From molecules to monitoring: integrating genetic tools into freshwater quality assessments

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CIRRUCULUM VITAE

Kevin Beentjes was born on the 2nd of May 1987 in Zaanstad in the Netherlands. After finishing high school at RSG 't Slingerbos in Harderwijk in 2005, he started his BSc in Biomedical Sciences at the University of Amsterdam, from which he graduated cum laude. He continued his education with the MSc Forensic Science at the same university. The subject of his MSc research project and thesis at the Zoological Museum of Amsterdam, under the supervision of Herman de Jong, was the use of Trichoceridae in forensic entomology, which included DNA barcoding of prevalent Dutch species for molecular identification. After graduating in 2010, he started working at Naturalis Biodiversity Center in Leiden as a research technician in the DNA barcoding campaign funded by the Fonds Economische Structuurversterking, working on sponges, spiders and many other taxonomic groups. In 2015, he started his PhD on the subject of the integration of molecular techniques in water quality assessments at the Naturalis Biodiversity Center and the University of Leiden, under the supervision of Menno Schilthuizen and Arjen Speksnijder, and funded by the Gieskes-Strijbis Fonds. In 2019, while still in the process of writing his thesis, he continued his work at Naturalis Biodiversity Center, where he is involved in applied biomonitoring projects through the BioMon spin-off and collaborations with other institutions, as well as the ARISE project, which will continue the work of creating a genetic reference for all Dutch flora and fauna.

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ACKNOWLEDGEMENTS

This thesis and the work presented herein would not have been possible without the support of my supervisors, co-authors, colleagues and friends.

I am very grateful for the guidance by Menno Schilthuizen and Arjen Speksnijder, and also by Berry van der Hoorn. In addition, I would like to thank my other co-authors, who were invaluable for the creation of the chapters presented in this thesis. Rob Pastoor processed a lot of samples in the lab. Marten Hoogeveen was vital in the creation of the bioinformatics pipeline we still use today, and it was great to brainstorm about possible new tools to help in the analysis of the massive amounts of data. Bart Schaub provided some useful insights from a water management perspective. Krijn Trimbos, Henrik Barmentlo and Ellen Cieraad provided a lot of statistical and ecological knowhow that was crucial to the impact assessment study in Chapter 5. Michiel Hootsmans provided additional feedback on the Dutch fact sheet that was written parallel to the introduction to this thesis.

I am grateful to Naturalis Biodiversity Center and the University of Leiden for access to all the facilities, the laboratories and the Living Lab in particular. I would also like this opportunity to thank Staatsbosbeheer for access to protected sites in the dunes, and the people at AQUON and Hoogheemraadschap van Rijnland for providing us with many traditionally collected monitoring samples and data. Thanks to Daan Drukker and Bram Koese for organizing the collection of many relevant taxa for the barcode reference database, and in particular Harry Smit and Alexander Klink for providing many specimens of water mites and chironomids, respectively.

Thanks to the staff at the Naturalis lab, Frank, Oscar, Elza, Marcel, and Roland, who provided me with the necessary assistance and supplies, and Sam who helped me out with many eDNA extractions. And a special thanks to my students, who did a lot of the necessary testing of protocols and methods. Jeroen, Rolene, Wouter, Floris, Jelle, David, Kevin, Ruchira, Simone and Merel, I hope you learned as much as I did.

Also thanks to my fellow PhDs, for both scientific discussion and less-than-scientific discussions over lunch, or over beer and pizza. Andres, Dewi, Eka, Esther, Hector, Isolde, Kasper, Larissa, Le Qin, Leon, Lisette, Marcel, Merijn, Richa, Roderick, Sofia, Tiedo, Werner and all the others, it was good having you around! The same goes for all my other past and present colleagues at Naturalis. Thanks to Jan and Camiel for encouraging me to pursue a PhD. I'm grateful to have met a lot of national

and international colleagues and fellow PhDs at the various conferences I attended, and during my field work. Keep on doing the inspiring work you do.

This period of my life would also have been very dull without the other people I am happy to call my friends. More beer and pizza was shared with Frank, Martijn, Dick, Krijn and Jaap. My "online" friends and fellow adventures Bob, Danielle, Jelle, Lyn, and the others provided me with the necessary distractions on my quest to the doctorate, as well as all the folks over at the TeeKay-421 fan club and other otherworldly discussion groups.

Als laatste wil ik graag mijn familie bedanken, in het bijzonder mijn ouders, René en Jacqueline, mijn zus Dominique en mijn broer Brian, die altijd bereid waren om mij aan te moedigen. Ook mijn grootouders wil ik via deze weg bedanken, die mij in huis namen toen ik bij Naturalis begon, en altijd alle krantenknipsels over Naturalis bewaarden. Zonder jullie allen was dit alles niet mogelijk geweest!

ABBREVIATIONS

Overview of abbreviations used throughout this thesis.

AIC	Artifical internal control
BLAST	Basic local alignment search tool
BOLD	Barcode of Life Database
COI	Cytochrome c oxidase subunit I
eDNA	Environmental DNA
EQR	Ecological quality ratio
HTS	High-throughput sequencing
KRW	Kaderrichtlijn Water (Dutch adaptation of the WFD)
LCA	Lowest common ancestor
(M)OTU	(Molecular) operational taxonomic unit
NGS	Next-generation sequencing
NMDS	Nonmetric multidimensional scaling
PCoA	Principal coordinates analysis
PCR	Polymerase chain reaction
qPCR	Quantitative polymerase chain reaction
SEM	Standard error of the mean
WFD	Water Framework Directive