

University of KwaZulu-Natal, Pietermaritzburg

November 2014 Examinations

ENVS 723: Advanced Biogeography

Time: 3 Hours

Internal Examiner: Prof T.R. Hill

Marks: 300

External Examiner: Prof S.W. Grab

This paper consists of 3 pages

Answer Three Questions. All Questions carry 100 marks.

Question One is *Compulsory* for all students

ANSWER THE FOLLOWING COMPULSARY QUESTION

Question One:

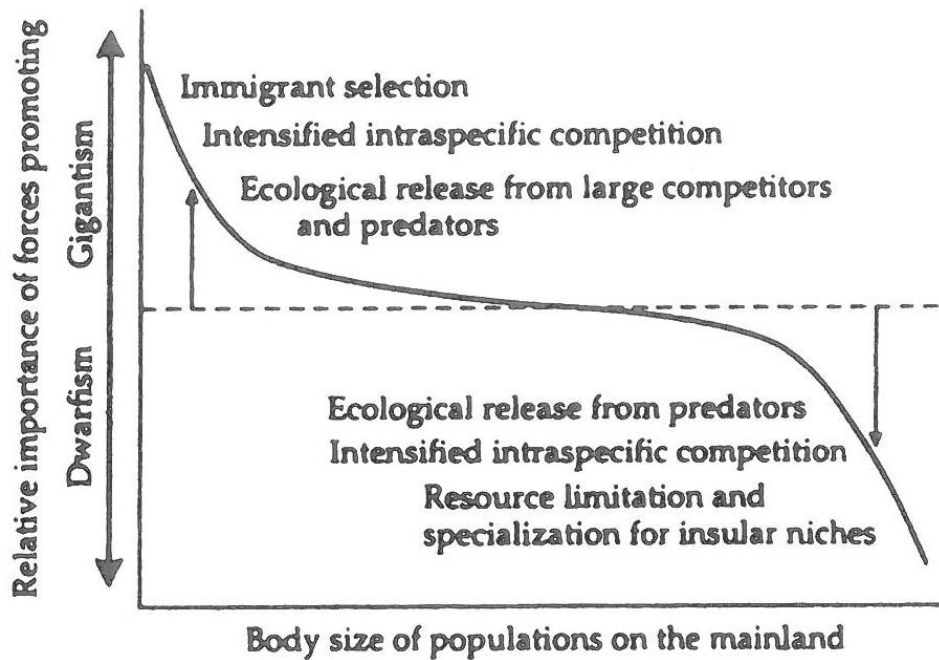
The argument still rages regarding the mega-faunal dieback; what caused it, how complex were the causes, at what scale (temporal and spatial) did processes operate scale (time and space) of process and how did different geographical places and taxa experience it. Outline and provide a critical view on the many debates. In your answer, present evidence (citing relevant papers) to support the various hypotheses.

ANSWER TWO OF THE FOLLOWING:

Question Two:

In his book entitled: 'Driven to Extinction' Pearson (2011, page i) opens with the following statement: "Climate change is real, and so is the threat it poses to the diversity of plants and animals that inhabit the Earth. Yet debate on this topic has been polarised by catastrophists who fret that we are heading towards total disaster and sceptics who insist that there is nothing to worry about". Focusing on case studies taken from Pearce (2011), Quammen (2004) and your own readings from the course, discuss *what* we know, *how* we know it and, avoiding who is to blame, critically assess *what* is to be done about it.

Question Three:



(Emergent pattern of the island rule. Selective pressures change in a predictable manner along a gradient from relatively small to relatively large species. Sourced from Lomolino, 2005)

Old versus new, big versus small, near versus far, islands are all about dichotomies! With the aid of the above diagram, outline the mechanisms of insular biogeography and the evolutionary trends we witness on islands. In addition, critically assess how 'useful' islands really are to nature reserve design?

Question Four:

Critically assess the statement that: "By virtue of their size, typically distinctive environmental character and, in particular, their isolation in both time and space, islands represent a fascinating collection of novel selective regimes – evolutionary arenas distinct from those of the mainland and each with a unique suite of environmental features." (Lomolino, M.V., Riddle, B.R. & Brown, J.H., 2006: 469)

Question Five:

Critically assess the statement that: “since biotic interchange is due to dispersal and subsequent ecological success, the maintenance of provincialism must be due largely to some combination of continued isolation and resistance to invasion” (Lomolino, M.V., Riddle, B.R. & Brown, J.H., 2006: 366).