

Inclusion of New Zealand geckos *Hoplodactylus* and *Naultinus* spp. in Appendix II.**Proponent: New Zealand.**

Summary: *Hoplodactylus* and *Naultinus* are two genera of lizards in the gecko family (Gekkonidae) confined to New Zealand. Nine species of *Hoplodactylus* and eight of *Naultinus* are currently recognised, although a further 19 groups of the former and one of the latter may warrant specific status. Both genera are slow-maturing and ovo-viviparous, giving birth to two live young. The genus *Hoplodactylus* includes some of the largest geckos, reaching 30 cm or more. Populations of these geckos occur on land administered by the Conservation, National Parks, Reserves and other Acts but their distributions are patchy, although, for species where there is suitable predator-free habitat, densities can be high. The main threats the geckos face are predation from introduced mammals, illegal collection at least in part for the international pet trade and competition for favoured food sources. Three *Hoplodactylus* species are currently classified in the IUCN Red List, one as Vulnerable and two as Lower Risk/near threatened. Three taxa are currently considered 'Nationally Critical' under the New Zealand Threat Classification System, with several others considered under lesser degrees of threat. New Zealand geckos are all protected by the Wildlife Act, 1953, which only allows export by prior arranged permit; government policy since 1996 only allows export for conservation purposes. The volume of international trade in illegally harvested specimens, notably in the Czech Republic and Germany, is thought to be increasing. The genera are proposed for inclusion in Appendix II in accordance with Article II (2a, 2b). It is intended that Appendix-II listing will identify the route through which trade in these genera is occurring.

Analysis: Following Resolution Conf. 9.24, although concrete trade data are few, it appears that at least some species in both genera meet the criteria for inclusion in Appendix II on the basis that harvesting from the wild for trade may have a detrimental impact by reducing populations to a level where their survival might be threatened by other influences. At least three taxa may already meet the criteria for inclusion in Appendix I. Distinguishing different species within each genus is not straightforward, so that other species in each genus appear to meet the criteria for inclusion in Appendix II for reasons of similarity of appearance.

Supporting Statement (SS)	Additional information
<u>Taxonomy</u>	
<p><i>Hoplodactylus</i> consists of nine currently recognised species; a further 19 groups within the genus are thought to warrant specific status. <i>Naultinus</i> consists of eight currently recognised species with one additional group thought to warrant specific status.</p>	<p>The South Island species of <i>Naultinus</i> was known as <i>Heteropholis</i> (Fischer, 1882) until it was synonymised with <i>Naultinus</i> in 1990. <i>Heteropholis</i> was commonly used in the pet trade after becoming a synonym. It is possible that this generic name is still being used to circumvent legislation (Whitaker, 2002).</p>
<u>Range</u>	
<p>New Zealand, including three outlying Islands.</p>	
<u>IUCN Global Category</u>	
<p><i>Hoplodactylus stephensi</i>: VU D2 <i>Hoplodactylus rakiurae</i>: LR/nt <i>Hoplodactylus kahutarae</i>: LR/nt</p>	

Biological and trade criteria for inclusion in Appendix II**A) Trade regulation needed to prevent future inclusion in Appendix I**

There are no estimates of the total population size or area of distribution provided for any of the species, although it is noted that some of the species have limited distributions restricted to small offshore islands. Some species have fragmented, regional, or widespread distributions, while yet others have unknown distributions and conservation status.

Three taxa of *Hoplodactylus* are currently listed as 'Nationally Critical' in the New Zealand Threat Classification System (Molloy et al., 2001). The criteria for such a listing are: the taxon has either a total population size of less than or equal to 250 mature individuals; human influence has reduced the population to two or less sub-populations so that the largest sub-population has less than 200 mature individuals; the total area of occupancy is less than 1 ha

Supporting Statement (SS)	Additional information
	<p><i>(0.01 km²); or that there is a predicted decline of greater than or equal to 80% of the total population in the next ten years due to existing threats. It is therefore possible that these three species already meet at least one of the criteria for inclusion in Appendix I.</i></p> <p><i>Reviewers concur that these genera suffer from restricted and declining distributions, and that distributions are fragmented to differing degrees. It is thought that their distribution has been reduced to less than 20% of their former range, having previously been found throughout New Zealand (Hitchmough, 2002). Whitaker (2002) notes that <i>Hoplodactylus duvaucelii</i>, <i>H. stephensi</i> and <i>Naultinus gemmeus</i> suffer severely fragmented ranges while other taxa are more uniformly distributed.</i></p>
<p align="center"><u>B) Harvesting for international trade has, or may have, detrimental impact on population</u></p> <p align="center">(i) exceeds sustainable yield; (ii) reduces population to potentially threatened level</p> <p>Trade in the New Zealand geckos is believed to be primarily aimed at pet markets in Europe and the USA. The species are generally difficult to breed in captivity and demand for them has increased in the USA. It is clear that not all of those specimens being supplied are from a captive breeding.</p> <p>The geckos are slow to mature to reproductive age and have a low reproductive output (0.5-2 offspring per adult female per year), making them particularly vulnerable to collecting pressure.</p> <p>The sub-population of <i>N. gemmeus</i> in the Otago Peninsula Reserve has declined drastically since 1994. In 1997 the New Zealand wildlife crime authorities confirmed that <i>Naultinus</i> species were available on the black market. There have since been several prosecutions for the smuggling of specimens from New Zealand.</p> <p>Illegal collection poses the most significant risk to species residing on predator free, offshore islands. Populations are dense, facilitating capture, while the remote location makes detection and policing difficult. These island populations are often the species only strongholds.</p>	<p><i>The reviewers concur with the SS that harvesting from the wild will have a detrimental impact on the species' populations. The consensus of reviewers is, that as more specimens are harvested from the wild, more species will be put at greater risk from other factors such as mammalian predators and even lower reproductive output. They agreed that even low trade volumes are unsustainable.</i></p> <p><i>Apart from being endemic, the appeal of these geckos apparently arises from their attractive, colourful appearance and their unusual characteristic of bearing live young and being long-lived. It is believed that the volume of illegal trade is increasing, especially to the Czech Republic and Germany. Some species sell for very high prices; in May 2001, <i>H. rakiuruae</i> were being advertised for USD 15 000 each in the USA (TRAFFIC Oceania, 2002).</i></p> <p><i>The reviewers concur with the SS, believing that commercial trade in the genera is occurring, although no quantitative data are provided for historic or current trade levels. Hitchmough (2002) states that virtually all international trade in the species is in illegally caught wild animals. Captive colonies established prior to 1996 do provide a legitimate source of geckos for trade but numbers appearing on the international market are thought to far exceed those available from this source (TRAFFIC Oceania, 2002).</i></p> <p><i>The reviewers agree that both genera are at risk from over-harvest owing to low reproductive potential. The ease by which they can be collected due to open basking and slow movement of <i>Naultinus</i> and some <i>Hoplodactylus</i> species, and the accessibility of retreats under rocks in other <i>Hoplodactylus</i> species make them extremely vulnerable (Hitchmough, 2002).</i></p>

Supporting Statement (SS)	Additional information
<p>Inclusion in Appendix II to improve control of other listed species</p> <p><u>Specimens resemble other species and are difficult to distinguish, or most of taxon is already listed</u></p>	<p><i>The reviewers concur that identification to the generic level is straightforward. However, identification to species level is more difficult, so that listing of only some species is believed likely to cause enforcement problems.</i></p>

Other information

Threats

Low population densities of the species can be attributed to introduced mammalian predators. Their removal has allowed gecko populations to increase, even in heavily modified habitats.

Polynesian fire followed by European clear felling destroyed over two-thirds of forested habitat in New Zealand and severely restricted the habitat, range and population numbers of forest dwelling geckos. During the 1900s, and more recently, habitat loss has been limited.

Habitat loss was widespread prior to complete forest protection in 1987 (Towns, 2002). Habitat degradation is still occurring in montane environments due to the grazing of introduced domestic and feral herbivores (Hitchmough, 2002). Grassland habitats may still be declining (Towns, 2002).

Whitaker (2002) believes that the SS over values population increases where predators have been removed, stating that they affect infinitesimal areas in relation to the widespread trend of habitat loss and degradation, and the impacts of introduced predators and competitors.

The New Zealand Threat Classification System (Molloy et al., 2001), lists three taxa as 'Nationally Critical', nine as in 'Gradual Decline', 11 as 'Sparse', six as 'Range Restricted', and four as 'Data Deficient'.

Conservation, management and legislation

Prior to 1981, geckos were not protected by legislation outside reserves or national parks. In 1981 all geckos were protected except *H. maculatus* and *H. granulatus* but protection was extended, in 1996, to include all species of gecko pursuant to the Wildlife Act 1953. The Act stipulates that no live animals can legally be collected from the wild and, to avoid fuelling the market, permits for the export of captive-bred specimens are likely to be declined.

Active reintroduction onto mammal free offshore islands has been occurring in recent years. Intense predator control or is being used at some mainland sites.

Reviewers agree that the majority of the species occur within protected areas, although some have ranges that do not fall within any protected areas (Towns, 2002; Newman, 2002).

Towns (2002) and Newman (2002) agree that legislation within New Zealand is effectively enforced, although Newman notes that some animals are still being smuggled out of the country. Whitaker (2002) feels that penalties imposed for wildlife offences are far short of the maximum allowable by law.

Similar species

*Whitaker (2002) notes that *Hoplodactylus* is superficially very similar to the genus *Bavayia* of New Caledonia, some species of which appear to be readily available in the pet trade (Tremper and Tremper, 2002; Anon., 2002).*

Captive Breeding

A number of geckos are held in captivity, although the population sizes are small. Most geckos are known to be difficult to hold and breed in captivity. Within New Zealand, commercial captive breeding of native gecko

*There are records of a number of professional institutes within New Zealand, the USA and the UK breeding various *Hoplodactylus* and *Naultinus* species up until 1997 (Slavens and Slavens, 2001).*

Supporting Statement (SS)	Additional information
<p>species has been totally prohibited since 1996. Internationally there is limited captive breeding for commercial purposes, most is located in Europe, from populations legally stocked prior to 1996.</p>	<p><i>Towns (2002) estimates that there are fewer than 500 individuals of all the species combined, within captive breeding programmes.</i></p>

Reviewers: R. Hitchmough, D. Newman, M. Tocher, D. Towns, TRAFFIC Oceania, T. Whitaker.

References:

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