

Nigel's Egg laying set-up for multiple species

I thought it may be useful to you to see my egg laying set-up for our gravid females. This applies to Painted Ladies, Red Admirals, Small Tortoiseshells, Milberts Tortoiseshells Commas, Sulphurs and Whites, etc.etc..

When breeding many different butterfly species, it may surprise you, that to get the maximum eggs from a gravid female, that when the females are tightly confined within a cage, and not allowed too much space to fly around within a cage, you will get the maximum eggs. I never use any nectar plants for egg laying gravid females, and just hand feed them each day, (once a day) in the early morning. I then release them into this tightly confined cage and they spend all day outside in the sunshine. I do hand-mist them with water on very hot days, but actually this is also not so very vital. So if you are busy and can't be at home, don't worry the female layers will survive!.

After the morning feed, I then just put them back each day into a small "Sleeved pot" and allow them to lay. Here's a photo, (with Gracie in the background to give perspective to how small the potted plants that I use, with a sleeve, for the females to lay.



It may surprise you how small this pot/cage is, but the females are always next to their host-plant, they don't damage their wings too much, because they really can't fly far. I have to say that the photo shows a different host-plant, a Crucifer for a beautiful White, found here, (*Tatochila* species) but it is the same set-up for all, you just need to use the correct host-plant for the species that you want to breed. Also, you just need to ensure that the host-plant of any species you want to breed touches the top of the cage/sleeve for the best laying results.

So many species do so well when bred this way, and it means that I have to do nothing but put this pot in a larger pop-up, and start revolving host-plant pots around the pop-up cage as they are eaten. This system also restricts the problem found in many species that lay eggs on the netting. After placing the potted plant with almost all the eggs in a pop-up, I then turn the sleeve inside out, and place this around the host-plant, which allows any eggs laid on the netting an easy access to their host-plant.

I mentioned before, how many species (especially Nymphalids) abandon their secretive life within a silk pad, when bred in numbers. I know many folk like to breed Red Admirals, (*N. atalanta*) and I use exactly the same process. It is interesting to see that they too, will abandon their silk tents when bred in huge numbers together. And the fun is, they pupate in lines on the plant, (everywhere else too!). Here is a photo of Red Admiral pupae bred in high density, quite different from what you would expect in wild stock, but of course they emerge perfectly! I love the way they pupate in lines on the Nettles!



It has been very interesting to see that regardless of the species, and also regardless of if they are gregarious or not, the main requirement, (After considering optimum breeding conditions, such as airflow, climate etc) is adequate, healthy host-plant for the larvae to feed on.

So as for me, in my climate, for example we have Gulf Fritillaries (*Agraulis vanillae*) flying 12 months of the year here. We have a very dry, but often warm winter, the problem is, that our winters are so very dry! It is remarkable that the "wild" winter Gulf Fritillaries are only around two thirds of the size of the summer wild stock. The host-plant is available in the wild of course, but the water content within the host-plant is not!

We only breed Gulf Fritillaries (for release over the winter) but as our host-plants, are fertilized, (half strength) and are automatically watered every day, all we produce from our own breeding stock are huge by comparison.

So to me it is the same with *Papilio*, I always ensure that when sleeved there is plenty of host-plant for them, and although we concentrate them in large numbers within a sleeve, the adults are always normal size.

Painted Ladies

I know that many folk breed Painted Ladies, (*V. cardui*, *V. viginensis*, etc. etc.). Many Painted Ladies are released as popular release butterflies, although I guess I have to say here, I am a little prejudiced, and maybe, this is due to me breeding so many Painted Ladies in my youth, and so I just moved on. This is not a commercial attitude, and I really consider my own personal interest in butterflies as a "hobbyist" breeder, and I am far more interested in understanding the butterflies lifecycle, and of many obscure species, such as Skippers, "Browns" Blues, Coppers and Hairstreaks, which are never going to be commercial.

Now in complete contrast, here, we have an active commercial breeding business, and Gracie and my son Rod breed for commercial reasons! So I am just an advisor in this, but I really take little interest in the commercial side of the business.

So Gracie and Rod thought they would breed some Painted ladies to improve their "Product mix". Of course I stepped in to help, using my previous Painted Lady breeding experience, but after giving guidance, left them both to it.

So the point of this mail is, that I know many folk breed Painted ladies on Artificial Diets, which I have to admit do work well. I never use them myself, as I think I can do a lot better using natural host-plants.

Here's a photo of Gracie and Rod's trial breeding batches of Painted Ladies, they only have 4 pop-ups on the go at the moment, but each pop-up has around 500 larvae in each of them. Here's a photo from just two pop-ups. And here we are using the "Max monarchs" method of just revolving host-plants around the cage as they are eaten. It is hard to see the number of Painted ladies larvae as the cages are heaving with them, and the photos cannot ever show them all.



This photo shows the results, of our current breeding, (In my view) too many Painted Ladies in a pop-up cage. (500 approx to a cage).

Now all these are on Stinging Nettles, and although Painted Ladies do prefer to lay on other host-plants in the wild, they love Stinging Nettles as a larval host-plant and do so very well on these Nettles.

So why do we use Nettles? Well simple answer is this. We don' ever have to bother to grow them! Nettles, for most folk grow in huge patches, nearby in the wild. All you have to do, is dig them up, pot them, (They wilt almost immediately on digging) but if you water them well and keep them in the shade for 24 hours. They pick up, and from then, on grow beautifully, unless of course eaten by Painted Lady larvae.

So to me, it seems OK, to produce 10 or so Painted Ladies in a single cup with Artificial Diet, but the work involved, is to me just not worth it, when I can easily breed 1000's in pop-ups, and all we have to do is revolve the pots of host-plants as they are completely eaten to the ground. On natural host-plants, I have to say the survival rate to adults is much higher than when using A.D.



Photo of a stripped Nettle plant, the larvae will eat the stems down to the ground! (See below)

However, I guess this will depend on the space you have to breed them, and the time you have to keep them well fed! So we have at the moment, approximately 2000 Painted Ladies in 4 pop-up cages. Efficient on space? Yes, no problem they cope with crowding like this very well! But is it efficient for giving you time to be away from home? Not so! This number of larvae in a single cage, is a bit like putting a lawnmower inside! So I guess this mail is to help you decide, on how many Painted Ladies you want to breed, how much space you have, and how much time do you have during the day to replace stripped Nettle pots!

It is interesting for me, because Painted Lady larvae are not so very easy to find in the wild. They lay eggs singularly on their host-plants, and the larvae spin small silk tents in the leaves to conceal themselves. However, when bred in huge numbers, they abandon this strategy, and are seen sitting quite openly on their host-plant leaves!

I guess we should not be too surprised, as when fed on Artificial diets for example, there is little chance of spinning silk around leaves to conceal themselves.

Here is a couple of close up photos from within one of our pop-up cages.



As you can see, no attempt at all, to spin leaves together to conceal themselves.

So, as I mentioned before, most folk can find a Nettle patch not too far from where they live. (Nettles do like damp places!) So unless you live in the desert or really dry climates, you should be able to find Nettles not too far away from you if you need them.

Now as I mentioned before, unlike many host-plants, you really do not have to worry about having growing nettles available, until you start breeding your Painted ladies. Nettles are quite unusual, and you can just go to a Nettle patch and dig some up, (Use rubber gloves to avoid the stings) and just plant them into pots. Don't worry too much when you see the nettles wilting within a short time after digging and planting in pots. Water them well, and keep them in the shade, and they will pick up in 24 hours and grow normally again. Ready to be fed upon by your larvae!

Here is a photo of some nettles dug 24 hours ago, and have picked up and growing as normal. After digging all these stems collapsed, but as you can see pick up in a very short time, and are perfect for feeding our larvae.



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