polygons represent space use of different individuals.

Movement strategies: 9 nomadic, 9 resident, 8 no clear pattern



Ravens use a single, several or many resources

Every polygon represents (part of) an individual's home range and contains one or several resources: zoos, compost stations, garbage dumps, ski huts...+ night roosts

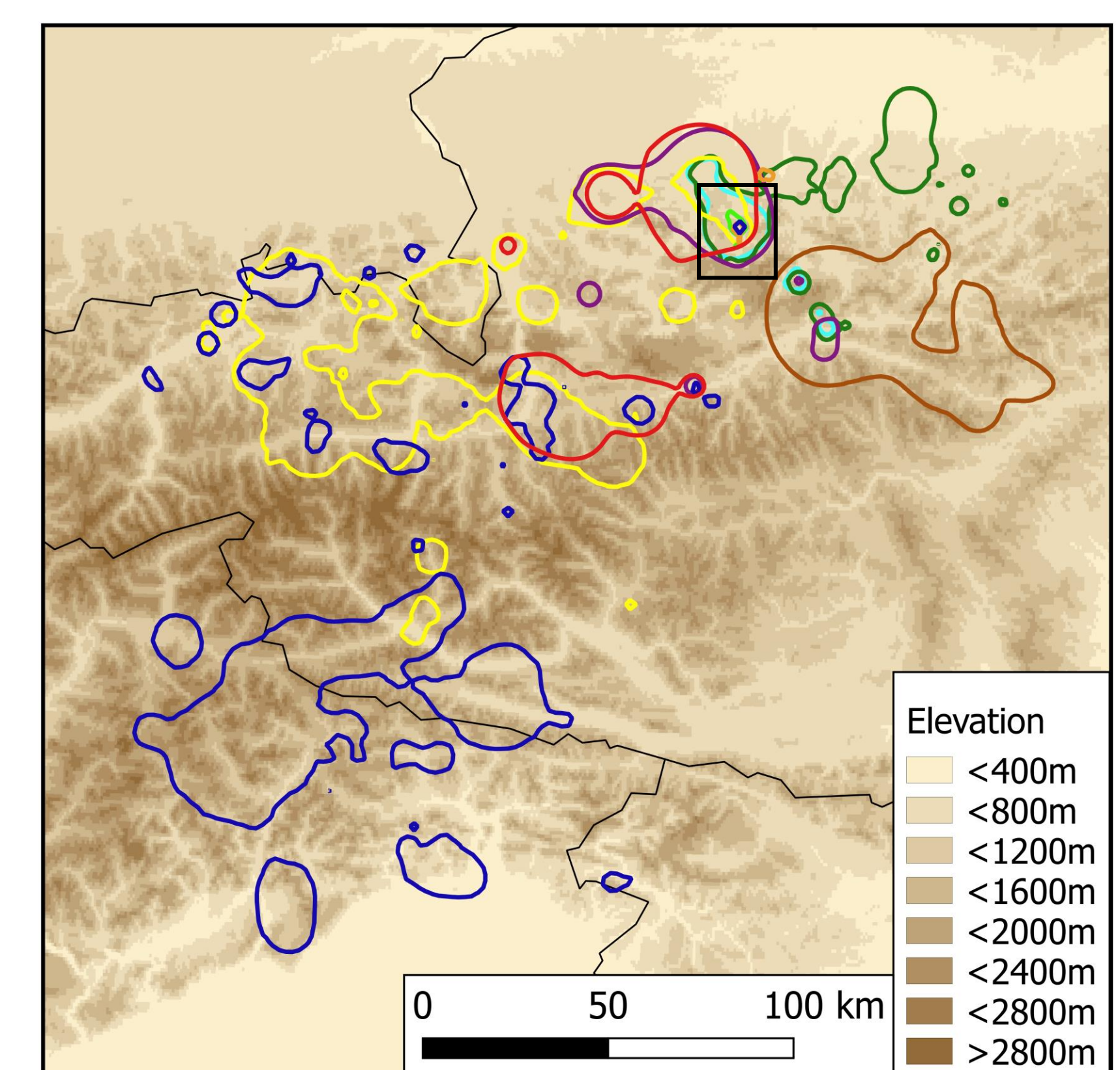


Individual site preferences for food caching

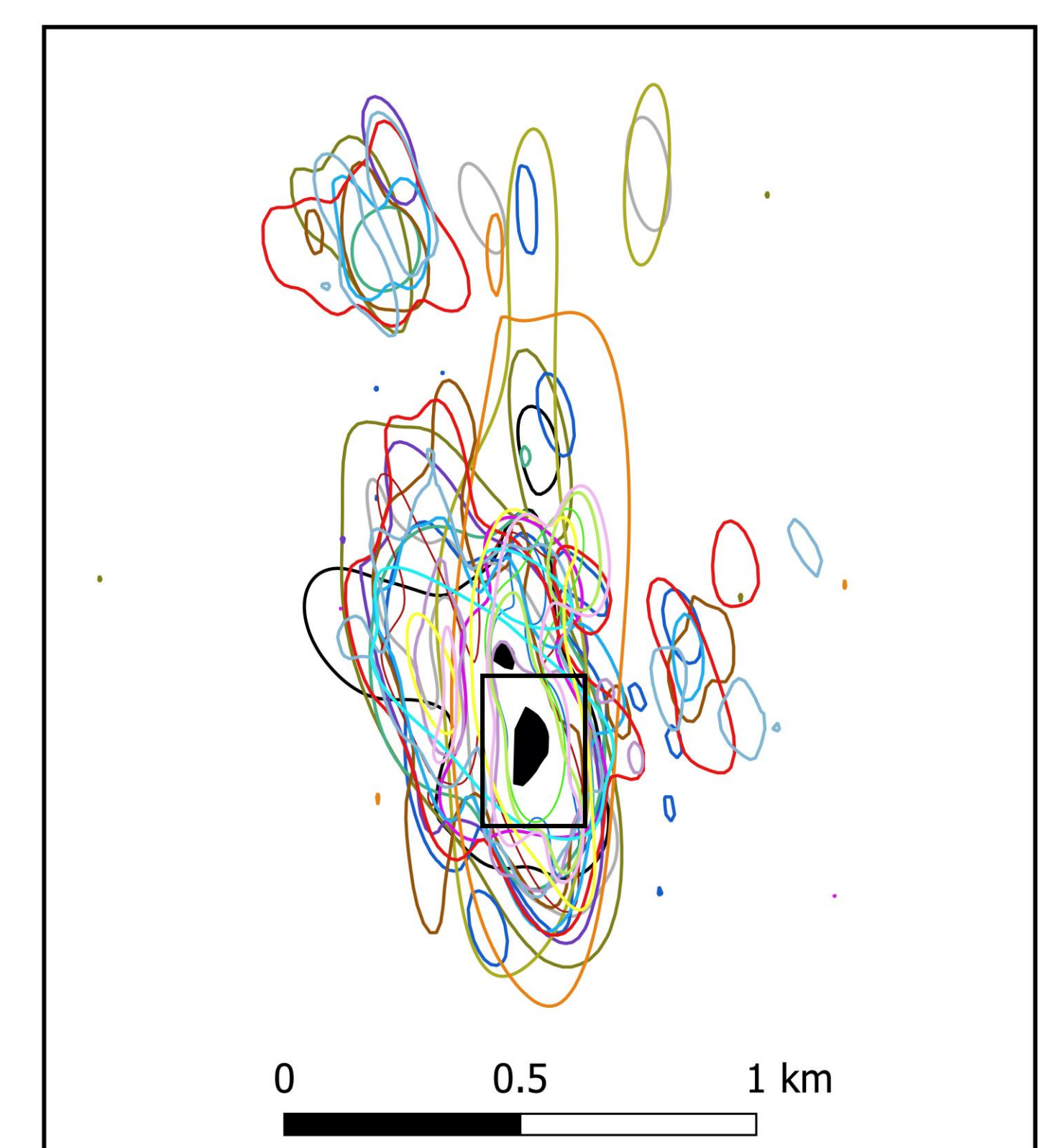
We observed ravens at a food source ★ (feeding of wild boars in a zoo) when flying away with food or during food caching.

a) Mean flight direction shows individual preferences; shorter arrows indicate higher individual variation (15-99 observations/individual)

b) Locations of food caches of 10 ravens show individual site preferences (18-59 caches/individual; grey area=wild boar enclosure)



Zoom



At food source: space use highly overlaps

VHF-tracking: n=21 during up to 30 months
Black areas show main food sources in a zoo, i.e. enclosures of wild boars, bears and wolves

Conclusion:

- All ravens relied on anthropogenic food sources
- Large individual differences in movement behaviour and use of these resources
- Individual site preferences for food caching can be consistent over months

Our results uncover different behavioural strategies on different spatial scales in non-breeding ravens, however, the costs and benefits of each strategy still remain unclear.

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