ENCYCLOPEDIA OF AUSTRALIAN REPTILES

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Introduction

The **Encyclopedia of Australian Reptiles** is an attempt to summarise all the biological information on the reptiles of Australia that may be of interest to a general reader as of August 2006. It is intended for herpetologists and naturalists; students at a secondary, tertiary and post-graduate level; researchers, and bureaucrats involved with Australian reptiles.

The Encyclopedia does not aid in the identification of Australian reptiles. For this, one of the many good Australia-wide or regional guides should be consulted.

The Encyclopedia offers special assistance to New South Wales users (its ultimate supporters) in listing species that occur in this state in blue, whereas all other species are listed in red. Also, the only maps available to date are those for species that occur in New South Wales.

Using the Encyclopedia

The easiest way to use the Encyclopedia is to ‘word search’ it for the name of any taxonomic group, say a particular species, or any concept, say, ‘sexual dimorphism’.

How to Cite the Encyclopedia

The Encyclopedia should be cited as follows.

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Encyclopedia of Australian Reptiles - Gekkonidae

Carphodactylus laevis

Distribution. The species occurs in northeastern Queensland.

Altitudinally, the species ranges from 150 to # m above sea level (Torr, 1998).

Habitats.

Seasonal activity.

Daily activity. The gecko has been seen out in the open only at night (Schaffer and Tantar, 2005).

Diet.

Seasonality of reproduction.

Clutch size.

Predators.

Foraging behaviour. A gecko seen out at night perched lengthwise along the open trunk of a sapling may have been in an ambush position; that is, waiting from its elevated perch for some potential prey on the ground (Schaffer and Tantar, 2005).

Parasites.

Literature. Torr, 1998; Schaffer and Tantar, 2005.

Christinus alexanderi

Distribution. The species is endemic to the Nullarbor Plain (Donnellan *et al*., 2000: fig. 7).

Habitat.

Activity. The species shelters under rocks (Donnellan *et al*., 2000).

Diet.

Reproduction. Testes volumes in males are largest from mid-summer to mid-autumn (January-May) whereas females yolk follicles from mid-winter to spring (July-October) and carry oviducal eggs in spring (September-October). This suggests that mating may occur in summer and autumn and females carry sperm over winter, their eggs being fertilised upon ovulation in early spring (Donnellan *et al*., 2000).

Chromosomes. The species has a diploid karyotype of 2n = 36, with a heteromorphism in either pair three or four in both sexes (Donnellan *et al*., 2000).

Literature. Donnellan, Aplin and Dempsey, 2000.

Christinus guentheri

Distribution. The species occurs only on Lord Howe Island and the small associated islands of Ball's Pyramid, Mutton Bird I., Rabbit I. (Goat I.), Roach I. (Cogger, 1971) and on Norfolk Island's small associated islands of Bird Rock, Moo'oo Rock, Nepean I. and Philip I. but apparently not on Norfolk I. itself (Cogger *et al*., 1983).

Habitat. On Lord Howe Island, the species occurs in and under rocks on the litter strewn floor of *Howea* palm forests (Cogger, 1971). In the Norfolk Island complex, it occurs in both barren and vegetated areas

Activity. The species is nocturnal in its surface activity and by day is usually found sheltering under rocks (Cogger, 1971; Cogger *et al*., 1983), holes in honeycombed rocks (Cogger, 1971), under timber (Cogger *et al*., 1983) and in earth cracks and crevices (Cogger *et al*., 1983). Where both ground cover and trees occur, it appears that the animals shelter during the day under ground cover and then move into the trees during the night to feed.

Temperature relationships. The geckos can be found active at night at air temperatures as low as 18.4º C (Cogger *et al*., 1983). Body temperatures of active geckos ranged 18.4-23.5º C, with recorded means of 19.0º and 21.5º on two different island and under slightly different conditions.

Diet. In the wild, the species eats nectar and this taste for sweet things is presumably the basis for the species also eating refined and raw sugar if given the opportunity (Cogger *et al*., 1983). It also eats a variety of invertebrates such as amphipods (terrestrial), insects, centipedes and spiders (Cogger *et al*., 1983).

Reproduction. On Lord Howe Islands, females are not gravid in June, although there are developing eggs in laying sites (Cogger, 1971). In the Norfolk Island complex, females can be gravid in mid-spring (November) (Cogger *et al*., 1983).

The species lays eggs (Cogger, 1971; Cogger *et al*., 1983).

A presumably field-caught animal from the Norfolk Island complex laid an egg in late spring (9 December)(Cogger *et al*., 1983).

Clutch size. In the Norfolk Island complex, clutch size ranges 1-3 with a mean of 1.3 (Cogger *et al*., 1983).

Nesting sites. On Lord Howe Island, the species lays its eggs in cavities in rock. Both fresh and old eggs often occur together, and the eggs often adhere to one another and to the rock (Cogger, 1971).

In the Norfolk Island complex, the species lays under rock or timber on the ground (Cogger *et al*., 1983). Nests can contain up to seven viable eggs, which indicates that the species lays communally (Cogger *et al*., 1983).

Eggs. Eggs range 13.4-15.9 mm (mean = 14.4 mm) in length and 11.9-13.6 mm (mean = 12.8 mm) in width and weigh 0.99 -1.62 g (mean = 1.33 g)(n = 20)(Cogger *et al*., 1983). These eggs were not necessarily freshly laid, but the largely impervious, calcareous shells of the species' eggs make it unlikely they would have changed much in dimensions or mass.

Incubation. Eggs found in the wild on Lord Howe Island and maintained in a laboratory under ambient temperatures (estimated range 19-29º C with a mean of 21º C) took 30-39 weeks to hatch (Cogger, 1971). This suggests an unusually slow rate of development. However, a egg laid by a female from the Norfolk Island complex and incubated at 25º C hatched in 91 days (13 weeks) (Cogger *et al*., 1983).

Hatchlings. Two hatchlings from Lord Howe Island measured 30 mm in snout-vent length (Cogger, 1971), and six hatchlings from the Norfolk Island complex measured 28.5-31.5 mm (mean = 30.4 mm) in snout-vent length and weighed 0.70-0.97 g (mean = 0.83 g) (Cogger *et al*., 1983).

Sex ratio. The sex ratio among adults on Nepean I. and Philip I. in the Norfolk Island complex, was not significantly different from parity (Cogger *et al*., 1983).

Size. In the Norfolk Island complex, the largest measured specimen was a male with a snout-vent length of 102 mm and the heaviest specimen was also a male with a mass of 29.5 g (Cogger *et al*., 1983).

Plots of body mass on snout-vent length have been provided for males and females from Nepean and Philip Islands in the Norfolk Island complex (Cogger *et al*., 1983).

Predators.

Parasites. The species' only recorded endoparasites are nematodes (round worms)(Johnston and Mawson, 1943; Mawson, 1971).

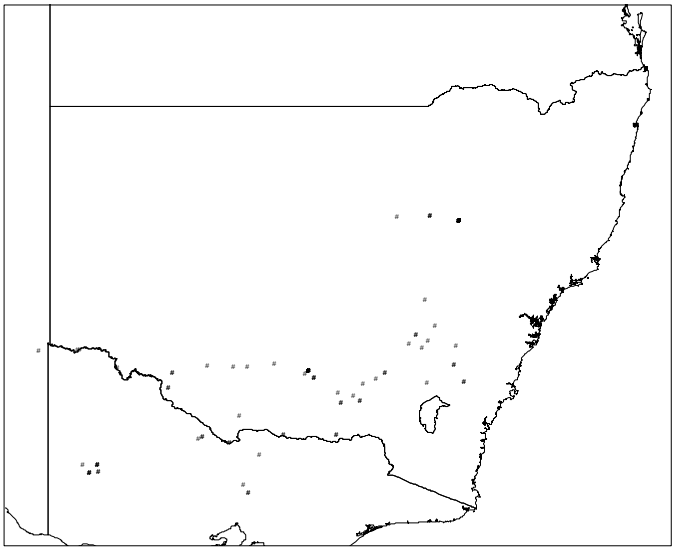
Literature. Boulenger, 1885; Etheridge, 1889; Ogilby, 1889; Johnston and Mawson, 1943; Mawson, 1971; Cogger, 1971; Mawson, 1971; Cogger, Sadlier and Cameron, 1983.

Christinus marmoratus

Distribution. The species ranges along the southern parts of the mainland from northeastern New South Wales to southwestern Western Australia. It occurs on a number of small off-shore islands including in South Australia, Greenly I. (King and Rofe, 1976), Hopkins I. (Hudson, 1981), Kangaroo Island (King and Rofe, 1976) and Pearson I. (King and Rofe, 1976) and in many islands in Western Australia, (Storr, 1987).

In the Western Australia, the species extends further north along the coast than it does inland (Storr, 1987: fig. 3), presumably in response to the cooler temperatures due to the proximity to the sea.

The species' distribution in New South Wales based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.



Habitats. The species occurs in a variety of habitats including open shrubland (Kearney, 2002), sclerophyll forest (Daniels *et al*., 1986) and riverine woodland (King and Rofe, 1976).

Daily activity. The species is nocturnal in its activity in the open. During the day it shelters under rocks on rock (Ehmann, 1976; King and Rofe, 1976; Kearney and Predavec, 2000; Kearney, 2001, 2002), rock on gravel or soil (R. Hughes, in Bustard, 1965c), or under the exfoliating bark of tree trunks (Ehmann, 1976; King and Rofe, 1976; Doughty and Thompson, 1998; Thompson and Russell, 1999). When it occurs in areas of both rocks and trees, it generally shelters under rock by day and forages in trees by night (Kearney and Predavec, 2000; Kearney, 2002).

Density. In an *Acacia* shrubland in rocky country, the species may reach densities of 150 per hectare (Kearney and Predavec, 2000; Kearney, 2002).

Aggregations. The species sometimes occurs in aggregations, which may number up to ten individuals (Kearney *et al*., 2001). These seem to be more common in spring (Kearney, 2002).

Thermal relations. Although the species stays under cover during the day, it probably thermoregulates by taking advantage of the thermal mosaic in its shelter (Kearney and Predavec, 2000; Kearney, 2002).

The geckos also seem to go though seasonal shifts in their shelter sites, presumably as part of their attempt to regulate their body temperatures (Kearney, 2002). In a population in central Victoria, the geckos tended to shelter under rocks in spring but then move to crevices in

summer (Kearney and Predavec, 2000; Kearney, 2002). In this population, the lowest body temperature at which an individual was observed foraging was 7.9º C and the highest body temperature recorded was 34º C (Kearney and Predavec, 2000).

In the field in southwestern Australia, mean body temperature during the day was 19.6º C (n = 5) and during the night 14.1º C (n = 7)(Froudist, 1970, as reported in Angilletta and Werner, 1998).

In the laboratory, the geckos shelter between rock slabs, and if the upper slab is suitably warm, they will raise their heads and backs to contact the slab and presumably gain heat through conduction (Kearney, 2001). Prior to raising their backs against the overlying slab, the geckos often contact the underside of the slab with their snouts as if testing the temperature (Kearney, 2001).

In artificial thermal environments, the geckos have mean body temperatures that range 23.6 – 27.8º C (Licht, Dawson, Shoemaker and Main, 1966; Daniels, 1984; Kearney and Predavec, 2000; Kearney, 2001; Angilletta and Werner, 1998). The highest body temperature that the gecko voluntarily tolerates is 31º C (Kearney and Predavec, 2000). The lowest body temperature it can not survive is 43.5º C (Licht, Dawson and Shoemaker, 1966).

In a laboratory thermal gradient, there was no significant difference between the diurnal (27.6º C) and nocturnal (27.8º C) preferred body temperatures, the overall mean being 27.7º C (Angilletta and Werner, 1998).

Vocalisation. Although most other Australian gekkonine geckos vocalise, observers who are familiar with the species note that it apparently does not vocalise (Annable, 1983).

Diet. In captivity, the geckos can be maintained on crickets (Kearney and Predavec, 2000), fruit flies (Daniels, 1983; Daniels *et al*., 1986) and domestic flies (Bustard, 1965c).

When the geckos are maintained at 10º C with no food but unlimited water, they die after losing about 22-23 percent of their total mass if they have tails (complete or regenerated) or after losing about 17.5 percent if they lack tails. Under these same conditions, geckos with tails live significantly longer than geckos without tails, about 112 days (n = 12) vs 49.2 days (n = 10). This shows the importance of the energy, probably mostly as fat, stored in the tail (Daniels, 1984).

In response to a standard “pull”, freshly-caught geckos lose their tails more quickly than starved geckos in captivity (Daniels, 1984). Assuming that starvation is the critical difference (and not some other condition of captivity, such as fear), it would appear that geckos that are losing condition hang onto their remaining energy stores longer than do those in better condition.

Fat storage. The percent of the dry body weight represented by fat increases in both the body and the tail with snout-vent length, and the rate of increase is faster in the tail than in the body (Daniels, 1984:fig. 3). At hatching, the young have fat in the body but none in the tail (Daniels, 1984). Consequently, fat as a proportion dry tail mass is significantly less in juveniles than in adults (Daniels *et al*., 1986).

Courtship and mating. Based on analysis of reproductive state of preserved specimens, it appears as if there are two different mating seasons, depending on location. In at least one River Murray population, mating probably occurs between late spring and early autumn (November-April), and females store the sperm until they ovulate the following spring (King, 1977). However, in the eastern part of the disjunct distribution in western Australia, mating probably occurs in spring, about the time of ovulation in females (How *et al*., 1987 as reanalysed by Donnellan *et al*., 2000). These two populations also have different karyotypes. The eastern population has a female sex chromosome, but the western population lacks such a chromosome.

In sperm storing populations, the sperm pass the winter in longitudinal lamellae in the posterior part of the oviduct (King, 1977).

Reproduction. In southwestern Western Australia, females are mature at a snout-vent length of at least 45 mm (Bustard, 1965c).

Along the River Murray in South Australia, gravid females occur between early and late spring (early October-mid-December) (King, 1977; Thompson and Russell, 1999) and have a mean snout-vent length of 54.7 mm (n = 40) (Doughty and Thompson, 1998).

In South Australia, the species may lay as early as early spring (16 September).

In central Victoria, the species lays in spring (Kearney, 2002). At this time, as many as 90 percent of mature female are gravid (Kearney and Predavec, 2000).

Once the eggs are ovulated into the oviduct, it probably takes 2-3 days for the shell to be laid down (King, 1977). In the laboratory at 23º C, the shelled eggs are held in the oviduct for about 12 days (King, 1977).

Frequency of reproduction. It has been asserted by an experienced researcher on the species that the it lays only one clutch per season (Daniels, 1983), however no further details are available.

Clutch size. This is one of the few species of gecko that frequently lay either one or two eggs in a clutch, instead of almost always laying either one or two (Bustard, 1965c; Doughty and Thompson, 1998). Among 40 females from South Australia, 27.5 percent laid one egg and 72.5 percent laid two eggs (Doughty and Thompson, 1998; see also Thompson and Russell, 1999). One female laid two eggs and 26 days later laid a single egg (Doughty and Thompson, 1998). What determines the clutch size either within or among individuals is unclear.

Relative clutch mass. The relative clutch mass for eggs from clutches with one egg averages 0.185 and for eggs from clutches with two eggs averages 0.341 (Doughty and Thompson, 1998).

Communal nesting. The species lays communally, with as many as 30 found in a single nest (Ehmann, 1976). The same nest is probably used over more than one season (Hudson, 1981).

Nest sites. The nests are on the ground (Hudson, 1981), often under rocks (Kearney, 2002).

Eggs. Measurements and masses of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
11.0-13.7	-	-	9.0-10.0	-	-	-	-	-	King, 1977
-	-	-	-	-	-	0.50-0.77	0.63	74	Thompson and Russell, 1999
-	-	-	-	-	-	-	0.63	40	Doughty and Thompson, 1998
12.5-14.0	13.4	4	9.5-10.0	7.3	4	0.67-0.69	0.68	4	Bustard, 1965c

There is no significant difference in mean egg mass between eggs from clutches of one or two (Doughty and Thompson, 1998).

There is a significant positive correlation between mean egg mass and female post-laying mass, both within a clutch size of one or two and among all clutch sizes (Doughty and Thompson, 1998). In other words, heavier females produce heavier eggs.

Freshly laid eggs contain embryos at Dufaure and Hubert (1961) stage 26/27-29 with most being at stage 27 or 27/28 (Thompson and Russell, 1999).

The water content of the freshly laid egg (not including shell) has a mean of 77.9 percent (n = 10). This seems to be higher than the few species of lizards for which there are comparable data (Thompson and Russell, 1999) but could be another distinctive feature of the hard-shelled eggs of gekkonine geckos.

Relative clutch mass. The relative clutch mass for two females laying two eggs each ranged 0.31-0.34 (mean = 0.325) (Bustard, 1965c, 1967).

Incubation. Incubation periods are different temperatures are summarised below.

Incubation Temp (° C)	Incubation Period (days) Range	Mean	N	Reference
-	207	207	2 or 4?	Waite, 1929
“room”	70-87	-	-	King, 1977
25	79-84	81.4	18	Thompson and Russell, 1999
25	85-92	88.3	3	Bustard, 1965c

Eggs collected from a communal nest in the wild hatched in six weeks (Ehmann, 1976), although the incubation conditions were not specified.

During incubation, the eggs loose very little water as expressed by only a slight decrease in mass (Thompson and Russell, 1999). This is contrast to most lizards eggs and probably shows the degree to which the hard-shelled eggs of this and probably other gekkonine geckos (e.g., *Gehyra*, *Heteronotia* and *Lepidodactylus* in Australia) can conserve water.

Development. During development, embryos put on mass exponentially, but the upturn in the curve does not occur until about day 50 in a 79-84 incubation period, that is, not until about 59-63 percent of the total incubation period (Thompson and Russell, 1999; fig. 2).

During development, the water content of embryos falls exponentially but the downturn in the curve starts at about day 60 (Thompson and Russell, 1999; fig. 3). At hatching, the water content as a proportion of wet total mass of the young ranges 65.4-77.4 percent (mean = 70.6 percent, n = 14)(Thompson and Russell, 1999).

The metabolic rate of developing embryos is a very gentle sigmoid curve, the final rate being about 9 μL/h (Thompson and Russell, 1999).

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
26	26.0	2	52-53	52.3	3	0.45-0.48	0.46	3	Bustard, 19675c
-	-	-	-	-	-	0.36-0.57	0.47	14	Thompson and Russell, 1999

There is a significant positive correlation between hatchling mass and egg mass (Doughty and Thompson, 1998). In other words, larger eggs produce larger hatchlings.

Hatchlings have brightly coloured tails featuring orange-red markings (Bustard, 1965c). The function of this bright tail colour is unknown (Bustard, 1965c).

Sex ratio. The number of mature males and females was not significantly different in a population in central Victoria (74:63) or on Sandy Hook Island in Western Australia (42:41)(Kearney *et al*., 2001).

Sexual dimorphism. There is significant sexual dimorphism in snout-vent length in two well-studied populations at the opposite ends of the species' range. On both Sandy Hook Island off the south coast of Western Australia and in central Victoria, mean snout-vent length is larger in females than males (Kearney *et al*., 2001).

Chromosomes. Large sections of the wide distribution of this gecko are characterised by distinctive karyotypes. In the southeastern part of the country, the diploid chromosome number is 36 with no sex chromosomes. However, along the River Murray there is a population that has chromosome pair four heteromorphic in females; that is, females have a sex chromosome. In the southwestern part of the country there are three different karyotypes. Roughly from north to south and from larger to smaller overall areas, these are a diploid chromosome number of 36 (similar to that in the east), 34 and 32, none with sex chromosomes (King and Rofe, 1976; King, and King, 1977; Donnellan *et al*., 2000). The diploid 36 with sex chromosomes appears to be ecologically distinct in only occurring in riverine woodland and not occurring under rocks (King and Rofe, 1976).

Predators.

Defence. In captivity, when a gecko is approached by a small mammalian predator, it may respond in one of several ways: remain motionless, vibrate the tail laterally against the substrate, vocalise, defecate or run (Daniels *et al*., 1986).

The ability to drop the tail, or tail autotomy, is probably one of the most important responses in escaping predators (Daniels *et al*., 1986). In this regard it is interesting to note that in response to a standard "pull" at temperatures between 5 and 20 C, juveniles loose their tails more quickly than do adults. This may be due to the lesser relative amount of fat in the tails of younger animals than in older animals and hence the loss of resources can be more readily endured. At temperatures between 25 and 35 C, there is no significant difference between the two age groups (Daniels, 1984).

Locomotion. Geckos that have lost their tails run nearly twice as fast on average than geckos with tails, either original or regenerated between which there was no significant difference (Daniels, 1983). Mean running speed for adult geckos with tails (both original and regenerated)(n = 39) was 0.93 m/s (3.35 km/h) and mean running speed for geckos with recently autotomised tails (n = 20) was 1.75 m/s (6.3 km/h)(Daniels, 1983). The tail probably plays no important role in locomotion. Indeed, it may simply add to the load from the point of view of locomotion, as it comprises a mean 21.2 percent (regenerated) or 23.92 percent (original) of total weight (Daniels, 1983).

Parasites. The species' recorded parasites include cestodes (tapeworms)(Angel and Mawson, 1968), nematodes (round worms) (Angel and Mawson, 1968; Mawson, 1971) and trematodes (flukes)(Mawson, 1971).

Literature. Gray, 1845; Waite, 1929; Bustard, 1963 (as *Phyllodactylus porphyreus*); Bustard, 1965c; Licht, Dawson and Shoemaker, 1966; Licht, Dawson, Shoemaker and Main, 1966; Bustard, 1967; Angel and Mawson, 1968; Mawson, 1971; Ehmann, 1976; King and Rofe, 1976; King, 1977; King and King, 1977; Daniels, 1981; Hudson, 1981; Daniels, 1983; Daniels, 1984; Daniels, Flaherty and Simbotwe, 1986; How, Dell and Gordon, 1987; Annable, 1995a; Angilletta and Werner, 1998; Doughty and Thompson, 1998; Thompson and Russell, 1999; Donnellan, Aplin and Dempsey, 2000; Kearney and Predavec, 2000; Kearney, 2001; Kearney, Shine, Comber and Pearson, 2001; Kearney, 2002.

Crenadactylus ocellatus

Distribution. The species is widely distributed in the western part of Australia (Dixon and Kluge, 1964: fig.4; Storr, 1978: fig. 1).

It also occurs on various islands off western Australia: Bernier (Dixon and Kluge, 1964), Cervantes (Northern and Southern) (Dixon and Kluge, 1964), Dolphin (Dixon and Kluge, 1964), Dorre (Dixon and Kluge, 1964), Escape (Dixon and Kluge, 1964), Faure, Heywood (Storr, 1978), Long (Dixon and Kluge, 1964), Middle (Dixon and Kluge, 1964) and West Wallabi (Dixon and Kluge, 1964).

The species occurs between sea level and c. 975 m (3200 ft.) (Dixon and Kluge, 1964).

The species shows variation in morphology and ecology that is geographically concordant, and some of the regional populations have been recognised as subspecies (Lucas and Frost,

1895; Storr, 1978). However, it is very likely that molecular work will show that at least some of these subspecies and perhaps other unnamed populations are in fact distinct species.

Habitats. The species has been found in the following habitats: rock platforms and sandplains with hummock grass (Shea *et al.*, 1988) and tall open heath with hummock grass (Maryan, 1996).

The species almost always occurs in areas with hummock grass.

Shelter sites. The species often shelters in hummock grass (Shea *et al.*, 1988), under rocks (Dixon and Kluge, 1964) and occasionally under logs (Dixon and Kluge, 1964). It also occurs under building materials (Maryan, 1996).

Daily activity. The species is exclusively nocturnal. It is both ground dwelling (Maryan, 1996) and a climber in hummock grass.

Diet.

Seasonality of reproduction. Two small specimens (16.0-16.5 mm) with fresh umbilical scars found in mid-summer (January) suggest that hatching occurs about this time (Shea *et al.*, 1988).

Clutch size.

Maximum size. The largest measured specimen had a snout-vent length of 37.2 mm (Dixon and Kluge, 1964).

Predators.

Parasites.

Literature. Gray, 1845 (partly as *Diplodactylus bilineatus*); Günther, 1867; Boulenger, 1885; Lucas and Frost, 1895, 1896 (as *Ebenavia horni*); Dixon and Kluge, 1964; Bustard, 1965; Storr, 1978; Shea, Weigel, Harwood, Floriana and Hemsley, 1988; Maryan, 1996.

Cyrtodactylus louisiadensis

Distribution. The species occurs in New Guinea, the Solomon Islands and Australia. In Australia it occurs only along the east coast of central Cape York Peninsula.

Habitat. The species occurs in a variety of habitats including moist closed forest (Anthony, 1998). It usually occurs off the ground on rock (Anthony, 1998).

The species sometimes lives in human structures (Willcox, 1999b; R. Whiston, in Naylor, 2000).

Daily activity. The species is active only at night (R. Whiston, in Naylor, 2000).

Diet. In the wild, the species eats a variety of vertebrates including frogs (Willcox, 1999b) and geckos (R. Whiston, in Naylor, 2000). See also Covacevich *et al*., 1996.

Foraging behaviour. The observation of an individual leaping from a wall to a floor to attack a gecko and then return to an elevated position to eat suggests that waiting above the ground for passing prey may be a regular foraging strategy (R. Whiston, in Naylor, 2000). The gecko will push large prey against a solid surface in order to help subdue and manipulate it for swallowing (R. Whiston, in Naylor, 2000).

Seasonality of reproduction.

Clutch size.

Predators.

Parasites. The species' recorded endoparasites include cestodes (tapeworms) (Bursey *et al*., 2005) (Bursey *et al*., 2005) and nematodes (round worms) (Bursey *et al*., 2005).

Literature. Covacevich, Couper, Monteith, Jago, Janetzki and Roberts, 1996; de Vosjoli, 1996; Anthony, 1998; Naylor, 2000; Hatton, 2004; Bursey, Goldberg and Kraus, 2005.

Diplodactylus byrnei

Distribution.

Habitat.

Activity. The species shelters in cricket and spider burrows (Henle, 1996).

Diet.

Reproduction. In northwestern New South Wales, females are gravid in late spring (November) (Henle, 1996).

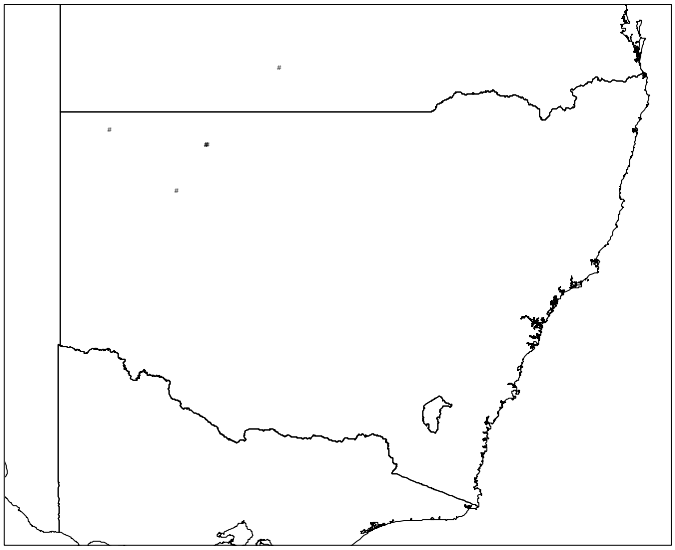
Clutch size. The species usually lays two eggs (Henle, 1996).

Literature. Henle, 1996; Maryan, 1996.

Diplodactylus conspicillatus

Distribution. The species is widespread throughout much of the arid and semi-arid parts of central and northern Australia.

The species' distribution in New South Wales based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.



Habitats. The species occurs in chenopod shrublands (Read and Badman, 1990) and chenopod open woodlands (Jones, 1991) growing on firm soil substrates (Jones, 1991).

Daily activity.

Shelter sites. The species shelters in spider burrows (Mascord, 1980). In captivity, it enters artificial burrows head first and then backs up to the level of the surface. As it does so, the end of the tail is folded toward the head, leaving the curled top side of the tail as a burrow plug (Baker and Brattstrom, 1996). Plugging a burrow in this manner presumably not only protects the gecko from some small predators but also allows the humidity in the burrow to rise and thereby help reduce water loss through respiration (Bustard, 1970).

Thermoregulation. The mean body temperature of 83 active geckos was 28.0° C (Pianka, 1986).

Diet. In the wild, the species eats a wide variety of arthropods (Pianka, 1986).

Seasonality of reproduction. In central South Australia, gravid females occur between at least mid-spring and mid-summer (October-February), but females with yolking follicles may even occur as late as mid-summer (February) (Read, 1999).

Clutch size. Clutch size averages 2.0 (n = 18) (Pianka, 1986).

Frequency of reproduction. Some females at least are probably capable of producing more than once in one season and also capable of reproducing in at least three successive seasons (Read, 1999).

Clutch size. Clutch size is almost invariably two, but occasionally one (Read, 1999).

Hatchlings. Snout-vent length in hatchlings ranges 24-26 mm (n = 3) and mass ranges 0.3-0.4 g (n = 3) (Read, 1996).

Growth. Mark-recapture studies in central South Australia indicted that females mature within one year, that is, they lay eggs in the activity season following the activity season of their own hatching (Read, 1999).

Size at sexual maturity. Sexual maturity can be attained at a snout-vent length as small as 50 mm (Read, 1999).

Longevity. In the field, the species can live as long as 1152 days (3.15 years) (Read, 1999).

Sexual dimorphism. In terms of both snout-vent length and mass, females are significantly larger than males (Read, 1999). The mode and maximum snout-vent length in central South Australia is 48 and 57 mm for females and 53 and 61 mm for males (Read, 1999).

Predators.

Defence. When handled, captive geckos inflate their bodies, defecate and push at the grasping fingers with the tail.

When simply threatened in captivity, the geckos lower their heads and either wave slowly their raised tails or raise them above the back. When touched, they often wiggled the tail while holding the head still (Baker and Brattstrom, 1996).

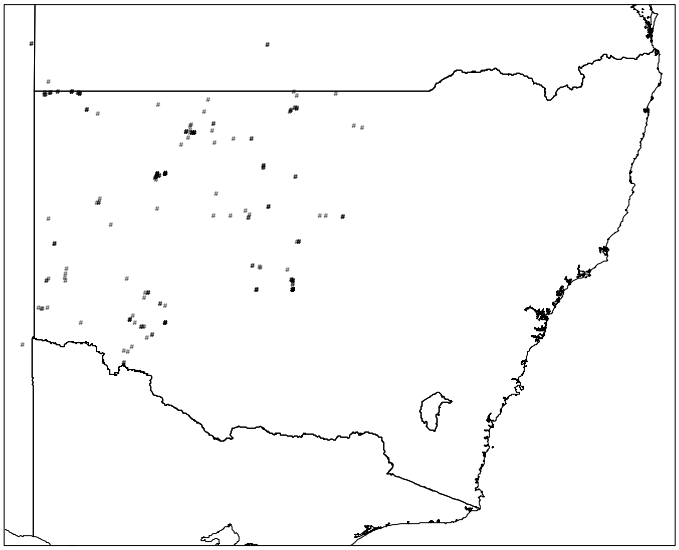
Parasites. The species' recorded parasites include cestodes (tapeworms) (Goldberg and Bursey, 2001) and nematodes (round worms) (Jones, 1995b; Goldberg and Bursey, 2001).

Literature. Lucas and Frost, 1897; Bustard, 1970; Mascord, 1980; Read and Badman, 1990; Jones, 1991; Jones, 1995b; Lawless, 1995; Baker and Brattstrom, 1996; Read, 1998, 1999; Goldberg and Bursey, 2001; James, 2003.

Diplodactylus damaeus

Distribution. The species occurs in the interior regions of south central and southeastern Australia.

The distribution in New South Wales as based on voucher specimens in the Australian Museum is shown in the accompanying map.



Habitats. The species occurs on relatively open dunes (Henle, 1990) and in shrublands (Bustard, 1965c; Sadlier and Shea, 1989; Read and Badman, 1990) and woodlands (Sadlier and Shea, 1989) on substrates of sand (Sadlier and Shea, 1989) and clay (Sadlier and Shea, 1989).

Seasonal activity.

Daily activity. The species is nocturnal in its surface activity (Bustard, 1965c; Henle, 1990; Valentic, 1997c). It is also terrestrial (Henle, 1990).

The species is said to be “widely foraging” with large overlaps between home areas (Henle, 1990).

The species shelters in the burrows of another animal’s making: trapdoor spiders (Johnston, 1982), “arthropods” (Henle, 1990) and Painted Dragons (*Ctenophorus pictus*) (Bustard, 1965c). Some individuals were observed “to use the same arthropod burrows repeatedly” (Henle, 1990). The species does not close the burrows when inside (Bustard, 1965c) and is said to “not dig its own burrows, even in soft soil” Henle, 1990).

Thermal relationships. The gecko may forage in air temperatures as low as 7.5º C and as high as 44º C (Henle, 1990). The mean body temperature of 55 active geckos was 27.3º C (Pianka, 1986).

Agonistic behaviour. Fighting in the field has been reported between two mature males (Bustard, 1965). Adult males will attack and apparently try to copulate with subadult males and then chase them for short distances (Henle, 1990).

In captivity, fights between males involve a low chirping call, displays with arched backs and extended legs, and biting, predominantly of the head and throat (Bustard, 1965c; Marcellini, 1977).

Diet. In the wild, the species eats a variety of invertebrate prey (Pianka, 1986; Henle, 1990).

In the wild, they eat “small insects” (Bustard, 1965c).

Foraging behaviour. When foraging, the geckos move slowly but continuously, searching both beneath shrubs and in open areas. They can cover a distance of 50 m in an hour (Henle, 1990).

Fat bodies. The species has fat bodies in the posterior part of the body cavity (Henle, 1990).

The tail is not particular stout in this species and it is said to become emaciated if starved for 2-3 weeks (Bustard, 1965c).

Seasonality of reproduction. In southwestern New South Wales, gravid females occur between mid-spring and early summer (November-January) (Henle, 1990). In this same area, females have been recorded as laying in mid-spring (late November) and in early summer (early and late January) (Henle, 1990). Females appear to carry oviducal eggs for as long as five days but less than 23 days (Henle, 1990).

Frequency of reproduction. In southwestern New South Wales, at least some females appear to produce at least two clutches per season (Henle, 1990).

Clutch size. Clutch size is almost always two (n = 43; Pianka, 1986; Henle, 1990) but may occasionally be only one (n = 1) (Henle, 1990).

Relative clutch mass. Mean relative clutch mass is 0.18 (n = 5) (Henle, 1990).

Growth. In captivity, growth can be quite rapid. In 20 days, one specimen juvenile with a snout-vent length of 29 mm, a total length o f 54 mm and a mass of 0.42 g increased its length by nine percent and its mass by 43 percent (Bustard, 1965c).

Sloughing. The skin is said to be shed entire (Bustard, 1965c).

Size at sexual maturity. In southwestern New South Wales, the smallest female with enlarged follicles or oviducal eggs was 41 mm, suggesting that this is about the age of maturity (Henle, 1990).

Sex ratio. In a southwestern New South Wales population, the number of males (30) and females (24) did not differ significantly (Henle, 1990).

Size. The largest individual in a southwestern New South Wales population measured 57 mm in snout-vent length (Henle, 1990).

Predation. In a population in southwestern New South Wales, 12 percent of 78 individuals had lost or regenerated tails (Henle, 1990).

When attacked and grasped in an apparent mating grip on the neck by an adult male, subadult males will give a “release” call and then flee (Henle, 1990).

Defence. When encountered in the open at night, the geckos usually fled to the nearest cover, often hummock grass (Bustard, 1965c).

Parasites. In a population in southwestern New South Wales, none of 78 individuals had ectoparasites (Henle, 1990).

Literature. Bustard, 1965c; Marcellini, 1977; Johnston, 1982; Morley and Morley, 1984; Henle, 1987b; Sadlier and Shea, 1989; Browne-Cooper and Maryan, 1990; Henle, 1990; Read and Badman, 1990; Valentic, 1997c; Read, 1998.

Diplodactylus galeatus

Distribution.

Habitats.

Seasonal activity.

Daily activity.

Diet.

Seasonality of reproduction.

Predators.

Parasites.

Literature. Kluge, 1963e; Laube and Seipp, 1999.

Diplodactylus granariensis

Distribution.

Habitats. The species occurs in a mixed myall and mallee association on sandplain (Valentic, 1997c) and in chenopod shrubland on "compacting" soils (Valentic, 1997c).

Seasonal activity.

Daily activity. The species is nocturnal in it activity in the open (Valentic, 1997c).

Diet.

Seasonality of reproduction.

Clutch size.

Predators.

Parasites.

Literature. King, 1977 (as *Diplodactylus vittatus*, chromosome races: 2n = 36 WA, part of 2n = 38 WA, and part of 2n = 38 EA); Storr, 1979; Storr, 1988; Valentic, 1997c.

Diplodactylus immaculatus

Distribution. The species occurs in central Northern Territory and central western Queensland (Storr, 1988: fig. 2).

Habitats.

Seasonal activity.

Daily activity.

Diet.

Seasonality of reproduction.

Clutch size.

Maximum size. The largest specimen measured 85 mm in snout-vent length (Storr, 1988).

Literature. Storr, 1988.

Diplodactylus jeanae

Distribution.

Habitats.

Seasonal activity.

Daily activity.

Diet.

Seasonality of reproduction.

Clutch size.

Predators.

Parasites.

Literature. Storr, 1988.

Diplodactylus kenneallyi

Distribution. The species occurs in the Gibson Desert in central Western Australia (Storr, 1988: fig. 2).

Habitats.

Seasonal activity.

Daily activity.

Diet.

Seasonality of reproduction.

Clutch size.

Predators.

Parasites.

Literature. Storr, 1988.

Diplodactylus klugei

Distribution. The species occurs along the coast and hinterland of central western Australia (Carnavon Basin) (Aplin and Adams, 1998: fig. 2).

Habitats. The species has been found on samphire and in *Acacia* shrubland (Alpin and Adams, 1998). It usually occurs on hard, loamy soils (Alpin and Adams, 1998).

Seasonal activity.

Daily activity.

Diet.

Seasonality of reproduction.

Clutch size.

Predators.

Parasites.

Literature. Aplin and Adams, 1998.

Diplodactylus maini

Distribution.

Habitats. The species occurs in eucalypt woodland (Kluge, 1962b).

Activity. The species is nocturnal in its activity on the surface (Kluge, 1962b)

Diet.

Seasonality of reproduction.

Clutch size.

Predators.

Parasites.

Literature. Kluge, 1962b.

Diplodactylus michaelsoni

Distribution.

Habitats.

Activity.

Diet.

Reproduction.

Predators.

Parasites.

Literature. Werner, 1910.

Diplodactylus mitchelli

Distribution.

Habitats.

Activity.

Diet.

Reproduction.

Predators.

Parasites.

Literature. Kluge, 1963e.

Diplodactylus occultus

Distribution.

Habitats. The species has been recorded from mixed *Eucalyptus* woodland (King *et al*., 1982).

Seasonality activity.

Daily activity.

Diet.

Seasonality of reproduction.

Clutch size.

Predators.

Parasites.

Chromosomes. The species has a karyotype of 2 n = 38. All the chromosomes are acrocentric and diminish in size from large to small (King *et al*., 1982).

Literature. King, Braithwaite and Wombey, 1982

Diplodactylus ocellatus

Distribution.

Habitats.

Seasonality activity.

Daily activity.

Diet.

Seasonality of reproduction.

Eggs. Eggs measure 8 mm in length, 4.5-5 mm (mean = 4.75 mm) in width and weigh 0.111-0.124 g (mean = 0.118 g) (n = 2) (Bush, 1992).

Relative clutch mass. Relative clutch mass for one female was 0.294 (Bush, 1992).

Size at sexual maturity. Females are mature at a snout-vent length of at least 35 mm (Bush, 1992).

Predators.

Parasites.

Literature. Bush, 1992.

Diplodactylus ornatus

Distribution.

Habitats. The species occurs in tall open heath with a hummock grass understorey (Maryan, 1996).

Seasonality activity.

Daily activity. The species is nocturnal (Maryan, 1996) and ground dwelling (Maryan, 1996).

Diet.

Reproduction.

Predators.

Parasites.

Literature. Gray, 1845; Maryan, 1996.

Diplodactylus polyophthalmus

Distribution.

Habitats.

Activity.

Diet.

Reproduction.

Predators.

Parasites.

Literature. Günther, 1867; Johnstone and Werner, 2001.

Diplodactylus pulcher

Distribution. The species is widespread in the drier parts of central and southern western Australia (Aplin and Adams, 1998: fig. 4).

Habitats.

Seasonal activity.

Daily activity.

Thermoregulation. The mean body temperature of 24 active geckos was 27.7º C (Pianka, 1986).

Diet. In the wild, the species eats a wide variety of arthropods (Pianka, 1986).

Seasonality of reproduction.

Clutch size. Clutch size averages 1.8 (n = 12) (Pianka, 1986).

Eggs. Eggs measure 14-15 mm (mean = 14.5 mm) in length, 7.5-8 mm (mean = 7.75 mm) in width and 0.54-0.62 g (mean = 0.58 g) (n = 2) (Bush, 1992).

Relative clutch mass. Relative clutch mass for one female was 0.47 (Bush, 1992).

Incubation. At an incubation temperature of 30º C eggs hatch after 39 days (Bush, 1992).

Hatchlings. Hatchlings range 27-28 mm (mean = 27.5 mm) and weigh 0.566-0.579 g (mean = 0.573) (n = 2) (Bush, 1992).

Size at sexual maturity. Females are gravid at a snout-vent length of at least 55 mm (Bush, 1992).

Predators.

Parasites. The species' recorded parasites include cestodes (tape worms) (Goldberg and Bursey, 2001) and nematodes (round worms) (Goldberg and Bursey, 2001).

Literature. Dell, 1983; Storr, 1988; Bush, 1992; Goldberg and Bursey, 2001; Aplin and Adams, 1998.

Diplodactylus savagei

Distribution.

Habitats.

Activity.

Diet.

Reproduction.

Predators.

Parasites.

Literature. Kluge, 1963e.

Diplodactylus squarrosus

Distribution.

Habitats.

Seasonal activity.

Daily activity. The species is nocturnal in its surface activity (Kluge, 1962a).

Shelter sites. Juveniles have been found sheltering in burrows dug by another animal, possibly a dragon (Kluge, 1962a).

Diet.

Seasonality of reproduction.

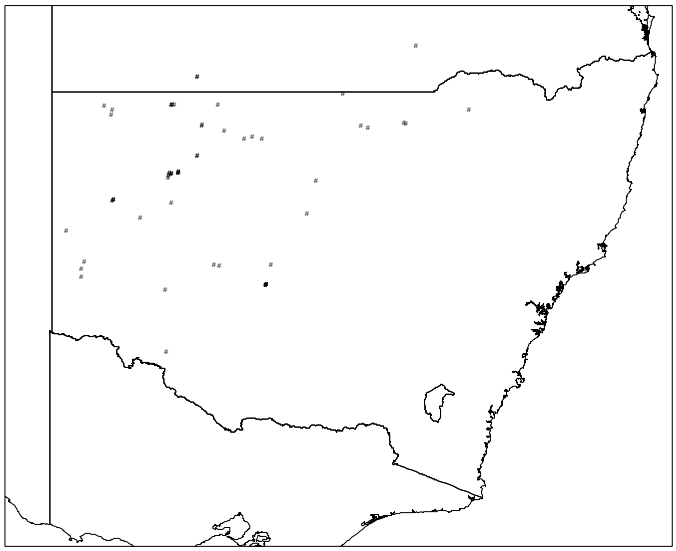
Predators.

Parasites.

Literature. Kluge, 1962a.

Diplodactylus steindachneri

Distribution. The species is widespread in the arid and semi-arid parts of eastern Australia.



The species' distribution in New South Wales based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.

Habitats.

Seasonal activity.

Daily activity.

Diet.

Seasonality of reproduction.

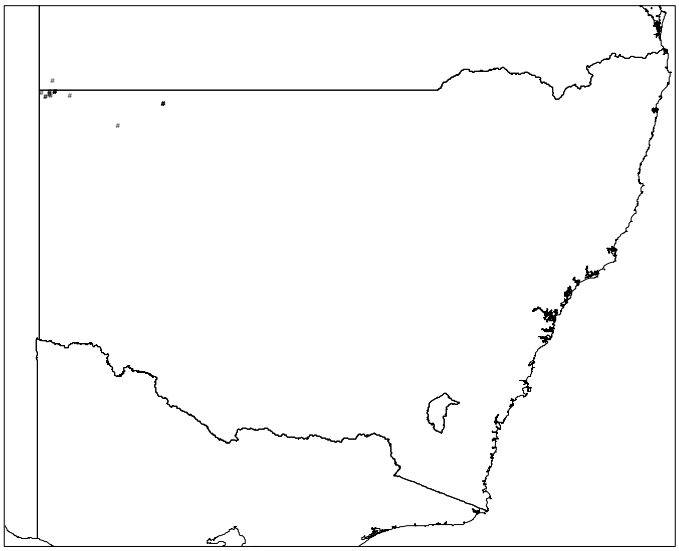
Predators.

Parasites.

Literature. Boulenger, 1885; James, 2003; Swan and Foster, 2005.

Diplodactylus stenodactylus

Distribution. The species is widespread in the central, western and northwestern parts of Australia.



The species' distribution in New South Wales based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.

Habitats. The species occurs in chenopod shrublands (Read and Badman, 1990).

Seasonal activity.

Daily activity.

Diet. In the wild, the species eats a wide variety of arthropods (Pianka, 1986).

Seasonality of reproduction. In central South Australia, mating has been observed in early summer (January), but this is well into the reproductive season (below) (Read, 1999).

In central South Australia, gravid females occur between at least mid-spring and mid-summer (October-February), and egg-laying has been recorded in mid-spring to mid-summer (November-December, February). However, females with yolking follicles may even occur as late as mid-summer (February) suggesting that reproduction could be extended into late summer (March) (Read, 1999).

Frequency of reproduction. Some females at least are probably capable of reproducing in at least two successive seasons (Read, 1999).

Clutch size. Clutch size is almost invariably two (Read, 1999).

Growth. Mark-recapture studies in central South Australian indicted that females mature within one year; that is, they lay eggs in the activity season following the activity season of their own hatching (Read, 1999).

Longevity. In the field, the species can live as long as 1488 days (4.07 years) (Read, 1999).

Predators.

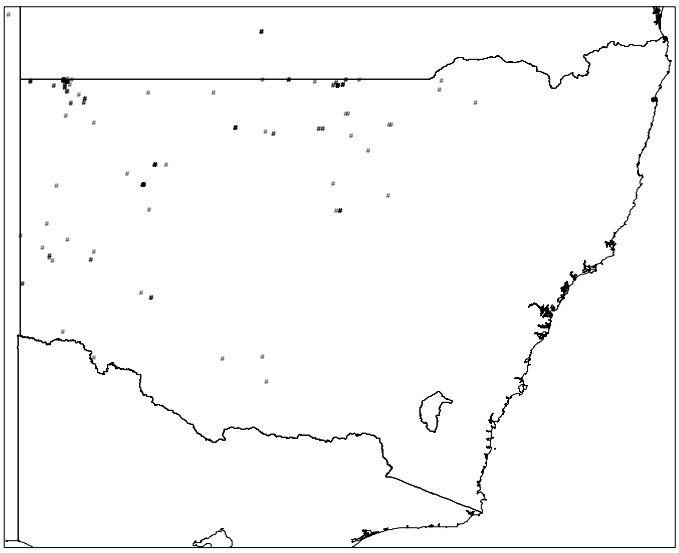
Parasites. The species' recorded parasites include nematodes (round worms) (Goldberg and Bursey, 2001).

Literature. Werner, 1989; Browne-Cooper and Maryan, 1990; Read and Badman, 1990; Read, 1999; Goldberg and Bursey, 2001; Johnstone and Werner, 2001.

Diplodactylus tessellatus

Distribution. The species is widespread in the interior parts of the eastern half of Australia.

The species' distribution in New South Wales based on voucher specimens in the collections of the Australian Museum is shown on the accompanying map.



Habitats. The species occurs in chenopod shrublands (Read and Badman, 1990) and in riverine woodland with a shrub understorey on cracking clay (Henle, 1990).

Seasonal activity.

Daily activity. The species is nocturnal and terrestrial.

Shelter sites. The geckos frequently use arthropod burrows as a retreat, and they may use the same burrow for "extended periods" (Henle, 1990). Individuals will flee both to these burrows and to cracks in the ground.

The geckos also shelter under ground debris, such as fence posts Michael *et al*., 2004).

Movements. Despite their apparent sedentary habits, the geckos are capable of making sudden long movements. For example, one marked individual moved from one site to another about 100 m away and returned to the original site the following day (Henle, 1990).

Temperature relations. The lowest ambient temperature at which the species has been observed on the surface is 10.5º C and the highest is 37º C (even though higher temperatures were available) (Henle, 1990). Not surprising, among active geckos, body temperature correlates closely with both air and substrate temperatures (Henle, 1990).

Diet. In the wild, the species eats a wide variety of invertebrates, including beetles (larvae and adults), caterpillars, moths, orthopterans, spiders and termites (Henle, 1990).

Foraging behaviour. The species appears to be a sit and wait predator. They appear to prefer to wait under specific types of shrubs, and they may use the same ambush site on at least five successive days (Henle, 1990).

Fat bodies. The species has fat bodies in the posterior part of the body cavity (Henle, 1990).

Reproduction. Females with a snout-vent length as small as 41 mm can be "reproductive" (Henle, 1990).

In southwestern New South Wales, females with yolking follicles have been recorded in mid-spring (second half of November), and gravid females can be found between mid-spring and early summer (November-January)(Henle, 1990). In this same area, egg laying has been observed in mid-spring (late November) (Henle, 1990).

Clutch size. Clutch size is two (n = 26) (Henle, 1990).

Relative clutch mass. Mean relative clutch mass in ten females was 0.21 (Henle, 1990). Relative clutch mass is not correlated with female snout-vent length (n = 10) (Henle, 1990).

Frequency of reproduction. In southwestern New South Wales, at least some females appear to produce at least two clutches per season (Henle, 1990).

Eggs. Mean egg mass is not significantly correlated with female snout-vent length (r = 0.71, n = 7) (Henle, 1990). In other words, larger females do not necessarily have large eggs.

Sex ratio. In one study area in southwestern New South Wales, the overall sex ratio was not significantly different from parity (77 males: 79 females) (Henle, 1990).

Maximum size. The largest individual in a southwestern New South Wales population measured 58 mm in snout-vent length (Henle, 1990).

Predation. In a population in southwestern New South Wales, 25 percent of 240 marked individuals had lost or regenerated tails (Henle, 1990).

Parasites. In a population in southwestern New South Wales, none of 240 individuals had ectoparasites (Henle, 1990).

Literature. Günther, 1875; Browne-Cooper and Maryan, 1990; Henle, 1990; Read and Badman, 1990; Michael, Lunt and Robinson, 2003; Michael, Lunt and Robinson, 2004.

Diplodactylus vittatus
Wood Gecko

Distribution. The species is widespread in southeastern Australia.

The species' distribution in New South Wales based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.

Habitats. The species occurs in woodland (Bustard, 1965c; Sadlier and Shea, 1989).

Seasonal activity.

Daily activity.

Shelter sites. The species shelters under bark on the ground or on low stumps (Bustard, 1965c), under rocks (Bustard, 1965c) and in burrows made by Painted Dragons, *Ctenophorus pictus* (J. Bredl, in Bustard, 1965c).

Diet. The species eats a variety of invertebrates (Webb, 1983).

Seasonality of reproduction.

Predators.

Defence. In displaying to human predators, the gecko raises itself on extended legs, inhales deeply, opens its mouth and makes short rushes at the intruder’s hand to bite and hang on if possible (Bustard, 1965c).

Parasites.

Conservation.

Literature. Bustard, 1965c; Bustard, 1968e-f; King, 1977; Moore, 1978; Webb, 1983; Morley and Morley, 1984; Sadlier and Shea, 1989; Annable, 1995a.

Diplodactylus wombeyi

Distribution.

Habitats.

Seasonal activity.

Daily activity.

Diet.

Seasonality of reproduction.

Predators.

Parasites.

Literature. Storr, 1978.

Gehyra australis

Distribution. The species occurs in the northern part of the Northern Territory and the eastern parts of the Kimberley in Western Australia (King, 1982a: fig. 1; King, 1983a: fig. 1; King, 1983b: figs 1, 3; King, 1984: fig. 1).

Habitats. The species occurs in open woodland (Letnic and Madden, 1997).

The species usually occurs on vegetation (King, 1982a, 1983a-b). It also occurs on buildings (King, 1982a, 1983a-b; Cook, 1990; R. Whiston, in Naylor, 2000), where it can be seen at night around the lights (Cook, 1990).

Seasonal activity.

Daily activity. The species is primarily nocturnal (Cook, 1990).

Colour change. The species is capable of strong colour change. At night around lights, it is a ghostly pale with little patterning (Cook, 1990:fig. 4), while during the day it is more strongly patterned in shades of grey (Cook, 1990).

Diet. In the wild, the species has been observed lapping the crumbly crystalline portion of the exudate from the bark of an *Acacia* (Letnic and Madden, 1997).

Seasonality of reproduction.

Clutch size. Clutch size is two (King, 1983b).

Maximum size. The snout-vent length of the largest measured specimen is 81 mm (King, 1984b).

Predators.

Parasites. The species' recorded endoparasites apicomplexans (Paperna, 1994).

Pathogens. The species is known to be infected by a virus (Alves de Matos and Paperna, 1993).

Chromosomes. The species' diploid karyotype is 40 (King, 1982a, 1983a).

Literature. Gray, 1845; King, 1982a (as *G. australis*, 24 = 40); King, 1983a (as *G. australis*, 2n = 40a); King, 1983b; King, 1985; Cook, 1990; Paperna and Landau, 1991; Alves de Matos and Paperna, 1993; King and Horner, 1993; Paperna, 1994; Letnic and Madden, 1997; Naylor, 2000.

Gehyra baliola

Distribution. The species occurs on two islands in the northern part of the Torres Strait (Darnley I. and Murray I.) and in southern New Guinea (King *et al*., 1989: fig. 2).

Habitat.

Seasonal activity.

Daily activity.

Diet.

Seasonality of reproduction.

Predators.

Parasites.

Literature. Duméril and Duméril, 1851; Macleay, 1877 (as *Peripia brevicaudis* and *P. marmorata*); King, Sadlier and Horner, 1989.

Gehyra borroloola

Distribution. The species occurs in the Northern Territory, near the coast and in the hinterland of the southwestern side of the Gulf of Carpentaria (King, 1983a: fig. 1, 1983b: figs 1, 3).

Habitat. The species is usually found on rocky outcrops (King, 1983a-b; McKay and Clarke, 1999).

Seasonal activity.

Daily activity. The species is nocturnal in its surface activity (McKay and Clarke, 1999).

Diet.

Seasonality of reproduction.

Clutch size. The clutch size is two (n = 1) (King, 1983b).

Size. The snout-vent length of the largest measured specimen was 68.0 mm (King, 1983).

Predators.

Parasites.

Chromosomes. The species has a diploid karyotype of 38 chromosomes (King, 1983a-b).

Literature. King, 1983a (as *G. australis*, 2 n = 38); King, 1983b; King, 1985; McKay and Clarke, 1999.

Gehyra catenata

Distribution. The species occurs in central southeastern Queensland (Low, 1979: fig. 3).

Habitat. The species occurs in mixed brigalow-casuarina forest (low, 1979).

Seasonal activity.

Daily activity.

Shelter sites. The species shelters under exfoliating bark on dead trees (Low, 1979).

Diet.

Seasonality of reproduction.

Clutch size. Females carry two eggs (n = 4) (Low, 1979).

Size. The largest measured specimen had a snout-vent length of 59 mm (Low, 1979).

Predators.

Parasites.

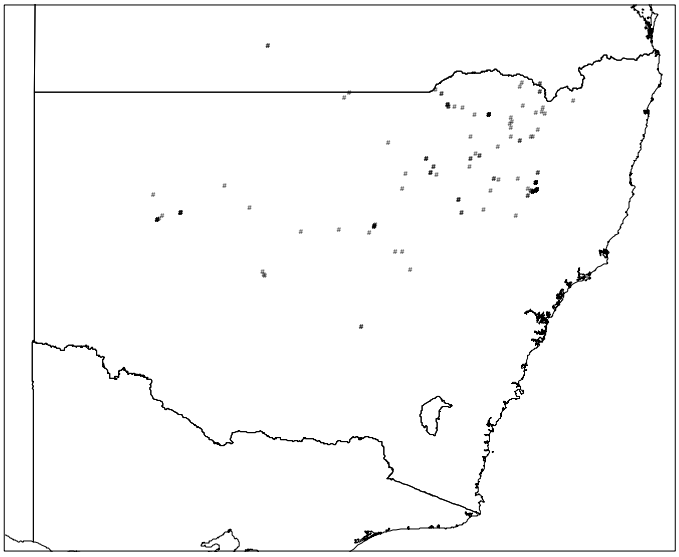
Chromosomes. The species has a diploid karyotype of 42 chromosomes (King, 1984a).

Literature. Low, 1979; King, 1984a.

Gehyra dubia

Distribution. This gecko occurs in eastern Queensland and northeastern New South Wales (west of the Dividing Range) (King, 1983a: fig. 1, 1983b: fig. 1).

The species' distribution in New South Wales as based on voucher specimens in the Australian Museum is shown in the accompanying map.



Habitat. The species occurs in woodland (Valentic and Turner, 2001) and dry sclerophyll forest (Baker *et al*., 1998).

Seasonal activity.

Daily activity. The species is nocturnal (Bustard, 1969c; Couper *et al*., 1995).

It is both arboreal (Low, 1979; King, 1983a-b) and saxicolous (King, 1983a-b). When arboreal, it occurs primarily on dead trees and large dead stumps, which are probably permanent homesites (Bustard, 1969c; Valentic and Turner, 2001).

It also occurs on the walls of the human constructions (King, 1983a-b).

Shelter sites. The geckos usually shelter under exfoliating bark (King, 1983; Baker *et al*., 1998) but the are also occasionally found in unusual situations such as the disused nests of Fairy Martins (Schulz, 1998).

Sociality. Single adult males and females often occur together on the same tree. However, males never seem to occur together nor are females found in proximity (Bustard, 1969c).

In captivity, males display and fight with each other and females display to each other. In display, the gecko arches it back, rapidly vibrates its tail laterally (Bustard, 1965b) and "pecks" at its opponent with a closed mouth. Sometimes fights occur between males with the opponents vocalising and rolling over and over once a jaw grip is attained. These fights can lead to the lost of skin and also tails, which may be eaten (Bustard, 1969c).

Other observers have also noted marked aggression toward conspecifics in captivity (Baker *et al*., 1998).

Diet. In the wild, the geckos eat a variety of arthropods (Bustard, 1969c; Couper *et al*., 1995). They also ingest plant material such as banana (Burnett and Nolen, 1996) and sap from *Acacia* spp. (Couper *et al*., 1995).

In captivity, the geckos eat cockroaches (Doughty, 1996), mealworms (Doughty, 1996) and mosquitoes (Canyon and Hii, 1997). It can eat as many as 100 mosquitoes in a day (Canyon and Hii, 1997). This observation shows that the geckos will feed on, and hence recognise, small prey.

Hatchlings are said to eat their first slough after hatching (presumably observed in captivity) and analysis of stomach contents of adults from the wild show large portions of slough (Bustard and Maderson, 1965).

Seasonality of reproduction. In the Pillaga Scrub in northcentral New South Wales, females can be found carrying yolking follicles in mid-spring (13 November) and oviducal eggs slightly later in mid-spring (20, 23 November) (Bustard, 1969c). In Townsville, Queensland, females are yolking their follicles in late winter or early spring (September) (Doughty, 1996).

Egg-laying sites. The species lays its eggs beneath the exfoliating bark of its home tree or stump. It never lays its eggs on the ground (Bustard, 1969c).

Clutch size. The clutch size is two (Bustard, 1968e, 1969c; King, 1983; Doughty, 1996).

Frequency of reproduction. In northern New South Wales and southern Queensland, females are said to lay only one clutch per season (Bustard, 1969c). However, in "northern Queensland", they are said to lay several clutches per season (Bustard, 1969c). Vitellogenic females collected in Townsville, Queensland and maintained in the laboratory together with males produced only one clutch of eggs (Doughty, 1996)

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
12-13	-	18	9.5-11	-	18	1.26-1.66	0.71	18	Bustard, 1969c
-	-	-	-	-	-	-	0.57	-	Doughty, 1996

Four measures of egg size, wet egg mass, dry egg mass, egg volume (calculated not measured) and egg width were all significantly positively correlated with female snout-vent length (Doughty, 1996). In other words, larger females produced larger eggs.

Relative clutch mass. The relative clutch mass ranges 0.15-0.30 (Doughty, 1996 and Bustard, 1969c, respectively), with a mean of 0.21 (Doughty, 1996).

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
24.5-30	-	-	49.5-60	-	-	0.34-0.64	0.46	-	Bustard, 1969c

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temp (° C)	Incubation Period (days) Range	Mean	N	Reference
25	75-101	87	8	Bustard, 1969c

The incubation range for the eight eggs in the above table seems very large considering they were incubated at the same temperature.

Size of mature individuals. Mean snout-vent length in 51 reproductively active females was 65.3 mm. Mean post-laying mass in these females was 5.4 g (Doughty, 1996).

Tail autotomy. In the Pillaga Scrub population, 59 percent of adults (n = 22) had regrown tails (Bustard, 1969c). Not surprisingly, tail regrowth is temperature dependent, growing more rapidly in summer and autumn and only slowly in winter (Bustard, 1969c).

Predators. The species' known predators include the hylid frog *Litoria infrafrenata*, the gecko *Cyrtodactylus louisiadensis* and the snake *Boiga irregularis* (R. Whiston, in Naylor, 2000).

Chromosomes. The species' diploid karyotype is 42 (King, 1983a-b).

Literature. Bustard, 1965b (as *G. australis*); Bustard and Maderson, 1965 (as *G. australis*); Bustard, 1968e (as *G. australis*); Bustard, 1969c (as *G. australis*); Low, 1979 (as *G. australis*); King, 1983a (as *G. australis*, 2n = 42c); King, 1983b; King, 1985; King, Sadlier and Horner, 1989; Couper, Covacevich and Wilson, 1995; Shea, 1995; Burnett and Nolen, 1996; Doughty, 1996; Canyon and Hii, 1997; Richards Baker, Brattstrom and Brattstrom, 1998; Schulz, 1998; Valentic and Turner, 2001; Tremul, 2003.

Gehyra minuta

Distribution. The species occurs only in the north central part of the Northern Territory (King, 1979: squares in fig. 7)

Habitat. The species occurs in rocky areas in red soil country (King, 1982b).

Seasonal activity.

Daily activity.

Shelter sites. The geckos shelter under rock exfoliations and blocks of rock (King, 1982b).

Diet.

Seasonality of reproduction.

Size. This is one of the smaller Australian species of Gehyra. The largest measured specimen had a snout-vent length of 45.5 mm (King, 1982b).

Predators.

Parasites.

Chromosomes. The species' diploid karyotype is 42 (King, 1982b).

Literature. King, 1979 (as *G. punctata*, 2n = 42); King, 1982b

Gehyra montium

Distribution.

Habitat. The species is usually found in close association with rocky habitats. However, in such areas it may occur as far as 100 m away from the actual rocks (McAlpin, 1997).

Seasonal activity.

Daily activity.

Shelter sites.

Seasonality of reproduction.

Eggs.

Nest sites. The eggs are laid on the surface of the ground under surface cover. They may be laid in proximity to eggs of other individuals of both its own species and other species of *Gehyra*, e.g., *G. variegata* (McAlpin, 1997).

Incubation. In the Alice Springs area, naturally laid eggs hatch throughout the summer (31 December - 13 March) (McAlpin, 1997).

Hatchlings. Hatchlings range in snout-vent length 23-26 mm (mean = 24.0 mm) (n = 6) and in total length 44-48 mm (mean = 45.8) (n = 6) (McAlpin, 1997).

Predators.

Parasites.

Literature. Storr, 1982; McAlpin, 1997.

Gehyra nana

Distribution. The species occurs disjunctly in two areas of northern Australia: the far northern parts of Western Australia (Storr, 1978: fig. 3) and the Northern Territory and the extreme southern part of the Cape York Peninsula of Queensland (King, 1981: fig.).

The species occurs on a few islands off the Kimberley of Western Australia, i.e., Augustus I., Bigge I., Boongaree I., Champagny I., Heywood I., Kingfisher I., Melomys I., Sir Graham Moore Islands, South-west Osborne I. and St Andrew I. (Storr, 1978).

Habitats. The species occupies rock outcrops (King, 1982b).

Daily activity.

Diet.

Seasonality of reproduction.

Size. The largest measured specimen had a snout-vent length of 54 mm (Storr, 1978).

Predators.

Parasites.

Chromosomes. The species' diploid karyotype is 44 (King, 1981, 1982a)

Literature. Storr, 1978; King, 1979; King, 1981; King, 1982a-b; Moritz, 1987a; Moritz, 1992; McKay and Clarke, 1999.

Gehyra oceanica

Distribution.

Habitats.

Activity.

Diet.

Seasonality of reproduction.

Predators.

Parasites.

Literature. Schwaner, 1980.

Gehyra occidentalis

Distribution. The species occurs in the western parts of the Kimberley in Western Australia (King, 1983a:fig. 1, 1984b: fig. 1).

Habitats.

Daily activity. The species is nocturnal in its activity on the surface (King, 1984b).

The species occurs on rock outcrops (King, 1983a, 1984b).

Diet.

Seasonality of reproduction.

Clutch size.

Size. The largest measured specimen had a snout-vent length of 75 mm (King, 1984b).

Predators.

Parasites.

Chromosomes. The species' diploid karyotype is 44 (King, 1983a, 1984b)

Literature. King, 1983a (as *G. australis*, 2n = 44); King, 1984b; Shea, Weigel, Harwood, Floriana and Hemsley, 1988.

Gehyra pamela

Distribution. The species occurs in Arnhem Land in the Northern Territory (King, 1982a; King, 1984b).

Habitats. The species occurs on rock outcrops (King, 1982a, 1983a).

Daily activity.

Diet.

Seasonality of reproduction.

Size. The largest measured specimen has a snout-vent length of 69 mm (King, 1982a).

Predators.

Parasites.

Chromosomes. The species has a diploid karyotype of 42 (King, 1982a, 1983a).

Literature. King, 1982a; King, 1983a (as *G. australis*, 2n = 42a); King, 1984b.

Gehyra pilbara

Distribution.

Habitats.

Daily activity.

Diet.

Seasonality of reproduction.

Predators.

Parasites.

Literature. Mitchell, 1965.

Gehyra punctata

Distribution.

Habitats.

Activity.

Temperature relationships. In the wild in southwestern Australia, the mean body temperature during the day was 32.9º C (n = 7) and during the night 20.6º C (n = 5) (Froudist, 1970, as reported in Angilletta and Werner, 1998).

In a laboratory thermal gradient, there was no significant difference between the diurnal (33.7º C) and nocturnal (33.2º C) preferred body temperatures, the overall mean being 33.5º C (Angilletta and Werner, 1998).

Diet.

Reproduction.

Literature. Fry, 1914; Licht, Dawson, Shoemaker and Main, 1966; King, 1979; King, 1981; Storr, 1982; Moritz, 1986; Werner, Bouskila, Davies and Werner, 1997; Angilletta and Werner, 1998; Werner, Igic and Saunders, 2001

Gehyra purpurascens

Distribution.

Habitats.

Seasonal activity.

Daily activity. The species is nocturnal in is activity in the open (Gaikhorst and Lambert, 2005).

Thermal biology. The geckos have been seen abroad at night at temperatures as low as 16º C (Gaikhorst and Lambert, 2005).

Diet. The species has been observed licking sap from a *Grevillea* (Gaikhorst and Lambert, 2005).

Seasonality of reproduction.

Clutch size.

Size.

Predators.

Defence. When approached while on the open trunk of a small (c. 1.5 m) *Grevilliea*, one individual fled into the dense crown (Gaikhorst and Lambert, 2005).

Parasites.

Chromosomes. The species' diploid karyotype consists of 40 chromosomes (King, 1984a).

Literature. Storr, 1982; King, 1984a; Moritz, 1984b; Gaikhorst and Lambert, 2005.

Gehyra robusta

Distribution. The species occurs in north central Queensland (King, 1983a: fig. 1; 1983b: fig. 13).

Habitats. The geckos occur on rock outcrops (King, 1983a-b).

Daily activity.

Diet.

Seasonality of reproduction.

Clutch size. The clutch size is two (King, 1983).

Size. The snout-vent length of the largest measured specimen was 74.5 mm (King, 1983).

Predators.

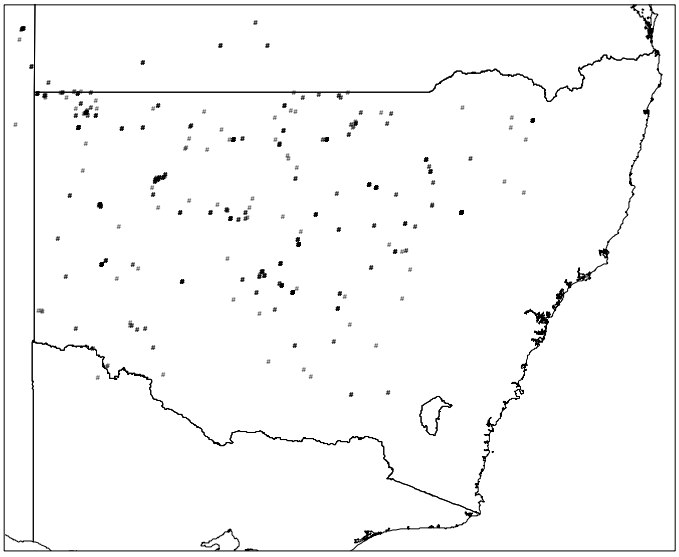
Parasites.

Chromosomes. The species' diploid karyotype consists of 42 chromosomes (King, 1983a-b).

Literature. King, 1983a (as G. australis, 2n = 42b; King, 1983b; King, 1985.

Gehyra variegata

Distribution. The distribution in New South Wales based on voucher specimens in the Australian Museum is shown in the accompanying map. Note that this is a classic example of a distribution limited on its eastern edge by some critical factor(s) that grades evenly inland from the coast, e.g., rainfall.



Habitats. The species occurs in shrublands (Henle, 1990b; Maryan, 1996) and woodland (Sadlier and Shea, 1989; Henle, 1990b). It also occurs on human habitations (Henle, 1990b, 1996).

The geckos occur on both wood (Bustard, 1968a; How and Kitchener, 1983; Sadlier and Shea, 1989; Thompson and King, 1995) and rock (Frankenberg and Werner, 1984).

Seasonal activity. In southwestern New South Wales, the geckos are active on the surface between late winter and late autumn (early September – end of May) (Henle, 1990b).

Daily activity. The species is nocturnal (Eipper, 2001; Gruber, 2004), generally emerging shortly after dusk with peak activity usually in the first three hours of the evening and perhaps a second, smaller peak just at sunrise, at least in mid- to late summer (Gruber, 2004: fig. 3). On cooler nights, the geckos curtail activity sooner than on warm nights. Temperatures below about 18º C seem to be critical. But even on warm nights, activity virtually ceases during the middle and latter part of the night (Bustard, 1967c, 1968a).

Shelter sites. The gecko shelters both on the ground beneath debris (Henle, 1996; Maryan, 1996) and in living and dead trees in crevices and under bark (Sadlier and Shea, 1989; Thompson and King, 1995). However, at night it seems to occur most often in understorey species (How and Kitchener, 1983), shrubs (Maryan, 1996) and dead stumps (How and Kitchener, 1983).

In one area where it occurred sympatrically with *Oedura reticulata*, it never occurred on the same trees as this larger species (How and Kitchener, 1983).

Although the species' broad toe pads would suggest that it is largely scansorial, it is sometimes found moving on the ground (Valentic, 1997c) or in pit-fall traps (Thompson and King, 1995).

Home range. In woodland habitats in southwestern New South Wales, the home range of a gecko may cover one to six nearby trees. They occur in the open, presumably foraging, in the canopy, on major branches, on the trunk and on twigs lying on the ground.

One tree may be included in the home range of as many as 11 geckos (Henle, 1990b). The home ranges are not exclusive as up to 11 geckos can be found on the same tree at the same time (Henle, 1990b).

The geckos' median foraging height above the ground is determined to some degree by wind speed, with increasing wind speed leading to lower median foraging heights (Henle, 1990b).

Agonistic interactions. Around lights that attract a high proportion of arthropods, the geckos may act agnostically to one another. These interactions can be male-male, male-female and female-female (Henle, 1990b). An encounter usually began with "heavy tail undulations" followed by a fight involving one or two bites and a short chase of up to 40 cm (Henle, 1990b).

Thermal relations. In the wild during the day, the species thermoregulates by moving around the thermal mosaic available in most of its shelters. For example, when sheltering in the crevice formed by the exfoliating bark of a dead stump, the gecko can be on the sunny side or the shaded side and clinging to the inside of the bard or to the bole (Bustard, 1967c, 1968a). When it wants to heat up, the gecko might cling to the bark on the sunny side, and when it wants to cool down it might cling to the bole on the shady side (Bustard, 1967c).

In the wild in southwestern Western Australia, the mean body temperature during the day was 26.6º C (n = 15) and during the night 20.8º C (n = 6) (Werner and Werner, in Angilletta and Werner, 1998 and Williams, 1965, as reported in Angilletta and Werner, 1998). However, in another study in Western Australia, the mean body temperature of 840 active geckos was 27.4º C (Pianka, 1986).

In southwestern New South Wales, one gecko was seen on the surface at ambient air temperatures ranging 7.5 – 45º C, the latter being the highest ambient temperature recorded in the study (Henle, 1990b). In this same population, there were strong correlations between a gecko's cloacal temperature and both the air ($r = 0.96$, $n = 290$) and substrate temperatures ($r = 0.98$, $n = 289$) (Henle, 1990b). These strong correlations suggest that the body temperatures of the geckos were simply following passively the ambient air/substrate temperatures. In other words the geckos were not thermoregulating but were thermoconforming, which is not surprising as at night there unlikely to be any notable environmental thermal variability available for such activity.

In a laboratory thermal gradient, there was no significant difference between the diurnal (34.0º C) and nocturnal (33.5º C) preferred body temperatures, the overall mean being 33.7º C (Angilletta and Werner, 1998).

Water relations. The mean water content by mass for this species is 74.0 percent (n = 8) (Green *et al*., 1991).

Sociality. In relatively small shelter sites such as stumps, males often occur with up three females, but rarely do two males occur together (Bustard, 1968a). This spacing and the

apparent displacement of one male by another, plus evidence of fighting (torn skin) all suggest that males are territorial but tolerate females. It also suggests that the females may be relatively tolerant of one another (Bustard, 1968a). One or more juveniles often inhabit stumps with adults "over long periods" (Bustard, 1969a).

The geckos apparently do not call in a social context (Y. Werner, in Frankenberg and Werner, 1984).

Diet. In the wild, the species eats a variety of arthropods (Bustard, 1968a; Pianka, 1986; Henle, 1990b). The geckos are largely opportunistic in what they eat; for example, sudden increases in a particular arthropod species can often be reflected in the lizards stomach contents (Henle, 1990b). S

The geckos eat winged (reproductive) ants but avoid workers (non-reproductive) (Henle, 1990b).

The species has been observed licking sap from an *Acacia* (Dell, 1985).

In captivity, the geckos eat cockroaches and mealworms (Doughty, 1996b).

Analysis of the seasonality of food in the alimentary tracts of geckos from a region in northcentral New South Wales, suggests that the species eats little or nothing between mid-autumn and late winter) (May-August) (Bustard, 1968a).

Hatchlings, presumably observed in captivity, are said to eat the first slough after hatching. Adults in captivity also eat their own slough and the stomachs of adults from the wild also sometimes contain large portions of slough, presumably from their own species if not from their own bodies (Bustard and Maderson, 1965).

Foraging behaviour. Although the species appears to do most of its foraging during the night, it will also take prey from the edge of its shelter site during the day (Bustard, 1967c

Seasonality of reproduction. In a sample from the western part of the species' range, all males collected between late winter and early summer (August-January) were forming sperm whereas 50 percent of males collected in late summer (March) had regressed testes (Goldberg, 2005c). Females collected in late winter-mid-spring (September-November) had yolking follicles and one female collected in mid-spring had oviducal eggs (Goldberg, 2005c).

In southwestern New South Wales, females are yolking their follicles, presumably the first of the year, in mid-spring (October) (Doughty, 1996b). By the beginning of late spring (end of November), most, if not, all adult females are carrying oviducal eggs and are yolking one (50 percent, n = 10) or two (50 percent) follicles for a second clutch (Henle, 1990b). By early summer (second part of January), all adult females have a corpus luteum, but no yolking follicles or oviducal eggs (Henle, 1990b); in other words, they have finished reproduction for the season.

A seemingly viable egg was found in late autumn (May) in northwestern New South Wales (Henle, 1996). This raised the question of whether the egg would have hatched in the autumn or winter, or overwintered until spring.

In northcentral New South Wales (Pillaga Scrub), the females are gravid between early spring and early summer (October to mid-January) (Bustard, 1968a), and they lay between mid-spring and early winter (late November to early January) (Bustard, 1968a, 1969). The eggs can be clearly seen through the skin of the living animals (Bustard, 1968a).

Frequency of reproduction. In southwestern New South Wales, adult females produce at least two clutches of eggs in a season (Henle, 1990b). The loss of a relatively ($\geq$ 50 percent) large part of the tail (a fat storage organ) may reduce a female's changes of producing an egg (Henle, 1990b).

Clutch size. This is one of the few Australian geckos that lays only one egg at a time (Bustard, 1968a, 1969a; Pianka and Pianka, 1976, n = 29; Pianka, 1986, n = 152; Henle, 1990b, n = 144); Doughty, 1996b, n = 9; Goldberg, 2005c, n = 7).

In southwestern New South Wales, adult females may yolk two follicles (50 percent of 10 females) but then pass only one into the oviduct (Henle, 1990b). Why a second follicle should be yolked when only one egg is laid in a clutch and what happens to the "unused" follicle is unclear.

Stimulus to lay eggs. In southwestern New South Wales, egg laying occurs shortly after rain (Henle, 1990b).

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
9.5-12	11	20	8.5-11	10	20	0.38-0.58	0.48	20	Bustard, 1968a
-	-	-	-	-	-	-	0.68	-	Doughty, 1996b

The eggs are hard-shelled and relatively resistant to drying out (Bustard, 1968a).

Of four measures of egg size, wet egg mass, dry egg mass, egg volume (calculated not measured) and egg width, there was a significant positive correlation with only the first two (Doughty, 1996b). In other words, larger females tend to have heavier eggs.

Relative clutch mass. Relative clutch mass ranged 0.14-0.22, with a mean 0.18 (Doughty, 1996b)

Frequency of reproduction. Females probably lay two clutches per season (Bustard, 1969a).

Vitellogenic females captured in southwest New South Wales and maintained in the lab with males, produced two clutches of eggs in one season, the interval between the clutches ranging 11-45 days. In most females, the follicle for the second clutch as not yolked until the egg of the first clutch had been laid, but in two females, the follicle for the second clutch was yolked

to a diameter of about 5 mm before the egg of the fist clutch had been laid. These two females had the shortest inter-clutch interval, 11 days (Doughty, 1996b).

Egg-laying sites. The gecko may lay its eggs on the ground either under timber (Bustard, 1968a) or dead trees and large branches (Bustard, 1969a) or off the ground under the bark of dead stumps (Bustard, 1968a, 1969a) or trees (Henle, 1996). In an area where there were dead stumps and many flat timber boards on the ground, the adults inhabited the stumps but often laid under the boards. That is, they left their usual homesites in order to lay their eggs. There is some evidence that the exact sites where they lay their eggs are less variable in both temperature and humidity on a daily basis than are the homesites (Bustard, 1969a).

Eggs laid under bark on stumps, possibly on the home stump of the female, usually occur singly, as if only the resident female herself laid her egg on her stump. However, eggs laid under timber often occur in small aggregations, often three to five and never more than eight (Bustard, 1968a). In this latter case, it appears as if as many females have come together in one spot to lay (Bustard, 1968a). The adaptive significance of this small scale communal nesting is unclear (Bustard, 1968a).

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
23-25	-	12	41-51	-		0.26-0.45	-	-	Bustard, 1968a
-	-	-	-	-		0.26-0.27	0.265	2	Bustard, 1968a

Growth.

Age at sexual maturity. In southwestern New South Wales, both males and females reproduce in the second season after the season of their own hatching (Henle, 1990b).

Size at sexual maturity. In a large sample from the western part of the species' distribution, the smallest male and female showing signs of sexual maturity (spermiogenesis and yolk deposition, respectively) had snout-vent lengths of 37 mm and 38 mm, respectively (Goldberg, 2005c).

In a study in southwestern New South Wales, the smallest female showing signs of reproductive activity had a snout-vent length of 48 mm (Henle, 1990b). The reason for the apparent large difference size at sexual maturity in females in these two populations is unclear.

Size of mature individuals. In a sample from southwestern New South Wales, reproductively active females had a mean snout-vent length of 53.3 mm (Doughty, 1996b).

Sexual dimorphism. In a large sample from the western part of the species' range, snout-vent length in males (range = 37-63 mm, mean = 52 m, n = 70) and females (range = 38-58 mm, mean = 52 mm, n = 55) was not significantly different (Goldberg, 2005c).

Sex ratio. In two closely monitored populations in southwestern New South Wales, the sex ratio was not significantly different from parity (Henle, 1990b).

Predators. The species' only recorded predators are the semi-arboreal varanid *Varanus caudolineatus* (Thompson and King, 1995).

Defensive call. When chased and captured in the laboratory, the geckos produce a variety of calls (Frankenberg and Werner, 1984).

Tail autotomy. In a population in northcentral New South Wales (Pillaga Scrub), 60 percent of adults (n = 445) had regrown tails (Bustard, 1969c). In three nearby populations in southwestern New South Wales (Kinchega National Park), 55-60 percent of individuals showed evidence of tail loss (Henle, 1990b).

Parasites. The species' recorded external parasites are "mites" (Henle, 1990b).

The species' recorded internal protozoan parasites include a coccidian (Schmidt *et al*., 1967).

The species' recorded internal metazoan parasites include cestodes (tapeworms) (Goldberg and Bursey, 2001) and nematodes (round worms) (Johnston and Mawson, 1943; Jones, 1995b; Henle, 1990b; Goldberg and Bursey, 2001).

Conservation. Old style forestry operations which resulted in cut stumps and many bits of bark and timber scattered on the ground led to what are most certainly substantial increases in local gecko populations. However, there is only a short period in the decay cycle when these sites are suitable for the geckos (Bustard, 1968a), and after that period, the gecko population declines.

Literature. Johnston and Mawson, 1943; Bustard, 1964b; Bustard and Maderson, 1965; Licht, Dawson, Shoemaker and Main, 1966; Bustard, 1967c; Schmidt, Johnston and Stehbens, 1967; Bustard, 1968a, e; Bustard, 1969; Bustard, 1970b; Pianka and Pianka, 1976; King, 1979; How and Kitchener, 1983; Frankenberg and Werner, 1984; Morley and Morley, 1984; Dell, 1985; Pianka, 1986; Moritz, 1987a; Kitchener, How and Dell, 1988; Sadlier and Shea, 1989; Henle, 1990b; Green, Dryden and Dryden, 1991; Annable, 1995a; Jones, 1995b; Sarre, Smith and Meyers, 1995; Doughty, 1996b; Henle, 1996; Maryan, 1996; Angilletta and Werner, 1998; Sarre, 1998; Goldberg and Bursey, 2001; Johnstone and Werner, 2001; LeBreton, Faulkner and Ellis, 2002; James, 2003; Gruber, 2004; Gruber and Henle, 2004; Goldberg, 2005c; Kutt, Kemp, McDonald, Williams, Williams, Hines, Hero And Torr. 2005.

Gehyra xenopus

Distribution. The species occurs in the Kimberley of Western Australia (Storr, 1978: fig. 4).

It occurs on several offshore islands, including Augustus I., Bat I., Boongaree I., Borda I., Byam Martin I., Champagny I., Darcy I., Katers I., Wollaston I., South-west Osbourne I., St Andre I. and Unwins I. (Storr, 1978).

Habitats. The species occurs in rocky country (Storr, 1978).

Seasonal activity.

Daily activity.

Shelter sites. The species is known to shelter in caves (Storr, 1978).

Diet.

Seasonality of reproduction.

Size. The largest measured specimen had a snout-vent length of 79 mm (Storr, 1978).

Predators.

Parasites.

Literature. Storr, 1978 (probably includes a few *G. occidentalis*); Shea, Weigel, Harwood, Floriana and Hemsley, 1988.

Hemidactylus frenatus

Distribution. This species is almost certainly not native to Australia. Instead, it has probably been accidentally imported into Australia by humans, as it seems to have been elsewhere in the world (Loveridge, 1947). It is now known to occur in Africa, islands of the Indian Ocean, southern Asia, islands of the Pacific, and the New World.

The earliest record for the species in Australia is from the now long abandoned settlement of Port Essington on the Coburg Peninsula of the Northern Territory (Cogger and Lindner, 1974). A specimen from this locality was sent to J.E. Gray in the British Museum (Natural History), and Grey used it and other specimens as a new species in 1845. Settlement was established in 1838 (Calaby, 1974), therefore the species must have arrived in this area between 1838 and 1845.

The species is now know from as far south as Sandfire Roadhouse in Western Australia (Maryan, 2001; see also Bedford and Padovan, 2001), Renner Springs in the Northern Territory (Cook, 1990) and Murwillumbah in New South Wales (Lloyd, 2000). The species is or at least can be expected to become established at these subtropical and tropical localities. It occasionally shows up in more temperate localities such as Albury in New South Wales (Michael, 2005), but these areas are probably too cold in winter for a population to become established.

The species has been transported to Norfolk Island in cargo (Covacevich *et al*., 2001), but it is unknown whether it has as yet become established. If not, it is probably only a matter of time until it does.

Altitudinally, the species occurs as high as 600 m on Taiwan (Lue *et al*., 1987).

Habitats. In most areas where it occurs, it is usually found on human constructions (Grant, 1957; Tyler, 1961; Hunsaker, 1966; Chou, 1974; Wiles *et al*., 1989; Wiles and Guerrero, 1996).

In some areas, the species occurs away from buildings and the like. For example, on Taiwan, the species can also occur in gardens and in woodlands (Chou, 1974); on Saipan in the Pacific, occurs in patches of forest and in open fields on isolated trees, shrubs and rocks (Wiles and Guerrero, 1996); on Tinian in the Pacific, it occurs cement and wooden fence posts along a road running through pastureland and on the trunks of coconut trees on the beach (Wiles *et al*., 1989), and in Mexico, it can occur in rocky or forested terrain away from human habitations (Grant, 1957).

In Australia, the species is known so far only from the vicinity of human habitations and other buildings (Husband, 1980; Fyfe, 1981b; Wright, 1982; Cook, 1990; Covacevich *et al*., 2001). In addition to occurring on buildings, it also occurs on trees near buildings (Cook, 1990).

Seasonal activity. During late winter and late spring (2 March- 31May) in Ciudad de Valles, eastern Mexico (22ºN), the number of geckos seen in the open on a standard transect increased nearly linearly between late winter and early spring (first week of March – second

week of April) and then approached a plateau over the remaining period (Marcellini, 1971: fig. 1).

Daily activity. The species appears to be primarily nocturnal (Tyler, 1961; Bustard, 1970c; Marcellini, 1971; Chou, 1974; Sahi, 1979, Frankenberg and Werner, 1981) with activity peaking sometime before midnight in some studies (Bustard, 1970c; Sahi, 1979; Frankenberg and Werner, 1981) but peaking about midnight and remaining high throughout the night in others (Marcellini, 1971: fig. 2). The geckos are usually seem most frequently around lights on buildings (Tyler, 1961; Bustard, 1970c; Marcellini, 1971; Sahi, 1979; Sabath, 1981; Wright, 1982; Cook, 1990) where it feeds on insects attracted to the lights.

The daily activity rhythm of the geckos is apparently entrained, as are day/night cycles in most species, because the "old" cycle is maintained even when a "new" light regime is suddenly shifted 12 hours, that is, to the exact opposite of the cycle the geckos were used to before the switch (Frankenberg and Werner, 1981).

The species nocturnal activity can be curtailed by thunderstorms, which bring increased rain and wind and lower temperatures (Marcellini, 1971).

Although it is primarily nocturnal, it can be seen out on walls and trunks of trees adjacent to buildings during the day (Bustard, 1970c; Sahi, 1979; Cook, 1990). But just what the geckos are doing at this time is unclear. One report interprets their behaviour as basking (Sahi, 1979).

The species is capable of great colour change. At night around lights, it is a uniformly ghostly pale (Cook, 1990:fig.3) and during the day it is strongly patterned in shades of grey (Cook, 1990: fig. 5).

Shelter sites. When not in the open, the geckos occur in crevices and behind surface cover such as lighting fixtures (Sahi, 1979).

Home areas and territories. Some observers suggest that the animals live in home areas (Hunsaker and Breese, 1967), and others imply that the geckos in general (Grant, 1957; Hunsaker, 1966) or the males in particular (Marcellini, 1974) are territorial.

Thermal biology. In late winter and early spring (2 March- 31May) in Ciudad de Valles, eastern Mexico, the body temperatures of the geckos on the walls of a building at night were significantly higher than the air temperature 50 mm above the wall where the gecko was first caught and the substrate temperature where the gecko was prior to being caught for measuring its temperature (Marcellini, 1976). The correlation between the body temperature and both the air temperature ($r = 0.96$, $P < 0.01$) and substrate temperature ($r = 0.97$, $P < 0.01$) was high, suggesting that the body temperature was simply following both the air and substrate temperatures quite closely. In other words, the animals were not regulating their body temperature but just accepting, or conforming to, the ambient temperature of their immediate environment.

In this same study, the minimum body temperature of a gecko on the surface was 19.0º C and the maximum was 34.3º C. This range suggests the minimum range of body temperatures at which the species will be active on the surface.

For some reason that is not clear, an ambient temperature of about 26-27º C seems to be a critical point in the geckos' metabolic physiology. Oxygen consumption increases with temperature, but above this point it increases more slowly than below it. And in addition, the breathing rate increases linearly up to this point, but then levels off beyond it; that is, the geckos cease to increase their breathing rate (Snyder and Weathers, 1976). If the breathing rate does not increase with the increasing metabolic rate above about 27º C, one wonders how the increasing amounts of oxygen that are required to maintain the increasing metabolic rate are maintained.

Water relations. In a nearly perfectly dry atmosphere the geckos' rate of evaporative water loss increases linearly (Snyder and Weathers, 1976). In other words, they seem to have no means of slowing the loss of water from their bodies. In a nearly perfectly dry atmosphere at 30º C, a 4.4 g gecko loses on average about 7.1 percent of its body mass per day (Snyder and Weathers, 1976).

Agonistic behaviour. Adult males with chase other adult males (Sahi, 1979), but the significance of such behaviour is unclear. If males do have territories (above), perhaps some of these interactions are in defence of a territory.

There is evidence both anecdotal (Hunsaker and Breese, 1967) and experimental (Petren *et al*., 1993; Case *et al*., 1994) that this species replaces other "house geckos", both alien species such as *Hemidactylus garnoti* (Hunsaker, 1966; Hunsaker and Breese, 1967) and *Lepidodactylus lugubris* (Hunsaker and Breese, 1967) and native species such as #.

Vocalisation. The geckos vocalise (Grant, 1957; Hunsaker and Breese, 1967; Marcellini, 1971, 1974, 1977; Frankenberg and Marcellini, 1990). There three calls, named by one researcher as multiple chirp, churr and single chirp (Marcellini, 1974, 1977).

The most familiar call is the multiple chirp (Marcellini, 1974; Frankenberg and Marcellini, 1990), rendered variously as "gack, gack, gack" by some observers (Marcellini, 1974) and as "chuck, chuck chuck" by others (pers. obs.). In some situations, this call can be heard as far away as 150 m (Marcelllini, 1974). The entire call consists of 5-15 chirps (gacks or chucks) and the number of chirps per call increases with temperature (Marcellini, 1974). In spring in Ciudad de Valles, eastern Mexico, the number of multiple chirp calls increases throughout the night, with a sharp decline just before dawn (Marcellini, 1974).

The multiple chirp call is given by the adults of both sexes but more often by males (Marcellini, 1974). Individuals smaller than 45 mm snout-vent length have not been heard to call (Marcellini, 1974). This call is given both in shelter sites and in the open (Marcellini, 1974). When giving this call, the gecko barely opens its mouth but rocks slightly with each chirp (Marcellini, 1974). The calls may be given by a gecko in isolation (Marcellini, 1974, 1977) or in a group (Marcellini, 1974).

Males call in a variety of contexts: upon emergence from the daytime shelter and before moving to their feeding areas (Marcellini, 1974); after a successful feeding (Marcellini, 1974); after a male won and aggressive encounter with another male (Marcellini, 1974); when a male approached a female in courtship (Marcellini, 1974), and after mating (Marcellini, 1974). However, males were never observed to call toward a juvenile

(Marcellini, 1974). Females have been observed to call when approached by another female (Marcellini, 1974).

Experimental evidence indicates that males are somewhat repelled by the "play-back" call of another male (Marcellini, 1977).

The churr call is sounds as its name suggests and is given only males in encounters with other males, usually when within one metre of one another and often when one male lunged at its opponent (Marcellini, 1974). The call is made with the mouth wide open (Marcellini, 1974).

The single chirp call is like a single chirp from the multiple chirp call (Marcellini, 1974). Both sexes use this call, although males do so more than females, and large juveniles as well as adults make it (Marcellini, 1974). The call seems to be given in highly aggressive situations, such as close confinement with other individuals and being grasped by a predator or a conspecific (Hunsaker and Breese, 1967; Marcellini, 1974).

Diet. In the wild, the species feeds primarily on arthropods (Tyler, 1961; Chou, 1974; Sahi, 1979; Cook, 1990).

In captivity, the geckos eat fruit flies and other insects (Murphy-Walker and Haley, 1996). It also eats other geckos, i.e., *Hemidactylus garnoti* (Hunsaker, 1966) and grains of cooked rice (Chou, 1974).

The gecko is discriminatory in its prey choice. For example, it will avoid some, apparently noxious, insects (Chou, 1974).

Foraging behaviour. When the gecko sees a prey item, it moves toward the prey rapidly but then closes on the prey stealthily until it is within a few centimetres and then makes a final rush, perhaps prompted by the prey's movement (Tyler, 1961).

One observation suggests that discouraging a potential competitor for food may be more important that capturing food itself. When two geckos converged on the same prey item, one diverted his attention from the prey to the second gecko and attacked it and both geckos wound up bloodied (Tyler, 1961).

Prey manipulation. Large prey may be held in the mouth and shaken and then bashed until it ceases to move (Sahi, 1979).

Drinking. In the wild, the geckos drink from water drops (Sahi, 1979). They may leave their diurnal shelters in order to drink (Sahi, 1979).

Fat bodies. The species lacks fat bodies in the body cavity (Church, 1962). Such fat bodies may not be as useful in a species that lives in a seasonally benign environment where food is always available.

Courtship and mating. The following account is the most complete description of courtship and mating in the species. "The male after seeing the female, moved slowly towards it, and stopped at half a metre distance for 40 seconds. The male bobbed his head and flickered his tongue, and slowly approached the female. It made three continuous calls *chuck-chuck-*

chuck. He made half a circle so as to come to the left side of the female. The female did not move and [the] male nodded its head and licked her snout. The male moved and lay parallel to the female. The female now responded by raising her tail in an arc. The male moved towards the right and hinder part of the female so as to bring the cloaca opposite to that of the female. The tail of the male passed under the female's tail and coiled around it. The male clasped the female with both pairs of limbs. The copulation lasted for 8 ½ minutes when [the] female began to slide down from underneath" (Sahi, 1979).

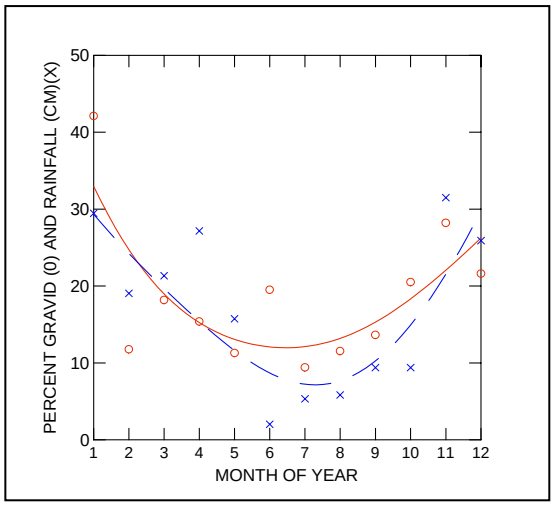
In Acapulco, Mexico (16º 45' N), mating has been observed in early dry season (29 December – 2 January). This mating occurred during the day (Grant, 1957).

In southern India (11º 37' – 11º 54' N), courtship has been observed in the middle of the dry season (9 February) (Sahi, 1979).

Seasonality of reproduction. In some areas outside Australia, such as on the island of Oahu, Hawaii (Murphy-Walker and Haley, 1996) and on the island of Java in Indonesia (Church, 1962), the species can carry oviducal eggs in every month of the year. This suggests that females at least of laying eggs year around. However, at least in Java, the percentage of gravid females in the population seems to cycle in concert with rainfall (see figure below based on data in Church, 1962).

In the southern Florida Keys (24º 38 'N), natural nests have been found in late winter (4 March) (Krysko *et al.*, 2003).

In Darwin, egg-laying has been recorded in late summer (19 March) (Husband, 1980), but whether it occurs at other times of the year is unknown.



Sperm storage. An early observation of a mating in the town of Bandung, Java that involved a female that had only ovarian eggs no larger than 2 mm in diameter suggested that females can store sperm (Church, 1962). Some years later, this was clearly demonstrated when isolated females continued to produce viable eggs that hatched for as long as 36 weeks after being separated from males. The sperm are stored in deep folds in the anterior oviduct in the transition area between the infundibulum and the uterus (Murphy-Walker and Haley, 1996).

Frequency of reproduction. The interval between clutches has been reported as short as three weeks (Murphy-Walker and Haley, 1996) and as 21-28 days (J. Boone, in Krysko *et al.*, 2003).

Clutch size. The species usually lays two eggs in a clutch (Chou, 1979; Sabath, 1981; Cheng, 1987; Murphy-Walker and Haley, 1996) but sometimes only one (Murphy-Walker and Haley, 1996).

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
0.82-1.00	0.92	41	0.72-0.84	0.79	41	0.24-0.32	0.28	41	Chou, 1979

When freshly laid, the eggshells are soft and moist. However, they dry in about 15-30 minutes (Chou, 1979), becoming hard and brittle (Husband, 1980).

In some cases, the eggs are adherent to the substrate and to one another, but in other cases they are free from attachment (Chou, 1979). It is not clear whether the geckos have any control over whether the eggs are adherent or free.

The fertility and viability of the eggs is indicated by their colour. Fertile eggs change from pink to lavender to grey as development progresses, whereas infertile eggs or eggs with early mortality are creamy white (Murphy-Walker and Haley, 1996).

Egg-laying sites. The eggs are usually, if not always, laid off the ground and in a crevice (Krysko *et al*., 2003). There appears to be no site preparation by the female.

There are two cases of the eggs of a second species of gecko being laid in the same site as the eggs of this species (Chou, 1979; Krysko *et al*., 2003).

Incubation. Incubation under unspecified conditions takes 45 days (Husband, 1980). Incubation at 28-29º C takes 48-55 days (J. Boone, in Krysko *et al*., 2003).

Hatchlings. Hatchlings measure 19 mm in snout-vent length and 39 mm in total length (Husband, 1980).

Growth. In captivity at 25º C, one hatchling grew at a rate of at least 0.70 mm/day in total length (pers. obs. on data from Nagtegaal, 1954 cited in Tyler, 1961).

Size at sexual maturity. On the island of Guam, the snout-vent length of the smallest adult male reported was 36 mm and the snout-vent length of the smallest female was 37 mm (Sabath, 1981).

On Taiwan, the snout-vent lengths of the smallest mature male and female were 36 mm and 44 mm, respectively (Cheng, 1987).

In a population in the town of Bandung, Java, the smallest female with oviducal eggs, a sure sign of reproductive maturity, had a snout-vent length of 44 mm (Church, 1962).

Maximum size. The snout-vent length of the largest male measured was 65 mm. Two specimens were this large, one from Taiwan Cheng, 1987) and the other from southern India (Sahi, 1979). The snout-vent length of the largest female measure was 63 mm. This specimen was from southern India (Sahi, 1979).

Sexual dimorphism. In a large sample from the west coast of Madagascar, the mean snout-vent length did not differ significantly between males (mean = 48.3 mm, n = 24) and females (mean = 45.9, n = 26) ($t = 1.84$, $P = 0.07$) (data in Vences *et al*., 2004).

Sex ratio. In the town of Bandung, Java over a 12 month period, there were significantly more females (n = 548) collected than males (n = 375) ($X^2 = 16.2$, $P < 0.001$) (data in Church, 1962).

Karyotype. The diploid karyotype consists of 40 chromosomes. There are no sex chromosomes (King, 1978; Darevsky *et al*., 1984).

Predators. The species' only recorded predators are preying mantids (Wright, 1982) and another Asian house gecko, *Cosymbotus platyurus* (Church, 1962).

Defence. When grasped by a human predator, the gecko often gives a single chirp call (Marcellini, 1974). It will also try to bite when grasped by a human (Hunsaker and Breese, 1967).

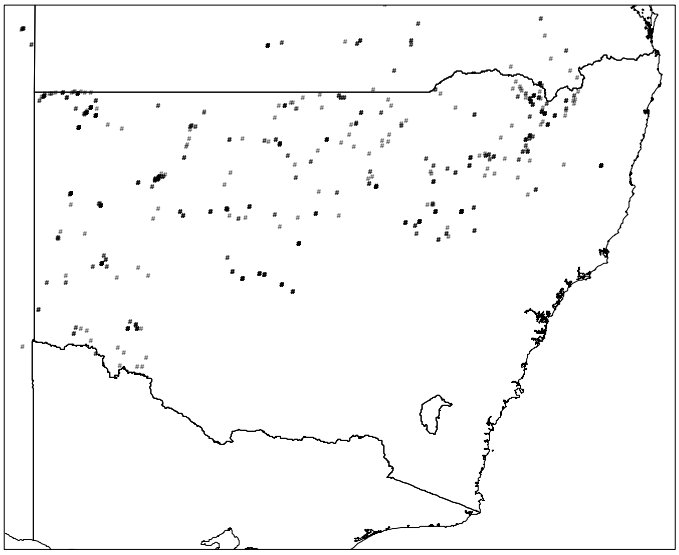
Parasites. The species' recorded parasites include apicomplexans (protozoans) (McAllister et al., 1990; Upton *et al*., 1991); cestodes (tapeworms) (Goldberg and Bursey, 2000a, 2001, 2002), nematodes (round worms) (Jiang and Lin, 1980; Bursey and Goldberg, 1996; Goldberg and Bursey, 2000a, 2001, 2002), pentastomes (tongue worms) (Goldberg and Bursey, 2000a; Jeffrey *et al*., 2003; Stender-Seidel and Boeckler, 2004; Goldberg *et al*., 2005) and trematodes (flukes) (Goldberg and Bursey, 2001; Goldberg *et al*., 2005).

Literature. Gray, 1845 (as *Hemidactylus vittatus*); Pope, 1935; Cagle, 1946a (as *H. garnotii*, fide Dryden and Taylor, 1969); Loveridge, 1947; Richards, 1947; Downs, 1948; Tanner, 1948; Tanner, 1950; Nagtegaal, 1954; Grant, 1957; Church and Lim, 1961; Tyler, 1961; Church, 1962; Hunsaker, 1966; Hunsaker and Breese, 1967; Bustard, 1970c; Marcellini, 1971; Calaby, 1974; Chou, 1974; Cogger and Lindner, 1974; Marcellini, 1974; Marcellini, 1976; Snyder and Weathers, 1976; Cheng and Lin, 1977; Marcellini, 1977; Cheng and Lin, 1978; Chou, 1978; King, 1978; McKeown, 1978; Webb, 1978; Cheng and Lin, 1979; Cuy, 1979; Sahi, 1979; Husband, 1980; Jiang and Lin, 1980; Fyfe, 1981b; Sabath, 1981; Wright, 1982; Ali and Riley, 1983; Chou, 1984; Darevsky, Kupriyanova and Roschin, 1984; Jones and Summers, 1984; Lin and Cheng, 1984; Toyama, 1984; Cheng, 1987; Lue, Chen, Otsuka and Ota, 1987; Cheng, 1988; Wiles, Amerson and Beck, 1989; Cook, 1990; Frankenberg and Marcellini, 1990; Frankenberg and Werner, 1990; McAllister, Upton and Boyer, 1990; Werner, 1990; Wiles, Rodda, Fritts and Taisacan, 1990; Upton, Hanley, Case and McAllister, 1991; Petren, Bolger and Case, 1993; Case, Bolger and Petren, 1994; Anthony, 1996; Bursey and Goldberg, 1996b; Murphy-Walker and Haley, 1996; Wiles and Guerrero, 1996; Bertrand, Paperna and Finkelman, 1999; Cook and Richards, 1999; Limpus, Limpus and Goldizen, 1999; Goldberg and Bursey, 2000; Lloyd, 2000; Bedford and Padovan, 2001; Covacevich, Buffet, Couper and Amey, 2001; Goldberg and Bursey, 2001; Maryan, 2001; Brown, Lebrun, Yamasaki And Ishii-Theone, 2002; Goldberg and Bursey, 2002; Matsuo and Oku, 2002; Rodda and Campbell, 2002; Jeffrey, Nor Afandy, Abdullah, Sulaiman, Moktar, Omar, Hidayatulfathi, Ismail, Ahmad Firdaus, Krishnasamy and Krishasamy, 2003; Krysko, Sheehy and Hooper, 2003; Norman, 2003; Mueller, 2004; Stender-Seidel and Boeckler, 2004; Vences, Wanke, Vietes, Branch, Glaw and Meyer, 2004; Goldberg, Bursey and Telford, 2005; Michael, 2005.

Heteronotia binoei

Distribution. The species occurs virtually throughout mainland Australia except for the cool, moist southwestern and southeastern corners.

The distribution in New South Wales based on voucher specimens in the Australian Museum is shown in the accompanying map.



Habitats. The species occurs in shrubland (Sadlier and Shea, 1989), woodland (Sadlier and Shea, 1989; Baker *et al*., 1998) and dry sclerophyll forest (Baker *et al*., 1998). It can be very common in disturbed areas (Henle, 1990), especially in old style (i.e., widely scattered) rubbish tips (Maryan, 1996).

Seasonal activity.

Daily activity. The species is nocturnal (Henle, 1990, 1996; McKay and Clare, 1999) and terrestrial (How and Kitchener, 1983; Henle, 1990, 1996; Maryan, 1996; McKay and Clare, 1999) to slightly arboreal ($\leq$ 0.8 m above the ground under bark on dead trees)(How and Kitchener, 1983; Henle, 1990).

The species shelters under surface debris (Henle, 1990, 1996) and in both active (Pianka and Giles, 1982) and disused burrows of other species (Henle, 1990; Pearson *et al*., 2001). One individual was found in a disused Fairy Martins nest (Schulz, 1998), attesting to the species' climbing abilities.

Sociality. Adults and juveniles and adult males and adult females occur together under surface cover, but adults of the same sex (n = 100) did not occur under the same piece of cover unless it was $\geq$ 4 m^2 (Henle, 1990).

Rapid vibration of the tail against the substrate is said to play a prominent part in social behaviour in the species, but just how was not stated (Bustard, 1965c).

Diet. In the wild, the species eats a wide variety of invertebrates (Pianka, 1986; Henle, 1990).

Foraging behaviour. In a southwestern New South Wales population, mean prey size is significantly smaller in juveniles than in adults (Henle, 1990), suggesting that prey selection based on size is probably occurring.

Reproduction. In southwestern New South Wales, the smallest "reproductive" female had a snout-vent length of 42 mm (Henle, 1990). In this area, females carrying oviducal eggs can be found in mid-spring (November) (Henle, 1990).

Fat bodies. Body cavity fat bodies are absent in the species (Henle, 1990). What compensatory fat storage capacity there may be is unknown.

Clutch size. Clutch size is two (Pianka, 1986, n = 8; Henle, 1990, n = 17).

Relative clutch mass. The relative clutch mass for a single female was 0.79 (Henle, 1990).

Sex ratio. In a population in southwestern New South Wales, the number of males (21) and females (20) did not differ significantly (Henle, 1990), but in populations in northwestern New South Wales, females usually outnumber males, in some populations, significantly so (Henle, 1996).

Sexual dimorphism. In southwestern New South Wales, mean snout-vent in males (43.8 mm, n = 20) is not significantly different than in females (45.9 mm, n = 31) (Henle, 1990), although the P value (0.06) is so close that it may be best to reserve judgement.

Size. The largest individual in a southwestern New South Wales population measured 52 mm in snout-vent length (Henle, 1990).

Predators. In a population in southwestern New South Wales, 67 percent of 91 marked individuals had a lost or regenerated tail (Henle, 1990).

The species is susceptible to the bite and venom of centipedes (Orange, 1989), although whether they succumb to these invertebrates in the wild is unknown.

Parasites. In a southwestern New South Wales population, "almost all" individuals were infected with "blood mites". This was in contrast to the two local *Diplodactylus* species, *D. damaeus* and *D. tessellatus*, which were unaffected (Henle, 1990).

The species' known endoparasites include cestodes (Jones, 1987). See also: Paperna and Finkelman, 1998; Paperna, 1999

Conservation. The species seems to occur in relatively high numbers where there are large amounts of human debris on the ground. In this regard, the species should do well in the future world.

Literature. Kluge, 1963a; Bustard, 1965c, 1967, 1968; Bustard and Hughes, 1966; Pianka and Giles, 1982; How and Kitchener, 1983; Morley and Morley, 1984; Jones, 1987; Shea, Weigel, Harwood, Floriana and Hemsley, 1988; Orange, 1989; Henle, 1990; Moritz, Adams, Donnellan and Baverstock, 1990; Henle, 1996; Maryan, 1996; McKay and Clare, 1999; Paperna and Finkelman, 1998; Paperna, 1999; Pearson, Davies, Carnegie and Ward, 2001; Kearney and Shine, 2005; Strasburg and Kearney, 2005.

Heteronotia planiceps

Distribution.

Habitat.

Activity.

Diet.

Reproduction.

Literature. Storr, 1989

Heteronotia spelea

Distribution.

Habitats. The species occurs on rocky outcrops (McKay and Clare, 1999).

Activity. The species is nocturnal (McKay and Clare, 1999) and saxicolous (McKay and Clare, 1999).

Diet.

Reproduction.

Literature. Kluge, 1963a; McKay and Clare, 1999.

Lepidodactylus lugubris
Mourning Gecko

Distribution. The species is widespread throughout the islands of the Indian and Pacific Oceans and on many mainland areas bordering these oceans. The species has probably been introduced into Australia and is known from scattered localities areas along the east coast of Queensland.

Habitats. In Australian, the species is almost always found in and on buildings (Turner and Green, 1996; Limpus *et al*., 1999). In other parts of its range it occurs in and on buildings (Perry and Ritter, 1999) as well as in semi-natural areas (Perry and Ritter, 1999).

Activity. The species is both nocturnal and diurnal (Perry and Ritter, 1999) in its activity on the surface. At night it is probably most commonly seen around lights on buildings (Turner and Green, 1996). During the day, it may be out during both cloudy and sunny conditions (Perry and Ritter, 1999).

Diet. In the wild, the species eats mosquitoes and moths (Turner and Green, 1996). It also feeds on nectar (Perry and Ritter, 1999). In domestic kitchens it eats jam, sugar crystals; licks dinner plates, and drinks milk (Perry and Ritter, 1999).

Parthenogenesis. Most, if not all, populations of this species consist only of females, which produce eggs that do not need to be fertilised by sperm from a male (Cuellar and Kluge, 1972; Limpus *et al*., 1999). In other words, they are parthenogenetic. Occasionally males appear in these populations, but those males that have been investigated often turn out to be impaired in some way (Yamashiro and Ota, 1998). It is not clear how these males arise. In some areas, they may arise through the mating of a female of *Lepidodactylus lugubris* and a male of a closely related sexual species. But in areas where there are no other closely related species, they must arise through a developmental perturbation of a female (Yamashiro and Ota, 1998).

Reproduction. On Heron Island, off the coast of Queensland, gravid females ranged 41.2-48.7 mm (mean = 44.5 mm) (Limpus *et al*., 1999).

In far northern Queensland, females are gravid in late summer (7-10 March) (Turner and Green, 1996).

Clutch size. Clutch size is almost usually two (Jones *et al*., 1978; Turner and Green, 1996; Limpus *et al*., 1999). In one sample of 25 gravid females on Heron Island, 88 percent had two eggs, one in each oviduct, and 12 percent had one egg (Limpus *et al*., 1999).

Each ovary contributes one egg to each clutch (Jones *et al*., 1978).

Eggs. Freshly laid eggs are nearly spherical in shape, measuring approximately 8 x 7 mm. They are also adhesive (Turner and Green, 1996).

Egg-laying sites. The eggs may be laid under cover on the ground, building surfaces in shaded areas, and in cavities of buildings (Turner and Green, 1996).

The species sometimes lays communally, with up to ten eggs (i.e., from four females) in proximity (Turner and Green, 1996).

Size. The snout-vent length of the largest individual from any Australian population was 48.7 mm (Limpus *et al*., 1999).

Predators. The species' only recorded predators are the gecko *Hemidactylus frenatus* (T. Hawkes, in Turner and Green, 1996) and the skink *Carlia longipes* (O'Brien, 1994).

Parasites. The species' recorded endoparasites include cestodes (Goldberg *et al*., 2000; Goldberg and Bursey, 2002), nematodes (round worms)(Brown et al., 1995; Bursey and Goldberg, 1996, 2001; Goldberg and Bursey, 1997; Goldberg *et al*., 1998; Goldberg *et al*., 2000; Goldberg and Bursey, 2002) and trematodes (flukes)(Dailey *et al*., 1998).

Literature. Wood-Jones, 1909; Cagle, 1946; Oliver and Shaw, 1952; Cuellar and Kluge, 1972; Jones, Fitzgerald and Duvall, 1978; Mau, 1978; McCoy, 1980; Cogger, Cameron and Sadlier, 1983; Ineich, 1988; Ota, 1989; Zug, 1991; Bolger and Case, 1992; Cameron and Cogger, 1992; Ineich and Ota, 1992; Saint Girons and Ineich, 1992; Case, Bolger and Petre, 1994; O'Brien, 1994; McCoid, 1994; Ota, 1994; Brown, Kwan and Shero, 1995; Radtkey, Donnellan, Fisher, Moritz, Hanley and Case, 1995; Brown and Murphy-Walker, 1996; Bursey and Goldberg, 1996; Turner and Green, 1996; Goldberg and Bursey, 1997; Dailey,

Goldberg and Bursey, 1998; Goldberg, Bursey and Cheam, 1998; Yamashiro and Ota, 1998; Perry and Ritter, 1999; Goldberg, Bursey and Cheam, 2000; Yamashiro, Toda and Ota, 2000; Bursey and Goldberg, 2001; Goldberg and Bursey, 2002.

Lepidodactylus pumilus

Distribution.

Habitats.

Activity.

Diet.

Reproduction.

Predators.

Literature. Boulenger, 1885.

Nactus cheverti

Distribution. The species occurs on Cape York Peninsula, from the eastern side of Princess Charlotte Bay south. It also occurs on the following islands: Dunk, Flinders and Nymph. (Zug, 1998)

Habitats.

Activity.

Diet.

Reproduction.

Maximum size. The snout-vent length of the largest measured specimen was 57.0 mm for a female (Zug, 1998).

Chromosomes. Moritz, 1987.

Predators.

Parasites.

Literature. Macleay, 1877 (as *Hetoronota marmorata*); Boulenger, 1885; Werner, 1913; Loveridge, 1934; Kluge, 1963; Moritz, 1987; Zug, 1998.

Nactus eboracensis

Distribution. The species occurs on Cape York Peninsula, north of Princess Charlotte Bay.

It occurs on the following islands in the Torres Strait: Great Woody, Horn, Mt Ernest, Wednesday, Thursday, Yam and York (Zug, 1998)

Habitats.

Activity.

Diet.

Reproduction.

Maximum size. The snout-vent length of the largest measured specimen was 57.6 mm for a female (Zug, 1998).

Predators.

Literature. Macleay, 1877; Loveridge, 1934; Kluge, 1963; Zug, 1998.

Nactus galgajuga

Distribution. The species only occurs on Trevethan Range in northeastern Queensland.

Habitat. The species occurs on the black rocks and boulders of the range to which they are endemic (Sonnemann, 1997: fig. on p. 11).

Activity. The species is nocturnal in its surface activity (Ingram, 1978; Sonnemann, 1997). By day, it shelters in the crevices formed by the boulders (Ingram, 1978).

Diet.

Reproduction.

Predators.

Parasites.

Literature. Ingram, 1978; Sonnemann, 1997; Zug, 1998

Nephrurus amyae

Distribution. The species occurs in the southcentral parts of the Northern Territory (Couper and Gregson, 1994: fig. 3).

Habitats. The species is associated with *Triodia*

Activity.

Diet. In the wild, the species eats centipedes, cockroaches, grasshoppers (Couper and Gregson, 1994).

Reproduction. Males collected in mid- to late spring (early October-late November) were said to be in "reproductive condition": (Couper and Gregson, 1994). Females are gravid in early summer (January).

Clutch size. The species lays two eggs in a clutch (Bedford and Christian, 1993; Couper and Gregson, 1994).

Eggs. Two eggs artificially induced to be laid measured 34.3-37.0 mm in length and 16.1-16.6 in width and weighed 5.6-5.8 g (Bedford and Christian, 1993).

Relative clutch mass. The relative clutch mass of a female artificially induced to lay her eggs was 0.25 (Bedford and Christian, 1993).

Size. The largest measured specimen had a snout-vent length of 135 mm (Cameron and Cogger, 1992).

Defence. When threatened, the species inflates its body and raises and lowers itself on its legs (Bedford and Christian, 1993).

Literature. Bedford and Christian, 1993 (as *N. asper*); Couper and Gregson, 1994.

Nephrurus asper

Distribution. The species occurs in most parts of Queensland except for the northwestern and southern regions (Couper and Gregson, 1994: fig. 3).

Habitats. Habitats have been recorded as low heathland (Cameron and Cogger, 1992), open woodland on rocky substrate (T. Hawkes and S. Wilson, in Couper and Gregson, 1994) and open forest (Cameron and Cogger, 1992).

Activity. The species is primarily, if not exclusively, nocturnal.

In captivity, the species digs its own shelter burrows (Annable, 1992).

Thermoregulation. In captivity, feeding is reduced at 20º C and ceases altogether at 18º C (Annable, 1992; T. Annable, in Porter, 1992).

Diet. In the wild, the species eats beetle larvae, centipedes, cockroach, grasshoppers, phasmids and spiders (Couper and Gregson, 1994). A museum specimen contained cricket remains, and it was not clear if the specimen was wild caught or had been in captivity (crickets are an favoured food by many keepers).

In captivity, the species eats a very large range of invertebrates including: beetles, centipedes cockroaches (Annable, 1992), crickets (T. Annable, in Porter, 1992), earwigs, grasshoppers, mantids, moths, pea crabs, phasmids, scorpions, scutigera, silverfish, spiders and woodlice (Annable, 1992). It will also eat geckos and pink mice (Annable, 1992).

This is one of the few species of Australian reptiles for which a study of animals the species will not eat has been recorded. For example, it will not generally eat: ants, bombardier beetles, some cockroaches, hemipterans, millipedes, tiger moths and wasps (Annable, 1992).

Foraging behaviour. In captivity, the geckos can detect cockroaches they can not see, probably by hearing them (Annable, 1992).

Drinking. The species will drink from a water container. At each drink, the gecko laps four to eight times before lifting the head (Annable, 1992). One 40 g female drank 1.2 percent of her body weight (Annable, 1992).

Courtship and mating. In captivity, copulation may last as long as 30 minutes (Anonymous, in Porter, 1992).

Sperm storage. A wild-caught female produced viable eggs after being separated from a male for 140 days (Couper, 1996).

Reproduction. Males are in "reproductive condition" in late spring (late November) (Couper and Gregson, 1994).

Females carry large follicles in mid-summer (early February) (Couper and Gregson, 1994) and are gravid from mid-summer to early autumn (late February-mid-April) (Couper and Gregson, 1994).

Clutch size. The clutch size is two (Anonymous, in Porter, 1992; Couper and Gregson, 1994; Couper, 1996).

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
-	27	-	-	15	-	-	-	-	Anonymous, in Porter, 1992
26.2-31.0	28.5	4	15.1-17.2	16.3	4	3.3-3.7	3.5	2	Couper, 1996

The eggs may be rolled between the hind legs for as long as two hours (Anonymous, in Porter, 1992).

Relative clutch mass. The relative clutch mass for one clutch of eggs was 0.25 (Couper, 1996).

Frequency of reproduction. In captivity, a diet of three large crickets every two days is enough for a 36 g female to produce regular clutches of two eggs (Annable, 1992; T. Annable, in Porter, 1992).

In captivity, a second clutch can be laid between 22 and 58 days (mean = 35 days) after the first clutch (Anonymous, in Porter, 1992).

Egg-laying site. In captivity, gravid females will dig a hole for their eggs (Couper, 1996), suggesting that they might also bury their eggs in the wild.

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days) Range	Mean	N	Reference
28	90-100	-	-	Anonymous, in Porter, 1992
21-31	115-130	125	3	Couper, 1996

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
44.8-46.4	45.8	3	-	-	-	2.5-3.2	2.9	3	Couper, 1996

Size. The largest measured specimen had a snout-vent length of 114 mm (Couper and Gregson, 1994).

Colour change. The species can change colour from pale creamy brown to dark brown within five minutes. The geckos are usually paler when active and darker when inactive (Annable, 1992).

Swimming. The species swims using its legs (Annable, 1992).

Defence. When approached by a small pygopodids, snakes or mammals, the gecko raises and lowers itself on extended legs, opens its mouth and lunges or jumps toward the intruder, often vocalising as it does (Bustard, 1979). However, when confronted with a larger snake, the geckos usually flees (Bustard, 1979).

Literature. Bustard, 1979 (as *N*. "*asper*"); Russell and Bauer, 1987; How, Dell and Wellington, 1990 (probably included mostly *N*. *sheai* and *N*. *amyae* in that order and very few *N*. *asper*); Annable, 1992 (but includes one *N*. *amyae*, T. Annable, pers. comm.); Cameron and Cogger, 1992; Porter, 1992; Couper and Gregson, 1994; Couper, 1996.

Nephrurus deleani

Distribution. The species occurs only in a relatively small area of central South Australia (Read, 1998: fig. 3)

Habitats. The species is strongly associated with sand dunes, carrying hummock grasslands (Read, 1998), shrublands (Harvey, 1983; Read, 1998) and woodlands (Read, 1998).

Activity.

Diet. In the wild, the gecko eats a variety of invertebrates including ants, beetles, cockroaches, grasshoppers, hemipterans, scorpions, spiders and termites (Read, 1998).

Reproduction. Females are gravid in mid-spring (30 October), mid-summer (January) and early to mid-autumn (April-May) (Delean and Harvey, 1984; Read, 1998). This is a very extended breeding season. It especially raises the issue of whether females lay their eggs in autumn or carry them through until the following spring, and if they lay in autumn, how well the eggs overwinter at the high latitudes to which the species is endemic.

Clutch size. The species lays two eggs in a clutch (Delean and Harvey, 1984; Annable, 1998; Read, 1998).

Relative clutch mass. Relative clutch mass has been asserted to range 0.35- c. 0.50 (n = ?) without supporting data or further details (Annable, 1998).

Nesting. In captivity, a female buried her two eggs approximately 2 cm deep in a vermiculate substrate (Delean and Harvey, 1984). This suggests that the species might also bury its eggs in the wild.

Eggs. Measurements and weights for eggs are given in the table.

Length (mm)			Width (mm)			Weight (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
20.7-25.4	-	8	11.4-13.4	-	8	2.0-2.5	-	-	Annable, 1998

Incubation. The eggs are asserted to absorb water to a value of about 20 percent by weight during the course of incubation (Annable, 1998).

At a temperature of 29-30º C, eggs take 55-56 eggs to develop and hatch (Delean and Harvey, 1984).

Hatching. In escaping the egg shell, hatchlings appear to make only one slit (Delean and Harvey, 1984).

Hatchlings. In the wild, hatchlings have been observed in mid-summer (February) (Read, 1998).

Measurements and weights for hatchlings are given in the following table.

Snout-vent Length (mm)			Total Length (mm)			Weight (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
36-37	36.5	2	-	-	-	1.9-2.1	2.0	2	Delean and Harvey, 1984
-	c. 36	-	-	c. 51	-	1.7-1.9	-	-	Annable, 1998

Sexual dimorphism. Snout-vent length is larger in females than in males. For example, among 35 field caught animals, males did not exceed 72 mm whereas eight females ranged 73-87 mm (Read, 1998).

Literature. Harvey, 1983; Delean and Harvey, 1984; Annable, 1998; Read, 1998.

Nephrurus laevissimus

Distribution.

Activity. The species is strictly nocturnal, with activity usually starting about an hour after sunset (Delean and Harvey, 1981). Activity diminishes markedly after midnight (Delean and Harvey, 1981).

Thermoregulation. During mid-summer (last week of January), individuals are active at air temperatures of 22-24º C (Delean and Harvey, 1981). The mean body temperature of 360 active geckos was 24.9º C (Pianka, 1986).

Diet. In the wild, the species eats a variety of invertebrates (Pianka, 1986; How *et al*., 1990).

Reproduction. Among a sample of museum species, snout-vent length at sexual maturity in males was 55 mm and among females 64.9 mm. (How *et al*., 1990). Snout-vent length in gravid females ranged 70.8-90.1 mm (mean = 78.1 mm) (How *et al*., 1990).

In the area between Ceduna and Tarcoola in southern South Australia, adult females were not carrying eggs during the last week of January (Delean and Harvey, 1981), suggesting that egg-laying may have finished for the season.

In a sample based on museum specimens from throughout the species' range, gravid females were found in every month except the two winter months of July and August (for which there were no specimens) (How *et al*., 1990). This suggests, somewhat surprisingly, that either females are either laying over much of the year or they are holding eggs in the oviduct for a long time.

The type specimen from 2 km northwest of Uluru (Ayers rock) was found dead on a dune on the first day of autumn (21 March) and carried one large egg in its body cavity (its belly had been ripped open), which from its dimensions (10 x 15 mm) was probably in the oviduct (Mertens, 1958a). This suggests that females in central Australia are still reproductively active in early autumn.

Clutch size. Clutch size averages 1.96 (n = 66)(Pianka, 1986).

Frequency of reproduction. Some females carry both oviducal eggs and yolking follicles, suggesting that a female may be able to lay at least two clutches in one season (How *et al*., 1990).

Hatchlings. In the area between Ceduna and Tarcoola in southern South Australia, the juveniles "tended to have much darker markings that adults" (Delean and Harvey, 1981).

Sex ratio. Among a sample of mature specimens in museum collections, the number of males (n = 78) and females (n = 71) was not significantly different (How *et al*., 1990).

Sexual dimorphism. Among a sample of mature specimens in museums, mean snout-vent length was significantly larger in females (77.0 mm, n = 71) than in males (66.4 mm, n = 78) (How *et al*., 1990).

Size. The largest specimen measured had a snout-vent length of 87 mm (Delean and Harvey, 1981).

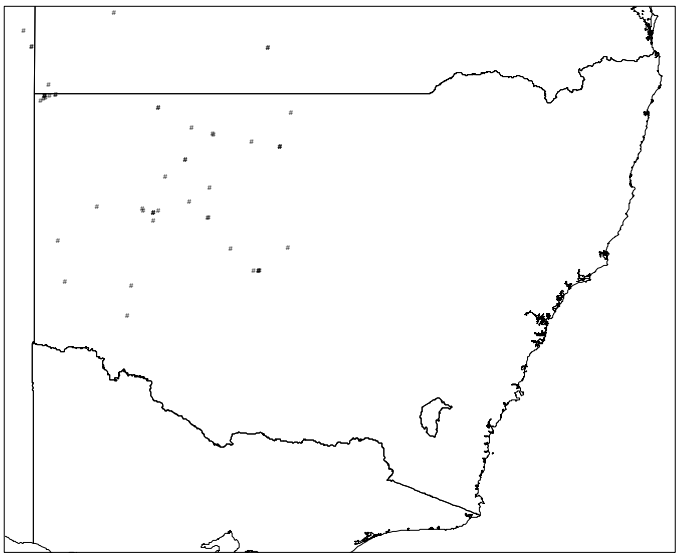
Predators.

Parasites. The species' recorded endoparasites include cestodes (tapeworms)(Bursey and Goldberg, 1999a) and nematodes (round worms)(Jones, 1987, 1995b; Bursey and Goldberg, 1999a)

Literature. Mertens, 1958a; Pianka and Pianka, 1976; Delean and Harvey, 1981; Jones, 1987; How, Dell and Wellington, 1990; Jones, 1995b; Bursey and Goldberg, 1999a.

Nephrurus levis

Distribution. The distribution in New South Wales based on voucher specimens in the Australian Museum is shown in the accompanying map.



Habitats. The species occurs in chenopod shrublands (Read and Badman, 1990) and in tall open heath (Maryan, 1996). A detailed study of the distribution of the species across the entire topography of a dune, found the species occurred about equally frequently on crest, slope and interdune (Downey and Dickman, 1993).

Activity. The gecko is entirely nocturnal and ground-dwelling (Maryan, 1996).

The species inhabits *Egernia* burrows (Bustard, 1965c; Pianka and Giles, 1982), which they close when inside (Bustard, 1965c).

Thermoregulation. The mean body temperature of 32 active geckos was 23.1º C (Pianka, 1986).

Diet. In the wild, the species eats a variety of invertebrates (Pianka, 1986; How *et al*., 1990). It also occasionally eats vertebrates, e.g., lizards (How *et al*., 1990).

Courtship and mating. During mating the male grasps the female by the skin of the neck and passes his body over the top of hers to bring his vent under hers (Herpetofauna 13(2): cover photo).

Reproduction. Among a sample of museum species, snout-vent length at sexual maturity in males was 62 mm and among females 71.0 mm. (How *et al*., 1990). Snout-vent length in gravid females ranged 71.0-95.8 mm (mean = 83.9 mm) (How *et al*., 1990).

In a sample based on museum specimens from throughout the species' range, gravid females were found in every month except the winter (June-August) (How *et al*., 1990). This suggests, somewhat surprisingly, that either females are either laying over much of the year or they are holding eggs in the oviduct for a long time.

Clutch size. Clutch size averages 2.0 (n = 5)(Pianka, 1986).

Frequency of reproduction. Some females carry both oviducal eggs and yolking follicles. This suggests that a female may be able to lay at least two clutches in one season (How *et al*., 1990).

Incubation. Incubation temperatures and periods are in the following table.

Incubation Temperature (ºC)	Incubation Period (Days) Range	Mean	Reference
26-28	-	63	Anonymous, in Porter, 1992
26-28	-	61	Anonymous, in Porter, 1992
28-28.5	-	70	Anonymous, in Porter, 1992
30	-	62	Anonymous, in Porter, 1992

Sex ratio. Among a sample of mature specimens in museum collections, the number of males (n = 65) and females (n = 73) was not significantly different (How *et al*., 1990).

Sexual dimorphism. Among a sample of mature specimens in museums, mean snout-vent length was significantly larger in females (82.8 mm, n = 73) than in males (69.9 mm, n = 65) (How *et al*., 1990).

Predators. The species is eaten by the elapid *Pseudonaja nuchalis* (Jones, 1990).

Defence. A gecko that had been partially swallowed by a large snake but was still alive had inflated its body (Jones, 1990).

Parasites. The species' recorded endoparasites include nematodes (round worms)(Jones, 1995b; Bursey and Goldberg, 1999a)

Literature. Bustard, 1965c; Pianka and Pianka, 1976; Pianka and Giles, 1982; Morley and Morley, 1984; Pianka, 1986; Browne-Cooper and Maryan, 1990; How, Dell and Wellington, 1990; Jones, 1990; Read and Badman, 1990; Downey and Dickman, 1993; Jones, 1995b; Maryan, 1996; Wagner and Lazik, 1996; Bursey and Goldberg, 1999a.

Nephrurus sheai

Distribution. The species occurs in the northern part of Western Australian (the Kimberley) and in the northern part of the Northern Territory (Couper and Gregson, 1994).

Habitats. The species inhabits open forest with grass understorey (Couper and Gregson, 1994).

Diet. In the wild, the gecko eats lepidopteran larvae and termites (Couper and Gregson, 1994).

Reproduction. Among a sample of museum specimens that may have contained more than one species, snout-vent length at sexual maturity in males was 65 mm and among females 73.0 mm. (How *et al*., 1990). Snout-vent length in gravid females ranged 90.0-113.1 mm (mean = 100.4 mm) (How *et al*., 1990).

Females contain large follicles in mid-autumn (May) (Couper and Gregson, 1994). Females are gravid from mid-summer through to early winter (December, January, February and June) (Gow, 1979; Couper and Gregson, 1994).

In a sample based on museum specimens from throughout the species' range and which may have included more than one species, gravid females were found in spring (October-November), summer (January-February) and late-autumn to early winter (May-June)(How *et al*., 1990).

The occurrence of oviducal eggs raises the question of what the females do with them. Do they lay in early winter, and if so, what is the fate of these eggs, or do they hold them until spring?

Frequency of reproduction. In a sample based on museum specimens from throughout the species' range and which may have included more than one species, some females were found carrying both oviducal eggs and yolking follicles, suggesting that a female may be able to lay at least two clutches in one season (How *et al*., 1990).

Clutch size. The clutch size is usually two (Couper and Gregson, 1994). Instances of a clutch size of one (How *et al*., 1990) may be a full complement or may represent a female caught between laying her first and second eggs.

Eggs. Freshly laid eggs measure 29-30 mm in length and 15.5-16.5 mm (Couper and Gregson, 1994).

Incubation. At an incubation temperature of 25º C, eggs hatch in 115 days (Ehmann, 1992).

Sex ratio. Among a sample of mature specimens in museum collections that may have included more than one species, the number of males (n = 24) and females (n = 28) was not significantly different (How *et al*., 1990).

Sexual dimorphism. Among a sample of mature specimens in museum collections that may have included more than one species, mean snout-vent length was significantly larger in females (98.5 mm, n = 28) than in males (84.9 mm, n = 24) (How *et al*., 1990).

Size. The largest measured specimen had a snout-vent length of 121 mm (Couper and Gregson, 1994).

Literature. Gow, 1979 (as *N. asper*); How, Dell and Wellington, 1990 (as *N. asper*); Ehmann, 1992; Couper and Gregson, 1994.

Nephrurus stellatus

Distribution.

Habitat. The species occurs in woodland (Galliford, 1981).

Activity.

Temperature relationships. In the wild, individuals are active at ground temperatures as low as 19-21º C and at air temperatures as low as 24º C (Page, 1995).

In a laboratory thermal gradient, there was no significant difference between the diurnal (24.2º C) and nocturnal (25.95º C) preferred body temperatures, the overall mean being 25.1º C (Angilletta and Werner, 1998).

Diet. In the wild, the species eats a variety of invertebrates (How *et al*., 1990).

Courtship and mating. Mating has been observed in the wild in late winter (17 August) (Page, 1995).

Reproduction. Among a sample of museum species, snout-vent length at sexual maturity in males was 59 mm and among females 70.5 mm. (How *et al*., 1990). Snout-vent length in gravid females ranged 84.0-90.6 mm (mean = 87.2 mm) (How *et al*., 1990).

In a sample based on museum specimens from throughout the species' range, gravid females were found in late spring (December) (How *et al*., 1990).

Frequency of reproduction. Some females carry both oviducal eggs and yolking follicles, suggesting that a female may be able to lay at least two clutches in one season (How *et al*., 1990).

Sex ratio. Upon first emergence in late winter (17 August), the adult sex ratio of field-observed animals was 11 males and 5 females (Page, 1995) and in early autumn (4-5 April) the sex ratio was 5 males and 7 females (Galliford, 1981). Neither of these sex ratios is significantly different from 1:1.

Sex ratio. Among a sample of mature specimens in museum collections, the number of males (n = 27) and females (n = 14) was not significantly different ($X^2 = 2.06$, $P > 0.05$)(How *et al*., 1990).

Sexual dimorphism. Among a sample of mature specimens in museums, mean snout-vent length was significantly larger in females (80.4 mm, n = 14) than in males (68.4 mm, n = 27) (How *et al*., 1990).

Unusual morphology. There is a picture of an individual of this species that has six digits on the front foot instead of five (Herpetofauna 8(1):cover). The extra digit appears to be number six in the sequence and seems to be well integrated into the foot as a whole. Such specimens are important, because they show that there can be sudden relatively large changes in morphology that might be immediately advantageous; in this case, a larger spread over the entire foot.

Literature. Galliford, 1981; Harvey, 1983; How, Dell and Wellington, 1990; Page, 1995; Angilletta and Werner, 1998.

Nephrurus vertebralis

Distribution.

Habitat.

Activity.

Thermoregulation. The mean body temperature of 14 active geckos was 24.1º C (Pianka, 1986).

Diet. In the wild, the species eats a variety of invertebrates (Pianka, 1986; How *et al*., 1990).

Reproduction. Among a sample of museum species, snout-vent length at sexual maturity in males was 55 mm and among females 66.7 mm. (How *et al*., 1990). Snout-vent length in gravid females ranged 67.3-90.0 mm (mean = 84.1 mm) (How *et al*., 1990).

In a sample based on museum specimens from throughout the species' range, gravid females were found in summer (January-February) (How *et al*., 1990).

Frequency of reproduction. Some females carry both oviducal eggs and yolking follicles, suggesting that a female may be able to lay at least two clutches in one season (How *et al*., 1990).

Sex ratio. Among a sample of mature specimens in museum collections, the number of males (n = 17) and females (n = 10) was not significantly different (How *et al*., 1990).

Sexual dimorphism. Among a sample of mature specimens in museums, mean snout-vent length was significantly larger in females (79.6 mm, n = 10) than in males (64.5 mm, n = 17) (How *et al*., 1990).

Predators.

Parasites. The species' known predators include nematodes (round worms)(Bursey and Goldberg, 1999a).

Literature. How, Dell and Wellington, 1990; Bursey and Goldberg, 1999a.

Nephrurus wheeleri

Distribution.

Habitat.

Activity.

Diet. In the wild, the species eats a variety of invertebrates (How *et al*., 1990).

Reproduction. Among a sample of museum species, snout-vent length at sexual maturity in males was 70 mm and among females 80.5 mm. (How *et al*., 1990). Snout-vent length in gravid females ranged 82.3-94.6 mm (mean = 88.9 mm) (How *et al*., 1990).

In a sample based on museum specimens from throughout the species' range, gravid females were found in late spring (November-December) and late summer – late autumn (March, May and June) (How *et al*., 1990).

Frequency of reproduction. Some females carry both oviducal eggs and yolking follicles, suggesting that a female may be able to lay at least two clutches in one season (How *et al*., 1990).

Sex ratio. Among a sample of mature specimens in museum collections, the number of males (n = 17) and females (n = 18) was not significantly different (How *et al*., 1990).

Sexual dimorphism. Among a sample of mature specimens in museums, mean snout-vent length was significantly larger in females (90.0 mm, n = 18) than in males (76.3 mm, n = 17) (How *et al*., 1990).

Literature. How, Dell and Wellington, 1990.

Oedura castelnaui

Distribution. The species occurs on Cape York Peninsula and south somewhat in near coastal areas of northeastern Queensland.

Habitats.

Activity. The species shelters beneath the exfoliating bark of dead trees (Bustard, 1970a; Baker *et al*., 1998) or beneath rock (Bustard, 1970a). Three or four individuals can occur together on the same tree (Bustard, 1970a).

Agonistic behaviour. In captivity, a "significant lack of aggressive behaviour in both male and female" individuals has been reported (Baker *et al*., 1998).

Reproduction. A female caught in the wild in late winter (August) laid eggs in late spring (December) (Bustard, 1967d). If the female had been kept isolated from males in this period, there is the possibility that the female had stored sperm.

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
22-22.5	22.3	2	10.5-11	10.7	2	1.57-1.59	1.58	2	Bustard, 1967d

On moist substrates, the eggs may increase appreciably in mass (up to 143 percent) presumably due to the uptake of water (Bustard, 1967d).

Incubation. Two eggs incubated at 30º C hatched in 60 days (Bustard, 1967d).

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
38	38.0	1	60	60.0	1	1.34	1.34	1	Bustard, 1967d

Relative clutch mass. Relative clutch mass for one clutch was 0.22 (n = 1)(Bustard, 1967d).

Sexual dimorphism. The postanal tubercles are better developed in males than in females, and preanal and femoral pores are present only in males (Bustard, 1970).

Conservation.

Literature. Bustard, 1966; Bustard, 1967d.; Bustard, 1970a.

Oedura coggeri

Distribution. This gecko occurs in a small area of northeastern Queensland.

Habitat. The species occurrs in rocky outcrops in open woodland (Baker *et al*., 1998).

Activity. The geckos shelter under rock exfoliations and in rock crevices (Baker *et al*., 1998).

Diet.

Reproduction. A wild-caught female laid eggs in later winter (September)(Bustard, 1967d).

Predators.

Parasites.

Literature. Bustard, 1967d.

Oedura filicipoda

Distribution. The species occurs around the Mitchell Plateau in northwestern Western Australia (King, 1984c).

Habitat. The species occupies caves in sandstone (King, 1984c).

Activity.

Locomotion. The species is capable both of leaping and a "galloping" gait (King, 1984c).

Diet.

Reproduction.

Predators.

Defence. In defensive display, the species flattens its body against the substrate, arches the tail in the air and wriggles the tip from side to side (King, 1984c).

Parasites.

Literature. King, 1984c; Shea, Weigel, Harwood, Floriana and Hemsley, 1988.

Oedura gracilis

Distribution. The species occurs on and around the Mitchell Plateau of northwestern Western Australia (King, 1984c).

Habitats. The species occurs in areas of extensive, exposed sandstone (King, 1984c).

Activity.

Diet.

Reproduction.

Predators.

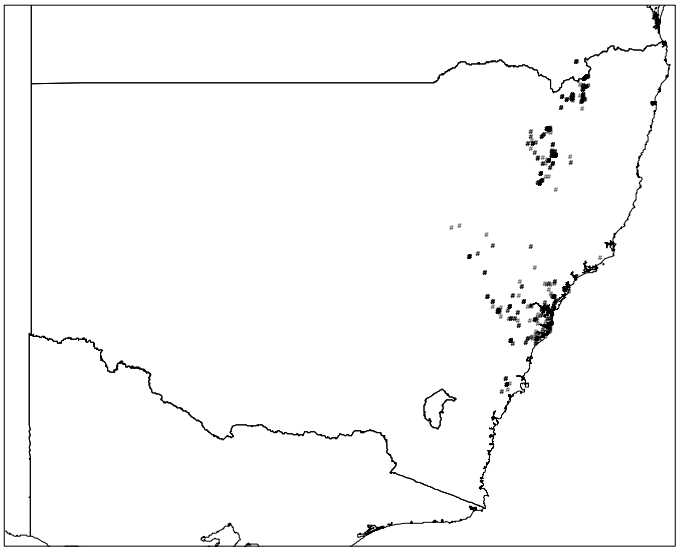
Parasites.

Literature. King, 1984c; Shea, Weigel, Harwood, Floriana and Hemsley, 1988.

Oedura lesueurii
Lesueur's Velvet Gecko

Distribution. The species occurs between southeastern Queensland and an area just west of Nowra on the south coast of New South Wales. In the northern part of its range it occurs only at higher elevations, but further south it occurs at lower elevations.

The distribution in New South Wales as based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.



Habitats.

Activity. In captivity, the geckos become active soon after dark and retreat to shelter several hours prior to artificial "dawn" (Schlesinger and Shine, 1994b).

Shelter sites. In laboratory choice experiments, the geckos prefer crevices that are: in larger instead of smaller rocks; a snug instead of a loose "fit"; parallel sided instead of wedge-shaped; close to the ground instead of well above it; warm instead of cool and dry instead of moist. However, they show preference for crevices that are horizontal versus vertical (Schlesinger and Shine, 1994b).

Thermoregulation. In an experimental situation in the lab, the geckos show a preference for warm shelter sites (cycling between 37 and 17º C) as opposed to cool shelter sites (17º C) (Downes and Shine, 1998b; see also Schlesinger and Shine, 1994). This shows that the geckos, even thought they spend the day under cover, are likely to thermoregulate within their shelters.

Agonistic behaviour. In the lab, larger males exclude smaller males from warm shelter sites (Downes and Shine, 1998b; see also Schlesinger and Shine, 1994b). Hence there is clearly competition for the resource of a warm shelter site.

Diet.

In captivity, the gecko eats cockroaches (Schlesinger and Shine, 1994b; Doughty, 1997), crickets (Downes and Shine, 1998b) and mealworms (Doughty, 1997).

Reproduction. The mean snout-vent length of 30 females that laid eggs was 63.7 (Doughty, 1997).

Clutch size. Clutch size is almost invariably two (n = 32) (Doughty, 1997).

Relative clutch mass. The relative clutch mass (wet total mass of eggs/mass of female after birth) for one clutch of eggs was 0.305 in one study (Bustard, 1967) and for 16 clutches had a mean of 0.32 in another study (Doughty, 1997). However, another measure of relative clutch mass ((female pre-deposition mass-female post-deposition mass)/female post-deposition mass) for 32 clutches had a mean of 0.27 (Doughty, 1997). The former does not account for any water that may be absorbed from the substrate between the time of laying and the time of discovery, whereas the latter measure does.

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
						-	0.56	16	Doughty, 1997
16	16.0	2	7.5-8	7.7	2	-	0.55	2	Bustard, 1967

On moist substrates, the eggs may increase appreciably in mass (up to 46 percent) presumably due to the uptake of water (Bustard, 1967).

Eggs are at developmental stage 30 (Dufaure and Hubert, 1961) when laid (Doughty, 1997).

Incubation. Data on incubation periods are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days)			Reference
	Range	Mean	N	
23	-	c. 120	-	Doughty, 1997
27	-	c. 80	-	Doughty, 1997
30	58	58.0	2	Bustard, 1967

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
-	28.9	12	- -	-		-	0.46	13	Doughty, 1997
28	28.0	1	46 1	46.0		0.51	0.51	1	Bustard, 1967

Both mean hatchling wet mass ($r = 0.70$, $P < 0.05$, $n = 10$) and mean hatchling dry mass ($r = 0.77$, $P < 0.05$, $n = 9$) are positively and significantly correlated with female snout-vent length although only the latter is positively correlated with post-deposition female mass ($r = 0.68$, $P < 0.05$, $n = 9$) (Doughty, 1997). These data indicate that larger females produce larger hatchlings.

Perhaps not too surprisingly, wet hatchling mass is positively significantly correlated with wet egg mass ($r = 0.65$, $P < 0.05$, $n = 10$) (Doughty, 1997). In other words, larger eggs produce larger hatchlings.

Hatchling wet mass is positive correlated with hatchling snout-vent length ($r = 0.69$, $P < 0.05$, $n = 9$) (Doughty, 1997). In other words, larger hatchlings tend to be heavier, an expected result.

Size. Among 30 wild-caught mature males, the mean snout-vent length was 49.9 mm and the mean mass was 3.2 g (Downes and Shine, 1998b).

Predators. The species' only known predator is the Broad-headed Snake, *Hoplocephalus bungaroides* (Webb, 1996; Webb and Shine, 1997#).

Defence. In an experimental situation in the lab, the geckos avoid rock shelters that carry the scent of one of their predators, the Broad-headed Snake, *Hoplocephalus bungaroides* (Downes and Shine, 1998a-b). And they will choose to avoid a warm rock shelter for a cool one, if the warm one carries snake scent and the cool one does not (Downes and Shine, 1998b). Thus they choose short-term survival over short-term temperature preference, which is really no choice at all when you think about it.

When grasped by a predator such as a snake, the species may give a shriek-like cry (Scanlon, 2001).

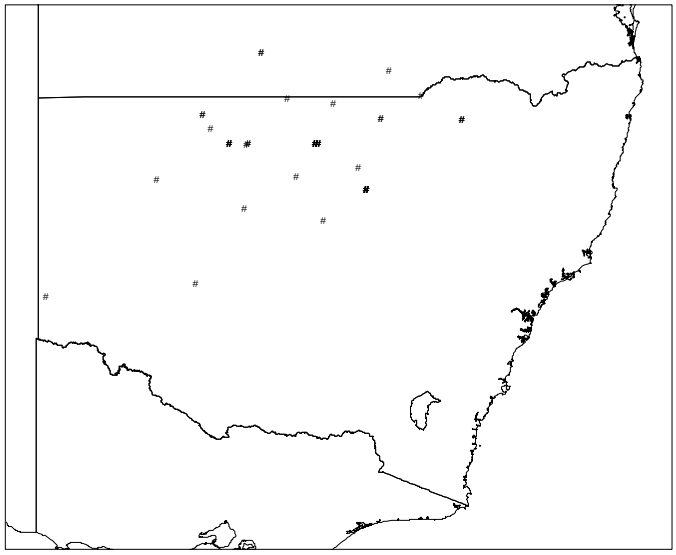
Conservation status. The species shelters under rocks lying on rock. These rock are often removed for use in gardens, thus destroying an important component of the gecko's structural habitat (Webb and Shine, 2000).

Literature. Bustard, 1967; Schlesinger, 1991; Schlesinger and Shine, 1994a-b; Webb, 1996; Doughty, 1997; Webb and Shine, 1997#; Downes and Shine, 1998a-b; Webb and Shine, 1998#; Webb and Shine, 2000; Downes and Adams, 2001.

Oedura marmorata

Distribution. The species occurs across a wide area of northern Australia exclusive of the northeastern and eastern parts of the continent.

The distribution in New South Wales based on voucher specimens in the collections of the Australian Museum and the literature (Eipper, 2004) is shown in the accompanying map.



Habitat. The species occurs in mallee/heathland (Watharow, 1998b).

Seasonal activity. In southwestern New South Wales, the species can remain active on the surface as late as early autumn (13 April) (Eipper, 2004b).

Daily activity. The species is nocturnal in its activity in the open (K. Slater in Bustard, 1970).

The species shelters beneath the exfoliating bark of dead trees (Bustard, 1970; Miller, 1980) and in rock crevices (Bustard, 1970; Miller, 1980).

It can also occur on human habitations (Eipper, 2004b).

Temperature relationships. In a laboratory thermal gradient, there was no significant difference between the diurnal (30.97º C) and nocturnal (32.98º C) preferred body temperatures, the overall mean being 31.97º C (Angilletta and Werner, 1998).

In the wild, one individual was found active at an ambient air temperature of 24º C (Eipper, 2004b).

Diet.

Reproduction. Snout-vent length in females that have laid eggs ranges 90-100 mm (n = 4) (Bustard, 1967d).

Relative clutch mass. Relative clutch mass ranges 0.24-0.30 (mean = 0.27, n = 3) (Bustard, 1967d).

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	

22.5-28.0	24.4	8	9.8-11	10.4	8	1.35-1.59	1.46	8	Bustard, 1967d

On moist substrates, the eggs may increase appreciably in mass (up to 37.0 percent) presumably due to the uptake of water (Bustard, 1967d).

Incubation. Data on incubation periods are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days) Range	Mean	N	Reference
30	88	88.0	1	Bustard, 1967d

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
38	38.0	1	58	58.0	1	1.30	1.30	1	Bustard, 1967d

Growth.

Tail regeneration. Complete original tails are distinctly banded, but regenerating and regenerated tails are mottled. Furthermore, tails in the early stages of regeneration lack yellow and only gain it after substantial regeneration has occurred (Bedford and Christian, 1998). The adaptive significance of these differences in this pattern and colour difference in regenerating tails, if any, is unknown.

Sexual dimorphism. The postanal tubercles are better developed in males than in females, and preanal and femoral pores are present only in males (Bustard, 1970).

Predators.

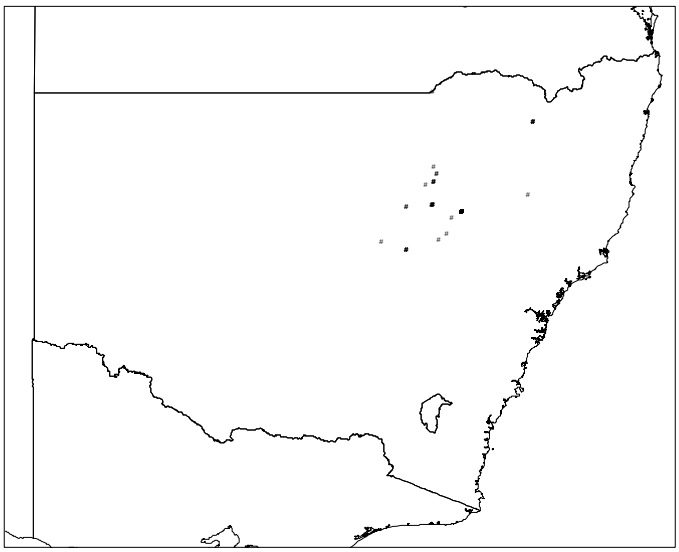
Parasites.

Literature. Bustard, 1967; Bustard, 1970, a; Bustard, 1970; Miller, 1980; Angilletta and Werner, 1998; Watharow, 1998b; Eipper, 2004b.

Oedura monilis

Distribution. The species occurs in eastern Australia between the base of Cape York Peninsula and north central New South Wales.

The species' distribution in New South Wales based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.



Habitat. The species occurs in woodland (Valentic and Turner, 2001; LeBreton *et al*., 2002), dry sclerophyll forest (Baker *et al*., 1998) and briaglow-casuarina forest (Low, 1979).

Daily activity. The species is nocturnal and semi-arboreal.

Shelter sites. It often shelters by day under exfoliating bark (Baker *et al*., 1998; Valentic and Turner, 2001).

Agonistic behaviour. In captivity, the species is said to exhibit "marked aggression toward conspecifics" (Baker *et al*., 1998).

Diet.

Reproduction. The species lays eggs.

Clutch size. In captivity, 89 percent of clutches contained two eggs (Rösler, 1997).

Relative clutch mass. The relative clutch mass for two clutches of eggs ranged 0.317-0.364 (Bustard, 1967d).

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
19-22	20.5	10	9-10	9.9	10	0.96-1.30	1.15	10	Bustard, 1967d
18.7-32.5	21.8	45	8.3-12.3	8.3	44	0.79-2.12	1.18	33	Rösler, 1997

On moist substrates, the eggs may increase appreciably in mass (up to 188 percent) presumably due to the uptake of water (Bustard, 1967d; Rösler, 1997).

Incubation. Data on incubation periods are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days) Range	Mean	N	Reference
30	54-54	54.5	2	Bustard, 1967d; 1969d
-	44-110	68.2	66	Rösler, 1997

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
26-38	33.3	6	53-63	58.3	6	0.93-1.04	0.97	5	Rösler, 1997
34-35	34.5	2	58-60	59.0	2	0.93-0.95	0.94	2	Bustard, 1967d

Predators.

Parasites.

Conservation. The species is strongly associated with woodlands. Hence, clearing of these habitats is one of the greatest threats to its survival.

Literature. Bustard, 1967d (as *O. ocellata*); Bustard, 1967f; Bustard, 1968e (as *O. ocellata*); Bustard, 1969d (as *O. ocellata*); Low, 1979; Sadlier, Pressey and Whish, 1996; Rösler, 1997; Valentic and Turner, 2001; LeBreton, Faulkner and Ellis, 2002.

Oedura obscura

Distribution. The species occurs on the Mitchell Plateau in northwestern Western Australia (King, 1984c).

Habitat. The species occurs in areas of extensive open sandstone (King, 1984c).

Activity. The geckos shelter under sandstone rocks (King, 1984c).

Diet.

Reproduction.

Predators.

Parasites.

Literature. King, 1984c; Shea, Weigel, Harwood, Floriana and Hemsley, 1988.

Oedura reticulata

Distribution.

Habitats. The species occurs in woodland (G. Storr, in Bustard, 1969; How and Kitchener, 1983).

Activity. The geckos emerge at dusk and remain active for 2-5 h (How and Kitchener, 1983). The geckos both forage and shelter on trees, especially those with large leaf area and many dead branches, leaf area probably being indicative of the amount of arthropod prey and dead branches indicative of the number of potential shelter sites (How and Kitchener, 1983). The geckos do come to the ground, as they move between trees (How and Kitchener, 1983).

Densities. In an isolated 1 ha eucalypt woodland in the wheatbelt of Western Australia, geckos occurred in densities varying 91-119/ha (How and Kitchener, 1983). Densities tend to be the highest when hatchlings enter the population in early autumn (end of March)(How and Kitchener, 1983).

Sociality. In an isolated 1 ha eucalypt woodland in the wheatbelt of Western Australia, "several instances of aggression were observed between male[s], and the capture of two geckos together "usually reveals them to be of different sexes" (How and Kitchener, 1983). These observations suggest that males may maintain territories and form close associations with at least one female.

Temperature relationships. During the activity season in the wild, the body temperature of the geckos correlates well with the air temperature, except over the low range of air temperatures of about 18-22º C, when the body temperature plateaus at a mean value of about 22º C (How and Kitchener, 1983; fig. 11). This suggests that the geckos are somehow thermoregulating at these low temperatures, but where they are finding the external heat to do so, is unclear.

In the wild, the species may remain active at temperatures as low as 12º C (How and Kitchener, 1983).

In a laboratory thermal gradient, there was no significant difference between the diurnal (31.0º C) and nocturnal (29.8º C) preferred body temperatures, the overall mean being 30.4º C (Angilletta and Werner, 1998).

Diet. In the wild, the species eats a variety of arthropod prey, the most common being cockroaches, grasshoppers, moths, spiders and termites.

Reproduction. Sexual maturity appears to be attained at a snout-vent length of about 55 mm in males and 62.5 mm in females (How and Kitchener, 1983).

Males' testes are largest in the period mid-winter to early-spring (July-October)(How and Kitchener, 1983: fig. 6), suggesting that mating could occur in this period.

Observations on individuals in the wild and on museum specimens indicate that gravid females occur in mid-spring (30 October-early December)(How and Kitchener, 1983).

Clutch size. The clutch size seems to be almost invariably two (How and Kitchener, 1983).

Sex ratio. In an isolated 1 ha eucalypt woodland in the wheatbelt of Western Australia, the sex ration among adults was biased toward males ($X2 = 6.31$, $P < 0.025$)(How and Kitchener, 1983).

Predators.

Parasites.

Conservation.

Literature. Bustard, 1969; How and Kitchener, 1983; Sarre, 1995a-b; Sarre, Smith and Meyers, 1995; Angilletta and Werner, 1998.

Oedura rhombifer

Distribution. The species occurs across the northern and northeastern parts of Australia.

Habitat. The species occurs in open woodland (Baker *et al*., 1998).

Activity. The species shelters under rock exfoliations (Baker *et al*., 1998), in rock crevices (Baker *et al*., 1998) and under the bark of both fallen (Anthony, 1998) and standing (Baker *et al*., 1998) trees.

Diet.

Reproduction. Females caught in the wild laid eggs in late winter (September) (Bustard, 1967).

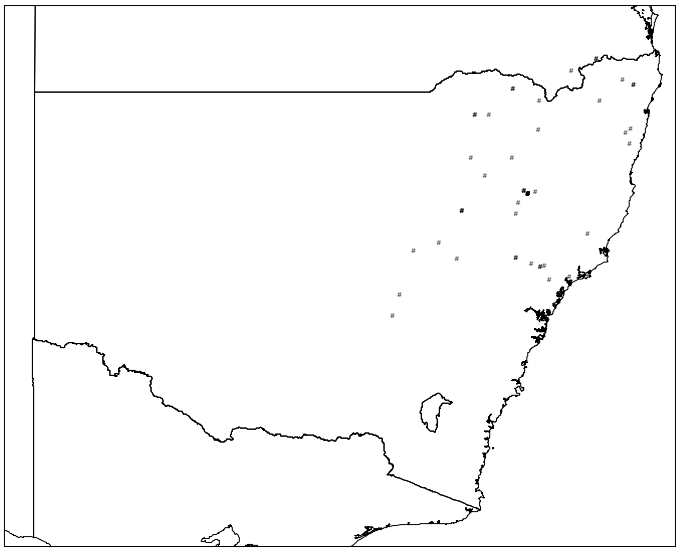
Predators.

Parasites.

Literature. Bustard, 1967; Shea, Weigel, Harwood, Floriana and Hemsley, 1988; Anthony, 1998.

Oedura robusta

Distribution. The species occurs in southeastern Queensland and northeastern New South Wales.



The distribution in New South Wales as based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.

Habitat.

Activity.

Diet.

Reproduction. Gravid females collected in the wild laid in early summer (1 January)(Bustard, 1967).

Eggs.

Incubation.

Predators.

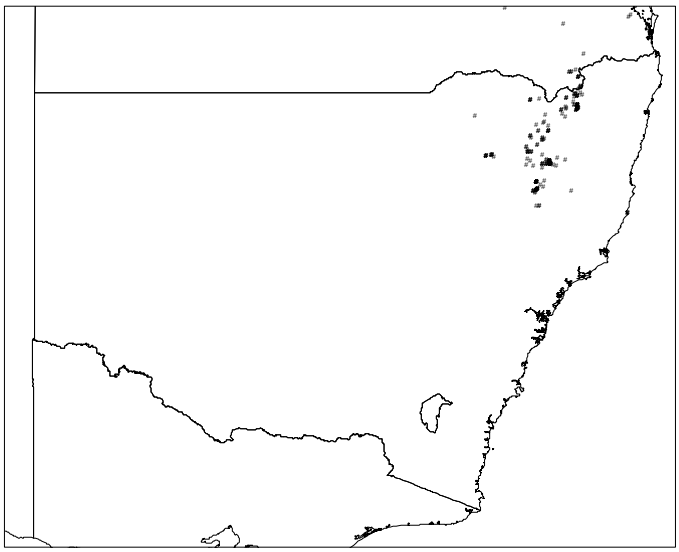
Parasites. The species recorded endoparasites include nematodes (round worms)(Johnston and Mawson, 1947).

Literature. Johnston and Mawson, 1947; Bustard, 1967.

Oedura tryoni

Distribution. The species occurs in southeastern Queensland and northeastern New South Wales.

The species' distribution based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.



Habitat. The species occurs in forest (Milton, 1980).

Activity.

Agonistic behaviour. In captivity, juvenile males may be extremely aggressive to juvenile females, even to the point of biting them (Porter, 1998).

Diet. In captivity, the species eats crickets (Porter, 1998; Laube, 2001), grasshoppers (Laube, 2002), moths (Laube, 2001) and wax worms (Laube, 2001).

Foraging behaviour. In captivity, the geckos will leave their daytime shelters to feed on arthropods (Porter, 1998).

Reproduction.

Frequency of reproduction. In captivity, a female can produce three to five clutches per season as intervals of 28-43 days (Porter, 1998; Laube, 2001).

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
17.8-20.9	19.6	10	9.5-11.2	10.6	10	0.91-1.45	1.22	6	Porter, 1998
22-24	23	6	11-12	11.7	6	1.51-1.94	1.78	6	Bustard, 1967d
21-23	-	-	10-12	-	-	-	-	-	Laube, 2001

Freshly laid eggs adhere to one another in some cases but not in others (Porter, 1998).

On moist substrates, the eggs may increase appreciably in mass (up to 43.8 percent) presumably due to the uptake of water (Bustard, 1967d; see also Laube, 2001).

Egg-laying sites. The species lays communally. One group of 12 eggs and another group of 20 eggs were found under well-embedded pieces of fence paling in late summer (17 March)

(Milton, 1980). If this species lay two eggs in a clutch, then these nests represent the coming together of 6 and 10 females, respectively.

In captivity, the eggs are buried by the female (Porter, 1998; Laube, 2001), suggesting that the species can dig.

In captivity, one female consistently chose to lay her eggs in sphagnum moss instead of in potting mix (Porter, 1998).

Incubation. Data on incubation periods at different temperatures are summarised below.

Incubation Temperature (°C)		Incubation Period (Days)			
Range	Mean	Range	Mean	N	Reference
26	26	69-79	-	-	Laube, 2001
27-30	c. 28	51-58	55.6	10	Porter, 1998
30	30	49-51	49.3	6	Bustard, 1967d

Hatchlings. Measurements and weights for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
-	34.3	-	-	-	-	-	-	-	Milton, 1980
-	-	-	-	-	-	0.81-1.22	1.06	8	Porter, 1998
39-40	34.3	6	65-73	68.3	6	1.38-1.56	1.51	6	Bustard, 1967d
38-41	-	-	65-71	-	-	-	-	-	Laube, 2001

Hatchling mass is positively associated with egg mass ($r^2 = 0.67$, P = 0.044, n = 6)(data in Porter, 1998: table 1).

Hatchlings have their first slough within two days of hatching, and they eat after 3-5 days (Laube, 2001).

Growth. In captivity, females can reproduce within one year (Laube, 2001).

Predators.

Parasites.

Literature. Bustard, 1966, 1967d; Minton, 1978; Firth, 1979; Milton, 1980; Porter, 1998; Laube, 2001.

Orraya occultus
McIlwraith Leaf-tailed Gecko

Distribution. The species occurs in only in the McIlwraith Range in eastern Cape York Peninsula (Couper *et al*., 1993: fig. 15).

Habitat. The species occurs in microphyll and notophyll vine forests (Couper *et al*., 1993; Lethbridge *et al*., 1994).

Activity. The species is nocturnal in its surface activity. It is active on granite rocks and boulders (Couper *et al*., 1993; Lethbridge *et al*., 1994; Anthony, 1998).

Diet. The only known food is spiders (Couper *et al*., 1993).

Reproduction. Females carry 'enlarged vitellogenic follicles' in late autumn (May and early June) (Couper *et al*., 1993).

Size. The largest of four specimen measured 108 mm in snout-vent length (Couper *et al*., 1993).

Predators.

Parasites.

Literature. Couper, Covacevich and Moritz, 1993; Lethbridge, Hawkes, Anthony and McGregor, 1994; Couper, Schneider, Hoskin and Covacevich, 2000.

Phyllurus amnicola

Distribution. The species occurs on Mt Elliot just southeast of Townsville, northeastern Queensland at an altitude of 400-1000 m (Couper *et al*., 2000: fig. 4).

Habitat. The species occurs in moist closed forest in areas with large rocks and boulders and close to flowing water (Couper *et al*., 2000; Mantell, 2001).

Activity. The species is nocturnal in its surface activity with activity beginning soon after dark (Couper *et al*., 2000; Mantell, 2001). It is even active during rain (Couper *et al*., 2000).

The gecko usually occurs on rock but its also occasionally occurs on tree trunks (Couper *et al*., 2000).

Diet.

Reproduction. Females can be gravid between early spring and mid-summer (1-2 October - 4 February) (Couper *et al*., 2000).

Clutch size. Clutch size ranges 1-3 (mean = 1.75, n = 8)(Couper *et al*., 2000).

Size. The largest specimen ever measured was a females with a snout-vent length of 113 mm (Couper *et al*., 2000).

Tail autotomy. Among 27 individuals in the wild (14 males, 11 females and 2 juveniles), 70 percent had regenerated tails (Couper *et al*., 2000).

Predators.

Parasites.

Conservation. The species occurs on a single mountain at relative high elevation. Hence as the climate warms, its habitat will be restricted to an ever smaller area near the top of the mountain until it will succumb to habitat change or destruction (i.e., fire) or small population size.

Literature. Couper, Schneider, Hoskin and Covacevich, 2000; Mantell, 2001.

Phyllurus caudiannulatus

Distribution. The species occurs only in the Dawes Range and the Many Peaks range of central eastern Queensland (Couper *et al*., 1993: fig. 22; Couper *et al*., 2000: fig. 4).

Habitat.

Activity.

Diet. The only known food of the gecko is beetles (Couper *et al*., 1993).

Reproduction.

Eggs. Freshly laid eggs range in length 17.4-21.6 mm and in width 9-13.5 mm (n = 27) and in weight 1.1-1.86 g (n = 6) (Porter, 1999).

Incubation. At incubation temperatures ranging 23-27º C, eggs take 60-85 days to hatch (Porter, 1999).

Predators.

Parasites.

Literature. Covacevich, 1975; Porter, 1999; Couper, Schneider, Hoskin and Covacevich, 2000.

Phyllurus champione

Distribution. The species is known from only two nearby localities in near coastal mid-eastern Queensland, Cameron Creek and Blue Mountain (Couper *et al*., 2000: fig. 4). The species has been collected between 200-700 m (Couper *et al*., 2000).

Habitat. The species occurs in notophyll and mesophyll rainforest (Couper *et al*., 2000).

Activity. The species is nocturnal in its surface activity, with individuals emerging soon after dark (Couper *et al*., 2000). The species occurs on both tree trunks and boulders (Couper *et al*., 2000).

Reproduction. Males are sexually mature at a snout-vent length of at least 72.3 mm and females are mature at a snout-vent length of at least 68.7 mm (data in Couper *et al*., 2000).

Females can be gravid in late spring and early summer (December-January) (Couper *et al*., 2000).

Clutch size. The only known clutch size is for a female with a snout-vent length of 68.7 mm, which laid two eggs.

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
17.7-18.3	18.0	2	8.9-9.0	8.95	2	0.9-1.0	0.95	2	Couper *et al*., 2000

Relative clutch mass. The relative clutch mass for one clutch was 0.31 (Couper *et al*., 2000).

Size. The largest known specimen measured 80.6 mm snout-vent length (Couper *et al*., 2000).

Predators.

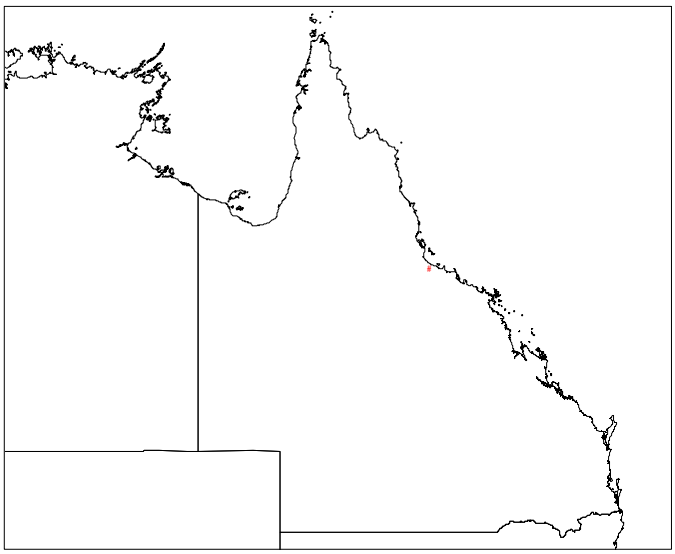
Parasites.

Literature. Couper, Schneider, Hoskin and Covacevich, 2000.

Phyllurus gulbaru

Distribution. The species occurs on the north and south side of Patterson's Gorge at the south end of the Paluma Range in northeastern Queensland (Hoskin *et al*., 2003; fig. 3).

The distribution as determined from the literature (Hoskin *et al*., 2003) is shown in the accompanying map of northeastern Australia.



Habitats. Microphyll to notophyll vine forest with Hoop Pine (*Araucaria cunninghami*) in rocky gullies surrounded by eucalyptus woodland (Hoskin *et al*., 2003). The geckos are usually found on bare boulders and in rock fissures close to streams but are also occasionally found near the base of tree trunks (Hoskin *et al*., 2003).

Activity. The species is nocturnal in its activity on the surface (Hoskin *et al*., 2003).

Diet.

Foraging behaviour. Individuals are often found facing head down (Hoskin *et al*., 2003). This may represent a sit and wait foraging behaviour for ground-dwelling prey.

Reproduction. Gravid females have been found in late spring (3 December)(Hoskin *et al*., 2003).

Clutch size. Clutch size is a constant two (n = 4)(Hoskin *et al*., 2003).

Predators.

Parasites.

Literature. Hoskin, Couper and Schneider, 2003

Phyllurus isis

Distribution. The gecko occurs only on in the vicinity of Mt Blackwood and Mt Jukes in the Mackay district of mid-eastern Queensland (Couper *et al*., 1993: fig. 24; Couper *et al*., 2000: fig. 4).

Habitat. The habitat of the species is notophyll vine forest in rocky areas. The species has been seen active on the surface most often on rock (Couper *et al*., 1993).

Activity.

Diet. Stomach contents indicate that in the wild the species eats cockroaches, crickets and moths (Couper *et al*., 1993).

Reproduction. Gravid females occur in early spring (early October) (Couper *et al*., 1993).

Size. The largest known specimen measures 76 mm in snout-vent length (Couper *et al*., 1993).

Predators.

Parasites.

Literature. Couper, Covacevich and Moritz, 1993; Couper, Schneider, Hoskin and Covacevich, 2000.

Phyllurus nepthys

Distribution. The species occurs only in the Clarke range west of Mackay in mid-eastern Queensland (Couper *et al*., 1993: fig. 26).

Habitat. The species' habitats are mesophyll and notophyll vine forests (Couper *et al*., 1993). It occurs on both trees and rocks and on buildings (Couper *et al*., 1993).

Activity.

Diet. Known prey includes beetle larvae, cockroaches, leafhoppers and moths (Couper *et al*., 1993).

Reproduction. Females can be gravid in mid-spring (late October-late November) (Couper *et al*., 1993).

Size. The species reaches a maximum snout-vent of 103 mm.

Predators.

Parasites.

Literature. Couper, Covacevich and Moritz, 1993; Couper, Schneider, Hoskin and Covacevich, 2000.

Phyllurus ossa

Distribution. The species occurs in two disjunct areas in mid-eastern Queensland: the Mt Ossa and Mt Charlton area, and in the Conway Range and on Mt Dryander (Couper *et al*., 1993: fig. 28).

Habitat. The species occurs in notophyll vine forest and can occur on either tree trunks or rocks (Couper *et al*., 1993).

Activity. Surface activity begins “soon after dark” (Couper *et al*., 1993).

Diet. The gecko eats crickets and spiders (Couper *et al*., 1993).

Reproduction. Gravid females occur in early spring (October) (Couper *et al*., 1993).

Size. The largest known specimen measured 89 mm in snout-vent length (Couper *et al*., 1993).

Predators.

Parasites.

Literature. Couper, Covacevich and Moritz, 1993; Couper, Schneider, Hoskin and Covacevich, 2000.

Phyllurus platurus
Southern Leaf-tail Gecko

Distribution. The species occurs only in eastern central New South Wales (Couper *et al*., 1993: fig. 31). The distribution based on voucher specimens in the Australian Museum is shown on the accompanying map.

Habitats. The species occurs only in areas with exposed sandstone faces, where it shelters in both vertical and horizontal crevices (Green, 1973b; Stow, 1998) and in caves (Green 1973b). In these areas, it often makes the transition to houses and sheds where it often shelters in the crevices between furniture and the wall. The species' flattened head and body is presumably an adaptation to living in crevices. Although the species occurs in woodland and forest areas, it is rarely if ever found on trees.

Activity. The species is exclusively nocturnal and has been recorded active with a body temperature of 15.5º C (H. Ehmann, in Greer, 1989).

The fact that food has been found in the stomachs of winter-caught specimens suggests that the species is active to some degree in winter (Doughty and Shine, 1995).

Social interactions. As many as 16 individuals have been found in a single crevice in October (Green, 1973b). These high numbers suggest that the species is fairly tolerant of other members of its species, at least during the spring. However, in experiments in captivity, leaf-tails occupied crevices by themselves significantly more often than crevices with another individual, regardless of sex (Stow, 1998). This result suggests a certain tendency to asocial behaviour.

Thermal relations.

Diet. The species eat a wide variety of invertebrates (Rose, 1974; Green, 1973b; Doughty and Shine, 1995). Observations on feeding both in the wild and in captivity show that the species eats a variety of invertebrates that are often shunned by other lizards, such as soft-bodied "worms" (Green, 1973b), "chewy" slaters (Green, 1973b), generally noxious centipedes and millipedes (Doughty and Shine, 1995). The species also appears to eat its own shed skin (Doughty and Shine, 1995). The size of the prey appears to be relatively large to the size of the lizard (Green, 1973b; Doughty and Shine, 1995).

Reproduction. Follicles in the ovary are yolked in early spring (September); shelled eggs occur in the oviducts from mid-spring to mid-summer (November – January) (Doughty and

Shine, 1995). Eggs are laid in late spring and early summer (December - January)(Green, 1973b; Couper *et al*., 1993; Doughty and Shine, 1995).

Frequency of reproduction. In captivity, well-fed females can lay up to three clutches per year for at least two successive years (G. Barden in Doughty and Shine, 1995).

Clutch size. Clutch size is a constant two (Couper *et al*., 1993; Doughty and Shine, 1995; Porter, 1999).

Egg-laying sites. The eggs are laid in rock crevices (Green, 1973b; Swan and Ehmann, 1996) and under logs on rocky ridges (Doughty and Shine, 1995). The species may lay communally and use the same nesting site in successive years (Green, 1973b; Doughty and Shine, 1995; Swan and Ehmann, 1996).

The discovery over several successive years of empty eggshells on the floor of a vertical sandstone crevice raises the question whether the species lays communally (Swan and Ehmann, 1996). Are the females attracted to each other, or are they simply attracted to the site?

A captive females rolled her freshly laid eggs around on the ground under her body with her rear legs (N. Masselos, in Doughty and Shine, 1995). This resulted in the eggs being covered with the sand on the cage floor. What role this has in nature is unclear. Perhaps the sand coating helps protect the eggs both from predators and from drying out as they lay unburied in the rock crevices.

Relative clutch mass. Relative clutch mass ranges 0.19 – 0.37 (Doughty and Shine, 1995).

Gravid females may contain food in the stomach, suggesting that they are not inhibited from feeding while carrying eggs (Doughty and Shine, 1995).

Eggs. Measurements and weights of freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
18.6-25.5	-	-	9-14.4	-	-	1.0-3.1	-	-	Doughty and Shine, 1995
20.9-25.0	22.8	4	15.3-15.9	15.5	4	-	-	-	Couper *et al*., 1993
23.5	-	4	12.4	-	4	1.6-2.5	-	4	Porter, 1999

The eggs are laid with an embryo at stage 26 of Dufaure and Hubert, 1961 (Doughty and Shine, 1995).

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days) Range	Mean	Reference
ambient	71-72	-	Couper *et al*., 1993
20-25	85-98	-	Henkel and Schmidt, 1995

22-26	66	66	Porter, 1999
28	64	64	H. Seufer, in Porter, 1999

In the wild, hatching occurs in early summer (January) (Green 1973b).

Hatchlings.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
30.3-31.5	-	4	-	-	-	-	-	-	Couper *et al*., 1993
32	32.0	1	48	48.0	1	-	-	-	Green, 1973b
39-41	40.0	3	60-64	62.3	3	1.10-1.68	1.49	3	Doughty and Shine, 1995

Size. Among adults, females are larger than males on three different criteria: snout-vent length at maturity (77 vs 70 mm), mean snout-vent length (86.2 vs 82.2 mm) and maximum snout-vent length (95 vs 95 mm) (Doughty and Shine, 1995). Females are also heavier than males (Stow, 1998).

There is no significant sexual dimorphism in head length, head width, shoulder height and abdominal depth, all relative to snout-vent length. Furthermore, there is no significant sexual dimorphism in head width relative to head length (Doughty and Shine, 1995). However, the distance between the limbs relative to snout-vent is significantly greater in females than in males (Doughty and Shine, 1995). Females also have deeper abdomens relative to their shoulder depth (Doughty and Shine, 1995).

Non-gravid individuals can weigh as much as 22 g (Stow, 1998).

As consequence of their generally smaller size, males can occupy narrower crevices than females (Stow, 1998). In addition, when females are gravid they are deeper than when non-gravid (Doughty and Shine, 1995), which may mean that when gravid females may not be able to fit into crevices that they can when they are not carrying eggs.

Predators. As for most animals, the actual predators of this species are uncertain. However, domestic cats are known to eat them (D. Kent, in Doughty and Shine, 1995). One possible indication of predation pressures is the percentage of autotomised tails: 47 percent of juveniles have at some stage lost their tails and 70.6 percent of adults have experienced tail loss (Doughty and Shine, 1995).

Defence. The species has a very distinctive defence display. When confronted by a large intruder, it may stand up on extended legs, raise the base of the tail vertically and slowly wave the tip, and give a raucous cry. It may also leap up to 20 cm toward the offender. But having given this display, it may then suddenly turn and flee (Green, 1973b; Mebs, 1973).

Like most other geckos, this species can "drop" the tail. Sometimes people find the autotomised tails and wonder what they are, thinking they look like some sort of "sting-ray".

Also like most other geckos, this species can regenerate its tail. The regenerate tail is not quite as "leaf-shaped" nor as spiny as the original tail.

Parasites. The species' recorded endoparasites include nematodes (round worms)(Irwin-Smith, 1922).

Chromosomes. The diploid number of chromosomes is 22 (Couper *et al*., 1993).

Conservation status. The species will probably not be threatened with extinction for some time. Its sandstone habitat is difficult to destroy on a large scale and is generally only degraded with residential development. And the species seems to cope well with such development. Cats probably take geckos close to the ground (D. Kent, in Doughty and Shine, 1995).

Literature: Shaw, 1790; Irwin-Smith, 1922Longley, 1940; Green 1973b; Mebs, 1973; Rose, 1974; Covacevich, 1975; Greer, 1989; Bauer, 1990; Couper, Covacevich and Moritz, 1993; Doughty and Shine, 1995; Henkel and Schmidt, 1995; Swan and Ehmann, 1996; Stow, 1998; Porter, 1999; Couper, Schneider, Hoskin and Covacevich, 2000.

Pseudothecadactylus australis

Distribution.

Habitats.

Activity. The species is nocturnal. It is usually found above the ground in and on vegetation (Valentic, 1996).

Diet. The gecko licks sap from trees (Couper *et al*., 1995).

Reproduction.

Predators.

Parasites.

Literature. Cameron and Cogger, 1992; Couper, Covacevich and Wilson, 1995; Valentic, 1996.

Pseudothecadactylus cavaticus

Distribution. The species occurs in the Kimberley of Western Australia.

Habitats. The species occurs in vine thickets (Sonnemann, 1995). It shelters under exfoliating stone slabs (Sonnemann, 1995).

Activity.

Agonistic behaviour. In captivity, one of two probable juveniles was aggressive toward the other, chasing and biting it (Sonnemann, 1995).

Diet. In captivity, two individuals ate crickets and spiders but refused termites (Sonnemann, 1995). Termites are usually avidly consumed by most arthropod feeding lizards; hence the refusal of these two specimens to eat them is most unusual.

Reproduction.

Size. The largest measured specimen had a snout-vent length of 115 mm (Smith, 1989).

Predators.

Parasites.

Literature. Miles, 1974; Cogger, 1976; Burbidge, 1978; Smith, 1981;Smith, 1898.

Pseudothecadactylus lindneri

Distribution. The species occurs in Arnhem Land in the Northern Territory.

Habitat. The species is strongly associated with rocks and caves (Husband and Irwin, 1995; Sonnemann, 1995), although it will climb on vegetation adjacent to rocks (I. Morris, in Husband and Irwin, 1995; G. Husband, in Husband and Irwin, 1995). It will jump from rock to rock (Sonnemann, 1995).

Activity. The species is strictly nocturnal (Husband and Irwin, 1995; Sonnemann, 1995).

Agonistic behaviour. An adult male killed another adult male when both were confined in a bag for transport (Sonnemann, 1995).

In long-term captivity, males will attack (= chase and bite) males; females with attack males and females, but males have not been observed attacking females (Sonnemann, 1995). Individuals in an established pair seem to tolerate each other "fairly well", although a female may be reluctant to accept a new male if her established male dies (Sonnemann, 1995).

Diet. In the wild, the gecko eats a variety of invertebrates, as well as the occasional vertebrate such as frogs (Husband and Irwin, 1995).

In captivity, it eats in order of preference according to one experience keeper: crickets and grasshoppers, moths, cockroaches, flies, newborn mice and mealworms (Sonnemann, 1995). Mealworm beetles are rejected.

Foraging behaviour. The geckos bash pink mice against the substrate to kill and dismember them (Sonnemann, 1995).

Defecation. In captivity, some maintained pairs have a distinct defecation site (Sonnemann, 1995).

Courtship and mating. In what was assumed to be courtship behaviour, a male chased a female in a cage and while doing so emitted "low, long squeals, followed by several rapid clicks" (Sonnemann, 1995).

In mating, the male grasps the female's neck with his mouth, bobs his head (for about ten seconds) and in some cases emits a series of "clicks" (Sonnemann, 1995).

Reproduction.

Frequency of reproduction. In captivity, females lay one to three clutches per season, with a mean of 1.7 (Sonnemann, 1995). The interval between clutches in one season ranges 25-26 days (mean = 49.4 days) (Sonnemann, 1995).

Clutch size. In captivity, clutch size ranges 1-2, with a mean of 1.75 eggs (n = 40 clutches)(Sonnemann, 1995).

Egg-laying. In captivity, the female undertakes a number of exploratory diggings one or two days prior to her actual day of laying (Sonnemann, 1995).

In captivity, the female buries the eggs to a depth of about 100 mm (the maximum depth of the substrate provided?). After burying the eggs, the female fills it and covers over the nesting tunnel with soil (Sonnemann, 1995).

Eggs. The freshly laid eggs are usually not adhesive, although in some cases they are (Sonnemann, 1995). It is not clear what significance, if any, this difference has.

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days) Range	Mean	N	Reference
29-33	49-61	59	42	Sonnemann, 1995
31-33	-	59	-	P. Krauss (?), in Sonnemann, 1995

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Eggs. Measurements and weights for freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
24-32	27.4	57	7-16	14.3	57	2-4	3.0	25	Sonnemann, 1995

The eggs increase in size after laying (Sonnemann, 1995), probably due to the uptake of water from the substrate.

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
40-52	45.4	25	74-93	82/5	24	-	-	-	Sonnemann, 1995

Sloughing. Adults and some hatchlings eat their sloughed skin.

Maximum size. The largest measured specimen had a snout-vent length of 107 mm (Smith, 1989; Sonnemann, 1995).

Predators.

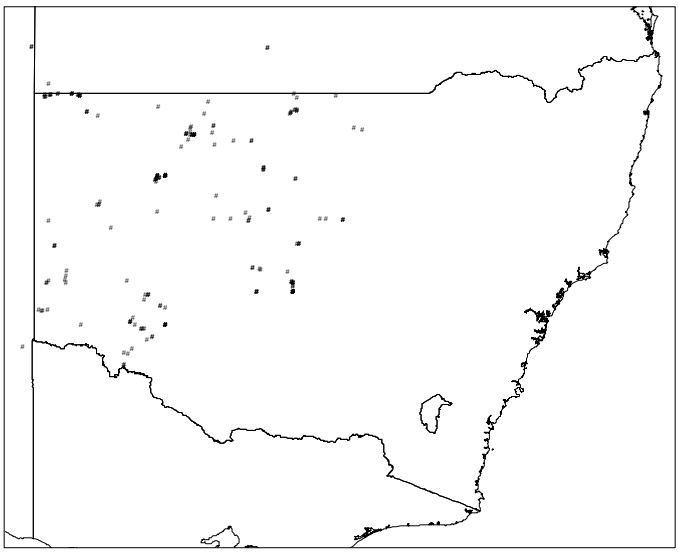
Parasites.

Literature. Cogger, 1975; Swanson, 1979; Shea, Weigel, Harwood, Floriana and Hemsley, 1988; Smith, 1989; Sadlier, 1990; King and Horner, 1993; Husband and Irwin, 1995; Sonnemann, 1995.

Rhynchoedura ornata

Distribution. The species occurs virtually throughout the arid interior of mainland Australia.

The species' distribution in New South Wales as determined from voucher specimens in the collections of the Australian Museum is shown on the accompanying map.



Habitats. The species occurs in woodlands (Sadlier and Shea, 1989; Read and Badman, 1990) and in grasslands adjacent to woodlands (Sadlier and Shea, 1989).

Activity. The species is nocturnal in its surface activity (Hosmer, 1956). It is usually found under surface cover during the day (Hosmer, 1956). And it may also shelter during the day in *Egernia* burrows (Pianka and Giles, 1982).

Thermal relations. The mean body temperature of 330 active geckos was 27.7º C (Pianka, 1986).

Diet. In the wild, the species eats a wide variety of arthropods (Hosmer, 1956; Pianka, 1986).

Seasonality of reproduction. In northwestern New South Wales, females are gravid in late spring (November) (Henle, 1996).

In central South Australia, gravid females occur between late winter and mid-summer (August-February) and females with yolking follicles can even be found as late as mid-summer (February) (Read, 1999).

In a sample largely from the western part of the species' range, one male captured in late winter (August) was in the early stages of sperm production while all males captured between early spring and mid-summer (September-February) were in the process of producing sperm. A male captured in mid-autumn (May) was showing signs of early gonadal recrudescence (Goldberg, 2005b). Some females captured in mid-spring (November) had follicles that were beginning to accumulate yolk and some females capture in mid-summer contained oviducal eggs (Goldberg, 2005b).

Frequency of reproduction. Some females at least are probably capable of producing more than once in one season. In one instance a female laid her eggs and had at least partially yolked a second set of follicles within 22 days (Read, 1999).

Some females are also capable of reproducing in at least two successive seasons (Read, 1999).

Clutch size. Clutch size is almost invariably two. Occasionally only one oviducal egg is found in an individual female (Pianka, 1986; Read, 1999; Goldberg, 2005b), but it is difficult to know if this was that female's entire clutch or if she was captured/examined after laying one egg but before she had a chance to lay the second egg.

Growth. Mark-recapture studies in central South Australian indicted that females mature within one year; that is, they lay eggs in the activity season following the activity season of their own hatching (Read, 1999).

Size at sexual maturity. Among a large sample from the western part of the range, the snout-vent length of the smallest mature male (spermiogenesis) and female (yolk deposition) was 37 mm and 43 mm, respectively (Goldberg, 2005b).

Longevity. In the field, the species can live as long as 1016 days (2.78 years) (Read, 1999).

Sexual size dimorphism. In a large collection from throughout much of the species' range in western Australia, snout-vent length was significantly greater in females (range = 43-58 mm, mean = 49 mm, n = 55) was significantly greater than in males (range = 37-52 mm, mean = 45 mm, n = 56) (Goldberg, 2005b).

Predators.

Parasites. The species' recorded endoparasites include cestodes (flukes) (Goldberg and Bursey, 2001) and nematodes (round worms) (Goldberg and Bursey, 2001).

Literature. Günther, 1867; Lönnberg and Andersson, 1913; Waite, 1929; Loveridge, 1934; Hosmer, 1956; Pianka and Pianka, 1976; Pianka and Giles, 1982; Morley and Morley, 1984; Pianka, 1986; Shea, Weigel, Harwood, Floriana and Hemsley, 1988; Sadlier and Shea, 1989; Read and Badman, 1990; Henle, 1996; Read, 1999; Goldberg and Bursey, 2001; Goldberg, 2005b.

Saltuarius cornutus

Distribution. The species occurs along the coast and coastal ranges of northeastern Queensland (Couper *et al*., 1993: fig. 13).

Habitat. The species occurs in tropical rainforest and is active on both tree trunks and rocks (Couper *et al*., 1993).

Activity.

Diet. In the wild, the species eats crickets, cockroaches and spiders (Couper *et al*., 1993).

Reproduction. The species lays its eggs in late spring (1 December $\pm$ 3 days)(Couper *et al*., 1993).

Eggs. Measurements and weights for freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
28	-	-	18	-	-	-	-	-	Anthony, 1993
26.6-27.2	26.9	2	16.1-16.4	16.2	2	-	-	-	Couper *et al*., 1993
23.3-25.7	-	16	13.6-15	-	16	2.6-3.2		10	Porter, 1999

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days) Range	Mean	Reference
24	100 ± 3	-	Couper *et al*., 1993
24-27	66-76	-	Porter, 1999
26-32	49-63	-	M. Cermak, in Porter, 1999

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
50.6-51.4	51.0	2	-	-	-	-	-	-	Couper *et al*., 1993

Size. The largest specimen measured had a snout-vent length of 144 mm (Couper *et al*., 1993).

Predators.

Parasites.

Literature. Anthony, 1993; Couper *et al*., 1993; Porter, 1999.

Saltuarius salebrosus

Distribution. The species occurs in coastal and inland areas of southeastern Queensland (Couper *et al*., 1993).

Habitat.

Activity.

Diet. The recorded food items include cockroaches, grasshoppers and spiders (Couper *et al*., 1993).

Reproduction.

Eggs. Measurements and weights for freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	

27.7-29.4	-	16	16.5-17.5	-	16	4.3-4.9		6	Porter, 1999

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days) Range	Mean	Reference
23-27	81-99	-	Porter, 1999
28-29.5	68	-	Porter, 1999

Predators.

Parasites.

Literature. Covacevich, 1975; Couper, Covacevich and Moritz, 1993; Porter, 1999.

Saltuarius swaini

Distribution. The species occurs in extreme southeastern Queensland and eastern northern and central New South Wales (Couper *et al*., 1993: fig. 18).

The distribution in New South Wales as determined from voucher specimens in the Australian Museum is shown on the accompanying map.

Habitat. The species occurs in heathlands (Couper *et al*., 1993), dry forests (Couper *et al*., 1993) and in "rainforest" (Bustard, 1965c; Couper *et al*., 1993).

Activity. The species has been found at night both on tree trunks (Bustard, 1965c) and rock faces (Porter, 1997). The geckos can rest on the trunk of stinging trees (Bustard, 1965c) but how they do this without getting "stung" is unknown.

Thermoregulation. At a high altitude locality during late spring (11 December) individuals were active at nigh as air temperatures between 16 and 10.5º C (Porter, 1997).

Diet. In the wild, the species is known to eat crickets (Couper *et al*., 1993).

In captivity, the species eats maggots, mealworms and moths (Bustard, 1965c).

Reproduction. Females can store sperm, at least for short periods. For example, in captivity, females can produce fertile eggs for up to seven months after mating (Porter, 1999).

Eggs. Measurements and weights for freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
22.4-26	-	10	12.7-15.5	-	10	2.2-2.8	-	6	Porter, 1999

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days) Range	Mean	Reference
22-26	72-106	-	Porter, 1999

Size. The maximum snout-vent recorded for the species is 131 mm (n = 101) (Couper *et al*., 1993).

Chromosomes. The diploid number of chromosomes is 38 (Couper *et al*., 1993).

Predators.

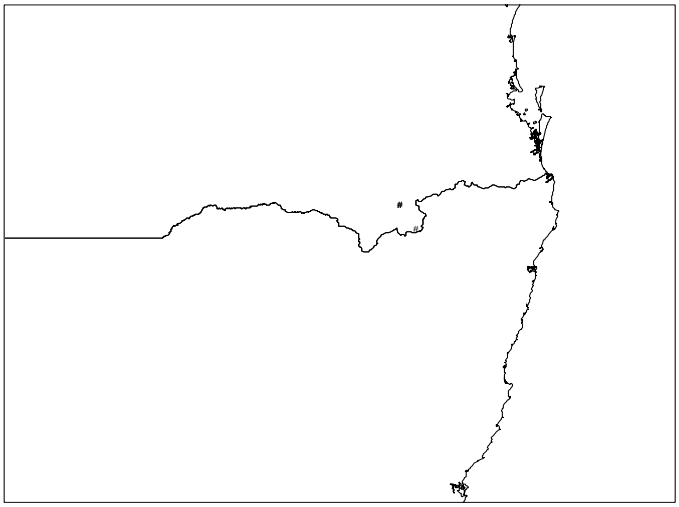
Parasites.

Literature. Bustard, 1965c (as *Phyllurus cornutum*); Wells and Wellington, 1985; Couper, Covacevich and Moritz, 1993; Couper, Schneider and Covacevich, 1997; Porter, 1997; Porter, 1999.

Saltuarius wyberba

Distribution. The species occurs only in the border ranges between Queensland and New South Wales.

The distribution as based on specimens in the collections of the Australian Museum is shown in the accompanying map.



Habitats.

Activity.

Reproduction.

Eggs. Measurements and weights for freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
22.9-?	-	12	13.2-14		12	1.95-2.0	-	4	Porter, 1999

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temperature (ºC)	Incubation Period (Days)		Reference
	Range	Mean	
23-27	67-75	-	Porter, 1999

Size. The largest known specimen measures 109.2 mm in snout-vent length (Couper *et al*., 1997).

Predators.

Parasites.

Literature. Couper, Schneider and Covacevich, 1997; Porter, 1999.

Strophurus aberrans

Distribution.

Habitats.

Activity.

Diet.

Reproduction.

Defence. The species can squirt a substance from dorsal tail glands when grasped by a predator (H. Talbot, in Glauert, 1952a; Bauer and Rosenberg, 1988). The substance is cobweb-like (Loveridge, 1934) and can be ejected at temperatures as low as 7º C (Bauer and Rosenberg, 1988).

Mouth colour. Mouth colour is bright but variable in *Strophurus*. In this species, the mouth colour is mustard-yellow to orange-yellow (Storr, 1988).

Predators.

Parasites.

Literature. Loveridge, 1934 (as #); Glauert, 1952a; Bauer and Rosenberg, 1988; Storr, 1988.

Strophurus assimilis

Distribution.

Habitat.

Seasonal activity.

Daily activity. The species has been observed abroad at night (Gaikhorst and Lambert, 2005).

Diet. The species has been observed licking sap from a *Grevilliea* (Gaikhorst and Lambert, 2005).

Reproduction. Females are mature at a snout-vent length of 62 mm (Bush, 1992).

Eggs. Eggs vary in length 13-14 mm (mean = 13.5 mm) and weigh 0.39-0.49 mm (mean = 0.44 mm) (n = 2) (Bush, 1992).

Predators.

Mouth colour. Mouth colour is bright but variable in *Strophurus*. In this species, the mouth colour is dark blue (Storr, 1988).

Predators.

Parasites.

Literature. Storr, 1988; Bush, 1992; Gaikhorst and Lambert, 2005.

Strophurus ciliaris

Distribution. The distribution in New South Wales as determined from voucher specimens in the collections of the Australian Museum is shown in the accompanying map.

Habitats.

Activity. The species shelters beneath exfoliating bark on trees (Husband, 1998).

Thermoregulation. Individuals occasionally occur on bitumen roads at night (Fyfe, 1991; Husband, 1998), suggesting that they may be absorbing the heat from the road (Fyfe, 1991). The mean body temperature of 113 active geckos was 26.0º C (Pianka, 1986).

Diet. In the wild, the species eats a wide variety of arthropods (Pianka, 1986).

In captivity, both the young and adults can be maintained on crickets (Husband, 1998).

Seasonality of reproduction. In the wild, females lay eggs in early spring (6 October) (Fyfe, 1991) and may be gravid as late as late summer (10 March) (Fyfe, 1991).

Frequency of reproduction. In captivity, one female laid second clutches 27 and 32 days after the first clutch. Females eat throughout the period they are carrying eggs (Husband, 1998), hence a second clutch could probably be provisioned by current instead of stored energy reserves.

Clutch size. Clutch size averages 2.0 (n = 31)(Pianka, 1986).

Eggs. Measurements and weights for freshly laid eggs are given in the table below.

Length (mm)			Width (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
15	15.0	2	12	12.0	2	-	-	-	Fyfe, 1991
14-16	15.4	10	8-9	8.5	10	0.6-0.7	0.63	10	Husband, 1998

During incubation the eggs can increase 2.3 times in length (Fyfe, 1991), presumably through the uptake of water from the substrate.

Nest. In captivity, a female buried her eggs in a moist mixture of red sand and vermiculite (Husband, 1998). This behaviour suggests that females may also bury their eggs in the wild.

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temperature (° C)	Incubation Period (Days) Range	Mean	N	Reference
27-28	73	73	2	Fyfe, 1991
30-31	51-63	56.5	8	Husband, 1998

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
29-31.5	30.4	8	-	-	-	0.7-0.8	0.72	8	Husband, 1998

Hatchlings eat within a "day or two" of hatching (Husband, 1998).

Growth.

Longevity. In captivity, two males have been maintained for as long as seven years (Husband, 1998).

Predators.

Defence. When threatened the gecko exudes a “very sticky and nasty-smelling matter” from the upper surface of the tail (Zietz, 1914; Worrell, 1963; Husband, 1998).

Mouth colour. Mouth colour is bright but variable in *Strophurus*. In this species, the mouth colour is yellow to orange (Storr, 1988).

Parasites. The species' recorded parasites include nematodes (round worms)(Jones, 1995b; Goldberg and Bursey, 2001).

Literature. Boulenger, 1995; Zietz, 1914; Brazenor, 1951; Worrell, 1963; How, Dell and Wellington, 1986; Fyfe, 1991; Jones, 1995b; Husband, 1998; Goldberg and Bursey, 2001.

Strophurus elderi

Distribution. The species is widespread throughout the arid interior of southern Australia.

The distribution in New South Wales as based on voucher specimens in the Australian Museum is shown in the accompanying map.

Habitats. Open woodland (Shea and Wells, 1983). The species is often found within clumps of *Triodia* (Bustard, 1965c, 1970; Shea and Wells, 1983; Morley and Morley, 1984; Sadlier and Shea, 1989).

Seasonal activity.

Daily activity. The species is nocturnal in its activities in the open (Bustard, 1965c). It is semi-arboreal in hummock grasses (above).

Thermal relations. The mean body temperature of 16 active geckos was 28.2º C (Pianka, 1986).

Diet. In the wild, the species eats a wide variety of invertebrates (Pianka and Pianka, 1976; Pianka, 1986; How *et al*., 1986).

In captivity, they can be maintained on crickets (Laube, 1997), flies (Bustard, 1965c) and wax moths (both larvae and adults) (Laube, 1997).

Courtship and mating. A male was discovered licking his hemipenis. This unusual behaviour was interpreted as postmating grooming (Laube, 1997).

Reproduction. The smallest known female with oviducal eggs, a sure sign of reproductive maturity, is 40.8 mm. The mean size of 11 gravid females was 44.0 mm (How *et al*., 1986).

Based on observations from throughout the range, gravid females can be found throughout the spring and summer and into the early autumn (September, November-December, February and April) (How *et al*., 1986: fig. 3).

Females from the wild can contain both oviducal eggs and yolking follicles, suggesting that females can produce more than one clutch per season (How *et al*., 1986). This inference is supported by a captive female which laid two clutches 61 days apart (Laube, 1997).

Clutch size. The clutch size is almost invariably two (Bustard, 1965c)(Pianka, 1986, n = 6)

Nests. In captivity, near-term gravid females have been observed digging in the substrate (Laube, 1997). This behaviour strongly suggests that females may seek to bury their eggs instead of just laying them in some crevice.

Eggs. Measurements and weights for freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
12.5	12.5	2	7.5	7.5	2	0.37-0.39	0.38	2	Bustard, 1965c
13-14	13.5	4	7.5	7.5	4	-	-	-	Laube, 1997

On a moist substrate, the eggs can increase their mass by at least 75 percent (Bustard, 1965c).

Relative clutch mass. The relative clutch mass of one female was 0.38 (Bustard, 1965c).

Incubation. Incubation periods at different temperatures are summarised below.

Incubation Temp (° C)	Incubation Period (days)		Reference
	Range	Mean	
25-29	55	55	Laube, 1997
28-32	41-42	-	Laube, 1997
30	43	43	Bustard, 1965c

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
22-24	23.0	3	35-37	36.0	3	-	-	-	Laube, 1997
23-24	23.5	2	37	37.0	2	0.35-0.42	0.38	2	Bustard, 1965c

Sex ratio. Among adult specimens in museums, the number of males (n = 72) and females (n = 81) was not significantly different (How *et al*., 1986).

Sexual dimorphism. Among adult specimens in museums, mean snout-vent length is significantly larger in males (40.6 mm, n = 72) than in females (43.0 mm, n = 81) (How *et al*., 1986).

Predators.

Defence. When this gecko and the gecko-feeding pygopodid *Lialis burtonis* from the same area are kept together in captivity for prolonged periods this gecko is never eaten although others are. The geckos remain untouched even after the *Lialis* have been without food for as long as six weeks (Bustard, 1979). This apparent avoidance behaviour suggests that the pygopodids have perhaps learned to avoid the tail-squirting geckos.

However, this also the possibility that the geckos have some surface chemical, because when an individual of *Lialis* from an area without the gecko grasped one, it held on briefly and then released it, without the gecko squirting from the tail (Bustard, 1979).

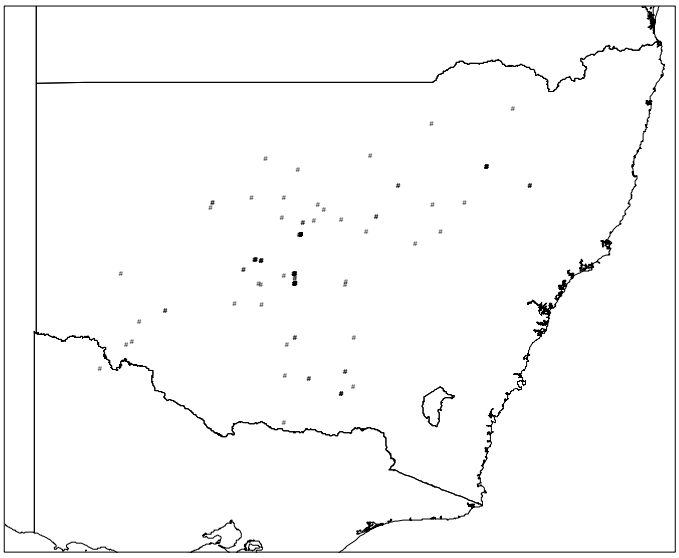
When the gecko does want to squirt, it may bend toward the intruder and bend its tail in that direction (Bustard, 1979).

Parasites. The species' recorded parasites include cestodes (tapeworms)(Goldberg and Bursey, 2001) and nematodes (round worms)(Jones, 1995b; Goldberg and Bursey, 2001).

Literature. Stirling and Zietz, 1893; Bustard, 1964; Bustard, 1965c; Pianka and Pianka, 1976; Bustard, 1979; Shea and Wells, 1983; Morley and Morley, 1984; How, Dell and Wellington, 1986; Sadlier and Shea, 1989; Jones, 1995b; Laube, 1997; Goldberg and Bursey, 2001.

Strophurus intermedius

Distribution. The distribution in New South Wales as determined from voucher specimens in the Australian Museum is shown in the accompanying map.



Habitats. The species occurs in woodlands (Sadlier and Shea, 1989; LeBreton *et al*., 2002).

Seasonal activity.

Daily activity. The species has occasionally been found lying along the length of a horizontal branch of a shrub or tree during the day either in shadow (Ehmann, 1980) or in sun (Sass, 2003).

Shelter sites. When inactive during the day, the species may shelter in low shrubs, either in small crevices or stretched out along the tops of horizontal branches. In this latter position, the species grey ground colour and spines help it blend into the branches' colour and form (Ehmann, 1980).

Thermal biology. One individual was found lying along the length of a horizontal branch of an *Acacia* in the morning; the air temperature was 17.3 C but the lizard was in the sun (Sass, 2003).

Diet. The species eats a wide variety of invertebrates (How *et al*., 1986).

Reproduction. The smallest known female with oviducal eggs, a sure sign of sexual maturity, was 62.5 mm (How *et al*., 1986). The mean snout-vent length of six gravid females was 68.2 mm (How *et al*., 1986).

Females can contain both oviducal eggs and yolking follicles, suggesting that females can produce more than one clutch per season (How *et al*., 1986).

Sex ratio. Among adult specimens in museums, the number of males (n = 33) and females (n = 43) was not significantly different (How *et al*., 1986).

Sexual dimorphism. Among mature museum specimens, mean snout-vent length is larger in males (58.7 mm, n = 33) than in females (64.1 mm, n = 43) (How *et al*., 1986).

Predators.

Defence. When approached while stretched out on a limb during the day, the geckos may do one of three things: rear back, gape it mouth and emit a "rattling squeak", eventually

dropping to the ground and fleeing; slowly move backwards along the branch, or simply lie perfectly still (Ehmann, 1980).

The species can also squirt a substance from dorsal tail glands when grasped by a predator (Bauer and Rosenberg, 1988). The substance can be ejected at temperatures as low as 7º C (Bauer and Rosenberg, 1988).

Mouth colour. Mouth colour is bright but variable in *Strophurus*. In this species, the mouth colour is dark blue to almost black (Storr, 1988).

Parasites.

Literature. Ogilby, 1892; Brazenor, 1951; Ehmann, 1980; Morley and Morley, 1984; How, Dell and Wellington, 1986; Bauer and Rosenberg, 1988; Storr, 1988; Sadlier and Shea, 1989; Annable, 1995a; Valentic, 1997c; LeBreton, Faulkner and Ellis, 2002; Sass, 2003; Hoser, 2005.

Strophurus mcmillani

Distribution.

Habitats.

Activity.

Diet.

Reproduction.

Size. The snout-vent length of the largest measured specimen was 52 mm (Smith, 1995).

Predators.

Parasites.

Literature. Storr, 1978; Shea, Weigel, Harwood, Floriana and Hemsley, 1988; Smith, 1995.

Strophurus michaelseni

Distribution.

Habitats.

Diet. The species eats a wide variety of invertebrates (How *et al*., 1986).

Reproduction.

Sex ratio. Among adult specimens in museums, the number of males (n = 12) and females (n = 9) was not significantly different (How *et al*., 1986).

Sexual dimorphism. Among mature museum specimens, mean snout-vent length is larger in males (49.1 mm, n = 12) than in females (54.7 mm, n = 9) (How *et al*., 1986).

Predators.

Parasites.

Literature. How, Dell and Wellington, 1986.

Strophurus rankini

Distribution.

Habitats.

Activity.

Diet. The species eats a wide variety of invertebrates (How *et al*., 1986).

Reproduction. The smallest known female with oviducal eggs, a sure sign of sexual maturity, was 50.5 mm (How *et al*., 1986). The mean snout-vent length of 11 gravid females was 56.8 mm (How *et al*., 1986).

Females can contain both oviducal eggs and yolking follicles, suggesting that females can produce more than one clutch per season (How *et al*., 1986).

Sex ratio. Among adult specimens in museums, the number of males (n = 20) and females (n = 23) was not significantly different (How *et al*., 1986).

Sexual dimorphism. Among mature museum specimens, mean snout-vent length is larger in males (53.1 mm, n = 20) than in females (55.9 mm, n = 23)(How *et al*., 1986).

Predators.

Parasites.

Literature. Storr, 1979; How, Dell and Wellington, 1986.

Strophurus robinsoni

Distribution. The species occurs in the Keep and Middle Ord River drainages of northeastern Western Australia and northwestern Northern Territory (Smith, 1995: fig. 2).

Habitats.

Activity.

Diet.

Reproduction.

Size. The largest snout-vent length of the four known specimens is 55 mm (Smith, 1995).

Predators.

Parasites.

Literature. Smith, 1995.

Strophurus spinigerus

Distribution.

Habitats. The species occurs in tall shrubland (Maryan, 1996) and on sand dunes (Maryan, 1996).

Activity. The species is primarily nocturnal (Maryan, 1996). It climbs in shrubs (Maryan, 1996).

Diet. The species eats a wide variety of invertebrates (How *et al*., 1986). It also feeds on sap from *Acacia* spp. (Couper *et al*., 1995)

Reproduction. The mean snout-vent length of 21 gravid females was 61.5 mm (How *et al*., 1986).

Females can contain both oviducal eggs and yolking follicles, suggesting that females can produce more than one clutch per season (How *et al*., 1986).

Sex ratio. Among adult specimens in museums, the number of males (n = 77) and females (n = 101) was not significantly different (How *et al*., 1986).

Sexual dimorphism. Among mature museum specimens, mean snout-vent length is larger in males (56.1 mm, n = 7) than in females (60.4 mm, n = 101)(How *et al*., 1986).

Predators.

Defence. When irritated, the geckos exude a “sticky matter” from the tail (Zietz, 1914; Glauert, 1952a).

Parasites.

Literature. Gray, 1842; Zietz, 1914; Brazenor, 1951; Glauert, 1952a; Dell and Chapman, 1977; How, Dell and Wellington, 1986; Couper, Covacevich and Wilson, 1995; Maryan, 1996; Laub and Seipp, 1998; Maryan, Browne-Cooper and Bush, 2002.

Strophurus strophurus

Distribution.

Habitats.

Activity.

Thermoregulation. The mean body temperature of 63 active geckos was 25.3º C (Pianka, 1986).

Diet. In the wild, the species eats a wide variety of invertebrates (How *et al*., 1986; Pianka, 1986).

Reproduction. The smallest known female with oviducal eggs, a sure sign of sexual maturity, was 54.9 mm (How *et al*., 1986). The mean snout-vent length of 22 females was 66.2 mm (How *et al*., 1986).

Females can contain both oviducal eggs and yolking follicles, suggesting that females can produce more than one clutch per season (How *et al*., 1986).

Clutch size. Clutch size averages 2.0 (n = 30)(Pianka, 1986).

Sex ratio. Among adult specimens in museums, the number of males (n = 53) and females (n = 73) was not significantly different (How *et al*., 1986).

Sexual dimorphism. Among mature museum specimens, mean snout-vent length is larger in males (58.1 mm, n = 53) than in females (65.5 mm, n = 73)(How *et al*., 1986).

Predators.

Parasites. The species' recorded endoparasites include nematodes (round worms)(Jones, 1995b; Goldberg and Bursey, 2001).

Literature. Duméril and Bibron, 1839; Brazenor, 1951; How, Dell and Wellington, 1986; Jones, 1995b; Goldberg and Bursey, 2001; Goldberg, 2005a.

Strophurus taeniatus

Distribution.

Habitats.

Activity.

Diet.

Reproduction.

Size. The snout-vent length of the largest measured specimen was 44 mm (Smith, 1995)

Literature. Lönnberg and Andersson, 1913; Smith, 1995.

Strophurus *taenicauda*

Distribution.

Habitats.

Diet.

Reproduction.

Predators.

Parasites.

Conservation.

Literature. De Vis, 1886.

Strophurus wellingtoni

Distribution.

Habitats.

Diet.

Reproduction.

Predators.

Mouth colour. Mouth colour is bright but variable in *Strophurus*. In this species, the mouth colour is dark blue to almost black (Storr, 1988).

Parasites.

Conservation.

Literature. Storr, 1988.

Strophurus williamsi

Distribution. The species occurs in an arc from central Queensland to southwestern New South Wales.

The distribution in New South Wales based on voucher specimens in the Australian Museum is shown in the accompanying map.

Habitats. The species occurs in woodland (Valentic and Turner, 2001).

Activity. The species is nocturnal (Bustard, 1969c). It is primarily arboreal (Bustard, 1969c; Schwaner and Miller, 1984). By day it is usually found under exfoliating bark on dead trees (Kluge, 1963d; Bustard, 1969c) and fence posts (Schwaner and Miller, 1984). In captivity, it uses its prehensile tail in climbing along slender branches (Bustard, 1969c).

It general shelters beneath exfoliating bark (Valentic and Turner, 2001).

There is a seasonal shift in the height above the ground that the geckos occur on the dead trees they occupy. During the summer they are relatively high in the tree. But beginning in mid-autumn (April) the population begins descending to the base of their home dead tree or, even more commonly (70 percent of individuals), off their tree and onto a home dead tree stump where they remain until later winter (early September) (Bustard, 1969c). An individual tends to use the same winter shelter site in successive years (Bustard, 1969c).

Diet. In captivity, the species eats crickets, mealworms (Rösler, 1987) and winged insects (Bustard, 1969c).

Courtship and mating. In the Pillaga Scrub in northcentral New South Wales one mating was observed in early spring (19 October) at night in the open at an air temperature of 19º C. The male held the female in a mouth grip on the side of her neck and his tail wound around her tail corkscrew-fashion. His body was entirely on her right side and did not cross over it. The mating was in progress when discovered and continued for another 54 minutes, making it of relatively long duration. The female was carrying two “developing eggs” (Bustard, 1969c).

In captivity during the spring mating season, the animals are active and there is intermittent “chirping” (Bustard, 1969c). However, it is not clear which sex is vocalising nor is it clear what function it may have.

Reproduction. Females are sexually mature at a snout-vent length of at least 50.4 mm, the size of a gravid female (How *et al*., 1986).

In the Pillaga Scrub, females carry developing eggs in early spring (19 October) (Bustard, 1969c).

A captive female with a snout-vent length of 63 mm laid a total of ten eggs in just under three months, with an 18 to 21 day interval between laying (Rösler, 1987). Whether this rapid multiple clutching is typical in wild populations is unknown.

Clutch size. Clutch size was two in all of five clutches (Bustard, 1969c) and two in 93 percent of 30 clutches (Rösler, 1997).

Frequency of reproduction. In captivity, females laid only one clutch per year (Bustard, 1969c).

Eggs. Measurements and weights for freshly laid eggs are summarised below.

Length (mm)			Width (mm)			Mass (g)			Reference
Range	Mean	N	Range	Mean	N	Range	Mean	N	
13.9-18.6	15.0	5	3.3-9.4	8.97	5	0.62-0.99	0.73	5	Rösler, 1997

Eggs laid in captivity were soft-shelled (Rösler, 1987).

Egg-laying sites. The eggs of diplodactyline geckos are rarely found in the wild, which suggests that they are well hidden. However, two pairs of eggs, perhaps two clutches, were found in unoccupied *Varanus gouldii* burrows in April. Three of the eggs contained viable embryos while the fourth egg was empty. The eggs were at the end of 1 m long burrows and about 30 cm below the ground surface (Shea, 1984).

In captivity, the eggs may be buried in the substrate (Rösler, 1987). This indicates that the species is capable of digging but whether it ever does so for a nest in the wild is unknown.

Incubation. Under unspecified temperatures, four eggs took 43-48 days (mean = 45.7) (Rösler, 1987).

Hatchlings. Measurements for hatchlings are summarised below.

Snout-vent Length (mm)			Total Length (mm)			Mass (g)			
Range	Mean	N	Range	Mean	N	Range	Mean	N	Reference
25-27	27	3	41-46	43	3	0.43-0.53	0.49	3	Rösler, 1987
25.0-27.0	26.0	3	41.0-46.0	43.0	3	0.43-0.53	0.49	3	Rösler, 1997

First shed. In captivity, three hatchlings had their first shed 5-6 days (mean = 5.3 days) after hatching (Rösler, 1987).

Sex ratio. In a population in the Pillaga Scrub, the number of females (50) was significantly greater that the number of males (32)($X^2 = 3.95$, $P < 0.046$) in one year but not in the following year (26 vs 29, respectively)(data in Bustard, 1969c).

Sexual dimorphism. In a population in the Pillaga Scrub, maximum snout-vent length was greater in females (72 mm) than in males (67 mm) (Bustard, 1969c).

Predators.

Defence. The gecko has two aggressive defensive behaviours when approached by a potential predator: mouth gaping and tail-squirting. In mouth gaping, it opens its mouth, revealing a dark purple throat, tongue and mouth, and "chirps" loudly (Bustard, 1964a, 1969c).

An even more aggressive reaction, is the ejection of sticky substance from small areas of weakness in the skin in the top and sides of the tail. The liquid is dark brown and viscous and has a strong smell that is not necessarily obnoxious to the human nose. It can be can be ejected for a distance of 0.5 m and forms cobweb-like filaments. The substance can be difficult to remove It can also be rubbed onto a potential predator. Under prolonged harassment, enough material can be extruded that the tail becomes noticeably shrivelled (Bustard, 1964a, 1969c).

The tail can also be autotomised (dropped), but the threshold for the break is high and only 10.4 percent of individuals in a field study had regenerated tails (Bustard, 1969c).

Parasites. The species seems to lack some of the parasites that other geckos have. For example, in a population in the Pillaga Scrub, no individual had mites, although four other sympatric species of geckos did have them (Bustard, 1969c).

During the winter when the geckos are inactivity, they may be attacked by the blood-sucking fly *Phelbotomus englishi* (Bustard, 1969c). It is unknown what effect, if any, the flies have on the gecko.

Literature. Glauert, 1952; Kluge, 1963d; Bustard, 1964a; Bustard, 1968e; Bustard, 1969c; Bustard, 1979; Morley and Morley, 1984; Shea, 1984; How, Dell and Wellington, 1986; Rösler, 1987; Laube, 1993; Rösler, 1997.

Strophurus wilsoni

Distribution.

Habitats.

Activity.

Diet.

Reproduction. The smallest known female with oviducal eggs, a sure sign of sexual maturity, was 50.4 mm (How *et al*., 1986).

Predators.

Parasites.

Literature. Storr, 1983; How, Dell and Wellington, 1986.

Underwoodisaurus milii
Thick-tailed Gecko, Barking Gecko

Distribution. The gecko occurs across in a band across southern mainland Australia from southwestern Western Australia to southeastern Queensland. However, it is absent from the extreme southeastern corner of the continent, probably due to low temperature.

The distribution in New South Wales based on voucher specimens in the collections of the Australian Museum is shown in the accompanying map.

Habitats. The species occurs in mallee (Comber, 2000) and woodlands (Sadlier and Shea, 1989) and on substrates of rock (Comber, 2000) and of sand (Sadlier and Shea, 1989).

Daily activity. The species is strictly nocturnal and terrestrial.

Shelter sites. The species shelters under rocks (Kearney *et al*., 2001; Shah *et al*., 2003; pers. obs.), in the abandoned burrows of other animals (Sadlier and Shea, 1989) and in burrows that may be of its own construction (Hudson *et al*., 1981).

Thermal relations. Although the species stays under cover during the day, it appears to thermoregulate by taking advantage of the thermal mosaic in its shelter. In the laboratory, the geckos shelter between rock slabs and if the upper slab is suitably warm, the geckos will raise their heads and backs to contact the slab and presumably gain heat through conduction (Kearney, 2001). They will also seek out warm spots, especially after having fed or when gravid (Comber, 2000).

In the wild in southwestern Australia, the mean body temperature during the day was 22.9º C (n = 4) and during the night 19.4º C (n = 5) (Williams, 1965 and Froudist, 1970, as reported in Angilletta and Werner, 1998).

In artificial thermal environments, the geckos choose mean body temperatures that range between 21.6 – 27.3º C (Licht, Dawson, Shoemaker and Main, 1966; Kearney, 2001). However, this “preferred body temperature” may vary seasonally, with spring-collected animals preferring slightly cooler body temperatures that summer-collected animals (Kearney, 2001).

Aggregations. The species sometimes occurs in aggregations, which may number up to nine individuals (Kearney *et al*., 2001).

Agonistic interactions. In captivity, individuals fight among themselves (Kearney *et al*., 2001).

Diet. In the wild, the species eats a variety of invertebrates (How *et al*., 1990). It also eats the occasional vertebrate, e.g., lizards (How *et al*., 1990).

In captivity, the species eats cockroaches (Comber, 2000), crickets (Comber, 2000; Shah *et al*., 2003), moths (Comber, 2000) and spiders (Comber, 2000).

Drinking. In captivity, the geckos lick water droplet and some have been observed licking dry sand almost as if they were drinking (Annable, 1992).

Courtship and mating. Mating can last up to 45 minutes (Comber, 2000). After mating, the male may spend up to ten minutes licking and biting his hemipenis (Comber, 2000).

Reproduction. Among a sample of museum species, snout-vent length at sexual maturity in males was 59 mm and among females 64.2 mm. (How *et al*., 1990). Snout-vent length in gravid females ranged 65.2-96.5 mm (mean = 83.4 mm) (How *et al*., 1990).

In a sample based on museum specimens from throughout the species' range, gravid females were found in the period from mid-spring to late summer (October-March) and one specimen in late autumn (June) (How *et al*., 1990).

In captivity, females cease feeding about 6-8 days prior to laying their eggs (Comber, 2000).

Frequency of reproduction. In the wild, some females carry both oviducal eggs and yolking follicles, suggesting that a female may be able to lay at least two clutches in one season (How *et al*., 1990).

In captivity, one female can lay up to three clutches in one season. The clutches are separated by an interval of about 50 days (Comber, 2000).

Nesting. In captivity, females may dig a few test burrows one or two nights prior to actually laying their eggs (Comber, 2000).

Incubation. Incubation periods are different temperatures are summarised below.

Incubation Temp (° C)	Incubation Period (days) Range	Mean	N	Reference
28-29	60-68	64	-	Comber, 2000

Eggs. Measurements and masses of freshly laid eggs are summarised below.

Length (mm) Range	Mean	N	Width (mm) Range	Mean	N	Mass (g) Range	Mean	N	Reference
-	24	-	-	13	-	-	-	-	Comber, 2000

Hatchlings. Hatchlings slough within seven days after hatching (Comber, 2000).

Growth. In captivity, females reach sexual maturity at an age of two years (Comber, 2000).

Sex ratio. The number of mature males and females was not significantly different in a population in central Victoria (41:38) or on Sandy Hook Island in Western Australia (15:15)(Kearney *et al*., 2001).

Among a sample of mature specimens from a broad area of northern and western Australia in museum collections, the number of males (n = 175) and females (n = 153) was not significantly different (How *et al*., 1990).

Sexual dimorphism. Mature males can be distinguished from females by the bulge (for the hemipenes) at the base of the tail (Comber, 2000).

There is significant sexual dimorphism in snout-vent length in the species, but its direction varies geographically. Mean snout-vent length was larger in males than in females on Sandy Hook Island off the south coast of Western Australia, but it was larger in females than in males at location in central Victoria (Kearney *et al*., 2001).

Among a sample of mature specimens from a broad area of northern and western Australia in museum collections, the mean snout-vent length was significantly larger in females (80.3 mm, n = 153) than in males (77.1 mm, n = 175) (How *et al*., 1990).

Predators. The species only known predators are centipedes (Kearney and Downs, 1998).

Threat display. When threatened, the gecko may raise itself up on extended legs and slightly arch the back (Glauert, 1954: fig. p. 30).

Parasites. The species' recorded endoparasites include nematodes (round worms)(Mawson, 1971, 1972).

Conservation.

Literature. Glauert, 1954; Mawson, 1971, 1972; Sadlier and Shea, 1989; How, Dell and Wellington, 1990; Annable, 1992; Annable, 1995a; Maryan, 1996; Kearney and Downs, 1998; Johnstone and Werner, 2001; Kearney, Shine, Comber and Pearson, 2001; Shah, 2002; Shah, Shine, Hudson and Kearney, 2003.

Underwoodisaurus sphyrurus

Distribution. The species occurs in a small area in the high country in southeastern Queensland and northeastern New South Wales.

The distribution in New South Wales as based on voucher specimens in the Australian Museum is shown in the accompanying map.

Habitats.

Activity.

Diet.

Reproduction.

Predators.

Parasites.

Literature.