

Reproductive Success of Individual Razorback Suckers in Impounded Backwaters



FI3011-00091 - Joel Sartore/www.joelsartore.com



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Minckley et al. (2003) advocated use of backwaters in the management of razorback sucker



Objective

To obtain information about reproductive success of individual razorback suckers kept in backwaters



Methods

Stock adult razorback suckers in impoundments prior to spawning season.

- Equal sex ratios
- Fin clips

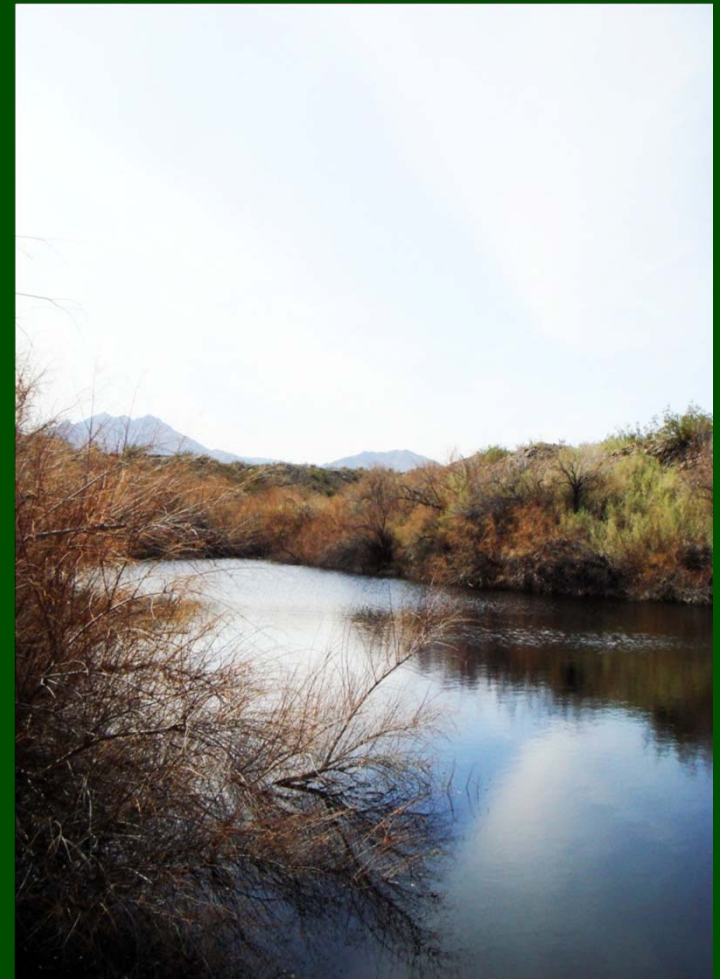


Gathered larvae throughout the spawning season, and juveniles during fall.

Genotype adults and offspring using microsatellites

- 14 Loci

Assign parentage using computer software MYKISS



Microsatellites

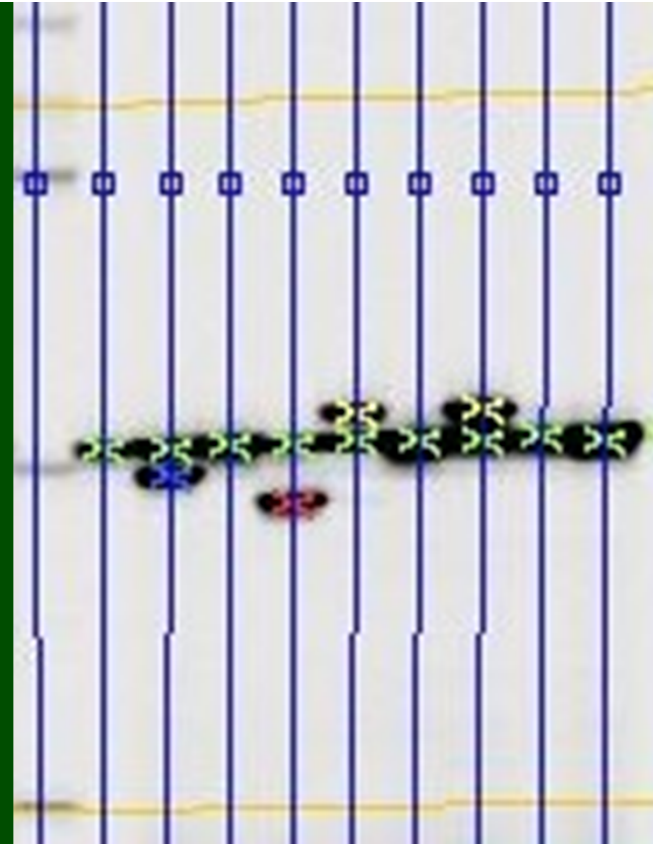
- Nuclear DNA
- Tandem repeats (ex CACACACACACAC)

TCCTGCCTGCAGATTTACAGCGCGCGCACACACACACGACACACACACACACACACACACACACACACAGAAAGAC
80 190 200 210 220 230 240 250 260



Microsatellites

- Biparental inheritance
- Highly variable



Mother: 72 76 bps
Father: 74 76 bps
Offspring: 76 76 bps

Dandy Backwater Results

2010 - Stocked 99 females, 101 males

➤ 207 larvae collected
(6 collections)



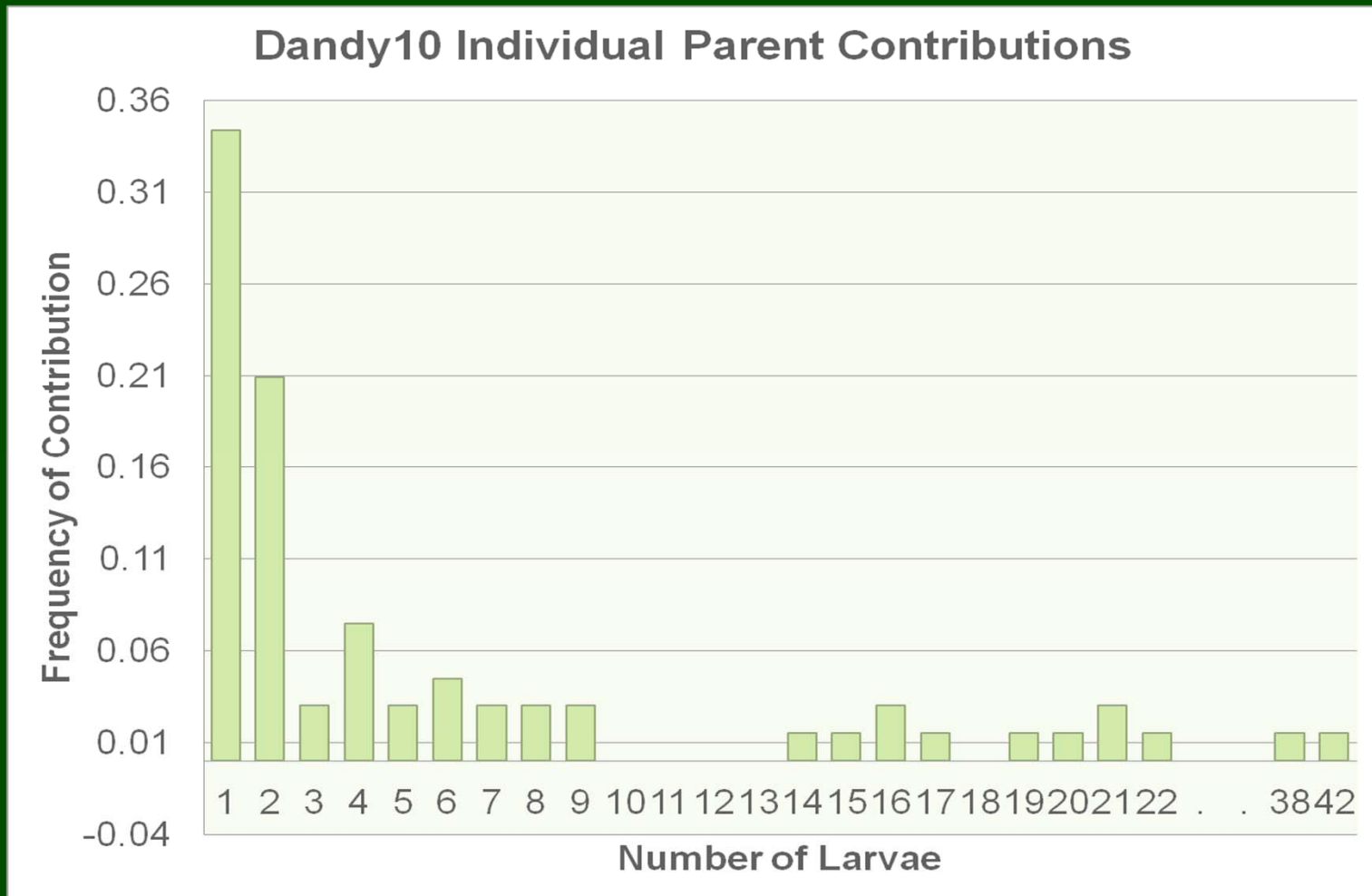
➤ 36 females and 31 males contributed to larvae
(33% of adults)

➤ 40% of the larvae from unique female-male pairings

2011 – Stocked 100 females, 100 males

➤ No larvae

Dandy10 Individual Parent Contributions



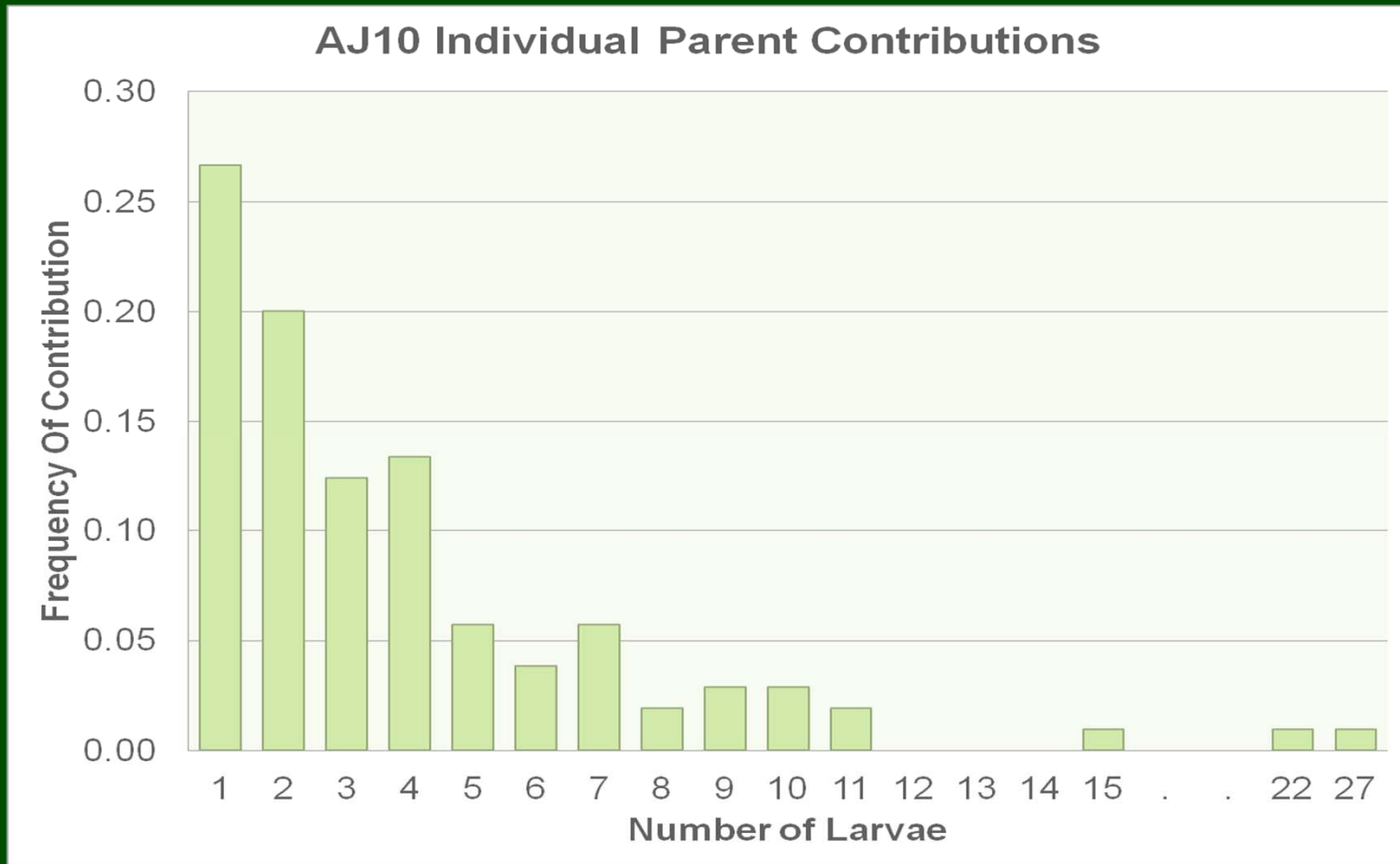
Arizona Juvenile Backwater

2010 - Stocked 129 Females, 71 Males

- 210 larvae collected
(4 collections)
- 66 females and 39 males contributed to larvae
(53% of adults)
- 75% of the larvae from unique female-male pairings



AJ10 Individual Parent Contributions



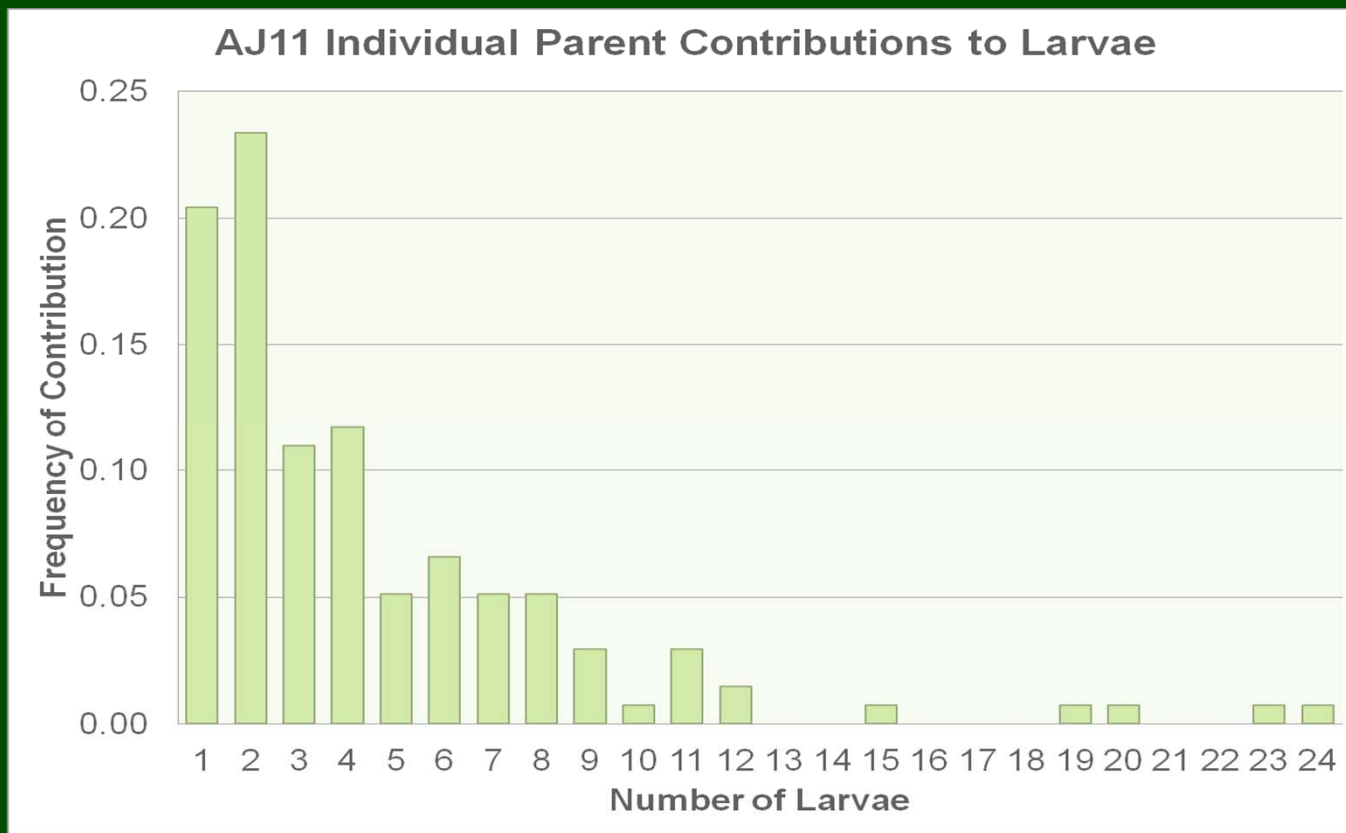
Arizona Juvenile Backwater

2011 – Stocked 100 Females, 100 Males

- 305 larvae captured
(6 collections)
- 68 females and 69 males contributed to larvae
(69% of adults)
- 79% of the larvae from unique female-male pairings



AJ11 Individual Parent Contributions to Larvae

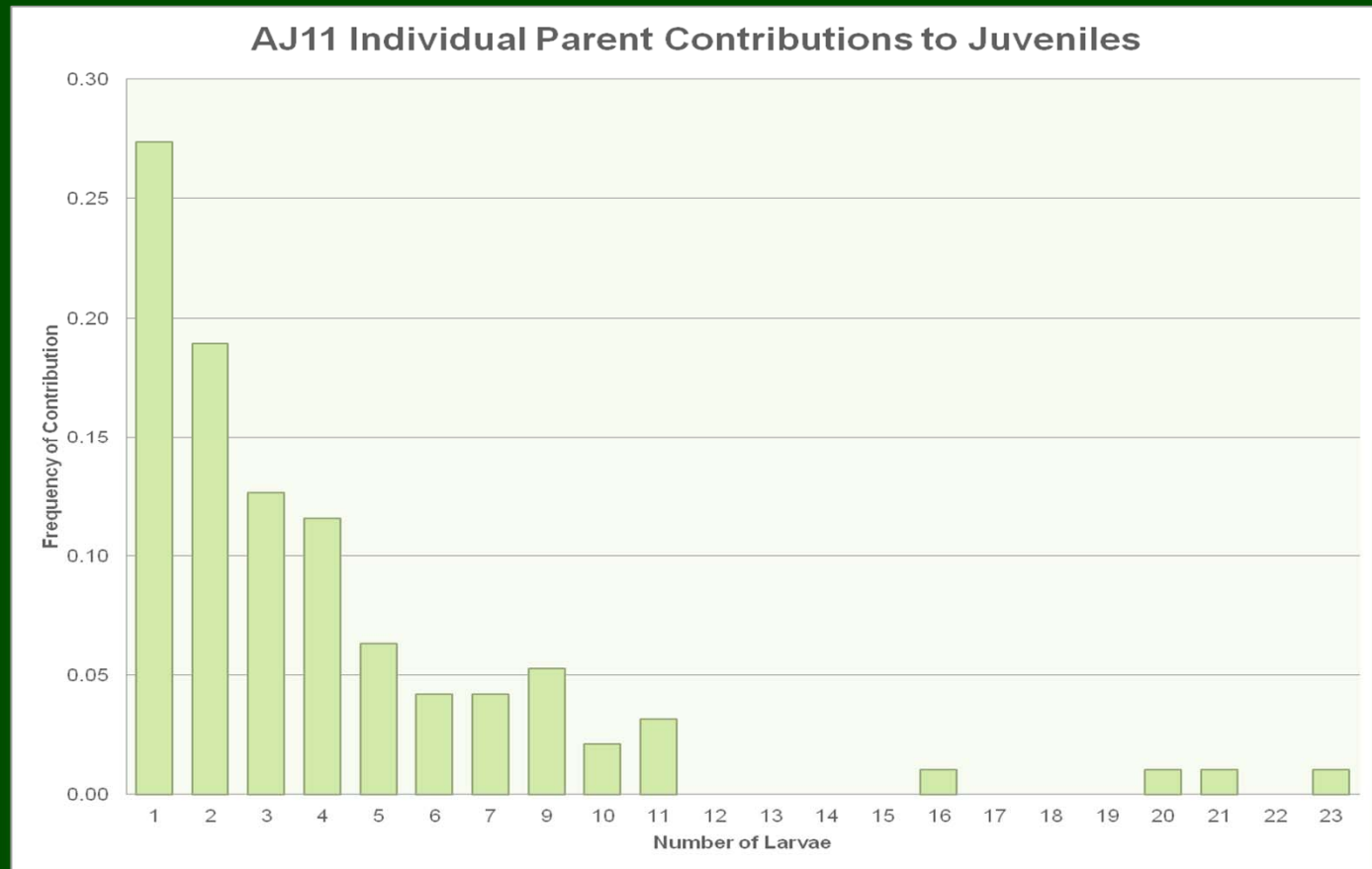


Arizona Juvenile Backwater

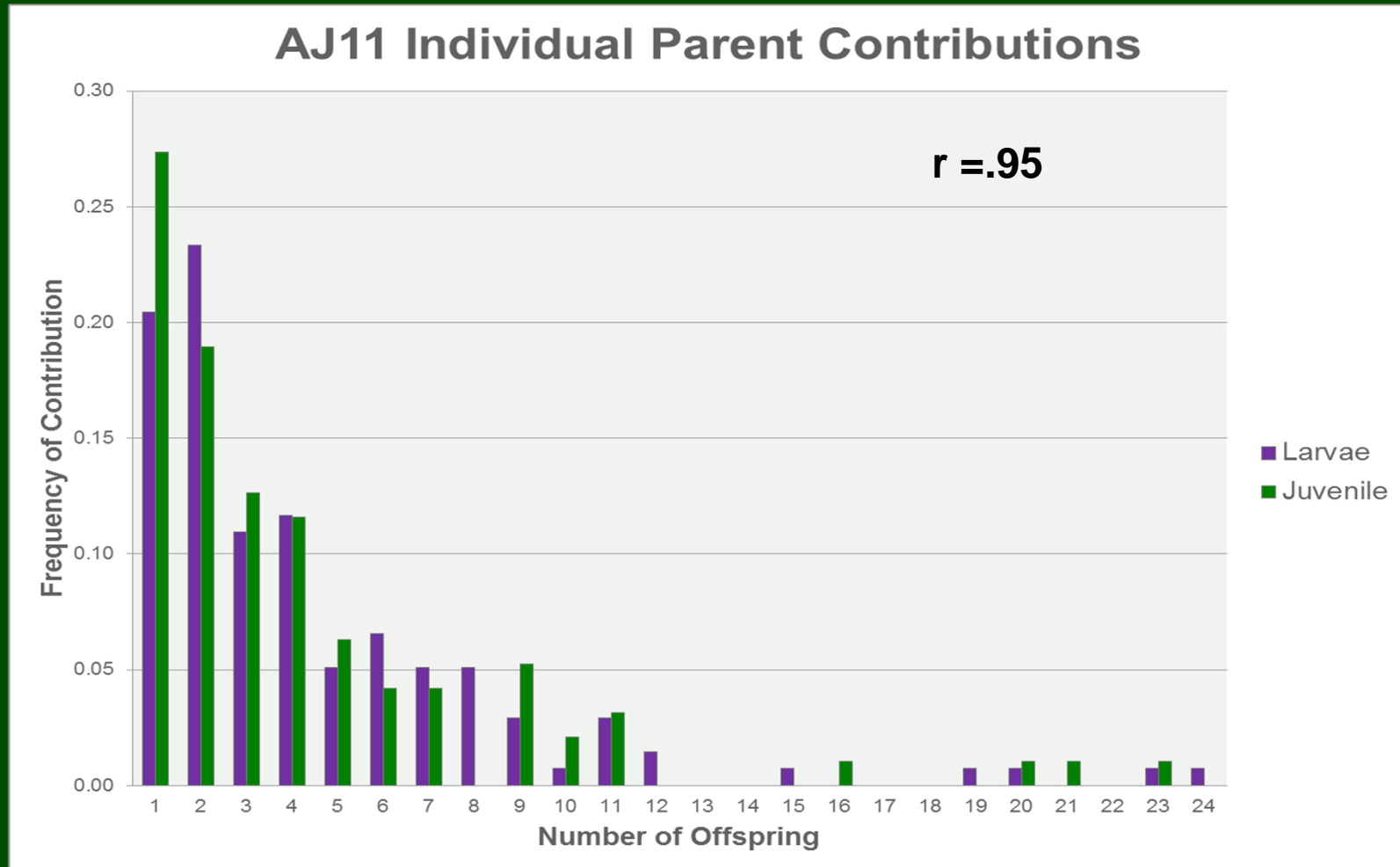
- 201 juveniles captured
- 43 females and 52 males contributed to juveniles (48% of adults)
- 71% of the juveniles were unique female-male pairings



AJ11 Individual Parent Contributions to Juveniles



AJ11 Individual Parent Contributions



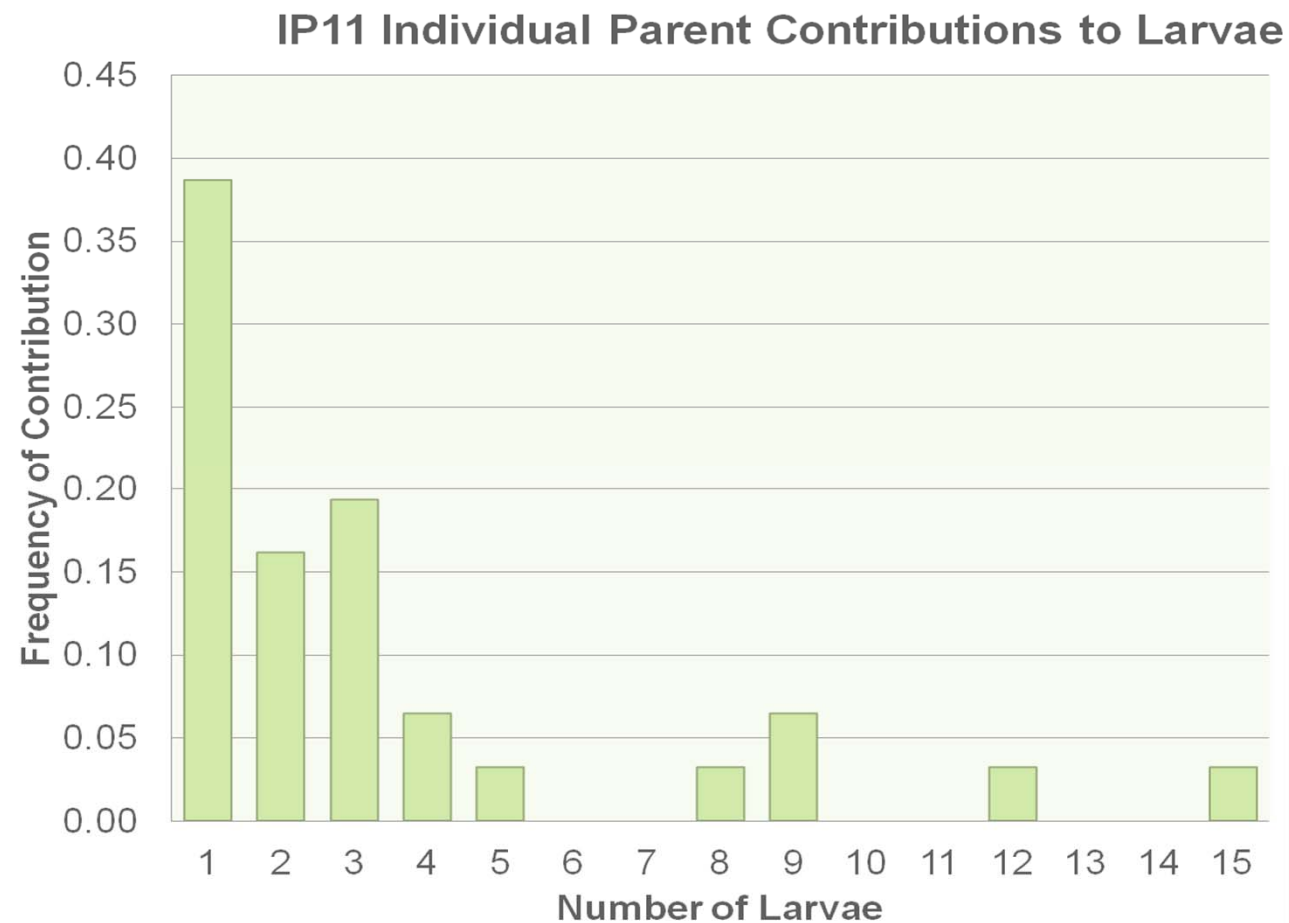
Imperial Ponds

2011 – Stocked 69 Females, 31 Males

- 57 larvae captured
(1 collection)
- 17 females and 14 males
contributed to larvae
(31% of adults)
- 51% of the larvae were from
unique female-male pairings



IP11 Individual Parent Contributions to Larvae



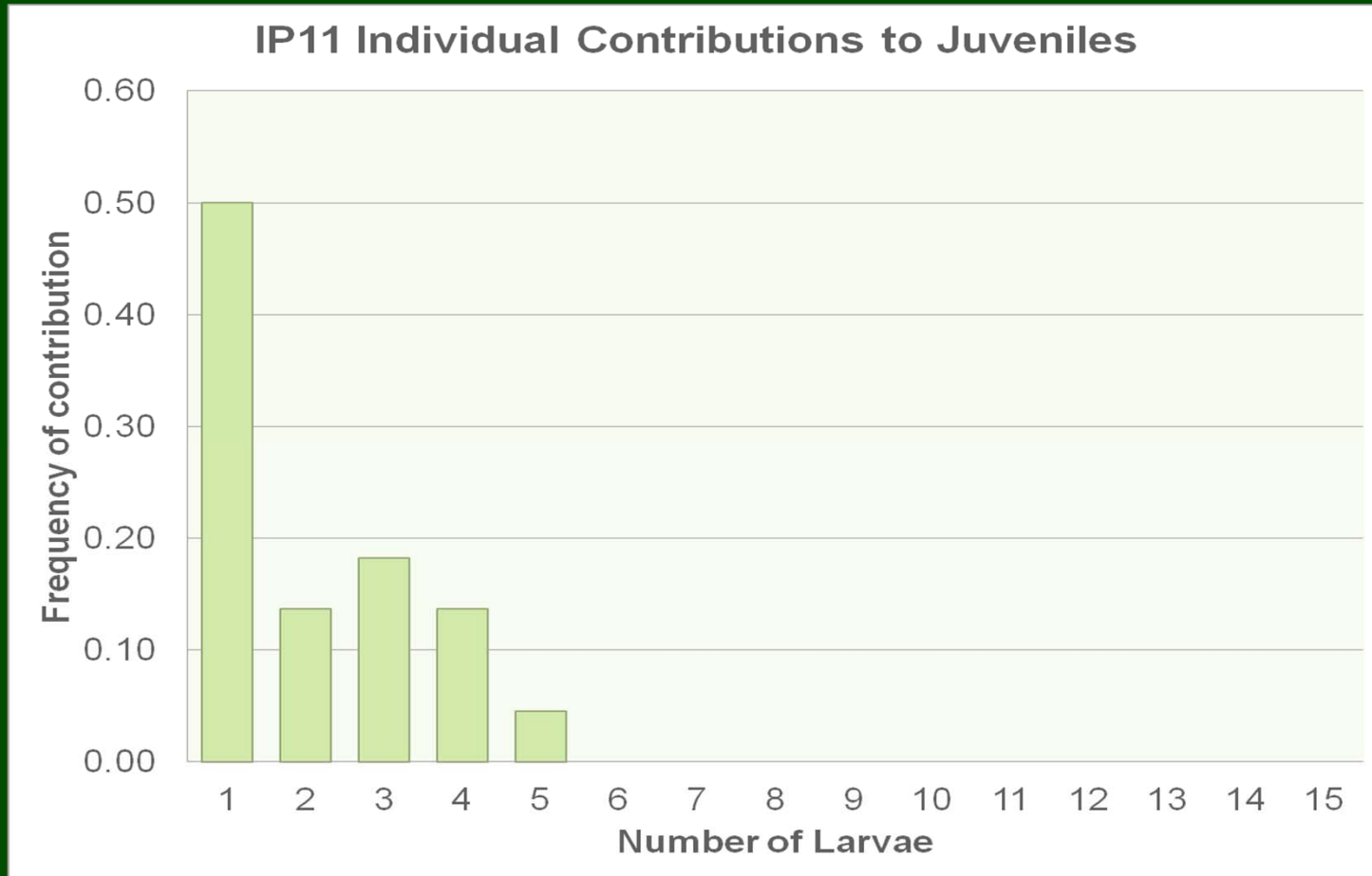
Imperial Ponds

2011 – Stocked 69 Females, 31 Males

- 23 Juveniles captured
- 11 females and 11 males contributed to juveniles
(22% of adults)
- 74% of the juveniles from unique female-male pairings



IP11 Individual Contributions to Juveniles



Conclusions

- Equal contributions across sexes
- Individual adult contributions variable but higher than expected

33% Dandy 2010

53% AJ 2010

69% AJ 2011 larvae

48% AJ 2011 juveniles

31% IP 2011 larvae

22% IP 2011 juveniles



- Some individuals contributed many progeny, yet high fraction of progeny are produced by unique pairings

40% Dandy 2010

75% AJ 2010

79% AJ 2011 Larvae

71% AJ 2011 Juveniles

51% IP 2011 Larvae

74% IP 2011 Juveniles



- Continue stockings and sample to monitor annual variation.
- Try to understand differences among ponds

Questions?

