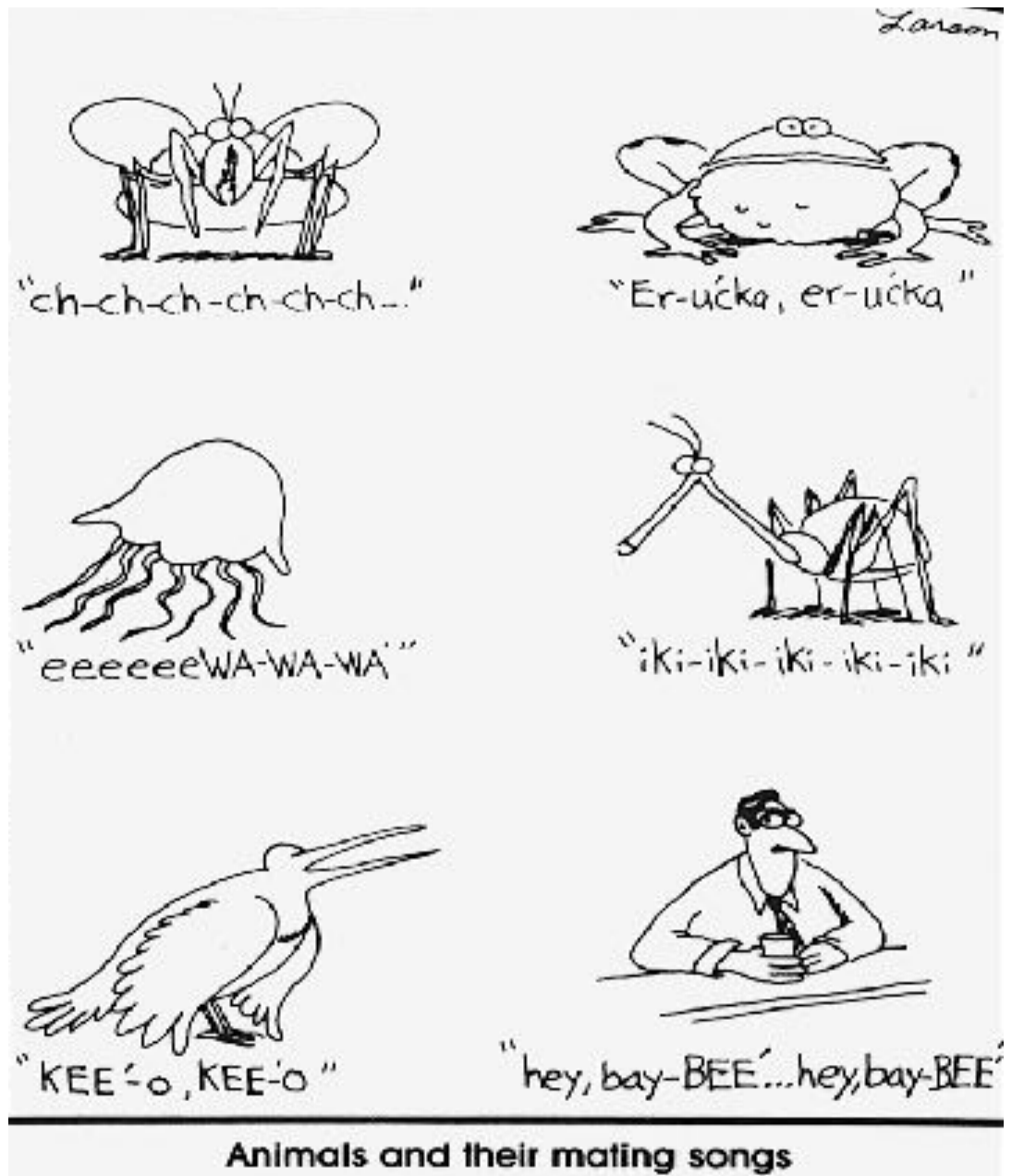


Mating strategies



Mating strategies

- Strategies often simple: everyone does same thing
 - Fight for access to mates and/or have traits that females find most attractive
- Alternative mating strategies: sometimes more than one way to “get the job done”
 - If most males are involved in direct competition, sneaky alternatives can be favored
 - A population with all males using aggressive tactics may not be evolutionarily stable: mutant sneaky strategy can be favored



Alternative mating strategies & tactics

- Types of mating strategies
 1. Conditional strategy
 - non-genetic alternatives
 - unequal RS
 - “alternative tactics”
 2. Mixed strategy
 - non-genetic alternatives
 - equal RS (neg. frequency dependent)
 - “alternative tactics”
 3. Alternative (pure) strategies
 - genetic alternatives
 - equal RS (neg. frequency dependent)
 - “alternative strategies”



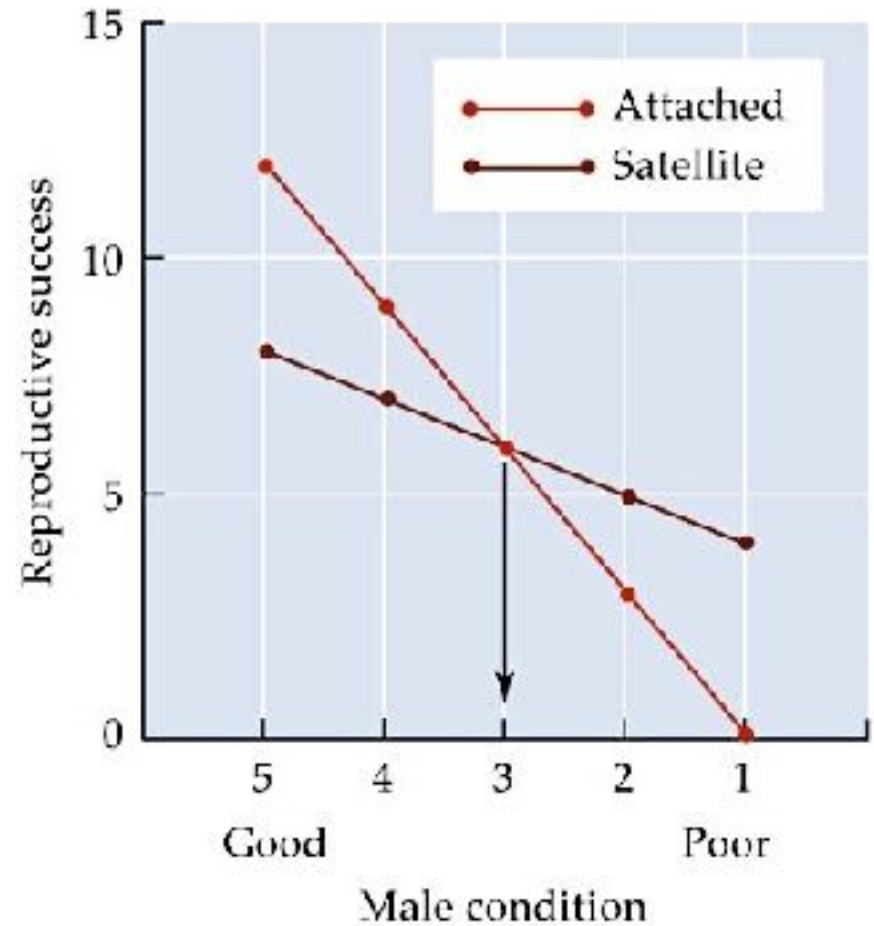
Conditional strategy

- Individuals adopt alternative tactic based on condition
 - Condition based on internal state or social environment
 - Make the best of a bad job
 - Example
 - Scorpionfly nuptial gifts
 - Depending on ability to defend resources, can
 - » Defend prey item
 - » Defend saliva
 - » Rape: forced copulation



Conditional strategy

- Modeling behavioral strategies
 - Condition determines which tactic should be favored



Conditional strategy

- In some cases, flip-flop between tactics
 - Examples
 - Squirrels
 - Can either be active-pursuit or satellite, depending on number of competitors
 - Bullfrogs
 - From caller to sneaker, depending on short-term condition
 - Masturbating wimpy marine iguanas
 - Release sperm into cloaca before mating



Conditional strategy

- In some cases, 1 tactic throughout life
 - Dung beetles:
 - When not enough food to grow large, develop into sneaker type
 - Sneak copulations
 - Sneakers have no horns and don't compete with other males



Alternative mating strategies & tactics

- Types of mating strategies

1. Conditional strategy

- non-genetic alternatives

- unequal RS

- alternative tactics

2. Mixed strategy

- non-genetic alternatives

- equal RS (neg. frequency dependent)

- alternative tactics

3. Alternative (pure) strategies

- genetic alternatives

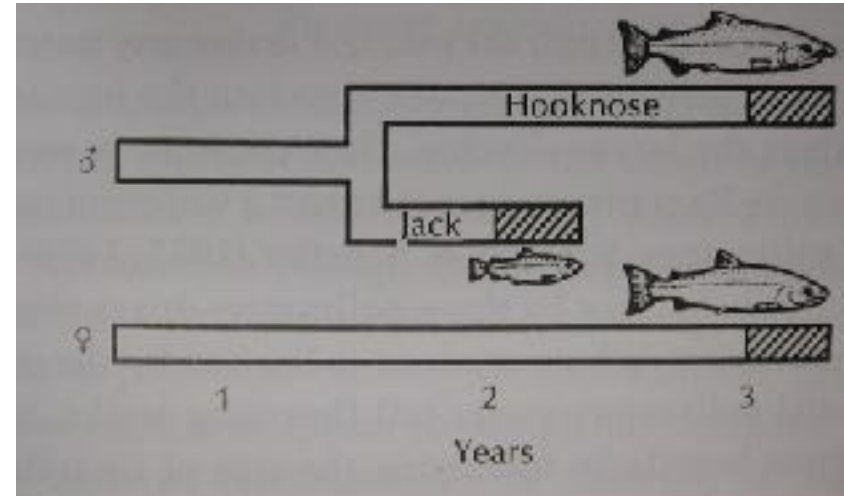
- equal RS (neg. frequency dependent)

- alternative strategies



Mixed strategy

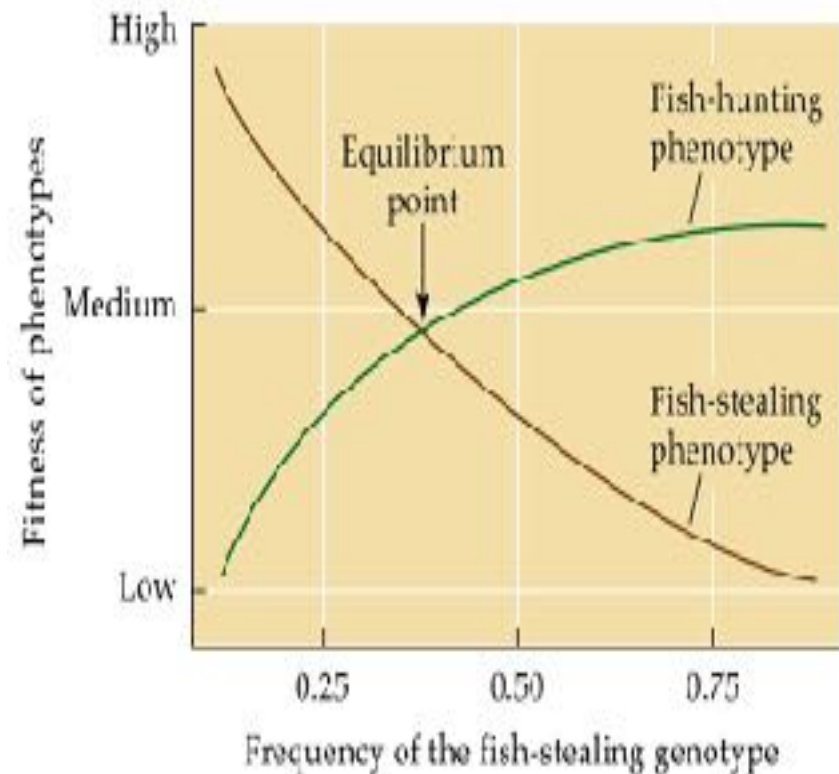
- ‘Normal’ large hooknose ♂♂
 - Mature @ 3 years
 - Fight, attract ♀♀
- Small jack ♂♂
 - Mature @ 2 years
 - Sneaky fuc*-ers
- Optimal tactic is negative frequency dependent
 - Good to be rare type of ♂♂
 - Both tactics have equal RS (at equilibrium)





Mixed strategy

- In some cases, flip-flop between tactics
 - Examples
 - fish-stealing/fish-hunting in terns



Alternative mating strategies & tactics

- Types of mating strategies

1. Conditional strategy

- non-genetic alternatives

- unequal RS

- alternative tactics

2. Mixed strategy

- non-genetic alternatives

- equal RS (neg. frequency dependent)

- alternative tactics

3. Alternative (pure) strategies

- genetic alternatives

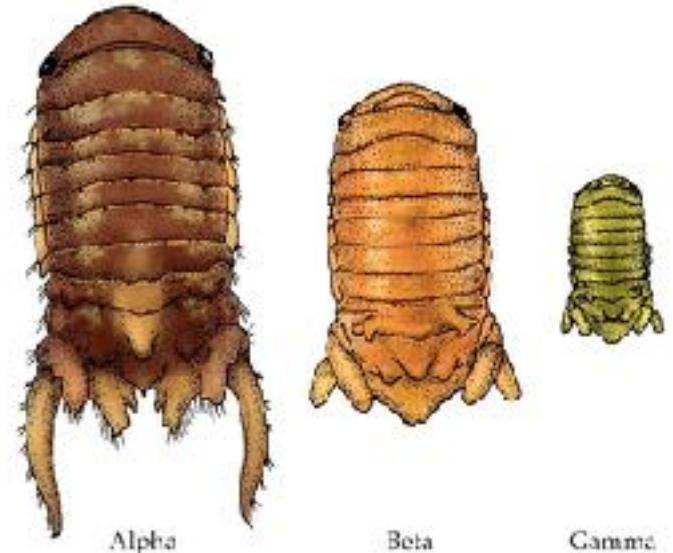
- equal RS (neg. frequency dependent)

- alternative strategies



Alternative strategies

- Individuals cannot switch between strategies
 - **Genetic polymorphism**
 - Negative frequency dependent selection
 - Examples
 - Marine isopods
 - Alpha, beta, gamma
 - each use a different hereditary strategy
 - each has same RS (on avg)



ANIMAL BEHAVIOR 3e, Figure 13.25

© 2003 Sinauer Associates, Inc.

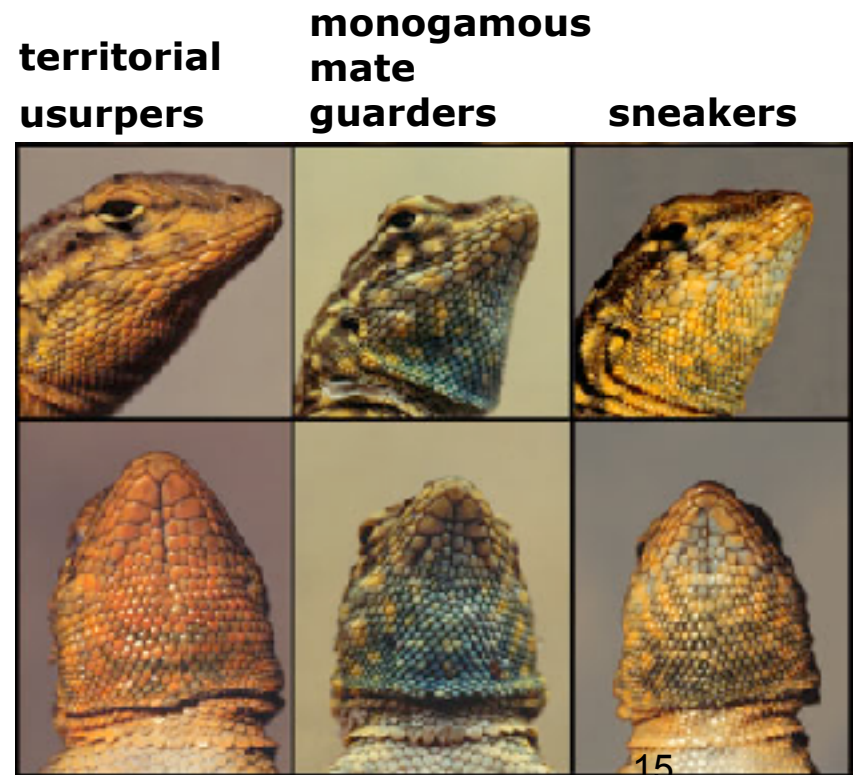
Alternative strategies

- Example: Ruff
 - Territorials, satellites, female mimics
 - » cool note: female mimics testes are 2.5 times the size of normal males



Alternative strategies

- Example: Side-blotched lizard
 - Males with orange, yellow, or blue throat color
 - Aggressive species with much male-male competition, head-bob displays, attacks



Alternative strategies

- Orange vs orange
 - Lots of displaying, aggression, territoriality, ritualized combat, some actual fights.



Alternative strategies

- Orange vs blue
 - However, the blues are dominated by oranges--they are often attacked unceremoniously and kicked off territory



Alternative strategies

- Orange vs yellow
 - Interestingly, yellow employ female mimicry to pacify oranges, and they aren't kicked off



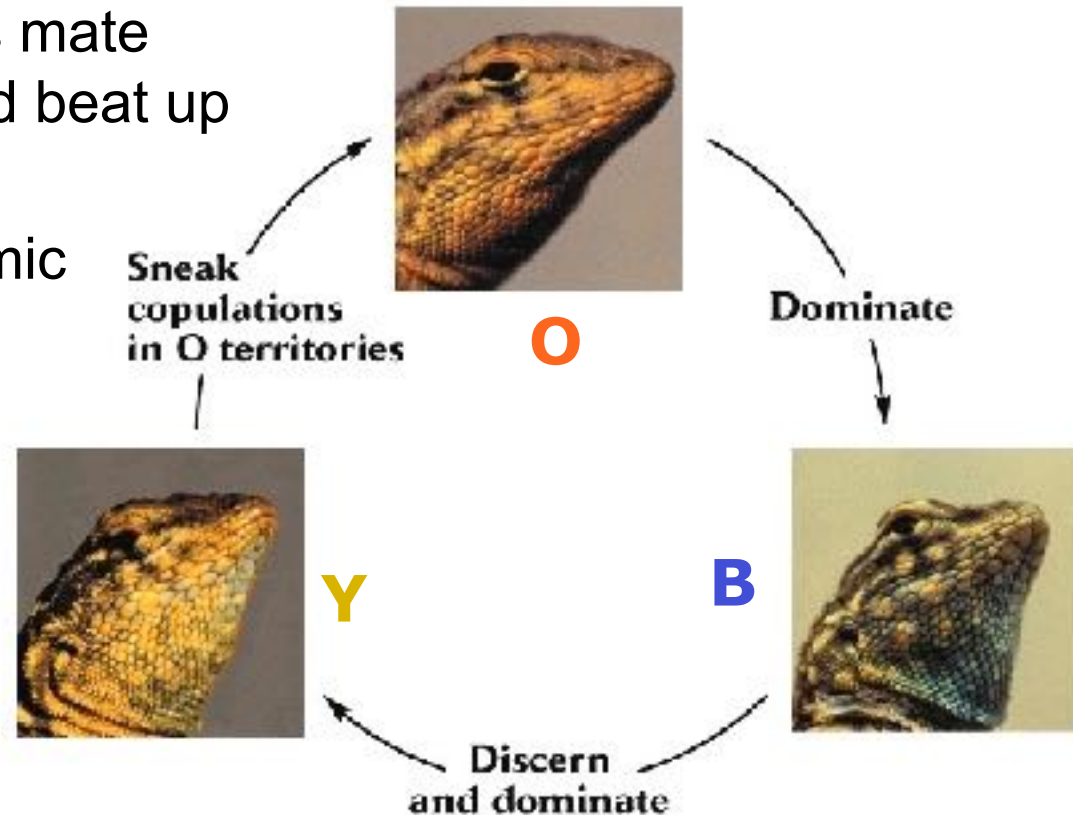
Alternative strategies

- Blue vs yellow
 - Blues aren't fooled by yellows. They will kick off yellow when they find them.



Alternative strategies

- Male strategies
 - **O males** territorial usurpers: aggressive, short-lived
 - **B males** monogamous mate guarders: recognize and beat up female mimics
 - **Y males** sneakers: mimic females



- Rock, paper, scissors analogy

Alternative strategies

- Why do all 3 strategies persist over time?
 - Strategies are evolutionary stable through negative frequency dependent selection
 - rare type benefits when other type(s) common

