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NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY	
Branch	THESIS BRN 61052858
Call No.	597.924 AMU
Fund Code	
O/N	Price 350-00

HOME RANGE AND THERMAL ANALYSES OF TWO SYMPATRIC TORTOISE SPECIES, *STIGMOCHELYS PARDALIS* AND *PSAMMOBATES OCULIFER* IN THE THORNBUSH SAVANNA OF CENTRAL NAMIBIA.

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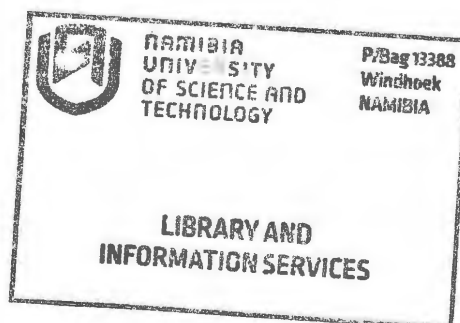
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THESIS PRESENTED IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
MASTER OF NATURAL RESOURCE MANAGEMENT
AT THE
NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY

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April 2016

ABSTRACT

Southern Africa harbors one-third of the world's Testudinid species, many of which inhabit arid or semi-arid areas. Namibia has the second highest tortoise diversity after South Africa with six species and five of the recognized genera of modern Testudinidae in the world. Detailed ecological information on the Namibian species is generally lacking. This study analyzed the home ranges and thermal activities of two sympatric tortoise species, the Leopard tortoise, *Stigmochelys pardalis* (previously known as *Geochelone pardalis*) and the poorly studied Kalahari tent tortoise, *Psammobates oculifer*. The study was conducted at the Hohewarte Farm, situated in the thorn-bush savanna southwest of Windhoek, Namibia. All encountered tortoises from both species were equipped with radio transmitters and temperature loggers (iButtons) which allowed for continuous monitoring of individuals throughout the study period. Data was collected for 17 months from December 2013 to April 2015 to determine the average annual and seasonal difference in thermally driven activity patterns and home range of these tortoises. Results from the study suggest that the smaller *P. oculifer* (with one dramatic exception of a wandering male) had a larger average annual home range (64 ha) compared to the much larger and common *S. pardalis* (20 ha). Exclusion of the wandering male from data analysis yielded a reduction in the annual home range size of *P. oculifer* to 32 ha. There was however great variation within individual home range sizes; the largest annual home range size (299 ha) was for a male *P. oculifer* while the smallest annual average home range was 5 ha recorded for two (2) female *P. oculifer*. For *S. pardalis*, 58 ha was the largest annual average home range size recorded for a medium sized male while two (2) juvenile *S. pardalis* had the smallest annual average home ranges of 1 ha. The study also found that home ranges were larger during the wet seasons for both species and that there was evident intraspecific and interspecific home range overlaps between the two species and even between sexes of the same species. There was no significant difference found between the different temperatures recorded for the tortoises (shell, iButton, ambient and surface). On the orientation aspect of the study, tortoise rear orientation directions differed and were not uniform. Results from Rayleigh's Z statistical test (Rayleigh Z7.075, $P < 0.001$) have shown that there was no mean direction for the species orientation. It was however found that during the dry season, the northerly directions (NE and NW) were the dominant rear directions for *S. pardalis* while N, NE, and easterly direction (E) were the dominant rear directions for *P. oculifer*. Observations during the wet seasons have indicated that

S. pardalis tortoises mostly oriented their rear end towards the NE and N directions while the westerly directions (NW, W, and SW) were the dominant directions for *P. oculifer*. The NE direction was observed to be the mean direction that tortoises from both species oriented the rear ends towards.

Key words: Sympatric, tortoises, *Psammobates oculifer*, *Stigmochelys pardalis*, home range, thermal activities, orientation, wet season, dry season.