Continue

This lifeform is found in the Philippine Islands. Papilio polytes ledebouria is the subspecies from the Philippines.One of the characteristics of this subspecies is the lack of tails in the male.Papilio genus (Swallowtail butterflies) is a large genus of larger butterflies in the Papilionidae family.This genus is found in most temperate and tropical regions of the world.One characteristic shared by many, but not all, of the species is a spatulate tail (end slightly wider than the base.)In contrast, Papilio zenobia(Africa),Papilio gallienus (Africa), and Papilio zagreus (Neotropic region) have no tails.Many of the species in this genus are sexually dimorphic in that the females have a different appearance than the males.Other species are unusual in that more than one form is found in the same species.Papilio glaucus of the eastern United States, for example, has two different color forms for the female.In this species some females are yellow with black veining similar to the males, and other females are a dark blue-black in color.Papilio dardanus of Africa is interesting in that the male has tails, and the majority of numerous female forms are without tails.In contrast, Papilio memnon of the Oriental region is unusual in that the males have no tails, and several female forms have a large spatulate tail.Over 150 different species and subspecies in this very spectacular family are shown here.Fluted Swallowtails (Papilio) group of the Eurasian region is hard to divide. Following is a list of species that make up this group (an* indicates that this species is pictured): SPECIES LOCATION Papilio albinus*Jaya and Papua Papilio alphenorIndonesia and Philippines Papilio amynthor(=ilioneus) New Caledonia Papilio antonio*Philippines Papilio ambrax* Papua and Australia, etcetera Papilio biseratus Timor (Indonesia) Papilio benguetanus*Luzon(Philippines) Papilio canopus Indonesia and Australia Papilio castor* India to Taiwan Papilio chaon*India, China, Taiwan Papilio demoleus* Saudi Arabia to New Guinea Papilio demolion* Burma, Malay, Philippines, etc. Papilio diophantes* North Sumatra Papilio dravidarumSouth India Papilio euchenor* Irian Jaya, Papua Papilio fuscus* Indonesia, Malay, Solomons, etc. Papilio gigon*Sulawesi (Indonesia) Papilio godeffroyi* West Samoa Papilio helenus*Widespread: India, Malay, Japan Papilio hystaspes Philippines Papilio hipponous*Indonesia Papilio illioneus*New Caledonia Papilio iswara* South Burma, Malay, and Sumatra Papilio iswaroides* Malaysia and north Sumatra Papilio jordani Sulawesi (Indonesia) Papilio liomedonSouth India Papilio nephelus* Thailand and Malaysia Papilio nobleiBurma, Thailand Papilio phestus Papua and Solomons Papilio pitmani Burma and Philippines Papilio polytes*Widespread in Orient Papilio sakontala North India Papilio sataspes* Sulawesi, etcetera (Indonesia) Papilio schmeltzi*Fiji Papilio walkeri South India Papilio xuthus* S. China, Japan, Taiwan, Hawaii (not pictured) Papilio alphenor of Indonesia and Philippines may be a form of Papilio polytes. (not pictured) Papilio sakontala from north India is probably just a form of Papilio polytes. (not pictured) Papilio walkeri is probably just a form of Papilio polytes.Family Papilionidae (Swallowtails), Papilio family, contains about five hundred and fifty different species with perhaps a new species still being discovered every two or three years. Many species are sexually dimorphic in that the females do not look like the males. A common example of this is the Tiger Swallowtail of North America where the males are always yellow and black and the females can be either yellow and black or occasionally a blue color. Swallowtails are usually medium to large species and strong fliers. They are unusual in that the adults have six fully developed legs. Many newer families of butterflies have only four well-developed legs with the front two legs being very underdeveloped. Butterfly scientists are attracted to this group, and high prices are paid for the largest and the rarest kinds. Most of the species are bred locally on a hobby-business basis to fill the demand. The Queen Alexander might be extinct. Although this species has been protected, the damage seems to have been done by land clearing projects which took away its natural habitat. The number of specimens in collections seems to be so small that collectors cannot be blamed for this extinction. There are probably less than ten collections in the United States that have over five hundred different species of Papilionidae.Butterflies and Moths (Order Lepidoptera) are a group of insects with four large wings. They go through various life cycles including eggs, caterpillar (larvae), pupae, and adult. Most butterflies and moths feed as adults, but primarily do most of their growing in the larval or caterpillar stage. Also, most species are restricted to feeding as caterpillars upon a unique set of plants. In this pairing of insects to plants, there arises a unique plant population control system. When one plant species becomes too common, specific pests to that species also become more common and thus prevent the further spreading of that particular plant species. Although most people think of the Lepidoptera as two different groups: butterflies and moths, technically, the concept is not valid. Some families, such as Silk Moths (Saturnidae) and Hawk Moths (Sphingidae), are clearly moths. Other families, such as Swallowtail Butterflies (Papilionidae), are clearly butterflies, However, several families exhibit characteristics that appear to be neither moths nor butterflies. For example: the Castnia Moths of South America are frequently placed in the Skipper Family (Hesperidae). The Sunset Moths (Uranidae) have long narrow antennae and fly during the day. Note: Numerous museums and biologists have loaned specimens to be photographed for this project.Insects (Class Insecta) are the most successful animals on Earth if success is measured by the number of species or the total number of living organisms. This class contains more than a million species, of which North America has approximately 100,000. Insects have an exoskeleton. The body is divided into three parts. The foremost part, the head, usually bears two antennae. The middle part, the thorax, has six legs and usually four wings. The last part, the abdomen, is used for breathing and reproduction. Although different taxonomists divide the insects differently, about thirty-five different orders are included in most of the systems. The following abbreviated list identifies some common orders of the many different orders of insects discussed herein: Odonata:Dragon and Damsel Flies Orthoptera: Grasshoppers and Mantids Homoptera:Cicadas and Misc. Hoppers Diptera:Flies and Mosquitoes Hymenoptera:Ants, Wasps, and Bees Lepidoptera:Butterflies and Moths Coleoptera: BeetlesJointed Legged Animals (Phylum Arthropoda) make up the largest phylum. There are probably more than one million different species of arthropods known to science. It is also the most successful animal phylum in terms of the total number of living organisms. Butterflies, beetles, grasshoppers, various insects, spiders, and crabs are well-known arthropods. The phylum is usually broken into the following five main classes: Arachnida:Spiders and Scorpions Crustacea:Crabs and Crayfish Chilopoda:Centipedes Diplopoda:Millipedes Insecta:Insects There are several other "rare" classes in the arthropods that should be mentioned. A more formal list is as follows: Sub Phylum Chelicerata C. Arachnida:Spiders and scorpions C. Pycnogonida:Sea spiders (500 species) C. Merostomata:Mostly fossil species Sub Phylum Mandibulata C. Crustacea:Crabs and crayfish Myriapod Group C. Chilopoda:Centipedes C. Diplopoda:Millipedes C. Pauropoda:Tiny millipede-like C. Symphyla: Garden centipedes Insect Group C. Insecta:Insects The above list does not include some extinct classes of Arthropods such as the Trilobites.Animal Kingdom contains numerous organisms that feed on other animals or plants. Included in the animal kingdom are the lower marine invertebrates such as sponges and corals, the jointed legged animals such as insects and spiders, and the backboned animals such as fish, amphibians, reptiles, birds, and mammals. Anda mengunjungi website ini dari Indonesia Kami menganjurkan anda untuk mengunjungi website Bata yang sesuai dengan negara asal anda untuk pengalaman terbaik. Mohon diingat bahwa ketersediaan barang, harga, dan area pengiriman akan bergantung dari website yang anda gunakan. Anda mengunjungi website ini dari Indonesia Kami menganjurkan anda untuk mengunjungi website Bata yang sesuai dengan negara asal anda untuk pengalaman terbaik. Mohon diingat bahwa ketersediaan barang, harga, dan area pengiriman akan bergantung dari website yang anda gunakan. Species of butterflyCommon MormonMating pair with female in form stichiusConservation statusLeast Concern (IUCN 3.1)[1]Scientific classification Domain:EukaryotaKingdom:AnimaliaPhylum:ArthropodaClass:InsectaOrder:LepidopteraFamily:PapilionidaeGenus:PapilioSpecies:P.polytesBinomial namePapilio polytesLinnaeus, 1758SubspeciesMany, see textPapilio polytes, the common Mormon,[2][3] is a common species of swallowtail butterfly widely distributed across Asia.[2][3]This butterfly is known for the mimicry displayed by the numerous forms of its females which mimic inedible red-bodied swallowtails, such as the common rose and the crimson rose.The common name is an allusion to the polygamy formerly practiced by members of the Mormon sect according to Harish Gaonkar, of the Natural History Museum in London:[4]... the origins of giving common English names to organisms, particularly butterflies for tropical species started in India around the mid 19th century ... The naming of Mormons evolved slowly. I think the first to get such a name was the Common Mormon (Papilio polytes), because it had three different females, a fact that could only have been observed in the field, and this they did in India. The name obviously reflected the ... Mormon sect in America, which as we know, practiced polygamy.The scientific name is constructed from the Latin word for butterfly, papilio, and the Greek word for many, poly.[5]Pakistan, India, Bangladesh, Nepal, Sri Lanka, Maldives, Myanmar, Thailand, Singapore, southern and western China (including Hainan and Guangdong provinces), Taiwan, Hong Kong, Japan (Ryukyu Islands), Vietnam, Laos, Cambodia, Andamans, Nicobars, eastern and Peninsular Malaysia, Brunei, Indonesia (except Moluccas and Irian Jaya), Philippines, and Northern Marianas (Saipan).[2][3]Very common. Not threatened.[1]Comparison between similar-looking species - A. pandiyana, A. aristolochiae, P. polytes and P. helenusJet black butterfly with row of white spots along the middle part of hindwing. 90100mm.[6][7]The male has one morph. It is a dark-coloured swallow-tailed butterfly. The upper forewing has a series of white spots decreasing in size towards the apex. The upper hindwing has a complete discal band of elongated white spots. It may or may not have marginal red crescents. The males are generally smaller in size than the females but not always. Both male and all forms of the female of P. polytes can vary considerably in size depending on climatic region.[6]Male, undersideMale, topsideNewly emerged male (left) and female, Sri LankaFemale, Sri LankaThe female of the common Mormon is polymorphic. In the Indian Subcontinent, it has several forms or morphs. These are as follows:[6]Form cyrusThis form is similar to the male, differing in that it always has strongly marked red crescents. It is the least common of the three forms. It is normally abundant where the common rose or crimson rose do not occur, such as in Himachal Pradesh around Shimla; although a few specimens of form romulus have also been caught alongside.[6]Form stichiusThis female form of the common Mormon mimics the common rose very closely. This is the commonest form wherever the common rose flies.[6]Form romulusThis female form mimics the crimson rose and is common over its range. It is not such a close mimic as the previous form being duller than its model. It is easy to differentiate the mimics from models by the colour of their bodythe models are red-bodied and the mimics are black-bodied.[6]Karl Jordan gives a full account of polytes forma in Seitz (pages 6063).[8]Female form cyrus UNFemale form stichius UPFemale form stichius UNFemale form romulus UPFemale form romulus UNFemale form romulus in flight UPThis species has considerable genetic variability and is known to produce gynandromorphs, genetic aberrations which are part male and part female.Papilio polytes is the nominal member of the polytes species group. The clade members are:Papilio polytes Linnaeus, 1758Papilio ambrax Boisduval, 1832Papilio phestus Gurin-Mneville, 1830The subspecies of Papilio polytes listed alphabetically are:[2][3]P. p. alcindor Oberthr, 1879 Buton, Salayer & SulawesiP. p. alphenor Cramer, [1776] PhilippinesP. p. javanus Felder, 1862 Bali, Bangka, Biliton, Java & southern SumatraP. p. latreilloides Yoshino, 2018 N. Yunnan, N.E. VietnamP. p. ledebouria Eschscholtz, 1821 PhilippinesP. p. messius Fruhstorfer, 1909 LombokP. p. nicanor C. & R. Felder, 1865 Bachan, Halmahera, Morotai, Obi & TernateP. p. nikobarus C. Felder, 1862 Nicobar IslandsP. p. pasikrates Fruhstorfer, 1908 Philippines (Batanes) & TaiwanP. p. perversus Rothschild, 1895 Sangir & TalaudP. p. polycritos Fruhstorfer, 1902 Banggai, Sula Is.P. p. polytes Linnaeus, 1758 Indo-China, China & TaiwanP. p. romulus Cramer, [1775] Nepal, India, Burma & Sri LankaP. p. rubidimacula Talbot, 1932 W.YunnanP. p. sakiboso Yoshino, 2018 W. SichuanP. p. sotira Jordan, 1909 SumbawaP. p. steffi (Page & Treadaway, 2003) Bongao, Sibutu & Tawitawi in the PhilippinesP. p. stichioides Evans, 1927 South AndamansP. p. theseus Cramer, [1777] Sumatra & BorneoP. p. timorensis C. & R. Felder, 1864 Babar Islands, Wetar, Leti, & possibly TimorP. p. tucanus Jordan, 1909 Tukangbesi IslandsP. p. vigellius Fruhstorfer, 1909 BaweanCrimson rose, compare with form romulusIn India, this butterfly is considered as the classic example of Batesian mimicry in which edible species resemble unpalatable butterflies in order to escape being eaten by predators.The populations of the mimicking morphs of the common Mormon are much smaller than that of their models - the common or crimson rose. This allows first time predators a much greater chance of preying upon the unpalatable model in the first instance and thus learning of their inedibility.Larger populations of mimics could result in the edible common Mormon mimics being sampled the first time by predators. If this should happen, the predator may not realise that butterflies of that colour and pattern are protected by the poisons they ingest; thus dramatically reducing the effectiveness of this scheme of protection.In Sulawesi, although the common rose is abundant, the common Mormon female morph which is found there, mimics a completely different butterfly, Atrophaneura polyphontes.A single gene, doublesex, regulates the complex wing patterns, colors and structures required for this mimicry.[9][10][11]The common Mormon prefers lightly wooded country, but is present everywhere and high up into the hills. It is a regular visitor to gardens, being especially abundant in orchards of its food plantsoranges and limes. It is most common in the monsoon and post-monsoon months.Female form romulus seen laying an egg on Murraya paniculataThe common Mormon is fond of visiting flowers and its long proboscis permits it to feed from flowers having long corollar tubes. It is particularly fond of Lantana, Jatropha, Ixora, and Mussaenda in city gardens. In the forests, the common Mormon remains low keeping within ten feet off the floor and its prefer to visit Asystasia, Peristrophe, and Jasminum for nectar.The male common Mormon is a very common visitor to gardens where he will be seen hovering over flowers when the sun is shining. It is a restless insect, zigzagging fast and straight close to the ground, settling down only when it halts to feed.The mimic female Mormons, stichius and romulus are very convincing mimics due to their habits, especially the flight patterns, being very similar to those of the rose models. However, lacking the protection of inedibility, they tend to be more easily disturbed than the roses and fly off erratically.Only the males take part in mud puddling, usually in cool shaded spots rather than in open areas. They have been known to collect on saline soils to extract minerals.[12]Both sexes bask in the sun on shrubs close to the ground. They hold their wings flat against the substratum. The forewing is lowered to cover part of the hindwing and is a typical stance of the common Mormon.Common Mormons spend the night settled on vegetation with their wings held open, usually quite close to the ground.Mating pair with the female displaying romulus form on topMating pair with the female displaying stichius form on topCommon Mormon eggEggDifferent stage instarsfifth instarpre-pupa caterpillarPupaNewly Emerged Common Mormon ButterflyThe females perch on an exposed branch with wings open or closed. They are courted by the males who approach from behind and slowly and elegantly settle into position.Egg of Papilio polytesThe eggs are laid singly on top of the leaves. They are round and yellow to light-yellow in colour.[6]Bird dropping-like camouflage of early instar caterpillar. Kadavoor, IndiaThe first few instars of the caterpillar closely resemble those of the lime butterfly.[6] They feature white splotches that look like bird droppings that serve as camouflage.[13]The later instars become dark green in colour. There is a transverse black band with an eye-spot on each side on the 4th and 5th segments. This band, being darker and brighter than that of the lime butterfly caterpillar, is the key distinction between the two.[6]The common Mormon caterpillar also has a black and white oblique band on the 8th and 9th segments, making it resemble that of the blue Mormon. The deep red osmeterium and yellowish-brown head help distinguish it from the blue Mormon caterpillar which has a greenish head.[6]Common Mormon caterpillars are heavily parasitised by chalcidoid wasps, with over a hundred tiny wasps eventually emerging from each Mormon pupa.[6]Papilio polytes common Mormon pupaThe pupa is located on underside of leaves and twigs. The pupa is light green and unmarked. It has two projections to the front on its head and also one on its thorax. It closely resembles the lime butterfly caterpillar but can be distinguished by:the projections on the head which have a deeper indentation between them.the abdomen which protrudes to a small point on each side.[6]The larvae breed on various species of family Rutaceae including:Aegle marmelos or baelAtalantia racemosa[14]Citrus spp. (C. aurantifolia, C. grandis, C. limon, C. medica, C. sinensis)Glycosmis arboreaMurraya koenigii curry leafMurraya paniculataList of butterflies of IndiaList of butterflies of India (Papilionidae)^ a b Collins, N. Mark; Morris, Michael G. (1985). Threatened Swallowtail Butterflies of the World: The IUCN Red Data Book. Gland & Cambridge: IUCN. ISBN978-2-88032-603-6 via Biodiversity Heritage Library.^ a b c d Varshney, R.K.; Smetacek, Peter (2015). A Synoptic Catalogue of the Butterflies of India. New Delhi: Butterfly Research Centre, Bhimtal & Indinov Publishing, New Delhi. p.7. doi:10.13140/RG.2.1.3966.2164. ISBN978-81-929826-4-9.^ a b c d Savela, Markku. "Papilio polytes Linnaeus, 1758". Lepidoptera and Some Other Life Forms. Retrieved July 3, 2018.^ Asian Mormon Butterflies Archived 2007-09-28 at the Wayback Machine Accessed November 2006^ Papilio polytes PDF Archived September 1, 2006, at the Wayback Machine^ a b c d e f g h i j k l One or more of the preceding sentences incorporates text from this source, which is in the public domain: Bingham, C.T. (1907). The Fauna of British India, Including Ceylon and Burma. Vol.II (1sted.). London: Taylor and Francis, Ltd. pp.6163.^ Moore, Frederic (19011903). Lepidoptera Indica. Vol. V. London: Lovell Reeve and Co. pp.223232.^ Seitz, A. Band 9: Abt. 2, Die exotischen Groschmetterlinge, Die indo-australischen Tagfalter, 1927, 1197 Seiten 177 Tafeln This article incorporates text from this source, which is in the public domain.^ "A single gene called doublesex controls wing mimicry in butterflies". UChicago News. 2014-03-07. Retrieved 2017-11-03.^ "Single gene controls butterfly wing pattern". www.abc.net.au. 2014-03-06. Retrieved 2017-11-03.^ Kunte, K.; Zhang, W.; Tenger-Trolander, A.; Palmer, D. H.; Martin, A.; Reed, R. D.; Mullen, S. P.; Kronforst, M. R. (2014-03-05). "doublesex is a mimicry supergene". Nature. 507 (7491): 22932. Bibcode:2014Natur.507..229K. doi:10.1038/nature13112. PMID24598547. S2CID4448793.^ Pola, M., Garca-Pars, M. (2005). Marine puddling in Papilio polytes (Lepidoptera Papilionidae). Florida Entomologist 88: 211-213.^ Halloran, Kathryn; Wason, Elizabeth. "Papilio polytes". Animal Diversity Web. Retrieved 2024-11-16.^ Kunte, K. (2006). Additions to known larval host plants of Indian butterflies. Journal of the Bombay Natural History Society 103(1):119-120.Evans, W.H. (1932). The Identification of Indian Butterflies (2nded.). Mumbai, India: Bombay Natural History Society.Gay, Thomas; Kehimkar, Isaac David; Punetha, Jagdish Chandra (1992). Common Butterflies of India. Nature Guides. Bombay, India: World Wide Fund for Nature-India by Oxford University Press. ISBN978-0195631647.Haribal, Meena (1992). The Butterflies of Sikkim Himalaya and Their Natural History. Gangtok, Sikkim, India: Sikkim Nature Conservation Foundation.Kunte, Krushnamegh (2000). Butterflies of Peninsular India. India, A Lifescape. Hyderabad, India: Universities Press. ISBN978-8173713545.Wynter-Blyth, Mark Alexander (1957). Butterflies of the Indian Region. Bombay, India: Bombay Natural History Society. ISBN978-8170192329. {{cite book}}: ISBN / Date incompatibility (help)Wikispecies has information related to Papilio polytes.Wikisource has original text related to this article:Mimicry in Butterflies Media related to Papilio polytes at Wikimedia CommonsButterflies of Sri LankaMimicry, Nagoya UniversityPhotos & videos of step by step of common MormonRetrieved from " Share copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. LIFE CYCLE OFCOMMON MORMON BUTTERFLYGenus:PapilioLinnaeus, 1758Species:polytesLinnaeus, 1758Subspecies:romulusCramer, 1775Wingspan of Adult Butterfly:70-85mm Mom found some bugs on curry leaf plant. She identified them as caterpillars turning into butterflies. We put them into a plastic container. We were not sure of their category and what they eat. Initially we tried putting some leaves of random trees, but no success. Then we put the curry leaves and bingo!! All they eat is curry leaves.After approx 10-12 days one of them started changing colour. It turned green in about 10-12 hours. Morning it was normal, black with white stripes, and evening it was completely transformed into green colour.You can see both of them in two avatars in below picture, one of them is transformed into green caterpillar, while other is still to be transformed, though it has started showing green spots, starting to turn green. I must say once it is transformed to green one, it looks very cute. Its been growing fast and eating much too. We usually put fresh curry leaves twice a day, and open the jar for fresh air. They are quite lousy and lazy, mostly laying around lazily when they are not eating curry leaves. The speed at which they eat those leaves is mind boggling. You can watch them eating leaves The typical life cycle of these caterpillars is about 4 -5 weeks. We found them about 6-7 times so far and have followed their life cycle closely from egg to a butterfly. Egg is very tiny one and you have to have keen observation skill to notice them. When the caterpillar comes out of an egg, firth thing it does is eat the remnants of that egg. There are two reason for their doing soa) They are very hungry when they come out and b) Not to leave any traces for a predator to know about their existence. How carefully nature has designed such things or probably the way every creature has evolved to survive.Typically these caterpillars are just black and ugly for about 1-2 weeks and start turning green. At the time of turning green, they shed their skin and eat it immediately so that there are no traces. The green caterpillars get absolutely camouflaged in the tree leaves, and it is hard to spot them easily. Another adoption for survival.Once they turn green, it takes another 1 1 1/2 week for them to go into a cocoon. The way they build cocoon is another amazing activity to observe. They attach lower part of their body to any available surface (it could be anything from a jar, a wall, a shady corner in house, or below a chair). Usually they prefer a place where they wont be noticed easily, again to stay safe from predators. And they turn upper part of their body outside making it look like a J. They bind upper part of their body with two thin strings on each side. It takes good amount of it to fine tune those two strings and it is fun to watch them doing so. They stay in cocoon for another week to 10 days. I am told that they may remain in the cocoon for up to a year, if they sense any danger in coming out of it. Usually they come out of cocoon early morning and you better have them covered with a net or have them in a jar otherwise you might miss the butterfly. You can predict when the butterfly would come out by observing the cocoon every day. One day before coming out, the inner side of the cocoon turns black. A newly born butterfly takes about an hour to open its wings completely and be able to fly on its own. I used to wonder at how amazingly most the creatures (bugs, insects, birds, animals) become independent in short time after they are born while human child is dependent on its parents for so long time. But on a second thought I think its in proportion with the overall lifespan of the creature. I would love to find out more about this proportion for different bugs, animals, birds.Surprise surprise!! The female butterflies are more beautiful than male ones. They have trendy and curvy wings and more attractive colours on their wings. There nothing like the joy of watching them fly freely around a tree full of bloom.If you are planning to observe this life cycle, I would advice you to make sure that a cocoon is placed in a large container or net where it get enough space to open its wings fully. Its important that they open their wings fully in first hour, otherwise they might not open them properly later and you might repent hurting an innocent and beautiful life. Also please make sure that you set them free as soon as possible, as nobody loves living in captivation. We do all these activities just to study them, but follow many guidelines not to hurt them. By Kathryn Halloran and Elizabeth Wason Common mormon butterflies (Papilio polytes) are widely distributed throughout Asia. They are found in Pakistan and southern Asia, including India and all regions east of it, Malaysia and Indonesia, and on the coast of southern China, the Philippine islands, and the southwestern islands of Japan. (Sehgal, et al., 2009; Smetacek, 2006; Suwarno, et al., 2010a; Suwarno, et al., 2010b; Suwarno, 2010) palearctic oriental Common mormon butterflies are adaptable, inhabiting tropical and subtropical areas, open forests interspersed with meadows, tropical rainforests, agricultural fields, suburban gardens, and even large cities. Common mormon butterflies cannot fly in winds that blow more quickly than 5 to 10 m/s; thus, they cannot inhabit windy areas that lack sheltering undergrowth. Common mormon butterflies need access to water or moist earth. The males often engage in puddling behavior, wherein they drink salty fluids from moist ground, puddles, stream edges, coastlines, carrion, or feces. Common mormons require access to the plants that comprise their adult diet and the diet of their larvae. Also necessary is the availability of branches or twigs for pupal support. Common mormons have been found at elevations of 200 to 1000 m, though they may not be limited to that altitudinal range. (Arun, 2008; Barua, et al., 2004; Rangana, 2010; Sehgal, et al., 2009; Suwarno, et al., 2010b; Suwarno, 2010; Van Lien and Yuan, 2003; Watanabe, 1979) savanna or grassland forest rainforest urban suburban agricultural Papilio polytes eggs are globular and a pale yellow. As they age, the eggs become light brown. The appearance of common mormon eggs is similar to the eggs of common lime butterflies, to the point that distinguishing the eggs of these two species is difficult. However, common lime butterflies lay their eggs on the axial part of the leaf, the stems, or on the thorns, while common mormons do not. As a first-instar caterpillar, P. polytes has a distinctive head characterized by conspicuous sutures (shallow grooves), primary setae (large, spiky projections), and hypognathous mandibles (the lower mandible is longer than the upper mandible). Its body is light brown with white splotches, causing the caterpillar to resemble bird droppings (which serves as good camouflage). On the prothorax is an osmeterium, which is a forked, fleshy organ that emerges from the anterior of the caterpillar when it is threatened and secretes noxious chemicals to ward off predators. The caterpillar grows bigger but looks similar as it progresses through the fourth instar. In its fifth instar, the larva becomes light green, and a broad, raised stripe appears near its head. The pupa of P. polytes is either light green, with two yellow-green patches on either side of the pupal case, or light brown. Adult common mormon butterflies have a wingspan of 70 to 115 mm. Their hindwings have swallowtails. Adult males are smaller than females. All common mormon males look the same, with black wings that are dotted with a row of white spots across the hindwings and on the margins of the forewings. The upper forewing also has a row of white spots, which get smaller toward the wing tip. Common mormons occasionally have red crescents on the margins of each wing. Adult females have several polymorphisms, most of which mimic other butterfly species that are unpalatable. The cyrus form is non-mimetic. It is very similar in appearance to males but has paler coloration and more distinct red crescents. The cyrus form is found across the common mormon's entire range. The most common is the stichius form, which mimics Pachliopta aristolochiae (common rose butterfly) and is found in common mormon populations from the Himalayas to Japan, Sulawesi, and Sri Lanka. The theseus form mimics the common rose butterfly's black form and is found where the habitat of both butterflies overlaps in parts of Indonesia and the Philippines. The romulus form mimics Pachliopta hector (crimson rose butterfly) but is duller in color. These mimetic polymorphisms, which effectively disguise the common mormon butterfly as other, toxic butterfly species, enable common mormon females to avoid being eaten by predators. Because P. polytes is palatable and mimics unpalatable butterfly species, this predator evasion strategy is an example of Batesian mimicry. (Durgesh, et al., 2011; Kunte, 2013; Rangana, 2010; Sehgal, et al., 2009; Smetacek, 2006; Suwarno, et al., 2010a; Tan, 2011; Vasait, 2002) ectothermic heterothermic bilateral symmetry polymorphic female larger sexes colored or patterned differently female more colorful Common mormon butterflies lay about 20 to 25 eggs on the undersides and upper surfaces of leaves. Their preferred host plants typically belong to the family Rutaceae and include cultivated citrus plants such as the key lime tree and the mandarin orange. The oviposition preference of females on host plants is important, because the nutrients obtained by Papilio polytes when it is a larva greatly affect the length of larval development, the length of the adult butterfly's life, and the number of eggs that an adult female can lay. The development of P. polytes from egg to adult takes 28 to 30 days. Both in the wild and in captivity, the eggs typically hatch after 3 to 5 days. The larva eats its egg shell before commencing to feed on the leaves of the host plant. Papilio polytes has five larval instars, or periods between molts. Larvae develop for about 14 to 20 days before pupating. The pupa hangs by an attachment to a branch or twig, and a silk harness further supports the pupal case. Papilio polytes pupates for about 10 days, after which its emergence takes 15 to 18 minutes. After 40 to 50 minutes, the butterfly crawls up a dry twig and pumps its wings to circulate blood through its capillaries and dry its wings. After 60 to 75 minutes, the adult butterfly flies away. (Durgesh, et al., 2011; Hori, 2003; Rangana, 2010; Sehgal, et al., 2009; Shobana, et al., 2010; Smetacek, 2006; Suwarno, et al., 2010a; Tan, 2011; Vasait, 2002) Papilio polytes males both patrol for females and use a waiting technique, which involves sitting on a branch or leaf and waiting for a female to fly by. Unlike other species of butterflies, such as the black swallowtail butterfly, P. polytes males neither defend territories nor lek, that is, gather to participate in a competitive display to attract a mate. Males exhibit puddling behavior, which involves drinking from puddles, stream edges, coastlines, carrion, or feces. Puddling provides males with sodium and ammonia, which they pass to females via spermatophores. The intake of sodium and ammonia increases the reproductive success of males, female fecundity, and egg hatching success. It is unknown whether P. polytes mates with multiple partners, but many butterfly species are promiscuous. Papilio polytes breeds throughout the year, but mostly in January through April. (Durgesh, et al., 2011; Honda, et al., 2012; Lederhouse, 1982; Pola and Garcia-Paris, 2005) Papilio polytes breeds throughout the year, mostly in January through April. A male transfers a spermatophore (packet of sperm) to his mate. Females of most butterfly species store the sperm in an abdominal pouch called a spermatheca. When the female has a full pouch of sperm, she selects a host plant on which to lay her eggs. A typical female P. polytes places eggs on the upper and lower surfaces of a given leaf and lays hundreds of eggs in her lifetime. (Sehgal, et al., 2009; Shobana, et al., 2010; Spitzer, 1983; Suwarno, et al., 2010b) Male common mormon butterflies engage in puddling behavior to acquire sodium, ammonia, and other minerals from soil, puddles, seawater, carrion, and feces. During copulation, these minerals are transferred to a female through the spermatophore (packet containing sperm). The female passes these minerals into her eggs. This puddling behavior and the transfer of minerals can increase the reproductive success of adults and increase the survival rate of eggs. Larval growth, development, and longevity depend on the nutrients in the host plant. Papilio polytes females preferentially lay eggs on host plants of higher nutritional quality, such as Citrus reticulata and Citrus aurantifolia. (Inoue, 2006; Molleman, 2009; Pola and Garcia-Paris, 2005; Suwarno, et al., 2010a; Suwarno, et al., 2010b) pre-fertilization provisioning protecting pre-hatching/birth Adult Papilio polytes females typically live longer than adult males, as females live an average of 6 to 8 days, while males live an average of 3 to 4 days. It is possible that the production of mimetic patterns, although beneficial by reducing predation, can also reduce the lifespan of mimetic P. polytes. Non-mimetic females can live longer than males and mimetic females, but they have a higher risk of predation. Females tend to be attacked more frequently than males because their larger abdomen is a more rewarding meal for predators. The entire life cycle of P. polytes, from the laying of an egg to the death of an adult, can be about 30 to 43 days. (Ohsaki, 2005; Shobana, et al., 2010; Watanabe, 1979) One of the most unique adaptations of female common mormons is their mimicry of unpalatable butterfly species, including Pachliopta aristolochiae (common rose butterfly) and Pachliopta hector (crimson rose butterfly). Because the common mormon actually is edible by predators, and it mimics unpalatable species, the deception is an example of Batesian mimicry. Mimetic Papilio polytes females mimic not only the appearance, but also the flight pattern of P. aristolochiae; for example, the P. polytes polymorphism that mimics P. aristolochiae beats its wings slowly, with the wings held almost parallel to the ground, to prominently display the warning coloration marks on its hindwings. In contrast, P. polytes males and females with non-mimetic markings follow a swift, erratic flight pattern to escape predation. Male common mormons engage in puddling behavior, which involves males congregating on and drinking from moist earth, puddles, stream edges, coastlines, carrion, or feces. By puddling, males can obtain sodium, ammonia, and other minerals that can improve their own reproductive success, the fecundity of their female mates, and egg hatching success. Groups of male butterflies typically puddle in cool, shady areas, rather than out in the open, where the risk of predation likely is higher. Because they are larger than males, female common mormons bask longer in the mornings before they can fly. Both males and females bask with their wings spread open and pressed flat against their resting place. They usually bask on vegetation near the forest floor. After sundown, they rest on plant material close to the ground. (Barua, et al., 2004; Honda, et al., 2012; Kitamura and Imafuku, 2010; Ohsaki, 2005; Rangana, 2010; Sehgal, et al., 2009) flies glides diurnal motile daily torpor Home Range The home range of Papilio polytes is >1 km; within the range, individuals from different populations come in contact with one another. Females tend to remain in one area for one day, while males stay three to four days. Because common mormon butterflies rarely fly over the undergrowth, they move to new territories by coasting on wind currents. (Watanabe, 1979) Because butterflies have compound eyes, they can see in many directions simultaneously. Their eyes consist of many individual hexagonal light sensors, each angled in a slightly different direction. Their eyes can detect light, color, and motion. Papilio polytes females carefully choose the plants on which to lay their eggs by using chemosensilla, or elongated bristles, to "taste" the chemical components of the vegetation. To investigate a plant, a female butterfly drums her forelegs on a leaf to gain information about plant chemistry via her chemotactile sensory receptors. Males might use olfaction to detect bodies of water that contain salt and minerals by using their antennae. Papilio polytes males produce a pheromone in their wings. Because the pheromone is not produced by females, this chemical may be used by P. polytes females to differentiate between potential sexual partners and males of other species. The function of the chemicals produced by P. polytes males, however, has not been shown definitively. (Brinckerhoff, 2006; Inoue, 2006; Omura and Honda, 2005; Pola and Garcia-Paris, 2005) Papilio polytes larvae are folivores, eating only the leaves of the host plant. A P. polytes larva has a pair of hypognathous mandibles, in which the lower mandible is longer than upper mandible; these structures enable the caterpillar to cut leaves into smaller pieces. The caterpillar eats the leaves of plants such as the key lime, sweet orange, sweet lime, bael, mandarin orange, kaffir lime, curry tree, gin berry, and orange climber. The caterpillars prefer new, fully opened leaves. The first- and second-instar caterpillars eat only the edges of the leaves. The third, fourth, and fifth instars eat the entire leaf, avoiding the veins. Larvae prefer plants with smooth leaves that have a high nitrogen and water content. Because these plants are grown agriculturally, common mormon caterpillars can damage crop yields. Papilio polytes adults are nectarivores, feeding on nectar from short herbs and shrubs that have elongated corollar tubes, such as Lantana, Jatropha, Ixora and Mussaenda in urban areas, and Asystasia, Peristrophe, and Jasminum in rural areas. (Rangana, 2010; Sehgal, et al., 2009; Suwarno, et al., 2010a; Suwarno, et al., 2010b) herbivore Mortality rates for Papilio polytes are highest during the egg stage. In the egg stage, P. polytes is most susceptible to spiders of the genus Oxyopes. Other egg predators include the red ant and the parasitoid Ooencyrtus papilioni. Early larval instars are attacked by Oxyopes spiders, such as the common lynx spider and the elegant lynx spider. Later larval instars are susceptible to a variety of predators, including birds, mantises, oriental garden lizards, and the assassin bug Sycanus dichotomus. The bodies of P. polytes larvae are colored in such a way that they resemble bird droppings, which camouflages them against predation. Later instars of the caterpillar have a structure called an osmeterium, which can be everted from the prothorax when the larva is threatened and produces a noxious compound that wards off predators. A unique adaptation of female common mormon butterflies is their Batesian mimicry of the unpalatable butterfly species Pachlipta aristolochiae and Pachliopta hector. Although P. polytes is palatable, its mimicry of unpalatable species causes predators to avoid it. The mimetic females imitate both the appearance and the flight patterns of the unpalatable butterflies. Common rose butterflies, for example, beat their wings slowly, holding their wings almost parallel to the ground to display the warning coloration on their hindwings. Female common mormon butterflies mimicking the common rose also fly in a slow, regular pattern to make visible their warning markings. In contrast, adult male common mormons and adult females with non-mimetic markings follow a swift, erratic flight pattern to escape predation. (Hori, 2003; Kitamura and Imafuku, 2010; Ohsaki, 2005; Rangana, 2010; Sehgal, et al., 2009; Smetacek, 2006; Suwarno, 2010; Tan, 2011; Vasait, 2002) Common mormon butterflies are pollinators, herbivores, and prey. The parasitoid Ooencyrtus papilioni attacks the eggs of Papilio polytes. (Durgesh, et al., 2011; Kitamura and Imafuku, 2010; Reddi and Bai, 1984; Shobana, et al., 2010; Smetacek, 2006; Suwarno, et al., 2010a; Suwarno, et al., 2010b; Suwarno, 2010; Tan, 2011; Vasait, 2002) Species Used as Host Commensal/Parasitic Species Common mormon butterflies are an excellent example of sex-limited polymorphic mimicry and are used as a model system in studies of Batesian mimicry. Common mormon butterflies also do well in captivity and can be found in many butterfly conservatories. (Kitamura and Imafuku, 2010; Ohsaki, 2005; Smetacek, 2006) Papilio polytes larvae feed on many species of citrus and other plants, many of which are farmed commercially. Their diet includes mandarin orange, sweet lime and kaffir lime plants. Although the damage inflicted by P. polytes is relatively less than that caused by other herbivore species, it nonetheless is a pest on citrus crops. (Shobana, et al., 2010; Suwarno, et al., 2010b) Papilio polytes has no special status; it is commonly found throughout its range. (Rangana, 2010; Suwarno, et al., 2010a) In the common mormon, the females are heterogametic; that is, females carry two different sex chromosomes. The females have a Z and a W chromosome, while males carry two Z chromosomes. This is a common characteristic of all butterflies. (Presgraves, 2002) Kathryn Halloran (author), University of Michigan-Ann Arbor, Elizabeth Wason (author, editor), Animal Diversity Web Staff. Palearctic living in the northern part of the Old World. In otherwords, Europe and Asia and northern Africa. agricultural living in landscapes dominated by human agriculture. aposematic having coloration that serves a protective function for the animal, usually used to refer to animals with colors that warn predators of their toxicity. For example: animals with bright red or yellow coloration are often toxic or distasteful. bilateral symmetry having body symmetry such that the animal can be divided in one plane into two mirror-image halves. Animals with bilateral symmetry have dorsal and ventral sides, as well as anterior and posterior ends. Synapomorphy of the Bilateria. chemical uses smells or other chemicals to communicate cryptic having markings, coloration, shapes, or other features that cause an animal to be camouflaged in its natural environment; being difficult to see or otherwise detect. delayed fertilization a substantial delay (longer than the minimum time required for sperm to travel to the egg) takes place between copulation and fertilization, used to describe female sperm storage. diurnal active during the day, 2. lasting for one day. ectothermic animals which must use heat acquired from the environment and behavioral adaptations to regulate body temperature fertilization union of egg and spermatozoan folivore an animal that mainly eats leaves. forest forest biomes are dominated by trees, otherwise forest biomes can vary widely in amount of precipitation and seasonality. herbivore An animal that eats mainly plants or parts of plants. heterothermic having a body temperature that fluctuates with that of the immediate environment; having no mechanism or a poorly developed mechanism for regulating internal body temperature. internal fertilization fertilization takes place within the female's body metamorphosis A large change in the shape or structure of an animal that happens as the animal grows. In insects, "incomplete metamorphosis" is when young animals are similar to adults and change gradually into the adult form, and "complete metamorphosis" is when there is a profound change between larval and adult forms. Butterflies have complete metamorphosis, grasshoppers have incomplete metamorphosis. mimicry imitates a communication signal or appearance of another kind of organism motile having the capacity to move from one place to another. native range the area in which the animal is naturally found, the region in which it is endemic. nectarivore an animal that mainly eats nectar from flowers oriental found in the oriental region of the world. In other words, India and southeast Asia. oviparous reproduction in which eggs are released by the female; development of offspring occurs outside the mother's body. pheromones chemicals released into air or water that are detected by and responded to by other animals of the same species polymorphic "many forms." A species is polymorphic if its individuals can be divided into two or more easily recognized groups, based on structure, color, or other similar characteristics. The term only applies when the distinct groups can be found in the same area; graded or clinal variation throughout the range of a species (e.g. a north-to-south decrease in size) is not polymorphism. Polymorphic characteristics may be inherited because the differences have a genetic basis, or they may be the result of environmental influences. We do not consider sexual differences (i.e. sexual dimorphism), seasonal changes (e.g. change in fur color), or age-related changes to be polymorphic.Polymorphism in a local population can be an adaptation to prevent density-dependent predation, where predators preferentially prey on the most common morph. rainforest rainforests, both temperate and tropical, are dominated by trees often forming a closed canopy with little light reaching the ground. Epiphytes and climbing plants are also abundant. Precipitation is typically not limiting, but may be somewhat seasonal. semelparous offspring are all produced in a single group (litter, clutch, etc.), after which the parent usually dies. Semelparous organisms often only live through a single season/year (or other periodic change in conditions) but may live for many seasons. In both cases reproduction occurs as a single investment of energy in offspring, with no future chance for investment in reproduction. sexual reproduction that includes combining the genetic contribution of two individuals, a male and a female sperm-storing mature spermatozoa are stored by females following copulation. Male sperm storage also occurs, as sperm are retained in the male epididymes (in mammals) for a period that can, in some cases, extend over several weeks or more, but here we use the term to refer only to sperm storage by females. suburban living in residential areas on the outskirts of large cities or towns. tactile uses touch to communicate terrestrial Living on the ground. tropical the region of the earth that surrounds the equator, from 23.5 degrees north to 23.5 degrees south. tropical savanna and grassland A terrestrial biome. Savannas are grasslands with scattered individual trees that do not form a closed canopy. Extensive savannas are found in parts of subtropical and tropical Africa and South America, and in Australia. savanna A grassland with scattered trees or scattered clumps of trees, a type of community intermediate between grassland and forest. See also Tropical savanna and grassland biome. temperate grassland A terrestrial biome found in temperate latitudes (>23.5 N or S latitude). Vegetation is made up mostly of grasses, the height and species diversity of which depend largely on the amount of moisture available. Fire and grazing are important in the long-term maintenance of grasslands. urban living in cities and large towns, landscapes dominated by human structures and activity. visual uses sight to communicate year-round breeding breeding takes place throughout the year Arun, P. 2008. Seasonality of Swallowtail butterfly community (Lepidoptera: Papilionidae) of Siruvani forest, Western Ghats, Southern India. Wonderful World of Insects: 66-71. Accessed February 22, 2012 at . Barua, K., D. Kakati, J. Kalita. 2004. Present status of swallowtail butterflies in Garbhanga Reserve Forest, Assam, India. Zoo's Print Journal, 19/4: 1439-1441. Accessed February 22, 2012 at . Brinckerhoff, J. 2006. "Butterflies" (On-line). The Butterfly Farm. Accessed March 25, 2012 at . Durgesh, N., R. Arun, S. Kumar. 2011. Autecology of the common mormon butterfly, Papilio polytes (Lepidoptera: Rhopalocera: Papillionidae). Journal of Entomological Research, 35/2: 101-104. Honda, K., H. Takase, H. Omura, H. Honda. 2012. Procurement of exogenous ammonia by the swallowtail butterfly, Papilio polytes, for protein biosynthesis and sperm production. Naturwissenschaften, 99/9: 695-703. Hori, H. 2003. "Mimicry in a Swallowtail Butterfly" (On-line). Papilio polytes homepage. Accessed January 31, 2012 at hori/mimicry.html. Inoue, T. 2006. Morphology of foretarsal ventral surfaces of Japanese Papilio butterflies and relations between these morphology, phylogeny and hostplant preferring hierarchy. Zoological Science, 23/2: 169-189. Kitamura, T., M. Imafuku. 2010. Behavioral Batesian mimicry involving intraspecific polymorphism in the butterfly Papilio polytes. Zoological Science, 27/3: 217-221. Accessed May 17, 2013 at . Kunte, K. 2013. "Research: Molecular genetics of mimicry in the Papilio polytes butterfly" (On-line). Biodiversity Lab. Accessed May 28, 2013 at . Lederhouse, R. 1982. Territorial defense and lek behavior of the black swallowtail butterfly, Papilio polyxenes. Behavioral Ecology and Sociobiology, 10/2: 109-118. Molleman, F. 2009. Puddling: from natural history to understanding how it affects fitness. Entomologia Experimentalis et Applicata, 134/2: 107-113. Ohsaki, N. 2005. A common mechanism explaining the evolution of both female-limited and both-sex Batesian mimicry in butterflies. Journal of Animal Ecology, 74: 728-734. Omura, H., K. Honda. 2005. Chemical composition of volatile substances from adults of the swallowtail, Papilio polytes (Lepidoptera: Papilionidae). Applied Entomology and Zoology, 40/3: 421-427. Pola, M., M. Garcia-Paris. 2005. Marine puddling in Papilio polytes (Lepidoptera: Papilionidae). Floridia Entomologist, 88/2: 211-213. Accessed March 24, 2012 at . Presgraves, D. 2002. Patterns of Postzygotic Isolation in Lepidoptera. Evolution, 56/6: 1168-1183. Ramana, S. 2010. Biodiversity and conservation of butterflies in the Eastern Ghats. The Ecoscan, 4/1: 59-67. Accessed March 24, 2012 at 20S.P.%20VENKATA%20RAMANA.pdf. Rangana, N. 2010. "Common Mormon" (On-line). Butterflies of Sri Lanka. Accessed February 10, 2012 at . Reddi, C., G. Bai. 1984. Butterfly and pollination biology. Proceedings of the Indian Academy of Sciences: Animal Sciences, 93/4: 391-396. Sehgal, J., H. Rose, A. Sidhu. 2009. Observations on the life history and behaviour of three butterfly species: lime blue, Chilades lajus lajus (Cramer), the lime butterfly, Papilio (Princeps) demoleus Linnaeus and the common Mormon, Papilio polytes Linnaeus (Lepidoptera: Papilionoidea) infesting Citrus species in Punjab. Journal of Entomological Research, 33/3: 261-268. Shobana, K., K. Murugan, A. Naresh Kumar. 2010. Influence of host plants on feeding, growth and reproduction of Papilio polytes. Journal of Insect Physiology, 56/9: 1065-1070. Smetacek, P. 2006. Some distasteful Asian Papilioninae (Papilionidae). Journal of the Lepidopterists' Society, 60/2: 82-85. Accessed May 17, 2013 at 2)82-Smetacek.pdf. Spitzer, K. 1983. Seasonality of the Butterfly Fauna in Southeastern Vietnam (Papilionoidea). The Journal of Research on the Lepidoptera, 22/2: 126-130. Accessed May 17, 2013 at . Suwarno, 2010. Population dynamic of the swallowtail butterfly, Papilio polytes (Lepidoptera: Papilionidae) in dry and wet seasons. Biodiversitas, 11/1: 19-23. Accessed February 02, 2012 at . Suwarno, , M. Che Salmah, A. Ali, A. Abu Hassan. 2010. Oviposition preference of swallowtail butterfly Papilio polytes (Lepitdoptera: Papilionadae) on four Rutaceae (Sapindales) host plant species. Insect Science, 17/4: 369-378. Suwarno, , M. Salmah, A. Ali, A. Hassan. 2010. Oviposition preference and nutritional indices of Papilio polytes L. (Papilionidae) larvae on four rutaceous (Sapindales: Rutaceae) host plants. Journal of the Lepidopterists' Society, 64/4: 203-210. Accessed May 17, 2013 at . Tan, H. 2011. "Life History of the Common Mormon" (On-line). Butterflies of Singapore. Accessed March 24, 2012 at . Tiple, A., S. Padwad, L. Dapporto, R. Dennis. 2010. Male mate location behaviour and encounter sites in a community of tropical butterflies: taxonomic and site associations and distinctions. Journal of Biosciences, 35/4: 629-646. Van Lien, V., D. Yuan. 2003. The differences of butterfly (Lepidoptera, Papilionoidea) communities in habitats with various degrees of disturbance and altitudes in tropical forests of Vietnam. Biodiversity and Conservation, 12/6: 1099-1111. Vasait, J. 2002. Study of the life cycle of Papilio polytesLepidoptera: Papillionidae. Ecology, Environment and Conservation, 8/1: 79-84. Watanabe, M. 1979. Population sizes and resident ratios of the swallowtail butterfly, Papilio polytes L., at a secondary bush community in Dharan, Nepal. Kontyu, 47/3: 291-297.

Mormon community. Mormon cricket life cycle. Mormon lives. Common mormon rules. Life mormon. Mormon usefulcharts. Common mormon butterfly life cycle.