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The role of disease risk and life history in the immune function of larks in different environments

Nicholas P.C. Horrocks

1. A primary aim of the immune system is to provide benefits to an organism, in the form of protection from infectious agents and inappropriate 'self'. Studies in ecological immunology have often focused on understanding the costs of immunity¹, without also considering the benefits against which these costs must be balanced².
 - ¹ Sheldon and Verhulst (1996); Norris and Evans (2000).
 - ² This thesis
2. The role of life history in shaping immunity may be an appealing concept¹, but an approach that considers multiple ecologically and evolutionarily relevant axes and not just a single axis of life history variation may be more useful for explaining differences in immune function among populations and species².
 - ¹ Lee (2006).
 - ² This thesis, chapters 2, 3 and 5
3. Abiotic proxies for biotic variation in disease risk are useful for exploring general patterns in immunological variation¹, but biotic measures of disease risk components are necessary to more fully understand observed patterns of variation in immune function².
 - ¹ This thesis, chapters 3 and 4.
 - ² This thesis, chapters 5 and 6.
4. Eggs, with fewer defence components and reduced routes of potential infection, can provide a simplified model of the immune system¹.
 - ¹ This thesis, chapter 4.
5. The development of additional field-friendly methods for assessing immune function in free-living animals can help unravel the complexities of the immune system¹. Connecting and explaining multiple measures of immunity across individuals, populations and species, also requires the development and use of advanced statistics that can deal successfully with the increasing amount of data that is generated.
 - ¹ This thesis, chapter 7.
6. Descriptive studies in science are of equal value to experimental manipulations. Indeed, the former should be the foundation upon which the latter are based.
7. Researchers in different scientific disciplines often speak completely different 'scientific languages'. A major part of cross-disciplinary, integrative science is learning to communicate successfully with all the parties involved.
8. "...it is always advisable to perceive clearly our ignorance." *Charles Darwin*.
9. The proverb "A bird in the hand is worth two in the bush" may apply when wishing to collect a blood sample from a bird, but for those more interested in reading rings, then the opposite may in fact be true.
10. The immune system can be considered like an onion. Both are multi-layered, and once you start to dig deeper, both will make your eyes water. *Anon*.