

## Biodiversity in the Goto Islands

Biodiversity in the islands is characterized by a diversity of species from different climactic zones, but also relatively few endemic species. This unusual combination is due to the islands' position and geological history.

The Goto Islands are located off the western shore of Kyushu where the temperate East China Sea meets the warm waters of the tropics. The Tsushima Current flows up from the south, warming the islands' climate and enabling subtropical species to live here. Dwelling alongside them are species that have been on the islands since the height of the last ice age, around 20,000 years ago. At that time, the Goto Islands were part of a large peninsula that stretched southwest from Kyushu. Soon, melting glaciers caused sea levels to rise, cutting the islands off from Kyushu and from each other. Even so, 20,000 years is relatively little time in evolutionary terms, so species in the Goto Islands have not diverged much from those that inhabit Kyushu.

A confluence of geological factors has created a marine environment that teems with undersea life. To the islands' east lie the shallow waters of the East China Sea; to the west are the deep waters of the Okinawa Trough. Cold water flows down and into the sea from Eurasia's watershed, while the Tsushima Current brings warm waters up. Meanwhile, runoff from the islands' mountains carries nutrients from the forest to the sea, where they are dispersed by strong tides that crisscross the straits.

The islands' proximity to both continental Asia and the larger islands of Japan makes them an important stopover for migratory birds and butterflies.

### Species Spotlight

What interesting species can be found on Fukue Island?

*Crested honey buzzard*: These tawny-colored raptors get their name from a diet that includes bee and wasp larvae. In autumn, tens of thousands of honey buzzards fill the skies over Fukue as they gather on the island's southwestern cape, then migrate en masse to the continent.

*Genji-botaru firefly*: This common firefly species is found in freshwater environments throughout the Japanese archipelago, excepting Hokkaido. Strangely, the ones on Fukue flash their bioluminescent signals at a faster rate than those in the rest of the country, but scientists are unsure why.

*Luciogobius albus*: This rare cave-dwelling gobi species can be found in the flooded lava tubes on Fukue. It was first discovered in the Iana Lava Tunnel in 1968, but they have since been found at a few other sites in Japan. It is only about 5 centimeters long, and its eyes have atrophied due to the lightless habitat.

*Disc coral:* The waters around the Goto Islands are home to many species of soft and hard corals, including one variety of disc coral thought to be the largest in Japan. Not far from Fukue Harbor, near neighboring Tatarajima Island, divers discovered a single *Turbinaria peltata* colony that spans about 42 meters. Reaching such a size takes centuries of growth.

*Camellia:* These hardy flowers, a symbol of the Goto Islands, were planted to provide essential windbreaks for farming; they also give crops in the form of camellia oil and tea. Fukue Island has a unique variety known as “Tamanoura,” named for the city where it was discovered in 1947. Their deep-pink petals have eye-catching white tips.

*Large spiny tree fern:* These rare, towering tree ferns can reach over 6 meters and are native to Asia. The ones in the Goto Islands are registered as Natural Treasures, but they have almost disappeared on Fukue due to loss of habitat and illegal collection. The location of remaining wild specimens is therefore closely guarded, but cultivated examples can be seen near Fukue Castle, at the Fukue Cultural Center.

*Lilium callosum:* Every three years, local residents carry out a controlled burn on Mt. Onidake to keep trees from reforesting the summit. Because of this, mountain grasses and flowers like this delicate lily—the smallest variety in Japan—do not have to compete for sunlight. This helps them survive to produce vivid orange blossoms in July and August.

*Chestnut tiger butterfly:* In spring, this migratory species travels up the Japanese archipelago as far north as the Tohoku region. In autumn, it travels south, sometimes reaching Okinawa, Taiwan, and Hong Kong—a range of some 2,500 kilometers. Each butterfly’s lifespan is only about six months, so the autumn migrants are the offspring of butterflies who made the trip in spring. In October and November, you can spot many of these brightly colored wayfarers in Fukue.

*Pallas’s squirrel:* These red-bellied rodents are native to Taiwan, India, and Southeast Asia, but they have also gained a foothold in Japan—probably originating as escaped or abandoned pets. They are classified as a problematic invasive species because they damage camellias and other crop trees by chewing on the bark.