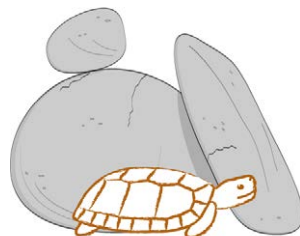


Ecology of the Karoo dwarf tortoise, *Chersobius boulengeri*



Progress Report



Homopus Research Foundation

Victor Loehr
1 April 2018

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Homopus Research Foundation
<http://www.homopus.org>

The Homopus Research Foundation (currently converted to Dwarf Tortoise Conservation) is a non-commercial organisation entirely run by volunteers. The aim of the foundation is to gather and distribute information on *Chersobius* and *Homopus* species, to facilitate their survival in the wild. This aim is achieved through scientific field studies, and through the development and study of captive studbook populations. Our results are published in scientific and popular outlets.

Introduction

In 2018, the Homopus Research Foundation initiated a field study on the Karoo dwarf tortoise, *Chersobius boulengeri*. This study is funded by several donors. The current progress report provides an update about the study for donors.

The following organisations and individuals have allocated funds, discounted prices, or in-kind contributions to the project:

- [Turtle Conservation Fund](#) and [Conservation International](#)
- [Holohil Systems Ltd.](#)
- [British Chelonia Group](#)
- [Knoxville Zoo](#)
- [Dutch-Belgian Turtle and Tortoise Society](#)
- [Pedak](#)
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- Koos and Coby Loehr
- Victor Loehr
- Frank van Loon
- Marcel and Lydia Reck
- Peter Sandmeier
- Uwe Seidel
- Paul van Sloun



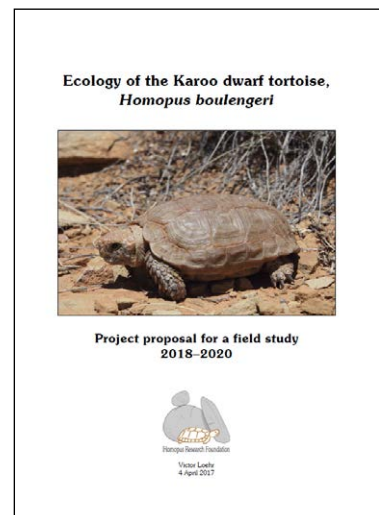
Summary of study objective

A full description of the study is available in the [project proposal](#). In summary, the study objective is to gather and publish ecological information that is relevant for the conservation of *C. boulengeri*:

- population structure and dynamics
- tortoise growth rates
- activity and movements
- home ranges
- diet
- reproduction

To meet this objective, three sampling periods have been proposed, in:

- February–March 2018 (6 weeks);
- October 2018–March 2019 (12 weeks);
- October–March 2020 (5 weeks).



Progress until 1 April 2018

Preparation

Upon the unexpected discovery of a wild *C. boulengeri* population in February 2017 (currently the only verified population of the species), great efforts were made to prepare the current study. A project proposal was drafted, permits obtained, volunteers recruited, transport and accommodation arranged, and grant applications submitted. By February 2018, virtually all preparations were completed.

Sampling

The first sampling was conducted from 14 February until 22 March 2018. Based on initial encounters with *C. boulengeri* in the area, a 16.0 ha study site was selected and modelled in ArcMap. Seven volunteers (Andreas Iosifakis, Toby Keswick, On Lee Lau, Victor Loehr, Olda Mudra, Sérgio Silva and Paul van Sloun), worked in shifts, for a total of 563 person-hours, to search for *C. boulengeri* individuals at the study site and its direct surroundings. A total of 50 individuals was found and marked, providing a solid basis for the study of population composition and dynamics, and growth rates. On average, it took 7.6 person-hours to find a single *C. boulengeri*.



To study activity and movements, and home ranges, we equipped nine males and 16 females with transmitters. Transmitted tortoises were tracked up to 20 times during the sampling period, to record their activity, location and body temperature. Two MSc students (Merel Reijnders and Iris Zweers) spent a total of 209 hours observing continuous individual behaviours for the calculation of individual time budgets. Activity levels sufficed to draft a complete picture of activity and behaviour in *C. boulengeri* during favourable (i.e., after rainfall that promoted plant growth) summer conditions. Measurements of body temperatures of active and inactive tortoises at different times of the day provided insight in their thermoregulation.



On the first day of the sampling period, a weather station was set up to record ambient temperature, relative humidity and precipitation. During the sampling period, one rainfall event (47 mm) took place, on 22 February. The rain caused excellent conditions for plant growth and flowering throughout the rest of the period. This allowed us to identify, collect and dry plant samples as a reference for future dietary analysis. In the first sampling period, 24 faecal samples were also collected and dried, and 10 focal feeding observations were made. We also marked 10 vegetation plots for annual vegetation analysis and analysed the plots for the first time.



On 20 February and 8 March, respectively eight and 18 females were radiographed to determine if they were gravid.



Dissemination of results

The majority of the results will be combined with results to be gathered in 2019 and 2020, and processed and published after the last sampling period in 2020. The two current MSc students will prepare their reports in 2018. In addition, one volunteer (Olda Mudra) presented preliminary results in a presentation at a meeting at Charles University (Prague, Czech Republic) on 24 March. This progress report will also be distributed and posted on the website of the Homopus Research Foundation.



Continuation of the study

The study will continue as drafted in the [project proposal](#). However, the proposed 12-week period in

October 2018–March 2019 will be split in two separate periods, one in October–November 2018 and one in February–March 2019. This will allow us to:

- increase insight in the reproductive biology of *C. boulengeri* throughout the activity season;
- record activity and behaviour in spring;
- base the population modelling on consistent mark-recapture periods in February–March.

It will be attempted to find a MSc student to focus on the dietary study (i.e., identifying plant species and abundance, collecting and analysing faecal samples, visually recording food items, and possibly analysing the composition of dietary items).