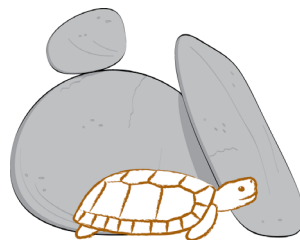


# Ecology of the Karoo dwarf tortoise, *Chersobius boulengeri*



## Third Progress Report



Dwarf Tortoise Conservation

Victor Loehr  
31 March 2019

## Contents

|   |          |
|---|----------|
| <b>Introduction .....</b>                                       | <b>2</b> |
| <b>Summary of study objective.....</b>                          | <b>2</b> |
| <b>Progress from 10 november 2018 until 24 march 2019 .....</b> | <b>2</b> |
| PREPARATION .....   | 2        |
| SAMPLING .....  | 3        |
| DISSEMINATION OF RESULTS.....                                   | 5        |
| <b>Continuation of the study .....</b>                          | <b>5</b> |

Dwarf Tortoise Conservation  
Kwikstaartpad 1  
3403ZH IJsselstein  
Netherlands

<http://www.dwarftortoises.org>

Dwarf Tortoise Conservation (previously Homopus Research Foundation) is a non-commercial organisation entirely run by volunteers. The aim of the foundation is to gather and distribute information on dwarf tortoises, 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 precursor of Dwarf Tortoise Conservation, the Homopus Research Foundation, initiated a field study on the Karoo dwarf tortoise, *Chersobius [Homopus] boulengeri*. This study is funded by several donors. The current progress report provides an update about the study for donors and updates an earlier progress report dated 10 November 2018.

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

- [Turtle Conservation Fund](#) and [Conservation International](#)
- [Knoxville Zoo](#)
- [Holoheil Systems Ltd.](#)
- [British Chelonia Group](#)
- [Turtle Survival Alliance EU](#)
- [Dutch-Belgian Turtle and Tortoise Society](#)
- [Soek 'n Slapie](#)
- [Pedak](#)
- Jan Barth
- Kurt Engl
- Sheryl Gibbons
- Silja Heller
- Brian Henen
- Courtney Hundermark
- Lutz Jakob
- Mark Klerks
- Johann Klutz
- Martijn Kooijman
- Matthias Kupferschmid
- Koos and Coby Loehr
- Victor Loehr
- Frank van Loon
- Marcel and Lydia Reck
- Peter Sandmeier
- Uwe Seidel
- Paul van Sloun
- Lars en Petra Wolfs



## Summary of study objective

A full description of the study is available in the main [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:

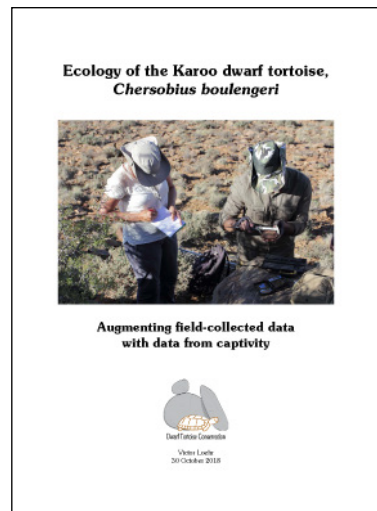
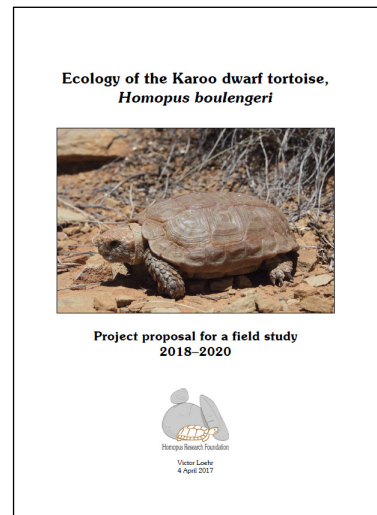
- February–March 2018 (6 weeks);
- October 2018–March 2019 (12 weeks);
- October–March 2020 (5 weeks).

When it became clear in November 2018 that the original study approach would not be able to generate sufficient data on reproduction and tortoise growth rates, a supplemental project proposal was drawn up. This second project proposal seeks to augment field-collected data with data from captivity.

## Progress from 10 November 2018 until 24 March 2019

### Preparation

Due to the 6-week sampling period that was added in October–November 2018 to study reproduction, there was little time to prepare the February–March 2019 sampling period. Nevertheless, seven volunteers were recruited, and all research materials, transport and accommodation were arranged timeously. Furthermore, permit applications were submitted and permits granted for the captive study.





### Sampling

This sampling period focused on population composition and dynamics. The goal was to opportunistically search for tortoises during a similar number of person-hours as in February–March 2018. In addition, six females were radiographed once to confirm that Karoo dwarf tortoises are not gravid in summer. Weather conditions were hot and dry, although the road to the study site was sometimes difficult to access due to local showers. The study site had received virtually no rain since the October–November sampling period, representing the severest local drought in more than 20 years.

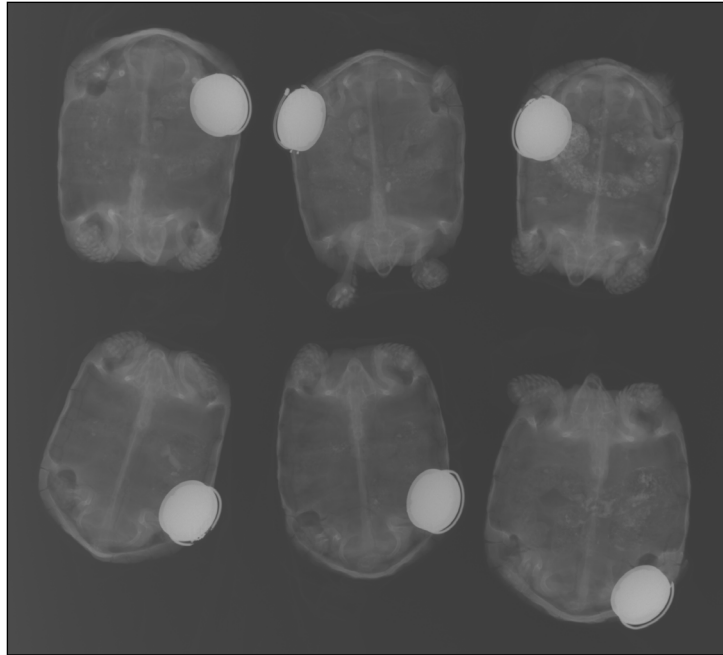


In total, eight persons spent 456 person-hours opportunistically searching for Karoo dwarf tortoises. One volunteer had to cancel his participation because of medical issues, and two others had to reduce their number of field-hours due to medical issues. Nevertheless, 37 unique tortoises were captured, most of which had also been captured and marked in the previous sampling periods. The fact that 112 encounters with tortoises were recorded indicates that searches were effective. For the entire study (2018–2019), 71 unique tortoises have been captured and marked. In February–March 2019, two dead marked tortoises were also found. Due to the drought, tortoises that urinated during handling were rehydrated in the field by administering water. The tortoises were clearly suffering from the drought, as indicated by their very low body conditions and inactivity, particularly in females.





All tortoises with transmitters were tracked to determine if they were still alive, and to measure and weigh them at the beginning and at the end of the sampling period. Unfortunately, one female tortoise could not be found despite extensive searches within and (widely) around its home range. It may have been removed by a predator, or the transmitter may have failed. Sixteen transmittered females are remaining. The transmitters of all males were removed, because the batteries had reached their theoretical life expectancy. None of the male carapaces was damaged when removing the transmitters and epoxy. All males that had their transmitters removed received water to compensate for loss of urine and possible behavioural abnormalities after release.



As expected, the six radiographed females were not gravid, although females with the highest body conditions had been selected. All six received water before they were released.

In areas outside the study area that had been selected for the capture and removal of two male and two female Karoo dwarf tortoises for the captive study, 17 tortoises were found. Four were selected and collected. Unfortunately, all females that were found had low body conditions, but the body conditions of two females sufficed for the transfer and acclimation.



Volunteers who attended this sampling period included Sheryl Gibbons, Courtney Hundermark, Toby Keswick, Sharon Pavoni, Susannah Peel and Carlos Voogdt. In addition, two staff members from the Endangered Wildlife Trust, Bonnie Schumann and Esther Matthew, attended fieldwork, enabling the exploration of possible future collaboration (e.g., microhabitat mapping with a drone).



#### *Dissemination of results*

The majority of the results will be processed and published in peer-reviewed journals as combined results for the 2018–2020 period. However, one life-history note was published in 2018:

Loehr, V.J.T. 2018. *Chersobius boulengeri* (Duerden, 1906), Karoo Padloper, Reproduction. African Herp News 68: 37–39.

In addition, movie clips on [feeding](#), [egg-laying](#) and [general behaviour](#) of Karoo dwarf tortoises, and on [cloud formation](#), were published online. A movie clip of drinking behaviour after drought will be added shortly. This progress report will also be distributed and posted on the website of the Dwarf Tortoise Conservation.

#### **Continuation of the study**

The study will continue as drafted in the [project proposal](#). In addition to the sampling periods included in the project proposal, a brief 1-week sampling period will be added in October 2019, to check the reproductive status of the telemetered females after the current drought.