

**Common padloper**  
***Homopus areolatus***



**Studbook Management Plan**

Version 6, June 2025

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## VERSION HISTORY

<b>Version</b>	<b>Date</b>	<b>Changes</b>
1 (draft)	April 2015	-
2 (final)	July 2015	Comments from studbook participants implemented
3 (draft)	September 2020	Five-yearly update
4 (final)	November 2020	Comments from studbook participants implemented
5 (draft)	May 2025	Five-yearly update and adjustment of studbook aims
6 (final)	June 2025	Comments from studbook participants implemented

This plan will be reviewed and updated once every five years. Progress will be reported annually, in the annual reports of Dwarf Tortoise Conservation.

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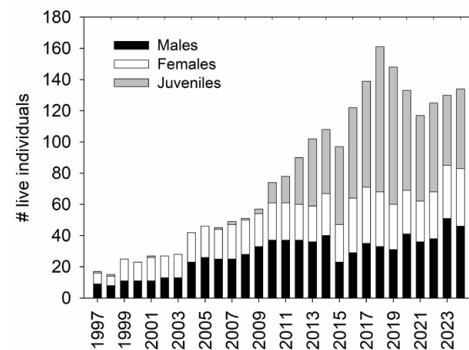
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## 1. INTRODUCTION

In 1997, two wild-caught and four captive-bred *Homopus areolatus* were exported from South Africa to initiate a studbook. All six individuals were surplus at Tygerberg Zoopark in Kraaifontein, which is no longer in operation. A second (eight wild-caught individuals) and third (four wild-caught individuals) export of surplus tortoises followed in 1999 and 2001, respectively. Since 2001, several *H. areolatus* that were already present in the Netherlands, Germany, South Africa, Sweden and Namibia were added to the captive population.

Initially, husbandry success in the studbook was poor, in part due to the physical condition of the newly imported founder tortoises. However, since 2006 mortality rates decreased and breeding success increased, leading to a steadily increasing population size. A studbook management plan was drafted in collaboration with the studbook participants in 2015, and updated in 2020. The plan aimed to develop a genetically diverse, eventually self-sustaining captive population. However, a recent analysis for 2020–2025 showed that no founders were added to the population, live founders with little offspring did not reproduce, severely over-represented founders continued to produce offspring, inbreeding increased, and studbook tortoises were lost to follow-up. The studbook coordinators have little influence on these development, because almost all tortoises in the studbook are privately owned. There was general agreement among the studbook coordinators and participants that the aims in the studbook management plan were not achievable. Consequently, this studbook management plan adjusts the aim of the studbook and converts it into a traceability studbook (i.e., enabling tracing of relationships between tortoises) without active management by the studbook coordinators. The format of the plan is analogous to the [other studbook management plans for dwarf tortoises](#).



## 2. DISTRIBUTION

*Homopus areolatus* is endemic to South Africa, where it occurs in the southern coastal zones (Branch 2008). The taxon mainly occurs in two provinces; the Eastern and Western Cape. There are several small isolated populations in the Northern Cape.

## 3. HABITAT

The habitat of *H. areolatus* is relatively moist and consists of heathland, thornveld, bushveld, fynbos and transitional habitats (Boycott & Bourquin 2000; Branch 2008) in a Mediterranean climate. The tortoises prefer dense vegetation and use shrubs and grass tufts to retreat.

## 4. PROTECTED STATUS

In South Africa's range provinces, *H. areolatus* is protected fauna that may not be hunted, collected, or handled without permits from the provincial authorities. In the Western Cape, *H. areolatus* is a Protected Wild Animal as listed in Schedule 2 of the Nature Conservation Ordinance No. 19 of 1974. This outdated Ordinance is being replaced by the Western Cape Biodiversity Act (Act 6 of 2021), under which *H. areolatus* will likely be listed as Protected Species in terms of section 49(2)(e). In the Eastern Cape, *H. areolatus* is listed as Protected Wild Animal under Act 13 of the 2003 Eastern Cape Environmental Conservation Act. In the Northern Cape, the taxon is listed as Protected Species under Act 9 of the 2009 Northern Cape Nature Conservation Act as implemented from January 2012.

International trade of *H. areolatus* is controlled through the Convention on Trade in Endangered Species (CITES). The species is listed in Appendix II, because it is not necessarily threatened with extinction, but utilisation may be incompatible with its survival. An export permit or re-export certificate

(only if the specimen was imported in accordance with the convention) issued by the Management Authority of the country of export or re-export is required. An export permit may be issued only if the specimen was legally obtained and if the export will not be detrimental to the survival of the species. Furthermore, live *H. areolatus* must be prepared and shipped in a way that minimises any risk of injury, damage to health or cruel treatment. Although CITES requires no import permit for species on Appendix II, it is a requirement in many national laws. Import permits in the European Union can only be issued after confirming the exporting country's non-detriment finding.

Until 2018, the German CITES authority [reported](#) dozens of commercially imported wild-caught *H. areolatus* from South Africa, but it appears that there were no underlying provincial collecting permits. This trade ceased by 2019.

## 5. CONSERVATION STATUS

*Homopus areolatus* is listed Least Concern in the IUCN Red List of Threatened Species (Hofmeyr & Keswick 2018). This indicates that it is not currently threatened in the wild, but populations are fragmented and declining.

## 6. STATUS IN CAPTIVITY

The global information system [Species360/ZIMS](#) lists 2.1.4 (= number of males.females.juveniles) live *H. areolatus* at one species holding. The institution is located in the USA and participates in this studbook.

The studbook totals 46.36.54 live individuals available for the studbook. Except seven individuals at Turtle Conservancy in the USA and two individuals at Crocodile Zoo Prague in Czechia, all individuals are housed at private facilities. Most studbook locations are in Europe, except one location in Namibia.

Besides the animals listed here, at least a similar number of *H. areolatus* are present in private facilities in Europe and elsewhere. It is likely that these facilities produce offspring. South Africa irregularly exports captive-bred (and until 2018 wild-caught) *H. areolatus* for commercial purposes.

*Homopus areolatus* can successfully reproduce in captivity. Reproduction has succeeded at many locations (see [annual reports of Dwarf Tortoise Conservation](#), and Gorseman 1980; Barzyk 1994; Broschell 2000; Fleck & Fleck 2001; Schleicher 2005, 2012; Reck & Reck-Ringgenberg 2013). Breeding has occurred into second and likely later generations. A husbandry protocol and publications are available at the [website of Dwarf Tortoise Conservation](#). In the studbook, mortality does not appear to be excessive, with steady growth of the population as a result, although net growth was affected by tortoises lost for the studbook.

## 7. STUDBOOK COORDINATION AND CONTINUITY

To guarantee the continuity of the studbook, it is coordinated by two persons. The [European Studbook Foundation](#) (currently merging with [European Turtle Alliance](#)) is providing cloud-based software for studbook management, to ensure access to the studbook registration in case both studbook coordinators would become unavailable. Dwarf Tortoise Conservation has also entered a formal agreement with the Dutch-Belgian Turtle and Tortoise Society, mandating the latter society to act as board of Dwarf Tortoise Conservation in case of unavailability of the Dwarf Tortoise Conservation board.

Currently, the studbook is coordinated by the following two persons:

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## 8. PARTNERS AND STAKEHOLDERS

The studbook is a collaborative effort of Dwarf Tortoise Conservation and the [European Studbook Foundation/European Turtle Alliance](#). Public and private facilities may participate in the studbook. Six private facilities in Austria, Belgium, Namibia and Switzerland harbour the majority of the current tortoises. Any facility in Europe, Africa, USA, or elsewhere interested in participation in the studbook is considered a potential partner.

Although there is no relationship between the studbook and the wild *H. areolatus* population in terms of conservation, [CapeNature](#) (South Africa) is an important stakeholder for the studbook because it is responsible for conservation in most of the taxon's range. Furthermore, it is the competent authority for exports of *H. areolatus* from the Western Cape. In addition, the Namibian [Ministry of Environment and Tourism](#) is considered a stakeholder, because the ministry requires *H. areolatus* kept and bred in Namibia to be registered in the studbook and is the competent authority for exports of individuals to other studbook locations outside Namibia.

Due to the small scale of the commercial trade in *H. areolatus* and uncertainties regarding the legality of some trade (e.g., higher imported than exported trade volumes; [CITES trade database](#)), commercial reptile dealers are not considered stakeholders.

## 9. SUITABILITY OF FACILITIES PARTICIPATING

Most of the current participants in the studbook are tortoise husbandry experts, with long-term breeding experience. Many of them also have field experience. *Homopus areolatus* is a small species and does not require large enclosures. Their climate is easily imitated in indoor enclosures, and some keepers experiment with outdoor keeping during summer. *Homopus areolatus* requires an herbivorous diet that is easily catered for. A [husbandry protocol](#) is available at the website of Dwarf Tortoise Conservation.

Of particular concern is the husbandry of founders that were recently caught in the wild. Poor husbandry results in the past indicate that such individuals should be housed at expert keepers, or at keepers with extensive experience keeping captive-bred *H. areolatus*.

## 10. ULTIMATE GOAL FOR THE CAPTIVE POPULATION

The goal for the captive population is to provide participants in the studbook with insight in genetic relationships among *H. areolatus* in the studbook. This goal is reached by maintaining a studbook registration that enables tracing of relationships (i.e., traceability studbook), and by regularly reporting these relationships through exports of the studbook registration. Studbook participants can use this information to make decisions regarding transfers of tortoises and regarding reproduction, e.g. to avoid inbreeding, genetic degradation of the captive population, and emerging genetic disorders.

## 11. GENETIC AND DEMOGRAPHIC GOALS

There are no genetic and demographic goals (the studbook population is not actively managed).

## 12. SEX RATIO

Male and female *H. areolatus* can be kept in couples year-round, but males are very aggressive among one another. Nevertheless, the current studbook population is slightly male-biased.

## 13. SOURCES FOR SPECIMENS INCLUDED IN THIS PLAN

There are no genetic and demographic goals (the studbook population is not actively managed).

## 14. GENETIC ISSUES THAT NEED TO BE RESOLVED

The taxonomy of some wild *H. areolatus* populations is not clear (i.e., isolated populations may represent independent entities). Because the founders in the studbook originate from unknown localities, it is possible that the studbook hybridises different taxa. The issue of potential hybridisation is acknowledged and accepted, because:

- the risk of hybridisation is probably small, because it is more likely that founders originate from large populations than from isolated, small populations;
- the studbook does not have a conservation goal.

## 15. MANAGING THE STUDBOOK

### 15.1. Dispersal of offspring

Nearly all *H. areolatus* in the studbook are privately owned. Therefore, the decision where offspring goes and the conditions for transfers (e.g., continued registration in the studbook or not) are usually up to the studbook participants.

### 15.2. Surplus

Studbook participants may breed surplus individuals that would not be registered in the studbook.

### 15.3. Individual identification

It is the responsibility of each studbook participant to individually recognise each tortoise. The shape and colour pattern of the carapace may help identify individual *H. areolatus*, but it is recommended to use nail polish, permanent marker, PIT tags, coloured marks for queen bees, or other tools to avoid confusion.

## 16. REQUIREMENTS TO SUCCEED IN ESTABLISHING A LONG-TERM CAPTIVE COLONY

If participants in the studbook wish to establish a long-term captive colony, it is essential that they use the data from the studbook to avoid inbreeding, genetic degradation of the captive population, and potential future genetic disorders. In addition, it would be helpful to register in the studbook as many genetic relationships as possible (i.e., limit surplus breeding and transfers outside the studbook). To help identify founders outside the studbook (i.e., individuals unrelated to any studbook tortoises), studbook participants may want to secure genetic material of any deceased *H. areolatus* by placing some tissue in 95–100% ethanol, replacing the ethanol after two days, and storing the tissue in a freezer at -20°C. This material could serve as reference in future genetic tests.

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