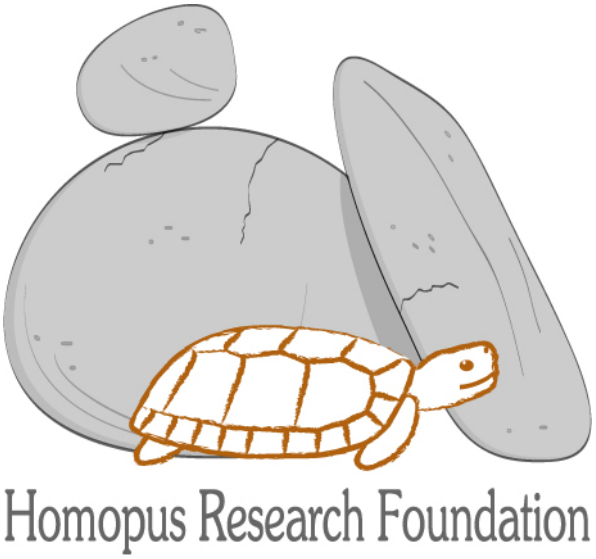
Homopus Research Foundation



Annual Report

2013

Victor Loehr
January 2014

CONTENTS

Victor Loehr
Homopus Research Foundation
loehr@homopus.org

1. INTRODUCTION AND ACHIEVEMENTS IN 2013

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 2013, several activities contributed to this aim. The current report presents an overview of achievements in 2013, as well as activities planned for 2014 and thereafter. Moreover, the actual studbook populations for *Homopus areolatus*, *Homopus femoralis* and *Homopus signatus* are described, focussing on changes that occurred in 2013. All previous annual reports can be found on the website of the Homopus Research Foundation.

The 2012 annual report anticipated on several results for 2013. The following table summarises these plans, with results obtained in 2013.

Result	**Due**
Manuscript submitted on: • Behaviour in wild *H. signatus* 2013: First draft in preparation. This was a student's work that did not materialise as planned. Instead, a scientific manuscript on home ranges in *H. signatus* was drafted and submitted. In addition, popular papers on diet in *H. signatus*, husbandry and breeding in *H. areolatus*, husbandry automation, and the Homopus Research Foundation were published. See Chapter 6.	31-12-2013
Permit for study on thermoregulation in wild *H. signatus* (2012-2013) renewed (2014) 2013: Permit renewed (number 460/2013).	01-09-2013
Fieldwork conducted on *H. signatus* thermoregulation 2013: Fieldwork conducted in September-October. See Paragraph 1.3.	Sep-2013
Detailed studbook management plan *H. signatus* finalised 2013: Studbook management plan finalised. See Paragraph 1.1.	01-06-2013
Memorandum of understanding with Northern Cape Department of Environment and Nature Conservation drafted and submitted 2013: Memorandum of understanding drafted and submitted. See Paragraph 1.1.	01-06-2013
Permit application to collect and export 5.5 wild *H. signatus* drawn up and submitted 2013: Condition for this plan was a signed memorandum of understanding with the Northern Cape Department of Environment and Nature Conservation. Since the memorandum is still under review by the department, a permit application could not yet be submitted.	31-12-2013
Setup for studbook management plan *H. areolatus* drafted 2013: Setup drafted and distributed among studbook participants for review. See Paragraph 1.2.	31-12-2013
Presentations held: • Foraging in a fridge: thermoregulation in *H. signatus* (Pretoria Zoo, South Africa, and Goegap Nature Reserve, Springbok, South Africa) • A conservation breeding programme for *H. signatus* (Pretoria Zoo, South Africa) 2013: Both presentations were held. In addition, presentations were held on the behaviour of wild *H. signatus* (Goegap Nature Reserve and Van Hall Larenstein University of Applied Sciences, Leeuwarden, Netherlands), and on defragmentation of highways in the Netherlands, including a case study on road mortality in *H. femoralis* (South African National Roads Agency, Pretoria, South Africa).	Feb-2013 Feb-2013

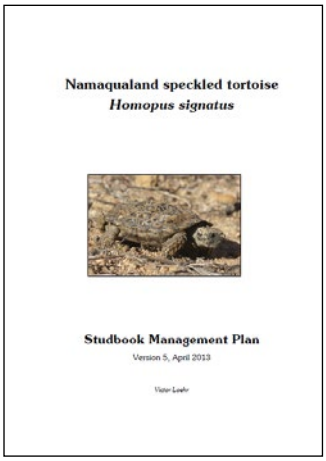
Further progress that is worth listing:

- Several private tortoise keepers in Czech, Germany, Israel, UK and USA asked to obtain *Homopus* spp. Some of them received *H. signatus* in 2013.
- Collaboration was requested for a German documentary about biodiversity in South Africa. The collaboration would include filming of *H. signatus* in captivity and in the wild. However, the expectations of the producers were not realistic and preparations were stopped.
- Goegap Nature Reserve (Springbok, South Africa) asked to prepare a poster on *H. signatus* for display in the new conference facilities of the reserve. The poster will be prepared in 2014.
- A lecture request was received from the Dansk Amfibiecenter (Copenhagen, Denmark), but unfortunately this request was on too short notice.

- Information requests were received regarding:
  - Research methodologies in wild *Homopus* spp. (Namibia)
  - Average size reduction in *H. signatus* as a result of climate change (Germany)
  - Area of occupancy in *Homopus* spp. ranges (South Africa)
  - Involving the general public in tortoise conservation (South Africa)
  - Postdoc positions at the Homopus Research Foundation (China)
  - Updating Wikipedia with information and photos on *Homopus* spp. (South Africa)
  - Several identifications of photographs (South Africa)
- Reprint requests for *Homopus* papers were received from:
  - Department of Biology and Ecology, University of Niš (Serbia)
  - Veterinary Department of Utrecht University (Netherlands)
  - Several private individuals (France, USA)
- Review requests were received from:
  - African Herp News
  - African Zoology
  - Current Zoology
  - Student paper of the Veterinary Department of Utrecht University (Netherlands)
- Photographic material was provided to:
  - Turtles and Tortoises of the World, Studio Natura Arcadia, Italy
- The website of the Homopus Research Foundation was updated with new publications, actual studbook overviews, the final studbook management plan *H. signatus*, and fieldwork photos.

1.1. Long-term studbook management plan Homopus signatus

In April, the studbook management plan for *H. signatus* was finalised. This plan was co-produced by the studbook coordinators and studbook participants, in a process that started in 2008. The completion of the plan, after thorough review by the Northern Cape Department of Environment and Nature Conservation, is a major achievement. The plan provides clear directions for the development of the studbook in the next years and decades. It will be updated every five years, and after every supplementation of new founders and after each change in the IUCN conservation status of the taxon. Since the conservation status of *H. signatus* is currently being elevated from Near threatened to Vulnerable, an updated plan may appear soon. The annual reports of the Homopus Research Foundation will report annual progress of the realisation of the studbook management plan.



Based on the studbook management plan, a memorandum of understanding was drafted to clarify the responsibilities of the Northern Cape Department of Environment and Nature Conservation and the Homopus Research Foundation. The draft was sent to the Northern Cape Department of Environment and Nature Conservation for review in April. On two occasions, in June and November, the department was asked for information regarding the reviewing process. Unfortunately, these requests have not yet provided further information.

A first priority in the studbook management plan is the addition of new bloodlines to the captive population. This will require collecting and exporting permits, and applications for these permits will be submitted when there will be clarity on the memorandum of understanding.

The process to develop a long-term studbook management plan for a private breeding programme was presented at the symposium of the Herpetological Association of Africa, at Pretoria Zoo in February 2013. This meeting dealt with many other aspects of conservation breeding, and the case of *H. signatus* was often used as reference in plenary discussions.

1.2. Long-term studbook management plan Homopus areolatus

The studbook on *H. areolatus* is very different from that on *H. signatus*. The private ownership of most *H. areolatus* requires an approach that explicitly takes ownership into account. Furthermore, many owners have limited capabilities to communicate in English, resulting in a language barrier. Nevertheless, each studbook requires a long-term vision to facilitate present decision-making.

In September, a discussion paper was drawn up and distributed among all studbook participants to gather opinions regarding the long-term future, taking the ownership and language barrier issues into account. In 2014, opinions will be used to further develop a long-term plan.

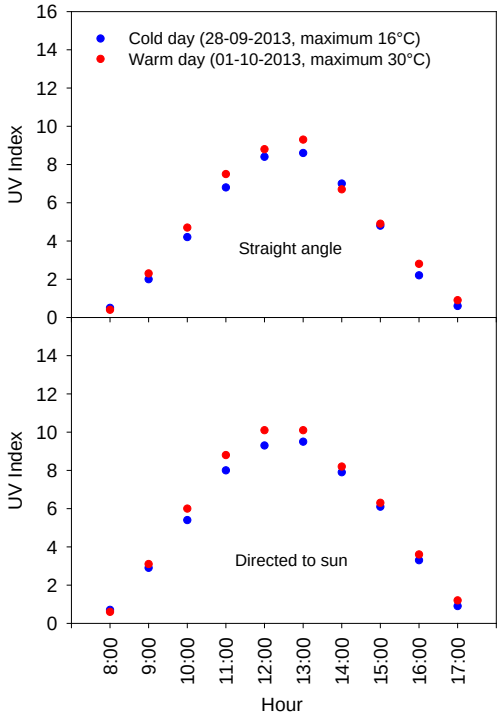
1.3. Progress thermoregulation field study Homopus signatus

This study was permitted by the Northern Cape Department of Environment and Nature Conservation. The permits that were issued (see Chapter 8) require periodic updates for the department. Because this information may be informative for *Homopus* studbook participants, it is included in the annual reports of the Homopus Research Foundation.

Fieldwork was conducted from 17 September till 4 October 2013, and attended by two Austrian volunteers (Sabine and Susanne Sommer). In total, 48 live *H. signatus* were encountered, including at least 31 recaptures from 2012 and before. Comparison with identification photographs from 2000-2002, when tortoises were not yet notched, may reveal additional recaptures. From the 11 females that carried iButtons and transmitters (fitted in 2012), six were recaptured using telemetry. Three others were found opportunistically, because their transmitters were failing. The remaining two females are still missing and may have failing transmitters too. It will be attempted to locate these individuals in September-October 2014. Eight iButtoned females were fitted with new transmitters for tracking in 2014. Their iButtons were reset, after downloading, to record finer scale measurements in winter and spring 2014.

Five of nine males with iButtons were recaptured and released after downloading and resetting their iButtons. One additional male had lost its iButton. The remaining three males may be found in 2014. In 2012, an individual with an iButton from 2003 was found, indicating that *H. signatus* can survive many years despite the presence of an iButton.

The 18 tortoise models left in the field in 2012 were still in position, except one batch of three models. This batch had been found by people and had been completely destroyed. All remaining models were returned to the field for fine-scale measurements in winter and spring 2014, after downloading their iButtons.



To facilitate captive husbandry of *H. signatus*, UV measurements (UV Index; Solarmeter 6.5, Solartech Inc., USA) were recorded on two spring days with different weather conditions. Both days had clear skies, but one day was cold (maximum ambient temperature 16°C) and the other day was warm (30°C). Tortoises were active on both days, and *H. signatus* has a unimodal activity pattern in spring.

UV intensities ranged from 0.4 to 10.1 and were similar on both days. When the Solarmeter was held in a straight angle, values were slightly lower than when the meter was directed towards the sun (i.e., mimicking a tortoise in basking position).

2. PLANS FOR 2014 AND THEREAFTER

The table below lists results anticipated for 2014 and thereafter, with progress indicated:

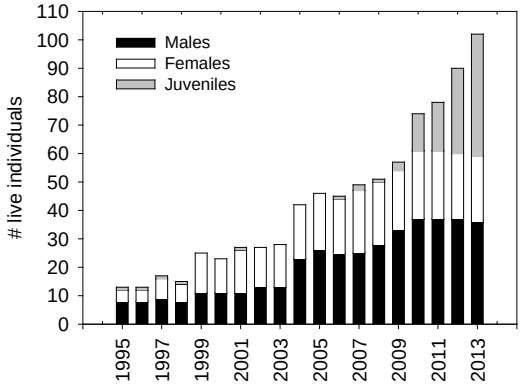
Result	Due	Current status
Manuscripts submitted on:		
• Behaviour in wild *H. signatus*	31-12-2014	First draft in preparation
• Scute abnormalities in *H. signatus*	31-12-2015	Data available
• Thermoregulation in wild *H. signatus*	31-12-2015	Not yet started
Poster on *H. signatus* prepared for display at the conference facilities of Goegap Nature Reserve	01-06-2014	Not yet started
Fieldwork conducted on *H. signatus* thermoregulation	Sep-2014	Not yet started
Memorandum of understanding with Northern Cape Department of Environment and Nature Conservation reviewed and signed	31-12-2014	Draft memorandum of understanding under review by department.
Permit application to collect and export 5.5 wild *H. signatus* drawn up and submitted	31-12-2014	Condition for the application is a signed memorandum of understanding.
Evaluation of breeding and non-breeding *H. signatus* husbandry conditions in studbook completed	31-12-2014	List of potential questions drafted
Studbook management plan *H. areolatus* drafted	31-12-2015	Setup distributed among studbook participants for review.

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 2013, locations A45, A81 and PRAHA were unresponsive. Location A74 was removed from the studbook due to prolonged unresponsiveness. Removal was possible because this location did not keep studbook-owned tortoises.

Homopus areolatus

Live specimens on 1 January 2013: 89 (excluding 5 specimens lost to follow-up)
Number of locations on 1 January 2013: 21 (6 countries, 2 zoos; excluding 1 location lost to follow-up)
New registrations: 0
Births: 15, at 4 locations
Deaths: 1
Live specimens on 31 December 2013: 102 (excluding 6 specimens lost to follow-up)
Number of locations on 31 December 2013: 26 (7 countries, 2 zoos; excluding 2 locations lost to follow-up)
Interpretation of changes:

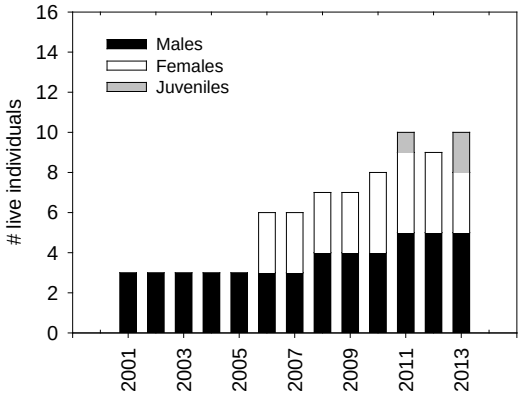


Besides locations A16, A44 and A46, which also produced offspring in 2012, one additional location (TCBCC) started producing hatchlings in 2013. Furthermore, location A37 produced eggs that are still being incubated. Unfortunately, the hatchlings born at location A44 were very weak and one died shortly after hatching. A third egg contained a dead hatchling. The cause of the condition of the hatchlings remains unknown. An adult male died as well, at

location A44, from a bacterial infection of the lungs followed by failure of several organs. At location A99, one tortoise was lost to follow-up due to disappearance from its outdoor enclosure.

The captive population continued its growth and now contains more than 100 live individuals. The number of locations grew as well. Although founders at location TCBCC have produced offspring, the genetic basis of the captive population is very narrow due to the fact that bloodlines 58 x MULT4 and 16 x 17 are heavily over-represented (73% of the current live population). Tortoises have already been inbred at location A56, and several other locations may start inbreeding soon. The studbook management plan that is currently in preparation (see Paragraph 1.2) will need to address this issue.

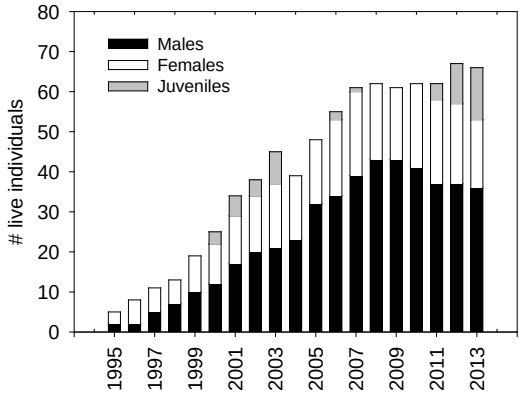
Homopus femoralis



Live specimens on 1 January 2013: 9
Number of locations on 1 January 2013: 3 (2 countries)
New registrations: 0
Births: 2
Deaths: 1
Live specimens on 31 December 2013: 10
Number of locations on 31 December 2013: 3 (2 countries)
Interpretation of changes:

Breeding results expanded from one to two locations, including location A08. At location HRF, one clutch is produced approximately every two years (2008, 2010, 2011, 2013). Unfortunately, a major loss occurred at location A08 where an adult female died. Post mortem results showed that the female had accumulated excess iron in the liver, resulting in bacterial infection and death. Since dietary causes could not be identified, the female male have suffered from a metabolic disorder.

Homopus signatus



Live specimens on 1 January 2013: 67 (excluding 16 specimens lost to follow-up)
Number of locations on 1 January 2013: 33 (10 countries, 3 zoos; excluding 1 location lost to follow-up)
New registrations: 0
Births: 4, at 2 location
Deaths: 5, at 5 locations
Live specimens on 31 December 2013: 66 (excluding 16 specimens lost to follow-up)
Number of locations on 31 December 2013: 35 (10 countries, 2 zoos; excluding 1 location lost to follow-up)
Interpretation of changes:

Breeding results in 2013 were rather disappointing, although as many as 3 hatchlings from an important bloodline were born at location A10. At location A55 two eggs hatched, but one of the hatchlings died after four months. Additional losses were two adult females at locations A16 (possibly as a result of compaction of soil in the digestive tract) and A18 (egg retention), an adult male at location A91 (apparently from a viral infection, but no virus could be detected), and an adult wild-caught female at location TCBCC (caused by a detrimental experimental setup with a datalogger on the carapace). Compacted soil in the intestinal tract has caused multiple deaths in *H. signatus*, and studbook participants should evaluate if their enclosures might promote similar problems. Loose sand should be avoided and replaced by firmer substrates such as loam or clay. Furthermore, tortoises should not be fed in a manner that may cause excessive sand sticking to the food.

The number of locations grew and remains large compared to the number of live tortoises in the studbook. Many individuals are housed solitarily and are awaiting genetically unrelated mates. Now that the studbook management plan has been finalised (see Paragraph 1.1), permit applications for the collection of new founders will be submitted to the Northern Cape Department of Environment and Nature Conservation after the underlying memorandum of understanding will have been reviewed and signed. Eventually, this should lead to the availability of suitable mates for the solitary tortoises.

Because female 15 at location A18 died, locations A08, A40 and A57 are the only remaining locations that can fortify the genes of (deceased) bloodline 1 x 2 in the captive population. These locations should minimise risks (e.g., changing enclosures, implementing untested husbandry methods) and optimise husbandry conditions for breeding (e.g., providing relatively low night temperatures in autumn to adult tortoises). The female at location A57 is not yet large enough to produce eggs. Adult female 9 will be transferred from location HRF to location A68 to form a third couple originating from bloodline 1 x 2. In 2014, husbandry conditions at breeding and non-breeding studbook locations will be evaluated to help improve breeding results (see Chapter 2).

The presence of genetic information from (lost to follow-up) female 60 in the captive population will be increased by combining offspring from female 60 (82, 86, 87 or 92) with offspring from bloodline 35 x 36 (e.g., 121, 128, 130, 131 or 132). Although all offspring from 35 x 36 are juveniles, combinations will already be proposed to the respective participants.

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
					HRF	21 Nov 1997	I	Transfer
					A03	14 Dec 1997	HZ0525	Transfer
						9 Nov 1998		Death
2	F	????	WILD	WILD	KRAAIFONT	~ Jul 1997	_____	Transfer
					HRF	21 Nov 1997	II	Transfer
					A03	14 Dec 1997	_____	Transfer
						13 Aug 1999		Death
6	M	????	MULT1	MULT2	KRAAIFONT	????	_____	Hatch
					HRF	21 Nov 1997	VI	Transfer
					A03	14 Apr 2001	HZ0738	Loan to
						~12 Sep 2007		Death
7	M	????	WILD	WILD	ROTTERDAM	????	_____	Transfer
					A03	????	HZ0457	Loan to
						5 Jul 1998		Death
32	F	????	WILD	WILD	A29	~ Jun 2000	_____	Transfer
					A03	15 Jun 2001	HZ0752	Transfer
						16 May 2002		Death
33	F	????	WILD	WILD	LONDON RP	????	_____	Transfer
					A03	23 Dec 2001	HZ0793	Transfer
						28 Jul 2003		Death
45	M	14 Dec 1999	58	UNK5	A46	14 Dec 1999	_____	Hatch
					HRF	4 Nov 2004	V3	Transfer
					A03	5 Nov 2004	HZ0989	Loan to
						25 Mar 2006		Death
Totals: 3.4.0 (7)								
A10								
4	F	????	MULT1	MULT2	KRAAIFONT	????	_____	Hatch
					HRF	21 Nov 1997	IV	Transfer
					A10	27 Oct 2004	_____	Loan to
5	M	????	MULT1	MULT2	KRAAIFONT	????	_____	Hatch
					HRF	21 Nov 1997	V	Transfer
					A10	27 Oct 2004	_____	Loan to
117	?	6 Sep 2010	5	4	A10	6 Sep 2010	_____	Hatch
					HRF	6 Sep 2010	_____	Ownership
					A10	4 Dec 2010		Death
Totals: 1.1.1 (3)								
A12								
8	F	????	WILD	WILD	KRAAIFONT	????	_____	Transfer
					A12	~16 Sep 1999	A1	Transfer
						19 Mar 2000		Death

9	F	????	WILD	WILD	A13		????	_____	Transfer
					A12	~16	Sep 1999	BLACKY	Transfer
						30	Apr 2000		Death
13	M	????	WILD	WILD	KRAAIFONT		????	_____	Transfer
					A12	~16	Sep 1999	A7	Transfer
						15	Feb 2000		Death
15	F	????	WILD	WILD	A13		????	_____	Transfer
					A12	~16	Sep 1999	A4	Transfer
						15	Feb 2000		Death
19	?	5 Feb 2000	MULT3	11	A12	5	Feb 2000	_____	Hatch
						5	Feb 2000		Death
20	?	16 Mar 2000	MULT3	11	A12	16	Mar 2000	_____	Hatch
						16	Mar 2000		Death
21	?	16 Mar 2000	MULT3	11	A12	16	Mar 2000	_____	Hatch
						16	Mar 2000		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	_____	Hatch
						30	Mar 2003		Death
38	F	5 Apr 2003	16	17	A16	5	Apr 2003	_____	Hatch
						28	Nov 2006		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	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
61	?	17 Dec 2006	16	17	A16	17	Dec 2006	_____	Hatch
						~ 9	May 2007		Death
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

Totals: 8.8.8 (24)

A26

27	M	????	WILD	WILD	KRAAIFONT		????	_____	Transfer
					A26	9	Jul 2001	_____ ltf	Transfer
28	F	????	WILD	WILD	KRAAIFONT		????	_____	Transfer
					A26	9	Jul 2001	_____ ltf	Transfer

Totals: 1.1.0 (2)

```
A27
    29    M       ????        WILD    WILD  KRAAIFONT     ????      ______     Transfer
                                            A27          9 Jul 2001 ______     Transfer
                                                         9 Nov 2001            Death

    30    F       ????        WILD    WILD  KRAAIFONT     ????      ______     Transfer
                                            A27          9 Jul 2001 ______     Transfer
                                                        11 Nov 2001            Death
Totals: 1.1.0 (2)
-------------------------------------------------------------------------------

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
Totals: 2.4.0 (6)
-------------------------------------------------------------------------------

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

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

    14    F       ????        WILD    WILD  KRAAIFONT     ????      ______     Transfer
                                            A12         16 Sep 1999   BABY     Transfer
                                            A43          ~ May 2004 ______ ltf Loan to
Totals: 0.2.0 (2)
-------------------------------------------------------------------------------

A44
    37    F     7 Aug 2003       5       4  HRF          7 Aug 2003   IV-3     Hatch
                                            A10         21 Aug 2004 ______     Loan to
                                            HRF         27 Oct 2004   IV-3     Transfer
                                            A44         31 Oct 2004 ESMERA     Loan to
                                                        14 Feb 2012            Death

    41    M       ????        WILD    WILD  WUPPERTAL   28 Mar 1991 91586B     Transfer
                                            A44         27 Aug 2010 H.BERT     Loan to
                                                        24 Oct 2013            Death

    47    M     ~ Jun 1993    UNK3    UNK4  A47           ~ Jun 1993 ______     Hatch
                                            A48               ~ 2000 ______     Transfer
                                            A44         21 Nov 2004   HUGO     Transfer

    62    F   ~25 Nov 2007       5       4  A10        ~25 Nov 2007 ______     Hatch
                                            HRF        ~25 Nov 2007 ______     Ownership
                                            A44         27 Mar 2011 ______     Loan to

    94    M     7 Jul 2009      16      17  A16          7 Jul 2009 ______     Hatch
                                            A44          5 Jun 2010 AUGUST     Transfer

   113    M    30 Mar 2010      47      37  A44         30 Mar 2010 ______     Hatch
                                            HRF         30 Mar 2010 ______     Ownership
                                            A44         20 Aug 2010            Death

   114    M    30 Mar 2010      47      37  A44         30 Mar 2010 ______     Hatch
                                            HRF         30 Mar 2010 ______     Ownership
                                            A44         26 Aug 2010            Death

   130    ?    16 Mar 2012      94      62  A44         16 Mar 2012 ______     Hatch

   131    ?    27 May 2012      94      62  A44         27 May 2012 ______     Hatch
                                            HRF         27 May 2012 ______     Ownership
```

132	?	18 Jul 2012	94	62	A44	18 Jul 2012	_____		Hatch
133	?	13 Aug 2012	94	62	A44	13 Aug 2012	_____		Hatch
					HRF	13 Aug 2012	_____		Ownership
148	M	27 Apr 2013	94	62	A44	27 Apr 2013	_____		Hatch
						29 Apr 2013			Death
149	?	27 Apr 2013	94	62	A44	27 Apr 2013	_____		Hatch
					HRF	27 Apr 2013	_____		Ownership
150	M	27 Apr 2013	94	62	A44	27 Apr 2013	_____		Hatch
						29 Apr 2013			Death

Totals: 7.2.5 (14)

A45

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

Totals: 2.1.0 (3)

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
100	?	3 Feb 2010	58	MULT4	A46	3 Feb 2010	_____		Hatch
						25 Sep 2010			Death
103	?	3 Apr 2010	58	MULT4	A46	3 Apr 2010	_____		Hatch
						18 Sep 2010			Death
104	?	3 Mar 2010	58	MULT4	A46	3 Mar 2010	_____		Hatch
						13 May 2010			Death
106	?	9 Apr 2010	58	MULT4	A46	9 Apr 2010	_____		Hatch
						16 Sep 2010			Death
123	?	23 Jan 2012	58	MULT4	A46	23 Jan 2012	_____		Hatch
124	?	24 Jan 2012	58	MULT4	A46	24 Jan 2012	_____		Hatch
125	?	31 Jan 2012	58	MULT4	A46	31 Jan 2012	_____		Hatch
126	?	1 Feb 2012	58	MULT4	A46	1 Feb 2012	_____		Hatch
127	?	2 Feb 2012	58	MULT4	A46	2 Feb 2012	_____		Hatch
128	?	3 Feb 2012	58	MULT4	A46	3 Feb 2012	_____		Hatch
129	?	4 Feb 2012	58	MULT4	A46	4 Feb 2012	_____		Hatch
136	?	~18 Jan 2013	58	MULT4	A46	~18 Jan 2013	_____		Hatch
137	?	~25 Jan 2013	58	MULT4	A46	~25 Jan 2013	_____		Hatch
138	?	~27 Jan 2013	58	MULT4	A46	~27 Jan 2013	_____		Hatch
139	?	~ 6 Feb 2013	58	MULT4	A46	~ 6 Feb 2013	_____		Hatch
140	?	~17 Feb 2013	58	MULT4	A46	~17 Feb 2013	_____		Hatch
141	?	~17 Feb 2013	58	MULT4	A46	~17 Feb 2013	_____		Hatch
142	?	~ 4 Mar 2013	58	MULT4	A46	~ 4 Mar 2013	_____		Hatch
143	?	~10 Mar 2013	58	MULT4	A46	~10 Mar 2013	_____		Hatch
144	?	~26 Mar 2013	58	MULT4	A46	~26 Mar 2013	_____		Hatch
145	?	~26 Mar 2013	58	MULT4	A46	~26 Mar 2013	_____		Hatch

Totals: 1.2.21 (24)

A48

90	M	3 Feb 2009	47	37	A44	3 Feb 2009	_____		Hatch
					A48	3 Feb 2009	_____		Ownership
						10 Feb 2009	_____		Transfer

```
    93    M     7 Jul 2009      16      17  A16         7 Jul 2009 ______     Hatch
                                            A44         5 Jun 2010 ______     Transfer
                                            A48        13 Jun 2010 ______     Transfer
Totals: 2.0.0 (2)
--------------------------------------------------------------------------------

A54
    79    M   ~15 Mar 2007      58   MULT4  A46       ~15 Mar 2007 ______     Hatch
                                            A54       ~15 Jun 2008 ______     Transfer

    80    ?   ~15 Mar 2007      58   MULT4  A46       ~15 Mar 2007 ______     Hatch
                                            A54       ~15 Jun 2008 ______     Transfer
                                                       15 Oct 2008            Death

    81    F   ~15 Mar 2007      58   MULT4  A46       ~15 Mar 2007 ______     Hatch
                                            A54       ~15 Jun 2008 ______     Transfer

    82    F   ~15 Mar 2007      58   MULT4  A46       ~15 Mar 2007 ______     Hatch
                                            A54       ~15 Jun 2008 ______     Transfer

    83    ?   ~15 Mar 2007      58   MULT4  A46       ~15 Mar 2007 ______     Hatch
                                            A54       ~15 Jun 2008 ______     Transfer
                                                       15 Oct 2008            Death
Totals: 1.2.2 (5)
--------------------------------------------------------------------------------

A56
    67    F     8 Apr 2004      58   MULT4  A46         8 Apr 2004 ______     Hatch
                                            A56       ~15 Jun 2008 ______     Transfer

    70    F    14 Mar 2004      58   MULT4  A46        14 Mar 2004 ______     Hatch
                                            A56       ~15 Jun 2008 ______     Transfer
                                                        8 May 2009            Death

    75    M     6 Jan 2004      58      59  A46         6 Jan 2004 ______     Hatch
                                            A56       ~15 Jun 2008 ______     Transfer

    76    M    11 Jan 2004      58      59  A46        11 Jan 2004 ______     Hatch
                                            A56       ~15 Jun 2008 ______     Transfer

    78    F    23 Mar 2005      58   MULT4  A46        23 Mar 2005 ______     Hatch
                                            A56       ~15 Jun 2008 ______     Transfer

    99    ?    17 Feb 2010      75      67  A56        17 Feb 2010 ______     Hatch
Totals: 2.3.1 (6)
--------------------------------------------------------------------------------

A66
    68    M     8 Apr 2004      58   MULT4  A46         8 Apr 2004 ______     Hatch
                                            A56       ~15 Jun 2008 ______     Transfer
                                            A66        18 Sep 2009 ______     Transfer

    77    F    14 Feb 2005      58   MULT4  A46        14 Feb 2005 ______     Hatch
                                            A56       ~15 Jun 2008 ______     Transfer
                                            A66        18 Sep 2009 ______     Transfer

    89    M     6 Feb 2009      58   MULT4  A46         6 Feb 2009 ______     Hatch
                                            A56        23 May 2011 ______     Transfer
                                            A66         9 Sep 2011 ______     Transfer

    92    M   ~ 7 Mar 2009      58   MULT4  A46       ~ 7 Mar 2009 ______     Hatch
                                            A56        23 May 2011 ______     Transfer
                                            A66         9 Sep 2011 ______     Transfer
Totals: 3.1.0 (4)
--------------------------------------------------------------------------------

A70
   110    ?     8 Mar 2010      47      37  A44         8 Mar 2010 ______     Hatch
                                            HRF         8 Mar 2010 ______     Ownership
                                            A70         5 Sep 2010 ______     Loan to

   112    ?    30 Mar 2010      47      37  A44        30 Mar 2010 ______     Hatch
                                            HRF        30 Mar 2010 ______     Ownership
                                            A70         5 Sep 2010 ______     Loan to
Totals: 0.0.2 (2)
--------------------------------------------------------------------------------

A73
    69    M   ~22 Apr 2004      58   MULT4  A46       ~22 Apr 2004 ______     Hatch
                                            A56       ~21 May 2006 ______     Transfer
                                            A73        19 Jun 2010 ______     Transfer

    71    F   ~ 6 Mar 2004      58   MULT4  A46       ~ 6 Mar 2004 ______     Hatch
                                            A56       ~21 May 2006 ______     Transfer
                                            A73        19 Jun 2010 ______     Transfer
Totals: 1.1.0 (2)
--------------------------------------------------------------------------------
```

```
A74
    74    M   ~11 Feb 2004      58   MULT4  A46       ~11 Feb 2004 ______     Hatch
                                          A56       ~21 May 2006 ______     Transfer
                                          A74         ~ Mar 2009 ______ ltf Transfer
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------

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)
-------------------------------------------------------------------------------

A86
    72    M    14 Mar 2004      58   MULT4  A46        14 Mar 2004 ______     Hatch
                                          A56       ~21 May 2006 ______     Transfer
                                          A86       ~2012 +/-1yr ______     Transfer
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------

A87
    97    ?    27 Jan 2010      75      67  A56        27 Jan 2010 ______     Hatch
                                          A87       ~11 Jun 2011 ______     Transfer

    98    ?    11 Feb 2010      58   MULT4  A46        11 Feb 2010 ______     Hatch
                                          A87       ~ 1 Jun 2012 ______     Transfer

   105    ?   ~ 3 Apr 2010      58   MULT4  A46       ~ 3 Apr 2010 ______     Hatch
                                          A87       ~ 1 Jun 2012 ______     Transfer

   119    ?   ~20 Jan 2011      58   MULT4  A46       ~20 Jan 2011 ______     Hatch
                                          A87       ~ 1 Jun 2012 ______     Transfer

   120    ?   ~21 Jan 2011      58   MULT4  A46       ~21 Jan 2011 ______     Hatch
                                          A87       ~ 1 Jun 2012 ______     Transfer

   121    ?   ~ 2 Feb 2011      58   MULT4  A46       ~ 2 Feb 2011 ______     Hatch
                                          A87       ~ 1 Jun 2012 ______     Transfer
Totals: 0.0.6 (6)
-------------------------------------------------------------------------------

A88
    87    ?   ~25 Feb 2008      58   MULT4  A46       ~25 Feb 2008 ______     Hatch
                                          A56        23 May 2011 ______     Transfer
                                          A88         ~ Apr 2012 ______     Transfer

    91    ?    12 Feb 2009      58   MULT4  A46        12 Feb 2009 ______     Hatch
                                          A56        23 May 2011 ______     Transfer
                                          A88         6 Apr 2012 ______     Transfer
Totals: 0.0.2 (2)
-------------------------------------------------------------------------------

A96
    73    M    14 Mar 2004      58   MULT4  A46        14 Mar 2004 ______     Hatch
                                          A56        21 May 2006 ______     Loan to
                                          A96        22 Nov 2013 ______     Transfer
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------

A97
    86    M   ~ 7 Feb 2008      58   MULT4  A46       ~ 7 Feb 2008 ______     Hatch
                                          A56        23 May 2011 ______     Loan to
                                          A66         9 Sep 2011 ______     Loan to
                                          A97        15 Sep 2013 ______     Transfer
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------

A98
    88    ?     5 Feb 2009      58   MULT4  A46         5 Feb 2009 ______     Hatch
                                          A56        23 May 2011 ______     Loan to
                                          A87        23 Jul 2011 ______     Loan to
                                          A98         9 Mar 2013 ______     Transfer
Totals: 0.0.1 (1)
-------------------------------------------------------------------------------

A99
    95    ?   ~15 Jan 2010      58   MULT4  A46       ~15 Jan 2010 ______     Hatch
                                          A89       ~ 1 Jun 2012 ______     Loan to
                                          A99        27 Jul 2013 ______     Transfer

   101    ?   ~12 Feb 2010      58   MULT4  A46       ~12 Feb 2010 ______     Hatch
                                          A89       ~ 1 Jun 2012 ______     Loan to
                                          A99       ~27 Jul 2013 ______     Transfer
                                                      7 Aug 2013 ______ ltf Loan to
Totals: 0.0.2 (2)
```

```
-------------------------------------------------------------------------------------

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

A101
   102    M   ~24 Feb 2010      58   MULT4  A46       ~24 Feb 2010 ______     Hatch
                                           A89       ~ 1 Jun 2012 ______     Loan to
                                           A101      ~12 Jul 2013 ______     Transfer
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

A102
   118    M    13 Nov 2010      75      67  A56        13 Nov 2010 ______     Hatch
                                           A102      ~22 Nov 2013 ______     Transfer
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

HRF - Homopus Research Foundation
     3    ?       ????       MULT1   MULT2  KRAAIFONT     ????     ______     Hatch
                                           HRF        21 Nov 1997    III     Transfer
                                                      29 Oct 1999            Death

    26    ?    15 Oct 2001       5       4  HRF        15 Oct 2001   IV-2     Hatch
                                                      26 Apr 2002            Death

    31    ?    11 Nov 2001       5       4  HRF        11 Nov 2001 ______     Hatch
                                                      11 Nov 2001            Death

    36    ?    12 Oct 2002       5       4  HRF        12 Oct 2002 ______     Hatch
                                                      12 Oct 2002            Death
Totals: 0.0.4 (4)
-------------------------------------------------------------------------------------

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

   151    ?     2 Jun 2013      10      11  TCBCC       2 Jun 2013 ______     Hatch
Totals: 1.1.1 (3)
-------------------------------------------------------------------------------------

WUPPERTAL - Wuppertal Zoological Garten
    40    M       ????        WILD    WILD  WUPPERTAL  28 Mar 1991 91586A     Transfer

    42    F    22 Feb 1999      58   MULT4  A46        22 Feb 1999 ______     Hatch
                                           HRF         4 Nov 2004 NOMARK     Transfer
                                           WUPPERTAL   9 Nov 2004 91586C     Loan to
                                                      14 Apr 2005            Death

    43    F    21 Dec 1999      58   MULT4  A46        21 Dec 1999 ______     Hatch
                                           HRF         4 Nov 2004    CR1     Transfer
                                           WUPPERTAL   9 Nov 2004 91586D     Loan to
                                                      26 Mar 2005            Death

    44    F    20 Dec 2001      58   MULT4  A46        20 Dec 2001 ______     Hatch
                                           HRF         4 Nov 2004    CL2     Transfer
                                           WUPPERTAL   9 Nov 2004 91586E     Loan to
                                                       4 Nov 2005            Death
Totals: 1.3.0 (4)
-------------------------------------------------------------------------------------
=====================================================================================
TOTALS: 48.40.59 (147)
```

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
                                                       11 Mar 2013            Death

    11    ?     1 Apr 2013       1       6  A08         1 Apr 2013 ______     Hatch
                                            HRF         1 Apr 2013 ______     Ownership
Totals: 1.1.1 (3)
-------------------------------------------------------------------------------------

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
Totals: 1.1.0 (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

     7    M     7 Jun 2008       3       4  HRF         7 Jun 2008 ______     Hatch

     8    M    30 Jun 2010       3       4  HRF        30 Jun 2010 ______     Hatch

     9    ?    26 May 2011       3       4  HRF        26 May 2011 ______     Hatch
                                                       28 Dec 2012            Death

    10    F    28 May 2011       3       4  HRF        28 May 2011 ______     Hatch

    12    ?    12 Jul 2013       3       4  HRF        12 Jul 2013 ______     Hatch
Totals: 3.2.2 (7)
-------------------------------------------------------------------------------------
=====================================================================================
TOTALS: 5.4.3 (12)
```

Homopus 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 95 is inbred and not available for further breeding.

```
=====================================================================================
Stud # | Sex | Hatch Date | Sire  | Dam   | Location | Date       | Local ID | Event    |
=====================================================================================

A07
   103    M    10 Aug 2008      35      36  A07        10 Aug 2008 ______     Hatch
                                            HRF        10 Aug 2008 ______     Ownership
                                            A07        27 Feb 2009            Death

   108    ?   ~27 Sep 2009      35      36  A07       ~27 Sep 2009 ______     Hatch
                                            HRF       ~27 Sep 2009 ______     Ownership
                                            A07       ~15 Dec 2009            Death

   116    ?    12 Aug 2010      35      36  A07        12 Aug 2010 ______     Hatch
                                            HRF        12 Aug 2010 ______     Ownership
                                            A07        16 Nov 2010            Death
Totals: 1.0.2 (3)
-------------------------------------------------------------------------------------

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

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

    95    M    18 Sep 2007      41      42  A08        18 Sep 2007 ______     Hatch
                                            HRF       ~18 Sep 2007 ______     Ownership

   101    ?    10 Nov 2008      41      42  A08        10 Nov 2008 ______     Hatch
                                            HRF        10 Nov 2008 ______     Ownership
                                            A08       ~24 Nov 2008            Death
Totals: 2.1.1 (4)
-------------------------------------------------------------------------------------
```

A10									
6	M	8 Nov 1996	1	3	HRF	8 Nov 1996	III-2	Hatch
					A10	4 Aug 2001	_____	Loan to
					A31	7 May 2002	_____	Loan to
					A10	8 Dec 2002	_____	Loan to
						5 Sep 2009		Death
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
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
80	?	10 Sep 2006	44	7	A10	10 Sep 2006	_____	Hatch
					HRF	10 Sep 2006	_____	Ownership
					A10	1 Mar 2007		Death
81	?	3 Sep 2006	44	7	A10	3 Sep 2006	_____	Hatch
					HRF	3 Sep 2006	_____	Ownership
					A10	8 Apr 2008		Death
130	?	9 Jul 2013	35	36	A10	9 Jul 2013	_____	Hatch
					HRF	9 Jul 2013	_____	Ownership
131	?	4 Oct 2013	35	36	A10	4 Oct 2013	_____	Hatch
					HRF	4 Oct 2013	_____	Ownership
132	?	~23 Oct 2013	35	36	A10	~23 Oct 2013	_____	Hatch
					HRF	23 Oct 2013	_____	Ownership
Totals: 2.1.5 (8)									
A12									
45	?	~ Jun 2002	MULT1	20	A12	~ Jun 2002	_____	Hatch
						~ Jun 2002		Death
46	?	~ Jun 2002	MULT1	20	A12	~ Jun 2002	_____	Hatch
						~ Jun 2002		Death
48	?	~ Jul 2002	MULT1	20	A12	~ Jul 2002	_____	Hatch
						~ Jul 2002		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
97	F	15 Sep 2007	35	36	A07	15 Sep 2007	_____	Hatch
					HRF	15 Sep 2007	_____	Ownership
					A16	14 Mar 2010	_____	Loan to
						6 Apr 2013		Death
Totals: 2.1.0 (3)									
A18									
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
						17 Mar 2013		Death
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									
3	F	????	WILD	WILD	SPRINGBOK	26 Sep 1995	NONE	Capture
					HRF	30 Sep 1995	III	Transfer
					A25	12 Jun 2004	_____	Loan to
						22 Aug 2008		Death
Totals: 0.1.0 (1)									

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									
	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
							12 Nov 2011		Death
	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
							1 Apr 2012		Death
Totals: 1.2.0 (3)									
A35									
	31	M	3 Aug 2001	1	2	HRF	3 Aug 2001	II-10	Hatch
						A31	6 May 2002	_____	Loan to
						A35	30 Nov 2002	_____	Loan to
							~ Jul 2006		Death
	34	M	30 Sep 2001	1	3	HRF	30 Sep 2001	III-11	Hatch
						A31	6 May 2002	_____	Loan to
						A35	30 Nov 2002	_____	Loan to
							~ 1 Apr 2007		Death
Totals: 2.0.0 (2)									
A36									
	12	M	21 Nov 1997	1	2	HRF	21 Nov 1997	II-4	Hatch
						A07	22 Nov 1998	_____	Loan to
						A18	14 Dec 2001	_____	Loan to
						A31	6 May 2002	_____	Loan to
						A36	8 Dec 2002	_____	Loan to
							20 Oct 2003		Death
Totals: 1.0.0 (1)									
A37									
	33	M	19 Aug 2001	1	3	HRF	19 Aug 2001	III-10	Hatch
						A31	6 May 2002	_____	Loan to
						A37	11 Dec 2002	_____	Loan to
							26 Dec 2003		Death
	60	F	????	WILD	WILD	UNKNOWN	????	NONE	Capture
						A37	~15 Mar 2003	_____	ltf Transfer
	61	M	7 Oct 2003	WILD	60	A37	7 Oct 2003	_____	Hatch
							18 Dec 2011	_____	ltf Transfer
	62	F	5 Jun 2004	WILD	60	A37	5 Jun 2004	_____	Hatch
							18 Dec 2011	_____	ltf Transfer
	67	M	5 Aug 2004	WILD	60	A37	5 Aug 2004	_____	Hatch
							18 Dec 2011	_____	ltf Transfer
	83	?	~15 Jan 2006	25	60	A37	~15 Jan 2006	_____	Hatch
							~15 Jan 2006		Death
	84	?	~15 Feb 2006	25	60	A37	~15 Feb 2006	_____	Hatch
							~15 May 2006		Death
	85	?	~15 Mar 2006	25	60	A37	~15 Mar 2006	_____	Hatch
							~20 Mar 2006		Death
	86	M	~20 Apr 2006	25	60	A37	~20 Apr 2006	_____	Hatch
	87	M	~15 Oct 2005	25	60	A37	~15 Oct 2005	_____	Hatch
	89	M	18 Jan 2007	25	60	A37	18 Jan 2007	_____	Hatch
	92	M	10 Aug 2007	25	60	A37	10 Aug 2007	_____	Hatch
						HRF	~10 Aug 2007	_____	Ownership

```
    98    M    29 Dec 2007      25      60  A37        29 Dec 2007 ______     Hatch
                                              7 May 2012 ______     Death
Totals: 8.2.3 (13)
-------------------------------------------------------------------------------

A39
    40    M     2 Jul 2002       1       3  HRF         2 Jul 2002 III-13     Hatch
                                            A39        12 Apr 2003 ______     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

   111    F    13 May 2010      37      38  HRF        13 May 2010 ______     Hatch
                                            A39         3 Dec 2011 ______     Loan to
Totals: 2.1.0 (3)
-------------------------------------------------------------------------------

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

    55    ?     3 Sep 2003       1       2  HRF         3 Sep 2003  II-14     Hatch
                                            A42         7 Nov 2003 ______     Loan to
                                                       13 Mar 2004           Death
Totals: 1.0.1 (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

    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: 4.1.7 (12)
-------------------------------------------------------------------------------

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
```

5	F	27 Feb 1996	WILD	3	HRF	27 Feb 1996	III-1	Hatch
					A50	16 Sep 2006	_____	Loan to
						24 Mar 2009		Death
13	M	26 Sep 1998	1	2	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
						15 Sep 2010		Death
64	M	29 Jul 2004	1	3	HRF	29 Jul 2004	III-19	Hatch
					A50	17 Apr 2005	_____	Loan to
						25 Mar 2009		Death

Totals: 3.1.0 (4)

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

68	M	14 Aug 2004	35	36	A07	14 Aug 2004	_____	Hatch
					HRF	15 Aug 2004	_____	Ownership
					A61	8 Oct 2006	_____	Loan to
					A60	~18 Sep 2008	_____	Loan to
					A54	~16 Apr 2011	_____	Loan to
						~17 Oct 2011		Death
75	M	9 May 2006	13	5	HRF	9 May 2006	_____	Hatch
					A54	24 Mar 2007	_____	Loan to
						~27 Oct 2010		Death
102	M	28 Jun 2008	35	36	A07	28 Jun 2008	_____	Hatch
					HRF	28 Jun 2008	_____	Ownership
					A54	2 Jan 2010	_____	Loan to
						~27 Oct 2010		Death

Totals: 3.0.0 (3)

A55

74	M	31 Jul 2005	1	3	A25	31 Jul 2005	_____	Hatch
					HRF	31 Jul 2005	_____	Ownership
					A55	24 Mar 2007	_____	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
127	?	~ Sep 2012	74	96	A55	~ Sep 2012	_____	Hatch
					HRF	12 Sep 2012	_____	Ownership
129	?	22 Jun 2013	74	96	A55	22 Jun 2013	_____	Hatch
					HRF	22 Jun 2013	_____	Ownership
					A55	20 Nov 2013		Death

Totals: 1.1.2 (4)

A57

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
79	F	9 Aug 2006	37	38	HRF	9 Aug 2006	_____	Hatch
					A57	5 Nov 2009	_____	Loan to

Totals: 1.1.0 (2)

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

Totals: 2.0.0 (2)

```
A60
    54    F     5 Sep 2003       1       3  HRF         5 Sep 2003 III-17     Hatch
                                            A42         7 Nov 2003 THEODO     Loan to
                                            A60        22 Jan 2010 ______     Loan to
                                                       29 May 2010            Death
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------

A62
    25    M    12 Sep 2000       1       3  HRF        12 Sep 2000  III-8     Hatch
                                            A31         6 May 2002 ______     Loan to
                                            A37        11 Dec 2002 ______     Loan to
                                            A62       ~ 9 Oct 2008 ______     Loan to
                                                        2 Jan 2009            Death
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

A63
    77    F    13 Jul 2006      44       7  A10        13 Jul 2006 ______     Hatch
                                            HRF        13 Jul 2006 ______     Ownership
                                            A63        14 Aug 2010 ______     Loan to

    78    M    10 Jun 2006      44       7  A10        10 Jun 2006 ______     Hatch
                                            HRF        10 Jun 2006 ______     Ownership
                                            A63         7 Mar 2009 ______     Loan to
                                                       23 Jul 2010            Death

    93    M    30 Jul 2007      44       7  A10        30 Jul 2007 ______     Hatch
                                            HRF        30 Jul 2007 ______     Ownership
                                            A63        14 Aug 2010 ______     Loan to
Totals: 2.1.0 (3)
-------------------------------------------------------------------------------------

A65
     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

    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

    72    M    24 Jul 2005   MULT3   MULT4  HRF        24 Jul 2005    ?-1     Hatch
                                            A65        17 Oct 2009 ______     Loan to
Totals: 2.1.0 (3)
-------------------------------------------------------------------------------------

A67
    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

   106    M    20 May 2009      35      36  A07        20 May 2009 ______     Hatch
                                            HRF        20 May 2009 ______     Ownership
                                            A67        13 Mar 2010 ______     Loan to

   107    M    21 Jul 2009      35      36  A07        21 Jul 2009 ______     Hatch
                                            HRF        21 Jul 2009 ______     Ownership
                                            A67        13 Mar 2010 ______     Loan to

   121    ?    23 Sep 2011      35      36  A07        23 Sep 2011 ______     Hatch
                                            HRF        23 Sep 2011 ______     Ownership
                                            A67        18 Nov 2011 ______     Loan to
Totals: 2.1.1 (4)
-------------------------------------------------------------------------------------

A68
    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: 2.0.0 (2)
-------------------------------------------------------------------------------------

A71
    82    M    26 Dec 2005      25      60  A37        26 Dec 2005 ______     Hatch
                                            HRF        26 Dec 2005 ______     Ownership
                                            A71        30 Aug 2010 ______     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------
```

```
A75
    59    M    10 Jun 2004       1       3  HRF        10 Jun 2004 III-18     Hatch
                                            A61       ~17 Apr 2005 ______     Loan to
                                            A64        10 May 2009 ______     Loan to
                                            A75        27 Apr 2011 PANSER     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

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
   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: 0.1.0 (1)
-------------------------------------------------------------------------------------

A80
   109    F     3 Feb 2010      44       7  A10         3 Feb 2010 ______     Hatch
                                            HRF       ~ 3 Feb 2010 ______     Ownership
                                            A58        10 Nov 2011 ______     Loan to
                                            A10        22 Jan 2012 ______     Loan to
                                            A80        17 Mar 2012 ______     Loan to
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------

A81
   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
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------

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

A84
   119    ?   ~20 Apr 2011      44       7  A10       ~20 Apr 2011 ______     Hatch
                                            HRF       ~20 Apr 2011 ______     Ownership
                                            A84         8 Sep 2012 ______     Loan to
Totals: 0.0.1 (1)
-------------------------------------------------------------------------------------

A85
   128    ?    15 Jun 2012      35      36  A07        15 Jun 2012 ______     Hatch
                                            HRF        15 Jun 2012 ______     Ownership
                                            A85        20 Oct 2012 ______     Loan to
Totals: 0.0.1 (1)
-------------------------------------------------------------------------------------

A90
   125    M     7 Jul 2012      74      96  A55         7 Jul 2012 ______     Hatch
                                            HRF         7 Jul 2012 ______     Ownership
                                            A90         1 Mar 2013 ______     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------

A91
   105    M    27 Jul 2009      37       9  HRF        27 Jul 2009 ______     Hatch
                                            A72        29 Oct 2010 ______     Loan to
                                            A91         9 Mar 2013 ______     Loan to
                                                       19 May 2013            Death
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------
```

```
A92
    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
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------------

A93
   104    M     4 Jun 2009      37      38  HRF         4 Jun 2009 ______     Hatch
                                             A93        20 Jul 2013 ______     Loan to
Totals: 1.0.0 (1)
-------------------------------------------------------------------------------------------

A94
   120    F   ~19 Sep 2011      44       7  A10       ~19 Sep 2011 ______     Hatch
                                             HRF       ~19 Sep 2011 ______     Ownership
                                             A94         4 Oct 2013 ______     Loan to
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------------

A95
   122    ?    31 May 2012      74      96  A55        31 May 2012 ______     Hatch
                                             HRF        31 May 2012 ______     Ownership
                                             A95        11 Nov 2013 ______     Loan to
Totals: 0.0.1 (1)
-------------------------------------------------------------------------------------------

AMSTERDAM - Artis Royal Zoo
   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: 0.0.2 (2)
-------------------------------------------------------------------------------------------

HRF - Homopus Research Foundation
     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

     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

    90    F    29 May 2007      37      38  HRF        29 May 2007 ______     Hatch
                                                         8 Jul 2007            Death

   123    ?    24 Jun 2012      37      38  HRF        24 Jun 2012 ______     Hatch

   124    ?    30 Jun 2012      37       9  HRF        30 Jun 2012 ______     Hatch

   126    ?    16 Aug 2012      37       9  HRF        16 Aug 2012 ______     Hatch
Totals: 2.4.8 (14)
-------------------------------------------------------------------------------------------

PRAHA - Zoo Praha
    50    M    17 Jun 2003       1       3  HRF        17 Jun 2003 III-15     Hatch
                                             PRAHA      20 Dec 2003 ______     Loan to
                                                         3 Dec 2010            Death
```

```
    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)
-------------------------------------------------------------------------------------------

TCBCC - Turtle Conservancy Behler Chelonian Center
    20    F       ????        WILD    WILD  SPRINGBOK  16 Sep 1999   NONE     Capture
                                            A12       ~17 Sep 1999  MIDGE     Transfer
                                            A43         ~ May 2004 ______     Loan to
                                            TCBCC       7 Jan 2005 SIGN01     Transfer
                                                        1 Jul 2013            Death
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------------

WUPPERTAL - Wuppertal Zoological Garten
    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
                                                        2 Jun 2008            Death
Totals: 0.1.0 (1)
-------------------------------------------------------------------------------------------
===========================================================================================
TOTALS: 62.30.40 (132)
```

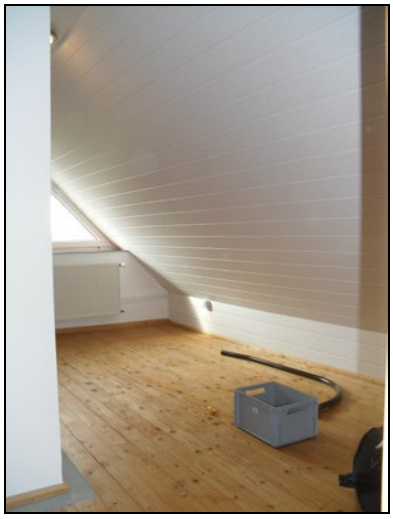
5. SPECIFIC INFORMATION FROM STUDBOOK PARTICIPANTS

Location A57

The couple *H. signatus* was kept outdoors during summer.

Location A68

A new room with roof windows was constructed to house *H. signatus* and other species.





The Velux windows are automatically operated through a NV Solo device (Window Master). When required, the room is heated via a room thermostat.

A connection between enclosures enables tortoises to move from one enclosure to the other. The connection is usually blocked, but can be opened if desired. In one instance, a male *H. signatus* was placed in the enclosure of another male. The newly introduced male immediately started inspecting the enclosure. This occurred visually and olfactorily, intensively sniffing the soil and decorations. When the two tortoises bumped into each other, they started fighting, despite the enclosure offering many opportunities for avoidance.

Fighting involved ramming with the shells, and biting in the nuchal and anterior marginals. Subsequently, the males started biting the forelimbs and neck as well. They managed to flip over their opponent several times, and continued biting when this had occurred. Since none of the males tried to escape the other male, they were visually separated by a rock. Nevertheless, both males started moving through the enclosure until they bumped into each other again, and resumed fighting. Therefore, the introduced tortoise was quickly returned to its original enclosure.

In another instance, an introduced male started sniffing the water bowl, followed by aggressive biting in a manner that appeared similar to biting another male. Since both males have identical water bowls in their enclosures, the smell of the resident male on the water bowl may have caused the biting reflex.

Location A83

Due to problems in some pens, I have temporarily put two captive-bred *Malacochersus tornieri* born in 2013 in the *Homopus signatus* pen. As soon as the male *H. signatus* saw the two tortoises it lost its shyness, came out its rocky crevice and tried to mate with the bigger one. The *H. signatus* forced the *M. tornieri* in a corner of the pen and started rhythmically wave its head in front of the baby's back. Soon I decided to separate them as the *M. tornieri* appeared to fear the male *H. signatus*.

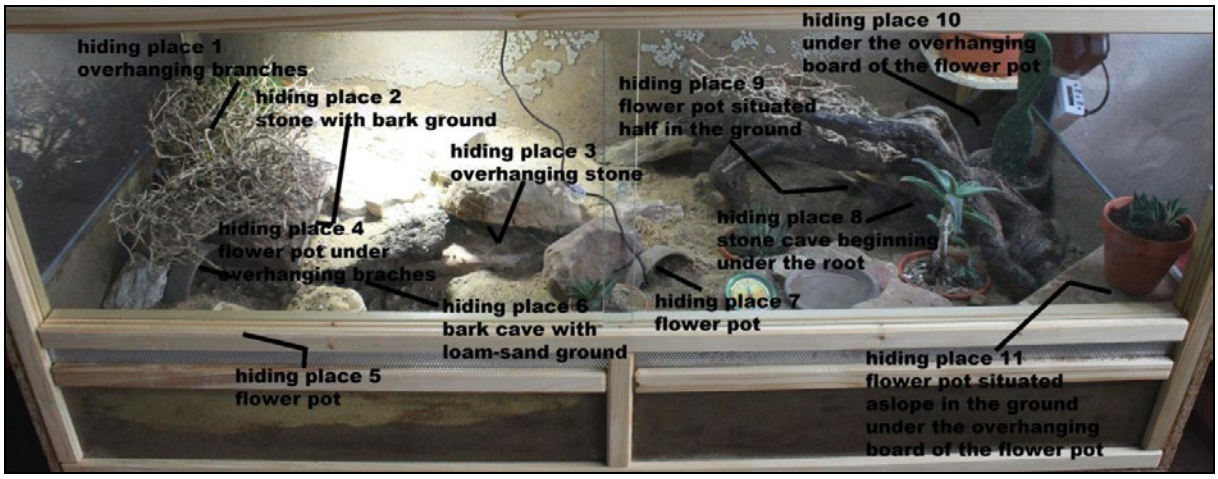
Location A91

We used a home-made transportation box for the long transport in the car, which worked out well; the tortoise seemed to be fast asleep, when we arrived home. The transportation box consists of a plastic box (25 x 15 cm) with a hiding place made of flat stones that are glued securely together with silicone and fixed in the bow with screws. The bottom can be covered with paper or some terrarium soil. We put the plastic box into a larger Styrofoam box with holes in the cover onto a piece of foam plastic to reduce shock. The

spaces between the plastic and Styrofoam boxes are filled with scrunched paper. When we put the tortoise in the box, it went straight in the hiding place, stemmed its legs firmly against the stones and remained there unmovably, until we arrived home. Whenever we controlled it on the road, it had its eyes closed and seemed to be asleep.



The following photos show the enclosure in which *H. signatus* is housed.



Several plants were used in the enclosure:

Plant name	Included in terrarium	Buds fed	Fed in total
Haworthia reinwarthii	x	No buds	x
Opuntia ficus indica	x	No buds	x
Aloe erinacea "Namibia"		No buds	
Aloe c/hufarensis	x	No buds	x
Haworthia fasciata	x	No buds	x
Haworthia pygmaea	x	x	x
Haworthia limifolie	x	No buds	x
Crassula ovata			
Lithops (*mayeri*, *aucampiae*, *reinfildii*)	x	No buds	x
Haworthia x	x	x	x

6. NEW PUBLICATIONS

The following overview summarises all manuscripts and articles that were submitted, accepted, published, or under review in 2013.

Subject	Submitted	Accepted	Published	Journal
Activity of the greater padloper (*Homopus femoralis*, Testudinidae) in relation to rainfall	2012	2012	2012[1]	African Zoology (English)
Homopus femoralis (greater padloper): reproduction	2012	2013	2013	Herpetological Review (English)
Erfahrungen bei der Haltung und Fortpflanzung der Areolen-Flachschildkröte (*Homopus areolatus*) unter unterschiedlichen Bedingungen in Namibia und in der Schweiz	?	?	2013	Marginata (German)
De insectenetende gespikkelde padloper (*Homopus signatus*) Gmelin, 1789	2013	2013	2013	Trionyx, Terra (Dutch), African Herp News (English), Sacalia (German)
ESF-stamboek *Homopus signatus*	2013	2013	2013	Trionyx (Dutch)
Geautomatiseerd terrariumhouden met Siemens LOGO!	2013	2013	2013	Trionyx (Dutch)
Small home ranges in the Namaqualand speckled tortoise, *Homopus signatus*, in spring	2013			Journal of Herpetology (English)

[1] Appeared after publication of the 2012 annual report

7. FINANCIAL REPORT

Most materials required for the current *H. signatus* thermoregulation study (see Paragraph 1.3) were purchased in 2012, resulting in little expenses in 2013. The remaining funds for 2014 will suffice to finalise this study. Significant donations were received from studbook participants Martijn Kooijman and Paul van Sloun.

Revenues		***Expenses***	
Net amount €	**Item**	**Amount €**	**Item**
Project H. signatus 2012-2014		*Project H. signatus 2012-2014*	
41	Remaining funds 2012	262	iButtons (5 pcs)
330	Donations private individuals	p.m.	Other research materials
		109	Reservation project expenses 2014
371	Subtotal	371	Subtotal
Other		*Other*	
36	Donation V. Loehr to cover non-project expenses	78	Annual costs bank accounts
42	Interest bank account		
78	Subtotal	78	Subtotal
448	Total	448	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)
- CITES exporting permits 16579 and 281/95C (Department of Environmental Affairs and Tourism, South Africa)
- Permit to move animals/animal products 2001/10/3/A (Department of Agriculture, South Africa)

Field study on H. boulengeri

- Research permits 755/05, 43/2005 and 35/2005 (Northern Cape 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 (Northern Cape Department of Environment and Nature Conservation, South Africa)
- Research permit 460/2013 (Northern Cape Department of Environment and Nature Conservation, South Africa)