“Residential Habitat Restoration: A Focus on Meadows”
Diana Raichel, Conservation Biologist

“NJ Butterflies and their Habitats”
Jim Springer, North American Butterfly Association

"Understanding the effects of pollinator plantings on beneficial insect communities."
Dan Cariveau, Rutgers Postdoctoral Research Associate
What is a meadow?

Upper Millstone River Preserve

Cadwalader Park
Grasslands

Cider Mill Preserve, East Amwell Twp

Maple Lane Preserve, Hillsborough Twp
Benefits – Meadow vs Lawn

• Promotes our pollinators (native bees, butterflies, moths, and other insects)
• Promoting pollinators benefits crops
• Provides nesting habitat, shelter and food for wildlife

Photo: Dan Cariveau
Aesthetics

Upper Millstone River Preserve, Cranbury

Cadwalader Park, Trenton
Benefits, continued

- < use of fossil fuels (air quality)
- < noise pollution (mowers, weed-wackers, blowers,...)
- No fertilizers (water quality)
- > water infiltration (replenishing aquifers)
- Stabilizes soil (deep roots)
- Low maintenance once established
Caveats or Challenges

• Lengthy process
  Rid area of problems (weeds)
  Root establishment
• First year not a thing of beauty
• Cost of wildflower seed – Ernst 2013
  Partridge pea - $10/Lb
  Bergamot - $136/Lb
  Joe pye weed - $228/Lb
  Grass-leaved goldenrod - $400/Lb
• Potentially unappreciative neighbors – mowed borders work wonders
Basics for Establishing a Meadow

Analyze your site

- Enough sun?
  - min 6 hrs/day

- Soil? Poor vs. rich in organic matter
Before and After

Upper Millstone River Preserve
Site Analysis, continued

- Invasive weeds (e.g., mugwort, Canada thistle)?
- Large or small site? 1+ ac, 0.5 ac, 100 SF?
- Current use of site – lawn, crop field, old field

Old field with autumn olive starting to establish
Extreme shrub removal
Site Prep – Getting rid of undesirables

Avoid soil disturbance

Small area
• Smother

Large area
• Herbicide (fall then spring)

Organic or Glyphosate

Allow time
Choosing Seeds or Plants

- Native plants adapted to region and soil, use a reference site
- Annuals for first year color
- Beware of commercial mixes
- 50% wsg & remainder in forbs and csg

First year, Cadwalader
Large areas - Seeding
No-till drill-seeder
Seeding rate of 0.25 Lb per 1,000 SF ~11 Lb per acre
Smaller areas - seeding or planting

- Hand broadcast seed
  OR
- plugs, potted plants
  OR
- Stop mowing and add wildflowers and wsg
Seeding, continued

Distributing the seed

- Mix with medium (kitty litter, coarse sand) – dampened for hand-broadcasting

When?

- April through early June ideal
- Late summer/early fall
- Dormant (winter)
Early Maintenance for seeded meadows

Keep annual weeds down

First year – keep at 6” until ~early July

Second year – Mow/weedwack to 12” ~ May-mid June

Wait until 2nd or 3rd year to add potted plants!
Smaller-scale scenarios

- Mulch or layer straw between plantings
- Protect your plantings from herbivory, if necessary
Long-term maintenance for seeded OR planted meadows

Periodic disturbance
• Burning or annual mowing
• Late winter/early spring OR
• After frost (Nov.)

• Brush-mower or weed wacker
• Cut high
• Spot treatments or hand pull weeds as needed

Cadwalader Park, third year
Strong suggestions

• Start small! (strips or patches)

• Take your time and plan ahead (take care of weeds)

• When seeding, establish grasses first (add wildflowers later)
Suggestions, continued

• Create focal areas for pollinators
• Provide blooms from spring through fall

Photos: Dan Cariveau
Resources

Literature:
• *Urban and Suburban Meadows* – Catherine Zimmerman 2012
• *Stewardship Handbook for Natural Areas in Southeastern Pennsylvania* – Natural Lands Trust 2008
• Anything by Larry Weaner, Larry Weaner Landscape Associates
• Wild Ones, Native Plants, Natural Landscapes – www.wildones.org

Plant sources:
• Ernst Seeds, Meadville, PA, [www.ernstseed.com](http://www.ernstseed.com)
• Belle Mead Co-op (oats, annual rye), Hillsborough, NJ 908-359-5173
• Pinelands Nursery, Columbus, NJ, [www.pinelandsnursery.com](http://www.pinelandsnursery.com)
• North Creek Nurseries, Landenberg, PA, [www.northcreeknurseries.com](http://www.northcreeknurseries.com)
• D&R Greenway Land Trust
• New Moon Nursery, Bridgeton, NJ, [www.newmoonnursery.com](http://www.newmoonnursery.com)

Contractors:
Weeds Inc. – herbiciding, drill-seeding – 1-215-870-0895
Your local hay farmers - grass drill-seeding and mowing
ArcheWild – consulting, restoration - 1-855-7526862, [www.archewild.com](http://www.archewild.com)
StewardGreen – consulting, restoration – 1-908-376-1429

Brush mowers: DR Power Equipment, Doylestown, PA – 1-800-376-9637