

REVIEW FOR SECOND EXAM

Lecture 13: Cooperation and conflict in social groups

Defining sociality

Examples of cooperation in social groups (e.g., honeybees)

Examples of conflict in social groups (e.g., groove billed anis)

General types of groups (aggregations, reproductive pairs, kin groups)

Implications of group structure for:

How groups forms

Adaptive bases for group living

Potential for cooperation and conflict

Lecture 14: Natal philopatry and group formation

Defining natal philopatry

Costs vs benefits of natal dispersal – why do most juveniles disperse?

Costs vs benefits of natal philopatry – why do some juveniles stay home?

Conceptual frameworks for understanding natal philopatry:

Benefits of philopatry

Ecological constraints

Delayed dispersal threshold model

Testing the delayed dispersal threshold model – stripe backed wrens

Lecture 15: Ecology of sociality

Testing the delayed dispersal threshold model

Stripe backed wren example

Seychelles warbler example

Common ecological constraints:

Habitat saturation

Shortage of mates

Costs of reproducing alone

Costs of dispersing

Lecture 16: Alloparental care

Defining alloparental care

Singular breeding vs plural breeding alloparental species

Adaptive bases for alloparental care: two distinct questions

Why be philopatric?

Why provide alloparental care?

Benefits to breeders (do helpers really help?)

Current direct fitness benefits

Future direct fitness benefits

Benefits to alloparents (why provide alloparental care?)

Current indirect fitness benefits

Current direct fitness benefits

Future direct fitness benefits

Role of ecology and kinship in alloparental systems: pied kingfisher example

Lecture 17: Alloparental care (again)

Role of kinship in alloparental systems:

Continue with pied kingfisher example

White fronted bee eater example

Stripe backed wren example

Lecture 18: How important is kin selection?

Defining direct vs indirect fitness, inclusive fitness

Hamiltonian (indirect fitness) explanations for apparent altruism

Four types of social interactions: altruism, mutualism, selfishness, spite

Evidence that indirect fitness doesn't explain all aspects of alloparental care:

Care doesn't vary with helper relatedness to young

Not all alloparents are kin to young

Examples: pied kingfishers, meerkats, splendid fairy wrens, white browed scrubwrens

Re-evaluating relative importance of indirect fitness benefits in explaining alloparental care

Lecture 19: Reproductive skew

Defining reproductive skew

Low skew vs high skew societies – graphing patterns of direct fitness

What limits reproduction within social groups?

Extrinsic constraints

Intrinsic constraints

Models of reproductive skew:

Reproductive concessions model

Incomplete control model

Determining which model applies – meerkat example

Lecture 20: More reproductive skew

- Role of kinship in reproductive skew
 - Matrifilial vs sororal societies (literature review)
 - Kinship among reproductive partners (meerkats)
- Proximate mechanisms of reproductive skew (suppression)
 - Behavioral mechanisms
 - Physiological mechanisms
 - Scale of increasing severity of suppression

Lecture 21: Trends in sociality

- General patterns that arise when comparing social species
- Use group size as a starting point (axis for comparison)
- Consider trends in:
 - Philopatry (degree and duration)
 - Ecological constraints (severity)
 - Kinship (mean among group members)
 - Indirect vs direct fitness benefits (relative importance)
 - Direct fitness graphs (lifetime measures of direct fitness)
 - Extent of reproductive skew (scale of 0 = low to 1 = high)
 - Mechanisms of suppression (behavioral vs physiological)
 - Extent of cooperation (number of activities)
 - Behavioral specialization (degree)
 - Morphological specialization (degree)
- What are causal connections?