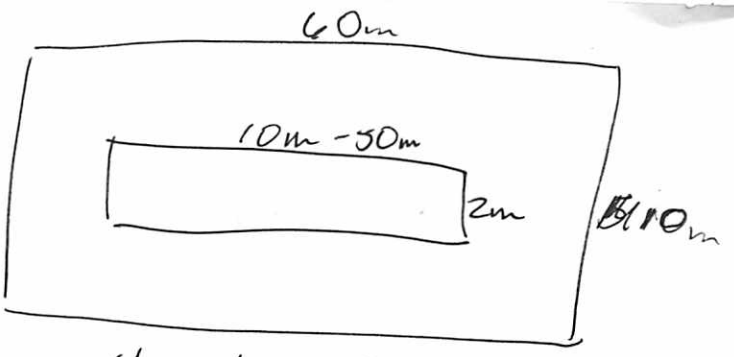
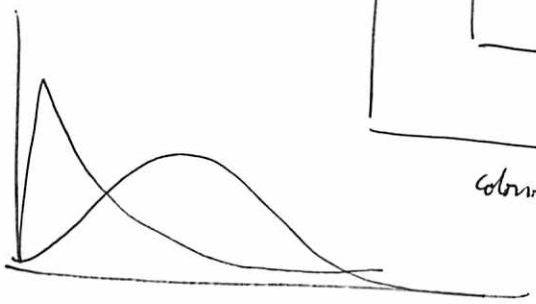


colonies: 6 - 25/m2 @ 1500 colonies



log (size)

size

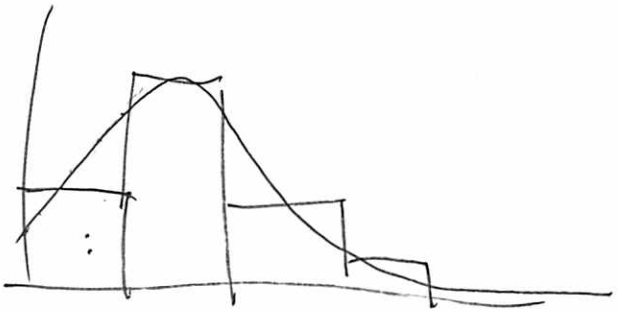
Max colony diameter

For Matt work

①

Gamma → shape, scale

Log Normal → μ, σ



② density: colonies per area &
(% cover) ↳ what range

Algorithm (↳ n is # colonies on landscape)

① Generate an array of length n according to SFD

$x = rgamma(n, shape, scale)$

② ~~rank x~~ sort x according to size

$y = sort(x)$

③ randomly generate location in $[0, max_{lat}], [0, max_{long}]$

④ Placing algorithm: check whether previously placed colonies are present where this one gets its boom

if no, generate colony, if so, draw new lat, long

Placing algorithm

look through the existing colonies $(j = 1 \ldots N)$

if there is a colony where radius of new colony + radius of existing colony <

$r_2 = r_{new} + r_j$

is distance bt (x_{new}, y_{new}) & $(x_j, y_j) \leq r_2$?

~~If yes, then overlapping ⇒ get new coordinates~~

~~if no, then new colony has location x_{new}, y_{new}~~

Generates a somewhat overdispersed landscape

if yes, then overlapping ⇒ get new coordinates

if no, go to next colony & check if overlapping

if no & $j = J$, then place colony

Generating a clumpy landscape :

↳ Purpose: look up efficient ways to generate clumpy landscape

~~Distribution of distance bt colonies~~

Look up information on size & spatial dist of colonies

Generating clumpy landscapes

(A) If what we have is a random distance b/t colony edges then we can grow landscape by randomly selecting distance to the edge & then placing the ~~colony there~~ next colony there of whatever size

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(B) Generate clumped point, place & colonies, reject when necessary

↳ but