

Assessment Report

New Zealand Scholarship Biology 2025

Performance standard 93101

General commentary

Successful candidates critically analysed the questions and resource material provided and integrated this with relevant biological ideas across a range of contexts.

Candidates with broad biological knowledge as well as deep understanding of biological ideas were able to successfully use and define appropriate terminology and justify their ideas, including providing supporting examples.

Successful candidates wrote concise, well-structured responses that demonstrated insight and addressed all parts of the questions.

For Question One:

- Candidates generally answered the first part of this question well, with the majority demonstrating a clear understanding of predator–prey relationships and other ecological consequences of thylacine extinction.
- Many rewrote the resource material and used incorrect terminology, which limited candidates (e.g. using ‘food’ instead of ‘prey’ and not categorising competition as interspecific).
- Candidates often identified that organisms would become ‘extinct’ rather than experience population decline due to changes in the ecosystem.
- The role of scavengers in recycling nutrients was not clearly communicated by candidates.
- Some candidates applied their knowledge of New Zealand ecosystems to the Australian context (e.g. some candidates identified possums and rodents as pests).
- The causes of thylacine extinction were not required in this question, nor the challenges to reintroducing a self-sustaining population of thylacine into the Australian ecosystem.
- Many candidates did not show understanding of the reason for the rise of DFTD, where they attributed the spread of this disease to rotting carcasses rather than transmission between Tasmanian devils due to population density.
- The second part of this question proved challenging for many candidates who did not detail the genetic manipulation techniques required to create a full thylacine genome that could then be used in the de-extinction process.
- Cloning understanding was comprehensive for few candidates.

For Question Two:

- An understanding that bar-tailed godwits needed to have adaptations to successfully undertake migration was evident for the majority of candidates but these were not identified as structural, behavioural, or physiological, limiting candidate success.
- Migratory timing and navigation techniques were often not justified with the depth required for Scholarship.

- Candidates are reminded to read the question carefully to know that hatchlings of bar-tailed godwits make the long 11,000 km migration as very young birds but then stay for three to four years in New Zealand until sexually mature.
- The ecological requirements of each site along the migration route (the second part of the first bullet), along with warm temperatures and tail winds were often omitted when responding to this question.
- In terms of the effects of climate change on bar-tailed godwits migration, many candidates identified sea level rise and changing wind patterns as key factors that reduce habitats and food availability. A deeper commentary to link other climate change factors to less successful migration and population decline was required.
- “Global warming” was not accepted for global average temperature rise.

For Question Three:

- The density of the resource material provided for this question made the formulation of a concise response challenging.
- Comparison of the adaptations of hominins for projectile throwing with chimpanzees were generally well made.
- Linking the selection of these adaptations to successful hunting or bipedalism was required in many areas.
- General trends in the increasing complexity of projectiles linked to more successful hunting and the positive feedback loop linking cultural and biological evolution was well understood.
- Candidate triangulation of the material in the resource to correctly attribute the type and complexity of the projectile with the location and time period to the correct hominin, integrating prior knowledge of tool culture and hominin dispersal was lacking detail.

Report on performance standard

Candidates who were awarded Scholarship with **Outstanding Performance** commonly:

- demonstrated perception and insight
- showed evidence of planning by way of well-constructed responses presented in a fluent and concise way
- attempted all aspects of all three questions
- made frequent references to the source material for examples and contexts
- used a wide range of biological terminology that showed understanding at a high level
- discussed the flow-on effects of the extinction of a keystone species on the ecosystem as a whole
- recognised that transmission of disease is density-dependent
- presented in-depth knowledge of gene technologies, including CRISPR-Cas 9
- commented on phylogenetic relationships and how they affect the success of surrogacy in terms of cloning
- identified physiological adaptations for migration
- commented on the need for a biological clock and biochemicals (e.g. magnetite) when using certain navigational techniques
- linked climate change to reduced migratory success and reduced reproductive success leading to population decline
- made clear comparison between chimpanzee and hominin anatomies with reference to successful throwing and increased hunting success
- used dates and locations to correctly identify tool cultures and hominins associated with them.

Candidates who were awarded **Scholarship** commonly:

- attempted all questions
- explained the effect of the extinction of a predator on the food chain
- correctly identified interspecific relationships
- showed sound knowledge of some gene technologies (e.g. cloning)
- identified structural adaptations in bar-tailed godwits and linked these to energy savings for successful migration
- identified navigational techniques and environmental cues used in migration behaviours
- used data from the resource to justify statements (e.g. 2% annual population decline)
- described how climate change affects migratory success in bar-tailed godwits
- compared some structural adaptations for throwing in chimpanzees and hominins
- linked these adaptations for throwing to the ability to throw further or faster
- correctly assigned tool technologies to hominins.

Candidates who were **not awarded Scholarship** commonly:

- did not attempt all questions or parts of a question
- rewrote material from the resource
- did not use correct biological terminology (e.g. when describing ecological relationships)
- demonstrated insufficient knowledge of gene technologies and their uses
- did not specify the types of adaptations found in bar-tailed godwits
- missed linking climate change effects to reduced migration or reproductive success
- missed comparisons between hominin and chimpanzee anatomies in their response
- did not link tool technologies to specific hominins
- did not assign specific tool cultures to the appropriate hominins.