

## Wrapping up

Posted on **August 14, 2015** by **Collin Raymond Graves**

I can't believe its time to write my final blog post. I feel like it was just yesterday that I started this internship. This summer has been full of great experiences and I can honestly say I've learned a lot. Based on my personal experience and the experiences of other CCE interns whose blogs I've been reading over the course of the summer, I would recommend a CCE internship to anyone interested. No two days on this job were ever really the same. One day I might be inventorying invasive species in a park or looking for milkweed, and the next day I could be releasing beetles for a bio-control experiment. This job really allowed me to see all the different aspects of invasive species management and taught me a lot of skills along the way. I have definitely improved my ability to speak in public and to communicate with farmers and other agricultural workers. Conducting outreach and spreading information on invasives also helped me to learn how to communicate with members of the public about scientific topics and gave me a lot of practice in creating displays and reading materials that properly conveyed the intended messages. I'm very thankful to have had this opportunity and I'm excited to see where I can apply all the things I've learned in my future career. Thank you all for reading and enjoy the rest of your summer!

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## Preparing for my final week

Posted on **August 7, 2015** by **Collin Raymond Graves**

Today marks the end of my penultimate week as a Cornell Cooperative Extension intern. This past week I have been visiting more farms to gather some final data for my report. I visited Ensign Brook farm, Wedding Hill Farm, and Koval Brothers Dairy. Surprisingly, at both Wedding Hill and Koval Brothers, I actually saw an adult Monarch! Both times, I followed the butterfly for a few minutes, trying to get a clear picture, but I was unable to get close enough for a quality picture. I did, however, find what looked to be Monarch eggs on the underside of some leaves in the patch of milkweed where I initially found the butterfly at Wedding Hill Farm. Another interesting find occurred while I was surveying King's Ransom farm, but while surveying one of their off-site pastures. The data that I have found so far suggests that while milkweed seems to be becoming resistant to herbicide sprays, those plants that survive spraying are still not viable food sources for insects due to the retained toxicity. However, while surveying King's Ransom's pasture, I found a spot along a roadside fence where herbicide had been sprayed but milkweed had survived. What made this spot unique was that despite the clear evidence of recent herbicide spraying,

there was a large amount of insect activity on these plants. This suggests that the particular herbicide used in this location may not affect insects to the degree that most modern sprays do. This could be a big breakthrough as it might highlight an alternative spray that would both eliminate weeds and leave intact, non-toxic milkweed for the Monarchs. My next step in my research is to contact the owners of the facilities that I visited that use herbicide sprays, and asking them if they would be willing to share with me what sprays they use.



- Milkweed continues to thrive despite recent herbicide application

Next week, on Tuesday, I will be attending Empire Farm Days and hopefully setting up a small poster display detailing my summer work and spreading awareness about invasive species.

I can't believe this summer is already almost over. I have learned a lot through this internship and have had a great time surveying farms and collecting data. Look for what will likely be my final blog post of the summer next week. I will give an overview of my summer findings and will likely attach my final report that I will be completing next week.

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## Fair Week!

Posted on **July 27, 2015** by **Collin Raymond Graves**

Last week was the week of the Saratoga county fair. We set up our display board and a few other educational displays in one of the conservation buildings at the fair grounds. Over the week, we had lots of visitors; most were merely passing through, but some stayed and chatted with us and asked questions.

Those who stayed and talked were few and far between, but they were very interested in what we had to say and I believe many of them left our cabin having gained some knowledge about invasive species. We also encountered many people who saw the pictures of some invasive species that we had on the wall and claimed that certain species were in their yards or homes. Many people claimed that they had asian longhorned beetles in their yards, but when asked to describe them described an entirely different beetle, and refused to accept that it may be a look-alike species. This was frustrating, but we would rather have many people misreport asian longhorn sightings than have someone failed to report a sighting of the actual beetle. Overall, we reached a large number of people with our information and I think that we successfully communicated the importance of invasive species management.

On Thursday, since it was pretty slow, I took the second half of the day to complete my surveying at DeVoe's orchards. I was able to finish surveying their rear orchards which have trees of varying ages. I found that even where herbicide had clearly been sprayed, the milkweed plants stood tall and looked fairly healthy. However, despite their survival, almost no milkweed plants had any evidence of being eaten by insects. When surveying other farm fields that hadn't been sprayed with herbicide, I found lots of insect damage and I found red milkweed beetles all over the plants I encountered. This suggests that while the milkweed seems to be becoming resistant to herbicide, which is a good thing, the residual toxicity of the herbicide is preventing insects like caterpillars and milkweed beetles from feeding on the leaves. While this seems bad, it is promising news as it opens the door to the possibility of developing a milkweed plant that is resistant to herbicides, but also doesn't absorb the toxic chemicals from the spray. It also leaves the possibility of developing an herbicide that is non-toxic to insects, although that may be a difficult feat. I have made a lot of good observations this summer and I hope to find even more data in the last few weeks of my internship.

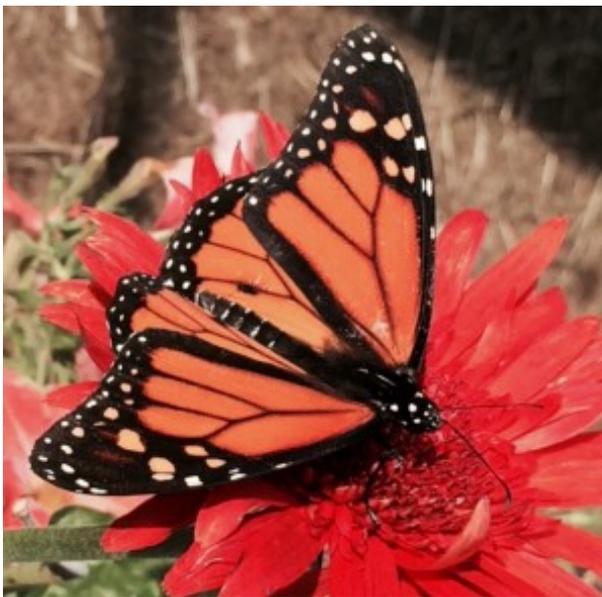


- Milkweed continues to grow where herbicides have killed most other growth

On a side note, one new display at the Saratoga county fair this year was a netted-in area full of butterflies for people to look at and to feed. The area had many monarchs, as well as other types of butterfly. It was nice to see young kids interested in butterflies, and I hope they will continue to want to learn about them.



— Monarchs huddled in a corner of the netted area



— A male monarch butterfly resting on a flower

# Invasive Species Awareness Week and preparing for the Fair

Posted on **July 20, 2015** by **Collin Raymond Graves**

I apologize for the delay since my last blog post; I have barely had any down time in the past week and a half. Last week was Invasive Species Awareness Week in New York. For this special week, Tegan and I conducted a lot of outreach in the surrounding community. On Tuesday, we gave a presentation that was open to anyone who wished to come learn. My part of the presentation talked about milkweed, monarch butterflies, their importance, and how to grow milkweed and raise the monarch butterflies. Tegan presented on different invasive species to be on the lookout for in our area, focusing on emerald ash borer, asian longhorned beetle, and hemlock woolly adelgids. While only a small number of people showed up, those who attended seemed very interested in the presentation and asked a lot of questions. We also had a journalist who writes for the Saratogian and for Lancaster Farming come and ask some questions before the presentation.

On Wednesday and Thursday, Tegan and I set up our display board (the same display we presented at Sundae on the Farm about a month ago) at two different farmer's markets; the Saratoga farmer's market on Wednesday and the Ballston Spa farmer's market on Thursday. While the farmer's market in Saratoga drew many more visitors, these people seemed generally uninterested in our information and were more preoccupied with shopping. At the Ballston Spa farmer's market, however, we had quite a few people come up to us and ask questions about our display. Some of these people had questions for us that were unrelated to invasive species, but many were genuinely interested in learning about invasives.

On Friday, Tegan and I helped host and participated in a workshop for interested locals that taught about many different invasive species, how to identify them, and what to do if you think you might have found an invasive species. There were four speakers in total that each contributed to the presentation. This event only drew 5 participants, but they all were very interested in helping to combat the growing populations of invasive species in our state.

Today, Tegan and I spent the first half of our day setting up and preparing for the Saratoga County fair, which begins tomorrow, where we will have our display board set up in the conservation cabin. It is sure to be a long week, but I am sure that we will have fun and get time off to enjoy all that the fair has to offer. Hopefully I will have plenty to write about next week after the fair is over!

P.S. I found my first monarch caterpillar last weekend. Ironically, I found it on a patch of milkweed in my own yard while I was mowing.



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## **More surveying and preparing for ISAW**

Posted on **July 9, 2015** by **Collin Raymond Graves**

I feel like I say this every week, but the days since my last update have been quite busy. Many of my work days have been spent preparing for Invasive Species Awareness Week (ISAW) which starts on this upcoming Monday. I will be presenting a presentation on pollinators and, more specifically, Monarch butterflies. My presentation will include instructions for planting milkweed, as well as instructions for raising monarchs in the home. Tegan and I will also have a booth set up at a couple of local farmers markets aiming to educate farmers and shoppers on the many invasive pests in our area.

When I wasn't preparing for ISAW, I was out in the field doing more surveying for milkweed. On Tuesday, I visited Bowman's Orchard. Bowman's orchard has about 98 acres of fruit production land. When I surveyed their property, I found almost no milkweed anywhere. I got lucky and found a small, dense patch of milkweed on one edge of a strawberry field. I also found a few isolated plants in the corner of a horse field where the mower was unable to reach. Bowman's regularly mows their orchard and this is likely the reason that milkweed has been unable to grow well.



- A patch of milkweed found at the edge of a strawberry patch

Earlier today, I visited DeVoe's orchard. Contrary to Bowman's, DeVoe's orchard had an abundance of milkweed. I was only able to survey about 1/3 of their land today, but I already found lots of exciting stuff. I found lots of milkweed in their front orchards closest to the road. There was milkweed growing in the walking paths and in between the trees. It was easy to see where the milkweed in the footpaths had been mowed and simply regrew very quickly. The milkweed that I found in between the trees was already developing pods and getting ready to go to seed, which is very different than milkweed I've found elsewhere, which at the most mature was just beginning to open its flowers.



- Milkweed that is starting to go to seed (sorry it's sideways)

I also found seven lady beetles, although none of them happened to be the native nine-spotted lady beetle. While observing the milkweed and lady beetles, I came across a milkweed plant that had lots of ants crawling all over it, with what looked like eggs on the underside of the leaf. My first thought was that they are aphids, which are commonly found on milkweed. However, the aphids found on milkweed are typically bright yellow or orange, and move around a bit. These dots were brown in color and seemingly attached to the leaf, as an egg would be.

EDIT: After consulting with Lindsey Milbrath, these are indeed aphids being “farmed” by ants for their honeydew. The aphids are slightly paler in color than the pictures I had previously seen which threw me off track.



- Ants crawling around what appear to be eggs on the underside of a milkweed leaf

I still have a lot of surveying to do at DeVoe’s, but I will have to find time during these next two very busy weeks to get back out there and see what else I can find.

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## Surveying fields and writing reports

Posted on **July 1, 2015** by **Collin Raymond Graves**

Last week was another busy one. With my report due on Thursday, I spent most of my time in the beginning of the week surveying farm fields. I was able to ride with a member of the Saratoga County Soil and Water Conservation District and visit many of the farms that they service in Saratoga county. I met

many farmers and gained permission to visit their farms in the upcoming weeks to survey their farm fields for milkweed and invasive plants. This week I have surveyed some of Smith Brothers farm fields in Saratoga county, and I was able to survey most of Birch Hollow Farm and about half of Stone Meadow Farm, both in Washington County. I ended up finding a lot of milkweed at Birch Hollow, but not that much at the other locations.



- A large, dense patch of mature milkweed found at Birch Hollow Farm

From what I've seen so far, the biggest threat to milkweed growth is herbicide use. Tilling seems to have little effect on the ability of milkweed to grow back into a field quickly. The most prolific growth I have found has been in hay fields, where herbicides are not sprayed. More specifically, in these hay fields, the surrounding competition seems to have a large effect as well. The size of the surrounding crop seems to correspond with the size and maturity of the milkweed plants. When surrounding hay is much shorter, the milkweed seems to be short and not as mature, and when the surrounding crop is taller than the milkweed, the milkweed populations are sparse. However, from what I have seen, when the surrounding hay crop is tall enough to cover most of the stalks of the milkweed plants, like the crop in the picture above, the milkweed appears in tall, dense patches that flower earlier than milkweed plants in other scenarios.

While these conclusions can be drawn from what I have seen so far, there are many more farms and locations to survey that might provide contradicting data. I am excited to get back out in the field and find more milkweed!

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**Week 3/4 – Pulling hogweed, battlefield tours, and Sundae on the Farm**

Posted on **June 22, 2015** by **Collin Raymond Graves**

This past week was another very busy and diverse week here in Saratoga. On Monday, we visited a residential yard that was infested with juvenile Giant Hogweed plants. We assisted the DEC with the removal and inventorying of these plants. Because of the dangerous sap these plants contain within their stems and leaves, we wore Tyvek suits, thick rubber gloves, and eye protection. If it gets on your skin, Giant Hogweed sap causes a phytophotodermatitis reaction; that is, the sap sensitizes your skin to UV light, causing severe sunburn in the affected area when exposed to sunlight. This sensitizing effect is usually permanent.



— an example of a juvenile Giant Hogweed plant

During the removal effort last year, the DEC removed about 800 individual plants from this location; this year we only found about 250 plants, meaning that the control efforts are effectively reducing the population. Hopefully within a couple years that site will be hogweed-free.

On Thursday we attended a meeting at the Saratoga National Historical Park where we discussed different invasive species and prioritized the species that were to be considered most important in terms of education and control. After the meeting, we took a tour of the park and the battlefields, stopping at some of the designated stops to admire the view and discuss the surrounding vegetation. We were told how certain areas were infested with knapweed and other invasives, and how the populations of those species in many of these areas has been drastically reduced. The maintenance crew responsible for eradicating some of these weeds generally used either pesticide treatment, or controlled burns. Many of the treated areas are almost completely free of knapweed and have been revegetated by many different native species.



- group photo in front of one of the many overlooks on the tour

On Friday, we spent the majority of the day setting up pavilion tents for Sundae at the Farm, an annual event held at one of the many local farms that is designed to bring residents of the surrounding area in to see animals, tour the farm, and buy local products. The main goal of this event is to educate the public on where their food comes from and to teach them about agricultural practices. This year's Sundae at the Farm was hosted by Smith Brothers Farm. Although the event began at noon on Sunday, we arrived at about 10am to begin setting up our display. Our display was set up in the garage attached to the bake shop, which we worried would draw less attention than the many tents set up all around the farm. However, we received much more attention than we anticipated. Most of the people that asked us questions were inquiring about Giant Hogweed. Some people had prior knowledge of the plant, but most people were curious after seeing pictures of the burns that the sap can cause. We also had a few people approach us and ask if we could identify a plant that they found in their yard or garden, however identifying a plant solely by a person's description is tough. We advised these people to take pictures and e-mail them to CCE, or to bring a physical sample of the plant into the office for identification. It was a lot of fun teaching different people about the invasive plants and animals in our area and answering the questions they came up with. We were so busy with the event that we forgot to take pictures of our set-up. Before we knew it, the day was over and we were packing our display board and other visual aids up. I was really impressed with the size of the event and the large turnout of people from many different surrounding counties, and I'm hoping to attend the event next summer with my family.

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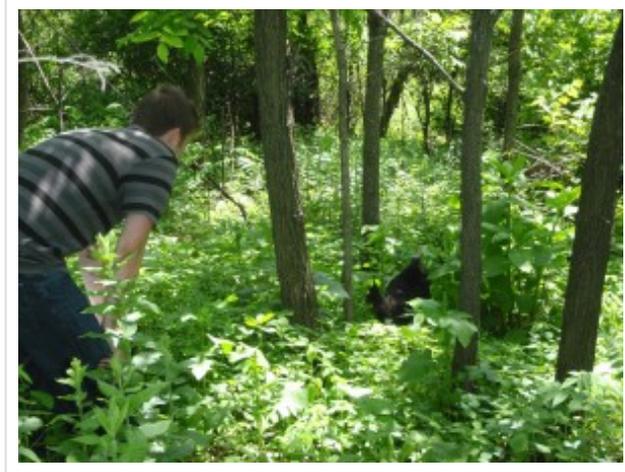
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## **Week 2 – Surveying forests and touring farms**

Posted on **June 16, 2015** by **Collin Raymond Graves**

My blog for week two comes a little late as I have had a busy week and was out of the office nearly all day

on Friday. We continued to survey the Galway Nature Preserve last week, making progress on different trails than we surveyed the week before. At this point we are getting close to having surveyed about 50% of the whole preserve, but our future visits will likely be less frequent as we start to get busier and busier. While surveying the preserve on Thursday, we encountered a lost chicken. The nearest farm that had chickens was across a large pond and a good distance away, so we're unsure how he made it so far or



where exactly he came from.

Soon, I will be visiting farms to start mapping their milkweed. While I still haven't received my full, official work plan, I know that I will be mapping milkweed populations on the edges of farm fields and correlating those numbers with the agricultural practices employed by the respective farm. I have received permission to visit two farms in Saratoga county that were surveyed last summer as part of the project that the previous year's intern, Kaitlyn, conducted. I have also received permission to visit some farms in Washington county, and will be setting up dates and times to visit them soon.

On Friday, we went on the Ag Agents Association tour, which took us to two farms and one farm distillery. The first farm we visited, William H. Buckley farm, was a 300-acre farm that raises and butchers animals and sells the meat products out of their on-site butcher shop. Attached to the butcher shop is a small dining area where they serve breakfast and lunch to order using almost exclusively their own products and products from the surrounding area.



- A makeshift shelter for young meat chickens at William H. Buckley Farm

The second farm, Willow Marsh Farm, specializes in dairy products. One product they promote is their raw milk, or milk that is not processed or pasteurized. They are one of the few dairies in New York that are certified to sell raw milk, and they pride themselves on the very high quality of the milk they produce.

Our last stop on the tour was High Rock Distillery, a farm distillery that will be officially opening in the coming weeks that uses only local corn to produce their liquor. One of the owners gave us a brief history of the process of distilling and the requirements for opening a distillery in New York, and we were allowed to taste one of their products; lemonade moonshine. After the tasting, we were brought back to the distilling area where they explained to us their process behind distilling high-quality liquor.



Overall, this week flew by and I'm hoping the weeks to come are as fun and diverse!

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## **Invasive Species Statewide Outreach Program – Saratoga – Week 1**

Posted on **June 5, 2015** by **Collin Raymond Graves**

Today marks the end of my first full week as a CCE intern. The first few days of work were pretty uneventful, as we weren't able to get trained in the iMap procedures until Wednesday of this week. We (myself and Tegan, the other intern who is a rising junior at SUNY Cobleskill) spent the majority of our time during the first week putting together a brochure and various display boards for events coming up in July. While our internships focus on mapping invasive plant species, the brochures and display boards are meant to educate the public on invasive species in general, so we included some invasive insect species and tips for managing them. After receiving our iMap training on Wednesday, we were able to finally get out into the field in the morning on Thursday to practice identifying and mapping different species.



We went to the Galway Nature preserve, a small nature preserve not far from the CCE office. Immediately upon entering the foot path, we spotted some shrubby honeysuckle.



Shrubby honeysuckle ended up making up the majority of our observations that day, as the path we walked seemed to have a patch of honeysuckle at least every 30 feet or so. We also observed some buckthorn (pictured below) and some multiflora rose, but neither of these appeared nearly as often as the shrubby honeysuckle.



I ended up also seeing some milkweed, which I took locations and observations for since my project will be focusing on milkweed this summer. The day went by very quickly when we were outside working and I'm excited to get back out in the field. If the weather clears up, hopefully we will return to the Galway preserve later today and continue mapping the plants along the trails there while trying to avoid the massive infestation of poison ivy that surrounds basically every plant in the preserve that we are trying to map.

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