



Building Meadows

a Practitioner's Toolkit



ARCH(Σ)WILD



pec

pennsylvania environmental council

About Pennsylvania Environmental Council

The Pennsylvania Environmental Council (PEC) works to protect, restore, and enhance the Commonwealth's natural and built environments through innovation, collaboration, and strategic leadership. For more than half a century, PEC has brought together communities, land managers, scientists, and policymakers to advance practical, science-based solutions that strengthen Pennsylvania's landscapes and the people who depend on them. This meadow-building toolkit, commissioned by PEC and developed by ArcheWild®, reflects that commitment—providing clear, actionable guidance to help land stewards create resilient, biodiverse meadows that support wildlife, enrich public spaces, and contribute to a healthier ecological future for Pennsylvania.

About ArcheWild®

ArcheWild® is a leading ecological restoration firm known for its scientific rigor, authenticity, and deep practical experience across the landscapes of the Mid-Atlantic and New England. Drawing on decades of fieldwork, applied research, and hands-on project delivery, ArcheWild® helps land stewards design, build, and sustain resilient native ecosystems that reflect both ecological integrity and real-world constraints. Their team brings a rare combination of technical expertise, horticultural precision, and operational pragmatism—ensuring that every meadow, woodland, and habitat they help create is grounded in sound science, shaped by place, and built to thrive.

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Introduction

Who is this document written for?

This document is written for land managers, park managers, natural resource managers, and anyone else that is responsible for large land parcels who wants more information and guidance on the meadow building process than what is currently available in the available literature, or online.

How does this document complement the existing literature?

Existing literature frequently focuses on “why” someone might want to build a meadow and on the steps that a person should follow to build one. The literature accurately describes the importance of selecting an appropriate site, but not how to select one. Most existing meadow guides describe the importance of controlling weeds and invasives, but few provide enough information for someone to confidently perform the work. Selecting species for a meadow is a critical step, but few guides describe the process for doing so, outside of buying a premade mix on the internet. Even fewer guides talk about how to choose a sowing method or the exact steps required to operate a seed drill, partly because there are so many seed drill models available.

This guide is designed to go behind the scenes and take a close look at how an experienced meadow building team performs their work step-by-step, to reveal key decision points, nuanced techniques, and the technology they use to deliver professional results.

Note: this tool kit is not a meadow “design” guidebook. There is limited information in this document about individual species, there are no plant lists, and no seed mix recommendations. There are no tables of bloom time and color, leaf texture, height, or any other horticultural information.

How was this document written?

This document was written to mirror the thought processes, decisions, and actions that professional meadow builders follow every day; this document reveals their processes and their technology. In some cases, alternative forms of technology or processes may be viable, but we can’t speak to their relevance or quality.

Links are provided to third-party information sources where a topic is well-covered elsewhere, such as obtaining your pesticide applicators’ license. The references used throughout are sources that professionals rely on and that can be trusted by other practitioners.

Key Concepts

Our role as meadow-builders is to restart the ecological processes that put native meadow species back into the environment to heal the soil, protect our water, and support our wildlife, but not necessarily to create visually stunning landscapes (gardening). The ultimate meadow-building success story is when a meadow built in one place naturally becomes the seed source for a new meadow somewhere else, by wind or by bird. We want meadows to take the place of weeds and invasive species at the margins of our forests, farms, roads, and cities.

Before beginning to understand the work that goes into creating a meadow, it's important to understand key terms and ideas. This way, you will know why these ecosystems are so important and therefore why there is a push for more of them to be installed throughout Pennsylvania.

Definitions

A plant species that is '[Native](#)' to a particular geographical area has evolved to the unique conditions present in that area over a period of hundreds or thousands of years. An example of a common native plant here in Pennsylvania is Common Milkweed, *Asclepias syriaca*. This species has thrived in much of the Eastern U.S. and Canada for millennia and in that time has become a vital host plant to Monarch caterpillars, helping them to complete their life cycle. On the other hand, a popular plant in large nursery centers, Burning Bush, *Euonymus alatus*, is considered '[Invasive](#)' in much of the U.S. because it is originally from Eurasia but unfortunately easily spreads into wild spaces here, creating conditions that exclude important native species.

Just because a native plant grows in Pennsylvania, though, does not mean that it grows just anywhere. Remember, all plant species have evolved to survive under certain conditions, and these conditions are only found in certain '[Ecoregions](#),' or geographical areas defined by their physical and environmental conditions including geology, soils, hydrology, altitude, and climate. Within each ecoregion, different species, or varieties of the same species, have adapted to these unique characteristics and make up unique [Plant Communities](#) that are important for the other flora and fauna that have evolved alongside them.

And this state isn't called "Penn's Woods" just for fun. While plants differ across different ecoregions throughout the state, Pennsylvania is dominated by forest with very little room left for much else. For a '[Meadow](#),' an ecosystem dominated by grasses and forbs (flowering plants), to exist, several underlying conditions need to be met. For one, meadows need a lot of sun, more than eight hours of direct sunlight every day. Secondly, they should be relatively flat to allow for safe mowing. And thirdly, they need to be exposed to a combination of ecological constraints, including soil moisture, soil depth, and soil makeup (acidity, alkalinity, and/or minerality), that naturally excludes trees and shrubs. Only under these conditions can a meadow survive without constant intervention.

So, if meadows are so rare in Pennsylvania, why are we building them? Historically, meadows formed only after major disturbances – fires, floods, hurricanes – opened large gaps in the forest canopy. Seeds of grasses and forbs can persist in the soil for decades, waiting for sunlight, so these gaps created opportunities for herbaceous plants to quickly germinate and create short-lived meadows until trees and shrubs returned.

Those meadows that did occur naturally in Pennsylvania were mostly replaced by a different type of meadow type – the farm. In the Mid-Atlantic, every acre that was marginally suitable for farming became a farm, and those areas too rocky, wet, or steep were allowed to develop into forests. This combination – farms and forest – led to the loss of most natural meadows in the state. But some remain, here and there, maintained by accidental fire on army bases or hidden away in some inaccessible and inhospitable location.

Meadows aren't just plant communities; they support complex relationships among birds, insects, fungi, and countless other species. Some rely on very specific plants – like Monarch caterpillars depending on milkweed – and meadow systems provide the food, shelter, and space these organisms need to thrive.

It's also important to distinguish a meadow from a garden. Meadows are larger (typically at least ½-acre), appear more naturalized, contain only regionally native species, and are installed without altering soil conditions. These characteristics amplify the ecological value of a space and create opportunities for recreation, education, and wildlife observation.

Creating a meadow can feel daunting at first, but with thoughtful planning and realistic expectations, the long-term benefits far outweigh the challenges. The steps outlined in this toolkit, and the accompanying guidebook, were written not to discourage you from building a meadow, but to give you a step-by-step process that has shown to produce real results. Too many people have been “guessing” about how and where to build a meadow, and about which species to use. Guessing rarely produces authentic, durable, and sustainable results.

Use this guide with confidence, and seek help when you need it.

Example Meadows

Not all meadow types can grow everywhere. Each ecological region, or ecoregion, of the country tends to have one or two meadow types that could be considered “appropriate” or “accurate.”

The best meadow is one that is durable in the existing site conditions and uses locally adapted genetics, which means that the species within them grow healthily, flower and set seed, and successfully reproduce.

The meadow designer can, of course, craft their own custom meadow but they risk natural ecological forces overwhelming their best efforts.

Trying to maintain a meadow of a “desired” character or trying to force a set of species can be expensive. Herbicide applications, frequent burning, regular mowing, and occasional reseeding are all valid techniques that land managers use to maintain a meadow in a condition that they want. But those constant inputs are increasingly difficult to justify.

A more sustainable approach is simply to figure out ahead of time which meadow type, or set of meadow types, that a site can naturally support and then just go plant them, leaving the design book at home.

Here are images of some commonly occurring meadow types in or near Pennsylvania. Most are natural meadows, but some are the result of human intervention, as noted.

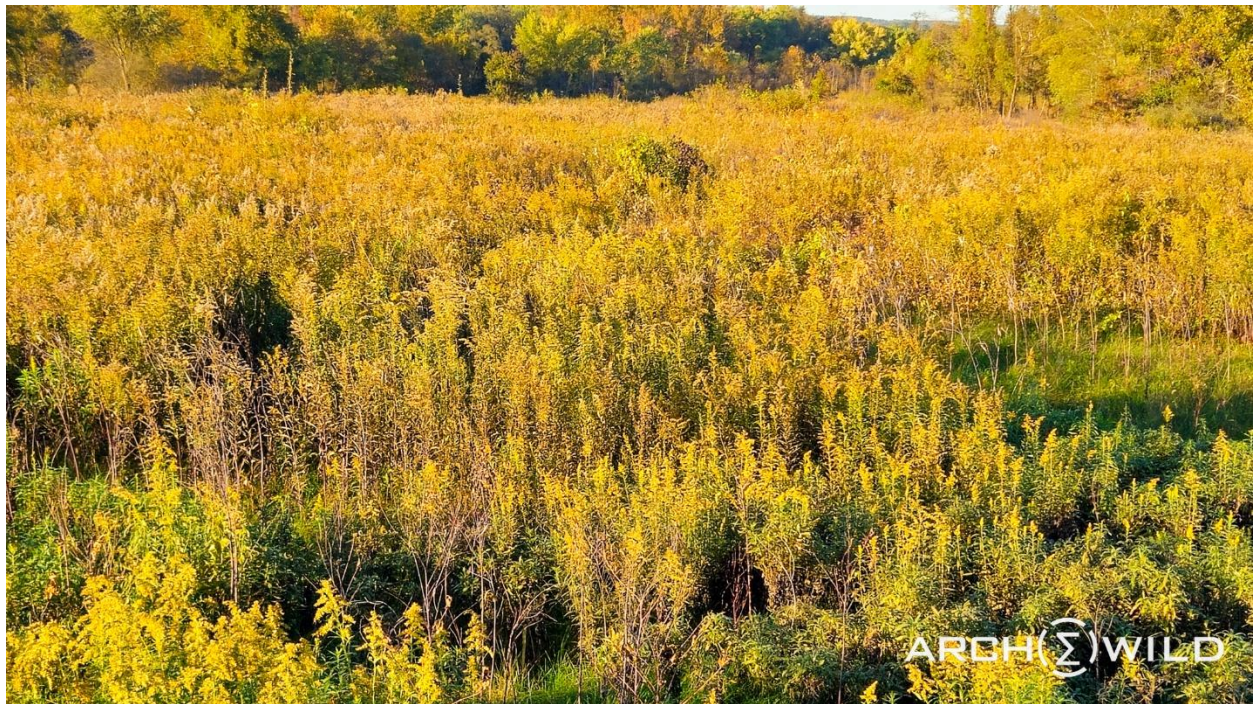


Figure 1 - This meadow type is the most common in Pennsylvania, central and northern New Jersey, New York, and eastern Ohio. It dominates mesic sites that receive ample moisture from riparian systems or from frequent precipitation. This meadow was seeded with an online seed mix featuring native warm season grasses and showy wildflowers.



Figure 2 - This is one of the most famous meadows in western Pennsylvania. Located on thin soils over a deep bed of clay, it resists trees but remains highly susceptible to pasture grass and shrub incursions.



Figure 3 - This naturally occurring warm season grassland in Pennsylvania is perched on a head slope overlooking the Delaware River in Bucks County. The soil is thin, rocky, and dry. The meadow is maintained through an annual mowing.



Figure 4 - Here is a special kind of meadow featuring dewberry, cranberry, grasses, and mosses. It is created by rainwater collecting in a slight rocky depression, simulating bog-like conditions.



Figure 5 - This meadow of sedges, blue vervain, and joe pye occurs in a low spot near a stream in Central Bucks County. Constant moisture supports these species while excluding turfgrasses.



Figure 4 - This beautiful meadow is the result of natural processes in northcentral Pennsylvania. Thin, rocky soils combine with cool temperatures and ample rainfall to create a naturally short and biologically important native grassland.



Figure 5 - Two meadows in one, and a good example of different ecological zones in the same place. The drier upland areas feature purpletop grass while the moister foot slope features goldenrods and dewberry. A single annual mowing maintains both. In Upper Bucks County.

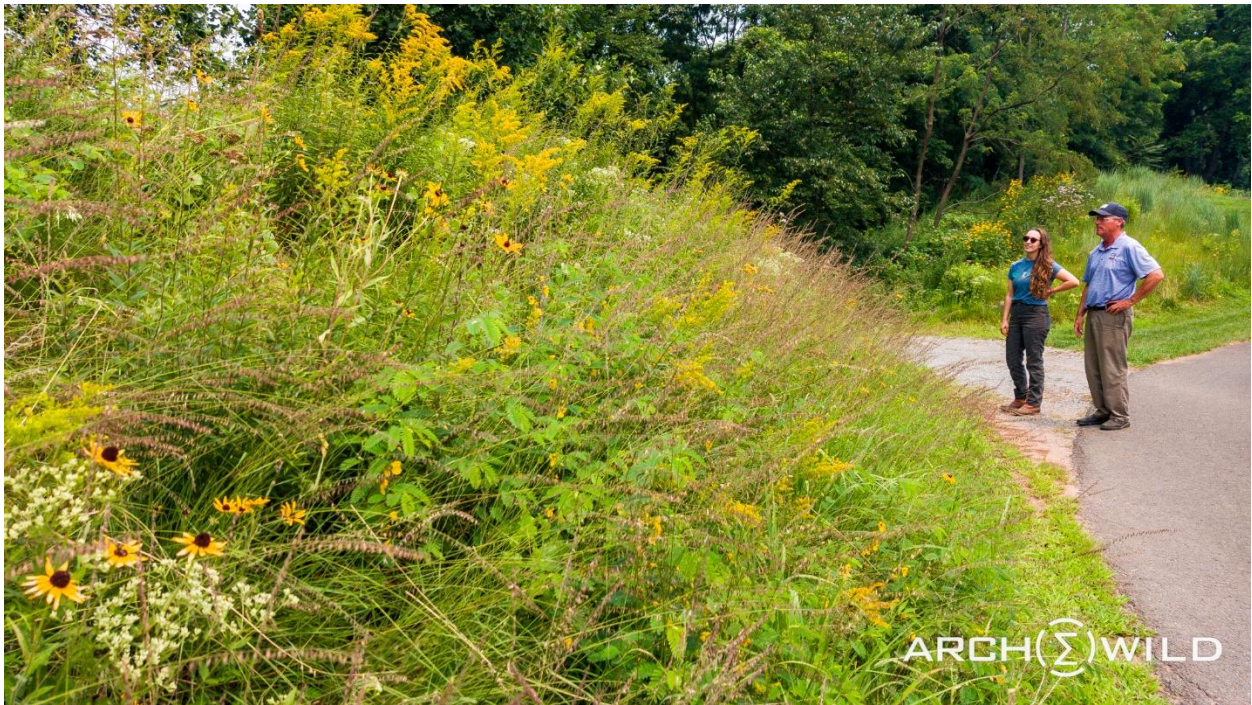


Figure 7 - This is an example of a built meadow, featuring species well-matched to a dry, sandy berm on a golf course near New York City. Sideoats grama, grey goldenrod, and bushclover are featured in the dry, well-draining soils. The meadow looks the same ten years after construction because the species were properly matched to the site conditions.



Figure 6 - This naturally occurring meadow in southern New York is sustained by the soils becoming excessively dry for about 30 weeks in summer. It receives no maintenance. Vegetation patterns follow the moisture patterns in the soil.



Figure 9 - A typical wet meadow complex in eastern Pennsylvania. A combination of sedges, ferns, some grasses, and a few flowers endure a sandy/gravelly site being kept moist by a small stream.



Figure 8 - This beautiful New York meadow featuring prairie dropseed and ragwort occurs where the soil is fully saturated in winter and completely dry for a short period in summer. The oscillating conditions exclude all species except for these two.



Figure 11 - This is probably the most famous meadow in eastern Pennsylvania. Dominated by warm season grasses and some rare species, it is often used as an example of what meadows can look like. But, alas, it occurs only on rocky, clayey, metallic soils in a low rainfall location. Hard to replicate elsewhere.

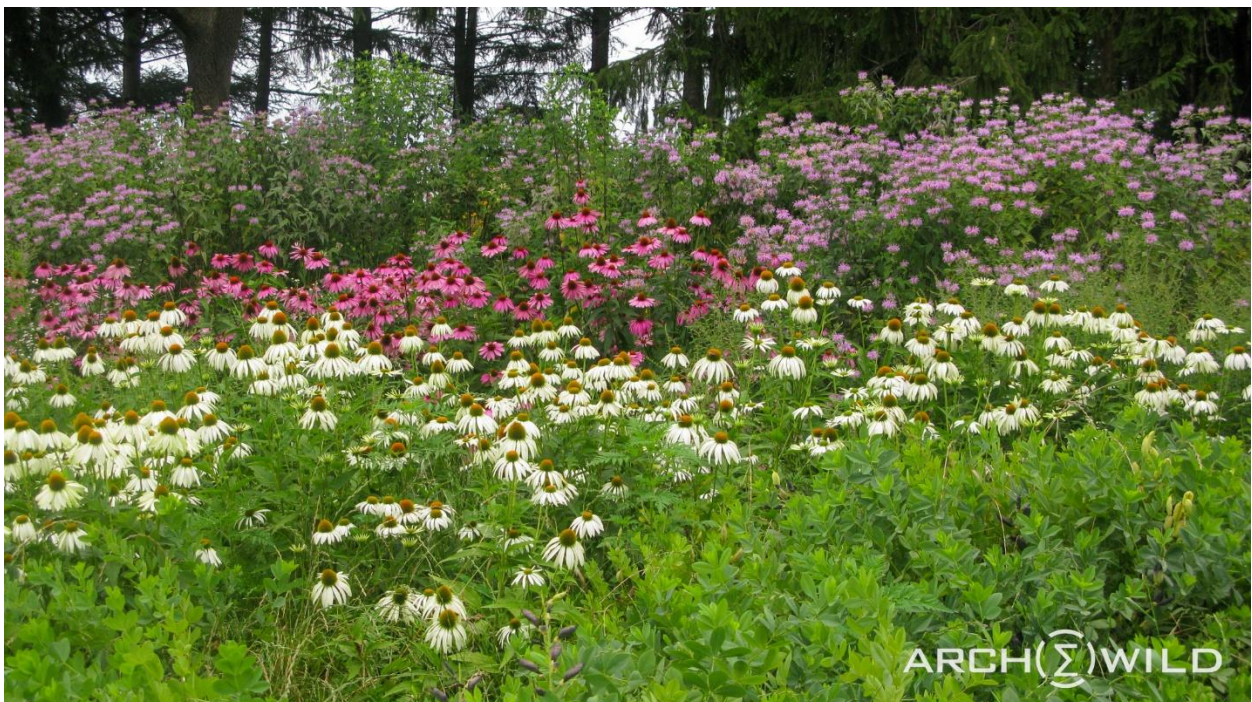


Figure 10 - An excellent example of a "designer" meadow carefully crafted to provide visual sweeps of color and texture. It lasted for about three years before Nature replaced them with the species that wanted to be there instead.

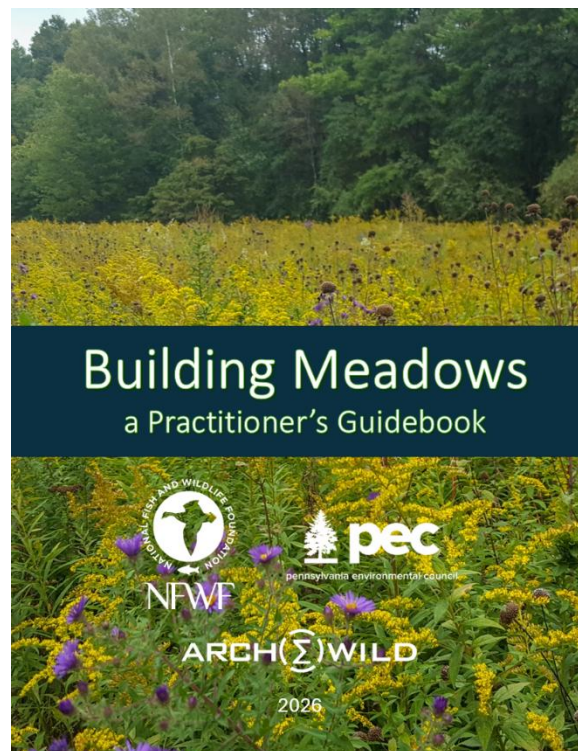
How to Use This Toolkit

This toolkit is designed to function as a practical, step-by-step workflow that mirrors the process professional meadow builders use. Each section presents key concepts, essential questions, and checklists that help you assess conditions, make informed decisions, and document your progress. These sections are supported by links to references which can be accessed via this [link](#), or by clicking the title of any section. You do not need to be an expert to use this guide – but moving through sections in order will give you the same structured approach practitioners use to avoid common mistakes.

As you read, think of each chapter as a stage in a larger project arc: evaluating whether your site is viable, planning your species mix, preparing the land, and finally installing and stewarding the meadow over time. The checklist tables summarize the tangible outputs you should complete at each stage, and the decision points help you determine whether you're truly ready to move forward.

If you follow this guide sequentially, you'll build a clear, defensible plan for your meadow and set yourself up for long-term success.

This short-form toolkit is accompanied by a longer [Practitioner's Guidebook](#) that provides more hands-on instructions and images. The structure of the [Guidebook](#) mirrors this toolkit.



Is This a Viable Meadow Opportunity?

A

KEY QUESTIONS

- Have you familiarized yourself with the definition of a meadow, and understand the differences between meadow and garden?
- Does your site have the ecological conditions to support a long-lasting meadow?
- Do you have the skills and budget to build, steward, and maintain a meadow?
- Is there support from the community to build the meadow in the place that you are thinking about?
- What are the goals behind creating a meadow?

OVERVIEW

Before deciding to install a meadow in a yard, field, or open parcel of township land, it is imperative to understand the steps involved in establishing a meadow by reading this and other supporting documents.

Following the steps herein can help you decide whether a meadow is right for you, and your community.

CHECKLIST

STEP	TITLE	SUMMARY DELIVERABLE	DATE
1	Cultural Support	Verbal consent from neighbors, staff, board members, and other relevant stakeholders. Written consent preferred.	
2	Preliminary Research	Reviewed enough literature or have enough experience to be able to describe the meadow types suitable for your area.	
3	Ecological Conditions	Evidence from multiple visits that your site can support a functional meadow system, or is already a meadow, or contains species that require meadow-like conditions.	
4	Environmental Goals	Evaluate the environmental goals (wildlife, stormwater, etc.) for this project against ALL alternative projects (forests, basins, lawn, etc.).	
5	Cultural Goals	Receive consensus from stakeholders on cultural goals which align with the expected meadow conditions.	
6	Financial Support	Develop order of magnitude budgets and discuss with decision-makers. Identify sufficient sources of funding for all phases of the project.	
7	Partner Support	Speak with at least three (3) professional organizations about your project and learn the ways that they can help, if needed.	
8	Landowner Commitment	Verbal commitment from the landowner to fulfill their obligation through the life of the project. Written commitment preferred.	
9	Decide	After following the recommended steps, decide for yourself if you have a viable meadow opportunity.	

SUMMARY

HOW TO KNOW WHEN YOU ARE FINISHED

You have conducted enough independent research to understand the viable meadow types for your site.

A meadow professional, or similar, has reviewed and approved your baseline ecological condition observations.

You have verbal (minimum) commitments for financial, cultural, and partner support.

You have consensus among stakeholders on the goals for the meadow that align with the ecological, financial, and cultural context.

DECISION POINT #1

You have worked through all relevant needs for support and understand the goals that your stakeholders have for the meadow space. Ideally, you will have also read through this document to understand what goes into building a successful meadow from start to finish. This brings up the first important decision: do you have all the necessary support to properly build this meadow?

It is vital that you be perfectly honest in this decision as straying from what is outlined in this document can lead to eventual issues or even project failure. If you are unsure whether you will have the correct support at any stage throughout this process, holding off on the project until all the necessary support is in place can be the best decision for you in the long run.

As will be mentioned throughout this document, meadows can take up to seven years to establish, and this time is only exacerbated by pushing forward with a project without procuring the needed support.

Site Evaluations – Ecological Zones

A

KEY QUESTIONS

- What major ecological zones or eco-tones do your new meadow site currently support?
- Where is the soil drier, and where is it wetter?
- Do I have any shady edges, or sections near a road?
- What is the history of the site? Is it an old factory or oiling station? An old strip mine? Or a filled wetland?
- What are the existing vegetation patterns, if any? Sometimes even park lawns will reveal their different zones when you look closely enough.
- Have you visited the prospective meadow site multiple times during multiple seasons?

OVERVIEW

Meadows are usually heterogeneous. They have low spots, high spots, sunny spots, and shady spots. Large meadow sites can flow up and down large grades and hills. And even small meadows can cross multiple underlying soil types, each with their own limitations.

Each combination of soil type, moisture pattern, and light availability should receive its own seed mix, which often improves performance while reducing costs. But you need to find and map each zone.

CHECKLIST

STEP	TITLE	SUMMARY DELIVERABLE	DATE
1	Light Map	A project map that indicates, with shapes, the different number of hours of daylight in July.	
2	Water Map	A project map that indicates, with shapes, any observable moisture conditions.	
3	Soil Map	A copy of the USGS soil survey for the project. Pictures of shallow soil pits are helpful for identifying or confirming each soil type.	
4	Plant Map	A project map that indicates, with shapes, where there are obvious differences in vegetation, including weeds.	
5	Historical Map	Notes of any prior use (e.g., farm, parking lot, ball field, etc.).	
6	Zone Map	A combination map that weaves the light, water, soil, and plant map together in clearly marked ecological zones.	
7	Zone Data	Fill out a form to document each zone and include at least one representative GPS coordinate for each zone.	
8	Evaluate™	Set up your project zones in Collector™ or in Evaluate™. Alternatively, send your zone data sheets out to an expert for analysis.	

SUMMARY

HOW TO KNOW WHEN YOU ARE FINISHED

You should have identified at least two (2) different ecological zones for any meadow project under 10 acres. Larger meadow projects can have many more.

You will know that you have the right ecological zones when you can take someone on a tour through the meadow site and easily point out and explain each zone to someone else not closely involved with the project.

Species Selection – Seed Mix Design

A

KEY QUESTIONS	OVERVIEW
○ Do I want a native meadow, or a decorative meadow? ○ What is the core set of species for each ecological zone in the new meadow? ○ Can I find nearby and naturally occurring meadows (not seeded meadows) that closely resemble my site conditions and use the species growing there as the basis for my seed mix design, by zone? ○ How much am I willing to spend on a per-acre basis to establish a new meadow? What are my budget constraints? ○ How much do I care about genetics? ○ Do I have a consultant that can help with design?	Studies show that native species mismatched to a site's conditions will be outcompeted by weeds sooner than later. Seasoned practitioners concur. Internet-sourced seed mixes with multiple dozens of species are designed to “mask” the site suitability problem by charging you for seed that will never be a part of your long-term meadow and that can mislead landowners. Instead, the preferred method is to focus on choosing the 8-12 species known to survive in each ecological zone of your future meadow.

CHECKLIST

STEP	TITLE	SUMMARY DELIVERABLE	DATE
1	Stakeholder Communication	I have consulted with stakeholders, and they understand the meadow will be of the type that the site can naturally support.	
2	Literature Review	I have reviewed relevant academic publications that describe local meadows in detail enough to be useful for seed mix design.	
3	Reference Sites	I have visited nearby natural meadows to find reasonable comparative examples to my site and ecological zones.	
4	Genetics & Provenance	I have agreement on the guiding principles for meadow genetics.	
5	Setting a Budget	I have established a seed budget based on my grant or funding program, or on what my organization is willing to spend.	
6	Recommendations	I have solicited at least one recommendation from a meadow consultant or a local ecologist.	
7	Seed Mix Design	I have a distinct seed mix for each of my ecological zones.	
8	Carrier Selection	I have made a conscious decision about the use and selection of seed carriers.	
9	Finalize Species List	If you followed the above steps, you should have a final seed mix design, by zone.	

SUMMARY

HOW TO KNOW WHEN YOU ARE FINISHED

You are finished when you feel comfortable that you have an appropriate seed mix design for each of the major ecological zones that has, ideally, been validated by a third-party or by a decision-support software tool.

Alternatively, you have selected a pre-designed seed mix based on the information provided on the vendors' website and have decided the number of pounds that you can buy that is within your budget.

Choose a Vegetation Management Strategy				A
KEY QUESTIONS		OVERVIEW		
○ Which noxious species are present? ○ If noxious species are present, what’s the age and scope of the infestation? ○ What’s the size of the project area and site preparation budget? ○ What’s the desired timeline for control? ○ Are there relevant environmental factors that would impact preparation strategies?		Comprehensive weed management and site preparation are critical to successful meadow building. Implementation strategies will differ by project, but the outcome should be a project area with near-complete control of non-desirable species. Weeds and invasive species can quickly overwhelm a new meadow. This section describes the process for developing vegetation management strategy for your site.		
CHECKLIST				
STEP	TITLE	SUMMARY DELIVERABLE	DATE	
1	ID Noxious Weeds	Re-evaluate the site to ensure identification of all non-desirable vegetation at and/or near the site.		
2	Financial Review	Review high-level budgets with decision-makers prior to making vegetation management decisions to establish financial guard rails.		
3	Environmental Factors	List the environmental factors that could impact control strategies.		
4	Cultural Factors	Consider the stakeholders and the potential implications for each vegetation management strategy (e.g., will neighbors tolerate the use of herbicides?)		
5	Accessibility	Assess the accessibility of equipment (e.g., sprayers, misters)		
6	Build Vegetation Mgmt. Calendar	Create a mgmt. plan based on the weeds present in the project site, considering phenology, taxonomy, and effective control methods.		
7	Consider Alternative Approaches	Evaluate the tradeoffs between chemical suppress and ‘organic’ methods. Remember to evaluate both short- and long-term costs.		
8	Control Timelines	Evaluate the preferred control mechanism against the realistic timeline to complete site preparation, and your budget.		
9	Control Tools	Determine the most effective tool for eradicating noxious weeds.		
10	Consider Planting Strategy Impact	Review the project planting strategy sequence against the vegetation management strategy to identify potential conflict.		
11	Validate the Plan	Solicit feedback from other practitioners.		
12	Select/Modify	Choose a strategy and communicate with relevant stakeholders.		
SUMMARY				
HOW TO KNOW WHEN YOU ARE FINISHED				
You are finished with this step once you are confident that you have identified all the invasives in and around your meadow and have confirmed that you have the time, budget, and community support to treat them all effectively. The best practice is to keep all your constituents informed of your activities to avoid concerns and complaints.				

Preparing To Spray			A
KEY QUESTIONS		OVERVIEW	
○ What kind of plants are being targeted? (forb, grass, woody) ○ What non-target species are present and what is the degree of mixing with invasives? ○ What is proximity to water? ○ How accessible is the site?		This section is for practitioners that have decided to implement a synthetic herbicide approach to suppressing weeds and invasives; organic practitioners should review literature on appropriate timing/technique for their practice. Rarely is a single application of a single herbicide effect. Most scenarios involve a collection of various herbicides tailored to different kinds of plants, applied together or separately, at various rates and times of year, and with multiple application methods. Thinking through the best approach is like preparing for battle. You must know your enemies, when they are weakest, and how they can best be subdued while not causing undue destruction to the surrounding community.	
CHECKLIST			
STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Identify Nearby Native Species	Identify desirable vegetation and their location in the landscape related to non-desirable vegetation.	
2	Update Vegetation Management Calendar	Update your Vegetation Management Calendar with new and/or relevant information.	
3	Pesticide License	Obtain a pesticide applicators’ license. They are available to anyone, and you learn many valuable lessons. Or bring your license into compliance, if necessary.	
4	Choose Products & Read Labels	Select the product you will use for your first two (2) spray events. Read the product labels as they include important and valuable information about target species, optimal rates, and times.	
5	Choose Adjuvants & Read Labels	Select the additives or adjuvant products you will use (e.g., blue dye, so that sprayed areas are visible for a short time).	
6	Confirm Application Method & Equipment	Clean and test your spray equipment and/or other tools necessary for the application.	
7	Determine Application Rate	Decide on desired application rate for first two (2) applications.	
SUMMARY			
HOW TO KNOW WHEN YOU ARE FINISHED			
You are finished with this step once you have determined which herbicides and adjuvants you will be using, how many times and when you will be using them, at what rates, and using what application method. You will have tested your equipment and know that it can do the job when the time comes.			

Choose a Planting Strategy

A

KEY QUESTIONS		OVERVIEW	
○ Which species dominate your seed mix designs? Are these species commercially available? ○ What is the size of the project site? ○ What is the timeline for establishment? ○ What are the available planting methods? ○ What is the budget for planting? ○ What are the expected site conditions at the time of planting?		The planting strategy aims to determine the optimal planting methodology and timeline for the site and chosen species. Planting strategy considers the requirements and availability of the desired species as well as the optimal timeline for establishment. Although budgets are a factor, they are secondary to effective and efficient seed installation. After completing this section, you will have determined the timing of planting and the methodology for installation.	
CHECKLIST			
STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Financial Review	Review high-level budgets with decision-makers prior to making planting decisions to establish guard rails.	
2	Timeline for Establishment	Develop a project sequencing document that delivers the expected vision for the meadow on schedule. This informs future planting strategy decisions.	
3	Research Seed Requirements	‘Write’ down the germination requirements of every species on your list. Some species are best planted in fall, while others are best to sow in spring. Some are surface-sown, and some get drilled. Some benefit from pre-conditioning.	
4	Site Conditions	Identify site characteristics that would impede equipment access and/or efficacy on site.	
5	Understand Seeding Strategies	Research the relevant factors that determine seeding efficacy.	
6	Consider Vegetation Mgmt. Strategy	Review the project planting strategy sequence against the vegetation management strategy to identify potential conflict (i.e. you want to seed two months after applying pre-emergent).	
7	Choose Your Strategy	Determine the seeding strategy that delivers the seed at the appropriate depth during the appropriate season.	
SUMMARY			
HOW TO KNOW WHEN YOU ARE FINISHED			
You have developed a planting strategy that considers ecological and cultural timelines using equipment suitable to the type and scale of project. You should have a good understanding of when and how you will plant the meadow, and if pre-conditioning the seed could benefit outcomes.			

Socialize Your Plans and Set Expectations

A

KEY QUESTIONS		OVERVIEW	
○ Who is likely to notice or be affected by your work? (neighbors, park users, staff, volunteers, etc.) ○ Is there a risk of confusion, concern, or pushback if work proceeds without ample notification or explanation? ○ What aspects of the process will raise the most eyebrows? (herbicide, meadow height, access?) ○ Who is responsible for communicating, and when/how often should it occur?		Hopefully, by this point you have engaged with enough stakeholders that there are no major surprises with public perception and support for your meadow. You now have a concrete plan that you can share. Armed with an implementation plan, it is up to you to communicate it to everyone and let them know what comes next. This can be a delicate balance, especially if there are people from many backgrounds involved. The goal at this stage is to set clear expectations, reduce confusion, and proactively address common concerns.	
CHECKLIST			
STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Identifying New Stakeholders and Concerns	Create a list of all relevant stakeholders, including new stakeholders, and their expected reservations/concerns.	
2	Select Communication Method	Set up a meeting with stakeholders; send an email with an abridged version of the plan and ask for feedback.	
3	Communicate Desired Project Outcome	Remind stakeholders of the project goals (e.g., will serve as habitat for meadowlarks, will be kept at a maximum of 4’ tall)	
4	Communicate Vegetation Mgmt. Approach	Outline the planned vegetation management approach, discussing the technique, number of treatments, timing, and points of entry.	
5	Communicate the Planting Approach	Outline the planned planting approach, discussing the implementation strategy, particularly if it will occur over time.	
6	Communicate the Establishment Timeline	Outline the high-level timelines associated with prep, installation, and establishment. Let people know that it can be a long process to construct the meadow and collect feedback.	
7	Document Feedback & Confirm Readiness	If necessary, re-evaluate vegetation management, planting approach, and timeline based on feedback. Otherwise, proceed.	
SUMMARY			
HOW TO KNOW WHEN YOU ARE FINISHED			
If no communication is required with outside stakeholders, this step may be completed immediately, and no further action is necessary. If communication is required to proceed, you are finished once you have relayed the implementation plan, addressed concerns, and set expectations for anyone whose objections could delay, alter, or otherwise derail the project.			

DECISION POINT #2

You have now made many of the most important decisions: species selection, how to plant, how to manage undesired vegetation, and so on. And you have presented all this information to the relevant stakeholders with your reasoning. But what was their feedback? Did they give a resounding approval or did major questions on your choices arrive? Did any issues arise and were they resolved?

Your stakeholders don't have to love the plan, but they do need to agree to it. Remember that the end goal is near-complete control of undesired vegetation and a new thriving ecosystem composed of the right plant species for your site. If you fear that adjustments to your plan to accommodate concerns or a lack of budget will lead to a less-than-ideal result, seriously consider pausing or cancelling the project.

Again, without proper preparation and planning, any meadow project can quickly become overwhelmed with undesired species and ultimately fail as trying to manage those species after the fact becomes more difficult, and more costly as time progresses.

Perform Vegetation Management

A

KEY QUESTIONS

- Do you own or do you have to set up rental of the equipment you will be using?
- Is your equipment properly calibrated and ready to use?
- Do you have all the necessary protective equipment for the strategy you're using?
- Have you communicated your timeline with the necessary parties?
- Have you completed all necessary documentation?

OVERVIEW

Finally, the start of the project is close at hand. But there are a few more important tasks that need completing before work can begin. This page will discuss the discrete steps to performing your vegetation management plan.

CHECKLIST

STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Communicate the Timeline (Far in Advance)	Provide relevant stakeholders with notice at the beginning of the season and discuss relevant details. Post in a newspaper or on a community website.	
2	Check Necessary Paperwork	Ensure all documentation and paperwork is up to date (i.e. applicator's license, permits, etc.).	
3	Procure Materials	Procure necessary equipment and materials in advance of application (i.e. purchase products).	
4	Communicate the Timeline (Days in Advance)	Provide relevant stakeholders with notice at the beginning of the week, if not earlier, and discuss relevant details. Post signs a week in advance.	
5	Read Product Label and Instruction	Re-familiarize yourself with the product/equipment label, if relevant.	
6	Check Calibration	Test equipment and ensure proper calibration. Start with using water to test your equipment.	
7	Perform Strategy	Apply the vegetation management strategy.	
8	Document Everything	Take photos, complete herbicide logs, send updates to stakeholders.	
9	Check Efficacy	Return to the site 2-4 weeks after first treatment and evaluate efficacy.	
10	Plan your Next Treatment	Develop the plan for the next point of entry and communicate the plan, if necessary.	

SUMMARY

HOW TO KNOW WHEN YOU ARE FINISHED

You are finished with vegetation management once you have confirmed that you have reached the suppression goal (e.g. 90% vegetation suppression) that you've set for the project and all activities have been properly documented and communicated with all necessary parties.

Remember that adequate time is needed to check efficacy of overall treatment. If there is any uncertainty, more time should be allowed to monitor efficacy. Projects with stilt grass, for example, should wait a year to check for efficacy.

Secure your Seeds and Planting Equipment

A

KEY QUESTIONS	OVERVIEW
○ Where are you sourcing your seed? ○ What types of seed are you using? ○ How are you seeding? Do you need a seed drill or a broadcast seeder? ○ What type of drill are you using? ○ Where is your drill? Are you subcontracting it? ○ Who is operating your drill? ○ Do you need a carrier? ○ Are you using a cover crop?	Once you have successfully suppressed your weeds, the next step is acquiring the seeds and securing the seeding equipment. Remember to honor your seed genetics policy established earlier in the process when purchasing seeds. There are many types of seeding equipment. Hunt around and find a Conservation District or contractor with the best equipment for the job.

CHECKLIST

STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Check Seed Availability	Contacted at least three (3) seed vendors to solicit quotes for seed. Inquire about genetics.	
2	Choose Seed Vendors	Consider price, availability, genetics, and weeds when making your decision about seed procurement. Native seeds are NOT generic products, and vendors are NOT inherently equivalent. Each vendor has different genetic strains, with different price points, different storage techniques, and percent weeds in their seeds. You want the most local genetics available and with minimal weeds. Saving money on seeds should NOT be a key consideration. Using different vendors is common practice.	
3	Choose Storage Strategy	Identify and decide on the optimal location and type of temporary seed storage.	
4	Order and Store Seed	Order seed as individual species rather than a seed mix. Purchase and then store the seed according to storage strategy.	
5	Secure Seeding Equipment	Reserve the equipment necessary to implement your planting strategy (ex. tractor and seed drill).	
6	Transport/Hauling	Safely pick up the rented seed drill from your provider and move it to your planting site or hire someone to move the equipment for you.	

SUMMARY

HOW TO KNOW WHEN YOU ARE FINISHED

You are finished with sourcing your seed once you have figured out where seed will be stored, how it will be organized, and have placed the order.

You are finished with securing your seed drill once you have a tractor and seeding equipment reserved and know how all equipment is getting to the site.

Plant your Meadow

A

KEY QUESTIONS	OVERVIEW
○ Have you verified that the site is in a condition suitable for seeding? ○ Do you have an experienced operator and/or enough support staff to complete the task? ○ Have you communicated the timeline? ○ Have you familiarized yourself with the necessary equipment/tools? ○ What type of seeds are you sowing?	The individual characteristics of each site and seed mix will affect how seed will be planted Equipment calibration ensures that the mix is applied by the specific machine, at the specific site, at the specific rate intended. Uncalibrated planting may result in poor coverage, time inefficiency, and increased costs. Be sure to understand the depth at which you should be seeding each species.

CHECKLIST

STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Verification Visit	Visit the site before seeding to re-confirm effective control has been achieved and that the soil conditions are suitable for seeding.	
2	Communicate Implementation	Communicate to stakeholders the plan for planting the meadow (ex. timeline, method).	
3	Site Review	Walk through the site to check for debris, ditches, swales, or other impediments. Remove or flag obstructions and areas to avoid.	
4	Equipment Review	Gather your planting team to review the plan and pertinent safety information. Check the equipment and review processes.	
5	Calibration	Perform calibration on the equipment, as necessary.	
6	Seed Mixing and Loading	Weigh (if needed), mix (if needed), and evenly distribute seed in the equipment. Mixing can be performed slightly ahead of time.	
7	Install Meadow	Use your equipment to install the meadow. Regularly check operations to ensure successful seeder operation, planting rates, seed distribution, and depth.	
8	Document	Capture key moments with images (with permission).	
9	Communicate	Communicate the effective planting of the seed.	

SUMMARY

HOW TO KNOW WHEN YOU ARE FINISHED

The seed has been successfully distributed to the necessary zones, and you have documented and subsequently communicated the effective completion of this step.

Re-educate your Stakeholders

A

KEY QUESTIONS	OVERVIEW
○ Have we sent a quarterly reminder to all stakeholders reinforcing the outcome that we collectively aspire to achieve (which takes seven years)? ○ What level of investment and specification was provided during the evaluation and planning process associated with timelines? ○ What elements of the growth stage predictably lead to negative feedback and how can we address those? ○ Was our planning, evaluation, site prep, and planting strategy implemented correctly, based on this guide?	This phase might sound redundant but remind your stakeholders that the journey is just beginning. Meadows are dynamic spaces that can shift and change from season-to-season, but they usually stabilize and mature into their near-terminal vegetation complex in about seven years. The meadow maturation process can be nerve-wracking for many people due to the unavoidable proliferation of annual winter weeds and slow meadow germination. Proactive, consistent, accurate, and confident communication and expectation management can mitigate these concerns and aid in the successful meadow maturation by avoiding counterproductive reactions to criticism.

CHECKLIST

STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Review Previous Protocols	Evaluate your process and scan for potential gaps during the design and install.	
2	Confirm Responsibilities	Review establishment responsibilities and protocols related to monitoring and supplemental weed control.	
3	Schedule & Deliver Annual Meeting	Re-engage with all stakeholders at least once per year to address both detailed observations and the bigger picture, and to reinforce expected outcomes and timelines.	
4	Identify & Engage New Stakeholders	Look for opportunities and always be prepared to engage and educate new stakeholders that could influence how the project is managed going forward. Have faith in the process and try to avoid getting derailed by someone wanting to take unplanned actions based on their interpretations.	
5	Develop some Media Assets	Create media assets that support the outcome and/or process you have described to stakeholders.	

SUMMARY

HOW TO KNOW WHEN YOU ARE FINISHED

You have reviewed the timeline and approach for establishment and responsibilities have been assigned for establishment. You have confidently communicated post-seeding expectations in a way that helps to resist in-the-moment decisions that might conflict with or change your planning. "Experts" like to intervene at this stage and can try to put your meadow on a different course than what you have planned. Follow the process; trust the process.

Establishment (Years 1-7)

A

KEY QUESTIONS	OVERVIEW
○ How successful was germination? ○ Is re-seeding necessary and if so, what should change? ○ What weeds are appearing and how pervasive? ○ How frequently should you mow?	The first year after seeding is rough and the project will feel like a full-time job. Be prepared to handle criticisms. Everyone will wonder if you know what you are doing! You will inevitably be asked to perform multiple mowings, conduct weed surveys, apply additional controls, and possibly even reseed. Client or public anxiety is your worst nightmare during the establishment period. Your job is to stick to the plan while regularly evaluating what worked and what didn't. Doing a thorough job in each of these areas the first couple of years will set you up for long-term success. Gradually, intervention frequency will decrease, and species will eventually germinate and naturally find their niches within the meadow. Your job is to steward it along. Establishment protocols should be tailored to each specific ecological zone in the meadow.

CHECKLIST

STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Meadow Documentation	Photograph meadow regularly.	
2	Monitor Project	Periodically evaluate the project area for invasives and germination success. Monthly cadence in the first 1-2 years, quarterly or bi-annually in years 2-7.	
3	Consider Mowing	Consider the frequency and necessity of mowing to incorporate in the stewardship plan.	
4	Write the Meadow Stewardship Plan	Write out all anticipated steps to keep the meadow successful. This should be comprehensive. Monitoring will inform decisions about acting on the plan. Validate with a professional.	
5	Announce Stewardship Plan	This outreach effort should be explicit about responsibilities and outcomes for the stewardship plan. You don't intend to kill every weed, but rather steward the space to health.	
6	Implement Stewardship Plan	Act on the stewardship plan. Monitoring will inform the necessity for action.	
7	Collect Seed	Collect seed from valuable species to establish new meadows, share with the community, or grow into plugs.	
8	Decide Next Year's Management Approach	Use your periodic monitoring visits to make decisions about adjusting or modifying the stewardship plan on an annual basis.	
9	Maintain Communication	Regularly provide updates to stakeholders about the status of the meadow.	
10	Remain Vigilant	Continue this process until completion, defined below.	

SUMMARY

HOW TO KNOW WHEN YOU ARE FINISHED

Establishment is finished when the meadow can function with minimal human intervention. This means insignificant populations of invasive weeds that can be easily controlled and native herbaceous coverage that is self-seeding over >95% of the meadow area. Achieving this will likely take up to 7 years. Remember that everything should be documented as you go.

Maintenance (Years 8+)

A

KEY QUESTIONS	OVERVIEW
○ What weeds are present and at what level? ○ What is your early detection protocol? ○ Are your goals still clear? ○ Would burning be helpful? ○ How are desirable species responding? Are they still present? ○ Was your choice of species correct?	Once you've reached a point where there are minimal invasives present and native plants are re-seeding across roughly 95% of the meadow, your job does get easier, but it never stops. Remember, regular maintenance actions must be taken to preserve a meadow, except for extreme circumstances, such as a new invasive species incursion. Maintenance activities are the same as establishment activities, just performed less frequently and with less intensity, so you should be comfortable with these tasks. Remember that meadows are inherently unsustainable in most places so you will always have work to do to maintain your meadow in a meadow-like condition.

CHECKLIST

STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Meadow Documentation	Perform annual visit to evaluate meadow and photo-document the status of the system.	
2	Periodic Stakeholder Engagement	Find opportunities to re-engage with existing stakeholders and develop new stakeholders.	
3	Consider Educational Programs	Teach others about the process that you used and the decisions that you made. Sharing the positive, or negative, results of any of your actions helps to build community knowledge and understanding about how to build meadows. Few meadow projects run perfectly. Learn from each one and share your learnings.	
4	Write Meadow Maintenance Plan	Write out all anticipated steps to keep the meadow successful. This should be comprehensive. Monitoring will inform decisions about acting on the plan. Validate with a professional.	
5	Meadow Intervention	Act on the maintenance plan. Monitoring will inform you of the necessity for action.	

SUMMARY

HOW TO KNOW WHEN YOU ARE FINISHED

You're never finished with maintenance! Tasks every year should include succession interruption (mowing/grazing), surveying, and refined management actions.

Keeping a Meadow, or Not...

A

KEY QUESTIONS		OVERVIEW	
○ How does one keep a meadow as a meadow? ○ What does keeping a meadow as a meadow entail? ○ Can a meadow even be kept as a meadow? ○ Why doesn't my meadow look like it used to? ○ How do I get my meadow back to the point when it was full of flowers all year? ○ Why doesn't my meadow look like I thought it was going to look? ○ Weeds have taken over, especially Goldenrod; what do I do now? ○ How do I decide when to let the meadow go?		Meadows will become whatever they are meant to become; that's what nature does. Keeping a meadow as a meadow means that you will need to arrest natural processes, particularly the emergence of trees and shrubs. Keeping a meadow as a certain “type” of meadow is particularly challenging as doing so requires fighting against nature’s processes, which can be expensive and usually fails. Ultimately, you might decide you don’t need a meadow any longer and want to just let it go. Managing how the meadow evolves should follow a similarly rigorous process to the meadow-building process. Nearly all the steps are the same, except you might not need a seed drill.	
CHECKLIST			
STEP	TITLE	SUMMARY DELIVERABLES	DATE
1	Meadow Retirement	I have reviewed and documented my meadow, or had it reviewed and have the documentation in hand.	
2	Transition to Shrubland	Follow the guidebook for Transition to Shrubland.	
3	Transition to Forest	Follow the guidebook for Transition to Forest.	
SUMMARY			
HOW TO KNOW WHEN YOU ARE FINISHED			
You have made all your major decisions for the meadow, which you repeat annually. You know what your stewardship activities will always be for three years. You have consciously decided to intervene, reset, or retire the meadow each year, and socialized your decisions. You have secured extra budget and schedule for activities that require supplemental funding			

Summary

Building a meadow is both an art and a science, but there's a reliable process that can yield positive results. This toolkit, and the accompanying [Practitioner's Guidebook](#), is here to help you move through that process with confidence and success.

While creating an authentic, resilient meadow takes thoughtful planning and patience, each step you take lays the foundation for an ecosystem that will reward you, your community, and the local fauna for years to come, or until you decide you want a resilient forest. Meadows don't appear overnight and don't occur randomly, but they can absolutely thrive under the right set of circumstances and conditions.

Our goal is to share the lessons practitioners have gained through years of hands-on experience so you can avoid common pitfalls and focus on what truly matters: choosing the right site, selecting species that belong there, preparing the landscape well, and stewarding the space as it grows. With each completed step, you move closer to a healthy, dynamic meadow full of life – a place where pollinators, birds, and people can all benefit.

So, follow the process described, take your time, communicate openly, and document your progress along the way. If you follow this guide with intention, you'll be rewarded with a thriving meadow that reflects not just ecological principles, but your own commitment to restoring and enriching the landscapes of Pennsylvania.

Links

Browse here for a variety of links to external documents and websites that can help you learn more about specific topics covered in this toolkit. Links are organized by section.

Is This a Viable Meadow Opportunity?

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Xerces Society Catalog	Xerces Society content related to the opportunities and benefits of establishing meadows.
Mt. Cuba Center	Explore the meadows at Mt. Cuba Center of insights and inspiration.
PA Natural Heritage List of Plant Communities	Learn about the natural plant communities of Pennsylvania, including both wet and dry meadow systems, and where they occur
Riparian Forest Buffers	PA DCNR content that teaches about the invaluable services of riparian forest buffers as distinct from other vegetation systems, including meadows
Costs of a Lawn vs. a Meadow	Does a meadow actually cost less money? Is saving money a legitimate reason for building a meadow, or are there other reasons?
Lawn to Habitat Grants	Learn about PA programs that can help to convert lawns to functional meadows.
C2P2 Grants	PA DCNR program to support large revegetation programs that directly relate to improving watersheds and protecting water quality, which can include meadows.
PACD Lawn Conversion	PA Conservation Districts are an excellent first stop when exploring meadow opportunities that require funding and technical assistance.
Establishment	A practitioner's toolkit that offers insights into caring for a meadow after it has been sown.
Maintenance	A practitioner's toolkit that offers insights into caring for a meadow after it is successfully growing.

Site Evaluations – Ecological Zones

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
<u>Google Earth Training</u>	Learn how to use Google Earth, a free GIS application from Google.
<u>QGIS</u>	QGIS is a highly functional GIS system that offers advanced functionality similar to systems requiring a license.
<u>Google Earth</u>	Google Earth is the browser-friendly beginner's GIS system that is free to use.
<u>Evaluate™</u>	A species selection and meadow design tool available under license.
<u>Collector™</u>	An ecologists' tool for documenting wild native meadows for the purpose of modelling and learning and available under license.
<u>ArcGIS</u>	The #1 global GIS software with multiple components. Available under license.
<u>CaSoilWeb</u>	A free tool for exploring soil systems across the US focused on providing information for farmers, but some elements are useful for meadow builders.
<u>iNaturalist</u>	A free-to-use software for recording GPS coordinates and other information about animals and plants.
<u>Newcomb's Wildflower Guide</u>	One of the best field guides for identifying native plants in the Northeast and the Mid-Atlantic. Out of print but still available on Amazon.
<u>Peterson's Tree Guide</u>	Classic field guide for learning about North American trees. Available on Amazon.
<u>Arboreal Tree Height Measurement App</u>	A phone app for estimate the height of a canopy. Available under license.

Species Selection – Seed Mix Design

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
JSTOR	An online repository for research papers and article journals for a wide range of topics. Available under license.
Gemini	An online research tool offered by Google. Available under license.
NRCS-ESD	An ongoing process of documenting state-and-transition models for ecosystem development.
PNHP	Learn about the natural plant communities of Pennsylvania, including both wet and dry meadow systems, and where they occur
CaSoilWeb	A free tool for exploring soil systems across the US focused on providing information for farmers, but some elements are useful for meadow builders.
NatureServe	Organization that hosts animal and plant information for the Western Hemisphere. Data, reports, and maps available under license.
iNaturalist	A free-to-use software for recording GPS coordinates and other information about animals and plants.
Collector™	An ecologists' tool for documenting wild native meadows for the purpose of modelling and learning and available under license.
EPA	Learn about the EPA Ecoregion maps.
Xerces Society	Xerces Society content related to the opportunities and benefits of establishing meadows.
PA DCNR Lawn to Meadow	Learn about PA programs that can help to convert lawns to functional meadows.
NRCS CRP	Learn about how the USDA-NRCS supports protecting old farm fields through establishing meadows
Evaluate™	A species selection and meadow design tool available under license.

Choose Vegetation Management Strategy

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Herbaceous Weed Treatment	A federal guide for understanding non-woody weeds and how to control them.
Penn State Extension Invasive Plants	Learn about commonly encountered invasive species in the state of Pennsylvania, and how to control them.
PA Controlled Plant and Noxious Weed Lists	A list of plants for which commercial transactions are being regulated.
Invasive.org	A website to learn about managing invasive plants.
Penn State Invasive Control Strategy Resources	Information about how to treat specific invasive plants in Pennsylvania.
National Invasive Species Information Center	A national repository of cultural and management information for species that threaten the United States.
Best Management Practices for Wildland Stewardship	An excellent guide for identifying and managing non-native plant species.
Applying Herbicides in and Around Water	Learn about how to control invasives near water sources.
NRCS Control Mechanisms	A farm-focused guide on noxious weeds and how to manage them.
PA E&S Plan Resources	Guidelines for how to prevent soil erosion when disturbing soil during the building of meadows and other activities.
PA Pesticide Applicator Resources	Learn how to obtain your own herbicide applicators' license.
Xerces Organic Approaches	Alternatives to using synthetic chemicals in the preparation of building a new meadow.
Weeds & Herbicides Intro	A beginner's guide to weeds and the techniques that can control them.

Preparing To Spray

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Best Management Practices for Wildland Stewardship	An excellent guide for identifying and managing non-native plant species.
PA Controlled Plant and Noxious Weed Lists	A list of plants for which commercial transactions are being regulated.
Invasive.org	A website to learn about managing invasive plants.
Business Pesticide Applicator License	Learn how to obtain your own herbicide applicators' license.
Herbicide Selection and Use	Choosing the right herbicide or technique for specific weeds and invasive plants.
Reading a Pesticide Label	Important information related to reading, understanding, and complying with the instructions printed on every container of herbicide.
Adjuvants with Herbicides. When and Why They Are Needed.	Learn about other products that are often used in combination with herbicides that can greatly reduce the amount you need to use.
Pesticide Application Equipment and Methods	Overview of different equipment and methods for applying herbicides.
Backpack Sprayer Calibration for Woodland Applications	Instructions for using the most common technique for applying herbicides – the backpack sprayer.
Boom Sprayer Calibration	Learn how to use and calibrate a tractor-mounted boom sprayer for controlling weeds in large meadows.
USFS Sprayer Calculations	Calibrating sprayers to get the coverage you need while minimizing costs and damage to the environment.

Choose a Planting Strategy

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Fall vs. Spring Seeding	The differences between seeding in the fall vs. seeding in the spring.
Establishment from Seed	Learn about the challenges and realities of growing meadows using seeds.
Germination Codes by Species	Learn about the unique conditions required to prepare seeds for germination.
Propagation Methods	Learn about the fascinating range of mechanisms that species use to reproduce themselves.
Ernst Seeding Methods	Techniques for seeding meadows.
Xerces Meadow Guide w/ Seeding Methods	More techniques for seeding meadows.
NRCS Seeding Methods	Even more techniques for seeding meadows.
Hoffman Seeding Methods	Want more techniques for seeding meadows?

Socialize and Set Expectations

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Sharing knowledge to improve ecological restoration outcomes	Meadows are just one way to restore function to the natural world. Learn about how you can help others to learn from your successes.
Principles and Guidelines for Ecological Restoration. Section 4.1.3.1 Engagement & Communication	Expert tips on how to engage with the public about your restoration efforts.
Why We Recommend Herbicide	Herbicides have a bad reputation, but is it justified?

Perform Vegetation Management

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
PA E&S Plan resources	Guidelines for how to prevent soil erosion when disturbing soil during the building of meadows and other activities.
PA Pesticide Applicator Resources	Learn how to obtain your own herbicide applicators' license.
PA Hypersensitivity Registry	A special list to alert you to neighbors that might be very sensitive to the use of herbicides.
Pesticide Sprayer Calibration Techniques	Calibrating sprayers to get the coverage you need while minimizing costs and damage to the environment.
Proper Sprayer Cleaning	Learn about how to properly clean your spraying equipment.
Spray Drift	Learn about the dangers of herbicide drift and how to reduce accidental damage.
Herbicide Record Keeping Manual (downloadable)	A handy document for recording your use of herbicides.
Issues that Arise During Meadow Establishment	Common weeds that appear during the process of building a meadow.

Secure your Plants and Equipment

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Native Plant, Seed and Services Directory	Learn where you can buy native seeds.
Pinelands Nursery	A seed and seed mix vendor focused on the species and genetics of southern NJ, Delaware, Eastern Maryland, and Long Island.
Native Bee-ginnings	A seed and seed mix vendor focused on the species and genetics of western Pennsylvania and eastern Ohio.
Ernst Seed	A seed and seed mix vendor specializing in large land revegetation projects.
Genetic Considerations	Learn about native plant genetics and why they are so important to the success of your meadow.
EPA Ecoregions	Learn about the many different ecosystem types across the United States to help you understand what types of meadows are suitable for you.
Seed Storage and Viability	How to safely store seed between the time you receive it and you are ready to plant your meadow.
Germination Codes by Species	Learn about the unique conditions required to prepare seeds for germination.
Propagation Methods	Learn about the fascinating range of mechanisms that species use to reproduce themselves.
Seed Fillers and Carriers for Planting Native Warm-Season Grasses and Forbs	Learn about products that you can add to your seed mix to make sowing easier and more effective.
Restricted Weed Seeds - PA Code	Learn about the weed seeds that should be avoided in your seed mixes.
Understanding the Seed Tag	Learn how to read and understand the information on the label that accompanies your seed or seed mix.
PA Assoc. of Conservation Districts	Resources from Conservation Districts across Pennsylvania.
PA Commercial Driver's License Factsheet	Driver's licensing in Pennsylvania for transporting herbicides and seeding equipment.
A Comprehensive Guide to Proper Towing Techniques and Equipment	Learn how to safely transport your spraying and seeding equipment.
Cargo Securement Brochure	Learn the rules for properly securing equipment and loads of all types.
Pre-Trip Towing Safety Checklist	Learn about what to check before towing any equipment.

Plant your Meadow

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Advanced Calibration	Learn additional techniques for calibrating a meadow seed drill in the field, particularly under challenging conditions.
Calibration of Grain/Seed Drills	Learn basic calibration techniques that help you adjust the settings on your seed drill.
Calibration of Broadcast Seeders	Learn about when and how to use broadcast seeders.

Re-educate your Stakeholders

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Stakeholder Management	Techniques for keeping people informed about your meadow building progress and what they can expect to see from a newly established meadow.
Communication Strategy	More techniques for keeping people informed about your meadow building progress and what they can expect to see from a newly established meadow.

Establishment (Years 1-7)

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Successful Community Science Photopoint Program	An interesting technique for documenting a meadow project.
Meandering Walk Survey Protocol	Learn a valid technique for quickly monitoring a new meadow.
PGC Mowing Guidance	Learn how to use a mower as part of maintaining a meadow.
Mid Atlantic Native Meadows, Maintenance	Learn about the special considerations for maintaining meadows in the Mid-Atlantic.
Managing Woody Encroachment	Learn about how to manage the inevitable encroachment of trees and shrubs into your meadow.
Xerces Society, Collecting and Using Your Own Wildflower Seed	Learn techniques for leveraging your investment in a new meadow for repairing and reinforcing it.
PA Prescribed Fire Council	Learn about when and how to use fire to maintain a meadow.
Longwood Gardens Prescribed Burn	Learn insights from a large southeastern meadow that uses fire to suppress succession.
Using Prescribed Fire to Manage Native Grass Forages in the Mid-South	Using fire to maintain a warm season grassland.

Maintenance (Years 8+)

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
Meandering Walk Survey Protocol	Learn a valid technique for quickly monitoring a new meadow.
Successful Community Science Photopoint Program	An interesting technique for documenting a meadow project.
Managing Woody Encroachment	Learn about how to manage the inevitable encroachment of trees and shrubs into your meadow.
PGC Mowing Guidance	Learn how to use a mower as part of maintaining a meadow.

Keeping a Meadow, or Not...

Click [HERE](#) to return to **checklist** for **this** section.

SUPPLEMENTAL INFORMATION	OVERVIEW
NRCS-ESD	An ongoing process of documenting state-and-transition models for ecosystem development.