

# Comparison: Cervus and ML Relate

Two different takes on one data set

# Data set

- 6 parents – mass spawned
- 87 offspring
- All individuals genotyped

Analyses based upon:

- 5 microsatellite loci (no linkage)
- Nulls were identified as a new state (999bp)
  - Giving both programs as much information as possible

# Cervus

- Assigned parentage to all offspring (except one contaminant)
- Assignment corresponded to manual assignment

# Comparing Data

Cervus – we know the true relationships of all individuals

ML Relate – no way to input which ones are parents and which are offspring

- Ran it two ways:
  - With parents and offspring (to look at PO assignment)
  - With only offspring (to see if sibships assigned differently)
- Used pairwise comparisons of 16 individuals

# Survey says....

- With parents included in the ML Relate file:

Correct Classification					
	<b>PO</b>	<b>FS</b>	<b>HS</b>	<b>U</b>	
	16	11	20	31	
Percent	100%	39%	34%	100%	58%

Incorrect Classification					
	<b>PO</b>	<b>FS</b>	<b>HS</b>	<b>U</b>	
	0	17	39	0	
Percent		61%	66%		42%

$\frac{10 \text{ PO}}{3 \text{ U}}$		$\frac{5 \text{ PO}}{\text{FS}}$
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Said that 10 full sibs were PO and 3 were Unrelated!

Said that 5 half sibs were PO!

- With parents in the ML Relate file:

Correct Classification					
	<b>PO</b>	<b>FS</b>	<b>HS</b>	<b>U</b>	
	16	11	20	31	
Percent	100%	39%	34%	100%	58%

Incorrect Classification					
	<b>PO</b>	<b>FS</b>	<b>HS</b>	<b>U</b>	
	0	17	39	0	
Percent		61%	66%		42%
	10 PO --- 3 U		5 PO --- FS		

- Without parents in the ML Relate file:

Correct Classification				
	<b>FS</b>	<b>HS</b>	<b>U</b>	
	14	22	41	
Percent	42%	39%	100%	59%

	<b>FS</b>	<b>HS</b>	<b>U</b>		
	19	34	0		
Percent	58%	61%		41%	
	4 U --- 10 PO		3 FS --- 7 PO		

7 half sibs called PO!

# What that tells us...?

- These are based on the relationship ML Relate said is most likely
  - In many instances (60% ??) it could not exclude other relationships (but sometimes it did exclude the correct one!)
- ML Relate did assign parents well
  - But also assigned PO relationship to half-sibs
- Use all programs with caution!