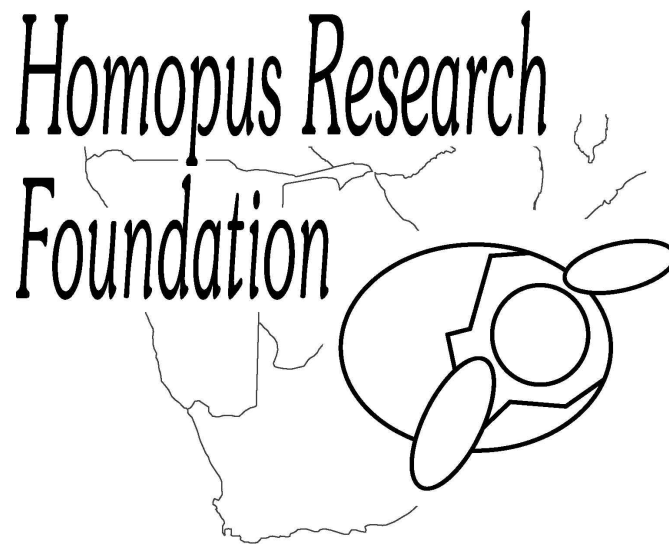


# **Homopus Research Foundation**



## **Annual Report 2007**

*Victor Loehr  
December 2007*



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## 1. INTRODUCTION AND ACHIEVEMENTS IN 2007

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 2007, several activities have contributed to this aim. The current report presents an overview of the achievements in 2007, as well as activities planned for 2008 and thereafter. Moreover, the actual studbook populations for *Homopus areolatus*, *Homopus femoralis* and *Homopus signatus signatus* are described, focussing on changes that occurred in 2007. All previous annual reports can be found on the website of the Homopus Research Foundation, <http://www.homopus.org>.

The combined efforts of all studbook participants have resulted in ongoing development and growth of the captive populations in 2007, but relatively little time could be invested in central coordination. The reason for this lies in the time that was required for the finalisation of a comprehensive dissertation on the field ecology of *H. s. signatus*, containing virtually all published work along with unpublished data and interpretation. This dissertation was submitted in November 2007, and will become publicly available in 2008. The completion of this work implies that time will become available for other matters in 2008 (see Chapter 2).

The 2006 annual report specified several plans for 2007. The following table summarises these activities, as well as the results for 2007. Activities in the 2006 report that were scheduled for 2008 and later are listed in Chapter 2.

Activity	Due
Manuscript submitted on:	30-04-2007
<ul style="list-style-type: none"> <li>• Annual variation in reproduction of wild <i>H. s. signatus</i></li> </ul> 2007: Manuscript prepared and submitted in <i>H. s. signatus</i> dissertation. The manuscript will be submitted to a journal upon finalisation of the dissertation.	
Determine which studbook participants wish to change anonymous studbook locality for name and country	31-12-2007
2007: All studbook participants have been asked this question, and the locations that wished the change to be made are reported with name and country in Chapters 3-5.	
Draw up research proposal for <i>in situ</i> <i>H. femoralis</i> study	31-12-2007
2007: This proposal is in preparation, but will be finished in the first quarter of 2008. At that time, it will be posted on the website of the Homopus Research Foundation.	

Further achievements that are worth listing for 2007:

- Two papers on *H. s. signatus* ecology were published in high-ranking journals. See Chapter 6 for recent publications, and <http://www.homopus.org> for a full overview of published papers.
- Texts and comments were provided for a manuscript about environmental factors affecting modelled current and future distributions of *H. signatus*, co-authored by the Homopus Research Foundation.
- One presentation was held:
  - General lecture for a local group of the Dutch Herpetological Association “Lacerta”, Netherlands
- For the first time in the studbook, and perhaps for the first time in an indoor captive situation, a *H. femoralis* female produced a clutch of eggs. Unfortunately, this clutch did not develop.
- After earlier occurrences in *H. s. signatus* at three locations, an overlooked captive *H. areolatus* egg hatched naturally in an indoor enclosure. This rarely occurs in tortoises, and is indicative for the high standard of *Homopus* keeping in the studbook.
- In the past 10 years, the *Homopus* studbooks have yielded large datasets including clutch sizes, clutch frequencies, egg sizes, egg masses, incubation periods, etc. In 2007, two requests were received to use some of these data in manuscripts on reproduction in tortoises in general. Data were provided.
- The FreeMe Wildlife Rehabilitation Centre (South Africa) was advised on the identification and care of *H. femoralis* and *H. areolatus*.
- A manufacturer of food for exotic animals (Metazoa, Netherlands) asked for assistance in the

development of a new prepared food for tortoises. Although assistance was offered, there have been no further calls from Metazoa.

- The Tortoise Protection Group (U.K.) asked for information about tortoise movements and regulations within the Netherlands. Due to time constraints, the group was proposed to repeat the request in 2008.
- In South Africa, electric fences surrounding farms are known to cause tortoise mortality in some regions. The Nama Karoo Foundation (South Africa) initiated an e-mail discussion about this problem, and the Homopus Research Foundation was involved in several ways:
  - the foundation recommended that nature conservers and researchers collaborate with farmers and fence manufacturers to find a solution;
  - the foundation mediated to obtain funding from the Dutch Turtle and Tortoise Society for an awareness campaign (funding not yet provided);
  - the foundation provided text and comments for an article in the South African newspaper *The Times*.

Meanwhile, a student from the University of the Witwatersrand (South Africa) has initiated a study on the subject.

- The South African Reptiles Conservation Assessment (SARCA) requested verification of the identification of an *H. femoralis* individual.
- The Endangered Wildlife Trust (South Africa) asked for advise regarding a picture card as part of the environmental education and awareness resource, which should include a tortoise in a “koppie environment” eating a succulent plant. Suggestions for species combinations were provided.
- Advise on thread-trailing of small tortoises was made available to the Bureau of Reclamation, Glendale (U.S.A.), to be used in a study on *Terrapene ornata*.
- Advise on various research materials (dataloggers, cameras, GPS, etc.) was provided for use in a study on *Malacochersus tornieri* by the College of African Wildlife Management, Moshi (Tanzania).
- Various reprint requests were received, among others from:
  - Eberhard-Karls-Univeristy, Tuebingen (Germany)
  - Centro de Zoología Aplicada, Córdoba (Argentina)
  - U.S. Fish and Wildlife Service, Reno (U.S.A.)
  - Department of Tourism, Environment & Conservation, Kimberley (South Africa)
  - Durrell Wildlife Conservation Trust, Jersey (Channel Island, U.K.)
  - Queens University Belfast (Northern Ireland)
  - Private individuals (France, Canada, etc.)
- Photographic material provided:
  - Small book on African chelonians by Bill Branch
- Compared to previous years, a large number of information requests (identification, care, permits, agricultural practises) from South African citizens were received. Apparently, the website of the Homopus Research Foundation is easily found. Since answering these questions is quite time-consuming, a link has been added to the information available on <http://www.capenature.co.za>.
- The website has been updated with the new name for the Nama padloper, *Homopus solus*.

## 2. PLANS FOR 2008 AND THEREAFTER

The following activities are actual, with progress indicated:

Activity	Due	Current status
Drawing up population management plan <i>H. s. signatus</i>	31-12-2008	Questions to be answered in the plan have been drafted; format TSA available
Drawing up population management plan <i>H. areolatus</i>	31-12-2009	Not yet started
Drawing up research proposal for <i>in situ H. femoralis</i> study, and posted on website	01-04-2008	In preparation
Fieldwork <i>H. femoralis</i>	Nov-Dec-08	In preparation

Activity	Due	Current status
Manuscripts submitted on:		
• Annual variation in reproduction of wild <i>H. s. signatus</i>	31-12-2008	Manuscript near-ready for submission
• Population density and dynamics of wild <i>H. s. signatus</i>	31-12-2008	Data available and statistically analysed
• Natural oviposition and incubation in <i>H. s. signatus</i>	01-04-2008	Data available and prepared
• Annual fluctuations of the relative humidity in the habitat of <i>H. s. signatus</i>	31-12-2008	Data available
• Thermoregulation of wild <i>H. s. signatus</i>	31-12-2009	Data available
• Captive husbandry of <i>H. femoralis</i>	31-12-2009	Data accumulation in progress
Presentation held at symposium Herpetological Association of Africa:	Nov-08	In preparation
• Annual variation in reproduction of wild <i>H. s. signatus</i>		
Applied for ANBI (Dutch tax exempt) status Homopus Research Foundation <sup>1</sup>	31-12-2008	Not yet started

### 3. STUDBOOK SUMMARIES

To keep the studbook registrations up to date, it is vital that all studbook participants keep the coordinator informed about any changes. In the studbooks on *H. femoralis* and *H. s. signatus*, each participant has accepted this obligation in a formal agreement between participant and coordinator. 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 in 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 will 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 2007, no locations have been unresponsive.

#### *Homopus areolatus*

Live specimens on 1 January 2007: 31 (excluding 6 specimens lost to follow-up)

Number of locations on 1 January 2006: 9 (5 countries, 1 zoo; excluding 1 location lost to follow-up)

New registrations: 0

Births: 1

Deaths: 2, at 2 locations

Live specimens on 31 December 2007: 30 (excluding 6 specimens lost to follow-up)

Number of locations on 31 December 2007: 8 (4 countries, 1 zoo; excluding 1 location lost to follow-up)

Interpretation of changes:

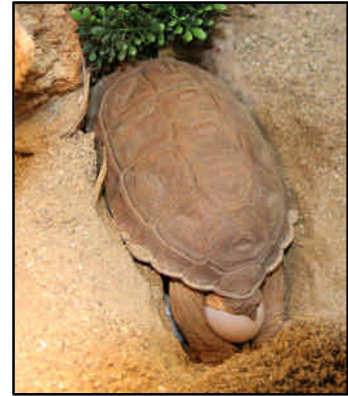
The single location that produced many hatchlings in the past years (A16) did not produce any hatchlings in 2007, and the only hatchling born in 2006 died in 2007. These results are probably still related to moving of the tortoises to a new site (see also 2006 annual report). The adult couple appears healthy and the female may produce eggs soon. In 2007, a location that had not bred *H. areolatus* previously produced a first hatchling, which will hopefully be followed by additional offspring in the next years. Furthermore, a third location produced eggs, but not (yet) hatchlings. A tortoise bred in South Africa at least 10 years ago died from unknown causes. In total, the studbook population decreased from 31 to 30 specimens, but the small steps towards structural breeding provides a moderately positive perspective for the future.

At the Namibian location A46, *H. areolatus* is bred annually in outdoor enclosures, but arrangements still need to be made as to which offspring will be registered in the studbook. Most offspring are distributed to other keepers, who would need to register. It will be important to communicate this with the receiving location prior to transfer.

*Homopus femoralis*

Live specimens on 1 January 2007: 6  
 Number of locations on 1 January 2006: 3 (2 countries)  
 New registrations: 0  
 Births: 0  
 Deaths: 0  
 Live specimens on 31 December 2007: 3  
 Number of locations on 31 December 2006: 3 (2 countries)  
 Interpretation of changes:

There have been no changes in 2007. One female (location HRF) that was imported in 2006 produced a clutch of two eggs in 2007, but the eggs failed to develop. This may have been a result of the recent transfer from southern to northern hemisphere climatic conditions, and successful breeding may occur in the years to come.

*Homopus signatus signatus*

Live specimens on 1 January 2007: 56 (excluding 13 specimens lost to follow-up)  
 Number of locations on 1 January 2007: 19 (5 countries, 2 zoos; excluding 1 location lost to follow-up)  
 New registrations: 0  
 Births: 10, at 5 locations  
 Deaths: 3, at 3 locations  
 Live specimens on 31 December 2007: 63 (excluding 13 specimens lost to follow-up)  
 Number of locations on 31 December 2007: 20 (6 countries, 2 zoos; excluding 1 location lost to follow-up)  
 Interpretation of changes:

The number of locations breeding *H. s. signatus* increased from 3 to 5 in 2007, although one hatchling (95) is inbred and will not be used for further breeding. Mortality was the same (3) as in 2006. One hatchling did not eat and died one month after hatching. Two other tortoises (ages 6 months and 2 years, respectively) appeared healthy and died from unknown causes. The net growth of the population was 13%, slightly less than in 2006 (17%). Perspectives for the studbook on *H. s. signatus* remain excellent, but the long-term population management plan scheduled for 2008 is urgently required.

## 4. ACTUAL STUDBOOK OVERVIEWS

*Homopus areolatus*: Total studbook population. MULTX are groups of unregistered specimens at locations outside of the studbook. UNKX are specimens at locations outside of the studbook. ltf means that a specimen is lost to follow-up.

Stud #	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event
A03								
1	F	????	WILD	WILD	KRAAIFONT	~ Jul 1997	_____	Transfer
						21 Nov 1997	I	Transfer
						14 Dec 1997	HZ0525	Transfer
						9 Nov 1998		Death
2	F	????	WILD	WILD	KRAAIFONT	~ Jul 1997	_____	Transfer
						21 Nov 1997	II	Transfer
						14 Dec 1997	_____	Transfer
						13 Aug 1999		Death
6	M	????	MULT1	MULT2	KRAAIFONT	????	_____	Hatch
						21 Nov 1997	VI	Transfer
						14 Apr 2001	HZ0738	Loan to
						~12 Sep 2007		Death
7	M	????	WILD	WILD	ROTTERDAM	????	_____	Transfer
						????	HZ0457	Loan to
						5 Jul 1998		Death



32	F	????	WILD	WILD	A29 A03	~ Jun 2000 15 Jun 2001 16 May 2002	_____	Transfer Transfer Death
33	F	????	WILD	WILD	LONDON RP A03	???? 23 Dec 2001 28 Jul 2003	_____	Transfer Transfer Death
45	M	14 Dec 1999	58	UNK5	A46 HRF A03	14 Dec 1999 4 Nov 2004 5 Nov 2004 25 Mar 2006	_____	Hatch Transfer Loan to Death

Totals: 3.4.0 (7)

-----  
A10 - Van Loon, Belgium

4	F	????	MULT1	MULT2	KRAAIFONT HRF A10	???? 21 Nov 1997 27 Oct 2004	_____	Hatch Transfer Loan to
5	M	????	MULT1	MULT2	KRAAIFONT HRF A10	???? 21 Nov 1997 27 Oct 2004	_____	Hatch Transfer Loan to
62	?	~25 Nov 2007	5	4	A10 HRF	~25 Nov 2007 ~25 Nov 2007	_____	Hatch Ownership

Totals: 1.1.1 (3)

-----  
A12

8	F	????	WILD	WILD	KRAAIFONT A12	???? ~16 Sep 1999 19 Mar 2000	_____	Transfer Transfer Death
9	F	????	WILD	WILD	A13 A12	???? ~16 Sep 1999 30 Apr 2000	_____	Transfer Transfer Death
13	M	????	WILD	WILD	KRAAIFONT A12	???? ~16 Sep 1999 15 Feb 2000	_____	Transfer Transfer Death
15	F	????	WILD	WILD	A13 A12	???? ~16 Sep 1999 15 Feb 2000	_____	Transfer Transfer Death
19	?	5 Feb 2000	MULT3	11	A12	5 Feb 2000 5 Feb 2000	_____	Hatch Death
20	?	16 Mar 2000	MULT3	11	A12	16 Mar 2000 16 Mar 2000	_____	Hatch Death
21	?	16 Mar 2000	MULT3	11	A12	16 Mar 2000 16 Mar 2000	_____	Hatch Death

Totals: 1.3.3 (7)

-----  
A16

16	M	????	WILD	WILD	A16	30 Aug 1994	_____	Transfer
17	F	????	WILD	WILD	A16	30 Aug 1994	_____	Transfer
18	M	23 May 2000	16	17	A16	23 May 2000 30 Mar 2003	_____	Hatch Death
38	F	5 Apr 2003	16	17	A16	5 Apr 2003 28 Nov 2006	_____	Hatch Death
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	?	10 Jun 2005	16	17	A16	10 Jun 2005	_____	Hatch
55	?	27 Jun 2005	16	17	A16	27 Jun 2005	_____	Hatch
56	?	6 Oct 2005	16	17	A16	6 Oct 2005	_____	Hatch
57	?	3 Nov 2005	16	17	A16	3 Nov 2005	_____	Hatch
61	?	17 Dec 2006	16	17	A16	17 Dec 2006 ~ 9 May 2007	_____	Hatch Death
Totals: 5.5.5 (15)								

A26								
27	M	????	WILD	WILD	KRAAIFONT A26	???? 9 Jul 2001	_____	Transfer ltf Transfer
28	F	????	WILD	WILD	KRAAIFONT A26	???? 9 Jul 2001	_____	Transfer ltf Transfer
Totals: 1.1.0 (2)								

A27								
29	M	????	WILD	WILD	KRAAIFONT A27	???? 9 Jul 2001 9 Nov 2001	_____	Transfer Transfer Death
30	F	????	WILD	WILD	KRAAIFONT A27	???? 9 Jul 2001 11 Nov 2001	_____	Transfer Transfer Death
Totals: 1.1.0 (2)								

A37								
22	M	????	WILD	WILD	A20 A21 A37	???? 17 Oct 2000 15 Sep 2002	_____	Transfer Transfer Transfer
23	F	????	WILD	WILD	A20 A21 A37	???? 17 Oct 2000 15 Sep 2002	_____	Transfer Transfer Transfer
24	F	~ 1993	UNK1	UNK2	A20 A21 A37	~ 1993 17 Oct 2000 15 Sep 2002	_____	Hatch Transfer Transfer
46	?	30 Sep 2004	22	24	A37	30 Sep 2004	_____	Hatch
Totals: 1.2.1 (4)								

A42								
35	M	9 Jul 2002	16	17	A16 A42	9 Jul 2002 ~30 Sep 2005	_____	Hatch Loan to
Totals: 1.0.0 (1)								

A43								
10	M	????	WILD	WILD	A13 A12 A43	???? ~16 Sep 1999 ~ May 2004	_____	Transfer Transfer ltf Loan to
11	F	????	WILD	WILD	KRAAIFONT A12 A43	???? ~16 Sep 1999 ~ May 2004	_____	Transfer Transfer ltf Loan to

12	F	????	WILD	WILD	KRAAIFONT A12 A43	???? ~16 Sep 1999 ~ May 2004	_____	A6	Transfer Transfer ltf Loan to
14	F	????	WILD	WILD	KRAAIFONT A12 A43	???? 16 Sep 1999 ~ May 2004	_____	BABY	Transfer Transfer ltf Loan to

Totals: 1.3.0 (4)

## A44 - Schlömer, Germany

37	F	7 Aug 2003	5	4	HRF A10 HRF A44	7 Aug 2003 21 Aug 2004 27 Oct 2004 31 Oct 2004	IV-3 _____	IV-3 ESMERA	Hatch Loan to Transfer Loan to
47	M	~ Jun 1993	UNK3	UNK4	A47 A48 A44	~ Jun 1993 ~ 2000 21 Nov 2004	_____	HUGO	Hatch Transfer Transfer

Totals: 1.1.0 (2)

## A45

25	F	15 Sep 2001	5	4	HRF A10 A16 A45	15 Sep 2001 24 May 2003 4 Dec 2004 27 Feb 2005	IV-1 _____	_____	Hatch Loan to Loan to Loan to
34	M	30 Jun 2002	16	17	A16 A45	30 Jun 2002 27 Feb 2005	_____	_____	Hatch Loan to
53	?	12 Jun 2005	34	25	A45	12 Jun 2005	_____	_____	Hatch

Totals: 1.1.1 (3)

## A46 - Schleicher, Namibia

58	M	????	WILD	WILD	A46	9 Sep 1997	_____	_____	Transfer
59	F	????	WILD	WILD	A46	9 Sep 1997	_____	_____	Transfer
60	F	????	WILD	WILD	A46	12 Dec 1997	_____	_____	Transfer

Totals: 1.2.0 (3)

## HRF - Homopus Research Foundation, Netherlands

3	?	????	MULT1	MULT2	KRAAIFONT HRF	???? 21 Nov 1997 29 Oct 1999	_____	III	Hatch Transfer Death
26	?	15 Oct 2001	5	4	HRF	15 Oct 2001 26 Apr 2002	IV-2	_____	Hatch Death
31	?	11 Nov 2001	5	4	HRF	11 Nov 2001 11 Nov 2001	_____	_____	Hatch Death
36	?	12 Oct 2002	5	4	HRF	12 Oct 2002 12 Oct 2002	_____	_____	Hatch Death

Totals: 0.0.4 (4)

## WUPPERTAL - Wuppertal Zoological Garten, Germany

40	M	????	WILD	WILD	WUPPERTAL	28 Mar 1991	91586A	_____	Transfer
41	M	????	WILD	WILD	WUPPERTAL	28 Mar 1991	91586B	_____	Transfer
42	F	25 Feb 1999	58	UNK5	A46 HRF WUPPERTAL	25 Feb 1999 4 Nov 2004 9 Nov 2004 14 Apr 2005	_____	NOMARK 91586C	Hatch Transfer Loan to Death

43	F	21 Dec 1999	58	UNK5	A46	21 Dec 1999		Hatch
					HRF	4 Nov 2004	CR1	Transfer
					WUPPERTAL	9 Nov 2004	91586D	Loan to
						26 Mar 2005		Death
44	F	21 Dec 2001	58	UNK5	A46	21 Dec 2001		Hatch
					HRF	4 Nov 2004	CL2	Transfer
					WUPPERTAL	9 Nov 2004	91586E	Loan to
						4 Nov 2005		Death

Totals: 2.3.0 (5)

=====

TOTALS: 20.27.15 (62)

*Homopus femoralis*: Total studbook population.

Stud #	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event
A08								
1	M	????	WILD	WILD	A28	~ Jan 2001		Transfer
					HRF	23 Dec 2001	I	Loan to
					A08	17 Apr 2002		Loan to
6	F	????	WILD	WILD	BEAUF W	16 Mar 2006	NONE	Capture
					HRF	19 Mar 2006		Transfer
					A08	2 Apr 2006		Loan to

Totals: 1.1.0 (2)

## A10 - Van Loon, Belgium

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

Totals: 1.1.0 (2)

## HRF - Homopus Research Foundation, Netherlands

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

Totals: 1.1.0 (2)

=====

TOTALS: 3.3.0 (6)

*Homopus signatus signatus*: Total studbook population. MULT1 are specimens 18 and 19, MULT2 specimens 20 and 21. UNK1 and UNK2 are unknown specimens outside of the studbook. ltf means that a specimen is lost to follow-up. Specimen number 59 might be a male. Specimen number 95 is inbred and not available for further breeding.

Stud #	Sex	Hatch Date	Sire	Dam	Location	Date	Local ID	Event
A07								
35	M	????	WILD	WILD	SPRINGBOK	4 Oct 2001	NONE	Capture
					HRF	6 Oct 2001		Transfer
					A07	16 Dec 2001		Loan to
36	F	????	WILD	WILD	SPRINGBOK	3 Oct 2001	NONE	Capture
					HRF	6 Oct 2001		Transfer
					A07	16 Dec 2001		Loan to

96	?	~ Jul 2007	35	36	A07 HRF	~ Jul 2007 _____ ~ Jul 2007 _____	Hatch Ownership
97	?	~ Jul 2007	35	36	A07 HRF	~ Jul 2007 _____ ~ Jul 2007 _____	Hatch Ownership

Totals: 1.1.2 (4)

## A08

41	M	25 Jul 2002	1	3	HRF A08	25 Jul 2002 III-14 19 Apr 2003 _____	Hatch Loan to
42	F	20 Aug 2002	1	2	HRF A08	20 Aug 2002 II-11 19 Apr 2003 _____	Hatch Loan to
95	?	18 Sep 2007	41	42	A08 HRF	18 Sep 2007 _____ 18 Sep 2007 _____	Hatch Ownership

Totals: 1.1.1 (3)

## A10 - Van Loon, Belgium

6	M	8 Nov 1996	1	3	HRF A10 A31 A10	8 Nov 1996 III-2 4 Aug 2001 _____ 7 May 2002 _____ 8 Dec 2002 _____	Hatch Loan to Loan to Loan to
7	F	24 Dec 1996	1	3	HRF A06 A07 A18 A31 A10	24 Dec 1996 III-3 22 Nov 1998 _____ 5 Jul 2000 _____ 14 Dec 2001 _____ 6 May 2002 _____ 8 Dec 2002 _____	Hatch Loan to Loan to Loan to Loan to Loan to
44	M	31 Oct 2002	35	36	A07 HRF A10	31 Oct 2002 _____ 31 Oct 2002 _____ 24 Jul 2004 _____	Hatch Ownership Loan to
71	M	25 Jun 2005	44	7	A10 HRF	25 Jun 2005 _____ 25 Jun 2005 _____	Hatch Ownership
77	?	13 Jul 2006	44	7	A10 HRF	13 Jul 2006 _____ 13 Jul 2006 _____	Hatch Ownership
78	?	10 Jun 2006	44	7	A10 HRF	10 Jun 2006 _____ 10 Jun 2006 _____	Hatch Ownership
80	?	10 Sep 2006	44	7	A10 HRF A10	10 Sep 2006 _____ 10 Sep 2006 _____ 1 Mar 2007 _____	Hatch Ownership Death
81	?	3 Sep 2006	44	7	A10 HRF	3 Sep 2006 _____ 3 Sep 2006 _____	Hatch Ownership
93	?	30 Jul 2007	44	7	A10 HRF	30 Jul 2007 _____ 30 Jul 2007 _____	Hatch Ownership
94	?	27 Aug 2007	44	7	A10 HRF	27 Aug 2007 _____ 27 Aug 2007 _____	Hatch Ownership

Totals: 3.1.6 (10)

## A12

45	?	~ Jun 2002	MULT1	20	A12	~ Jun 2002 _____ ~ Jun 2002 _____	Hatch Death
46	?	~ Jun 2002	MULT1	20	A12	~ Jun 2002 _____ ~ Jun 2002 _____	Hatch Death
48	?	~ Jul 2002	MULT1	20	A12	~ Jul 2002 _____ ~ Jul 2002 _____	Hatch Death

49	?	~ Jul 2002	MULT1	20	A12	~ Jul 2002	_____	Hatch
						~ Jul 2002	_____	Death
Totals: 0.0.4 (4)								
-----								
A16								
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
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
Totals: 2.0.0 (2)								
-----								
A18 - Schmidt, Germany								
15	F	20 Sep 1999	1	2	HRF	20 Sep 1999	II-6	Hatch
					A31	6 May 2002	_____	Loan to
					A18	8 Dec 2002	_____	Loan to
69	M	9 May 2005	37	38	HRF	9 May 2005	HSS69	Hatch
					A33	28 May 2006	NURI	Loan to
					A18	3 Sep 2007	_____	Loan to
Totals: 1.1.0 (2)								
-----								
A25								
1	M	????	WILD	WILD	SPRINGBOK	27 Sep 1995	NONE	Capture
					HRF	30 Sep 1995	I	Transfer
					A25	12 Jun 2004	_____	Loan to
3	F	????	WILD	WILD	SPRINGBOK	26 Sep 1995	NONE	Capture
					HRF	30 Sep 1995	III	Transfer
					A25	12 Jun 2004	_____	Loan to
Totals: 1.1.0 (2)								
-----								
A31								
22	M	19 Jun 2000	1	2	HRF	19 Jun 2000	II-7	Hatch
					A31	6 May 2002	_____	Loan to
						14 Sep 2002	_____	Death
29	?	15 Jul 2001	1	3	HRF	15 Jul 2001	III-9	Hatch
					A31	6 May 2002	_____	Loan to
						14 Aug 2002	_____	Death
Totals: 1.0.1 (2)								
-----								
A33								
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
53	F	20 Jul 2003	13	5	HRF	20 Jul 2003	030720	Hatch
					A51	16 Sep 2006	_____	Loan to
					A33	30 Dec 2007	_____	Loan to
63	M	6 Jul 2004	35	36	A07	6 Jul 2004	_____	Hatch
					HRF	6 Jul 2004	_____	Ownership
					A51	14 Aug 2006	_____	Loan to
					A33	30 Dec 2007	_____	Loan to
66	F	6 Aug 2004	13	5	HRF	6 Aug 2004	040806	Hatch
					A51	2 Jun 2006	_____	Loan to
					A33	30 Dec 2007	_____	Loan to
Totals: 2.2.0 (4)								
-----								

A35								
31	M	3 Aug 2001	1	2	HRF A31 A35	3 Aug 2001 6 May 2002 30 Nov 2002	II-10 _____ _____	Hatch Loan to Loan to
34	M	30 Sep 2001	1	3	HRF A31 A35	30 Sep 2001 6 May 2002 30 Nov 2002	III-11 _____ _____	Hatch Loan to Loan to
Totals: 2.0.0 (2)								
-----								
A36								
12	M	21 Nov 1997	1	2	HRF A07 A18 A31 A36	21 Nov 1997 22 Nov 1998 14 Dec 2001 6 May 2002 8 Dec 2002 20 Oct 2003	II-4 _____ _____ _____ _____ _____	Hatch Loan to Loan to Loan to Loan to Death
Totals: 1.0.0 (1)								
-----								
A37								
25	M	12 Sep 2000	1	3	HRF A31 A37	12 Sep 2000 6 May 2002 11 Dec 2002	III-8 _____ _____	Hatch Loan to Loan to
33	M	19 Aug 2001	1	3	HRF A31 A37	19 Aug 2001 6 May 2002 11 Dec 2002 26 Dec 2003	III-10 _____ _____ _____	Hatch Loan to Loan to Death
60	F	????	WILD	WILD	A37	~15 Mar 2003	_____	Transfer
61	M	7 Oct 2003	WILD	60	A37	7 Oct 2003	_____	Hatch
62	F	5 Jun 2004	WILD	60	A37	5 Jun 2004	_____	Hatch
67	M	5 Aug 2004	WILD	60	A37	5 Aug 2004	_____	Hatch
82	?	26 Dec 2005	25	60	A37 HRF	26 Dec 2005 26 Dec 2005	_____ _____	Hatch Ownership
83	?	~15 Jan 2006	25	60	A37	~15 Jan 2006 ~15 Jan 2006	_____ _____	Hatch Death
84	?	~15 Feb 2006	25	60	A37	~15 Feb 2006 ~15 May 2006	_____ _____	Hatch Death
85	?	~15 Mar 2006	25	60	A37	~15 Mar 2006 ~20 Mar 2006	_____ _____	Hatch Death
86	?	~20 Apr 2006	25	60	A37	~20 Apr 2006	_____	Hatch
87	?	~15 Oct 2005	25	60	A37	~15 Oct 2005	_____	Hatch
88	?	~15 Nov 2005	25	60	A37 HRF	~15 Nov 2005 ~15 Nov 2005	_____ _____	Hatch Ownership
89	?	18 Jan 2007	25	60	A37	18 Jan 2007	_____	Hatch
92	?	10 Aug 2007	25	60	A37 HRF	10 Aug 2007 10 Aug 2007	_____ _____	Hatch Ownership
98	?	29 Dec 2007	25	60	A37	29 Dec 2007	_____	Hatch
Totals: 4.2.10 (16)								
-----								
A39 - Gräf, Germany								
40	M	2 Jul 2002	1	3	HRF A39	2 Jul 2002 12 Apr 2003	III-13 _____	Hatch Loan to
Totals: 1.0.0 (1)								
-----								

A40  
 43 F 29 Sep 2002 1 2 HRF 29 Sep 2002 II-12 Hatch  
 A40 6 Jun 2003 \_\_\_\_\_ Loan to

Totals: 0.1.0 (1)

A41  
 51 M 1 Jul 2003 1 2 HRF 1 Jul 2003 II-13 Hatch  
 A41 2 Nov 2003 \_\_\_\_\_ Loan to

Totals: 1.0.0 (1)

A42  
 54 F 5 Sep 2003 1 3 HRF 5 Sep 2003 III-17 Hatch  
 A42 7 Nov 2003 THEODO \_\_\_\_\_ Loan to  
 55 ? 3 Sep 2003 1 2 HRF 3 Sep 2003 II-14 Hatch  
 A42 7 Nov 2003 \_\_\_\_\_ Loan to  
 13 Mar 2004 \_\_\_\_\_ Death

Totals: 0.1.1 (2)

A43  
 17 M ???? WILD WILD A12 8 Sep 1999 \_\_\_\_\_ Transfer  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 18 M ???? WILD WILD SPRINGBOK ~16 Sep 1999 NONE Capture  
 A12 ~16 Sep 1999 VIEJO Transfer  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 19 M ???? WILD WILD SPRINGBOK ~16 Sep 1999 NONE Capture  
 A12 ~16 Sep 1999 STUMPY Transfer  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 20 F ???? WILD WILD SPRINGBOK ~16 Sep 1999 NONE Capture  
 A12 ~16 Sep 1999 MIDGE Transfer  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 21 F ???? WILD WILD SPRINGBOK ~16 Sep 1999 NONE Capture  
 A12 ~16 Sep 1999 BERTHA Transfer  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 27 ? 17 Oct 2000 MULT1 MULT2 A12 17 Oct 2000 SASHI Hatch  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 28 ? 15 Nov 2000 MULT1 MULT2 A12 15 Nov 2000 PEANUT Hatch  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 30 ? 26 Jul 2001 MULT1 20 A12 26 Jul 2001 \_\_\_\_\_ Hatch  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 32 ? 10 Aug 2001 MULT1 20 A12 10 Aug 2001 \_\_\_\_\_ Hatch  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 47 M ???? UNK1 UNK2 A12 ~ Jan 2002 ERNST Transfer  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 56 ? 22 Aug 2003 MULT1 20 A12 22 Aug 2003 \_\_\_\_\_ Hatch  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 57 ? 17 Sep 2003 MULT1 20 A12 17 Sep 2003 \_\_\_\_\_ Hatch  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to  
 58 ? 20 Sep 2003 MULT1 20 A12 20 Sep 2003 \_\_\_\_\_ Hatch  
 A43 ~ May 2004 \_\_\_\_\_ ltf Loan to

Totals: 4.2.7 (13)

A49  
 59 M 10 Jun 2004 1 3 HRF 10 Jun 2004 III-18 Hatch  
 A49 17 Apr 2005 \_\_\_\_\_ Loan to



68	M	14 Aug 2004	35	36	A07	14 Aug 2004	_____	Hatch
					HRF	15 Aug 2004	_____	Ownership
					A49	8 Oct 2006	_____	Loan to
Totals: 2.0.0 (2)								
-----								
A50								
5	F	27 Feb 1996	WILD	3	HRF	27 Feb 1996	III-1	Hatch
					A50	16 Sep 2006	_____	Loan to
13	M	26 Sep 1998	1	2	HRF	26 Sep 1998	II-5	Hatch
					A07	22 Nov 1998	_____	Loan to
					A18	14 Dec 2001	_____	Loan to
					A31	6 May 2002	_____	Loan to
					HRF	8 Dec 2002	II-5	Transfer
					A50	16 Sep 2006	_____	Loan to
64	M	29 Jul 2004	1	3	HRF	29 Jul 2004	III-19	Hatch
					A50	17 Apr 2005	_____	Loan to
Totals: 2.1.0 (3)								
-----								
A52								
70	M	24 Jun 2005	1	3	A25	24 Jun 2005	DOPPIE	Hatch
					HRF	24 Jun 2005	_____	Ownership
					A52	5 Jan 2007	_____	Loan to
						11 Jun 2007		Death
Totals: 1.0.0 (1)								
-----								
A54								
75	?	9 May 2006	13	5	HRF	9 May 2006	_____	Hatch
					A54	24 Mar 2007	_____	Loan to
76	?	20 Jun 2006	13	5	HRF	20 Jun 2006	V-4	Hatch
					A54	24 Mar 2007	_____	Loan to
Totals: 0.0.2 (2)								
-----								
A55 - Verhoeeks, Netherlands								
74	M	31 Jul 2005	1	3	A25	31 Jul 2005	_____	Hatch
					HRF	31 Jul 2005	_____	Ownership
					A55	24 Mar 2007	_____	Loan to
Totals: 1.0.0 (1)								
-----								
HRF - Homopus Research Foundation, Netherlands								
2	F	????	WILD	WILD	SPRINGBOK	26 Sep 1995	NONE	Capture
					HRF	30 Sep 1995	II	Transfer
						14 May 2004		Death
4	M	????	WILD	WILD	SPRINGBOK	28 Sep 1995	NONE	Capture
					HRF	30 Sep 1995	IV	Transfer
						24 Dec 1995		Death
8	?	26 Jan 1997	1	2	HRF	2 Feb 1997		Death
						27 Aug 2007	II-2	Hatch
9	F	30 Nov 1996	1	2	HRF	30 Nov 1996	II-1	Hatch
16	?	4 Oct 1999	1	3	HRF	4 Oct 1999	III-6	Hatch
						4 Oct 1999		Death
23	?	19 Jul 2000	1	2	HRF	19 Jul 2000	II-8	Hatch
						29 Jun 2001		Death
24	?	2 Aug 2000	1	3	HRF	2 Aug 2000	III-7	Hatch
						2 Aug 2000		Death
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

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
39	?	11 Jun 2002	1	3	HRF	11 Jun 2002	III-12	Hatch
						20 Jun 2002		Death
72	M	24 Jul 2005	MULT3	MULT4	HRF	24 Jul 2005	?-1	Hatch
73	M	2 Aug 2005	37	38	HRF	2 Aug 2005	HSS73	Hatch
79	?	9 Aug 2006	37	38	HRF	9 Aug 2006	_____	Hatch
90	?	29 May 2007	37	38	HRF	29 May 2007	_____	Hatch
						8 Jul 2007		Death
91	?	3 Aug 2007	37	38	HRF	3 Aug 2007	_____	Hatch
Totals: 4.3.8 (15)								
-----								
PRAHA - Zoo Praha, Czech Republic								
50	M	17 Jun 2003	1	3	HRF	17 Jun 2003	III-15	Hatch
					PRAHA	20 Dec 2003	_____	Loan to
52	F	9 Jul 2003	1	3	HRF	9 Jul 2003	III-16	Hatch
					PRAHA	20 Dec 2003	_____	Loan to
65	M	31 Jul 2004	35	36	A07	31 Jul 2004	_____	Hatch
					HRF	31 Jul 2004	_____	Ownership
					PRAHA	31 Aug 2006	_____	Loan to
Totals: 2.1.0 (3)								
-----								
WUPPERTAL - Wuppertal Zoological Garten, Germany								
26	F	7 Oct 2000	1	2	HRF	7 Oct 2000	II-9	Hatch
					A31	6 May 2002	_____	Loan to
					WUPPERTAL	18 Dec 2002	_____	Loan to
Totals: 0.1.0 (1)								
-----								
TOTALS: 37.19.42 (98)								

## 5. SPECIFIC INFORMATION FROM STUDBOOK PARTICIPANTS

### Location A07

*Homopus s. signatus* couple 35 x 36 reproduced in 2002 and 2004, but not thereafter. The keeper of this couple noticed that a family group of *Cordylus cataphractus* housed together with the tortoises showed aggressive behaviour towards the tortoises. The lizards were removed in 2006, after which egg production continued and (two) offspring were born in 2007.

### Location A25

The enclosure in which couple *H. s. signatus* 1 x 3 is housed has been stocked with two male *C. cataphractus* in 2007. To date, these lizards do not appear to be aggressive towards the tortoises.

### Location A44

The keeping of *H. areolatus* at this location is mostly similar to the situation in 2004 (see 2004 annual report). However, since the female has grown larger than the male, the male is kept in the smaller terrarium and the female in the larger one. The enclosures are also located in another room that is facing west and receives sun in the evening.

In 2006, the female reached a weight of 160 g, similar to the male, so both were kept together in the larger terrarium for 1-2 month in the spring and in the fall. Since the male was mating most of the time, the female did not gain any more weight. Therefore, the tortoises were separated in October 2006. On 25 March 2007, the female was x-rayed and ultrasonography was performed to see if any egg

development had taken place, before determining whether or not to place the tortoises back together. Only small follicles were detected by ultrasonography (maximum diameter 0.4 cm), but the male and female were kept separated. In the following weeks, the female gained much weight and weighed 240 g on 23 April 2007 (carapace length 10.1 cm, width 7.6 cm, height 5.1 cm). Eggs could be felt in the inguinal region. On 28 April 2007, the female laid three eggs. It was very interesting to see that!

Development from small follicles to calcified eggs took place in just one month. The age of the tortoise was 3 years and 9 months at the time of laying the first eggs. Sadly, the eggs did not develop. They were incubated at 29-30°C, relative humidity 75-85%. The last egg was opened after 90 days. No development was seen during incubation or upon opening the eggs.

Both tortoises have some coloration, but not as bright as some have in the wild. Feeding is as described in 2004. Additionally, they occasionally receive dried flowers and herbs over the salad in winter. The female is fed one baby mouse ("pinky") with Nekton Rep Color per month. The male tortoise does not receive any source of animal protein or Nekton Rep Color. Sometimes, Korvimin ZVT and Calcium-Lacticum is added to the diet. In the summer of 2007, the tortoises were placed outside on warmer days.

#### Location HRF

Two similar, open enclosures of 2 x 1 m each are positioned next to one another, and house 1.2 wild-caught *H. s. signatus* and 1.1 wild-caught *H. femoralis*, respectively. Interestingly, the same climatic conditions have a very different effect on the two species. Whereas *H. s. signatus* remains active throughout winter, and displays mating and oviposition behaviours, *H. femoralis* is inactive for several months without moving or feeding. This difference probably relates to the habitat of *H. femoralis* not tolerating tortoise activity during cold and dry winter months.

#### Location Prague

*Homopus s. signatus* 52 produced an egg on 28 April 2007 (13.7 g, 31.2 x 25.3 mm). The egg did not develop, which was good news for us because it might have resulted in an inbred individual. One month later, on 20 May 2007, the female laid another egg and had large problems producing it. The female had a severe calcium deficiency and was unable to lay the egg without help. Since signs of calcium deficiency were noted from the muscle movements, the female was provided with calcium gluconate. Next, oviposition succeeded. This experience has helped us focussing on proper calcium supplementation.



## 6. NEW PUBLICATIONS

The following overview summarises all manuscripts and articles that were submitted, accepted, or published in 2007.

Subject	Submitted	Accepted	Published	Journal
Husbandry and breeding account <i>Homopus</i> spp.	2003	2003		Mertensiella (English)
Annual variation in the body condition of a small, arid-zone tortoise, <i>Homopus signatus signatus</i>	2006	2007	2007	Journal of Arid Environments (English)
Growing and shrinking in the smallest tortoise, <i>Homopus signatus signatus</i> : the importance of rain	2006	2007	2007	Oecologia (English)
Een energiebesparende wijze van landschildpadden houden / An energy-saving way of keeping tortoises	2006	2007	2007	Trionyx (Dutch)

Subject	Submitted	Accepted	Published	Journal
Annual variation in reproduction of wild <i>H. s. signatus</i>	<sup>1</sup>			<sup>1</sup>
Eerste Belgische nakweek met <i>Homopus s. signatus</i> / First Belgium breeding of <i>Homopus s. signatus</i>	2007			Terra (Dutch)
Kweken met <i>Homopus s. signatus</i> / Breeding <i>Homopus s. signatus</i>	2007			Terra (Dutch)

<sup>1</sup> Submitted in dissertation in 2007; submission to journal after finalisation of the dissertation

## 7. FINANCIAL REPORT

In 2007, the only expenses of the Homopus Research Foundation were overhead-related. The reason for the lack of additional expenses is the fact that the finalisation of the project on *H. s. signatus* (i.e., the dissertation writing) consumed most of the time, leaving no time for fieldwork on *H. femoralis* in 2007. As reported in Chapter 2, work on *H. femoralis* will be resumed in 2008, and the financial reserves accumulated in 2007 will facilitate a successful field season. The total amount of funding required for the *H. femoralis* field study is circa € 5,000 (excluding funding through fieldwork volunteers).

### Financial report Homopus Research Foundation 2007

<b>Revenues</b>			<b>Expenses</b>		
Net amount	Item		Amount	Item	
€			€		
<i>Project H. femoralis 2006-2010</i>			<i>Project H. femoralis 2006-2010</i>		
1,728	Remaining funds 2006		1,000	Reservation recharging radiotransmitters 2008-2010	
310	Donations private individuals		1,043	Reservation other project expenses 2008-2010	
5	Interest bank account				
2,043	Subtotal		2,043	Subtotal	
<i>Other</i>			<i>Other</i>		
37	Donation V. Loehr to cover non-project expenses		25	Chamber of Commerce 2007	
			12	Annual fee bank account	
37	Subtotal		37	Subtotal	
2,079	Total		2,079	Total	