

Harvard Forest “Sustainable Working Landscapes” Program

Grassland Management and Conservation Science Workshop

3/29/2018 – Notes

Introduction -- Individual Participants’ Goals

- Relationships between flora and birds
- Shrub lands and animal monitoring
- The introduction of warm season grasses to improve habitat and hay
- Define sustainable from our point of view
- Establish efficient and practical data collection methods
- How to best balance economics and ecology
- Find alternatives in land management
- Develop methods to determine plant compositions of open land vegetation
- How does mowing effect plant diversity and wildlife usage
- How to balance wildlife and crop production
- How to measure and maintain water quality with increased agriculture
- Landscape level mosaic interactions
- A unified vegetation sampling protocol
- Establishing a collaboration of agriculture research
- How to quantify and monetize ecosystem services
- Develop language so CR’s can be converted from forest to farms or reverse—not too binding
- Develop tools to restore grasslands

Overview of Management Practices

The Trustees -- Russ Hopping

- For their dry sites on the Cape and Islands they use fire to maintain open field habitats
- Wetter sites they use a combination of grazing and mowing because they cannot mow 2000 acres in a season.
- They view themselves as stewards of the land and want to do the best with the placement and timing of their management activities.
- Currently, they use baseline standards that they don’t want to go below.

- Grassland bird surveys
- Veg structure plots
- Birds Presence/Absence
- Species composition and invasives

Trustees -- Grazing as a tool to maintain open lands

- They graze after the 20th of July and this creates a mosaic for the birds
- They are transitioning to grazing from haying to improve field fertility

Lincoln Con Com -- Tom Gumbart

- Lincoln reserved five acres uncut and found that those five acres became degraded overtime and now keeps middle of field reserved until after breeding, then grazes.

Noah Perlut response to this;

- His lab found that:
 - 0 bobolink nests are found within 50m of the field edge
 - Few nests are found between 50-100m of the field edge
 - Majority of nests are found 100m+ from the edge of the field

MA Audubon Field management

- They do an extreme late cut (August 1st) this is done to maintain a stable habitat for young birds after fledging.

Trustees

- They do 2 counts
 - 1st count is low
 - 2nd count is high
 - Birds moving in from neighboring fields

Wolfe's Neck Center -- Dorn Cox

- They emphasize soil health
- Accomplished by keeping the soil covered with living material and keeping roots intact
- Graze animals into the forest edges (silvopasture)
- Plant grass crops and woods crops in silvopasture for feed

Audubon Bobolink Project – Jon Atwood

- Three-year contracts help with costs of late season haying. Without renewal -- to try and get farmers to incorporate some of these practices into their management
- More farmers interested than money
- Maintains chapter 61 status etc...

Other programs through NRCS that offer subsidies to farmers

- One program pays to help establish warm season grasses
- The gap between NRCS money is getting the word out to farmers
- Another gap is being qualified if the farmer is not willing to change practices, because of site, or other reasons

Vegetation Session

Hawthorne Valley Farm -- Claudia Vispo

- Uses a combination of 1x1' and 3' circle plots
- Also meander surveys to capture rare plants missed by the stationary plots
- she has monitored across mgt types
- Found that a small number of plots can get basic species represented in fields, if fields are homogeneous
- Had a method to estimate flower area of fields and can relate this to pollinator work.

Discussion

- Bottleneck for this kind of work is labor
- Farm management records are hard to collect or reconcile
- Synchronized methodology across sites is lacking
- There is a desire to step away from field sampling and try to do it digitally
 - Such as the [Phenocam](#) project

Trustees

- Suggest measuring the vegetation structure on a regular basis, to get away from time constraints associated with species level id.

Another CitSci initiative that was suggested is [Picture Post](#).

- What is the minimal amount of monitoring needed to get to the same management goal as a more robust program?

Hierarchical approach:

- Landsat

- Low elevation fly over
- Specific habitat interests
- Vegetation monitoring

Wolfe's Head Soils approach

1. Research (this is in depth sampling and analysis)
2. Agronomic (This is at a medium level enough info to inform mgt)
3. Public (this is the easiest level and used to inform the public about mgt decisions)

General agreement that there should be incentives to farmers to collect mgt records

Wildlife

Audubon – Jon Atwood

Audubon has shifted from scientific research to applied questions.

Bobolink project

- Project came about from an economics professor's desire to figure out how to get conservation donations
- Audubon decided to continue funding it after initial funding was depleted
- Solicit applications from farmers to subsidize their cutting late -- ~ 500 acres a year
- Monitoring methods is done by Alan Long at UVM and they are quick and dirty. Monitoring is partly done to ensure compliance with the contract between farmer and Audubon.

Noah Perlut – (now University of New England – research in Vermont)

- Asked dairy farmers to mow as *early* as possible (May 27th), seemed to work really well for both the farmer and the birds.
- Farmers see reduced diesel costs, and still have a high-quality product from early season hay.
- He also related the birds to the farmers by sharing the migration data in the form of maps and giving the birds some context in the eyes of the farmers.
- By cutting in this way we may be applying selection pressure for late-breeding birds, because early birds are pushed off of field and don't come back (seem to continue further north), it is later arriving birds that nest in the cut field.
- May 27th date changes with location (north or south) considerations for changing this date are
 - Nesting date for the area

- When feeding birds are observed after cutting
- Bobolinks return after tillage in about 6-7 years, they need a layer of duff to nest
- Bobolinks nest on the ground and need about 2 weeks after haying to nest
- Older fields are better because they are typically more diverse
- Just because birds are present in a hayfield or pasture does not mean they are successfully reproducing

Insects

Hawthorne Valley farm -- Conrad Vispo

Goals for Managers

- Rare Species
- Pollinators
- Charisma
- Resources for bird food

Goals for researchers

- Collateral benefits
- Agro/Eco services
- Rare species usage of open lands
- Long term trends

Franklin Land Trust bee work – Will Anderson

- Worcester Polytech developed an app [Beecology](#) to be able to track bees with citizen science.
- FLT removed invasive species and got a grant to replace them with native species that span phenological ranges and species diversity in terms of attracting pollinators year round
- Weekly fixed-route Pollard walks done by Worcester polytech on FLT lands

Trustees

- They use monthly modified Pollard walks to monitor bees. These transects can be related to management. However, bees are harder to id than Butterflies.
- Also use annual modified Pollard walks with the Mass Butterfly club to monitor butterflies.

Managers would like a shortcut that equates % veg type to healthy bees and butterflies.

Soil Carbon & Water Quality

UNH -- Alix Contosta

Testing intensive rotational grazing and building soil organic matter. She is also trying to model this relationship because of time and resource constraints in having every farm try to monitor it. Also incorporates silvopasture as an intermediary between pasture and forest conversion.

- Needs better farm mgt records:
 - When and where cows moved
 - How many cows are there
 - Manure spread -- when and how much

Wolfe's Neck – Dorn Cox

Trying to find the balance between research and production:

- Is monitoring BMP's
- Wants to develop tools like [FarmOS](#) that integrates useful data for farmers and researchers
- Thinks of this data as the farmers data and asks “if they would be willing to share their data”

Useful Next Steps

- Public education around farming to support such work
- Town level soil maps for pre-determining possible sites for ag expansion
- Create a standardized data form and sharing data
- Email sharing to create/solidify/and grow this network
- Places for case studies (6-10) that employ similar parallel methodologies
- Field trips for the group to different sites
- New England Botanical possibly organize group to help with veg sampling
- Best practices for sudden changes – “resiliency”