

Taiwan Endemic Butteri Yu-Fend Hsu

Numerous butterfly species have been recorded in Taiwan. There are several reasons as to why the island has such high numbers of endemic butterfly species but it is generally believed that the main source of Taiwan's butterflies came from the continent of Asia. Aside from the butterflies with ancestors from the Asian continent

there are many convinced that some of Taiwan's endemic butterfly species were in fact oceanic, species that originated om Southeast Asian islands. Islandopping is a continuous process of how spread. Several ocean species an, stayed and settled down are unclear about whether these

cent arrivals can survive on a regular and stable basis as well as blend-in with Taiwan ecosystem, we consider them as alien species. Nonetheless, there are species that arrived long ago and have subsequently made Taiwan their home, some even developed into endemic subspecies wi unique morphologica characteristics: we consider them as species for hey have already

become part of Taiwan's ecosystem

In an era of advancements and developments, it has been several years since the last sighting of these important

ic species possibly meaning that some of the species have already become extinct. The loss of one endemic species neans the product of millions of ears of evolution has died out creating a void in the balance of an ecosystem. How can we not care and not be on guard!



Nearly 150 years of butterfly research have passed since the first scientific report about Taiwan's butterflies was releases in 1866. The discovery of more than 400 butterfly species on the 36,000-square km island has earned Taiwan the good name of "Butterfly Kingdom". This honor which was no easy feat was actually the result of hard work and dedication from countless people. The Formosa: Butterflies. a special exhibition themed on Formosa butterflies, jointly created by the National Museum of Natural Science, the Taipei Zoo and the Department of Life Science of National Taiwan Normal University, has a unit titled "Butterfly Research". The contents in "Butterfly Research" are divided into "Butterfly Scientists Hall of Fame" and

"Anecdotes of Butterfly Research", each showing the stories of leading contributors to Taiwan's butterfly research history with interesting anecdotes that occurred during their researches respectively. This article introduces twenty foreign and domestic researchers named in the Hall of Fame. including Robert Swinhoe, Alfred R. Wallace, Frederic Moore, Arthur G. Butler, Hans

Fruhstorfer, Hans Sauter, Jinhaku Sonan Teiso Esaki, Tadao Kano, Wei-Shou Chen and Yu-Feng Hsu with documentations of their lives and their contributions. There is also a brief history charting Taiwan's buttery researches too. Hopefully readers will gain a basic understanding to Taiwan's butterfly research history and about the those involved in making that history too.



Taiwan's butterflies are also known as Formosa butterflies. The Formosa: Butterflies, a special exhibit on going at the National Museum of Natural Science since July 14, is conceptualized from the donation of precious butterfly specimens it received from the family of the late butterfly collector Wang Sheng-keng. Its theme s "Travel Log of Butterflies on Mystical Island", which is cored on telling tales about the Formosa butterflies from industrial, search and cultural perspectives that occurred in the last 150 vears

The themes and viewing route begin with the <Butterfly Industry>, a section of the gallery hall that takes on an evening-like atmosphere with walls adorn with butterfly-wing collages. The exhibition then continues to

the <Get to Know Butterflies>, a room rich with specimen samples, so one can learn the different living histories of butterflies before entering the Mystical Forest, which is full of gigantic butterfly egg and chrysalis models. The <Butterfly Research> has a display sets up to look like the larva of a Hengchun Birdwing Butterfly on the outside, and showcases the research history of butterflies on the inside with "Butterfly Scientists Hall of Fame" and "Anecdotes of Butterfly Research". < Butterfly Conservation> unveils the hidden dangers confronting the

seeminalv easy and vast-in-number Formosa butterflies The <Butterflies and

Culture>, which represents Taiwan's ethnic groups, is stunningly impressive in spite of the countless butterfly-inspired cultures around the world. Last but not least, one reaches the Butterfly Farm and gets to meet these insects face-to-face, and experience for one's self the quiet flutters of "kiss of butterflies"



Being one of the more well known insects, butterflies do not commonly need much of an introduction. But how much do you really know about them? Do you know what the world is like seeing from butterflies' compounded eyes? Do all butterflies have six legs? Or perhaps you knew that butterfly larvae are fat little caterpillars that feed on leaves and that the favorite food of adults is flower nectar, but are you absolutely certain they are vegetarians? Are butterflies truly graceful fairies and could never be as filthy





Vi-Hsin Wu

Butterflies are beautiful dancers created by nature. Taiwan is fortunate to be rich in butterfly resources and is privileged to have them dancing from all corners of the land. Butterflies were once a contributing force that powered Taiwan's economic growth. Today they remain as a provider of dazzling colors making our lives lovelier. Formosa butterflies are well regarded both on the international-front and in the minds of the social public, thanks to the efforts of butterfly hobbyists and butterfly farms. These butterfly farms and eco-park operators are important participants to butterfly conservation. They not only help the general public to get to know about the butterflies and learn how to cherish these insects through eco-themed promotions, but they also raise and breed butterfly stocks on a sustainable manner. so that the population of wild butterflies won't be affected from the pressure of commercial harvesting. Today, recreational industries with tie-ins to butterflies and butterfly eco-farms are flourishing throughout Taiwan, and they help to lead Taiwan's tourism sector. With their rising visibility and educational pursuits, the public has come to view the habitat creation and operating management of butterflies with increasing importance.



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All about Butterflies Taiwan's Important Butterfly Resources aiwan Endemic Butterflies ntroduction to Grass-Feeding and Nectar Plants Butterflies Consume Travel Log of Butterflies on Mystical Island Coevolution of Butterflies and Plants Hall of Fame of Formosa Butterflies

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ZOO PAPER

《 All about Butterflies 》

Shih-Hsin Chuang

as houseflies? Do they even pose one ferocious gene in them? Butterfly larvae have enormous appetites, what do they do to prevent their stomachs from bursting open gorging like that? Living in nature where danger lurks from all around, and at any given

moment natural enemy could strike and take life away, what kinds of strategies do soft-bodied caterpillars and delicate butterflies practice to survive in the wild? These hidden secrets will be revealed to you one by one in "All about Butterflies> .









Taiwan's Important Butterfly Resources







of **Butterflies** and **Plants** Yi-Bin Fan

Coevolution refers to the mutual evolutionary influence between two species triggered on by natural selection. The earliest record of butterflies appearing on Earth was dated six million years ago, indicating that this species was a latecomer compared to other insects. The coevolution between butterflies and plants take place as imago (adult butterflies) consume nectar from food plants and larvae feed on host plants

Imago have a proboscis on their mouthparts, hence can only siphon food in liquid form such as tree saps, rotten fruits, flower pectar, animal manures and fluids from decaying corpses. It's a fact that not all butterflies visit flowers for nectar, amongst those that do not are swallowtail butterflies, white and vellow and sulphur butterflies. milkweed butterflies, some brush-footed butterflies, satyrs and browns butterflies, blue and copper and hairstreak butterflies, as well as skipper butterflies. Not all flowers are nectar plants or food sources for butterflies which have many options for what they consume



Chau-Jen Chen Introduction to Grass-Feeding and Nectar **Plants** Butterflies Consume





As mature's best dancers, butterflies are one of the spec watched objects humans like while outdoors because of the

observation activities put forward by educational institutions, private interest group and social communities in recent years have sharply raised the number of butte butterfly conservation and educational observation to effect the creation of habitats. Th resources those habitats have to offe

Most butterflies like nectar plants and grass-feeding plants. Nectar plants provide sential food. Generally speaking, all insect-flowering plants are built wit that function. The grass-feeding plants refer to plants which butterfly larvae eat, wit the portion of the plant eaten varied depending on the butterfly and plant specie

> sable and symbiotic t tterfly survival throughout the es, for they are an importa art of the food chain in th utterflies like to ea

Related Chinese Idioms

Szu-Lung Chen

Idioms are typically short sayings or words with fixed and complete meanings. They are the products derived from ancient wisdom, and have since become part of the language used by society today. The

implications that idioms carry far surpass the meanings carried by

the short context and are often much easier to understand than long paragraphs. Our

ancestors observed animals, habitats, and characteristics in their surroundings closely, and came up with many interesting animalrelated idioms. Felines such as cats, lions. leopards, and tigers were no exception. However, the volume of idioms derived from these four animals was sharply different. There aren't that many cat, leopard or lion-based idioms, whereas there are vast quantities with references to the tiger. It's possible that the cat did not have a deep elationship with the ancients, since the



history of this animal being tamed as a pet or mouse catcher was short. There were no lions in ancient China. The few that were present during these times were tribute offerings from India. Although leopards were widely disbursed throughout China, due to their reclusive nature they were lesser known









Chun-Chuan Lin and Li-Li Lin

In celebration of the Year of the Tiger, the Taipei Zoo has for the first year launched a special edition of exquisitely-designed admission tickets in hopes of communicating the importance of conservation. The public are encouraged to collect all the special edition tickets and share the image of conservation. They are invited to help protect our natural environment. The first "Tiger" ticket was released on Chinese New Year Day (February 14th) and the second "Clouded Leopard" ticket was offered on Earth Day (April 1st); the third season "Lion" ticket is currently available, on sale since July 1st. In total, four special edition tickets will be issued this year: 120,000 adult admission

who used an EASY Card to pay for admission or purchased group tickets. Taipei Zoo has made the animals appearing on the four special edition tickets into stamps. All visitors may get their seals affixed at the Tourist Service Center, as souvenirs documenting each and every exciting trip to the Zoo.



Road to Conservation of Taipei Frog

Sung-Lin Wu and Ming Hsung Chang

The Taipei Frog (Rana Taipehensis) is Shi (Uncle Stone) in Sanzi County. After of Taipei frog has risen to 94, up from the small in size with an adult female measuring roughly 4 centimeters in length, and a male about 3 centimeters. Dorsally it is bright areen or vellowish areen, with two bright white stripes on the sides. Previously they were found in inland freshwater wetlands in western Taiwan inhabiting lowland swamps, ponds, rice paddies and irrigation ditches, but now they are threatened by extinction due to wetland loss, insecticide pollution. fallowed paddy fields or fields converting into dry crops which are now protected

In order to gain better knowledge about the Taipei frog, Taipei Zoo first got involved with the conservation tasks of this species in 1999, by actively engaging in habitat enhancements and restoration works for these frogs. The Zoo even converted the research findings into materials championing conservation, at the same time taking the general public on ecological trips to meet the Taipei Frogs and learn the beauties of Danshui Wetland. In the same year, researchers sighted Taipei frogs in a private water lily farm owned by Mr. Yang Weng-

three years of relentless efforts. Uncle Stone finally switched to conservative actions and stopped using all agrochemicals in November 2002. Since then the population original 30

Unfortunately, media coverage and reports about Uncle Stone and the conservation of Taipei frog led corrupted individuals to catch these frogs in 2004 just before breeding season. Moreover, a construction project of Bajia Creek started in the same year causing huge amounts of muddy water to flow into the farm and destroyed their habitat, rendering the Taipei to a fate of total genocide.

Battle against Apple Snails – A Funny Tale Improving Taipei Frog Habitat ______

One of French painter Jean-Francois Millet's most well know works is the "Gleaners", a painting depicting three countrywomen bent close to the ground removing bits of grain left in the fields following a harvest. This is a powerful and somber composition that moved many of its viewers. Recently, while carrying out the habitat enhancement work for the Taipei frog conservation project, I somehow felt like the women in the painting. The only difference being we weren't gleaning for grain; we were going after apple snails (Pomacea canaliculata)



Ever since Uncle Stone switched to organic farming in 2003, his water lilv field was turned into a paradise for many wetland animals. However, after he stopped using pesticides, apple snail prevention

became a task demanding attention and active handling. Initially Uncle Stone treated the apple snails on his farm with tea seed pomace, but a lot of tadpoles died as a result. We decided to discontinue this method and instead elected to remove the apple snails by hand. We scraped the rocks and stones, as well as along the slope and nearby plants, removing all the bright pink, egg clutches deposited there, so we may control the snail's future population size. We intend to unite more resources from many other agencies and shall recruit more "snail warriors" to join our lineup in the future. We hope to continue habitat enhancements the way we've been doing so that the animals inhabiting in this water lily farm can live and reproduce in



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tickets and 80,000 discount admission tickets, each sporting a different animal - tiger, clouded leopard, lion and leopard cat, Quantities are limited, available until supplies last. Apart from the theme-based animal tickets, the Taipei Zoo has also produced a set of four badges commemorating the Year of the Tiger. Individuals who collected all four special edition tickets will be eligible to receive the badge set on-premise for free. For individuals

