TO SELF OR NOT TO SELF?

HIGHER INBREEDING DEPRESSION IN A METAL TOLERANT ECOTYPE

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CONTEXT

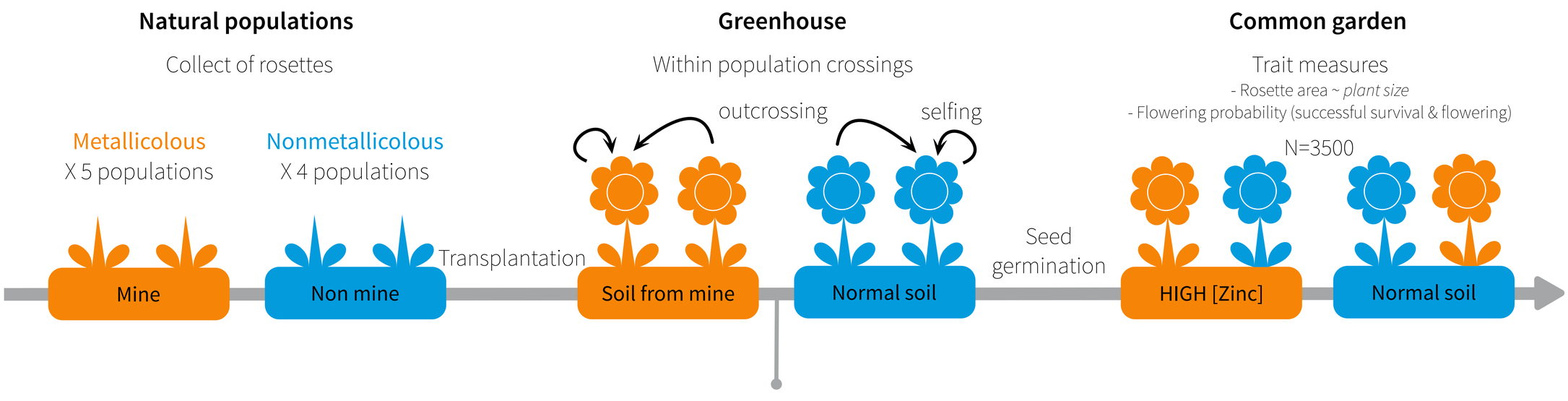
Inbreeding depression
- is a major parameter of mating system evolution
- can greatly affect demography
- depends on genetics and environnement
- often increases with stress

Noccaea caerulescens
- grows on both mine and normal soils (*metallicolous* / *nonmetallicolous ecotype*)
- has a mixed mating system (selfing rates: 0.25 / 0.4)

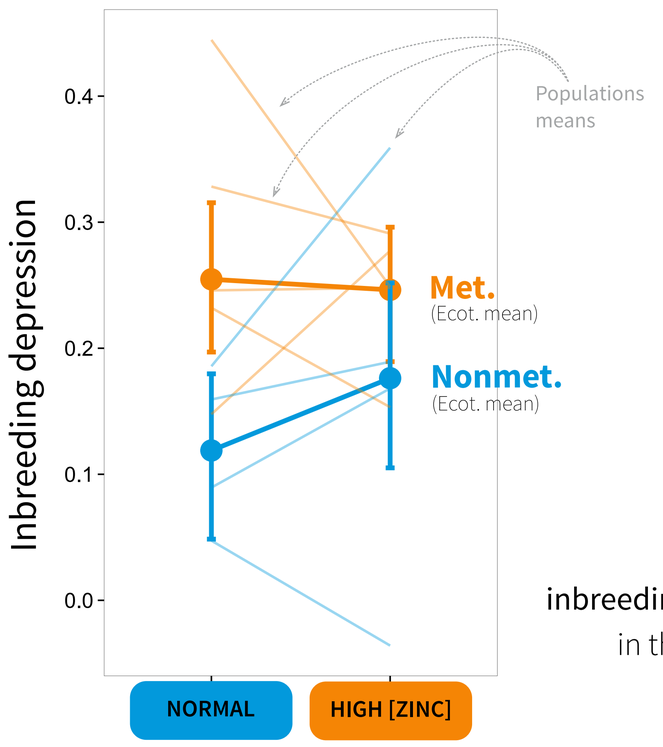
QUESTIONS

Severity of **inbreeding depression** in *N. caerulescens*?
Dependence on **ecotype** and **soil toxicity?**

WHAT WE DID



WHAT WE FOUND



PLANT SIZE

Linear Mixed Model on log(rosette area)

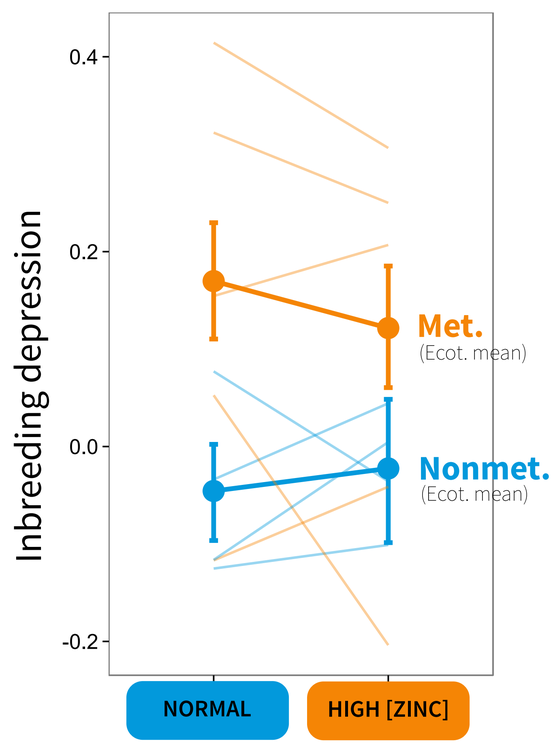
ecotype x toxicity ***
toxicity affects more nonmetallicolous plants

ecotype x crosstype *
inbreeding depression is stronger in the **metallicolous** ecotype

FLOWERING

Generalized Linear Mixed Model on flowering probability

ecotype x crosstype x toxicity *
Higher inbreeding depression for the **metallicolous** ecotype on **normal** soil



SO WHAT?

> Population inbreeding depression ranges from **-**20% to 44%.

> Some populations harbour **outbreeding depression**, especially in the nonmetallicolous ecotype.

> There is **higher** inbreeding depression in metallicolous populations.

> The effect of **toxicity** on inbreeding depression depends on **trait** and **ecotype.**

Hyp1
Lower selfing rates → **less purging** of recessive, deleterious mutations in metallicolous populations

Hyp2
Trade-offs associated with toxicity tolerance → plants more susceptible to inbreeding depression (less able to respond to **genetic "stress"**)

TAKE HOME MESSAGES

> Inbreeding depression in *Noccaea caerulescens* in some populations and some traits.

> Higher inbreeding depression in the metallicolous than in the nonmetallicolous ecotype.

> Weak and inconsistent effect of toxicity on inbreeding depression.

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