

## **Proceedings of the third annual Kittatinny Science Summit Lehigh Gap Nature Center, August 8, 2014**

### **Moderator Diane Husic, Moravian College - Introduction**

Diane described the history of the Kittatinny Science Summits and noted that this third summit would be focused on two major aspects of the conservation work of the Kittatinny Coalition: Mapping to prioritize parcels for acquisition and monitoring breeding birds and habitat characteristics along the ridge. A session on telling our stories is to follow. Diane welcomed familiar faces (e.g. Don Heintzelman, who was the first to call for protection of the ridge), and new faces (e.g. Marilyn Jordan, one of the first researchers to study the contaminated slopes near Palmerton, even before that area was designated as a Superfund site).

### **Stephanie Orndorff, TNC PA and Audubon PA – Where we are today: Threading a Protected Greenway**

TNC and Audubon have been working on mapping of high priority parcels that we should work to protect – Priority Parcels Project. The parcels are first ranked as Tier 1-3, then assigned value based on “additional criteria.”

#### Tiers

- Tier 1 - >50 acres and fills in a gap in contiguous corridor
- Tier 2 - 10-50 acres and fills a gap
- Tier 3 - >10 acres but not at a gap

#### Additional Criteria

- Adjacent to protected land
- Overlaps with Natural Heritage Area where priority species have been identified
- Overlaps with TNC-WPC Core Forest patch  $\geq 3,000$  acres
- Overlaps Atlantic Flyway forest block

Emphasis was on interior forest habitat. Question arose about protecting other habitats such as the savanna near Lehigh Gap as well.

### **Laura McBride, Moravian College – Kittatinny Annotated Bibliography**

Donald Heintzelman began working on protection of the Kittatinny Raptor Migration Corridor more than two decades ago and published the first notes about the Kittatinny Raptor Corridor Project in *Wildlife Activist* (now a publication of Lehigh Gap Nature Center) in 1992.<sup>1</sup> As part of that project he led an effort to secure federal designation of the Kittatinny-Shawangunk National Raptor Migration Corridor and

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<sup>1</sup> 1992 Monitoring the Vital Signs of A Mountain: The Kittatinny Raptor Corridor Project. *Wildlife Activist*, 15: 6-8.

published a bibliography of the Kittatinny on the Corridor website.<sup>2</sup> The intent of this project was to expand that breadth of the original bibliography, capture items published since that bibliography was researched, and most importantly, annotate each reference to help future researchers determine the content of the piece to help streamline their literature search process.

This new bibliography contains ~1900 entries in 52 categories. It includes new references, plus it references Heintzelman's original bibliography and the Palmerton Superfund bibliography created by former Moravian intern, Meredith Wright. The earliest reference is from 1845. The Software to run the program (Reference Manager) is loaded on a computer in the library at Lehigh Gap Nature Center, but the product is a searchable pdf that can be used by anyone. After comments are received and the bibliography updated, it will be made available on-line.

Comments included the fact that this bibliography concentrated on the PA portion of the Kittatinny, and that perhaps conservation groups in NJ and NY could add to it concerning their sections of the ridge.

### **Andy Wilson, Gettysburg College – Kittatinny Priority Forest Bird Survey**

Wilson was involved in the Second PA Breeding Bird Atlas Project (2004-2009) and was engaged by Audubon PA/ATC to perform a Priority Forest Bird Survey along the Kittatinny Ridge for the Kittatinny Coalition.

Andy showed some examples of maps from Second Breeding Bird Atlas, including the Ruffed Grouse and Cerulean Warbler. The Cerulean Warbler is declining across its range, though it may be increasing in a few parts of PA. It is found throughout the state in large forest blocks and historically was most common in the south west portions of the state. It's range is now expanding into the outer limits of its range, with a push north and east. However, he noted that data along the Kittatinny was sparse and concentrated along roads.

The 2013 survey conducted by Wilson and students found three hot spots for Cerulean Warblers along the Kittatinny Ridge. The 2013 count included 500 counts along trails (primarily the A.T.). Cerulean Warblers were found to be three times higher in these counts than in road side counts. The greatest concentrations of the warbler were on the western portions of the ridge (Cumberland/Perry/Dauphin/Franklin counties). Smaller populations were found in the Delaware Water Gap area. It was estimated that there were likely over 1,000 males on the ridge. The Breeding Bird Atlas was biased towards certain habitat areas due to sampling methods (road side). Some habitat types in PA were underrepresented in the Atlas, as shown by the 2013 surveys.

Management needs for the Cerulean Warbler vary geographically; in general, thinning of trees seems to be a very critical management step.

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<sup>2</sup> <https://raptorcorridor.org/node/13>

**Terry Master, East Stroudsburg University (ESU); Diane Husic, Moravian College; Corey Husic Harvard University; Stephen Kloiber, ESU; and Kerry Reider, Moravian -- 2014 Kittatinny Ridge Monitoring Project**

The goal of this project was to collect information about the ecological value of the Kittatinny. The surveys conducted took place along 48.5 miles of the Ridge in 6 counties (Monroe, Northampton, Carbon, Lehigh, Schuylkill, and Berks) from Tott's Gap to Hawk Mountain Sanctuary. The work took place in two stages – first, breeding bird surveys were conducted, and these were followed by returning to the same sites for habitat analysis.

Bird monitoring was conducted at 10 locations along the ridge. Five points were monitored at each location (North slope, South slope, Crest, East Crest, West Crest). The East and West Crest sites were included to do monitoring away from roads, in areas that were undersampled in previous breeding bird surveys. Six additional sites were chosen for monitoring, 3 at the Alpine property and 3 at the Kings Manor property, both of which are recently protected lands in Monroe County on the north slope of the ridge.

Bird monitoring by sight and sound was done 5 times at each point for 75 seconds. 4,789 individuals of 78 different species were detected. Cerulean warblers were detected on north slopes only. Most commonly detected species.....

Vegetation monitoring was also conducted at the same locations. One of the three crest points was monitored as well as a north and south point. The protocol for habitat monitoring included:

- Canopy layer was sampled using 11.3m radius circle. All trees in plot were recorded by species and diameter, and the percent cover was estimated using....
- The shrub/sapling layer was also sampled using a 5m radius circle; the dominant species and estimated cover were recorded.
- Forest structure was also assessed at each point.
- An ecological importance value was calculated for each tree species. Red Maple and Red oak were the most frequently detected species and black gum was dominant at southern sites.

The iNaturalist citizen science program/app was used to record invasive plant data.

## **PROJECT UPDATES**

- **Broad Winged Hawk Update – Terry Master, ESU for Laurie Goodrich, Hawk Mountain Sanctuary.** Hawk Mountain is seeking out Broad-winged Hawk nests to monitor and using nest cams to document nest behavior and activity. Transmitters have been placed on young birds to follow their migration. The travel map for the birds will be up on the Hawk Mountain website in September.
- **Fort Indian Town Gap, Regal Fritillary Butterfly – Julie Eckenrode, FIG.** FIG has the last remaining population of Regal Fritillary in the east. Regular burning and grassland management has provided good habitat for the butterfly. In 2011 the Regal Rearing Project began in response

to a decline in species numbers contributed to a decline in grassland habitat, host plant loss, urbanization and insecticide use.

Outdoor rearing (use of an enclosure for caterpillars, nicknamed a “cathouse”) has proven to be the most successful method for rearing the butterfly.

- **Fort Indiantown Gap, Bats and Rats – Dave McNaughton, FIG.** Extensive bat surveys have been conducted at FIG. The Northern Long-eared Bat is likely to soon be federally listed as threatened or endangered. The Eastern Red Bat and Big Brown Bat are the most commonly found bats on FIG property. The Little Brown Bat, Pipistrelle, and Long-eared (cave dwellers) are the species which have been the most impacted by the white-nose syndrome. In a recent survey done with Bat Conservation and Management Inc. (Carlisle, PA) one Eastern Small Footed Bat was detected. This species is also up for federal listing. Seventeen active sites have been found for the Allegheny Woodrat on FIG property. Cameras have proven to be the best method for documenting active sites.
- **Bird The Ridge – Michele Miller, Appalachian Trail Conservancy and Paul Zeph, Audubon, PA.** This year’s hikes saw greater club involvement and interest with six Bird the Ridge hikes recording data on e-bird. They are intended to engage the public and collect forest interior bird data. Lehigh Gap Nature Center’s Whip-poor-will Hike that ends after dark has been very popular. Perhaps after dark hikes could record owl species as well
- **Other Updates – Jean Ortiz, Audubon PA**
  - The 2012 State of the Kittatinny Ridge Report is up on the website.
  - Amy Weidensaul has been working to incorporate AT/Kittatinny Ridge info into curricula in school districts along the ridge.
  - Anne Hutchinson is finishing up a report on municipal ordinances in terms of high impact use and conservation design principles.
  - The Kittatinny Coalition sponsored a Broad Winged Hawk (Kit) this year in the Hawk Mountain project.

## **Sally Zanio, Manada Conservancy and Kurtis Sensenig, Kurtis Films – Telling the Story of the Ridge**

Sally Zanio shared some of her favorite conservation stories from the Manada Conservancy. She highlighted the value of linking individuals and their stories to the story of the Ridge. In her work for the Conservancy, she frequently asks landowners, “Why do you want to preserve your land? Why is it important for you to do this? What is special about your property?” Those questions result in stories, sometimes powerful ones that should be shared with others, showing how those stories connect to the larger landscape of the Kittatinny.

Kurtis explained that a video can be a great tool and powerful medium for engaging people’s emotions. The internet makes it immediate and it has to have something that sets it apart and captures our limited attention. Ideal length for these videos is a few minutes. If it goes viral, the message spreads to millions quickly at no cost. Kurtis follows a three-act structure and values authenticity in his work. He thinks non-profits have an advantage over corporations on the internet because people value authenticity.

## **Monitoring the Ridge Breakout Session**

In general, and historically, we have done a poor job of telling the water story of the Ridge. It is an important issue that many don't realize connects directly back to a healthy forested ridge.

It may be interesting to look into the history of the tributaries along the Palmerton Superfund site. Do these tributaries show a change in water quality, recharge and flooding with re-forestation of the Ridge? Can the superfund site be used as an example of what not to do?

The group discussed the idea of using citizen scientists to tell the stories. Scientists don't always make the best communicators.

Paul Zeph talked about the idea of creating a citizen science app for monitoring the ridge. Phenology may make for a good trial run. The Lehigh Gap Nature Center and Hawk Mountain Sanctuary may be good locations to get it started.

Could we create a high school/college video contest for telling the story of the ridge?

Kurtis mentioned that 2-3 minutes is often a good length for a video; anything longer and you may have trouble keeping your audience's attention.

Greenlife Pennsylvanian, Green Works PA, and Green Treks may all be good places to show a Kittatinny video.

## **Mapping Breakout Session**

We discussed an automated way to update the parcels as ownership or boundaries change. Currently the analysis is being done manually by a GIS professional. Automating the process would be difficult and could lead to more error as well.

We discussed conducting annual updates of the parcel analysis. We also need to streamline a process to gather regular updates from County offices, land trusts, and other partners on parcel ownership, so we can change the scores when a new parcel is protected, subdivided, or ownership has changed.

We discussed the way the parcels are scored with a 1, 2, or 3 for the "Tier" field and then a 1, 2, 3, or 4 for the "Score" field. In the maps created, it looks like 3.4 is the highest score, but is actually given the least priority compared the parcels with a 1.1 or 1.4, for example. I explained that the two fields are totally separate and not to be combined. The "Tier" field is meant to show the priorities, with 1 being the highest priority and the "Score" field just gives more information about factors making it a high priority and where you have a higher score, you have a higher overlap of different factors important to conservation of bird habitat.

