

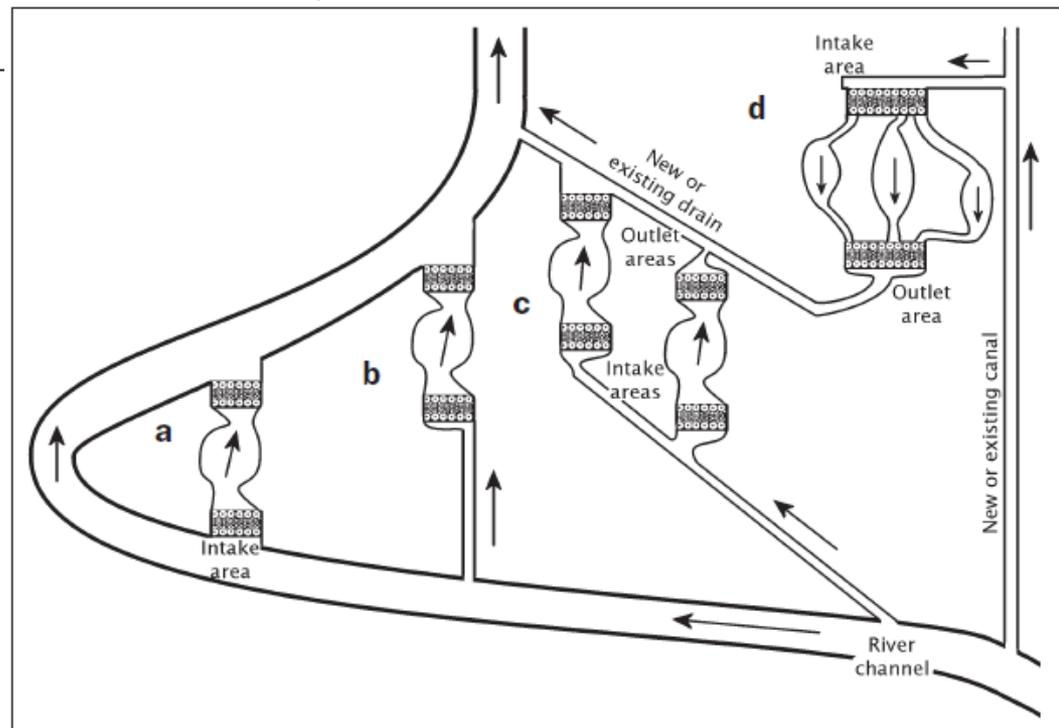
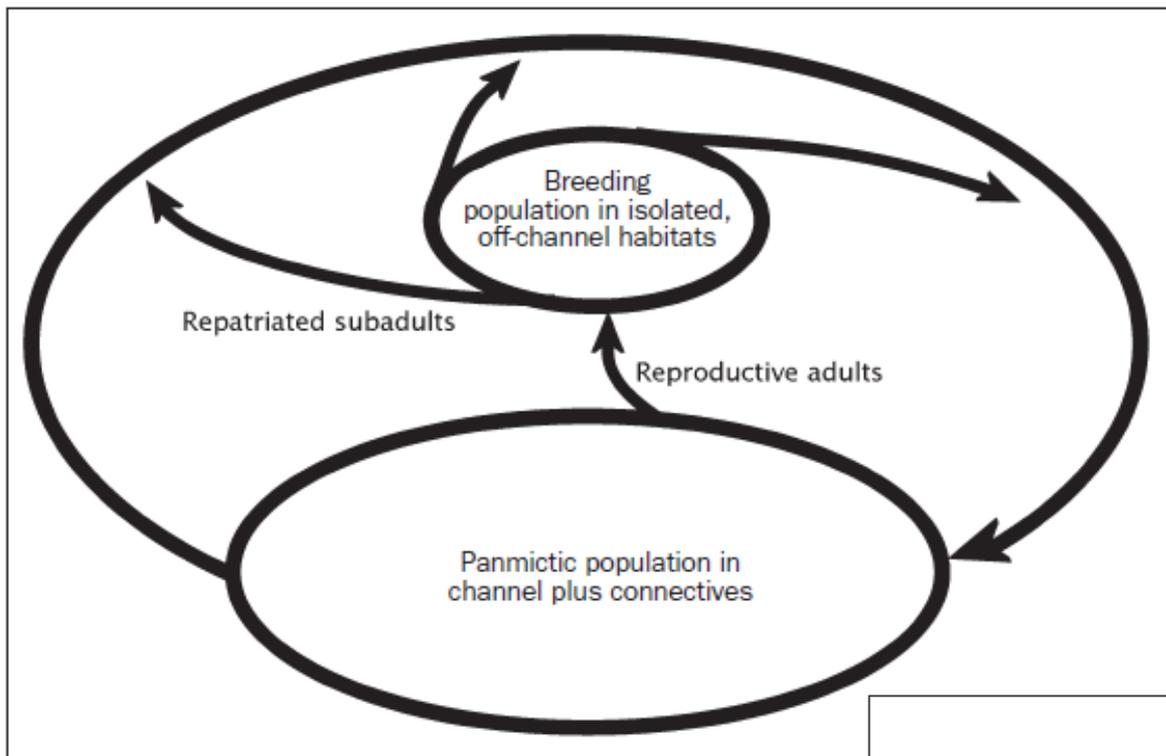
How many off-channel habitats are needed to sustain genetic diversity in Bonytail and Razorback Sucker?



Thomas Turner, Megan Osborne - University of New Mexico

Thomas Dowling - Wayne State University







L. Paskus

How many backwaters do we need?

# Experimental Design – Ephemeral Backwaters

- Stock adult RASU and BONY into 2 backwaters (each)
- 100 males : 100 females, PIT-tag prior to release
- Genotype adults and YOY at 14 (RASU) or 18 (BONY) loci
- Parentage analysis of YOY via COLONY
- Repeat 5 years for RASU; 3 years for BONY



# Yuma Cove Backwater - RASU

2013 – Initial Stocking

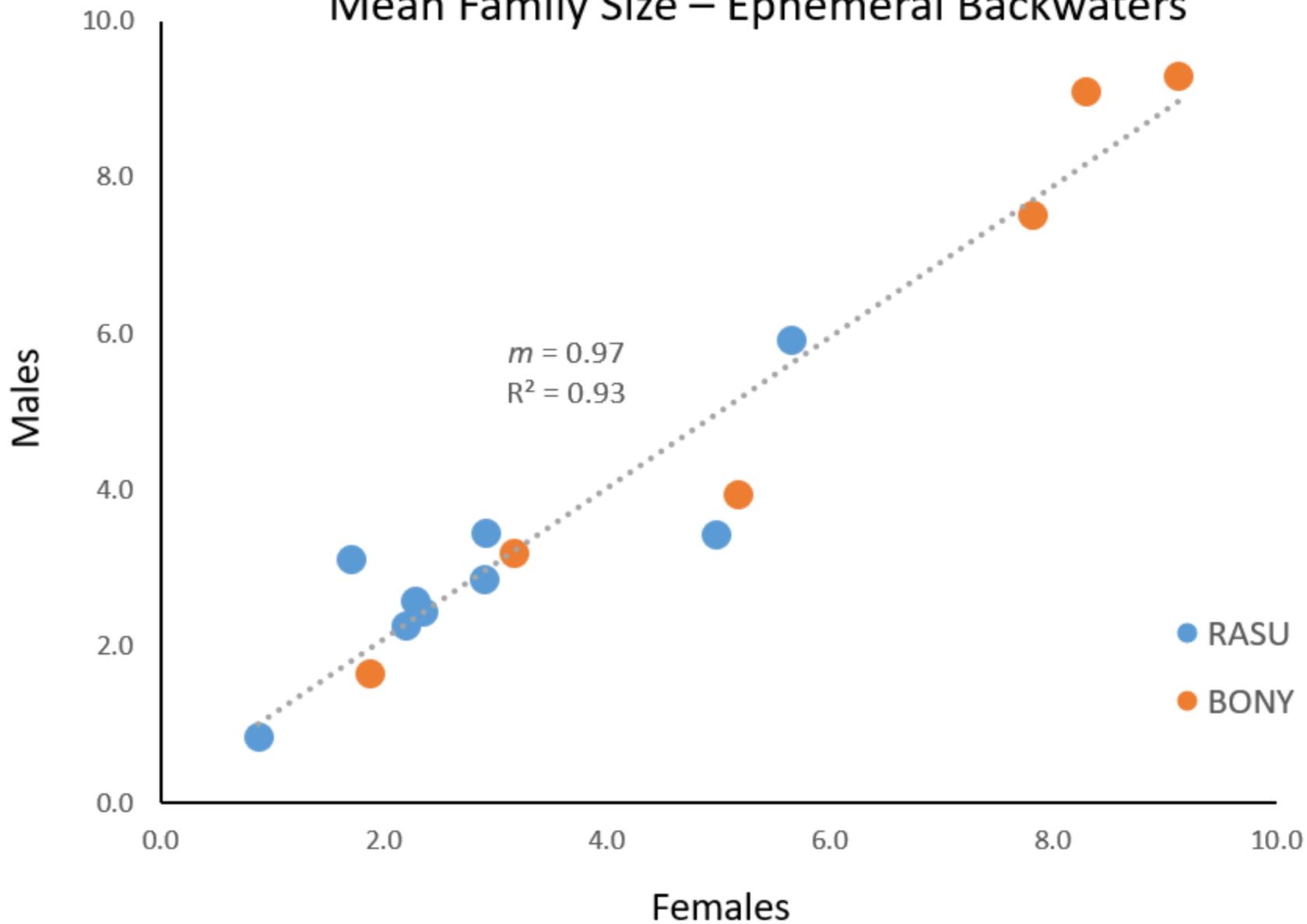
2014 – Additional Stocking 50 female:50 male

2015 – Additional Stocking 50 female:50 male

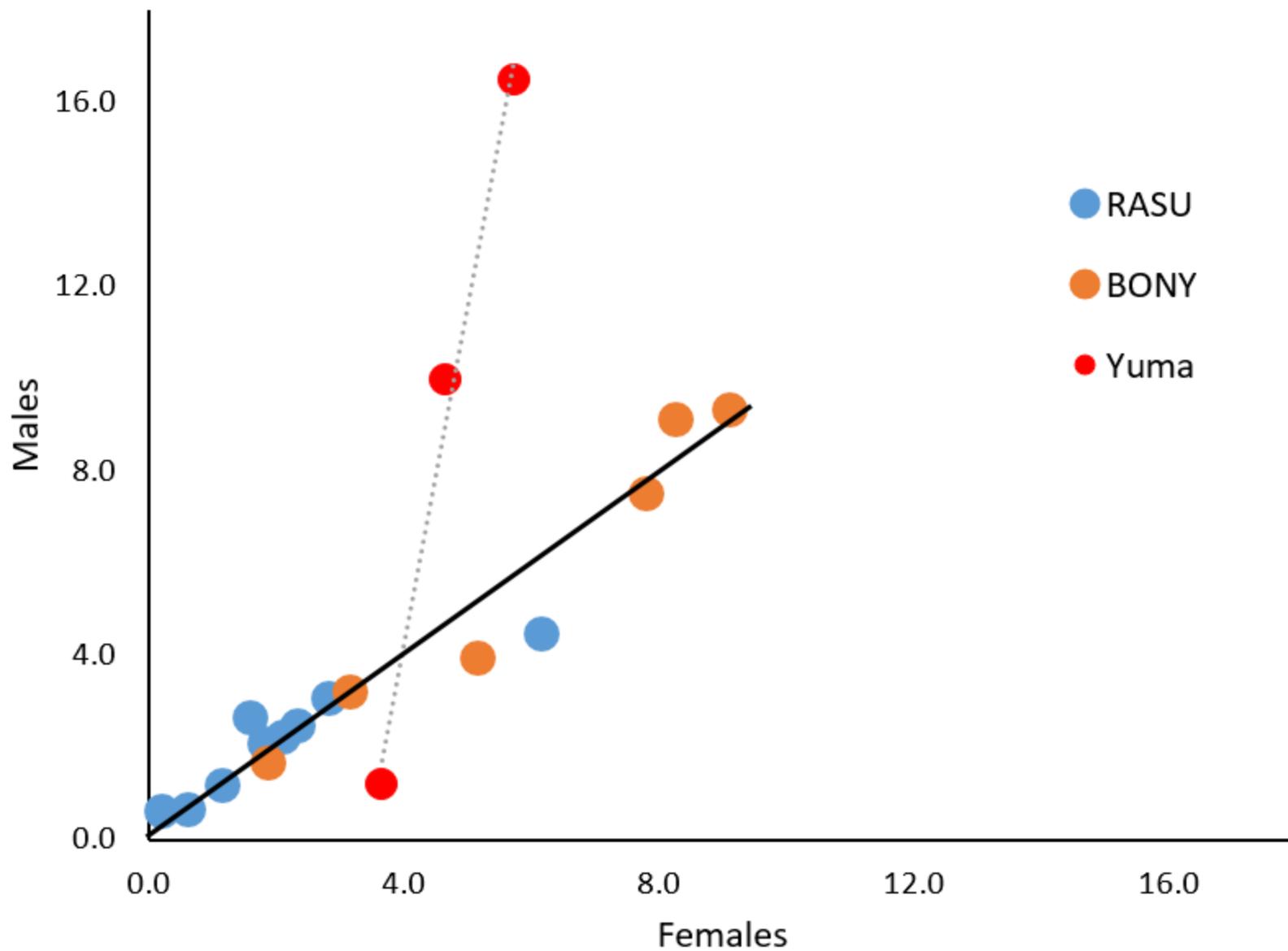
Genotyped adults, larvae, juveniles each year



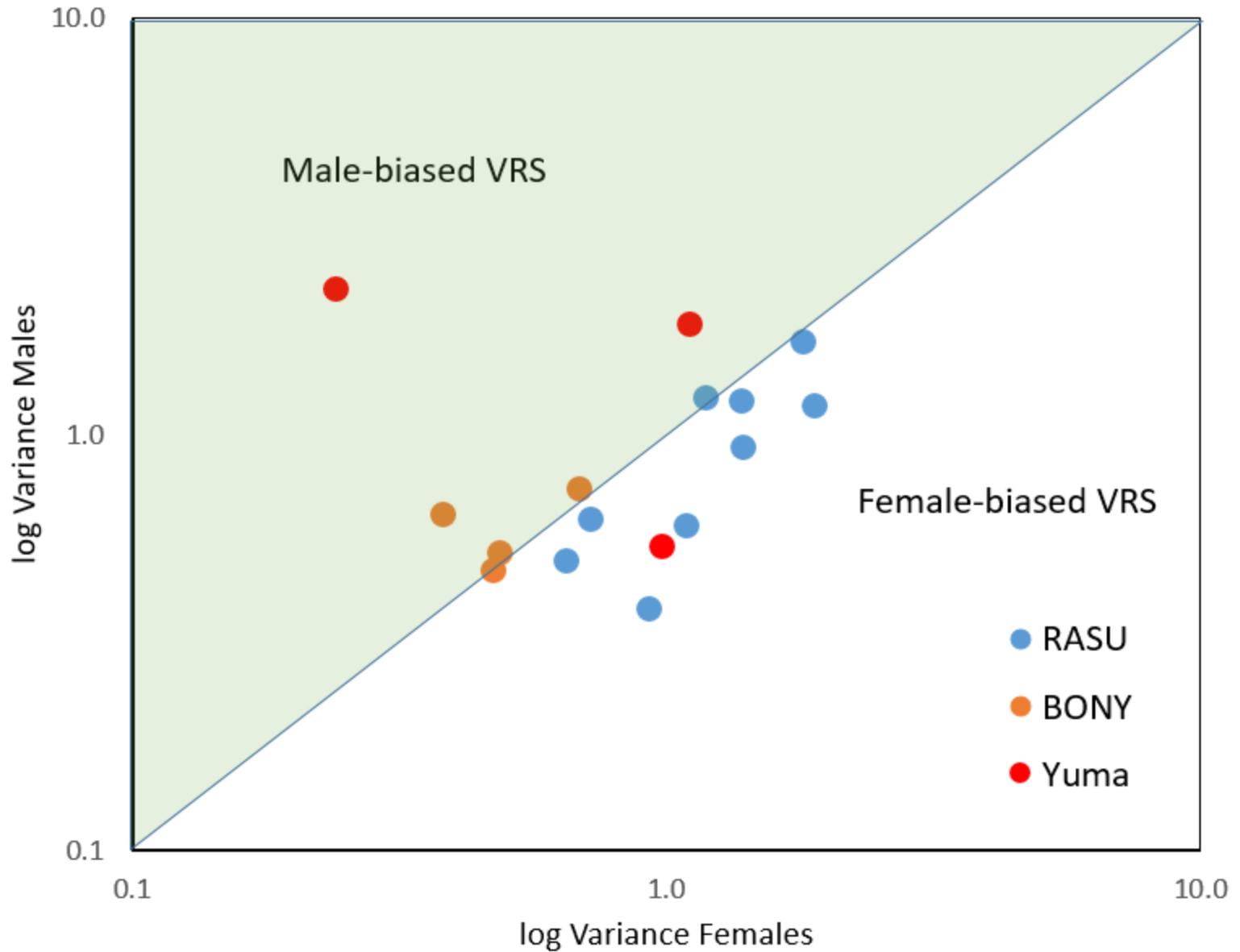
# Mean Family Size – Ephemeral Backwaters



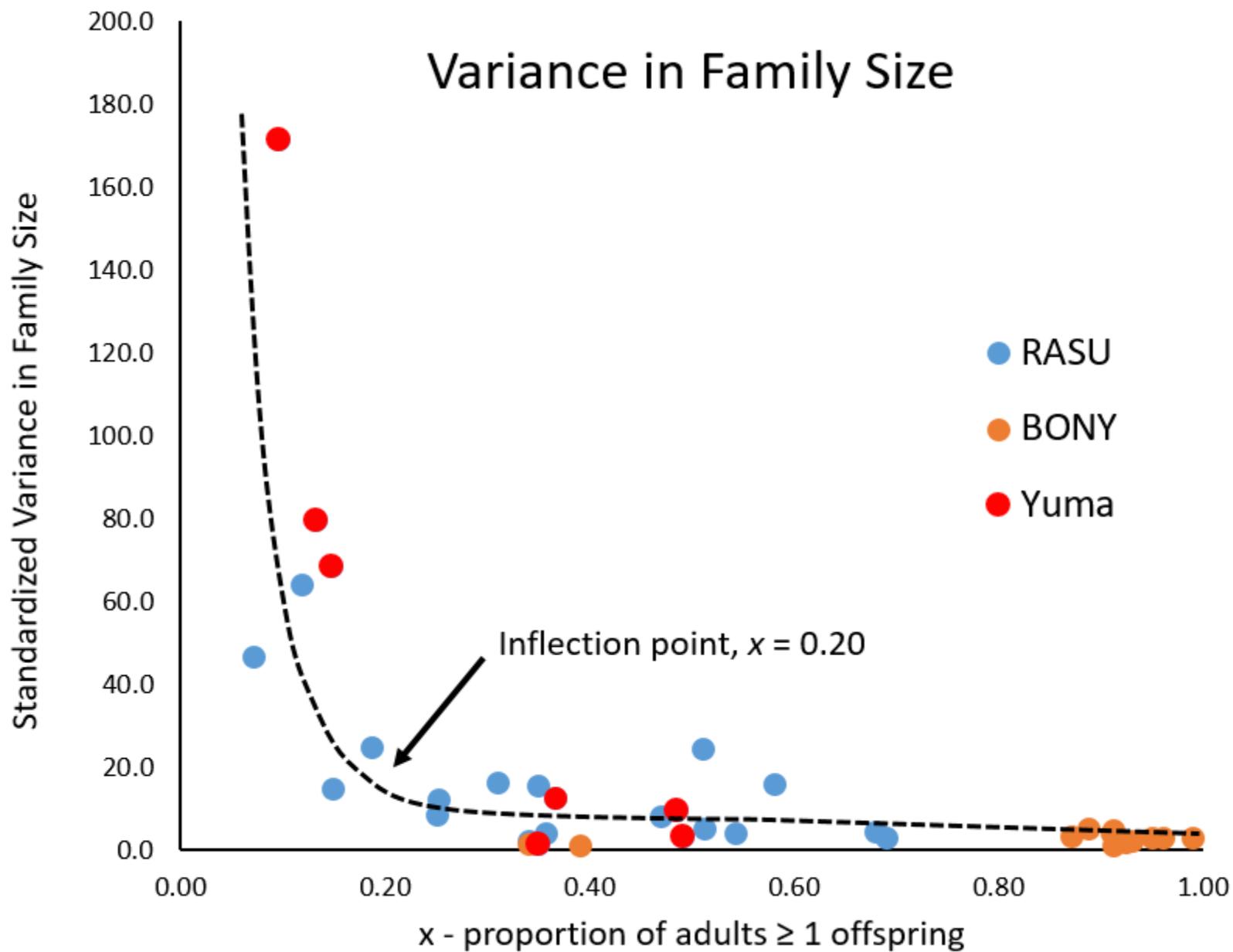
Mean Family Size – sex ratio skewed in Yuma



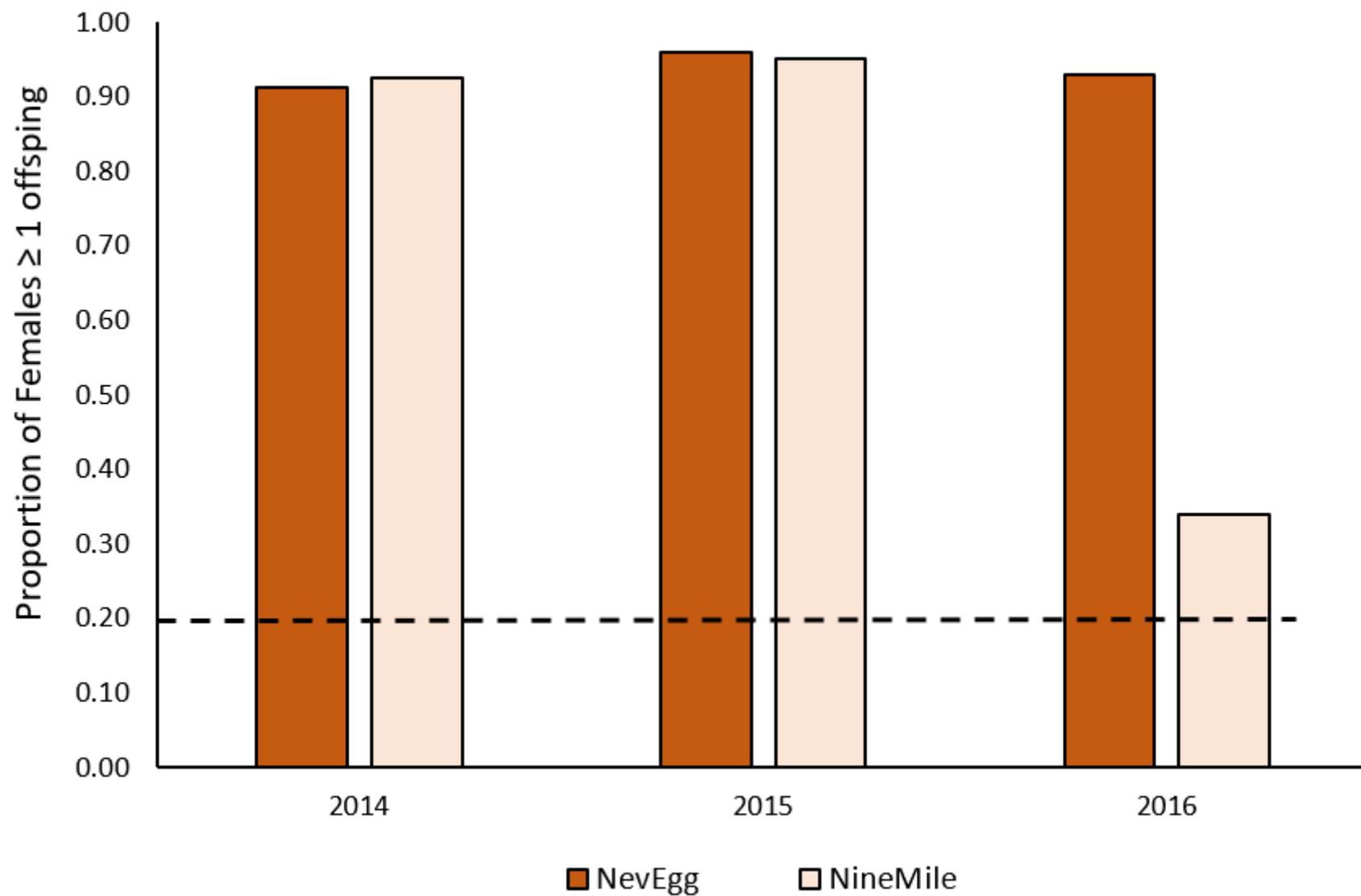
# Variance in Family Size



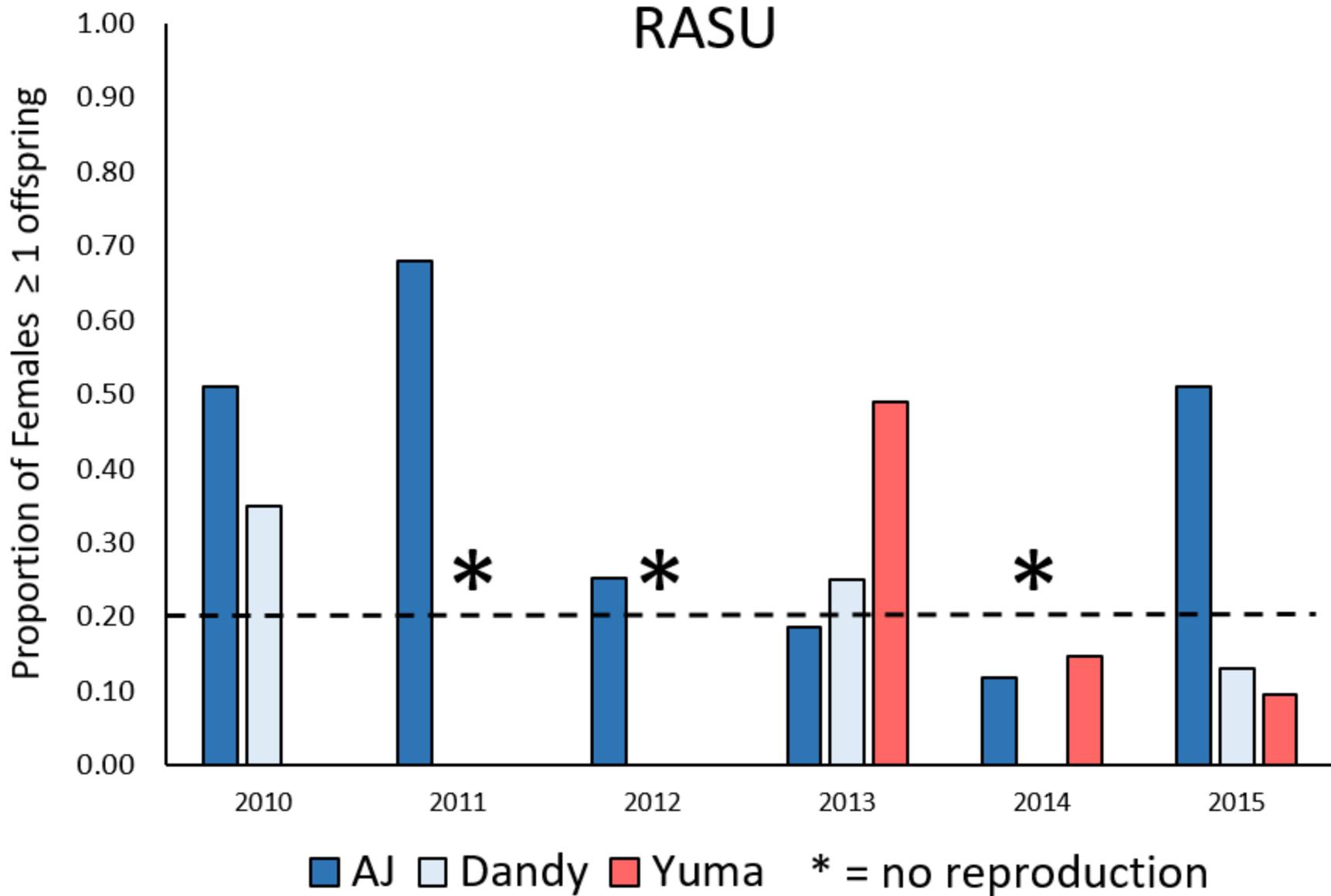
# Variance in Family Size

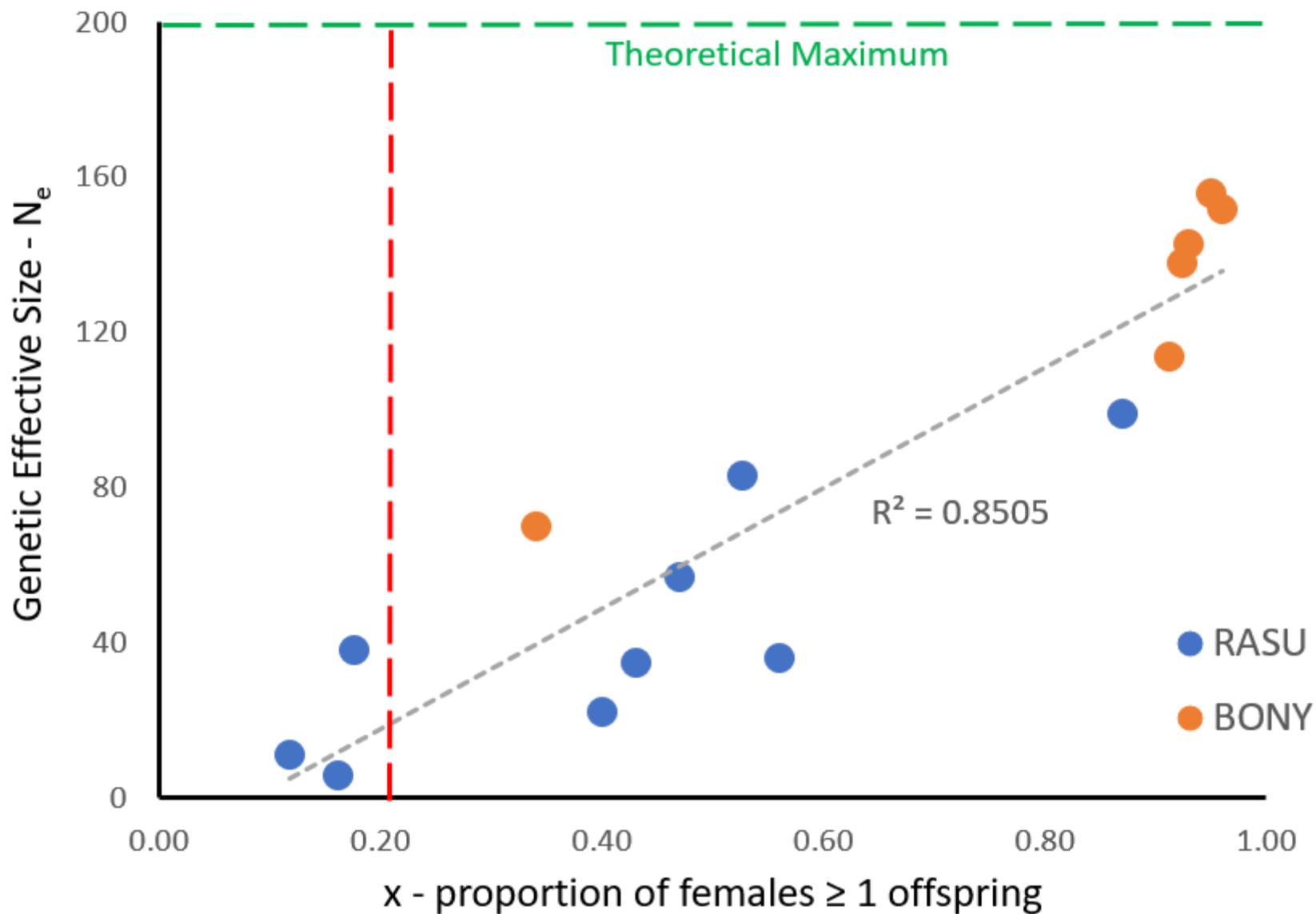


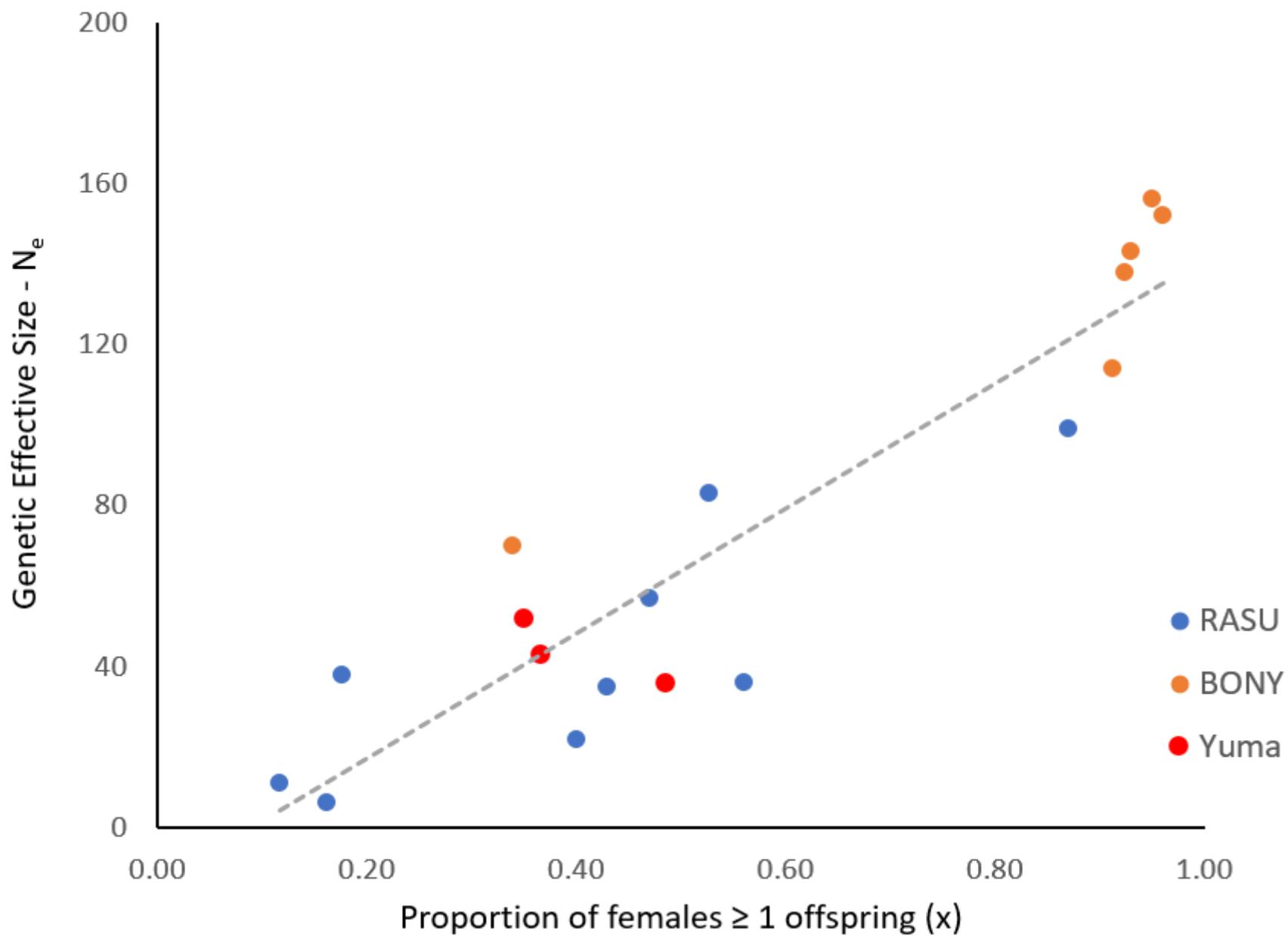
# BONY



# RASU





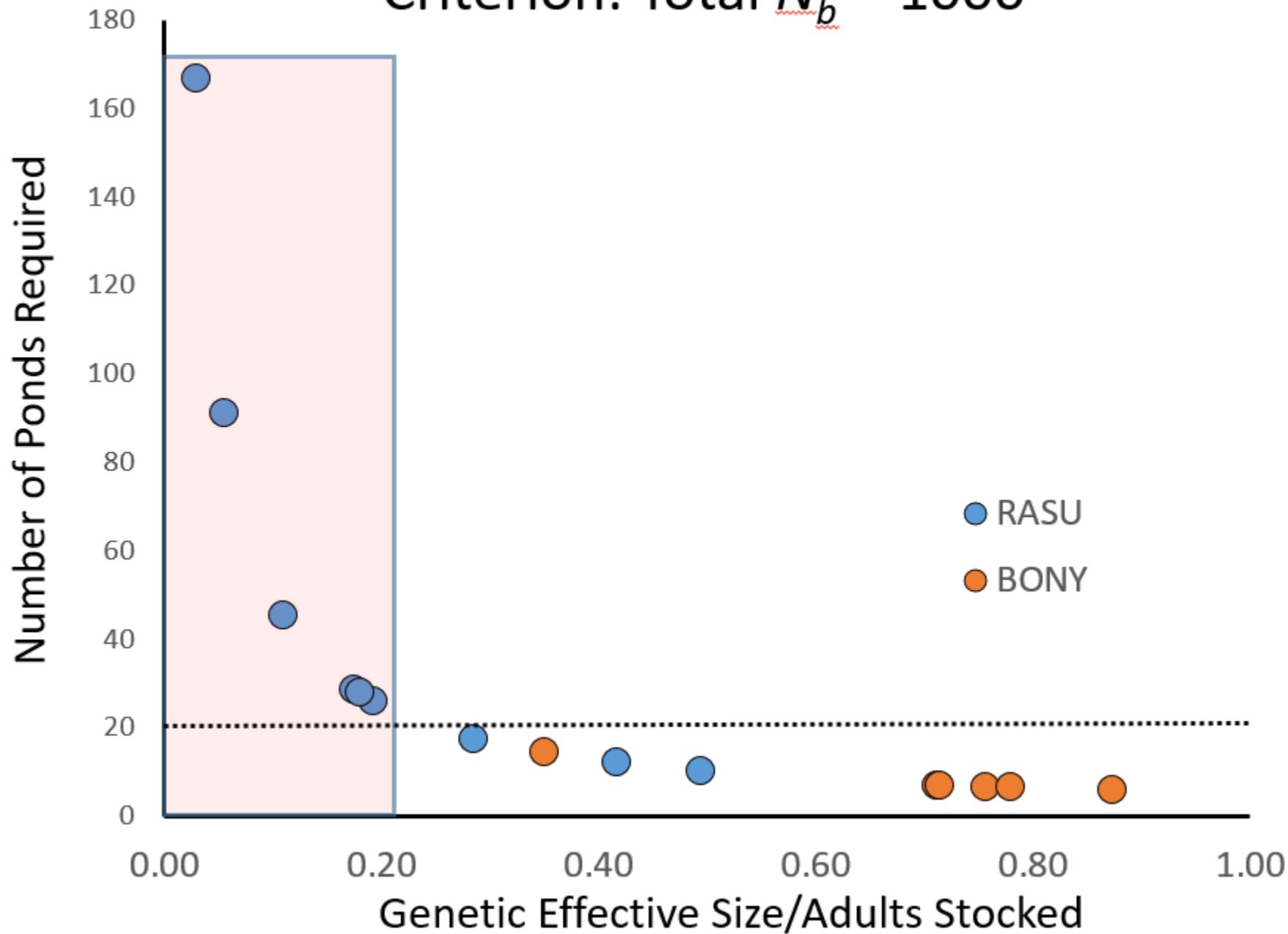


# Key Results

- Similar mating system in both species, unless sex ratio is skewed.
- VRS is female biased in RASU
- RASU has lower  $x$  and higher VFS than BONY
- When  $x < 0.20$ , VFS is high and  $N_e$  is low



Criterion: Total  $N_b = 1000$



# Recommendations

As  $x$  gets smaller and VFS gets larger, more backwaters are needed to achieve the same levels of genetic diversity

Adult male mortality is a significant factor for RASU, especially in Yuma

Larval/juvenile mortality is unstudied, but likely a significant factor

Habitat quality varies among backwaters and years

Density effects/selective effects are not known





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