Pollinator Habitat Pilot Plot Proposal

Office for Sustainability
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This proposal is to develop a small naturalized pollinator habitat in a small area near the Office for Sustainability (OFS). This area would be a pilot area to determine the necessary management plan for larger naturalized areas on campus. This pilot area will allow the area to be evaluated over the next 1-2 years for installation, aesthetics and ongoing maintenance required providing a reference for decision making when considering implementation to other areas in the future.

No-Mow zones can be classified by several different parameters and should not be considered synonymous with no maintenance. Every created naturalized area can be, or should be, mowed/cut/burned on occasion to mimic its natural environment. However, installed correctly and monitored so that small issues do not get out of control a minimal amount of maintenance on an annual basis is enough.

Meadow

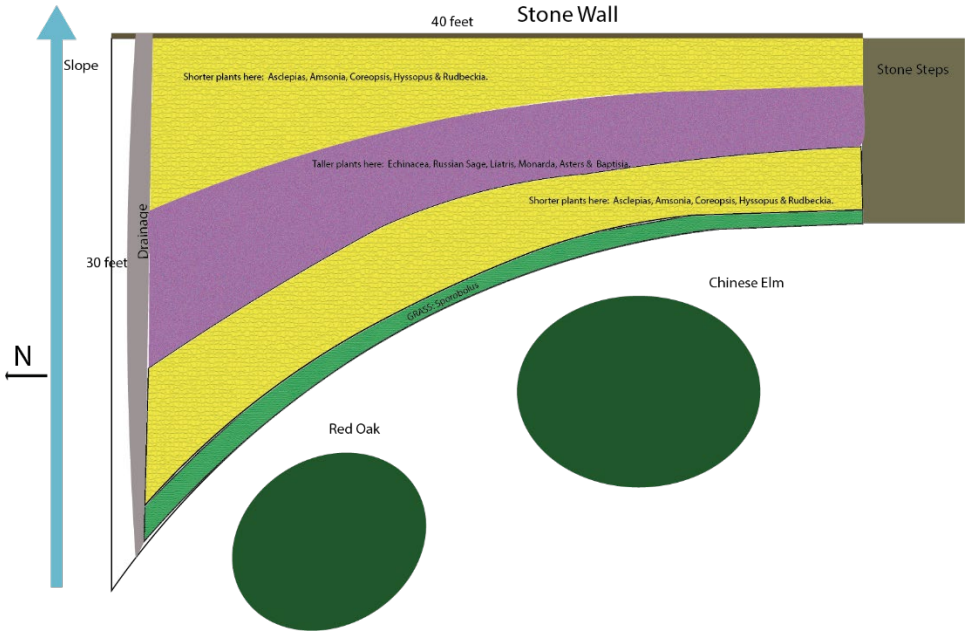
Meadows are a naturalized area that is always in transition. The annual cycle of meadows includes the life cycles of both flora and fauna. The goal of a "created" meadow habitat is to keep the area plantings finer so that less competitive plants can thrive but without impeding their growth cycle, including self-sowing. Long term establishment of meadow habitats can present problems with aesthetics as nothing much happens the first year. Removal and transport of herbage can be a challenge. The key is to consult and involve key individuals and groups on the development plan. Quick returns from meadow plantings of annuals and biennials provide quicker, visible results, but are not sustainable long term.

Recommendation

Based on the nature of native prairie areas and meadows it is recommended that the areas being discussed be managed as simple no-mow zones or naturalized pollinator habitat wildflower meadows. Recreated prairies require more maintenance than do naturalized wildflower meadows. Both have benefits to wildlife and biodiversity but, as mentioned earlier, any recreated naturalized area will require some maintenance such as keeping weeds in check and replacing plants as needed if aesthetics is important. If aesthetics is not important then less maintenance may be required, but the visual results may be less appealing.

AREA: The recommended area is a sunny location just to the south of the Office for Sustainability consisting of approximately 700-900 square feet (See Photo). The suggested plant list is listed on pages 5-6 and consists of 12 pollinator friendly plants and one native grass that provide a consecutive bloom time, a variety of color, wildlife habitat, a variety of height and visual interest throughout the season.

Suggested Planting Diagram



INSTALLATION

Installation Approaches

There are two approaches to installation.

1. A combination of the two approaches below can be used and is recommended. In both cases the area can be supplemented with annual plantings for color the first year.
2. Prepare the area in late summer/early fall for broadcasting of wildflower seeds. This allows them to go through the necessary cold stratification required for successful germination in spring once the ground begins to warm.
3. Alternately, prepare the ground in early spring and plant the area with seedlings that have been propagated from seed and/or seeds that have been stratified.

Installation Factors to Consider

1) It is critical to select the right plants for your hardiness zone, focusing on ones native to your area.
2) Weed/turf eradication is critical both prior to planting and when plants are establishing their root systems. This can be accomplished by various methods including soil solarization or herbicides.
3) Seed bed preparation is critical for good seed to soil contact if utilizing seeds.
4) Site selection is important so that the plants receive enough sunlight. Soil test can be performed to make sure there are no serious issues. (Soil tests were done on the site: pH at 7.2, P, K and minor nutrients in line. Recommendation to add some urea to area at planting.)
5) It is highly recommended that educational signage be present on site during the initial installation and first year followed by identification signage of "Pollinator Habitat".

Installation Timing Recommendation

- Step 1-the area should be prepared by removal of all vegetation utilizing glyphosate and a small steel border installed. The area would then be seeded and covered with an erosion mat (due to the slope). Timing: Sept/Oct.
- Step 2-the area would be planted with small perennial wildflower plant plugs, additional seeding and a few annual plants for year 1 color. (Some perennials may not flower until year two.) Timing: Spring 2019 April/May.
- Step 3-ongoing monitoring of the area during the summer to address any major weeds or invasive species as needed. Timing: Summer
- Step 4- after all species have matured and seeded, the area should be cut short and vegetation removed. Depending on weather a possible additional early spring cut may be needed. Timing: Sept/Oct & Feb/Mar.
- Step 5- the cycle repeats with year two spring emergence providing more flowering species without the need for supplementation with annuals. The plants will sort themselves out long-term as to which ones thrive in the planting, and where. The management then comes from carefully observing this and enhancing it with further plantings if needed.

NOTE: The stone steps leading to the lower parking lot need some repairs.

Service Learning Opportunity

Dr. McDonald, Horticulture professor at the University of Arkansas, has agreed to work to incorporate this project as a service learning component of his Plant Propagation class offered in the spring. The current plan is for the Office for Sustainability to provide the seeds and the Plant Propagation class would grow the plugs during the semester and assist in the planting in April/May. Additionally, some seeds would be harvested from current plantings on campus to utilize for the project.

Ongoing Integrated Management Plan Considerations

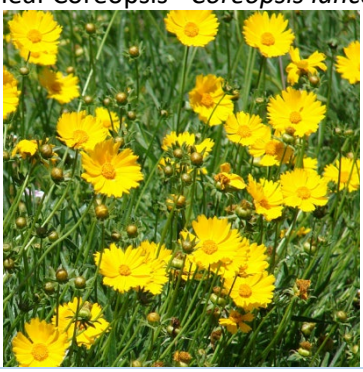
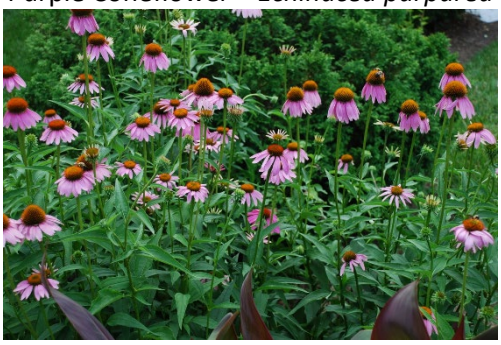
An integrated management plan works best if it follows the annual cycle of a meadow.

1. At no stage in any meadow management plan should there be artificial fertilizer.
2. Carefully controlled individual spraying with glyphosate should be applied to any docks, nettles, thistles and similar perennial/woody invasive weeds as soon as they appear.
3. The starting area must be free from living vegetation and grasses to expose bare soil for either fall or spring sowing. Depending on soil conditions, light rolling after seeding may be needed or erosion control put in place.
4. Depending on growth attained, hay cut after plants have seeded in the fall. Thereafter, a second cut may be taken in mid to late autumn or early spring.
5. Noxious weeds must be dealt with on an individual bases if they appear.
6. Cutting is more controlled in native areas, less selective and cleaner than mulch mowing.
    a. When the wildflower area is cut, all herbage should be removed.
    b. Close cuts offer bare patches a chance for self-sowing meadow contents.
    c. Cutting Mechanics
        i. String trimmers will work if there is little meadow grass.
        ii. Rotary mowers cannot handle tall grasses and plants unless tractor pulled or perhaps a power scythe.
        iii. Damage to tree trunks, if any, needs to be considered with equipment.
        iv. Fine “mowings” are best collected for a cleaner look and they will also prevent good soil contact of seeds and put unwanted nutrients back into the soil. The goal at all times being to impoverish it.
7. Timing of Cutting-Factors to consider: There are no set rules, however generally late winter/early spring (if needed) and late summer/early fall cuts should be enough. Some factors to consider:
    a. When the latest and most important plant sheds its seed.
    b. When invertebrates have completed their life cycle (grasshoppers, bees, etc.).
    c. When the weather is dry.
    d. The need to control certain plants in the sward.
    e. The height of the plants.

Suggested Plant List (See attached spreadsheet for dimensions, bloom time, bloom color & light requirements).

Overall, it is best to limit the number of species for both impact and ease of management. Examples of this can include:

- Concentrating on early spring plantings with March-July season.
- Concentrating on later plantings flowering June-October. This is more consistent with the North American pattern for woodland edges, roadsides and prairies.
- Initial workload will be heavy for installation.
- **NOTE:** Most of these species are currently planted and thriving somewhere on campus.

Arkansas Bluestar - *Amsonia hubrictii* 	False Blue Indigo - *Baptisia australis* 
Lanceleaf Coreopsis - *Coreopsis lanceolata* 	Common Milkweed - *Asclepias syriaca* 
Butterfly Weed – Asclepias tuberosa 	Purple Coneflower – *Echinacea purpurea* 

Black-eyed Susan - *Rudbeckia hirta*

Blazing Star – *Liatris spicata*

Wild Bergamot – *Monarda fistulosa*

Russian Sage – Perovskia atriplicifolia

Hairy Aster – *Symphyotrichum pilosum*

GRASS: Prairie Dropseed – *Sporobolus heterolepis*

Summer

Fall

Examples of Current No-Mow/Naturalized Zones at UARK

UA No-mow Zone at Mullins Creek

UA Pollinator Forage Research Area

UA Pollinator Nursery at Experiment Station

Naturalized Meadow Examples from Online