REPRODUCTION IN THE ROCK HYRAX (*PROCAVIA CAPENSIS*)

R. P. MILLAR

*Predator Control Research Farm, Department of Nature Conservation, Cape**

INTRODUCTION

Increase in the numbers of the rock hyrax or dassie (*Procavia capensis*) in certain parts of South Africa has recently aroused considerable interest (Kolbe 1967). Several methods of control have been proposed and tested (Cape Prov. Dept. Nature Conservation 1968). Nevertheless, before any culling programme can be instituted the population dynamics and ecology of this animal must be established. Of pertinent interest in this respect is the reproductive behaviour and physiology. Information on mating season, time of parturition, gestation period, size of litter, mortality and sex ratios is fundamental to population studies. Moreover, such knowledge may facilitate the selection of appropriate control measures.

Selected aspects of reproduction in northern species have been investigated (e.g. Glover & Sale 1968; Sale 1969; Sale 1965; O'Donoghue 1963; Mendelssohn 1965) but a comprehensive investigation of *P. capensis* in southern Africa has not been undertaken. In addition the limited data published on reproduction in the South African species are conflicting and have given rise to confusion. The object of the present study was, therefore, to carry out a detailed study of the reproductive potential of *P. capensis*.

MATERIALS AND METHODS

Over 500 animals were collected in different areas in South Africa during 1968–1970 (Fig. 1). The animals were obtained by shooting, trapping and hunting with dogs.

In the field, body weight, nose to tail length and dental formula were recorded before dissecting the animals to display the reproductive tract. After noting the location and number of corpora lutea and foetuses in the females, the reproductive organs and glands of all animals were dissected out and together with both of the eyes fixed in 10% formol saline.

On return to the laboratory, the reproductive organs and the eye lenses were blotted and weighed. Foetuses were sexed and weighed and the uterine horns examined for signs of foetal resorption. Material required for histological examination was routinely embedded in paraffin wax, sectioned at 6μ and stained with Delafield's haematoxylin and eosin.

Additional information on dassie behaviour was obtained from observation of a captive colony at Vrolijkheid. Animals which died in the colony were processed as described above.

RESULTS

Mating season

Generally, mating occurred during the second half of the summer but varied in timing in the different localities (Table 1 – p. 256).

* Present address: Unit of Reproductive Biology, University of Liverpool, Box 147, Liverpool.

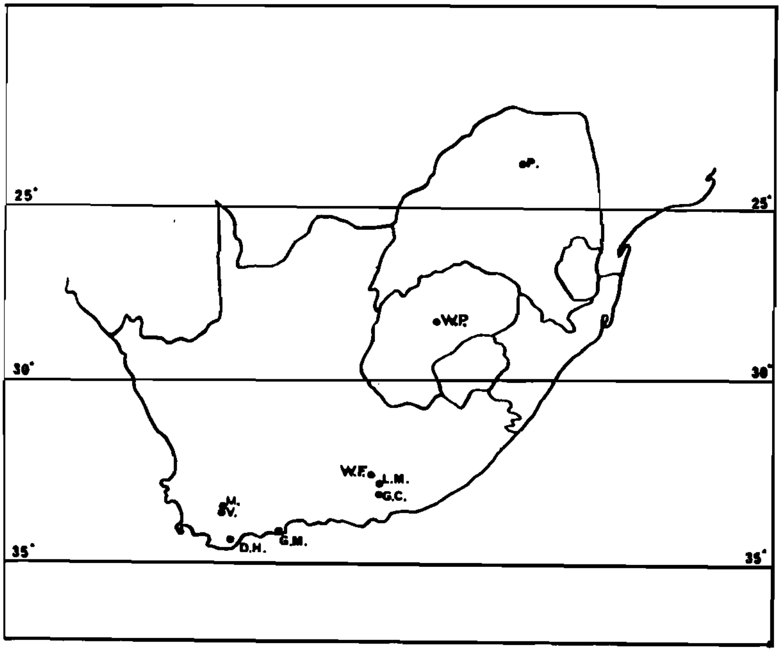

FIGURE 1
Map of South Africa showing collection areas.

D.H. – De Hoop vlei
V. – Vrolijkheid
W.F. – Waterfall
W.P. – Willem Pretorius game reserve
P. – Percy Fyfe game reserve.
G.M. – Gouritzriviermond
M. – Montagu pass
G.C. – Glenconnor
L.M. – Lake Mentz

At De Hoop, males with enlarged testes undergoing spermatogenesis were collected in February and fully developed follicles were observed in the ovaries of females at this time. No data on the reproductive status of males or females from Gouritzmond was available. However, the approximate time of conception was calculated from the weights of foetuses to be February–March (see parturition). Both males and females collected at Montagu in February were sexually active and copulation was observed during this month (Table 1). Similarly information collected post-mortem from animals in the captive colony at Vrolijkheid indicated that they were sexually active in February–March. Copulation was first observed during the second week of February, but was most frequent in the second week of March. No further matings were observed after 27th March.

In the more northerly collection areas of Glenconnor, Waterfall and Lake Mentz, spermatogenic activity of testes was noted during March–April, and data on ovulation and occurrence of spermatozoa in the vagina of females clearly indicated that most conceptions occur during April.

Males with enlarged testes were found over a longer period (March to May) in the Willem

Pretorius game reserve and conceptions also occurred over a longer period and later in the year (see parturition).

Still further north in the Percy Fyfe game reserve, mating occurred even later, in June and July and some males were found with spermatozoa in their epididymides as late as August.

In general the mating season was later and longer in duration in the lower latitudes.

Parturition and gestation

Pregnant females brought from De Hoop (34°35'S) and kept in captivity gave birth at the end of September and during the first half of October. Females reared and mated in the captive colony at Vrolijkheid (33°50'S) had their young from the end of October to the beginning of November, with most births occurring in the last week of October. Since most copulations took place in the second week of March, the mean length of gestation was 230 days. Parturition appeared to take place at the same time in the Montagu district (33°50'S), since young were first seen at the beginning of November.

Young dassies made their first appearance at Lake Mentz (32°55'S) in November and pregnant females captured in this area and taken back to Vrolijkheid all gave birth in the second half of November. These findings were further confirmed by estimating the percentage of females which had given birth between consecutive collections (Table 2). From this it is clear that 65% of births occurred in the second half of November.

In those areas where data on births was not available it was nevertheless possible to estimate the dates of parturition of known weight foetuses collected at specific dates. Huggett and Widdas (1951) have shown that there is a direct relation between the cube root of the foetal weight ($\sqrt[3]{W}$) and the gestational age (t) as given by the expression $\sqrt[3]{W} = a(t-t_0)$. For mammals with a gestational length of 100–400 days they showed that t_0 approximated $0{,}2 \times t$. In the dassie the foetal weight varies according to the number of foetuses in the litter (see later) and therefore the more consistent measure of total foetal weight was used in the calculations. Since the mean gestation length was 230 days and mean litter weight at birth was 581 g (see later) it was possible to construct a foetal growth curve which intersects the t-axis at $0{,}2t$ (i.e. 46 days) (Fig. 2a). From this the estimated dates of births of foetal litters from different areas were calculated (Table 3). The accuracy of calculating dates of births from this theoretical foetal growth curve is shown by the fact that calculated parturition dates of Lake Mentz animals agree with actual births (cf. Table 2 and 3).

These results clearly indicated that parturition, like mating, takes place later in the lower latitudes.

Ovulation and implantation

The left and right ovaries were equally active in the formation of follicles and producing oocytes for there were 132 corpora lutea in the left ovaries as compared to 124 in the right ovaries of females examined (Fig. 3).

In the individual females, however, it was usual for one of the ovaries to develop more follicles than the other. In spite of this, foetuses were equally distributed between the left and right uterine horns (Fig. 3). Most of the uteri (91%) contained one or two foetuses while the rest had three or four, or none at all.

This more even distribution of foetuses between the uterine horns was brought about by transuterine migration of ova. This was confirmed by noting the percentage of females in

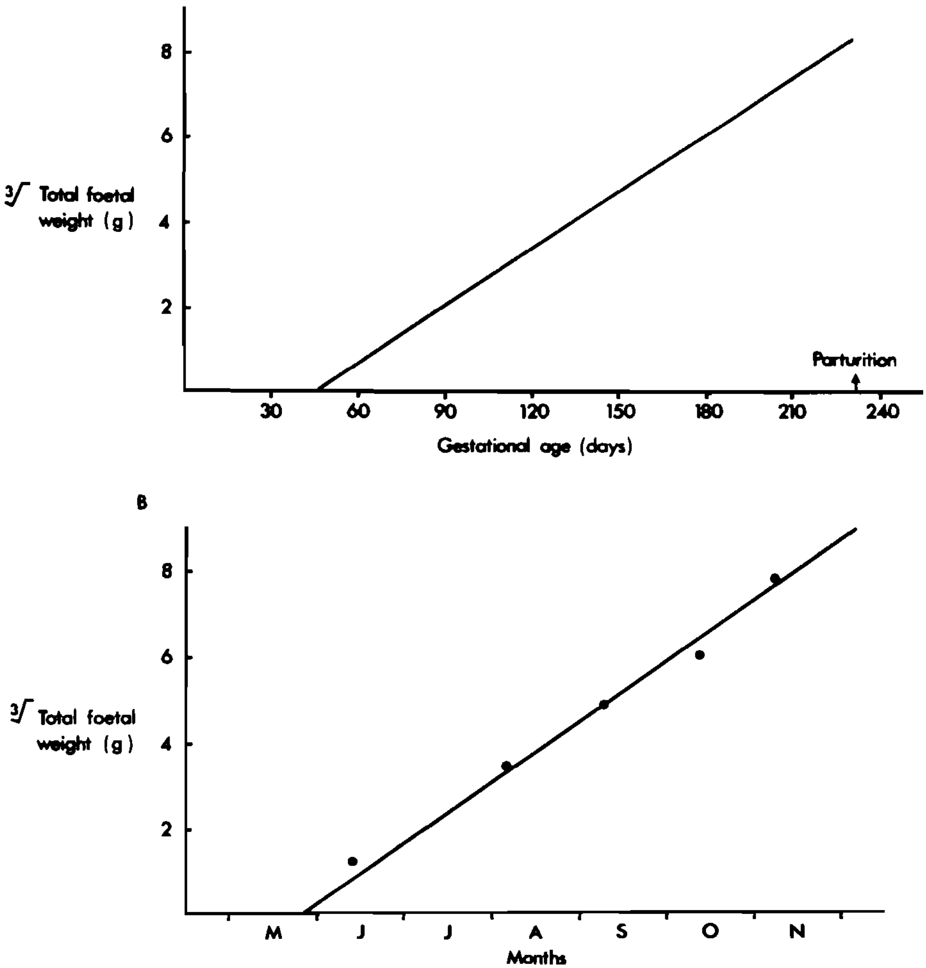

FIGURE 2
Foetal growth.

a. Theoretical total foetal growth curve constructed from Huggett & Widdas (1951) expression: $\sqrt[3]{W} = 0{,}0444\ (t - 46)$.

b. Total foetal growth of dassies from Lake Mentz $\sqrt[3]{W} = 0{,}047\ (t - 41)$.

which the number of foetuses in the uterine horn differed from the number of corpora lutea in the corresponding ovary. An example is shown in Plate 1. Using this criterion as a definite indication of transuterine migration of ova, it is apparent that it had occurred in 25,0% to 72,7% of females in the different study areas (Table 4).

Litter size and pre-natal loss

The number of foetuses in utero of females killed in the field together with observations of the breeding colony provided data on the number of young in litters. From Table 4 it is

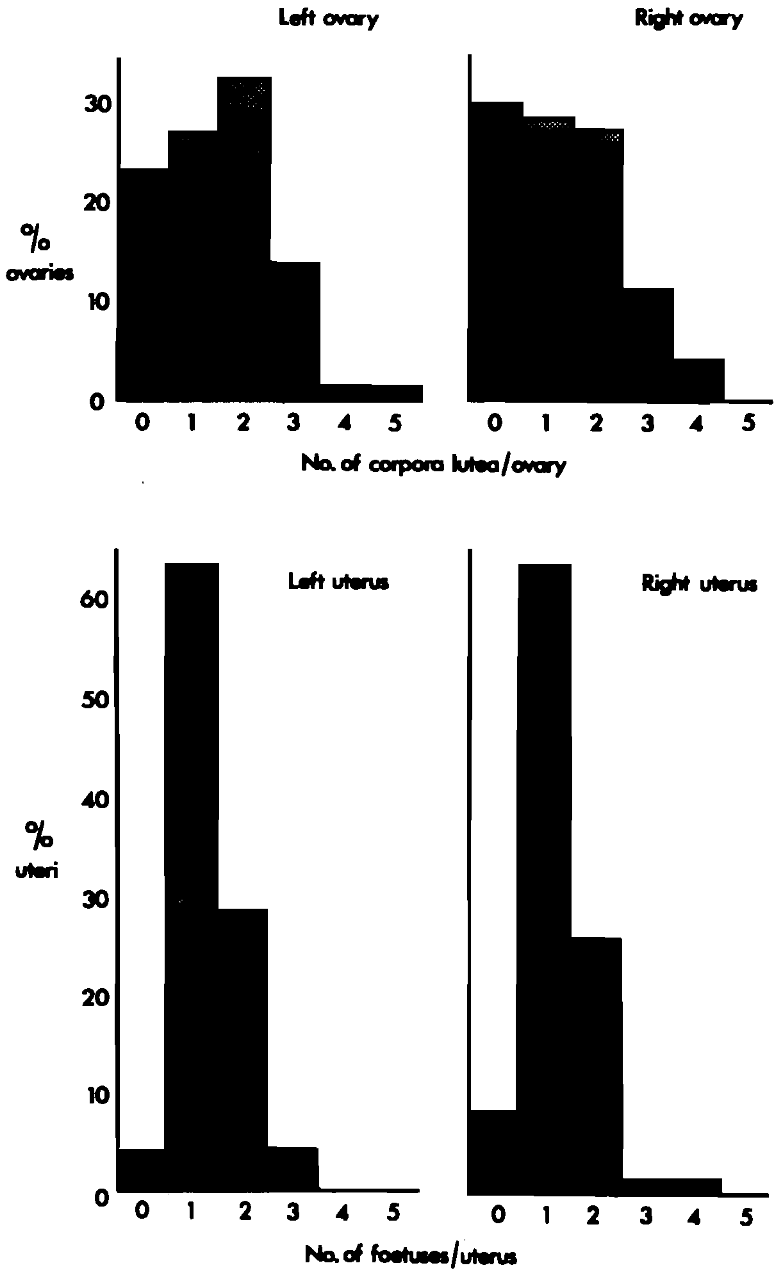

FIGURE 3
Histograms showing the frequency in number of corpora lutea and foetuses in the left and right sides of the reproductive tracts of 148 females.

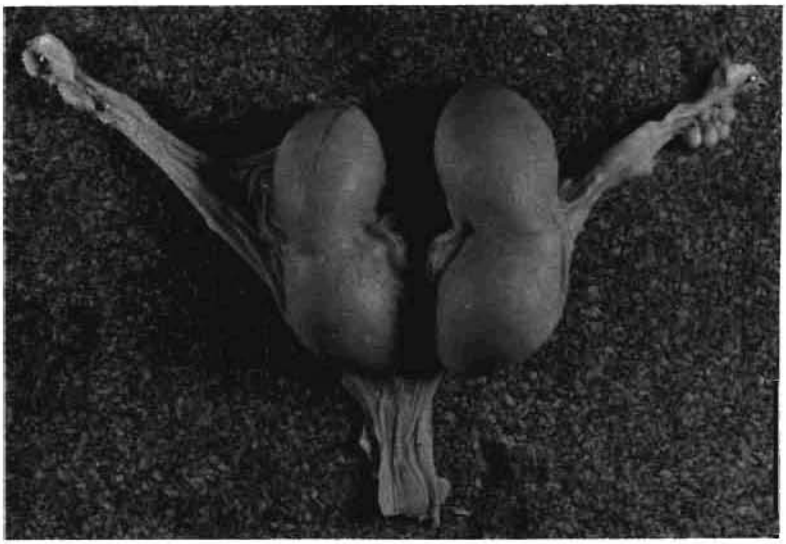

PLATE 1
Reproductive tract of a pregnant female dassie showing evidence of trans-uterine migration of ova. Note four corpora lutea in left ovary but two foetuses in each uterine horn.

evident that this varied considerably with the study area. The number of young in litters varied from 1 to 5 as shown in the frequency distribution diagrams for Glenconnor and Lake Mentz in Fig. 4. The lower mean litter size in the noorsveld area of Lake Mentz during 1969 and 1970 and Glenconnor (2,5, 2,1 and 2,2 respectively) as compared to 3,4 in the kloof region of Lake Mentz, was achieved by a reduction in the percentage of females with litters of four young and a corresponding increase in the number of litters with only two young. In addition, none of the females in these drier regions had 5 young but litters of this size occurred in 10,5% of females in the kloof area. Again, at the other end of the litter distribution histogram from 10,5% to 23,0% of females in drier regions had only one young, but there were none at Lake Mentz (kloof) which fell into this category.

The further decrease in mean litter size in Lake Mentz (noors) females accompaying the worsening drought in 1970, was accomplished by an increase in the percentage of litters with only one young and a complete absence of litters of four.

Pre-natal mortality as estimated by comparison of the number of corpora lutea and embryos was greater in the drier areas (Table 4). For example, from 7,2 to 24,3% of females in these areas had lost a foetus as compared with only 4,3% of females collected in the kloof region of Lake Mentz.

Litter size in relation to age

When females were divided into age groups on the basis of overall length and body weight, dentition and eye lens weight it was apparent that older females generally had larger litters (Fig. 5), with the exception of very old females which had smaller litters. For instance, of

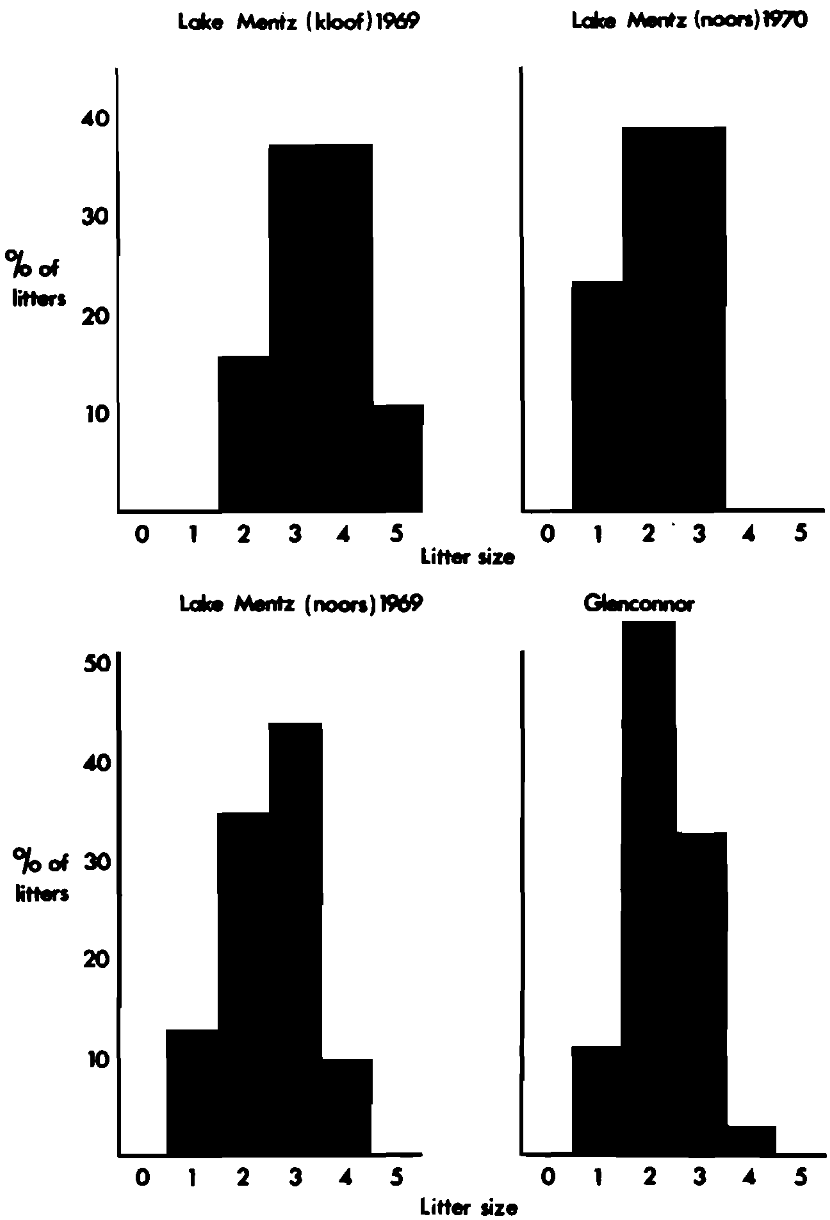

FIGURE 4
Histograms showing the frequency in the number of foetuses per litter, *in utero*, from examination of 19, 13, 32 and 37 female reproductive tracts from Lake Mentz (kloof) 1969, Lake Mentz (noors) 1970, Lake Mentz (noors) 1969, and Glenconnor respectively.

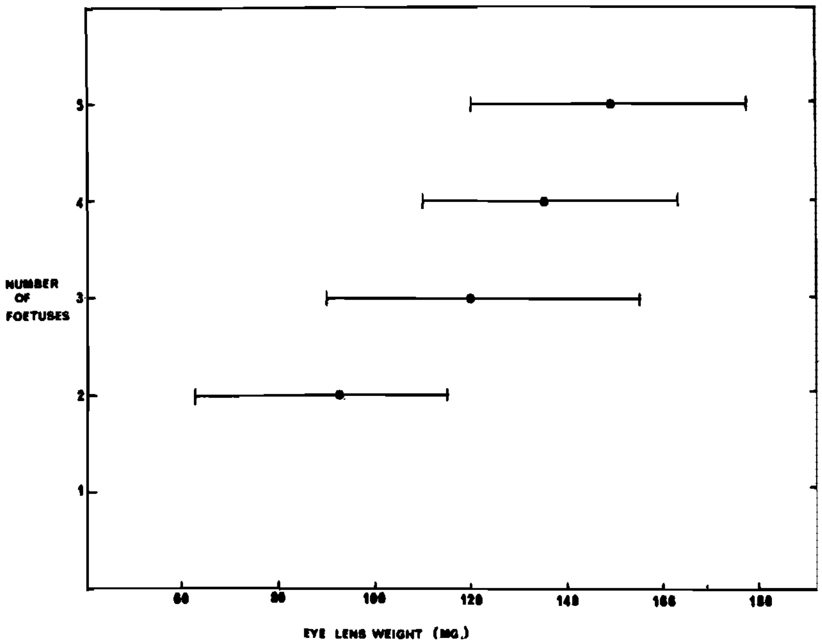

FIGURE 5
Litter size (number of foetuses, *in utero*) in relation to age (eye lens weight) of females from Lake Mentz (kloof). Horizontal "T" bars show the mean and range of the eye lens weights.

three very old captive females with extremely worn molars, one did not become pregnant and the other two had only one youngster each. Similarly, two old females caught at Lake Mentz (noors) also had only one foetus each. In general, females do not live beyond the age of reproductive ability.

Foetal growth

The mean weights of foetuses varied in litters collected at the same time of the year, depending on the size of the litters. Foetuses of smaller litters tended to be heavier than those of larger litters. For this reason growth of foetuses has been expressed in the form of total foetal litter weights in Fig. 2b. The slope of this curve ($a = 0{,}047$) is very similar to that of the theoretical growth curve calculated from the Huggett and Widdas formula (cf. Fig. 2b and 2a). Moreover, taking the modal date of conception at Lake Mentz as April 15th, the intercept value on the t-axis is 41 days as compared with 46 days in the theoretical curve.

Foetal growth appears to conform to the normal mammalian pattern and there is no suggestion of delayed implantation.

Birth weight and growth of young

The newly born dassies are precocious. Their eyes are open at birth, and within one day they are capable of agile movement about the rocks and begin to eat solid food. The mean birth weight was 195 g (range 110–310 g). Mean litter weight at birth was 581 g, but the range was considerably less (560 g–605 g). The birth weight of individuals depended to a large extent on the number of young in the litter. For example in a litter of two, the weights of the young were 310 and 260 g, in a litter of three, 200 g, 195 g and 170 g and in a litter of four, 110 g, 150 g, 160 g and 185 g.

Relative to body weight of the mother, litter weight is very high. Leitch, Hytten and Billewicz (1959) related the total birth weight (N) of young of a wide range of mammalian species to the premating weight (M) of the adult mother by the expression $N = 0{,}5408\ M^{0{,}8323}$. When the average premating weight of female dassies (2 600 g) is substituted in this expression the calculated litter weight at birth is 376,1 g. The actual mean litter weight of 581 g is thus 55% greater than the predicted value.

The mean weight of male dassies at birth was 231,2 g (S.E. ± 20,1) while the neonatal weight of females was significantly (P = 0,02) less (165 g ± 14,0). However, in adulthood the females were heavier than the males.

The growth rate of young dassies in the captive colony and those living in the wild was similar (Fig. 6a). By maintaining a tame dassie on a higher plane of nutrition it was possible to increase the growth rate considerably (Fig. 6a & b) so that it exceeded that of wild dassies. For example at the time of the first mating season at 4½ months of age this animal weighed 1 130 g, as compared with a mean of 682 g for wild dassies which were also more juvenile in appearance.

Lactation

Five months after conception the mammary glands (one pair pectoral and two pairs inguinal) are well developed and milk can be expressed. The young begin suckling soon after birth and are weaned from one to five months later. However, lactation ceased in the majority of females three months after parturition as shown by the absence of matted hair around the teats characteristic of suckling and the inability to express milk from the mammary glands. The few females that lactated for five months were in fact doing so during the following mating season. Since these females had copulated (spermatozoa in the vagina) and ovulated there does not appear to be a lactation anoestrus.

Puberty

All females were sexually mature at 16–17 months of age. However, 33,0% of 4–5 month old Lake Mentz (kloof) females, 25,0% of the Glenconnor and 14,1% of the Lake Mentz (noors) females reached puberty and conceived in the first season. This was surprising since these females weighed about 700 g and were more juvenile in appearance than 16–17 month old females (1 800 g in weight) and 29 month old or older females (2 200–3 600 g).

Only two males (Lake Mentz, kloof) had active testes during the first mating season and in general males only reached puberty during the next mating season when 16–17 months of age.

Population structure

The sex ratio remained even at birth and during the first two years of life, but in animals of more than two years of age there was an increase in the proportion of females (Table 5). These figures should be considered with caution however because at certain times of the year (e.g. during parturition) in one locality very few females were captured whilst in another

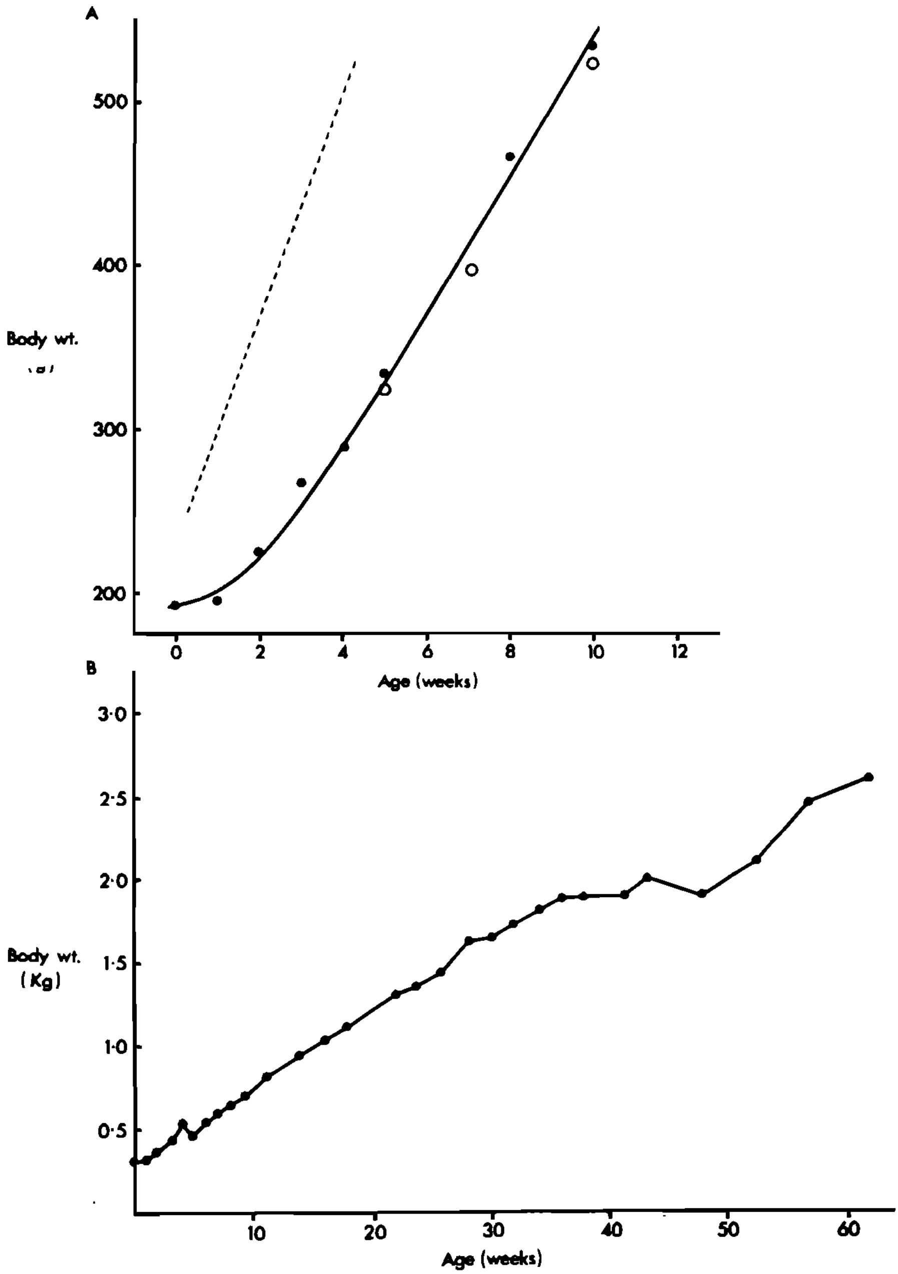

FIGURE 6

Growth of young dassies after birth.

a. Mean body weight of young dassies in the captive colony at Vrolijkheid (●), and wild dassies living at Lake Mentz (noors) (o). Broken line shows growth of a tame dassie over the same ten-week period.

b. Growth of a tame dassie over a period of 60 weeks.

nearby locality all the animals caught were males, suggesting that the sexes were segregated during parturition.

The relative percentage of the different age groups in the population is shown in Table 6. In the kloof area of Lake Mentz where the mean litter size was highest, one third of the population was less than one year old. In the drier areas of Lake Mentz (noors) and at Glenconnor however, the smaller mean litter size was reflected in decreased ration of animals of less than one year of age to adults of more than two years of age (Table 6).

DISCUSSION

It is evident from the present findings that both the male and female dassie in South Africa have a short period of sexual activity in the second half of the summer. In the southern extreme of the species range the mating season occurs in February. In the lower latitudes it occurs later and lasts longer so that in the most northern area studied it took place in June–July. Parturition follows a corresponding pattern and occurs in October in the south and February in the most northerly collection area. These observations agree with those of Van der Horst (1941) and Brand (1963) who reported a peak in the number of births occurring during November and December in the Karroo and southern Transvaal. In addition Bothma (1966) noted three week old young in the Cape in November, but his observation of "almost full term foetuses" in the Transvaal in June is somewhat surprising. It is possible that this single litter may have been the result of conception outside the mating season since Mendelssohn (1965) has reported this occurrence on one occasion in his captive colony. It appears that the timing of mating and parturition are not primarily triggered by rainfall or temperature annual changes, for these factors are very variable in different areas of South Africa. The pattern of change in breeding season with decreasing latitude strongly suggests that photoperiod is the proximate cause of seasonal sexual activity in the dassie. The fact that the majority of births among captive *P. capensis* in Israel (32°N) occurs in April (Mendelssohn 1965) exactly six months out of phase with dassies in the captive colony at Vrolijkheid (34°S) provides strong support for this suggestion. The ultimate cause of the timing of the mating season is more difficult to establish, particularly in view of the fact that birth takes place in the summer throughout the country and yet there is a complete reversal of rainfall season from winter in the Cape to summer in the Transvaal.

The 230-day gestation period calculated for captive females is similar to the earlier estimates of van der Horst (1941), Murray (1942), Mendelssohn (1965) and Sale (1965). In view of this exceptionally long gestation period for so small a mammal, the high litter weight and precocity of young is not surprising. A similar situation is found in many of the hystricomorph rodents which are relatively small mammals with long gestation periods and give birth to precocious young (Weir 1967, 1970). It is possible that the long gestation period of the dassie is an evolutionary vestige from the times when the ancestral forms were much larger. This hypothesis is supported by the fossil evidence which shows that the anatomically similar ancestral hyracoids (e.g. *Gigantohyrax maguirei*) were up to three times as large as the living species (Kitching 1966).

As a consequence of the long gestation period and relatively small size of dassies the specific foetal growth velocity (*a*) in the Hugget & Widdas expression is only 0,044 to 0,047 (Fig. 2a & b). In the course of studying a whole range of mammalian species these authors found that only the primates have such a low value (approximately 0,05) but more recent work on hystricomorphs and bats suggest that these too have low specific foetal growth velocities.

The variation in litter size of *P. capensis* in the different study areas (Table 4) and by other workers (Table 7) supports Sale's (1969) suggestion that there is a tendency for litter size to increase in the higher latitudes. However, the considerable variation in adjacent areas (cf. Lake Mentz, noors and kloof) and the marked change in litter size in the same area from year to year (cf. Lake Mentz, noors, 1969 & 1970) indicate that litter size may be modified by the prevailing environmental conditions. Zedja (1966) has come to a similar conclusion in studying litter size in bank voles living at different latitudes.

The decreases in litter size in the dassie were achieved primarily by a reduction in ovulation rate although an increase in prenatal mortality also occurred. If those foetuses lost during pregnancy are included in calculating the mean litter size of Lake Mentz (noors) females in 1969, the figure is still only 2,6 as compared with 3,4 for the Lake Mentz (kloof) females. Clearly adverse nutritional conditions influence litter size primarily by decreasing ovulation rate. These nutritional effects are probably mediated by the anterior pituitary. Allen & Lamming (1961) showed that PMS administration could overcome decrease ovulation rate resulting from undernutrition in ewes and found also that unfavourable nutritional regimens resulted in decreased release of gonadotrophins. Increased ovulation rate in female mammals maintained on a high plane of nutrition is well known in laboratory and domestic animals. Examples of this in wild animals are rare since most reports have noted litter size in relation to nutrition but do not mention ovulation rates. However, Ransom (1966, 1967) has observed an increased ovulation rate in white-tailed deer where they fed on crops during the mating season and Taber (1953) showed that the ovulation rate is higher in mule deer in better vegetated areas.

That the smaller litter-size in young and very old female dassies is a feature characteristic of many mammalian species, is evident when examining Asdell's (1964) lists of reproduction in mammals. Jones & Krohn (1961) explain this physiologically in terms of changing ovarian function. But as Lack (1948) points out, although physiological factors bring it about, natural selection has been the ultimate factor concerned in the regulation of litter size since among very young and old females the most productive litter-size tends to be smaller than in females in the prime of life.

Early attainment of puberty in wild and domestic animals on favourable nutritional regimens is well documented (see Sadlier 1969) and the dependence of age of puberty on nutrition is also indicated in the dassie. If puberty is not reached during the first mating season then it must be delayed until the following season. That there is considerable potential for enhanced growth rates in young dassies is shown by the more rapid growth of the tame dassie on a high plane of nutrition. The higher incidence of precocious puberty in the better vegetated Lake Mentz (kloof) area is probably a direct consequence of the higher quality of vegetation and it is significant that those dassies which reached puberty in their first year were generally heavier than those that did not. Thus, it appears that the time of the year when puberty may be achieved is determined by some environmental factor such as photoperiod, and the year in which it is in fact accomplished is dependent on nutrition and growth rate.

Earlier reports of the long gestation period, the relatively small litter size, and of a pubertal age of approximately two years indicated that the reproductive potential of *P. capensis* was not great. The reports of rapid increases in numbers of this species in South Africa were therefore difficult to understand. However, the present findings of an increased incidence of large litters in favourable environments, the precocious attainment of sexual maturity in a large percentage of 4–5 month old females as well as of the low neonatal mortality and relative absence of infertility in even old females, indicate that the reproductive capacity is far greater than had been previously thought.

Since the males and females are sexually active during a brief period of the year, the possible application of antifertility agents as a population control measure presents itself. Davis (1961) reviewed the principles of population control by gametocides and these have subsequently been applied to several mammalian species (e.g. fox, Linhart 1963). Where the dassie is confined to the rocky outcrop habitat the use of antifertility compounds appears to have distinct possibilities in selective control of reproduction in this species. In the Cape province the vegetation is very poor during the mating season and baits placed in dassie pathways are readily eaten. Experiments to test the effects of antifertility agents incorporated in these baits on dassie reproduction have been undertaken, and preliminary results suggest distinct possibilities of practical application.

SUMMARY

Rock hyraxes (or dassies) were collected throughout the year during 1968–1970 in selected study areas in South Africa. Both males and females were sexually active during a restricted period of the year. This occurred in March in the southern Cape but later and with longer duration in lower latitudes. Parturition followed a similar pattern with a 230 day gestational length delay.

Foetal growth conformed to the normal mammalian pattern and was represented by the expression $\sqrt[3]{W} = 0{,}047\,(t-41)$, where W is the total foetal weight and t the gestational age.

Transuterine migration of ova occurred in 25% to 72,7% and mean litter size varied from 1,5 to 3,5 in females from different localities. Litter size tended to increase with age of females. Prenatal mortality was observed in 4,3% to 24,3% of females.

Mean weight of young at birth was 195 g but was more variable than mean litter weight which was 581 g. Males were significantly heavier at birth than females.

Lactation lasts for up to five months although most young are weaned at three months.

All animals become sexually mature at 16–17 months of age but up to one-third of females and a few males reached puberty four to five months after birth.

There is no disparity between the numbers of males and females *in utero*, at birth and up to two years of age, but in older animals there is a marked decrease in the proportion of males.

The results are discussed in relation to the population increase and the reproductive potential of *P. capensis* in the Cape Province of South Africa.

ACKNOWLEDGMENTS

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TABLE I

MATING SEASON OF DASSIES IN VARIOUS STUDY AREAS IN SOUTH AFRICA

Area	*Latitude*	*Period of Testicular Enlargement*	*Status of female*	*Dates of observation of mating*	*Approximate mating season*
De Hoop	34° 35′ S	February	S, O, F in February	—	February
Gouritzmond ..	34° 30′ S	—	—	—	February/ March
Montagu	33° 50′ S	February	S, O in February	mid-February	February/ March
Vrolijkheid ..	33° 50′ S	February/ March	S, O in February	February	February/ March
Glenconnor ..	33° 20′ S	March	S, F in March	—	March/April
Lake Mentz ..	32° 55′ S	March/ April	S, O in April	—	March/April
Waterfall	32° 30′ S	March	S, O in March	—	March/April
Willem Pretorius ..	28° 2′ S	March, April/May	Blastocysts found in May	—	March/ April/May
Percy Fyfe.. ..	24° 1′ S	June	—	—	June/July

S Spermatozoa in the vagina O ovulations F fully developed follicles

TABLE 2

BIRTHS AT LAKE MENTZ (NOORS) IN DIFFERENT MONTHS

Date	*Number of females examined*	*% of females which had given birth*	*% of females which had given birth since previous collection*
13/10/69	6	0	0
11/11/69	8	25	25
4/12/69	10	90	65
14/1/70	10	100	10

TABLE 3

DISTRIBUTION OF BIRTHS IN VARIOUS COLLECTION AREAS, CALCULATED FROM TOTAL FOETAL LITTER WEIGHT

	Number of births in the first and second half of each month													
Area	*Sept.*		*Oct.*		*Nov.*		*Dec.*		*Jan.*		*Feb.*		*Mar.*	
Vrolijkheid	–	1	2	8	1	–	–	–	–	–	–	–	–	–
Lake Mentz	–	–	–	1	10	19	6	–	–	–	–	–	–	–
Willem Pretorius ..	–	–	–	1	4	5	1	1	1	1	–	–	–	–
Percy Fyfe	–	–	–	–	–	–	–	–	–	2	7	2	2	–

TABLE 4

LITTER SIZE, PRENATAL MORTALITY, TRANS-UTERINE MIGRATION OF OVA AND PUBERTY IN FEMALE DASSIES IN DIFFERENT LOCALITIES

Area	*Latitude*	*Months of collection*	*Mean litter size*	*% litters with foetal loss*	*% Foetuses lost*	*% Females showing trans-uterine migration of ova*	*% of females conceiving at 5 months of age*
De Hoop*	34° 35′ S	—	3,5	—	—	—	—
Gouritzmond ..	34° 30′ S	July	2,2	—	—	50,0	—
Montagu	33° 50′ S	June/July	1,5	—	—	33,3	—
Vrolijkheid* ..	33° 50′ S	Complete season	3,3	—	—	—	—
Glenconnor.. ..	33° 20′ S	September	2,2	24,3	10,0	54,0	25,0
Willem Pretorius ..	28° 2′ S	Complete season	3,0	—	—	—	—
Percy Fyfe	24° 1′ S	September	1,8	15,4	9,0	42,9	7,7
Lake Mentz.. ..	32° 55′ S						
Kloof (1969)† ..		June	3,4	4,3	1,4	43,5	33,3
Noors (1969)ø ..		August	2,4	18,1	7,7	72,7	
,,		Sept./Oct./Nov.	2,6 } 2,5	11,1	5,9	44,4	} 14,1
,, ..		December	2,5	—	—	—	—
Noors (1970)ø ..		April/May	2,1	7,2	3,3	25,0	—

* Captive colonies. † Well vegetated hillsides. ø Poorly vegetated noorsveld

TABLE 5

SEX RATIOS IN DIFFERENT AGE GROUPS

Area	*Less than 1 year*		*1–2 years*		*More than 2 years*	
	No.	*No.*	*No.*	*No.*	*No.*	*No.*
Lake Mentz (kloof) ..	7	8	6	7	6	15
Lake Mentz (noors) ..	17	16	6	9	9	21
Glenconnor	19	15	24	21	27	35
Total Sex Ratio..	1 : 1,06		1 : 1,03		1 : 1,50	

TABLE 6

RATIO OF THREE AGE GROUPS OF DASSIES IN VARIOUS COLLECTION AREAS

Area	*Number of animals*	*Less than 1 year*		*1–2 years*		*More than 2 years*
Lake Mentz (kloof) ..	307	1,00	:	0,94	:	1,00
Lake Mentz (noors) ..	91	0,63	:	0,41	:	1,00
Glenconnor	57	0,61	:	1,11	:	1,00

TABLE 7

LITTER SIZE OF *Procavia capensis* REPORTED IN THE LITERATURE

Area and reference	*Mean litter size*	*No. of litters collected*
Cape (van der Horst 1941)	3,3	114
Cape (Sale 1969)	3,2	9
Israel (Mendelssohn 1965)	3,2	36
Giza (Flower 1932)	2,6	14
Transvaal (Brand 1963)	2,2	66
Malawi (Thursby-Pelham 1924)	2,0	9

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