Is a species distribution model output reliable to test niche limitation at the northern range limit of a Pacific coastal dune plant?

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Range limits are often not niche limits

Long-term transplant data

SDM reliably measures habitat suitability within the range

SDM bioclimatic predictors

Layer	Proxy
bio01	Annual Mean Temperature (°C)
bio03	Isothermality (°C)
bio04	Temperature Seasonality (Std Dev) (°C)
bio05	Max Temperature of Warmest Month (°C)
bio06	Min Temperature of Coldest Month (°C)
bio08	Mean Temperature of Wettest Quarter (°C)
bio09	Mean Temperature of Driest Quarter (°C)
bio12	Annual Precipitation (mm)
bio15	Precipitation Seasonality (%)
bio16	Precipitation of Wettest Quarter (mm)
bio17	Precipitation of Driest Quarter (mm)
sand	%Sand Weight of Topsoil Layer (0-30cm)
IOSST	Optimum Interpolation SST (°C)

Study species

Questions

- ❖ Does the measure of habitat suitability generate by the SDM accurately predict the fitness of experimental populations?
- ❖ Does the SDM also predict high habitat suitability beyond the NRL?
- ❖ Do the results indicate *C. cheiranthifolia* is niche limited at its NRL?

Preliminary results

- ❖ The SDM's measure of habitat suitability reliably reflects the fitness of the 13 *C. cheiranthifolia* populations transplanted at the NRL and within the species' range.
- ❖ Preliminary findings suggest the SDM predicts high habitat suitability beyond the NRL and may provide indication *C. cheiranthifolia* experiences factors other than niche limits at its NRL

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References:

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