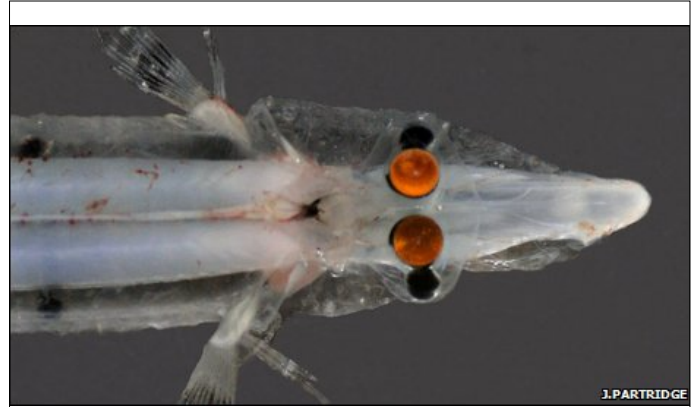


# Natural Selection



Dolichopteryx longipes  
(spookfish)

## Resources

Check F&H website (link with textbook on syllabus page)

"Evolution: 24 myths and misconceptions" TK

Futuyma, D. J. 2004 The Nature of Natural Selection. pp 93-98



"Natural selection is a mechanism  
for generating an exceedingly high  
degree of improbability."

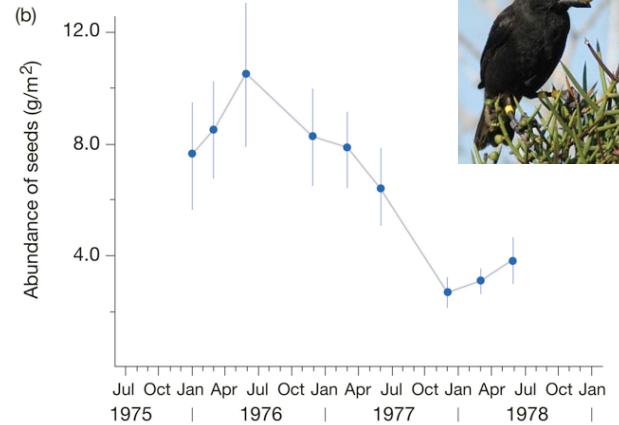
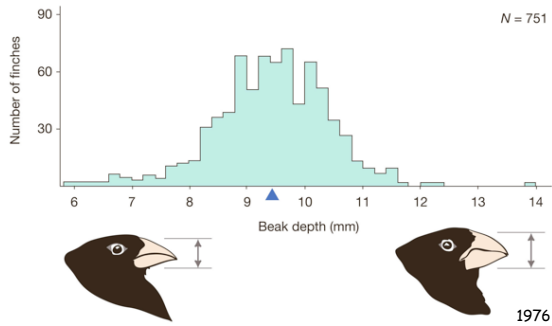
R.A. Fisher 1953



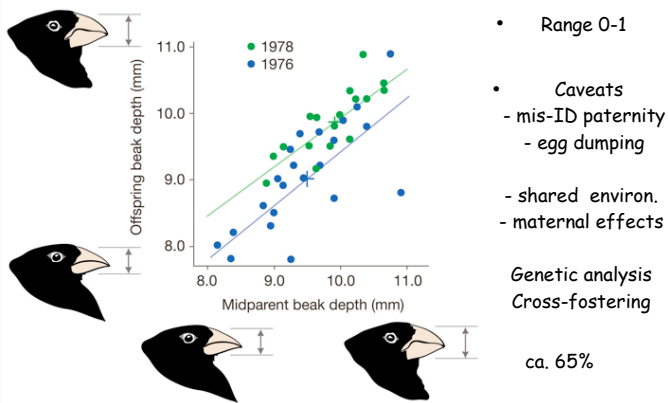


## Testing Darwin's 4 postulates:

### • Variability

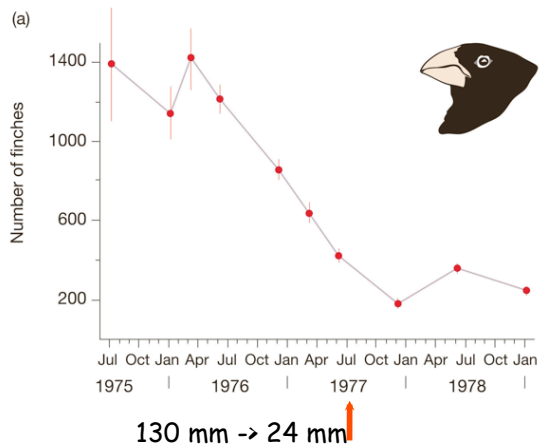


### • Heritability

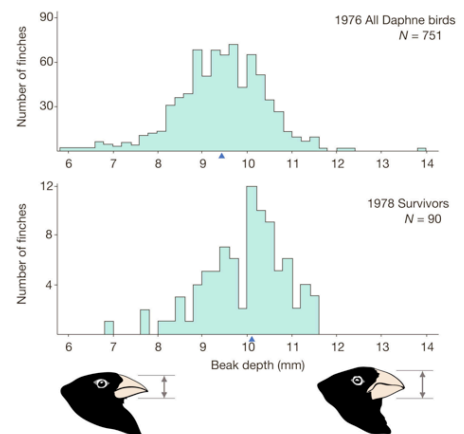


Reproductive potential

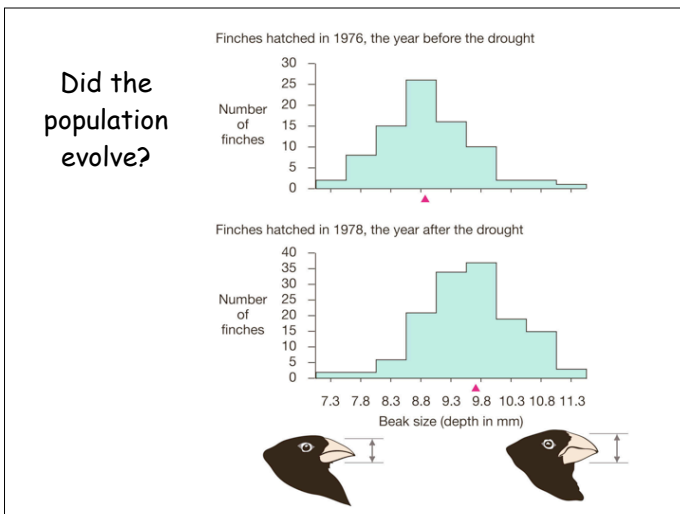
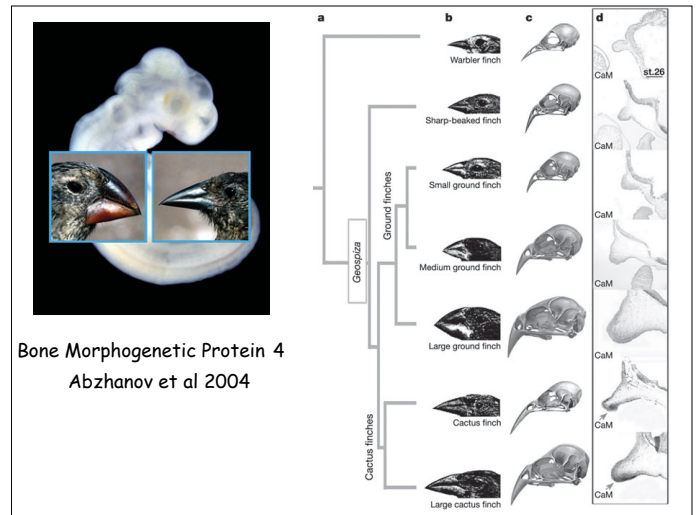
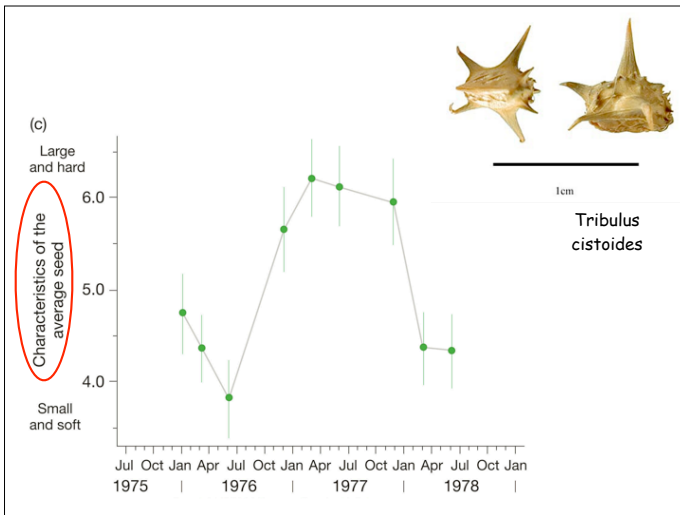
### • Competition



### • Nonrandom survival & reproduction

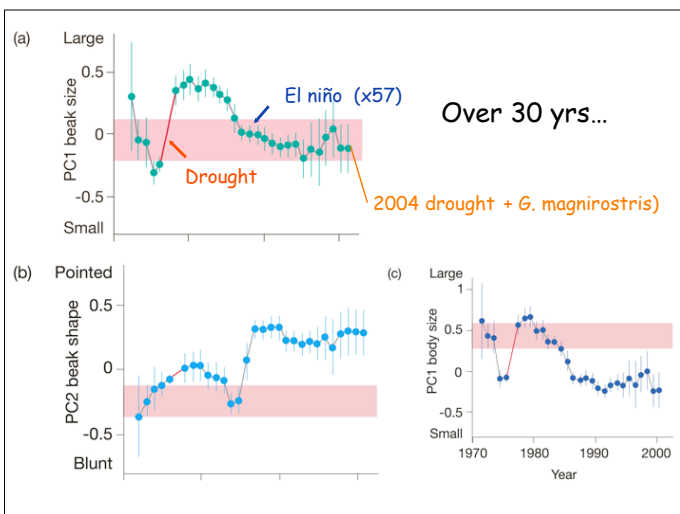




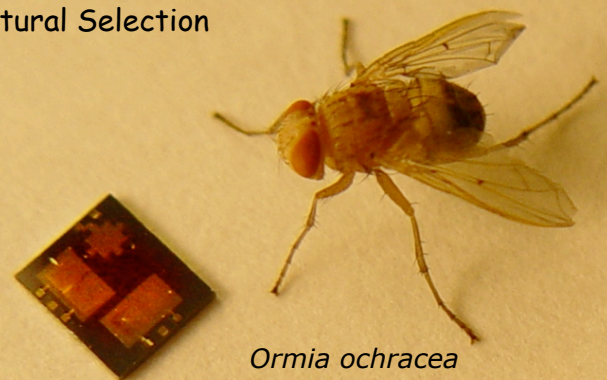


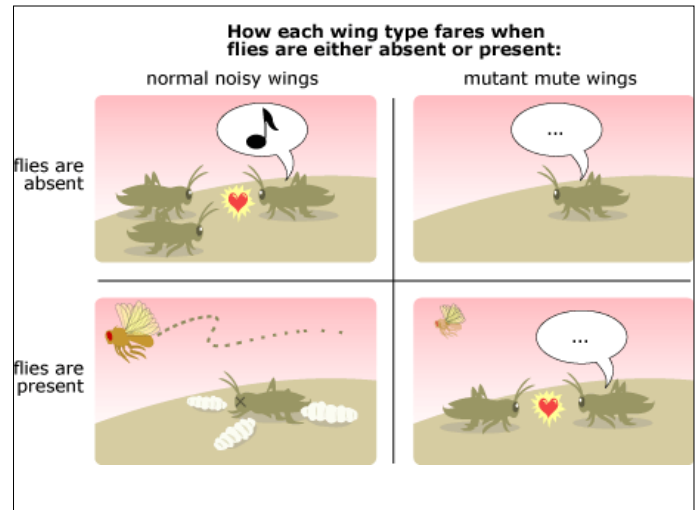
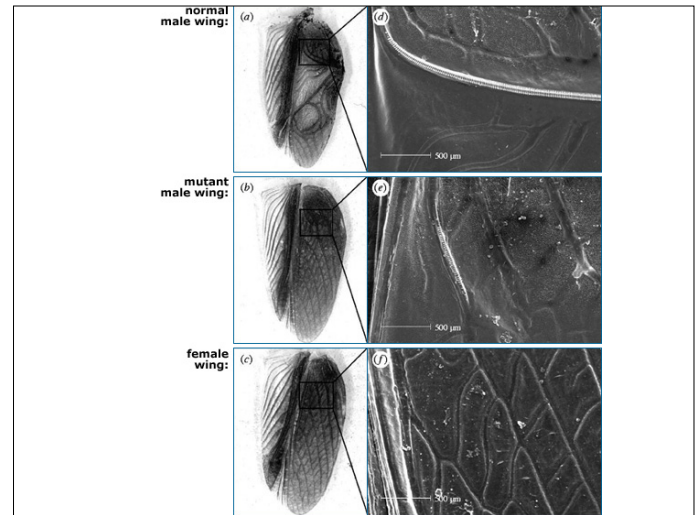
## "Origin of Species: an illustrated guide"

1. The word 'Darwinism' has a dual meaning. What are these?
2. From what 3 inferences does the theory of NS follow?
3. Why was/is so simple a theory so widely misunderstood?
4. Is the concept of natural selection relevant in a political or economic context?
5. What is the primary modern icon of evolution? -- and why is it wrong?
6. Give examples of how different disciplines and theories (academic & social) have been influenced by this misconception.



## Misconceptions of Natural Selection





1991 - 2001  
2003 (20 generations)

Marlene Zuk et al



### Common misconceptions of NS

- acts on individuals → consequences on pop
- acts on phenotypes →  $\Delta$  in allele freq
- looks backward
- new traits evolve from existing traits
- not 'perfect'
- nonrandom, but not progressive
- fitness is not circular
- acts on individuals NOT for "good of spp"