Resting site ecology and microhabitat use of the Mozambique thicket rat (*Grammomys cometes*) in a riverine *Combretum* forest

by

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DECLARATION

I **Zimkhitha Gebe**, student number **200604109** declare that this dissertation titled **"Resting site ecology and microhabitat use of the Mozambique thicket rat (*Grammomys cometes*) in a riverine *Combretum* forest"** submitted for the award of the Master of Science degree in Zoology at the University of Fort Hare, is my own work that has never been submitted for any other degree at this university or any other university.

Signature:

I **Zimkhitha Gebe**, student number **200604109** hereby declare that I am fully aware of the University of Fort Hare policy on plagiarism and I have taken every precaution on complying with the regulations.

Signature:

I **Zimkhitha Gebe**, student number **200604109** hereby declare that I am fully aware of the University of Fort Hare policy on research ethics and have taken every precaution to comply with the regulations. The research conducted in this dissertation was approved by the University Ethics committee on 31 May 2013 and is covered by the ethical clearance certificate # SAN05 1SGEB02.

Signature:

SUPERVISOR'S FOREWORD

The format of this Master's dissertation (abstract, general introduction, two independent papers) has been chosen with two purposes in mind: first, to train the MSc candidate to the writing of scientific papers, and second, to secure and allow for a quicker dissemination of the scientific knowledge. Consequently, the present work does not include extensive reviews on the study species or on the main field techniques used (trapping and radio-tracking), as is sometimes the case in MSc dissertations. In order to avoid repetitions, information on the study area has been placed in a separate chapter.

For logistical and financial reasons, the MSc candidate, Ms Zimkhitha Gebe, could only collect about 30% of the radio-tracking data presented in Chapter 3. However, I hereby certify that Ms Gebe mastered all the field techniques related to this part of the research, from the trapping of thicket rats to the fitting of radio-collars and accurate location of animals in the field with a VHF receiver and a portable antenna. For Chapter 4, Ms Gebe obtained significant assistance in the field from two other Master's students, as well as from her co-supervisor and myself. This is because this set of data was collected as part of a larger project investigating niche differentiation in a community of rodents living in a riverine *Combretum* forest. Overall, Ms Gebe spent nearly 100 days in the field to collect data. This, together with the entering and analysis of all the data presented in this dissertation, therefore constitutes a more than satisfactory effort for a Master's level research project.

ACKNOWLEDGEMENTS

I would like to extend sincere gratitude to the National Research Foundation (NRF) that provided me with funding for this study, and the Govan Mbeki Research and Development Centre (GMRDC) of the University of Fort Hare for covering parts of the costs of my field equipment. Also thanks to Eastern Cape Parks Board (ECPB) for granting me the permission to conduct my research the Andries Vosloo Kudu Nature Reserve (AVKNR). I am also grateful to the entire staff of the AVKNR – from management to rangers and to cleaners – for their precious assistance in various ways throughout the duration of this study.

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Finally, to my parents, thank you for the tireless support you have given me throughout the years. I have always been deemed as the overly ambitious one in the family. Thank you for allowing me the chance to live out my dreams and follow suit to my older sister (as my mom would say) and complete this Master's project: she is indeed a good role model. Thank you also to my brothers for always checking up on me and supporting me through and through; without your support I would never have found the required strength. Kumakhulu wam, ndiyabulela Tshezi, Njilonjilo, ubungalali undithandazela kumahlandenyuka endidlule kuwo ndinje namhlanje yimithandazo yakho.

ABSTRACT

Very little is known about the resting and spatial ecology of the Mozambique thicket rat, *Grammomys cometes*, a rodent species distributed in two disjoint populations in South Africa and Mozambique. The present study focused on determining the characteristics and usage patterns of resting sites, as well as the microhabitat use and selection of this species during its activity period. Broadly, I predicted that resting ecology and space use would be affected by environmental, climatic, social and sexual factors. I also hypothesized that predatory risk could affect thicket rat behaviour.

Field work took place in the Great Fish River Reserve complex (Eastern Cape Province, South Africa), in a stretch of riverine *Combretum* forest (length × breadth: ca. 500 × 100 m) located in the western section of the conservation area. Overall, 38 different rats (22 males and 16 females) were trapped and radio-tracked for varying periods between July 2011 and November 2012. Individual rats used a mean of 2.54 ± 1.89 different resting sites (range: 1–9) during each tracking session and resting-site fidelity averaged 85 ± 17%. Overall, 27% of the 131 resting sites identified were artificial wooden nestboxes, 45% were inside branches, 21% were inside trunks, 3% were located on the ground, 2% in bushes, 1% inside dead logs, with one uncertain location (1%). Cape bushwillows *Combretum caffrum* were the predominant trees (60.32%) used for the resting sites, probably due to their abundance in the forest, and their propension to rot from the inside and provide natural cavities. The mean height of resting sites used by thicket rats was 217 ± 119 cm, and the mean circumference of branches and trunks was 79 ± 35 cm, with no seasonal and sexual variation. In contrast, males exhibited an overall lower percentage usage of individual resting sites than females, probably due to their increased movements during the long mating season. Percentage usage was significantly higher during the cold season, likely for thermoregulatory seasons. Nearly 50% of the resting sites were shared with an average (± SD) of 3.20 ± 1.25 individuals (range: 2–6). However, simultaneous use of resting sites only took place in about 8% of locations. Sharing involved 2–3 males in 90% of the cases. It is suggested that females are solitary but not territorial, while at least some males are more social or tolerant towards each other, and have overlapping 'home ranges'. These observations could be indicative of a promiscuous mating system.

Microhabitat use and selection were determined by conducting a 5-day trapping session during each season between June 2011 and May 2012. A grid of 96 stations (16 rows × 6 lines) was set at the study site, with pairs of traps per station placed at 10-m intervals, at different heights and on different types of vegetative stands. Several variables describing microhabitat structure were recorded seasonally at each station. Thicket rats (38 individuals captured 91 times) were captured mostly at night, with an overall trapping success of 2.16 ± 0.27% over the year. The average height at which rats were trapped (140 ± 65 cm) was significantly higher than the height of traps set in the field (99 ± 75 cm). A large proportion of traps (31.3%) where rats were caught were placed on *Combretum caffrum* trees, and majoritarily on trunks (46%), tree canopy (19%) and woody lace (19%). Bonferroni Z tests indicated that thicket rats actively avoided trap stations with less than 50% canopy cover as well as areas that had arboreal connections in less than 50% of the directions. Rats also significantly avoided traps that were set in bushes and on the ground, irrespective of whether these were situated in open terrain or surrounded by some vegetation. Generalized Linear Models confirmed that two main predictors (Cover >150 cm and height) had a significant positive effect on the use of traps and on the numbers of visits to, and different animals caught at, trapping stations. All other variables, including connectivity with the surrounding vegetation, tree species, vegetation type and position in which the traps were placed, and tree trunk/branch circumference at trap height, did not have any significant effects. This study confirms that thicket rats are essentially nocturnal, arboreal and prefer dense canopy cover, possibly because this decreases predation risk at the microhabitat level.

Key words: Mozambique thicket rat, *Grammomys cometes*, resting site, nestbox, nest sharing, microhabitat use, microhabitat selection, canopy cover, *Combretum caffrum*, predatory risk.

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Chapter 1

The Mozambique thicket rat *Grammomys cometes*

1.1 Taxonomic classification and conservation status

Thicket rats of the genus *Grammomys* have long been classified under the genus *Thamnomys* (Kryštufek *et al.*, 2008). They belong to the order Rodentia under the family Muridae. Kryštufek *et al.* (2008) reported that the genus *Grammomys* currently comprises of twelve recognized species, but that careful taxonomic revision is however needed. Two of these species (*Grammomys dolichurus* and *G. cometes*) have been reported to occur in the southern African countries, but have also been found in countries such as Tanzania, Malawi and Kenya. These two species are regarded as being sympatric in some areas, and can be morphologically distinguished. According to Kryštufek *et al.* (2008), *G. cometes* is bigger in terms of body size and ear length (approximate length: 18 mm) as compared to *G. dolichurus* (approximate length: 15 mm). When looking at genetic variations between the species, Kryštufek (2008) reported that partial cytochrome *b* sequences suggest that an early evolutionary event in *Grammomys* may have led to a regionally-based divergence. This was followed by a relatively recent speciation event involving size displacement in recent sister species. The IUCN, in an assessment released in 2008, listed *G. cometes* in the conservation category “Least Concern” in view of its wide distribution, presumed large population, and because it is unlikely to be declining fast enough to qualify for listing in a more threatened category (Taylor, 2008).

1.2 Description

Grammomys cometes (Fig. 1) presents a variation in the upper parts’ coat colour, with some individuals being greyish-brown and others tawny-grey (Skinner and Chimimba, 2005), while the orange line that is found along the flanks is faint or sometimes absent (Kryštufek, 2008). Thicket rats have a long tail that is densely haired, with a distinct terminal pencil-shaped end (Kryštufek, 2008). The tail is on average about one and a half times as long as the animals’ head and body length (Skinner and Chimimba, 2005). The upper surface of the hands and feet is white; the belly is also very white (Mills and Hes, 1997; Skinner and Chimimba, 2005).

Figure 1. Mozambique thicket rat *Grammomys cometes* freshly ear-marked and equipped with a BD-2C radio-collar (Photo: Emmanuel Do Linh San).

1.3 Distribution

The Mozambique thicket rat, as its name suggests, occurs in Mozambique, but it is also found marginally on the eastern parts of Zimbabwe, while in South Africa it occurs in the southern parts of Mpumalanga and in northeastern and southern parts of KwaZulu-Natal (Taylor, 2008; Fig. 2). A disjunct population is also found in the Eastern Cape Province: the identified groups of *G. cometes* are from Pirie Forest near King William's Town (Kryštufek *et al.*, 2008) and from the Afromontane forest in Hogsback (R. Baxter, University of Venda, pers. comm.). This group is possibly an extension of the formerly known group of the southern border of the geographic range in KwaZulu-Natal. However the extension is recently known to be missing (Kryštufek *et al.*, 2008). Skinner and Chimimba (2005) indicated that *G. cometes* occur in the thicker and better developed woodlands or forests.

Figure 2. The distribution of the Mozambique thicket rat *Grammomys cometes* in Southern Africa (from http://maps.iucnredlist.org).

1.4 Reproduction and behaviour

Very little is known about the reproductive biology of the species. Skinner and Chimimba (2005) stated that *G. cometes* can have from 2 to 5 young and up to three litters during the warm, wet season. Kryštufek *et al.* (2008) reported that the animals from different sites used in their study had morphologically heterogeneous reproductive conditions (scrotal testes, embryos, or presence of placental scars), although a large proportion of specimens of adult *G. cometes* showed reproductive activity. This species is nocturnal and arboreal, as is *G. dolichurus.* Skinner and Chimimba (2005) also mentioned that there is no information available on the diet of *G. cometes*, even though *G. dolichurus* is reported to feed on fruits, leaves, stems, invertebrates, green vegetable matter, white plant material and wood fibres.

1.5 Motivation for the study

There is only little information available on the ecology of the genus *Grammomys* (Skinner and Chimimba, 2005). The Mozambique thicket rat has been observed to be living in syntopy with the arboreal and nocturnal woodland dormouse *Graphiurus murinus* in a riverine *Combretum* forest at the Great Fish River Reserve; thus the interest of knowing more about *G. cometes* ecology (specific aim of this dissertation) and how it differs from that of *G. murinus* (long-term aim of the overall research project) led to this study.

Shafique *et al.* (2009) highlighted that competition for resources like food, water, nesting sites, wintering sites and refuges from predators is often observed in mammalian species that share similar ecological characteristics. Furthermore, these authors reported that a difference in the use of food resources was recognized among the terrestrial rodents in the Arizona desert and this dietary segregation was suggested to be the result of an avoidance of exploitative competition. There is no information on the diet of the thicket rat and so no conclusions about food can be made; however, competition for nesting sites might be an issue for the two species, *Grammomys cometes* and *Graphiurus murinus*. Although it is uncertain whether these mammalian species compete for nesting space, this might likely be so if/when nesting resources are limited (Shafique *et al.*, 2009).

Study area

2.1 The Great Fish River Reserve

The study was conducted at the Great Fish River Reserve complex (GFRR; 33°04′–33°09′ S and 26°37′–26°49′ E. It is situated approximately 30 km north-east of Grahamstown and 50 km south-east of Fort Beaufort (Eastern Cape, South Africa) (Fig. 3). GFRR is subdivided by the Great Fish River, with the south-western part of the complex, the Andries Vosloo Kudu Nature Reserve (AVKNR), established in 1973. The conservation area was later enlarged by incorporating Double Drift Game Reserve (1983) and Sam Knot Nature Reserve (1987).

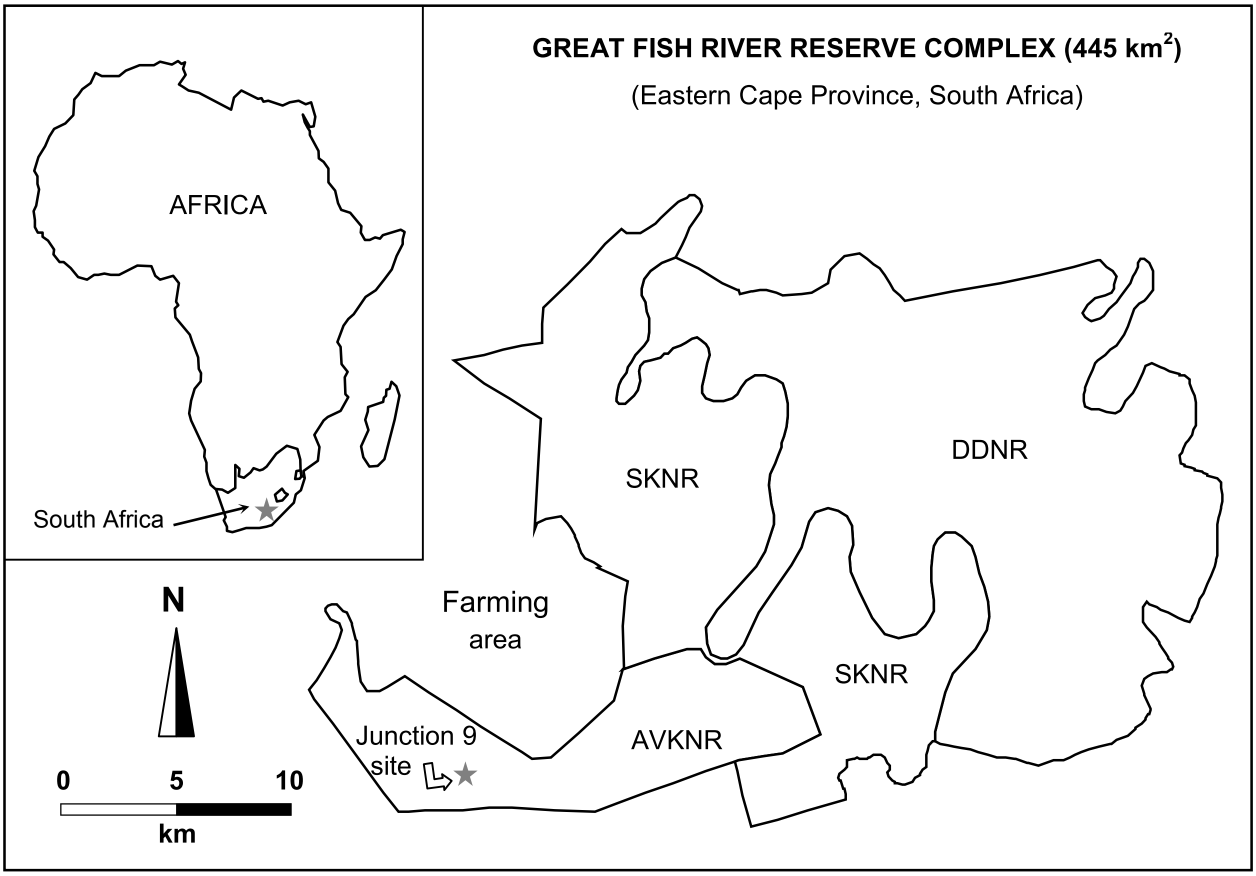

Figure 3. Map showing the location and the structure of the Great Fish River Complex. The sampling sites of "Junction 9" is indicated by a grey-shaded star. AVKNR: Andries Vosloo Kudu Nature Reserve, SKNR: Sam Knott Nature Reserve, DDGR: Double Drift Game Reserve (from Madikiza *et al.* 2010b).

2.2 Geology, climate and vegetation

The landscape in the Great Fish River Reserve consists of interbasin ridges, with steep river valleys. The soils are generally yellow-brown, apedal and are either sandy clay loams or clay loams (Birch *et al.*, 1999). The Reserve experiences an annual rainfall of 400–800 mm and the temperatures are mild to subtropical, fluctuating between a mean minimum of 10.0 °C and a mean maximum of 22.9 °C. The reserve has dense thickets and clumps of thorny and succulent shrubs as its major vegetation features.

The present study was conducted in the western half of the reserve, which is dominated by *Euphorbia bothae* scrubs and *Portulacaria afra* bushes, even though there are several other common plant species. The study site, called 'Junction 9' (approximately 6-ha in size; altitude: 320 a.s.l.; Figs 3 and 4), is a stretch of 'Riverine *Combretum* Forest' dominated by stands of Cape or African bushwillows *Combretum caffrum* (Fig. 5). The two areas used for the sampling are separated by a gravel road into the southeast and northwest of the riverine forest. Furthermore, on both sides of the riverbed, relatively large expanses of 'Buschclump Karroid Thicket', a semi-open habitat composed of *Rhus* spp. and *Scutia myrtina* buschclumps and a karroid herbaceous layer, border the study area (Figs 4 and 6). The southeast part is referred to as 'natural' or 'control' site, while the northwest part contains 80 artificial wooden nestboxes that were erected sequentially (for more details, see Madikiza *et al.*, 2010b).

2.3 Other rodents and potential predators of the thicket rat present in the riverine forest

Other rodents present in the riverine forest are woodland dormice *Graphiurus murinus*, which are the other arboreal rodent species in the forest, striped mice *Rhabdomys* sp., Namaqua rock rats *Micaelamys namaquensis*, vlei rats *Otomys irroratus*, occasionally bush rats *Otomys unisulcatus,* pigmy mice *Mus minutoides*, pouched mice *Saccostomus campestris* and multimammate mice *Mastomys natalensis*. There are several species of carnivores which exploit the riverine forest and which could potentially prey upon thicket rats. These are the small-spotted genets *Genetta (genetta) felina*, large-spotted genets *Genetta tigrina*, and small grey mongooses *Galerella pulverulenta*. Owls and several snake species could also present a threat.

Figure 4. Overview of the 'Junction 9' study site. The 'Riverine *Combretum* Forest' in the middle part of the picture is bordered by 'Bushclump Karroid Thicket' (Photo: Emmanuel Do Linh San).

Figure 5. Detailed view of the interior of the 'Riverine *Combretum* Forest', which is dominated by stands of Cape bushwillow *Combretum caffrum* trees (Photo: Emmanuel Do Linh San).

Figure 6. Detailed view of the 'Bushclump Karroid Thicket' bordering the study site (Photo: Emmanuel Do Linh San).

Chapter 3

Resting site ecology

3.1 Introduction

Shafique *et al.* (2009) reported that small mammals tend to build different kinds of nests (burrows, tunnels, grass nests, etc), and that the most important features of the nests in a small mammal's life are their architecture and location. A combination of appropriate characteristics for these two aspects ensures that the nests provide protection from predators and unfavourable climatic conditions (Wells *et al.*, 2006). Arboreal mammals often use tree cavities as nesting sites, and therefore the distribution and abundance of arboreal mammals may be determined by the structure of the woodland, as well as by the relative abundance of large trees that these animals use for nesting (Eccard *et al.*, 2006). Levesque *et al.* (2012) reported that information on the distribution, home ranges and shelter sites provides important insight into the basic ecology of a species and how it will respond to various environmental stressors, a baseline information for any conservation management plan.

Resting site ecology also plays a role in the reproduction of a species. Although food is the most commonly reported ecological factor that affects fitness and space use, other factors including the thermoregulatory capacities of shelters may act as a limiting factor in the fitness of females; indeed, female mammals need well insulated and protected resting sites in order to raise their young (Lutermann *et al.*, 2010). Furthermore, small mammals select resting sites that provide considerable thermal benefits and therefore require less energy expenditure (Redman *et al.*, 1999). Lutermann *et al.* (2010) suggested that thermoregulation offered by resting sites benefits the individuals since they afford shelter from adverse weather conditions and buffer against variation in ambient temperature and humidity. In winter small mammals tend to be more social than during other seasons and often rest and huddle together, as this helps in body thermoregulation (Lutermann *et al.*, 2010).

Consequently, artificial nestboxes installed by humans may represent important resources for small mammals, because they may provide better insulation or protection than natural cavities (Madikiza *et al.*, 2010b). Furthermore, nestboxes are particularly vital in areas where woodland management reduces the availability of suitable trees, as well as where the canopy casts dense shades, hence suppressing shrub growth and the sites it provides for natural woven nest (Morris *et al.*, 1990; Panchetti *et al.*, 2007). Nestboxes are designed to be large to help with insulation (larger surface to volume ratio), whilst a small entrance hole at the back (facing the tree when erected) will keep the predators away (Madikiza *et al.*, 2010b). Redman *et al.* (1999) reported that larger nests have better insulation and the selection of sites may support the animals that build larger nests. However, these authors went on to suggest that the thermal benefits of adding more material is becoming gradually lower as the nests get larger (Redman *et al.*, 1999).

Finally, social small rodents are known to cohabit in nests in order to share 'responsibilities' such as nursing and raising of young, and communal nesting by small mammal females is reported to also contribute to the protection from predators, prevention from infanticide and enhanced thermoregulation during rearing of young (Hayes, 2000). However, nest sharing by small mammals concurrently favours the dominance and transmission of parasites among individuals sleeping in the same nest; this in turn may explain the constant switching of resting sites observed in some small mammal species (Wells *et al.*, 2006).

3.2 Aim, objectives and predictions

The aim of this study was to investigate the resting site ecology of the Mozambique thicket rat taking into account the types and usage patterns of nests in a riverine forest.

More specifically the study looked at a) locating and describing Mozambique thicket rat sleeping sites using radio telemetry, b) quantifying the number of resting sites used by individual male and female thicket rats, c) documenting the patterns of resting site use (site fidelity vs. nest switching; intraspecific sharing or not), d) observing whether thicket rats use nestboxes, and e) identifying possible seasonal variations in the parameters studied.

The predictions of the study were:

1. Due to the abundance at the study site of *Combretum caffrum* trees, which are prone to rotting from the inside (Lamani, 2010), thicket rats will likely use the resulting natural cavities as resting sites.

2. Due to expected differential mating strategies (access to more female partners for males), males will use proportionally more resting sites (and these will therefore be linked to a lower percentage usage) and have a lower site fidelity than females, and this particularly during the breeding season (from spring to early autumn).

3. Thicket rats will likely use a restricted number of better insulated nests (and hence linked to a higher percentage usage) during winter and will probably exhibit higher site fidelity than during the rest of the year.

4. Because nestboxes are overabundant in the forest, likely provide a better protection against predators, did not imply any 'construction' costs and require less work to maintain than natural resting sites, rats that use nestboxes will likely exloit a large number of them and be able to often switch between them in order to 'advertise' their presence in the home range as much as possible, or have a quicker access to some food resources. They will therefore exhibit a lower site fidelity and percentage usage of nestboxes than rats that essentially use natural resting sites.

5. Thicket rats will choose resting sites with the same height and located in trunks/branches with similar circumference on both sides (northwest and southeast) of the study area as the only distinguishing factor between the two sites (they both have the same vegetation) is the presence and absence of nestboxes. In addition, no difference is expected for variables characterising resting site use of natural nests.

6. If nests are important resources for thicket rats, and animals are found to be neither territorial nor social, then high quality nests will be used sequentially by several individuals of the same sex.

7. If animals are social, concurrent nest sharing will take place on a frequent basis, particularly in females (Hayes, 2000).

3.3 Materials and methods

3.3.1 Trapping and radio-tracking

Between January and May 2011, trapping with Sherman live-traps was conducted monthly to assess population size of Mozambique thickt rats and identifying the more favourable trapping sites prior to the radio-tracking study. Then, trapping was conducted on a monthly basis from June 2011 to August 2012, either to study microhabitat selection on the southeast site (see Chapter 4 and Table 3.1) or solely with the purpose of marking animals and equip them with radio-collars (Table 3.1). In the latter case, trapping was carried out during 3 days at both the northwest and southeast sites. However, the 3 days would sometimes be extended when not enough animals were trapped for collaring. One hundred and sixty five (165) traps were set on the northwest site, with five traps per 'micro-site' (small area of about 25–50 m^2). On the southeast site, initially 200 traps were set in a similar sequence as at the northwest site, but in November 2011, 150 more traps were set as an expansion of the 200 traps; this was because of a low trapping success, and therefore more animals were needed for the radio-tracking study. Traps were baited with oats mixed with cooking oil. In the colder seasons, because we noticed fatalities before starting the radio-tracking study, traps were covered with a cotton cloth and wrapped with sail, waterproof material, and a roll of cotton was inserted in the traps to mimic nest material.

Trapped thicket rats were weighed using a 60-g or 100-g spring balance scale (Pesola, Baar, Switzerland). Each captured animal was given a unique ear-tattoo number. This required for the animal to be anaesthetized with diethyl-ether to reduce pain as per the request of the University of Fort Hare Research and Ethics Committee (Clearance certificate Nr SAN05 1SGEB02). Marking was done using single-digit spiked numbers (Hauptner Herberholz, Solingen, Germany) and permanent tattoo ink. The age, sex and reproductive status of individuals were also determined. Each season, about 10–16 adult animals weighing >34 g were equipped with SOM-2028 (Wildlife Materials, Murphysboro, Illinois, USA; life expectancy: 5–6 weeks) or BD-2C (Holohil, Carp, Ontario, Canada; life expectancy: 8–9 weeks) radio-collars weighing 1.6–1.8 g, which corresponds to about 5% of the target animals' body mass (Šklíba *et al.*, 2009).

Table 3.1. List of trapping sessions conducted over the two years (2011–2012) of study and the purpose of each trapping session.

Type of trapping	Date	Purpose
Monthly trapping	January–May 2011	Marking of animals
Microhabitat trapping	June 2011	Microhabitat selection*
Monthly trapping	July–August 2011	Equipping with collars
Microhabitat trapping	September 2011	Microhabitat selection*
Monthly trapping	October–November 2011	Equipping with collars
Microhabitat trapping	January 2012	Microhabitat selection*
Monthly trapping	February 2012	Equipping with collars
Microhabitat trapping	April 2012	Microhabitat selection*
Monthly trapping	April–August 2012	Equipping with collars

*See Chapter 4.

Radio-tracking was used to investigate the pattern of use of resting sites by *Grammomys cometes* both in areas with and without nestboxes. Collared individuals were tracked using a hand-held rubber ducky RA-14K 'H' type antenna (Telonics, Mesa, Arizona, USA) and a R-1000 receiver (Communications Specialists, Orange, California, USA). Thicket rats were located in their nests using a combination of triangulation and homing technique. All animals equipped with radio-collars were located once a day, on a basis of 4–7 days per week during a period of 7–9 weeks per season. Locations were obtained between 08h00 in the morning and 18h30 in the afternoon, when the animals were inactive. Tracking was conducted during four seasons starting in winter (July–August 2011), followed by spring (September–October 2011), summer (January–February 2012) and autumn (April–May 2012). Additional winter and spring data were collected from June–August 2012 and September–November 2012, respectively. The height of nests and the circumference of trunks and branches were measured with an 8-m flexible tape measure, using a ladder when necessary.

3.3.2 Expression of results and data analysis

Because thicket rats were radio-tracked over periods of variable duration, a direct comparison of the number of resting sites used by different individuals, and by males and females, was not possible. For this purpose, I calculated an index, namely RS (Resting Site) Index, as the quotient of the total number of resting sites used by an animal, divided by the total number of locations for that animal during the tracking period. This index varies between 0 (when no nest is identified) and 1 (when the animal uses a new resting site at each new location). This index will be particularly small when the animal only uses one resting site over a large number of locations. Site fidelity was defined as the use of the same resting site by a radio-tracked individual on 2 consecutive days. I calculated the percentage of site fidelity (%SF) for all individuals during each of their tracking periods (when relevant). The percentage of shared resting sites (% shared) and the percentage usage (% usage) of each resting site were calculated for each season. A resting site (and therefore nest) was regarded as 'shared' when it was used, either simultaneously or consecutively, by at least two individuals during the whole study period instead of a specific season. The reason for this approach is that some animals could not be tracked over several seasons, and this could have biased the results. It was therefore assumed that a nest shared during a specific season could also be so during other seasons, even if this could not be effectively observed. Percentage usage of a specific nest during a particular season was defined as the percentage of locations in the focal nest as related to the total number of locations obtained during that season. Mean percentage usage is therefore expected to decrease when more resting sites are used, and variation (SD) should be higher when one or a restricted number of resting sites are used more intensively.

Data were entered into a spreadsheet (Microsoft EXCEL 2007). The general analysis of the results was carried out in EXCEL with the use of basic functions and pivot tables. Statistical analyses were performed using SPSS 20.1. T-tests and one-way ANOVAs (for normal distributions) or Mann–Whitney *U* and Kruskal-Wallis tests (for non-normal distributions) were used to compare the following groups of data: 1) males vs females, 2) natural resting sites vs. nestboxes, 3) natural (southeast) site vs. nestbox (northwest) site, 4) animals using nestboxes vs. animals using only natural resting sites and 5) seasons of the year. The variables studied were the height, trunk or branch circumference and percentage usage of resting sites, as well the number of tracking days, locations collected, percentage of days tracked, RS Index, and percentage of site fidelity and shared resting sites. For most of these analyses, only radio-tracking sessions that yielded more than 8 locations were used. Normality was assessed with a Kolmogorov-Smirnov test ($p > 0.05$), while statistical significance was considered for $p < 0.05$. Bonferroni corrections were not applied, as recommended by Nakagawa (2004).

3.4 Results

3.4.1 Study periods, thicket rats tracked and site fidelity

From July 2011 to November 2012, 67 seasonal tracking sessions of 38 different thicket rats (22 males and 16 females) were carried dout (Table 3.2). Twelve males and 10 females were tracked on the natural site, as compared to seven males and four females on the nestbox site. In addition, three males and two females used both sites, either during the same season (males) or during different seasons (females).

The overall mean (± SD) tracking period of individual thicket rats was 28.4 ± 24.6 days (n = 67). A mean of 12.4 ± 9.9 locations were collected per animal per tracking session (n = 67) and each thicket rat was located on average in 52 ± 26% (n = 67) of the days. Individual rats used a mean of 2.54 ± 1.89 different resting sites (range: 1–9) during each tracking session; 14 ± 30% of these resting sites were nestboxes. For radio-tracking sessions during which at least 8 locations were collected (n = 41), resting-site fidelity averaged 85 ± 17%.

Table 3.2. Total number of Mozambique thicket rats *Grammomys cometes* tracked during each season and per site (natural and nestbox). The total number of animals per season does not necessarily correspond to the sum of animals tracked on the natural (southeast) and nestbox (northwest) site, since some inviduals used both sites. Note that some animals were monitored in more than one season.

Period	**Total no. of animals**		**Natural site**		**Nestbox site**	
	M	**F**	**M**	**F**	**M**	**F**
Winter	5	8	5	5	0	3
Spring	9	5	6	3	3	2
Summer	11	8	8	4	5	4
Autumn	13	8	9	6	5	2

3.4.2 Characteristics of resting sites

The 38 radio-tracked animals used a total of 131 resting sites, with several used by more than one individual (see Section *3.4.5*). Ninety-two (70%) of the resting sites were located on the natural (southeast) site, whereas the remaining 39 (30%) resting sites were found on the nestbox (northwest) site. Overall, 26.72% were nestboxes (*n* = 35), 45.04% were inside branches (*n* = 59), 21.37% were inside trunks (*n* = 28), 3.05% (*n* = 4) were located on the ground, 2.29% (*n* = 3) in bushes, 0.76% (*n* = 1) inside dead logs, with one uncertain location (0.76%). Thirty-three of these resting sites were used during two seasons, and three during three seasons.

The trees (*n* = 126) used for the resting sites were predominantly *Combretum caffrum* (60.32%), but several other species were used as resting sites: *Olea europaea* (14.29%), *Buddleja saligna* (7.94%), *Rhus* spp. (7.14%), *Maytenus heterophylla* (5.56%), *Acacia karoo* (3.97%) and *Ziziphus mucronata* (0.79%).

The mean height of resting sites used by thicket rats was 217 ± 119 cm (range: 0–600 cm, *n* = 126). The mean circumference of branches and trunks was 79 ± 35 cm (range: 0–192 cm, *n* = 118) and the mean percentage of usage was 38 ± 35% (range: 3.2–100%, *n* = 131).

3.4.3 Intersexual, intersite and seasonal variations in resting site characteristics

There was no significant difference in the height of nests used by either males or females (*t*-test, $t = 0.296$, df = 124, $p = 0.768$). The circumference of trunks and branches containing resting sites or bearing a nestbox also did not vary between males and females ($t = -0.068$, df = 116, $p = 0.946$) with the difference between means for both groups being less than 0.5 cm (Table 3.3). In contrast, resting sites used by males were associated to an overall lower percentage usage than that used by females ($t = -2.004$, df = 81.095, $p = 0.048$).

Table 3.3. Intersexual comparison of the characteristics of resting sites used by *Grammomys cometes* (1 = male, 2 = female).

	Sex	*n*	Mean	SD	SE
Height (cm)	1	82	218.8	110.4	12.2
	2	44	212.2	135.6	20.4
Circumference (cm)	1	78	78.6	34.5	3.9
	2	40	79.1	35.3	5.6
Usage (%)	1	84	33.2	31.5	3.4
	2	47	46.3	38.2	5.6

There was no significant difference between heights of natural resting sites (i.e. nestboxes excluded) of *G. cometes* from the two study sites (northwest and southeast), respectively (t-test, $t = 0.913$, df = 2.120, $p = 0.453$; Table 3.4). The circumference ($t = 0.306$, df = 81, $p = 0.760$) as well as the percentage usage ($t = 1.502$, df = 4.195, $p = 0.204$) also did not significantly differ from one study site to another. However, sample size was particularly small on the nestbox site.

Table 3.4. Intersite comparison of the characteristics of the natural resting sites used by *Grammomys cometes* (1 = natural or southeast site, 2 = nestbox or northwest site).

	Site	*n*	Mean	SD	SE
Height (cm)	1	88	230.1	138.2	14.7
	2	3	150.7	148.6	85.8
Circumference (cm)	1	81	74.8	31.0	3.5
	2	2	68.0	8.5	6.0
Usage (%)	1	92	41.8	36.4	3.8
	2	4	27.4	17.7	8.9

The height of natural resting sites was higher than that of nestboxes (Mann–Whitney U test, $U = 1{,}041.0$, $p = 0.006$; Table 3.5). Also, thicket rats that used nestboxes showed a lower percentage usage than animals that used natural resting sites (t-test, $t = 2.050$, df = 77.250, $p = 0.044$). However, the circumference did not differ significantly between both categories of resting sites ($t = -1.816$, df = 50.467, $p = 0.075$).

Table 3.5. Comparison of the characteristics of the two types of resting sites (1 = natural resting site, 2 = nestbox) used by *Grammomys cometes*.

	Resting site	*n*	Mean	SD	SE
Height (cm)	1	87	237.9	132.4	14.2
	2	35	188.0	21.8	3.7
Circumference (cm)	1	83	74.6	30.7	3.4
	2	35	88.7	41.4	7.0
Usage (%)	1	91	41.5	36.4	3.8
	2	35	28.8	28.9	4.9

The height of resting sites (ANOVA, F = 0.899, df = 3, p = 0.444) as well as the circumference of trunks and branches (F = 1.971, df = 3, p = 0.122) did not differ significantly between the seasons. Similarly, the percentage usage of resting sites did not vary seasonally (F = 1.785, df = 3, p = 0.153), but the mean value and variation (SD) were much higher in winter than during other seasons.

Table 3.6. Comparison of the characteristics of resting sites used by *Grammomys cometes* over the seasons of the year (1 = spring, 2 = summer, 3 = autumn, 4 = winter).

	Season	*n*	Mean	SD	SE
Height (cm)	1	33	217.2	116.0	20.2
	2	26	260.2	145.7	28.6
	3	51	225.6	120.2	16.8
	4	20	206.1	106.6	23.8
Circumference (cm)	1	30	75.9	29.5	5.4
	2	25	77.9	30.7	6.1
	3	48	73.3	32.5	4.7
	4	20	94.1	40.3	9.0
Usage (%)	1	34	26.5	32.3	5.5
	2	26	30.6	30.5	6.0
	3	53	29.5	31.1	4.3
	4	20	46.8	40.2	9.0

3.4.4 Intersexual, intersite and seasonal variations in the use of resting sites

Comparisons between male and female thicket rats for the yearly tracking period indicated that both groups did not differ significantly in the tested dependent variables, although there was a trend for RS Index being bigger in males than in females (Table 3.7).

Similarly, characteristics of resting site use did not differ between animals that spent all of their time on the natural (southeast) or nestbox (northwest) site and never used nestboxes (Table 3.8). The only exception was represented by site fidelity. However, it has to be noted that sample size was very small for the nestbox (northwest) site, and the observed difference seems to be of little biological significance.

Table 3.7. Intersexual comparison of the variables characterising resting site use by *Grammomys cometes* over the whole year (SF = site fidelity).

Variables	Males		Females		Statistics
	n	Mean + SD	*n*	Mean + SD	
Tracking days	24	42.50 ± 21.22	17	41.65 ± 23.71	$t = 0.121$, df = 39, $p = 0.904$
Location	24	18.38 ± 7.10	17	18.71 ± 8.94	$t = -0.132$, df = 39, $p = 0.895$
%days tracked	24	48.53 ± 21.38	17	49.75 ± 17.47	$t = 0.194$, df = 39, $p = 0.847$
RS Index*	24	0.214 ± 0.11	17	0.16 ± 0.104	$t = 1.465$, df = 39, $p = 0.151$
%SF	24	82.35 ± 18.14	17	87.82 ± 14.0	$t = -1.043$, df = 39, $p = 0.304$
%Shared	24	55.60 ± 30.48	17	53.14 ± 41.60	$t = 0.207$, df = 27.7, $p = 0.837$

*RS Index is the quotient of the total number of resting sites used by an animal, divided by the total number of locations for that animal during the tracking period. This index varies between 0 (when the animal only uses one resting site over an infinite number of locations) and 1 (when the animal uses a new resting site at each new location).

Table 3.8. Inter-site comparison (natural or southeast site vs. nestbox or northwest site) in the variables characterising resting site use by *Grammomys cometes* over the whole year (SF = site fidelity).

Variable	Natural site		Nestbox site		Statistics
	n	Mean + SD	*n*	Mean + SD	
Tracking days	27	39.56 ± 21.39	2	42.00 ± 14.14	$t = -0.158$, df = 27, $p = 0.876$
Location	27	18.44 ± 8.75	2	18.50 ± 4.95	$t = -0.009$, df = 27, $p = 0.993$
%days tracked	27	50.16 ± 19.39	2	44.60 ± 3.25	$t = 0.399$, df = 27, $p = 0.693$
RS Index*	27	0.16 ± 0.09	2	0.09 ± 0.06	$t = 1.025$, df = 27, $p = 0.314$
%SF	27	90.32 ± 11.98	2	100.00 ± 0.00	$t = -4.198$, df = 26, $p < 0.001$
%Shared	27	57.58 ± 35.89	2	50.00 ± 70.71	$t = 0.274$, df = 27, $p = 0.786$

*See definition in Table 3.7.

When rats which only used natural resting sites and animals that used an artificial nestbox (being one or several) in at least 50% of the tracking days were compared, it was found that the latter used proportionally more resting sites (higher RS Index) and exhibited a lower resting site fidelity than the former (Table 3.9).

Although a significant difference in the percentage of days thicket rats were tracked was observed, animals were tracked for a similar number of days (Table 3.10). More importantly, the RS Index was significantly lower in winter than during any other season.

3.4.5 Sharing of resting sites

For thicket rats for which at least 8 locations were collected (n = 41), a mean of 1.63 ± 1.55 resting sites were shared with other rats, and this corresponds to 55 ± 35% (range: 0–100%) of all resting sites used by each of these animals during the study period.

Overall, 65 out of 131 resting sites (49.62%) were shared sequentially and/or concurrently with at least one rat (Table A43). Each of these 65 non-exclusive resting sites was shared by an average (± SD) of 3.20 ± 1.25 individuals (range: 2–6), and more specifically 2.26 ± 1.29 males (range: 0–6) and 0.94 ± 0.86 females (range: 0–3). The 45 resting sites assigned to males were shared with an average (± SD) of 2.20 ± 1.27 individuals (range: 1–5), and more precisely 1.56 ± 1.31 males (range: 0–5) and 0.64 ± 0.74 females (range: 0–3). The 20 resting sites assigned to females were shared with an average (± SD) of 2.20 ± 1.24 individuals (range: 1–4), and more particulalrly 1.60 ± 0.99 males (range: 0–4) and 0.60 ± 0.75 females (range: 0–2).

Concurrent sharing of resting sites only took place in 68 out of 839 locations (8.10%; Table A44). Sharing involved the following groups (n = 31) of individuals: two males (70.97%), three males (19.35%), two females (6.45%) and one female with one male (3.23%). The male–female dyad as well as the female–female associations wer observed in spring (September). The all-male associations were recorded from late summer (14.29%) to early winter (17.86%), with most observations made in autumn (67.86%).

Table 3.9. Comparison of the variables characterising resting site use by *Grammomys cometes* over the whole year, based on whether animals rested in a natural resting site or use a nestbox in at least 50% of the tracking days (SF = site fidelity).

Variable	No nestbox		Nestbox in >50% days		Statistic
	n	Mean ± SD	*n*	Mean ± SD	
Tracking days	29	39.72 ± 20.79	6	53.00 ± 21.49	$t = -1.416$, df = 33, $p = 0.166$
Location	29	18.45 ± 8.49	6	19.67 ± 6.35	$t = -0.331$, df = 33, $p = 0.742$
%days tracked	29	49.78 ± 18.75	6	40.03 ± 11.39	$t = 1.219$, df = 33, $p = 0.232$
RS Index	29	0.16 ± 0.10	6	0.29 ± 0.10	$U = 150.500$, $p = 0.003$
%SF	29	90.98 ± 11.82	6	67.39 ± 22.15	$t = 2.643$, df = 5.602, $p = 0.041$
%Shared	29	57.05 ± 37.13	6	65.67 ± 14.01	$t = -0.962$, df = 21.845, $p = 0.346$

*See definition in Table 3.7.

Table 3.10. Seasonal variations in the variables characterising resting site use by *Grammomys cometes* (SF = site fidelity).

Variable	Spring ($n = 9$)	Summer ($n = 6$)	Autumn ($n = 16$)	Winter ($n = 10$)	Statistics
Tracking days	40.33 ± 22.02	34.50 ± 22.73	43.31 ± 20.80	46.50 ± 25.43	$F = 0.389$, df = 3, $p = 0.762$
Location	20.89 ± 8.22	16.83 ± 4.45	15.19 ± 6.35	22.70 ± 9.21	$F = 2.579$, df = 3, $p = 0.068$
%days tracked	59.46 ± 30.83	58.55 ± 18.54	37.56 ± 8.38	52.3 ± 11.99	$H = 2.161$, df = 3, $p = 0.017$
RS Index	0.20 ± 0.10	0.22 ± 0.12	0.23 ± 0.11	0.11 ± 0.79	$H = 10.361$, df = 3, $p = 0.016$
%SF	82.17 ± 21.00	77.58 ± 16.28	84.34 ± 16.79	91.49 ± 10.97	$F = 1.000$, df = 3, $p = 0.404$
%Shared	51.98 ± 30.22	40.67 ± 42.79	56.29 ± 35.23	62.50 ± 36.69	$F = 0.495$, df = 3, $p = 0.688$

*See definition in Table 3.7.

3.5 Discussion

The results presented here confirmed that thicket rats readily used *Combretum caffrum* cavities as resting sites (Prediction 1). In fact, of the seven recorded tree species that thicket rats used to build their nests inside, the Cape bushwillow was clearly the most dominant one (60%). This prevailing use of *C. caffrum* is not suprising because this tree species is the most abundant at the study site and is prone to rotting from the inside (Lamani, 2010), thus providing readily constructed nest sites. This trend was similar to the observations made for the woodland dormouse *Graphiurus murinus* at the study site, with this other arboreal rodent also predominantly (86.5%) using Cape bushwillows to build its nests (Lamani, 2010).

Males and females used resting sites located at similar heights and in trunks or branches that possessed similar circumferences, indicating that the 'selection' of resting site characteristics was the same across sexes. This contrasts with the hedgehog tenrec *Setifer setosus* of Western Madagascar, in which nest-site characteristics varied widely across the sexes, with lactating females found in higher nests than males (Levesque *et al.*, 2012). In the present study, males used proportionally more resting sites than females (Prediction 2), as inferred from a significantly lower percentage usage of individual resting sites and a strong tendency to have a higher RS Index; this could be explained by the males moving around trying to find mates, especially during the breeding season (from early spring to early autumn). The same observation was made in wood mice *Apodemus sylvaticus* in a Mediterranean agro-forest landscape in Portugal (Rosalino *et al*., 2011), as well as in *Graphiurus murinus* at the study site, where more males were trapped than females during the breeding season (spring; Madikiza *et al*., 2010a). Madikiza *et al.* (2010a) attributed this to a higher mobility of males during the mating season in order to locate females in oestrus rather than to a male-biased sex ratio, since the population contained slightly more females than males (Madikiza, 2010). In thicket rats, this behaviour could also be explained by an increase in territorial coverage (not necessarily over long distances) to spatially exclude rivals, but nest sharing data indicated that several males occupied largely overlapping home ranges (see below). In addition, or as an alternative explanation, the high rate of site fidelity observed in female thicket rats might be linked to a lower mobility of females associated with the rearing of their young, as also suggested by Lutermann *et al.* (2010) in a study on grey mouse lemurs *Microcebus murinus*.

As predicted (Prediction 3), thicket rats used less resting sites (lower RS Index) in winter than during other seasons. In addition, although percentage usage of resting sites and site fidelity by *G. cometes* did not vary significantly on a seasonal basis, mean values and variation were much higher in winter than during other seasons. This again aligns with what was observed in the syntopic woodland dormouse, in which both males and females were less mobile in winter than during other seasons (Lamani, 2010; Madikiza *et al.*, 2010a). This therefore suggests that in winter thicket rats spent more time in a restricted number of resting sites, possibly because these were better insulated. Thicket rats seemed to lose heat quickly (pers. obs.) and so both sexes would use resting sites that will prevent rapid heat loss. Lutermann *et al*. (2010) reported that sleeping sites provide substantial thermoregulatory benefits for individuals, and that would support the above-mentioned results. Even though the resting site circumference did not vary statistically across the seasons, the mean circumference was larger in winter than during other seasons, whereas the average height was lower (the higher you go the colder it becomes) in winter than during the rest of the year. In a study on field voles *Microtus agrestis*, Redman *et al.* (1999) indicated that wall thickness was the most significant factor influencing nest insulation. In the present study wall thickness (especially at the nest level) could not be evaluated, and it is unclear whether a larger branch or trunk circumference would necessarily be associated to a thicker wall.

A lower percentage usage of nestboxes than natural resting sites was observed at the study site; also the individuals that used nestboxes for more than 50% of the days exhibited a higher RS Index and a lower resting site fidelity than animals that used natural resting sites, in accordance with Prediction 4. The simpler explanation that natural resting sites are 'better' than nestboxes can be rejected on the basis that natural resting sites are overabundant at the study site, and therefore thicket rats would not, or at best rarely, make use of nestboxes. Instead, I suggest that using nestboxes represents a low-cost strategy that allows rats using several resting sites in order to 'advertise' their presence in the home range and/or having a quicker access to some food resources, and therefore switching more frequently between them. Alternatively, for these individuals, nest switching could be a result of competition for nestboxes with woodland dormice (Madikiza *et al.*, 2010b), and the possible dominance of woodland dormice in the northwest site might have hindered the use of nestboxes by thicket rats. However, during the study year the woodland dormouse population was particularly low (pers. obs.), and when thicket rats switched nestboxes, the nestboxes that had been used on the previous day were not occupied by dormice nor other thicket rats. In addition, both species generally tended to segregate spatially by using different nestboxes.

The results on the intersite variations confirmed that resting site use did not differ between animals that spent all their time on the natural or nestbox site (Prediction 5). These results should be taken with serious caution, because sample size was small and could be the reason for the lack of statistical difference. That said height and branch or trunk circumference (and therefore diameter) are often associated with insulation, which would explain why the thicket rats from both sites selected approximately the same range of heights and circumferences for their resting sites. Rosalino *et al*. (2011) suggested that wood mice select resting sites in areas that offer good drainage and protect them from predators and human impact. In the present study, both the natural and nestbox sites have similar vegetation, therefore offering thicket rats the same level of 'security'.

Both male and female thicket rats sequentially shared resting sites with several other individuals. Irrespective of the social organization of this species, the observed sharing of nests suggests that it is advantageous to use nests that have already been prepared by other individuals, maybe from previous cohorts. In addition, male thicket rats were found to be sharing resting sites simultaneously with one or two other males, from summer to winter. This clearly suggests some form of tolerance, overlaps in their respective 'home ranges' and therefore a probable lack of territoriality during at least part of the breeding season (Prediction 6). Females, on the other hand, did not readily concurrently share their nests with other females, and although some 'home range' overlaps were here too apparent, they are probably largely solitary. A single instance of a male and a female simultaneously sharing a nest was recorded in spring, at the beginning of the mating season. Similarly, Morzillo *et al.* (2003) reported that for the golden mice *Ochrotomys nuttalli* in southern Illinois, only one male–female pair shared a nest, and that the females of this species were solitary all year round, although some groups of females shared nests. This contrasts with *Graphiurus murinus* for which contemporaneous nest sharing was observed for both female–female and male–female dyads, or even larger aggregations (Madikiza, 2010). Communal nesting is common in small mammals, as the females can share parental responsibilities and gain more protection from predators (Hayes, 2000). Wells *et al.* (2006) reported that the available space inside a nest determines the number of individuals that inhabit the nest and thus is chosen based on the social organization of the inhabitants. In the case of of thicket rats, nothing suggests that the size of their resting sites would severely limit the number of individuals that can share a nest, as most tree cavities are quite 'spacious'. Because concurrent nest sharing mostly concerned males, and not females, it is unlikely that this species is 'social' (Prediction

7) and breeds communally. However, as for woodland dormice at the study site, it seems that the above-mentioned observations suggest that thicket rats might have a promiscuous mating system because of the high inter-sexual and intra-sexual ‘home range’ overlaps. Clearly more studies are needed in order to precisely determine the socio-spatial organization and mating system of *G. cometes*.

Chapter 4

Microhabitat use

4.1 Introduction

In conservation biology, investigation of habitat use by animals is important because it reveals key aspects of the ecology of a particular species, these being the costs and benefits of foraging in specific areas, as well as the importance of weather or habitat structure, and the significance of energy, nutrients and predatory risk to fitness (Kotler *et al.*, 1993), among others. Hence, habitat use and selection are among the most commonly studied aspects in animal ecology (Bertolino, 2007). In addition, Mohammadi (2010) and Avenant (2011) reported that small mammals are often used as an indicator species to reflect aspects of 'integrity', because they play a determinant role in ecosystems by being primary consumers. Thus small mammals show a consistent preference for microhabitats with complex structures and a high density of vegetation (Bowers *et al.*, 1993), which provide both food and protection from predators.

Mohammadi (2010) highlighted that macro- and micro-habitat structures affect small mammal abundance. However, Seagle (1985) indicated that species respond to structural components of their environment on a scale of resolution much finer than gross habitat differences. Thus, microhabitat, defined as the "physical and chemical variables that influence the allocation of time and energy by an individual within its home range" (Mohammadi, 2010) is often a crucial factor determining how small mammals use space.

Habitat use patterns vary according to the species habitat/ecological requiments. For example, Prevedello *et al.* (2009) reported that many studies on patterns of vertical stratification conducted in communities of tropical small mammals showed that different species may use different layers of the forest. It is likely that for arboreal mammals, variables such as canopy cover, basal area (cross-section of tree trunks and stems at their base) and climber density are important (Mudappa *et al.*, 2001). Additionally, vegetation structure is important in investigations of the microhabitat of small mammals, and Ebensperger and Hurtado (2005) linked the influence of plant cover on microhabitat selection with foraging decisions and protection from predators. Kotler (1984) also suggested that habitat selection is enforced by predation risk. It is believed that predatory risk for mammals varies more at the patch level than at the within-patch microhabitat scale (Bowers *et al.*, 1993). Foraging decisions in small mammals are as well influenced by predatory risk. For example, in Argentina, desert rodents were reported to concentrate their foraging activities under plant cover, probably due to increased predation risk in open microhabitats (Mohammadi, 2010). Similarly, while small mammal species differ in mean microhabitat use, their foraging decisions are based on an assessment of both risk and resources (Kotler, 1984).

Responses of small mammals to their environment can be predicted from the features of their preferred micro-habitats. For example, Murúa and González (1982) found that species distribution and diversity in the desert rodent community of Arizona was influenced by foliage height diversity, vegetation density, and soil structure. Similarly, significant microhabitat segregation based on the above-mentioned habitat variables was found in the sympatric rodents *Peromyscus* and *Microtus* in the Walker Branch Watershed (Dueser and Shugart, 1978). Dueser and Shugart (1978) therefore concluded that the local distributions and abundances of rodent species within a habitat often are related directly to the availability of preferred microhabitats.

Bertolino and di Montezemolo (2007) suggested that a comparison of habitat characteristics recorded at trapping points where animals are captured or not captured could help understanding which of the measured variables contribute to microhabitat use by the species. Furthermore, because the resource utilization pattern can be influenced by the distribution and seasonality of critical resources or by the biological conditions of the animals (Bertolino and di Montezemolo, 2007), it is important to evaluate microhabitat selection throughout the different seasons of the year.

4.2 Aim, objectives and predictions

The aim of this study was to determine the microhabitat use and selection by the Mozambique thicket rat in a riverine *Combretum* forest of the Albany Thicket Biome (South Africa).

In particular, I aimed at a) determining the environmental characteristics of sites where thicket rats were trapped, b) evaluating whether thicket rats positively select or avoid specific microhabitat characteristics or structures, and c) assessing whether a set of predictor variables related to microhabitat characteristics can explain the rates of visits to specific trapping stations.

The predictions for this study were:

1. Thicket rats will be caught mostly on the higher traps because they have been previously described as essentially arboreal (Skinner and Chimimba, 2005) and will rarely, if ever, be caught on the ground due to high predation risk.

2. The rats will avoid areas with little or no cover, because they were reported to prefer the denser and more developed forest (Kryštufek *et al.*, 2008). Furthermore rats will be mostly caught in areas with connected vegetation in order to move around the forest without elevated predator detection risk, in conformity with the 'predator avoidance hypothesis' (Kotler, 1984; Ebensperger and Hurtado, 2005).

3. Thicket rats will select branches with small circumferences where the arboreal predators like genets, at the study site, would have difficulty to catch them due to their comparatively heavy weight. Indeed, Matolengwe (2010) reported that rodents dominate the diet of the small-spotted genet *Genetta (genetta) felina* throughout the year, especially during the rodents' breeding season, and that *Grammomys cometes* is the dominant small mammal prey.

4.3 Materials and Methods

4.3.1 Trapping

Trapping was conducted over five-day trapping sessions, on the first or second month of each season, between June 2011 and May 2012. This was accomplished by setting a fixed grid of 96 stations (16 rows × 6 lines) at the study site, with pairs of Sherman live-traps (H. B. Sherman Traps, Tallahassee, Florida, USA; breadth × height × length: 8 × 23 × 9 cm) placed at 10-m intervals. The 192 traps were distributed equitably among the following height categories: on the ground (n = 50), up to 1 m (n = 42), up to 1.5 m (n = 45) and up to 2.5 m (n = 55) above the forest-floor on tree trunks or branches. Oats mixed with cooking oil was used as bait. In winter, traps were covered with a cotten cloth and wrapped with sail, waterproof material and a roll of cotton was inserted in the traps to mimic nests. Traps were checked twice a day, in the morning and late afternoon–early evening. Trapped animals were weighed using a 60-g or 100-g Pesola spring balance scale (Pesola, Baar, Switzerland). Each captured animal was given a unique ear-tattoo number. This required for the animal to be anaesthetized with diethyl-ether to reduce pain and to allow for smooth and stress-free manipulation. Marking was done using single-digit spiked numbers (Hauptner Herberholz, Solingen, Germany) and permanent, white and green tattoo-ink. The age (adult vs. juvenile) was determined based on animal body weight, and animals that weighed less than 20 g were considered juveniles. Females were differentiated from males based on the appearance of genitalia and the presence or absence of (swollen) nipples. All manipulations were approved by the Ethics Committee of the University of Fort Hare (Ethical clearance Nr SAN05 1SGEB02).

4.3.2 Microhabitat use and selection

The analysis of the use and selection of microhabitat by thicket rats was conducted by recording seasonally several variables (Table 4.1) for each trap or at each trapping station. Measurements were effected using a 5-m tape measure. Vegetation cover was assessed inside a 10 × 10 m quadrant centred on the trap (for cover categories, see Table 4.2).

Table 4.1. Microhabitat variables (predictors) that were measured for each trap (n = 192). For possible categories within each variable, see Table 4.2.

Microhabitat variables	Description
Canopy cover	Cover of bushes and trees >150 cm in height
Understory cover[a]	Cover of plants <10 cm, 10–50 cm and 50–150 cm in height
Height	Height at which the trap was placed
Position	Position of the trap relative to ground and vegetation features
Type	Type of vegetation on which the trap was placed
Species	Tree or bush species on which the trap was placed
Circumference	Circumference of branch or tree trunk on which the trap was placed
Connections[a]	Intensity of connectivity with the surrounding vegetation

[a]Determined inside a 10 × 10 m quadrant centred on each trap.

4.3.3 Expression of results and data analysis

The total number of animals was computed both by counting the number of individuals trapped (and marked) and the total number of captures per season (i.e 5-day trapping session) and per year. The same was done for the male:female and adult:juvenile ratios to investigate how they were distributed throughout the year. The percentage trapping success was calculated by dividing the number of traps that caught *G. cometes* by the total number of traps set (n = 192), multiplied by 100. Although other small mammal species were trapped, I did not account for the traps that caught other animals. Indeed, it was impossible to know whether these traps were really unavailable for trapping thicket rats, depending on whether or not, and the time at which each species visited the trap station. Trapping success was done for each day- and night-trapping session, and for each season: winter (June), spring (September), summer (January) and autumn (April). The mean and standard deviations of the nocturnal, diurnal and seasonal trapping success were also calculated. All calculations were carried out in Excel 2007 (Microsoft Inc.).

Statistical analyses were conducted with the software IBM SPSS Statistics 21.0 (SPSS Inc.) and with Excel 2007. Potential differences in continuous variables between all trapping sites (availability) and those where thicket rats were trapped (use) were tested with non-parametric Mann–Whitney U tests, as data were not normally distributed (Kolmogorov-Smirnov tests, $p < 0.05$). Chi-square tests were used to compare availability and use for all categorical (nominal and ordinal) variables. Selection or avoidance of specific categories was investigated with Bonferroni Z tests, following the procedures described in Neu *et al.* (1974) and Alldredge and Ratti (1986).

Generalized Linear Models (GzLMs) were generated in order to evaluate the influence of selected independent or predictor variables (see Table 4.2) on the use of traps (USE), on how frequently the traps were visited by *G. cometes* (ABSFREQ), and on the numbers of *G. cometes* (NOGRAM) and marked individuals (NODGRAM) that were caught in a specific trap. The variable NOGRAM was considered in addition to ABSFREQ in order to take into account the possible capture of multiple individuals in a single trap. A binomial distribution and a logit link function were chosen for the binary dependent variable (USE), whereas negative binomial distributions and log link functions were used to model the three count response variables (ABSFREQ, NOGRAM, NODGRAM). As independent variables were treated as fixed known values in the procedure, there was no concern as to their distribution. The possible effects of the selected independent variables were evaluated with a Type III test, which does not depend on the entry order of variables (Norušis, 2008). In order to build models, all possible combinations of the independent variables (main effects only) were considered. The best fitting model was chosen based on two criteria: 1) $\Delta AIC_c \leq 2$ (Burnham and Anderson, 2002) and 2) $0.75 \leq$ deviance/df ≤ 1.25. In order to meet the second condition, the dispersion parameter k for the negative binomial distributions had, in some cases, to be adjusted until the ratio of the deviance to its degree of freedom was close to 1, therefore indicating that the variability in observed data was similar to the one predicted by the underlying distributions used for the models. No model weighing and averaging was undertaken, as in most cases several 'competing' models were over- or underdispersed. GzLM presented in this dissertation were performed with all yearly trapping events, because the number of captures animals marked seasonally were deemed to low to run multivariate analyses. For this purpose, seasonal vegetation cover and arboreal connectivity scores were averaged and assigned to the nearest matching category (e.g. an average canopy cover of 3.2 would be assigned to category 3). Although arboreal connectivity did not change notably throughout the year, this averaging approach may present the disadvantage of potentially including information on vegetation cover from specific seasons and stations where no animals were caught. However, despite possible biases introduced for the yearly analyses, GzLMs run with seasonal data yielded similar results (not presented here).

Table 4.2. List of the variables used in the Generalized Linear Models (GzLMs) to evaluate the potential influence of predictors on the use and rate of visits to traps by Mozambique thicket rats.

Variables	Type	Definition [units]
USE[a]	Dependent, binary	Use of traps
ABSFREQ[b]	Dependent, count	Absolute frequency of trap use
NOGRAM	Dependent, count	Total number of rats found in each trap
NODGRAM	Dependent, count	Total number of different rats found in each trap
Cover <10 cm[c]	Independent, ordinal	Cover of vegetation <10 cm in height
Cover 10–50 cm[c]	Independent, ordinal	Cover of vegetation 10–50 cm in height
Cover 50–50 cm[c]	Independent, ordinal	Cover of vegetation 50–150 cm in height
Cover >150 cm[c]	Independent, ordinal	Cover of vegetation >150 cm in height
Connections[c]	Independent, ordinal	Connectivity with the surrounding vegetation
Type & Position[d]	Independent, nominal	Vegetation type and position where the trap was placed
Height	Independent, continuous	Trap height above ground
Circumference	Independent, continuous	Tree trunk/branch circumference at trap height
Tree/bush species[e]	Independent, nominal	Tree species on which the trap was placed on

[a]Categories considered were: 0 = trap never 'visited', 1 = trap 'visited' at least once during the study period
[b]Minimum was 0, potential maximum was 20 per season and 80 for the whole study period
[c]Categories considered were: 1 = 0–25%, 2 = 26–50%, 3 = 51–75%, 4 = 76–100%
[d]Categories considered were: 1 = bush, 2 = ground_cover, 3 = ground_open, 4 = log, 5 = tree_canopy, 6 = tree_trunk, 7 = woody interlace
[e]Categories considered were: 1 = *Acacia karoo*, 2 = *Combretum caffrum*, 3 = *Maytenus heterophylla, 4 = Olivea europaea,* 5 = *Ziziphus mucronata*, 6 = *Rhus* spp., 7 = others

4.4 Results

From June 2011 to April 2012, 91 captures of 38 different Mozambique thicket rats (Table 4.3) were made. On average, trapping success was 1.18 ± 1.05% for the whole year (Table 4.4). The mean seasonal trapping success was lowest in spring and increased from summer onward to reach a peak in autumn (Table 4.4). Trapping success was significantly higher during nighttime than during daytime (Mann–Whitney test, $U = 29.5$, $p < 0.001$). During nighttime, trapping success was significantly higher in autumn than during the remaining seasons (Kruskall–Wallis test, $H = 13.494$, df = 3, $p = 0.001$). In contrast, no seasonal variation was recorded during the day ($H = 5.727$, df = 3, $p = 0.126$).

Table 4.3. List of the total number of Mozambique thicket rats (Males vs. Females; Adults vs. Juveniles) trapped each season and during the whole year for the period June 2011 to April 2012. The numbers given in parentheses correspond to the number of captures. The numbers of males and females caught may be smaller than the total number of trapped animals, because the sex of some individuals could not be determined.

Season	Total number of animals	Males	Females	Adults	Juveniles
Winter	7 (20)	3 (6)	4 (14)	6 (18)	1 (2)
Spring	3 (10)	2 (5)	1 (5)	3 (10)	0
Summer	11 (21)	6 (12)	4 (6)	8 (16)	3 (5)
Autumn	17 (40)	9 (20)	8 (20)	11 (32)	6 (8)
Year	38 (91)	20 (43)	17 (45)	28 (76)	10 (15)

The average height at which *G. cometes* individuals were caught was 140 ± 65 cm, while the circumference of the trunks or branches on which the related traps were placed averaged 55 ± 49 cm. The average height at which rats were trapped was significantly higher than the height of traps set in the field (Table 4.5). No difference, however, was recorded for the circumference (Table 4.5). A large proportion of traps (31.3%) where rats were caught were placed on *Combretum caffrum* trees, and majoritarily on trunks (46%), tree canopy (19%) and woody lace (19%; Table 4.6). Additionally, over 95% of these traps were 'protected' by at least 50% of canopy cover (vegetation >150 cm in height) and over 80% of them were situated in areas with arboreal connections in at least 50% of the directions.

Microhabitat selection chi-square tests showed that four variables exhibited significant differences between availability and use data: these were vegetation cover lower than 10 cm, vegetation cover higher than 150 cm, intensity of arboreal connections, and the type of surface and position of the trap (Tables 4.6 and 4.7). Not surprisingly, Bonferroni Z tests indicated that Mozambique thicket rats actively avoided trap stations with less than 50% canopy cover as well as areas that had arboreal connections in less than 50% of the directions (Table 4.7). Rats also significantly avoided traps that were set in bushes and on the ground, irrespective of whether these were situated in open terrain or surrounded by some vegetation (Table 4.7).

The results of GzLMs on yearly (overall) trapping data confirmed that there is a strong association between the vegetation cover surrounding the traps and height of the traps and the four independent (output) variables. The most fitting models (with $\Delta AIC_c < 15$) are displayed in Tables 4.8, 4.11, 4.14 and 4.17, with the best fitting models highlighted in grey. The best (chosen) models had a better explanatory power than the intercept only models (Omnibus test; USE: $\chi^2 = 38.412$, df = 4, $p < 0.001$; ABSFREQ: $\chi^2 = 52.649$, df = 8, $p < 0.001$; NOGRAM: $\chi^2 = 53.251$, df = 8, $p < 0.001$ and NODGRAM: $\chi^2 = 56.556$, df = 8, $p < 0.001$). Two predictors (cover >150 cm and height) had a significant positive effect on the use of traps (USE), whereas three predictors (cover <10 cm, cover >150 cm and height) significantly affected the variables ABSFREQ, NOGRAM and NODGRAM during the study period. All other variables, including connectivity with the surrounding vegetation, tree species, vegetation type and position in which the traps were placed, and tree trunk/branch circumference at trap height, did not have any significant effects.

Table 4.4. Nighttime and daytime trapping success (%) of *Grammomys cometes* during the study period, June 2011 to April 2012, at the Great Fish River Reserve.

Day/Night	Winter	Spring	Summer	Autumn	Year
Night 1	1.56	0.52	2.60	5.21	2.47
Day 1	0.52	0	0.52	0	0.26
Night 2	1.56	0.52	1.56	3.65	1.82
Day 2	0	0.52	0.52	0	0.26
Night 3	2.08	0.52	1.56	4.69	2.12
Day 3	0	0.52	1.04	0	0.39
Night 4	3.13	0.52	0	4.17	1.96
Day 4	0	0.52	0	0	0.13
Night 5	1.56	1.56	3.13	3.13	2.35
Day 5	0	0	0	0	0
NIGHT Mean ± SD	1.98 ± 0.68	0.73 ± 0.47	1.77 ± 1.20	4.17 ± 0.82	2.16 ± 0.27
DAY Mean ± SD	0.10 ± 0.23	0.31 ± 0.28	0.42 ± 0.44	0	0.21 ± 0.15
TOTAL Mean ± SD	1.04 ± 1.10	0.52 ± 0.42	1.09 ± 1.11	2.09 ± 2.27	1.18 ± 1.05

Table 4.5. Height and trunk/branch circumference of all traps set in the field vs. traps where Mozambique thicket rats were caught, and results of the microhabitat selection evaluation (Mann–Whitney *U* test).

	AVAILABILITY (all traps)	USE (traps with *G. cometes)*	SELECTION	
			Statistics	*p*
Height	Mean = 99 SD = 75 Min = 0 Max = 236 *n* = 192	Mean = 140 SD = 65 Min = 0 Max = 236 *n* = 52	*U* = 6,659.5	<0.001
Circumference	Mean = 43 SD = 38.59 Min = 2 Max = 168 *n* = 80	Mean = 55 SD = 48.6 Min = 5 Max = 168 *n* = 31	*U* = 1,468.0	0.183

Table 4.6. List of Chi-square tests carried out to test for potential differences between the available and used traps with regard to the measured ordinal and nominal variables. 1 = 0–25%, 2 = 26–50%, 3 = 51–75% and 4 = 76–100%.

	Available (%) n = 192	**Used (%) n = 52**	χ^2	***p***
Cover <10 cm	1 = 8.9	1 = 19.2	9.06	0.028453
	2 = 15.1	2 = 19.2		
	3 = 36.5	3 = 34.6		
	4 = 39.6	4 = 26.9		
Cover 10–50 cm	1 = 6.8	1 = 13.5	6.74	0.150142
	2 = 17.2	2 = 25.0		
	3 = 39.1	3 = 30.8		
	4 = 37.0	4 = 30.8		
Cover 50–150 cm	1 = 3.6	1 = 1.9	3.74	0.291523
	2 = 27.6	2 = 21.1		
	3 = 59.9	3 = 61.5		
	4 = 8.9	4 = 15.4		
Cover >150 cm	1 = 6.3	1 = 0	13.33	0.003967
	2 = 19.3	2 = 3.8		
	3 = 34.4	3 = 48.1		
	4 = 40.1	4 = 48.1		
Connections	1 = 24.5	1 = 5.8	25.14	<0.001
	2 = 27.1	2 = 11.5		
	3 = 33.3	3 = 53.8		
	4 = 15.1	4 = 28.8		
Type & Position	Bush = 14.1	Bush = 3.8	18.29	0.005548
	Ground cover = 11.5	Ground cover = 3.8		
	Ground open = 11.5	Ground open = 3.8		
	Log = 3.1	Log = 3.8		
	Tree canopy = 19.3	Tree canopy = 19.2		
	Tree trunk = 31.3	Tree trunk = 46.2		
	Woody lace = 9.4	Woody lace = 19.2		
Tree/bush species	*A. karoo* = 11.0	*A. karoo* = 6.3	11.51	0.174328
	C. caffrum = 20.7	*C. caffrum* = 31.3		
	M. heterophylla = 20.0	*M. heterophylla* = 12.5		
	O. europaea = 11.7	*O. europaea* = 8.3		
	Rhus spp. = 12.4	*Rhus* spp. = 16.7		
	Z. mucronata = 6.9	*Z. mucronata* = 14.6		
	Others = 17.2	Others = 10.4		

Table 4.7. Bonferroni Z tests for the selection of traps for four significant categorical variables during the period June 2011 to April 2012. *n* = , P_e = expected proportion, P_o = observed proportion, (–) significant avoidance of the category, (=) category used according to its availability, (+) significant selection of the category.

Microhabitat variables available and/or used by the thickets rats	P_e	P_o	Bonferroni Confidence interval for P_o	Selection
Vegetation cover <10 cm ($n = 52$, df = 3, $p = 0.03$)				
0–25%	0.09	0.19	$0.06 \leq P_o \leq 0.33$	=
26–50%	0.15	0.19	$0.06 \leq P_o \leq 0.33$	=
51–75%	0.36	0.35	$0.18 \leq P_o \leq 0.51$	=
76–100%	0.40	0.27	$0.12 \leq P_o \leq 0.42$	=
Vegetation cover >150 cm ($n = 52$, df = 3, $p = 0.004$)				
0–25%	0.06	0.00	$0.00 \leq P_o \leq 0.00$	–
26–50%	0.19	0.04	$-0.03 \leq P_o \leq 0.11$	–
51–75%	0.34	0.48	$0.30 \leq P_o \leq 0.66$	=
76–100%	0.40	0.48	$0.30 \leq P_o \leq 0.66$	=
Connections ($n = 52$, df = 3, $p < 0.001$)				
0–25%	0.24	0.06	$-0.02 \leq P_o \leq 0.14$	–
26–50%	0.27	0.12	$0.00 \leq P_o \leq 0.23$	–
51–75%	0.33	0.54	$0.36 \leq P_o \leq 0.71$	+
76–100%	0.15	0.29	$0.13 \leq P_o \leq 0.45$	=
Type & Position ($n = 52$, df = 6, $p = 0.006$)				
Bush	0.14	0.04	$-0.03 \leq P_o \leq 0.11$	–
Ground cover	0.115	0.04	$-0.03 \leq P_o \leq 0.110$	–
Ground open	0.115	0.04	$-0.03 \leq P_o \leq 0.110$	–
Log	0.03	0.04	$-0.03 \leq P_o \leq 0.11$	=
Tree canopy	0.19	0.19	$0.05 \leq P_o \leq 0.34$	=
Tree trunk	0.31	0.46	$0.28 \leq P_o \leq 0.65$	=
Woody lace	0.09	0.19	$0.05 \leq P_o \leq 0.34$	=

Table 4.8. List of alternate fitted models for which a subset of independent variables better explained (Omnibus test) the values of the response variable USE than intercept-only models. The model selected is highlighted in grey.

Variable	Deviance/df	LR χ^2	df	*p*	AIC_c	ΔAIC_c
Cover <10 cm + Cover 10–50 cm + Cover >150 cm + Height	1.085	52.734	11	<0.001	185.525	13.757
Cover <10 cm + Cover >150 cm + Height	1.128	48.974	8	<0.001	182.532	10.764
Cover >150 cm + Height	1.179	38.412	4	<0.001	171.768	0.000

Table 4.9. Effects of canopy cover and height on the usage of traps (USE) by Mozambique thicket rats according to the results of a GzLM procedure (Type III test).

Parameters	Wald χ^2	df	*p*
(Intercept)	0.000	1	0.999
Cover >150 cm	8.032	3	0.045
Height	12.742	1	<0.001

Table 4.10. Parameter estimates of a GzLM procedure aiming at testing the effects of canopy cover and height at which the trap was placed, on the use (USE) of the traps by Mozambique thicket rats. Cover >150 cm_1 = 0–25%, Cover >150 cm_2 = 25–50%, Cover >150 cm_3 = 50–75%, Cover >150 cm_4 = 75–100%.

Parameters	B	SE	χ^2	df	*p*
Intercept	–1.858	0.4257	19.036	1	<0.001
Cover >150 cm_1	–21.168	22379.6677	0.001	1	0.999
Cover >150 cm_2	–1.870	0.7797	5.755	1	0.016
Cover >150 cm_3	0.338	0.3710	0.831	1	0.362
Cover >150 cm_4	0[a]	—	—	—	—
Height	0.009	0.0026	12.742	1	<0.001
Scale	1[b]				

[a]Hessian matrix singularity is caused by this parameter. The parameter estimates at the last iteration is displayed
[b]Set to zero because this parameter is redundant

Table 4.11. List of alternate fitted models for which a subset of independent variables better explain (Omnibus test) the values of the response variable ABSFREQ than intercept-only models. The model selected is highlighted in grey.

Variable	Deviance/df	LR χ^2	df	*p*	AIC_c	ΔAIC_c
Cover <10 cm + Cover 10–50 cm + Cover >150 cm + Height	0.708	52.175	11	<0.001	329.036	2.001
Cover >150 cm + Height	0.759	37.586	4	<0.001	328.204	1.852
Cover <10 cm + Cover >150 cm + Height (scale = 1)	0.718	48.106	8	<0.001	326.352	0.953
Cover <10 cm + Cover >150 cm + Height (scale = 0.7)	0.789	52.649	8	<0.001	327.305	0.000
Cover <10 cm + Cover >150 cm + Height (scale = 0.15)	1.005	64.714	8	<0.001	336.978	9.673

Table 4.12. Effects of vegetation cover (grass and canopy) and height on how frequently (ABSFREQ) traps were used by Mozambique thicket rats according to the results of a GzLM procedure (Type III test).

Parameters	Wald χ^2	df	*p*
(Intercept)	16.486	1	<0.001
Cover <10 cm	10.903	4	0.028
Cover >150 cm	10.106	2	0.006
Height	7.127	1	0.008

Table 4.13. Parameter estimates of a GzLM procedure aiming at testing the effects of vegetation cover (grass and canopy) and height at which the trap was placed, on how frequently (ABSFREQ) Mozambique thicket rats used the traps. Cover >150 cm_1 = 25%, Cover >150 cm_2 = 25–50%, Cover >150 cm_3 = 50–75%, Cover >150 cm_4 = 75–100%; Cover <10 cm_0 = 0%, Cover <10 cm_1 = 0–25%, Cover <10 cm_2 = 25–50%, Cover <10 cm_3 = 50–75%, Cover <10 cm_4 = 75–100%.

Parameters	**B**	**SE**	χ^2	**df**	***p***
Intercept	–28.244	1.0332	747.231	1	<0.001
Cover >150 cm_1	0[a]	—	—	—	—
Cover >150 cm_2	26.950[b]	—	—	—	—
Cover >150 cm_3	29.216	0.75.20	1590.210	1	<0.001
Cover >150 cm_4	28.817	0.7627	1427.473	1	<0.001
Height	0.005	0.0019	7.127	1	0.008
Cover <10 cm_0	0[a]	—	—	—	—
Cover <10 cm_1	–1.437	0.8274	3.018	1	0.082
Cover <10 cm_2	–2.009	0.8078	6.187	1	0.013
Cover <10 cm_3	–1.822	0.7641	5.689	1	0.017
Cover <10 cm_4	–2.312	0.7770	8.850	1	0.003
Scale	1[c]				
Negative binomial	0.7[c]				

[a]Hessian matrix singularity is caused by this parameter. The parameter estimates at the last iteration is displayed
[b]Set to zero because this parameter is redundant
[c]Fixed at the displayed value

Table 4.14. List of alternate fitted models for which a subset of independent variables better explain (Omnibus test) the values of the response variable NOGRAM than intercept-only models. The model selected is highlighted in grey.

Variable	**Deviance/df**	**LR** χ^2	**df**	***p***	AIC_c	ΔAIC_c
Cover <10 cm + Cover 10–50 cm + Cover >150 cm + Height	0.700	52.993	11	<0.001	330.480	1.720
Cover <10 cm + Cover >150 cm + Height (scale = 1)	0.712	48.692	8	<0.001	328.027	0.733
Cover <10 cm + Cover >150 cm + Height (scale = 0.7)	0.783	53.251	8	<0.001	328.760	0.000
Cover >150 cm + Height	0.754	38.094	4	<0.001	329.958	1.198

Table 4.15. Effects of vegetation cover (grass and canopy) and height on the total number of Mozambique thicket rats (NOGRAM) trapped according to the results of a GzLM procedure (Type III test).

Parameters	Wald χ^2	df	*p*
(Intercept)	16.566	1	<0.001
Cover >150 cm	9.824	2	0.007
Height	7.611	1	0.006
Cover <10 cm	10.912	4	0.028

Table 4.16. Parameter estimates of a GzLM procedure aiming at testing the effects of vegetation cover (grass and canopy) and height at which the trap is placed, on the number of rats (NOGRAM) that used the traps. Cover >150 cm_1 = 25%, Cover >150 cm_2 = 25–50%, Cover >150 cm_3 = 50–75%, Cover >150 cm_4 = 75–100%; Cover <10 cm_0 = 0%, Cover <10 cm_1 = 0–25%, Cover <10 cm_2 = 25–50%, Cover <10 cm_3 = 50–75%, Cover <10 cm_4 = 75–100%.

Parameters	B	SE	χ^2	df	*p*
Intercept	–28.196	1.0337	744.205	1	<0.001
Cover >150 cm_1	0[a]	—	—	—	—
Cover >150 cm_2	29.910[b]	—	—	—	—
Cover >150 cm_3	29.159	0.7522	1502.559	1	<0.001
Cover >150 cm_4	28.782	0.7626	1424.462	1	<0.001
Height	0.005	0.0019	7.611	1	0.006
Cover <10 cm_0	0[a]	—	—	—	—
Cover <10 cm_1	–1.463	0.8281	3.122	1	0.077
Cover <10 cm_2	–1.973	0.8066	5.986	1	0.014
Cover <10 cm_3	–1.848	0.7651	5.832	1	0.016
Cover <10 cm_4	–2.337	0.7783	9.018	1	0.003
Scale	1[c]				
Negative binomial	0.7[c]				

[a]Hessian matrix singularity is caused by this parameter. The parameter estimates at the last iteration is displayed
[b]Set to zero because this parameter is redundant
[c]Fixed at the displayed value

Table 4.17. List of alternate fitted models for which a subset of independent variables better explain (Omnibus test) the values of the response variable NODGRAM than intercept-only models. The model selected is highlighted in grey.

Variable	Deviance/df	LR χ^2	df	*p*	AIC$_c$	ΔAIC$_c$
Cover <10 cm + Cover 10–50 cm + Cover >150 cm + Height	0.682	49.950	11	<0.001	324.386	4.550
Cover >150 cm + Height + Tree/Bush Species	0.659	55.415	13	<0.001	323.551	3.715
Cover >150 cm + Height	0.722	37.573	4	<0.001	321.342	1.506
Cover <10 cm + Cover >150 cm + Height (scale = 1)	0.678	48.622	8	<0.001	318.960	0.876
Cover <10 cm + Cover >150 cm + Height (scale = 0.7)	0.743	53.020	8	<0.001	318.890	0.946
Cover <10 cm + Cover >150 cm + Height (scale = 0.5)	0.799	56.556	8	<0.001	319.836	0.000
Cover <10 cm + Cover >150 cm + Height (scale = 0.05)	1.004	67.385	8	<0.001	329.623	9.787

Table 4.18. Effects of vegetation cover (grass and canopy) and height on the number of different Mozambique thicket rats (NODGRAM) that were trapped according to the results of a GzLM procedure (Type III test).

Parameters	Wald χ^2	df	*p*
(Intercept)	19.756	1	<0.001
Cover <10 cm	12.927	4	0.012
Cover >150 cm	8.576	2	0.014
Height	10.088	1	0.001

Table 4.19. Parameter estimates of a GzLM procedure aiming at testing the effects of vegetation cover (grass and canopy) and height at which the trap was placed, on the number of different Mozambique thicket rats (NODGRAM) that used the traps. Cover <10 cm_0 = 0%, Cover <10 cm_1 = 0–25%, Cover <10 cm_2 = 25–50%, Cover <10 cm_3 = 50–75%, Cover <10 cm_4 = 75–100%; Cover >150 cm_1 = 25%, Cover >150 cm_2 = 25–50%, Cover >150 cm_3 = 50–75%, Cover >150 cm_4 = 75–100%.

Parameters	B	SE	χ^2	df	*p*
Intercept	–28.099	0.9818	819.171	1	<0.001
Cover <10 cm_4	–2.465	0.7107	12.032	1	0.001
Cover <10 cm_3	–1.972	0.6971	8.004	1	0.005
Cover <10 cm_2	–2.097	0.7371	8.098	1	0.004
Cover <10 cm_1	–1.737	0.7698	5.088	1	0.024
Cover <10 cm_0	0[a]	—	—	—	—
Cover >150 cm_4	28.740	0.7560	1444.992	1	<0.001
Cover >150 cm_3	29.014	0.7478	1505.403	1	<0.001
Cover >150 cm_2	26.871[b]	—	—	—	—
Cover >150 cm_1	0[a]	—	—	—	—
Height	0.006	0.0019	10.088	1	0.001
Scale	1[c]				
Negative binomial	0.5[c]				

[a]Hessian matrix singularity is caused by this parameter. The parameter estimates at the last iteration is displayed
[b]Set to zero because this parameter is redundant
[c]Fixed at the displayed value

4.5 Discussion

This study showed that autumn was the season with the highest trapping success and the highest number of different marked individuals of *Grammomys cometes*. This observation coincides with the results from another research project conducted in the Afromantane forest of Hogsback (about 80 km away from the present study site), where Malinga (2003) recorded a higher population size in April. This author hypothesized that the autumnal population peak resulted from summer breeding, in other words during the wetter, warmer months, when food abundance is higher and most females can be reproductively active.

Most *Grammomys cometes* were caught at night, thus confirming that these animals are nocturnal (Skinner and Chimimba, 2005). Trapping success during the day was very low, less than 1%, with autumn having no captured animals at all during the day. This could be explained by an increase in the abundance of other diurnal species in the forest during this trapping session. Indeed, during the other seasons, there was a clear spatial segregation with other species, notably the four-striped mouse *Rhabdomys pumilio*, whose individuals were initially mostly caught at the edge of the forest, but over time were found inside the forest and, in autumn, were more abundant than representatives of any other species, including thicket rats. The pattern of trapping success observed for thicket rats was slightly different than that observed for *Graphiurus murinus*, another arboreal and nocturnal species found in the same study site. Indeed, although woodland dormice were at their peak of trapping success in autumn, they were reported to increase from spring and drop in winter (Madikiza *et al.*, 2010a). No similar winter drop was recorded for thicket rats; a low trapping success was instead recorded in spring. Dali (2006) suggested that the drop they also observed at the end of winter and in spring might be due to the fact that some females were possibly less mobile due to pregnancy or babysitting duties. However, because few males were caught during that period too, it is possible that the observed pattern is linked to increased mortality due to harsh climatic conditions during winter.

This study indicated that thicket rats positively selected a high stratum (canopy) of the forest for their nocturnal movements (Prediction 1), and this confirms that they are truly arboreal (Skinner and Chimimba, 2005). This selection can also possibly be linked with the preference of this species for denser and more developed forest (Kryštufek *et al.*, 2008), as at the selected height, cover density was also often high. This said, thicket rats were also caught on the ground on a few occasions. This closely corresponds to the findings of Malinga (2003) and

Dali (2006) at the Hogsback study site, where 75% and 82% of individuals were caught above ground, and only 25% and 18% on the ground, respectively. The lack of literature on the diet of this species makes it difficult to prove that such forays on the ground are linked to foraging purposes, but this explanation seems to be most suitable one at this stage.

Habitat selection analyses also showed that thicket rats positively selected areas with important arboreal connectivity as well as an important canopy cover, and this could be a strategy to reduce predation risk (Prediction 2). Bowers *et al.* (1993) suggested that predatory avoidance strategies of rodents involve the selection of large-scale features of the landscape more than shifts in the use of structural microhabitats. However, their results also indicated that *Microtus pennsylvanicus* and *Peromyscus leucopus* individuals residing on "large patches" altered use of micro-habitats/habitats to a greater extent than those on smaller patches. A similar situation can be deducted from the present study. Whereas thicket rats are clearly more abundant in riverine *Combretum* forests (i.e. large-scale features) than adjoining habitats (Arnolds, 2009), specific features of the microhabitat clearly differed between all trapping stations and those where thicket rats where caught. Ebensperger and Hurtado (2005) also suggested that there could be a link between the amount of plant cover (shrubs, trees) and the vigilance activity of animals. Murúa and González (1982) found that two Chilean Cricetid rodent species, *Akodon olivaceus brachiotis* and *Oryzomys longicaudatus philippii*, respectively, were more frequently found in optimal environments, and these environments could be distinguished by the frequency at which resident animals were trapped in specific locations. Thicket rats were reported to be strictly tied to a closed canopy forest (Kryštufek *et al.*, 2008) and the present study clearly confirms such findings. The selection of a denser canopy cover was also observed in the *G. murinus* population at the study site. Madikiza *et al.* (2010a) reported the possibility that dormice avoid open areas and isolated trees. The authors linked this observation to the species using these trees as wooden corridors, as woodland dormice were never caught on the ground. Although they could not confirm it in their study, Madikiza *et al.* (2010a) suggested that the risk of predation at the study site by the nocturnal predators may be higher in open and semi-open terrain than inside the riverine forest. Hence, both *G. murinus* and *G. cometes* would likely prefer to move in vegetation with a high canopy cover. Similarly, Eccard *et al.* (2006) found that the distribution and abundance of the arboreal black-tailed tree rat *Thallomys nigricauda* may be determined by the structure of woodland and the relative abundance of large trees.

Analyses also indicated that the presence of thicket rats was associated with a low cover of vegetation <10 cm. Rather than a direct role of the absence of 'grass' cover, this result can likely be explained by the fact that there is generally less vegetation under big trees, and as we have seen, thicket rats selected areas with high canopy cover. In contrast to this, for the two Chilean rodents mentioned above, *Akodon olivaceus brachiotis* and *Oryzomys longicaudatus philippii*, lower vegetation seemed to play an important role, and so Murúa and González (1982) linked the selection of shrub and herbaceous cover by these two species to morphological characteristics, especially to their locomotion.

Finally, this study disproved that thicket rats would choose areas with small branches to avoid predators (Prediction 3). However, it is possible that the selection of larger trunks and branches allows for quicker movements from nests to feeding areas, or between two feeding areas, even if there is little cover. This could constitute another efficient strategy to decrease predation risk.

The lack of knowledge on other aspects of the life and natural history of *G. cometes*, including diet, makes it difficult to draw conclusions on possible other factors affecting microhabitat selection in this species. Further research is needed in order to improve our knowledge on this largely unstudied arboreal rodent species.

CONCLUSION

In this dissertation, I presented for the first time information on the resting site ecology and microhabitat use of the Mozambique thicket rat across a full seasonal cycle in a riverine *Combretum* forest in the Great Fish River Reserve. I essentially provided data on a) the location and characteristics of *Grammomys cometes* resting or sleeping sites, b) the number of resting sites used by individual males and females, c) the patterns of resting site use, d) the environmental characteristics of sites where thicket rats were trapped during the night, and e) microhabitat selection by this species during its nocturnal activity period.

At the beginning of the study, I formulated predictions related to environmental (macro- and micro-habitat characteristics, intersite variations, seasonal weather conditions) and biological factors (differential male and female reproductive strategies, energetic expenditure, predation risk). The following was found:

1. Thicket rats readily used natural cavities in *Combretum caffrum* trees as nesting sites. About 60% of resting sites were indeed found in Cape bushwillows during the study period; **prediction fully met.**

2. Males used proportionally more resting sites than females. However, overall males did not exhibit a significantly lower site fidelity than females; **prediction partially met.**

3. Radio-tracked animals used a restricted number of (possibly better insulated) resting sites or nests during the colder seasons of the study period. Resting site fidelity also increased in winter, but the difference with the remaining seasons was not statistically significant; **prediction partially met**.

4. Individual rats that readily slept in nestboxes used more resting sites and changed resting sites more frequently than the animals that essentially used natural nests; **prediction fully met**. It is possible that using nestboxes represents a low-cost strategy that allows rats using several resting sites in order to 'advertise' their presence in the home range and/or having a quicker access to some food resources.

5. Thicket rats chose resting sites with the same height and which were located in trunks/branches with a similar circumference on both sides (northwest and southeast) of the study area. In addition, no difference was observed for variables characterising resting site use of natural nests. This might be explained by the fact that the only distinguishing

factor between the two sites is the presence and absence of nestboxes. Hower sample size was severely biased, and these conclusions are only preliminary; **prediction partially met**.

6. As it is probably advantageous to use nests that have already been prepared by other individuals, thicket rats were found to be sharing resting sites sequentially with one to several individuals of both sexes. It is suggested that neither male nor female thicket rats are territorial.

7. Concurrent nest sharing in *Grammomys cometes* was observed in males (especially in summer and autumn), but not in females. It is therefore unlikely that this species is 'social' and breeds communally.

8. Thicket rats selected a high stratum of the forest for their nocturnal movements and were very rarely caught on the ground, proving that they are truly arboreal; **prediction met.**

9. During their activity period, thicket rats positively selected areas characterised by high canopy cover and extensive arboreal connectivity, possibly in order to reduce predation risk; **prediction met.**

10. Thicket rats did not select small branches when moving in the vegetation at night, thus disproving that they would do so in order to reduce predation risk by comparatively heavy arboreal predators like genets; **prediction not met.**

Of course, the above-mentioned conclusions must be put into perspective with the characteristics of the samples used for the analyses, and must therefore be considered with some caution. Also, the lack of knowledge on other aspects of the life and natural history of the Mozambique thicket rat, including diet, makes it difficult to draw conclusions on possible other factors affecting resting site ecology and microhabitat selection in this species. Interestingly, trapping and radio-tracking data indicate that in GFRR male *G. cometes* are largely tolerant towards each other and regularly share nests, whereas females tend to be solitary. In addition, the spatial distribution of resting sites (data not presented in this dissertation) suggests that thicket rats have a promiscuous mating system because of the high inter-sexual and intra-sexual 'home range' overlaps. Clearly more studies are needed in order to precisely determine the socio-spatial organization and mating system of the Mozambique thicket rat, and more generally to improve our knowledge on the biology and ecology of this largely unstudied arboreal rodent species.

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APPENDICES

Table A1. Overview of the tracking period and resting site ecology of male and female thicket rats tracked during winter 2011 and 2012.

Animal	Sex	Site	Start	Stop	Tracking period	Locations	%days tracked	No RS	No NBX	%NBX	%NBX2	%SF	No Shared	%Shared
GcB21S	Male	Natural	28.07.2011	31.08.2011	35	25	71.4	3	0	0	0	80	1	33.33
GcB4	Female	Natural	28.07.2011	25.08.2011	29	16	55.2	1	0	0	0	59	1	100
GcB74	Female	Natural	30.07.2011	30.07.2012	1	1	100	1	0	0	0	0	0	0
GcW12	Male	Natural	30.07.2011	01.09.2011	33	24	72.7	2	0	0	0	95	1	50
GcW71	Female	Natural	31.07.2011	01.09.2011	33	16	48.5	1	0	0	0	100	1	100
GcG11	Female	Nestbox	02.06.2012	08.06.2012	8	5	62.5	1	0	0	0	100	0	0
GcG20F	Female	Natural	02.06.2012	26.08.2012	83	37	44.6	3	0	0	0	82.1	2	66.67
GcG25	Male	Natural	02.06.2012	26.08.2012	83	33	39.8	2	0	0	0	96	2	100
GcG30	Male	Natural	02.06.2012	23.06.2012	22	13	59.1	4	0	0	0	71.4	1	25
GcW76	Female	Natural	02.06.2012	26.08.2012	83	34	41.0	1	0	0	0	100	1	100
GcW84	Male	Natural	02.06.2012	08.06.2012	7	5	71.4	1	0	0	0	100	1	100
GcW85	Female	Nestbox	02.06.2012	03.07.2012	32	14	43.8	2	2	100	100	88	1	50
GcW86	Female	Nestbox	02.06.2012	03.07.2012	32	15	46.9	2	0	0	0	100	0	0

Table A1. Continued.

Animal	Sex	Site	Start	Stop	Tracking period	Locations	%days tracked	No RS	No NBX	%NBX	%NBX2	%SF	No Shared	%Shared
Average					37	18	58.2	1.8	0.2	7.7	7.7	85.8	0.9	55.8
SD					29	12	17.3	1.0	0.6	27.7	27.7	27.6	0.6	41.6
Min					1	1	39.8	1	0	0	0	0	0	0
Max					91	31	100.0	4	2	100	100	100	2	100

No RS = Number of resting sites used during the tracking period; No NBX = Number of nestboxes used during the tracking period; %NBX = Percentage of individual resting sites that were nestboxes; %NBX2 = Percentage of time that a focal animal used a nestbox to rest; %Shared = Percentage of individual resting sites shared simultaneously or consecutively with at least one other thicket rat.

Table A2. Overview of the tracking period and resting site ecology of male and female thicket rats tracked during spring 2011 and 2012.

Animal	Sex	Site	Start	Stop	Tracking period	Locations	%days tracked	No RS	No NBX	%NBX	%NBX2	%SF	No Shared	%Shared
GcB21S	Male	Natural	01.09.2011	30.11.2011	91	31	34.1	7	0	0	0	57.1	3	42.86
GcW13	Female	Nestbox	14.10.2011	24.10.2011	11	5	45.5	2	0	0	0	100	0	0
GcW76	Female	Natural	23.09.2012	09.10.2012	17	3	17.6	1	0	0	0	100	1	100
GcW22	Male	Nestbox	15.10.2011	17.10.2011	3	1	33.3	1	0	0	0	0	0	0
GcW23	Male	Nestbox	06.11.2011	30.11.2011	25	24	96.0	4	1	4.2	4.2	73	0	0
GcW36	Male	Natural	06.11.2011	30.11.2011	25	25	100.0	4	0	0	0	88	3	75
GcW41	Female	Natural	31.10.2011	30.11.2011	31	31	100.0	6	0	0	0	79	1	16.67
GcG18	Female	Natural	14.10.2012	28.10.2012	15	1	6.7	1	0	0	0	0	1	100
GcG19	Male	Natural	14.10.2012	14.11.2012	32	9	28.1	2	0	0	0	100	1	50
GcG40	Male	Natural	27.09.2012	14.11.2012	31	10	32.3	2	0	0	0	100	1	50
GcG24	Female	Nestbox	24.09.2012	14.11.2012	52	22	42.3	1	0	0	0	100	1	100
GcG25	Male	Natural	23.09.2012	27.09.2012	5	1	20.0	1	0	0	0	0	1	100
GcG26	Male	Nestbox	21.09.2012	13.10.2012	23	14	60.8	6	4	29	83.3	44	4	66.67

Table A2. Continued.

Animal	Sex	Site	Start	Stop	Tracking period	Locations	%days tracked	No RS	No NBX	%NBX	%NBX2	%SF	No Shared	%Shared
GcG30	Male	Natural	23.09.2012	14.11.2012	53	22	41.5	3	0	0	0	100	2	66.67
Average					27	13	56.0	2.9	0.4	2.4	6.3	67.1	1.4	58.42
SD					24	12	33.7	2.2	1.1	7.7	22.2	40.4	1.2	40.53
Min					1	1	6.7	1	0	0	0	0	0	0
Max					91	31	100.0	7	4	29	83.3	100	4	100

For abbreviations, see Table A1.

Table A3. Overview of the tracking period and resting site ecology of male and female thicket rats tracked during summer 2011–2012.

Animal	Sex	Site	Start	Stop	Tracking period	Locations	%days tracked	No RS	No NBX	%NBX	%NBX2	%SF	No Shared	%Shared
GcB21S	Male	Both	10.12.2012	25.02.2012	78	19	24.4	7	2	11	5.3	57	6	85.71
GcG1	Male	Natural	21.02.2012	25.02.2012	5	4	80.0	2	0	0	0	100	0	0
GcG2	Female	Natural	21.02.2012	25.02.2012	5	4	80.0	2	0	0	0	50	1	50
GcG3	Male	Nestbox	20.02.2012	25.02.2012	6	5	83.3	2	3	60	100	33	2	100
GcW13	Female	Nestbox	28.02.2012	28.02.2012	1	1	100.0	1	1	100	100	0	1	100
GcW23	Male	Nestbox	08.12.2011	08.12.2012	1	1	100.0	1	1	100	100	0	0	0
GcW33	Male	Natural	27.01.2012	25.02.2012	30	20	66.6	2	0	0	0	88	2	100
GcW36	Male	Natural	10.12.2011	11.12.2011	2	2	100.0	1	0	0	0	100	1	100
GcW41	Female	Natural	10.12.2011	11.12.2011	2	2	100.0	1	0	0	0	100	1	100
GcW60	Female	Natural	27.01.2012	28.01.2012	2	1	50.0	1	0	0	0	100	0	0
GcW61	Male	Natural	27.01.2012	25.02.2012	30	19	63.3	4	0	0	0	67	1	25
GcW62	Male	Nestbox	27.01.2012	25.02.2012	30	18	60.0	3	1	6	16.7	77	1	33.33
GcW63	Male	Natural	27.01.2012	30.01.2012	4	1	25.0	1	0	0	0	0	0	0

Table A3. Continued.

Animal	Sex	Site	Start	Stop	Tracking period	Locations	%days tracked	No RS	No NBX	%NBX	%NBX2	%SF	No Shared	%Shared
GcW64	Female	Natural	28.01.2012	25.02.2012	29	17	57.0	2	0	0	0	100	0	0
GcW70	Male	Natural	28.01.2012	17.02.2012	21	5	24.0	1	0	0	0	100	0	0
GcW84	Male	Both	16.02.2012	25.02.2012	10	4	40.0	4	2	50	50	0	3	75
GcW85	Female	Nestbox	16.02.2012	25.02.2012	10	8	80.0	3	2	25	25	67	0	0
GcW86	Female	Nestbox	23.02.2012	23.02.2012	1	1	100.0	1	1	100	100	0	1	100
GcW87	Female	Nestbox	17.02.2012	25.02.2012	9	7	78.0	2	2	100	100	80	1	50
Average					15	7	69.0	2.2	0.7	29.1	31.4	48.9	1.1	48.37
SD					19	7	26.7	1.5	0.9	41.4	43.9	42.2	1.4	44.25
Min					1	1	24.0	1	0	0	0	0	0	0
Max					78	20	100.0	7	3	100	100	100	6	100

For abbreviations, see Table A1.

Table A4. Overview of the tracking period and resting site ecology of male and female thicket rats tracked during autumn 2012.

Animal	Sex	Site	Start	Stop	Tracking period	Locations	%days tracked	No RS	No NBX	%NBX	%NBX2	%SF	No Shared	%Shared
GcW87	Female	Nestbox	01.03.2012	09.05.2012	70	26	37.1	9	6	23	73.1	56	6	66.67
GcB21S	Male	Natural	01.03.2012	06.04.2012	37	13	35.1	4	1	8	8	88	2	50
GcG1	Male	Natural	01.03.2012	20.04.2012	51	15	29.4	3	0	0	0	78	0	0
GcG11	Female	Natural	02.05.2012	09.05.2012	8	2	25.0	1	0	0	0	100	0	0
GcG12	Male	Natural	26.04.2012	17.05.2012	22	9	41.0	1	0	0	0	100	1	100
GcG2	Female	Natural	01.03.2012	20.04.2012	51	17	33.3	2	0	0	0	100	1	50
GcG20F	Female	Natural	26.04.2012	09.05.2012	14	8	57.1	1	0	0	0	100	1	100
GcG20M	Male	Nestbox	26.03.2012	19.05.2012	55	18	33.0	6	5	28	52.6	40	3	50
GcG21	Male	Nestbox	22.04.2012	26.04.2012	5	2	40.0	2	1	50	100	0	1	50
GcG25	Male	Natural	26.04.2012	17.05.2012	22	10	45.5	1	0	0	0	100	1	100
GcG3	Male	Nestbox	01.03.2012	29.04.2012	60	17	28.3	4	2	12	76.5	89	3	75
GcG30	Male	Natural	02.05.2012	09.05.2012	8	2	25.0	1	0	0	0	100	1	100
GcG8	Male	Natural	01.03.2012	03.03.2012	3	2	67.0	1	1	100	100	0	1	100

Table A4. Continued.

Animal	Sex	Site	Start	Stop	Tracking period	Locations	%days tracked	No RS	No NBX	%NBX	%NBX2	%SF	No Shared	%Shared
GcW33	Male	Natural	01.03.2012	06.04.2012	37	14	38.0	2	0	0	0	100	1	50
GcW61	Male	Natural	01.03.2012	06.04.2012	37	10	27.0	5	0	0	0	83	1	20
GcW62	Male	Natural	01.03.2012	14.03.2012	14	1	7.1	1	0	0	0	0	0	0
GcW64	Female	Natural	01.03.2012	06.04.2012	37	12	32.4	3	0	0	0	88	0	0
GcW76	Female	Natural	26.04.2012	17.05.2012	22	11	50.0	2	0	0	0	80	2	100
GcW84	Male	Both	01.03.2012	17.05.2012	78	29	37.2	7	4	14	55.2	81	6	85.71
GcW85	Female	Nestbox	01.03.2012	17.05.2012	78	24	31.0	5	2	8	16.7	71	1	20
GcW86	Female	Natural	26.04.2012	17.05.2012	22	10	45.5	3	0	0	0	86	1	33.33
Average					35	12	36.4	3.0	1.0	11.6	22.9	73.8	1.6	54.80
SD					24	8	12.5	2.3	1.8	23.9	36.3	34.4	1.7	37.93
Min					3	1	7.1	1	0	0	0	0	0	0
Max					78	29	67.0	9	6	100	100	100	6	100

For abbreviations, see Table A1.

Table A5. List of resting sites used by GcB21S during the study period.

GcB21S (Male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Winter1/ Spring1	26.67762	–33.12863	*Combretum caffrum*	Trunk	200	150	92.3 / 3.33	R1 of GcW12
R2	Winter1/ Autumn	26.67742	–33.12850	*Combretum caffrum*	Branch	192	58	3.85 / 7.7	
R3	Winter1 / Spring1 / Summer	26.67768	–33.12864	*Olivea europaea*	Branch	172	88	3.85 / 33.3 / 5.3	
R4	Spring1	26.67608	–33.12761	*Combretum caffrum*	Trunk	270	140	3.33	R3 of GcG20M
R5	Spring1	26.68154	–33.12976	*Buddleja saligna*	Trunk	184	50	10	
R6	Spring1	26.67765	–33.12853	*Combretum caffrum*	Branch	260	77	43.3	
R7	Spring1	26.68283	–33.12993	*Buddleja saligna*	Trunk	220	70	3.33	
R8	Spring1	26.68100	–33.12964	*Buddleja saligna*	Trunk	137	66	3.33	R3 of GcW41
R9	Summer	26.67838	–33.12882	*Olivea europaea*	Branch	220	70	10.5	R1 of GcG18, GcG19,

									GcG20F
R10	Summer / Autumn	26.67774	–33.12855	*Combretum caffrum*	Branch	178	71	63.2 / 76.9	R1 of GcW33
R11	Summer	26.67568	–33.12735	*Combretum caffrum*	Trunk	180	136	5.3	R1 of GcG20M, GcW84 R5 of GcG26
R12	Summer	26.67686	–33.12748	*Combretum caffrum*	Trunk	270	75	5.3	R2 of GcW33 R4 of GcW84
R13	Summer / Autumn	26.67581	–33.12711	*Combretum caffrum*	Nestbox	189	76	5.3 / 7.7	R2 of GcG3 R3 of GcG26 R5 of GcW87 R8 of GcW84
R14	Summer	26.67666	–33.12776	*Olivea europaea*	Branch	260	45	5.3	R2 of GcG20M, GcW87
R15	Autumn	26.67385	–33.12883	*Olivea europaea*	Branch	210	55	7.7	

Table A6. List of resting sites used by GcB4 during the study period.

GcB4 (Female; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Winter1	26.67750	–33.12842	*Combretum caffrum*	Branch	240	85	100	R1 of GcW61, GcG24 R2 of GcW76 R4 of GcG30

Table A7. List of resting sites used by GcB74 during the study period.

GcB74 (Female; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Winter1	26.67734	–33.12849	*Combretum caffrum*	Trunk	20	94	100	

Table A8. List of resting sites used by GcW12 during the study period.

GcW12 (Male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Winter1	26.67762	–33.12863	*Combretum caffrum*	Trunk	200	150	96	R1 of GcB21S
R2	Winter1	26.67825	–33.12863	*Buddleja saligna*	Trunk	220	90	4	

Table A9. List of resting sites used by GcW71 during the study period.

GcW71 (Female; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Winter1	26.67760	–33.12894	*Combretum caffrum*	Branch	340	70	100	R4 of GcW36

Table A10. List of resting sites used by GcW13 during the study period.

GcW13 (Female; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67644	–33.12743	*Combretum caffrum*	Nestbox	230	55	100	
R2	Spring1	26.67525	–33.12719	*Acacia karoo*	Trunk	50	40	100	

Table A11. List of resting sites used by GcW22 during the study period.

GcW22 (Male; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Spring1	26.67744	–33.12891	*Combretum caffrum*	Branch	200	70	100	

Table A12. List of resting sites used by GcW23 during the study period.

GcW23 (Male; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Spring1	26.67614	–33.12761	*Combretum caffrum*	Branch	253	40	79.2	
R2	Spring1	26.67612	–33.12760	*Combretum caffrum*	Branch	510	55	4.2	
R3	Spring1 / Summer	26.67535	–33.12657	*Rhus* sp.	Nestbox	130	20	4.2 / 100	
R4	Spring1	26.67484	–33.12663	*Combretum caffrum*	Branch	220	50	12.5	

Table A13. List of resting sites used by GcW36 during the study period.

GcW36 (Male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Spring1	26.67749	–33.12847	*Combretum caffrum*	Branch	360	85	16	R4 of GcG3
R2	Spring1 / Summer	26.67761	–33.12848	*Combretum caffrum*	Branch	470	80	28 / 100	R1 of GcW76
R3	Spring1	26.67745	–33.12903	—	Ground	0	0	52	R5 of GcG3
R4	Spring1	26.67760	–33.12894	*Combretum caffrum*	Branch	340	70	4	R1 of GcW71

Table A14. List of resting sites used by GcW41 during the study period.

GcW41 (Female; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Spring1	26.68098	–33.12970	*Acacia karoo*	Branch	315	—[a]	3.2	
R2	Spring1	26.68094	–33.12978	*Buddleja saligna*	Trunk	247	55	9.7	
R3	Spring1 / Summer	26.68100	–33.12964	*Buddleja saligna*	Trunk	137	66	74.2 / 100	R8 of GcB21S
R4	Spring1	26.68016	–33.12974	*Acacia karoo*	Log	0	—[a]	3.2	
R5	Spring1	26.68075	–33.12976	*Rhus* sp.	Bush	—[a]	—[a]	3.2	

[a]The exact location could not be determined.

Table A15. List of resting sites used by GcG1 during the study period.

GcG1 (Male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer / Autumn	26.68047	–33.12992	*Combretum caffrum*	Branch	245	55	75 / 6.67	
R2	Summer / Autumn	26.67952	–33.12934	*Combretum caffrum*	Branch	212	70	25 / 86.6	
R3	Autumn	26.68013	–33.12942	*Acacia karoo*	Branch	130	—[a]	6.7	

[a]The exact location could not be determined.

Table A16. List of resting sites used by GcG11 during the study period.

GcG11 (Female; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Bran Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn / Winter2	26.67944	–33.12893	*Buddleja saligna*	Branch	360	37	100 / 100	

Table A17. List of resting sites used by GcG12 during the study period.

GcG12 (Male; Site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn	26.67744	–33.12891	*Combretum caffrum*	Branch	200	70	100	R1 of GcG25 R9 of GcW84

Table A18. List of resting sites used by GcG2 during the study period.

GcG2 (Female; Southeastern site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn / Summer	26.67987	–33.12928	*Rhus* sp.	Branch	400	—[a]	5.9 / 50	
R2	Autumn / Summer	26.67971	–33.12928	*Olivea europaea*	Branch	395	35	94.1 / 50	R1 of GcG30

[a]The exact location could not be determined.

Table A19. List of resting sites used by GcG20F during the study period.

GcG20F (Female; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn / Winter2	26.67838	–33.12882	*Olivea europaea*	Branch	220	70	100 / 33.3	R1 of GcG18, GcG19 R9 of GcB21S
R2	Winter2	26.67828	–33.12864	*Buddleja saligna*	Trunk	60	106	22.2	R1 of GcG40
R3	Winter2	26.67840	–33.12889	*Olivea europaea*	Trunk	20	192	44.4	

Table A20. List of resting sites used by GcG20M during the study period.

GcG20M (Male; Northwest site)									
Resting site	Season	X	Y	*Tree species*	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn	26.67568	–33.12735	*Combretum caffrum*	Nestbox	180	136	22.2	R11 of GcB21S R5 of GcG26 R1 of GcW84
R2	Autumn	26.67575	–33.12742	*Maytenus heterophylla*	Nestbox	203	46	22.2	
R3	Autumn	26.67608	–33.12761	*Combretum caffrum*	Trunk	270	140	22.2	R4 of GcB21S
R4	Autumn	26.67606	–33.12756	*Combretum caffrum*	Nestbox	174	173	5.6	
R5	Autumn	26.67685	–33.12803	*Olivea europaea*	B ranch	174	58	22.2	
R6	Autumn	26.67685	–33.12794	*Maytenus heterophylla*	Bush	—[a]	—[a]	5.6	

[a]The exact location could not be determined.

Table A21. List of resting sites used by GcG21 during the study period.

GcG21 (Male; Northwest site)									
Resting Site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn	26.67537	–33.12729	*Combretum caffrum*	Trunk	155	74	50	
R2	Autumn	26.67650	–33.12726	*Combretum caffrum*	Nestbox	186	168	50	R8 of GcW85

Table A22. List of resting sites used by GcG25 during the study period.

GcG25 (Male, Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn / Winter2	26.67744	–33.12891	*Combretum caffrum*	Branch	200	70	100 / 36.36	R1 of GcG12 R5 of GcG30 R9 of GcW84
R2	Winter2 / Spring	26.67751	–33.12894	*Combretum caffrum*	Branch	134	45	63.64 / 100	R10 of GcW84

Table A23. List of resting sites used by GcG3 during the study period.

GcG3 (Male; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67593	–33.12733	*Combretum caffrum*	Nestbox	180	153	20	R3 of GcG26 R5 of GcW87 R8 of GcW84 R13 of GcB21S
R2	Summer / Autumn	26.67581	–33.12711	*Combretum caffrum*	Nestbox	189	76	60 / 23.5	R1 of GcG26 R2 of GcG40, GcG20M R5 of GcW84 R9 of GcW87
R3	Summer / Autumn	26.67575	–33.12742	*Maytenus heterophylla*	Nestbox	203	46	20 / 52.9	R1 of GcW36
R4	Autumn	26.67749	–33.12873	*Combretum caffrum*	Trunk	0	150	17.65	R3 of GcW36

R5	Autumn	26.67745	–33.12903	—	Ground	0	—	5.9	

Table A24. List of resting sites used by GcG30 during the study period.

GcG30 (Male, Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn / Spring2 / Winter2	26.67971	–33.12928	*Olivea europaea*	Branch	395	35	100 / 4.55 / 23.1	R2 of GcG2
R2	Winter2	26.67948	–33.12899	*Rhus* sp.	Branch	40	62	7.7	
R3	Winter2	26.67932	–33.12892	*Combretum caffrum*	Branch	465	65	61.54	
R4	Spring2 / Winter2	26.67750	–33.12842	*Combretum caffrum*	Branch	240	85	4.55 / 7.7	R2 of GcW76 R1 of GcB4, GcW61, GcG25
R5	Spring2	26.67744	–33.12891	*Combretum caffrum*	Branch	200	70	90.9	R1 of GcG25, GcG12 R9 of GcW84

Table A25. List of resting sites used by GcG8 during the study period.

GcG8 (Male; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn	26.67535	–33.12712	*Rhus* sp.	Nestbox	140	63	100	R3 of GcW23 R4 of GcW87

Table A26. List of resting sites used by GcW33 during the study period.

GcW33 (Male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer / Autumn	26.67774	–33.12855	*Combretum caffrum*	Branch	178	71	95 / 92.9	R10 of GcB21S
R2	Summer	26.67686	–33.12748	*Combretum caffrum*	Trunk	270	75	5	R4 of GcW84 R12 of GcB21S
R3	Autumn	26.67835	–33.12889	*Olivea europaea*	Branch	227	49	7.1	

Table A27. List of resting sites used by GcW61 during the study period.

GcW61 (Male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer / Autumn	26.67750	–33.12842	*Combretum caffrum*	Branch	240	85	5.3 / 10	R1 of GcB4, GcG24, GcG25 R2 of GcW76
R2	Summer / Autumn	26.67800	–33.12859	*Combretum caffrum*	Branch	370	75	57.9 / 50	
R3	Summer / Autumn	26.67790	–33.12862	*Combretum caffrum*	Branch	430	47	21.1 / 10	
R4	Summer / Autumn	26.67797	–33.12860	*Combretum caffrum*	Branch	390	35	15.8 / 10	
R5	Autumn	26.67814	–33.12860	*Combretum caffrum*	Branch	500	45	20	

Table A28. List of resting sites used by GcW62 during the study period.

GcW62 (Male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67644	–33.12743	*Combretum caffrum*	Nestbox	230	55	16.67	R1 of GcW13 R4 of GcW85
R2	Summer / Autumn	26.67657	–33.12741	*Combretum caffrum*	Branch	600	75	11.1 / 100	
R3	Summer	26.67654	–33.12776	—	Ground	0	0	72.2	

Table A29. List of resting sites used by GcW63 during the study period.

GcW63 (Male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67698	–33.12797	*Combretum caffrum*	Branch	185	55	100	

Table A30. List of resting sites used by GcW64 during the study period.

GcW64 (Female; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67713	–33.12815	*Acacia karoo*	Trunk	420	57	11.8	
R2	Summer / Autumn	26.67720	–33.12827	*Combretum caffrum*	Branch	600	105	88.2 / 58.3	
R3	Autumn	26.67732	–33.12852	*Olivea europaea*	Ground	0	140	33.3	
R4	Autumn	26.67724	–33.12848	*Maytenus heterophylla*	Branch	370	27	8.3	

Table A31. List of resting sites used by GcW70 during the study period.

GcW70 (Male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67746	–33.12791	*Rhus* sp.	Bush	—[a]	—[a]	100	

[a]The exact location could not be determined.

Table A32. List of resting sites used by GcW76 during the study period.

GcW76 (Female; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Autumn	26.67761	–33.12848	*Combretum caffrum*	Branch	470	80	36.4	R2 of GcW36
R2	Autumn / Spring2 / Winter2	26.67750	–33.12842	*Combretum caffrum*	Branch	240	85	63.6 / 100 / 100	R1 of GcG24, GcB4, GcW61 R4 of GcG30

Table A33. List of resting sites used by GcW84 during the study period.

GcB84 (Male; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67568	–33.12735	*Combretum caffrum*	Nestbox	180	136	25	R1 of GcG20M R5 of GcG26 R11 of GcB21S
R2	Summer	26.67666	–33.12776	*Olivea europaea*	Branch	260	45	25	R2 of GcW86
R3	Summer	26.67603	–33.12743	*Combretum caffrum*	Nestbox	194	117	25	
R4	Summer/ Autumn	26.67686	–33.12748	*Combretum caffrum*	Trunk	270	75	25	R12 of GcB21S R2 of GcW33
R5	Summer	26.67575	–33.12742	*Maytenus heterophylla*	Nestbox	203	46	34.5	R2 of GcG20M R1 of GcG26 R3 of GcG3 R9 of GcW87
R6	Autumn	26.67601	–33.12748	*Combretum caffrum*	Nestbox	190	111	3.5	R1 of GcW86 R7 of GcW87

R7	Autumn	26.67658	–33.12731	*Combretum caffrum*	Nestbox	210	68	3.5	
R8	Autumn	26.67581	–33.12711	*Combretum caffrum*	Nestbox	189	76	13.8	R13 of GcB21S R2 of GcG3 R5 of GcW87 R3 of GcG26
R9	Autumn/ Winter2	26.67744	–33.12891	*Combretum caffrum*	Branch	200	70	34.5 / 100	R1 of GcG12, GcG25
R10	Autumn	26.67751	–33.12894	*Combretum caffrum*	Branch	134	45	6.9	R2 of GcG25

Table A34. List of resting sites used by GcW85 during the study period.

GcW85 (female; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67640	–33.12721	*Combretum caffrum*	Ground	0	100	37.5	
R2	Summer / Autumn	26.67677	–33.12730	*Combretum caffrum*	Branch	185	50	37.5 / 20.8	
R3	Summer	26.67660	–33.12737	*Combretum caffrum*	Nestbox	176	132	12.5	
R4	Autumn / Summer	26.67644	–33.12743	*Combretum caffrum*	Nestbox	230	55	4.17 / 12.5	R1 of GcW13, GcW62
R5	Autumn / Winter2	26.67646	–33.12727	*Combretum caffrum*	Nestbox	185	94	12.5 / 7.14	
R6	Autumn	26.67673	–33.12741	*Buddleja saligna*	Branch	327	60	33.3	
R7	Autumn	26.67643	–33.12716	—[a]	—[a]	—[a]	—[a]	29.2	
R8	Winter2	26.67650	–33.12726	*Combretum caffrum*	Nestbox	186	168	92.9	R2 of GcG21

[a]The exact location could not be determined.

Table A35. List of resting sites used by GcW86 during the study period.

GcW86 (female; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67601	–33.12748	*Combretum caffrum*	Nestbox	190	111	100	R6 of GcW84 R7of GcW87
R2	Autumn	26.67666	–33.12776	*Olivea europapaea*	Branch	390	70	10	R2 of Gcw84
R3	Autumn	26.67691	–33.12748	*Combretum caffrum*	Branch	122	45	80	
R4	Autumn / Winter2	26.67672	–33.12788	*Olivea europapaea*	Branch	162	68	10 / 6.7	
R5	Winter2	26.67668	–33.12795	*Olivea europapaea*	Trunk	145	91	93.3	

Table A36. List of resting sites used by GcW87 during the study period.

GcW87 (female; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer / Autumn	26.67511	–33.12716	*Combretum caffrum*	Nestbox	176	68	42.9 / 7.7	
R2	Summer / Autumn	26.67529	–33.12724	*Ziziphus mucronata*	Nestbox	170	46	57.1 / 7.7	R14 of GcB21S R2 of GcG20M
R3	Autumn	26.67533	–33.12719	*Rhus* sp.	Nestbox	180	55	3.9	
R4	Autumn	26.67535	–33.12712	*Rhus* sp.	Nestbox	140	63	15.4	R1 of GcG8 R3 of GcW23
R5	Autumn	26.67581	–3312711	*Combretum caffrum*	Nestbox	189	76	3.9	R13 of GcB21S R3 of GcG26 R2 of GcG3 R8 of GcW84
R6	Autumn	26.67554	–33.12743	*Combretum caffrum*	Nestbox	196	100	3.9	R2 of GcG26
R7	Autumn	26.67601	–33.12748	*Combretum caffrum*	Nestbox	190	111	7.7	R1 of GcW86 R6 of GcW84

R8	Autumn	26.67582	–33.12740	—	Ground	0	0	23.1	
R9	Autumn	26.67575	–33.12742	*Maytenus heterophylla*	Nestbox	203	46	26.9	R2 of GcG20M R1 of GcG26 R3 of GcG3 R5 of GcW84

Table A37. List of resting sites used by GcG18 during the study period.

GcG18 (female; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Spring2	26.67838	–33.12882	*Olivea europaea*	Branch	220	70	100	R1 of GcG20F, GcG19 R9 of GcB21S

Table A38. List of resting sites used by GcG19 during the study period.

GcG19 (male; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Spring2	26.67838	–33.12882	*Olivea europaea*	Branch	220	70	88.9	R1 of GcG18, GcG20F R9 of GcB21S
R2	Spring2	26.67866	–33.12891	*Rhus* sp.	Trunk	54	50	11.1	

Table A39. List of resting sites used by GcG40 during the study period.

GcG40 (female; Southeast site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Spring2	26.67828	–33.12864	*Buddleja saligna*	Trunk	60	106	90	R2 of GcG20F
R2	Spring2	26.67838	–33.12882	*Olivea europapaea*	Branch	220	70	10	

Table A40. List of resting sites used by GcG24 during the study period.

GcG24 (female; Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Spring2	26.67750	–33.12842	*Combretum caffrum*	Branch	240	85	100	R1 of GcB4, GcW61 R2 of GcW76

Table A41. List of resting sites used by GcG26 during the study period.

GcG26 (male, Northwest site)									
Resting site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Spring2	26.67575	–33.12742	*Maytenus heterophylla*	Nestbox	203	46	50	R2 of GcG20M R3 of GcG3 R5 of GcW84 R9 of GcW87
R2	Spring2	26.67554	–33.12743	*Combretum caffrum*	Nestbox	196	100	7.14	R6 of GcW87
R3	Spring2	26.67581	–33.12711	*Combretum caffrum*	Nestbox	189	76	21.4	R13 of GcB21S R2 of GcG3 R8 of GcW84 R5 of GcW87
R4	Spring2	26.67584	–33.12891	*Combretum caffrum*	Branch	297	62	7.14	
R5	Spring2	26.67568	–33.12735	*Combretum caffrum*	Nestbox	180	136	7.14	R11 of GcB21S R1 of GcW84, GcG20M
R6	Spring2	26.67744	–33.12870	*Combretum caffrum*	Trunk	113	93	7.14	

Table A42. List of resting sites used by GcW60 during the study period.

GcW60 (female; Southeast site)									
Resting Site	Season	X	Y	Tree species	Trunk Branch Nestbox	Height	Circumference	% usage	Sharing
R1	Summer	26.67755	–33.12843	*Combretum caffrum*	Trunk	—[a]	—[a]	100	

[a]The exact location could not be determined.

Table A43. List of individual resting sites that were shared with other individuals during the study period. Code = code of animal and resting site number; S1–S6 = sex of 1st to 6th animal; Wi1 = winter 2011, Wi2 = winter 2012, Sp1 = spring 2011, Sp2 = spring 2, Su = Summer 2011–2012, Au = Autumn 2012; M = males, F = females.

Code1	Season1	S1	Code2	S2	Season2	Code3	S3	Season3	Code4	S4	Season4	Code5	S5	Season5	Code6	S6	Season6	Nr M	Nr F	Nr All
GcB21S_R1	Wi1/Sp1	M	GcWi12_R1	M	Wi													2	0	2
GcB21S_R4	Sp1	M	GcG20M_R3	M	Au													2	0	2
GcB21S_R8	Sp1	M	GcW41_R3	F	Sp1/Su													1	1	2
GcB21S_R9	Su	M	GcG18_R1	F	Sp2	GcG19_R1	M	Sp2	GcG20F_R1	F	Au/Wi2							2	2	4
GcB21S_R10	Su/ Au	M	GcW33_R1	M	Su/Au													1	1	2
GcB21S_R11	Su	M	GcG20M_R1	M	Au	GcG26_R5	M	Sp2	GcW84_R1	M	Su							4	0	4
GcB21S_R12	Su	M	GcW33_R2	M	Su	GcW84_R4	M	Su/Au										3	0	3
GcB21S_R13	Su/Au	M	GcG3_R2	M	Su/Au	GcG26_R3	M	Sp2	GcW84_R8	M	Au	GcW87_R5	F	Au				4	1	5
GcB21S_R14	Su	M	GcG20M_R2	M	Au	GcW87_R2	F	Su/Au										2	1	3
GcB4_R1	Wi1	F	GcW61_R1	M	Su/Au	GcW76_R2	F	Au/Sp2/Wi2	GcG24_R1	F	Sp2	GcG25_R1	M	Au/Wi2				2	3	5
GcW71_R1	Wi1	F	GcW36_R4	M	Sp1													1	1	2
GcW36_R1	Sp1	M	GcG3_R4	M	Au													2	0	2
GcW36_R2	Sp1/Su	M	GcW76_R1	F	Sp1/Su													1	1	2
GcW36_R3	Sp1	M	GcG3_R5	M	Au													2	0	2
GcW36_R4	Sp1	M	GcW71_R1	F	Wi1													1	1	2
GcG12_R1	Au	M	GcG25_R1	M	Au/Wi2	GcW84_R9	M	Au/Wi2										3	0	3
GcG2_R2	Au/Su	F	GcG30_R1	M	Au/Sp2/Wi2													1	1	2
GcG20F_R1	Au/Wi2	F	GcB21S_R9	M	Su	GcG19_R1	M	Sp2	GcG18_R1	F	Sp2							2	2	4
GcG20F_R2	Wi2	F	GcG40_R1	M	Sp2													1	1	2
GcG20M_R1	Au	M	GcG26_R5	M	Sp2	GcW84_R1	M	Su	GcB21S_R11	M	Su							4	0	4
GcG20M_R2	Au	M	GcW84_R5	M	Su	GcG26_R1	M	Sp2	GcG3_R3	M	Su/Au	GcG40_R2	M	Sp2	GcW87_R9	F	Au	6	0	6
GcG21_R2	Au	M	GcW85_R8	F	Wi2													1	1	2
GcG25_R1	Au/Wi2	M	GcG12_R1	M	Au/Wi2	GcG30_R5	M	Sp2	GcW84_R9	M	Au/Wi2							4	0	4
GcG25_R2	Wi2/ Sp2	M	GcW84_R10	M	Au													2	0	2
GcG3_R2	Su/Au	M	GcW84_R8	M	Au	GcB21S_R13	M	Su/Au	GcG26_R3	M	Sp2	GcW87_R5	F	Au				4	1	5
GcG3_R3	Su/Au	M	GcW84_R5	M	Su	GcG20M_R2	M	Au	GcG26_R1	M	Sp2	GcG40_R2	M	Sp2	GcW87_R9	F	Au	5	1	6

Table A43. Continued.

Code1	Season1	S1	Code2	S2	Season2	Code3	S3	Season3	Code4	S4	Season4	Code5	S5	Season5	Code6	S6	Season6	Nr M	Nr F	Nr All
GcG3_R4	Au	M	GcW36_R1	M	Sp1													2	0	2
GcG3_R5	Au	M	GcW36_R3	M	Sp1													2	0	2
GcG30_R1	Au/Wi2/Sp2	M	GcG2_R2	F	Au													1	1	2
GcG30_R4	Sp2/ Wi2	M	GcW76_R2	F	Au/Sp2/Wi2													1	1	2
GcG30_R5	Sp2	M	GcG25_R1	M	Au/Wi2	GcG12_R1	M	Au	GcW84_R9	M	Au/Wi2							4	0	4
GcG8_R1	Au	M	GcW33_R3	M	Au	GcW87_R4	F	Au										2	1	3
GcWi12_R1	Wi1	M	GcB21S_R1	M	Wi1/Sp1													2	0	2
GcW33_R1	Su/ Au	M	GcB21S_R10	M	Su/Au													2	0	2
GcW33_R2	Su	M	GcB21S_R12	M	Su	GcW84_R4	M	Su/Au										3	0	3
GcW61_R1	Su/Au	M	GcB4_R1	F	Wi1	GcW76_R2	F	Au/Sp2/Wi2	GcG24_R1	F	Sp2	GcG25_R1	M	Au/Wi2				2	3	5
GcW62_R1	Su	M	GcWi13_R1	F	Su	GcW85_R4	F	Su/Au										1	2	3
GcW76_R1	Au	F	GcW36_R2	M	Sp1/Su													1	0	1
GcW76_R2	Au/Sp2/Wi2	F	GcG30_R4	M	Sp2/Wi2	GcG24_R1	F	Sp2	GcB4_R1	F	Wi1	GcW61_R1	M	Su/Au				2	3	5
GcW84_R1	Su	M	GcB21S_R11	M	Su	GcG20M_R1	M	Au	GcG26_R5	M	Sp2							4	0	4
GcW84_R2	Su	M	GcW86_R2	F	Au													1	1	2
GcW84_R4	Su/Au	M	GcB21S_R12	M	Su	GcW33_R2	M	Su										3	0	3
GcW84_R5	Su	M	GcG20M_R2	M	Au	GcG26_R1	M	Sp2	GcG3_R3	M	Su/Au	GcW87_R9	F	Au				4	1	5
GcW84_R6	Au	M	GcW86_R1	F	Su	GcW87_R7	F	Au										1	2	3
GcW84_R8	Au	M	GcB21S_R13	M	Su/Au	GcG26_R3	M	Sp2	GcG3_R2	M	Su/Au	GcW87_R5	F	Au				4	1	5
GcW84_R9	Au/Wi2	M	GcG12_R1	M	Au/Wi2	GcG25_R1	M	Au/Wi2										3	0	3
GcW84_R10	Au	M	GcG25_R2	M	Wi2/Sp2													2	0	2
GcW85_R4	Au/Su	F	GcWi13_R1	F	Su	GcW62_R1	M	Su										1	2	3
GcW85_R8	Wi2	F	GcG2_R2	M	Au													1	1	2
GcW86_R1	Su	F	GcW84_R6	M	Au	GcW87_R7	F	Au										1	2	3
GcW86_R2	Au	F	GcW84_R2	M	Su													1	1	2
GcW87_R2	Su/Au	F	GcB21S_R14	M	Su	GcG20M_R2	M	Au										2	1	3
GcW87_R4	Au	F	GcG8_R1	M	Au	GcWi23_R3	M	Sp1/Su										2	1	3

Table A43. Continued.

Code1	Season1	S1	Code2	S2	Season2	Code3	S3	Season3	Code4	S4	Season4	Code5	S5	Season5	Code6	S6	Season6	Nr M	Nr F	Nr All
GcW87_R5	Au	F	GcB21S_R13	M	Su/Au	GcG26_R3	M	Sp2	GcG3_R2	M	Su/Au	GcW84_R8	M	Au				4	1	5
GcW87_R6	Au	F	GcG26_R2	M	Sp2													1	1	2
GcW87_R7	Au	F	GcW86_R1	F	Su	GcW84_R6	F	Au										1	2	3
GcW87_R9	Au	F	GcG20M_R2	M	Au	GcG26_R1	M	Sp2	GcG3_R3	M	Su/Au	GcW84_R5	M	Su				4	1	5
GcG18_R1	Sp2	F	GcG20F_R1	F	Au/Wi2	GcB21S_R9	Su	M	GcG19_R1	M	Sp2							2	2	4
GcG19_R1	Sp2	M	GcG20F_R1	F	Au/Wi2	GcB21S_R9	Su	M	GcG18_R1	F	Sp2							2	2	4
GcG40_R1	Sp2	F	GcG20F_R2	F	Wi2													0	2	2
GcG24_R1	Sp2	F	GcW76_R2	F	Au/Sp2/Wi2	GcB4_R1	F	Wi1	GcW61_R1	M	Su/Au	GcG25_R1	M	Au/Wi2				2	3	5
GcG26_R1	Sp2	M	GcG20M_R2	M	Au	GcG3_R3	M	Su/Au	GcW84_R5	M	Su	GcW87_R9	F	Au				4	1	5
GcG26_R2	Sp2	M	GcW87_R6	F	Au													1	1	2
GcG26_R3	Sp2	M	GcB21S_R13	M	Su/Au	GcG3_R2	M	Su/Au	GcW84_R8	M	Au	GcW87_R5	F	Au				4	1	5
GcG26_R5	Sp2	M	GcB21S_R11	M	Su	GcW84_R1	M	Su	GcG20M_R1	M	Au							4	0	4
																	Avg	2.26	0.92	3.18
																	SD	1.29	0.87	1.27
																	Min	0	0	1
																	Max	6	3	6

Table A44. List of thicket rats and their resting sites that were shared simultaneously with other individuals.

Date	Code1	Sex1	Code2	Sex2	Code3	Sex3
01.03.2012	GcW84_R5	M	GcG3_R3	M		
02.05.2012	GcG12_R1	M	GcG25_R1	M	GcW84_R9	M
02.06.2012	GcG25_R1	M	GcW84_R9	M		
03.03.2012	GcW33_R1	M	GcW61_R1	M		
03.06.2012	GcG25_R1	M	GcW84_R9	M		
04.03.2012	GcW33_R1	M	GcB21S_R10	M		
08.02.2012	GcW33_R1	M	GcB21S_R10	M		
08.03.2012	GcW33_R1	M	GcB21S_R10	M		
12.03.2012	GcW33_R1	M	GcB21S_R10	M		
05.02.2012	GcW33_R1	M	GcB21S_R10	M		
06.02.2012	GcW33_R1	M	GcB21S_R10	M		
07.02.2012	GcW33_R1	M	GcB21S_R10	M		
13.03.2012	GcW33_R1	M	GcB21S_R10	M		
14.03.2012	GcW33_R1	M	GcB21S_R10	M		
16.03.2012	GcW33_R1	M	GcB21S_R10	M		
26.03.2012	GcW33_R1	M	GcB21S_R10	M		
06.06.2012	GcG25_R1	M	GcW84_R9	M		
07.05.2012	GcG25_R1	M	GcW84_R9	M	GcG12_R1	M
07.06.2012	GcG25_R1	M	GcW84_R9	M		
08.03.2012	GcG3_R2	M	GcW84_R8	M		
12.03.2012	GcG3_R2	M	GcW84_R8	M		
15.03.2012	GcG3_R2	M	GcW84_R8	M		
30.04.2012	GcG25_R1	M	GcW84_R9	M	GcG12_R1	M
08.05.2012	GcG25_R1	M	GcW84_R9	M	GcG12_R1	M
09.05.2012	GcG25_R1	M	GcW84_R9	M	GcG12_R1	M

Table A44. Continued.

Date	Code1	Sex1	Code2	Sex2	Code3	Sex3
13.03.2012	GcW84_R5	M	GcG3_R3	M		
21.02.2012	GcW33_R1	M	GcB21S_R10	M		
23.09.2012	GcW76_R2	F	GcG30_R4	M		
27.03.2012	GcG3_R3	M	GcW84_R5	M	GcG20M_R2	M
27.09.2012	GcW76_R2	F	GcG24_R1	F		
28.09.2012	GcW76_R2	F	GcG24_R1	F		

Table A45. List of raw data for the microhabitat analyses for the yearly study conducted from June 2011 to April 2012.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
A1	0	0	0	0	0	1	1	3	4	Ground_Cover	—	Ground	2
A101	1	1	1	1	194	1	1	3	4	Tree_Canopy	—	*Maytenus heterophylla*	3
A2	1	2	2	2	68	1	1	3	3	Woody	—	Other	2
A102	0	0	0	0	101	1	1	3	3	Woody	—	Other	3
A3	0	0	0	0	0	1	1	3	4	Woody	—	Ground	1
A103	1	1	1	1	126	1	1	3	4	Woody	29	*Rhus* sp.	4
A4	0	0	0	0	50	1	1	3	4	Log	54	*Combretum caffrum*	4
A104	1	1	1	1	202	1	1	3	4	Tree_Trunk	46	*Rhus* sp.	4
A5	0	0	0	0	0	1	2	4	4	Ground_Cover	—	Ground	3
A105	1	1	1	1	161	1	2	4	4	Woody	—	*Ziziphus mucronata*	4
A6	0	0	0	0	76	4	4	4	3	Tree_Trunk	27	*Rhus* sp.	3
A106	1	1	1	1	191	4	4	4	3	Tree_Trunk	27	*Rhus* sp.	3
B12	0	0	0	0	0	4	4	3	4	Ground_Open	—	Ground	4
B112	0	0	0	0	134	4	4	3	4	Tree_Trunk	26	*Olea europaea*	4
B11	0	0	0	0	112	2	2	3	4	Bush	—	*Rhus* sp.	2
B111	1	1	1	1	203	2	2	3	4	Tree_Trunk	—	*Rhus* sp.	3
B10	0	0	0	0	0	3	3	2	3	Ground_Open	—	Ground	1
B110	1	1	1	1	223	3	3	2	3	Tree_Trunk	59	*Olea europaea*	4
B9	0	0	0	0	42	3	3	3	2	Bush	—	Other	2
B109	0	0	0	0	117	3	3	3	2	Bush	7	Other	2
B8	0	0	0	0	0	2	2	2	3	Woody	—	Ground	1
B108	0	0	0	0	200	2	2	2	3	Tree_Trunk	39	*Olea europaea*	3
B7	0	0	0	0	133	3	3	2	2	Bush	18	Other	2
B107	0	0	0	0	67	3	3	2	3	Tree_Canopy	10	*Combretum caffrum*	3
C13	0	0	0	0	75	4	3	3	2	Bush	—	Other	3
C113	0	0	0	0	154	4	3	3	2	Tree_Trunk	—	*Combretum caffrum*	3
C14	0	0	0	0	0	4	3	2	2	Bush	—	Ground	0
C114	0	0	0	0	97	4	3	2	2	Bush	—	*Acacia karoo*	1
C15	0	0	0	0	0	3	3	3	2	Ground_Open	—	Ground	0
C115	0	0	0	0	195	3	3	3	2	Tree_Canopy	15	*Olea europaea*	2
C16	1	1	1	1	46	2	2	3	4	Woody	13	Other	1
C116	0	0	0	0	140	2	2	3	4	Tree_Trunk	—	*Rhus* sp.	3
C17	0	0	0	0	0	3	3	2	4	Woody	—	Ground	2
C117	0	0	0	0	187	3	3	2	4	Woody	—	*Rhus* sp.	4
C18	0	0	0	0	84	4	4	3	4	Tree_Trunk	31	*Acacia karoo*	3
C118	0	0	0	0	132	4	4	3	4	Tree_Trunk	5	*Acacia karoo*	3

Table A45. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
D24	0	0	0	0	0	4	4	3	1	Bush	—	Ground	0
D124	0	0	0	0	89	4	4	3	1	Bush	12	Other	1
D23	0	0	0	0	185	2	2	2	4	Tree_Canopy	—	*Maytenus heterophylla*	4
D123	0	0	0	0	185	2	2	2	4	Tree_Trunk	33	*Maytenus heterophylla*	4
D22	0	0	0	0	0	4	4	2	3	Ground_Open	—	Ground	1
D122	0	0	0	0	177	4	4	2	3	Tree_Canopy	19	*Olea europaea*	3
D21	0	0	0	0	81	3	4	2	2	Tree_Trunk	2	*Rhus* sp.	2
D121	0	0	0	0	140	3	4	2	2	Tree_Canopy	—	*Rhus* sp.	2
D20	0	0	0	0	0	4	4	3	2	Ground_Open	—	Ground	0
D120	0	0	0	0	236	4	4	3	2	Tree_Trunk	49	*Combretum caffrum*	2
D19	0	0	0	0	78	4	4	3	2	Woody	—	Other	3
D119	1	1	1	1	129	4	4	3	2	Woody	—	Other	3
E25	1	1	1	1	133	4	4	4	3	Tree_Trunk	—	Other	4
E125	1	2	2	2	211	4	4	4	3	Tree_Trunk	62	*Olea europaea*	4
E26	0	0	0	0	97	4	3	3	2	Bush	—	*Maytenus heterophylla*	2
E126	0	0	0	0	144	4	3	3	2	Bush	—	*Maytenus heterophylla*	2
E27	0	0	0	0	0	4	4	3	4	Ground_Cover	—	Ground	1
E127	0	0	0	0	189	4	4	3	4	Tree_Canopy	19	*Rhus* sp.	4
E28	0	0	0	0	64	3	3	3	3	Bush	—	*Acacia karoo*	3
E128	0	0	0	0	131	3	3	3	3	Bush	—	*Acacia karoo*	3
E29	0	0	0	0	0	2	2	2	3	Ground_Open	—	Ground	0
E129	0	0	0	0	176	2	2	2	3	Tree_	—	*Olea europaea*	3
E30	0	0	0	0	0	4	4	1	1	Ground_Cover	—	Other	0
E130	0	0	0	0	67	4	4	1	1	Bush	—	Other	0
F36	0	0	0	0	0	4	4	3	1	Ground_Cover	—	Ground	0
F136	0	0	0	0	60	4	4	3	1	Bush	—	Other	1
F35	0	0	0	0	113	4	4	3	3	Tree_Trunk	25	*Olea europaea*	3
F135	1	1	1	1	194	4	4	3	3	Tree_Canopy	18	*Olea europaea*	3
F34	0	0	0	0	0	3	3	3	2	Ground_Cover	—	Ground	0
F134	0	0	0	0	47	3	3	3	2	Bush	—	Other	2
F33	0	0	0	0	0	4	4	3	4	Ground_Open	—	Ground	0
F133	0	0	0	0	195	4	4	3	4	Tree_Trunk	56	*Olea europaea*	3
F32	0	0	0	0	0	3	3	3	3	Ground_Cover	—	Ground	1
F132	0	0	0	0	115	3	3	3	3	Tree_Trunk	36	*Maytenus heterophylla*	3
F31	0	0	0	0	96	3	3	3	4	Tree_Trunk	49	*Olea europaea*	3
F131	1	1	1	1	235	3	3	3	4	Tree_Trunk	5	*Olea europaea*	3
G37	0	0	0	0	119	3	3	3	4	Tree_Trunk	141	*Olea europaea*	4
G137	0	0	0	0	194	3	3	3	4	Tree_Trunk	59	*Olea europaea*	4

Table A45. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
G38	0	0	0	0	134	3	3	3	4	Tree_Canopy	—	Ground	0
G138	0	0	0	0	0	3	3	3	4	Ground_Open	—	*Olea europaea*	3
G39	0	0	0	0	67	2	2	3	3	Tree_Canopy	24	*Olea europaea*	3
G139	1	1	1	1	206	2	2	3	3	Tree_Canopy	—	*Ziziphus mucronata*	3
G40	0	0	0	0	0	3	3	3	2	Woody	135	Ground	2
G140	0	0	0	0	167	3	3	3	2	Tree_Trunk	—	*Buddleja saligna*	2
G41	1	1	1	1	0	3	3	2	2	Ground_Cover	—	Ground	2
G141	0	0	0	0	81	3	3	2	2	Tree_Canopy	—	*Acacia karoo*	2
G42	1	1	1	1	106	3	3	3	3	Bush	—	*Maytenus heterophylla*	2
G142	0	0	0	0	113	3	3	3	3	Bush	—	Other	2
H48	0	0	0	0	0	4	3	2	1	Ground_Cover	—	Ground	0
H148	0	0	0	0	115	4	4	2	1	Bush	—	Other	0
H47	1	0	1	1	126	2	2	3	4	Bush	—	*Maytenus heterophylla*	4
H147	0	0	0	0	179	2	2	3	4	Tree_Trunk	—	*Maytenus heterophylla*	4
H46	0	0	0	0	0	3	3	2	4	Ground_Open	—	Ground	2
H146	1	1	1	1	130	3	3	2	4	Tree_Canopy	—	*Acacia karoo*	4
H45	0	0	0	0	53	2	2	2	4	Log	33	*Maytenus heterophylla*	3
H145	0	0	0	0	179	2	2	2	4	Tree_Trunk	34	*Maytenus heterophylla*	4
H44	0	0	0	0	0	3	3	3	3	Ground_Open	—	Ground	0
H144	0	0	0	0	38	3	3	3	3	Log	—	Other	0
H43	0	0	0	0	27	3	3	3	4	Tree_Trunk	23	*Maytenus heterophylla*	3
H143	0	0	0	0	207	3	3	3	4	Tree_Canopy	—	*Maytenus heterophylla*	3
I49	1	1	1	1	160	2	3	3	3	Tree_Trunk	46	*Acacia karoo*	2
I149	0	0	0	0	192	2	3	3	3	Tree_Canopy	—	*Rhus* sp.	2
I50	0	0	0	0	0	3	3	4	2	Ground_Cover	—	Ground	0
I150	0	0	0	0	163	3	3	4	2	Tree_Canopy	—	*Combretum caffrum*	2
I51	0	0	0	0	0	4	4	2	2	Ground_Cover	—	Ground	2
I151	0	0	0	0	94	4	4	2	2	Log	—	*Maytenus heterophylla*	2
I52	0	0	0	0	58	4	4	2	3	Tree_Trunk	—	*Acacia karoo*	3
I152	0	0	0	0	108	4	4	2	3	Bush	—	*Acacia karoo*	3
I53	0	0	0	0	138	3	3	3	3	Tree_Trunk	53	*Rhus* sp.	3
I153	0	0	0	0	165	3	3	3	3	Tree_Trunk	—	*Combretum caffrum*	3
I54	0	0	0	0	0	4	4	2	1	Ground_Cover	—	Ground	0
I154	0	0	0	0	67	4	4	2	1	Bush	—	*Acaccia karoo*	0
J60	0	0	0	0	0	4	3	1	1	Ground_Cover	—	Ground	0
J160	0	0	0	0	134	4	3	1	1	Bush	—	*Maytenus heterophylla*	1
J59	0	0	0	0	130	3	2	3	3	Tree_Canopy	—	*Maytenus heterophylla*	2
J159	0	0	0	0	188	3	2	3	3	Tree_Trunk	13	*Maytenus heterophylla*	2

Table A45. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
J58	0	0	0	0	45	4	4	2	2	Tree_Trunk	29	*Combretum caffrum*	1
J158	0	0	0	0	113	4	4	2	2	Tree_Canopy	27	*Combretum caffrum*	2
J57	0	0	0	0	50	4	4	4	3	Bush	51	Other	2
J157	0	0	0	0	218	4	4	3	3	Tree_Trunk	—	*Ziziphus mucronata*	2
J56	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	0
J156	1	1	1	1	185	4	4	3	3	Tree_Canopy	10	*Combretum caffrum*	4
J55	0	0	0	0	0	4	4	3	4	Ground_Open	—	Ground	0
J155	0	0	0	0	61	4	4	3	4	Tree_Trunk	49	*Ziziphus mucronata*	3
K61	0	0	0	0	0	3	3	4	3	Ground_Open	—	Ground	0
K161	1	1	1	1	214	3	3	4	3	Tree_Trunk	67	*Combretum caffrum*	3
K62	0	0	0	0	167	3	3	3	4	Tree_Canopy	13	*Ziziphus mucronata*	4
K162	1	1	1	1	184	3	3	3	4	Tree_Trunk	75	*Combretum caffrum*	4
K63	1	4	4	4	136	3	3	3	3	Tree_Canopy	27	*Combretum caffrum*	3
K163	0	0	0	0	225	3	3	3	3	Tree_Canopy	21	*Combretum caffrum*	3
K64	0	0	0	0	0	3	3	1	2	Ground_Cover	—	Ground	2
K164	0	0	0	0	64	3	3	1	2	Woody	—	Other	2
K65	0	0	0	0	102	4	4	4	2	Tree_Canopy	12	*Maytenus heterophylla*	2
K165	0	0	0	0	152	4	4	4	2	Tree_Trunk	7	*Maytenus heterophylla*	2
K66	0	0	0	0	0	4	4	2	2	Ground_Cover	—	Ground	1
K166	0	0	0	0	63	4	4	2	2	Bush	—	*Acacia karoo*	1
L72	0	0	0	0	0	4	4	2	3	Ground_Cover	—	Ground	1
L172	0	0	0	0	115	4	4	2	3	Bush	—	*Acacia karoo*	2
L71	0	0	0	0	50	4	4	3	4	Tree_Trunk	33	*Acacia karoo*	1
L171	0	0	0	0	182	4	4	3	4	Tree_Trunk	15	*Acacia karoo*	3
L70	0	0	0	0	0	4	4	3	3	Ground_Open	—	*Combretum caffrum*	0
L170	0	0	0	0	203	4	4	3	4	Tree_Trunk	12	*Combretum caffrum*	4
L69	0	0	0	0	62	4	4	3	3	Tree_Canopy	39	*Combretum caffrum*	3
L169	1	1	1	1	149	4	4	3	3	Tree_Canopy	18	*Combretum caffrum*	3
L68	0	0	0	0	0	4	4	3	3	Ground_Cover	—	Ground	2
L168	1	1	1	1	148	4	4	3	3	Tree_Canopy	13	*Combretum caffrum*	2
L67	1	3	3	2	82	3	4	2	3	Tree_Trunk	168	*Combretum caffrum*	3
L167	1	1	1	1	178	3	4	2	3	Woody	—	*Rhus* sp.	3
M73	1	1	1	1	91	4	4	4	4	Tree_Trunk	168	*Combretum caffrum*	4
M173	1	2	2	2	223	4	4	4	4	Tree_Trunk	41	*Combretum caffrum*	4
M74	1	1	1	1	0	3	3	3	4	Ground_Open	—	Ground	2
M174	1	6	6	8	112	3	3	3	4	Tree_Canopy	15	*Rhus* sp.	3
M75	1	2	2	2	150	3	3	3	4	Tree_Trunk	87	*Combretum caffrum*	4
M175	1	2	2	2	236	3	3	3	4	Tree_Trunk	43	*Maytenus heterophylla*	4
M76	1	1	1	1	0	4	4	3	4	Ground_Open	—	Ground	0

Table A45. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
M176	1	3	3	2	95	4	4	3	4	Tree_Trunk	72	*Combretum caffrum*	3
M77	0	0	0	0	132	3	3	2	4	Tree_Canopy	23	*Maytenus heterophylla*	3
M177	0	0	0	0	195	3	3	2	4	Tree_Canopy	28	*Maytenus heterophylla*	3
M78	0	0	0	0	0	4	4	2	2	Ground_Cover	—	Ground	2
M178	0	0	0	0	44	4	4	2	2	Bush	—	Other	2
N84	0	0	0	0	0	4	4	3	3	Ground_Cover	—	Ground	1
N184	0	0	0	0	137	4	4	3	3	Tree_Canopy	—	*Maytenus heterophylla*	3
N83	0	1	1	1	101	2	2	3	4	Tree_Canopy	9	Other	4
N183	1	1	1	2	200	2	2	3	4	Tree_Trunk	30	*Acacia karoo*	4
N82	1	4	4	4	0	0	0	1	3	Ground_Cover	—	Ground	3
N182	1	3	3	3	133	0	0	2	3	Woody	—	*Ziziphus mucronata*	4
N81	1	3	3	2	73	1	1	2	3	Woody	—	*Ziziphus mucronata*	3
N181	1	4	4	4	215	2	2	2	3	Tree_Trunk	47	*Ziziphus mucronata*	3
N80	1	6	6	3	84	3	2	2	3	Woody	—	*Ziziphus mucronata*	3
N180	1	3	3	3	128	3	2	2	3	Woody	—	*Ziziphus mucronata*	3
N79	0	0	0	0	0	3	3	3	4	Ground_Open	—	Ground	2
N179	1	1	1	1	209	3	3	3	4	Tree_Trunk	118	*Combretum caffrum*	3
O85	0	0	0	0	167	3	3	3	4	Tree_Trunk	29	*Maytenus heterophylla*	3
O185	0	0	0	0	184	3	3	3	4	Tree_Trunk	—	*Maytenus heterophylla*	3
O86	0	0	0	0	0	3	3	3	4	Ground_Open	—	Ground	1
O186	0	0	0	0	167	3	3	3	4	Tree_Trunk	66	*Olea europaea*	3
O87	0	0	0	0	0	2	3	3	4	Ground_Open	—	Ground	1
O187	1	2	2	2	56	2	3	3	4	Log Trunk	152	*Combretum caffrum*	3
O88	1	2	2	2	136	2	2	4	4	Tree_Trunk	152	*Combretum caffrum*	4
O188	0	0	0	0	185	2	2	4	4	Tree_Trunk	79	*Combretum caffrum*	3
O89	0	1	0	0	0	4	4	3	3	Ground_Cover	—	Ground	1
O189	1	0	1	1	74	4	4	3	3	Log	—	Other	2
O90	1	1	1	1	109	1	2	3	4	Tree_Trunk	8	*Rhus* sp.	4
O190	1	2	2	1	137	1	2	3	4	Tree_Trunk	46	*Rhus* sp.	4
P96	0	0	0	0	143	3	3	3	4	Tree_Trunk	84	*Combretum caffrum*	4
P196	0	0	0	0	183	3	3	3	4	Tree_Canopy	42	*Combretum caffrum*	3
P95	0	0	0	0	0	2	2	3	4	Ground_Cover	—	Ground	3
P195	1	2	2	1	107	2	2	3	4	Tree_Trunk	—	*Maytenus heterophylla*	3
P94	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	2
P194	1	2	2	2	217	4	4	3	3	Tree_Canopy	18	*Combretum caffrum*	2
P93	0	0	0	0	0	2	2	3	4	Ground_Open	—	Other	2
P193	0	0	0	0	190	2	2	3	4	Tree_Canopy	—	*Maytenus heterophylla*	3
P92	0	0	0	0	0	1	1	2	4	Ground_Open	—	Ground	1
P192	0	0	0	0	145	1	1	2	4	Tree_Canopy	—	*Rhus* sp.	3

Table A45. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
P91	0	0	0	0	99	3	3	2	3	Tree_Canopy	—	*Maytenus heterophylla*	3
P191	1	1	1	2	152	3	3	2	3	Tree_Trunk	25	*Maytenus heterophylla*	3

Table A46. List of raw data for the microhabitat analyses for winter 2011.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
A1	0	0	0	0	0	2	2	3	3	Ground_Cover	—	Ground	0
A101	0	0	0	0	194	2	2	2	3	Tree_Canopy	—	*Maytenus heterophylla*	2
A2	1	1	1	1	68	2	3	3	3	Woody	—	Other	1
A102	0	0	0	0	101	2	3	3	3	Woody	—	Other	1
A3	0	0	0	0	0	3	2	3	3	Woody	—	Ground	0
A103	0	0	0	0	126	3	2	3	3	Woody	29	*Rhus* sp.	1
A4	0	0	0	0	50	2	3	2	4	Log	54	*Combretum caffrum*	3
A104	0	0	0	0	202	2	3	3	4	Tree_Trunk	46	*Rhus* sp.	4
A5	0	0	0	0	0	3	3	3	3	Ground_Cover	—	Ground	0
A105	1	1	1	1	161	3	3	3	3	Woody	—	*Ziziphus mucronata*	3
A6	0	0	0	0	76	3	3	3	2	Tree_Trunk	27	*Rhus* sp.	1
A106	0	0	0	0	191	3	3	3	2	Tree_Trunk	27	*Rhus* sp.	1
B12	0	0	0	0	0	3	3	2	3	Ground_Open	—	Ground	0
B112	0	0	0	0	134	3	3	2	3	Tree_Trunk	26	*Olea europaea*	1
B11	0	0	0	0	112	1	1	2	3	Bush	—	*Rhus* sp.	2
B111	0	0	0	0	203	1	1	2	3	Tree_Trunk	—	*Rhus* sp.	2
B10	0	0	0	0	0	3	3	2	3	Ground_Open	—	Ground	0
B110	0	0	0	0	223	3	3	2	3	Tree_Trunk	59	*Olea europaea*	2
B9	0	0	0	0	42	3	3	2	2	Bush	—	Other	1
B109	0	0	0	0	117	3	3	2	2	Bush	7	Other	1
B8	0	0	0	0	0	3	2	3	3	Woody	—	Ground	0
B108	0	0	0	0	200	3	2	3	3	Tree_Trunk	39	*Olea europaea*	2
B7	0	0	0	0	133	3	2	0	3	Bush	18	Other	1
B107	0	0	0	0	67	3	2	0	3	Tree_Canopy	10	*Combretum caffrum*	1
C13	0	0	0	0	75	4	2	2	2	Bush	—	Other	1
C113	0	0	0	0	154	4	2	2	2	Tree_Trunk	—	*Combretum caffrum*	1
C14	0	0	0	0	0	4	2	1	1	Bush	—	Ground	0
C114	0	0	0	0	97	4	2	1	1	Bush	—	*Acacia karoo*	0
C15	0	0	0	0	0	3	2	2	1	Ground_Open	—	Ground	1
C115	0	0	0	0	195	3	2	2	1	Tree_Canopy	15	*Olea europaea*	0
C16	1	1	1	1	46	1	2	2	3	Woody	13	Other	2
C116	0	0	0	0	140	1	2	2	3	Tree_Trunk	—	*Rhus* sp.	2
C17	0	0	0	0	0	3	2	0	3	Woody	—	Ground	2
C117	0	0	0	0	187	3	2	0	3	Woody	—	*Rhus* sp.	2
C18	0	0	0	0	84	4	3	0	3	Tree_Trunk	31	*Acacia karoo*	3
C118	0	0	0	0	132	4	3	0	3	Tree_Trunk	5	*Acacia karoo*	3
D24	0	0	0	0	0	2	3	3	1	Bush	—	Ground	0
D124	0	0	0	0	89	2	3	3	1	Bush	12	Other	0

Table A46. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
D23	0	0	0	0	185	1	1	0	4	Tree_Canopy	—	*Maytenus heterophylla*	3
D123	0	0	0	0	185	1	1	0	4	Tree_Trunk	33	*Maytenus heterophylla*	3
D22	0	0	0	0	0	3	3	1	2	Ground_Open	—	Ground	1
D122	0	0	0	0	177	3	3	1	2	Tree_Canopy	19	*Olea europaea*	0
D21	0	0	0	0	81	0	3	1	1	Tree_Trunk	2	*Rhus* sp.	0
D121	0	0	0	0	140	0	3	1	1	Tree_Canopy	—	*Rhus* sp.	0
D20	0	0	0	0	0	3	4	1	1	Ground_Open	—	Ground	0
D120	0	0	0	0	236	3	4	1	1	Tree_Trunk	49	*Combretum caffrum*	0
D19	0	0	0	0	78	3	3	2	1	Woody	—	Other	0
D119	0	0	0	0	129	3	3	2	1	Woody	—	Other	0
E25	0	0	0	0	133	3	3	2	2	Tree_Trunk	—	Other	2
E125	0	0	0	0	211	3	3	2	2	Tree_Trunk	62	*Olea europaea*	2
E26	0	0	0	0	97	3	3	1	1	Bush	—	*Maytenus heterophylla*	2
E126	0	0	0	0	144	3	3	1	1	Bush	—	*Maytenus heterophylla*	2
E27	0	0	0	0	0	3	3	0	3	Ground_Cover	—	Ground	3
E127	0	0	0	0	189	3	3	0	3	Tree_Canopy	19	*Rhus* sp.	3
E28	0	0	0	0	64	2	3	1	3	Bush	—	*Acacia karoo*	3
E128	0	0	0	0	131	2	3	1	3	Bush	—	*Acacia karoo*	3
E29	0	0	0	0	0	2	2	1	3	Ground_Open	—	Ground	0
E129	0	0	0	0	176	2	2	1	3	Tree_Canopy	—	*Olea europaea*	1
E30	0	0	0	0	0	4	3	1	0	Ground_Cover	—	Other	0
E130	0	0	0	0	67	4	3	1	0	Bush	—	Other	0
F36	0	0	0	0	0	4	3	4	0	Ground_Cover	—	Ground	0
F136	0	0	0	0	60	4	3	4	0	Bush	—	Other	0
F35	0	0	0	0	113	4	4	2	3	Tree_Trunk	25	*Olea europaea*	2
F135	0	0	0	0	194	4	4	2	3	Tree_Canopy	18	*Olea europaea*	2
F34	0	0	0	0	0	3	2	2	2	Ground_Cover	—	Ground	2
F134	0	0	0	0	47	3	2	2	2	Bush	—	Other	2
F33	0	0	0	0	0	4	3	1	3	Ground_Open	—	Ground	0
F133	0	0	0	0	195	4	3	1	3	Tree_Trunk	56	*Olea europaea*	2
F32	0	0	0	0	0	4	4	2	2	Ground_Cover	—	Ground	0
F132	0	0	0	0	115	4	4	2	2	Tree_Trunk	36	*Maytenus heterophylla*	0
F31	0	0	0	0	96	3	3	2	3	Tree_Trunk	49	*Olea europaea*	2
F131	0	0	0	0	235	3	3	2	3	Tree_Trunk	5	*Olea europaea*	2
G37	0	0	0	0	119	2	3	1	3	Tree_Trunk	141	*Olea europaea*	3
G137	0	0	0	0	194	2	3	1	3	Tree_Trunk	59	*Olea europaea*	3
G38	0	0	0	0	134	4	4	3	3	Tree_Canopy	—	Ground	2
G138	0	0	0	0	0	4	4	3	3	Ground_Open	—	*Olea europaea*	0

Table A46. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
G39	0	0	0	0	67	2	2	2	3	Tree_Canopy	24	*Olea europaea*	3
G139	0	0	0	0	206	2	2	2	3	Tree_Canopy	—	*Ziziphus mucronata*	3
G40	0	0	0	0	0	3	2	1	2	Woody	135	Ground	2
G140	0	0	0	0	167	3	2	1	2	Tree_Trunk	—	*Buddleja saligna*	1
G41	0	0	0	0	0	4	4	0	3	Ground_Cover	—	Ground	2
G141	0	0	0	0	81	4	4	0	3	Tree_Canopy	—	*Acacia karoo*	2
G42	0	0	0	0	106	3	3	2	3	Bush	—	*Maytenus heterophylla*	1
G142	0	0	0	0	113	3	3	2	3	Bush	—	Other	1
H48	0	0	0	0	0	4	2	2	0	Ground_Cover	—	Ground	0
H148	0	0	0	0	115	3	3	1	1	Bush	—	Other	0
H47	0	0	0	0	126	0	2	2	3	Bush	—	*Maytenus heterophylla*	4
H147	0	0	0	0	179	0	2	2	3	Tree_Trunk	—	*Maytenus heterophylla*	4
H46	0	0	0	0	0	1	3	0	3	Ground_Open	—	Ground	4
H146	0	0	0	0	130	1	3	0	3	Tree_Canopy	—	*Acacia karoo*	0
H45	0	0	0	0	53	2	2	0	4	Log	33	*Maytenus heterophylla*	3
H145	0	0	0	0	179	2	2	0	4	Tree_Trunk	34	*Maytenus heterophylla*	3
H44	0	0	0	0	0	3	2	3	3	Ground_Open	—	Ground	0
H144	0	0	0	0	38	3	2	3	3	Log	—	Other	0
H43	0	0	0	0	27	4	4	1	4	Tree_Trunk	23	*Maytenus heterophylla*	2
H143	0	0	0	0	207	4	4	1	4	Tree_Canopy	—	*Maytenus heterophylla*	2
I49	0	0	0	0	160	3	3	3	2	Tree_Trunk	46	*Acacia karoo*	2
I149	0	0	0	0	192	3	3	3	2	Tree_Canopy	—	*Rhus* sp.	2
I50	0	0	0	0	0	3	3	3	2	Ground_Cover	—	Ground	0
I150	0	0	0	0	163	3	3	3	2	Tree_Canopy	—	*Combretum caffrum*	1
I51	0	0	0	0	0	3	2	1	2	Ground_Cover	—	Ground	1
I151	0	0	0	0	94	3	2	1	2	Log	—	*Maytenus heterophylla*	1
I52	0	0	0	0	58	4	4	1	3	Tree_Trunk	—	*Acacia karoo*	2
I152	0	0	0	0	108	4	4	1	3	Bush	—	*Acacia karoo*	1
I53	0	0	0	0	138	2	2	2	2	Tree_Trunk	53	*Rhus* sp.	2
I153	0	0	0	0	165	2	2	1	3	Tree_Trunk	—	*Combretum caffrum*	2
I54	0	0	0	0	0	4	2	1	1	Ground_Cover	—	Ground	0
I154	0	0	0	0	67	4	2	1	1	Bush	—	*Acacia karoo*	0
J60	0	0	0	0	0	3	3	1	1	Ground_Cover	—	Ground	0
J160	0	0	0	0	134	3	3	1	1	Bush	—	*Maytenus heterophylla*	0
J59	0	0	0	0	130	3	3	2	1	Tree_Canopy	—	*Maytenus heterophylla*	1
J159	0	0	0	0	188	3	3	2	1	Tree_Trunk	13	*Maytenus heterophylla*	1
J58	0	0	0	0	45	3	3	0	2	Tree_Trunk	29	*Combretum caffrum*	1

Table A46. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
J158	0	0	0	0	113	3	3	0	2	Tree_Canopy	27	*Combretum caffrum*	1
J57	0	0	0	0	50	4	4	3	3	Bush	51	Other	1
J157	0	0	0	0	218	4	4	3	3	Tree_Trunk	—	*Ziziphus mucronata*	0
J56	0	0	0	0	0	4	4	2	3	Ground_Open	—	Ground	0
J156	1	1	1	1	185	4	4	2	3	Tree_Canopy	10	*Combretum caffrum*	4
J55	0	0	0	0	0	3	3	2	4	Ground_Open	—	Ground	0
J155	0	0	0	0	61	3	3	2	4	Tree_Trunk	49	*Ziziphus mucronata*	0
K61	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	0
K161	0	0	0	0	214	4	4	3	3	Tree_Trunk	67	*Combretum caffrum*	2
K62	0	0	0	0	167	3	3	2	4	Tree_Canopy	13	*Ziziphus mucronata*	3
K162	1	1	1	1	184	3	3	2	4	Tree_Trunk	75	*Combretum caffrum*	3
K63	0	0	0	0	136	4	4	3	3	Tree_Canopy	27	*Combretum caffrum*	3
K163	0	0	0	0	225	4	4	3	3	Tree_Canopy	21	*Combretum caffrum*	3
K64	0	0	0	0	0	3	3	0	2	Ground_Cover	—	Ground	2
K164	0	0	0	0	64	3	3	0	2	Woody	—	Other	2
K65	0	0	0	0	102	4	4	3	2	Tree_Canopy	12	*Maytenus heterophylla*	1
K165	0	0	0	0	152	4	4	3	2	Tree_Trunk	7	*Maytenus heterophylla*	1
K66	0	0	0	0	0	4	4	0	2	Ground_Cover	—	Ground	0
K166	0	0	0	0	63	4	4	0	2	Bush	—	*Acacia karoo*	0
L72	0	0	0	0	0	3	3	2	3	Ground_Cover	—	Ground	1
L172	0	0	0	0	115	3	3	2	3	Bush	—	*Acacia karoo*	2
L71	0	0	0	0	50	4	4	2	4	Tree_Trunk	33	*Acacia karoo*	1
L171	0	0	0	0	182	4	4	2	4	Tree_Trunk	15	*Acacia karoo*	1
L70	0	0	0	0	0	4	4	1	4	Ground_Open	—	*Combretum caffrum*	0
L170	0	0	0	0	203	4	4	1	4	Tree_Trunk	12	*Combretum caffrum*	4
L69	0	0	0	0	62	4	4	2	3	Tree_Canopy	39	*Combretum caffrum*	2
L169	1	1	1	1	149	4	4	2	3	Tree_Canopy	18	*Combretum caffrum*	2
L68	0	0	0	0	0	4	4	3	2	Ground_Cover	—	Ground	3
L168	0	0	0	0	148	4	4	3	2	Tree_Canopy	13	*Combretum caffrum*	3
L67	1	1	1	1	82	3	3	0	2	Tree_Trunk	168	*Combretum caffrum*	2
L167	0	0	0	0	178	3	3	0	2	Woody	—	*Rhus* sp.	2
M73	0	0	0	0	91	4	4	4	3	Tree_Trunk	168	*Combretum caffrum*	4
M173	1	1	1	1	223	4	4	4	3	Tree_Trunk	41	*Combretum caffrum*	4
M74	0	0	0	0	0	4	4	3	4	Ground_Open	—	Ground	0
M174	1	1	1	1	112	4	4	3	4	Tree_Canopy	15	*Rhus* sp.	2
M75	0	0	0	0	150	3	3	2	3	Tree_Trunk	87	*Combretum caffrum*	3
M175	0	0	0	0	236	3	3	2	3	Tree_Trunk	43	*Maytenus heterophylla*	3
M76	1	1	1	1	0	4	4	2	3	Ground_Open	—	Ground	0

Table A46. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
M176	0	0	0	0	95	4	4	2	3	Tree_Trunk	72	*Combretum caffrum*	2
M77	0	0	0	0	132	3	3	1	3	Tree_Canopy	23	*Maytenus heterophylla*	2
M177	0	0	0	0	195	3	3	1	3	Tree_Canopy	28	*Maytenus heterophylla*	2
M78	0	0	0	0	0	2	3	2	2	Ground_Cover	—	Ground	1
M178	0	0	0	0	44	2	3	2	2	Bush	—	Other	1
N84	0	0	0	0	0	3	3	1	3	Ground_Cover	—	Ground	2
N184	0	0	0	0	137	3	3	1	3	Tree_Canopy	—	*Maytenus heterophylla*	2
N83	0	0	0	0	101	2	2	1	4	Tree_Canopy	9	Other	4
N183	0	0	0	0	200	2	2	1	4	Tree_Trunk	30	*Acacia karoo*	4
N82	0	0	0	0	0	0	0	1	2	Ground_Cover	—	Ground	2
N182	1	2	2	1	133	0	0	1	2	Woody	—	*Ziziphus mucronata*	2
N81	1	3	3	2	73	1	1	1	2	Woody	—	*Ziziphus mucronata*	2
N181	1	1	1	1	215	2	2	1	2	Tree_Trunk	47	*Ziziphus mucronata*	2
N80	1	2	2	2	84	2	2	1	3	Woody	—	*Ziziphus mucronata*	2
N180	0	1	1	1	128	2	2	1	3	Woody	—	*Ziziphus mucronata*	2
N79	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	3
N179	0	0	0	0	209	4	4	3	3	Tree_Trunk	118	*Combretum caffrum*	3
O85	0	0	0	0	167	3	3	2	3	Tree_Trunk	29	*Maytenus heterophylla*	1
O185	0	0	0	0	184	3	3	2	3	Tree_Trunk	—	*Maytenus heterophylla*	1
O86	0	0	0	0	0	3	3	2	4	Ground_Open	—	Ground	0
O186	0	0	0	0	167	3	3	2	4	Tree_Trunk	66	*Olea europaea*	3
O87	0	0	0	0	0	2	3	2	4	Ground_Open	—	Ground	0
O187	0	0	0	0	56	2	3	2	4	Log Trunk	152	*Combretum caffrum*	2
O88	1	1	1	1	136	3	1	3	4	Tree_Trunk	152	*Combretum caffrum*	4
O188	0	0	0	0	185	3	1	3	4	Tree_Trunk	79	*Combretum caffrum*	4
O89	0	0	0	0	0	4	4	2	3	Ground_Cover	—	Ground	2
O189	0	0	0	0	74	4	4	2	3	Log	—	Other	2
O90	0	0	0	0	109	1	1	2	3	Tree_Trunk	8	*Rhus* sp.	2
O190	0	0	0	0	137	1	1	2	3	Tree_Trunk	46	*Rhus* sp.	2
P96	0	0	0	0	143	0	0	2	4	Tree_Trunk	84	*Combretum caffrum*	4
P196	0	0	0	0	183	0	0	2	4	Tree_Canopy	42	*Combretum caffrum*	4
P95	0	0	0	0	0	0	0	2	4	Ground_Cover	—	Ground	0
P195	0	0	0	0	107	0	0	2	4	Tree_Trunk	—	*Maytenus heterophylla*	3
P94	0	0	0	0	0	4	4	2	3	Ground_Open	—	Ground	0
P194	1	1	1	1	217	4	4	2	3	Tree_Canopy	18	*Combretum caffrum*	2
P93	0	0	0	0	0	3	3	3	4	Ground_Open	—	Other	0
P193	0	0	0	0	190	3	3	3	4	Tree_Canopy	—	*Maytenus heterophylla*	2
P92	0	0	0	0	0	1	1	2	4	Ground_Open	—	Ground	0

Table A46. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
P192	0	0	0	0	145	1	1	2	4	Tree_Canopy	—	*Rhus* sp.	2
P91	0	0	0	0	99	3	3	1	2	Tree_Canopy	—	*Maytenus heterophylla*	2
P191	0	0	0	0	152	3	3	1	2	Tree_Trunk	25	*Maytenus heterophylla*	2

Table A47. List of raw data for the microhabitat analyses for spring 2011.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
A1	0	0	0	0	0	2	2	2	3	Ground_Cover	—	Ground	0
A101	0	0	0	0	194	2	2	2	3	Tree_Canopy	—	*Maytenus heterophylla*	3
A2	0	0	0	0	68	2	3	3	3	Woody	—	Other	2
A102	0	0	0	0	101	2	3	3	3	Woody	—	Other	2
A3	0	0	0	0	0	1	1	3	3	Woody	—	Ground	0
A103	0	0	0	0	126	1	1	3	3	Woody	29	*Rhus* sp.	3
A4	0	0	0	0	50	1	2	3	3	Log	54	*Combretum caffrum*	3
A104	0	0	0	0	202	1	2	3	3	Tree_Trunk	46	*Rhus* sp.	3
A5	0	0	0	0	0	4	4	3	3	Ground_Cover	—	Ground	0
A105	0	0	0	0	161	4	4	3	3	Woody	—	*Ziziphus mucronata*	4
A6	0	0	0	0	76	3	3	3	3	Tree_Trunk	27	*Rhus* sp.	2
A106	0	0	0	0	191	3	3	3	3	Tree_Trunk	27	*Rhus* sp.	2
B12	0	0	0	0	0	3	3	2	3	Ground_Open	—	Ground	3
B112	0	0	0	0	134	3	3	2	3	Tree_Trunk	26	*Olea europaea*	3
B11	0	0	0	0	112	2	2	2	3	Bush	—	*Rhus* sp.	2
B111	0	0	0	0	203	2	2	2	3	Tree_Trunk	—	*Rhus* sp.	2
B10	0	0	0	0	0	3	3	2	3	Ground_Open	—	Ground	0
B110	0	0	0	0	223	3	3	2	3	Tree_Trunk	59	*Olea europaea*	3
B9	0	0	0	0	42	2	2	3	2	Bush	—	Other	2
B109	0	0	0	0	117	2	2	3	2	Bush	7	Other	2
B8	0	0	0	0	0	2	2	2	3	Woody	—	Ground	0
B108	0	0	0	0	200	2	2	2	3	Tree_Trunk	39	*Olea europaea*	3
B7	0	0	0	0	133	2	2	2	3	Bush	18	Other	1
B107	0	0	0	0	67	2	2	2	3	Tree_Canopy	10	*Combretum caffrum*	1
C13	0	0	0	0	75	4	3	3	2	Bush	—	Other	2
C113	0	0	0	0	154	4	3	3	2	Tree_Trunk	—	*Combretum caffrum*	2
C14	0	0	0	0	0	4	2	1	1	Bush	—	Ground	0
C114	0	0	0	0	97	4	2	1	1	Bush	—	*Acacia karoo*	1
C15	0	0	0	0	0	3	3	2	1	Ground_Open	—	Ground	0
C115	0	0	0	0	195	3	3	2	1	Tree_Canopy	15	*Olea europaea*	1
C16	0	0	0	0	46	2	2	3	3	Woody	13	Other	2
C116	0	0	0	0	140	2	2	3	3	Tree_Trunk	—	*Rhus* sp.	2
C17	0	0	0	0	0	3	2	2	3	Woody	—	Ground	3
C117	0	0	0	0	187	3	2	2	3	Woody	—	*Rhus* sp.	3
C18	0	0	0	0	84	4	4	2	3	Tree_Trunk	31	*Acacia karoo*	3
C118	0	0	0	0	132	4	4	2	3	Tree_Trunk	5	*Acacia karoo*	3
D24	0	0	0	0	0	3	3	3	1	Bush	—	Ground	0
D124	0	0	0	0	89	3	3	3	1	Bush	12	Other	0
D23	0	0	0	0	185	1	1	1	4	Tree_Canopy	—	*Maytenus heterophylla*	4

Table A47. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
D123	0	0	0	0	185	1	1	1	4	Tree_Trunk	33	*Maytenus heterophylla*	4
D22	0	0	0	0	0	3	3	2	3	Ground_Open	—	Ground	0
D122	0	0	0	0	177	3	3	2	3	Tree_Canopy	19	*Olea europaea*	3
D21	0	0	0	0	81	3	4	2	1	Tree_Trunk	2	*Rhus* sp.	1
D121	0	0	0	0	140	3	4	2	1	Tree_Canopy	—	*Rhus* sp.	0
D20	0	0	0	0	0	3	3	3	1	Ground_Open	—	Ground	0
D120	0	0	0	0	236	3	3	3	1	Tree_Trunk	49	*Combretum caffrum*	1
D19	0	0	0	0	78	4	4	3	2	Woody	—	Other	2
D119	0	0	0	0	129	4	4	3	2	Woody	—	Other	2
E25	0	0	0	0	133	4	4	3	3	Tree_Trunk	—	Other	3
E125	0	0	0	0	211	4	4	3	3	Tree_Trunk	62	*Olea europaea*	3
E26	0	0	0	0	97	4	4	3	2	Bush	—	*Maytenus heterophylla*	2
E126	0	0	0	0	144	4	4	3	2	Bush	—	*Maytenus heterophylla*	2
E27	0	0	0	0	0	4	4	3	4	Ground_Cover	—	Ground	3
E127	0	0	0	0	189	4	4	3	4	Tree_Canopy	19	*Rhus* sp.	3
E28	0	0	0	0	64	3	3	3	3	Bush	—	*Acacia karoo*	2
E128	0	0	0	0	131	3	3	3	3	Bush	—	*Acacia karoo*	2
E29	0	0	0	0	0	2	2	1	4	Ground_Open	—	Ground	0
E129	0	0	0	0	176	2	2	1	4	Tree_	—	*Olea europaea*	3
E30	0	0	0	0	0	4	3	1	0	Ground_Cover	—	Other	0
E130	0	0	0	0	67	4	3	1	0	Bush	—	Other	0
F36	0	0	0	0	0	4	4	3	1	Ground_Cover	—	Ground	0
F136	0	0	0	0	60	4	4	3	1	Bush	—	Other	1
F35	0	0	0	0	113	4	4	3	3	Tree_Trunk	25	*Olea europaea*	3
F135	0	0	0	0	194	4	4	3	3	Tree_Canopy	18	*Olea europaea*	3
F34	0	0	0	0	0	3	3	3	1	Ground_Cover	—	Ground	0
F134	0	0	0	0	47	3	3	3	1	Bush	—	Other	2
F33	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	0
F133	0	0	0	0	195	4	4	3	3	Tree_Trunk	56	*Olea europaea*	2
F32	0	0	0	0	0	3	3	3	2	Ground_Cover	—	Ground	0
F132	0	0	0	0	115	3	3	3	2	Tree_Trunk	36	*Maytenus heterophylla*	2
F31	0	0	0	0	96	3	3	2	3	Tree_Trunk	49	*Olea europaea*	3
F131	0	0	0	0	235	3	3	2	3	Tree_Trunk	5	*Olea europaea*	3
G37	0	0	0	0	119	4	4	3	3	Tree_Trunk	141	*Olea europaea*	3
G137	0	0	0	0	194	4	4	3	3	Tree_Trunk	59	*Olea europaea*	3
G38	0	0	0	0	134	4	4	3	3	Tree_Canopy	—	Ground	0
G138	0	0	0	0	0	4	4	3	3	Ground_Open	—	*Olea europaea*	2
G39	0	0	0	0	67	3	3	3	3	Tree_Canopy	24	*Olea europaea*	3

Table A47. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
G139	0	0	0	0	206	3	3	3	3	Tree_Canopy	—	*Ziziphus mucronata*	3
G40	0	0	0	0	0	4	4	2	2	Woody	135	Ground	2
G140	0	0	0	0	167	4	4	2	2	Tree_Trunk	—	*Buddleja saligna*	1
G41	0	0	0	0	0	4	4	1	3	Ground_Cover	—	Ground	3
G141	0	0	0	0	81	4	4	1	3	Tree_Canopy	—	*Acacia karoo*	3
G42	0	0	0	0	106	3	2	3	3	Bush	—	*Maytenus heterophylla*	1
G142	0	0	0	0	113	3	2	3	3	Bush	—	Other	1
H48	0	0	0	0	0	4	2	2	0	Ground_Cover	—	Ground	0
H148	0	0	0	0	115	4	3	1	1	Bush	—	Other	0
H47	0	0	0	0	126	2	2	2	3	Bush	—	*Maytenus heterophylla*	4
H147	0	0	0	0	179	2	2	2	3	Tree_Trunk	—	*Maytenus heterophylla*	4
H46	0	0	0	0	0	4	4	2	3	Ground_Open	—	Ground	4
H146	0	0	0	0	130	4	4	2	3	Tree_Canopy	—	*Acacia karoo*	4
H45	0	0	0	0	53	2	2	1	4	Log	33	*Maytenus heterophylla*	4
H145	0	0	0	0	179	2	2	1	4	Tree_Trunk	34	*Maytenus heterophylla*	4
H44	0	0	0	0	0	4	3	3	3	Ground_Open	—	Ground	0
H144	0	0	0	0	38	4	3	3	3	Log	—	Other	0
H43	0	0	0	0	27	4	4	2	4	Tree_Trunk	23	*Maytenus heterophylla*	2
H143	0	0	0	0	207	4	4	2	4	Tree_Canopy	—	*Maytenus heterophylla*	2
I49	0	0	0	0	160	3	3	10	3	Tree_Trunk	46	*Acacia karoo*	2
I149	0	0	0	0	192	3	3	10	3	Tree_Canopy	—	*Rhus* sp.	2
I50	0	0	0	0	0	4	4	4	2	Ground_Cover	—	Ground	0
I150	0	0	0	0	163	4	4	4	2	Tree_Canopy	—	*Combretum caffrum*	1
I51	0	0	0	0	0	4	3	2	2	Ground_Cover	—	Ground	1
I151	0	0	0	0	94	4	3	2	2	Log	—	*Maytenus heterophylla*	1
I52	0	0	0	0	58	4	4	1	3	Tree_Trunk	—	*Acacia karoo*	3
I152	0	0	0	0	108	4	4	1	3	Bush	—	*Acacia karoo*	3
I53	0	0	0	0	138	3	3	3	3	Tree_Trunk	53	*Rhus* sp.	2
I153	0	0	0	0	165	3	3	3	3	Tree_Trunk	—	*Combretum caffrum*	2
I54	0	0	0	0	0	4	3	1	1	Ground_Cover	—	Ground	0
I154	0	0	0	0	67	4	3	1	1	Bush	—	*Acacia karoo*	0
J60	0	0	0	0	0	3	3	1	1	Ground_Cover	—	Ground	0
J160	0	0	0	0	134	3	3	1	1	Bush	—	*Maytenus heterophylla*	0
J59	0	0	0	0	130	3	3	3	2	Tree_Canopy	—	*Maytenus heterophylla*	1
J159	0	0	0	0	188	3	3	3	2	Tree_Trunk	13	*Maytenus heterophylla*	1
J58	0	0	0	0	45	4	4	2	2	Tree_Trunk	29	*Combretum caffrum*	1
J158	0	0	0	0	113	4	4	2	2	Tree_Canopy	27	*Combretum caffrum*	1
J57	0	0	0	0	50	4	4	3	2	Bush	51	Other	0

Table A47. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
J157	0	0	0	0	218	4	4	3	2	Tree_Trunk	—	*Ziziphus mucronata*	1
J56	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	0
J156	0	0	0	0	185	4	4	3	3	Tree_Canopy	10	*Combretum caffrum*	3
J55	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	0
J155	0	0	0	0	61	4	4	3	3	Tree_Trunk	49	*Ziziphus mucronata*	2
K61	0	0	0	0	0	4	4	4	3	Ground_Open	—	Ground	0
K161	0	0	0	0	214	4	4	4	3	Tree_Trunk	67	*Combretum caffrum*	3
K62	0	0	0	0	167	4	4	3	3	Tree_Canopy	13	*Ziziphus mucronata*	3
K162	0	0	0	0	184	4	4	3	3	Tree_Trunk	75	*Combretum caffrum*	3
K63	0	0	0	0	136	4	4	2	3	Tree_Canopy	27	*Combretum caffrum*	3
K163	0	0	0	0	225	4	4	2	3	Tree_Canopy	21	*Combretum caffrum*	3
K64	0	0	0	0	0	4	4	0	2	Ground_Cover	—	Ground	2
K164	0	0	0	0	64	4	4	0	2	Woody	—	Other	2
K65	0	0	0	0	102	4	4	3	2	Tree_Canopy	12	*Maytenus heterophylla*	1
K165	0	0	0	0	152	4	4	3	2	Tree_Trunk	7	*Maytenus heterophylla*	1
K66	0	0	0	0	0	4	4	1	2	Ground_Cover	—	Ground	2
K166	0	0	0	0	63	4	4	1	2	Bush	—	*Acacia karoo*	2
L72	0	0	0	0	0	4	4	2	3	Ground_Cover	—	Ground	1
L172	0	0	0	0	115	4	4	2	3	Bush	—	*Acacia karoo*	2
L71	0	0	0	0	50	4	4	3	4	Tree_Trunk	33	*Acacia karoo*	1
L171	0	0	0	0	182	4	4	3	4	Tree_Trunk	15	*Acacia karoo*	3
L70	0	0	0	0	0	4	4	2	4	Ground_Open	—	*Combretum caffrum*	0
L170	0	0	0	0	203	4	4	2	4	Tree_Trunk	12	*Combretum caffrum*	4
L69	0	0	0	0	62	4	4	3	3	Tree_Canopy	39	*Combretum caffrum*	3
L169	0	0	0	0	149	4	4	3	3	Tree_Canopy	18	*Combretum caffrum*	3
L68	0	0	0	0	0	4	4	3	2	Ground_Cover	—	Ground	3
L168	0	0	0	0	148	4	4	3	2	Tree_Canopy	13	*Combretum caffrum*	3
L67	1	1	1	1	82	4	4	2	2	Tree_Trunk	168	*Combretum caffrum*	2
L167	1	1	1	1	178	4	4	2	2	Woody	—	*Rhus* sp.	2
M73	0	0	0	0	91	4	4	4	3	Tree_Trunk	168	*Combretum caffrum*	4
M173	1	1	1	1	223	4	4	4	3	Tree_Trunk	41	*Combretum caffrum*	4
M74	0	0	0	0	0	4	4	3	4	Ground_Open	—	Ground	0
M174	1	1	1	1	112	4	4	3	4	Tree_Canopy	15	*Rhus* sp.	2
M75	1	1	1	1	150	4	4	2	3	Tree_Trunk	87	*Combretum caffrum*	3
M175	0	0	0	0	236	4	4	2	3	Tree_Trunk	43	*Maytenus heterophylla*	3
M76	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	0
M176	1	1	1	1	95	4	4	3	3	Tree_Trunk	72	*Combretum caffrum*	2
M77	0	0	0	0	132	4	4	2	4	Tree_Canopy	23	*Maytenus heterophylla*	2
M177	0	0	0	0	195	4	4	2	4	Tree_Canopy	28	*Maytenus heterophylla*	2

Table A47. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
M78	0	0	0	0	0	4	4	3	2	Ground_Cover	—	Ground	1
M178	0	0	0	0	44	4	4	3	2	Bush	—	Other	1
N84	0	0	0	0	0	4	4	2	3	Ground_Cover	—	Ground	2
N184	0	0	0	0	137	4	4	2	3	Tree_Canopy	—	*Maytenus heterophylla*	2
N83	0	0	0	0	101	2	2	4	4	Tree_Canopy	9	Other	4
N183	0	0	0	0	200	2	2	4	4	Tree_Trunk	30	*Acacia karoo*	4
N82	1	2	2	2	0	0	0	1	2	Ground_Cover	—	Ground	2
N182	0	0	0	0	133	0	0	1	2	Woody	—	*Ziziphus mucronata*	2
N81	0	0	0	0	73	2	2	1	2	Woody	—	*Ziziphus mucronata*	2
N181	0	0	0	0	215	2	2	1	2	Tree_Trunk	47	*Ziziphus mucronata*	2
N80	1	1	1	1	84	3	3	2	3	Woody	—	*Ziziphus mucronata*	2
N180	1	1	1	1	128	3	3	2	3	Woody	—	*Ziziphus mucronata*	2
N79	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	3
N179	0	0	0	0	209	4	4	3	3	Tree_Trunk	118	*Combretum caffrum*	1
O85	0	0	0	0	167	3	3	3	3	Tree_Trunk	29	*Maytenus heterophylla*	1
O185	0	0	0	0	184	3	3	3	3	Tree_Trunk	—	*Maytenus heterophylla*	0
O86	0	0	0	0	0	2	2	2	3	Ground_Open	—	Ground	3
O186	0	0	0	0	167	2	2	2	3	Tree_Trunk	66	*Olea europaea*	0
O87	0	0	0	0	0	3	3	2	4	Ground_Open	—	Ground	2
O187	0	0	0	0	56	3	3	2	4	Log Trunk	152	*Combretum caffrum*	4
O88	0	0	0	0	136	2	1	3	4	Tree_Trunk	152	*Combretum caffrum*	4
O188	0	0	0	0	185	2	1	3	4	Tree_Trunk	79	*Combretum caffrum*	2
O89	0	0	0	0	0	4	4	2	3	Ground_Cover	—	Ground	2
O189	0	0	0	0	74	4	4	2	3	Log	—	Other	2
O90	0	0	0	0	109	1	1	2	3	Tree_Trunk	8	*Rhus* sp.	2
O190	0	0	0	0	137	1	1	2	3	Tree_Trunk	46	*Rhus* sp.	4
P96	0	0	0	0	143	3	3	2	4	Tree_Trunk	84	*Combretum caffrum*	4
P196	0	0	0	0	183	3	3	2	4	Tree_Canopy	42	*Combretum caffrum*	0
P95	0	0	0	0	0	2	2	2	4	Ground_Cover	—	Ground	3
P195	0	0	0	0	107	2	2	2	4	Tree_Trunk	—	*Maytenus heterophylla*	0
P94	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	2
P194	0	0	0	0	217	4	4	3	3	Tree_Canopy	18	*Combretum caffrum*	0
P93	0	0	0	0	0	2	2	2	3	Ground_Open	—	Other	4
P193	0	0	0	0	190	2	2	2	3	Tree_Canopy	—	*Maytenus heterophylla*	0
P92	0	0	0	0	0	0	1	1	2	Ground_Open	—	Ground	2
P192	0	0	0	0	145	0	1	1	2	Tree_Canopy	—	*Rhus* sp.	2
P91	0	0	0	0	99	3	3	1	2	Tree_Canopy	—	*Maytenus heterophylla*	2
P191	0	0	0	0	152	3	3	1	2	Tree_Trunk	25	*Maytenus heterophylla*	2

Table A48. List of raw data for the microhabitat analyses for summer 2011–2012.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
A1	0	0	0	0	0	1	2	3	4	Ground_Cover	—	Ground	3
A101	1	1	1	1	194	1	2	3	4	Tree_Canopy	—	*Maytenus heterophylla*	3
A2	0	0	0	0	68	1	1	3	2	Woody	—	Other	3
A102	0	0	0	0	101	1	1	3	2	Woody	—	Other	3
A3	0	0	0	0	0	0	0	3	4	Woody	—	Ground	0
A103	0	0	0	0	126	0	0	3	4	Woody	29	*Rhus* sp.	4
A4	0	0	0	0	50	1	1	2	4	Log	54	*Combretum caffrum*	3
A104	1	1	1	1	202	0	1	1	3	Tree_Trunk	46	*Rhus* sp.	3
A5	0	0	0	0	0	1	1	3	4	Ground_Cover	—	Ground	4
A105	0	0	0	0	161	1	1	3	4	Woody	—	*Ziziphus mucronata*	4
A6	0	0	0	0	76	4	3	4	4	Tree_Trunk	27	*Rhus* sp.	3
A106	0	0	0	0	191	4	3	4	4	Tree_Trunk	27	*Rhus* sp.	3
B12	0	0	0	0	0	3	4	3	3	Ground_Open	—	Ground	3
B112	0	0	0	0	134	3	4	3	3	Tree_Trunk	26	*Olea europaea*	3
B11	0	0	0	0	112	1	1	2	4	Bush	—	*Rhus* sp.	3
B111	0	0	0	0	203	1	1	2	4	Tree_Trunk	—	*Rhus* sp.	3
B10	0	0	0	0	0	2	2	2	3	Ground_Open	—	Ground	0
B110	0	0	0	0	223	2	2	2	3	Tree_Trunk	59	*Olea europaea*	4
B9	0	0	0	0	42	3	3	2	0	Bush	—	Other	2
B109	0	0	0	0	117	3	3	2	1	Bush	7	Other	2
B8	0	0	0	0	0	0	1	2	3	Woody	—	Ground	0
B108	0	0	0	0	200	0	1	2	3	Tree_Trunk	39	*Olea europaea*	1
B7	0	0	0	0	133	3	2	1	1	Bush	18	Other	1
B107	0	0	0	0	67	3	3	2	2	Tree_Canopy	10	*Combretum caffrum*	3
C13	0	0	0	0	75	1	3	2	1	Bush	—	Other	3
C113	0	0	0	0	154	1	3	4	1	Tree_Trunk	—	*Combretum caffrum*	3
C14	0	0	0	0	0	4	3	4	1	Bush	—	Ground	0
C114	0	0	0	0	97	4	3	2	1	Bush	—	*Acacia karoo*	0
C15	0	0	0	0	0	3	3	2	4	Ground_Open	—	Ground	0
C115	0	0	0	0	195	3	3	2	4	Tree_Canopy	15	*Olea europaea*	3
C16	0	0	0	0	46	0	1	2	4	Woody	13	Other	0
C116	0	0	0	0	140	0	2	2	4	Tree_Trunk	—	*Rhus* sp.	4
C17	0	0	0	0	0	0	2	3	4	Woody	—	Ground	1
C117	0	0	0	0	187	0	2	3	4	Woody	—	*Rhus* sp.	4
C18	0	0	0	0	84	4	4	4	3	Tree_Trunk	31	*Acacia karoo*	3
C118	0	0	0	0	132	4	4	4	3	Tree_Trunk	5	*Acacia karoo*	3
D24	0	0	0	0	0	4	4	3	2	Bush	—	Ground	0
D124	0	0	0	0	89	4	4	3	2	Bush	12	Other	1
D23	0	0	0	0	185	2	2	2	3	Tree_Canopy	—	*Maytenus heterophylla*	4

Table A48. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
D123	0	0	0	0	185	2	2	2	3	Tree_Trunk	33	*Maytenus heterophylla*	4
D22	0	0	0	0	0	4	3	3	3	Ground_Open	—	Ground	3
D122	0	0	0	0	177	4	3	3	3	Tree_Canopy	19	*Olea europaea*	3
D21	0	0	0	0	81	4	4	2	2	Tree_Trunk	2	*Rhus* sp.	3
D121	0	0	0	0	140	4	4	2	2	Tree_Canopy	—	*Rhus* sp.	3
D20	0	0	0	0	0	4	4	3	2	Ground_Open	—	Ground	0
D120	0	0	0	0	236	4	4	3	2	Tree_Trunk	49	*Combretum caffrum*	2
D19	0	0	0	0	78	4	4	3	2	Woody	—	Other	3
D119	1	1	1	1	129	4	4	3	2	Woody	—	Other	3
E25	0	0	0	0	133	4	4	4	3	Tree_Trunk	—	Other	4
E125	1	2	2	2	211	4	4	4	3	Tree_Trunk	62	*Olea europaea*	4
E26	0	0	0	0	97	4	3	2	3	Bush	—	*Maytenus heterophylla*	2
E126	0	0	0	0	144	4	3	2	3	Bush	—	*Maytenus heterophylla*	2
E27	0	0	0	0	0	4	4	3	2	Ground_Cover	—	Ground	0
E127	0	0	0	0	189	4	4	3	2	Tree_Canopy	19	*Rhus* sp.	3
E28	0	0	0	0	64	4	3	3	3	Bush	—	*Acacia karoo*	3
E128	0	0	0	0	131	4	3	3	3	Bush	—	*Acacia karoo*	3
E29	0	0	0	0	0	2	2	2	2	Ground_Open	—	Ground	0
E129	0	0	0	0	176	2	2	2	2	Tree_	—	*Olea europaea*	3
E30	0	0	0	0	0	4	4	1	2	Ground_Cover	—	Other	0
E130	0	0	0	0	67	4	4	1	2	Bush	—	Other	0
F36	0	0	0	0	0	4	4	2	2	Ground_Cover	—	Ground	0
F136	0	0	0	0	60	4	4	2	2	Bush	—	Other	2
F35	0	0	0	0	113	4	4	2	3	Tree_Trunk	25	*Olea europaea*	3
F135	0	0	0	0	194	4	4	2	3	Tree_Canopy	18	*Olea europaea*	3
F34	0	0	0	0	0	4	4	2	2	Ground_Cover	—	Ground	0
F134	0	0	0	0	47	4	4	2	2	Bush	—	Other	1
F33	0	0	0	0	0	3	3	3	3	Ground_Open	—	Ground	0
F133	0	0	0	0	195	3	3	3	3	Tree_Trunk	56	*Olea europaea*	3
F32	0	0	0	0	0	4	4	2	3	Ground_Cover	—	Ground	0
F132	0	0	0	0	115	4	4	2	3	Tree_Trunk	36	*Maytenus heterophylla*	3
F31	0	0	0	0	96	4	4	3	4	Tree_Trunk	49	*Olea europaea*	3
F131	1	1	1	1	235	4	4	3	4	Tree_Trunk	5	*Olea europaea*	3
G37	0	0	0	0	119	4	4	3	3	Tree_Trunk	141	*Olea europaea*	4
G137	0	0	0	0	194	4	4	3	3	Tree_Trunk	59	*Olea europaea*	4
G38	0	0	0	0	134	4	4	3	3	Tree_Canopy	—	Ground	0
G138	0	0	0	0	0	4	4	3	3	Ground_Open	—	*Olea europaea*	3
G39	0	0	0	0	67	1	1	2	2	Tree_Canopy	24	*Olea europaea*	2

Table A48. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
G139	1	1	1	1	206	1	1	2	2	Tree_Canopy	—	*Ziziphus mucronata*	2
G40	0	0	0	0	0	3	3	3	2	Woody	135	Ground	2
G140	0	0	0	0	167	3	3	3	2	Tree_Trunk	—	*Buddleja saligna*	2
G41	0	0	0	0	0	4	4	3	1	Ground_Cover	—	Ground	2
G141	0	0	0	0	81	4	4	3	1	Tree_Canopy	—	*Acacia karoo*	2
G42	0	0	0	0	106	3	2	3	3	Bush	—	*Maytenus heterophylla*	2
G142	0	0	0	0	113	3	2	3	3	Bush	—	Other	2
H48	0	0	0	0	0	4	4	1	1	Ground_Cover	—	Ground	0
H148	0	0	0	0	115	4	4	1	1	Bush	—	Other	0
H47	1	0	1	1	126	4	4	2	4	Bush	—	*Maytenus heterophylla*	3
H147	0	0	0	0	179	4	4	2	4	Tree_Trunk	—	*Maytenus heterophylla*	3
H46	0	0	0	0	0	4	4	3	4	Ground_Open	—	Ground	0
H146	1	1	1	1	130	4	4	3	4	Tree_Canopy	—	*Acacia karoo*	4
H45	0	0	0	0	53	3	3	3	3	Log	33	*Maytenus heterophylla*	3
H145	0	0	0	0	179	3	3	3	3	Tree_Trunk	34	*Maytenus heterophylla*	3
H44	0	0	0	0	0	3	3	2	2	Ground_Open	—	Ground	0
H144	0	0	0	0	38	3	3	2	2	Log	—	Other	0
H43	0	0	0	0	27	1	4	4	2	Tree_Trunk	23	*Maytenus heterophylla*	3
H143	0	0	0	0	207	1	4	4	2	Tree_Canopy	—	*Maytenus heterophylla*	3
I49	0	0	0	0	160	1	4	4	3	Tree_Trunk	46	*Acacia karoo*	2
I149	0	0	0	0	192	1	4	4	3	Tree_Canopy	—	*Rhus* sp.	2
I50	0	0	0	0	0	4	4	4	1	Ground_Cover	—	Ground	0
I150	0	0	0	0	163	4	4	4	1	Tree_Canopy	—	*Combretum caffrum*	1
I51	0	0	0	0	0	4	4	2	1	Ground_Cover	—	Ground	1
I151	0	0	0	0	94	4	4	2	1	Log	—	*Maytenus heterophylla*	1
I52	0	0	0	0	58	4	4	2	2	Tree_Trunk	—	*Acacia karoo*	1
I152	0	0	0	0	108	4	4	2	2	Bush	—	*Acacia karoo*	1
I53	0	0	0	0	138	3	3	2	3	Tree_Trunk	53	*Rhus* sp.	2
I153	0	0	0	0	165	3	3	2	3	Tree_Trunk	—	*Combretum caffrum*	2
I54	0	0	0	0	0	4	4	2	0	Ground_Cover	—	Ground	0
I154	0	0	0	0	67	4	4	2	0	Bush	—	*Acacia karoo*	0
J60	0	0	0	0	0	4	2	1	1	Ground_Cover	—	Ground	0
J160	0	0	0	0	134	4	2	1	1	Bush	—	*Maytenus heterophylla*	1
J59	0	0	0	0	130	4	0	1	4	Tree_Canopy	—	*Maytenus heterophylla*	3
J159	0	0	0	0	188	4	0	1	4	Tree_Trunk	13	*Maytenus heterophylla*	3
J58	0	0	0	0	45	2	2	2	1	Tree_Trunk	29	*Combretum caffrum*	1
J158	0	0	0	0	113	2	2	2	1	Tree_Canopy	27	*Combretum caffrum*	2
J57	0	0	0	0	50	4	4	3	2	Bush	51	Other	2

Table A48. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
J157	0	0	0	0	218	4	4	3	2	Tree_Trunk	—	*Ziziphus mucronata*	2
J56	0	0	0	0	0	3	4	3	3	Ground_Open	—	Ground	0
J156	0	0	0	0	185	3	4	3	3	Tree_Canopy	10	*Combretum caffrum*	3
J55	0	0	0	0	0	3	4	2	3	Ground_Open	—	Ground	0
J155	0	0	0	0	61	3	4	2	3	Tree_Trunk	49	*Ziziphus mucronata*	3
K61	0	0	0	0	0	4	4	3	3	Ground_Open	—	Ground	0
K161	0	0	0	0	214	4	4	3	3	Tree_Trunk	67	*Combretum caffrum*	3
K62	0	0	0	0	167	3	3	3	3	Tree_Canopy	13	*Ziziphus mucronata*	4
K162	0	0	0	0	184	3	3	3	3	Tree_Trunk	75	*Combretum caffrum*	4
K63	1	2	2	2	136	2	4	3	2	Tree_Canopy	27	*Combretum caffrum*	3
K163	0	0	0	0	225	2	4	3	2	Tree_Canopy	21	*Combretum caffrum*	3
K64	0	0	0	0	0	2	3	2	2	Ground_Cover	—	Ground	2
K164	0	0	0	0	64	2	3	2	2	Woody	—	Other	3
K65	0	0	0	0	102	4	4	3	2	Tree_Canopy	12	*Maytenus heterophylla*	2
K165	0	0	0	0	152	4	4	3	2	Tree_Trunk	7	*Maytenus heterophylla*	2
K66	0	0	0	0	0	4	4	3	1	Ground_Cover	—	Ground	0
K166	0	0	0	0	63	4	4	3	1	Bush	—	*Acacia karoo*	1
L72	0	0	0	0	0	3	3	2	3	Ground_Cover	—	Ground	1
L172	0	0	0	0	115	3	3	2	3	Bush	—	*Acacia karoo*	2
L71	0	0	0	0	50	4	4	3	4	Tree_Trunk	33	*Acacia karoo*	1
L171	0	0	0	0	182	4	4	3	4	Tree_Trunk	15	*Acacia karoo*	3
L70	0	0	0	0	0	4	4	3	0	Ground_Open	—	*Combretum caffrum*	0
L170	0	0	0	0	203	4	4	3	3	Tree_Trunk	12	*Combretum caffrum*	3
L69	0	0	0	0	62	4	4	3	2	Tree_Canopy	39	*Combretum caffrum*	2
L169	0	0	0	0	149	4	4	3	3	Tree_Canopy	18	*Combretum caffrum*	3
L68	0	0	0	0	0	4	4	3	3	Ground_Cover	—	Ground	3
L168	1	1	1	1	148	4	4	3	3	Tree_Canopy	13	*Combretum caffrum*	0
L67	0	0	0	0	82	2	3	2	2	Tree_Trunk	168	*Combretum caffrum*	2
L167	0	0	0	0	178	2	3	2	2	Woody	—	*Rhus* sp.	2
M73	0	0	0	0	91	3	3	3	3	Tree_Trunk	168	*Combretum caffrum*	2
M173	0	0	0	0	223	3	3	3	3	Tree_Trunk	41	*Combretum caffrum*	2
M74	1	1	1	1	0	3	4	3	4	Ground_Open	—	Ground	0
M174	1	3	3	3	112	3	4	3	4	Tree_Canopy	15	*Rhus* sp.	3
M75	0	0	0	0	150	3	3	3	4	Tree_Trunk	87	*Combretum caffrum*	4
M175	0	0	0	0	236	3	3	3	4	Tree_Trunk	43	*Maytenus heterophylla*	4
M76	0	0	0	0	0	4	4	2	4	Ground_Open	—	Ground	0
M176	0	0	0	0	95	4	4	2	4	Tree_Trunk	72	*Combretum caffrum*	3
M77	0	0	0	0	132	4	2	3	4	Tree_Canopy	23	*Maytenus heterophylla*	3
M177	0	0	0	0	195	4	2	3	4	Tree_Canopy	28	*Maytenus heterophylla*	3

Table A48. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
M78	0	0	0	0	0	4	2	1	1	Ground_Cover	—	Ground	2
M178	0	0	0	0	44	4	2	1	1	Bush	—	Other	2
N84	0	0	0	0	0	4	2	3	3	Ground_Cover	—	Ground	0
N184	0	0	0	0	137	4	2	3	3	Tree_Canopy	—	*Maytenus heterophylla*	3
N83	0	0	0	0	101	1	1	2	4	Tree_Canopy	9	Other	4
N183	0	0	0	0	200	1	1	2	4	Tree_Trunk	30	*Acacia karoo*	4
N82	0	0	0	0	0	0	0	1	4	Ground_Cover	—	Ground	2
N182	0	0	0	0	133	0	0	1	4	Woody	—	*Ziziphus mucronata*	4
N81	0	0	0	0	73	1	1	2	4	Woody	—	*Ziziphus mucronata*	2
N181	1	1	1	1	215	1	1	2	4	Tree_Trunk	47	*Ziziphus mucronata*	3
N80	1	2	2	1	84	2	1	2	4	Woody	—	*Ziziphus mucronata*	2
N180	0	0	0	0	128	2	1	2	4	Woody	—	*Ziziphus mucronata*	2
N79	0	0	0	0	0	2	2	2	4	Ground_Open	—	Ground	2
N179	0	0	0	0	209	2	2	2	4	Tree_Trunk	118	*Combretum caffrum*	2
O85	0	0	0	0	167	4	4	3	4	Tree_Trunk	29	*Maytenus heterophylla*	3
O185	0	0	0	0	184	4	4	3	4	Tree_Trunk	—	*Maytenus heterophylla*	3
O86	0	0	0	0	0	4	4	3	4	Ground_Open	—	Ground	0
O186	0	0	0	0	167	4	4	3	4	Tree_Trunk	66	*Olea europaea*	3
O87	0	0	0	0	0	3	3	3	4	Ground_Open	—	Ground	0
O187	1	1	1	1	56	3	3	3	4	Log Trunk	152	*Combretum caffrum*	1
O88	0	0	0	0	136	1	1	3	4	Tree_Trunk	152	*Combretum caffrum*	3
O188	0	0	0	0	185	1	1	3	4	Tree_Trunk	79	*Combretum caffrum*	3
O89	0	0	0	0	0	4	4	3	4	Ground_Cover	—	Ground	0
O189	0	0	0	0	74	4	4	3	4	Log	—	Other	2
O90	1	1	1	1	109	1	1	2	4	Tree_Trunk	8	*Rhus* sp.	4
O190	0	0	0	0	137	1	1	2	4	Tree_Trunk	46	*Rhus* sp.	4
P96	0	0	0	0	143	3	3	3	4	Tree_Trunk	84	*Combretum caffrum*	4
P196	0	0	0	0	183	3	3	3	4	Tree_Canopy	42	*Combretum caffrum*	4
P95	0	0	0	0	0	4	4	3	4	Ground_Cover	—	Ground	0
P195	0	0	0	0	107	4	4	3	4	Tree_Trunk	—	*Maytenus heterophylla*	4
P94	0	0	0	0	0	4	4	3	4	Ground_Open	—	Ground	3
P194	0	0	0	0	217	4	4	3	4	Tree_Canopy	18	*Combretum caffrum*	3
P93	0	0	0	0	0	2	2	3	4	Ground_Open	—	Other	0
P193	0	0	0	0	190	2	2	3	4	Tree_Canopy	—	*Maytenus heterophylla*	4
P92	0	0	0	0	0	1	1	3	4	Ground_Open	—	Ground	0
P192	0	0	0	0	145	1	1	3	4	Tree_Canopy	—	*Rhus* sp.	4
P91	0	0	0	0	99	4	4	2	4	Tree_Canopy	—	*Maytenus heterophylla*	3
P191	1	1	1	1	152	4	4	2	4	Tree_Trunk	25	*Maytenus heterophylla*	3

Table A49. List of raw data for the microhabitat analyses for autumn 2012.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
A1	0	0	0	0	0	0	2	3	3	Ground_Cover	—	Ground	3
A101	0	0	0	0	194	0	2	3	3	Tree_Canopy	—	*Maytenus heterophylla*	3
A2	1	1	1	1	68	0	1	1	2	Woody	—	Other	3
A102	0	0	0	0	101	0	1	1	2	Woody	—	Other	3
A3	0	0	0	0	0	0	0	1	4	Woody	—	Ground	4
A103	1	1	1	1	126	0	0	1	4	Woody	29	*Rhus* sp.	4
A4	0	0	0	0	50	0	0	3	3	Log	54	*Combretum caffrum*	4
A104	0	0	0	0	202	0	0	3	3	Tree_Trunk	46	*Rhus* sp.	4
A5	0	0	0	0	0	0	0	4	4	Ground_Cover	—	Ground	4
A105	0	0	0	0	161	0	0	4	4	Woody	—	*Ziziphus mucronata*	4
A6	0	0	0	0	76	4	4	4	3	Tree_Trunk	27	*Rhus* sp.	4
A106	1	1	1	1	191	4	4	4	3	Tree_Trunk	27	*Rhus* sp.	4
B12	0	0	0	0	0	4	4	3	4	Ground_Open	—	Ground	4
B112	0	0	0	0	134	4	4	3	4	Tree_Trunk	26	*Olea europaea*	4
B11	0	0	0	0	112	4	4	4	3	Bush	—	*Rhus* sp.	3
B111	1	1	1	1	203	4	4	4	3	Tree_Trunk	—	*Rhus* sp.	3
B10	0	0	0	0	0	3	3	2	3	Ground_Open	—	Ground	4
B110	1	1	1	1	223	3	3	2	3	Tree_Trunk	59	*Olea europaea*	4
B9	0	0	0	0	42	4	4	3	1	Bush	—	Other	2
B109	0	0	0	0	117	4	4	3	1	Bush	7	Other	2
B8	0	0	0	0	0	0	1	1	2	Woody	—	Ground	3
B108	0	0	0	0	200	0	1	1	2	Tree_Trunk	39	*Olea europaea*	3
B7	0	0	0	0	133	3	3	3	1	Bush	18	Other	1
B107	0	0	0	0	67	3	3	3	2	Tree_Canopy	10	*Combretum caffrum*	3
C13	0	0	0	0	75	4	4	3	2	Bush	—	Other	2
C113	0	0	0	0	154	4	4	3	2	Tree_Trunk	—	*Combretum caffrum*	2
C14	0	0	0	0	0	4	3	2	2	Bush	—	Ground	0
C114	0	0	0	0	97	4	3	2	2	Bush	—	*Acacia karoo*	0
C15	0	0	0	0	0	3	3	3	2	Ground_Open	—	Ground	0
C115	0	0	0	0	195	3	3	3	2	Tree_Canopy	15	*Olea europaea*	1
C16	0	0	0	0	46	2	3	3	4	Woody	13	Other	0
C116	0	0	0	0	140	2	3	3	4	Tree_Trunk	—	*Rhus* sp.	3
C17	0	0	0	0	0	3	3	3	4	Woody	—	Ground	0
C117	0	0	0	0	187	3	3	3	4	Woody	—	*Rhus* sp.	4
C18	0	0	0	0	84	4	4	3	4	Tree_Trunk	31	*Acacia karoo*	3
C118	0	0	0	0	132	4	4	3	4	Tree_Trunk	5	*Acacia karoo*	3
D24	0	0	0	0	0	4	4	3	0	Bush	—	Ground	0
D124	0	0	0	0	89	4	4	3	0	Bush	12	Other	0
D23	0	0	0	0	185	1	1	2	4	Tree_Canopy	—	*Maytenus heterophylla*	3

Table A49. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
D123	0	0	0	0	185	1	1	2	4	Tree_Trunk	33	*Maytenus heterophylla*	3
D22	0	0	0	0	0	4	4	2	3	Ground_Open	—	Ground	0
D122	0	0	0	0	177	4	4	2	3	Tree_Canopy	19	*Olea europaea*	3
D21	0	0	0	0	81	3	3	1	1	Tree_Trunk	2	*Rhus* sp.	1
D121	0	0	0	0	140	3	3	1	1	Tree_Canopy	—	*Rhus* sp.	1
D20	0	0	0	0	0	4	4	3	1	Ground_Open	—	Ground	0
D120	0	0	0	0	236	4	4	3	1	Tree_Trunk	49	*Combretum caffrum*	2
D19	0	0	0	0	78	4	4	2	2	Woody	—	Other	2
D119	0	0	0	0	129	4	4	2	2	Woody	—	Other	2
E25	1	1	1	1	133	2	2	4	3	Tree_Trunk	—	Other	4
E125	0	0	0	0	211	2	2	4	3	Tree_Trunk	62	*Olea europaea*	4
E26	0	0	0	0	97	2	2	3	1	Bush	—	*Maytenus heterophylla*	2
E126	0	0	0	0	144	2	2	3	1	Bush	—	*Maytenus heterophylla*	2
E27	0	0	0	0	0	2	2	3	4	Ground_Cover	—	Ground	0
E127	0	0	0	0	189	2	2	3	4	Tree_Canopy	19	*Rhus* sp.	4
E28	0	0	0	0	64	2	2	3	3	Bush	—	*Acacia karoo*	3
E128	0	0	0	0	131	2	2	3	3	Bush	—	*Acacia karoo*	3
E29	0	0	0	0	0	2	2	2	3	Ground_Open	—	Ground	0
E129	0	0	0	0	176	2	2	2	3	Tree_	—	*Olea europaea*	3
E30	0	0	0	0	0	4	4	1	0	Ground_Cover	—	Other	0
E130	0	0	0	0	67	4	4	1	0	Bush	—	Other	0
F36	0	0	0	0	0	4	4	1	0	Ground_Cover	—	Ground	0
F136	0	0	0	0	60	4	4	1	0	Bush	—	Other	0
F35	0	0	0	0	113	4	4	2	3	Tree_Trunk	25	*Olea europaea*	3
F135	1	1	1	1	194	4	4	2	3	Tree_Canopy	18	*Olea europaea*	3
F34	0	0	0	0	0	0	4	3	2	Ground_Cover	—	Ground	0
F134	0	0	0	0	47	0	4	3	2	Bush	—	Other	2
F33	0	0	0	0	0	3	3	3	4	Ground_Open	—	Ground	0
F133	0	0	0	0	195	3	3	3	4	Tree_Trunk	56	*Olea europaea*	3
F32	0	0	0	0	0	0	4	3	3	Ground_Cover	—	Ground	3
F132	0	0	0	0	115	0	4	3	3	Tree_Trunk	36	*Maytenus heterophylla*	3
F31	0	0	0	0	96	0	2	4	4	Tree_Trunk	49	*Olea europaea*	3
F131	0	0	0	0	235	0	2	4	4	Tree_Trunk	5	*Olea europaea*	3
G37	0	0	0	0	119	0	4	3	4	Tree_Trunk	141	*Olea europaea*	4
G137	0	0	0	0	194	0	4	3	4	Tree_Trunk	59	*Olea europaea*	4
G38	0	0	0	0	134	0	4	3	4	Tree_Canopy	—	Ground	0
G138	0	0	0	0	0	0	4	3	4	Ground_Open	—	*Olea europaea*	3
G39	0	0	0	0	67	0	2	2	3	Tree_Canopy	24	*Olea europaea*	3

Table A49. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
G139	0	0	0	0	206	0	2	2	3	Tree_Canopy	—	*Ziziphus mucronata*	3
G40	0	0	0	0	0	2	3	3	2	Woody	135	Ground	0
G140	0	0	0	0	167	2	3	3	2	Tree_Trunk	—	*Buddleja saligna*	2
G41	1	1	1	1	0	0	3	3	1	Ground_Cover	—	Ground	0
G141	0	0	0	0	81	0	3	3	1	Tree_Canopy	—	*Acacia karoo*	1
G42	1	1	1	1	106	2	3	3	1	Bush	—	*Maytenus heterophylla*	2
G142	0	0	0	0	113	2	3	3	1	Bush	—	Other	2
H48	0	0	0	0	0	3	4	2	1	Ground_Cover	—	Ground	0
H148	0	0	0	0	115	3	4	2	1	Bush	—	Other	0
H47	0	0	0	0	126	0	0	3	4	Bush	—	*Maytenus heterophylla*	3
H147	0	0	0	0	179	0	0	3	4	Tree_Trunk	—	*Maytenus heterophylla*	3
H46	0	0	0	0	0	0	4	3	3	Ground_Open	—	Ground	0
H146	0	0	0	0	130	0	4	3	3	Tree_Canopy	—	*Acacia karoo*	3
H45	0	0	0	0	53	0	2	3	4	Log	33	*Maytenus heterophylla*	2
H145	0	0	0	0	179	0	2	3	4	Tree_Trunk	34	*Maytenus heterophylla*	4
H44	0	0	0	0	0	1	2	2	2	Ground_Open	—	Ground	0
H144	0	0	0	0	38	1	2	2	2	Log	—	Other	0
H43	0	0	0	0	27	0	4	2	3	Tree_Trunk	23	*Maytenus heterophylla*	3
H143	0	0	0	0	207	0	4	2	3	Tree_Canopy	—	*Maytenus heterophylla*	3
I49	1	1	1	1	160	0	4	4	3	Tree_Trunk	46	*Acacia karoo*	2
I149	0	0	0	0	192	0	4	4	3	Tree_Canopy	—	*Rhus* sp.	2
I50	0	0	0	0	0	1	3	3	2	Ground_Cover	—	Ground	0
I150	0	0	0	0	163	1	3	3	2	Tree_Canopy	—	*Combretum caffrum*	2
I51	0	0	0	0	0	4	4	2	1	Ground_Cover	—	Ground	2
I151	0	0	0	0	94	4	4	2	1	Log	—	*Maytenus heterophylla*	2
I52	0	0	0	0	58	4	4	3	3	Tree_Trunk	—	*Acacia karoo*	3
I152	0	0	0	0	108	4	4	3	3	Bush	—	*Acacia karoo*	3
I53	0	0	0	0	138	1	4	4	4	Tree_Trunk	53	*Rhus* sp.	4
I153	0	0	0	0	165	1	4	3	3	Tree_Trunk	—	*Combretum caffrum*	4
I54	0	0	0	0	0	4	1	1	0	Ground_Cover	—	Ground	0
I154	0	0	0	0	67	4	1	1	0	Bush	—	*Acacia karoo*	0
J60	0	0	0	0	0	4	0	1	1	Ground_Cover	—	Ground	0
J160	0	0	0	0	134	4	0	1	1	Bush	—	*Maytenus heterophylla*	1
J59	0	0	0	0	130	0	4	4	4	Tree_Canopy	—	*Maytenus heterophylla*	2
J159	0	0	0	0	188	0	4	4	4	Tree_Trunk	13	*Maytenus heterophylla*	2
J58	0	0	0	0	45	4	4	2	0	Tree_Trunk	29	*Combretum caffrum*	1
J158	0	0	0	0	113	4	4	2	1	Tree_Canopy	27	*Combretum caffrum*	1
J57	0	0	0	0	50	4	4	4	3	Bush	51	Other	3

Table A49. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
J157	0	0	0	0	218	4	4	3	3	Tree_Trunk	—	*Ziziphus mucronata*	2
J56	0	0	0	0	0	4	4	2	3	Ground_Open	—	Ground	0
J156	0	0	0	0	185	4	4	2	3	Tree_Canopy	10	*Combretum caffrum*	4
J55	0	0	0	0	0	4	4	4	3	Ground_Open	—	Ground	0
J155	0	0	0	0	61	4	4	4	3	Tree_Trunk	49	*Ziziphus mucronata*	3
K61	0	0	0	0	0	0	4	4	3	Ground_Open	—	Ground	0
K161	1	1	1	1	214	0	4	4	3	Tree_Trunk	67	*Combretum caffrum*	3
K62	0	0	0	0	167	0	4	2	3	Tree_Canopy	13	*Ziziphus mucronata*	3
K162	0	0	0	0	184	0	4	2	3	Tree_Trunk	75	*Combretum caffrum*	3
K63	1	2	2	2	136	0	4	3	3	Tree_Canopy	27	*Combretum caffrum*	3
K163	0	0	0	0	225	0	4	3	3	Tree_Canopy	21	*Combretum caffrum*	3
K64	0	0	0	0	0	2	4	2	1	Ground_Cover	—	Ground	0
K164	0	0	0	0	64	2	4	2	1	Woody	—	Other	1
K65	0	0	0	0	102	4	4	4	2	Tree_Canopy	12	*Maytenus heterophylla*	2
K165	0	0	0	0	152	4	4	4	2	Tree_Trunk	7	*Maytenus heterophylla*	2
K66	0	0	0	0	0	4	4	2	0	Ground_Cover	—	Ground	0
K166	0	0	0	0	63	4	4	2	0	Bush	—	*Acacia karoo*	0
L72	0	0	0	0	0	4	4	2	2	Ground_Cover	—	Ground	0
L172	0	0	0	0	115	4	4	2	2	Bush	—	*Acacia karoo*	2
L71	0	0	0	0	50	4	4	4	4	Tree_Trunk	33	*Acacia karoo*	1
L171	0	0	0	0	182	4	4	4	4	Tree_Trunk	15	*Acacia karoo*	3
L70	0	0	0	0	0	3	4	4	3	Ground_Open	—	*Combretum caffrum*	0
L170	0	0	0	0	203	3	4	4	3	Tree_Trunk	12	*Combretum caffrum*	4
L69	0	0	0	0	62	4	4	4	3	Tree_Canopy	39	*Combretum caffrum*	3
L169	0	0	0	0	149	4	4	4	3	Tree_Canopy	18	*Combretum caffrum*	3
L68	0	0	0	0	0	4	4	2	3	Ground_Cover	—	Ground	0
L168	0	0	0	0	148	4	4	2	3	Tree_Canopy	13	*Combretum caffrum*	3
L67	1	1	1	1	82	3	4	3	3	Tree_Trunk	168	*Combretum caffrum*	3
L167	0	0	0	0	178	3	4	3	3	Woody	—	*Rhus* sp.	3
M73	1	1	1	1	91	4	4	3	4	Tree_Trunk	168	*Combretum caffrum*	4
M173	0	0	0	0	223	4	4	3	4	Tree_Trunk	41	*Combretum caffrum*	4
M74	0	0	0	0	0	0	2	3	4	Ground_Open	—	Ground	4
M174	1	1	1	1	112	0	2	3	4	Tree_Canopy	15	*Rhus* sp.	4
M75	1	1	1	1	150	0	4	3	4	Tree_Trunk	87	*Combretum caffrum*	3
M175	1	2	2	2	236	0	4	3	4	Tree_Trunk	43	*Maytenus heterophylla*	3
M76	0	0	0	0	0	3	4	4	3	Ground_Open	—	Ground	0
M176	1	2	2	2	95	3	4	4	3	Tree_Trunk	72	*Combretum caffrum*	4
M77	0	0	0	0	132	0	0	2	4	Tree_Canopy	23	*Maytenus heterophylla*	4
M177	0	0	0	0	195	0	0	2	4	Tree_Canopy	28	*Maytenus heterophylla*	4

Table A49. Continued.

TRAP CODE	USE	ABSFREQ	NOGRAM	NODGRAM	HEIGHT	COVER <10 cm	COVER 10–50 cm	COVER 50–150 cm	COVER >150 cm	TYPE_POS	CIRC	TREE_BUSH_SPECIES	CONNECTIONS
M78	0	0	0	0	0	4	2	2	0	Ground_Cover	—	Ground	2
M178	0	0	0	0	44	4	2	2	0	Bush	—	Other	2
N84	0	0	0	0	0	4	4	3	3	Ground_Cover	—	Ground	0
N184	0	0	0	0	137	4	4	3	3	Tree_Canopy	—	*Maytenus heterophylla*	3
N83	0	1	1	1	101	0	2	3	4	Tree_Canopy	9	Other	4
N183	1	1	1	1	200	0	2	3	4	Tree_Trunk	30	*Acacia karoo*	4
N82	1	2	2	2	0	0	0	1	4	Ground_Cover	—	Ground	4
N182	1	1	1	1	133	0	0	1	4	Woody	—	*Ziziphus mucronata*	4
N81	1	0	0	0	73	0	0	2	4	Woody	—	*Ziziphus mucronata*	3
N181	1	2	2	2	215	2	2	3	2	Tree_Trunk	47	*Ziziphus mucronata*	3
N80	1	1	1	1	84	2	2	3	2	Woody	—	*Ziziphus mucronata*	3
N180	1	1	1	1	128	2	2	3	2	Woody	—	*Ziziphus mucronata*	3
N79	0	0	0	0	0	0	4	3	4	Ground_Open	—	Ground	0
N179	1	1	1	1	209	0	4	3	4	Tree_Trunk	118	*Combretum caffrum*	4
O85	0	0	0	0	167	0	4	2	4	Tree_Trunk	29	*Maytenus heterophylla*	4
O185	0	0	0	0	184	0	4	2	4	Tree_Trunk	—	*Maytenus heterophylla*	4
O86	0	0	0	0	0	0	3	2	4	Ground_Open	—	Ground	0
O186	0	0	0	0	167	0	3	2	4	Tree_Trunk	66	*Olea europaea*	4
O87	0	0	0	0	0	0	2	4	4	Ground_Open	—	Ground	0
O187	1	1	1	1	56	0	2	4	4	Log Trunk	152	*Combretum caffrum*	2
O88	1	1	1	1	136	0	2	4	4	Tree_Trunk	152	*Combretum caffrum*	4
O188	0	0	0	0	185	0	2	4	4	Tree_Trunk	79	*Combretum caffrum*	4
O89	0	1	0	0	0	3	3	2	2	Ground_Cover	—	Ground	0
O189	1	0	1	1	74	3	3	2	2	Log	—	Other	2
O90	0	0	0	0	109	0	3	3	4	Tree_Trunk	8	*Rhus* sp.	4
O190	1	2	2	1	137	0	3	3	4	Tree_Trunk	46	*Rhus* sp.	4
P96	0	0	0	0	143	4	4	4	4	Tree_Trunk	84	*Combretum caffrum*	4
P196	0	0	0	0	183	4	4	4	4	Tree_Canopy	42	*Combretum caffrum*	4
P95	0	0	0	0	0	2	2	3	4	Ground_Cover	—	Ground	4
P195	1	2	2	2	107	2	2	3	4	Tree_Trunk	—	*Maytenus heterophylla*	4
P94	0	0	0	0	0	4	4	2	2	Ground_Open	—	Ground	0
P194	1	1	1	1	217	4	4	2	2	Tree_Canopy	18	*Combretum caffrum*	3
P93	0	0	0	0	0	0	2	1	3	Ground_Open	—	Other	1
P193	0	0	0	0	190	0	2	1	3	Tree_Canopy	—	*Maytenus heterophylla*	4
P92	0	0	0	0	0	0	1	2	4	Ground_Open	—	Ground	0
P192	0	0	0	0	145	0	1	2	4	Tree_Canopy	—	*Rhus* sp.	2
P91	0	0	0	0	99	0	3	3	4	Tree_Canopy	—	*Maytenus heterophylla*	3
P191	1	0	0	0	152	0	3	3	4	Tree_Trunk	25	*Maytenus heterophylla*	3

Table A50. List of raw data for the trapping events from January 2011 to August 2012.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
29.01.2011	Summer	MTRAP	Grammomys	GcW1	F	P	No	NT2	—	SLIGHT	C40	26.2	M	4 nipples
29.01.2011	Summer	MTRAP	Grammomys	GcW2	F	N–P	No	NT142	—	SLIGHT	C40	26.2	M	Tail partially cut; 4nipples
29.01.2011	Summer	MTRAP	Grammomys	—	M	—	No	NT15	—	SLIGHT	C40	26.2	M	Died from heat
29.01.2011	Summer	MTRAP	Grammomys	GcW4	F	N–P	No	NT153	—	SLIGHT	C40	26.2	M	Nipples
30.01.2011	Summer	MTRAP	Grammomys	GcW2	F	N–P	Yes	NT142	—	SLIGHT	CLEAR	28	M	—
30.01.2011	Summer	MTRAP	Grammomys	GcW4	F	Pregnant	Yes	NT150	—	SLIGHT	CLEAR	28	M	Pregnant, near NBX 64
30.01.2011	Summer	MTRAP	Grammomys	GcW5	M	N–S	No	NT152	—	SLIGHT	CLEAR	28	M	—
30.01.2011	Summer	MTRAP	Grammomys	GcW6	M	Partly scrotal	No	NT155	—	SLIGHT	CLEAR	28	M	—
30.01.2011	Summer	MTRAP	Grammomys	GcW7	M	N–S	No	NT162	—	SLIGHT	CLEAR	28	M	—
30.01.2011	Summer	MTRAP	Grammomys	GcW8	M	N–S	No	NT99	—	SLIGHT	CLEAR	28	M	Near NBX 20
30.01.2011	Summer	MTRAP	Grammomys	GcW9	M	N–S	No	NT109	—	SLIGHT	CLEAR	28	M	—
30.01.2011	Summer	MTRAP	Grammomys	GcW11	—	—	No	NT74	—	SLIGHT	CLEAR	28	M	Need to check sex
31.01.2011	Summer	MTRAP	Grammomys	GcW3	M	NS	No	NT6	—	—	—	—	M	Young male
31.01.2011	Summer	MTRAP	Grammomys	GcW12	M	N–S	No	NT11	—	—	—	—	M	Young male
31.01.2011	Summer	MTRAP	Grammomys	GcW1	F	P	Yes	NT44	—	—	—	—	M	—
31.01.2011	Summer	MTRAP	Grammomys	GcW13	F	N–P	No	NT43	—	—	—	—	M	Young female
31.01.2011	Summer	MTRAP	Grammomys	GcW2	F	N–P	Yes	NT145	—	—	—	—	M	Tail half size
31.01.2011	Summer	MTRAP	Grammomys	GcW5	M	N–S	Yes	NT152	—	—	—	—	M	Small piece of tail missing
31.01.2011	Summer	MTRAP	Grammomys	GcW6	M	Partly scrotal	Yes	NT153	—	—	—	—	M	—
31.01.2011	Summer	MTRAP	Grammomys	GcW4	F	Pregnant	Yes	NT155	—	—	—	—	M	Nipples
23.02.2011	Summer	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT150	DRY	—	CLEAR	30	M	Nipples
23.02.2011	Summer	MTRAP	Grammomys	GcW9	M	N–S	Yes	NT36	DRY	—	CLEAR	30	M	—
23.02.2011	Summer	MTRAP	Grammomys	GcW3	M	N–S	Yes	NT44	DRY	—	CLEAR	30	M	—
23.02.2011	Summer	MTRAP	Grammomys	GcW8	M	N–S	Yes	NT78	DRY	—	CLEAR	30	M	??
23.02.2011	Summer	MTRAP	Grammomys	GcW13	F	N–P	Yes	NT117	DRY	—	CLEAR	30	M	—
24.02.2011	Summer	MTRAP	Grammomys	GcW6	M	N–S	Yes	NT155	DRY	—	CLEAR	30	M	Possibly GCW8 but too far
24.02.2011	Summer	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT150	DRY	—	CLEAR	30	M	Tail was partly cut by trap
24.02.2011	Summer	MTRAP	Grammomys	GcB1	M	N–S	No	NT110	DRY	—	CLEAR	30	M	Or 41g
24.02.2011	Summer	MTRAP	Grammomys	GcW9	M	N–S	Yes	NT36	DRY		CLEAR	30	M	Small piece of tail cut
25.02.2011	Summer	MTRAP	Grammomys	GcB1	M	N–S	Yes	NT67	DRY	SLIGHT	OVERCAST	25	M	—
25.02.2011	Summer	MTRAP	Grammomys	GcW2	F	N–P	Yes	NT145	DRY	SLIGHT	OVERCAST	25	M	—
11.03.2011	Autumn	MTRAP	Grammomys	GcW9	M	S	Yes	ST14	—	—	OVERCAST	—	M	Once trapped north
11.03.2011	Autumn	MTRAP	Grammomys	GcB3	F	P	No	ST42	—	—	OVERCAST	—	M	Pregnant
11.03.2011	Autumn	MTRAP	Grammomys	GcB4	F	—	No	ST48	—	—	OVERCAST	—	M	Male
11.03.2011	Autumn	MTRAP	Grammomys	GcW1	F	N–P	Yes	ST92	—	—	OVERCAST	—	M	Nipples
11.03.2011	Autumn	MTRAP	Grammomys	GcW8	M	N–S	Yes	ST95	—	—	OVERCAST	—	M	—
11.03.2011	Autumn	MTRAP	Grammomys	GcW13	F	N–P	Yes	ST96	—	—	OVERCAST	—	M	Small nipples
11.03.2011	Autumn	MTRAP	Grammomys	GcW12	M	N–S	Yes	ST100	—	—	OVERCAST	—	M	—
12.03.2011	Autumn	MTRAP	Grammomys	GcW9	M	S	Yes	ST1	DRY	—	OVERCAST	24	M	Tail cut (2–3cm)

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
12.03.2011	Autumn	MTRAP	Grammomys	GcB5	M	N–S	No	ST10	DRY	—	OVERCAST	24	M	—
12.03.2011	Autumn	MTRAP	Grammomys	GcW1	F	N–P	Yes	ST8	DRY	—	OVERCAST	24	M	—
12.03.2011	Autumn	MTRAP	Grammomys	GcW8	M	N–S	Yes	ST14	DRY	—	OVERCAST	24	M	—
12.03.2011	Autumn	MTRAP	Grammomys	GcB4	F	—	Yes	ST47	DRY	—	OVERCAST	24	M	—
12.03.2011	Autumn	MTRAP	Grammomys	GcB6	M	N–S	No	ST48	DRY	—	OVERCAST	24	M	—
12.03.2011	Autumn	MTRAP	Grammomys	GcB3	F	N–P	Yes	ST114	DRY	—	OVERCAST	24	M	—
12.03.2011	Autumn	MTRAP	Grammomys	GcB7	F	—	No	ST126	DRY	—	OVERCAST	24	M	Nipples
12.03.2011	Autumn	MTRAP	Grammomys	GcW3	M	N–S	Yes	ST139	DRY	—	OVERCAST	24	M	From T6 north side
13.03.2011	Autumn	MTRAP	Grammomys	—	M	N–S	Yes	ST8	—	—	SUNNY	—	M	One marked ear
13.03.2011	Autumn	MTRAP	Grammomys	GcW1	F	IMP	Yes	ST91	—	—	SUNNY	—	M	Nipples
13.03.2011	Autumn	MTRAP	Grammomys	GcW8	M	N–S	Yes	ST95	—	—	SUNNY	—	M	—
13.03.2011	Autumn	MTRAP	Grammomys	GcB11	M	N–S	No	ST114	—	—	SUNNY	—	M	—
13.03.2011	Autumn	MTRAP	Grammomys	GcB4	F	IMP	Yes	ST50	—	—	SUNNY	—	M	Black number!!!
13.03.2011	Autumn	MTRAP	Grammomys	GcB3	M	N–S	Yes	ST143	—	—	SUNNY	—	M	—
13.03.2011	Autumn	MTRAP	Grammomys	GcB12	M	N–S	No	ST127	—	—	SUNNY	—	M	—
13.03.2011	Autumn	MTRAP	Grammomys	GcB?	F	Nipples	Yes	ST128	—	—	SUNNY	—	M	Black on both ears
13.03.2011	Autumn	MTRAP	Grammomys	GcB?	F	Nipples	Yes	ST131	—	—	SUNNY	—	M	Black on both ears
13.03.2011	Autumn	MTRAP	Grammomys	GcB?	M	N–S	Yes	ST135	—	—	SUNNY		M	Black on both ears
13.03.2011	Autumn	MTRAP	Grammomys	GcB13	F	IMP	No	ST158	—	—	SUNNY	—	M	—
13.03.2011	Autumn	MTRAP	Grammomys	GcB?	M	N–S	Yes	ST8	—	—	SUNNY		M	Based on weight
14.03.2011	Autumn	NBX	Grammomys	GcW13	F	N–P	Yes	NBX3	—	—	CLEAR	25.0	E	—
15.03.2011	Autumn	MTRAP	Grammomys	GcW13	F	N–P	Yes	NT2	—	—	OVERCAST	—	M	—
15.03.2011	Autumn	MTRAP	Grammomys	GcW9	M	N–S	Yes	NT36	—	—	OVERCAST	—	M	—
15.03.2011	Autumn	MTRAP	Grammomys	GcB1	M	N–S	Yes	NT69	—	—	OVERCAST	—	M	—
15.03.2011	Autumn	MTRAP	Grammomys	GcW2	F	N–P	Yes	NT145	—	—	OVERCAST	—	M	Tail 1/2 size
15.03.2011	Autumn	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT153	—	—	OVERCAST	—	M	—
16.03.2011	Autumn	MTRAP	Grammomys	GcW3	M	N–S	Yes	NT5	—	—	—	—	M	—
16.03.2011	Autumn	MTRAP	Grammomys	GcW9	M	N–S	Yes	NT17	—	—	—	—	M	Tail partly cut
16.03.2011	Autumn	MTRAP	Grammomys	GcW5	M	N–S	Yes	NT141	—	—	—	—	M	Tail partly cut
16.03.2011	Autumn	MTRAP	Grammomys	GcW2	F	N–P	Yes	NT145	—	—	—	—	M	Tail partly cut
16.03.2011	Autumn	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT153	—	—	—	—	M	—
17.03.2011	Autumn	MTRAP	Grammomys	GcB1	M	N–S	Yes	NT69	—	—	—	—	M	—
17.03.2011	Autumn	MTRAP	Grammomys	GcW2	F	N–P	Yes	NT143	—	—	—	—	M	—
17.03.2011	Autumn	MTRAP	Grammomys	GcW5	M	N–S	Yes	NT145	—	—	—	—	M	—
17.03.2011	Autumn	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT155	—	—	—	—	M	—
17.03.2011	Autumn	MTRAP	Grammomys	GcW5	M	N–S	Yes	NT142	—	—	—	—	E	Evening
12.04.2011	Autumn	MTRAP	Grammomys	GcB3	F	Nipples	Yes	ST108	DRY	NO	OVERCAST	—	M	—
12.04.2011	Autumn	MTRAP	Grammomys	GcW73	F	N–P	No	ST106	DRY	NO	OVERCAST	—	M	—
12.04.2011	Autumn	MTRAP	Grammomys	GcW72	—	—	No	ST114	DRY	NO	OVERCAST	—	M	Need to check sex

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
12.04.2011	Autumn	MTRAP	Grammomys	GcB11	M	N–S	Yes	ST115	DRY	NO	OVERCAST	—	M	—
12.04.2011	Autumn	MTRAP	Grammomys	GcB7	F	Nipples	Yes	ST142	DRY	NO	OVERCAST	—	M	—
12.04.2011	Autumn	MTRAP	Grammomys	GcW71	M	N–S	No	ST170	DRY	NO	OVERCAST	—	M	Need tissue sample
12.04.2011	Autumn	MTRAP	Grammomys	GcW3	M	S	Yes	ST127	DRY	NO	OVERCAST	—	M	—
12.04.2011	Autumn	MTRAP	Grammomys	GcB74	F	N–P	No	ST46	DRY	NO	OVERCAST	—	M	—
12.04.2011	Autumn	MTRAP	Grammomys	GcB4	F	N–P	Yes	ST60	DRY	NO	OVERCAST	—	M	—
12.04.2011	Autumn	MTRAP	Grammomys	GcB5	M	N–S	Yes	ST10	DRY	NO	OVERCAST	—	M	—
12.04.2011	Autumn	MTRAP	Grammomys	GcW1	F	Nipples	Yes	ST4	DRY	NO	OVERCAST	—	M	
12.04.2011	Autumn	MTRAP	Grammomys	GcW12	—	—	Yes	ST96	DRY	NO	OVERCAST	—	M	???
13.04.2011	Autumn	MTRAP	Grammomys	GcW3	M	N–S	Yes	ST35	—	—	—	—	M	—
13.04.2011	Autumn	MTRAP	Grammomys	GcB12	M	N–S	Yes	ST46	—	—	—	—	M	—
13.04.2011	Autumn	MTRAP	Grammomys	GcW	—	—	Yes	ST101	—	—	—	—	M	Marked yesterday
13.04.2011	Autumn	MTRAP	Grammomys	—	—	—	Yes	ST109	—	—	—	—	M	Looks like a 2
13.04.2011	Autumn	MTRAP	Grammomys	GcW11	—	—	Yes	ST118	—	—	—	—	M	Need to check sex
13.04.2011	Autumn	MTRAP	Grammomys	GcW75	F	N–P	No	ST142	—	—	—	—	M	—
13.04.2011	Autumn	MTRAP	Grammomys	GcB7	F	Ni	Yes	ST156	—	—	—	—	M	—
13.04.2011	Autumn	MTRAP	Grammomys	GcW71	M	N–S	Yes	ST171	—	—	—	—	M	Marked yesterday
13.04.2011	Autumn	MTRAP	Grammomys	GcB4	F	N–P	Yes	ST65	—	—	—	—	M	—
13.04.2011	Autumn	MTRAP	Grammomys	GcB5	M	N–S	Yes	ST64	—	—	—	—	M	—
13.04.2011	Autumn	MTRAP	Grammomys	GcB9	M	N–S	Yes	ST84	—	—	—	—	M	—
14.04.2011	Autumn	MTRAP	Grammomys	GcB12	M	N–S	Yes	ST49	—	—	—	—	M	—
14.04.2011	Autumn	MTRAP	Grammomys	GcB3	F	P	Yes	ST105	—	—	—	—	M	—
14.04.2011	Autumn	MTRAP	Grammomys	GcW72	M	N–S	Yes	ST113	—	—	—	—	M	—
14.04.2011	Autumn	MTRAP	Grammomys	GcB8	M	N–S	No	ST116	—	—	—	—	M	—
14.04.2011	Autumn	MTRAP	Grammomys	GcW3	M	N–S	Yes	ST133	—	—	—	—	M	—
14.04.2011	Autumn	MTRAP	Grammomys	GcB11	M	N–S	Yes	ST142	—	—	—	—	M	—
14.04.2011	Autumn	MTRAP	Grammomys	GcB5	M	N–S	Yes	ST91	—	—	—	—	M	—
14.04.2011	Autumn	MTRAP	Grammomys	GcW1	F	N–P	Yes	ST97	—	—	—	—	M	—
16.04.2011	Autumn	MTRAP	Grammomys	GcW13	F	N–P	Yes	NT13	—	—	OVERCAST	19	M	—
16.04.2011	Autumn	MTRAP	Grammomys	GcW4	M	N–S	Yes	NT153	—	—	OVERCAST	19	M	Next to nestbox 66
17.04.2011	Autumn	MTRAP	Grammomys	GcW3	F	—	Yes	NT145	—	MEDIUM	LIGHT RAIN	—	M	—
17.04.2011	Autumn	MTRAP	Grammomys	GcW2	F	N–P	Yes	NT152	—	MEDIUM	LIGHT RAIN	—	M	—
17.04.2011	Autumn	MTRAP	Grammomys	GcW4	M	N–S	Yes	NT153	—	MEDIUM	LIGHT RAIN	—	M	—
18.04.2011	Autumn	MTRAP	Grammomys	GcW4	M	N–S	Yes	NT155	—	—	—	—	M	—
18.04.2011	Autumn	MTRAP	Grammomys	GcW5	M	N–S	Yes	NT150	—	—	—	—	M	Tail partly cut
18.04.2011	Autumn	MTRAP	Grammomys	GcW21	M	N–S	No	NT145	—	—	—	—	M	—
18.04.2011	Autumn	MTRAP	Grammomys	GcW9	M	N–S	Yes	NT36	—	—	—	—	M	—
28.04.2011	Autumn	MTRAP	Grammomys	GcW5	M	N–S	Yes	NT128	—	—	—	—	M	—
29.04.2011	Autumn	MTRAP	Grammomys	GcW5	M	N–S	Yes	NT128	—	—	—	—	M	—

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
29.04.2011	Autumn	MTRAP	Grammomys	GcB12	M	—	Yes	ST171	—	—	—	—	M	Unidentified
30.04.2011	Autumn	MTRAP	Grammomys	GcW5	M	N–S	Yes		—	—	—	—	M	—
30.04.2011	Autumn	MTRAP	Grammomys	GcW9	M	—	Yes	NT29	—	—	—	—	M	—
30.04.2011	Autumn	MTRAP	Grammomys	GcB12	M	—	Yes	ST170	—	—	—	—	M	—
01.05.2011	Autumn	MTRAP	Grammomys	GcW9	M	—	Yes	NT30	—	—	—	—	M	—
01.05.2011	Autumn	MTRAP	Grammomys	GcB6	M	—	Yes	ST126	—	—	—	—	M	—
01.05.2011	Autumn	MTRAP	Grammomys	GcB11	M	—	Yes	ST109	—	—	—	—	M	—
01.05.2011	Autumn	MTRAP	Grammomys	GcW1	F	—	Yes	ST103	—	—	—	—	M	—
01.05.2011	Autumn	MTRAP	Grammomys	GcB3	F	—	Yes	ST105	—	—	—	—	M	—
01.05.2011	Autumn	MTRAP	Grammomys	GcW72	M	—	Yes	ST116	—	—	—	—	M	—
01.05.2011	Autumn	MTRAP	Grammomys	GcB7	M	—	Yes	—	—	—	—	—	M	Near R6 of B13
18.05.2011	Autumn	MTRAP	Grammomys	GcW2	F	N–P	Yes	ST142	—	—	—	—	M	4 nipples, tail half
18.05.2011	Autumn	MTRAP	Grammomys	GcW4	F	N–P	Yes	ST150	—	—	—	—	M	Small nipples
18.05.2011	Autumn	MTRAP	Grammomys	GcB2	F	N–P	No	ST91	—	—	—	—	M	—
19.05.2011	Autumn	MTRAP	Grammomys	GcW2	F	N–P	Yes	ST145	—	—	—	—	M	Tail 1/2 cut
19.05.2011	Autumn	MTRAP	Grammomys	—	M	N–S	No	ST5	—	—	—	—	M	Hair clipped
20.05.2011	Autumn	MTRAP	Grammomys	GcB21S	—	—	Yes	ST145	—	—	—	—	M	—
20.05.2011	Autumn	MTRAP	Grammomys	GcW2	F	N–P	Yes	ST149	—	—	—	—	M	—
20.05.2011	Autumn	MTRAP	Grammomys	GcW4	F	N–P	Yes	ST153	—	—	—	—	M	—
20.05.2011	Autumn	MTRAP	Grammomys	GcB2	F	N–P	Yes	ST87	—	—	—	—	M	—
20.05.2011	Autumn	MTRAP	Grammomys	GcW13	F	—	Yes	ST66	—	—	—	—	M	—
21.05.2011	Autumn	MTRAP	Grammomys	GcW73	F	—	Yes	ST113	—	—	—	—	M	—
21.05.2011	Autumn	MTRAP	Grammomys	GcW8	M	N–S	Yes	ST107	—	—	—	—	M	8 looks like 6
21.05.2011	Autumn	MTRAP	Grammomys	GcB4	F	N–P	Yes	ST49	—	—	—	—	M	—
21.05.2011	Autumn	MTRAP	Grammomys	GcB3	M	N–S	Yes	ST44	—	—	—	—	M	—
21.05.2011	Autumn	MTRAP	Grammomys	GcW12	M	N–S	Yes	ST10	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcB31	M	N–S	No	ST105	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcW72	M	N–S	Yes	ST119	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcW3	M	N–S	Yes	ST132	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcW7	F	N–P	Yes	ST145	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcB4	F	N–P	Yes	ST54	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcB74	F	P	Yes	ST58	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcB5	M	N–S	Yes	ST60	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcW1	F	P	Yes	ST99	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcW12	M	S	Yes	ST97	—	—	—	—	M	—
22.05.2011	Autumn	MTRAP	Grammomys	GcB2	F	N–P	Yes	ST87	—	—	—	—	M	—
23.05.2011	Autumn	MTRAP	Grammomys	GcW12	M	S	Yes	ST100	—	—	—	—	M	—
23.05.2011	Autumn	MTRAP	Grammomys	GcB3	M	N–S	Yes	ST44	—	—	—	—	M	—
23.05.2011	Autumn	MTRAP	Grammomys	GcB31	M	N–S	Yes	ST104	—	—	—	—	M	—

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
24.05.2011	Autumn	MTRAP	Grammomys	GcB5	M	N–S	Yes	ST57	—	—	—	—	M	—
24.05.2011	Autumn	MTRAP	Grammomys	GcB4	F	N–P	Yes	ST146	—	—	—	—	M	—
24.05.2011	Autumn	MTRAP	Grammomys	GcW3	M	N–S	Yes	ST117	—	—	—	—	M	—
24.05.2011	Autumn	MTRAP	Grammomys	GcW72	M	N–S	Yes	ST114	—	—	—	—	M	Dead (squashed)
24.05.2011	Autumn	MTRAP	Grammomys	GcB31	M	N–S	Yes	ST104	—	—	—	—	M	Marked recently
24.05.2011	Autumn	MTRAP	Grammomys	GcB74	F	P	Yes	ST45	—	—	—	—	M	—
24.05.2011	Autumn	MTRAP	Grammomys	GcW8	M	—	Yes	ST200	—	—	—	—	M	—
25.05.2011	Autumn	MTRAP	Grammomys	GcW1	F	P	Yes	ST99	—	—	—	—	M	—
25.05.2011	Autumn	MTRAP	Grammomys	GcW12	M	S	Yes	ST92	—	—	—	—	M	—
25.05.2011	Autumn	MTRAP	Grammomys	GcB31	M	N–S	Yes	ST45	—	—	—	—	M	—
25.05.2011	Autumn	MTRAP	Grammomys	GcB5	M	N–S	Yes	ST49	—	—	—	—	M	Dead (cold)
25.05.2011	Autumn	MTRAP	Grammomys	GcB74	F	P	Yes	ST57	—	—	—	—	M	—
25.05.2011	Autumn	MTRAP	Grammomys	GcW3	M	N–S	Yes	ST116	—	—	—	—	M	Dead (cold)
25.05.2011	Autumn	MTRAP	Grammomys	GcW7	F	N–P	Yes	ST143	—	—	—	—	M	Dead (cold)
25.05.2011	Autumn	MTRAP	Grammomys	GcW8	M	—	Yes	ST199	—	—	—	—	M	—
19.06.2011	Winter	MHAB	Grammomys	GcB4	F	N–P	Yes	N81	—	—	CLEAR	—	M	—
19.06.2011	Winter	MHAB	Grammomys	GcB31	M	S	Yes	N182	—	—	CLEAR	—	M	—
19.06.2011	Winter	MHAB	Grammomys	GcW71	F	N–P	Yes	P194	—	—	CLEAR	—	M	—
19.06.2011	Winter	MHAB	Grammomys	GcB31	M	S	Yes	M76	—	—	CLEAR	—	E	—
20.06.2011	Winter	MHAB	Grammomys	GcW1	F	N–P	Yes	A105	—	—	—	—	M	Nipples
20.06.2011	Winter	MHAB	Grammomys	GcW12	M	N–S	Yes	N81	—	—	—	—	M	—
20.06.2011	Winter	MHAB	Grammomys	GcB74	F	N–P	Yes	M173	—	—	—	—	M	—
21.06.2011	Winter	MHAB	Grammomys	GcB4	F	P	Yes	N80	—	—	—	—	M	
21.06.2011	Winter	MHAB	Grammomys	GcW1	F	P	Yes	A2	—	—	—	—	M	6 nipples
21.06.2011	Winter	MHAB	Grammomys	GcB74	F	N–P	Yes	K162	—	—	—	—	M	—
21.06.2011	Winter	MHAB	Grammomys	GcB31	M	S	Yes	N182	—	—	—	—	M	—
22.06.2011	Winter	MHAB	Grammomys	GcW1	F	P	Yes	C16	—	—	—	—	M	—
22.06.2011	Winter	MHAB	Grammomys	GcB74	F	N–P	Yes	J156	—	—	—	—	M	—
22.06.2011	Winter	MHAB	Grammomys	GcW12	M	N–S	Yes	N80	—	—	—	—	M	—
22.06.2011	Winter	MHAB	Grammomys	GcB31	M	S	Yes	N181	—	—	—	—	M	—
22.06.2011	Winter	MHAB	Grammomys	GcW71	F	N–P	Yes	O88	—	—	—	—	M	—
22.06.2011	Winter	MHAB	Grammomys	GcB4	F	P	Yes	M174	—	—	—	—	M	—
23.06.2011	Winter	MHAB	Grammomys	GcB4	F	P	Yes	N81	—	—	—	—	M	—
23.06.2011	Winter	MHAB	Grammomys	GcB21S	—	—	Yes	L67	—	—	—	—	M	—
23.06.2011	Winter	MHAB	Grammomys	GcB74	F	N–P	Yes	L169	—	—	—	—	M	—
25.06.2011	Winter	MTRAP	Grammomys	—	—	—	Yes	ST198	—	—	—	—	M	—
27.06.2011	Winter	MTRAP	Grammomys	GcW8/9	M	S	Yes	ST199	—	—	—	—	M	—
25.06.2011	Winter	MTRAP	Grammomys	GcW2	F	N–P	Yes	NT149	—	—	—	—	M	Tail 1/2 cut
25.06.2011	Winter	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT155	—	—	—	—	M	Tail 1/3 cut

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
26.06.2011	Winter	MTRAP	Grammomys	GcW13	F	N–P	Yes	NT119	—	—	—	—	M	—
26.06.2011	Winter	MTRAP	Grammomys	GcB1	M	N–S	Yes	NT146	—	—	—	—	M	—
26.06.2011	Winter	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT149	—	—	—	—	M	—
26.06.2011	Winter	MTRAP	Grammomys	GcW6	M	N–S	Yes	NT154	—	—	—	—	M	—
27.06.2011	Winter	MTRAP	Grammomys	GcB21	M	N–S	Yes	NT145	—	—	—	—	M	Tail 1/3 cut
27.06.2011	Winter	MTRAP	Grammomys	GcW2	F	—	Yes	NT149	—	—	—	—	M	White patch
27.06.2011	Winter	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT153	—	—	—	—	M	Tail 1/3 cut
22.07.2011	Winter	MTRAP	Grammomys	GcW2	F	N–P	Yes	NT150	—	NO	CLEAR	—	M	1/2 tail
22.07.2011	Winter	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT153	—	NO	CLEAR	—	M	1/3 tail
23.07.2011	Winter	MTRAP	Grammomys	GcW13	F	P	Yes	NT117	—	NO	CLEAR	20	M	—
23.07.2011	Winter	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT153	—	NO	CLEAR	20	M	—
24.07.2011	Winter	MTRAP	Grammomys	GcW13	F	P	Yes	NT55	WET	SLIGHT	RAIN	14	M	—
24.07.2011	Winter	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT155	WET	SLIGHT	RAIN	14	M	—
28.07.2011	Winter	MTRAP	Grammomys	GcB4	F	P	Yes	ST48	—	NO	C90	14	M	149.066–149.064
28.07.2011	Winter	MTRAP	Grammomys	GcB21S	M	N–S	Yes	ST59	—	NO	C90	14	M	Tail cut; 149.0247
28.07.2011	Winter	MTRAP	Grammomys	GcW71	F	N–P	Yes	ST171	—	NO	C90	14	M	—
29.07.2011	Winter	MTRAP	Grammomys	GcB74	—	—	Yes	ST46	WET	SLIGHT	C70	—	M	149.005–149.0036
29.07.2011	Winter	MTRAP	Grammomys	GcW71	F	N–P	Yes	ST115	WET	SLIGHT	C70	—	M	149.145–149.1438
29.07.2011	Winter	MTRAP	Grammomys	GcW12	M	N–S	Yes	ST171	WET	SLIGHT	C70	—	M	149.125–149.1229
30.07.2011	Winter	MTRAP	Grammomys	GcB4	F	P	Yes	ST52	—	—	—	—	M	Collared
30.07.2011	Winter	MTRAP	Grammomys	GcW71	F	N–P	Yes	ST171	—	—	—	—	M	Collared
31.07.2011	Winter	MTRAP	Grammomys	GcW71	F	N–P	Yes	ST114	WET	SLIGHT	CLEAR	13	M	—
05.08.2011	Winter	MTRAP	Grammomys	GcW71	F	N–P	Yes	NT126	WET	SLIGHT	RAIN	13	M	—
05.08.2011	Winter	MTRAP	Grammomys	GcW2	—	—	Yes	NT145	WET	SLIGHT	RAIN	13	M	Collar 149.106
05.08.2011	Winter	MTRAP	Grammomys	GcB21N	M		Yes	NT150	WET	SLIGHT	RAIN	13	M	149.006–149.0047
05.08.2011	Winter	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT153	WET	SLIGHT	RAIN	13	M	149.045–149.0434
06.08.2011	Winter	MTRAP	Grammomys	GcB21N	M	N–S	Yes	NT106	WET	—	OVERCAST	15	M	Upside down
06.08.2011	Winter	MTRAP	Grammomys	GcW12	—	—	Yes	NT112	WET	—	OVERCAST	15	M	Collar
07.08.2011	Winter	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT150	—	—	—	—	M	Collared
07.08.2011	Winter	MTRAP	Grammomys	GcW2	—	—	Yes	NT145	—	—	—	—	M	148.2692
07.08.2011	Winter	MTRAP	Grammomys	GcB21N	—	—	Yes	NT153	—	—	—	—	M	—
15.09.2011	Spring	MHAB	Grammomys	GcB4	F	P	Yes	N82	DRY	MEDIUM	—	17	M	With collar, nipples
16.09.2011	Spring	MHAB	Grammomys	GcB21S	M	N–S	Yes	N82	—	—	—	—	M	—
16.09.2011	Spring	MHAB	Grammomys	GcB4	F	Nipples	Yes	L67	—	—	—	—	E	—
17.09.2011	Spring	MHAB	Grammomys	GcW22	M	S	No	M174	—	—	SUNNY	—	M	—
17.09.2011	Spring	MHAB	Grammomys	GcB4	F	N–P	Yes	M173	—	—	SUNNY	—	E	—
18.09.2011	Spring	MHAB	Grammomys	GcB4	F	N–P	Yes	M75	—	MEDIUM	SUNNY	—	M	With 5 newborns
18.09.2011	Spring	MHAB	Grammomys	GcB21S	M	—	Yes	L167	—	MEDIUM	SUNNY	—	E	—
19.09.2011	Spring	MHAB	Grammomys	GcB21S	M	—	Yes	M176	—	MEDIUM	C20	—	M	—

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
19.09.2011	Spring	MHAB	Grammomys	GcB4	F	—	Yes	N80	—	MEDIUM	C20	—	M	—
19.09.2011	Spring	MHAB	Grammomys	GcW22	M	—	Yes	N180	—	MEDIUM	C20	—	M	—
18.09.2011	Spring	MTRAP	Grammomys	GcW23	M	N–S	No	NT51	—	MEDIUM	SUNNY	—	M	1 month old
13.10.2011	Spring	MTRAP	Grammomys	GcW13	F	Nipples	Yes	NT118	—	—	SUNNY	22	M	151.400–151.3995
13.10.2011	Spring	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT150	—	—	SUNNY	22	M	151.420–151.4200
14.10.2011	Spring	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT150	HUMID	—	OVERCAST	—	M	Collared
14.10.2011	Spring	MTRAP	Grammomys	GcW13	—	—	Yes	NT118	HUMID	—	OVERCAST	—	M	—
15.10.2011	Spring	MTRAP	Grammomys	GcW13	F	N–P	Yes	NT54	—	—	—	—	M	Collar
15.10.2011	Spring	MTRAP	Grammomys	GcW33	M	N–S	No	NT52	—	—	—	—	M	—
15.10.2011	Spring	MTRAP	Grammomys	GcW4	F	N–P	Yes	NT150	—	—	—	—	M	—
15.10.2011	Spring	MTRAP	Grammomys	GcB21N	M	S	Yes	NT153	—	—	—	—	M	—
16.10.2011	Spring	MTRAP	Grammomys	GcW34	M	N–S	No	ST85	—	—	—	—	M	—
16.10.2011	Spring	MTRAP	Grammomys	GcB4	F	Nipples	Yes	ST142	—	—	—	—	M	Dead
16.10.2011	Spring	MTRAP	Grammomys	GcB21S	M	—	Yes	ST101	—	—	—	—	M	151.3154
18.10.2011	Spring	MTRAP	Grammomys	GcW36	M	N–S	No	ST19	WET	SLIGHT	OVERCAST	—	M	Juvenille, 6 on top of 3
18.10.2011	Spring	MTRAP	Grammomys	GcB21S	M	—	Yes	ST104	WET	SLIGHT	OVERCAST	—	M	Collar
29.10.2011	Spring	MTRAP	Grammomys	GcB21S	M	S	Yes	ST214	DRY	NO	C10	26	M	Put collar; 151.379
30.10.2011	Spring	MTRAP	Grammomys	GcW41	F	Suckling	No	ST298	DRY	MEDIUM	C60	18	M	Collar (ex GCW13)
05.11.2011	Summer	MTRAP	Grammomys	GcW23	M	—	Yes	ST53	—	—	—	—	M	Put collar
05.11.2011	Summer	MTRAP	Grammomys	GcW36	F	N–P	Yes	ST107	—	—	—	—	M	Put collar
07.11.2011	Summer	MTRAP	Grammomys	GcW23	M	—	Yes	ST54	—	—	—	—	M	—
07.11.2011	Summer	MTRAP	Grammomys	GcB21S	M	S	Yes	ST104	—	—	—	—	M	—
07.11.2011	Summer	MTRAP	Grammomys	?	F	N–P	Yes	M174	—	—	—	—	M	—
21.11.2011	Summer	MTRAP	Grammomys	GcB21S	M	S	Yes	ST350	—	—	—	—	M	—
26.01.2012	Summer	MHAB	Grammomys	GcW33	M	—	Yes	A101	—	—	—	—	M	151.280–151.2787
26.01.2012	Summer	MHAB	Grammomys	GcW62	M	S	No	A104	—	—	—	—	M	151.339–151.3381
26.01.2012	Summer	MHAB	Grammomys	GcW60	F	Nipples	No	K63	—	—	—	—	M	151.300–151.2993
26.01.2012	Summer	MHAB	Grammomys	GcW61	M	S	No	L168	—	—	—	—	M	151.317–151.3154
26.01.2012	Summer	MHAB	Grammomys	—	—	—	Yes	M174	—	—	—	—	M	Escaped
26.01.2012	Summer	MHAB	Grammomys	GcW63	M	S	No	D119	—	—	—	—	E	150.991–150.9903
27.01.2012	Summer	MHAB	Grammomys	GcW64	F	Nipples	No	H47	—	—	—	—	M	150.730–150.7292
27.01.2012	Summer	MHAB	Grammomys	GcW65	F	Juv	No	P191	—	—	—	—	M	—
27.01.2012	Summer	MHAB	Grammomys	GcB21S	M	S	Yes	N80	—	—	—	—	M	150.9491
27.01.2012	Summer	MHAB	Grammomys	GcW66	—	—	No	O90	—	—	—	—	E	—
28.01.2012	Summer	MHAB	Grammomys	GcW62	M	S	Yes	H146	—	—	—	—	M	Collared
28.01.2012	Summer	MHAB	Grammomys	GcW70	M	S	No	M174	—	—	—	—	M	Collar 150.9082
28.01.2012	Summer	MHAB	Grammomys	GcB21S	M	S	Yes	O187	—	—	—	—	M	Collared
28.01.2012	Summer	MHAB	Grammomys	GcW63	M	S	Yes	E125	—	—	—	—	E	Collared
28.01.2012	Summer	MHAB	Grammomys	GcB21S	M	S	Yes	N80	—	—	—	—	E	Collared

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
30.01.2012	Summer	MHAB	Grammomys	GcW70	M	S	Yes	E125	—	—	—	—	M	Collared
30.01.2012	Summer	MHAB	Grammomys	GcW64	F	Nipples	Yes	F131	—	—	—	—	M	—
30.01.2012	Summer	MHAB	Grammomys	Gc	—	—	—	G139	—	—	—	—	M	—
30.01.2012	Summer	MHAB	Grammomys	GcW	—	—	Yes	N181	—	—	—	—	M	Small
30.01.2012	Summer	MHAB	Grammomys	GcB21S	M	S	Yes	M74	—	—	—	—	M	Collared
30.01.2012	Summer	MHAB	Grammomys	GcW76	F	N–P	No	K63	—	—	—	—	M	—
16.02.2012	Summer	MTRAP	Grammomys	GcW84	M	N–S	No	NT54	DRY	SLIGHT	CLEAR	22	M	Collar
16.02.2012	Summer	MTRAP	Grammomys	GcW85	F	Nipples	No	NT13	DRY	SLIGHT	CLEAR	22	M	Collar 151.2985
17.02.2012	Summer	MTRAP	Grammomys	GcW86	F	N–P	No	NT50	DRY	NO	OVERCAST	19	M	—
17.02.2012	Summer	MTRAP	Grammomys	GcW87	F	N–P	No	NT54	DRY	NO	OVERCAST	19	M	Collar 150.8893
18.02.2012	Summer	MTRAP	Grammomys	GcW	—	—	Yes	NT81	HUMID	SLIGHT	OVERCAST	—	M	Collared
18.02.2012	Summer	MTRAP	Grammomys	GcW86	F	N–P	Yes	NT112	HUMID	SLIGHT	OVERCAST	—	M	—
20.02.2012	Summer	MTRAP	Grammomys	GcG1	M	N–S	No	NT280	DRY	STRONG	C10	21	M	Collar 150.9903
20.02.2012	Summer	MTRAP	Grammomys	GcG2	F	Nipples	No	NT266	DRY	STRONG	C10	21	M	Collar 150.7896
20.02.2012	Summer	MTRAP	Grammomys	GcG3	M	—	No	NBX7	DRY	STRONG	C10	21	M	Collar 150.8481
21.02.2012	Summer	MTRAP	Grammomys	GcG4	M	S	No	NT182	—	—	—	—	M	—
21.02.2012	Summer	MTRAP	Grammomys	GcG7	F	Nipples	No	NT151	—	—	—	—	M	Dead
21.02.2012	Summer	MTRAP	Grammomys	GcG6	M	S	No	NT161	—	—	—	—	M	—
21.02.2012	Summer	MTRAP	Grammomys	GcW84	M	N–S	Yes	NBX8	—	—	—	—	M	New collar
22.02.2012	Summer	MTRAP	Grammomys	GcG10	F	Nipples	No	NT173	—	—	—	—	M	—
22.02.2012	Summer	MTRAP	Grammomys	GcG11	F	N–P	No	NT233	—	—	—	—	M	—
22.02.2012	Summer	MTRAP	Grammomys	GcG	M	S	No	NT249	—	—	—	—	M	Green number
22.02.2012	Summer	MTRAP	Grammomys	GcG12	M	S	Yes	NT252	—	—	—	—	M	—
22.02.2012	Summer	MTRAP	Grammomys	GcG13	F	Nipples	No	NT330	—	—	—	—	M	—
22.02.2012	Summer	MTRAP	Grammomys	GcG16	M	S	No	NT327	—	—	—	—	M	—
18.04.2012	Autumn	MHAB	Grammomys	GcC11	M	S	No	F135	DRY	SLIGHT	OVERCAST	—	M	Cut, no more ink
18.04.2012	Autumn	MHAB	Grammomys	GcW84	M	—	Yes	E25	DRY	SLIGHT	OVERCAST	—	M	Collar removed
18.04.2012	Autumn	MHAB	Grammomys	GcW86	F	N–P	Yes	G42	DRY	SLIGHT	OVERCAST	—	M	—
18.04.2012	Autumn	MHAB	Grammomys	GcG6	M	S	Yes	K63	DRY	SLIGHT	OVERCAST	—	M	—
18.04.2012	Autumn	MHAB	Grammomys	GcW76	F	N–P	Yes	M73	DRY	SLIGHT	OVERCAST	—	M	—
18.04.2012	Autumn	MHAB	Grammomys	GcC14	F	N–P	No	N179	DRY	SLIGHT	OVERCAST	—	M	Young
18.04.2012	Autumn	MHAB	Grammomys	GcB21S	M	S	Yes	P191	DRY	SLIGHT	OVERCAST	—	M	—
18.04.2012	Autumn	MHAB	Grammomys	GcW33	M	—	Yes	O187	DRY	SLIGHT	OVERCAST	—	M	—
18.04.2012	Autumn	MHAB	Grammomys	GcC12	M	S	No	P194	DRY	SLIGHT	OVERCAST	—	M	—
18.04.2012	Autumn	MHAB	Grammomys	GcC21	F	Nipples	No	P195	DRY	SLIGHT	OVERCAST	—	M	—
19.04.2012	Autumn	MHAB	Grammomys	GcW86	F	N–P	Yes	B111	—	—	—	—	M	—
19.04.2012	Autumn	MHAB	Grammomys	GcG21	M	S	Yes	I49	—	—	—	—	M	From GcC11
19.04.2012	Autumn	MHAB	Grammomys	GcG22	F	N–P	No	K63	—	—	—	—	M	Baby
19.04.2012	Autumn	MHAB	Grammomys	GcG6	M	S	Yes	N82	—	—	—	—	M	—

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
19.04.2012	Autumn	MHAB	Grammomys	GcG23	F	N–P	No	M176	—	—	—	—	M	—
19.04.2012	Autumn	MHAB	Grammomys	GcB21S	M	S	Yes	M174	—	—	—	—	M	—
19.04.2012	Autumn	MHAB	Grammomys	GcG24	F	N–P	No	M175	—	—	—	—	M	—
20.04.2012	Autumn	MHAB	Grammomys	GcG21	M	S	Yes	A2	DRY	NO	OVERCAST	16	M	—
20.04.2012	Autumn	MHAB	Grammomys	GcW86	F	N–P	Yes	G41	DRY	NO	OVERCAST	16	M	—
20.04.2012	Autumn	MHAB	Grammomys	GcG6	M	S	Yes	K161	DRY	NO	OVERCAST	16	M	—
20.04.2012	Autumn	MHAB	Grammomys	GcB21S	M	S	Yes	N80	DRY	NO	OVERCAST	16	M	Dead
20.04.2012	Autumn	MHAB	Grammomys	GcG??	—	—	Yes	N180	DRY	NO	OVERCAST	16	M	Baby marked
20.04.2012	Autumn	MHAB	Grammomys	GcG25	—	—	Yes	N82	DRY	NO	OVERCAST	16	M	From GcC32
20.04.2012	Autumn	MHAB	Grammomys	GcW84	M	N–S	Yes	O190	DRY	NO	OVERCAST	16	M	—
20.04.2012	Autumn	MHAB	Grammomys	GcC21	F	Pregnant	Yes	P195	DRY	NO	OVERCAST	16	M	—
20.04.2012	Autumn	MHAB	Grammomys	GcG12	M	S	Yes	O88	DRY	NO	OVERCAST	16	M	—
21.04.2012	Autumn	MHAB	Grammomys	GcG21	M	S	Yes	A103	—	—	—	—	M	—
21.04.2012	Autumn	MHAB	Grammomys	GcGXX	—	—	Yes	A106	—	—	—	—	M	Two numbers
21.04.2012	Autumn	MHAB	Grammomys	GcG23	F	N–P	No	L67	—	—	—	—	M	Baby
21.04.2012	Autumn	MHAB	Grammomys	GcG20?	F	Pregnant	Yes	M75	—	—	—	—	M	Green number
21.04.2012	Autumn	MHAB	Grammomys	GcG12	M	S	Yes	N181	—	—	—	—	M	—
21.04.2012	Autumn	MHAB	Grammomys	GcG???	—	—	No	N182	—	—	—	—	M	???
21.04.2012	Autumn	MHAB	Grammomys	GcW84	M	N–S	Yes	O190	—	—	—	—	M	—
21.04.2012	Autumn	MHAB	Grammomys	GcG6	M	S	Yes	N183	—	—	—	—	M	Dead
22.04.2012	Autumn	MHAB	Grammomys	GcW86	F	N–P	Yes	B110	HUMID	STRONG	OVERCAST	—	M	—
22.04.2012	Autumn	MHAB	Grammomys	GcG20	F	Nipples	Yes	M175	HUMID	STRONG	OVERCAST	—	M	Mother of 4 babies
22.04.2012	Autumn	MHAB	Grammomys	GcGXX	—	—	Yes	M176	HUMID	STRONG	OVERCAST	—	M	Died
22.04.2012	Autumn	MHAB	Grammomys	GcG?	—	—	Yes	N181	HUMID	STRONG	OVERCAST	—	M	Probably GcG25
22.04.2012	Autumn	MHAB	Grammomys	GcW76	F	N–P	Yes	N83	HUMID	STRONG	OVERCAST	—	M	—
22.04.2012	Autumn	MHAB	Grammomys	GcW84	M	N–S	Yes	O189	HUMID	STRONG	OVERCAST	—	M	—
25.04.2012	Autumn	MTRAP	Grammomys	GcG21	M	N–S	Yes	F131	—	—	—	—	M	148.3485
25.04.2012	Autumn	MTRAP	Grammomys	GcG20F	F	Nipples	Yes	O88	—	—	—	—	M	151.3593
25.04.2012	Autumn	MTRAP	Grammomys	GcGXX	—	—	Yes	M175	—	—	—	—	M	Baby
25.04.2012	Autumn	MTRAP	Grammomys	GcW76	F	Nipples	Yes	M177	—	—	—	—	M	148.2485
25.04.2012	Autumn	MTRAP	Grammomys	GcW84	M	N–S	Yes	H47	—	—	—	—	M	Old collar
25.04.2012	Autumn	MTRAP	Grammomys	GcGXX	M	S	Yes	A105	—	—	—	—	M	150.9084
26.04.2012	Autumn	MTRAP	Grammomys	GcGXX	—	—	Yes	M73	—	—	OVERCAST	—	M	Green ears
26.04.2012	Autumn	MTRAP	Grammomys	GcG18	M	N–S	No	O85	—	—	OVERCAST	—	M	Siblings GcG19
26.04.2012	Autumn	MTRAP	Grammomys	GcG19	F	N–P	No	P191	—	—	OVERCAST	—	M	Siblings GcG18
26.04.2012	Autumn	MTRAP	Grammomys	GcG25	M	S	Yes	P194	—	—	OVERCAST	—	M	148.4873
26.04.2012	Autumn	MTRAP	Grammomys	GcG12	M	S	Yes	N183	—	—	OVERCAST	—	M	148.5514
26.04.2012	Autumn	MTRAP	Grammomys	GcC14	F	N–P	Yes	N181	—	—	OVERCAST	—	M	—
26.04.2012	Autumn	MTRAP	Grammomys	GcW86	F	Nipples	Yes	A104	—	—	OVERCAST	—	M	Collared animal

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
27.04.2012	Autumn	MTRAP	Grammomys	GcW84	M	N–S	Yes	K162	WET	MEDIUM	C20	15	M	148.3491
27.04.2012	Autumn	MTRAP	Grammomys	GcG30	M	S	No	O187	WET	MEDIUM	C20	15	M	—
27.04.2012	Autumn	MTRAP	Grammomys	GcG?	M	N–S	Yes	M175	WET	MEDIUM	C20	15	M	Green number
27.04.2012	Autumn	MTRAP	Grammomys	GcG31	F	N–P	No	G139	WET	MEDIUM	C20	15	M	Baby
27.04.2012	Autumn	MTRAP	Grammomys	GcG20M	M	N–S	Yes	A104	WET	MEDIUM	C20	15	M	GcGXX
27.04.2012	Autumn	MTRAP	Grammomys	GcW85	F	—	Yes	A103	WET	MEDIUM	C20	15	M	151.1586
29.04.2012	Autumn	MTRAP	Grammomys	GcW85	F	—	Yes	NT13	—	—	SUNNY	—	M	—
29.04.2012	Autumn	MTRAP	Grammomys	GcG40	M	N–S	No	NT51	—	—	SUNNY	—	M	—
29.04.2012	Autumn	MTRAP	Grammomys	GcW87	F	N–P	Yes	NT55	—	—	SUNNY	—	M	To be collared
29.04.2012	Autumn	MTRAP	Grammomys	GcW84	M	N–S	Yes	NT53	—	—	SUNNY	—	M	—
30.04.2012	Autumn	MTRAP	Grammomys	GcW85	F	—	Yes	NT11	—	—	SUNNY	—	M	Collared
31.04.2012	Autumn	MTRAP	Grammomys	GcW85	F	—	Yes	NT11	—	—	C90	16	M	—
31.04.2012	Autumn	MTRAP	Grammomys	GcG20M	M	N–S	Yes	NT53	—	SLIGHT	C90	16	M	Collared
31.04.2012	Autumn	MTRAP	Grammomys	GcW87	F	N–P	Yes	NT66	—	SLIGHT	C90	16	M	Collared
02.05.2012	Autumn	MTRAP	Grammomys	GcG17	F	N–P	Yes	ST156	—	NO	OVERCAST	15	M	Juvenile
02.05.2012	Autumn	MTRAP	Grammomys	GcG19	M	—	Yes	ST171	—	NO	OVERCAST	15	M	Juvenile
02.05.2012	Autumn	MTRAP	Grammomys	GcG50	F	N–P	No	ST218	—	NO	OVERCAST	15	M	—
02.05.2012	Autumn	MTRAP	Grammomys	GcG11	F	P	Yes	ST233	—	NO	OVERCAST	15	M	151.1778
02.05.2012	Autumn	MTRAP	Grammomys	GcG40	—	—	Yes	ST249	—	NO	OVERCAST	15	M	Juvenile
02.05.2012	Autumn	MTRAP	Grammomys	GcG18	—	—	Yes	ST249	—	NO	OVERCAST	15	M	Juvenile
02.05.2012	Autumn	MTRAP	Grammomys	GcG16	—	—	Yes	ST263	—	NO	OVERCAST	15	M	Dead
02.05.2012	Autumn	MTRAP	Grammomys	GcG30	M	S	Yes	ST262	—	NO	OVERCAST	15	M	151.2005
02.05.2012	Autumn	MTRAP	Grammomys	GcG52	F	Nipples	No	ST283	—	NO	OVERCAST	15	M	—
02.05.2012	Autumn	MTRAP	Grammomys	GcG?3	F	Nipples	Yes	ST333	—	NO	OVERCAST	15	M	3 on the units side
03.05.2012	Autumn	MTRAP	Grammomys	GcG20F	F	Nipples	Yes	ST241	—	—	—	—	M	Collared
03.05.2012	Autumn	MTRAP	Grammomys	GcG4	M	S	Yes	ST364	—	—	—	—	M	—
03.05.2012	Autumn	MTRAP	Grammomys	GcG1	M	S	Yes	ST282	—	—	—	—	M	Removed collar
04.05.2012	Autumn	MTRAP	Grammomys	GcG20F	F	Nipples	Yes	ST172	—	—	—	—	M	—
04.05.2012	Autumn	MTRAP	Grammomys	GcG18	—	—	Yes	ST171	—	—	—	—	M	—
04.05.2012	Autumn	MTRAP	Grammomys	GcG19	—	—	Yes	ST171	—	—	—	—	M	—
04.05.2012	Autumn	MTRAP	Grammomys	GcG53	M	N–S	No	ST171	—	—	—	—	M	—
04.05.2012	Autumn	MTRAP	Grammomys	—	—	—	Yes	ST282	—	—	—	—	M	Two green numbers
04.05.2012	Autumn	MTRAP	Grammomys	GcG1	M	S	Yes	ST283	—	—	—	—	M	Dead in trap
04.05.2012	Autumn	MTRAP	Grammomys	GcG13	—	—	Yes	ST338	—	—	—	—	M	—
03.08.2012	Winter	MTRAP	Grammomys	GcW76	F	N–P	Yes	M174	DRY	NO	C80	—	M	151.2373
03.08.2012	Winter	MTRAP	Grammomys	GcG31	F	N–P	Yes	M176	DRY	NO	C80	—	M	149.0633
03.08.2012	Winter	MTRAP	Grammomys	GcG25	M	N–S	Yes	N183	DRY	NO	C80	—	M	150.9071
03.08.2012	Winter	MTRAP	Grammomys	GcG20F	F	N–P	Yes	ST171	DRY	NO	C80	—	M	151.1771
03.08.2012	Winter	MTRAP	Grammomys	GcG40	M	N–S	Yes	ST175	DRY	NO	C80	—	M	—

Table A50. Continued.

DATE	SEASON	TYPE	SPECIES	ANIMAL	SEX	CONDITION	RETRAP	CODE	SOIL	WIND	WEATHER	TEMP	M/E	POINT/REMARK
03.08.2012	Winter	MTRAP	Grammomys	GcG19	M	N–S	Yes	ST172	DRY	NO	C80	—	M	—
03.08.2012	Winter	MTRAP	Grammomys	GcG18	F	N–P	Yes	ST172	DRY	NO	C80	16	M	—
04.08.2012	Winter	MTRAP	Grammomys	GcG24	M	N–S	Yes	M174	DRY	NO	—	16	M	—
04.08.2012	Winter	MTRAP	Grammomys	GcC14	F	N–P	Yes	N180	DRY	NO	—	16	M	No tattoo
04.08.2012	Winter	MTRAP	Grammomys	GcG25	M	N–S	Yes	P194	DRY	NO	—	16	M	With collar
04.08.2012	Winter	MTRAP	Grammomys	GcG18	F	N–P	Yes	ST171	DRY	NO	—	16	M	—
04.08.2012	Winter	MTRAP	Grammomys	GcG19	M	N–S	Yes	ST173	DRY	NO	—	16	M	—
05.08.2012	Winter	MTRAP	Grammomys	GcC14	F	N–P	Yes	N182	DRY	NO	—	—	M	Just 2 cuts
05.08.2012	Winter	MTRAP	Grammomys	GcG18	F	N–P	Yes	ST173	DRY	NO	C80	—	M	—
05.08.2012	Winter	MTRAP	Grammomys	GcG19	M	N–S	Yes	ST172	DRY	NO	C80	—	M	—
05.08.2012	Winter	MTRAP	Grammomys	GcG40	M	N–S	Yes	ST175	DRY	NO	C80	—	M	—