Mate choice

Mate choice

Males less so

Rana spp.

Boa spp.

sockeye salmon

sage grouse

Females generally more discriminating

On what basis are mates chosen?
Direct benefits
Indirect benefits

Direct benefits: protection

rattlebox moth

Newly protected female moth being rejected by spider

Rattlebox moth feeding off rattlebox plant, obtaining alkaloids

Male moth transfers alkaloids to female

Direct benefits: food

hanging-fly

Increase duration of courtship

Female dance flies trick males into giving up nuptial gifts

Direct benefits: food

Chimpanzees sometimes hunt for meat
"Meat for sex" hypothesis

Direct benefits: spermatophores

Mormon cricket

tiger salamander

Some attached to females

scorpion

Some deposited on substrate

Direct benefits: spermatophores

spermatophylax · sperm
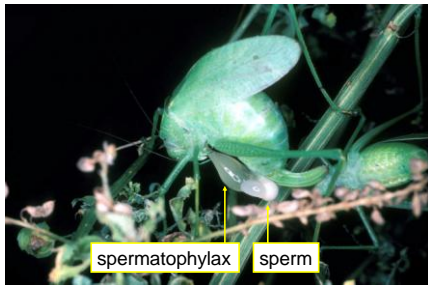
Direct benefits: sexual cannibalism

praying mantis

redback spider
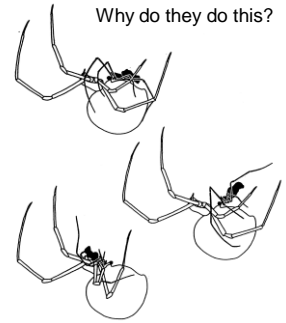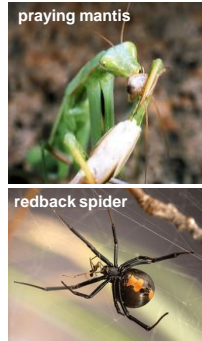
Why do they do this?

Mycoplasma conjunctivitis

Hamilton and Zuk: females should mate with males with traits that predict parasite/pathogen resistance

Marlene Zuk
Bill Hamilton

Plumage redness is inversely related *Mycoplasma* bacterial infection in house finches

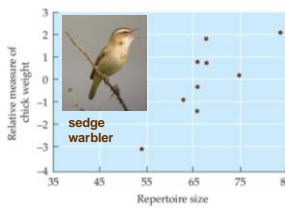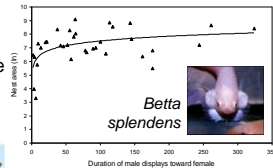## Direct and indirect benefits: parasites avoidance

Satin bowerbird coloration is honest indicator of parasite load

Adult males

$\log(y+1) = 4.6 - 0.83x$

Juvenile males

$\log(y+1) = 6.8 - 33.1x$
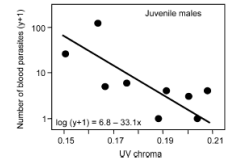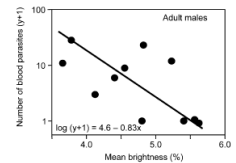
Direct and indirect benefits: parasites avoidance

- Males sometimes responsible for nest construction, parental care
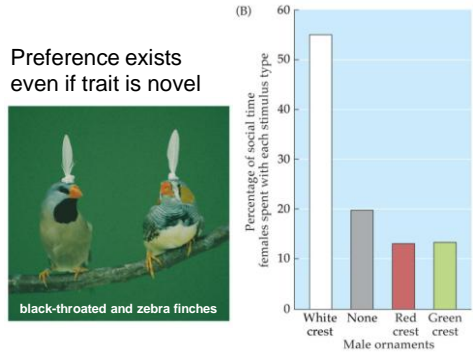- Female choice based on benefits to offspring

Betta splendens

sedge warbler

Females prefer caring males

Sand goby

16 of 22 females chose "low oxygen" male
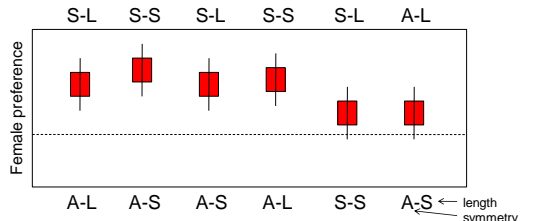
Preference for extreme traits

peacocks — widowbirds

Change in number of matings / Number of matings

Experimental — Control — Elongated — Control — Shortened

Preference for extreme traits

Preference exists even if trait is novel

black-throated and zebra finches

(B)

Percentage of social time females spent with each stimulus type

White crest — None — Red crest — Green crest

Male ornaments

Preference for symmetrical traits

Fluctuating asymmetry = chance differences in paired structures

scissor-tailed flycatcher — stalk-eyed fly

Preference for symmetrical traits

S-L   S-S   S-L   S-S   S-L   A-L

Female preference

A-L   A-S   A-S   A-L   S-S   A-S ← length symmetry

three-spined stickleback

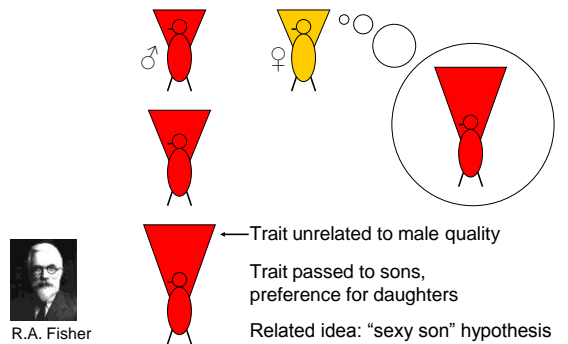Conclusion? Symmetry more important than size

Indirect benefits: good genes

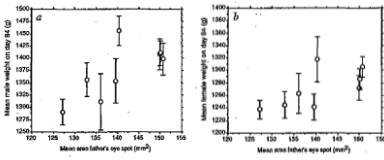Why choose extreme or symmetrical traits?

Good genes hypothesis

Indirect benefits: Fisherian ("runaway") selection

♂   ♀

R.A. Fisher

← Trait unrelated to male quality

Trait passed to sons, preference for daughters

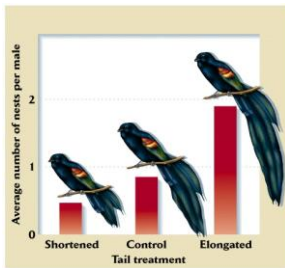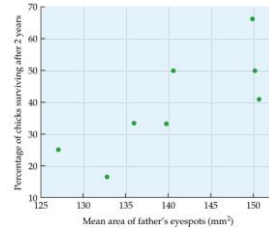Related idea: "sexy son" hypothesis

Good genes vs. Fisherian selection

Hypotheses not mutually exclusive

Good genes (and Fisherian selection?)
in population of peacocks

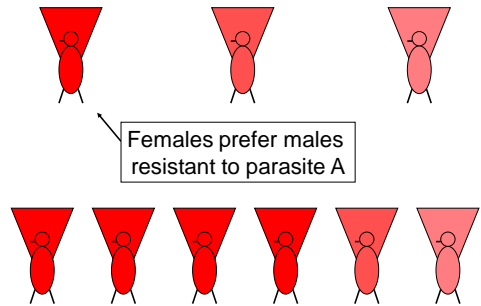## Good genes vs. Fisherian selection

aa   Aa   AA

If preferred trait is genetic,
runs quickly to fixation

How do you explain natural variation in trait?

Hamilton-Zuk hypothesis

Females prefer males
resistant to parasite A

Hamilton-Zuk hypothesis

Population vulnerable to
invasion by parasite B
Females now prefer
males resistant to B