

## **Invertebrates, Reptiles, Trees and Flying Mammals.**

Part Two, Public Comment by Grace Nichols. 5/25/2020

### I. Invertebrate Conservation

In the wake of the increasing scientific evidence of global declines in insect species -- across genera -- I launched an effort to pass an Albany County Pollinator-Friendly County Resolution. It was a popular measure (please see the Resolution which is in Reports Submitted by the Public), because the general public is concerned about the declines in pollinators, and the drivers of the declines which are habitat loss, management chemicals - especially persistent neonicotinoids --, pathogens and polluted water, and climate change. (The text of the Resolution is in "Reports Submitted by the Public")

In "Worldwide Decline of Entomofauna - a Review of its Drivers," Francisco Sanchez-Bayo et al summarize 73 reports of insect declines. The article (in Reports Submitted by the Public) states:

Much of the blame for biodiversity loss falls on human activities such as hunting and habitat loss through deforestation, agricultural expansion and intensification, industrialisation and urbanisation (Ceballos et al., 2017; Maxwell et al., 2016), which jointly claimed a 30–50% encroachment on natural ecosystems at the end of the 20th century (Vitousek et al., 1997).

If we think about a world in which the food chains are collapsing due to an absence of the species at the bottom of the pyramid, this is what insect declines represent. And, as expected, insectivorous birds and bats are experiencing steep population declines in the wake of this global problem.

Sanchez-Bayo points to Lepidoptera as an indicator of environmental quality:

Butterflies and moths are valuable indicators of environmental quality, considering their high degree of host-plant specialisation and vulnerability to habitat deterioration (Erhardt and Thomas, 1991). Given their presence in a broad range of habitats, the loss of Lepidoptera may directly impact the delivery of key ecosystem services such as pollination and natural pest control (Fox, 2013). Moths, which are about 10 times more diverse than butterflies, constitute important prey items of bats and help sustain population levels of myriad other insectivorous animals (Hahn et al., 2015; Vaughan, 2008; Wilson et al., 1999).

They go on to say that species with characteristics of our local federally endangered butterfly fare the worst worldwide, that is species with little migration, short flights, eggs that overwinter and host/nectar plant specificity:

Among the 269 species of macro-lepidopterans monitored for 50 years at the Kullaberg Nature Reserve (Sweden), 45% were declining, 22 were coloniser species and 159 were no longer found in 2004 (Franzén and Johannesson, 2007). Monophagous and oligophagous species using grass or herbs in wetlands were declining more than those feeding on deciduous trees or shrubs, confirming that dietary specialists bear the brunt of the declines. Species with a short flight period or those restricted to non-forest habitats were all associated with a high extinction risk. A comparison of historical records of 74 butterflies in Finland showed how 60% of grassland species declined over the past 50 years, whereas 86% of generalist species and 56% of those living at forest edge ecotones increased in abundance (Kuussaari et al., 2007). Common traits of the 23 declining species are a reduced mobility, oligotrophic habitat preference and seasonal migration behaviour. Another study on the populations of 306 species of noctuid moths in Finland over 1988–1997 reported the greatest declines for species with comparatively small geographic range, whereas polyphagous moths with longer flight periods and those that overwintered as adults had the widest distributions (Mattila et al., 2006). By contrast, species that overwintered as either larval or pupal stages suffered the largest declines over that period. Similar findings were reported for north-eastern Spain.....

The history of conservation has been indelibly altered by the groundbreaking work done on insects in Albany County, where naturalists have observed so many incredible insect species, particularly Lepidopterans -- butterflies and moths. Regal Fritillary butterflies, Karner Blue Butterflies and Inland Barrens Buckmoths, a daytime autumn moth were all found in the pine bush, but rare. The Regal Fritillaries have been “possibly extirpated” from all of New York State per 2013 NYSDEC species status assessment. The Karner Blue Butterflies in the Albany Pine Bush had a very serious drop in population after the establishment and expansion of the Crossgates Mall, but with extraordinary measures, including sending eggs to a New Hampshire to be lab hatched and placed in the Pine Bush, have, over time, increased its population, even as populations in Minnesota, Indiana and Canada were extirpated over that same period. Barrens Buckmoths remain extremely rare, but are still found in the Pine Bush.

These species are similar in that they all are dependent on the prairie features of the pine bush, and are having trouble in the Northeast where there isn't much prairie (grasslands) left. They all have specific host plants and controlled burns are beneficial for them.

Activists in Albany contributed to hearings which led to the Karner Blue Butterfly being listed as a federally endangered species. As the Pine Bush Preserve continued to grow as a center of conservation and wildlife study, they catalogued other insects; most recently, 42 species of native bees were found in the pine bush (See The Albany Pine Bush Bee Report, 2018, in Reports Submitted by the Public.) This report is additionally important as it came out during the same year that the Rusty Patched Bumblebee became the first mainland bee species in the United States to be added to the Endangered Species List. It is no longer found in the pine bush, however, despite overall bee declines, many native bees and wasps are there. The pine bush is an important home for beleaguered insects.

The condition of Hymenoptera, bee and wasp species, is a problem worldwide. As Sanchez-Bayo reports:

In Denmark, long-tongued bumblebee species have declined in richness and abundance since the 1930s, particularly during the red clover flowering season, while short-tongued species were unaffected. Five out of the original 12 species present eight decades earlier were absent, all long-tongued species, and the once common *B. distinguendus* is now endangered. Only *B. pascuorum* seemed to be increasing in abundance, possibly by occupying some of the niches left vacant by declining species (Dupont et al., 2011). A larger study of 60 species and subspecies of bumblebees in central Europe found that 48 have declined in abundance over the past 136 years, with 30% of them being considered threatened and four having become extinct (Kosior et al., 2007). Most of the country's extinctions occurred in the second half of the 20th century, coinciding with the expansion of agricultural intensification brought about by the Green Revolution. The abundance of pollinators in Swedish red clover fields also declined dramatically since 1940, with only two rare species remaining stable while two short-tongued generalist species now dominate the landscape: *B. terrestris* and *B. lapidarius* (Bommarco et al., 2012). Such a dramatic change in relative abundance has negatively affected the yields of that crop, which depends entirely on pollination services of long-tongued species.

The fact that native bee and wasp species are doing well in the pine bush is something to be celebrated.

Traditionally, the Albany Pine Bush has been a part of the solution to invertebrate conservation needs both locally and nationally (as some of its species are not doing well nationally across their range); even when the Town of Guilderland permitted development to cause serious local declines in insect species, the environmentalists, the scientists and wildlife conservation forces came together to transform this problem into a model of conservation science which is emulated for its successes. We hope that in line with the Albany County Resolution to conserve pollinator species, the Town of Guilderland will not allow further

expansion into undeveloped regions of the pine bush, and particularly not the land at Gipp Rd and Rapp Rd which is contiguous with the Butterfly Hill breeding area.

With respect to the DEIS inventory of species, the list of invertebrates is short. We suspect some species have been overlooked. Given the normal distribution of some species, it is likely they are misidentified. We ask that the future inventory of species include photos of the insect species so species identification can be confirmed.

## II. Bats

We often do not remember that our bat species are also pollinators, though mammals. There isn't much to say about the DEIS species inventory of bats, as no bats were listed on the species inventory. But we realized, in discussions with four separate families whose property abuts Site One, that the residents of the area believe they have seen bats every summer in the evening. We were curious to resolve this discrepancy.

I pulled together a little team of local citizen scientists and we went out to observe bats on two evenings in May 2020. The Bat Observation Report has been submitted as an appendix to Christopher Walker's public comment and independently. We heard many bat calls, but more on the evening of May 16, 2020 in which the weather was warm. This is consistent with known bat behavior. The majority of the calls were between 19-25 kHz but calls in the upper register (25-45 kHz) were also observed. More bat observations with a variety of bat identification equipment is needed.

Subsequently, Conrad Vispo, an agroecologist, placed 5 stationary bat recorders with high-tech print-outs reflecting bat calls identified Big Brown Bats, Red Bats, Silver-haired Bats (an S3 vulnerable species) and possibly Hoary Bats. Four of these recorders were placed along Westmere backyards, just over the fence from Site One. The 5th was placed on the fence of a Mobil Station, abutting Site Three. Please see the official Bat Report, submitted with this comment.

We demand good bat studies with biologists who are permitted to do bat observations internal to Sites One, Two and Three. If there are Northern Long-eared Bats onsite, which is very possible, they are most likely to be found on the Sites when a thorough study is done.

## III. Reptiles

I have submitted in Grace Nichols Public Comment in opposition to the project, a picture of a garter snake that Cynthia Johnson found during one of our evening bat walks. It was unfortunately dead, but located on the side of the road on Gipp Rd near Rapp Rd. It was located on Site One but at the edge.

Generally speaking, a garter snake is not remarkable. But in this context, in which the DEIS claimed to have found no reptiles on any of the three sites, except a green tree frog, it becomes quite interesting that we found a snake walking along the periphery of Site One, and we found it by chance.

How did the biologists who worked for B.Laing look for snakes? When did they look? Where did they look? Well, we don't know! Because methodology was not stated.

We strongly suspect the reptile and amphibian survey methods were inadequate to assess the presence of absence of the rare Hognose Snake and Eastern Worm Snake on these sites.

#### IV. Trees

On April 30, 2020, arborist Jack Magai observed the following (please see his Tree Report, CV and photographs.)

#### **Re. Rapp Road Development Corporation's Proposed Development on 46 Acres of the Pine Bush.**

On April 30, 2020 I walked on and near the lands slated for development, as follows.

Walking along the road on the mall side of site 1, I noticed more diversity of tree species than I remember the DEIS stating. I observed Red Maple, Silver Maple, Norway Maple, Box Elder, Cottonwood, Callery Pear and Weeping Willow.

Similarly, site 2 contained Red Oak, Red Maple, American Elm, Silver Maple, Box Elder, Black Cherry, White Pine and Pitch Pine. As mentioned in the DEIS, other cultivated species were in the maintained areas surrounding houses. Among the houses a wooded area contained several mature Pitch Pines.

On the undeveloped side of Site 2, most of these trees had been felled recently, and most appeared to me to have been in good condition at the time of felling. On the Rapp road side of this area, the as-yet uncut, elevated area contained several Pitch Pines. Nearby these, at the edge of a dropoff were two or three pitch pines which were felled during the recent clearing. One of these was clearly alive and well prior to being felled. Photos of these are provided with this statement.

The Pitch Pines in both of these parts of Site 2 exhibit no signs of having been planted, and are doing reasonably well despite the competition from faster-growing species. These may be compelling empirical data to support the case for it being an area conducive to supporting this

species, contrary to assertions based on soils analyses in the DEIS. (Report of Certified Arborist, Jack Magai)

Additional studies of flora must be done, not only because no methodology was given, and that the lists of herbaceous plants appeared to be missing species which are clearly there, (for example most grasses and all sedges) but also because the tree species are in doubt, as testified to by a certified arborist.

#### V. Sloppiness in the Age of Extinctions.

How shall we evaluate species' inventories that are so clearly missing whole taxa and outside the standards of science that require discussion of methods in order to evaluate the data, the discussion and the conclusions of the findings? We cannot but conclude the inventories are both sloppy and inaccurate.

Why does it matter?

It matters in the same way the environmental impact of projects in the pine bush have mattered; it matters because the assaults on the habitat are taking place in the context of species extinction rates whose rate of acceleration increases each year. Not just the rate of extinction but the rate of the acceleration of the increases in extinctions accelerates each year. Biologist EO Wilson, an entomologist, made this finding world famous in the 1980s. However, at present, the warnings of the majority of conservation biologists are far more dire than they were then. In May 2019 this report summary was released:

**PARIS, 6 May** – Nature is declining globally at rates unprecedented in human history – and the rate of species extinctions is accelerating, with grave impacts on people around the world now likely, warns a landmark new report from the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), the summary of which was approved at the 7th session of the IPBES Plenary, meeting last week (29 April – 4 May) in Paris.

“The overwhelming evidence of the IPBES Global Assessment, from a wide range of different fields of knowledge, presents an ominous picture,” said IPBES Chair, Sir Robert Watson. “The health of ecosystems on which we and all other species depend is deteriorating more rapidly than ever. We are eroding the very foundations of our economies, livelihoods, food security, health and quality of life worldwide.”

“The Report also tells us that it is not too late to make a difference, but only if we start now at every level from local to global,” he said.

“Through ‘transformative change’, nature can still be conserved, restored and used sustainably – this is also key to meeting most other global goals. By transformative change, we mean a fundamental, system-wide reorganization

across technological, economic and social factors, including paradigms, goals and values.”

“The member States of IPBES Plenary have now acknowledged that, by its very nature, transformative change can expect opposition from those with interests vested in the status quo, but also that such opposition can be overcome for the broader public good,” Watson said.

Source: United Nations Website –

<https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/>

The dilemma facing the Town of Guilderland is a dilemma facing humanity and our propensity to continue to build over habitat without respect for the limits of growth and the fact that other species need us to leave some land without a cement patina. Municipalities, states and nations are all taxed with the natural mandate to find a way to say “no” to development, and “yes” to natural law which demands that we keep our use of the environment in balance with the ecosystem services we need but which cannot be provided by ecosystems that have been paved over.

But municipalities cannot even make good conservation and land use decisions without accurate information about the ecosystems and the species who use them. Because of this, the sloppy and possibly deceptive species inventories included in the DEIS are a threat to the Town of Guilderland, the environment and to the possibility of good governance.

As Albany County moves forward, I hope we devise better guidelines to balance paved space with greenspace in our urban and suburban areas. I hope we continue to honor the wild spaces and healthy farmland that we steward. May we pursue policy that is in line with the national and international goals we hold in common, that is, for life to continue on planet earth in a balance between the needs of Homo sapiens and other species. For without the rest of the web of life, we have not a chance of survival as a species.

Thank you,

Grace Nichols, Save the Pine Bush.

## Bibliography:

Bat Observations, 2020 -- Submitted to the Town of Guilderland Planning Board. A team of eight observers led by Grace Nichols who wrote the report.

Vispo, Conrad "Report on Acoustic Bat Study for Save the Pine Bush, May 2020" (Submitted by me to the Town of Guilderland Planning Board)

Jack Magai, Certified Arborist Re: Rapp Road Development Corporation's Proposed Development on 46 Acres of Pine Bush with CV and photos

"UN Report: Nature's Dangerous Decline "Unprecedented"; Species Extinction Rates "Accelerating" at <https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/>

"Worldwide Decline of the Entomofauna" By Francisco Sanchez-Bayo et al, in Biological Conservation, 232, April, 2019. On the Town of Guilderland Website, in Reports Submitted by the Public.

Albany County Pollinator-Friendly County Resolution, on the Town of Guilderland Website in Reports submitted by the Public.