

Table of Contents

Table of Contents	3
1 Summary	5
2 Zusammenfassung	7
3 General Introduction	10
3.1 Forests in a drying world	10
3.2 Carbon cycle	12
3.3 Forest microbiome	17
3.4 Thesis objectives	19
3.5 Thesis outline	20
4 Herzog et al., Plos One, Nine years of irrigation cause vegetation and fine root shifts in a water-limited pine forest	21
4.1 Abstract	22
4.2 Introduction	23
4.3 Materials and methods	26
4.4 Results	31
4.5 Discussion	39
4.6 Acknowledgements	45
5 Herzog et al., Submitted, Microbial succession on decomposing root litter in a drought-prone Scots pine forest	46
5.1 Abstract	47
5.2 Introduction	48
5.3 Material and methods	51
5.4 Results	55
5.5 Discussion	65
5.6 Acknowledgments	70
5.7 Conflict of Interest	71
6 Herzog et al., In preparation, Who eats the tough stuff? DNA stable isotope probing (SIP) reveals bacteria and fungi degrading 13C-labelled lignin and cellulose in forest soils	73
6.1 Abstract	74
6.2 Introduction	75
6.3 Materials and methods	77

	6.4	<i>Results</i>	81
	6.5	<i>Discussion</i>	86
	6.6	<i>Acknowledgements</i>	90
7		Synthesis	91
	7.1	<i>Growth</i>	91
	7.2	<i>Root decay</i>	92
	7.3	<i>Conclusion and outlook</i>	95
8		References to Chapters 3 to 7	99
9		Acknowledgements	115
10		Curriculum vitae	117
11		Appendix	119