Session 3:
SCR analysis: Defining the mask

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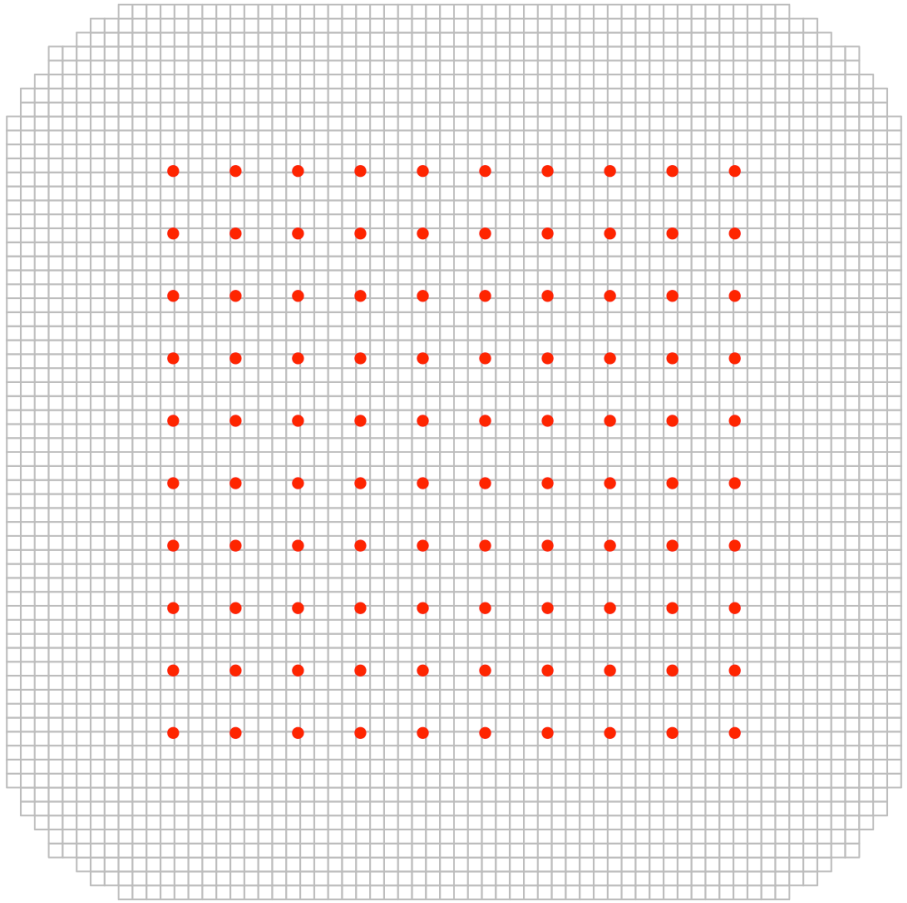
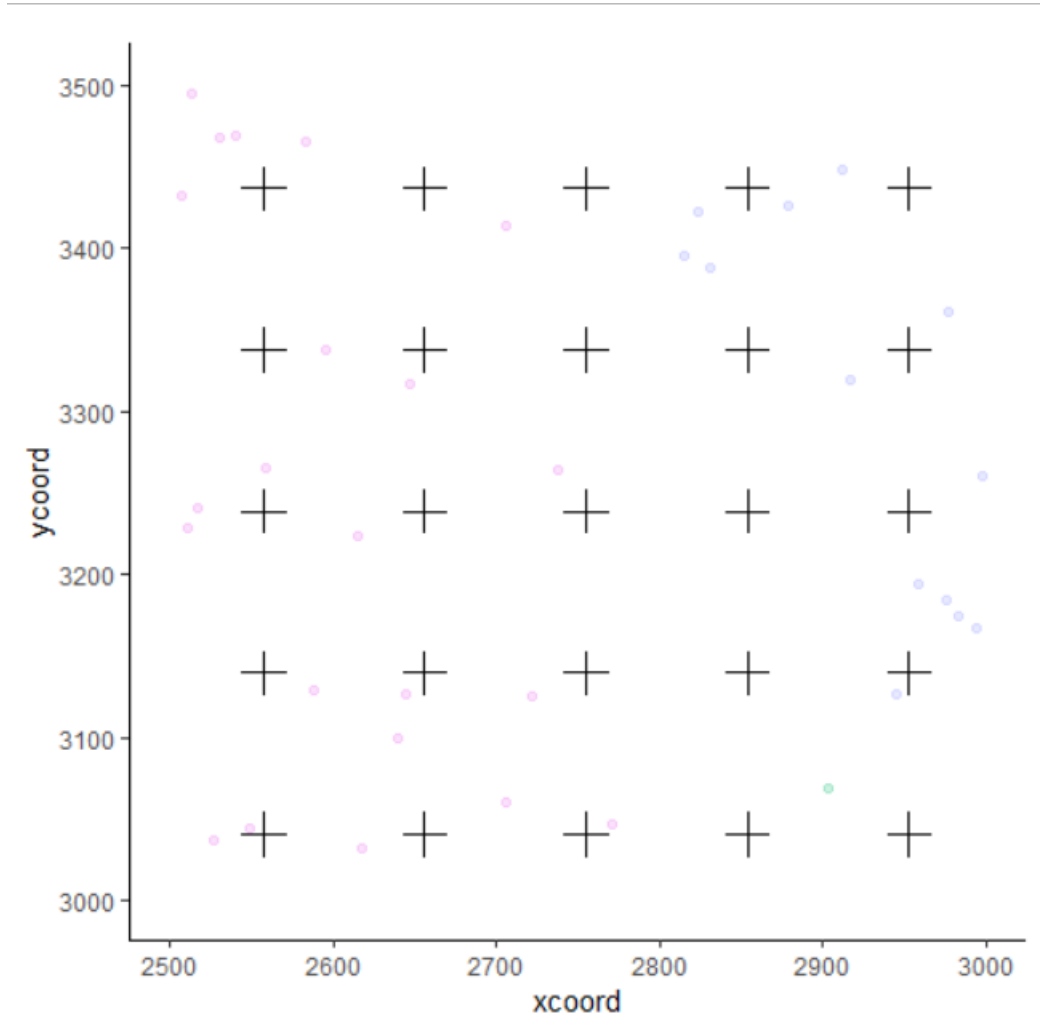
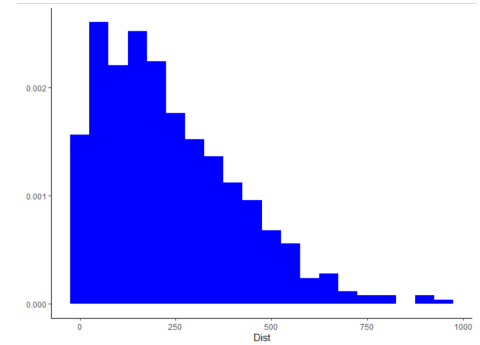
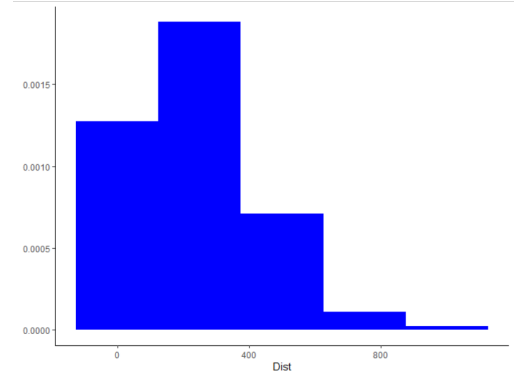
What is a mask?

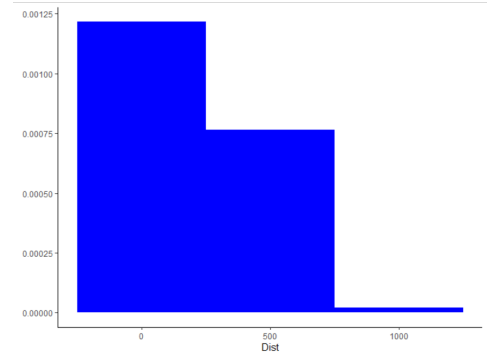


Pixels of the mask





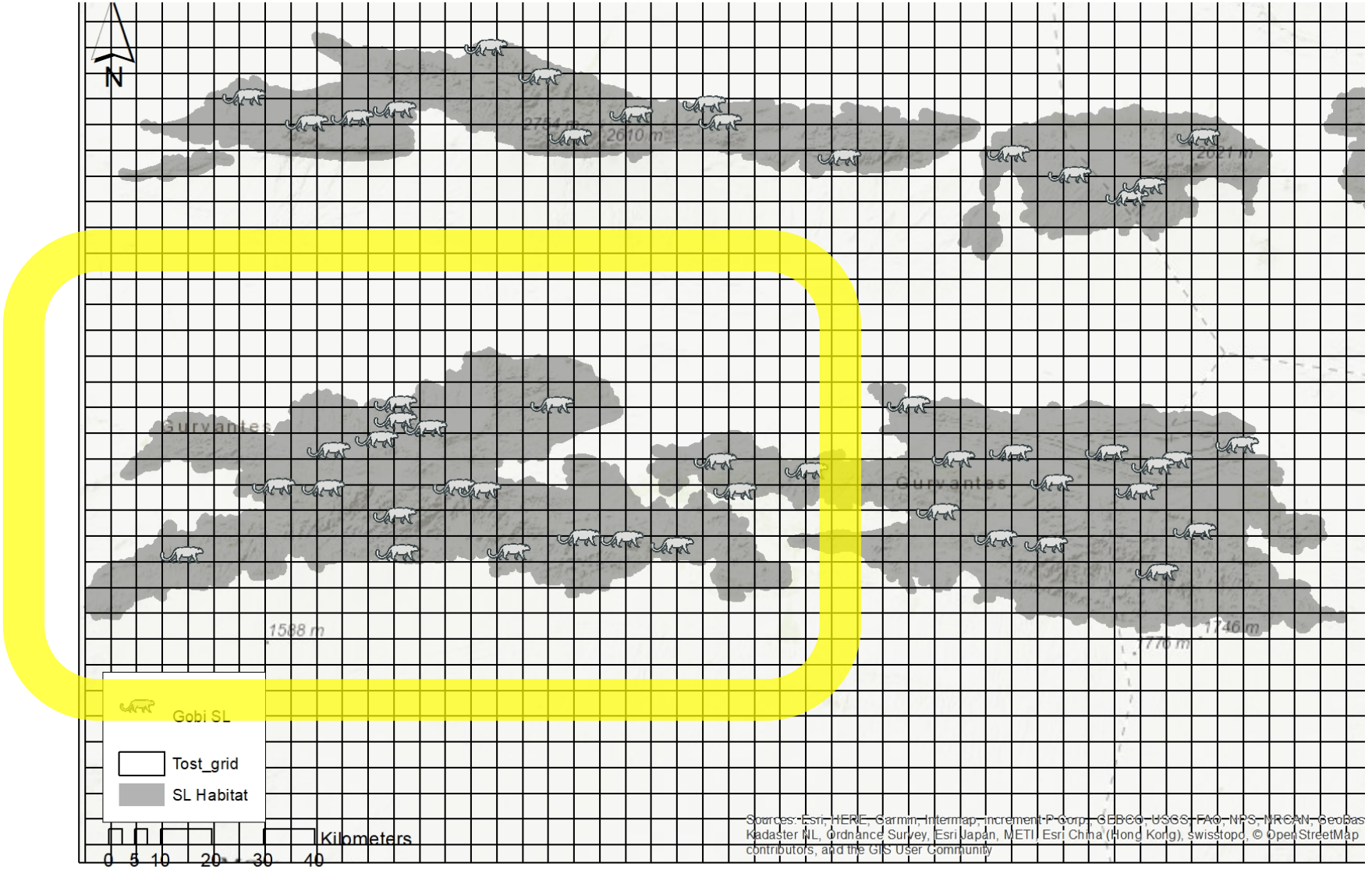




What is a mask for?

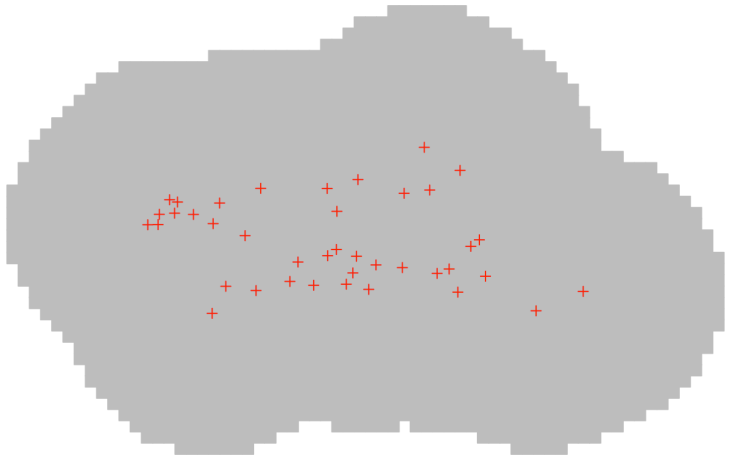
1. To distinguish habitat sites from non-habitat sites.
2. To define the outer limit (buffer) of the area of integration
3. To store habitat covariates for spatial models of density.

Mongolia example



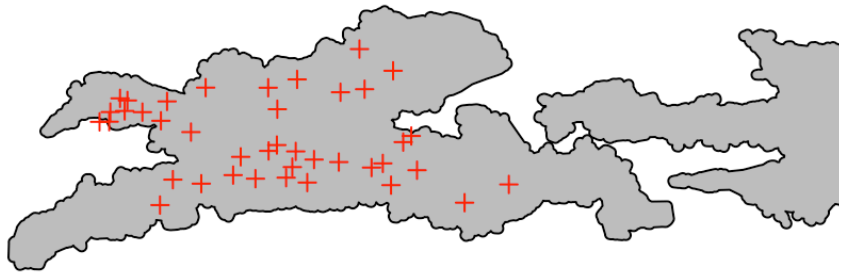
1. Mask defines areas of non-habitat

No Boundary



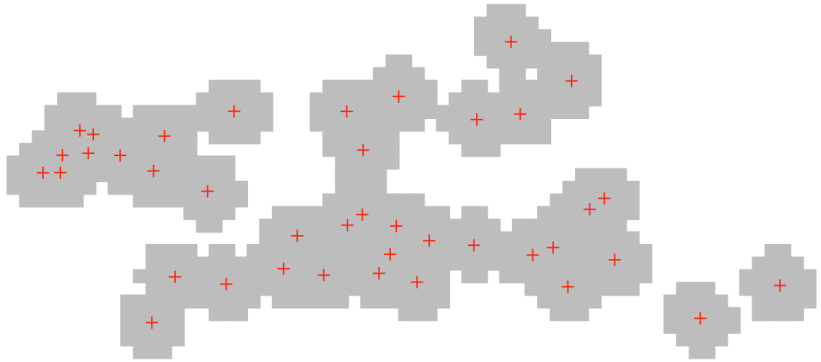
N = 24 (CI 6-14)

Hard Boundary



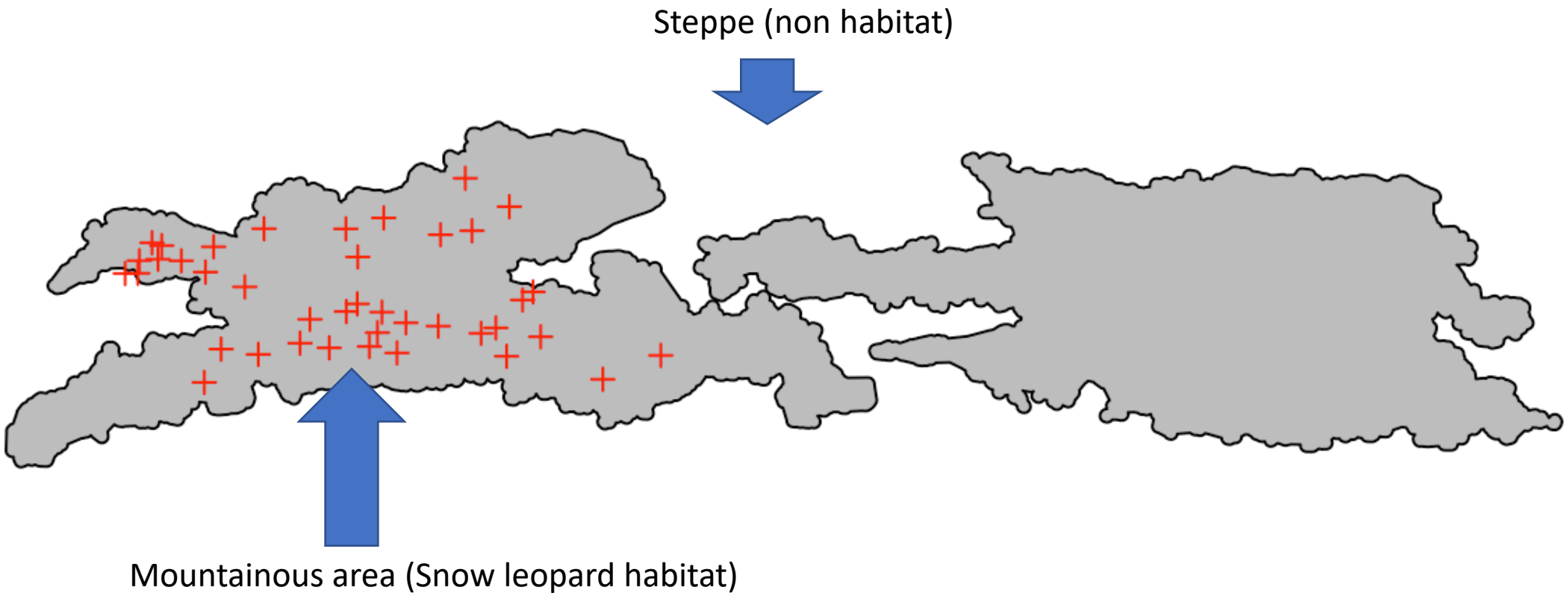
N = 19 (CI 5-12)

Patchy Boundary



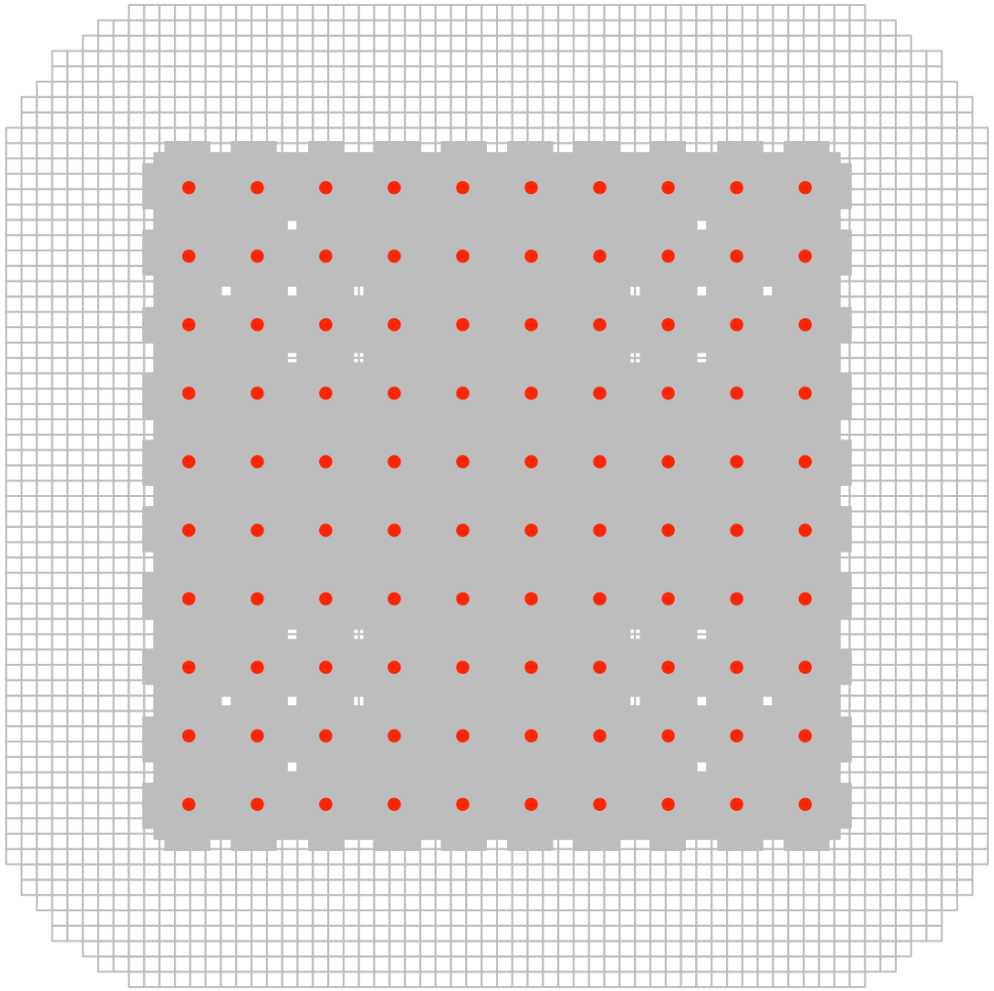
N = 16 (CI 4-10)

Mask as mountain islands



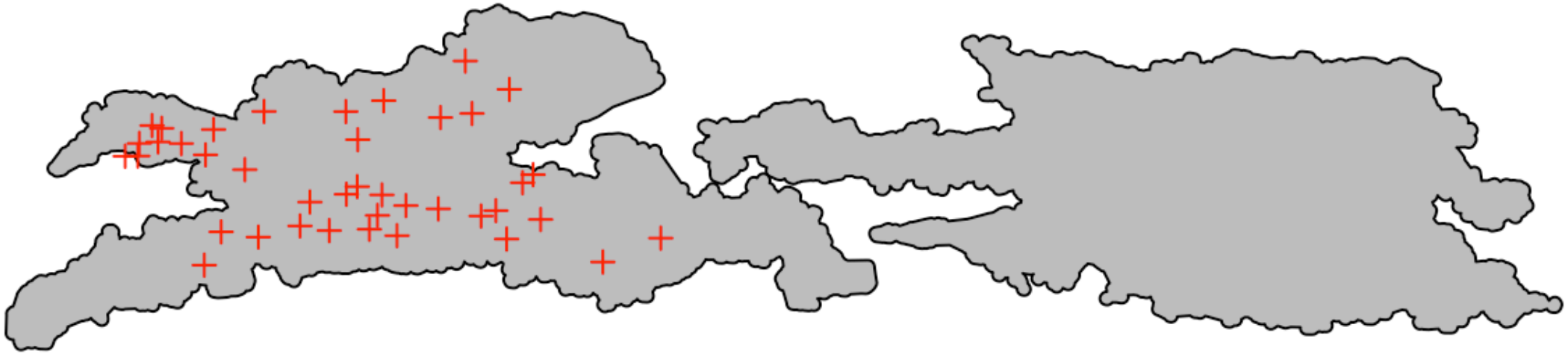
Question: What other kind of areas would you exclude as non-habitat?

2. Mask defines the buffer



2. How wide should the buffer be?

"Wide enough that any bias in estimated densities is acceptably small" – *Murray Efford*



Step 1: Use a buffer of 4σ
Step 2: Use the information from the first model that estimated σ and lambda0
Step 3: Estimate Suggested Buffer

Suggested buffer

Suggested buffer = 23km

Snow leopard N = 18 (CI 11-30)

Suggested buffer = 48km

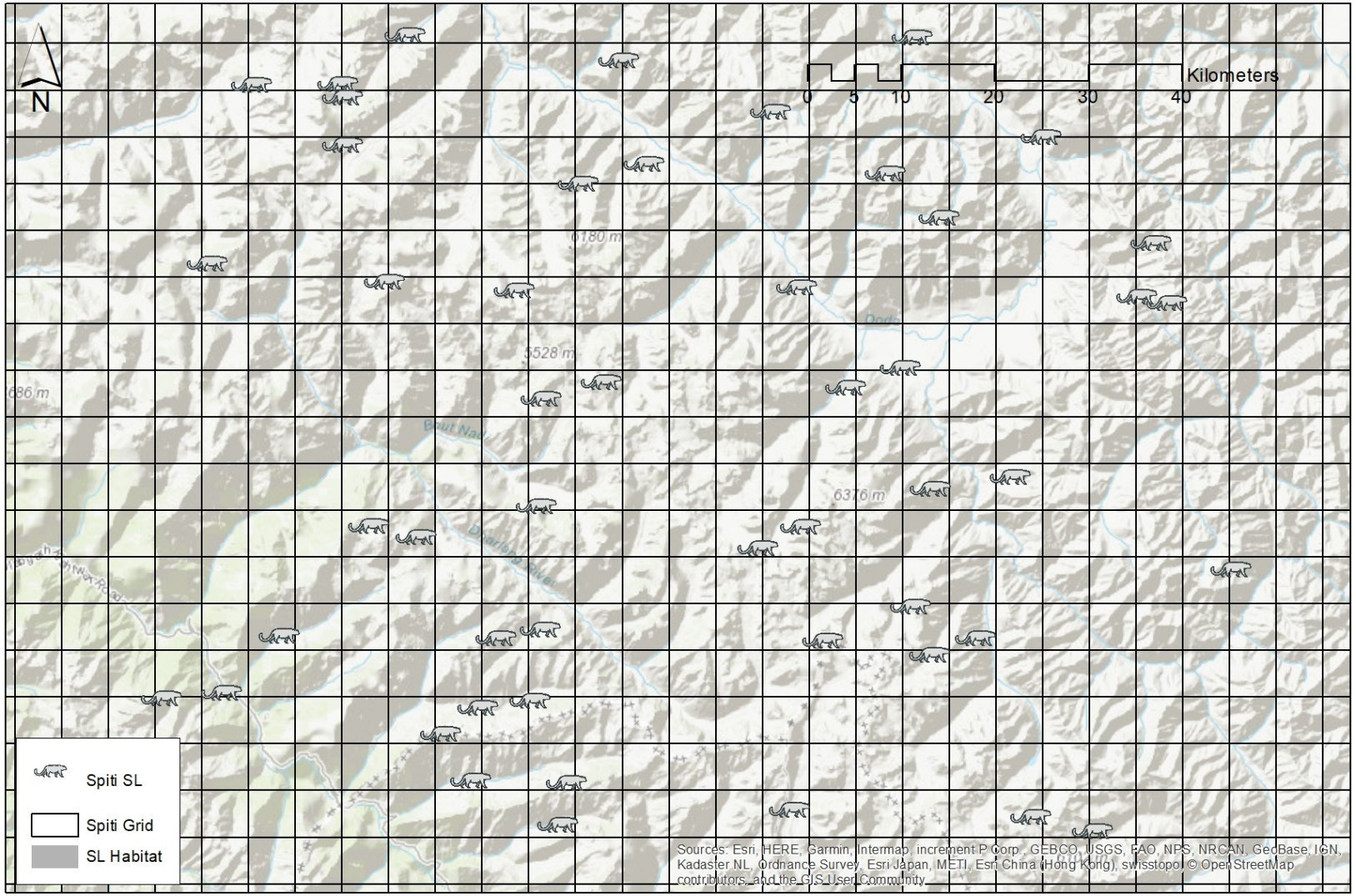
Snow leopard N = 24 (CI 19-35)

- *Function of the activity range of the SL individuals (i.e. home range)*
- *Shape of detection function (ND)*

Question: How would we define the mask for the Spiti Example?

a. Non habitat vs habitat

b. Buffer (σ = 6)



Masks also provide info for covariates….