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Volume 4

Issue 1

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Insects of Sri Lanka

Newsletter of Butterfly Conservation Society of Sri Lanka

KRUMITHURU

A meeting with a Butterfly
Chestnut Bob

Feature Article
Aquatic Insects

Conservation of Butterflies
Butterfly Gardening - II



Butterfly Conservation Society of Sri Lanka

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June, 2021 | Volume 4 | Issue 1

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Butterfly Conservation Society of Sri Lanka

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Feature Article
Aquatic Insects



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ABOUT

B C S S L

Butterfly Conservation Society of Sri Lanka is a non-government, non-profitable, volunteer organization that was established to create awareness and connection between insect fauna and humans, mainly specialized on Lepidoptera species of the island.

Since our initiation, we have been conducting various activities such as **Field Research, Field visits, Public Lectures, Awareness Programs, organizing Field workshops and producing Publications.** We have also been providing technical expertise on establishing and maintaining butterfly gardens in several locations throughout the country including the urban wetland parks in Colombo.



Through these activities, we are contributing to the nature conservation of Sri Lanka by collecting data important for the conservation of butterflies, building inter-relationship between scientists and amateurs working in the field, creating public awareness and assisting government and other parties in their conservation efforts.



The society consists of scientists, as well as enthusiasts who are spread around the country and throughout the world, spreading knowledge and awareness in conservation of Lepidoptera, other insect fauna and the flora groups related with their ecosystems.

Recently we have widened our scope by focusing on a wider scale of biodiversity with the main interest in butterflies and other insect life. Thus, we hope to contribute even widely to the nature and biodiversity conservation of Sri Lanka.

Editorial



World is still in a lock down...well, up to a larger extent, it is, compared to the situation it was when we released our last year's episode of "Krumithuru". A lot has happened in terms of community living, focus of and methodologies of education, work, communication as well as commuting from one place to another within their geo-political boundaries.

Education along with communication has reached new heights thanks to the exuberant advancements in communication technologies in terms of soft as well as hardware developments. A few extremely successful platforms have been developed and being used in education sector as well as in working environments, depending on the availability as well as the affordability of the networks and their strengths. Work has been regulated in most cases and many have adapted to work from home strategy by reducing the need to commute to work every day. Working shifts, alternating employee availability at office premises, adapting to use local raw materials, online business promos and selling are few of the latest trends that have been adopted. In medical arena, it has seen a drastic reduction in respiratory related sicknesses thanks to the world wide adaptation of mask usage, especially whenever there are communal outdoor as well as indoor activities. Further, scientists and governments with the support of private sector entities, have worked tirelessly and cohesively in an unprecedented manner to find and produce a vaccine to curb the spread of the virus, while this drastically different virus seems to have taken up the challenge from the humans and chosen to evolve itself faster than we could find a cure. Finding a cure for the pandemic has been an uphill battle for the humanity that had crippled the worldwide economies and made them isolated but resilient at the same time. People have found new ways or gone back and embraced traditional ways to carry out their daily tasks, which could be seen as immensely beneficial in terms of environmental degradation that was happening in an unprecedented scale worldwide.

When it comes to environmental damage that we have been causing on our planet earth, the pandemic has put a huge break on our daily use of

fossil fuel usage for transportation industry to a point that the market values of oil have plummeted to a level that world has never seen before. Coupled with research advancement in the fields of electricity generation using renewable sources as well as stretching the life spans and the capacities of the energy storage devices, it is safe to predict that the days of fossil fuel as a main resource in order to produce energy on earth is numbered. This trend must be followed on and considered as a huge step towards right direction in terms of protecting the environment that is friendlier to life forms that have evolved to survive in the recent past. But, it is a huge disappointment to note that we have turned to clear our natural forests mercilessly in order to produce much needed agricultural products to boost our lost or dwindling economies. It is unfortunate that most of these agricultural endeavors are mono cultivations that their main focus is to increase the yield in order to maximize the monetary gains of the initial investment in terms of finances and economics. If this trend continues, we would lose most of our forests that have diversely evolved to accommodate a plethora of flora and fauna and intricate relationships that have been there for millions of years and would send a tremendous shock wave across human societies that either may perish in a race to survive or may adapt drastically to a life that has never been here before.

Therefore, dealing with conservation of our environment in terms of flora and fauna in their habitats in scales of macro as well as micro, is vital to the survival of the eco balance and may be for it to bounce back to previous levels in future near to us all. This is why, it is so important for our members at BCSSL to engage in conservation education by reading, writing and researching on our Lepidopteran fauna while working on and improving or enriching our immediate built environments to facilitate these precious creatures who are a part of this intricate web of life on planet earth.

Imaduwa Priyadharshana
Editor - BCSSL

Message of the President



Dear Valuable Members,

The Butterfly Conservation Society of Sri Lanka is working for the conservation of nature, prioritizing butterflies, other insects and plants. Conducting awareness and education programs, sharing knowledge and experience by field visits, organizing novel events such as Butterfly-Dragonfly Race, Grow with Nature Kids Program, promoting butterfly gardening, producing publications, providing consultancy for nature related projects are some of our services. Since our society was established in 2013, we could create a considerable number of nature lovers who will take part in protecting Mother Nature through various aspects.

As a result of increasing human population, urbanization, expansion of agriculture, poorly planned development projects, lack of knowledge in management of natural resources and mainly due to the negative attitudes of people towards nature, our country's natural resources are degrading in an alarming rate. Majority of the citizens seems unaware of the value of natural resources, the importance of sustainable development and the fact that humans can't live independently from other creatures and beyond the control of nature.

To overcome this situation, I believe spreading environment literacy to the general public in our country is one of the main solutions. As the new president, I hope to initiate some new strategies to fulfill this gap. Expanding our conservation activities to more areas of the country, creating more resource personnel who can contribute to nature conservation, collaborating with other organizations and initiating novel ways of attracting kids and youth are some of them. Our newsletter 'Krumithuru' is one of the main sources which is useful to spread knowledge and provide opportunity to new enthusiasts to share their experience.

I would like to thank all the members and supporters for your contribution to achieve our common goal, 'nature conservation' and invite all of you to take the leadership to create new nature lovers in your family, school, university, occupational field or area etc.

Happy Butterflying!!!

Rukmal Ratnayake
President-BCSSL

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Annual General Meeting 2021

The Annual General Meeting of the Butterfly Conservation Society of Sri Lanka for the year 2021 was held on 7th of March. The event was organized online due to the prevailing circumstances. Prior to the AGM, a special lecture was conducted by the Chief Editor of BCSSL Mr. Imaduwa Priyadarshana on “Landscaping for Butterfly and Dragonfly Eco- gardens”.



The lecture focused on key concepts of Eco-gardens, landscape designing and what factors to be considered when building an Eco-friendly garden, benefits of these gardens and most importantly how to add elements to make gardens more butterfly and dragonfly friendly.

The AGM was commenced afterwards starting with a summary of last year’s work presented by the former president Ms. Narmadha Dangampola. Last year’s minutes were read by the former secretary Ms. Ruwangika Gunawardana and the financial statement was presented by former assistant treasurer Mr. Rukmal Ratnayake.

The AGM then progressed by adding a new amendment to the constitution. And lastly the new office bearers were appointed as follows : Mr. Rukmal Ratnayake as the new president, Ms. Himidu Himansi Pitigala as the new secretary and Ms. Thilini Samarakoon as the new treasurer. Newly appointed president Mr. Rukmal Ratnayake addressed the audience followed by a vote of thanks by Mr. Imaduwa Priyadarshana and the AGM was concluded.

Newly appointed members of the working committee is as follows,

Office Bearers

President	- Mr. Rukmal Ratnayake
Secretary	- Ms. Himidu Himansi Pitigala
Treasurer	- Ms. Thilini Samarakoon
Vice President	- Mr. Thisaru Guruge
Asst. Secretary	- Ms. Dhammika Priyadarshanie
Asst. Treasurer	- Ms. Thamandari Devasmitha
Editor	- Mr. Imaduwa Priyadarshana
Adviser	- Mr. Himesh Jayasinghe
Legal Adviser	- Mr. Malaka Palliyaguruge

Committee Members

Mr. Amila Sumanapala
Ms. Narmadha Dangampola
Mr. Tharindu Ranasinghe
Mr. Pasindu Shaneth
Ms. Sewwandi Kuruppu
Ms. Bhagya Amarasinghe
Ms. Aruni Omalka
Mr. Indika Jayatissa
Ms. Ruwangika Gunawardana
Mr. Chinthaka Wijesinghe

A Meeting with a Butterfly

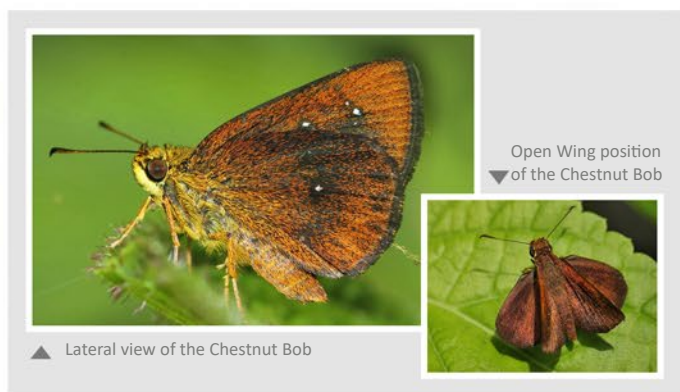
Chestnut Bob (*Iambrix salsala*)



A Meeting with a ‘ Chestnut Bob ’

Iambrix salsala (Moore, 1865), “Chestnut Bob” is a common skipper species who inhabits grassy vegetation along the forest edges, woody areas and home gardens all year-round. Adults habitually hover in dappled shade and fly lower to the ground mainly to feed on flowers of herbaceous plants. However, they occasionally fly higher to feed on flowering shrubs like *Leea indica* and *Duranta erecta*.

Adults are characterized with chestnut color wings, where underside of the wings varies with none to a variable number of white spots. Females can be distinguished by having white spots on upper side of the wings since the males do not have any at all.



Females lay dome-shaped pink color eggs which are heavily dappled with reddish brown, singly on anywhere of the larval food plants; *Oryza sativa*, *Axonopus compressus*, *Ochlandra stridula* and *Ischaemum timorensis*. The freshly emerged larva tend to rest at the underside of leaf apex and build a hide-out by pulling sides of the leaf blade together while fastening it with strand of silk. The larva lives solitary within the shelter in daytime and only ventures out at night to feed, or when it needs to construct a new shelter. Freshly emerged larva is bright orange in color with a black head and a black band on prothorax just behind head.



The coloration gradually changes into a translucent yellowish green and then into pale green body and light brown head with pale brown striped markings while complete losing of the black band on prothorax. Final instar of larva roams towards the base of a grass clump somewhere near where it fed last seeking for a better place to pupate in order to guarantee its own safety and concealment. Furthermore, the larva makes a tight pupal cell and secretes a thick mat of silk inside the cell to enhance its own safety mechanism. Where the silk mat waterproofs the pupal cell interior in-order to reduce the disease prevalence, tight sealing of the cell prevents small parasites from reaching the pupa.

This little beauty is one of the most abundant butterfly species that flutters their wings in the island. The National Red List 2012 of Sri Lanka (MOE, 2012), records the species conservation status as “Least Concern”.



Dorsal (Upperside)

Ventral (Underside)

Feeding Plants of the Chestnut Bob Larvae



The larval stages of Chestnut Bob feed on different types of grasses and bamboos which belong to the family Poaceae. There are 5 such plants recorded so far in Sri Lanka, but there can be many more which are not yet confirmed through valid observations.

(a) *Oryza sativa* L. (Introduced)

Common English name : Asian Rice

Common Sinhala name : Goyam (ගොයමි)

Habit : Annual grass; leaves with parallel veins which is a characteristic feature of the family Poaceae and flat blades; upright, hollow stem composed of a series of nodes with a leaf growing from each node

Inflorescence : Panicles born on the terminal shoot; bears many one-flowered spikelets

Distribution : Highly domesticated crop cultivated in Europe, Africa, tropical and temperate Asia, Australia, and North and South America

General habitat : Lowland swampy areas

Common Uses : The grain (seed) is the most important staple food for a large part of the world's human population, especially in East and South Asia, the Middle East, Latin America, and the West Indies; ingredient in both traditional and western medicine



(b) *Axonopus compressus* (Sw.) P.Beauv. (Introduced)

Common English name : Carpet grass/ Broadleaf Carpet grass

Common Sinhala name : Pothu Thana (පොතු තණ)

Habit: Perennial; laterally compressed, above ground, horizontal, creeping stem which produce roots and vertical stems at the nodes (stoloniferous); leaves with fine sheath and hairs along the outer margin; leaf blade is lanceolate, flat and relatively short

Inflorescence : panicle comprising 2 or 3 (rarely 5) slender, spike like racemes, paired or sub-digitately arranged on a long slender peduncle

Distribution : Widely distributed throughout S. America (absent in Chile), C.America, the Caribbean and southern N. America

General habitat : moist soils of woodlands and savannah; very much common in home gardens

Common Uses : as fodder; for erosion control and dune stabilization; Ornamental as a ground cover; Can also become a trouble some weed





(c) *Ischaemum timorense* Kunth (Native)

Common English name : Centipede Grass

Common Sinhala name : Rilaa Rath Thana (රිලා රත් තණ)

Habit : annual or perennial stoloniferous grass, rooting from the basal nodes; broad and hairy leaf blades

Inflorescence: terminal inflorescence with 2-3 opposed racemes, each bearing pairs of 4-7 mm long spikelets

Distribution : native to tropical and temperate Asia and is naturalized in Central and South America

General habitat : generally occurs in disturbed areas and also in rice fields

Common Uses : used in permanent pastures and can withstand heavy grazing



(d) *Ochlandra stridula* Thwaites (Endemic)

Common English name : Ceylon Reed Bamboo

Common Sinhala name : Bata/ Bata Lee/ Rana Bata (බට/ බට ලී/ රණ බට)

Habit : perennial bamboo; shrubby; 2-6m in height; short, pale green, closely growing caespitose; become brown on drying

Inflorescence : A compound inflorescence with many bracts, clustered at the nodes as stellate clusters; lanceolate spikelets comprising 1 fertile floret

Distribution : Endemic to Sri Lanka

General habitat : along stream and river banks and in forest gaps

Common Uses : used in many traditional handcrafts, and also to make wattle-and-daub walls and fences

(e) *Eragrostis amabilis* (L.) Wight & Arn. (Native)

Common English name : Japanese Lovegrass

Common Sinhala name : Heen Ala/ Balal Thana (හීන් අල/ බලල් තණ)

Habit : annual, terrestrial grass; loosely clump-forming; decumbent or erect stems; Leaves are alternate, linear, with entire margins

Inflorescence: an oblong panicle; 5-10 cm long, cylindrical to ovate in outline and green or purplish in color; ciliated at axils of branches; 4-8-flowered spikelets

Distribution: native to Africa and southern Asia

General habitat: in sand, on river banks, lake-shores and coastal dunes

Common Uses: grown as a drought tolerant ornamental grass in gardens; sometimes harvested from the wild for local use as food or fodder

Photos by Himesh Jayasinghe

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Aquatic Insects

The most numerous life form on the planet is insects. There are about a million described species, and it's estimated that there may be 6 million or more as yet undescribed, accounting for more than a half of all life on earth. Majority of them occupies land, however there are few species (less than 10% of the total number of insect species discovered so far) which rely on water for their survival in different ways. Even so, all of them manage to leave evidence of their terrestrial origin by continuing the ties in different stages in their life cycle with land and atmospheric respiration. In order to establish them in water efficiently, they have also adapted distinguish modifications in their physiology, anatomy as well as in their behavior.



What are aquatic insects?

According to Carde et al. (2009) "any insect that lives in water during a portion of its development is considered to be aquatic. Usually, but not always, for most aquatic species, it is the larval stage that develops in the aquatic habitats, and the adults are terrestrial".

They can either be living beneath the surface or skimming along on top of the water. Further, they have been adapted to almost every type of freshwater environment except the oceanic habitats where they rarely or only marginally inhabit.

Taxonomic orders of aquatic insects

There are 10 known insect orders which include aquatic or semi-aquatic life forms and five of them, namely, Ephemeroptera, Odonata, Plecoptera, Megaloptera and Trichoptera, are entirely comprised of aquatics with very few exceptions.

However, certain insect orders are still being studied to confirm whether they are truly aquatic.



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Order Ephemeroptera

Ephemeropterns are commonly called mayflies, spend most of their lives, sometimes several years, as aquatic larvae before leaving the water to transform into winged subimago (winged terrestrial life stage that precedes sexually mature adult stage). The adults that mate, lay eggs in a few hours or at most a few days.

The order has got its name from the “ephemeral” (lasting a very short time) nature of the insect’s winged life. Mayflies are unique among the insects by having that previously mentioned subimago stage before the sexually matured adults. Though the winged stages do not have functional mouthparts or digestive systems, the larval or nymphal stages have a variety of feeding approaches including, but not limited to, collector-gatherers, filterers, scrapers and active predators. Each of these feeding approaches is supported by a diversity of morphological and behavioral adaptations.



Mayfly nymph (*Electrogena sp.*)



Mayfly nymph

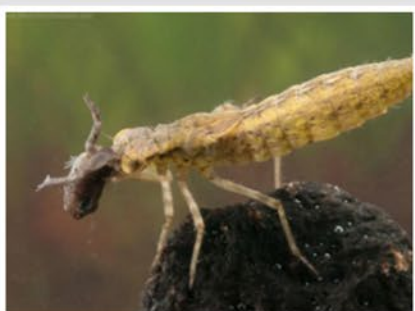


Mayfly adult

Order Odonata

Almost all dragonfly and damselfly larvae are completely aquatic. Being vicious predators both larvae and the adults of this order have developed multiple adaptations for predation. The aquatic larvae have unusual mouthparts that can be extended to capture underwater prey and adults can scoop flying insects from the air with their basket-like arrangement of legs.

Odonate larvae are important intermediate predators in aquatic food webs, feeding on a wide array of small animals including other odonates and conspecifics, and are themselves prey of predators such as fish.



Darner dragonfly nymph (Aeshnidae) feeding on a small frog



Early nymphal stage of a damselfly (Lestidae)



Darner dragonfly nymph (Aeshnidae) feeding on a small fish

Order Plecoptera

They are called stoneflies because larvae (nymphs) of this ancient order are commonly found beneath the stones of rivers and streams, especially in colder, fast-running waters. Plecoptera is a primitive order and are closely related to cockroaches. (Order Blattodea).

Like some other aquatic insect orders, stoneflies typically have aquatic (eggs and nymphs) and terrestrial (adults or imagoes) life stages. Plecoptera nymphs have a wide array of mechanisms to obtain their food, both behavioral and morphological. They are a significant ecological component of running waters, particularly in unpolluted streams and rivers. Further, they can be considered as an excellent indicator of water quality as they are found only in highly oxygenated water bodies.



Stonefly nymph



Stonefly adult (*Isoperla* sp.)



Stonefly adult

Order Hemiptera

The only true “bugs”. They range in size from tiny insects called “water measurers” in the family Hydrometridae to the huge Belostomatids or “giant water bugs”. Some other Hemipterans one may find in or on the surface of the water bodies include the Water Scorpions, Backswimmers, Water Boatmen and Water Striders.

They are mostly found in freshwater habitats such as rice fields, marshes, ponds, lakes, and rivers. However, the world’s only marine insects are also Hemipterans, a small group of water striders called Halobates and are recorded from truly oceanic and off-shore habitats.

Hemipterans are highly predacious and prey upon a variety of aquatic animals such as insects, cladocerans, amphipods, tadpoles and small fish. They also help controlling pests like mosquitos.



Water scorpion nymph (*Nepa cinerea*)



Water strider (Gerridae)



Backswimmer (*Notoecta glauca*)

Order Megaloptera

Alderfly larvae (*Sialis lutaria*)Dobsonfly adult (*Corydalus cornutus*)

Dobsonfly adult

All species of Megaloptera have aquatic larvae, whereas eggs, pupae and adults are terrestrial. The anatomy, physiology and behavior of Megalopteran larvae are specialized for aquatic predatory habits.

Order Neuroptera

Spongillafly larva (*Sisyra fuscata*)Spongillafly larva (*Sisyra fuscata*)

Spongillafly adult

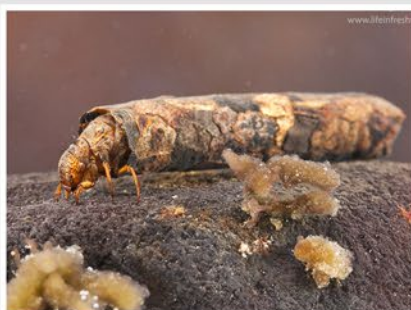
The Neuropterans or nerve-winged insects are all terrestrial, except for the larvae of spongillaflies (family Sisyridae). They have needle-like jaws to pierce and consume freshwater sponges and therefore, very much depends on freshwater sponge host habitat. However, all other life stages of spongillaflies remain terrestrial.

Order Trichoptera

Trichoptera is a highly advanced order consisting of species which are close relatives of Lepidopterans.



Adult caddisfly (Trichoptera)



Caddisfly Larvae



Caddisfly Larvae

They are also known as caddisflies in general and are holometabolous insects for which eggs, larvae and pupae are especially abundant and diverse in fresh waterbodies while adults which resemble moths are generally aerial and terrestrial. The benthic caddisfly larvae build and cover themselves with portable cases from various materials they find in water such as stones, twigs, leaves or sand.

Order Lepidoptera

Most Lepidopteran are extremely terrestrial and aerial. However, there are quite a few exceptions such as some female moths which remain aquatic during their adult stage and few aquatic larvae.

The eggs and pupae of these species could be found on the leaves and stems of aquatic plants or under silken tents on rocks. All aquatic larvae of Lepidopterans are herbivores and have close association with their host plants.



Brown China-mark adult
(*Elophila nymphaeata*)



Brown China-mark larvae



Brown China-mark larvae

Order Coleoptera

The largest and highly advanced group of insects. Name Coleoptera can loosely be translated as “sheathwing”. However, the majority of Coleopterans are terrestrial, only a minor percentage can be regarded as “aquatic” because they are fully submerged at least in the larval stage. Aquatic beetle called whirligig species are four-eyed, with one pair of eyes seeing above the water and the other below. Other beetles that might be found in rivers are elmids or riffle beetles, psephenid or water-penny beetles, and the little heart-shaped haliplids or crawling water beetles. There are predatory as well as plant feeding species of aquatic Coleopterans.



Diving beetle (*Rhantus suturalis*)



Great diving beetle (*Dytiscus marginalis*)



Great diving beetle (*Dytiscus marginalis*)

Order Diptera



Mosquito larvae (*Culex* sp.)



Emerging mosquito (*Anopheles* sp.)



Emerging mosquito (*Culex* sp.)

The Diptera is one of the largest, highly evolved and diverse insect orders, with over 120,000 described species. The name “Diptera” comes with the meaning of having two wings, referring the defining character of an adult true flies. All adults are terrestrial while some families have aquatic larvae.

One of the most studied taxon is mosquitoes, as a result of their close association with humans and being responsible for the spread of numerous mosquito borne diseases and countless deaths among human populations.

Other orders (Orthoptera, the grasshoppers and crickets; Blattodea, cockroaches; and Hymenoptera, bees and ants) also include a few species associated with aquatic environments that are sometimes considered as aquatic or semi aquatic insects.

Some Aquatic Insect Adaptations



Aquatic insects have a variety of adaptations useful for the successful completion of their life cycles.

- (a) Mosquito larvae breathe through tubes called breathing tubes or siphons that they place on the surface of water.
- (b) Mayfly larvae have actual gills and obtain oxygen directly from the water. Damselflies exhibit similar adaptations.
- (c) Aquatic insect legs are adapted for swimming or grasping. The water boatman uses its pair of oar-like legs to “paddle” through the water.
- (d) Reproduce in large numbers of offspring relatively quickly.
- (e) Have adult stages of short duration primarily for mating.

Importance of aquatic insects

Food webs: They play a major role in the aquatic ecosystem. They help break down and decompose the dead material at the bottom of the lake such as leaves, dead fish, and other organisms. They are also a major food source for fish, frogs, birds and other animals. Predatory species keep control the other species and keep the balance of the ecosystem.

Biomonitoring: Aquatic insects are also used as a more effective and efficient method to monitor the water quality. Bio assessment/biomonitoring reflects the ecological integrity of freshwater ecosystems and is less expensive than chemical/toxicity testing. The status of living organisms also is of direct interest to the public as a measure of a pollution-free environment.

Fishing: Aquatic insect biodiversity is of considerable interest to society because these animals are so important in the diets of many fish species, including species that are commonly consumed by humans for food.

Control of noxious weeds: Several species of noxious, invasive weeds have become problems in parts of the world where they out-compete native species, clog otherwise navigable waters and water-intake structures, and decrease food-fish species. Introduction of insect herbivores resulted success in controlling these weeds.

Without insects in the lake or stream, it wouldn't be a very nice place to fish or swim!

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සමනල මිතුරු තුරු උයන්

2 වන කොටස

අපි මීට ඉහත කෘමිතුරු කලාපයෙන් කතා බහ කළේ සමනල උයනක් සැකසීමේදී සැලකිය යුතු මූලික කරුණු ගැනයි. එම ලිපිය පලවුනේ ඉංග්‍රීසි බසින්. නමුත් බොහෝ දෙනාගේ ඉල්ලීම මත මෙතැන් පටන් සිංහල බසින් මෙම ලිපි මාලාව ඉදිරිපත් කරන්න කෘමිතුරු කණ්ඩායම තීරණය කළා.

අද සිට ඉදිරියට පලවන කලාප කිහිපයේදීම අපි කතා කරන්න සූදානම් වෙන්නේ සමනල තුරු උයන් සඳහා තෝරා ගත හැකි ශාක විශේෂ පිළිබඳවයි.

මෙහිදී, සමනල දළඹුවන්ගේ ආහාර ගස් කොළන් හෙවත් ධාරක ශාක (Host Plants) වගේම සුහුඹුල් සමනලුන් සඳහා අවශ්‍ය මල්පැණි ගස් කොළන් (Nectar Plants) ගැනත් අවධානය යොමු කිරීම ඉතාම වැදගත්. සමනල ගෙවත්ත නිර්මාණය කළ යුත්තේ සමනලුන්ට වගේම අනික් සතා සිවුපාවුන්ටත් අපටත් උපරිම ඵල නෙලා ගත හැකි අයුරින්. ඒ නිසා, තෝරාගත් ශාක වල ගෘහස්ථ භාවිතය, ඖෂධීය ගුණ සහ ආර්ථික වටිනාකම වැනි විවිධ පැතිකඩ ඔස්සේ අවබෝධයක් ලබා ගැනීම, එම ශාක විශේෂ පිළිබඳව ඔබේ දැනුම පුළුල් කර ගැනීමටත් ඒ හරහා සංරක්ෂණයට දායක වීමටත් පිටිවහලක් වේවි.

මෙම ශාක එකතුවට ඵ්දිනෙදා ආහාර බෝග ලෙස අපට වැදගත් වන ඵලවළු වර්ග, අල වර්ග, පළා වර්ග සහ කුළුබඩු විශේෂ බොහෝ ප්‍රමාණයක් ඇතුළත් වෙනවා. ඒ අතරින් ඔබේ ගෙවත්තේ ඇති ඉඩ කඩ ඉතා සීමා වුවත්, ආධාරක සැපයීම මගින් සිරස් අවකාශය උපරිම ලෙස ප්‍රයෝජනයට ගත හැකි, මධ්‍යම ප්‍රමාණයේ බඳුන් හෝ කවර වල වගා කළ හැකි ආරෝහක ශාක විශේෂ කිහිපයක් සහ ඒවා මත යැපෙන සමනලුන් පිළිබඳව අපි අද කතා කරමු.



නිගුරුල - *Dioscorea alata*



මෙම ශාකය අවපැහැ තුනිහයා (Ceylon Snow Flat - *Tagiades japetus obscurus*) ගේ සහ රඹුවන් සේලයා (Yam Fly - *Loxura atymnus arcuate*) ගේ ධාරක ශාක අතරින් එක් විශේෂයකි. මෙම සමනල දළඹුවන් ශාකයේ පත්‍ර ආහාරයට ගත්තත් බෝගයට විශාල ලෙස හානි සිදු කරන්නේ නැහැ.

මෙය Discoreaeae කුලයට අයත් භූගතව පිහිටි සංචිත කඳක් දරන වැල් සහිත ශාක විශේෂයකි. ගෘහාශ්‍රිතව වගා කළ හැකි මෙම ශාක සඳහා සිරස්ව සකස් කර ගත් ආධාරකයක් සැපයිය යුතුයි. උණබට, කොහු ලණු, කෙසෙල් පට්ටා භාවිතයෙන් මෙය සකස් කර ගත හැකියි.

සමනල මිතුරු තුරු උයන්



දන්දිල

මෙහි අලය බොහෝ විට සුදු හෝ ලා කහ පැහැයෙන් යුක්තයි. ඇන්තොසයනින් වර්ණකය (Anthocyanin) බහුලව අඩංගු ප්‍රභේදයේ අල තද දම් පැහැයෙන් යුක්තයි. ඒවා ගැමි ව්‍යවහාරයේ හඳුන්වන්නේ දන්දිල නමින්. මේ නිසා *Dioscorea alata* විශේෂයේ, රාජඅල, ඇඟිලි අල ලෙස විවිධ නම් වලින් හඳුන්වන ප්‍රභේද කිහිපයක්ම දැක ගත හැකියි.

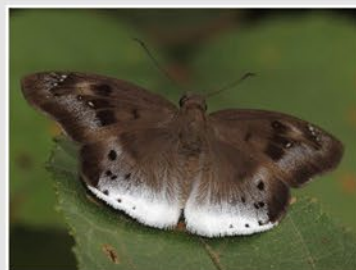


ඇඟිලි අල

පිෂ්ඨය බහුල ආහාරයක් වන මෙහි අලය තම්බා ගත් කල පොල්, ලුණු මිරිස් සමග ඉතා ප්‍රණීත උදෑසන ආහාර වේලක් ලෙසත් ඇතැම් ප්‍රභේද රසවත් ව්‍යංජනයක් ලෙසත් සකසා ගන්නට පුළුවන්. මව් අලයෙන් ලබා ගන්නා මොටෙයියන් සහිත මධ්‍යම ප්‍රමාණයේ කැබලි වලින් මෙය නැවතත් බෝ කර ගත හැකියි.

අවපැහැ තුනිතයා - Ceylon Snow Flat

අවපැහැ තුනිතයා ගේ සුහුඹුල් ගැහැණු සමනලන් මේරූ පත්‍ර වල යටි පැත්තේ වෙන් වෙන්ව බිත්තර තැන්පත් කරනවා. පිටතට පැමිණි දළඹුවන් පත්‍ර සියුම්ව කපා නමා ගැනීමෙන් සකස් කරගත් ආවරණයක් තුළයි වාසය කරන්නේ. මෙය, ශාකයේ දළඹුවන් සිටින බවට හඳුනාගැනීමේ ලක්ෂණයක්.



බිත්තර



පළමු අන්තරාව



අවසන් අන්තරාව



පිලවා



සුහුඹුලා

සමනල විතුරු තුරු උයන්

රඹවන් සේලයා - Yamfly

රඹවන් සේලයා ගේ ගැහැණු සමනලන් බිත්තර තැන්පත් කරන්නට තෝරා ගන්නේ ශාකයේ ළපටි කොටස්. දළඹුවන්ගේ පැහැය ශාකයේ නොමේරූ කොටස් වල පැහැයට බොහෝ සෙයින් සමාන නිසා හඳුනා ගැනීමට සුපරීක්ෂාකාරීව නිරීක්ෂණය කළ යුතුයි.



බිත්තර



පළමු අන්තරාව



අවසන් අන්තරාව



පිලවා



සුහුඹුලා

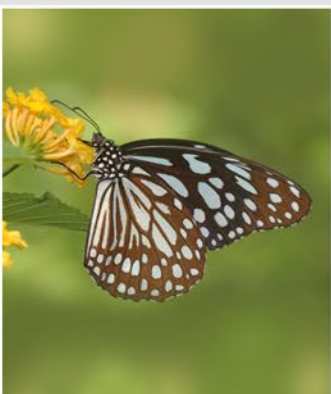
තිත්ත අගුණ - *Dregea volubilis*

මෙය නීල ගෝමරා (Blue Tiger - *Tirumala limniace*) ගේ ධාරක ශාකයයි.

Apocynaceae කුලයට අයත් ආරෝහක ශාකයක් වන මෙය සිරස්ව හෝ තුමියෙන් ඉහළට එසවූ නිරස් ආධාරයක් යොදාගෙන ඔබේ ගෙවත්තට අලංකාරයක් එක් වන ලෙස සිටුවා ගන්නට ඉඩ සකසා ගන්න පුළුවන්. ආයුර්වේද හා හෙළ වෛද්‍ය ක්‍රම වලදී දියවැඩියාව, වර්ම රෝග, ඇස් රෝග මෙන්ම ඇදුම වැනි රෝගාබාධ රැසකට ප්‍රතිකාර කිරීම සඳහා මෙම ශාකයේ කොළ සහ මුල් යොදා ගන්නවා. සිනිත්ව ලියාගත් අගුණ කොළ, පොල්, අමු මිරිස්, රතු ඵෑණු හා දෙහි සමග මිශ්‍ර කොට සාදා ගන්නා සම්බෝලය ඔබේ ආහාර වේලට එක් කර ගත හැකි ඉතා රසවත් මෙන්ම පෝෂ්‍යදායී පලා වර්ගයක්.



නීල ගෝමරා - Blue Tiger



ගැහැණු සතුන් තිත්ත අගුණ ශාකයේ මේරූ පත්‍ර වල යටි පැත්තේ බිත්තර එක බැගින් තැන්පත් කරනවා. දළඹුවන් දෙවන හෝ තුන්වන අන්තරාව වන තෙක් පත්‍රයේ උඩු අපිච්ඡමය ඉතිරි වන පරිදි යටි අපිච්ඡමයේ තැනින් තැන ආහාරයට ගන්නා අයුරු නිරීක්ෂණය කරන්නට පුළුවන්. මේ නිසා පත්‍ර මතුපිට දිය බුබුළු වැනි පුල්ලි මතුපිට පසුව එවා විසළී ගොස් පත්‍රයේ කුඩා සිදුරු ඇති වෙනවා. මෙය ශාකයේ සමනල දළඹුවන් සිටින බවට හඳුනාගත හැකි ලක්ෂණයක්. වැඩුණු දළඹුවන් මේරූ පත්‍ර ආහාරයට ගන්නවා.



සමනල විතුරු තුරු උයන්



බිත්තර



පළමු අන්තරාව



අවසන් අන්තරාව



පිලවා



සුහුඹුලා

මෑ - *Vigna unguiculata*

බෝංචි - *Phaseolus vulgaris*

මෙම ශාක විශේෂ දෙකම සුලබ සෙරුලියා (**Common Cerulean - *Jamides celeno tissama***) සහ උදුල සෙරුලියා (**Dark Cerulean- *Jamides bochus bochus***) යන සමනල විශේෂ දෙකම ධාරක ශාක ලෙස භාවිතා කරනවා.



බෝංචි

රනිල බෝග වන මෑ සහ බෝංචි, ප්‍රෝටීන් බහුල, විටමින් හා ඛනිජලවණ වලින් හෙබි තත්ත්වය ආහාර ලෙසයි සැලකෙන්නේ. මේවා ආර්ථික බෝග ලෙස වගා කිරීමේදී සමනල දළඹුවන් නිසා සිදුවෙන වගා හානිය පාලනය කිරීම සඳහා වගා කරුවන් කෘමිනාශක යෙදීම සිදු කරනවා. සමනලුන්ගේ ගහනය අඩු වීමට මෙය ප්‍රධාන හේතුවක්. නමුත් නිවසේ මෑ හෝ බෝංචි වැල් කිහිපයක් වගා කර ගැනීමෙන් වස විෂෙන් තොරව සැලකිය යුතු ප්‍රමාණයේ අස්වැන්නක් ලබා ගන්නටත් සමනලුන් සංරක්ෂණය සඳහා සක්‍රීයව දායක වන්නටත් ඔබට පුළුවන්.



මෑ

සුලබ සෙරුලියා - **Common Cerulean**

උදුල සෙරුලියා - **Dark Cerulean**



සුලබ සෙරුලියා සහ උදුල සෙරුලියා ගේ ගැහැණු සමනලුන් මල් පොහොට්ටු අතර හෝ අලුතින් හට ගන්නා කුඩා පත්‍ර රිකිලි අතර බිත්තර තැන්පත් කරනවා. සුලබ සෙරුලියා එකිනෙකට යාබද ස්ථාන කිහිපයක තනි තනිව බිත්තර තැන්පත් කරන අතර උදුල සෙරුලියා පෙණ වැනි ශ්‍රාවයක් නිකුත් කර ඒ මත බිත්තර කිහිපයක් තැන්පත් කරනවා.



සමහර මිතුරු තුරු උයන්

සුලබ සෙරුලියා - Common Cerulean



බිත්තර



පළමු අන්තරාව



අවසන් අන්තරාව



පිලවා



සුනුබුලා

උදුල සෙරුලියා - Dark Cerulean



බිත්තර



පළමු අන්තරාව



අවසන් අන්තරාව



පිලවා



සුනුබුලා

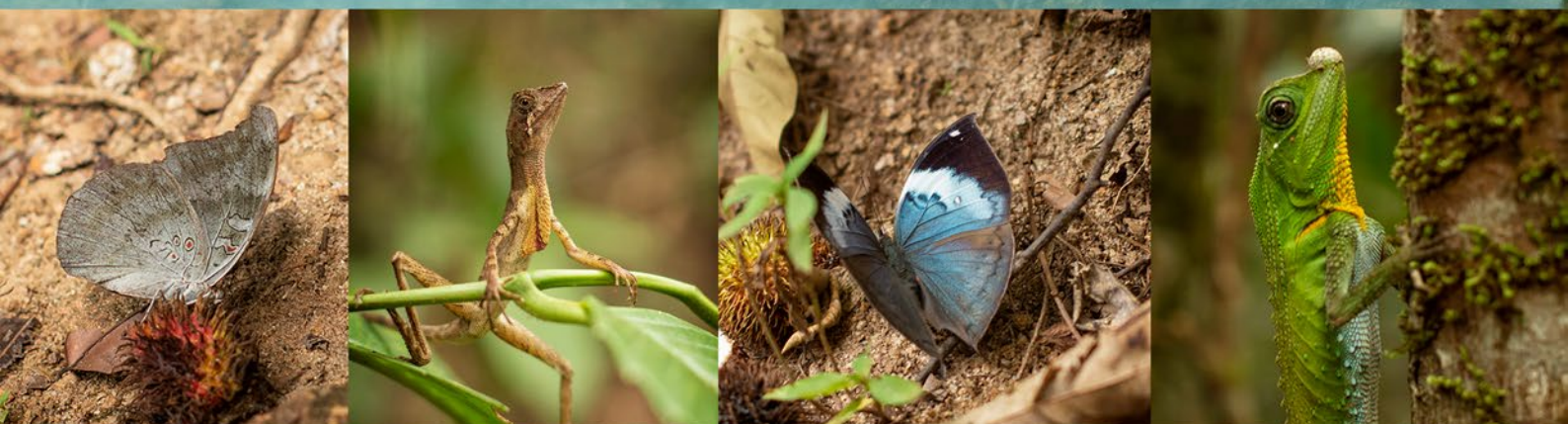
විශේෂ දෙකෙහිම දළඹුවන් මල් පොහොට්ටු හෝ කුඩා පත්‍ර රිකිලි මත යැපෙන අතර ඇතැම් විට කුහුඹුවන් සමග සහජීවී වෙසෙන අයුරු නිරීක්ෂණය කළ හැකියි. දළඹුවන් කෝෂ ගත වීම සඳහා දිරාපත් කොළරොඩු හෝ ලිහිල්ව තැන්පත් වූ පාංශු ස්ථරය තුළට පිවිසෙනවා.

තවත් සමහර මිතුරු තුරු තොරතුරු සමග ලබන කලාපයේ හමුවේමු.

- සටහන - නර්මලා දංගම්පොල
- ඡායාරූප - නිමේෂ් ජයසිංහ
- මෙන්ඩිස් වික්‍රමසිංහ

The Field Workshop on Dragonflies of Sri Lanka

(August 29th – September 1st 2020)



The 29th of August was a pleasant morning with the blooming excitement in our hearts about the new experiences that were going to happen in the next 3 days. At about 11.30 am all 25 participants were gathered at the Kudawa bus stand which was our meeting point to start the journey to Sinharaja World Heritage Site. The Organizing committee arranged a transportation service for us to travel to the destination. After a 1 hour journey, at about 1 pm finally we reached the “Sinharaja dormitory” which was to be our staying place for the next two days. After we got down from the bus we were called to sit down for the introductory session. The session was truly amazing. The organizing committee warmly welcomed us to the workshop and we got to introduce ourselves. All of the participants were from different universities all over Sri Lanka. It was great to meet new friends who had that same one character “the love for nature”. Our main resource person was Mr. Amila Sumanapala; a humble character who always shared his valuable knowledge without any hesitation. He gave an amazing introduction to the odonates. We all got a new copy of the “Field Guide to the Dragonflies and Damselflies of Sri Lanka” a happy moment for all of us. Even though we were tired by our long journey, being in there that time was truly heartfelt. The sound of the water flowing through the river and the hustling sound of the trees really told the story of how lucky we were for being selected for the workshop. After the introduction was over we hurried ourselves to take the lunch as all of us were

hungry. Then we were ready for our first little field visit near the Kudawa area to observe odonates. First we encountered Black-tipped Flashwing male and female, beautiful damselflies with their shiny green color. Then we were lucky enough to see a few more dragonflies such as Marsh Skimmer, Pink Skimmer, Shining Gossamer wing, and the highlight of the day, the most beautiful Green’s Gem. After exploring we came back and decided to take some rest before our next discussion on “Adult Odonata Identification” in the evening. After the discussion we had an interesting lecture about “Odonata of Sri Lanka”. Then at about 9 pm we had our dinner and went to sleep as all of us were tired by the long journey.



[Back](#)



The next day (30th of August) we got up early from the bed as it was our day for the field visit to Sinharaja Rainforest. We hurried ourselves to get everything ready, specially the cameras. All of us girls didn't forget one thing - "leech socks" At about 7.15 am we had our breakfast and reached the ticket counter of Sinharaja Rainforest by 8 am. First we started observing odonates near the little pond area by the ticket counter and luckily we got to observe the endemic and rare "Sri Lankan Fruhstorfer's Junglewatcher", Painted Waxtail, Sri Lanka Red Striped Threadtail, Sombre Lieutenant and Spine-tufted Skimmer. Then we started going on the path to the forest entrance. It was like a 1 km trail and of course a heaven for odonates. Everywhere was gleaming with life. Butterflies were flying and the birds were singing; it was a true heaven for all the nature lovers. On our way we encountered many dragonflies and damselflies. Sri Lanka Ana Mia's Shadow damsel, Sri Lanka Jungle Threadtail, Sri Lanka Bine's Shadowdamsel, Sri Lanka Brinck's Shadowdamsel, Sri Lanka Drooping Shadowdamsel, Sri Lanka Dark Forestdamsel, Serendib Forest Damsel and Sri Lanka Wall's Grappletail.

Near a little water stream we were amazed and felt really fortunate to see Sri Lanka Ebony Gem. It's a critically endangered species due to its habitat loss. The good thing in observing dragonflies in the field visit was we got to learn the identification keys and how to differentiate them in a practical way. Mr. Amila Sumanapala and the organizing committee did a great job by sharing their knowledge with us without any hesitation. We observed not only odonates but also butterflies, birds, spiders and even snakes. Butterflies like Clipper, Sri Lanka Bird Wing, Sri Lankan Rose, Commander, Blue Oak Leaf etc. And snakes like Green Vine Snake, Sri Lankan Green Pit Viper etc. were observed. It was really a great experience for all of us. At about 1 pm we reached the forest entrance. From there we went on the trail to the Research Centre, which was around 3 km long. On that path the most highlighted odonates we saw were Sri Lanka Vermilion Forester and the Forest Shadow-emerald. After a very fruitful field visit with a lot of new knowledge we came back to the dormitory at about 4 pm.



In the evening we had four lectures. Among them “Introduction to Sinharaja Forest Reserve” and “Odonata Larvae” lectures were amazing. The Odonata Larvae lecture was conducted by Indian odonatologist Mr. Prosenjit Dawn.



The next day morning (31st of August) we went on a field visit to the Information Centre. Encountering Sri Lanka Yerbury’s Elf and the Forest Shadow-emerald were the highlights for the day. We participated in many group activities including “The Dragonfly Race”. We were divided into groups and given a certain time period. We had to find, identify and count as many dragonfly species as we could. It was a fun and adventurous activity for all of us. Then in the evening time we moved onto a new place for the overnight stay. That day we were lucky to meet with one of the most humble and respectful characters, Prof. Devaka Keerthi Weerakoon. He visited us to conduct a lecture for the workshop. After another important group activity about “Odonata conservation” we had dinner. Then we gathered for a talk with Prof. Devaka Weerakoon to share his experiences with us about his journey in the field. Listening to his experiences was great and inspiring. While we were talking the time passed quickly and we didn’t even realize It was almost 3 am when we were back to bed.

Finally the last day of the workshop arrived. In the morning we did a group activity on “Odonata Research”. Then we had lectures on “Red List of Threatened Species” by Prof. Devaka Weerakoon and the “Citizen Science and Odonata” lecture by Mr. Amila Sumanapala. At about 2 pm it was our time to say goodbye to everyone and to the heaven like Sinharaja Rainforest. All through the workshop the wildlife guides from the Forest Department helped us a lot in our group activities. After thanking all of the great people who helped to carry out a valuable workshop for four days, including Mr. Amila Sumanapala, the BCSSL committee members and Prof. Devaka Weerakoon, we started our journey back home with our minds filled with new knowledge and lots of heartfelt memories.

Chathuri Jayatissa.





Travelers Paradox

රෝමාන්තික පරසරවේදීන්ට නැවතත් ආදරයෙන්

පාරිසරික සංරක්ෂණය කියන්නේ පෙනුමට ඉතා ම පරාර්ථකාමී බවක් පෙනුනට, අතිශයින් ම මානව කේන්ද්‍රීය, ඉතා ම ආත්මාර්ථකාමී මූලයක් ඇති විෂයයක්.

අනිත් අතට පාරිසරික සංරක්ෂණය කියන්නේ චක්තරා විදිහකට මිනිසා විසින් තමන්ගේ පරිසරය කෙරෙහි වූ වරදකාරී හැඟීම පියවා ගැනීම වෙනුවෙන් හදාගත්තු සංකල්පයක්.

පාරිසරික සංරක්ෂණය කියන විෂයයේ අවසාන අරමුණ ම පෘථිවියේ පාරිසරික තත්ත්වයන් (මිනිසාට) හිතකර පරිදි පවත්වා ගන්නේ කොහොමද කියන ප්‍රශ්නයට විසඳුම් හොයන එක.

සරලව ම පාරිසරික සංරක්ෂණය යනු පෘථිවිය මත මානව ආධිපත්‍යය (dominance) තවත් කල් පවත්වා ගන්නේ කෙසේද යන්න ගැන අධ්‍යයනය කරන, පිළියම් සොයන විෂයයක්. පාරිසරික සංරක්ෂණය මානව කේන්ද්‍රීය වෙන්නේ එහෙම.

පෘථිවියේ මේ වනවිට සිදුවෙමින් පවතින හයවන මහා නෂ්ට වීමට ප්‍රධාන හේතුව මිනිසා, ඒක කතා දෙකක් නෑ. නමුත් මීට පෙරත් පෘථිවියේ ඉතිහාසය තුල විවිධ හේතූන් මත මේ වැනි ම සත්ව ශාක කොටස් වල මහා නෂ්ට වීම්, දේශගුණික විපර්යාස සිදු වී තිබෙනවා.

මින් පෙර වගේ ම, මේ මහා නෂ්ට වීමෙන් පසුවත් නැවත පෘථිවියේ වෙනත් සමතුලිතයක් පැමිණේවි. සමහර විට මිනිසා නොවන වෙනත් ජීවීන් විශේෂයක් ඒ යුගයේ ආධිපත්‍යය පතුරුවාවි. පාරිසරික සංරක්ෂණ කාර්යයන් සිදුවෙන්නේ එකී යුගපෙරළිය කල් දමමින්, හැකිතාක් කල් මිනිසාගේ ආධිපත්‍යය පවත්වා ගැනීමට.

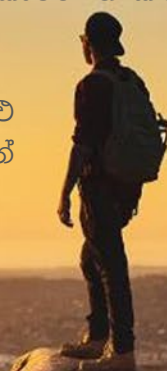
ගැටළුව තියෙන්නේ මේ ආත්මාර්ථකාමී, මානව කේන්ද්‍රීය විෂයයට රෝමාන්තිකභාවයක් ආරෝපණය කිරීම. අර මූලික හේතු රෝමාන්තික, භාවාතිශය වැස්මකින් වහලා ප්‍රදර්ශනය කිරීම.

මේ රෝමාන්තිකකරණය, පාරිසරික සංරක්ෂණය ඉතා ම හොඳින් මිනිසුන් අතරට ගෙනියන්න උදව් වුණා ය කියන එක අපිට බැහැර කරන්න බෑ. ඒකට හේතුව අර පෙර කියපු “වරදකාරී” හැඟීම. තමන් තුල ඇති පාරිසරික වරදකාරීත්වය වසා ගැනීමට පරිසර ප්‍රේමයක් ඇති කරගැනීම. මේ රෝමාන්තික ප්‍රවේශය හොඳ අතට ක්‍රියා කරන තැන් තියෙනවා වුනත්, ඒකෙන් වෙන හානිය දැන් දැන් වැඩියි.

මේ කියන ක්‍රියාවලියේ ප්‍රතිඵලය තමයි ඔය රෝමාන්තික කෑල්ලට, භාවාතිශය කෑල්ලට අනුවෙන සමහර මිනිස්සු විෂය සම්බන්ධ දැනුමක් නැතුව, විෂයයේ හරය ගැන අදහසක් නැතුව ක්‍රියාකරන්න පටන් ගන්න එක.

මීට කලින් කවුදෝ කිව්වත් වගේ “පරිසර ත්‍රස්තවාදී” වැනි ලේබල් එන්න හේතුවත් මේ කිවු ආකාරයේ රෝමාන්තික පරිසරවේදී කොටස්. පාරිසරික ගැටළු වලදී ඉතා ම අන්තවාදී ආකාරයෙන් කටයුතු කිරීම මේ අයගේ ලක්ෂණයක්.

කණගාටුවට කරුණ තමයි මේ බොහෝ අය ඉතා ම සද්භාවයෙන් යුතුව පාරිසරික ගැටළු ගැන මැදිහත් වන පිරිසක් වීම. ඒ අයව හරි මගපෙන්වීමක් යටතේ මෙහෙයවීමෙන් පාරිසරික සංරක්ෂණය වෙනුවෙන් සෑහෙන ප්‍රයෝජනයක් ගන්න පුළුවන්.





Travelers Paradoxcontinued

පහන් පරිසරයක කුඩුක් හිටවීමෙන් වෙන්වේ හානියක් බව, අලු මිනිස් ගැටුමේ මිනිසුන් (කොට්ඨාශයක්) ද වින්දිතයින් බව, පැළ සංරක්ෂණය කිරීම ඒ පැළය හමුවන තැන පමණක් ම කළ යුතු දෙයක් නොවන බව වගේ සංකල්ප ඒ අයට හඳුන්වා දීමට පුළුවන් නම්, ඉතා ම වටිනවා.

මේ පාර හදාගෙන ආවේ මේ දවස් වල කතාබහ වෙත “පැළේ” ගැන කියන්න.

දුර්ලභ ශාක හෝ සත්ව විශේෂ සංරක්ෂණය කිරීමේ විවිධ ක්‍රම තියෙනවා. ඒ ඒ අවස්ථාවට ගැලපෙන ආකාරයේ සංරක්ෂණ උපක්‍රම පාවිච්චි කරන්න අදාළ අය දැනගත යුතුයි.

ස්ථානීය සංරක්ෂණය සහ අස්ථානීය සංරක්ෂණය කියන්නේ ප්‍රධාන සංරක්ෂණ ක්‍රමවේද දෙකක්. මේ පැළය සම්බන්ධව ඇහෙන, දකින, දන්න තොරතුරු අනුව ඉතා ම ගැලපෙන ක්‍රමය තමයි අස්ථානීය (ex-situ) සංරක්ෂණය.

සරලව මේ කියන්නේ පැළය වෙනත් සුදුසු තැනක (උද්භිද උද්‍යානයක, සංරක්ෂණ මධ්‍යස්ථානයක) සංරක්ෂණය කළ යුතු බව. අධිවේගී මාර්ගයක් අසල ඇති කුඩා කැලෑ කට්ටියක ඇති ගසකට චිතරම් ආශ්‍රිත හැකි බව තමයි රස්තියාදුකාරයාගේ අදහස. ඉතිං ඒ වගේ තැනක ඇති ගසක් රැකගැනීමට දරන උත්සාහය, හැත්තම් ස්ථානීය සංරක්ෂණය වෙනුවෙන් දරන මහන්සිය ඉතා ම කෙටිකාලීන ප්‍රතිඵලයක් වෙනුවෙන් කරන මහා මහන්සියක් බව සහ මේ මහන්සිය අස්ථානීය සංරක්ෂණය වෙනුවෙන් යෙදවුනා නම්, මීට වඩා ඒ ගසේ සංරක්ෂණය ට වැදගත් බවයි රස්තියාදුකාරයාගේ වැටහීම. (මේ කියන්නේ ගහ කපලා වෙත තැනක හිටවීම ගැන නොවන බව විශේෂ කරලා සඳහන් කරන්න හිතෙනවා).

අවසාන වශයෙන් මේ ගස (ම) රැකීමේ අරමුණ මොකක්ද කියලා කෙනෙකුට අහන්න හිතෙන්න පුළුවන්. එක තැනක තියෙන එක ගසක් වඳ වුනා කියලා මොකද්ද වෙන්වේ කියලා තව කෙනෙකුට අහන්න පුළුවන්.

මෙතන ප්‍රශ්නය තියෙන්නේ මේ ගහ වඳවීම ගැන නෙවෙයි, මේ ගස වඳවීම මගින් නිරූපණය වන මතවාදය ගැන. කෙලවරක් නැතුව, ඉවක් බවක් නැතුව, රාජ්‍ය අනුග්‍රහය සහිතව සිද්ධ වෙත පාරිසරික විනාශය ගැන. ඉතිං (පරිසර විනාශය) නැවතීමට ආරම්භයක් තිබිය යුතු ය. විනාශකාරී මතවාදයේ නැවතීම ට ගන්නා ආරම්භය මේ ගස වෙන්ව පුළුවන්. ඒ නිසා මේ ගස රැක ගැනීම ඉතා වැදගත්!

ප. ලි.:

රස්තියාදුකාරයාට මේ රෝමාන්තික ප්‍රවේශය එක්ක හැත්තම් රෝමාන්තික පරිසරවේදීන් එක්ක සෑහෙන තරහක් ඇති බවත්, සමහර විට රස්තියාදුකාරයා තමන් ඉඳගෙන ඉන්න අත්ත ම කපමින් ඉන්න බවත් කෙනෙකුට පෙනෙන්න පුළුවන්. නමුත් විරුද්ධ පිලේ වැරදි දකිනවා වගේ ම තමන්ගේ පිල ගැන ම ස්වයං විවේචනයක් කරගැනීමත් එකසේ වැදගත් කියලා රස්තියාදුකාරයා දකිනවා. මේ ලියවෙන්නේ ඒ වෙනුවෙන්.



Future Events

We are planning to initiate some novel activities for the year. Building a team of resource persons to conduct nature education programs is one main project. Youth from universities, other nature related organization and general public are welcome for this program. It is expected to get their service on volunteered basis for nature education programs and awareness programs conducted for schools, environment pioneers, university students and public etc.



Training a team as consultants for butterfly gardening is another program. We expect to give hands-on experience to a selected group in butterfly gardening. It is planned to create a butterfly garden in a selected location with the involvement of the selected team as a part of their training.

Field visits and workshops are one of the most interesting activities of our society. Both one day and long field visits of about 3 days will be organized. We are very much interested in giving opportunity for new members and get their involvement for nature conservation. To provide platforms for them to exhibit their skills and share their experience, we give them opportunity to create articles, art works, write-ups for social media platforms of BCSSL and the newsletter 'Krumithuru'. Conducting online and physical lectures is another activity.

Grow with Nature Kids program and Butterfly Dragonfly Race are events we have been conducting for several years. This time we expect to organize in a new district other than Colombo. We hope all of you will stand with us to succeed these goals.

How to Join BCSSL

Butterfly Conservation Society of Sri Lanka is open to anyone who is interested in butterflies and other insect fauna. BCSSL members can actively participate and share their abilities and knowledge during activities organized by the society such as monthly lectures, field visits, workshops and annual events. Join hands with us to help spread awareness and create a world rich in butterflies and other fauna and flora for future generations to enjoy.

You could become a member of the BCSSL in several categories.

- * General membership
(anyone interested in joining BCSSL)
- * School membership
(school children from age (15 – 19)
- * Overseas membership
(non-Sri Lankan natives and foreigners)

Both General and Overseas categories have long term membership facility (membership extends up to 5 years)

BCSSL membership and details can be obtained

- Directly at the monthly lecture sessions and during all the events organized by BCSSL
- Via social media
(Facebook, Twitter, Instagram)
- By sending an email request to butterflycssl@gmail.com
- By visiting BCSSL website
<http://www.bcssl.lk/>

ශ්‍රී ලංකාවේ සමනලයින් විද්‍යාත්මක ලෙස හඳුනාගැනීම.

ශ්‍රී ලංකාව තුළ කුළ කුළ 6 කට අයත් සමනල විශේෂ 248 ක් දැනට සොයාගෙන ඇත. අප රට කුඩා දිවයිනක් වුවත් මෙතරම් විශාල සමනල විශේෂ සංඛ්‍යාවක් ජීවත් වීම සතුටට කරුණකි. මෙයින් සමනලුන් විශේෂ 86 ක් අයත් වන්නේ ලයිසැනිඩේ (Lycaenidae) කුලයට ය. එම විශේෂ අතරින් බොහොමයක් විශාලත්වයෙන් කුඩා වේ. එමෙන්ම අප රටේ ප්‍රමාණයෙන් විශාල බොහෝ විශේෂ අයත් වන්නේ පැපිලියොනිඩේ (Papilionidae) කුලයට ය. අපට නිතරම හමුවන සුදු හා කහ මිශ්‍ර පැහැගත් විශේෂ බොහෝමයක් අයත් වන්නේ පියරිඩේ (Pieridae) කුලයට ය.

සමනල හෝ සලබ පියාපතක් මතුපිට ඉතා සියුම් කුඩුමය ස්වභාවයක් දැකගත හැකිය. එම කුඩු වැනි ද්‍රව්‍ය අප පියව් ඇසින් හෝ අත් කාවයකින් සාමාන්‍ය ලෙස නිරීක්ෂණය කළ හැකි වුවාත් ඒවාහි නියම ස්වභාවය හා ඇහිරී ඇති අයුරු නිරීක්ෂණය කිරීම දුෂ්කරය. සමනල හෝ සලබ පියාපතක කුඩා කොටසක් අන්වීක්ෂයක් ආධාරයෙන් නිරීක්ෂණය කළහොත් සමහර විට ඔබ පුදුම වනු ඇත. පියාපත් මත ශල්ක හෙවත් කොරල අති විශාල ප්‍රමාණයක් දැක ගත හැකි වේ. ක්‍රමවත් ලෙස ජෛල වශයෙන් ඇහිරී ඇති මේ කොරල වහලයක අහුරා ඇති උළු මෙනි. මේ ශල්ක වල හැඩය හා ඇහිරී ඇති ආකාරය තරමක් දුරට මසුන්ගේ ශරීරය මත කොරල ඇහිරී ඇති අයුරු මෙන් වුවත්, ඊට වඩා සැහෙන වෙනස්කම් ඇත. මේ එක් කොරලයක් ගතහොත් එය පෘෂ්ඨයට සම්බන්ධවී ඇති පෙදෙස කෙටි අතර නිදහස් කෙලවර වටකුරු හෝ උල් නෙරීමි වලින් යුක්ත ය. එක් විශේෂයෙන් විශේෂයට ශල්කවල හැඩ වෙනස් වන අතර සමනලුන් හෝ සලබයින් හඳුනා ගැනීමේදී මේවා යොදාගත හැකි වුවත් එම ක්‍රමය ඉතා සංකීර්ණ හා දුෂ්කර වේ. මෙම ශල්කමය පියාපත් දැරීම නිසා සමනලුන් හා සලබයින් ලෙපිඩොප්ටරා (Lepidoptera) වර්ගයට ඇතුළත් කර ඇත. දැන් අප සමනලුන් හා සලබයින් වෙන්කොට හඳුනා ගන්නේ කෙසේද යන්න සාකච්ඡා කරමු.



ශල්කමය පියාපත

සමනලුන්ට හා සලබයින්ට අවට පරිසරය හා සම්බන්ධකම් පවත්වාගෙන යාම සඳහා සංවේදී ඉන්ද්‍රියයන් ඇත. මේ ඉන්ද්‍රියයන් බොහෝමයක් හිසේ පිහිටා ඇති අතර විශාල සංයුක්ත ඇස් හා ස්පර්ශක යුගල ආධාරයෙන් සලබයින් හා සමනලුන් පහසුවෙන් වෙන් කොට හඳුනාගත හැක. සලබයින්ගේ මේ ස්පර්ශකවල නිදහස් කෙලවර ක්‍රමයෙන් සිහින් වී උල් වී ඇත. මේ උල් හැඩ තාරටියට, කෙඳි වැනි සියුම් අවයව සම්බන්ධ වීමෙන් එය පොල් අත්තක අර්ධයක්, ඊට සමාන හැඩයක් හෝ ඊට සමාන වෙනත් හැඩ වලින් යුක්ත විය හැක (Feathered Antenna). නමුත් සමනලුන්ගේ ස්පර්ශක, සිහින් හා දිගටි ස්වභාවයක් උසුලන අතර කෙලවර හොඳහැටි මහන් වූ වටකුරු ස්වභාවයක් හෝ ක්‍රමයෙන් මහන් වී මුගුරුක ස්වභාවයක් ගනී (Culb-shaped Antenna). එක් එක් සමනල විශේෂයට, මෙම මූලික හැඩයේ සුළු වෙනස්කම් උරුම වී ඇත. මේ නිසා සමනලුන් හඳුනා ගැනීමේදී මේ කරුණද වැදගත් වේ. මීට



අමතරව සමනලුන්ට වලනය වීමට අවශ්‍ය උපාංග සියල්ල උරස හෙවත් මැද කොටසේ පිහිටා ඇති අතර පියාපත් යුගල් 2 කින් හා පා යුගල් 3 කින් නිර්මිත වේ.



මාලා ඵදිරිසිංහ

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Meeting with a reader

Arts

Common Pierrot (*Castalius rosimon rosimon*)
by Thilini Wasana



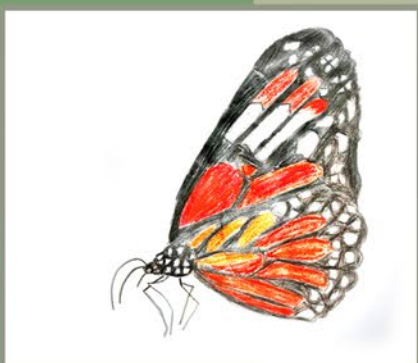
Banded Peacock (*Papilio crino*)
by Kanishka Amantha Gallage



Jezebel (*Delias eucharis*)
by Pavanya Vinudinie Samaranayake



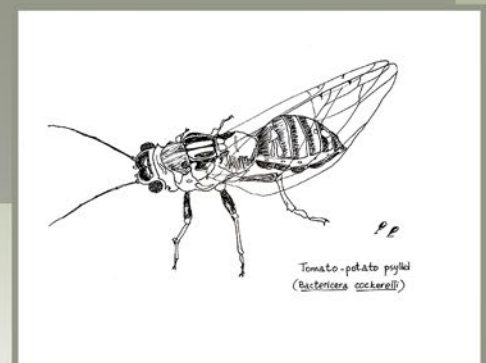
Common Tiger (*Danaus genutia genutia*)
by Minuka Vinuvara Gunathilaka



Lime Butterfly (*Papilio demoleus demoleus*)
by Abhishek Tripathy



Tomato potato psyllid (*Bactericera cockerelli*)
by Ashirwad Tripathy



Meeting with a reader

Photos

Common Tiger (*Danaus genutia genutia*)
by Sanjalee Herath



Psyche (*Leptosia nina nina*)
by Isuru Priyadarshana



Common Mormon (*Papilio polytes romulus*)
by Ramiru Dinuth Gamage



Common Mormon (*Papilio polytes romulus*)
by Sewwandi Alwis



Oriental Greenwing (*Neurobasis chinensis*)
by Dulitha prasanna



Crimson Rose (*Pachliopta hector*)
by Dulitha prasanna



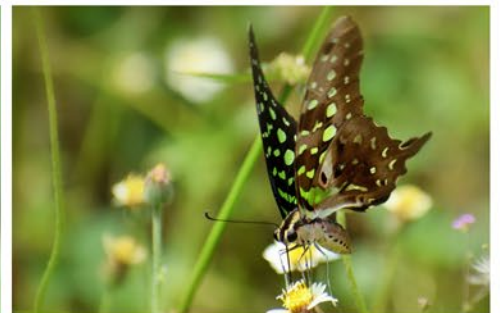
White Four-ring (*Ypthima ceylonica*)
by Bhavana Sivayokan



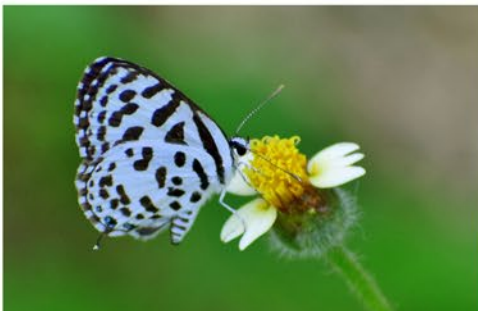
Plains Cupid (*Chilades pandava lanka*)
by Suyothami Yoganathan



Tailed Jay (*Graphium agamemnon menides*)
by Suyothami Yoganathan



Common Pierrot (*Castalius rosimon rosimon*)
by Suyothami Yoganathan



Lemon Emigrant (*Catopsilia pomona*)
by Suyothami Yoganathan



Jezebel (*Delias eucharis*)
by Suyothami Yoganathan



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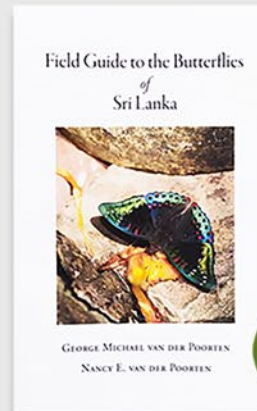


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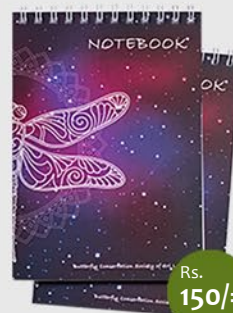
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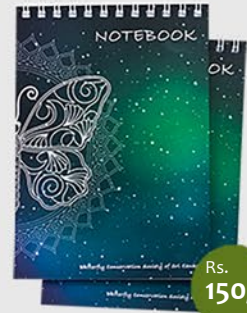


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