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?