

November 2022 | Issue 11 | Volume 2

EARTH HERO



• Mammals • Birds • Reptiles • Insects



Gliders of The Rainforest

(Photos by: Mark Louis Benedict & Sumira Muis)

The rainforest is rich with flora and fauna adapted to living in a biodiverse environment. One of the unique adaptation techniques is the ability to glide. Southeast Asia has a greater variety of gliders than any other tropical locations on Earth. The forests in these areas are home to over 60 gliding species, with 33 found only in Borneo. Even though they are described as “gliding” or “flying”, these animals cannot travel through the air like birds or bats. They don't simply jump from a tree and land on the ground. These animals move through the canopy like hang gliders, constantly shifting their body weight or tails and limbs to steer a regulated flying route. They all have distinctive body features that expand the surface area, improving their airfoils. This article will highlight a few of the species with this unique gliding ability.

The Sunda flying lemur, also known as the Sunda colugo is native to Southeast Asia. The Sunda flying lemur can survive in various habitats, including gardens, primary and secondary forests, rubber and coconut plantations, fruit orchards (dusun), mangrove swamps, lowland and upland forests, and mountainous regions. The flying lemur, despite



Sunda flying lemur

its name, is not a lemur and cannot fly. Instead, it glides through the treetops. It only inhabits trees, is active at night, and feeds on delicate plant components like shoots, flowers, and fruits. A single baby is carried on the mother's belly for a 60-day gestation period, held there by a sizable skin membrane. Sunda flying lemurs have bodies ranging from 33 to 42 cm. They weigh between 0.9kg and 1.3 kg and have a tail length of 18 cm to 27 cm. Colugos resemble sloths when feeding or resting on trees

because they move slowly along branches or dangle from them. Their camouflaged coats blend into the tree bark, reducing their visibility to predators, and they spend the daytime clinging to trunks or hiding beneath branches like bats with their wide folds of skin joining the long limbs and tails. A flying lemur can glide over 70 metres (230 feet), only losing minimal altitude when it leaps from a tree due to its extended limbs.



Red giant flying squirrel

The flying squirrel is nocturnal and lives in primary or tall secondary forests. Their limb bones are larger, and their hands, feet, and distal vertebrae are shorter than other squirrels. Other than these attributes, their anatomy is similar to other squirrels. Flying squirrels control and steer their glide path with their limbs and tails. The squirrel, perched high in a tree, leaps into the air and spreads its limbs to stretch its membranes, converting its body into a gliding platform that it can control with its tail and membranes. It lifts upwards just as the flight ends, landing gracefully on all four feet. The membranes are drawn in close to the body when not in use. The red giant flying squirrel, the largest flying squirrel in Southeast Asia, can glide up to 100 meters between trees. Meanwhile, Borneo is where one would find the smallest dwarf flying squirrel. They can easily be mistaken for giant butterflies when gliding over the tropical jungle's lofty branches. Their tails are 6 cm to 10 cm long, and their bodies are just 7 cm to 9 cm long. The flying squirrel consumes fruit, seeds, buds, flowers, gastropods, spiders, mushrooms, bird's eggs, tree sap, and other omnivorous foods. The young are initially defenceless and naked when born in a nest. By five weeks, they can practice their gliding abilities under the care of their mother, and by ten weeks, they are ready to leave the nest.

The Paradise tree snake is one of the flying or gliding snakes found in Southeast Asia. They hunt during the day and mainly look for lizards that live on trees. These snakes rarely leave the tree canopy they live in. Hence, it is a bit challenging to see them on the ground. During the day, flying snakes are said to hunt their prey by gliding from the top of one tree to another lower tree. The flying snake avoids ground predators by parachute jumping from tree to tree, which saves energy compared to moving on the ground. They can cover a horizontal distance of up to 100 metres from treetops by raising the ventral scales on their undersides to make them flat. A snake hangs with its head raised (in the shape of a "J") as it gets ready to "fly". The body then flattens and doubles in breadth as it jumps upward and outward, becoming somewhat concave. The animal picks up speed as it falls, shapes its body like an "S," and starts to undulate like it's swimming. They are the only gliding vertebrates without limbs and can glide better than other flying mammals because of their lack of limbs.



Paradise tree snake



Flying gecko

The flying gecko is a distinctive tiny reptile and the rarest type of gecko. The rainforests of Southeast Asia are home to these nocturnal lizards. Flying geckos are experts in camouflage. Therefore, it is challenging to encounter them in the wild. Additionally, they spend most of their lives in the treetops because they are arboreal. Unlike any other flying reptile, the gecko does not fly. Instead, they make quick

transitions between branches. They have extra skin flaps, which allow them to adjust their direction and glide to safety. Their appearance is muted, typically having patches of brown, black, and tan all over them. In the wild, they blend in with the trees. The preferred meal of flying geckos is insects. To suit their nutritional demands, they hunt

a variety of different insects. Depending on the climatic conditions, flying geckos will breed and lay eggs every three to four weeks. Like other geckos, flying geckos lay their eggs in pairs. In around three weeks, the eggs will hatch, and the young will resemble smaller replicas of the adults.



Flying lizard / flying dragon

Another species of animal with gliding ability is the flying lizard or flying dragon. They are widespread in Southeast Asia and live in shrub jungles, parks and gardens, plantations, and secondary forests. They feature a set of extended ribs that they can extend and retract, giving them the name "flying dragons." There are folds of skin between their ribs that, when not in use, lie flat against the body but, when spread out, function as wings, enabling the lizards to catch the wind and glide. The lizards can glide up to 8 meters and use their long, slender tails as stabilisers. They are arboreal and are hardly ever seen on the forest floor. They consume insects and mostly eat termites and ants. Flying lizards have a tail that is around 20 cm long. Additionally, they have a dewlap, a flap of skin, at the base of their necks. Males are quite territorial and will chase rivals from the two or three trees they claim as their own by using their ability to glide. Female flying lizards must descend to lay eggs even though they often avoid touching the ground. The lizard digs a small hole in the ground using the tip of its pointed snout, lays about five eggs, and then fills the hole with soil. The female stays on the ground for about 24 hours, ferociously protecting the nest, after which it returns to the treetops, leaving the eggs.



Flying frog / gliding frog

Flying frogs or gliding frogs are also referred to as parachute frogs. One such species that inhabit a forest in Borneo is the tree frog. Almost all of their time is spent in trees, and they only come down to mate and lay eggs. For tadpoles to fall into the pool and mature, the females place eggs on leaves near water. Once they transform into frogs, they ascend into the canopy and will not descend again except to reproduce. They grow up to 10 cm long with the female being bigger than the male, and they primarily eat insects to survive. The flying frog can glide diagonally at an angle of fewer than 45 degrees. This ability to glide allows flying frogs to hunt for food, flee from predators, and drop to the forest floor to mate and lay their eggs. They frequently throw their light bodies into the air from a high branch using their strong hind legs. Flying frogs extend their enormous, webbed hands and feet. Every time they drop, the flying frog's skin membranes function as tiny parachutes to slow them down. The flying frogs can spin while gliding by shifting their legs or twisting their toes.

The gliding animals remind us how unique and fascinating nature can be. It shows how animals learn to adapt to their surroundings and evolve to survive. Our remaining forests and ecosystems must be protected and conserved to protect and preserve these unique animals.