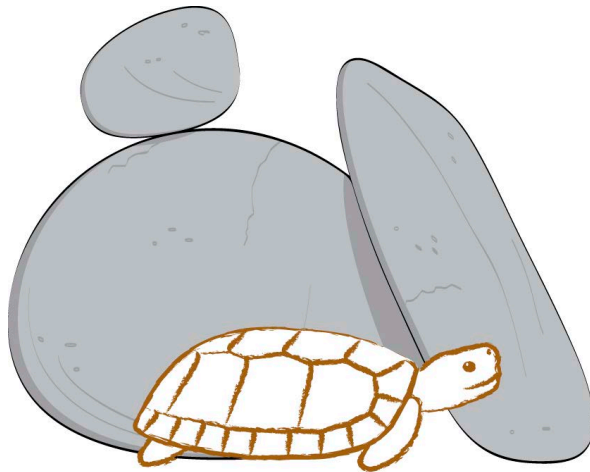


Dwarf Tortoise Conservation



Dwarf Tortoise Conservation

Annual Report 2021

*Victor Loehr
January 2022*

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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.

1. INTRODUCTION AND ACHIEVEMENTS IN 2021

Dwarf Tortoise Conservation aims to facilitate the long-term survival of dwarf tortoises (*Chersobius* spp. and *Homopus* spp.) in the wild, by gathering and distributing information about their biologies and by the formation of genetically healthy *ex situ* populations. Dwarf Tortoise Conservation is the successor of the Homopus Research Foundation, which was renamed in 2018, following the resurrection of the genus *Chersobius* (previously *Homopus*). In 2021, several activities contributed to the aim of Dwarf Tortoise Conservation. The current report presents an overview of achievements in 2021, as well as activities planned for 2022 and thereafter. Moreover, the actual studbook populations for *Chersobius signatus*, *Homopus areolatus* and *Homopus femoralis* are described, focussing on changes that occurred in 2021. All [previous annual reports since 1995](#) can be found on the website of Dwarf Tortoise Conservation.

1.1. Policies and permanent action points

From time to time, Dwarf Tortoise Conservation communicates policies and permanent action points to the participants in the *Chersobius* and *Homopus* studbooks and to other stakeholders. To avoid losing sight of actual issues, they are listed here.

- *Dwarf Tortoise Conservation and illegal activities (1 May 2011)*
Dwarf Tortoise Conservation strongly condemns illegal activities. All *Chersobius* and *Homopus* registered in the studbooks and at studbook participants have legal and traceable origins. Each participant is responsible for the paperwork for his or her tortoises and will not fraud. Dwarf Tortoise Conservation will fully collaborate with authorities in case of legal investigations, providing backgrounds of studbook tortoises, DNA samples, etc. Moreover, illegal activities noted within the studbooks will be actively reported to the authorities, to facilitate prosecution. Obviously, participants involved in illegal activities will be unable to continue their participation.
- *Information exchange with the studbook coordinator (20 December 2017)*
Changes (births, deaths, transfers, physical and e-mail addresses, etc.) should be sent to the studbook coordinator by e-mail, and not via social media. The e-mail address that should be used is studbookhomopus@gmail.com.
- *New registrations of H. areolatus (January 2018)*
Because offspring *H. areolatus* produced in the studbook has been transferred outside the studbook (i.e., were lost to follow-up), there is a risk that genetically related tortoises will be registered in the studbook as unrelated founders. To avoid this, the studbook will not accept new founders with unknown or uncertain origin.
- *Outdoor husbandry of C. signatus (February 2019)*
Outdoor husbandry of *C. signatus* in Europe has yielded unacceptable mortality rates, possibly due to climatic mismatches or due to stress involved with frequent transfers among indoor and outdoor enclosures. Since *C. signatus* does well in indoor enclosures, tortoises loaned from Dwarf Tortoise Conservation should be housed indoors year-round. Exceptions require written consent.

1.2. Outstanding action points in the 2020 annual report

The following table summarises plans in the [2020 annual report](#), with results obtained in 2021.

Outstanding action points in 2020 annual report, and results in 2021	Due
Manuscripts submitted on:	
• tick infestation in a European indoor dwarf tortoise collection;	31-12-2021
• shell characteristics and population composition in <i>C. boulengeri</i> .	31-12-2021

Outstanding action points in 2020 annual report, and results in 2021	Due
2021: A preliminary version of the manuscript on tick infestations was included in the 2020 annual report of Dwarf Tortoise Conservation , but a definitive version has not yet been submitted. The manuscript on shell characteristics and population composition was divided in two manuscripts. Both were submitted in 2021, and the manuscript on population composition was accepted for publication. The 2020 annual report also planned on submitting a manuscript on captive husbandry and breeding of <i>C. signatus</i> , but this action had already been cancelled previously. Popular articles about <i>C. signatus</i> were submitted and printed in <i>Trionyx</i> (Dutch) and <i>Chéloniens</i> (French). See also chapter 6 .	
Updated IUCN assessments for <i>C. boulengeri</i> / <i>C. signatus</i> reviewed	01-02-2021
2021: The review was conducted and final accounts have been published by the IUCN .	
Genetic relationships between <i>C. signatus</i> 7, 44, 72 and 118 verified	31-12-2021
2021: Unfortunately, frozen carcasses of 7 and 44 were lost and genetic relationships could not be resolved. Consequently, <i>C. signatus</i> 72, the only individual in the studbook with unknown ancestry (i.e., 7 or 44 or 72 or 118), will no longer be used for breeding. The same procedure will be followed for its (single) offspring (studbook number 215).	

Further achievements that are worth listing:

- Reprints of papers produced by Dwarf Tortoise Conservation were distributed through its [website](#), [ResearchGate](#), and directly to several researchers and private individuals. Studbook participants receive all papers produced.
- The magazine of the Turtle Conservancy, *The tortoise*, printed an article featuring field research on *C. boulengeri* and *C. signatus* by Dwarf Tortoise Conservation.
- One review request was received, from African Herp News.
- A presentation about *Chersobius boulengeri* was held (Zoo Prague, Czech Republic, 21 November 2021).
- Advice for the prioritisation of conservation requirements for South African tortoises was provided to the Turtle Survival Alliance Field Conservation Committee, which conducted an extensive review of the status of African chelonians, beyond Red List assessments.
- An expert workshop and e-mail correspondence was attended regarding impact statements for South African tortoises by the Endangered Wildlife Trust (South Africa), to be used by prosecutors during sentencing proceedings in order to make South African courts aware of the impact of wildlife crimes.
- Information requests were received regarding:
 - distribution records and potential impact of wind energy facilities on *C. boulengeri* (South Africa);
 - relocation of a rescued “Karoo dwarf tortoise” (*Kinixys* sp.) and leopard tortoise (private individual, South Africa);
 - acquiring dwarf tortoises by several zoos and private individuals in the USA, UK and European Union;
 - archaeological record of a 17th-century tortoise shell found in a Dutch harbour.
- Photographic material was provided to:
 - author of a book “[Turtles of the world: annotated checklist and atlas](#)”;
 - author of a field guide to the reptiles of the Western Cape (South Africa).
- The Dwarf Tortoise Conservation website received minor updates regarding [C. boulengeri husbandry guidelines](#), [C. signatus husbandry guidelines](#), [H. areolatus husbandry guidelines](#), and [list of publications](#).

1.3. Studbook management plan *Chersobius signatus*

The first version of the [studbook management plan for *C. signatus*](#) was finished in 2013, and the plan was updated in 2016 and in 2018. It provides directions for the development of the studbook in the next years and decades, and will be updated every five years. The plan will also be updated after every supplementation of the studbook with new founders, and after each change in the IUCN conservation status of the taxon. The [annual reports of Dwarf Tortoise Conservation report](#) annual progress of the realisation of the plan.

Two founder couples remained alive in 2021, but produced no offspring. Two partial founder couples also survived and produced no offspring. A third partial founder couple was lost after the (non-founder) female died; however, it also produced a hatchling in 2021. One solitary founder with genes well-represented in the population died. No bloodlines went extinct.

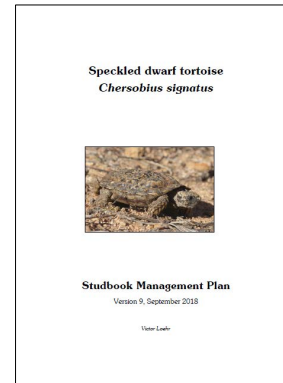
The table at the right shows how well the genes of each founder (i.e., bloodline) are represented in the captive population. Important changes for 2021 are the first addition of F1 offspring from founder 150, the first addition of F2 offspring from founders WILD3 and 60 (both unavailable to the studbook), and the loss of one out of two available offspring from founders WILD3 and 159.

According to the studbook management plan, each founder couple should produce 11 reproducing offspring, and couples in subsequent generations should each produce two (replacement) offspring. For

most founders that entered the studbook first (i.e., 1, 2, 3, 35, 36, 37 and 38), the number of 11 offspring per founder couple was reached, but not all offspring has yet reproduced into a second generation although most of these founders have been lost by now. Founders that entered the studbook later and are still alive (i.e., 150, 152, 154, 156 and 157) have also not yet produced sufficient F1 offspring. Bloodlines of first-entered founders have been entirely merged into F3, whereas bloodlines of later founders are still mostly separated in F1. Bloodlines from first- and later-entered founders are entirely separated and provide opportunities for breeding a genetically healthy fourth generation in the future.

Reproduction into subsequent generations is unbalanced (i.e., some F1 offspring have not reproduced, whereas other have produced more than a dozen F2 offspring), jeopardising the genetic variation in the captive population after multiple generations due to overrepresentation of some bloodlines. The [2020 annual report](#) (chapter 3) estimated maximum numbers of offspring to be produced per breeding couple. For the current report, a detailed analysis was made of the reproduction of each bloodline into each generation, to calculate per available breeding couple if breeding would, at this time, contribute to the goal of the studbook management plan, and how many offspring would be needed. The results of the analysis are presented in [chapter 3](#). In general, moving from a founder generation that should produce 11 (or more) offspring per couple, into subsequent generations that may only produce replacement individuals, inherently means that reproduction rates should be kept low and an increasing number of eggs will need to be discarded. This will be a challenge for studbook participants who are keen on hatching eggs and producing offspring. Institutional studbook participants that are familiar with conservation breeding in zoo studbooks can play an exemplary role for private participants.

The studbook is still not in a situation where reliable “on demand” reproduction is possible. Therefore, participants should continue optimising husbandry conditions and incubation techniques (see [chapter 5](#),



Founder	F1 offspring		F2 offspring		F3 offspring		Remark
	All	Available	All	Available	All	Available	
WILD1	1	0	4	0	0	0	Founder in the wild
WILD2	3	0	3	0	0	0	Founder in the wild
WILD3	2	1	1	1	0	0	Founder in the wild
1	34	5	74	35	5	2	
2	14	1	26	13	0	0	
3	21	4	52	22	5	2	
4	0	0	0	0	0	0	Bloodline extinct
35	30	15	37	20	4	2	
36	30	15	37	20	4	2	
37	23	11	13	9	0	0	
38	12	6	13	9	0	0	
60	13	2	1	0	0	0	
150	1	1	0	0	0	0	
151	5	2	0	0	0	0	
152	3	3	0	0	0	0	
153	8	7	0	0	0	0	
154	0	0	0	0	0	0	
155	0	0	0	0	0	0	Bloodline extinct
156	5	2	0	0	0	0	
157	3	3	0	0	0	0	
158	8	7	0	0	0	0	
159	2	1	0	0	0	0	

Grey numbers indicate unavailable founders. Red and green numbers indicate decreases and increases, respectively, compared to the previous annual report. Founders that were lost to follow-up and have no available offspring have been removed from the table. Unknown ancestors from offspring have been removed from the table. Note that each offspring has at least two founders, so numbers of offspring in a column should not be summed.

[previous annual reports](#) and current [husbandry guidelines](#)). As a further mitigation measure, numbers of offspring as envisaged in the studbook management plan are not yet strictly controlled; founder couples may produce in excess of 11 offspring, couples in subsequent generations may produce 4 instead of 2 replacement individuals, and participants with couples that should not reproduce are allowed to breed at least one offspring to develop breeding experience.

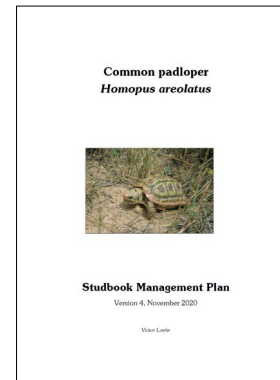
1.4. Studbook management plan *Homopus areolatus*

The first version of the [studbook management plan for *H. areolatus*](#) was finished in 2015, and the plan was updated in 2020. It follows the same format as the studbook management plan for *C. signatus*. A major difference between the two plans is that most tortoises in the studbook on *H. areolatus* are privately owned, meaning that the development of the captive population (i.e., the execution of the studbook management plan) is directly in hands of the participants, whereas the studbook coordinator has only a facilitating role.

Two participants have been unresponsive for two years, so that their total of seven founders were considered lost for the studbook. Two of these founders had not reproduced, three had reproduced but their offspring was also lost for the studbook, and the remaining two founders had offspring that remains available. One last offspring available from a founder outside the studbook died. Consequently, three bloodlines went extinct. One offspring from genetically unrelated individuals outside the studbook (verifiably unrelated to any tortoise in the studbook) was added to the studbook. Two participants keeping founders 40 and 223 (both without offspring) agreed to combine these individuals in 2022, to form a new breeding couple unrelated to any other individual in the studbook. The loss of founders, and offspring from founders outside the studbook, affects the recommendations in the studbook management plan, and this will be taken into account in the next update of the plan.

The table at the right shows how well the genes of each founder are represented in the captive population. Over-representation of founders 58, 59 and 60 is obvious, and exacerbated by the production of seven additional hatchlings in 2021 (the table shows a net decline, as a result of individuals lost for the studbook). Ironically, five inbred hatchlings that emerged in 2021 were unrelated to founders 58, 59 and 60, indicating ample opportunities to avoid inbreeding.

Despite the loss of founders, the studbook population still contains a reasonable number of genetically unrelated founders, and the analysis is similar to that in the [2020 annual report](#): Participants should increase the production of offspring from scarce bloodlines (e.g., 10x11, 22x24, 40x223) and exchange individuals from different founders to avoid inbreeding.



Founder	F1 offspring		F2 offspring		F3 offspring		Remark
	All	Available	All	Available	All	Available	
4	7	1	43	23	18	8	
5	7	1	43	23	18	8	
10	11	3	2	2	0	0	
11	14	3	2	2	0	0	
16	33	4	40	22	10	8	
17	34	4	40	22	10	8	
22	22	3	1	1	0	0	
24	22	3	1	1	0	0	
40	0	0	0	0	0	0	
47	9	0	8	0	0	0	Bloodline extinct
58	89	36	48	36	0	0	
59	89	36	48	36	0	0	
60	89	36	48	36	0	0	
63	1	1	29	19	0	0	Founder outside studbook
64	1	1	29	19	0	0	Founder outside studbook
190	7	0	0	0	0	0	Bloodline extinct
191	7	0	0	0	0	0	Bloodline extinct
192	7	0	0	0	0	0	
223	0	0	0	0	0	0	
288	1	0	0	0	0	0	Founder outside studbook
289	1	0	0	0	0	0	Founder outside studbook
299	1	1					Founder outside studbook
300	1	1					Founder outside studbook

Grey numbers indicate unavailable founders. Red and green numbers indicate decreases and increases, respectively, compared to the previous annual report. Founders that were lost to follow-up and have no

1.5. Progress field study *Chersobius boulengeri*

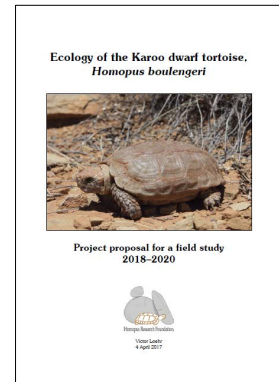
All fieldwork had been conducted in 2018–2020, just prior to the COVID-19 pandemic. In 2021, a first scientific article was published in *Herpetologica*. Two more were submitted, one of which was accepted in *Journal of Wildlife Management*. The latter will be published open access. See also [chapter 6](#).

The *C. boulengeri* field study is a co-production of Dwarf Tortoise Conservation and an independent South African researcher (Toby Keswick). Moreover, the study collaborates with the University of the Western Cape (South Africa; Retha Hofmeyr), Utrecht University (Netherlands; Ineke Westerhof), Van Hall Larenstein University of Applied Sciences (Netherlands; Ralf Mullers and Marcella Dobbelaar) and the Northern Cape Department of Environment and Nature Conservation (South Africa). Several organisations and individuals have generously provided funds, discounted prices, or in-kind contributions to the project:

- [Knoxville Zoo](#) (Quarters for Conservation Program)
- [Turtle Conservation Fund](#) and [Conservation International](#)
- [Holohil Systems Ltd.](#)
- [Dutch-Belgian Turtle and Tortoise Society](#)
- [British Chelonia Group](#)
- [Turtle Survival Alliance Europe](#)
- [Crocodile Zoo Prague](#)
- [Pedak](#)



- Jan Barth
- Kurt Engl
- Sheryl Gibbons
- Silja Heller
- Brian Henen
- Retha Hofmeyr
- Courtney Hundermark
- Lutz Jakob
- Johann Klutz
- Martijn Kooijman
- Matthias Kupferschmid
- Koos and Coby Loehr
- Frank van Loon
- Marcel and Lydia Reck
- Peter Sandmeier
- Uwe Seidel
- Paul van Sloun



1.6. Progress captive study *Chersobius boulengeri*

During the field study on *C. boulengeri* (see [paragraph 1.5](#)), it became clear that the composition of the population and secretive behaviour of the species hampered collection of data on reproduction and growth. Consequently, a small-scale captive study was initiated. Two males and two females were collected and transferred to captivity in February–March 2019, and acclimated in 2019–2020.

In 2021, both couples survived and reproduced. Females produced five and six single-egg clutches, four of which hatched and three of which are currently incubating. Eggs were measured and weighed, and incubated under strictly controlled and monitored conditions. Conditions were slightly altered compared to 2020, to gather information about temperature-dependent sex determination and development of scute abnormalities. Hatchlings and previously born juveniles were measured and weighed as well. Reproduction and growth results will be combined with data from the wild and published in a scientific journal.

To enable study of growth on a relatively large number of offspring, and to safeguard the captive population, collaborations were initiated with a private keeper (four offspring transferred on loan in 2021) and with Basel Zoo (Switzerland).



2. PLANS FOR 2022 AND THEREAFTER

The table below lists results anticipated for 2022 and thereafter, with progress indicated:

Result	Due	Current status
Manuscripts submitted on:		
• tick infestation in a European indoor dwarf tortoise collection;	31-12-2022	Manuscript in preparation
• habitat use in wild <i>C. boulengeri</i> ;	31-12-2022	Data available
• annual survival in the studbook population <i>C. signatus</i> ;	31-12-2022	Data available
• female aggression in <i>C. boulengeri</i> ;	31-12-2022	Data available
• field studies on <i>C. boulengeri</i> (French);	31-12-2022	Data available
• diet in wild <i>C. boulengeri</i> ;	31-12-2023	Data available
• body conditions and reproduction in wild <i>C. boulengeri</i> .	31-12-2024	Data available
Presentations held on:		
• field research, husbandry and breeding of <i>C. boulengeri</i> (Basel Zoo);	01-04-2022	Prepared
• field research, husbandry and breeding of <i>C. boulengeri</i> (Dutch-Belgian Turtle and Tortoise Society).	01-05-2022	Prepared
Husbandry guidelines for <i>C. boulengeri</i> , <i>C. signatus</i> , <i>H. areolatus</i> and <i>H. femoralis</i> prepared following format of the Dutch-Belgian Turtle and Tortoise Society	31-12-2022	Not yet started
Studbook management plan <i>C. signatus</i> updated	31-12-2023	Not yet started
Studbook management plan <i>H. areolatus</i> updated	31-12-2025	Not yet started

3. STUDBOOK SUMMARIES AND REPRODUCTION IN 2022

To keep the studbook registrations up to date, it is vital that all studbook participants keep the coordinator informed of any changes. In the studbooks on *C. signatus* and *H. femoralis*, each participant has accepted this obligation in a formal agreement between participant and Dwarf Tortoise Conservation. Regardless of the agreements, participants are generally motivated and inform the coordinator spontaneously when changes occur throughout the year. However, sometimes participants remain silent for an entire year or longer, despite repeated requests from the studbook coordinator. In order to keep track of where these communication flaws occur, the [annual reports](#) include a list of unresponsive participants. This will make it easier for the reader to assess the validity of studbook information per participant and will facilitate the coordinator when approaching a silent participant. In 2021, participant **14137** (*C. signatus*) has been unresponsive. Tortoises from participants **14157**, **14178**, **17690**, **14156**, **14130**, **17654**, **16915** and **14146** were considered lost for the studbook, as no communication took place in 2020 either.

Chersobius signatus

Live specimens on 1 January 2021:

83 (excluding 20 specimens lost to follow-up)

Number of participants on 1 January 2020:

37 (12 countries, including 4 zoos)

New registrations:

0

Births:

9, at 5 participants

Deaths:

7 (1 wild-caught, 6 captive-bred), at 7 participants

Live specimens on 31 December 2021:

84 (excluding 21 specimens lost to follow-up)

Live inbred specimens on 31 December 2021:

2 (72 and 215; ancestry uncertain, possibly inbred)

Number of participants on 31 December 2021:

36 (11 countries, including 5 zoos)

The studbook population size remained stable. A wild-caught male founder (age >26 years) died from unknown causes, and a female with only one sibling from a founder couple that is no longer available died due to intestinal compaction (post-mortem conducted). The latter case is remarkable, because the female was kept on a solid surface with loose soil restricted to several nesting sites. It is likely that the female had intentionally ingested soil material at the nesting sites. A gravid captive-bred female died due to egg-retention after the oviduct had become infected by bacteria (post-mortem conducted). A captive-bred male and female (approximately 10 years old), and one hatchling, died as a result of unknown causes.

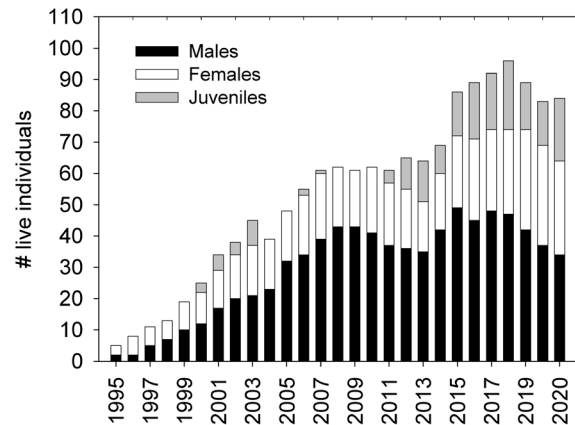
One tortoise was registered as lost for the studbook after the participant had become unresponsive. This tortoise was the only privately-owned individual in the studbook; all remaining tortoises are owned by Dwarf Tortoise Conservation. Reproduction almost doubled compared to 2020 and included one hatchling born from a female with only one sibling originating from a founder couple that is no longer available. The other hatchlings are second- and third-generation. Wuppertal Zoo is the first zoo in the studbook producing offspring. Eggs were laid at additional participants', but failed to hatch after the female had retained the egg for too long, after the egg broke due to too high incubation humidity, or after the egg failed to develop. Currently, half of all participants (18 of 36, two more than in 2020) are keeping genetically unrelated adult couples.

Because the studbook on *C. signatus* has been active since 1995 and includes 216 unique individuals, it was possible to calculate average annual survival rates and compare those the (apparent) annual survival of wild individuals. On average, males and females in the studbook have 94% chance to survive from one year to the next. Consequently, there is no need to breed a skewed sex ratio. In the wild, *C. signatus* had 84–95% (median) chance to survive to the next year, for 2001–2015. This means that survival of *C. signatus* in the studbook is at the high end of survival in the wild. One concern is the survival of wild-caught females, which was 2.7 times higher than survival of wild-caught males. These results will be submitted for publication in 2022.

[Paragraph 1.3](#) interprets the 2021 results in light of the goal for the studbook described in the [studbook management plan for *C. signatus*](#), and recommends that participants should adhere to the [husbandry recommendations](#) drawn up for *C. signatus*, to ensure even population growth among bloodlines. Moreover, [paragraph 1.3](#) substantiates a stricter management of reproduction in the population, to avoid degradation of genetic variation in the population. For the first time, a detailed analysis was conducted to determine what reproduction is needed towards the long-term goal for the population. This analysis used the following simple starting points, based on the studbook management plan:

- Each founder couple should produce at least 11 reproducing offspring. To mitigate husbandry and breeding issues, a slightly larger number is acceptable. When sufficient offspring is available, reproduction ceases until offspring dies and requires replacement.
- Couples in subsequent generations should produce at least 2 reproducing offspring, starting when a couple in the previous generation becomes unavailable (i.e., an individual dies and cannot be replaced). To mitigate husbandry and breeding issues, 4 is acceptable. When sufficient offspring is available, reproduction ceases until offspring dies and requires replacement.
- Offspring should have an equal sex ratio.
- Participants with breeding couples that would not need to reproduce may breed 1 offspring to develop breeding experience.

The analysis leads to the following reproduction figures for 2022 and beyond. In the 2022 annual report, the table will be updated based on mortality and (re)combination of breeding couples in 2022.



Breeding couple	Maximum number of offspring	Sexes
14x107	0	-
41x166	4	2 males and 2 females
74x96	0	-
88x139	4	2 males and 2 females
99x110	3	2 males and 1 female
100x9	2	1 male and 1 female
115x168	2	1 male and 1 female
123x179	2	1 male and 1 female
137x136	2	1 male and 1 female
148x171	1	male
150x156	>10	5 males and 5 females
152x157	>8	5 males and 3 females
154x161	>11	5 males and 6 females
182x177	2	1 male and 1 female
188x169	1	female
72x118 (to be separated in 2022)	0	-
177x77 (to be separated in 2022)	0	-
11x79 (to be formed in 2022)	3	2 males and 1 female
37x77 (to be formed in 2022)	1	female

In order to breed males and females according to the table above, the following incubation instructions should be used:

Incubation for females

- Day 1–29: diurnal temperature cycle of 33°C and 28°C
- Day 30–50: constant temperature of 33°C
- Day 51–hatching: diurnal temperature cycle of 33°C and 28°C

Incubation for males

- Day 1–29: diurnal temperature cycle of 33°C and 28°C
- Day 30–50: constant temperature of 30°C
- Day 51–hatching: diurnal temperature cycle of 33°C and 28°C

All temperatures should be measured with a calibrated thermometer at the incubation spot(s).

Homopus areolatus

Live specimens on 1 January 2021:

143 (excluding 75 specimens lost to follow-up)

Number of participants on 1 January 2021:

24 (12 countries, including 1 zoo)

New registrations:

1

Births:

22, at 6 participants

Deaths:

2, at 2 participants (2 captive-bred)

Live specimens on 31 December 2021:

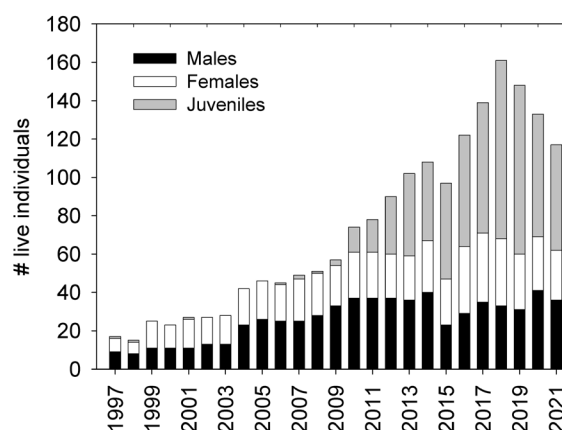
117 (excluding 120 specimens lost to follow-up)

Live inbred specimens on 31 December 2021:

6 (studbook numbers 298, 310, 311, 312, 328 and 329), at 2 locations

Number of participants on 31 December 2021:

22 (9 countries, including 1 zoo)



The studbook population continued to shrink, due to additional losses of tortoises for the studbook. Reproduction was high (almost 20% of the population size, but five hatchlings were the result of inbreeding) and mortality remained low, with only two individuals. A captive-bred female died as a result

of compaction of the digestive system with soil (post-mortem conducted), and a juvenile died due to unknown causes. [Paragraph 1.4](#) interprets population changes in light of the [studbook management plan for *H. areolatus*](#), and recommends that participants avoid combining genetically related individuals.

Homopus femoralis

Live specimens on 1 January 2021:

12 (including 2 specimens lost to follow-up)

Number of participants on 1 January 2021:

6 (5 countries)

New registrations:

0

Births:

3

Deaths:

0

Live specimens on 31 December 2021:

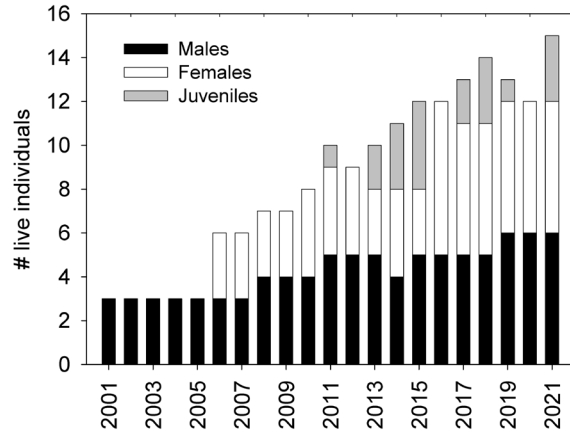
15 (excluding 2 specimens lost to follow-up)

Live inbred specimens on 31 December 2021:

3, at 1 participant

Number of participants on 31 December 2021:

6 (5 countries)



The studbook population of *H. femoralis* produced its first F2 offspring. Because all founder males in the studbook are siblings, the offspring resulted from inbreeding. Inbreeding was accepted, because of the general absence of the species in captivity outside the studbook, the favourable conservation status in the wild, and the primary aim for the studbook population to generate biological data. The age of the female at the birth of the offspring was almost 7 years. No tortoises died and the studbook population increased in size. Breeding couples kept at four additional participants provide good perspectives for the accumulation of reproductive and growth data for future publication.

4. ACTUAL STUDBOOK OVERVIEWS

The tables below give an overview of all live tortoises that are available in the studbooks on *C. signatus*, *H. areolatus* and *H. femoralis*. The tables do not include dead tortoises and tortoises lost for the studbook. Full overviews of all tortoises registered in the studbooks may be [downloaded from the website](#).

Chersobius signatus: live and available studbook population.

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
18169	196	Unknown	96	74	17-10-2021	Transfer	18169	Dwarf Tortoise Conservation
					24-04-2019	Hatch - birth	14222	Dwarf Tortoise Conservation
17258	121	Male	36	35	16-12-2019	Transfer	17258	Dwarf Tortoise Conservation
					19-03-2019	Transfer	14229	Dwarf Tortoise Conservation
					19-01-2016	Transfer	14218	Dwarf Tortoise Conservation
					18-11-2011	Transfer	14205	Dwarf Tortoise Conservation
					23-09-2011	Hatch - birth	14120	Dwarf Tortoise Conservation
18121	197	Unknown	96	74	11-07-2021	Transfer	18121	Dwarf Tortoise Conservation
					01-09-2019	Hatch - birth	14222	Dwarf Tortoise Conservation
14237	77	Female	7	44	02-05-2014	Transfer	14237	Dwarf Tortoise Conservation
					14-08-2010	Transfer	14201	Dwarf Tortoise Conservation
					13-07-2006	Hatch - birth	14121	Dwarf Tortoise Conservation
	117	Male	9	37	06-11-2012	Transfer	14237	Dwarf Tortoise Conservation
					12-06-2011	Hatch - birth	1392	Dwarf Tortoise Conservation
14148	144	Male	96	74	14-02-2018	Transfer	14148	Dwarf Tortoise Conservation
					20-06-2015	Hatch - birth	1276	Dwarf Tortoise Conservation
17756	195	Male	9	100	07-09-2020	Transfer	17756	Dwarf Tortoise Conservation
					13-10-2019	Hatch - birth	14206	Dwarf Tortoise Conservation

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
14116	115	Male	9	37	24-10-2019	Transfer	14116	Dwarf Tortoise Conservation
					06-11-2012	Transfer	14237	Dwarf Tortoise Conservation
					06-07-2011	Hatch - birth	1392	Dwarf Tortoise Conservation
	168	Female	36	35	20-04-2018	Transfer	14116	Dwarf Tortoise Conservation
					18-09-2016	Hatch - birth	14121	Dwarf Tortoise Conservation
14195	154	Male			30-03-2018	Transfer	14195	Dwarf Tortoise Conservation
					22-09-2015	Transfer	1392	Dwarf Tortoise Conservation
					~01-01-1900	Hatch - birth	Wild	Wild
	161	Female	159	205	05-07-2019	Transfer	14195	Dwarf Tortoise Conservation
					26-01-2016	Hatch - birth	1392	Dwarf Tortoise Conservation
14214	9	Female	2	1	06-09-2020	Transfer	14214	Dwarf Tortoise Conservation
					15-05-2014	Transfer	14206	Dwarf Tortoise Conservation
					30-11-1996	Hatch - birth	1392	Dwarf Tortoise Conservation
	100	Male	38	37	06-09-2020	Transfer	14214	Dwarf Tortoise Conservation
					05-06-2010	Transfer	14206	Dwarf Tortoise Conservation
					24-06-2008	Hatch - birth	1392	Dwarf Tortoise Conservation
	138	Female	36	35	22-08-2020	Transfer	14214	Dwarf Tortoise Conservation
					15-04-2016	Transfer	14127	Dwarf Tortoise Conservation
					22-08-2014	Hatch - birth	14121	Dwarf Tortoise Conservation
14121	176	Female	158	153	30-04-2017	Hatch - birth	14121	Dwarf Tortoise Conservation
	178	Female	158	153	11-11-2017	Hatch - birth	14121	Dwarf Tortoise Conservation
	184	Unknown	156	151	13-03-2021	Transfer	14121	Dwarf Tortoise Conservation
					24-07-2018	Hatch - birth	1276	Dwarf Tortoise Conservation
	190	Female	158	153	06-06-2018	Hatch - birth	14121	Dwarf Tortoise Conservation
	191	Unknown	158	153	21-08-2018	Hatch - birth	14121	Dwarf Tortoise Conservation
	193	Unknown	158	153	06-09-2018	Hatch - birth	14121	Dwarf Tortoise Conservation
14134	99	Male	38	37	14-09-2019	Transfer	14134	Dwarf Tortoise Conservation
					05-06-2010	Transfer	14206	Dwarf Tortoise Conservation
					21-05-2008	Hatch - birth	1392	Dwarf Tortoise Conservation
	110	Female	7	44	03-05-2015	Transfer	14134	Dwarf Tortoise Conservation
					22-02-2012	Transfer	14219	Dwarf Tortoise Conservation
					22-01-2012	Transfer	14121	Dwarf Tortoise Conservation
					10-11-2011	Transfer	14196	Dwarf Tortoise Conservation
					23-03-2010	Hatch - birth	14121	Dwarf Tortoise Conservation
	214	Unknown	110	99	01-09-2021	Hatch - birth	14134	Dwarf Tortoise Conservation
	35	Male			25-07-2021	Transfer	14217	Dwarf Tortoise Conservation
					16-07-2016	Transfer	14191	Dwarf Tortoise Conservation
					26-10-2012	Transfer	14121	Dwarf Tortoise Conservation
					16-12-2001	Transfer	14120	Dwarf Tortoise Conservation
					06-10-2001	Transfer	1392	Dwarf Tortoise Conservation
					~01-01-1900	Hatch - birth	Wild	Wild
					17-05-2016	Transfer	14217	Dwarf Tortoise Conservation
					05-11-2009	Transfer	14195	Dwarf Tortoise Conservation
					09-08-2006	Hatch - birth	1392	Dwarf Tortoise Conservation
					01-05-2018	Hatch - birth	14217	Dwarf Tortoise Conservation
1103	132	Male	36	35	11-04-2015	Transfer	1103	Dwarf Tortoise Conservation
					~23-10-2013	Hatch - birth	14121	Dwarf Tortoise Conservation
14136	126	Male	9	37	13-06-2015	Transfer	14136	Dwarf Tortoise Conservation
					16-08-2012	Hatch - birth	1392	Dwarf Tortoise Conservation
14191	174	Female	36	35	31-08-2017	Hatch - birth	14191	Dwarf Tortoise Conservation
14125	94	Male	7	44	08-03-2014	Transfer	14125	Dwarf Tortoise Conservation
					18-03-2013	Transfer	14229	Dwarf Tortoise Conservation
					10-03-2012	Transfer	14220	Dwarf Tortoise Conservation
					27-08-2007	Hatch - birth	14121	Dwarf Tortoise Conservation
	177	Female	158	153	14-12-2019	Transfer	14125	Dwarf Tortoise Conservation
					18-08-2017	Hatch - birth	14121	Dwarf Tortoise Conservation
					14-12-2019	Transfer	14125	Dwarf Tortoise Conservation
	182	Male	156	151	12-04-2018	Hatch - birth	1276	Dwarf Tortoise Conservation
14204	11	Male	3	1	23-10-2016	Transfer	14204	Dwarf Tortoise Conservation
					14-03-2015	Transfer	14221	Dwarf Tortoise Conservation
					16-09-2000	Transfer	14161	Dwarf Tortoise Conservation
					05-07-2000	Transfer	14120	Dwarf Tortoise Conservation
					22-11-1998	Transfer	14119	Dwarf Tortoise Conservation
					10-11-1997	Hatch - birth	1392	Dwarf Tortoise Conservation
					25-07-2019	Hatch - birth	14204	Dwarf Tortoise Conservation
	194	Unknown	149	11				

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
14201	37	Male			17-04-2016	Transfer	14201	Dwarf Tortoise Conservation
					12-06-2004	Transfer	1392	Dwarf Tortoise Conservation
					06-10-2001	Transfer	Wild0	Dwarf Tortoise Conservation
					~01-01-1900	Hatch - birth	Wild	Wild
14231	88	Male	60	25	11-03-2017	Transfer	14231	Dwarf Tortoise Conservation
					17-03-2014	Transfer	14201	Dwarf Tortoise Conservation
					24-11-2011	Transfer	14180	Dwarf Tortoise Conservation
					30-08-2010	Transfer	14207	Dwarf Tortoise Conservation
	139	Female	36	35	~15-11-2005	Hatch - birth	Wild8	Dwarf Tortoise Conservation
					11-03-2017	Transfer	14231	Dwarf Tortoise Conservation
					13-03-2016	Transfer	14201	Dwarf Tortoise Conservation
					01-09-2014	Hatch - birth	14121	Dwarf Tortoise Conservation
14143	145	Male	36	35	10-09-2016	Transfer	14143	Dwarf Tortoise Conservation
					20-06-2015	Hatch - birth	14121	Dwarf Tortoise Conservation
14228	123	Male	38	37	13-12-2014	Transfer	14228	Dwarf Tortoise Conservation
					24-06-2012	Hatch - birth	1392	Dwarf Tortoise Conservation
	179	Female	107	14	19-09-2021	Transfer	14228	Dwarf Tortoise Conservation
					15-12-2017	Hatch - birth	14133	Dwarf Tortoise Conservation
14154	148	Male	36	35	03-04-2018	Transfer	14154	Dwarf Tortoise Conservation
					16-09-2015	Hatch - birth	14121	Dwarf Tortoise Conservation
	171	Female	42	73	14-09-2019	Transfer	14154	Dwarf Tortoise Conservation
					01-08-2017	Hatch - birth	14139	Dwarf Tortoise Conservation
14222	74	Male	3	1	12-03-2016	Transfer	14222	Dwarf Tortoise Conservation
					24-03-2007	Transfer	1276	Dwarf Tortoise Conservation
					31-07-2005	Hatch - birth	Wild0	Dwarf Tortoise Conservation
					12-03-2016	Transfer	14222	Dwarf Tortoise Conservation
	96	Female	36	35	12-09-2009	Transfer	1276	Dwarf Tortoise Conservation
					10-05-2009	Transfer	14202	Dwarf Tortoise Conservation
					13-04-2008	Transfer	14190	Dwarf Tortoise Conservation
					30-07-2007	Hatch - birth	14120	Dwarf Tortoise Conservation
	163	Female	96	74	10-08-2016	Hatch - birth	14222	Dwarf Tortoise Conservation
	203	Unknown	96	74	16-09-2020	Hatch - birth	14222	Dwarf Tortoise Conservation
	213	Unknown	96	74	23-05-2021	Hatch - birth	14222	Dwarf Tortoise Conservation
14137	124	Male	9	37	12-09-2015	Transfer	14137	Dwarf Tortoise Conservation
					30-06-2012	Hatch - birth	1392	Dwarf Tortoise Conservation
14139	125	Male	96	74	31-01-2016	Transfer	14139	Dwarf Tortoise Conservation
					25-08-2015	Transfer	1276	Dwarf Tortoise Conservation
					01-03-2013	Transfer	1199	Dwarf Tortoise Conservation
					07-07-2012	Hatch - birth	1276	Dwarf Tortoise Conservation
	169	Female	36	35	30-10-2021	Transfer	14139	Dwarf Tortoise Conservation
					~27-04-2018	Transfer	14121	Dwarf Tortoise Conservation
					20-04-2018	Transfer	14152	Dwarf Tortoise Conservation
					07-09-2016	Hatch - birth	14121	Dwarf Tortoise Conservation
	188	Male	42	73	16-10-2018	Hatch - birth	14139	Dwarf Tortoise Conservation
14183	41	Male	3	1	22-01-2010	Transfer	14183	Dwarf Tortoise Conservation
					12-10-2009	Transfer	14198	Dwarf Tortoise Conservation
					19-04-2003	Transfer	1277	Dwarf Tortoise Conservation
					25-07-2002	Hatch - birth	1392	Dwarf Tortoise Conservation
	166	Female	36	35	01-04-2018	Transfer	14183	Dwarf Tortoise Conservation
					07-06-2016	Hatch - birth	14121	Dwarf Tortoise Conservation
14238	136	Female	9	37	27-09-2016	Transfer	14238	Dwarf Tortoise Conservation
					02-09-2014	Hatch - birth	1392	Dwarf Tortoise Conservation
	137	Male	36	35	25-12-2020	Transfer	14238	Dwarf Tortoise Conservation
					08-04-2016	Transfer	1268	Dwarf Tortoise Conservation
					21-06-2014	Hatch - birth	14121	Dwarf Tortoise Conservation
14133	14	Male	3	1	14-03-2015	Transfer	14133	Dwarf Tortoise Conservation
					16-09-2000	Transfer	14161	Dwarf Tortoise Conservation
					22-11-1998	Transfer	14120	Dwarf Tortoise Conservation
					22-10-1998	Hatch - birth	1392	Dwarf Tortoise Conservation
	107	Female	36	35	11-03-2017	Transfer	14133	Dwarf Tortoise Conservation
					12-03-2016	Transfer	14231	Dwarf Tortoise Conservation
					08-03-2014	Transfer	14197	Dwarf Tortoise Conservation
					13-03-2010	Transfer	14205	Dwarf Tortoise Conservation
					21-07-2009	Hatch - birth	14120	Dwarf Tortoise Conservation
	186	Female	107	14	12-08-2018	Hatch - birth	14133	Dwarf Tortoise Conservation
	207	Unknown	107	14	13-05-2021	Hatch - birth	14133	Dwarf Tortoise Conservation
	209	Unknown	107	14	02-07-2021	Hatch - birth	14133	Dwarf Tortoise Conservation
	210	Unknown	107	14	06-06-2021	Hatch - birth	14133	Dwarf Tortoise Conservation

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
	212	Unknown	107	14	17-07-2021	Hatch - birth	14133	Dwarf Tortoise Conservation
14216	71	Male	7	44	10-03-2012	Transfer	14216	Dwarf Tortoise Conservation
					22-01-2012	Transfer	14121	Dwarf Tortoise Conservation
					06-05-2008	Transfer	14196	Dwarf Tortoise Conservation
					25-06-2005	Hatch - birth	14121	Dwarf Tortoise Conservation
	170	Female	158	153	08-09-2019	Transfer	14216	Dwarf Tortoise Conservation
					21-09-2016	Hatch - birth	14121	Dwarf Tortoise Conservation
14153	106	Male	36	35	09-10-2018	Transfer	14153	Dwarf Tortoise Conservation
					19-01-2016	Transfer	14218	Dwarf Tortoise Conservation
					13-03-2010	Transfer	14205	Dwarf Tortoise Conservation
					20-05-2009	Hatch - birth	14120	Dwarf Tortoise Conservation
14203	142	Female	38	37	19-01-2018	Transfer	14203	Dwarf Tortoise Conservation
					15-05-2015	Hatch - birth	1392	Dwarf Tortoise Conservation
1776	147	Male	36	35	10-09-2016	Transfer	1776	Dwarf Tortoise Conservation
					28-08-2015	Hatch - birth	14121	Dwarf Tortoise Conservation
	200	Unknown	9	100	12-09-2020	Transfer	1776	Dwarf Tortoise Conservation
					01-08-2020	Hatch - birth	14206	Dwarf Tortoise Conservation
14197	113	Male	38	37	03-12-2011	Transfer	14197	Dwarf Tortoise Conservation
					16-06-2010	Hatch - birth	1392	Dwarf Tortoise Conservation
	152	Male			23-09-2015	Transfer	14197	Dwarf Tortoise Conservation
					22-09-2015	Transfer	1392	Dwarf Tortoise Conservation
					~01-01-1900	Hatch - birth	Wild	Wild
	157	Female			23-09-2015	Transfer	14197	Dwarf Tortoise Conservation
					22-09-2015	Transfer	1392	Dwarf Tortoise Conservation
					~01-01-1900	Hatch - birth	Wild	Wild
	172	Female	157	152	01-08-2017	Hatch - birth	14197	Dwarf Tortoise Conservation
	183	Female	157	152	30-06-2018	Hatch - birth	14197	Dwarf Tortoise Conservation
	201	Unknown	157	152	31-08-2020	Hatch - birth	14197	Dwarf Tortoise Conservation
1392	150	Male			30-03-2018	Transfer	1392	Dwarf Tortoise Conservation
					23-09-2015	Transfer	14195	Dwarf Tortoise Conservation
					22-09-2015	Transfer	1392	Dwarf Tortoise Conservation
					~01-01-1900	Hatch - birth	Wild	Wild
	156	Female			09-06-2020	Transfer	1392	Dwarf Tortoise Conservation
					23-09-2015	Transfer	1276	Dwarf Tortoise Conservation
					22-09-2015	Transfer	1392	Dwarf Tortoise Conservation
					~01-01-1900	Hatch - birth	Wild	Wild
	208	Unknown	162	150	15-06-2021	Hatch - birth	1392	Dwarf Tortoise Conservation
14241	119	Male	7	44	19-05-2018	Transfer	14241	Dwarf Tortoise Conservation
					08-09-2012	Transfer	14222	Dwarf Tortoise Conservation
					~20-04-2011	Hatch - birth	14121	Dwarf Tortoise Conservation
14242	72	Male	9 38	13 37	03-09-2018	Transfer	14242	Dwarf Tortoise Conservation
					17-10-2009	Transfer	14203	Dwarf Tortoise Conservation
					24-07-2005	Hatch - birth	1392	Dwarf Tortoise Conservation
	118	Female	7	44	06-05-2018	Transfer	14242	Dwarf Tortoise Conservation
					22-02-2012	Transfer	14217	Dwarf Tortoise Conservation
					22-01-2012	Transfer	14121	Dwarf Tortoise Conservation
					10-11-2011	Transfer	14196	Dwarf Tortoise Conservation
					01-05-2010	Hatch - birth	14121	Dwarf Tortoise Conservation
	215	Unknown	118	72	02-09-2021	Hatch - birth	14242	Dwarf Tortoise Conservation

Homopus areolatus: live and available studbook population.

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
17255	242	Male	59 60	58	14-12-2019	Transfer	17255	17255
					12-12-2019	Transfer	14236	14236
					27-01-2018	Hatch - birth	14187	14187
	243	Male	59 60	58	14-12-2019	Transfer	17255	17255
					12-12-2019	Transfer	14236	14236
					28-01-2018	Hatch - birth	14187	14187
18015	141	Male	59 60	58	12-06-2021	Transfer	18015	18015
					~19-03-2017	Transfer	14122	14122
					~01-09-2016	Transfer	14236	14187
					~17-02-2013	Hatch - birth	14187	14187
	292	Unknown	128	234	12-06-2021	Transfer	18015	18015
					22-07-2019	Hatch - birth	14159	14159
	309	Unknown	145	174	12-06-2021	Transfer	18015	18015
					24-02-2021	Hatch - birth	14122	14122

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
18159	96	Male	59 60	58	12-06-2021	Transfer	18159	18159
					~13-07-2013	Transfer	14122	14122
					~01-06-2012	Transfer	14194	14187
					~18-01-2010	Hatch - birth	14187	14187
18167	138	Male	59 60	58	31-05-2021	Transfer	18167	18167
					19-03-2017	Transfer	14122	14122
					~01-09-2016	Transfer	14236	14187
					~27-01-2013	Hatch - birth	14187	14187
17355	203	Female	59 60	58	15-12-2019	Transfer	17355	17355
					12-12-2019	Transfer	14236	14236
					21-02-2016	Hatch - birth	14187	14187
	275	Female	129	234	15-12-2019	Transfer	17355	17355
					05-06-2019	Hatch - birth	14236	14236
	278	Female	59 60	58	15-12-2019	Transfer	17355	17355
					12-12-2019	Transfer	14236	14236
					01-02-2019	Hatch - birth	14187	14187
14187	58	Male			09-09-1997	Transfer	14187	14187
					~01-01-1900	Hatch - birth	1417	Wild
	59	Female			09-09-1997	Transfer	14187	14187
					~01-01-1900	Hatch - birth	1417	Wild
	60	Female			25-03-1999	Transfer	14187	14187
					~01-01-1900	Hatch - birth	1417	Wild
	277	Unknown	59 60	58	01-02-2019	Hatch - birth	14187	14187
	279	Unknown	59 60	58	01-02-2019	Hatch - birth	14187	14187
	280	Unknown	59 60	58	01-02-2019	Hatch - birth	14187	14187
	302	Unknown	59 60	58	14-01-2021	Hatch - birth	14187	14187
	303	Unknown	59 60	58	20-01-2021	Hatch - birth	14187	14187
	304	Unknown	59 60	58	22-01-2021	Hatch - birth	14187	14187
	305	Unknown	59 60	58	25-01-2021	Hatch - birth	14187	14187
	306	Unknown	59 60	58	25-01-2021	Hatch - birth	14187	14187
	307	Unknown	59 60	58	13-02-2021	Hatch - birth	14187	14187
	308	Unknown	59 60	58	13-01-2021	Hatch - birth	14187	14187
1268	317	Unknown	62	94	06-12-2020	Transfer	1268	1268
					30-07-2020	Hatch - birth	14121	14121
14159	128	Female	59 60	58	09-03-2019	Transfer	14159	14159
					01-09-2016	Transfer	14236	14187
					03-02-2012	Hatch - birth	14187	14187
	175	Female	24	22	03-10-2020	Transfer	14159	14159
					24-09-2016	Transfer	14225	14225
					15-01-2015	Hatch - birth	14178	Wild8
	228	Male	62	94	13-06-2021	Transfer	14159	14159
					08-09-2018	Transfer	14122	14122
					13-07-2017	Hatch - birth	14121	14121
	269	Male	17	16	23-01-2019	Transfer	14159	14159
					~01-01-1900	Hatch - birth	14161	14161
	301	Female	300	299	03-10-2020	Transfer	14159	14159
					~16-03-2014	Transfer	14225	14225
					15-03-2014	Hatch - birth	14224	14224
17756	273	Male	128	234	11-08-2020	Transfer	17756	17756
					20-06-2020	Transfer	17691	17691
					31-08-2019	Transfer	14145	14145
					02-06-2019	Hatch - birth	14236	14236
	274	Male	129	234	20-08-2020	Transfer	17756	17756
					20-06-2020	Transfer	17691	17691
					31-08-2019	Transfer	14145	14145
					05-06-2019	Hatch - birth	14236	14236
14155	253	Female	129	234	21-10-2018	Transfer	14155	14155
					21-08-2018	Hatch - birth	14236	14236
	254	Female	129	234	21-10-2018	Transfer	14155	14155
					22-08-2018	Hatch - birth	14236	14236
14121	62	Female	4	5	25-07-2014	Transfer	14121	Dwarf Tortoise Conservation
					27-03-2011	Transfer	14185	Dwarf Tortoise Conservation
					~25-11-2007	Hatch - birth	14121	Dwarf Tortoise Conservation
	94	Male	17	16	~25-07-2014	Transfer	14121	14121
					05-06-2010	Transfer	14185	14185
					07-07-2009	Hatch - birth	14161	14161
	126	Male	59 60	58	12-09-2020	Transfer	14121	14121
					01-09-2016	Transfer	14236	14236

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
					01-02-2012	Hatch - birth	14187	14187
	186	Female	62	94	15-09-2015	Hatch - birth	14121	14121
	223 (ibg)	Female			~11-10-2017	Transfer	14121	1177
					01-01-1900	Hatch - birth	1417	Wild
	224	Unknown	62	94	29-04-2017	Hatch - birth	14121	Dwarf Tortoise Conservation
	225	Unknown	62	94	04-05-2017	Hatch - birth	14121	Dwarf Tortoise Conservation
	229	Unknown	62	94	15-07-2017	Hatch - birth	14121	14121
	256	Unknown	62	94	11-06-2018	Hatch - birth	14121	14121
	257	Unknown	62	94	18-06-2018	Hatch - birth	14121	Dwarf Tortoise Conservation
	259	Unknown	62	94	17-08-2018	Hatch - birth	14121	Dwarf Tortoise Conservation
	261	Unknown	62	94	01-10-2018	Hatch - birth	14121	14121
	262	Unknown	62	94	28-08-2018	Hatch - birth	14121	14121
	290	Unknown	62	94	06-06-2019	Hatch - birth	14121	Dwarf Tortoise Conservation
	291	Unknown	62	94	06-06-2019	Hatch - birth	14121	14121
	315	Unknown	62	94	25-06-2020	Hatch - birth	14121	14121
	318	Unknown	62	94	30-07-2020	Hatch - birth	14121	Dwarf Tortoise Conservation
	320	Unknown	62	94	14-06-2021	Hatch - birth	14121	14121
	321	Unknown	62	94	14-06-2021	Hatch - birth	14121	Dwarf Tortoise Conservation
	322	Unknown	186 201	126	29-05-2021	Hatch - birth	14121	14121
	325	Unknown	186 201	126	18-07-2021	Hatch - birth	14121	14121
	326	Unknown	186 201	126	19-08-2021	Hatch - birth	14121	14121
14145	136	Female	59 60	58	01-10-2017	Transfer	14145	14145
					01-09-2016	Transfer	14236	14187
					~18-01-2013	Hatch - birth	14187	14187
	162	Male	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					29-01-2014	Hatch - birth	14187	14187
	164	Male	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					20-02-2014	Hatch - birth	14187	14187
	165	Female	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					20-02-2014	Hatch - birth	14187	14187
	169	Female	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					13-02-2015	Hatch - birth	14187	14187
	170	Female	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					20-02-2015	Hatch - birth	14187	14187
	171	Unknown	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					20-03-2015	Hatch - birth	14187	14187
	197	Male	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					04-02-2016	Hatch - birth	14187	14187
	199	Unknown	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					04-02-2016	Hatch - birth	14187	14187
	202	Female	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					20-02-2016	Hatch - birth	14187	14187
	204	Male	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					22-02-2016	Hatch - birth	14187	14187
	205	Male	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					03-03-2016	Hatch - birth	14187	14187
	206	Male	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					04-03-2016	Hatch - birth	14187	14187
	221	Unknown	59 60	58	09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					02-02-2017	Hatch - birth	14187	14187
	235	Unknown	129	234	09-09-2017	Transfer	14145	14145
					05-09-2017	Hatch - birth	14236	14236
	239	Unknown	128	234	24-06-2018	Transfer	14145	14145
					16-03-2018	Hatch - birth	14236	14236
	240	Male	123	234	08-12-2018	Transfer	14145	14145

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
					27-03-2018	Hatch - birth	14236	14236
	241	Unknown	128	234	09-09-2018	Transfer	14145	14145
					26-04-2018	Hatch - birth	14236	14236
	245	Male	128	234	24-06-2018	Transfer	14145	14145
					16-03-2018	Hatch - birth	14236	14236
	247	Unknown	129	234	09-09-2018	Transfer	14145	14145
					25-05-2018	Hatch - birth	14236	14236
	248	Unknown	129	234	09-09-2018	Transfer	14145	14145
					26-05-2018	Hatch - birth	14236	14236
	249	Male	123	234	09-09-2018	Transfer	14145	14145
					29-05-2018	Hatch - birth	14236	14236
	251	Unknown	129	234	09-09-2018	Transfer	14145	14145
					20-06-2018	Hatch - birth	14236	14236
	266	Male	17	16	~01-06-2019	Transfer	14145	14145
					23-01-2019	Transfer	14159	14159
					~01-01-1900	Hatch - birth	14161	14161
	267	Male	17	16	~01-06-2019	Transfer	14145	14145
					23-01-2019	Transfer	14159	14159
					~01-01-1900	Hatch - birth	14161	14161
	270	Unknown	128	234	31-05-2019	Transfer	14145	14145
					06-05-2019	Hatch - birth	14236	14236
	271	Unknown	128	234	31-05-2019	Transfer	14145	14145
					26-04-2019	Hatch - birth	14236	14236
1368	167	Male	59 60	58	04-09-2021	Transfer	1368	1368
					09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					27-02-2014	Hatch - birth	14187	14187
	198	Male	59 60	58	04-09-2021	Transfer	1368	1368
					09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					04-02-2016	Hatch - birth	14187	14187
	220	Unknown	59 60	58	04-09-2021	Transfer	1368	1368
					09-09-2018	Transfer	14145	14145
					11-06-2018	Transfer	14236	14187
					18-10-2017	Hatch - birth	14187	14187
	323	Unknown	186 201	126	20-12-2021	Transfer	1368	1368
					26-06-2021	Hatch - birth	14121	14121
	324	Unknown	186 201	126	20-12-2021	Transfer	1368	1368
					01-07-2021	Hatch - birth	14121	14121
14122	145	Female	59 60	58	14-11-2017	Transfer	14122	14122
					~01-09-2016	Transfer	14236	14187
					~26-03-2013	Hatch - birth	14187	14187
	173	Male	24	22	24-09-2016	Transfer	14122	14122
					12-01-2014	Hatch - birth	14178	Wild8
	174	Male	24	22	24-09-2016	Transfer	14122	14122
					15-08-2014	Hatch - birth	14178	Wild8
	226	Female	62	94	08-09-2018	Transfer	14122	14122
					11-05-2017	Hatch - birth	14121	14121
14204	40	Male			06-02-2018	Transfer	14204	Dwarf Tortoise Conservation
					18-01-2018	Transfer	14242	Dwarf Tortoise Conservation
					28-03-1991	Transfer	14242	14242
					~01-01-1900	Hatch - birth	1417	Wild
	79	Male	59 60	58	11-04-2015	Transfer	14204	Dwarf Tortoise Conservation
					~15-06-2008	Transfer	14193	Dwarf Tortoise Conservation
					~15-03-2007	Hatch - birth	14187	14187
	81	Female	59 60	58	~11-04-2015	Transfer	14204	Dwarf Tortoise Conservation
					~15-06-2008	Transfer	14193	Dwarf Tortoise Conservation
					~15-03-2007	Hatch - birth	14187	14187
14231	185	Unknown	62	94	12-09-2016	Transfer	14231	Dwarf Tortoise Conservation
					12-09-2015	Hatch - birth	14121	Dwarf Tortoise Conservation
	316	Unknown	62	94	06-12-2020	Transfer	14231	Dwarf Tortoise Conservation
					09-07-2020	Hatch - birth	14121	Dwarf Tortoise Conservation
	319	Unknown	62	94	06-12-2020	Transfer	14231	14231
					03-09-2020	Hatch - birth	14121	14121
14236	234	Male	64	63	~25-04-2014	Transfer	14236	14236
					~01-11-2012	Hatch - birth	14224	14224
14211	69	Male	59 60	58	19-06-2010	Transfer	14211	14211
					~21-05-2006	Transfer	14194	14187

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
	71	Female	59 60	58	~22-04-2004	Hatch - birth	14187	14187
					19-06-2010	Transfer	14211	14211
					~21-05-2006	Transfer	14194	14187
	130	Female	62	94	~06-03-2004	Hatch - birth	14187	14187
					05-04-2019	Transfer	14211	14211
					16-03-2012	Hatch - birth	14185	14185
	132	Male	62	94	05-04-2019	Transfer	14211	14211
					18-07-2012	Hatch - birth	14185	14185
	133	Female	62	94	05-04-2019	Transfer	14211	Dwarf Tortoise Conservation
					13-08-2012	Hatch - birth	14185	Dwarf Tortoise Conservation
	149	Male	62	94	05-04-2019	Transfer	14211	Dwarf Tortoise Conservation
					27-04-2013	Hatch - birth	14185	Dwarf Tortoise Conservation
	298	Unknown	133	149	26-06-2020	Hatch - birth	14211	Dwarf Tortoise Conservation
	310	Unknown	133	149	08-06-2021	Hatch - birth	14211	Dwarf Tortoise Conservation
	311	Unknown	130	132	14-08-2021	Hatch - birth	14211	14211
	312	Unknown	130	132	21-08-2021	Hatch - birth	14211	14211
14213	313	Unknown	128	234	~01-08-2021	Transfer	14213	14213
					06-02-2021	Hatch - birth	14159	14159
	314	Unknown	128	234	~01-08-2021	Transfer	14213	14213
					06-02-2021	Hatch - birth	14159	14159
14439	207	Female	11	10	11-04-2016	Hatch - birth	14439	14439
	209	Male	11	10	15-05-2016	Hatch - birth	14439	14439
	236	Unknown	11	10	04-04-2017	Hatch - birth	14439	14439
	328	Unknown	207	209	20-08-2021	Hatch - birth	14439	14439
	329	Unknown	207	209	20-08-2021	Hatch - birth	14439	14439
14215	84	Male	59 60	58	02-06-2011	Transfer	14215	14215
					~07-02-2008	Hatch - birth	14187	14187
	85	Male	59 60	58	02-06-2011	Transfer	14215	14215
					~07-02-2008	Hatch - birth	14187	14187
14197	187	Female	62	94	12-09-2016	Transfer	14197	Dwarf Tortoise Conservation
					17-09-2015	Hatch - birth	14121	Dwarf Tortoise Conservation

Homopus femoralis: live and available studbook population.

Participant	Studbook number	Gender	Mother	Father	Date	Event	Keeper	Owner
14131	17	Female	4	3	25-07-2019	Transfer	14131	Dwarf Tortoise Conservation
					26-06-2017	Hatch - birth	1392	Dwarf Tortoise Conservation
	18	Male	4	3	25-07-2019	Transfer	14131	Dwarf Tortoise Conservation
					08-07-2017	Hatch - birth	1392	Dwarf Tortoise Conservation
	19	Male	4	3	25-07-2019	Transfer	14131	Dwarf Tortoise Conservation
					26-06-2018	Hatch - birth	1392	Dwarf Tortoise Conservation
14121	2	Male	21	20	06-07-2006	Transfer	14121	Dwarf Tortoise Conservation
					23-12-2001	Transfer	1277	Dwarf Tortoise Conservation
					~01-01-2001	Transfer	14172	Tortoise Trust
					~01-01-1900	Hatch - birth	1417	Wild
	15	Female	4	3	09-03-2019	Transfer	14121	Dwarf Tortoise Conservation
					10-09-2016	Transfer	14222	Dwarf Tortoise Conservation
					19-06-2014	Hatch - birth	1392	Dwarf Tortoise Conservation
	22	Unknown	15	2	01-06-2021	Hatch - birth	14121	Dwarf Tortoise Conservation
	23	Unknown	15	2	04-06-2021	Hatch - birth	14121	Dwarf Tortoise Conservation
	24	Unknown	15	2	05-07-2021	Hatch - birth	14121	Dwarf Tortoise Conservation
14191	3	Male	21	20	30-05-2019	Transfer	14191	Dwarf Tortoise Conservation
					23-12-2001	Transfer	1392	Dwarf Tortoise Conservation
					01-01-2001	Transfer	14172	Tortoise Trust
					~01-01-1900	Hatch - birth	1417	Wild
	16	Female	4	3	09-09-2017	Transfer	14191	Dwarf Tortoise Conservation
					26-06-2015	Hatch - birth	1392	Dwarf Tortoise Conservation
14222	14	Female	4	3	10-09-2016	Transfer	14222	Dwarf Tortoise Conservation
					18-06-2014	Hatch - birth	1392	Dwarf Tortoise Conservation
1276	8	Male	4	3	26-06-2014	Transfer	1276	Dwarf Tortoise Conservation
					30-06-2010	Transfer	1392	Dwarf Tortoise Conservation
	10	Female	4	3	27-06-2015	Transfer	1276	Dwarf Tortoise Conservation
					28-05-2011	Transfer	1392	Dwarf Tortoise Conservation
14197	12	Male	4	3	02-08-2015	Transfer	14197	Dwarf Tortoise Conservation
					12-07-2013	Hatch - birth	1392	Dwarf Tortoise Conservation
	13	Female	4	3	10-09-2016	Transfer	14197	Dwarf Tortoise Conservation
					15-06-2014	Hatch - birth	1392	Dwarf Tortoise Conservation

5. SPECIFIC INFORMATION FROM STUDBOOK PARTICIPANTS

Participant 14116

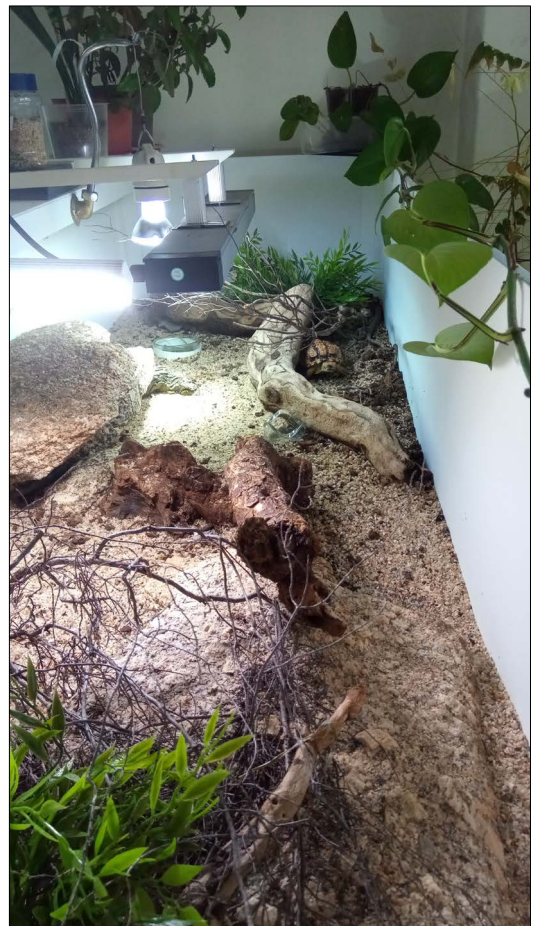
A couple *C. signatus* produced its annual first clutch in December. Additional eggs were laid in January, February, and March. All eggs were incubated on Seramis. The first three eggs failed to develop. The fourth egg broke after 60 days of incubation and contained an embryo with a large yolk. The embryo remained at its spot but died four days later. The cause of the broken egg was likely too much humidity during incubation. A new (Jaeger) incubator was acquired and will be used to incubate eggs in open containers on Seramis next year. The new incubator has been tested and functioned well for *Testudo hermanni hercegovinensis* eggs.



Participant 14133

This year I invested in following the incubation protocol for *C. signatus* (new incubator and another calibrated thermometer), and the couple has been exposed to significant cold for a few weeks (down to 14°C during the night). I have also switched to a 35W HQI lamp instead of the 70W I used previously (I moved them to another terrarium, as the previous was falling apart). In the new terrarium, my animals can bask in direct sunlight; some sunrays reach the enclosure from the window nearby, at least when the sun is low and the window is open. The (nongravid) female was following sunny spots in the terrarium, even climbing on top of decoration to receive sunlight. I measured the UV index perpendicular to the sun and it reached a maximum value of 3.2. Unfortunately, the sun reaches the terrarium during less than an hour, before it has climbed too high.

Four eggs were laid in 2021, and three hatched. I have been following the protocol as much as possible. The third hatchling misses an eye. This might be the result of high incubation temperatures, but I can't understand how. I have had two calibrated thermometers inside the incubator, each close to an egg since the beginning of the incubation. Excessive temperatures have not been noted. In fact, I have been keeping temperatures close to 32°C rather than 33°C during the day. This is the second one-eyed hatchling born here, whereas none have been born elsewhere in the studbook. I would appreciate any views or ideas from other participants. The behaviour of the one-eyed individuals is normal.





Participant 14134

The first *C. signatus* was born for this location.



Participant 14195

On 28 May 2021, I found a *C. signatus* egg. I saw the female digging one week before and I was checking possible nesting spots every day. However, eventually the female laid the egg at a different spot. Unfortunately, the egg failed to develop.



Participant 14203

A temporary enclosure was built for a couple *C. signatus*. The enclosure measures approximately 110 x 80 cm and was constructed from wood covered with a water-resistant finish. Soil consists of solid loam with coarse, sand-coloured gravel. Retreats and artificial plants are not visible on the photo. The enclosure can be separated in two parts if necessary. Preliminarily, the enclosure is heated and illuminated by two 40W incandescent spots a Reptisun 5.0 UVB fluorescent. The fluorescent will be exchanged for another UV lamp. Natural sun penetrates into the enclosure in the morning. Wheels underneath the enclosure enable moving it forward for easy access.



Participant 14204

A post-mortem on a gravid female *C. signatus* that died yielded the following impressive images. Egg size was within the normal egg size range observed in wild *C. signatus*. See also appendix 1.



Participant 14222

A marked difference in coloration was noticed among hatchling *C. signatus*. The lighter-coloured individual had died during hatching, but light-coloured hatchlings have been born elsewhere in the studbook too.



The couple *H. femoralis* is doing well.



Crocodile Zoo Prague

The single *C. signatus* male is doing well.



Turtle Conservancy

Two *H. areolatus* were born in 2021.



6. NEW PUBLICATIONS

The following overview summarises all manuscripts and articles that were submitted, accepted, published, or under review in 2021. A full list of publications authored or co-authored by Dwarf Tortoise Conservation is available [at the website](#).

Subject	Submitted	Accepted	Published	Journal
Health assessment of wild speckled dwarf tortoises, <i>Chersobius signatus</i>	2020	2021	2021	BMC Veterinary Research (English)
High-level inactivity despite favorable environmental conditions in the rock-dwelling dwarf tortoise <i>Chersobius boulengeri</i>	2020	2021	2021	Herpetologica (English)
The Karoo dwarf tortoise (<i>Chersobius boulengeri</i>): field report on a vanishing species	2020	2021	2021	Testudo (English)
Stamboek <i>Chersobius signatus</i>	2021	2021	2021	Trionyx (Dutch)
Note sur l'élevage et la reproduction de l'Homopode marqué <i>Chersobius signatus</i> (Gmelin 1789)	2021	2021	2021	Chéloniens (French)
Structure and projected decline of a Karoo dwarf tortoise population	2021	2021		Journal of Wildlife Management (English)
Shell dimensions in a population of Karoo dwarf tortoises, <i>Chersobius boulengeri</i>	2021			Chelonian Conservation and Biology (English)

7. FINANCIAL REPORT

Funds received from multiple NGO's and private individuals in 2017–2021 have been allocated to cover publication costs for scientific articles. In 2021, a major paper about the population status, threats and projected decline of *C. boulengeri* was funded for open access publication. Dwarf Tortoise Conservation covered approximately half of the total costs; the other half (€ 1,960) was paid privately by the two authors. Open access publication will make the article widely accessible for nature conservation organisations and local authorities, facilitating conservation efforts.

All non-project expenses were covered by a private donation by the board of Dwarf Tortoise Conservation.

Revenues		Expenses	
Net amount	Item	Amount	Item
€		€	
Projects		Projects	
			<i>Field ecology of Chersobius boulengeri</i>
3,742	Remaining funds from 2020	2,000	Publication costs Journal of Wildlife Management
400	Donation Crocodile Zoo Prague	2,842	Reservation publication costs 2022-2023
700	Donations (3) private individuals		
4,842	Subtotal	4,842	Subtotal
Other		Other	
151	Donation private individual to cover overhead costs	151	Annual costs bank account
151	Subtotal	151	Subtotal
4,993	Total	4,993	Total

8. PERMIT OVERVIEW

The activities reported in this annual report would not have been possible without the following permits issued by the South African and Namibian authorities:

Collecting and exporting of C. boulengeri

- Collecting permit FAUNA 0952/2018 (Northern Cape Department of Environment and Nature Conservation)
- CITES exporting permit 217387 (Northern Cape Department of Environment and Nature Conservation)

Collecting and exporting of C. signatus

- Collecting permit 331/95 (Western Cape Nature Conservation Board, South Africa)
- Collecting permit 28/2001 (Northern Cape Nature Conservation, South Africa)
- Collecting permit 053/2015 (Northern Cape Department of Environment and Nature Conservation)
- CITES exporting permits 16579 and 281/95C (Department of Environmental Affairs and Tourism, South Africa)
- CITES exporting permit 148487 (Northern Cape Department of Environment and Nature Conservation)
- Permit to move animals/animal products 2001/10/3/A (Department of Agriculture, South Africa)

Collecting and exporting of H. femoralis

- Collecting permit AAA004-00010-0035 (CapeNature, South Africa)
- CITES exporting permit 58679 (Department of Environmental Affairs and Tourism, South Africa)
- Health declaration dated 17-03-06 (Department of Agriculture, South Africa)

Exporting of H. areolatus

- Exporting permit 49683 (Ministry of Environment and Tourism, Namibia)
- CITES exporting permit 8830 (Ministry of Environment and Tourism, Namibia)
- CITES exporting permit 3558 (Ministry of Environment and Tourism, South Africa)
- Health certificate 13\14\2\ 09\2- 1676\04 (Ministry of Agriculture, Water and Rural Development, Namibia)
- Various additional permits issued to individual studbook participants (Namibia)

Field study and surveys on C. boulengeri

- Research permits 755/05, 43/2005 and 35/2005 (Northern Cape Nature Conservation, South Africa)
- Research permit 245/2/2015 (Northern Cape Department of Environment and Nature Conservation, South Africa)
- Research permit FAUNA 0950/2017 (Northern Cape Department of Environment and Nature Conservation, South Africa)
- Research permits FLORA 0066/2017 and FLORA 0067/2017 (Northern Cape Department of Environment and Nature Conservation, South Africa)
- Plant export permission NNO 1/10/3/6/ 39738

Field studies on C. signatus

- Research permits 137/99, 84/99, 019/2001, 010/2001, 46/2003, 26/2003, 8/2003, 168/2003, 43/2003, 158/2003, 633/2003, 25/2003, 158/2004 and 633/2004 (Northern Cape Nature Conservation, South Africa)
- Research permits 428/2002 and 41/2002 (Western Cape Nature Conservation Board, South Africa)
- Research permits 152/2012 and 153/2012, 460/2013 and 052/2015 (Northern Cape Department of Environment and Nature Conservation, South Africa)

Field study on H. femoralis

- Research permit AAA-004-000185-0035
- Research permit AAA-004-00020-0028
- Research permit AAA-004-000392-0035
- Research permit AAA-004-00027-0028

Appendix 1

Reports from participant 14204.

Chersobius signatus

2021 von Partizipant 14204

Wieder mal ein trauriger Bericht aus der Schweiz, am Freitag, den 9. April 2021 verstarb das Weibchen.

Also telefonierte ich dem Tierarzt Peter Sandmeier und vereinbarte einen Termin. Am Samstag brachten wir die Schildkröte in die Praxis und das Tier wurde seziert.

Das Weibchen benahm sich nicht auffällig, begab sich immer unter der Lampe zum Aufwärmen. Wir vermuteten schon, dass es Eier in sich trug, aber bis anhin war dies kein Problem.

Hier wieder mal ein paar Fotos vom Terrarium:



Zum Vergleich beim geschlüpften Tier Nr. 194 vom 25.7.2019 waren die Ei Masse 39,2 x 21,7mm und 11,29g.

Die genauen Masse dieses Mal 38,5mm x 25,6mm, 15,2g.

Das Ei zerriss schon im Tier.

Erstaunlich benahm sich das Männchen, es beschnupperte das Weibchen von allen Seiten und merkte wohl, dass etwas nicht in Ordnung war. Wir glauben, er begriff, dass etwas schreckliches passierte.

Wir sind sehr betroffen, dass nun das Männchen wieder allein ist.

Seit April 2021 sind die zwei Tiere Nr. 11 und Jungtier Nr. 194 auch im Sommer in ihren separaten Gehegen wie von Dwarf Tortoise Conservation empfohlen. Aus unserer Sicht sind die Schildkröten gesund und munter, fressen auch gut. Da wir kein Weibchen mehr haben und wir in einem fortgeschrittenen Alter sind, möchten wir diese Tiere dem Studbook retournieren. Hier noch ein paar Fotos.

Nr. 11



Nr. 194



Haltebericht Homopus areolatus

2021 von Partizipant 14204

Vom 11. Juni bis 26. September 2021 befanden sich diese Tiere im Aussengehege. Da nie eine Kopulation im Innenterri stattfand, halten wir auch das Paar getrennt im Aussengehege, also alle separat. Leider brachte dies im Innenterri nichts, nach wie vor zeigt das Männchen kein Interesse an einer Kopulation. Wenn ich das zweite Männchen, natürlich mit Aufsicht dazu geselle, wie Dwarf Tortoise Conservation mir empfohlen hat, gibt es ein kurzes Interesse. Altershalber möchten wir auch diese drei Schildkröten male Nr. 40, female Nr. 81 und male Nr. 79, dem Studbook zur Weitervermittlung abgeben.

Aussengehege alle separat:

Nr. 40 male



Nr. 81 female



Nr. 79 male



Innengehege

Nr. 40 male und Nr. 81 female



Nr. 79 male separat

