

$Z_i = 0$ with probability $1 - \psi$
 $Z_i = 1$ with probability ψ

If $Z_i = 0$

If $Z_i = 1$

Paranthropus sampling
probability at site i is zero
($p_i = 0$)

recovered *Paranthropus*
specimens at site i is zero
($X_i = 0$)

Paranthropus was truly
absent from site i

Paranthropus sampling probability at site i distributed following
the standard reflected beta distribution w/ shape parameter λ
(mean $p_i > 0$)

Observed total # mammal
fossil specimens at site i
(n_i)

recovered *Paranthropus*
specimens at site $i \geq 0$
($X_i \geq 0$)

Paranthropus was present at site i
but may not have been sampled yet