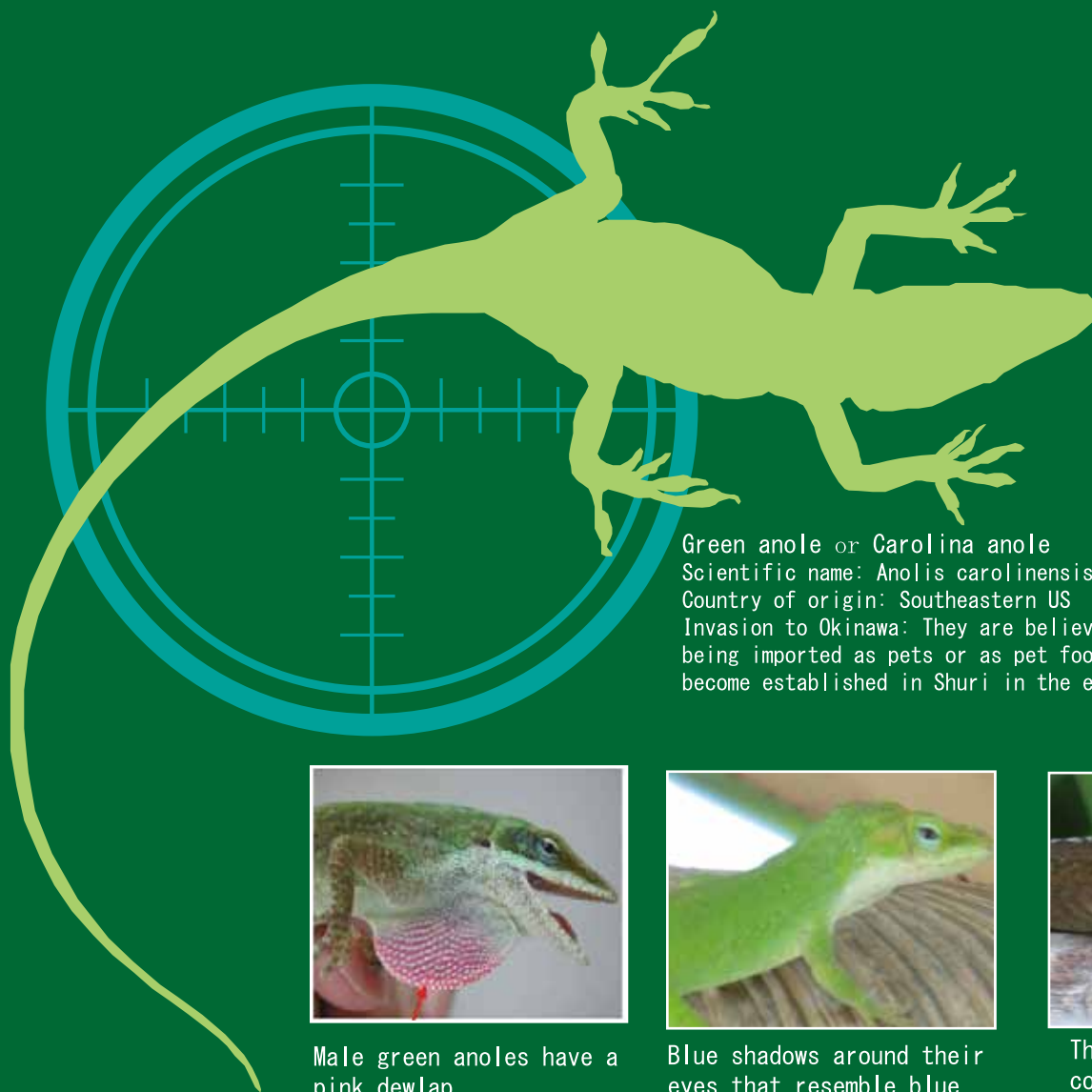


**Did you know that
the green anole is
an invasive alien species?**





It is forbidden to rear or transport, green anoles. In Japan, they have been confirmed on the main island of Okinawa, Zamami Island, and Ogasawara Islands. In Ogasawara, many native endemic insects are eaten by the green anole.



Green anole or Carolina anole
 Scientific name: *Anolis carolinensis*
 Country of origin: Southeastern US
 Invasion to Okinawa: They are believed to have become feral after being imported as pets or as pet food. They are thought to have become established in Shuri in the early 1990's.



Male green anoles have a pink dewlap.



Blue shadows around their eyes that resemble blue eye shadow.



They can change their body color to brownish red.

Examples of invasive alien species on the main island of Okinawa

- Small Indian mongoose

In 1910, they were brought to the southern part of the main island of Okinawa for extermination of rats and *habu* snake. However, they expanded to the Yanbaru area and they have a negative effect on native species such as the Okinawa spiny rat.

A partnership between the Environment Ministry, Okinawa prefecture, and US troops on Okinawa exterminated the small Indian mongoose from the Yanbaru area; however, this effort required many years of intensive labor.



- White-lipped tree frog

This green frog is widely distributed in tropical Asia. These frogs lay their eggs masses on trees. In 1964, they were confirmed to be present in the central portion of the main island of Okinawa. Subsequently, they spread to Ishigaki Island, Miyako Island, and many other islands.



Barbour's blue-tailed skink **Vulnerable**

Distribution:

Main island of Okinawa and nearby areas, such as Amami Island.

Length: Approximately 18 cm

Characteristics:

Barbour's blue-tailed skink has a beautiful blue tail. Although the tail becomes paler with age, some females retain a blue tail into adulthood. They are often seen in evergreen-broadleaf-forests at higher altitudes. Numbers on the main island of Okinawa are decreasing.



Okinawa five-lined skink **Vulnerable**

Distribution:

Main island of Okinawa and nearby areas.

Length: Approximately 15 -19 cm

Characteristics:

In the same category as Barbour's blue-tailed skink. They are often seen in lowland areas, such as forests, fields and coastal areas. Numbers in the central-south main island and Zamami Island are decreasing.

Ryukyu short-legged skink

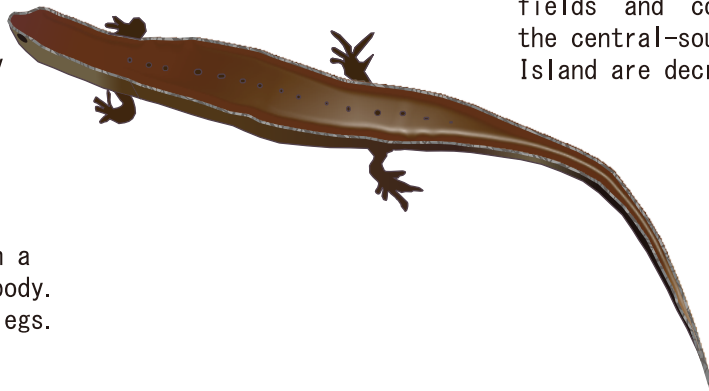
Distribution:

Main island of Okinawa and nearby areas, such as Amami Island.

Length: Approximately 12 cm

Characteristics:

These are dark brown lizards with a blackish line along the side of body. They have a long body and short legs.



Green grass lizard

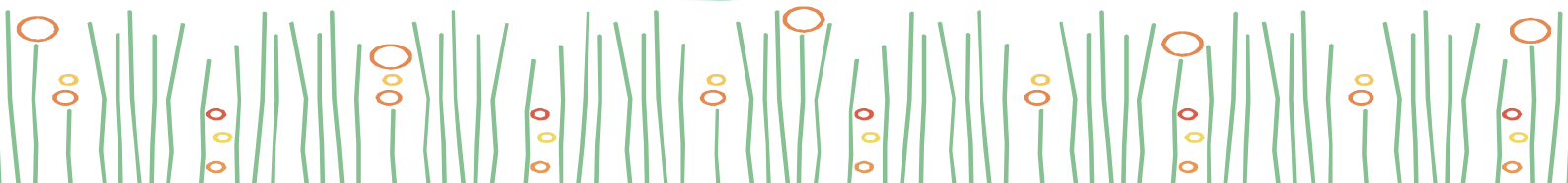
Distribution:

Main island of Okinawa and nearby areas, such as Amami Island.

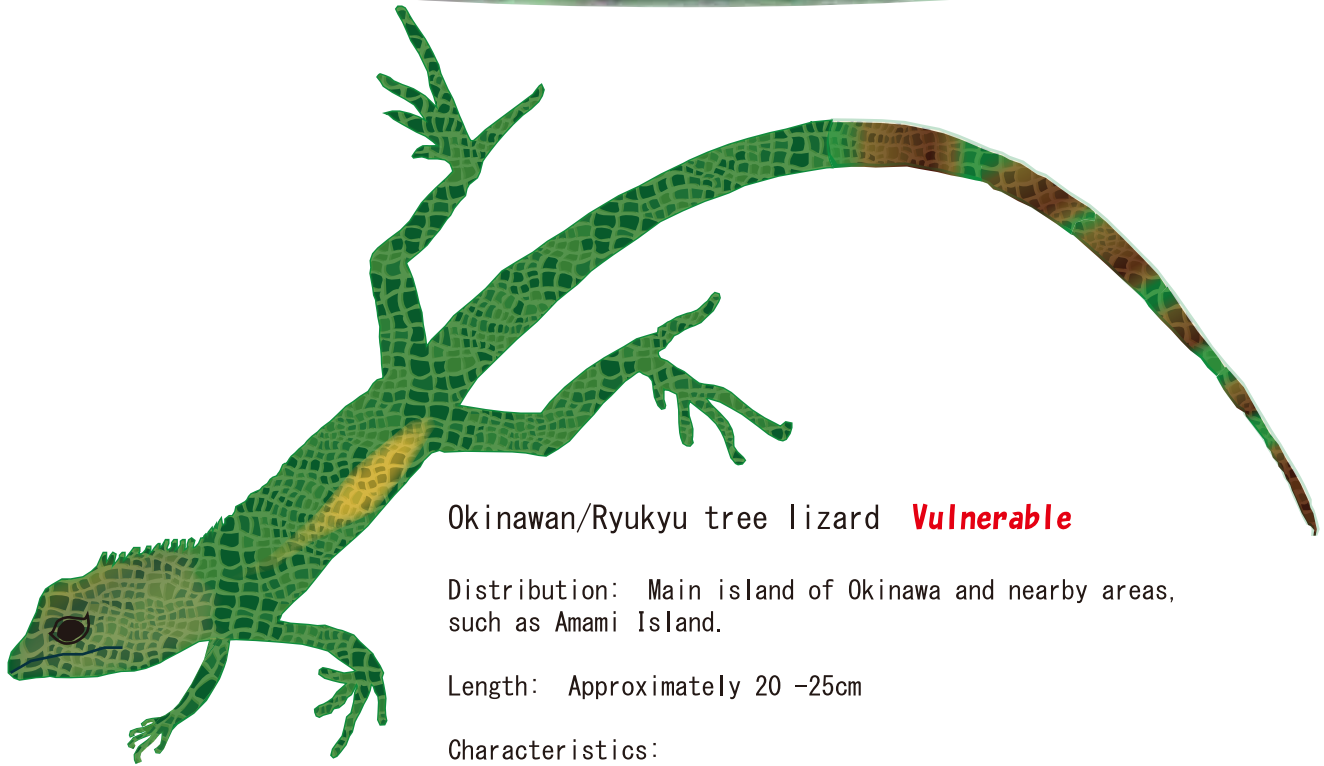
Length: Approximately 25 cm

Characteristics:

These lizards have a long nose. Males are brownish green, with dark brown sides. Females are green. These lizards are with a white line along the side of the body.



Lizards in Okinawa



Okinawan/Ryukyu tree lizard **Vulnerable**

Distribution: Main island of Okinawa and nearby areas, such as Amami Island.

Length: Approximately 20 -25cm

Characteristics:

These lizards are covered in scales, and their legs and tail are slender. Their numbers are declining because they are caught as pets.



Green anole **Invasive Alien Species**

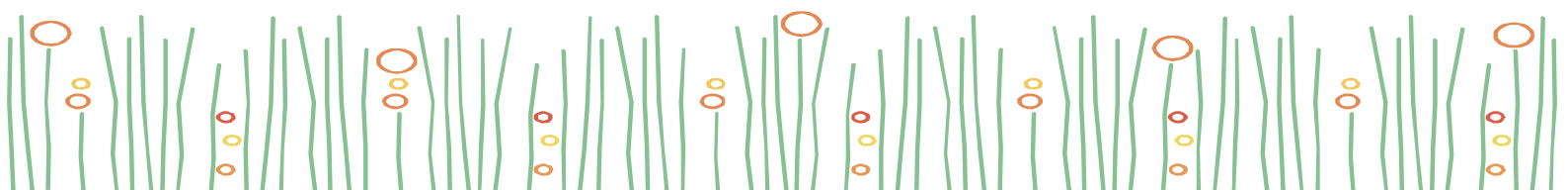
Distribution:

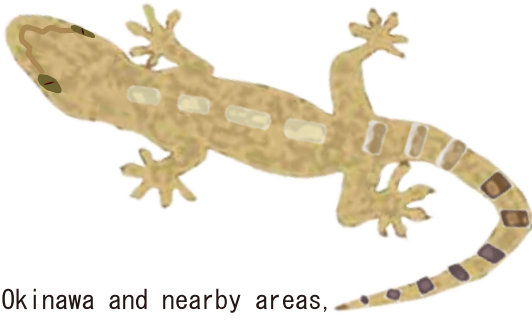
Naha -city, Tomigusuku -city and nearby areas, Zamami Island, Ogasawara Islands.

Length: Approximately 6 -22 cm

Characteristics:

Green anoles primarily live in trees. They are often sighted in trees in fields and gardens. They have long, pointed heads. Their tails are two-thirds of their total body length. They are bright green, but their color sometimes changes to brown. They have blue shadows around their eyes that resemble eye shadow. Males have pink dewlap.





Hokou gecko

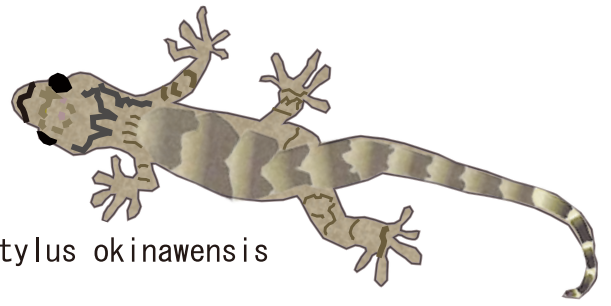
Distribution:

Main island of Okinawa and nearby areas, such as southern Kyusyu.

Length: Approximately 12 cm

Characteristics:

They are often seen in windbreak forests near flatland and old buildings. They are a common species of gecko on the main island of Okinawa. They have an irregular pattern of black spots.



Hemidactylus okinawensis

Distribution:

Main island of Okinawa and nearby areas.

Length: Approximately 10 cm, or longer

Characteristics:

These geckos are closely related to the Hokou gecko, but their taxonomy is still debated. In Yanbaru county in northern Okinawa, they behave actively in mountain and forest at night.



Mourning gecko

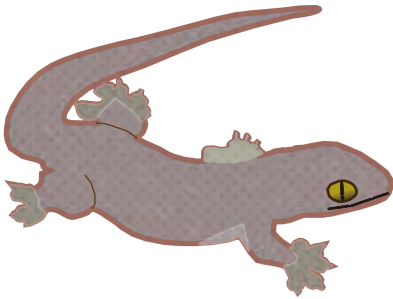
Distribution:

Main island of Okinawa and nearby areas, except Senkaku island.

Length: Approximately 8 cm

Characteristics:

They have a bright body with irregular black spots. They are often seen in private houses and roadside tree. On Daito Island, they have also been spotted in the forest.



Four-clawed gecko

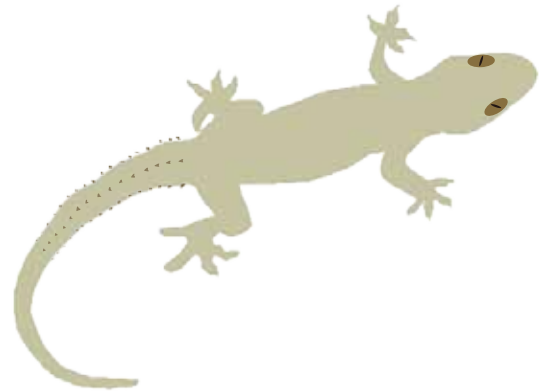
Distribution:

Main island of Okinawa and nearby areas, such as Amami island.

Length: Approximately 11 cm

Characteristics:

Juveniles have some spots, although these fade and their tail thickens with age. They are named for Mt. Onnadake.



House gecko

Distribution:

Main island of Okinawa and nearby areas, such as Amami and Sakishima Islands.

Length: Approximately 11 cm

Characteristics:

The skin on the lower portions of their legs is scaly, and when resting, the skins form a pattern of irregular stripes.



What is an alien species?

Alien species are imported as pets from foreign countries or arrive hidden in cargo from overseas.

When alien species have a negative effect on the environment or humans, they are designated as invasive alien species. It is forbidden to keep or transport invasive alien species.

For example, water lettuce is native to Africa, but was sold in home centers in Japan. Subsequently, water lettuce was allowed to escape. It has proliferated widely, and grows on the surface of the water, preventing sun-light from penetrating, decreasing the water quality, and negatively impacting other aquatic organisms.



Illegally cultured water lettuce

Importing organisms from other countries can cause problems. For example, the *Sakishima habu* snake lives only on Yaeyama Island, but it has been mixed with other types of *habu* snake on main island of Okinawa.

The *Sakishima habu* snake frequently bites humans. Miyako Island originally had no poisonous snakes. However, now poisonous snakes are found there, and there is a risk of being bitten. Living organisms maintain a delicate balance of relationships with other organisms and the environment.

Do not forget that any alien species was a natural part of its area of origin. Three principles of alien species law are “do not import.” “do not export.” “do not spread.”

What can we do?

- Do not take creatures to places where they did not live originally. Organisms have evolved over long periods of time in their natural environments, and have complex relationships with other organisms and the environment that should not be disturbed.
- If you know someone in possession of invasive alien species, please report this to the Environment Ministry or the appropriate administrative agency. If you have or grow invasive alien species without knowing, please consult the Environment Ministry. Please do not dispose of or release them.
- How many people can identify the plants or animals they find in their neighborhood? Being able to identify organisms can lead to the discovery of alien species. If you find unfamiliar creatures, try to identify them using the library or the internet.
- We can try to exterminate these organisms via community or school activities, such as mowing. However, performing these activities in the wrong way could result in increasing numbers of invasive alien species. Please consult the Environment Ministry or the appropriate administrative agency for advice.

More information on alien species

- Laws concerning alien species (Environment Ministry)
<http://www.env.go.jp/nature/intro/index.html>
- Invasive species database (National Institute for Environmental Studies)
<http://www.nies.go.jp/biodiversity/invasive/>
- Naha Nature Conservation Office
<http://kyushu.env.go.jp/naha/wildlife/index.html#gairai>

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