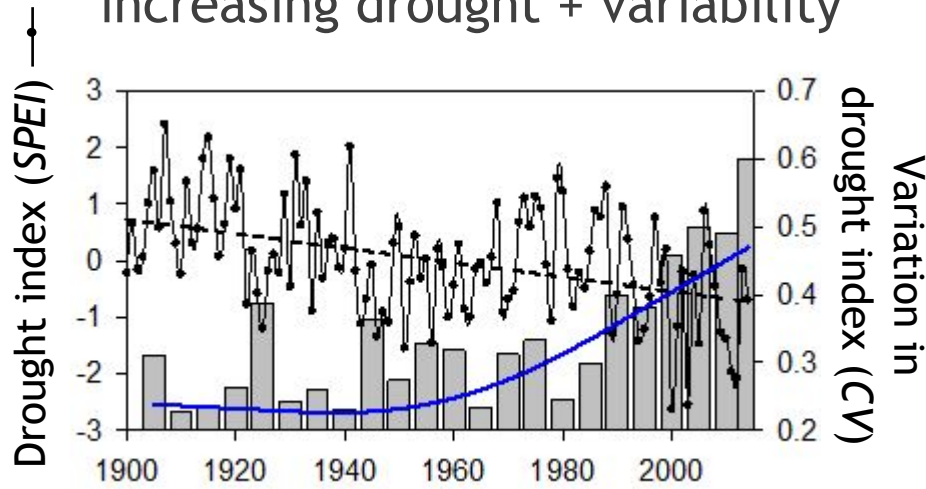


SEV LTER

Proposal Update
Submitted: Aug 2016
Funded: Jul 2018

Climate Trends

increasing drought + variability

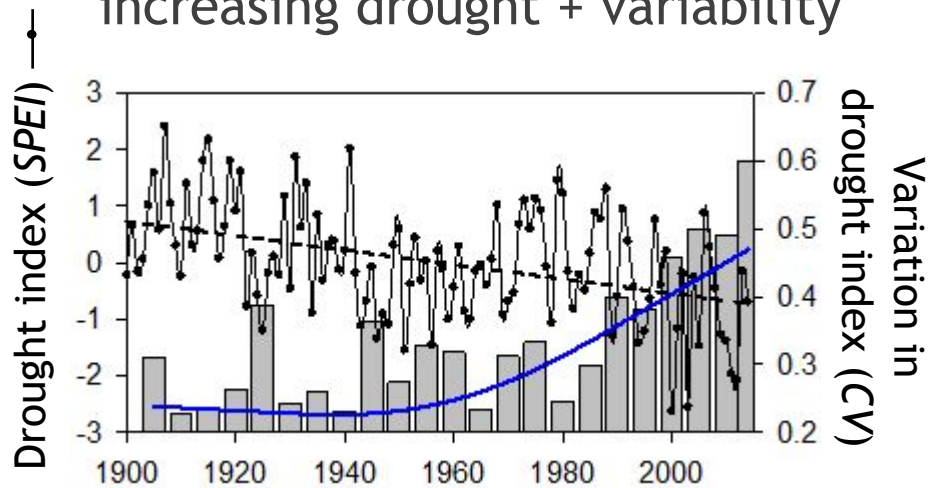


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Mean-Variance Experiment installed in Plains Grassland 2019

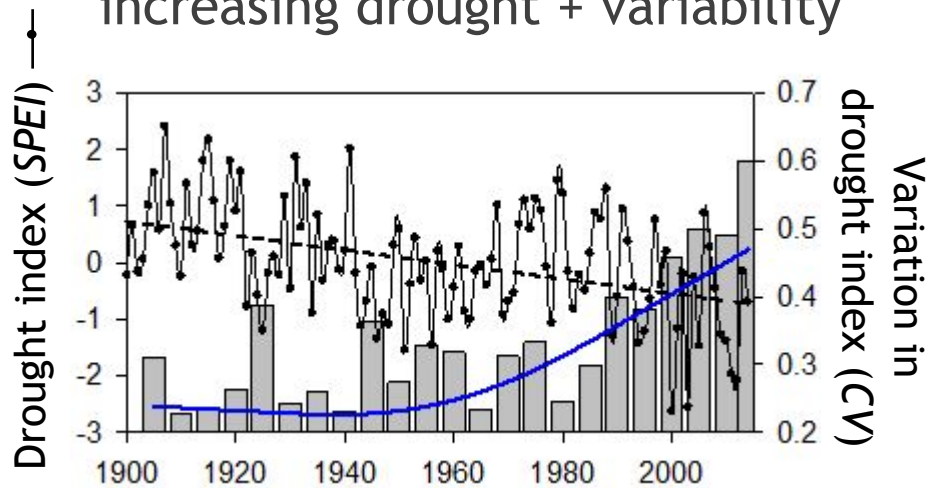


SEV LTER

Proposal Update
Submitted: Aug 2016
Funded: Jul 2018

Climate Trends

increasing drought + variability



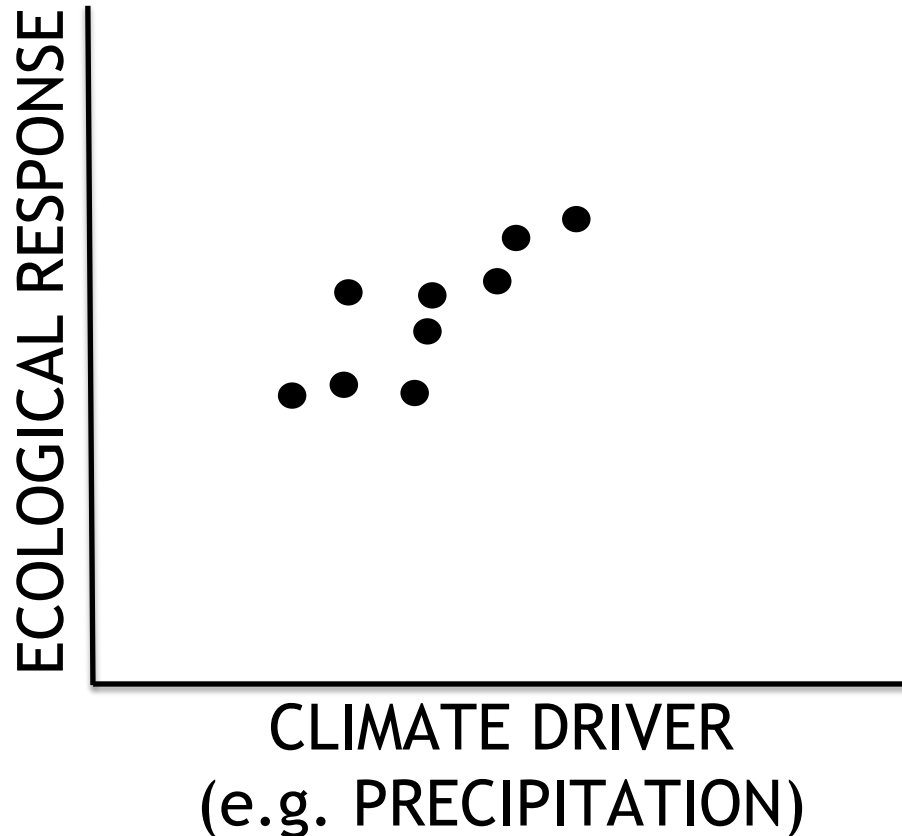
Art and Ecology public outreach



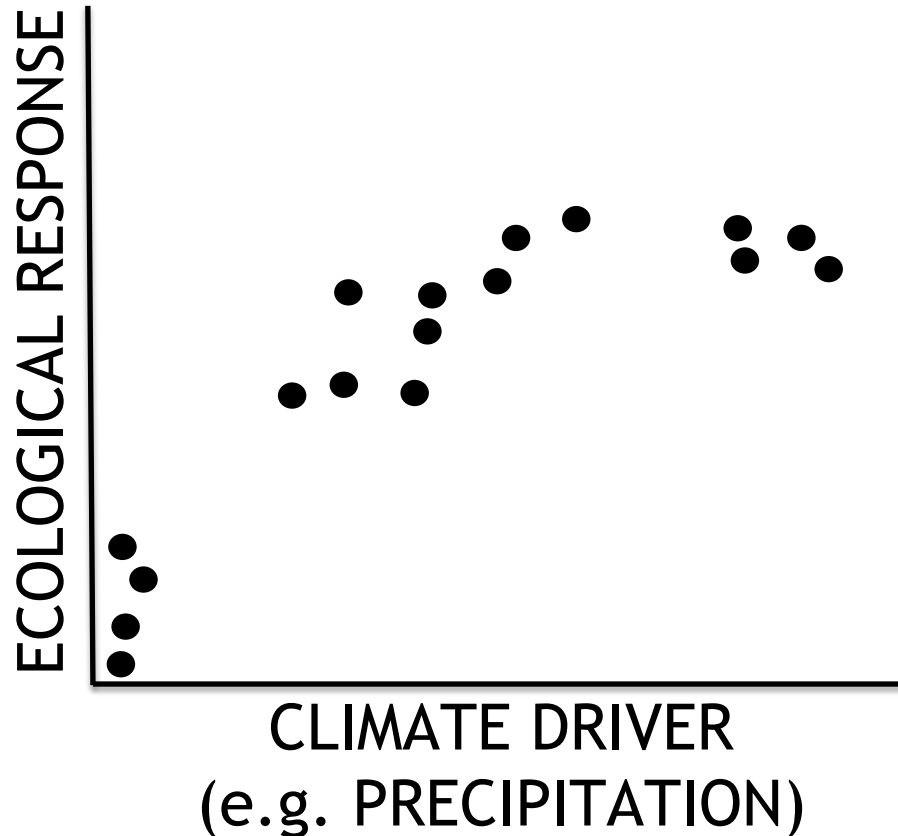
Mean-Variance Experiment installed in Plains Grassland 2019



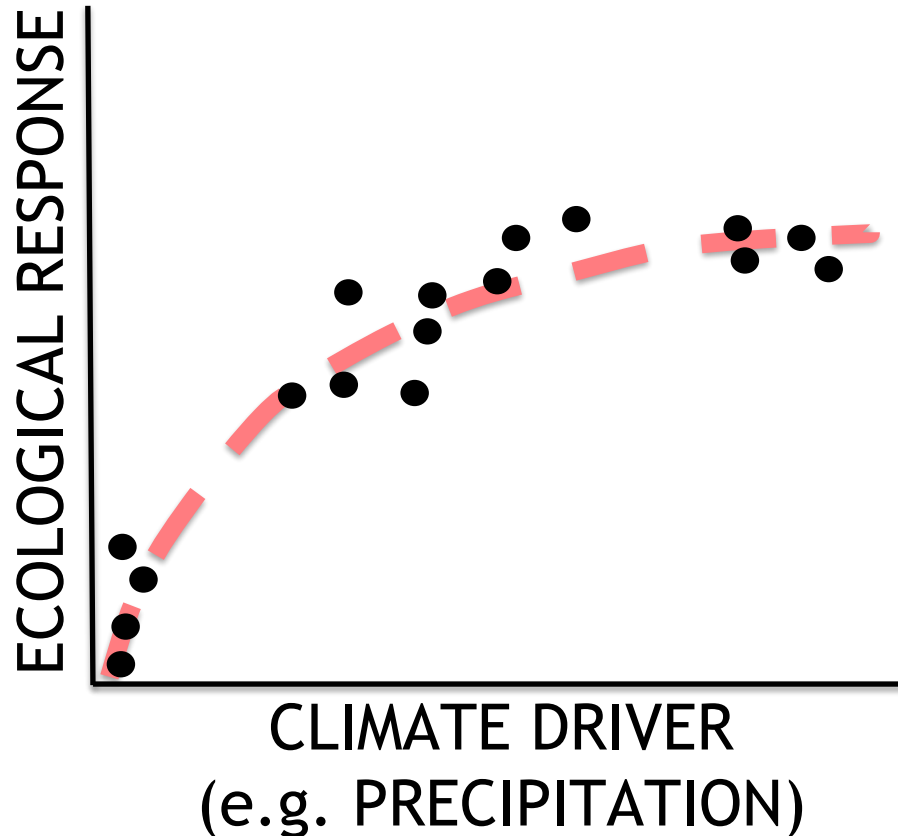
THEORY: Climate Sensitivity Functions (CSFs) predict the ecological consequences of climate variance



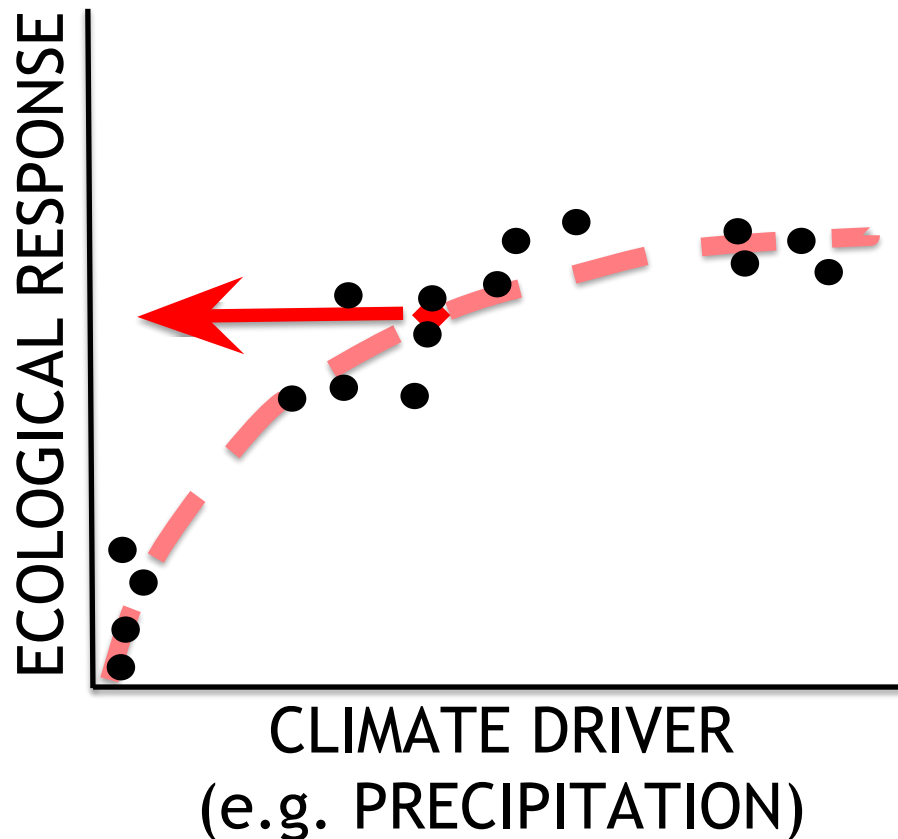
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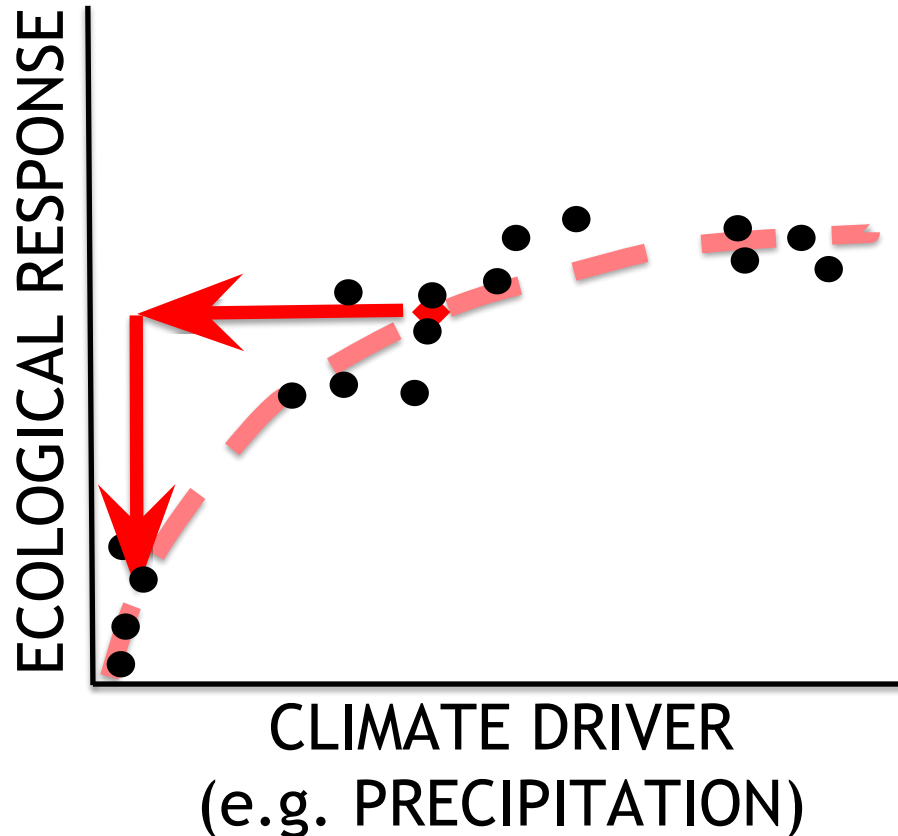
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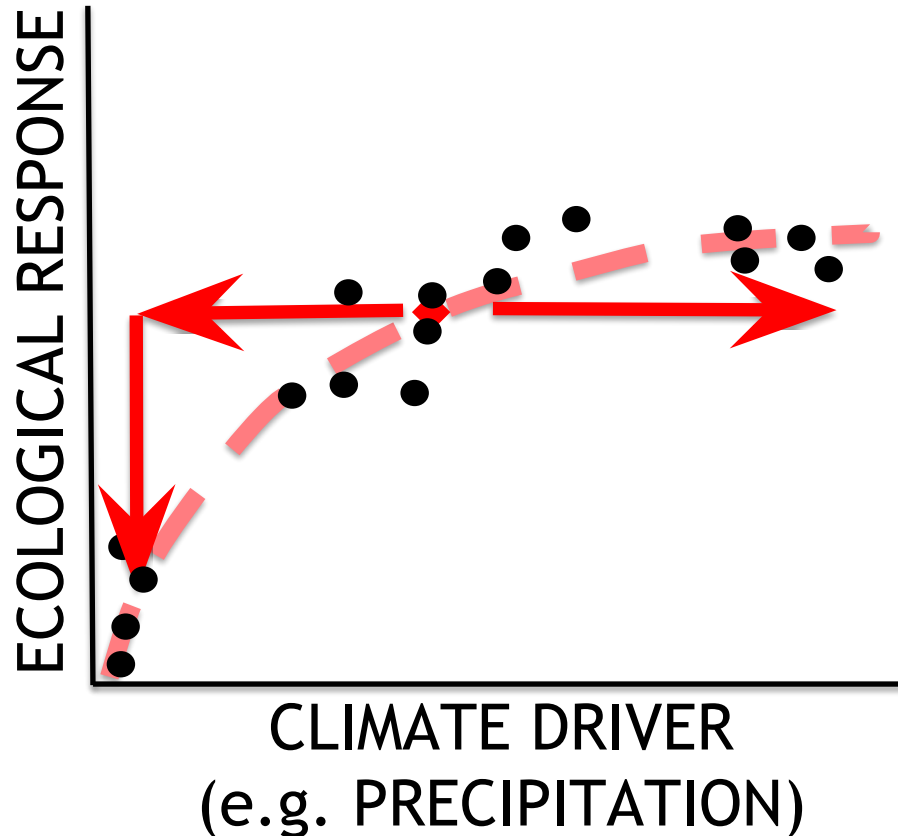
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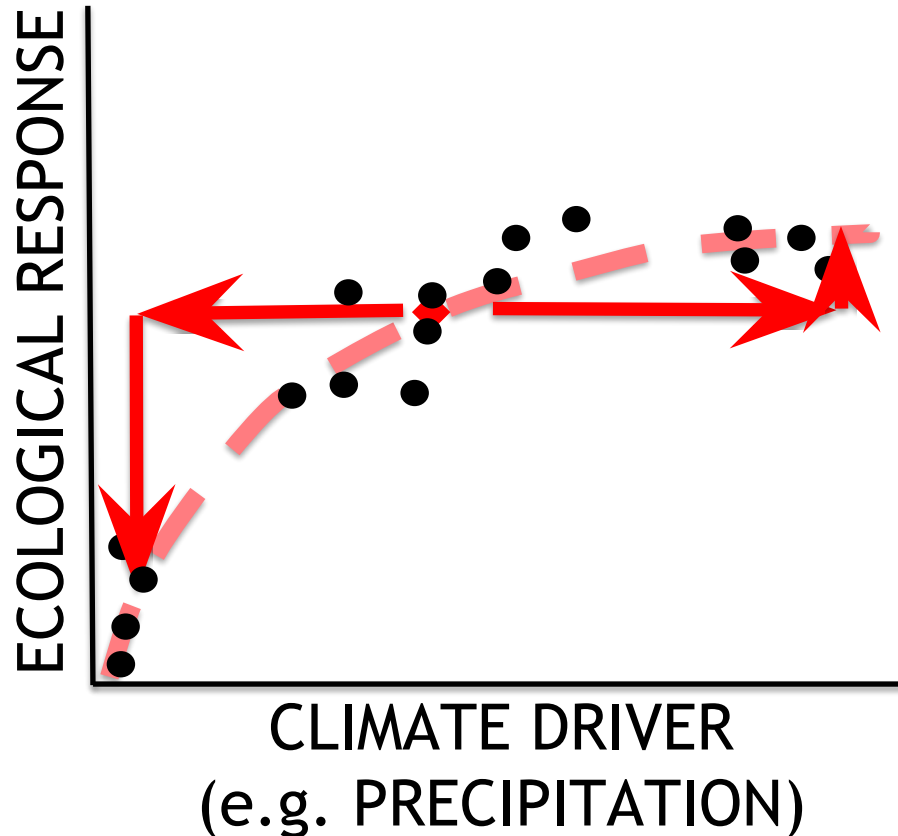
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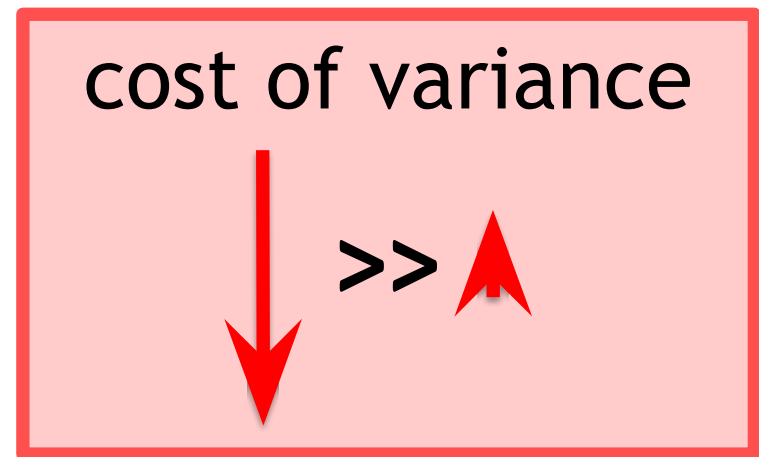
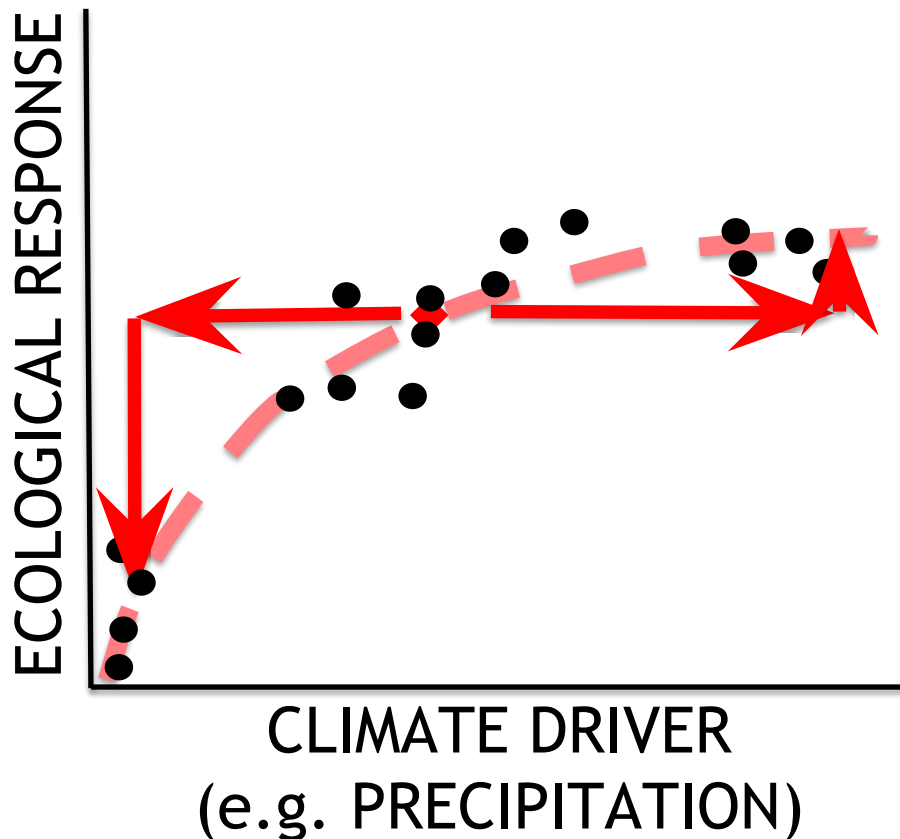
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Dryland ecosystems differ in sensitivity to climate variance

Rudgers et al. (2018) *Ecology*

Plains Grassland

Chihuahuan
Desert Grassland

Chihuahuan
Desert Shrubland

Dryland ecosystems differ in sensitivity to climate variance

Rudgers et al. (2018) *Ecology*

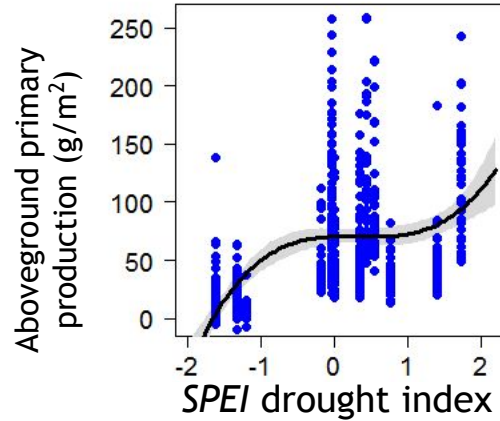


Plains Grassland

Chihuahuan
Desert Grassland

Chihuahuan
Desert Shrubland

cost of variance when dry



Dryland ecosystems differ in sensitivity to climate variance

Rudgers et al. (2018) *Ecology*

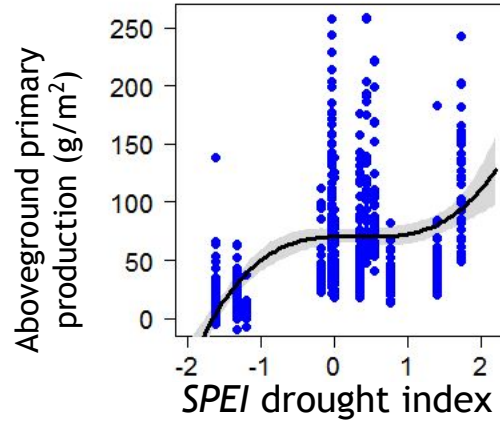


Plains Grassland

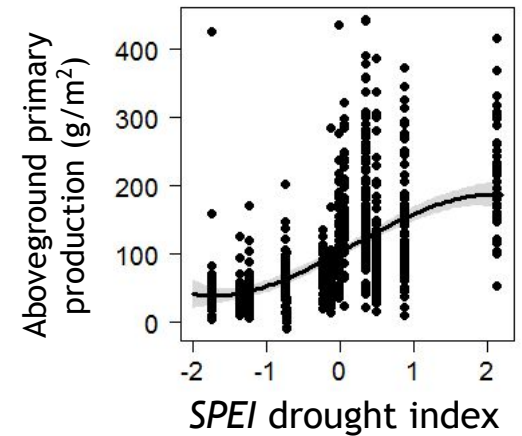
Chihuahuan
Desert Grassland

Chihuahuan
Desert Shrubland

cost of variance when dry



benefit of variance when dry



Dryland ecosystems differ in sensitivity to climate variance

Rudgers et al. (2018) *Ecology*

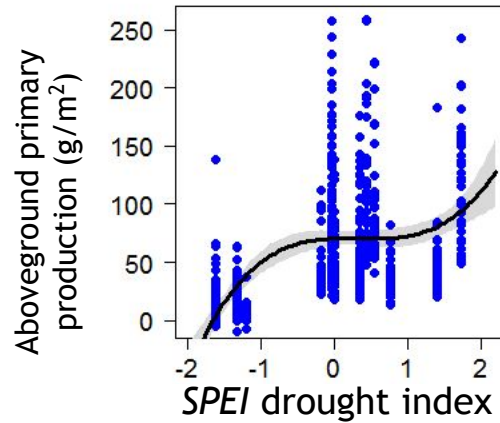


Plains Grassland

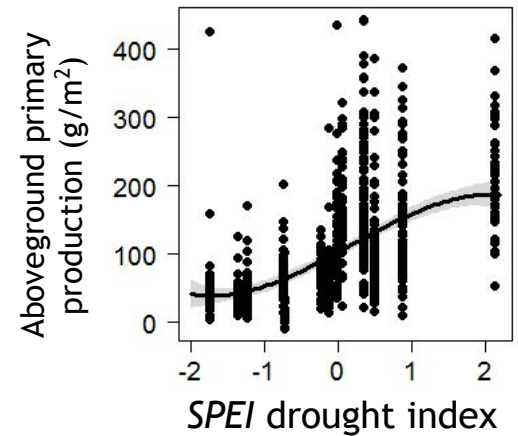
Chihuahuan Desert Grassland

Chihuahuan Desert Shrubland

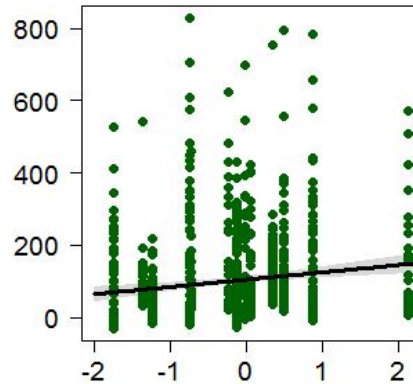
cost of variance when dry



benefit of variance when dry



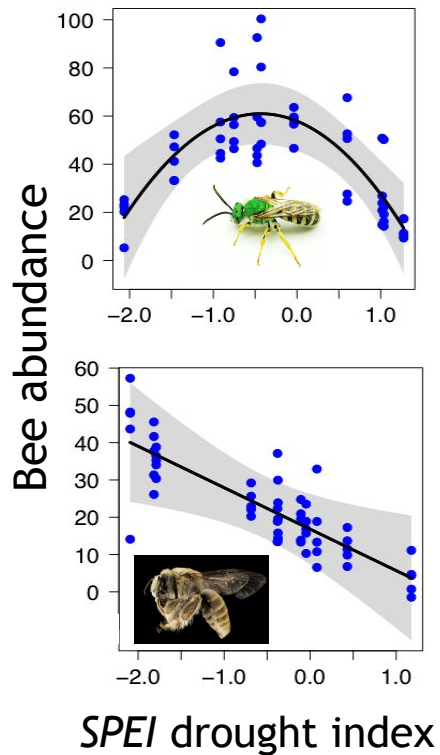
insensitive to variance



next steps

apply CSF
to other taxa

WORLD'S LONGEST BEE RECORD

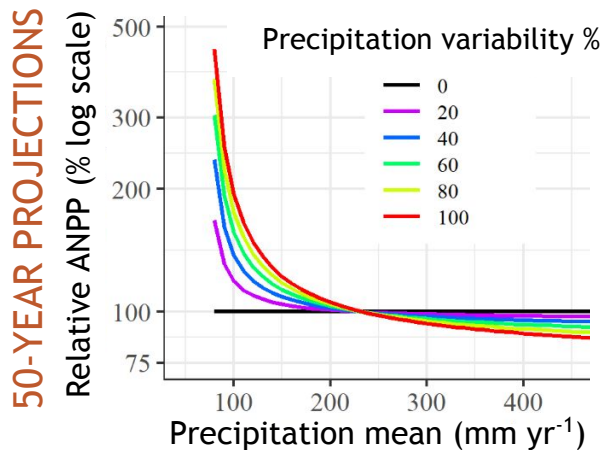
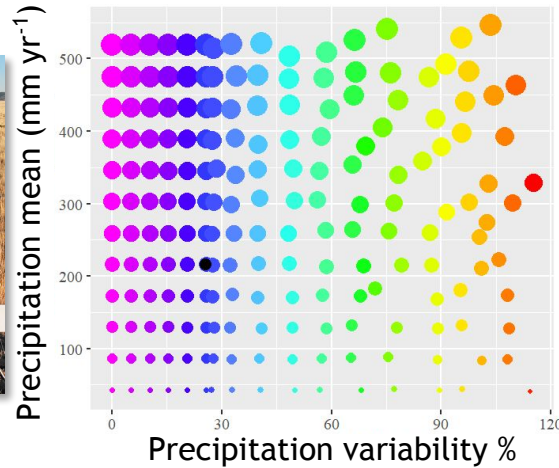
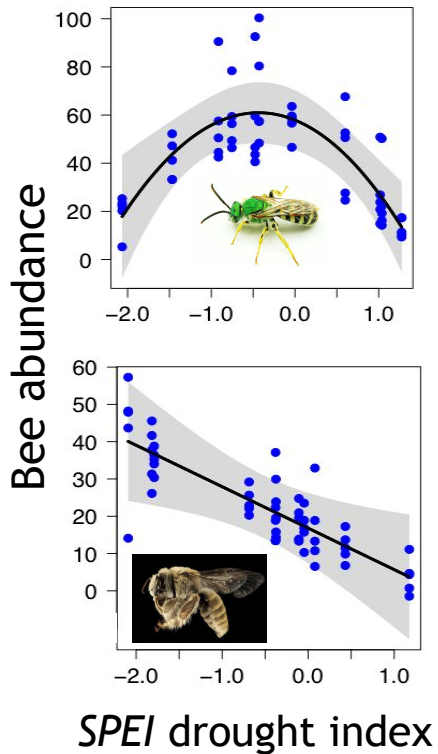


next steps

apply CSF
to other taxa

model mean \times variance
on longer timescales

WORLD'S LONGEST BEE RECORD



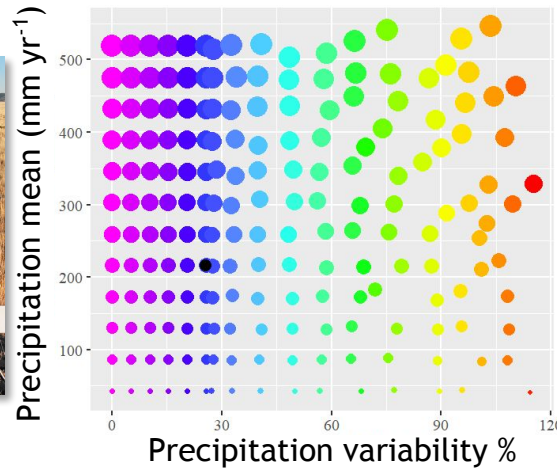
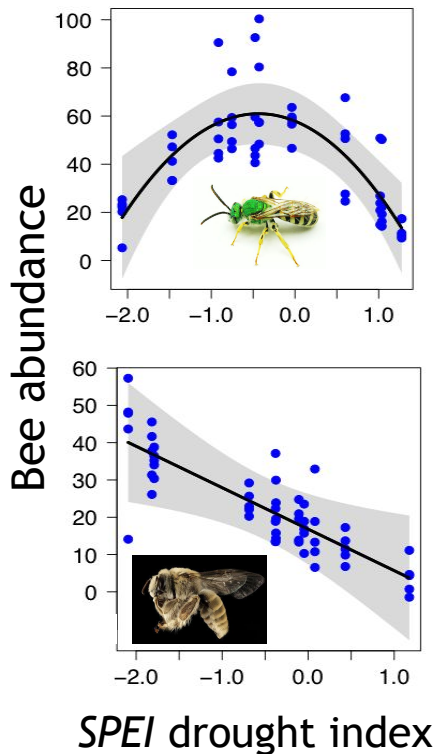
next steps

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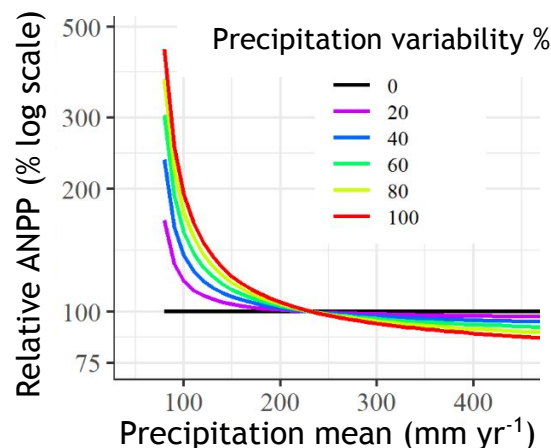
model mean \times variance
on longer timescales

what traits
predict CSF?

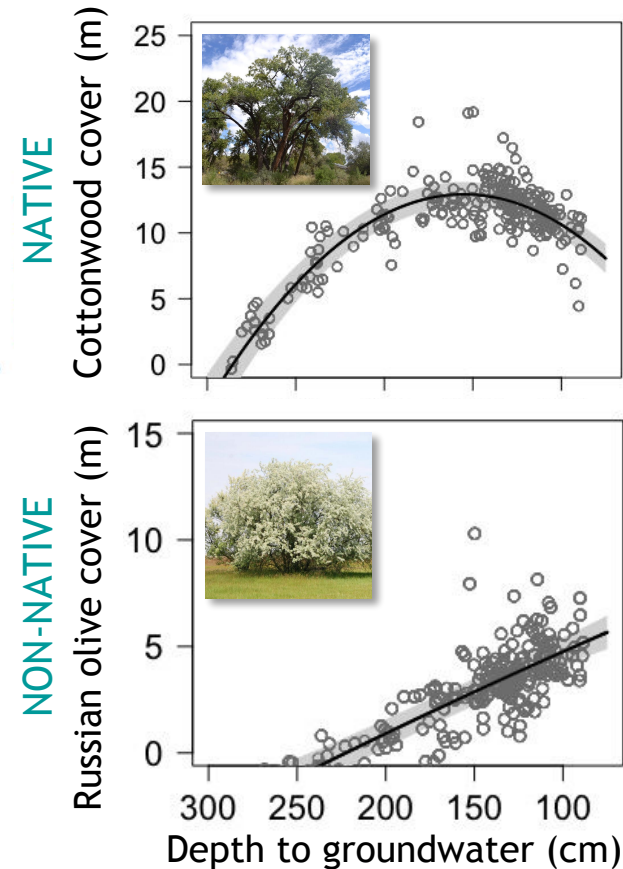
WORLD'S LONGEST BEE RECORD



50-YEAR PROJECTIONS



SEV TRAITS DATABASE



SEV summary



How do changes in climate mean and variance affect dryland ecosystems and transitions among them?

- Drylands are becoming drier but also more variable inter-annually
- Understanding inter-annual variance necessitates long-term data
- Ecosystems and species differ in sensitivity to variance in climate
- First experiments to alter climate mean and variance factorially