

Alpine gecko survey, South Island (2004/05)

sponsored by Kathmandu

Andrea Goodman

Dept of Conservation
Southland Conservancy

Rod Hitchmough & Mandy Tocher

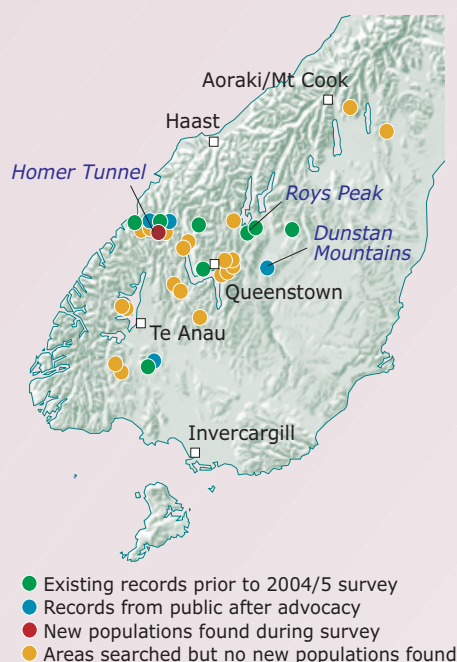
Dept of Conservation
RD&I Division

Tony Jewell

216 Riponvale Road, RD 2, Cromwell

Two very small geckos were reported from alpine areas in Fiordland (Darran Mountains) and Nelson Lakes in the early 1970s. Both were too immature for any taxonomic conclusions to be drawn, but appeared unusual.

The first more mature specimen of alpine *H. aff. granulatus* was discovered in 1996, in the Takitimu Mountains of Southland (1140 m a.s.l.). This was obviously a new species, and has since been described as *Hoplodactylus cryptozoicus* Jewell & Leschan, 2004. This discovery was quickly followed by a second probable new species at Roys Peak, Otago, and later by sightings at three other alpine sites in Otago. Less than ten animals were known at each site, and many apparently similar sites lacked populations. There was, therefore, considerable concern about their status. Survey will help map the geographic range of these new gecko types and with the use of molecular genetic techniques, determine how many species we have.



2004/05 survey

The 2004/05 survey focused on alpine areas south of Aoraki and concentrated on the least-known alpine gecko form (Darran Mountains). A new population of this distinctive gecko was found in the Homer Tunnel area of Fiordland. A new population of the Roys Peak gecko (Dunstan Mountains form) was found in alpine habitat above the Cromwell Gorge.

Appeals for sightings from the public generated five new records of alpine geckos (four in Southland and one in Otago). The majority of records generated through such advocacy have come from rock climbers and mountaineers. This approach has proven far more successful (5x) than surveys of likely habitats from which there had not been previous sightings (one population found from 31 sites searched).



Darran Mountains gecko on alpine vegetation, photos: Tony Jewell



Takitimu gecko, photo: Hannab Edmonds



Takitimu gecko, photo: Tony Jewell

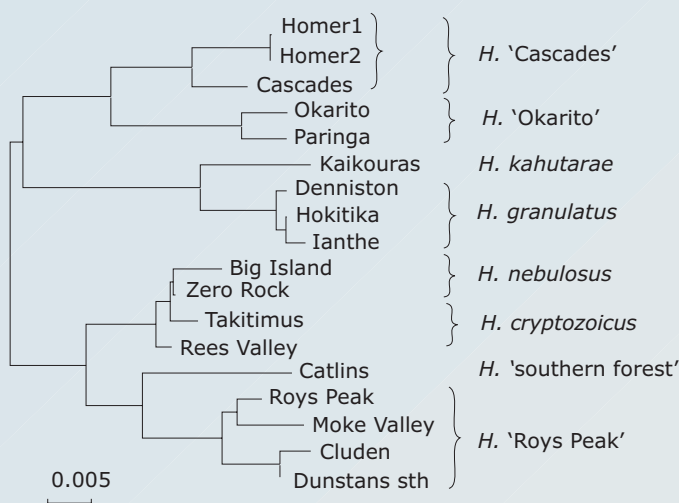


Roys Peak gecko, Dunstan Mountains, photos: Tony Jewell

Preliminary genetic analysis

Sequence data from the slowly-evolving mitochondrial 16S ribosomal RNA gene of gecko material collected during the 2004/05 summer survey, and a specimen from Paringa (alpine habitat), were compared with sequences collected earlier from the following species: *Hoplodactylus granulatus*, *H. nebulosus*, *H. kahutarae*, *H. cryptozoicus* and specimens from Roys Peak, the Catlins (lowland forest), Moke Valley (alpine), Okarito (lowland forest) and the Cascade Plateau (ultramafic habitat). The neighbour-joining tree below shows these comparisons and suggests four undescribed species allied to *H. granulatus* in the southern half of the South Island:

- Cascade Plateau and Homer Saddle
- Okarito and Paringa
- Catlins
- Roys Peak, Moke Valley, and Dunstan Mountains (including Cluden)



The Rees Valley specimen clusters closely with the Stewart Island endemic *H. nebulosus* and with *H. cryptozoicus* from the Takitimu Mountains. The close similarity in mitochondrial DNA sequence between these populations may be the result of introgressive hybridisation when a land-bridge connected Stewart Island and the South Island during former glacial periods.



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