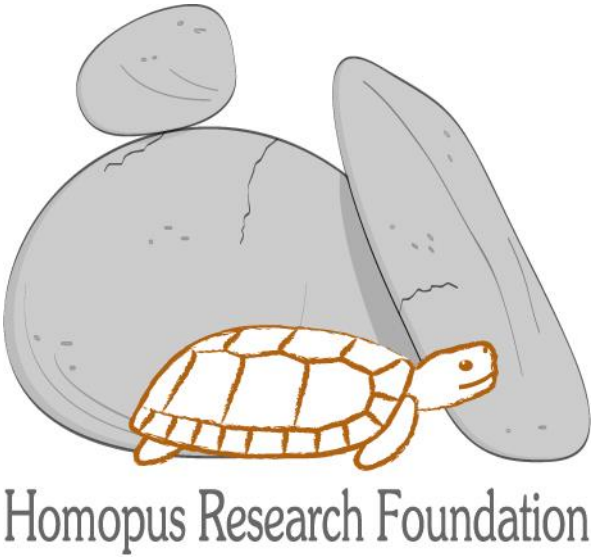
Homopus Research Foundation



Annual Report

2016

Victor Loehr
February 2017

CONTENTS

Victor Loehr
Homopus Research Foundation
loehr@homopus.org

1. INTRODUCTION AND ACHIEVEMENTS IN 2016

The Homopus Research Foundation aims to facilitate the long-term survival of *Homopus* spp. in the wild, by gathering and distributing information about their biologies and by the formation of genetically healthy *ex situ* populations. In 2016, several activities contributed to this aim. The current report presents an overview of achievements in 2016, as well as activities planned for 2017 and thereafter. Moreover, the actual studbook populations of *Homopus areolatus*, *Homopus femoralis* and *Homopus signatus* are described, focussing on changes that occurred in 2016. All previous annual reports since 1995 can be found on the website of the Homopus Research Foundation.

1.1. Policies and permanent action points

From time to time, the Homopus Research Foundation communicates policies and permanent action points to the participants in the *Homopus* studbooks and to other stakeholders. To avoid losing sight of these important issues, they are listed here.

- *Homopus Research Foundation and illegal activities (1 May 2011)*
  The Homopus Research Foundation strongly condemns illegal activities. All *Homopus* individuals kept in the studbooks and at studbook locations have legal and traceable origins. Each participant is responsible for the paperwork for his or her tortoises and will not fraud. The Homopus Research Foundation 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 illegally activities will be unable to continue their participation.

- *DNA samples from deceased wild-caught and F1 offspring H. signatus (22 November 2015)*
  In case a *H. signatus* individual that was caught in the wild in 2015 or any of its F1 offspring dies, two DNA samples (e.g., tail or feet clips) will be collected immediately. One sample will be stored in 70% ethanol, and the other one will be dried using silica gel. Samples will be stored in the dark, out of reach of heat sources and sunlight. Keepers of *H. signatus* collected in 2015 or their offspring are advised to keep 70% ethanol and silica gel at hand to be prepared in case any animal would die unexpectedly.

- *Volunteer tasks at the European Studbook Foundation (23 May 2016)*
  The board of the European Studbook Foundation is always in need of volunteers to help with specific tasks. The overall work load has been broken down into smaller tasks to enable volunteers to engage in the foundation without needing to accept a formal position for indeterminate period of time. Studbook participants with time to spare are invited to contact the European Studbook Foundation directly.

1.2. Outstanding action points from the 2015 annual report

The 2015 annual report anticipated on several results for 2016. The following table summarises these plans, with results obtained in 2016.

Outstanding action points and results	**Due**
Manuscript submitted on: • Population dynamics of *H. signatus* '00-'15	31-12-2016
2016: A manuscript was submitted, reviewed, revised and accepted for publication in 2016. In addition, a popular note was published on pyramiding in wild and captive *H. signatus*. See Chapter 6.	
Studbook management plan for *H. signatus* updated	30-06-2016
2016: The studbook management plan was updated on 7 April. A draft was submitted to the South African authorities and studbook participants for review. The final version was published on the website of the Homopus Research Foundation. See Paragraph 1.3.	

Outstanding action points and results	**Due**
Genetic relationship between *H. areolatus* studbook numbers 4 and 5 tested	30-06-2016
2016: Genetic relationship was tested. The two individuals were genetically relatively similar, but had different mothers. The male parentage could not be tested. See Paragraph 1.4.	
Genetic relationships between F1 offspring from new *H. signatus* founders and male founders tested	31-12-2016
2016: Although offspring was born from the founders that had been collected in 2015 (see Chapter 3), genetic testing was not yet performed. It was found to be more important to limit stress as much as possible to benefit acclimation and reproduction. As an alternative measure, DNA samples will be immediately collected when a founder or F1 offspring dies (see Paragraph 1.1).	
Presentation held on keeping and breeding *Homopus* (Turtle and Tortoise Preservation Group, USA)	Nov 2016
2016: The meeting venue turned out to be at a reptile trade fair. Since the Homopus Research Foundation should not give a false impression of involvement in commercial reptile trade, the invitation for the presentation was declined.	

Further achievements that are worth listing:

- The Homopus Research Foundation and its projects were updated in the Dutch National Academic Research and Collaborations Information System

- Reprints of papers produced by the Homopus Research Foundation were distributed through Researchgate, with circa 20 downloads per week.

- In response to a popular paper "Twenty years of husbandry and breeding of the speckled tortoise (*Homopus signatus*) in a studbook: accomplishments and challenges for the future" that was published in The Batagur in 2015, two messages from leading southern African herpetologists were received:

  Bill Branch: "Congratulations on 20 years of detailed documentation of your captives. It is a model of what captive husbandry should be about."
  Richard Boycott: "Let me pass on my most sincere congratulations on the *Homopus signatus* studbook summary. You have done a wonderful job for the future survival of the species and have uncovered very important facts for the proper management of both captive and natural populations."

  Both congratulations were extended to all *H. signatus* studbook participants, because without their efforts there would be no studbook.

- Review requests were received from:
  - African Journal of Herpetology;
  - Conservation Physiology;
  - Journal of Herpetology;
  - Natural Areas Journal;
  - Pakistan Journal of Zoology;
  - private researcher from Algeria (friendly review).

- A popular summary of a paper on carapacial scute patterns in *H. signatus*, produced by the Homopus Research Foundation, was printed in the magazine of the Dutch-Belgian Turtle and Tortoise Society.

- The Turtle Conservancy (USA) asked for specific suggestions for land purchase to protect surviving *H. signatus* populations.

- An invitation was received to present a lecture on *Homopus* (overview, field research and husbandry) at the Conference on Herpetology and Reptile Breeding, Pilsen Zoo, Czech Republic.

- Presentations were held:
  - In South Africa, looking for the smallest tortoise in the world. January 2016. Lecture day of the terrarium society of Prague, Charles University, Prague, Czech Republic.

  - In South Africa, looking for the smallest tortoise in the world. June 2016. Lecture evening, Zoo Pilsen, Czech Republic.

- Information requests were received regarding:
  - setting up a tortoise trust for *Homopus solus* and *Psammobates tentorius* (Namibia);
  - setting up a field study on the combined effects of invasive plants and climate change on the thermal landscape for *H. areolatus* (South Africa);
  - the use of GPS trackers on wild *Testudo graeca* (Greece);
  - the use of dataloggers on captive tortoises (UK);
  - using webcams in terrariums (Netherlands);
  - peeling of the keratin scute layer in a wild *H. areolatus* (South Africa, photo right; this request was answered by a specialist veterinarian in the Netherlands);
  - placement of confiscated *Psammobates tentorius* and *P. oculifer* (Germany).

- Regular postings were placed on the Facebook page of the Cape Tortoise Group. Postings concerned advice to keepers of *Homopus* spp., but mainly awareness raising on their conservation.

- Photographic material was provided to several book authors (e.g., Ting Zhou, Hai-Tao Shi), webmasters, social media publishers, and a furniture designer.

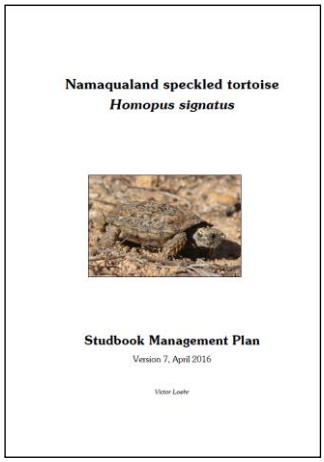
- A protocol that has successfully been used by the Homopus Research Foundation to acclimate wild-caught *H. signatus* to northern hemisphere captive conditions was forwarded to the Dutch authorities upon the confiscation of a *H. femoralis* from South Africa.

- The webmaster of the World Association of Zoos and Aquariums (WAZA) was informed that the species account of *H. signatus* on the WAZA website contained multiple errors.

- The website of the Homopus Research Foundation received minor updates. Most importantly, the studbook management plan for *H. signatus* and all studbook overviews were updated.

1.3. Studbook management plan Homopus signatus

The first version of the studbook management plan for *H. signatus* was finished in 2013. It provides clear 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 the Homopus Research Foundation will report annual progress of the realisation of the studbook management plan.



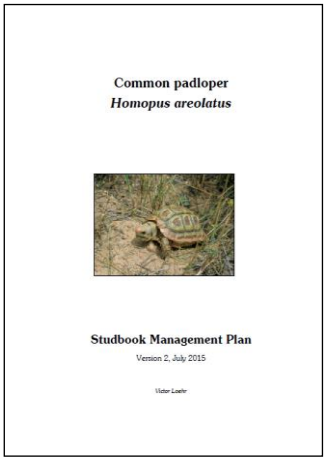
As a consequence of the supplementation of the studbook with new founders in 2015, the studbook management plan was updated in 2016. The most important addition was an outline how F1 offspring from the new founders will be combined to maximise avoidance of inbreeding in the long run. In addition, the plan received minor improvements throughout.

All new founders have acclimated well. Whereas their egg production was scattered throughout seasons in 2015 and 2016, it appears that reproduction will follow a normal seasonal rhythm from 2017 onward. In total, the five new founder females have produced four hatchlings, at three locations (see Chapter 3 for details). Future genetic analysis (see Paragraph 1.1) will reveal any possible relationships between F1 offspring and (all) male founders, some of which had been collected relatively nearby the females. The four founders that had been collected in 2001 are also still alive and well, and the bloodline in which the genes of deceased founder female number 2 are represented has finally reproduced into F2. The latter was one of the priorities in the studbook management plan. More offspring should be produced in the next years. In order

to better represent the genes of female 60 (lost to follow-up) in the population, one offspring from bloodline 25 x 60 was combined with offspring from bloodline 35 x 36. There are more offspring from bloodline 25 x 60 available for similar combinations.

Concluding, the execution of the studbook management plan for *H. signatus* is on track.

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 will be updated every five years. It follows the same format as the studbook management plan for *H. signatus*. A major difference between the two plans is that nearly all 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 studbook participants, whereas the studbook coordinator has only a minor facilitating role.

In 2016, an important action that had been identified in the studbook management plan was carried out: The genetic relationship between studbook numbers 4 and 5 was analysed, because these tortoises might be siblings producing inbred offspring. The analysis showed that studbook numbers 4 and 5 had a different mother, but available tests were unable to determine if tortoises numbers 4 and 5 had the same father. Thus, the results were in part favourable for the development of the studbook.

Other important progress was the registration of a new, reproducing bloodline (potentially two) in South Africa. This progress is perfectly in line with the approach in the studbook management plan that additional founders should be sourced from keepers of *H. areolatus* outside the studbook.

Location A56, owning a considerable number of (genetically related) F1 offspring *H. areolatus*, had left the studbook in 2015, but allowed keepers of its tortoises to acquire them and to re-register them in the studbook. This opportunity led to the resurrection of three individuals that were previously registered lost to follow-up (see Chapter 3). These individuals are siblings and in need of genetically unrelated offspring from other bloodlines.

One of the main breeders of *H. areolatus* in the studbook, location A16, was contacted to enquire if it would be prepared to exchange tortoises within the studbook. At this time, location A16 declined. Enquiries at (breeding) location A37 were more successful and will hopefully result in exchanges of *H. areolatus* in the near future. Location WUPPERTAL agreed to transfer its non-reproductive bloodline to an experienced studbook location to hopefully facilitate reproduction.

Concluding, the execution of the studbook management plan for *H. areolatus* is experiencing ups and downs, but the participants (particularly the private owners with breeding results) should realise that they are the ones in charge.

1.5. Progress field studies on Homopus

In 2016, no fieldwork on *Homopus* was conducted. One study (2012-2015) on thermoregulation in *H. signatus* will be finalised in 2017 with the preparation of a final paper (see Chapter 6). In January-February 2017, several historic localities of *H. boulengeri* will be surveyed to hopefully find a site with a high enough population abundance for a future ecological field study.

2. PLANS FOR 2017 AND THEREAFTER

The table below lists results anticipated for 2017 and thereafter, with progress indicated:

Result	Due	Current status
Manuscripts submitted on:		
• thermoregulation in wild *H. signatus* '12-'15;	31-12-2017	Data available
• parasite infestations in wild *H. signatus*;	31-12-2017	Data available
• egg shell ultrastructure in wild and captive *H. signatus*;	31-12-2018	Data available
• long-term captive reproduction in *H. signatus*;	31-12-2018	Data available
• captive reproduction and growth in *H. femoralis*.	31-12-2019	Data partly available
Presentations held on:		
• unexpected decline in a population of *Homopus signatus* (Symposium of the Herpetological Association of Africa, Bonamanzi Game Reserve, South Africa);	Jan-2017	Abstract submitted
• tortoises of the genus *Homopus*: overview, field research and husbandry (Conference on Herpetology and Reptile Breeding, Pilsen Zoo, Czech Republic);	Feb-2017	Presentation available
• in South Africa for a mysterious tortoise *Homopus boulengeri* (Spring meeting of the Prague terrarium society, Charles University, Czech Republic;	March 2017	In preparation
• infestations of wild *H. signatus* by viruses, bacteria, round worms and ticks (International Conference on Avian, Herpetological and Exotic Mammal Medicine, Venice, Italy).	Mar-2017	Abstract submitted
Field survey on *H. boulengeri* conducted	Jan/Feb-17	All preparation made
Meeting held on husbandry and breeding of *H. areolatus*[1]	31-12-2017	Not yet taken any action
Update website due to finalisation of *H. signatus* fieldwork	31-12-2017	Not yet taken any action
5.5 *H. signatus* collected in the wild and added to the captive population[2]	31-12-2020	Not yet taken any action

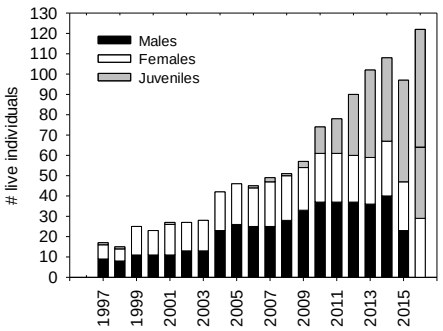
[1] Conditional is support for such a meeting by the studbook participants.
[2] Conditional are granted permits, tortoise activity, and field personnel.

3. STUDBOOK SUMMARIES

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 *H. femoralis* and *H. signatus*, each participant has accepted this obligation in a formal agreement between participant and the Homopus Research Foundation. Regardless of the agreements, most participants are very motivated and inform the coordinator spontaneously when changes occur throughout the year. Others choose to wait until information is requested by the coordinator at the end of each year. However, some participants remain silent for an entire year or longer, despite repeated messages from the studbook coordinator. In order to keep track of where these communication flaws occur, the annual reports include a list of unresponsive locations. This will make it easier for the reader to assess the validity of studbook information per location, and will facilitate the coordinator when approaching a silent participant. In 2016, all locations have responded.

Homopus areolatus

Live specimens on 1 January 2016: 98 (excluding 36 specimens lost to follow-up)
Number of locations on 1 January 2016: 12 (7 countries, including 2 zoos)
New registrations: 4
Births: 22, at 6 locations
Deaths: 2 (all captive-bred)

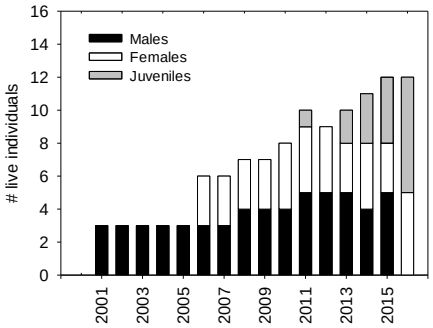


Live specimens on 31 December 2016: 122 (excluding 33 specimens lost to follow-up)
Number of locations on 31 December 2016: 17 (8 countries, including 2 zoos)
Interpretation of changes:

The studbook population grew as a result of new registrations (i.e., a new South African participant), resurrection of tortoises that were lost to follow-up (i.e., locations that were withdrawn from the studbook in 2015), and births. There were only two deaths (locations WUPPERTAL and A121, primary death causes unknown). Two individuals that had died in 2013 were erroneously listed live in the studbook registration, which was corrected.

In 2016, the studbook was successful in keeping and breeding *H. areolatus*. The genetic composition of the studbook population is reasonably heterogeneous, with ample opportunity to expand the population without inbreeding. The studbook management plan for *H. areolatus* describes what is needed on the long-term, and Paragraph 1.4 reports progress.

Homopus femoralis

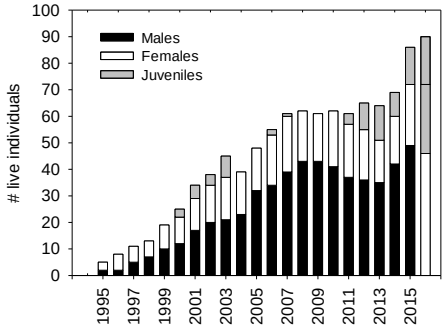


Live specimens on 1 January 2016: 12
Number of locations on 1 January 2016: 4 (3 countries)
New registrations: 0
Births: 0
Deaths: 0
Live specimens on 31 December 2016: 12
Number of locations on 31 December 2016: 5 (4 countries)
Interpretation of changes:

The studbook population *H. femoralis* was stagnant in 2016. No eggs were produced, but it appears to be normal for this species to occasionally skip reproductive years. One offspring was transferred to location A59 and two to a new location A84. Although there are couples present at four locations, the only adult couples are housed at locations A10 and HRF. It is not clear why the adult couple at location A10 still does not reproduce. There has been intensive exchange of information between location A10 en reproducing location HRF.

The purpose of the three females that were collected in the wild in 2006 was to gather and publish information on the biology of *H. femoralis*. Therefore, the studbook will focus on breeding and raising offspring to generate data on reproduction, growth and longevity, rather than on sound genetic management. Eggs produced in 2017 will be incubated at a relatively low temperature to produce males. The current regime produces 100% females at a diurnal temperature cycle of 33°C and 28°C, with a constant temperature of 33 °C from incubation day 22 to 39 (all temperatures measured with a calibrated thermometer).

Homopus signatus



Live specimens on 1 January 2016: 86 (excluding 16 specimens lost to follow-up)
Number of locations on 1 January 2016: 39 (11 countries, including 2 zoos)
New registrations: 0
Births: 10, at 5 locations
Deaths: 6 (all captive-bred), at 6 locations
Live specimens on 31 December 2016: 90 (excluding 16 specimens lost to follow-up)
Number of locations on 31 December 2016: 43 (11 countries, including 2 zoos)
Interpretation of changes:

The studbook population grew as a result of a large number of offspring, which offset relatively high mortality in 2016. Four of the offspring originated from the new founders that were imported in 2015, adding to the genetic variation in the studbook population. Moreover, the first F2 offspring originating from bloodline 1 x 2 was born. More offspring from this bloodline (to be produced by locations A40, A59, A68, A79 and A116) is needed. Two couples originating from 1 x 2 were transferred to new locations in 2016 to increase the chance of success.

The relatively high mortality appears coincidental. One adult male died after a wound on one of the forelimbs had gone undetected and had severely inflamed. Wounds are seldom seen in captive *H. signatus*. Two other adult males died unexpectedly, after having been housed in their respective enclosures for many years. One of the males originated from parents that are no longer alive and represents an important genetic loss for the studbook population. A female also died unexpectedly. The two remaining deaths were one-year old juveniles that died from unknown causes. Although the primary death causes remain mostly undetermined, it is striking that the majority of deaths occurred when the keeper was on holidays.

After the import of the new founders in 2015, followed by their acclimation and reproduction in 2016, the execution of the studbook management plan is on track (see also Paragraph 1.3). In 2016, five locations received an unrelated breeding couple *H. signatus*, which will further contribute to breeding results in the next years.

4. ACTUAL STUDBOOK OVERVIEWS

The tables below give an overview of all live tortoises that are available in the studbooks on *H. areolatus*, *H. femoralis* and *H. signatus*. The tables do not include dead tortoises and tortoises lost to follow-up. Full overviews of all tortoises registered in the studbooks may be downloaded from the website.

Homopus areolatus: live and available studbook population. MULTX are groups of unregistered specimens at locations outside of the studbook, except MULT4 consists of studbook numbers 59 and 60, and MULT7 consists of studbook numbers 190 and 191. UNKX are specimens at locations outside of the studbook.

Stud #	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event
A10								
62	F	~25 Nov 2007	5	4	A10	~25 Nov 2007	_____	Hatch
					HRF	~25 Nov 2007	_____	Ownership
					A44	27 Mar 2011	_____	Loan to
					A10	25 Jul 2014	_____	Transfer
94	M	7 Jul 2009	16	17	A16	7 Jul 2009	_____	Hatch
					A44	5 Jun 2010	AUGUST	Transfer
					A10	~25 Jul 2014	_____	Transfer
185	?	12 Sep 2015	94	62	A10	12 Sep 2015	_____	Hatch
					HRF	12 Sep 2015	_____	Ownership
186	?	15 Sep 2015	94	62	A10	15 Sep 2015	_____	Hatch
					HRF	15 Sep 2015	_____	Ownership
187	?	17 Sep 2015	94	62	A10	17 Sep 2015	_____	Hatch
					HRF	17 Sep 2015	_____	Ownership
201	?	16 Aug 2016	94	62	A10	16 Aug 2016	_____	Hatch
					HRF	16 Aug 2016	_____	Ownership
Totals: 1.1.4 (6)								
A16								
16	M	????	WILD	WILD	A16	30 Aug 1994	_____	Transfer
17	F	????	WILD	WILD	A16	30 Aug 1994	_____	Transfer
39	M	9 Apr 2003	16	17	A16	9 Apr 2003	_____	Hatch
48	M	23 Mar 2004	16	17	A16	23 Mar 2004	_____	Hatch
49	F	25 Mar 2004	16	17	A16	25 Mar 2004	_____	Hatch
50	F	8 Aug 2004	16	17	A16	8 Aug 2004	_____	Hatch
51	M	19 Aug 2004	16	17	A16	19 Aug 2004	_____	Hatch
52	F	25 Aug 2004	16	17	A16	25 Aug 2004	_____	Hatch
54	M	10 Jun 2005	16	17	A16	10 Jun 2005	_____	Hatch
55	M	27 Jun 2005	16	17	A16	27 Jun 2005	_____	Hatch

56	F	6 Oct 2005	16	17	A16	6 Oct 2005	______	Hatch
57	F	3 Nov 2005	16	17	A16	3 Nov 2005	______	Hatch
108	M	8 Mar 2010	47	37	A44	8 Mar 2010	______	Hatch
					A16	4 Jun 2010	______	Transfer
109	F	8 Mar 2010	47	37	A44	8 Mar 2010	______	Hatch
					A16	4 Jun 2010	______	Transfer
115	?	30 May 2010	16	17	A16	30 May 2010	______	Hatch
116	?	31 May 2010	16	17	A16	31 May 2010	______	Hatch
122	?	2 Jul 2011	16	17	A16	2 Jul 2011	______	Hatch
134	?	27 Apr 2012	16	17	A16	27 Apr 2012	______	Hatch
135	?	25 Aug 2012	16	17	A16	25 Aug 2012	______	Hatch
146	?	9 Apr 2013	16	17	A16	9 Apr 2013	______	Hatch
147	?	9 Apr 2013	16	17	A16	9 Apr 2013	______	Hatch
152	?	11 Jun 2014	16	17	A16	11 Jun 2014	______	Hatch
153	?	11 Jun 2014	16	17	A16	11 Jun 2014	______	Hatch
157	?	6 Sep 2014	55	109	A16	6 Sep 2014	______	Hatch
182	?	26 Jul 2015	108	56	A16	26 Jul 2015	______	Hatch
184	?	18 Aug 2015	108	56	A16	18 Aug 2015	______	Hatch
188	?	17 Aug 2016	MULT 6	17	A16	17 Aug 2016	______	Hatch
189	?	18 Aug 2016	MULT 6	17	A16	18 Aug 2016	______	Hatch

Totals: 7.7.14 (28)

A37

22	M	????	WILD	WILD	UNKNOWN	????	NONE	Capture
					A20	????	______	Transfer
					A21	17 Oct 2000	______	Transfer
					A37	15 Sep 2002	1	Transfer
23	F	????	WILD	WILD	UNKNOWN	????	NONE	Capture
					A20	????	______	Transfer
					A21	17 Oct 2000	______	Transfer
					A37	15 Sep 2002	2	Transfer
24	F	~ 1993	UNK1	UNK2	A20	~ 1993	______	Hatch
					A21	17 Oct 2000	______	Transfer
					A37	15 Sep 2002	3	Transfer
46	M	30 Sep 2004	22	24	A37	30 Sep 2004	______	Hatch
107	F	8 Mar 2010	47	37	A44	8 Mar 2010	______	Hatch
					A37	5 May 2010	______	Transfer
111	F	29 Mar 2010	47	37	A44	29 Mar 2010	______	Hatch
					A37	7 Jun 2010	______	Transfer
172	M	5 Jan 2014	22	24	A37	5 Jan 2014	______	Hatch
173	M	12 Jan 2014	22	24	A37	12 Jan 2014	______	Hatch
174	F	15 Aug 2014	22	24	A37	15 Aug 2014	______	Hatch
175	F	15 Jan 2015	22	24	A37	15 Jan 2015	______	Hatch
177	M	15 Feb 2012	22	24	A37	15 Feb 2012	______	Hatch
178	F	15 Feb 2009	22	24	A37	15 Feb 2009	______	Hatch
179	F	15 Feb 2005	22	24	A37	15 Feb 2005	______	Hatch
180	F	15 Feb 2004	22	24	A37	15 Feb 2004	______	Hatch
183	F	11 Aug 2015	22	24	A37	11 Aug 2015	______	Hatch
211	?	8 Feb 2016	22	24	A37	8 Feb 2016	______	Hatch
212	?	17 Mar 2016	22	24	A37	17 Mar 2016	______	Hatch
213	?	18 Mar 2016	22	24	A37	18 Mar 2016	______	Hatch

Totals: 5.10.3 (18)

A42									
35	M	9 Jul 2002	16	17	A16	9 Jul 2002	______		Hatch
					A42	~30 Sep 2005	______		Loan to
Totals: 1.0.0 (1)									
A44									
130	F	16 Mar 2012	94	62	A44	16 Mar 2012	______		Hatch
132	M	18 Jul 2012	94	62	A44	18 Jul 2012	______		Hatch
133	F	13 Aug 2012	94	62	A44	13 Aug 2012	______		Hatch
					HRF	13 Aug 2012	______		Ownership
149	M	27 Apr 2013	94	62	A44	27 Apr 2013	______		Hatch
					HRF	27 Apr 2013	______		Ownership
Totals: 2.2.0 (4)									
A46									
58	M	????	WILD	WILD	A46	9 Sep 1997		03	Transfer
59	F	????	WILD	WILD	A46	9 Sep 1997		01	Transfer
60	F	????	WILD	WILD	A46	25 Mar 1999		02	Transfer
162	?	29 Jan 2014	58	MULT4	A46	29 Jan 2014	______		Hatch
164	?	20 Feb 2014	58	MULT4	A46	20 Feb 2014	______		Hatch
165	?	20 Feb 2014	58	MULT4	A46	20 Feb 2014	______		Hatch
167	?	27 Feb 2014	58	MULT4	A46	27 Feb 2014	______		Hatch
169	?	13 Feb 2015	58	MULT4	A46	13 Feb 2015	______		Hatch
170	?	20 Feb 2015	58	MULT4	A46	20 Feb 2015	______		Hatch
171	?	20 Mar 2015	58	MULT4	A46	20 Mar 2015	______		Hatch
197	?	4 Feb 2016	58	MULT4	A46	4 Feb 2016	______		Hatch
198	?	4 Feb 2016	58	MULT4	A46	4 Feb 2016	______		Hatch
199	?	4 Feb 2016	58	MULT4	A46	4 Feb 2016	______		Hatch
200	?	6 Feb 2016	58	MULT4	A46	6 Feb 2016	______		Hatch
202	?	20 Feb 2016	58	MULT4	A46	20 Feb 2016	______		Hatch
203	?	21 Feb 2016	58	MULT4	A46	21 Feb 2016	______		Hatch
204	?	22 Feb 2016	58	MULT4	A46	22 Feb 2016	______		Hatch
205	?	3 Mar 2016	58	MULT4	A46	3 Mar 2016	______		Hatch
206	?	4 Mar 2016	58	MULT4	A46	4 Mar 2016	______		Hatch
Totals: 1.2.16 (19)									
A48									
82	F	~15 Mar 2007	58	MULT4	A46	~15 Mar 2007	______		Hatch
					A54	~15 Jun 2008	______		Loan to
					HRF	15 Jun 2008	______		Ownership
					A48	14 Jan 2015	______		Loan to
93	M	7 Jul 2009	16	17	A16	7 Jul 2009	______		Hatch
					A44	5 Jun 2010	______		Transfer
					A48	13 Jun 2010	______		Transfer
131	?	27 May 2012	94	62	A44	27 May 2012	______		Hatch
					HRF	27 May 2012	______		Ownership
					A48	19 Jun 2014	______		Loan to
Totals: 1.1.1 (3)									

A66								
79	M	~15 Mar 2007	58	MULT4	A46	~15 Mar 2007	______	Hatch
					A54	~15 Jun 2008	______	Loan to
					HRF	~15 Jun 2008	______	Ownership
					A66	11 Apr 2015	______	Loan to
81	F	~15 Mar 2007	58	MULT4	A46	~15 Mar 2007	______	Hatch
					A54	~15 Jun 2008	______	Loan to
					HRF	~15 Jun 2008	______	Ownership
					A66	~11 Apr 2015	______	Loan to
Totals: 1.1.0 (2)								
A70								
110	M	8 Mar 2010	47	37	A44	8 Mar 2010	______	Hatch
					HRF	8 Mar 2010	______	Ownership
					A70	5 Sep 2010	______	Loan to
Totals: 1.0.0 (1)								
A73								
69	M	~22 Apr 2004	58	MULT4	A46	~22 Apr 2004	______	Hatch
					A56	~21 May 2006	______	Loan to
					A73	19 Jun 2010	______	Transfer
71	F	~ 6 Mar 2004	58	MULT4	A46	~ 6 Mar 2004	______	Hatch
					A56	~21 May 2006	______	Loan to
					A73	19 Jun 2010	______	Transfer
Totals: 1.1.0 (2)								
A77								
84	M	~ 7 Feb 2008	58	MULT4	A46	~ 7 Feb 2008	______	Hatch
					A77	2 Jun 2011	______	Transfer
85	M	~ 7 Feb 2008	58	MULT4	A46	~ 7 Feb 2008	______	Hatch
					A77	2 Jun 2011	______	Transfer
Totals: 2.0.0 (2)								
A99								
123	F	23 Jan 2012	58	MULT4	A46	23 Jan 2012	______	Hatch
					A99	1 Sep 2016	______	Transfer
124	F	24 Jan 2012	58	MULT4	A46	24 Jan 2012	______	Hatch
					A99	1 Sep 2016	______	Transfer
125	M	31 Jan 2012	58	MULT4	A46	31 Jan 2012	______	Hatch
					A99	1 Sep 2016	______	Transfer
126	F	1 Feb 2012	58	MULT4	A46	1 Feb 2012	______	Hatch
					A99	1 Sep 2016	______	Transfer
127	M	2 Feb 2012	58	MULT4	A46	2 Feb 2012	______	Hatch
					A99	1 Sep 2016	______	Transfer
128	F	3 Feb 2012	58	MULT4	A46	3 Feb 2012	______	Hatch
					A99	1 Sep 2016	______	Transfer
129	F	4 Feb 2012	58	MULT4	A46	4 Feb 2012	______	Hatch
					A99	1 Sep 2016	______	Transfer
136	?	~18 Jan 2013	58	MULT4	A46	~18 Jan 2013	______	Hatch
					A99	1 Sep 2016	______	Transfer
137	?	~25 Jan 2013	58	MULT4	A46	~25 Jan 2013	______	Hatch
					A99	~ 1 Sep 2016	______	Transfer
138	?	~27 Jan 2013	58	MULT4	A46	~27 Jan 2013	______	Hatch
					A99	~ 1 Sep 2016	______	Transfer
139	?	~ 6 Feb 2013	58	MULT4	A46	~ 6 Feb 2013	______	Hatch
					A99	~ 1 Sep 2016	______	Transfer
140	?	~17 Feb 2013	58	MULT4	A46	~17 Feb 2013	______	Hatch
					A99	~ 1 Sep 2016	______	Transfer
141	?	~17 Feb 2013	58	MULT4	A46	~17 Feb 2013	______	Hatch
					A99	~ 1 Sep 2016	______	Transfer
142	?	~ 4 Mar 2013	58	MULT4	A46	~ 4 Mar 2013	______	Hatch
					A99	~ 1 Sep 2016	______	Transfer
143	?	~10 Mar 2013	58	MULT4	A46	~10 Mar 2013	______	Hatch
					A99	~ 1 Sep 2016	______	Transfer

```
   144    ?   ~26 Mar 2013      58   MULT4  A46       ~26 Mar 2013 ______     Hatch
                                          A99       ~ 1 Sep 2016 ______     Transfer

   145    ?   ~26 Mar 2013      58   MULT4  A46       ~26 Mar 2013 ______     Hatch
                                          A99       ~ 1 Sep 2016 ______     Transfer

   163    ?    29 Jan 2014      58   MULT4  A46        29 Jan 2014 ______     Hatch
                                          A99         1 Sep 2016 ______     Transfer

   166    ?    21 Feb 2014      58   MULT4  A46        21 Feb 2014 ______     Hatch
                                          A99         1 Sep 2016 ______     Transfer

   168    ?    10 Mar 2014      58   MULT4  A46        10 Mar 2014 ______     Hatch
                                          A99         1 Sep 2016 ______     Transfer
Totals: 2.5.13 (20)
-------------------------------------------------------------------------------------------

A100
    96    M   ~18 Jan 2010      58   MULT4  A46       ~18 Jan 2010 ______     Hatch
                                          A56       ~ 1 Jun 2012 ______     Loan to
                                          A89       ~ 1 Jun 2012 ______     Loan to
                                          A100      ~13 Jul 2013 ______     Transfer
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------------

A121
   190    F       ????        WILD    WILD  A121        8 Apr 2016 ______     Transfer

   191    F       ????        WILD    WILD  A121        8 Apr 2016 ______     Transfer

   192    M       ????        WILD    WILD  A121        8 Apr 2016 ______     Transfer

   194    ?   ~ 8 Apr 2016     192   MULT7  A121        8 Apr 2016 ______     Hatch

   195    ?   ~ 8 Apr 2016     192   MULT7  A121        8 Apr 2016 ______     Hatch

   196    ?   ~ 8 Apr 2016     192   MULT7  A121        8 Apr 2016 ______     Hatch

   210    F    14 Dec 2016    WILD    WILD  A121       14 Dec 2016 ______     Transfer
Totals: 1.3.3 (7)
-------------------------------------------------------------------------------------------

A123
   176    ?    15 Jun 2015      22      24  A37        15 Jun 2015 ______     Hatch
                                          A123       26 Sep 2016 ______     Transfer
Totals: 0.0.1 (1)
-------------------------------------------------------------------------------------------

TCBCC - Turtle Conservancy Behler Chelonian Center
    10    M       ????        WILD    WILD  A13           ????    ______     Transfer
                                          A12       ~16 Sep 1999  ERNST     Transfer
                                          A43         ~ May 2004 ______     Loan to
                                          TCBCC       7 Oct 2005 AREO02     Transfer

    11    F       ????        WILD    WILD  KRAAIFONT     ????    ______     Transfer
                                          A12       ~16 Sep 1999      A5     Transfer
                                          A43         ~ May 2004 ______     Loan to
                                          TCBCC       7 Oct 2005 AREO01     Transfer

   207    ?    11 Apr 2016      10      11  TCBCC       8 Apr 2016 ___010     Hatch

   208    ?    11 Apr 2016      10      11  TCBCC       8 Apr 2016 ___011     Hatch

   209    ?    15 May 2016      10      11  TCBCC       8 Apr 2016 ___009     Hatch

Totals: 1.1.0 (2)
-------------------------------------------------------------------------------------------

WUPPERTAL - Wuppertal Zoological Garten
     4    F       ????       MULT1   MULT2  KRAAIFONT     ????    ______     Hatch
                                          HRF        21 Nov 1997      IV     Transfer
                                          A10        27 Oct 2004 ______     Loan to
                                          WUPPERTAL  13 Sep 2014 R14018     Loan to

    40    M       ????        WILD    WILD  WUPPERTAL  28 Mar 1991 91586B     Transfer

Totals: 1.1.0 (2)
-------------------------------------------------------------------------------------------
===========================================================================================
TOTALS: 29.35.58 (122)
```

Homopus femoralis: live and available studbook population.

Stud #	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event
A10								
2	M	????	WILD	WILD	A28	~ Jan 2001	______	Transfer
					A08	23 Dec 2001	______	Loan to
					A10	30 Jul 2006	______	Loan to
5	F	????	WILD	WILD	BEAUF W	16 Mar 2006	NONE	Capture
					HRF	19 Mar 2006	______	Transfer
					A10	30 Jul 2006	______	Loan to
7	M	7 Jun 2008	3	4	HRF	7 Jun 2008	______	Hatch
					A10	22 Oct 2014	______	Loan to
Totals: 2.1.0 (3)								
A55								
8	M	30 Jun 2010	3	4	HRF	30 Jun 2010	______	Hatch
					A55	26 Jun 2014	______	Loan to
10	F	28 May 2011	3	4	HRF	28 May 2011	______	Hatch
					A55	27 Jun 2015	______	Loan to
Totals: 1.1.0 (2)								
A59								
12	M	12 Jul 2013	3	4	HRF	12 Jul 2013	______	Hatch
					A59	2 Aug 2015	______	Loan to
13	F	15 Jun 2014	3	4	HRF	15 Jun 2014	______	Hatch
					A59	10 Sep 2016	______	Loan to
Totals: 1.1.0 (2)								
A84								
14	F	18 Jun 2014	3	4	HRF	18 Jun 2014	______	Hatch
					A84	10 Sep 2016	______	Loan to
15	F	19 Jun 2014	3	4	HRF	19 Jun 2014	______	Hatch
					A84	10 Sep 2016	______	Loan to
Totals: 0.2.0 (2)								
HRF - Homopus Research Foundation								
3	M	????	WILD	WILD	A28	~ Jan 2001	______	Transfer
					HRF	23 Dec 2001	III	Loan to
4	F	????	WILD	WILD	BEAUF W	16 Mar 2006	NONE	Capture
					HRF	19 Mar 2006	______	Transfer
16	F	26 Jun 2015	3	4	HRF	26 Jun 2015	______	Hatch
Totals: 1.2.0 (3)								
TOTALS: 5.7.0 (12)								

Homopus signatus: live and available studbook population. MULT1 are specimens 18 and 19, MULT2 specimens 20 and 21, MULT3 are specimens 13 (with MULT4 = 9) or 37 and MULT4 are specimens 9 or 38. UNK1 and UNK2 are unknown specimens outside of the studbook. Specimen number 95 is inbred and not available for further breeding.

Stud #	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event
A08								
95	M	18 Sep 2007	41	42	A08	18 Sep 2007	______	Hatch
					HRF	~18 Sep 2007	______	Ownership
Totals: 1.0.0 (1)								
A10								
146	?	6 Jul 2015	35	36	A10	6 Jul 2015	______	Hatch
					HRF	6 Jul 2015	______	Ownership
148	?	16 Sep 2015	35	36	A10	16 Sep 2015	______	Hatch
					HRF	16 Sep 2015	______	Ownership
149	?	17 Sep 2015	35	36	A10	17 Sep 2015	______	Hatch
					HRF	17 Sep 2015	______	Ownership

153	M	????	WILD	WILD	SPRINGBOK	22 Sep 2015	NONE	Capture
					HRF	22 Sep 2015	______	Ownership
					A10	23 Sep 2015	______	Loan to
158	F	????	WILD	WILD	SPRINGBOK	22 Sep 2015	NONE	Capture
					HRF	22 Sep 2015	______	Ownership
					A10	23 Sep 2015	______	Loan to
166	?	7 Jun 2016	35	36	A10	7 Jun 2016	______	Hatch
					HRF	7 Jun 2016	______	Ownership
167	?	26 Aug 2016	35	36	A10	26 Aug 2016	______	Hatch
					HRF	26 Aug 2016	______	Ownership
168	?	18 Sep 2016	35	36	A10	18 Sep 2016	______	Hatch
					HRF	18 Sep 2016	______	Ownership
169	?	7 Sep 2016	35	36	A10	7 Sep 2016	______	Hatch
					HRF	7 Sep 2016	______	Ownership
170	?	21 Sep 2016	153	158	A10	21 Sep 2016	______	Hatch
					HRF	21 Sep 2016	______	Ownership

Totals: 1.1.8 (10)

A37

86	M	~20 Apr 2006	25	60	A37	~20 Apr 2006	______	Hatch

Totals: 1.0.0 (1)

A40

43	F	29 Sep 2002	1	2	HRF	29 Sep 2002	______	Hatch
					A40	6 Jun 2003	______	Loan to
91	M	3 Aug 2007	37	38	HRF	3 Aug 2007	______	Hatch
					A40	14 Nov 2009	______	Loan to

Totals: 1.1.0 (2)

A42

41	M	25 Jul 2002	1	3	HRF	25 Jul 2002	III-14	Hatch
					A08	19 Apr 2003	______	Loan to
					A60	12 Oct 2009	______	Loan to
					A42	22 Jan 2010	______	Loan to

Totals: 1.0.0 (1)

A50

1	M	????	WILD	WILD	SPRINGBOK	27 Sep 1995	NONE	Capture
					HRF	30 Sep 1995	I	Transfer
					A25	12 Jun 2004	______	Loan to
					A50	8 Mar 2009	______	Loan to
35	M	????	WILD	WILD	SPRINGBOK	4 Oct 2001	NONE	Capture
					HRF	6 Oct 2001	______	Transfer
					A07	16 Dec 2001	______	Loan to
					A10	26 Oct 2012	______	Loan to
					A50	16 Jul 2016	______	Loan to
36	F	????	WILD	WILD	SPRINGBOK	3 Oct 2001	NONE	Capture
					HRF	6 Oct 2001	______	Transfer
					A07	16 Dec 2001	______	Loan to
					A10	26 Oct 2012	______	Loan to
					A50	16 Jul 2016	______	Loan to

Totals: 2.1.0 (3)

A51

147	?	28 Aug 2015	35	36	A10	28 Aug 2015	______	Hatch
					HRF	28 Aug 2015	______	Ownership
					A51	10 Sep 2016	______	Loan to

Totals: 0.0.1 (1)

A52

132	M	23 Oct 2013	35	36	A10	~23 Oct 2013	______	Hatch
					HRF	23 Oct 2013	______	Ownership
					A52	11 Apr 2015	______	Loan to

Totals: 1.0.0 (1)

A55

143	?	5 Aug 2015	74	96	A55	5 Aug 2015	______	Hatch
					HRF	5 Aug 2015	______	Ownership

151	M	????	WILD	WILD	SPRINGBOK	22 Sep 2015	NONE	Capture
					HRF	22 Sep 2015	______	Ownership
					A55	23 Sep 2015	______	Loan to
156	F	????	WILD	WILD	SPRINGBOK	22 Sep 2015	NONE	Capture
					HRF	22 Sep 2015	______	Ownership
					A55	23 Sep 2015	______	Loan to
165	?	27 Oct 2016	151	156	A55	27 Oct 2016	______	Hatch
					HRF	27 Oct 2016	______	Ownership

Totals: 1.1.2 (4)

A57

150	M	????	WILD	WILD	SPRINGBOK	22 Sep 2015	NONE	Capture
					HRF	22 Sep 2015	______	Ownership
					A57	23 Sep 2015	______	Loan to
155	F	????	WILD	WILD	SPRINGBOK	22 Sep 2015	NONE	Capture
					HRF	22 Sep 2015	______	Ownership
					A57	23 Sep 2015	______	Loan to
164	?	15 Jun 2016	10	79	A57	15 Jun 2016	______	Hatch
					HRF	15 Jun 2016	______	Ownership

Totals: 1.1.1 (3)

A59

51	M	1 Jul 2003	1	2	HRF	1 Jul 2003	II-13	Hatch
					A41	2 Nov 2003	______	Loan to
					A59	13 Sep 2008	______	Loan to
113	M	16 Jun 2010	37	38	HRF	16 Jun 2010	______	Hatch
					A59	3 Dec 2011	______	Loan to
152	M	????	WILD	WILD	SPRINGBOK	22 Sep 2015	NONE	Capture
					HRF	22 Sep 2015	______	Ownership
					A59	22 Sep 2015	______	Loan to
157	F	????	WILD	WILD	SPRINGBOK	22 Sep 2015	NONE	Capture
					HRF	22 Sep 2015	______	Ownership
					A59	22 Sep 2015	______	Loan to

Totals: 3.1.0 (4)

A63

37	M	????	WILD	WILD	SPRINGBOK	3 Oct 2001	NONE	Capture
					HRF	6 Oct 2001	______	Transfer
					A25	6 Oct 2001	______	Loan to
					HRF	12 Jun 2004	0612-I	Transfer
					A63	17 Apr 2016	______	Loan to
38	F	????	WILD	WILD	SPRINGBOK	3 Oct 2001	NONE	Capture
					HRF	6 Oct 2001	______	Transfer
					A25	6 Oct 2001	______	Loan to
					HRF	12 Jun 2004	612-II	Transfer
					A63	17 Apr 2016	______	Loan to
88	M	~15 Nov 2005	25	60	A37	~15 Nov 2005	______	Hatch
					HRF	~15 Nov 2005	______	Ownership
					A69	30 Aug 2010	______	Loan to
					A39	24 Nov 2011	______	Loan to
					A63	17 Mar 2014	______	Loan to
139	F	1 Sep 2014	35	36	A10	1 Sep 2014	______	Hatch
					HRF	1 Sep 2014	______	Ownership
					A63	13 Mar 2016	______	Loan to

Totals: 2.2.0 (4)

A65

72	M	24 Jul 2005	MULT3	MULT4	HRF	24 Jul 2005	?-1	Hatch
					A65	17 Oct 2009	______	Loan to

Totals: 1.0.0 (1)

A66

11	M	10 Nov 1997	1	3	HRF	10 Nov 1997	III-4	Hatch
					A06	22 Nov 1998	______	Loan to
					A07	5 Jul 2000	______	Loan to
					A16	16 Sep 2000	______	Loan to
					A83	14 Mar 2015	______	Loan to
					A66	23 Oct 2016	______	Loan to

130	F	9 Jul 2013	35	36	A10	9 Jul 2013	______	Hatch
					HRF	9 Jul 2013	______	Ownership
					A83	14 Mar 2015	______	Loan to
					A66	23 Oct 2016	______	Loan to

Totals: 1.1.0 (2)

A68

9	F	30 Nov 1996	1	2	HRF	30 Nov 1996	II-1	Hatch
					A68	15 May 2014	______	Loan to
99	M	21 May 2008	37	38	HRF	21 May 2008	______	Hatch
					A68	5 Jun 2010	______	Loan to
100	M	24 Jun 2008	37	38	HRF	24 Jun 2008	______	Hatch
					A68	5 Jun 2010	______	Loan to

Totals: 2.1.0 (3)

A76

114	M	4 Jul 2010	37	9	HRF	4 Jul 2010	______	Hatch
					A76	~27 Jun 2011	______	Loan to

Totals: 1.0.0 (1)

A78

71	M	25 Jun 2005	44	7	A10	25 Jun 2005	______	Hatch
					HRF	25 Jun 2005	______	Ownership
					A58	6 May 2008	______	Loan to
					A10	22 Jan 2012	______	Loan to
					A78	10 Mar 2012	______	Loan to

Totals: 1.0.0 (1)

A79

10	M	22 Oct 1997	1	2	HRF	22 Oct 1997	II-3	Hatch
					A10	4 Aug 2001	______	Loan to
					A31	7 May 2002	______	Loan to
					A33	8 Nov 2002	UHURU	Loan to
					A57	6 Apr 2008	______	Loan to
					A79	17 May 2016	______	Loan to
79	F	9 Aug 2006	37	38	HRF	9 Aug 2006	______	Hatch
					A57	5 Nov 2009	______	Loan to
					A79	17 May 2016	______	Loan to
118	F	1 May 2010	44	7	A10	1 May 2010	______	Hatch
					HRF	~ 1 May 2010	______	Ownership
					A58	10 Nov 2011	______	Loan to
					A10	22 Jan 2012	______	Loan to
					A79	22 Feb 2012	______	Loan to

Totals: 1.2.0 (3)

A80

76	F	20 Jun 2006	13	5	HRF	20 Jun 2006	V-4	Hatch
					A54	24 Mar 2007	______	Loan to
					A67	25 Jun 2012	______	Loan to
					A80	19 Jan 2016	______	Loan to
106	M	20 May 2009	35	36	A07	20 May 2009	______	Hatch
					HRF	20 May 2009	______	Ownership
					A67	13 Mar 2010	______	Loan to
					A80	19 Jan 2016	______	Loan to
121	M	23 Sep 2011	35	36	A07	23 Sep 2011	______	Hatch
					HRF	23 Sep 2011	______	Ownership
					A67	18 Nov 2011	______	Loan to
					A80	19 Jan 2016	______	Loan to

Totals: 2.1.0 (3)

A84

74	M	31 Jul 2005	1	3	A25	31 Jul 2005	______	Hatch
					HRF	31 Jul 2005	______	Ownership
					A55	24 Mar 2007	______	Loan to
					A84	12 Mar 2016	______	Loan to
96	F	30 Jul 2007	35	36	A07	30 Jul 2007	______	Hatch
					HRF	30 Jul 2007	______	Ownership
					A61	13 Apr 2008	______	Loan to
					A64	10 May 2009	______	Loan to
					A55	12 Sep 2009	______	Loan to
					A84	12 Mar 2016	______	Transfer
119	M	~20 Apr 2011	44	7	A10	~20 Apr 2011	______	Hatch
					HRF	~20 Apr 2011	______	Ownership
					A84	8 Sep 2012	______	Loan to

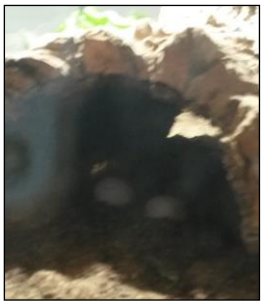
	163	?	10 Aug 2016	74	96	A84	10 Aug 2016	______	Hatch
						HRF	10 Aug 2016	______	Ownership
Totals: 2.1.1 (4)									
A91									
	123	M	24 Jun 2012	37	38	HRF	24 Jun 2012	______	Hatch
						A91	13 Dec 2014	______	Loan to
Totals: 1.0.0 (1)									
A94									
	107	F	21 Jul 2009	35	36	A07	21 Jul 2009	______	Hatch
						HRF	21 Jul 2009	______	Ownership
						A67	13 Mar 2010	______	Loan to
						A59	8 Mar 2014	______	Loan to
						A94	12 Mar 2016	______	Loan to
	120	F	~19 Sep 2011	44	7	A10	~19 Sep 2011	______	Hatch
						HRF	~19 Sep 2011	______	Ownership
						A94	4 Oct 2013	______	Loan to
Totals: 0.2.0 (2)									
A95									
	122	M	31 May 2012	74	96	A55	31 May 2012	______	Hatch
						HRF	31 May 2012	______	Ownership
						A95	11 Nov 2013	______	Loan to
Totals: 1.0.0 (1)									
A103									
	94	M	27 Aug 2007	44	7	A10	27 Aug 2007	______	Hatch
						HRF	~27 Aug 2007	______	Ownership
						A82	10 Mar 2012	______	Loan to
						A92	18 Mar 2013	______	Loan to
						A103	8 Mar 2014	______	Loan to
Totals: 1.0.0 (1)									
A104									
	7	F	24 Dec 1996	1	3	HRF	24 Dec 1996	III-3	Hatch
						A06	22 Nov 1998	______	Loan to
						A07	5 Jul 2000	______	Loan to
						A18	14 Dec 2001	______	Loan to
						A31	6 May 2002	______	Loan to
						A10	8 Dec 2002	______	Loan to
						A65	11 Nov 2012	______	Loan to
						A104	12 May 2014	______	Loan to
	44	M	31 Oct 2002	35	36	A07	31 Oct 2002	______	Hatch
						HRF	31 Oct 2002	______	Ownership
						A10	24 Jul 2004	______	Loan to
						A65	11 Nov 2012	______	Loan to
						A104	12 May 2014	______	Loan to
Totals: 1.1.0 (2)									
A105									
	82	M	26 Dec 2005	25	60	A37	26 Dec 2005	______	Hatch
						HRF	26 Dec 2005	______	Ownership
						A71	30 Aug 2010	______	Loan to
						A85	5 Mar 2014	______	Loan to
						A105	9 Oct 2014	______	Loan to
	138	F	22 Aug 2014	35	36	A10	22 Aug 2014	______	Hatch
						HRF	22 Aug 2014	______	Ownership
						A105	15 Apr 2016	______	Loan to
Totals: 1.1.0 (2)									
A106									
	128	M	15 Jun 2012	35	36	A07	15 Jun 2012	______	Hatch
						HRF	15 Jun 2012	______	Ownership
						A85	20 Oct 2012	______	Loan to
						A106	5 Oct 2014	______	Loan to
Totals: 1.0.0 (1)									
A109									
	111	M	13 May 2010	37	38	HRF	13 May 2010	______	Hatch
						A39	3 Dec 2011	______	Loan to
						A63	17 Mar 2014	______	Loan to
						A109	~25 Jan 2015	______	Loan to
Totals: 1.0.0 (1)									

```
A110
    14    M    22 Oct 1998       1        3  HRF        22 Oct 1998  III-5     Hatch
                                              A07        22 Nov 1998 ______     Loan to
                                              A16        16 Sep 2000 ______     Loan to
                                              A110       14 Mar 2015 ______     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

A111
   110    F    23 Mar 2010      44        7  A10        23 Mar 2010 ______     Hatch
                                              HRF       ~23 Mar 2010 ______     Ownership
                                              A58        10 Nov 2011 ______     Loan to
                                              A10        22 Jan 2012 ______     Loan to
                                              A81        22 Feb 2012 ______     Loan to
                                              A111        3 May 2015 ______     Loan to
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------

A112
   131    M     4 Oct 2013      35       36  A10         4 Oct 2013 ______     Hatch
                                              HRF         4 Oct 2013 ______     Ownership
                                              A112       12 Sep 2015 ______     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

A113
   126    M    16 Aug 2012      37        9  HRF        16 Aug 2012 ______     Hatch
                                              A113       13 Jun 2015 ______     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

A114
   124    M    30 Jun 2012      37        9  HRF        30 Jun 2012 ______     Hatch
                                              A114       12 Sep 2015 ______     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

A115
    87    M   ~15 Oct 2005      25       60  A37       ~15 Oct 2005 ______     Hatch
                                              A115       21 Nov 2015 ______     Transfer

    89    M    18 Jan 2007      25       60  A37        18 Jan 2007 ______     Hatch
                                              A115      ~21 Nov 2015 ______     Transfer

    92    M    10 Aug 2007      25       60  A37        10 Aug 2007 ______     Hatch
                                              HRF       ~10 Aug 2007 ______     Ownership
                                              A115       21 Nov 2015 ______     Loan to
Totals: 3.0.0 (3)
-------------------------------------------------------------------------------------

A116
    42    F    20 Aug 2002       1        2  HRF        20 Aug 2002  II-11     Hatch
                                              A08        19 Apr 2003 ______     Loan to
                                              A116       31 Jan 2016 ______     Loan to

    73    M     2 Aug 2005      37       38  HRF         2 Aug 2005  HSS73     Hatch
                                              A08        18 Apr 2009 ______     Loan to
                                              A116       31 Jan 2016 ______     Loan to

   125    M     7 Jul 2012      74       96  A55         7 Jul 2012 ______     Hatch
                                              HRF         7 Jul 2012 ______     Ownership
                                              A90         1 Mar 2013 ______     Loan to
                                              A55        25 Aug 2015 ______     Loan to
                                              A116       31 Jan 2016 ______     Loan to
Totals: 2.1.0 (3)
-------------------------------------------------------------------------------------

A117
   137    M    21 Jun 2014      35       36  A10        21 Jun 2014 ______     Hatch
                                              HRF        21 Jun 2014 ______     Ownership
                                              A117        8 Apr 2016 ______     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

A118
   133    F    12 Jun 2014      37        9  HRF        12 Jun 2014 ______     Hatch
                                              A118       10 Sep 2016 ______     Loan to
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------

A119
   135    F    10 Jul 2014      37        9  HRF        10 Jul 2014 ______     Hatch
                                              A119       10 Sep 2016 ______     Loan to
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------
```

```
A120
   145    ?    20 Jun 2015      35      36  A10        20 Jun 2015 ______     Hatch
                                            HRF        20 Jun 2015 ______     Ownership
                                            A120       10 Sep 2016 ______     Loan to
Totals: 0.0.1 (1)
-------------------------------------------------------------------------------------------

A122
   112    M     8 Jun 2010      37       9  HRF         8 Jun 2010 ______     Hatch
                                            A72        29 Oct 2010 ______     Loan to
                                            A83        16 Aug 2012 ______     Loan to
                                            A122       10 Dec 2016 ______     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------------

AMSTERDAM - Artis Royal Zoo
    77    F    13 Jul 2006      44       7  A10        13 Jul 2006 ______     Hatch
                                            HRF        13 Jul 2006 ______     Ownership
                                            A63        14 Aug 2010 ______     Loan to
                                            AMSTERDAM   2 May 2014 ______     Loan to

    93    M    30 Jul 2007      44       7  A10        30 Jul 2007 ______     Hatch
                                            HRF        30 Jul 2007 ______     Ownership
                                            A63        14 Aug 2010 ______     Loan to
                                            AMSTERDAM   2 May 2014 ______     Loan to

   115    ?     6 Jul 2011      37       9  HRF         6 Jul 2011 ______     Hatch
                                            AMSTERDAM   6 Nov 2012 R12043     Loan to

   117    ?    12 Jun 2011      37       9  HRF        12 Jun 2011 ______     Hatch
                                            AMSTERDAM   6 Nov 2012 R12042     Loan to
Totals: 1.1.2 (4)
-------------------------------------------------------------------------------------------

HRF - Homopus Research Foundation
   142    F    15 May 2015      37      38  HRF        15 May 2015 ______     Hatch

   154    M       ????        WILD    WILD  SPRINGBOK  22 Sep 2015   NONE     Capture
                                            HRF        22 Sep 2015 ______     Transfer

   159    F       ????        WILD    WILD  SPRINGBOK  22 Sep 2015   NONE     Capture
                                            HRF        22 Sep 2015 ______     Transfer

   161    ?    26 Jan 2016    WILD     159  HRF        26 Jan 2016 ______     Hatch

   162    ?    25 Feb 2016    WILD     159  HRF        25 Feb 2016 ______     Hatch
Totals: 1.2.2 (5)
-------------------------------------------------------------------------------------------

PLZEN - Zool A Botanicka Zahrada Plzen
   136    F     2 Sep 2014      37       9  HRF         2 Sep 2014 ______     Hatch
                                            PLZEN      27 Sep 2016 725101     Loan to
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------------
===========================================================================================
TOTALS: 46.26.18 (90)
```

5. SPECIFIC INFORMATION FROM STUDBOOK PARTICIPANTS

Location A44



All *H. areolatus* at my location were kept together. Temperatures were low in November and December 2015, 14 to 18°C, with a very short light period. The oldest female (number 130) laid two eggs on top of the substrate unexpectedly on 13 February 2016. One egg had a crack in the shell on 28 February. When I opened the egg further, I could see a heartbeat for a short while. The second egg had a crack in the shell on 18 April 2016 and I opened the egg on 2 May 2016. The embryo was dead. The female laid one more fertile egg on the 31 May 2016, but I lost the egg with a crack in the shell after some days.

I expect *H. areolatus* number 130 to lay more eggs; the cloaca was dilated and the older male was seen to be interested in the females. The second female has a problem at its right eye, which has stayed close for some weeks. All animals are kept together in a 120 x 60 x 60 cm terrarium with UV light; I do plan to separate numbers 130 and 132 from the numbers 133 and 149 next spring.

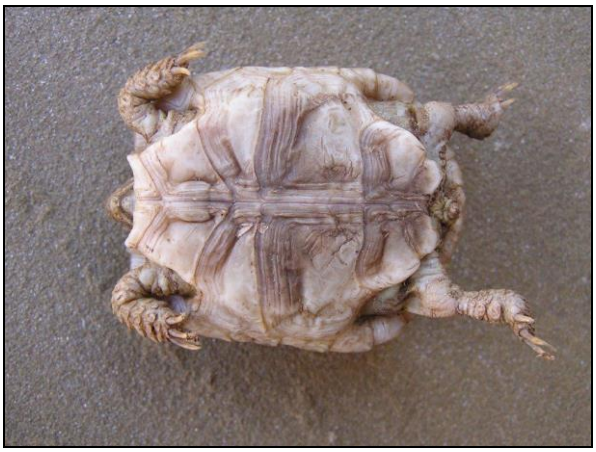
Location A46

On 8 March 2014, I found a small *H. areolatus* (31.0 x 28.5 x 16.0 mm, body mass 7.0 g) in the open outdoor enclosure of the adult tortoises, alongside additional hatchlings. The small hatchling developed more slowly than its siblings. In April 2015, prior to a brumation period, it measured 41.0 x 39.0 x 18.5 mm, body mass 11.0 g. In November 2015, the tortoise quite surprisingly measured 44.0 x 39.0 x 20.5 mm, body mass 18 g.

As a result of a tick infestation in the enclosures, the tortoise was moved to an enclosure without ticks in November 2015. A few weeks later, the tortoise had not grown and lost 4 g body mass. Moreover, the shell of the tortoise had become softer, the skin parchment-like, and the eyes sunken. Observation frequency was increased and when no improvements were noted, the tortoise was moved from its relatively warm and sunny enclosure to a more shaded, wooden, closed enclosure. The tortoise was fed and soaked, but its status did not improve. Also the cooler Autumn and Winter days (May-August 2016) did not bring improvement.

In the end of August 2016, the shell of the tortoise had become harder again. The tortoise fed well, but did not grow. It was transferred to a new, open, outdoor enclosure with natural vegetation, many retreats and a cover consisting of shade cloth. The enclosure received relatively little sunlight and was quite cool and humid (not wet). The tortoise behaved in a normal fashion, ate well, and its measurements were 49.5 x 41.5 x 24.0 mm, body mass 24 g, on 25 December 2016.

Recovered *H. areolatus* feeding well.



Recovered (hardened) plastron of *H. areolatus*.

It is not clear what caused the sudden improvements. One would expect that any possible physiological disorders would results in disrupted water or nutrient balances, regardless of husbandry conditions. It was clear that the tick infestation, and the transfers of the tortoise (stress) and particularly the transfer to a relatively warm enclosure, contributed to the declining health of the tortoise. Nevertheless, I need to stress that similar conditions have never caused problems in other hatchling *H. areolatus*.

Because the shell softening, skin and eye changes were reversible when husbandry conditions changed (i.e., reduced amount of sunlight and reduced enclosure temperature), I am inclined to believe that the husbandry changes had a positive effect on the physiology and behaviour (e.g., feeding, drinking) of the tortoise. If there are other keepers of *H. areolatus* with similar experiences, I would be much interested to hear.

Location A57

The captive-bred couple *H. signatus* produced a first egg on 21 February - the couple was later transferred to location A79. The egg hatched on 15 June.

Location A66

Detailed reports on *H. areolatus* and *H. signatus* are presented in Appendix 1.

Location A84

A first hatchling *H. signatus* was born in 2016.

Location A110

In autumn, the behaviour of the *H. signatus* changed. The tortoise often fell asleep half hidden between the rocks, closer to the lamp, probably in an attempt to get warm longer as night temperatures fell into 17°C in the room.

Although its beak has regained a normal shape, probably due to more fibrous feeding than he was having at the previous location, the posterior nails are still very long. The nails do not seem to wear fast on the granite rocks. However, I have doubts letting a veterinarian trim them. The body mass has seen no noticeable changes during the last year.

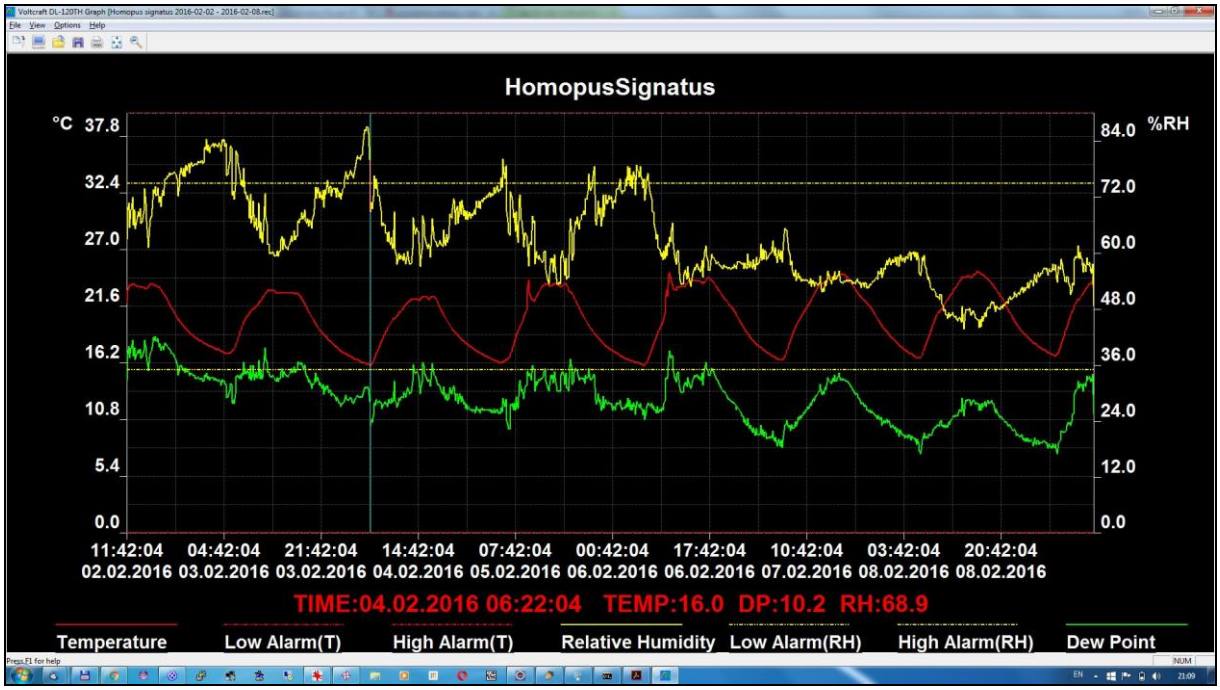
Location A116

The *H. signatus* are housed in two new enclosures. I have used 120 kg of substrate (60 kg of loam and 60 kg of play sand). In the enclosure measuring 125 x 95 cm is about 10-12 cm soil, in the enclosure measuring 125 x 40 cm is about 4-5 cm soil. There are two 50W UV lamps in the bigger enclosure and one 35 W UV lamp in the smaller one. The UV lamps can be easily moved up or down if needed. For the bright illumination there are two 1 m led strip (4000-4500K (daylight), 2,070 lm/m, 120 leds/m, 20 W/m, CRI 92), and just as an experiment an additional 1 m UV led strip (14.4 W/m, 395-405 nm). The lights are controlled by an astrotimer set to the N20°41'. There are two plastic caves in each enclosure surrounded by some stones, wooden roots and plants. The bigger enclosure can be separated in two by inserting non-transparent glass in the guides in the centre.

I noticed a wound on the carapace of studbook number 125 upon arrival. After short consultation with the studbook coordinator and a veterinarian, I visited MVDr. Jan Hnizdo at the animal clinic in Prague on 2 February. The diagnosis was shell rot; dangerous because there was a hole through the bony carapace and very close to kidney. Wound swaps for bacteriological and mycological investigations were made. Until the results were available, I should use strong permanganate solution to clean the wound three times a day. Keeping under sterile conditions was necessary. I prepared a simple enclosure in a plastic box with an artificial rock-cave a newspapers on the ground. The animal seemed to be fine with it and ate.

The samples taken showed that the shell rot was caused by *Serratia marcescens*. Because of the good condition of the tortoise, aggressive local cleaning and permanganate treatment was suggested. On 17 March, the wound was already dry and clean, and the tortoise was moved to its final enclosure.

The adult pair 42 and 73 was immediately doing well. The animals were eating, defecating, basking and hiding. It was very hard to even see them. A datalogger (Voltcraft DL-120TH) and a webcam (Zoneway) were installed in February. A first egg was produced on 15 March. Unfortunately, the eggshell cracked towards June and the egg did not develop.



Location A118

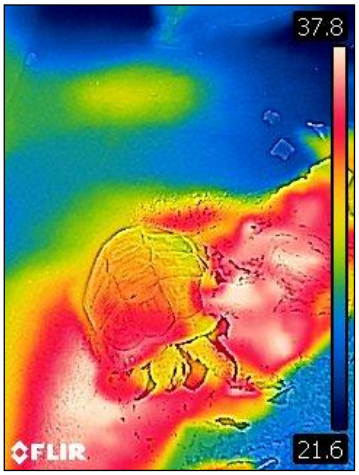
Enclosure for a juvenile *H. signatus*.

Location A121

Below are photos of an outdoor enclosure for *H. areolatus* (top), male feeding on purslane (*Portulaca oleracea*) (left), and two hatchlings (right). The enclosure is raised for better drainage, with many levels, and succulents with other food plants. I even included a log in each. The tortoises seem to like climbing quite a lot, and they also seem to appreciate the holes I have made under the rocks (using flower pots cut in half).

Location HRF

An interesting case was noted of synchronised basking in a couple *H. signatus*.



Thermal image of an adult female *H. femoralis* basking in natural sunlight shining in a small portion of the enclosure.

Location PLZEN

The enclosure for *H. signatus* is situated in a large greenhouse.

6. NEW PUBLICATIONS

The following overview summarises all manuscripts and articles that were submitted, accepted, published, or under review in 2016.

Subject	Submitted	Accepted	Published	Journal
Wide variation in carapacial scute patterns in a natural population of speckled tortoises, *Homopus signatus*.	2015	2016	2016	African Journal of Herpetology (English)
Bultvorming in wild tortoises (pyramiding in wild tortoises).	2015	2016	2016	Trionyx (Dutch)
Unexpected Decline in a Population of Speckled Tortoises.	2016	2016		Journal of Wildlife Management (English)

7. FINANCIAL REPORT

The lack of field projects resulted in very little expenses in 2016. The only project expenses were for a genetic analysis to determine if *Homopus areolatus* studbook numbers 4 and 5 might be siblings (see Paragraph 1.4). A significant donation was received from studbook participant Martijn Kooijman, and overhead costs were covered by Victor Loehr.

There is a small surplus of funds that will be used in future projects.

Revenues		***Expenses***	
Net amount €	**Item**	**Amount €**	**Item**
Projects		*Projects*	
340	Remaining funds 2015	121	Analysis genetic relationship *H. areolatus* 4 and 5
200	Donations private individuals	419	Reservation expenses 2017
540	Subtotal	540	Subtotal
Other		*Other*	
98	Donation V. Loehr to cover costs bank account	98	Annual costs bank account
0	Interest bank account		
98	Subtotal	98	Subtotal
638	Total	638	Total

8. PERMIT OVERVIEW

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

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\1\4\2\ 09/2- 1676/04 (Ministry of Agriculture, Water and Rural Development, Namibia)
- Various additional permits issued to individual studbook participants (Namibia)

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)

Collecting and exporting of H. 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)

Field study and surveys on H. 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)

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

Field studies on H. signatus and H. s. cafer

- 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)

Appendix 1

Detailed *H. areolatus* and *H. signatus* husbandry information from location A66 (Marcel and Lydia Reck).

Haltungsbericht Homopus areolatus September 2016

von Marcel und Lydia Reck, Schweiz

Im Aussengehege waren sie bis 19. September 2016 unter gleichen Bedingungen wie 2015 getrennt in den für sie gewohnte Gehege. Eier hat das female seit 26. September 2015 (total 6 Eier bei uns) keine mehr gelegt. Kann sein, dass durch die längere Trennung das female nicht mehr motiviert ist Nachzuchten zu produzieren.
Nach wie vor sind wir daran, fremdes Blut für diese Tiere zu bekommen, das sich als sehr schwierig herausstellt. Eigentlich schade, denn es sind Beides sehr schöne Tiere.

male Abstand 200 cm von Kopf zu Kopf female

Sehnsüchtig schauen sie sich an und begreifen nicht, dass sie getrennt sein müssen.
Es ist sehr interessant die Geschwister zu beobachten wie sie sich anschauen und das male manchmal mit dem Kopf nickt.

Terrarium vom 19.September 2016, wie immer liebevoll eingerichtet und mit Pflanzen für den Snack zwischendurch, wenn das Futter zu spät serviert wird. Sogar die frischen Triebe der Euphorbien werden zeitweise angeknabbert wie in der Natur.

male sehen wir nicht toll aus female

Ich finde einfach keinen Weg, der zu meiner Schwester führt…….

Haltebericht homopus signatus

November 2016 von Marcel und Lydia Reck, Schweiz

Wir halten diese Tiere ja erst seit der Übergabe vom 24. Oktober, aber es ist eine Freude sie zu beobachten, es sind so herrliche quirlige Tiere.
Das male verfolgt das female den ganzen Tag, auch Paarungen konnte ich schon beobachten. Ob eine erfolgreiche Paarung schon stattgefunden hat, kann ich nicht mit Bestimmtheit sagen.
Das male Jahrgang 11/1997 hat durch diesen Stress 0,36 g abgenommen, die Grösse blieb, da Erwachsen.
Das female Jahrgang 09/13 hat erfreulicher Weise innerhalb von nur 4 Wochen 10,71g zugenommen und ist um 0,6mm gewachsen. Beim Messen haben wir auch folgendes festgestellt, dass es 0,9 mm höher geworden ist. Hat die Gewichtszunahme und das h Mass eventuelle mit Eier etwas zu tun? **Bitte nicht lachen, hat dies ein anderer Halter bereits beobachtet**?

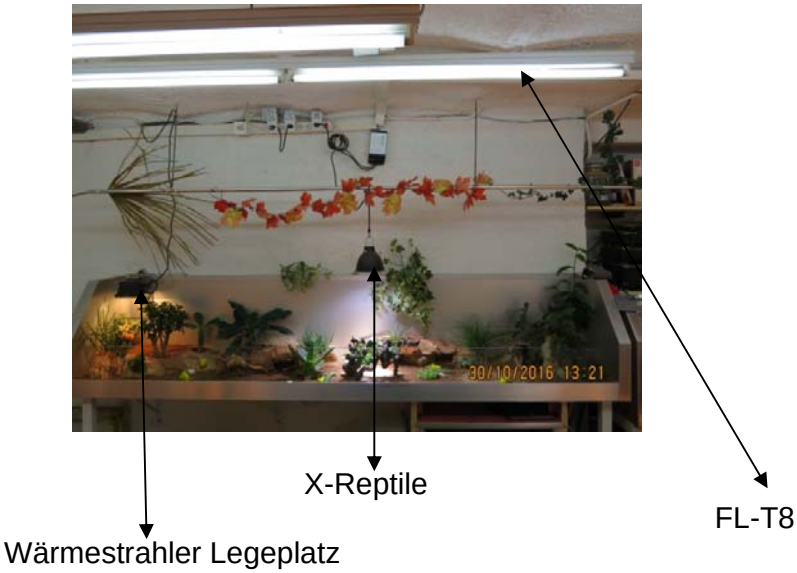

Sie benutzen das ganze Terrarium, das male klettert manchmal wie wild über Stock und Stein. Es sind sicherlich keine langweiligen Tiere, da läuft immer etwas. Das male ist vor allem ein zutrauliches Tier, es begrüsst mich immer an der Scheibe und möchte vielleicht fotografiert werden.

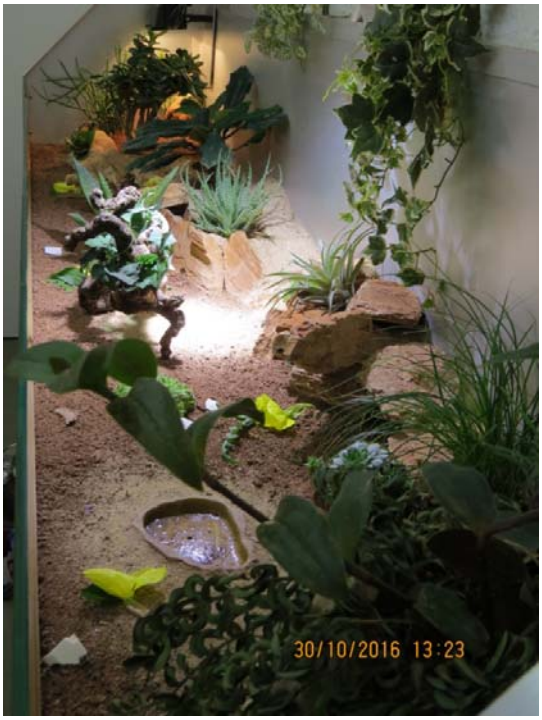
Der Tagesablauf läuft bei ihnen folgender Massen ab:
Geschlafen wird immer in einer der 4 Höhlen, entweder zusammen in der grossen, oder getrennt in einer Kleinen.

Die grosse Höhle mit Lichtspiegelungen mit getrockneten Gräsern.

Zwei der drei kleinen Höhlen

Das male ist immer als Erstes wach, geht von der kleinen oder grossen Steinhöhle rechts je nach Schlafplatz unter den X-Reptile Strahler 150 Watt von 9.30 bis 18.30 Uhr.
Etwas später gesellt sich auch das female dazu und sie wärmen sich gemeinsam auf.
Nach 45 Minuten schalten sich dann die FL-T8 Röhren zu, von 10.15 bis 19.15 Uhr.
Der Legeplatz mit dem Wärmestrahler 120 Watt befindet sich auf der linken Seite, wird nach dem Aufwärmen am Sonnenplatz rege benutzt, von 10.30 bis 17.00 Uhr.





Legeplatz links hinten

Sonnenplatz rechts Mitte

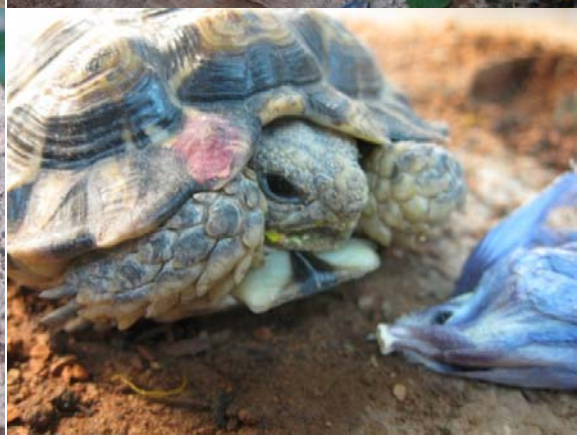
Legeplatz links

Sonnenplatz rechts

Die Pflanzen werden nur örtlich nach Bedarf gespritzt oder gegossen, damit die Tiere immer nach Bedarf trockene, aber auch wenn nötig feuchte Orte aufsuchen können. Es wurden nur Pflanzen eingesetzt, die auch längere Zeit die Trockenheit ertragen.
Da wir wissen, dass es in der Natur zum Beispiel Springbock in Afrika eines der trockensten Naturbiotope ist, tagsüber mit einer sehr geringen Luftfeuchtigkeit, wollen wir dies Nachahmen so gut wie möglich.

Nun nochmal zu den Tieren und ihren Fressgewohnheiten. Sie lieben Blüten, vor allem die Nachtkerzen, die ich ihnen bis Mitte November aus dem eigenen Garten anbieten konnte. Im Sommer werden immer Hibiskusblüten gedörrt, damit alle unsere tropischen Landschildkröten bis im Frühjahr auf Blüten nicht verzichten müssen. Auch konnten wir lange aus dem eigenen Garten Breit-, Spitzwegerich und Löwenzahn, (in den Wintermonaten gedörrt), dass sie sehr gerne fressen, manchmal auch Sprossen. Alle anderen Pflanzen müssen noch getestet werden, da uns die Erfahrung noch fehlt bei den signatus. 1-2 Mal pro Woche Wasser. Wir haben uns noch mit A83 kurzgeschlossen, er hat diesen Tieren bis anhin vor allem Wegerich und Löwenzahn gefüttert.



Der Kot sieht jedenfalls gut aus, oder?

Für Tips oder Kritiken von Erfahrenen Haltern haben wir stets ein offenes Ohr!

Ich habe diesen Monat noch diverse Messungen gemacht und in eine Excel-Tabelle übertragen (siehe unten). Diese Messungen sind für uns wichtige Erfahrungswerte und geben eine gute Rückverfolgbarkeit.

Technische Daten Homopus signatus ab Okt. 2016

Terrarien - Grösse Länge 250cm, Tiefe 50cm

Alle Lampen werden monatlich überprüft und je nach Leistung in der Höhe neu eingestellt.

Datum	Strahler / Leuchtmittel / Ort	Daten und Ort	Temperatur °C Tag	Nacht	Zeiten	Luftfeuchtigkeit % Tag	Nacht
27.10.2016	1Stk. X - Reptile 150 Watt E27, 50cm ab Boden	UV 100 - 250mW, LUX 25000 - >100000	D30cm 28 - 42°	16-17°	09:30 - 18:30	15 - 40%	50%
	2Stk. FL Silvania 36W T8/860 Daylight	Grundbeleuchtung allg. LUX 1000-2500	22,5 - 23°		10:15 - 19:15	40 - 45%	70%
	1Stk. Halogen-Strahler 120W, 30cm ab Boden	Eiablage-Platz, LUX 3200-5200	D30cm 33 - 36°		10:30 - 17:00	20 - 40%	50%
	Allgemein ausserhalb Strahler	Schatten unter Pflanzen usw.	22,5 - 23°	16 - 17°	18:30 - 09:30	40 - 45%	70%
	Kleine Steinhöhle 10 x 15cm	male und female Übernachtung täglich	26,5°	17,5°		45%	60%
	Grosse Steinhöhle 20 x 30cm	male und female tagsüber gelegentlich	20 - 21°	16°		55%	60%

Achtung! UV, Temperaturen und Lux - Werte müssen unbedingt regelmässig gemessen und neu eingestellt werden!
Messungen bei Homopus - Arten immer 1 - 2cm ab Boden!

Achtung! Terarium ist nach oben und nach vorne offen, also keine Überhitzungsgefahr!
In UV - Lampennähe keine Klettermöglichkeit, da Absturzgefahr!

Erstellt am 14. Dez. 2016