Durham University

EXAMINATION PAPER

Examination Session:	Year:	Exam Code:
May	2018	BIOL3561-WE01

Title:

Behavioural Ecology

Time Allowed:	3 hours	
Additional Material provided:		
Materials Permitted:	None	
Calculators Permitted:	Yes	Models Permitted: Casio fx-83 GTPLUS or Casio fx-85 GTPLUS calculator.
Visiting Students may use dictionaries: No		

Instructions to Candidates:	Answer **two** questions. Please use separate books for each answer. **Do not** attach your booklets together with treasury tags unless you have used more than one booklet to answer the same question. Answers should be illustrated with labelled diagrams wherever these are useful.

Revision:	1

continued

Answer TWO questions

1) Behavioural ecology is a broad discipline but the underlying concepts and tools for studying the subject are consistent across a wide range of topics. Discuss those concepts and tools and how they have been utilised to improve our understanding of ONE of the following topics: play; tool use; human impacts on wildlife behaviour; altruism and spite; female competition; sexual conflict; or collective behaviour. You should clearly state which topic you are addressing.

2) In 1948, David Lack observed that birds show a strong relationship between clutch size and latitude, as illustrated by the examples in Figure 1, below. What approaches are available to develop and test hypotheses for this phenomenon and what are the benefits and limitations of each approach?

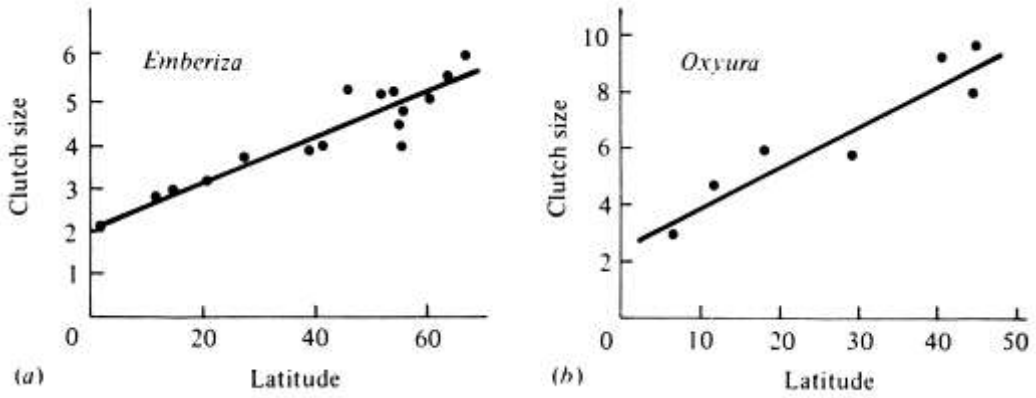

Figure 1: Relationship between clutch size and latitude in two avian genera. Each data point represents a different species.

3) Using the behavioural evolutionary ecology concepts you have learned, describe why humans demonstrate choosiness when it comes to selecting a mate and what characteristics they may be evaluating. Provide examples. What factors might make human mating patterns differ from animals?

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4) You have discovered a new species of seabird. You collect data on the relationship between reproductive success (number of chicks surviving to fledging) in relation to the number of mates (Figure 2, below). Based on this plot, make a hypothesis about the strength of sexual selection in males and females. Explain how/why you came to that conclusion and what additional data you could collect to gain additional support.

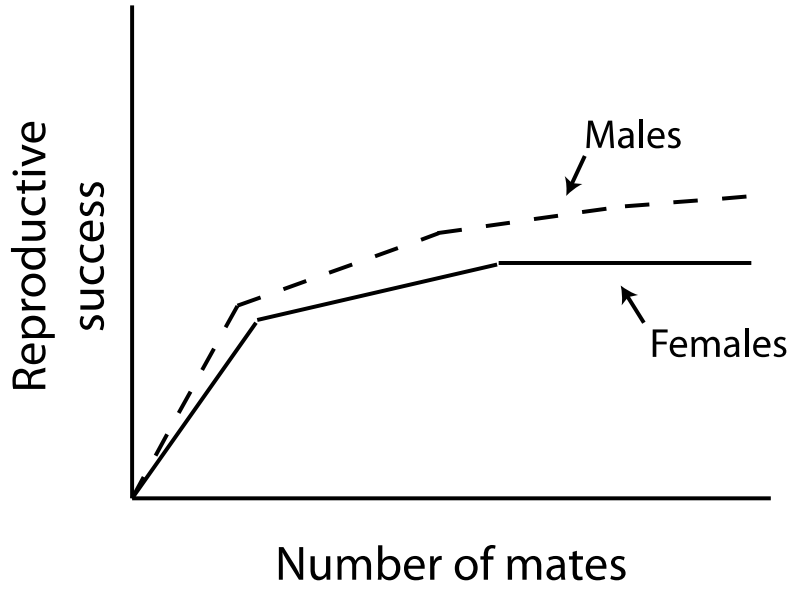

Figure 2: Distribution of reproductive success in relation to the number of mates in males and females of a new species of seabird.

5) Ecologists recognise that competition is most intense when organisms show high niche overlap. Niche overlap is likely to be highest among individuals of the same species. Why, then, do individuals of many species form social groups?

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