

OR137

Predicting morphology of Iridomyrmex in response to changes in climate

Katayo Sagata, Heloise Gibb, Steve Shattuck

The interaction between species traits and habitat characteristics is central to the existence of a species because habitat selects and favours certain traits that enable a species to occur in a habitat. However, climate change is altering habitat characteristics, which may alter both the abundance and traits of species. Here, we use annual mean temperature and precipitation to predict the potential morphologies of *Iridomyrmex* ants in Australia for 2080. We measured seven morphological traits from 19-71 replicate individuals in ten species using museum specimens. Through correlation tests, head length (HL) was identified as representative descriptor of overall ant body size. Eye size was least correlated with other traits so residuals from head length and eye length (EL) were used as a second response variable. A simple linear regression was used to test for the response of HL and eye length residuals to current temperature and rainfall. Potential morphological change of each species that responded was then predicted. Traits in 50% of the species responded to climate, with rainfall having negative effect on head length of *I. discors*, *I. dromus*, *I. sanguineus*, while temperature had a negative effect on *I. reburus* HL, but a positive effect on *I. viridiaeneus* HL. Potential morphological change of these species corresponded with predicted temperature and rainfall, but varied within species with *I. discors*, *I. dromus* and *I. viridiaeneus* showing opposite responses. Such trait plasticity indicates that species need to be adaptive. Species showing traits plasticity will adapt better to changing climates than those showing limited trait plasticity.