

Supplementary Information

Reflections, applications and future directions of Long-Term Ecological Research at Tierberg

Gina Arena, Helga van der Merwe, Simon W Todd, Marco J Pauw, Suzanne J Milton, W Richard J Dean and Joh R Henschel

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Appendix S1: A full list of publications produced during ca. 30 years of research at Tierberg-LTER

Tierberg-LTER Publications		*Theme allocation in Table 1
1	Armstrong AJ, Siegfried WR. 1990. Selective use of heuweltjie earth mounds by sheep in the Karoo. South African Journal of Ecology 1: 77–80.	E3
2	Bond WJ, Stock WD, Hoffman MT. 1994. Has the Karoo spread? A test for desertification using carbon isotopes from soils. South African Journal of Science 90: 391–397.	A4
3	Booi N. 2011. Structure and function of heuweltjies across a rainfall gradient in the South-Western Cape. Masters dissertation, University of Stellenbosch, South Africa.	E1
4	Brain P. 1989. Genetic races in a ring species, <i>Acacia karroo</i> . South African Journal of Science 85: 181–185.	A1
5	Braschler B, Chown SL, Gaston KJ. 2012. The Fynbos and Succulent Karoo biomes do not have exceptional local ant richness. PLoS ONE 7(3): e31463. doi:10.1371/journal.pone.0031463	A2
6	Brooke RK, Dean WRJ. 1990. On the biology and taxonomic position of <i>Drymoica substriata</i> Smith, the so-called Namaqua <i>Prinia</i> . Ostrich 61: 50–55.	C2
7	Bruyns P. 1990. New taxa from the arid regions of southern Africa. South African Journal of Botany 56: 125–132.	A1
8	Cowling RM. 1986. A description of the Karoo Biome Project. A report of the Committee for Terrestrial Ecosystems National Programme for Ecosystem Research, South African National Scientific Programmes Report No. 122. Pretoria: Foundation for Research and Development, Council for Scientific and Industrial Research.	5
9	Cowling RM, Roux PW (eds). 1987. The karoo biome: a preliminary synthesis. Part 2 – vegetation and history. A report of the Committee for Terrestrial Ecosystems National Programme for Ecosystem Research, South African National Scientific Programmes Report No. 142. Pretoria: Foundation for Research and Development, Council for Scientific and Industrial Research.	B2
10	Cowling RM, Roux PW, Pieterse AJH (eds). 1986. The karoo biome: a preliminary synthesis. Part 1 – physical environment. Report of the Committee for Terrestrial Ecosystems National Programme for Ecosystem Research, South African National Scientific Programmes Report No. 124. Pretoria: Foundation for Research and Development, Council for Scientific and Industrial Research.	A4, E4
11	Dean WRJ. 1988a. Seeds, ants and students: The FitzPatrick Institute's research in the Karoo. UCT News Magazine 15: 9–11.	E2

- 12 Dean WRJ. 1988b. Spider predation on termites. *Journal of the Entomological Society of Southern Africa* 51: 147–148. D2
- 13 Dean WRJ. 1989. Foraging and forager-recruitment in *Ophthalmopone hottentota* Emery (Hymenoptera: Formicidae). *PSYCHE* 96: 123–130. C2
- 14 Dean WRJ. 1991. Ecological effects of mound building by the harvester ant *Messor capensis* on Karoo plants. Masters dissertation, University of Natal, South Africa. E1, E2
- 15 Dean WRJ. 1992. Effects of animal activity on the absorption rate of soils in the southern Karoo, South Africa. *Tydskrif van die Weidingsvereniging van Suid Afrika* 9: 178–180. E4
- 16 Dean WRJ. 1993a. Alpine swifts opportunistically feeding on cicadas. *Ostrich* 64: 42–43. C2, D2
- 17 Dean WRJ. 1993b. Unpredictable foraging behaviour in *Microhodotermes viator* (Isoptera: Hodotermitidae): an antipredator tactic? *Journal of African Zoology* 107: 281–285. C2
- 18 Dean WRJ. 1995a. Die invloed van die neshope van die graanvretende mier *Messor capensis* of Karoo-plantgroei. *Suid Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie* 14: 17–23. E1
- 19 Dean WRJ. 1995b. Where birds are rare or fill the air: the protection of the endemic and the nomadic avifaunas of the Karoo. PhD thesis, University of Cape Town, South Africa. A2, D2
- 20 Dean WRJ. 1997. The distribution and biology of nomadic birds in the Karoo, South Africa. *Journal of Biogeography* 24: 769–779. D2
- 21 Dean WRJ. 2000. Factors affecting bird diversity patterns in the Karoo, South Africa. *South African Journal of Science* 96: 609–616. E1
- 22 Dean WRJ. 2004. Nomadic desert birds. *Adaptations of desert organisms series*. Springer-Verlag, Berlin, Heidelberg, New York. 185 pp. A2
- 23 Dean WRJ. 2006. Longevity and survival of colonies of *Messor capensis* (Formicidae: Myrmicinae) in the Karoo, South Africa. *African Entomology* 14: 381–383. D2
- 24 Dean WRJ, Barnard P, Anderson MD. 2009. When to stay, when to go: trade-offs for southern African arid-zone birds in times of drought. *South African Journal of Science* 105: 24–28. C2
- 25 Dean WRJ, Griffin E. 1993. Seasonal activity patterns and habitats in Solifugae (Arachnida) in the southern Karoo, South Africa. *South African Journal of Zoology* 28: 91–94. D2
- 26 Dean WRJ, Hoffman MT, Kerley GIH, Milton SJ. 1995a. Desertification in developed countries: in search of the silver bullet. *Suid-Afrikaanse Tydskrif vir Wetenskap* 91: 213–215. 5
- 27 Dean WRJ, Hoffman MT, Meadows ME, Milton SJ. 1995b. Desertification in the semi-arid Karoo, South Africa: review and reassessment. *Journal of Arid Environments* 30: 247–264. 5
- 28 Dean WRJ, Hoffman MT, Willis CK. 1996. Meeting report: The light and the way in South African desertification research. *South African Journal of Science* 92: 170–171. 5

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- 30 Dean WRJ, Midgley JJ, Stock WD. 1994. The distribution of misteltoes in South Africa: patterns of species richness and host choice. *Journal of Biogeography* 21: 503–510. D1, E1
- 31 Dean WRJ, Milton SJ. 1991a. Disturbances in semi-arid shrubland and arid grasslands in the Karoo, South Africa: mammal diggings as germination sites. *African Journal of Ecology* 29: 11–16. E1, E2
- 32 Dean WRJ, Milton SJ. 1991b. Emergence and oviposition of *Quintillia* cf. *conspersa* Karsch (Homoptera: Cicadidae) in the southern Karoo, South Africa. *Journal of the Entomological Society of Southern Africa* 54: 111–119. C2, D2
- 33 Dean WRJ, Milton SJ. 1991c. *Galium tomentosum*, a yarn for the birds. *Veld & Flora* 77: 82–83. C2
- 34 Dean WRJ, Milton SJ. 1992. Emergence and density of *Quintillia* cf. *vitripennis* Karsch (Homoptera, Cicadidae) in the southern Karoo. *Journal of the Entomological Society of Southern Africa* 55: 71–75. C2, D2
- 35 Dean WRJ, Milton SJ. 1993a. Soils and seed-harvesting ants in the Karoo. *Veld & Flora* 79: 22–23. D2, D4
- 36 Dean WRJ, Milton SJ. 1993b. The use of *Galium tomentosum* (Rubiaceae) as nest material by birds in the southern Karoo. *Ostrich* 64: 187–189. C2
- 37 Dean WRJ, Milton SJ. 1995. Plant and invertebrate assemblages on old fields in the arid southern Karoo, South Africa. *African Journal of Ecology* 33: 1–13. B2
- 38 Dean WRJ, Milton SJ (eds). 1999. *The Karoo, ecological patterns and processes*. Cambridge: Cambridge University Press. 5
- 39 Dean WRJ, Milton SJ. 2001a. Responses of birds to rainfall and seed abundance in the southern Karoo, South Africa. *Journal of Arid Environments* 47: 101–121. E2
- 40 Dean WRJ, Milton SJ. 2001b. The density and stability of birds in shrublands and drainage line woodland in the southern Karoo, South Africa. *Ostrich* 72: 185–192. D2
- 41 Dean WRJ, Milton SJ, du Plessis MA. 1995c. Where, why, and to what extent have rangelands in the Karoo, South Africa, desertified. *Environmental Monitoring and Assessment* 37: 103–110. B2
- 42 Dean WRJ, Milton SJ, du Plessis MA, Siegfried WR. 1995d. Dryland degradation: symptoms, stages, and hypothetical cures. In: Roundy BA, McArthur ED, Haley JS, Mann DK (compilers), *Proceedings: Wildland Shrub and Arid Land Restoration Symposium*. 19-21 October 1993, Las Vegas, Nevada. General Technical Report INT=GTR-315. U.S. Department of Agriculture, Forest Service: Intermountain Research Station. pp 178–182. B2
- 43 Dean WRJ, Milton SJ, Siegfried WR. 1990. Dispersal of seeds as nest material by birds in semiarid karoo shrubland. *Ecology*, 71: 1299–1306. C2, D2
- 44 Dean WRJ, Seymour CL, Joseph GS. 2018. Linear structures in the Karoo, South Africa, and their impacts on biota. *African Journal of Range and Forage Science* 35: 223–232. D3

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- 46 Dean WRJ, Turner JS. 1991. Ants nesting under stones in the semi-arid Karoo, South Africa: predator avoidance or temperature benefits? *Journal of Arid Environments* 21: 59–69. C2
- 47 Dean WRJ, Yeaton RI. 1992. The importance of harvester ant *Messor capensis* nest-mounds as germination sites in the southern Karoo, South Africa. *African Journal of Ecology* 30: 335–345. E1
- 48 Dean WRJ, Yeaton RI. 1993a. The influence of harvester ant *Messor capensis* nest-mounds on the productivity and distribution of some plant species in the southern Karoo, South Africa. *Vegetatio* 106: 21– 35. E1
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- 53 Du Plessis A. 1989. Ecophysiology of the bush Karoo rat *Otomys unisulcatus* and the whistling rat *Parotomys brantsii*. Masters dissertation, University of Port Elizabeth, South Africa. C2
- 54 Du Plessis A, Kerley GIH. 1991. Refuge strategies and habitat segregation in two sympatric rodents, *Otomys unisulcatus* and *Parotomys brantsii*. *Journal of Zoology (Lond.)* 224: 1–10. C2
- 55 Du Plessis A, Kerley GIH, Deo Winter PE. 1992. Refuge microclimates of rodents: a surface nesting *Otomys unisulcatus* and a burrowing *Parotomys brantsii*. *Acta Theriologica* 37: 351–358. C2, D2
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- 58 Esler KJ. 1993. Vegetation pattern and plant reproductive processes in the succulent Karoo. PhD thesis, University of Cape Town, South Africa. A1, D1
- 59 Esler KJ, Cowling RM. 1993. Edaphic factors and competition as determinants of pattern in South African Karoo vegetation. *South African Journal of Botany* 59: 287–295. A4, D4, E4
- 60 Esler KJ, Cowling RM. 1995. The comparison of selected life-history characteristics of *Mesembryanthema* species occurring on and off Mima-like mounds (heuweltjies) in semi-arid southern Africa. *Vegetatio* 116: 41–50. A1

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- 62 Esler KJ, Milton SJ, Dean WRJ. (eds). 2006. *Karoo Veld: ecology and management* (1st edn). Pretoria: Briza Publications. 5
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- 69 Gess SK, Gess FW. 1989b. Flower visiting by masarid wasps in southern Africa (Hymenoptera: Vespoidea: Masaridae). Annals of the Cape Provincial Museum (Natural History) 18: 95–134. D2
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- 71 Helme N. 1990. Disturbance and community dynamics on heuweltjies. Honours Project, University of Cape Town, South Africa. E1, E2
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- 76 Kerley GIH. 1990a. Browsing by Lepus capensis in the Karoo. South African Journal of Zoology 25(3): 199–200. C2
- 77 Kerley GIH. 1990b. Small mammals as granivores in the Karoo. PhD thesis, University of Port Elizabeth, South Africa. C2, D2
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- 79 Kerley GIH. 1995. The Round-eared Elephant-Shrew *Macroscelides proboscideus* (Macroscelidea) as an omnivore. *Mammal Review* 25: 39–44. C2
- 80 Köhler G, Roth S, Reinhardt K. 2007. Ten instars in the Leprous Grasshopper, *Phymateus leprosus* (Fabricius, 1793) (Caelifera: Pyrgomorphidae): maximum number recorded in the Acridoidea. *Bonner zoologische Beiträge* 56: 17–24. A2
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- 82 Köhler G, Wagner G, Roth S, Samietz J, Optiz S, Green SV. 2001b. Auf exkursion im südlichen Afrika. I. Kurzfühlerschrecken (Caelifera) in der südafrikanischen Kapregion. *Veröffentlichungen Naturkundemuseum Erfurt* 20: 129–150. A2
- 83 Leuteritz TEJ. 2004. Reproductive biology of *Psammobates tentorium* on the Tierberg Karoo Research Centre. Unpublished postdoctoral research report. Chelonian Biology Unit, University of the Western Cape, South Africa. D2
- 84 Leuteritz TEJ, Hofmeyr MD. 2007. The extended reproductive season of tent tortoises (*Psammobates tentorius tentorius*): A response to an arid and unpredictable environment. *Journal of Arid Environments* 68: 546–563. C2, D2
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- 92 Milton SJ. 1992a. Effects of rainfall, competition and grazing on flowering of *Osteospermum sinuatum* (Asteraceae) in arid Karoo rangeland. *Tydskrif van die Weidingsvereniging van Suid Afrika* 9: 158–164. E1
- 93 Milton SJ. 1992b. Plants eaten and dispersed by adult leopard tortoises *Geochelone pardalis* (Reptilia: Chelonii) in the southern Karoo. *South African Journal of Zoology* 27: 45–49. E1
- 94 Milton SJ. 1992c. Studies on herbivory and vegetation change in Karoo shrublands. PhD thesis, University of Cape Town, South Africa. B3
- 95 Milton SJ. 1993. Insects from the shrubs *Osteospermum sinuatum* and *Pteronia pallens* (Asteraceae) in the southern Karoo. *African Entomology* 1: 257–261. D2
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- 97 Milton SJ. 1994b. Growth, flowering and recruitment of shrubs in grazed and in protected rangeland in the arid Karoo, South Africa. *Vegetatio* 111: 17–27. A3, D1
- 98 Milton SJ. 1994c, November 18. Managing grazing plants in the Karoo. *Farmers Weekly* pp 20–21. D3
- 99 Milton SJ. 1994d. Small-scale reseeding trials in arid rangeland: effects of rainfall, clearing and grazing on seedling survival. *African Journal of Range and Forage Science* 11: 54–57. D3
- 100 Milton SJ. 1995a. Effects of rain, sheep and tephritid flies on seed production of two arid Karoo shrubs in South Africa. *Journal of Applied Ecology* 32: 137–144. D1, E1
- 101 Milton SJ. 1995b. Spatial and temporal patterns in the emergence and survival of seedlings in arid Karoo shrubland. *Journal of Applied Ecology* 32: 145–156. E1
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- 125 Milton SJ, Hoffman MT. 1994. The application of state-and-transition models to rangeland research and management in arid succulent and semi-arid grassy Karoo, South Africa. *African Journal of Range and Forage Science* 11: 18–26. E3
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***Research themes of Table 1**

A1 = Ecosystem description; Flora & vegetation

A2 = Ecosystem description; Fauna

A3 = Ecosystem description; Land use & management

A4 = Ecosystem description; Climate & soils

B1 = Historical biogeography & quaternary vegetation change; Flora & vegetation

B2 = Historical biogeography & quaternary vegetation change; Fauna

B3 = Historical biogeography & quaternary vegetation change; Land use & management

B4 = Historical biogeography & quaternary vegetation change; Climate & soils

C1 = Adaptive physiology & behaviour; Flora & vegetation

C2 = Adaptive physiology & behaviour; Fauna

C3 = Adaptive physiology & behaviour; Land use & management

C4 = Adaptive physiology & behaviour; Climate & soils

D1 = Reproductive ecology, population dynamics & species interactions; Flora & vegetation

D2 = Reproductive ecology, population dynamics & species interactions; Fauna

D3 = Reproductive ecology, population dynamics & species interactions; Land use & management

D4 = Reproductive ecology, population dynamics & species interactions; Climate & soils

E1 = Community processes, modelling; Flora & vegetation

E2 = Community processes, modelling; Fauna

E3 = Community processes, modelling; Land use & management

E4 = Community processes, modelling; Climate & soils

5 = Books, Karoo Biome Project & desertification reports