Aquatic Sub-team – Meeting Notes
Conn River Conservation Design Project
USFWS 3rd Floor Conference Room, Hadley, Mass.
4 September, 2014 9:30-12:00

Agenda:
The meeting purpose is to choose our preferred steps for development of aquatic core areas; the ecosystems-based approach. To support this purpose the new summary data (GIS and tabular) we requested from the UMass team was displayed and shared by Andrew MacLachlan.

Decisions we needed to make included:

1- Weighted or Un-weighted selection index?
2- Seed- or HUC-average based core areas?
3- Seed- or Extended-seed based cores?
4- Selection index scaled to CTR, HUC8, or Hybrid (other)?
5- Minimum core area size? (unresolved)
6- Percentage of aquatic landscape to be delineated as core? (unresolved)

Attending: Dave Perkins (USFWS), Andrew MacLachlan (USFWS, scribe), Ken Sprankle (USFWS). By conference phone: John Warner (USFWS), Tim Wildman (CT-DEEP), Anne Kuhn (EPA), Katie Kennedy (TNC), David Stier (Springfield Science Museum).

Meeting resulted in some of the agenda decisions being made and supporting reasons or concerns being expressed.

1) Weighted or Un-Weighted selection index?

NOTE: The group understands that the core selection index is now comprised of only two elements for the aquatic ecological systems; Index of Ecological Integrity (UMass) and headwater stream temperature resilience (USGS). The TNC terrestrial connectivity element will now be eliminated from the aquatic assessment.

We decided there was no reason to weight one element of the selection index over the other, so we would like to use the un-weighted selection index.

2) Create Seed- or HUC-average based core areas?

While there are some acknowledged limits to the input data (e.g. water flow and sediment information) there is group consensus to take advantage of the available detailed raw data and grow core areas from

the 30m pixels rather than generalize these data to a HUC (hydrologic unit) and identify core areas as ranked HUCs.

3) Use Seed- or Extended-seed methods to identify/develop cores?

The team decided to enhance the linear extent of lotic aquatic core areas by extending the initially selected high score seed sites up and down stream as a function of the quality of data in adjacent stream cells. The goal is to create core areas that are more ecologically sound by making them longer, like natural stream/river sections.

The team acknowledges this extension process will shift the representation of macro-groups (aka habitats) in the resulting core areas, away from the even representation that initially results from equally selecting seeds sites with the highest score in from each macro-group. The algorithm used to extend seed sites appends adjacent cells with high scores more easily than others. The extension process does not proceed past dams, nor into areas with a major change in macro-group type (e.g. initial seeds in headwater streams would not be extended into small rivers, etc.).

Related, high scoring cells that start a core area in lentic water bodies are extended to include all the cells within that lentic body (i.e. to the extent of the pond or lake shore line).

4) Selection index scaled to CTR, HUC8, or Hybrid (other)?

Of the three options offered, the majority of attending group members would like to see a hybrid of geography areas used to scale the selection index. Several in the group feel the full Connecticut River watershed should be used to scale the selection index, and none of the group preferred the HUC 8 units to be used exclusively as the scaling units.

The reasons argued for using the full Connecticut River watershed to scale the selection index included respecting the ecological values for the watershed as generated from the various models and thereby providing users with the regional perspective for core area importance. This was a strong view point in response to the idea that spreading the core areas around for political/social values is important. Political and social needs can be added to the mix after generating the ecologically based valuations, but ecological/science information is to generate and add if original products are created based on political influences and social interests.

However, we want to design a conservation plan that will be stable across the entire project area and over time to survive human land and climate alterations. This would include the characteristic of having relatively short distances between core areas throughout the project area so dispersal and migration of animals, plants, and resources could effectively be shared between core areas. So we believe that core

conservation areas will best serve as anchors for a healthy environment if they are not concentrated in one portion of the project area.

The aquatic team members have reviewed preliminary distribution data of core areas and believe the majority of the highly scored areas will fall in the northern portions of the Connecticut River watershed if we only use a Conn River scaling of the data. In a mixed vote the group decided to compromise between strictly using the full watershed perspective to identify core areas, and to use a hybrid of a HUC 8 scale averaged with the full CTR watershed scale.

Beyond these options, the team speculated that use of the HUC 6 unit boundaries might serve the goals of long-term stable ecological integrity and bio-diversity by spreading the core areas along the long north-south axis of the CTR project area. At the same time the team speculates this would avoid some of the bias problems they perceive will occur using the more numerous HUC 8 sub-divisions.