

NEWCASTLE UNIVERSITY

MPHIL THESIS

---

# Avian Habitat Selection: Competition and Consequences

---

*Author:*

Ross Ahmed

*Supervisor:*

Richard Bevan

*A thesis submitted in fulfilment of the requirements  
for the degree of Master of Philosophy*

*in the*

Ecology Group  
School of Biology

December 2015

Newcastle University

# *Abstract*

Ecology Group

School of Biology

Master of Philosophy

## **Avian Habitat Selection: Competition and Consequences**

by Ross AHMED

Understanding avian habitat selection is a fundamental goal of ecological and evolutionary research. Two subspecies of Brent Goose, Dark-bellied Brent Goose and Light-bellied Brent Goose, winter at Lindisfarne, Northumberland and provide an excellent opportunity to study mechanisms underpinning avian habitat selection. The two subspecies are spatially segregated and Light-bellied Brent Goose arrives at Lindisfarne earlier in the autumn than Dark-bellied Brent Goose. This study aimed to relate the segregation of Brent Goose subspecies to habitat quality and order of arrival. The order of arrival hypothesis predicts that the first individuals to arrive at a site will occupy higher quality habitat than later arriving individuals, thus potentially acting as a mechanism underpinning segregation. As Light-bellied Brent Goose arrives at Lindisfarne earlier than Dark-bellied Brent Goose, it should occupy higher quality habitat than habitat occupied by Dark-bellied Brent Goose. Compared with Dark-bellied Brent Goose, Light-bellied Brent Goose selected habitat with greater *Zostera* cover, selected habitat that allowed feeding further from the shore, remained in marine habitat for longer into the winter and was more vigilant. Collectively, these results suggest that order of arrival and habitat selection could be a mechanism underpinning the segregation of Dark-bellied Brent Goose and Light-bellied Brent Goose at Lindisfarne. Further research should seek to rule out differential adaptations of Dark-bellied Brent Goose and Light-bellied Brent Goose as a mechanism underpinning their segregation.