

Asian House Geckos

Fact Sheet



Asian House Geckos, the ultimate city dwellers. Image: Steve Wilson.

Introduction to Geckos

Geckos are nocturnal lizards with large, lidless eyes and soft granular skin. Their tails are fragile, meaning they can be easily broken and replaced. Geckos are unusual because they have a voice in the form of a squeak or bark, can employ the tongue to clean the clear spectacle covering the eye, and produce small clutches of only two eggs.

Many geckos have fingers and toes that are flattened to form pads which enable them to move easily over smooth vertical surfaces, and even upside-down across ceilings. Contrary to popular opinion, geckos do not cling by suction, which requires an air-tight grip. A close look beneath the toe pads reveals a series of broad plate-like scales, each covered with thousands of minute brush-like bristles called 'setae'. These setae are each tipped with hundreds of microscopic pads called 'spatulae'. The result is an enormous increase in the surface area of contact. Geckos probably utilize forces called 'van der Waals forces' to cling securely to the molecular structure of the substrate. Geckos' feet are being investigated to see if we can modify this extraordinary design for our own purposes.

By day, geckos hide in sheltered dark retreats. Depending on the species, these may be burrows, rock crevices, spinifex tussocks, hollow timber or behind loose bark. Some also thrive in human dwellings, where there are lights to attract insects, picture frames and furniture to hide behind, and flat wall surfaces to patrol. In many country towns, and even on the edges of cities, various species of native geckos have become familiar members of our households. We often call them house geckos.

Asian House Geckos

People in Brisbane and other parts of eastern Queensland and northern New South Wales are fast discovering a new, noisier house gecko lodging in their homes. The distinctive, clicking, 'chuck, chuck, chuck...' of the Asian House Gecko (*Hemidactylus frenatus*), has rapidly become part of the urban soundscape. Native to South East Asia and the Indo Pacific, Asian House Geckos were originally tree-dwellers but they now thrive in human dwellings and buildings.

Asian House Geckos, are widely regarded as our only introduced lizards, though there is some conjecture that another gecko, the Mourning Gecko (*Lepidodactylus lugubris*), may have also originated off-shore. Mourning Geckos appear to be expanding their range in coastal northern Australia.

Superficially Asian House Geckos resemble many native house geckos. They are of similar size and often appear the same flesh pink colour, but the introduced lizards are much more 'talkative'; calling louder, more frequently, and often by day as well as at night. They also have distinctive, slightly enlarged spines scattered over the back and arranged in bands around

the original tail. Regenerated tails are smooth, like those of native house geckos. The enlarged plates under their padded toes are arranged in a paired series.



Red mites clearly visible under the gecko's toes. Image: Steve Wilson.



Asian House Gecko with spines along original tail. Image: QM.

Successful Invader

Asian House geckos have gained a reputation as formidable colonisers. Thanks to their small size and close association with humans, they have had huge success as stowaways. Tucked among cargo on container ships, or hidden in personal possessions on smaller craft, they have established a pan-tropical distribution, with thriving populations in the Americas, islands of the Pacific and across the Indian Ocean to Africa and Madagascar. They are widely regarded as the most invasive reptile species in the world with the broadest distribution of any lizard.

One of the keys for such successful dispersal lies in the nature of Asian House Gecko eggs. Most reptiles lay eggs with soft, parchment-like shells but such eggs desiccate rapidly in dry conditions and must be deposited in moist sites. Asian House Geckos belong to a group of geckos that lay round, hard-shelled eggs that are much more resistant to moisture loss and better able to survive the rigors of travel.

Asian House Geckos have been in Australia since at least the 1960s, residing as discrete populations on buildings in suburban Darwin. There they thrived for many years, but they seldom strayed beyond the city limits.

By the early 1980s Asian House Geckos began appearing in Brisbane. At first they were largely confined to terminals around the Port of Brisbane, suggesting that these early colonists were probably fresh introductions from overseas and linked with container shipping, rather than pioneers from the Northern Territory population. It took about a decade for dispersal to begin in earnest, with reports coming from points along the Brisbane River and arterial motorways linking the port to industrial sites. In effect, the geckos were radiating along transport corridors!

From the early to mid 1990s the Asian House Geckos' expansion gained momentum. The Queensland Museum began receiving countless inquiries from people who suddenly saw and heard geckos where there were none before. The species is now commonplace in coastal towns and cities between Coffs harbour and Torres Strait, having invaded most suburban homes, factories, shops and inner city buildings. They are even turning up in road-houses and towns through the Kimberleys, the Great Sandy Desert and Central Australia.

Biology

In their tropical homeland, Asian House Geckos breed year-round thanks to constant warm temperatures. Colonists in areas with cooler winters, such as Brisbane easily adapt to breed seasonally during summer. Their eggs are soft when first laid. Females glue them to firm sheltered surfaces or deposit them in cracks and wall cavities.

Some people believe Asian House Geckos are 'parthenogenetic', meaning they exist as all-female populations that produce female clones without recourse to mating. This is certainly the case with some reptiles including a few geckos, but there is no evidence of unisexual Asian House Gecko populations.

Asian House Geckos are tenacious predators of insects, consuming anything small enough to capture and swallow. They have even been recorded staking out active nests of stinging paper wasps, devouring the adults, the larvae and destroying the nest itself.



An Asian House Gecko sizes up a nest of stinging paper wasps. Image: David Shaw.



Risky meal: this gecko has captured a wasp. Image: David Shaw.

Are they a problem?

Any exotic species that disperses rapidly and efficiently should be of concern, particularly in terms of the resources they exploit, the native species they may displace, and their potential to carry pathogens.

Australian populations of Asian House Geckos have impacted negatively on some native gecko species. In Darwin and Townsville they have replaced local geckos, the Dteallas (*Gehyra australis* and *G. dubia*) and the Zigzag Velvet Gecko (*Oedura rhombifer*) from the house gecko niche. In Brisbane, confrontations have been observed between Asian House Geckos and another native species, the Robust Velvet Gecko (*Oedura robusta*). They have also been recorded to prey on Fence Skinks (*Cryptoblepharus virgatus*). In the Northern Territory, Asian House Geckos have now become established in considerable densities in bushland reserves.

Another sinister problem may lie with hitch-hikers the geckos have carried with them. Two species of red gecko mites, *Geckobia bataviensis* and *G. keegani* live on the Asian House Geckos' toes. Relatives of these mites are believed to carry protozoans that may cause debilitating diseases in overseas lizards.

The impact of these lizards as predators of small invertebrates should not be under-estimated, while their roles as competitors with native lizards and as potential carriers of pathogens clearly require some monitoring.

Further Information

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