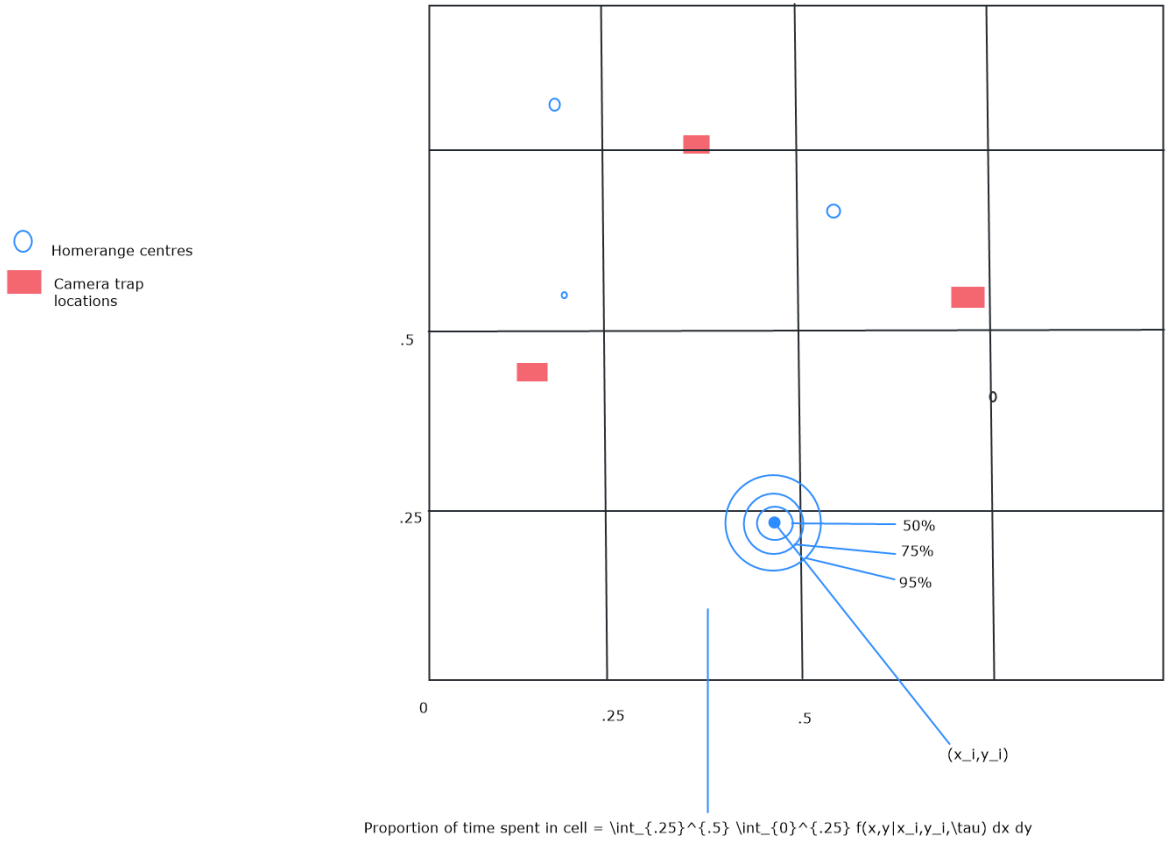

Simulate individuals

1. Define study area (unit square).

2. Generate homerange centres. Poisson process -- generate x and y as independent uniform random variables.

Simulate Capture-Recapture Data

3. Trap locations.

4. Simulate interactions of individuals with the traps. Usual assumption is that probability of detection decreases with distance between homerange centre and camera location (e.g., half-normal detection function exp(-d^2/tau^2).

Output: 3-d array in which cell i,j,k tells you if individual i was detected at trap j in period k. Collapsing over the j-dimension generates the overall capture matrix (was individual i detected by any camera on occasion k).

Presence-Absence Data

5. Divide the overall area into smaller regions.

6. Simulate "presence-absence" data for each smaller region for each period.

- Compute proportion of time each individual spends in each grid cell based on the location of its home range and assumed movement function (depending on tau).

- Assume probability of detection is proportional to amount of time an individual spends in the grid cell.

- Sum over individuals to obtain presenc-absence by grid cell.

Output: 2-d matrix of presence-absence for each grid cell in each period.