Please stand by for realtime captions.

Let's get started. Good afternoon. Welcome to today's webinar Pollinator Habitat Restoration: Plan & Contracting . I am a natural resource specialist for the natural resource conservation services national technology support centers. I will be your host.

I want to remind participants the use of trade names during any of our webinars is for information purposes only. A mention of a trade name does not constitute a guarantee by the product of U.S. Department of Agriculture nor natural resource conservation service with comparable products not named. With that we will now begin. I am hearing a lot of background noise. New to your phones please. I am pleased to turn the webinar over to, Christine. She has extensive experience in pollinator habitat creation and development. Christine, you may now begin.

Thank you, so much , Jennifer. Thank you, to all of you for joining us today. In the second part of our two-part series on pollinator habitat development. The first part of the series several weeks ago we learned about habitat inventory tools and whole farm conservation planning approaches to enhance pollinator and other wildlife habitat. As well as you are provided with examples of pollinator habitat and management. The second part of our series we will focus today on pollinator habitat design and planning. You will learn what to consider a natural resource conservation service pollinator conservation planning, and program contracting. To help ensure the success of habitat planting. To begin with I'd like to introduce our featured speakers today. I'd like to begin with Mace , pollinator program codirector. He serves as a pollinator biodiversity program codirector. His work as a conservation for an RCS West support Center in Portland Oregon since, 2000. He provide support to stay in national science technology staff to help with implementation of pollinator wildlife project nationwide. He supervises a team of 20 pollinator conservation specialists including twelve-step partner biologists positions you are helping establish pollinator beneficial habitat across the United States. Our second speed speaker Kelly, conservation specialist for the Northeast mid-Atlantic [inaudible] as a society pollinator conservation specialist and partner biologists with the national resource conservation service Kelly, provide technical assistance on pollinator conservation in the mid-Atlantic and Northeast region. Including planning, designing, installing, and managing habitat for pollinators. Kelly, works with staff and research partners to develop technical guidelines and provide training on pollinator conservation support practices. Kelly, completed her Masters degree in anthropology where she conducted research on the development and best practices for conservation of native bees and insects . With that I like to turn the presentation over to, Mace.

!. Thank you. I am noticing I like I think everybody else is hearing some peeping in the background. I just want to clarify with, Jenn if we have a sense of what might be causing that. See where we are going with that.

It seems to me somebody doesn't have their phone on mute. With the echoing. Make sure everyone mutes their phone. If need be and we continue -- let's go ahead and do it. I will put directions in the box. Let me take care of it.

Excellent. I appreciate it. All right. Let's see if that does the trick. That was getting pretty annoying. I'm going away for a moment. It was a pretty regular beep. I had a feeling someone had aligned on hold. I think we are doing all right. Excellent.

Hi, everybody. Thanks, for the really nice introduction. I noticed a couple people asked about links to that webinar. I will come around to that and help connect you. Before we get started would you mind bringing up those first couple of questions for everybody. Before you begin, we would like to get a better sense of what your role in things -- what percentage of you are NRCS, or interested parties. One person is more of a TSP role. I am realizing they left that out. Feel free to choose lion tamer for that. That's appropriate. If you are consulting agronomist, TSP, somebody who works with farmers, ranchers, etc. on habitat work. If you wouldn't mind bringing up the full 1.5. We want to get a sense of where you all are based across the country. This is a national webinar. A lot of the content we are delivering today has some nuance depending on if you are in the West, or southern states etc. We want a sense of the distribution. We can help make sure we are getting you all what we need in the next hour and 15 minutes or so.

When Kelly, and I, get wonky and talk about practice 315 or 420, 423, looks like a number of you are gonna know what we are talking about. For your master gardener interested citizen category, don't worry about it. We are gonna make sure this relevant to you as well. We are going to dig into farming controversy conservation project. Be forewarned. We are going to do our best to make sure you feel included. It looks like we have a decent spread of oaks. A little weighted toward the central and eastern states. Good to see West Coast represented. I appreciate that. It's excellent. All right. This is great. I have a sense of the audience now. We can move those out. I appreciate that.

What we are going to cover over the next hour or so is a recap of August webinar alluded to at the beginning. Just to set the stage here and put up in front of you at least three times -- there is a link also in today's links [Laughter] the big picture of what we covered and how it ties into or leads us to this webinar. For those of you who maybe haven't seen that this webinar is going to be totally relevant. I think it'll be interesting and fun to go back to the other one. I'm going to talk briefly of an overview of the planning process and requirements when it comes to thinking about new habitats for pollinators. A minute come back to that theme of new habitats several times. I will then handed over to Kelly, who I can't say enough good things about. She works with me. She's based out of NRCS field office in New Jersey. She is worked with field offices, farmers, and others all across the Northeast for years now. She has a great sense of the pollinator habitat side of things as well as the NRCS planning process. She's going to come in and talk about the example of implementation requirements. We will talk a little bit about long-term maintenance. Go through established case studies how people think about what to expect. I'll pick it back up and share some thoughts around some other important planning considerations for contracting as you all are thinking about habitat on the ground. As we go through all of this keep gathering your questions. Post those to the pod. We will do our best to get through as many as possible. That is what we are looking to do here over the next hour or so.

A recap to the last webinar. We really focused back in August -- frankly, it was a fun time to bring any sort of beneficial insect habitat, or wildlife habitat into a working landscape. We shared a whole number of different photos, and ideas from different landscapes. Everything from rangeland to farmland. We opened it up for what ended up being a great discussion where participants chimed in on some of the ways they have thought about, or incorporated pollinator habitat into the landscapes where they worked. Everything from wildflower to field borders. This whole list of different habitat types. As a reminder this is all the way up there now on the conservation webinar. You will be able to access that.

Part of the fun with this was thinking of the landscape -- where can we incorporate habitats? Every open forest area to forest edges and field orders. Wetlands in and around different cropped areas. This had a really great way to incorporate into the landscape. Here is the link. I think it was a great webinar. I am biased I helped teach it. A great overview to think about all sorts of creative ways on working on pollinator habitat working landscapes.

Today we want to take that and hone in on the creation of new habitats in working landscapes. Trying to think about -- try to give you an overview of the different things to consider in the tools -- skills and tools available and needed to really do a good job of working with landowners high quality pollinator habitat, or any sort of variant wildlife rich plant rich habitat. As mentioned previously we talked about all sorts of different practices. We talked about cover crops and hedge roads. The use of different practices like the new wildlife habitat lamentation process for 420 and 327. The whole bunch of different ways to get habitat on the ground.

Today is a framework we want to focus on 420. We are going to use the new for 20 practice as a framework. Before we get into that I am curious to know what practices you all have used to date if you contracted something like either pollinator habitat or Monarch butterfly habitat. Any native plant diverse permanent habitat. What have been the practices you primarily use for that? I'd like to get a sense of the experience you've had on putting projects on the ground. I should have realized I have not contracted habitat like this. If you've never contracted pollinator habitat click on the other. That seems to be pretty well. See how that jumps up. Quite a bit. All right. We should've had that on there. Good. Many of you have not -- a lot of you have used conservation cover which makes sense to date that's been the practice we have used the most. For contracting permanent diverse native wildlife habitat. That's helpful but a lot of you have it yet. This will be good. Thank you for that. We can pull that poll off. For those of you who have implemented habitat again it will be great to get a sense of what you think is the hardest part. This is where you can only select one of these. Where have you had the biggest challenges in working with land owners. I'm curious to see if your experience matches ours. It looks like it does. Follow-up management is catching up to site prep. This is interesting. I was expecting to see site preparation standout. It does but to a similar degree to follow-up management during establishment. We are going to be talking about all of the stages of habitat restoration. I think emphasizing site prep and not emphasizing as much follow-up management but we are going to talk about it. We will dig in deeper as we go through. Thank you. I appreciate that.

As you noticed site preparation follow-up management are things that are a big challenge for working with landowners. We have got for the last 15 or more years, we've been working with NRCS making this process easier -- but also the landowners that you work with to be able to help your landowners have a prescription to follow a plan that makes sense to them in that sort of spaced out evenly over time. Or not spaced out evenly over in time but communicated in a way they can understand. Early on this took the form of what we call habitat installation guides which are all based on job sheets and specification or job sheets tech notes we worked on over the course of 15 years. Probably in a couple dozen states to help her find those jobs which are now called implementation requirement forms to help outline this process to make it easier for you all to think about, but also easier to communicate. We are going to use the wildlife habitat planting practice as an example. As a surrogate to help look at what is a typical job sheet, or implementation requirement form we have helped develop. We think it nicely lays out this process. We are going to use this to guide the resin Tatian as we go through. We would use this example if we were addressing the habitat for wildlife resource concern for example. It's important to note people like my good friend Don, I would be remiss if I did not remind people that the idea here is to focus on developing a plan. There are numerous scenarios for implementing your plan. Remember the

scenario is not the planning tool. The ideas this implementation requirement form or similar ones 4327 -- 327. We look to help cover for that landowner to pave the cost share to help in implementing this perennial habitat on the ground. There are a number of scenarios geared towards helping that whether they are pollinator scenarios, or Monarch scenarios are diverse wildflower scenarios. I'm gonna talk about 420 over and over again. This is an example and you could be using something like 327. That's probably the other scenario the other practice that has the most job sheets or implementation forms developed with this in mind. There are other practices. Things like range planting. A whole bunch of stuff out there for habitat on the ground. We are going to focus on this, and hone in on this approved habitat for specific pollinators and that's going to be our focus we are going to use today as we guide you through this and reflect and review this process.

Kelly, is going to pick this up and use the IR 420 to guide you through our walk-through this process of planning habitat on the ground for pollinators. Kelly, are you unmute it? Hit*62 unmute.

It may take a time or two.

There was a delay. Can you hear me?

Sounds good.

Okay, like mentioned we are in use wildlife 420 for example today. You will notice the examples, and pictures, and the methods we will talk about are geared more toward establishing open habitat. We do have practice for establishing tree and shrubs, and other plants. Despite the practice, or type of habitat we are using the same process to think through how we are going to develop our plan. We do this with a lot of our practices when we go through the conservation planning. After you identify the purpose shown on the IR, we moved to the next page and on this example its current site characters. This is where your documenting the things you inventoried and assessed when you were out in the field. Looking at maps and other tools. There is probably an infinite number of things to consider here. I listed the most common things. Soil type, moisture drainage, light exposure, pesticide risk, we don't want to be putting habitat next to areas that are being sprayed with pesticide that are toxin it -- they are toxic. We want to be aware of the property we are working on. The risk of introducing unwanted plans especially in or adjacent to habitat. This will come into play. We will talk about a little bit more when we talk about plant selection and seed mixes. If you don't know what's in the seed mix it can come to a risk to the existing habitat. We don't want species to escape. To become established in areas where they are not supposed to be, and at the risk of pushing out or displacing. Becoming a weed problem on a farm. None of our clients or customers want that for sure. What is the existing weed pressure on the farm? What are the dominant species? What are we going to need to look at and consider in our site prep when we start thinking about our methods and timeline? What's the dominant plant community -- you know, is it grass, are we working with a mix of Woody innovations species. Access to irrigation or water in some areas is really important. Site accessibility. We know that nobody is giving up prime real estate to plant pollinator habitat most the time. We can work with audit areas, marginal areas. So long we can get there with equipment when we need to do management. When we need to do planting, and that has to happen in a timely manner. Think about what that site looks like. What that area looks like throughout the season not just when you are standing there.

Pretty self-explanatory here. You can document some areas with a check. Pretty easy there. Plant selection seems to be a little more difficult especially for people that aren't focusing on botany, or don't have a background in botany. There are some general requirements and considerations we want you to

think about. We are designing these mixes to be site-specific. We want to meet the needs of the species throughout the entire lifecycle. Thinking about what pollinators need in spring and summer, fall, and winter. What type of things they need in their habitat like food, shelter, nest site, and how can we create that with the plant community we want to establish. We focus on native perennial plants because we are trying to establish this permanent long-lasting meaningful habitat. There are situations where we may include annual or biannual species in certain areas. We want to select high pollinator value, and even under the pollinator practice like in 27 and maybe 420 you have a plant list of those high-value species you can choose from. Including butterfly host plans, selecting plans with floral resources like nectar and pollen abundant throughout the season. Ease of establishment, availability and cost. That's probably the hitch many people run into this time of year when people are trying to source seed and companies are running low. They are tending to be more expensive. There are more things to consider especially for a unique habitat in an eco-region. Specifically trying to target considerations.

Plant a really good habitat. We want to have a great diverse valuable plant community to the extent possible.

Other priorities and benefits could be considered in this process. You may be looking to create climate resilient plant communities as we move forward in areas that are experiencing extreme conditions. This is becoming a more important consideration. Are there other wildlife species near the land you are working with? For example native trees we know support way more mobs and caterpillars that some of our non-natives. We want to stick to those that we now have high-value. Not all plans and flowers are created equal. Just like not all of our food items are created equal. Thinking about other resource concerns like water use, erosion control, privacy screen, buffers. Things that we can meet multiple purposes with but still plans valuable to pollinators.

Here is an example of what that season-long bloom may look like. Here in the Northeast and other parts of the East we don't have a lot of wildflowers that bloom early in the season. We do have a lot of beautiful blooming trees and shrubs that flourish and support pollinators that are coming out of winter looking for food, looking to start creating nests and laying eggs. They need to provision with pollen and nectar and trees feel that season. I know places like California are very different. We have a lot of species that will fill that late spring to summer gap and things like goldenrod and asked her in late bloomers here throughout the fall.

This is what a mix we developed for certain sites or particular species look like. The point here is not to read the entire mix but to get an idea of the diversity. What the specifications look like. We have rates here. We have a relative high crash ratio. When talking about true restoration or grassland restoration. Function for pollinators. Establish a plant community to historic characteristics.

One thought to add it's different if you are in the West for central and eastern states where the available species is fewer and so often a little bit shorter as we try to work on habitat restoration and pollinators for our Western states.

I can see the same in working with those unique conditions. They lend themselves to a short list of plans that can tolerate those conditions. One of the things I run into a lot of people ask me how many pounds of the pollinator mix do I need to plant. Because we are creating a mix and there is all different calculators out here because we are creating a mix of multiple species that have different seeds, sizes and numbers per pound you can't plant one pound of this and one pound of that. They have 1 million one may have 100,000. You will get a and even plant community or certain species being very dominant

if you did it that way. We do calculate our mix initially by square foot normalizing those numbers. They can range from 30 square feet depending on where you are, pressure on the mix and so on. We want to use certified tested and tagged seed. We don't want to use unlabeled seed mixes where we don't know what in them. A lot of the mix look cheaper but they have 50% or more grass or they may have contaminants and things like that that are documented during the testing process we need to know about. Use certified seed. We also want to use [inaudible] to compensate for germination. Not all species have 100% termination. Be familiar with the complement made here. We want that seed to germinate and grow. Using local eco-types is important where possible. We don't have local eco-types for all species in every location. Inventory and cost very widely from year to year. Send it out to multiple companies and ask for quote when you get your quote check the species list. Check if they gave you any substitutions for things you may not have in stock. Make sure those substitutions are appropriate for the site appropriate for the practice. Meet practice standards. I offer people get quotes they can send me the quote and I can be sure it's safe.

A quick additional thought on that a couple of questions coming in were about seeing some of these mixes. I will just say there are -- if you look at today's link are all built around this framework of the IR we are looking at today. Those are some examples to look at and a lot of your states will have recommended mixes, or just different things available. Definitely check in with your technical leadership and your field office technical guide. If you just want to see some ideas you can follow the links on the installation guide and see some of those from across the country.

We have lots of sample mixes. If you have questions you can contact us directly.

This is what the seed mixes look like. More like something you might of pulled out of your vacuum cleaner less like uniform seed. It's a mix of fine fluffy seed. It makes it a little more difficult to actually see and calibrate equipment. A lot of times where using equipment that wasn't specifically made for this. Like the spreader you see in the picture here. In this instance they are using an ingredient putting in the Cedar it could be a hand Cedar or broadcaster like you see here. A no till grassland. Whatever you are using. Make sure it is properly calibrated or you will risk dumping the expensive seed mix and not covering the area appropriately. I recommend people when they order seed to get the species in the mixed package separately. You can do multiple with your seeder . It's easier to calibrate. Maybe you have an opening for a small seed and then you do a batch of larger seed. When you are ordering or talking to customers about where to get seed, how to order it consider that it's very important when using a no till drill because of the fluffy and find seed.

We have another question here. This is number four. What techniques have you used when working with landowners on your own properties to eliminate weed or competing vegetation prior to planting habitat. Repeated tillage. I feel like that second most used. Not too many on the flame weeding. We need to get more propane out there. Great. If we can and that -- I would agree herbicide tends to be the most commonly used. One of the most straightforward methods of site prep. We know not all use herbicide. We have organic farmers we work with with alternatives to that. When you look at the next part of the job she after documenting your site character, your species mix make sure you have Bloom periods covered. Document that on the IR. Move along to the site prep. We selected our plans and we have this matching the site conditions now we need to prepare it. This is probably the most important part of the process if not the most important or most boring. Everyone wants to get to that point where they are planting flowers and monitoring those changes. You are not going to get there unless you do serious weed control especially if you have a site that has moderate pressure. Excellent weed control before preparing what's critical. We have two parts of site prep. One eliminating weeds and the other

one creating that seed bed immediately before planting. We will go through that here. In some instances for practice 420 when you are on non-cropland you can use 315, or 314 to bring control and pressure. There are -- that is not perfect. We do have areas that are designated and have borders that haven't been managed. Unfortunately as it breaks down we are trying to figure out ways to work around that. This does not apply to -- these are examples where you wouldn't even need to use practices or scheduling practices because there is low weed pressure. When you fill out your site prep document that on control. Management you are targeting if it's not a mix if you are targeting certain species when they need to be controlled to be most effective and so on. You really want to knock the weeds out. I compared to a boxing match where you start punching and get back up and go a couple of rounds and you really want to get to that knockout. It can take a season often times more depending on current vegetation. This is a blown up part of that IR with the site. Click which one you are using and write this narrative here. When we are at a site again most of the time we are not getting prime real estate like we see here on this crop field coming out on the right-hand side. If we have something like we do on the left that people from the Northeast will know this picture here is wall-to-wall mud work on this farm. This is incredibly difficult to eradicate. I often joke you basically need a bomb. Set your producer, landowner, whoever you are working with or yourself for the fact that maybe it can be done. How hard do you want to work at it. Maybe you are on a farm in the area where the farmer wants to do it here they don't do anything with the area they are sick of mowing you and managing it they want to improve this area for habitat. You say okay, this is manageable we can do it. Maybe this area is a heck of a lot easier. People like to hear that if there are other areas that will work to see if they can consider it. Low weed pressure. That will make prep less intensive and quicker. In most cases. When we are looking at site prep for areas in the field here along the cover and thatch that is not ready. There is no way you can throw that seed mix on their a lot of that is so tiny. It needs to hit the soil. Seed to soil contact to Germany. It's not going to get through that batch. Even if it does get down there there is going to be a lot of competition. If we go to the top after some rounds of herbicide we are getting a little bit better we are reducing the bio and you can see it's moving to the picture below that moving that plant debris with a nice clean surface. That's really what we are shooting for no matter what method you are using you want to get that as clean as possible. Reduce the seed bank. Do a disservice to encourage those to grow. Mechanical methods. If you're using earth method it's good to limit any codification and disturbance at the very top layer. Before you create that. We don't want to disturb the soil that's very deep. Eliminate non-dormant seed in this profile. You will have less competing vegetation establishing within your pollinator habitat at the same time the desired wildfire wildflower is implemented. It's harder to see them and jump on first detection. It's much more difficult to control those targeted methods. Good site prep. Herbicide we talked about. People are familiar with that. Flaming is a method I haven't seen anyone prepare an entire site with.'s mother cropping can be used alone.'s mother cropping can be used until it's time to plant the desired mixed. I like to use it in combination with the mechanical method. If you do mowing and shallow cultivation and a cover of buckwheat. Give the soil a little west rest. During that time most farmers are busy. That gives them reprieve from monitoring and being on the tractor to eliminate those weeds, or subsequent weed growth throughout the season. There are different options for smother crops. We like to use buckwheat here. We provide flowers in the meantime and it doesn't have a whole lot of biomass to deal with when determining something like serial, -- consider that vegetation off of their.

Herbicide we are typically using a nonselective nonpersistent product. Other times if you have certain weeds or if it's dominated by persistent design on your site you can use a more selective product. Prepare the area with very light tillage or close mowing. Get that herbicide into the material into the vegetation start in early spring and repeat when we reach 4-6 inches. This may be repeating it on a spot treatment basis in certain areas or a broadcast application. Avoid additional tillage once you get a good

till. That could encourage more read weed growth which we don't want. It's used frequently on organic farms. We used implement -- something like this cultivator or a time or light disc. This is repeated so we uses where erosion is a concern. People don't like repeated disturbance. In the grand scheme of things this is a disturbance over a short period of time to establish a permanent diverse community. That's going to recover that disturbance -- the area is going to recover from that soil disturbance more quickly than annually tilled system. There's places we don't want to use this. An integrated approach here combining that with smother crop.

Here is a close-up picture of soil. The same principle is here we are smothering a little bit different. For this method here you need full sunshine. You want to repair that bed. You want UV stabilized practice that plastic that won't deteriorate. No airflow underneath that. Force strips. This works well and is manageable. You are not going to do this across 10-20 acre site. The con is plastic waste. These methods have pros and cons. Here is what that process looks like. Put the plastic on and trench it and weigh it down in the summer. Remove the plastic. This site is next spring. This is a good example. I can't say it will always be this quick of a process. I'm sure people have instances where they've had to move that in a longer period of time.

We have another poll. 5.1. What techniques are you working with, with landowners or on your own property to eliminate weeds or competing vegetation prior to planting? This is not the question [Laughter] is it. Hold on. This is more about seating seeding --. Thank you. One thing here we have the next step in the process. We eliminated weeds we created a nice seedbed. We are going to pick our method. A lot of times this is something you design on one of the initial conversation site visits. What equipment do you have. What do you work with here. What do you have access to two feet these properly. They can be calibrated. Broadcast seating seeding is the most straightforward. People are familiar with it. They could be used on a variety of sites. Drill seating seeding-- is common in areas where you are doing larger planting far more useful not more common when doing water drip planting. A lot of times this piece of equipment is available through partner programs, or conservation, borrow, or rent. Sometimes you don't have access to them. One thing underused is planting live herbaceous plants for species hard to establish by seed. Including them in their. They are in the mix. They are high-value. Adding supplementing to the planting. Live trees and shrubs. With some of these practice scenarios available for wildlife planting 420 for the states have adopted 420. They allow for shrub planting or mix. The next thing you want to do is -- this varies by region and site. People are trying to make that deadline. We see it in the fall or spring typically. Whatever your seeding dates are for your site. Use those and document those. Stay away from periods where there are still extreme conditions. Planting methods. We talked about some of those earlier. Looking at the IR clicking that to select what method you are going to use in having a little blurb here for the narrative and requirements. Plant protection. Areas with high pressure or high animal damage. Here is that blowup of that here. And then there are these methods. On the go through these pretty quickly here. We talked a lot about them and there are some variations and some of what I have on my slide here. Dormant season is best for most that I work in. Some areas tend to have very wet fall condition so we delay planting to the spring. You throw this in the wet field and you're going to accumulate that seed. You get up there and rip it up. During the right conditions it's not too windy. Proper timing for your area. You can plan different sides and textures differently. When broadcasting in particular with a carrier like kitty litter. It helps distributed more evenly and gives feedback. Some of these once they are out there they are like a flake of pepper. That'll give you a visual feedback on your coverage. Broadcast seeding needs a well prepared bed. You can drill seeds into a little bit of thatch. We really want this to be exposed and the seeds to hit that soil. We want to rollover them with a hacker or lawn barrel to tamp them into the soil so they get that compact.

Mechanical broadcasters and seed drills. Calibrate. Do practice runs. Make sure you have the spread calibrated. Overlap properly when you do the edges. Drive it. All of that kind of stuff. You don't want to get to this point [Laughter] and drop the ball here. Things like dumping all of your seed into the seed been without the gate output being closed. Things like that. This is the exciting part we are finally here. Be sure to continue to take time and think about it. Calibrate and seed evenly.

Transplants. This method seeding is one of the hardest methods for these perennial wildflower areas. This is the hardest place to start. People are fond of the idea with a cinematic picture of a meadow. They can get there but it's a lot of work. Often times on small site I find myself saying hey, how about transplant, how about flower shrubs, maybe a combination. For a site that doesn't have a lot of planting equipment they don't have site prep equipment. They are limited in those resources that you really need those tools and resources to be prepared a site for seeding. Transplanting is easier, a little more familiar. We still want to use the same framework when selecting spaces. Different plant structures, and functional groups. Lay out your spacing, container size matters when you are purchasing plans plants. In this case especially in the east I like to consider alternative host when working around three fruit in particular species in the Rose family can be alternate host for several crops. Thinking about those things and doing damage control ahead of time avoiding [inaudible] good measure.

Back to the job sheet now we are getting into transplanting if that is what you are doing. The layout or arrangement single row, two rows. So on.

A little blip on transplanting so you know it is an option. We will have to do a whole webinar on tree shrub planting and pollinators. Do note that those shrubs are very valuable. Each practice supports the pollinators. You get the feeling that they are not set up to successfully establish [inaudible] steer them in the direction of transplant.

Let's review that. We are using site-specific recipe. There is no one site it's on. It makes our job difficult, but really interesting. It's a multi-year process. Meadows are established by seed. We use a rhyme sleep, creep, weep. We don't see very much in the species we use here. People have a sense of failure, and they feel like they want to fix it and do things like plow it in. They think the seed might have been bad so they 510 more pounds of seed and spend a lot of money. Be really patient at this point. That's your biggest tool. Get the actual and site prep to get really good at establishing in year two. Year one is Harry because -- I will show you some slides. Some sites we are using for demonstration. This goes through the process and I'll get back to the second part of the slide just so you know what to look for. There is going to be a variation in areas with different parts of the country as to how this looks. Setting up your -- the person you are working with to understand those expectations. To know what to expect. To know how those plans will look in year one, two, three is very important. They are looking in watching they want to see those flowers and the habitat. This is in New York and a granite organic site. We did different seed mixes and different methods. All organic. Here on the top left corner you can see the before picture. This field was in the previous season. Repeated mechanical cultivation. They did that three times. This site planted in May. We plant in May. Here is June. Disappointing. It doesn't look like very much. The opposite of annual flowers, annual garden, cover crop. We get through almost all of June and we had to July and you see this. It wall-to-wall crabgrass. It's common to see a lot of weed in year one in particular. Annual weeds are early invaders of sites. Even though we planted the seed mix already it's not going to grow very fast in this example. We recommend for weed control typically high mowing. Mow above the small germinating seedlings that might be -- clip off the meadow. Give it a haircut each time the vegetation reaches 12-18 inches east and north east. 99% that we do not stay wildflower. They don't shade out the wild flowers underneath. It's counterintuitive. Sometimes he will cease some flowers. You

have to [Laughter] mow off some flower heads you've been waiting for for the greater good. Don't be afraid to mow off a flower if you have to. They did it in July at the beginning, and in August. Here this at all region of New York. It starts to go dormant. It looks pretty disappointing.

It's important to mow when the vegetation is at 18 inches. Monitor and assess your planting. Early detection is key especially in this control. You want to look for indicators in the mix. Here we have species that will establish in the first year like mentioned. This gives us a gauge that something is happening. You will see greater diversity in years two or three. Here is year two of the same meadow. April doesn't look great. May -- they had to do a bunch of weeding. You see established species. That's okay. Here they are short-lived. They give you density to depress weeds and have less niches. You may think that's not very diverse getting into July we can see at the end a little more diversity. To give you a close-up of what that looks like at the end of year to hear you still see a lot of those early to established species up there. They are bee bombing the flower.

Mowing during the establishment to help perennials and woody plants establish with little competition. It's about to set seed. Mow those off and get a haircut. You can see the ceilings like the New York example underneath. Spot treatment for problem areas is always encouraged. We want to get those weeds out of their before they spread. Once it's established and we don't have as much management typically. We go through that whole process. Now we are seeing the diversity of the mix. We are seeing cloud cover on the density we want to see. One of the most common ways to do that is to do rotational mowing. We do that at the end of the season. We use the rule of third. Split the planting area into thirds. Rotate the area at any given year. We have pollinators, and butterflies that attach. We want to keep the majority of that cover standing. Especially in the Northeast where we are not prairie. We need to mow for weed control and more importantly to keep it from being taken over. Other method prescribed burning, rotation can be used you need a special plan in place for those. We won't have time to go in that today. Really keeping those weeds out and maintaining the diversity. Remove thatch. Expose the ground. Heavy layers of thatch don't suppress plaque regeneration. It's important.

This can be used after the five year lifespan of the planting practice we can then move into management practices. Documenting method, and requirements on the job sheet. Plant protection and maintenance schedule frequency. Replacement strategy for dead planting. Failed planting or unhealthy plans that need to be replaced. How to implement management practices that reduce disturbance for birds and other wildlife. Keep that in mind as we are implementing activities.

In the end there is a little bit of information on fertilizer and mulch. Not so much in my region. That may be a consideration for you where you are. Just that implementation timeline and summary. Putting it all together in the end.

Order plant materials. Going through all of those methods and activities we just talked about. I'm going to turn it back over to, Mace on his thoughts on contracting. I'll be around to answer any questions and we have contact information at the end for those who may want to contact me later. Thank you, for your attention. I appreciate it. I hope we see lot more plans. As everyone cringes. [Laughter]

One of the goals of this webinar was to use the IR as a way to give and overview. As we were going through this it may we realize we need to reflect on the fact that there are whole webinars and trainings just on seed mix design or site prep practices. I will recommend and we will circle back to this if you need for these trainings let us know. Let your technical staff know. We can bring these. They become very specific. Some of these we have out there. We can connect you online. As we steer towards the

final few minutes kind of with that big picture in mind one of the goals in preparing this was thinking about this contracting process. I have seen this -- how many of you are using the 315 treatment or 314 brush management as a contracting tool and contracting step when putting together land owners. Using conservation programs to contract support for this process. Interesting. Let's see here. It looks like it's staying steady around a 3rd to 40% have used -- contracted 315 at 314 to eliminate pressure. I think that's good. That gives me a sense. I just wanted to see how many of you are using that. I do think this is such an important step. One of the challenges we face in supporting land owners, field offices, and working with landowners is how to really help people focus on the site prep steps. At the moment 315 and 314 are your biggest tools for that. By focusing as this picture here on doing a really good job of eliminating competing pressure on that site. You can end up with these really nice planting that take relatively little work afterwards. Focus and use herbicide to get the site ready. This is classic. Two years after was planted it look like this and continue to have more wildflowers come in. This receives very little maintenance and is still active and in good shape a decade later. It was planted in, 2010. I want to reiterate the fact that 315 and 314 can be contracted on all land uses except active crop land. For those of you that aren't in RCS I apologize this is such a lucky thing. That active problem land-use precludes. We are not allowed to use 315 or 14 to prop the site. Ideally existing cropland has low weed pressure. Hopefully you don't need concentrated tool like 315 to get those sites prepped. Friendly we know that's not always the case. That is something to chat with your technical leadership. One question that came up in the chat box was whether or not 315 could be contracted multiple times over the course of a few years. For example if you had something like Canada thistle or pervasive species could you contract that multiple times in order to address that issue. 315 can be used multiple times. There is a waiver in place that if you are using 315 to address a pervasive plant species on a list maintained by your state technical lead your biologist etc. you can contract 315 up to three times to eliminate those pervasive species of concern. It's important here to address pervasive species concern. It's important to check in with your technical leadership to find out what's on that list. You might be surprised by what's not on it. It's relatively straightforward to get it updated. You need to do that in a timely fashion. If it is in place contract 315 a couple of times to address whatever pressure you have on site in case you needed to do a couple of years of site prep for example. What's nice is focusing on that step you can certify that it's done. You can pay on 3/15 of the landowner is not waiting up to three or four years for that payment in implementing these practices. You can accomplish your contract check on that and we can move into 420. There was a comment from someone in Georgia. It doesn't surprise me. Iowa doesn't have it. There is a number of them that don't have it. That is where you would be relying on 327 cover practice. Be able to put these habitats on the ground. Talk with your leads and see where they are at. Find out what's going on with your present plant listing. As mentioned once you have really good habitat establish you want to manage it. Once you certify 420 it's implemented you can move on to manage that. One thing that came up in the question I think is a really good reminder if you already have these in habitat don't destroy it with great site prep to plant new habitat. For those of you in a lot of native range and have decent habitat and have a ton of goldenrod. Other things as you see here on this slide there are management practices you can do to try to push back some of the competing vegetation or plans that are moving into reinvigorate without a full-fledged start over. Really something like successional management to manage those sites as time goes on. Towards where you want. That's a longer discussion and a great follow-up webinar to think about tools for managing reducing grass pressure or dominant wild flyer wildflowers like in the Northeast. One quick thought in much the same way we think about birds in management timing increasingly we are thinking about pollinators like Monarch butterflies and adjusting our management timing. Try to reduce the impact to some of our target species like the monarch butterfly. It looks like there is a link to it where we will have a link to it in the link box to think about that timing. It's not just birds. We are thinking about invertebrate resource concern.

The links connect you to a suite of resources to help you do this work including farm bill programs. Going to your field office technical guide. I can't reiterate enough the fact for each of your states to find example IRs or job sheets. This is the first place to go and increasingly you can select on your state and do a keyword search for pollinators or monarchs. That will bring up specifications that are there to help you. If they are not there reach out. You can go to the website where we have a ton of resources and information which probably the easiest way is to follow some of the links in today's box, or go to our resource Center online.

Let's tackle some questions. Thank you, for your attention and time.

Thank you. I have combined some of these questions, and also answered a few of these questions in the interim. Let me go from the top. I didn't take the name of the responder asking these questions. I'll send these out and add to if there is an opportunity to do that. One question was where are the seed mix sheets available?

Those sheets depend on whether your state has examples. I would go and look at specifications or tech nodes or even implementation requirements themselves. They may have example seed mixes associated with them. I'd start with your field office technical guide for example. Go to the habitat installation guide link. It will connect you with several guides for different parts of the country. It can give you some examples. Definitely reach out if you are NRCS or partner biologist planner. Reach out your state biologist, plant specialist. They will connect you to examples if they are available.

What about the rate. Would you talk about that. Some folks want to get a repeat for different purposes.

If you are in the wetter parts of the country and you have -- that's where we focus more on the 40-60 seats for square foot. If you have a concern about competing pressures sometimes we go a little bit higher. As you move into the more arid parts of the country this is where our rates often go down a little bit. They are often grass elements and are mixes go up to deal with drier conditions and help address and push against competing weed pressure that might be out there. Traditionally those are often an order of 20 seeds per square foot. I like to push that more to the 30-42 incher we've got those wildflowers represented and to be able to push back against weed pressure. With your experience in Colorado, and Iowa I wonder is that reflected to what you would have done in the more arid parts of Colorado?

Absolutely. I would add to that given certain program directives that you do really need to touch base with a professional in your state biologist. In order to find out the particulars. If your site has particular erosion issues in some instances those rates are doubled. Two incher you are following the program guidelines for the particular issue that you are trying to resolve with your seeding make sure you follow that recommended rate from your state because that can impact potential cost share as well. I totally agree with what Mace, mentioned there. There was a question on how long pulling away from the seeding component for a moment to the [inaudible] how long does the plastic need to be in place to be effective?

In the very hot dry super sunny Central Valley of California only for a few weeks to get that soil temperature up above 125 degrees for the Midwestern and even the New England northeastern states. We try to get that on the ground before the summer solstice to maximize sunshine on that. Keeping on throughout the hottest months of the summer to try to get enough of those temperatures up to that

level. As soon as we are ready to pull it off we -- as soon as things cool off it's important to pull it off and deal with additional weeds that may be there. [No Audio]

In the fall. There is a whole webinar on organic site.

We only have a few minutes if we do continue. Only a few minutes.

Let's take one more question and then wrap up.

Here is an interesting question. Is there a threshold when needs are beneficial and not a problem?

That is a good one. I guess a nurse crop issue. In this case if you have a weed -- a flea vein in the Northeast where it's an annual tool that's relatively easy to remove. It jumps up easily. Soil stabilization. [No Audio] isn't a weed but some sort of quick annual that would [No Audio].

Thank you, we are going to close out the webinar. Those of you having trouble with the download in the link I'll have the links in hand uploaded to the conservation webinar site. You can go in there and get the resources that way. The recording to this webinar should be available [inaudible] within a few days. Look for then. On behalf of the USDA national resource conservation service about pollinator habitat. Thank you, for attending today's webinar.

Live.
