ACKNOWLEDGEMENTS

The path to this thesis has been long, windy, and at times dark. None of it would have been possible without the support of friends, family, and colleagues. Firstly, I want to thank my parents, who always made educating their children a priority, and have been my role models for as long as I remember. I want to thank my brother, who is one of the most patient people I know, and Federico and Felipe, who are the most patient non-people I know. Your ongoing support has helped me overcome obstacles; and inspired me to push forward when it is right and to take a step back when it is not.

This thesis (and what it represents) has been my largest pursuit to date, and I would not have gotten to it without the help of my high school and college teachers. I was always fascinated by science, and for this I credit Mr. Irwin and Mr. Garrone. In 2007, sitting before my AP Biology textbook, I read for the first time about bioremediation: what a brilliant idea! The book contained only two paragraphs about it, but I remember reading them again and again. This was my calling. Despite my limited knowledge of what it entailed, I was determined to study bioremediation, and upon arriving at Columbia I signed up to study biochemistry. It became obvious that the focus on the minute and the individual was not for me: I was a systems thinker. I was lucky enough to talk to Matt Palmer, the director of undergraduate studies of the Department of Ecology, Evolution, and Environmental Biology (E3B). Thank you for that talk, and the lectures that came after it. I also joined the department of Earth and Environmental Sciences (EESC), which was a wonderful community as well. I want to thank all my professors at Columbia, the years in these two departments were cheerful, constructive, and inspiring, and are likely to remain the most important years in my development as a young scientist. Thank you for encouraging questions, curiosity, and prompting me to get my hands dirty (pun intended) as early as possible. On that note, I also want to thank Krista McGuire, who welcomed me into her lab, encouraged me to pursue research, allowed me to make mistakes, and most importantly, provided me an entry into the world of microbial ecology.
Moving to the Netherlands was a big gamble, and I want to thank both my labmates and my friends who made the transition easier. I want to thank Diego and Elisa, whose names were the first I learned, and who were my neighbors for the first year in Groningen. I clearly remember my first day, taking the bus with you (and my person-sized suitcase) to the Orange houses, and having a beer with Diego during the Noorderzon. I hope life leads you to great places! I also want to thank Pilar (and Hans) for receiving me so warmly, showing me around the lab, and going out for coffee when it was rainy. I also want to thank Felix for making the first year in Groningen so much fun, and for keeping up the yearly Austria-Netherlands exchange. Cyrus: I am so glad I met you! In many ways you were a bright light when the path seemed to darken, and were always generous with your advice and company. Jolanda, Joukje, Corinne, and Bob, thank you for your support. Last but not least, I want to thank Burcu. I am glad that I creeped on you and you succumbed, and now we have been friends for over four years. Our friendship has spanned the Great Housing Fiasco of 2014, the boar heads with sunglasses in Portugal, the ongoing rodent misfortunes, and two completed dissertations.

Reader: all of the experimental data for this thesis and more, which I didn’t have time to include here, was collected from two massive experiments. This was logistically, physically, and mentally challenging, and I did not do it alone. First and foremost, I want to thank Ines Nunes, who is a coauthor on 60% of the experimental chapters in this book. I remember sitting with you in a café, two sets of calendars in hand, coordinating three months of intensive labwork and 15 RNA shipments between the Netherlands and Denmark. I am not going to say I couldn’t have done it without you, because we did this together, and against all odds, one delayed Fedex shipment and two severe windstorms, we made it! I could always count on you. I also want to thank all the people that supported us during the execution of the experiment and afterwards: Pu, Dan, and especially Victor and Miao. Victor: thank you for helping me water 400 jars and always being so joyful. Miao: I think we both remember your first soil DNA extraction. You were a natural from day 1!! I am glad to have had you then as well as afterwards, discussing data analysis, R code, and the ethics of linear regressions. I should also mention Larissa here, whom I always found relief and comfort talking to. As I gradually extinguish my tastebuds with Tajin, I think of you. On the Danish end, I want to thank Søren for his ideas (“why not use a microwave?”), Sam for his ongoing support, Anders P. for his comments, and Asker for his patience. I also want to thank Anne W. and Anders J. for receiving me in their lab and teaching me to use MicroResp.

The second experiment took me to Portugal, where I found a wonderful lab and a second home. I want to thank the entire Zoology department for welcoming me, showing me around, and helping when necessary. José Paulo and Paula: thank you for encouraging this collaboration, and guiding me during my time there. Joao: thank you for showing me the ropes! Tiago: thank you for helping me whenever I needed, even if it was to get me out of the lab at 8 p.m! Paulo Roger: we spent so many hours carrying water, watering cores and listening to music, and it would have been much tougher without your company. Filipe and Filipa: every time I think of Game of Thrones, I think of you and speed reading. Henrique, thank you for our conversations. Sara: I was sad to get to know you so late in the game but now I see you every year, and we are slowly making up for it. Thank you for letting me join you at Primavera, it is one of my favorite parts of the year! Finally, thank you all for speaking Portuguese slowly so that I could learn (Joana, Matthieu, Carla).

Throughout these four years, I met scientists young and old, who encouraged me to think in new ways and grow. I want to thank the Trainbiodiverse consortium, professors and students alike. Our project meetings were a pleasure, and I enjoyed your company and support. I want to thank James for letting me into his complex mathematical world, and Xavier for offering his honest and thoughtful support when I needed it. Jan Dirk, I want to thank you for your supervision during this last, rough year. Thank you for offering calm criticism, helping me see gaps in my reasoning, and helping me develop as a scientist. Joana, thank you for choosing me for this position.

I want to thank those who enriched my life outside the lab. Belen and Flo: you are my oldest of friends. You are my sisters, thank you for giving me strength when I need it. To my STEM associates: as the years go by I continue to realize how lucky I am to have met you all. You give me reasons to laugh even where they are hard to find. Reto, Tonia, Sabrina, Ina, and Riccardo, I...