Brownian motion trait evol:



How to simulate brownian motion evolution (Dominique’s email):

In your case in particular, yes it could be simulated from a given phylogeny. But what you proposes seems ok, with a slight ajustment :

z\_t1 ~ N(z\_t0, sigma^2\_t0)

In other words, the trait of the descendant is centered on the trait value of the ancestor.

The alternative would be :

z\_t1 ~ z\_t0 + d\_t0

where

d\_t0~N(0, sigma^2\_t0)

Then,

For drawing traits from new mutants, use the Brownian motion formula.

Then the probability of establishment is fixed around a mean

Then there is no extinctions