

Monarch Chronicles #2

All October 1 Captioned Photos and Videos

Monarch Chronicle #2 - Day 1 – October 1

Starting over again with a different set of caterpillars (cats) now - the previously mentioned Queenie, Bigboy#1, Bigboy#2 and Smallboy.

I took the 1st photo with the ruler (1/8th inch line spacing) when giving them a fresher leaf this morning.

I don't know for sure, but based on their lengths, I *think* the Bigboys are 3rd stage and Smallboy is 2nd stage.

Based on websites, early 3rd stage is 4-6 days past egg hatching, but it's now about 8 days since the egg for these guys.

We keep the house (and therefore them) at 75-78 degrees and according to monarchlab.org, this is cooler than they expect and therefore may be retarding their growth rate.

I've therefore moved them outside where it's 87 degrees and we'll see if things speed up. Apparently they're OK into the low 90's.

Middleboy is no where to be found. Possibly eaten.

Queenie, with 3 sets of filaments', is definitely growing, but much, much slower than any of the monarchs.



Video of Queenie at <https://www.facebook.com/clyde.r.camp/videos/10215204519574589/>

Video of the two bigboys at <https://www.facebook.com/clyde.r.camp/videos/10215204522534663/>

All October 2 Captioned Photos and Videos

Monarch Saga #2 - Day 2 – October 2

Today was change-the-dried-milkweed-out-for-the-good-stuff day.

Over the last month, I've developed (or re-developed - I'm sure others do something like this too) several techniques to make it easier on me, safer on the cats and easier to photograph.

- 1) When you gather milkweed in the wild, try not to take anything flowering or with a pod on it; leave the plant with something so it doesn't have to start all over; don't strip an area. Try not to harvest in an area that is likely to have been sprayed, although it's hard to tell.
- 2) be sure to wash everything when you get home in case there was spray involved. Shake off the excess water and store in a plastic bag in the refrigerator. Replace the stock every couple of weeks.
- 3) When you take the milkweed out of the refrigerator, cut the bottom inch or so off as well as pull off the lower couple of leaves. Then put it in a small vase of water. Or just wrap a piece of very wet paper towel around the end and bare stem and wrap that with a piece of tinfoil. This will keep the goodies good several days.
- 4) Put the stalk in some sort of clamp or holder (like a small vase or hole drilled in a piece of wood) if needed to hold it upright.
- 5) Daily, in the morning, spritz things with water to mimic dew. Don't know if it helps anything, but it can't hurt.
- 6) To make the change from old stalk to new, get the new one ready and in place. Then use a pair of scissors to the old one and cut off the leaf, or part of a leaf, that contains each caterpillar and lay the old leaf w/ caterpillar onto a new leaf. this prevents possible damage moving them and they'll crawl off when ready.

Photos at <https://www.facebook.com/photo.php?fbid=10215209426617262> are annotated as to what you're seeing, including a cool picture/movie of Smallboy, now Stage3, eating his discarded Stage2 skin.



All October 3-5 Captioned Photos and Videos

Monarch Saga #2 - Day 3-5 – October 3-5

Lots going on but at the same time not a whole lot. Not all photos are shown here for these three days but all annotated photos and videos are at <https://www.facebook.com/photo.php?fbid=10215239421847124>

Day 3 - October 3

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Bigboy2 shed his skin today. He ate it before I could take a video. Today was no real change other than occasional eating.

Ever since I got the new batch of cats on Sunday the 1st, they've seemed to be slow in growth and slow moving. It turns out the problem appears to be the temperature. Several web sources say it takes longer to progress from stage to stage if the temperature is below 80. And in the house where I'm keeping them, we keep it at 75.

I moved them outside this afternoon where it's in the mid-80's and gave them a big new sprig of milkweed from the fridge that has a huge milkweed pod (3.5-4" long). As of 9pm tonight they have become much more active.

Day 4 - October 4

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Bigboy1 was attacking the milkweed pod at 10 when I got up this morning. Smallboy and Queenie are nowhere to be seen. By 4pm both Bigboys were on the pod.

Today was largely spent eating on the new stalk - especially the pod. At 9pm the two Bigboys were still working on it - Queenie and Smallboy are still AOL.

Day 5 - October 5

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I spent almost all day at LLELA and running around doing stuff that I've put off for a couple of days. I got up at 7am this morning, the pod was about 1/3 gone so I went to put a new 2nd stalk of milkweed in the cage just in case they finished off what was there.

I opened up the plastic bag with the refrigerated milkweed and discovered a gruesome sight. The refrigerator is in the garage and has mostly cokes in it. It had gotten cold enough that some of the milkweed was iced over (like lettuce gets sometimes) and there was one big chunk of ice with a black chrysalis in it.



There must have been a larva on it when picked it and I must have missed it when I washed it. So for 4 days the poor thing has been in a dark refrigerator at 37 degrees. Despite this, it went through the remaining larval stages and pupated - and then died when it froze. I've got it inside just in case it does hatch out, but even if that happens it will probably be fatally damaged. But at least it ate well.

Bummer. Moral - inspect the milkweed better before refrigerating it.

Smallboy showed up today on the now shriveled up older stalk (before the pod) but Queenie is still missing.

By 9pm tonight, the pod was TOTALLY eaten and the two Bigboys, both stage 5 I think, were looking anxious. All I had left was Antelope Horn milkweed so I transferred them to that.

I'll get some fresh in the morning and really check the dried stuff for Queenie, leaf by leaf, before throwing it out.

Still to come ... BB1 and BB2 should pupate within the next day or two and SB a few days after that. No telling how long it will take Queenie.



Before and after photos of a 4" milkweed pod, taken about 24 hours apart.



All October 6 Captioned Photos and Videos

Monarch Saga #2 - Day 6 [Friday] – October 6

Today was mostly eating after changing out their largely dried out milkweed stalks for some fresh refrigerator victuals. The photos and movie are captioned with the specifics of what's going on but all three monarch cats are getting BIG - not so much getting longer as getting plumper.

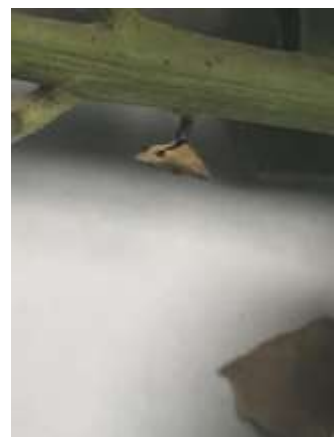
I also put some sticks in the mesh-bag in case they wanted to use them when the time comes. This time is near because Bigboy2 was roaming around on the bottom of the cage and a couple of inches up the mesh wall an hour or so after I finished feeding them.

Bigboy1 is a little over an inch and a quarter long. They curl up or compress if disturbed so it's hard to tell. The video shows all three of them on their new larder trying to get untangled from the old leaves. Bigboy1 is the one on the left that's initially not moving - but he finally gets going. The new groceries include two milkweed pods this time and they are already working on them.

Bigboy2 disappeared around noon - I could not find him *anywhere*. I looked throughout the day without any results until 10pm Friday night. Visible from one angle only, he was stretched out along the top zipper of the bag in between two folds of cloth where he'll stay for a while before hanging down in a J-shape for 18 hours while things reorganize inside. Then he'll shed that skin, exposing the chrysalis.

And, I think I may know what happened to Queenie. No sign of her at all while changing leaves, but one of the stems had the top of a chrysalis. but very small - only a couple of mm wide. Queens are smaller than Monarchs with correspondingly smaller chrysalis's but not that much smaller. I don't know if this is hers and I found no butterfly in the cage.

Late Friday afternoon, I went and clipped a couple of fresh stalks with two big 4" milkweed pods that Bigboy1 and Smallboy had discovered about the time I finally found Bigboy2.



All October 7 Captioned Photos and Videos

Monarch Saga #2 - Day 7 [Saturday] – October 7

The two Bigboys were *all over* the place today. Very restless. Lots of videos showing this.

I spent most of the day out at LLELA leading a group of adults on the 1st Saturday Free Guided hike.

When got up at 7am this morning to get ready, Bigboy2 had taken on his J-shape sometime in the night. I was in a hurry and didn't take a picture because I thought I had 18 hours or so before Mr. Chrysalis showed up.

Nope. Rats.

When I got back around 4pm, it was a done deal. I can't take a good picture because of where it is, but I'll wait a day or two to let it harden up a little and then move it to the lampshade inside where Bob finished up.

Also this morning, one of the milkweed pods was almost totally gone, laying on the cage bottom with just the embryonic seeds and fluff. And the two remaining caterpillars were all over the place doing their walkabouts.

When I got back at 4pm, Smallboy had returned to the milkweed to work on it some more, but Bigboy1 had found himself a fork in one of the twigs to, I hope, start the chrysalis process by hanging down in a J. Wherever they hang is it - they can't be disturbed until the chrysalis appears.

Also in the milkweed pod photo below, in the center, is the cast off husk of the Bigboy2 Stage 5 larva. This stage results in a chrysalis instead of a larger larva so there is no one around to eat the discarded skin. The chrysalis, directly above outside of the picture, wriggles it off and it fell to the floor. The J-to-chrysalis transformation takes less than 10 minutes to happen after an 18 hour wait and I haven't seen it yet. But there are a couple of very good real-time video showing this process at

<https://www.youtube.com/watch?v=OH0kuObe0ZE>



All October 8 Captioned Photos and Videos

Monarch Saga #2 - Day 8 [Sunday] – October 8

Bigboy1 was all over the habitat today as this sequence of photos shows. He started out the morning on the same twig he ended up on yesterday. By 9am he'd moved to the very top and stretched out on a seam for a couple of hours until he moved to the side mesh and hung vertically.

Then two hours later I discovered him on the top zipper right next to Bigboy2's chrysalis. He stayed there all day Sunday, looked like he was starting to hang down at midnight and at 9am Monday was a nice little J fastened firmly to the zipper like Bigboy2. Maybe the zipper has a more comfortable hard, twiggy-like feel to it than the mesh and they prefer it. Maybe he likes company. Who knows.

There's a youtube video at <https://www.youtube.com/watch?v=8ViRYSHGUaQ> showing of how he spins the silk pad (button) and then turns around (or sometimes just walks forward) to attach his tail end via a structure called the cremaster.

[That hanging J, incidentally, is not entirely defenseless. There's another good youtube video at <https://www.youtube.com/watch?v=XkD4eiKcats> showing the J defending itself against two parasitoid wasps. (unfortunately, later on, as the caterpillar becomes less mobile as the chrysalis forms inside, the wasps win)]

In 18 hours, sometime around 9pm tonight, Bigboy1 will shed his skin and become a chrysalis. This takes less than 10 minutes to happen once it starts and I'll probably miss it. But there's a very good annotated video of this process in real time at <https://www.youtube.com/watch?v=f-7NXQ8feg>. This video is interesting because it's exactly the same situation I have here - a chrysalis and a J right next to each other.

I had wondered about it before, but when the J-shaped caterpillar is hanging there by its anal prolegs (attached to the silk pad that was spun for them once the caterpillar had decided where to roost), the chrysalis doesn't fall when that skin is shed because of a complex mechanism involving lots of moving parts on the chrysalis.

So how the heck *does* the chrysalis inside the skin get attached to the same silk pad the caterpillar was when the skin, including the prolegs, is shed? Think about if you (the chrysalis) were hanging upside down, completely zipped up inside a sleeping bag (the caterpillar skin) with the foot end of the bag tied by a rope high up in a tree.

That question is answered in outstanding detail at <http://www.butterfly-fun-facts.com/.../holdfast-tubercles-mo.../>. It's a fascinating read with detailed optical and SEM photographs to help in understanding the complex process that goes on. Think Houdini...

Smallboy continues to hang out on the remaining milkweed pod. Maybe I should say **in** the remaining milkweed pod.

The last four photos are microscopic enlargements of Bigboy2's shed skin found on the floor of the habitat with the whole accorded husk shown for reference. First microphoto is of his head, then his rear with the anal prolegs.



All October 9 Captioned Photos and Videos

Monarch Saga #2 - Day 9 (Monday)

At 8am this morning Bigboy1 was still a J and still that way when I left for a hike at 11:30 but he was a chrysalis when I got back home at 4.

Smallboy was still eating the milkweed at 8am this morning but hanging out on the mesh top of the habitat at noon and still there when I got back at 4pm and still there at 6pm when I went to the movie (Blade Runner: 2049),

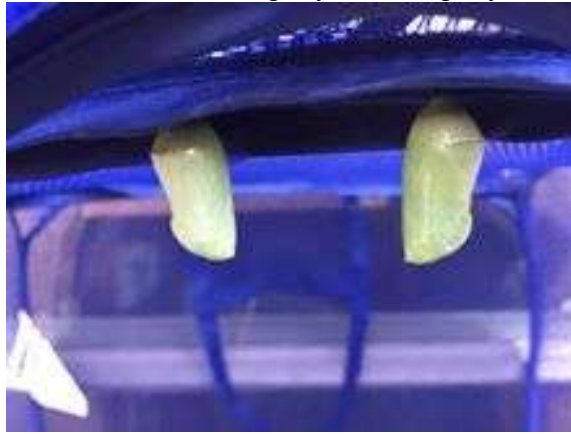
But he was a J when I got home at 9pm. If he's not a chrysalis by 8am tomorrow morning , then I should have an opportunity to see it happen before noon when I leave for another hike.

But I'm going to have the camera ready to film and check every 5-10 minutes starting at 8am.

Bigboy2 and Bigboy1



Bigboy2 and Bigboy1



Smallboy on his last milkweed meal



Smallboy waiting around to J-up



All October 10 Photos and Videos

Monarch Saga #2 - Day 10 [Tuesday] – October 10

Today was Smallboy's day – a real scoop - letting me get a video of him shedding his last skin to become a chrysalis.

He was J'd up by 8:30 this morning but it must have been fairly recent because he was still active - he'd curl up tighter if the habitat was jostled and then over the next 10-15 minutes relax back into a J.

He was still that way around 4pm but at 5:30 had straightened out somewhat and was moving a little. At 5:45 he was really moving. I checked again 10 minutes later at 5:55 and he'd already started the change. His skin was split at the back behind his head and the chrysalis was partially exposed. Dang - much faster than I thought it would take.

I frantically ran around getting a camera set up to video things and it took less than a minute but by that time the process was well under way. I finally got the camera started at 5:58pm about the time he was really getting serious getting the skin pushed to the rear. The cremaster was attached to the silk pad a little over a minute later and the old skin discarded about a minute after that. Then came a couple of minutes of corkscrewing twisting to get the cremaster hooks firmly entangled and attached to the silk pad where he'll develop for the next 10 days or so.

My video is below (excuse the audio - Kathi and I were so excited about actually watching this happen, we forgot the audio was recording), but there is an annotated youtube video at <https://www.youtube.com/watch?v=f-7NXQ8feg> that explains what is going on step by step.

The intermittent lighting is caused by my hand-holding a flashlight on the emerging chrysalis - at the wrong angle it either glared or was too dark. Still, not a bad try for a first attempt.

It was mostly over after 5 minutes, although there would be another 10 minutes of the chrysalis shrinking down into its final form. Very, very Cool. It's one thing to see it in a video on youtube and quite another to see it yourself a foot in front of your face.

We'll probably be gone to the Master Naturalist Annual Conference by the time he ecloses in about 10 days but I'll put him and the two Bigboys out in the bushes before we leave (if one or both of them haven't come out yet.)

This finishes the second Monarch Chronicle and it will be the last one for this year. It was 65 degrees when we got up this morning and getting too cold for much further action egg or caterpillar-wise. And anything let loose now is at risk of it getting too cold during their trip south to survive.

Yet another annotated youtube video about 15 minutes long covers the entire life-cycle from egg to final butterfly is at <https://www.youtube.com/watch?v=QRNw0WhsJMw> and another about half that long at <https://www.youtube.com/watch?v=dTu0SEF4hug>.

There are many others covering specific segments of the life-cycle.

Lastly don't forget that this egg-to-butterfly life-cycle is *repeated* four times during the northern migration with the last generation flying all the way back to Mexico to winter over before starting the whole multi-generation process again in the spring.

This has been a real learning experience with lots of research, advice (and eggs and caterpillars) from Carol Clark and hands on learning. A few deaths along the way but a total of 4 healthy chrysalises at final count.

I hope these two diaries will help others who want to try this.

Smallboy's chrysalis emergence is at <https://www.facebook.com/clyde.r.camp/videos/10215282869133279/>



All October 13 Photos and Videos

Monarch Saga #2 - Day 13 [Friday] – October 13

Still dealing with Chrysalises ...

I need to return the habitat to the lady I borrowed it from and so removed all three chrysalises from the habitat and onto a 'Chrysalis Tree'. Besides, the Smallboy, Bigboy1 and Bigboy2 chrysalises aren't really watchable from where they were hidden up in the corners of the habitat.

Plus, I may need to let someone else watch over them when we leave for Corpus Christi next Wednesday. Bigboy2 might be out, but I doubt the others.

Anyway, a little picking of the webbing with a dental pick and the two Bigboys came off at the same time under a 3x0.5 sheet of silk. I cut it between them and tied a piece of dental floss around the silk being careful not to mess with the cremaster (the black structure which tangles the hundreds of hooks it contains into the silk).

Then tied the dental floss to a twig.

From top to bottom, left to right are Smallboy, Bigboy1 and Bigboy2.

This is how those of us with only a few chrysalises do it. The pros have to step up to mass production. The trays in the last photo are from butterflyfunfacts.com have hundreds and I have no idea how they manage them.

The important thing is that when the adult Monarch ecloses, it must hang upside down for a couple of hours to let its wings expand with fluid pumped from its abdomen and then dry. Otherwise the fragile wings will be damaged by their own weight.





[All October 17 Photos](#)

Monarch Saga #2 - Day 17 [Tuesday] – October 17

Chrysalises yet again ...

It's been four days and no changes until late this afternoon when we noticed Bibbo2, on the bottom right and the first of the three to go to a chrysalis, had turned dark-ish with gold/black wings visible inside. He'll probably eclose tomorrow sometime.

We're heading out to the Master Naturalist annual convention tomorrow and I'm going to try to take these guys with me. I don't think they'd survive the 45-degree weather outside right now. They may not anyway, but we'll be in Corpus Thursday night and hopefully it'll be a lot warmer down there, not to mention being 500 miles closer to Mexico.



All October 18 Photos and Videos at 11:20am ·

Monarch Saga #2 - Day 18 [Wednesday] – October 18

We're getting ready to head down to Corpus for a week and I'd set the chrysalis pot out under the lantana in the front while we were packing. Emergence was eminent - the chrysalis was almost black.

About an hour after I took the first photo, I looked over and saw part of Bigboy2 emerging. By the time I got in the house and found my camera he was out!

All crumpled up and hanging on tight. Stretching proboscis, carefully turning around for optimum wing hanging, abdomen swollen with fluid soon to be pumped into the wings.

After I ate breakfast, his wings were filled out enough to tell that 'he' is actually a 'she' - no pheromone spots on the wings. Because we leaving as soon as I finish this, I moved *her* to a lantana branch where she could finish drying out and where there was a ready supply of blossoms to nectar on for her first meal.

It's down into the 40's at night now. Probably she'll do OK – cold doesn't really bother them as long as there's not wet associated with it. The other two are in the car ready to travel down with us. Videos of young Bigboy2 at

<https://www.facebook.com/clyde.r.camp/videos/10215342190336272/>

<https://www.facebook.com/clyde.r.camp/videos/10215342187696206/>



All October 19 Photos and Videos

Monarch Saga #2 - Day 19 [Thursday] – October 19

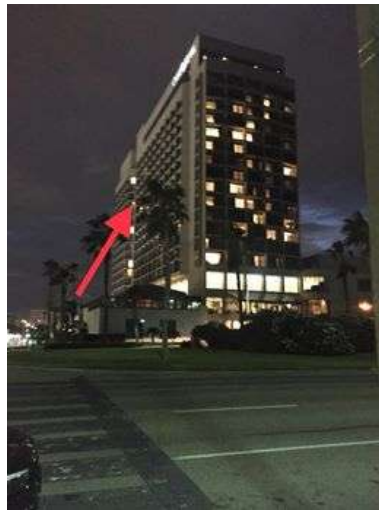
The first photo is the guys' last night's accommodation at Holiday Inn Express in Seguin, Tx. No change this morning other than Smallboy got knocked off and had to be retied onto his twig.

We arrived in Corpus about two pm and, along with the guys, checked into floor 14 of the Omni.

Clyde then left to have the catalytic converter, which crapped out in the middle of nowhere somewhere around Taft, replaced. He got back about 5pm to find Bigboy1 getting ready to go.

Wings are visible and the entire chrysalis should be black by tomorrow morning with him emerging tomorrow afternoon.

Smallboy should repeat on Saturday.



All October 20 Photos and Videos

Monarch Saga #2 - Day 20 [Friday] – October 20

On the left, the view outside of the marina outside out 14th floor window and, from last night, what used to be the Hershey Hotel next door. It's had several names, but I don't think it's a public hotel any longer - some sort of financial high-rise or offices instead. Inside our room, Bigboy2's shed husk, Bigboy1's all black chrysalis and, surprise, Smallboy's all black chrysalis. I think they'll probably both emerge sometime this afternoon.



[More October 20 Photos and Videos](#)

Monarch Saga #2 - Day 20 [Friday] – October 20

Bigboy1's last scene

We left the two guys in the hotel room after the last entry, thinking we had several hours before anything happened. Checked out where the Help Desk was going to be and got it set up. Then went down for a quick snack at the buffet breakfast (bad move - \$20 for each of us - should have eaten more than a couple of pieces of toast) and headed back to the room to collect the guys. Surprise! Bigboy1 was out. Surprise again, he's female, call her BigGirl1.

Her wings were semi-filled out so she hadn't been out long. It was 9:20 when last seen as a chrysalis and 11:00 when this picture was taken. She hung around with us at the Help Desk for half an hour, by which time her wings were stiff enough to take her outside to the Bougainvillea in front of the hotel.

They are very willing to step up on a finger at this point as long as they can remain hanging. I carried her out to the front down two flights of escalators like this (with the other hand enclosing but not touching in case she fell, but those little claws on the ends of her feet really hold on tight) and gently encouraged her to move to a branch of Bougainvillea. She's well enough along that she'll be gone in another hour.

The only one left now is Smallboy who will probably emerge this afternoon sometime.



Videos at

<https://www.facebook.com/clyde.r.camp/videos/10215359492528816/>

<https://www.facebook.com/clyde.r.camp/videos/10215359495728896/>

[Yet More October 20 Photos and Videos](#)

Monarch Saga #2 - Day 20 [Friday] – October 20 [less than an hour after the last post]

Well, that didn't last long. After releasing BigGirl1 at 11:30 I took a shot of Smallboy's chrysalis at 11:50. Then we had somebody stop at the Help Desk and I was listening to one of the other staffers. I glanced back at Smallboy at 12:03 and he was out (bottom left)!

!@#\$ missed the eclosing again!! At least this time, I got to him before his wings were fully out, but they filled out rapidly. The three photos on the right were at 12:07, 12:16 and 12:19. Still very limp, but enough to see that Smallboy, like the others, really a female - SmallGirl.

After her wings stiffened up, I moved her to the same branch outside as BigGirl1 of whom there is no sign.

This really is the end of this story. I have no more eggs, no caterpillars and no chrysalises and don't expect to until next year.

I need to move these last few entries to the PDFs at <http://crcamp.com> and that will take a few days, but then both sets of stories will be there even as the Facebook entries roll off the bottom of the screen.



