

# Extended GeoHiSSE

**Question: Do clades that have crossed wallace's line have a higher diversification rate than those that stayed in Australasia?**

This framework allows the three types of cladogenetic speciation to vary (all were the same in GeoHiSSE). This will allow us to explore which types of speciation (allopatric, widespread symp, and subset sympatry) are at play

$q$  = Transition between states (A  $\rightarrow$  B)

## Extinction

X = range contraction, extirpation

## Anagenetic Range Evolution

d = dispersal but no cladogenesis

## Cladogenetic Range Evolution

S = Speciation

Represents a separate speciation rate

0 = East of Wallace's line only

01 = both sides of wallace's line

1 = West of wallace's line

A = Empirical Data

B = hidden state with randomized data

