

Comparing Existing Ecological Systems Maps for the Eastern USA
Compiled Meeting Notes
June 13, 2014
David Diamond

Following are meeting notes organized around the meeting agenda. PowerPoint presentations given at the meeting can be found at:

<http://northatlanticlcc.org/projects/land-cover-reconciliation/standardization-of-terrestrial-and-wetland-habitat-classification-and-mapping>

The PowerPoints represent the best summary of this meeting. Notes below focus on capturing discussion items that came in the afternoon, and largely do not repeat what can be gleaned from the PowerPoints. The summary is based on a compilation of original notes from Lee Elliott of MoRAP, Don Faber-Langendoen of NatureServe, and Renee Vieira of the NALCC. I have placed editorial comments within the notes.

9:00 Opening Remarks & Introductions (Scott Schwenk and Michelle Staudinger)

Brief summary of the importance of this project to the NECSC and associated LCCs. Results of this meeting and the summary report may help define a way forward.

9:15 Opening Set-up (David Diamond)

- Workshop Outline – background first with time for discussion, followed by presentations by map producers, and a long discussion section at the end
- Differences in Perspectives & Issues in Common
- Common Input Information for Map Production
- Methods Used

Discussion during and after this presentation included comments on the ability to define mapped types. Nobody has actually set out to sample vegetation within mapped type boundaries to define the composition and variation of mapped types, nor has anyone summarized existing samples by mapped type. Human disturbance has altered the landscape in some regions such that vegetation on the ground does not conform to descriptions of types that appear in the literature. Sometimes on-the-ground variation is wildly at odds with descriptions in the literature. Thus, a name assigned to a mapped type may not accurately describe the composition and variation within that type on the ground.

One participant noted that we might be trying to map too many types, and that accuracy could be improved if we map fewer types. Definition of mapping targets is the first step.

10:00 Creating a Common Legend of Mapped Types (Don Faber-Langendoen and Regan Smyth)

- Process for Creating a Common Legend
- Who Mapped What: Aggregates, Fine-scale Units, & Ruderal Vegetation
- Virginia/West Virginia Case Study
- Map Legend Description

One participant again stated that mapped types may not need to be so fine-resolution for bird modeling.

There was discussion of ruderal types and the fact that TNC used ruderal types from NLCD only. It was noted that possibly LANDFIRE ruderal types could be used to improve the TNC map by ‘burning them in.’ There was confusion in that some thought TNC did not map ruderal types; they did map ruderal types, just not as many in terms of number of different types – but similar in area. Currently, it was noted that LANDFIRE seems to have mapped too many similar/overlapping/confusing ruderal types.

A marsh type mapped too far south by TNC was mapped that way because of the lack of a defined southern type - this was a known issue to be dealt with, and relates to the overall need to better define mapping targets and tighten up type concepts.

The concept of using map classes different from concepts within the NVC or ecological systems was introduced and discussed. Map classes have the potential of helping to solve the problem that may arise when no existing type from the literature fits the vegetation that is actually on the ground. This topic is also related to the need to characterize legend elements as they are mapped.

10:45 Break

11:00 Comparison of the Maps (Lee Elliott and Regan Smyth)

- General reasons for differences
- Pixel by pixel evaluation
- Ecoregion by ecoregion evaluation
- Case study (Prince William Park)

Unfortunately, the focus of these presentations tended to give the overall impression that all of the classifications are lacking. Only two slides indicated better correspondence among classifications at coarser resolution (Macrogroup). However, it is reasonable to conclude that the classifications were remarkably different in non-uniform ways at finer resolutions. It should also be noted that some types were remarkably concurrent across mapping efforts even though relatively drastic differences in methods were used. Focusing in on a particular site (Prince William Park), was also enlightening in that reasons for some differences could be explained by slight differences in the interpretation across moisture gradients and the distribution of types at the ecoregion scale, and increased use of ruderal types by one method (Landfire) over others. This suggests that, while the results are undeniably different, the mismatches are often close “misses.”

12:00 Lunch On-site

12:30 Presentations by Map Producers (30 minutes each)

- LANDFIRE (Don Long)
- Southeastern Regional GAP Analysis (Alexa McKerrow)
- NatureServe National Map (Pat Comer and Regan Smyth)
- Northeast Terrestrial Habitats (Mark Anderson and Charles Ferree)

These presentations stand on their own – see the PowerPoints.

2:45 Break

3:00 Characteristics of an Improved Product (Directed Discussion)

- Mapping Targets

- Accuracy
- Spatial Resolution

A user commented that the biggest improvement would be to have the composition of the mapped type on the ground match the conceptual description of the type in the literature. The types are not well-defined, and often it is not clear where to assign a given plot based on ground data. Given the broadness of many of the legend element concepts, it currently requires a great many subjective decisions to properly assign a plot to a particular legend element. Others commented that some concepts are overlapping, but there is also an issue of gaps between concepts. The need for tightening of the classification was a recurring theme.

More plot sampling on the ground is needed, possibly using VegBank as a source or repository to share data, and using the plot data to tighten the classification and allow for characterization of currently mapped types.

The concept of getting condition was mentioned. This overlaps with concepts related to defining the variation within a mapped type based on ground data. The definition in the literature may not conform to what is found on the ground. Use of vegetation cover and height from LANDFIRE and/or NLCD was mentioned as a possible solution.

The age of the data was mentioned – SW GAP data is now almost 15 years old.

The inability to map some systems was mentioned as an issue: how can we map more systems?

Can there be a formal way to modify maps? Maybe a web tool?

Performing accuracy assessments on these products is difficult to accomplish for many reasons. Cross-validation results from the classification process are commonly reported. “Fuzzy” accuracy assessment methods may help make assessment results more meaningful.

3:30 Mechanisms for Production & Future Options

- Partnerships
- Methods
- Use of National Products
- Development of Regional- or State-based Products

A more exhaustive and formal user needs survey might be in order.

The need for a better and more uniform geophysical setting map was mentioned. At a minimum, development of standard sets of ancillary data could lead us towards a standard geophysical setting data layer.

Use of geophysical setting to help inform conservation priority setting in the face of uncertain climate impacts was mentioned (this, insofar as it is unlikely that we will ever know the current conditions beyond a certain level of detail). However, this does not obviate the urgent need to know current conditions better – again, more on-the-ground samples would help, and use of vegetation height and canopy cover might help.

The need for separate efforts to improve wetlands mapping was mentioned (e.g. NWI-style maps).

It was suggested that a set of commonly accepted ranges for types would be useful.

The concept of using different mapping methods in different regions was mentioned. The need is driven by differences in number of available ground plot samples, human disturbance regimes (and hence the ratio of relatively intact versus disturbed communities), and the steepness of environmental gradients (e.g. mountains) in different regions.

The importance of sharing data was again emphasized – especially existing plot sampling data. The difficulty in terms of getting and using FIA data is an issue. Keeping EOR data up to date and adding more samples for both rare and common types is an issue.

5:00 Adjourn