**Special edition: moths**

**Interview with Bart Coppens, guest speaker at ICBES 2017**

**Who are you?**

I’m Bart Coppens (24) from the Netherlands – a fervent breeder of moths and aspiring entomologist. In my home I breed over 50 species of moths (mainly Saturniidae) on yearly basis. My goal is to expand what started out as a hobby into something more scientific. It turns out the life cycle and biology of many Saturniidae is poorly known or even unrecorded. By importing eggs and cocoons of rare and obscure species and breeding them in captivity I am able to record undescribed larvae, host plants and the life history of several moth species – information that I publish on a scientific level.

My ambition is also to gradually get into more difficult subjects such as the taxonomy, morphology and evolution and perhaps even the organic chemistry (in terms of defensive chemicals) of Saturniidae – but for now these subjects are still beyond my level of comprehension, as relatively young person that has not yet completed a formal education.

I’d also like to say I have a general passion for all kinds of Lepidoptera, from butterflies to the tiniest species of moths, I truly like all of them. The reason I mention Saturniidae so much is because I have invested most of my time and expertise into this particular family of Lepidoptera, simply because this order of insects is too big to study on a general scale, so I decided to specialise myself a little in the kinds of moths I find the most impressive and fascinating myself – and was already the most familiar with due to my breeding hobby.

I also supplement my breeding hobby with many projects I do with my livestock, such as setting up biology courses that teach about the biology and ecology of Lepidoptera, visiting schools and showing the students my insects, writing scientific publications, making a lot of pictures and submitting them to online databases, creating websites about them and more. I also have a high profile on social media and run a small but succesful YouTube channel dedicated to my breeding of moths in captivity.
When did you start breeding butterflies and moths?

Even as a young child I used to collect every caterpillar I could find, rear them in boxes, and release the adult butterflies and moths into the wild. This made me familiar with some common species like Pieris brassicae that was common on the cabbage in our garden, Noctua pronuba, Aglais io, Vanessa atalanta, Vanessa cardui and more.

Then I became a teenager and interestingly, my passion for butterflies and moths turned into a fascination for breeding praying mantids! (Mantodea). From ages 13-17 I kept many species of praying mantids and also stick insects. I actually forgot all about my passion for butterflies and moths, I didn’t even know it was possible to breed them as a hobby at that time. That was until I was 17 years old and my father ordered some atlas moth cocoons for me (Attacus atlas) online as a gift. When they hatched I was so impressed by them that I stopped breeding all my other kinds of insects and committed myself to breeding moths only. From that age and beyond I learned to buy them online myself, and well.. that is probably the point where it turned into the kind of breeding I currently do, since then the numbers have only increased each year.

Can you list the moth species you have bred?

Here is a list of the moths I have at least reared from egg to adult OR obtained as adults from cocoons since the last three years:

### Saturniidae:
- Actias dubernardi
- Actias heterogyna
- Actias isis
- Actias luna
- Actias maenas
- Actias niedhoeferi
- Actias pingnaana
- Actias selene
- Actias sinensis
- Actias luna x selene (hybrid)
- Agapema homogena
- Aglia tau
- Antheraea formosana
- Antheraea montezumana
- Antheraea ocula
- Antheraea peryi
- Antheraea polyphemus
- Antherina suraka
- Argega mimosae
- Attaeus atlas
- Attaeus caesar
- Attaeus crebus
- Automeris cercops
- Automeris excreta
- Automeris iio
- Automeris stacies
- Automeris zephyria
- Automeris frankae
- Automeris tridens
- Automeris melmon
- Automeris occidentalis
- Bunaea alcinoe
- Caligula japonica
- Caligula thibeta
- Callosamia promethea
- Ceranchia apollina
- Cirina forda
- Cithoronia azteca
- Cithoronia bellavista
- Cithoronia laococon
- Cithoronia regalis
- Copaxa cydippe
- Copaxa lavander
- Copaxa sophronia
- Cricula elizae
- Cricula trifenestrata
- Dirphia avia
- Dirphia centralis
- Eacles imperialis
- Epiphora bauhiniae
- Epiphora intermedias
- Epiphora mynthimmia
- Gonimbrasia krucki
- Gonimbrasia zambesina
- Graella isabellae
- Heniocha apollonia
- Heniocha dysops
- Hyalophora cecropia
- Hyperchiria azteca
- Hyperchiria incisa
- Imbrasia obscura
- Lemaireodirphia albida
- Leucanella fusca
- Loeca formosensis
- Loeca obherthuri
- Lonomia electra
- Melanocera menippa
- Neoris huttoni
- Opodiphthera eucalypti
- Opodiphthera helena
- Paradirphora rosacea
- Perophora rosacea
- Perisomena caecigena
- Pseudanteraea discrepans
- Rothschildia jacobaeae
- Rothschildia cincta
- Rothschildia lebeau
- Rothschildia oriziba
- Rothschildia roxana
- Rothschildia sandimusiasina
- Samia cynthia
- Saturnia cephalariae
- Saturnia pavonia
- Saturnia pavoniella
- Saturnia pyretrorum
- Saturnia pyri
- Saturnia spinii
- Saturnia walterorum
- Sysspoxin molina
- Usta angulata
- Parasemia plantagoninis

### Sphingidae:
- Acheronitis atropos
- Callambulyx tatarovini
- Deilephila elpenor
- Hippotion celerio
- Hyles euphorbias
- Langia zeneroides
- Manduca sexta
- Mimas tiliae
- Phyllosphinga dissimilis
- Proserpinus proserpina
- Proserpinus vega
- Smerinthus cersi
- Smerinthus ocellata
- Sphingonaeaepsius kuldjaensis
- Sphinx kalmiae
- Sphinx ligustri
- Thretera japonica

### Lasiocampidae:
- Dendrolimnus pini
- Dendrolimnus spectabilis
- Gastropacha quercifolia
- Gonometa nysa
- Schausinna clementi
- Trabala pallida
- Trabala vishnou

### Brahmaeidae:
- Acanthobrahmaea europaea
- Brahmaea wallichii
- Brahmaea japonica
- Brahmaea tancrei
- Brahmaea hearseyi

### Erebidae / Arctiidae:
- Arctia caja
- Arctia villica
- Areas galactina
- Hyphora aulica
- Lophocampa caryae

### Eupterotidae:
- Palirisra cervina
Bart Coppens cont.

How much time do you invest for this hobby?

The breeding itself does cost quite a lot of time, but it is manageable. If we are talking about purely taking care of the livestock itself it probably adds up to 1.5 hour per day on average of collecting host plant and cleaning dirty rearing cages/boxes. This is an average because the larvae don’t need daily care, I like to give them fresh food and clean boxes every few days. In between the few days I spend many hours collecting plants and cleaning boxes I am generally free to do what I like!

The total amount of time quickly becomes more however, if you factor in the time I spend writing publications, updating my websites with caresheets, uploading YouTube videos and more. I’m always open to new projects and supplement my hobby with them!

Where does your livestock come from?

Many places, currently most of my Saturniidae eggs come from Mexico and other parts of Central or South America (I like Hemileucinae in particular) – such as Panama, Costa Rica and more. I also import livestock from places like Cameroon, Madagascar and Taiwan. I made some very good contacts over the years willing to hunt for the species I like.

Do you collaborate with any butterfly exhibitors?

Currently not - I’m afraid that as hobbyist I haven’t thought about the commercial side of things yet.

Do you supply moths to any exhibitors?

Currently not - I’m afraid that as hobbyist I haven’t thought about the commercial side of things yet.

What do your breeding facilities look like?

I’m afraid they are not exactly professional – I’m still relatively young and also a student that still lives with his parents. That means I keep all of it in my bedroom because I don’t want to litter their house with my insects. Many nights have I been unable to sleep from the sound of large Saturniidae fluttering in their cages.

I hatch the eggs in petri dishes. For young larvae I use plastic rearing containers with appropriate ventilation. The older larvae I then either move unto a cut branch of food plant placed in a water bottle within a cage or I rear them outside in my garden in a rearing sleeve (well-quarantained of course). Some species I also keep in plastic boxes for their entire life but only the species that can stand the high humidity. The pupae and cocoons I move into a giant emergence cage that collectively contains all my cocoons (currently over 500 cocoons of mostly Saturniidae). This cage is for cocoons and emerging only, when moths of different species emerge I take the males and females of the same species and put them together seperately in smaller insect (pop-up)cages. This is so multiple species can’t disturb eachother. In winter I also move my cocoons of species that need to be overwintered outside in my garden shed in a well protected and isolated container, where they survive the cold winter.
Where do you get the foodplants from?

I get all of them from my local forest or garden. I live in quite the green environment.

Do you have someone who can take care of your animals you when you go on holiday?

No, and I think nobody in their right mind would want to take control over 60 species of Saturniidae during summer. It is the reason I am unable to travel. It would take too much time for somebody else, and not many people are able to care for the hardest to breed and sensitive species. In winter there is not as much for me to breed however, since many of my species will overwinter, and even for those who do not there will be no food plant available in winter.

A few years down the line I do plan to travel to South America however and collect moths there. I’d want to bring back specimens for research and breeding material of course. But for me to be able to do this I would have to give up my hobby for at least one breeding season so I have no livestock to leave behind. For that reason I’d also like to travel there for a long time, perhaps a few months, since it means I’d have to give up my hobby for it, and when I do I’d like to take maximum advantage of that sacrifice!

Which is your favourite moth species?

The genera I currently would like to breed or observe the most would be Eudaemonia, Polythysana, Copiopteryx, Ubaena, Vegetia, Eochroa, Actias chapae/rhodopneuma/groenendaeli, and in particular Citheronia vogleri too. and any unusual Hemileucinae. Generally speaking the rarest and most impressive silkmoths. Though many of them are impossible to obtain due to their rarity or unaccessible habitat and maybe even impossible to breed due to their host plants..

Oh and I know it’s not a moth, but I also really want to breed Ornithoptera (yes, a butterfly, surprising!) in my life. Of course as generally the rarest and largest butterflies everybody likes them including me as a moth person! Too bad it is so hard to get legal livestock of them. While I’ve heard many of them don’t perform well in captivity – for the few species that will reproduce in a greenhouse I have the facilities to breed them.

Do you have a special message for the participant of the ICBES conference to give attention to the group of the moths and Saturnids?

Many butterfly exhibits have the occasional Atlas moths, Rothschildia moths, moon moths and others – but would great would it be to try and bring new and unusual species in captivity? If anyone is interested in researching Saturniidae or planning to do projects with them feel free to contact me. I think butterfly exhibits could contribute a lot of knowledge about this particular family if they tried!
NOTES ON THE CAPTIVE REARING OF THE COMET TAILED MOTH (ARGEMA MITTREI; LEPIDOPTERA: SATURNIDAE) FROM MADAGASCAR

Louwerens-Jan Nederlof

Royal Rotterdam Zoological & Botanical Gardens, P.O. box 532 3000 AM, Rotterdam, The Netherlands. (nelelj@versatel.nl)

ABSTRACT: The life history of Argema mittrei is described from material reared on Eucalyptus gunnii (Myrtaceae). Fertile eggs were obtained using handmating and under artificial conditions in a tropical butterfly house at Rotterdam Zoo, The Netherlands. The complete lifespan is 125 - 145 days (temperature 25 - 28°C). 21 - 25 days in eggstage, 50 - 60 days in five to six larval instars, 40 - 50 days as pupa and 10 - 14 days as adult.

KEY WORDS: Argema mittrei, artificial food, biology, breeding, butterfly house, cocoons, eggs, Eucalyptus gunnii, handmating, hostplants, immature stages, keeping, Lepidoptera, Madagascar, pupa, Saturnidae

INTRODUCTION

The comet tailed moth from Madagascar is a frequent inhabitant of the butterfly house at Rotterdam Zoo. The truly remarkable animals strike the imagination and visitors are often confused and think these animals are artificial. They are very curious to learn about the way of life and the biology of these moths. But what do we really know about keeping and breeding with this species? Why are many questions unanswered and why is breeding this species so difficult? Though the moths are a big attraction we must realise that, because of continuous deforestation, it will soon become an endangered species. All moths that occur on the European market are from nurseries in Madagascar, but very little is known about the way they work. Only a very few books give a brief description of the adult stage (Eid & Viard, 1996), only Gardiner (1982) gives notes about the early stages.

DESCRIPTION

The wingspan of the adult moth is approximately 190 mm (n=3). Males and females have the same coloration and wingpattern, though male wings are more triangular (Plate I) and female wings are broader and rounder (Plate II). The long and slender wine-red tails and the anterior of the underwings, are very characteristic and conspicuous. Length of the female tail 60 - 80 mm (average 74 mm, n=4), male tails are 120 - 150 mm (average 133.5 mm, n=6). The tip of the tail is folded like a cloth. The colour of the wing is ochreous yellow with a conspicuous eye and undulated lines of dark, united triangles on every fore- and hindwing. Sometimes these lines are no more than some spots and dots. Some moths are much darker than others, sometimes the spots on the wings appear to be almost black. It is not yet clear if this can be seen as subspecies or that it is a variation within the species. Feathered antennae of approximately 15 mm is mounted on the head. The male antennae are more feathery and conspicuously pink. The eyes of both male and female are big and black. There is no sucking-tongue or any other mouth-parts. The legs are well developed and strong, checkered black and yellow. The female abdomen is bigger and roundish caused by the eggs. Male abdomen are more pointed and slender with obvious claspers.

DISTRIBUTION and HABITAT

Comet tailed moths are endemic to Madagascar. They live in the forests of the east and central parts of the island. Yearly average temperature is 24.9°C and 17.3°C with an average humidity of 85 and 78 %. The yearly rainfall in the eastern part of the range is average 4911 mm and in the central part 1393 mm (Müller, 1969). Caterpillars of these moths are found on Eugenia cuneifolia, Sclerocarya caffra (Myrtaceae) and Weinmania eriocampa (Cunoniaceae).
Argema mittrei

**COCOONS and PUPAE**
The cocoons are pearshaped and of a strong silverwhite silk texture (Plate III). Female cocoons are 70 - 100 mm (average 85 mm, \(n=11\)) long and are 32 - 48 mm (average 36 mm, \(n=11\)) in diameter. Male cocoons are somewhat smaller, 70 - 90 mm (average 81 mm, \(n=11\)) long and are 30 - 39 mm (average 35 mm, \(n=11\)) in diameter. The cocoon has round holes through which the enclosed pupae can be seen vaguely. Some authors think that the holes in the cocoon are to prevent the pupae from becoming wet, but that is not certain because other tropical Saturnidae have a totally closed cocoon. Some breeders suggest that the holes give the pupae the opportunity to perceive surrounding stimuli. But maybe the holes are just for ventilation.

We weighted the cocoons in a random order and determined the sex. Female cocoons, with the pupa inside, weigh 12.3 - 24.2 g. (average 19.5 g, \(n=20\)), male weigh 12.2 - 20 g. (average 16.2 g., \(n=20\)). Not only the weight is determined for the sex, secondary sex differences are clearly visible at the abdomen and antennae. The length of the female pupae is 55 - 60 mm and the male 50 - 55 mm. Usually after 8 weeks, but sometimes after more than 6 months, the pupae start to hatch. The moth creeps out of the cocoon leaving behind the skin of the pupa and the last skin. The pupae change colour when they become older. The first days they are light brown, later they become dark brown or sometimes black.

**MATING**
It is not easy to put the moths up to mate. Breeders of Saturnidae and of Argema experienced that female animals must mate in the first night as adult, because she starts laying her eggs within 24 hours, even when they are not fertilised. Males can be 2 days old and still produce fertilised eggs. We assume that their fertility will decrease rapidly in a few days.

It is still unknown why the moths will not mate spontaneous. Theoretically we could think about a number of reasons:

a. There are insufficient possibilities to execute certain steps in behaviour and courtship.
b. The circumstances in an average European breeding room are insufficient (i.e. temperature, humidity, season, position of the moon)
c. Males get no impulse to mate with related female animals because they are able to recognize them through the similarity of the feromones.
d. The number of females and the distance to the males is to small. Female feromones change on a short distance, causing repulsion in stead of attraction.

Because of the large numbers of cocoons that are grown in Madagascar, and exported from ‘butterfly farms’, it is not likely that they have these problems with mating. It could be that they use free lived males to mate with their imprisoned females.

**HANDMATING**
The (theoretical) cause of not mating of the moths is unclear. It is for sure that we can count upon hand mating, as we sometimes do with Saturnidae and Papillionidae. In the evening we put the animals that we had selected in one cage together. Good results were obtained in trying to let the animals mate between 21.00 and 23.00 hours. The moths were held between the thumb and indexfinger with the wings folded. It is important to keep the abdomen against each other with ringfinger and little finger (Plate IV). By gently rubbing the male over the abdomen of the female, the male organs will grab the female organs. This can take from a few minutes up to half an hour. After the copulation the mating is begun the male will not let go of the female. The mating can take up to 10 hours. In the second night the female will start to lay the now fertilised eggs.
Argema mitrei

EGGS AND SIZE OF BROOD
The eggs look like a small bread roll, spherical, flattened, 4 - 5 mm long (n=12), white. The brown lining on the eggs is caused by the dried glue that she uses to glue the eggs on the surface. Eggs are laid singly or in clusters of 2 - 6 scattered throughout the cage. Non-fertilised eggs will dent in 4 - 10 days, containing a yolk-yellow fluid. Fertilised eggs, however, can also have a (less deep) dent, becoming visible some days before hatching. On the rounded side of the egg is an extremely small, round, black point (micropilar). After 21 - 25 days the caterpillars eat their way out through a round hole in the eggshell. They don’t eat the shell. Especially the first days the number of eggs hatching is large: around 20 - 70 every night. Later the numbers decrease, to possibly even zero. In total they lay 40 - 218 eggs with an average of 120 (n=15). All eggs are carefully removed from the breeding cage and kept in a plastic container and were kept dry on a tissue at a humidity of 70 - 80% at 25 °C. After three weeks the first caterpillars will appear on the lid.

FOODPLANTS
In Rotterdam Zoo we used Eucalyptus gunni grown in large contain- ers as foodplants. The plants are 2.0 - 2.5 m. high and have sufficient leaves to host 4 - 6 caterpillars. Some caterpillars (L1 - L3) where put on smaller, younger plants. The smaller leaves of the younger plants give less survival chances than older plants with a bigger leafmass. Preferably we used big plants. Literature (Gardiner, 1982) reports several kind of foodplants, but not all caterpillars will eat them, or only for a few days. Some foodplants are not easy to obtain. It is not clear yet why the caterpillars don’t feed well on the alternative plants. Perhaps there is a genetic preference related to the natural area of distribution of the moth in Madagascar.

DESCRIPTION of the IMMATURE STAGES
The immature stage of Argema mitrei is 50 - 60 days in which they change stage five times. Large female caterpillars, which obviously prolong their development time to build up more fat reserves, sometimes had a sixth stage. For the first two weeks, the caterpillars were sleeved inside wire netting on their foodplant for controlling the number and to check there general condition, according to Sokoloff (1984).

In the first stage (L1 = 15 - 20 millimeter, about 5 days) they are grass green with a conspicuous band on the segments 4 - 7. Segments 2 and 3 are thickened and have four heightenings from which grow 3 mm short hairs. The caterpillars look in this stage a lot like caterpillars of Actias selene. Head and legs are wine-red and on the last body segment is a black dot on both sides (Plate V).

In the second stage (L2 = 15 - 28 mm, about twelve days) the wine-red banding is vanished and between the segments lemon coloured bands are vaguely visible. The segments behind the head are still thickened.

In the third stage (L3 = 35 - 50 mm, about 10 days), the fourth stage (L4 = 50 - 85 mm, about fourteen days) and the fifth stage (L5 = 85 - 120 mm, about twelve days) the caterpillars are grass green with scattered setea (Plate VI).

As the animals grow, the lemon coloured bands with orange outlining, are conspicuous and in contrast with the concave occurrence. The head, the real legs and the hanger-ons are wine-red in this stage. The black dot is vanished and replaced by a group of black points. The caterpillar thickens over the whole length, making the segments behind the head look less conspicuous. They have a characteristic resting position, hanging upside down from a branch, the legs lose and the body withdrawn. When disturbed they draw in their head and swing defensively. More than 24 hours before the change of stage they stop eating. After the change the appetite is coming back. After 50 - 60 days the caterpillars stop eating and they start spinning their cocoon.
DISCUSSION
Alan Marson, a private breeder from Bebington (United Kingdom) and advisor, mentioned a life span for the caterpillar stage for 70 days, properly due to cooler rearing conditions. Some adults emerge only 28 days after pupation. However his experience is that some moths became dormant and emerge 6 months later. Furthermore, females can be handmated the day after emergence. However some remained still and not laid infertile eggs for at least 3 or 4 days. Even after they still have started to lay infertile eggs they can still be hand paired. Its just that they have less eggs left. Finally, according to Alan Marsons’ experience, males are best for hand pairing when they are 4—9 days old. The fertility rate is usually around 70-80%. In one case, when a male was mated with a second female, the fertility rate dropped off to 20%. Furthermore, he mentioned a natural pairing at 11Co in June 2004. So it seems to be that this ‘tropical species’ is very tolerant for lower temperatures than breeders supposed earlier.

CONCLUSION
Though this article is based on a modest brood with this species, it has given some insight in the life history of the moths. Not all questions could be answered. Knowledge about the provenance on the number of moths in Madagascar is lacking or incomplete. It is also unclear why the moths don’t mate spontaneously under captive conditions. Furthermore, it is remarkable that there have been very little publications about the moths in the last 30 years. This article hopes to bring new data to do more extensive studies and to have new and more complete data about keeping and breeding this species.

AKNOWLEDGEMENTS
Many thanks to complete this article goes to all colleagues of the Botanical Department and the Department of Reptiles, Fishes and Invertebrates of Rotterdam Zoo, for taking care of all stages and specimens and their foodplants. Without the valuable advise and information of Alan Marson, this study was never founded and many thanks goes out for his co-operation. Special thanks goes to Willem van den Broek and Gerard Visser for translating and editing the final manuscript. Finally special thanks to Rob Doolaard and Gerard Looten who meticulously photographed and illustrated all immature and adult stages in this study.

LITERATURE
Moths on the global market 1

Interview with James Ship from Stratford Butterfly Farm

How many moths do you sell in comparison to butterflies?
We tend only to ever deal with Saturnid moths. We don’t do many in comparison to pupae.
In the last year to today’s date we sold around 550,000 pupae. We sold 11,000 moths of which 4000 were Attacus sp. That makes less than 2% of sales.

Do you have enough moths to meet demand?
We normally meet demand with moths because they last longer, at least the African species do and atlas that are in diapause so if we have a surplus they will last until we have sold them all.
Often when we have just a small amount coming in we won’t put them on our list and just offer them to people we know will always want them so we don’t disappoint people when they order but we have sold out.

Which species of moths do you sell?
We get the following species throughout the year:

- Attacus atlas (Thailand/Philippines)
- Attacus Caesar (Philippines)
- Actias maenus (Thailand)
- Argema mimosa (Africa)
- Argema mittrei (Madagascar)
- Actias selene (Thailand)
- Brahmea hersyii (Thailand)
- Cricula trifenestrata (Thailand)
- Epiphora mythimnia (Africa)
- Gynasia maja (Africa)
- Gonimbrasia zambesina (Africa)
- Menocera menippe (Africa)
- Nudaurela dione (Africa)
- Rothschildia spp. (Costa Rica)
- Samia Cynthia (Philippines)

Do you have any private suppliers within the UK?
We get the majority of our moths from our own suppliers however sometimes (especially more recently) we have been using a local UK supplier who uses contacts in Uganda. We also use Jayant Kasi from Netherlands who also imports but also breeds his own.

Do you breed any moths yourselves?
We do breed our own from the above species but not in quantity and only for display purposes. We don’t have the time, space or inclination because they don’t sell in large enough quantity to make it a viable business. It only works for us as an addition to the pupae we sell.

Which species do you consider to be easy to breed?
The atlas and *Samia cynthia* are particularly easy to breed. In fact, most of them are easy enough if we have the right foodplants.
Moths on the global market 2

Richard Cowan, LPS

We always have requests for Chrysiridia. Richard Bennet with MIDA in Kenya would occasionally ship C. croesus. Unfortunately I haven’t seen any come through for a couple of years. I had some C. ripheus come in directly from Madagascar once but that breeder isn’t farming anymore.

The end result from the exhibits was that they were beautiful. Unfortunately they didn’t perform well or live long. They are a day flying moth and act a lot like a swallowtail. Richard Bennet says they prefer a white flowers and a little breeze to fly against. And if you hand feed them after emerging they will live longer.

If I did have a regular supply I feel people would probably use them similar to Attacus or Rothschildia and just place them in the sun in a prominent spot. I can’t visualize that group flying around like Heliconius. And I can’t see people wanting dozens every week but I wish they were available so exhibits could have a few hanging around the garden.

I’ve always scoped around for C. ripheus breeders. They are a prominent species in the deadstock trade. Unfortunately the breeders don’t want to go through the Madagascar ‘live export’ process. It sounds pretty excessive. We’re going through it now to get a shipment of Argema mittrei out of Madagascar. She failed last fall but is hoping to have success with this summer shipment. Still waiting for news.

Images of the month: Attacus caesar

According to Kurtis Herperger from Victoria Butterfly Gardens in the past months images of Attacus caesar have flooded the social media worldwide. The species seems to have been bred massivly and distributed to the butterfly exhibits worldwide. The caterpillar of Attacus caesar can be distinguished from the more common Attacus atlas by the blue colour in certain larval stages and yellow spines on ist back and the yellow dots on the side.

Don’t forget: All IABES members must register on the new IABES website!
IABES conference 2017 in the Netherlands

The IABES conference 2017 will be hosted by Rotterdam Zoo, Emmen Zoo and Burgers Zoo Arnhem in Holland.

Call for presentations

Please contribute to the success of this conference by sharing your knowledge and experience with the other conference participants. Send the title of your presentation to Louwerens-Jan Nederlof: nelelj@versatel.nl

PROGRAM

Monday October 2nd:
2pm–5pm Arrivals and icebreaker at Hotel Rotterdam
5pm–6pm Opening of the conference and welcome to the delegates
6pm–10pm Opening dinner and introduction program

Tuesday October 3rd: “New developments and news from members”
8.45am Departure to Rotterdam Zoo by bus
9am–1pm Meetings and presentations
1pm–2pm Lunch
2pm–4.15pm Meetings and presentations
4.30pm–6pm Guided tour in Amazonica
6.15pm–8pm Dinner at Rotterdam Zoo and cinema evening
10pm Departure to Hotel Rotterdam by bus

Wednesday October 4th: “Butterflyhouse-ecology”
9am Departure to Arnhem, Burgers’ Zoo (arrival at 10.30u.)
10.45am–1pm Meetings and presentations
1pm–2pm Lunch
2pm–5pm Guided tour in the zoo (new butterfly exposition)
6pm Dinner and auction for Save Homerus
9.45pm Departure to Rotterdam (arrival at 23.30u.)

Thursday October 5th: “Making the difference!”
8am Excursion to Wildlands Emmen
10am Stop at Orchideenhoeve, Luttelgeest, with coffee and guided tour
11.45am Departure to Emmen (arrival at 13.00u.)
1.15pm–5pm Lunch and visit Wildlands, Emmen
5pm–6pm Afternoon program (summaries and proceedings)
6pm Dinner and closing the conference
9.45pm Departure to Rotterdam (arrival at 24.00u.).

Friday October 6th:
9am Breakfast and departure of all delegates from Hotel Rotterdam.

Approximate price including conference, hotel, transports and all meals: 730€ single occupancy/ 600€ double occupancy

Registration for the 2017 IABES conference in the Netherlands is now open: www.iabes.org and will close on the 15th of August. Please register soon!
Flagship members
Fachjan Project Plants is a Dutch company which is specialized in supplying tropical and subtropical plants to inside enclosures in Zoos all over Europe and even further. With a 45,000m² company we can produce a wide assortment of green and flowering plants which we import from all around the world and acclimatize in our greenhouse.

Visit the IABES facebook page: https://www.facebook.com/IABES

This is a great way to keep up with current events in the organization, share photos, papers, and any other useful information.

Find us on Facebook and “like” us!

PLEASE CONTRIBUTE

The next edition of the International Flutterings will appear in September 2017. Please remember that this publication is only possible with the help of IABES members. Thank you for submitting articles by the 15th of August 2017 to:

Chantal Derungs Jakob (derungs.jakob@sunrise.ch).

AND CONTACT US WITH YOUR QUESTIONS

Lauren Williamson (membership liaison): info@iabes.org