1. **Family:**	Gekkonidae
2. **Scientific Name:**	*Christinus guentheri* (Boulenger, 1885) [also appears in the literature as *Phyllodactylus guentheri*].
3. **English Name:**	Lord Howe Island Gecko

4. **Infraspecific taxa**: None at present but morphological differences between the Lord Howe and Norfolk populations are indicative of some degree of taxonomic distinctiveness.

5. **Species survival status**: Vulnerable.

6. **Former distribution**: Lord Howe Island and Norfolk Island and their small off-shore islands, Pacific Ocean. Former presence on Norfolk Island mainland confirmed by fossil remains dated at about 750 years BP (ANCA - Phillip Island Draft Plan of Management).

7. **Current distribution**: On Lord Howe Island apparently now restricted to a small area in the vicinity of the main settlement; also on Blackburn (Rabbit) Island in the lagoon, probably all of the Admiralty Islets (specific records are only from Roach Island), and on Ball's Pyramid. Appears to be extinct on Norfolk Island, but still occurs on the two large off-shore islands - Phillip and Nepean - and on at least two small rocky islets adjacent to Norfolk - Moo-oo Rock (Moo-oo Stone) and Bird Rock (Red Stone).

8. **Habitat**: Closed forest, low open woodland, tussock grassland, rocky isolates.

Lord Howe Island: on the island in the lagoon found under and among loose basalt boulders. On the main island almost restricted to honeycombed beachrock boulders in dense *Howea* palm forest.

Norfolk Island: on Phillip Island found in most habitats but highest densities on grassy and rocky coastal cliffs and among the low wooded boulder slopes of the central valley. Two important seasonal sources of food appear to be nectar, including that of the Norfolk Island Hibiscus (*Lagunaria patersonia*) (Cogger *et al.*, 1983) and the fruit of the succulent herb, Pigface, on Phillip Island (Paul Stevenson, *in litt.*).

9. **Reasons for decline**: Probably a combination of factors, including grazing by rabbits, soil compaction and erosion, predation by rats, cats and pigs.

The virtual disappearance from the main island of Lord Howe has been due almost certainly to the introduction of the Black Rat, *Rattus rattus*, through a shipwreck in 1918 (Cogger, 1971). Predation by cats and pigs on Lord Howe Island has also been documented.

It is generally assumed the disappearance of *C. guentheri* from the mainland of Norfolk Island was due to the introduction of the Pacific Rat, *Rattus exulans* by Polynesians visiting the island about 900 years BP (ANCA - Phillip Island Draft Plan of Management). The Black Rat, *Rattus rattus*, now occurs on Norfolk Island and is considered a greater threat to endemic birds. The population on Phillip Island is assumed to have declined dramatically with the massive habitat destruction caused by the introduction of rabbits, pigs and goats in the late 1700s; the pigs and goats died out quickly but rabbits were only eliminated in 1986.

10. **Conservation reserves on which species occurs** (including a list of other Action Plan species in each conservation reserve):
Lord Howe Island: Lord Howe Island Permanent Park Reserve, which includes the Malabar region of Lord Howe Island, Blackburn (Rabbit) Island, the Admiralty Islands and Balls Pyramid;
Norfolk Island: Phillip Island Forest Reserve and Nepean Island Reserve for the purpose of conservation of flora and fauna.

Pseudemoia lichenigera (Vulnerable) also occurs in the reserves in the Lord Howe Island complex and on Phillip Island Forest Reserve.

10A. **Other conservation reserves where species might be expected to occur**: None.

11. **Other public land on which species occurs**: Norfolk Island: rocky islets around the

coast of Norfolk Island (vacant crown land).

12. Other land on which species occurs: Lord Howe Island: Signal Point, Old Settlement, Ocean View Guest Lodge, the Palm Nursery, Golf Course; Cameron Leary (*in litt.*) observed that the "range and extent of occurrence on Lord Howe Island if surveyed would be far greater than our current information indicates".

13. Is knowledge about species adequate for objectives and actions to be defined accurately?: No.

13.1: Conduct surveys of current distribution on the main island of Lord Howe and on Phillip Island, with ongoing periodic surveys to determine the response of the gecko populations to the ameliorative measures cited in section 15 below.

13.2: Conduct surveys on those offshore islets in the Norfolk and Lord Howe Island complexes which have not yet been surveyed for the occurrence of this species.

13.3: Research is needed into the basic biology and ecology of the species in the field; it should include long term monitoring of changes in population size, habitat use and geographic range.

13.4: Genetic study needed to determine the extent of differentiation between the populations on the two island groups.

14. Recovery Plan objectives:

14.1: To obtain sufficient information on the species' biology, ecology and distribution to determine its current conservation status and formulate appropriate management strategies.

14.2: To ensure that secure, viable populations of the species are maintained within a reserve system.

14.3: To implement land management practices which promote the maintenance of secure, viable populations of the species outside reserves.

15. Management actions already initiated:
Lord Howe Island

15.1: Listed as "vulnerable and rare" on the 1992 Revised (Interim) Schedule 12 of the *NSW Endangered Fauna (Interim Protection) Act 1991.*

15.2: The entire area has World Heritage listing.

15.3: An intensive rat and mouse control program is in progress.

15.4: Prohibition placed on the importation of cats (only 12 domestic cats remaining in April 1993).

15.5: Pigs have been removed from the island.

Norfolk Island

15.6: Phillip Island is listed on the Register of the National Estate for its conservation values.

15.5: Survey of terrestrial reptiles of the Norfolk Island complex conducted for ANPWS in 1978 (Cogger *et al.*, 1979).

15.6: Rabbits eliminated from Phillip Island and revegetation program undertaken.

15.7: Current program to exclude rats from a large section of Norfolk Island National Park with associated possibility of re-introducing lizards.

15.8: Draft Management Plan for Phillip Island prepared by ANCA.

16. Management actions required:

16.1: Survey known and potential habitat in reserves.

16.2: Periodically monitor the many small satellite rocks on which this species occurs in both the Norfolk Island and Lord Howe Island complexes; the small size, inhospitable environment and inaccessibility of these will mitigate against the need for direct management actions.

16.3: Maintain existing management strategies on Nepean and Blackburn (Rabbit) Islands.

16.4: Continue present program to rehabilitate vegetation on Phillip Island.

16.5: Implement or continue rat, cat and pig eradication programs on the main islands of Norfolk and Lord Howe.

16.6: Concentrate conservation management actions on those islands (Blackburn = Rabbit, Roach, Phillip) on which both this species and *Pseudemoia lichenigera* are known to occur.

16.7: Develop and promote guidelines for landowners and users to reduce the impact of current land use practices on the species outside reserves.

16.8: Develop community awareness.

17. Organisations responsible for conservation of species and individuals involved: Lord Howe Island: New South Wales National Parks and Wildlife Service (Cameron Leary, Senior Ranger); Lord Howe Island Board.

Norfolk Island: Australian National Parks and Wildlife Service (Paul Stevenson, Conservator); Norfolk Island Administration.

18. Other organisations and individuals involved: Hal Cogger (Australian Museum).

19. Can recovery plan be carried out with existing resources?: No, although responsible agencies are currently directing some of their existing resources into recovery activities. For cost effectiveness, any study of *Christinus guentheri* should be run jointly with a study of *Pseudemoia lichenigera*, which would result in a combined budget of perhaps $180K.

1: Survey of habitat preferences and occurrence in reserves: 2 workers for 2 months each year for 3 years - $40,000 salary; $40,000 expenses (twice standard expenses for overseas destination). **$80K**

2: Research into basic biology, taxonomy and ecology, including assessment of threatening processes: 1 worker half-time for 2 years - $40,000 salary; $40,000 expenses (twice standard expenses for overseas destination). **$80K**

3: Preparation of management strategies: 1 worker for 3 months - $10,000 salary; $2,000 expenses. **$12K**

Total $172K

20. Remarks: 186 specimens documented in Australian museum collections; experienced observers record an increase in the numbers of geckoes seen on Phillip Island in the years since rabbits were exterminated.

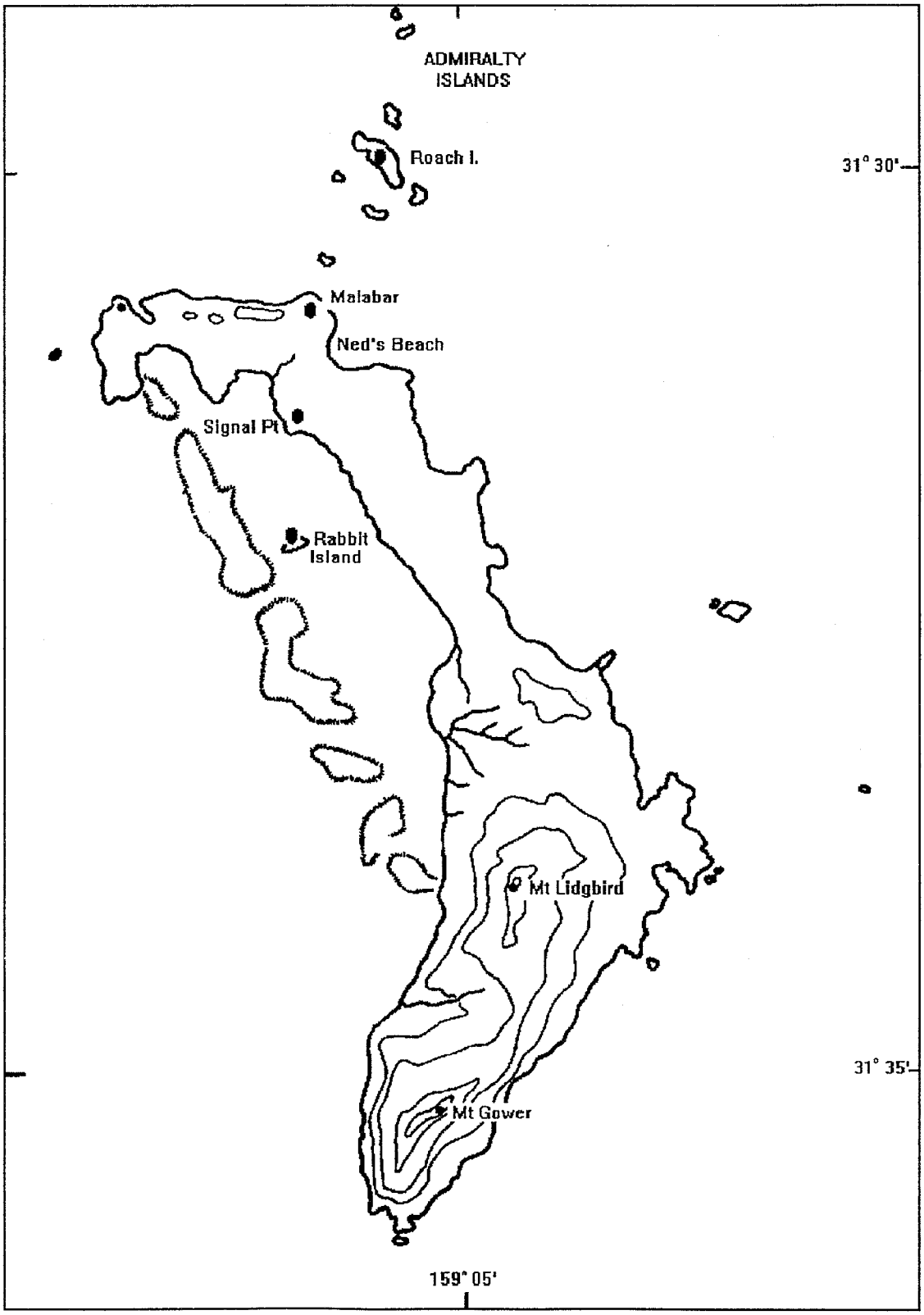
References:

Cogger, H. (1971). The reptiles of Lord Howe Island. Proceedings of the Linnean Society of New South Wales 96(1): 23-38.

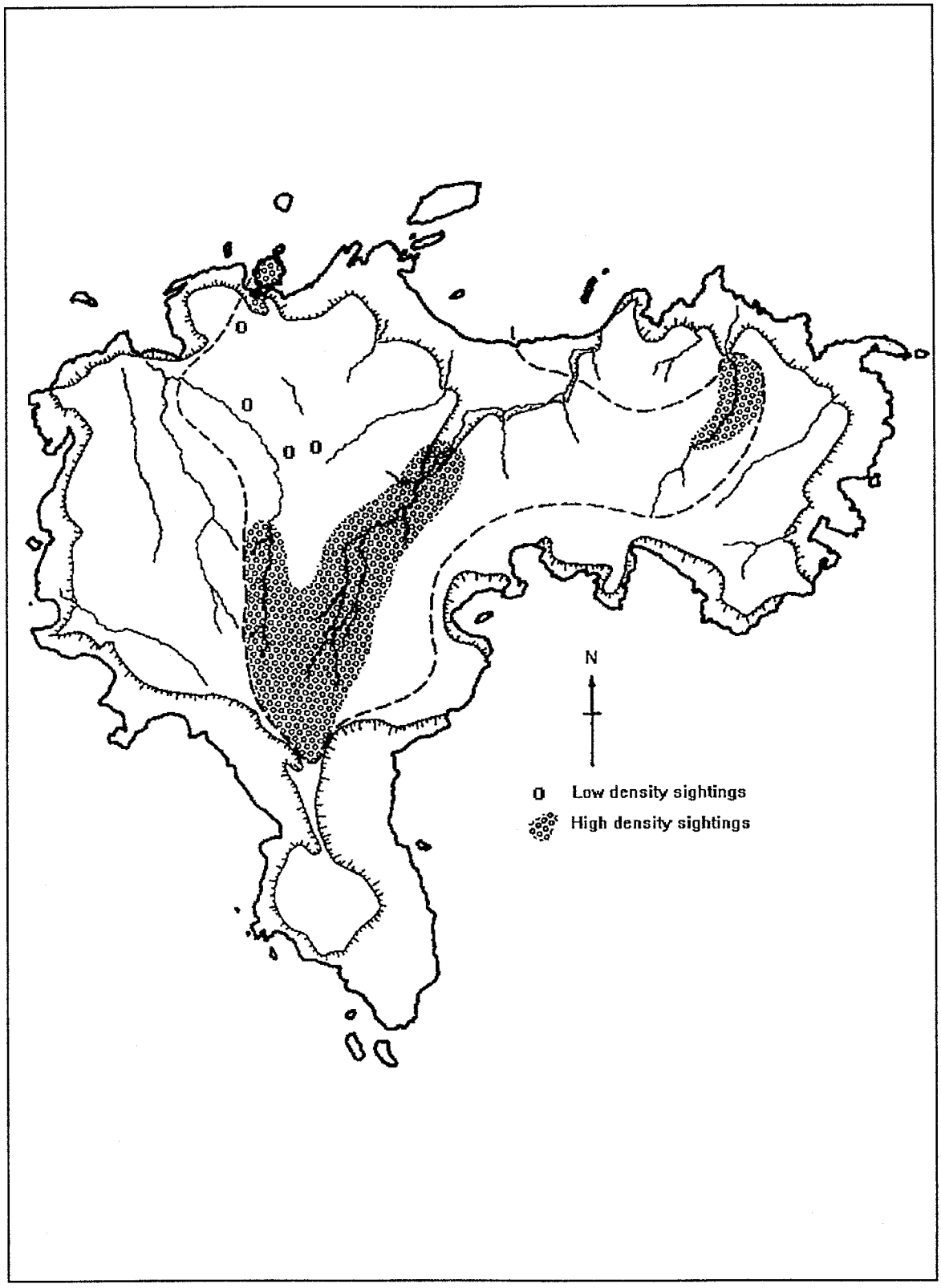
Cogger, H.G., Cameron, E.E. and Sadlier, R.A. 1979. The terrestrial reptiles of islands in the Norfolk Island complex. Australian Museum, Sydney. 122 pp. Limited circulation report for Australian National Parks & Wildlife Service.

Cogger, H.G., Sadlier, R.A. and Cameron, E.E. 1983. The terrestrial reptiles of Australia's island territories. Australian National Parks and Wildlife Service Special Publication 11: 1-80.

Specht, J. 1978. The early mystery of Norfolk Island. Australian Natural History 19(7): 218-223.



Distribution of *Christinus guentheri* on Lord Howe Island



Distribution of *Christinus guentheri* on Phillip Island.

1. **Family:**	Gekkonidae
2. **Scientific Name:**	*Lepidodactylus listeri* (Boulenger, 1889)
3. **English Name:**	Christmas Island Gecko

4. **Infraspecific taxa**: None. Brown and Parker (1977) compared the meristics of two males of this species with two males of *Lepidodactylus manni* from the Fiji Islands, and found them almost identical; they could distinguish them only by locality. They believed the two populations might be conspecific, the explanation being that recent human introduction accounted for one or other of the populations. Given the long isolation of Christmas Island prior to the first discovery of *L. listeri* in 1887 (Boulenger, 1889) there seems little doubt that *L. listeri* is a Christmas Island endemic.

5. **Species survival status**: Vulnerable.

6. **Former distribution**: Not known to have differed from current distribution.

7. **Current distribution**: Christmas Island, Indian Ocean (total area 13,470 ha).

8. **Habitat**: Closed forest.

Most abundant on the plateau area in primary rainforest, but has colonised disturbed habitats in this area including secondary growth forest. It appears to be least abundant on the terraces and is absent from all mined areas, including those covered by dense shrubby regeneration.

9. **Reasons for decline**: Probably a combination of factors, including habitat clearance, disturbance by mining and invasion of habitat by exotic weeds; potential threats include displacement and/or predation by introduced reptiles.

Original vegetation in some areas has been grossly modified as a result of clearing (for open cut phosphate mining) and the introduction of exotic plant species.

Two ubiquitous gecko species (*Gehyra mutilata* and *Hemidactylus frenatus*) and a skink (*Lygosoma bowringii*) apparently have been introduced to Christmas Island in recent times (between 10 and 50 years ago) and are well established in disturbed, anthropogenic habitats (Cogger *et al.*, 1983). They have the potential to displace *Lepidodactylus listeri* should they disperse into primary forest.

The Wolf Snake *Lycodon capucinus* was introduced quite recently - in 1987 *vide* Smith (1988) or about 1982 *vide* Rumpff (1992); a population of probably thousands of individuals is now established in urban and industrial zones in the north-eastern corner of the island (Rumpff, *op. cit.*). Geckos form a large part of the Wolf Snake's diet elsewhere in South-East Asia (Smith, 1943) and both of the introduced gecko species have been confirmed as its main prey on Christmas Island.

Rumpff (1992) did not detect any Wolf Snakes in primary forest on the island and hypothesised that it was sub-optimal habitat for the species. However, increasing population size and a decrease in abundance of geckos around the settlement could lead to an invasion of primary forest by Wolf Snakes, thus posing a serious threat to the endemic lizards and the shrew recorded only from that habitat. Another species of colubrid snake introduced to Guam, the Brown Tree Snake *Boiga irregularis*, has almost eliminated that island's endemic forest avifauna (Fritts, 1988).

10. **Conservation reserves on which species occurs** (including a list of other Action Plan species in each conservation reserve): Christmas Island NP; *Ramphotyphlops exocoeti* (Endangered) also occurs here.

10A. **Other conservation reserves where species might be expected to occur**: None.

11. **Other public land on which species occurs**: Regeneration nursery at Drumsite.

12. **Other land on which species occurs**: None known.

13. **Is knowledge about species adequate for**

objectives and actions to be defined accurately?: No.

13.1: Further ground survey needs to be conducted to determine its habitat preferences and the extent of its occurrence in the existing reserve.

13.2: Research is needed into the basic biology and ecology of the species in the field; it should include long term monitoring of changes in population size and habitat use.

13.3: Research is needed to document the extent of the species' decline and to identify the major factors contributing to that decline.

14. Recovery Plan objectives:

14.1: To obtain sufficient information on the species' biology, ecology and distribution to determine its current conservation status and formulate appropriate management strategies.

14.2: To ensure that secure, viable populations of the species are maintained within the reserve.

15. Management actions already initiated:

15.1: Survey of all terrestrial reptiles funded by ANPWS and conducted in 1979 (Cogger and Sadlier, 1981).

15.2: Study of the introduced Wolf Snake funded by ANPWS and conducted in 1991/92 (Rumpff, 1992).

15.3: Christmas Island National Park Plan of Management in preparation.

15.4: Establishment of a nursery to provide plants for the rehabilitation of the mine fields.

16. Management actions required:

16.1: Survey known and potential habitat in Christmas Island NP for *Lepidodactylus listeri*.

16.2: Monitor the populations of all species of geckos and skinks in urban areas; maintain surveillance of dispersal routes to primary forest, for possible invasion of the latter by introduced geckos.

16.3: Continue monitoring the population and distribution of Wolf Snakes, as recommended by Rumpff (1992).

16.4: Implement control program for the Wolf Snake; application of organochloride pesticides is not recommended. The establishment of a bounty system and use of sticky traps (Knight, 1986) may have some effect in reducing the population.

16.5: Introduce appropriate quarantine regulations and enforce thorough inspection of imported goods to detect introduced flora and fauna.

16.6: Continue rehabilitation of mined areas by wide-scale planting of forest species on the plateau.

16.7: Develop community awareness of the species and of the Wolf Snake as a potential predator.

17. Organisations responsible for conservation of species and individuals involved: Australian Nature Conservation Agency.

18. Other organisations and individuals involved: Hal Cogger and Ross Sadlier (Australian Museum), Holger Rumpff, Christmas Island National Park Advisory Committee.

19. Can recovery plan be carried out with existing resources?: No, although mining royalties have contributed considerably towards the costs of maintaining the regeneration nursery.

1: Survey of habitat preferences and distribution in reserve: 2 workers for 2 months each year for 2 years - $26,667 salary; $26,667 expenses (twice standard expenses for overseas destination). **$53.3K**

2: Research into basic biology and ecology, including assessment of threatening processes: 1 worker half-time for 2 years - $40,000 salary; $40,000 expenses (twice standard expenses for overseas destination). **$80K**

3: Monitor population of Wolf Snake and lizards in urban areas: 15 hours per month for 2 years @ $20 per hour - $7,200 salary. **$7.2K**

4: Preparation of management strategies: 1 worker for 3 months - $10,000 salary; $2,000 expenses. **$12K**

Total $152.5K

20. Remarks: 91 specimens documented in Australian museum collections.

References:

Australian National Parks and Wildlife Service. 1990. Annual Report 1989-90. Australian Government Publishing Service, Canberra. 114 pp.

Brown, W.C. and Parker, F. 1977. Lizards of the genus *Lepidodactylus* (Gekkonidae) from the Indo-Australian Archipelago and the islands of the Pacific, with descriptions of new species. Proceedings of the Californian Academy of Sciences (4)41(8): 253-265.

Boulenger, G.A. 1889. On the reptiles of Christmas Island. Proceedings of the Zoological Society of London 1888: 534-536.

Cogger, H.G. and Sadlier, R.A. 1981. The terrestrial reptiles of Christmas Island, Indian Ocean. Australian Museum, Sydney. 194 pp. Report to the Australian National Parks & Wildlife Service.

Cogger, H.G., Sadlier, R.A. and Cameron, E.E. 1983. The terrestrial reptiles of Australia's island territories. Australian National Parks and Wildlife Service Special Publication 11: 1-80.

Fritts, T.H. 1988. The brown tree snake, *Boiga irregularis*, a threat to Pacific Islands. US Dept of Interior Fish and Wildlife Service Biological Report 88(31): i-vi, 1-36.

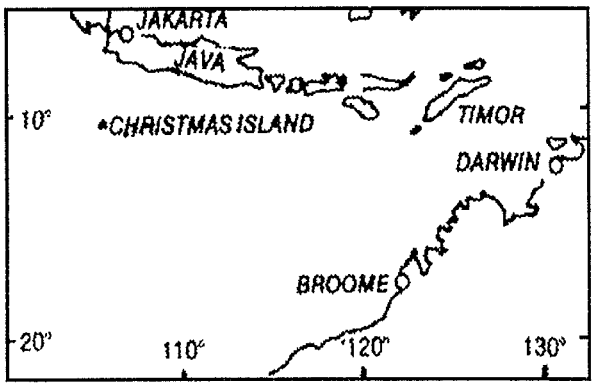
Fritts, T.H. 1993. The common wolf snake, *Lycodon aulicus capucinus*, a recent colonist of Christmas Island in the Indian Ocean. Wildlife Research 20: 261-266.

Knight, J.E. 1986. A humane method for removing snakes from dwellings. Wildlife Society Bulletin 14: 301-303.

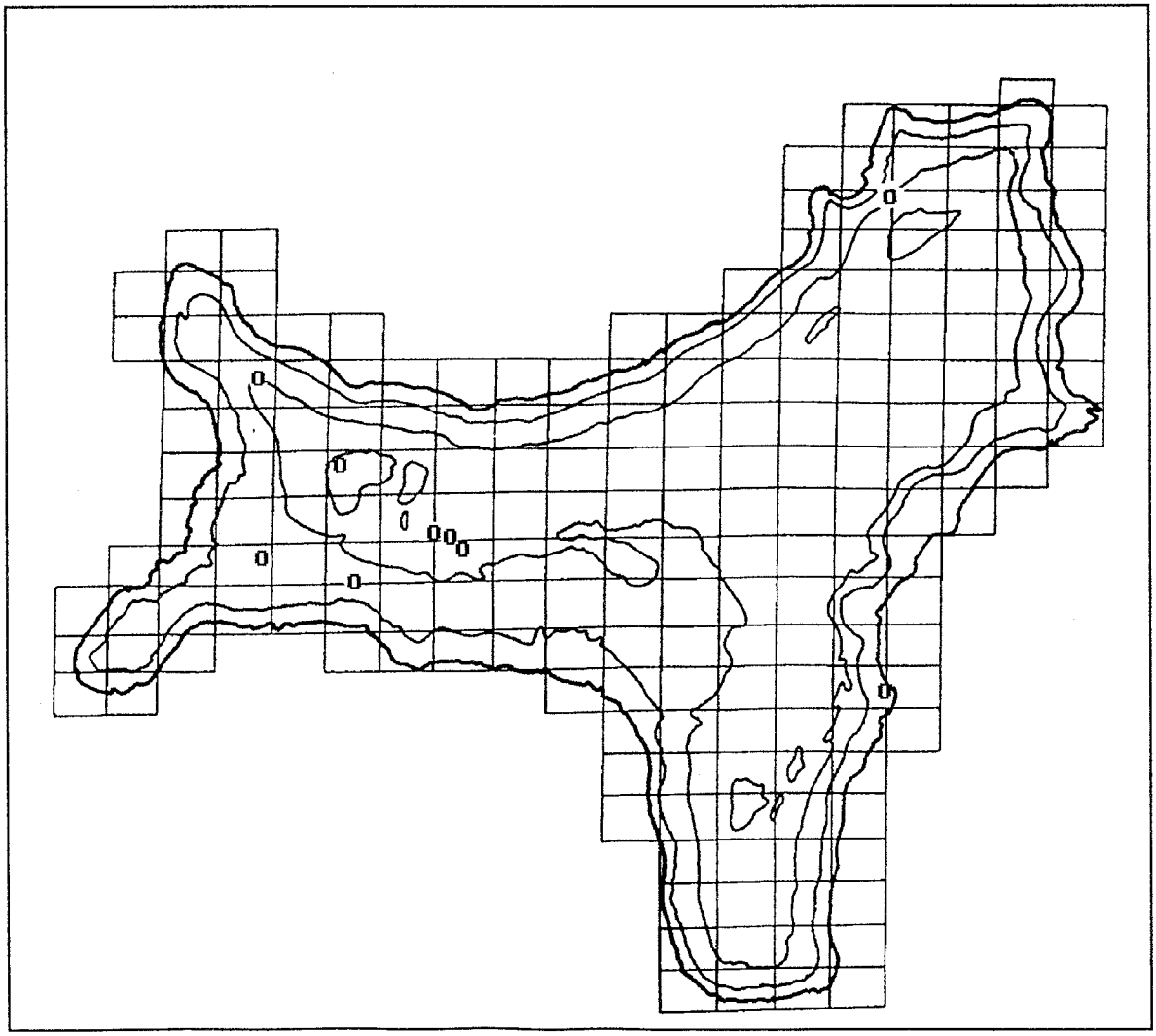
Rumpff, H. 1992. Distribution, population, structure and ecological behaviour of the introduced South-East Asian Wolf Snake *Lycodon aulicus capucinus* on Christmas Island, Indian Ocean. Report to the Australian National Parks and Wildlife Service, Canberra.

Smith, L.A. 1988. *Lycodon aulicus capucinus* a colubrid snake introduced to Christmas Island, Indian Ocean. Records of the Western Australian Museum 14(2): 251-252.

Smith, M.A. 1943. The Fauna of British India ... Reptilia and Amphibia. Vol. III. Serpentes. Taylor and Francis. London. xii + 583 pp.



Distribution of *Lepidodactylus listeri*



1. **Family:**	Gekkonidae
2. **Scientific Name:**	*Nephrurus deleani* Harvey, 1983
3. **English Name:**	Pernatty Knob-tail

4. **Infraspecific taxa**: None.

5. **Species survival status**: Vulnerable.

6. **Former distribution**: Not known to have differed from current distribution.

7. **Current distribution**: Restricted by apparently unsuitable surrounding habitat, to a very small area in the vicinity of Pernatty Lagoon, between Island Lagoon and Lake Torrens, South Australia.

8. **Habitat**: Tall shrubland.

Only recorded on the highest sand dunes supporting *Acacia ligulata* shrubland with an understorey of other shrubs including *Acacia burkitti*, *Alectryon elifolium*, pituri (*Duboisia hopwoodi*) and hopbush (*Dodonea sp.*) and canegrass (*Zygochloa sp.*) (John Read, *in litt.*).

9. **Reasons for decline**: Not known to have declined, but its small range makes it vulnerable to a number of threats including grazing by rabbits, overgrazing by sheep and cattle, soil compaction and erosion.

"The restricted range of *N. deleani* is subject to marked disturbance by sheep and cattle, resulting in destruction of vegetation and trampling of burrows" (Wilson and Knowles, 1988).

10. **Conservation reserves on which species occurs**: None known.

10A. **Other conservation reserves where species might be expected to occur**: None known.

11. **Other public land on which species occurs**: None known.

12. **Other land on which species occurs**: Apparently occurs only on private properties.

13. **Is knowledge about species adequate for objectives and actions to be defined accurately?**: No.

13.1: Ground surveys need to be conducted to determine the full geographic range of the species.

13.2: Research is needed into the basic biology and ecology of the species in the field; it should include long term monitoring of changes in population size, habitat use and geographic range.

13.3: Research is needed to determine if the species is declining and if so, to identify the major factors contributing to that decline.

14. **Recovery Plan objectives**:

14.1: To obtain sufficient information on the species' biology, ecology and distribution to determine its current conservation status and formulate appropriate management strategies.

14.2: To ensure that secure, viable populations of the species are maintained within a reserve system.

14.3: To implement land management practices which promote the maintenance of secure, viable populations of the species outside reserves.

15. **Management actions already initiated**: None known.

16. **Management actions required**:

16.1: Survey known and potential habitat in reserves within the species' known range.

16.2: Survey known habitat outside reserves within the species' known range.

16.3: Establish appropriate reserves.

16.4: Develop and promote guidelines for landowners and users to reduce the impact of current land use practices on the species outside reserves.

16.5: Develop community awareness within the species' known range.

17. **Organisations responsible for conservation of species and individuals involved**: South Australian Department of Environment and

Land Management.

18. Other organisations and individuals involved: John Read (Western Mining Corporation, Olympic Dam); Mark Hutchinson (South Australian Museum).

19. Can recovery plan be carried out with existing resources?: No.

1: Survey of geographic range, habitat preferences and occurrence in reserves: 2 workers for 2 months each year for 3 years - $40,000 salary; $30,000 expenses (1.5 x standard expenses for remote area). **$70K**

2: Research into basic biology and ecology, including assessment of threatening processes: 1 worker for 4 months each year for 2 years - $26,667 salary; $20,000 expenses (1.5 x standard expenses for remote area). **$46.7K**

3: Preparation of management strategies: 1 worker for 3 months - 10,000 salary; $2,000 expenses. **$12K**

4: Purchase of land for the reserve system: uncosted.

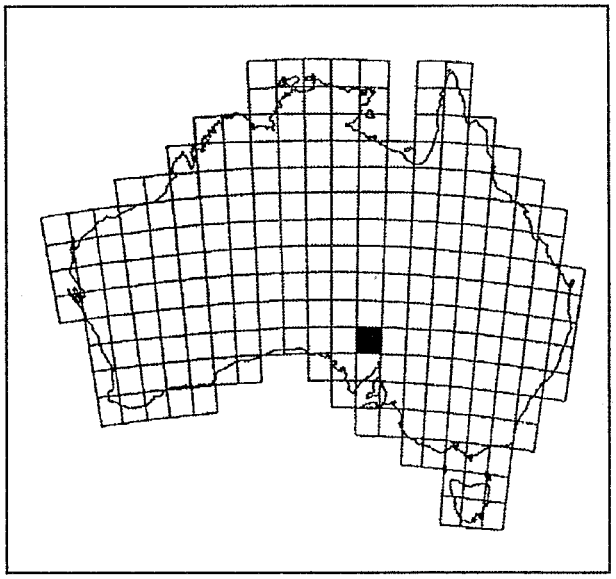
Total $128.7K

20. Remarks: Nine specimens documented in Australian museum collections. John Read (*in litt.*) has recorded live animals in nine localities in the past two years and it still appears to be relatively common on the few dunes of suitable habitat.

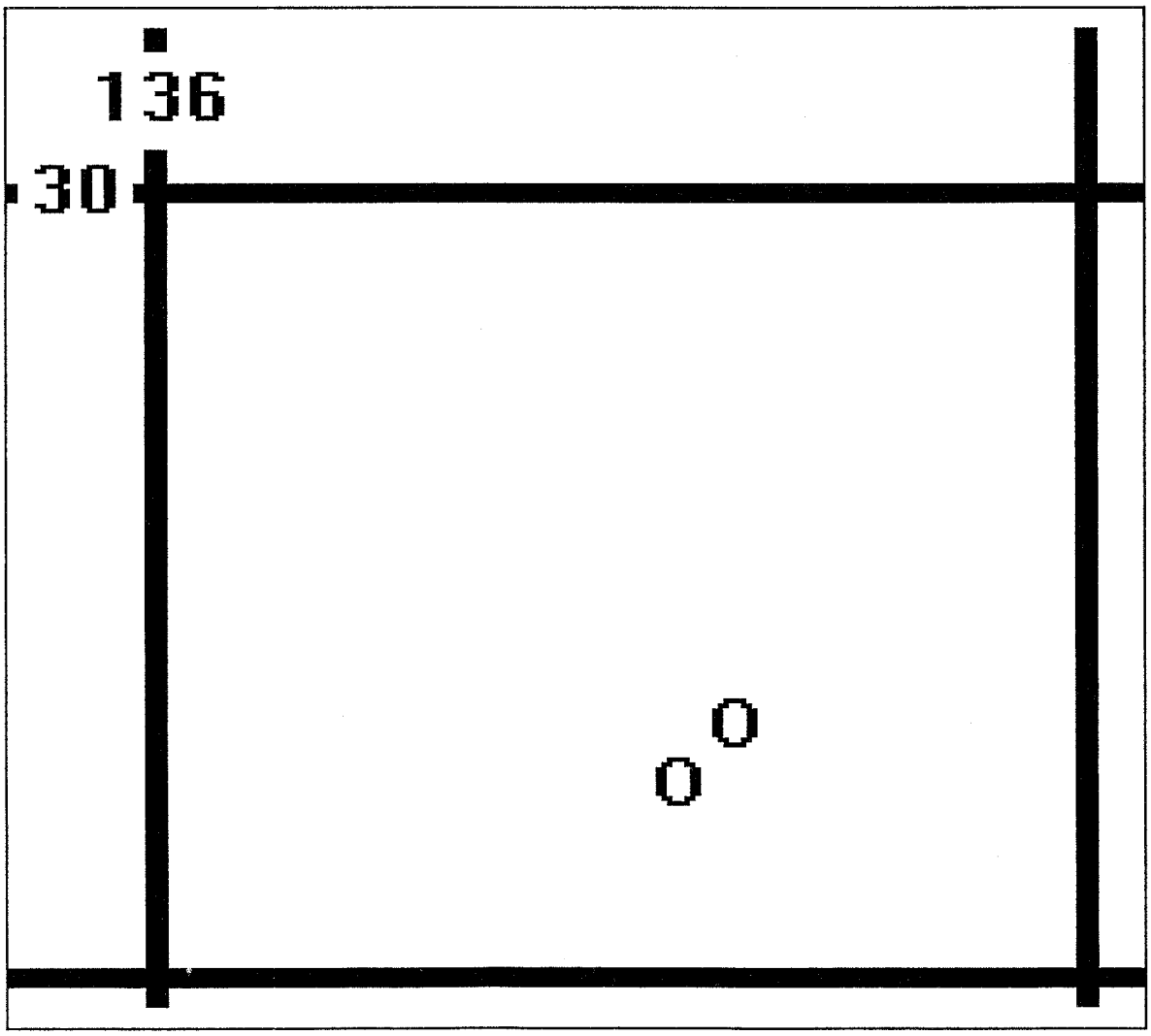
References:

Harvey, C. 1983. A new species of *Nephrurus* (Reptilia: Gekkonidae) from South Australia. Transactions of the Royal Society of South Australia 107(4): 231-235.

Wilson, S.K. and Knowles, D.G. 1988. Australia's Reptiles; a photographic reference to the terrestrial reptiles of Australia. Collins Publishers, Australia. 447 pp.



Distribution of *Nephrurus deleani*



1. **Family**: Gekkonidae

2. **Scientific Name**: *Underwoodisaurus sphyrurus* (Ogilby, 1892)

3. **English Name**: Border Thick-tailed Gecko

4. **Infraspecific taxa**: None.

5. **Species survival status**: Vulnerable.

6. **Former distribution**: Not known to have differed from current distribution.

7. **Current distribution**: North-western slopes and northern tablelands of New South Wales and the adjacent Stanthorpe region of southern Queensland, between about 500 and 1500 m asl.

8. **Habitat**: Rocky isolates, open woodland.

In the hills of the Granite Belt its preferred habitat appears to be deep leaf litter and exfoliating rocky outcrops in *Eucalyptus* and *Callitris* woodland (Cogger, 1992, Gerry Swan, *in litt.*). In the Tamworth region it has been found close to outcrops of metamorphic and sedimentary as well as granite rocks (Harry Hines, Gerry Swan, *in litt.*).

9. **Reasons for decline**: Not known to have declined but probably vulnerable to a combination of factors, including overgrazing by stock, clearance of habitat for agriculture and grazing, native forest logging and inundation of habitat by dam construction.

At least one individual is known to have been displaced by the rising waters of the Copeton Dam (Gerry Swan, *in litt.*). The species has a patchy distribution in a region of high human impact and its habitat requirements are not well known.

10. **Conservation reserves on which species occurs**: Queensland: Girraween NP;
New South Wales: Mount Kaputar NP.

10A. **Other conservation reserves where species might be expected to occur**: Queensland: Sundown NP;
New South Wales: Bald Rock NP, Boonoo Boonoo NP, Cameron's Gorge NR, Ironbark NR, Kings Plains NP, Mount Yarrowitch NR, Rowleys Creek Gulf NR, Severn River NR, Sherwood NR, The Basin NR, The Hole Creek NR, Wallabadah NR, Warrabah NP, Watsons Creek NR.

11. **Other public land on which species occurs**: New South Wales: Copeton Dam SRA; Moonbi Lookout north of Tamworth; Emmaville rubbish tip (Gerry Swan, *in litt.*).

12. **Other land on which species occurs**: Private land around Woolomin, south-east of Tamworth; potentially present in suitable habitat on private properties throughout its range.

13. **Is knowledge about species adequate for objectives and actions to be defined accurately?**: No.

13.1: Ground surveys need to be conducted to determine the full geographic range of the species, its habitat preferences, and the extent of its occurrence in existing reserves.

13.2: Research is needed into the basic biology and ecology of the species in the field; it should include long term monitoring of changes in population size, habitat use and geographic range.

13.3: Research is needed to determine if the species is declining and if so, to identify the major factors contributing to that decline.

14. **Recovery Plan objectives**:

14.1: To obtain sufficient information on the species' biology, ecology and distribution to determine its current conservation status and formulate appropriate management strategies.

14.2: To ensure that secure, viable populations of the species are maintained within a reserve system.

14.3: To implement land management practices which promote the maintenance of secure, viable populations of the species outside reserves.

15. Management actions already initiated: Listed as "vulnerable and rare" on the 1992 Revised (Interim) Schedule 12 of the *NSW Endangered Fauna (Interim Protection) Act 1991.*

16. Management actions required:

16.1: Survey known and potential habitat in reserves within the species' known range.

16.2: Survey known habitat outside reserves within the species' known range.

16.3: Establish appropriate reserves if the existing reserve system is found to be inadequate to secure the survival of the species.

16.4: Develop and promote guidelines for landowners and users to reduce the impact of current land use practices on the species outside reserves.

16.5: Develop community awareness within the species' known range.

17. Organisations responsible for conservation of species and individuals involved: Queensland Department of Environment and Heritage, New South Wales National Parks and Wildlife Service (Harry Hines).

18. Other organisations and individuals involved: Harald Ehmann (Sydney Institute of Technology); Gerry Swan (Australian Herpetological Society).

19. Can recovery plan be carried out with existing resources?: No.

1: Survey of geographic range, habitat preferences and occurrence in reserves: 2 workers quarter-time for 2 years - $40,000 salary; $20,000 expenses. **$60K**

2: Research into basic biology and ecology, including assessment of threatening processes: 1 worker for 4 months each year for 2 years - $26,667 salary; $13,333 expenses. **$40K**

3: Preparation of management strategies: 1 worker for 3 months - $10,000 salary; $2,000 expenses. **$12K**

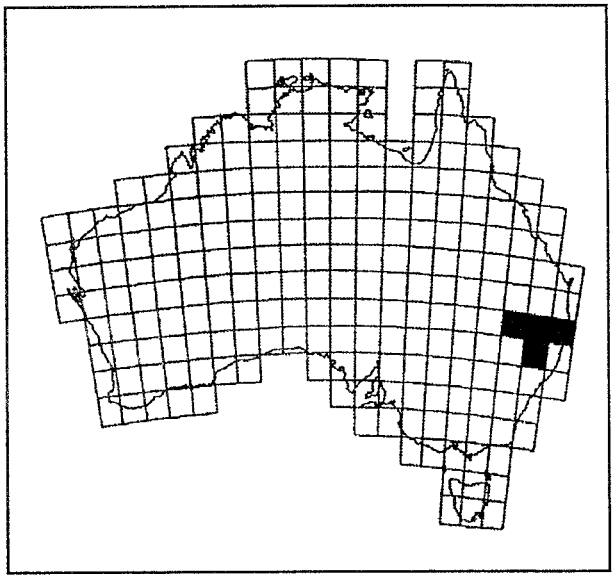
Total $112K

20. Remarks: 15 specimens documented in Australian museum collections. Recent records include several sightings in early 1993 around Woolomin (Harry Hines, *in litt.*).

References:

Czechura, G.V. and Covacevich, J. 1985. Poorly known reptiles in Queensland. pp. 471-476 in G. Grigg, R. Shine and H. Ehmann (eds) The Biology of Australasian Frogs and Reptiles. Royal Zoological Society of New South Wales, Sydney.

Cogger, H.G. 1992. Reptiles and Amphibians of Australia. Reed Books, Sydney. 775 pp.



Distribution of

Underwoodisaurus sphyrurus