Reproduction, growth and immune function
Ndithia, Henry Kamau

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bijbehorende lage voedselbeschikbaarheid zou hebben, dan die op de twee koelere en nattere
locaties in Zuid- en Noord-Kinangop. Kedong bleek de hoogste voedselbeschikbaarheid te hebben
van de drie gebieden. Onze drie locaties geven mogelijk niet een typische droogtegradiënt weer,
met een daling van de primaire productiviteit en de bijbehorende afname van biomassa van
ongewervelde dieren. Toekomstige studies moeten zich richten op onderzoeken naar variatie in
groeisnelheid in omgevingen die een echte gradiënt in droogte vertegenwoordigen.

Tegen onze verwachting in, varieerde het afweersysteem van nestjongen van de
roodkapleeuwerik niet tussen de drie locaties die we bestudeerden, noch binnen Kedong, wat
suggereert dat het afweersysteem van de nestjongen zich in latere stadia na het uitvliegen
ontwikkelt. Om een gedetailleerd inzicht in de ontogenese van het afweersysteem te krijgen,
zouden verdere studies gericht moeten zijn op het systematisch meten van verschillende maten van
het afweersysteem, op verschillende tijdstippen in de groei, inclusief het volgen van de jongen tot
volwassenheid. In tegenstelling tot de populaire hypothese dat het afweersysteem van vogels
tijdens de broedperiode verzwakt wordt, constateren we in dit proefschrift dat in twee sympatrische
soorten, roodkap- en roodnekleeuweriken, de hoeveelheid stikstofoxide toeneemt tijdens het
voeden van de jongen in vergelijking met periodes dat er niet gebroed wordt. Stikstofoxide nam
ook toe tijdens het voeden van de jongen en de incubatie in vergelijking met niet broedende vogels
in respectievelijk Noord-Kinangop en Zuid-Kinangop in het onderzoek naar de variatie in het
afweersysteem van roodkapleeuweriken binnen en tussen drie locaties met verschillende
klimatologische omstandigheden. Deze twee uitkomsten wijzen op ondersteuning voor een
evolutionaire link tussen levensgeschiedenistrategie en het afweersysteem. Verder is de
verhoging van stikstofoxide tijdens het broeden in roodkapleeuweriken samen met perioden van
hogere Tmax in beide onderzoeken opgetreden, wat suggereert dat patronen van stikstofonoxide
kunnen hebben gereageerd op patronen van broedactiviteit of op veranderingen in
milieuomstandigheden, factoren die toekomstige studies zou moeten onderzoeken.

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Do you know what astonishes me most? It is that even the most important people in the world that we always look with admiration – Nobel prize winners, refined academicians, world leaders, war Generals, wealthy people, famous sportsmen and women – all reached the apex of their lives through support by people before them, be they their mentors, trainers etc. In the same way, I would not have reached this point of writing the acknowledgement if the rest of the thesis was not well written. That took the hands and efforts of many people, all playing different roles, directly or indirectly, that all went into making this thesis complete and of the quality that it is.

May I begin by thanking the Almighty God who has given me and everybody else who supported this work life and health. All wisdom and understanding comes from Him, and he gave us the ability to understand only a small portion of the intricate things in the nature that He created, the birds.

Second, I want to fervently thank my supervisors, Prof. Irene Tieleman and Dr. Muchane Muchai. When she came to Kenya to give a presentation about her work in Maasai Mara, Irene was also on a search mission for a PhD student with whom she could work on larks in Kenya. After referral to me by Dr. Thuita Thenya of the University of Nairobi and Ms. Jane Macharia of the National Museums of Kenya, she came knocking on our office door looking for one she had not met before. After a short informal discussion, which was aimed at assessing whether her interests and mine matched, we started making arrangements for me to visit the University of Groningen to write a PhD grant proposal. Irene has supported me in numerous ways throughout my PhD journey without whose support, I would not have achieved this PhD dream. Dr. Muchai has given me unwavering support before and during my PhD. He, together with Irene, facilitated my applications for PhD grants and wrote recommendation letters which secured me a three month grant from the University of Groningen to write a PhD grant proposal, which eventually led to my securing of a PhD grant from the Netherlands Fellowship Programme of Nuffic. Dr. Muchai also facilitated my field data collection through support letters to landowners where I collected field data.

Third, I would want to thank and appreciate my beloved wife Leah Wanjiku Kamau and our two children, Lucy Wangui Kamau and Benson Ndithia Kamau. I can never take for granted the support, both emotional and practical, this beautiful family gave to me. I was away from them for prolonged periods of time during different periods of my PhD studies. Leah was happy to look after the family while I was away. She also was friendly and welcoming to all our collaborators from the Netherlands. Lucy helped me with field data entry and initial processing while Benson went to the field with me and the field Assistants on many occasions when he was away from school. All of them took me to and from the airport whenever I was travelling to Groningen. Also special acknowledgements to my Mum and Dad Lucy Wangui Ndithia and Julius Ndithia Gitundu (posthumous) respectively for the motivations and prayer for my studies. In general, I thank my brothers and sisters, David Gitundu Ndithia, James Mwangi Ndithia, Nelson Gicheha Ndithia,
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