

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NASSAU

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In the Matter of the Application of

SIERRA CLUB-Long Island Group, The Concerned
Citizens of the Mill River Flood Plain
and Joseph P. Forgione,

AFFIDAVIT

Petitioners,
for a Judgment Pursuant to Article 78 of the New
York Civil Practice Law and Rules,

Index No.

-against-

Governor's Office of Storm Recovery; New York State
Office of Parks, Recreation and Historic Preservation;
New York State Division of Housing and Community
Renewal; New York State Department of Environmental
Conservation; and Matt Accardi, Assistant General Counsel
and Certifying Corporate Officer for the Governor's
Office of Storm Recovery,

Respondent.

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STATE OF NEW YORK)
) ss.:
COUNTY OF NASSAU)

Carolyn M. Bauer, being duly sworn, deposes and says:

1. I am an ornithologist and assistant professor of biology at Adelphi University, with expertise in physiological ecology and conservation biology. My professional area of interest is the study of how environmental factors impact the physiology of at-risk species, particularly birds.
2. I teach Ornithology and I have carried out scientific research on birds for the last 13 years. My research encompasses avian physiology, ecology, and conservation biology. I received my Bachelor of Science degree in Biology: Ecology and Evolution from the University of Washington in 2009, and my PhD in Biology from Tufts University in 2014. I was a postdoctoral scholar at North Dakota State University from 2014 to 2017, and have been an assistant professor at Adelphi University since 2017. A copy of my CV is attached to this Affidavit as Exhibit 1.
3. I am a member of the American Ornithologists Union, the Society of Integrative and

Comparative Biology, Sigma Xi, a scientific research honor society, and the International Society of Wildlife Endocrinology. I have published more than 14 peer-reviewed articles on multiple species of birds. I have also published an article examining how habitat degradation and harvesting affects population persistence of North American firefly species.

4. I have reviewed the sections of Respondent GOSR's Environmental Assessment ("EA") for the Hempstead Lake State Park Project regarding tree removal at the proposed project site. The EA fails to adequately address the significant impacts that the removal of trees will have on local forest bird and waterfowl populations in and around Hempstead Lake State Park.
5. Nassau County is an extremely urbanized county with very few protected areas large enough to attract woodland birds and freshwater waterfowl. The removal of 1041 trees and the planned removal of 758 more will directly and significantly affect the attractiveness of Hempstead Lake State Park to local avifauna, and thus will cause a decline in bird species that use this important area. Given the lack of other suitable areas in Nassau County, tree loss in the Park will very likely reduce the total number and types of species of birds that live in Nassau County during all or part of the year.
6. Hempstead Lake is an important area for several classes of birds including those that use it year-round (residents), for breeding (breeders), for wintering (winterers), and for migratory stopovers (migrants).
7. Woodland resident, breeding birds such as Great Horned owls will be especially affected by tree removal, as these species of birds rely on trees for food, nesting, roosting, and protection from predators.
8. Long Island is also an important stopover site for migrating birds. Similar to Central Park in New York City, Hempstead Lake State Park is one of the few green oases in the general area of Nassau and attracts and supports a very large number of migratory birds. Hempstead Lake State Park has been categorized and designated by the State of New York as an "Important Bird Area" meaning that loss of habitat at Hempstead Lake State Park would significantly adversely impact both local and migratory birds.
9. The reduction in the number of trees at Hempstead Lake will also have an adverse impact on local birds. This is due to "edge effects." where bird species fare best when they are far from the edges of habitat patches. When a habitat patch is reduced in size, the edge areas of the patch increase in a non-linear fashion. For example, a reduction in a habitat patch's area by 50% generally causes a reduction in bird species by much more than 50%. This is because birds living on the edges of a habitat patch are more vulnerable to predators and other forces destructive to bird populations. This has been confirmed by, among others, Andren, H. & Angelstam, P., in their 1988 study entitled "Elevated predation rates are a confirmed edge effect in habitat islands," published in *Ecology*, 69:544-547, and by Stephens, S.E., Koons, D.N., Rotella, J.J., Willey, D.W., in their 2004 article entitled "Effects of habitat fragmentation on avian nesting success: A review of the evidence at multiple spatial scales," published in *Biological Conservation* 115:101-110

(2004).

10. Loss of such a great number of trees at Hempstead Lake State Park would eliminate or fragment critical wildlife, waterfowl, and forest bird habitat and both accelerate and exacerbate the loss of Eastern forest bird species. Of great concern is the evidence that almost all classes of North American birds have been declining over that last 30 years. This was highlighted in a recent published article. See Rosenberg *et al.*, "Decline of North American Avifauna," *Science* 366:120-124 (2019). Eastern forest birds have been especially hard hit, with an overall reduction of 167 million birds since 1970.
11. A recently published study of the decline of North American bird species shows that more than two-thirds (64% or 389 out of 604) of North American bird species are at risk of extinction from climate change. See National Audubon Society, "Survival By Degrees: 389 Bird Species on the Brink," (2019), available at <https://www.audubon.org/sites/default/files/climatereport-2019-english-lowres.pdf>, (last visited on July 29, 2020).
12. The sea level rise, lake level fluctuations, and wetlands alteration associated with climate change all factor into the habitat loss that is causing the severe decline of North American bird species:

Sea level rise is likely to cause catastrophic habitat loss over the long term, as nesting sites become inundated or transition to different habitat types. Coastal species will also suffer in the short term, as flooding becomes more frequent and catastrophic from storm tides, leading to direct mortality of chicks as nests and burrows are destroyed. The unpredictable pattern of these changes may also create ecological traps, leaving birds unable to adapt or move to new areas. Similarly, changes in lake level variability, especially associated with reductions in lake levels, can alter shoreline and wetland habitats and their ecological function. Waterbird and shorebird species are often tied to specific wetland vegetation communities, and changes in seasonal hydrology can increase reproductive failure through reduced breeding pairs and higher numbers of nest failures.

Id. at 26. See also Van de PolM, "Do changes in the frequency, magnitude and timing of extreme climatic events threaten the population viability of coastal birds?" *Journal of Applied Ecology* (2010); Chastant JE, *et al.*, "Nesting substrate and water-level fluctuations influence wading bird nesting patterns in a large shallow eutrophic lake," *Hydrobiologia*, 788: 371–383 (2017).


13. The Hempstead Lake State Park Project EA addresses none of the foregoing impacts.
14. Given that Respondents' HLSP Project activities will result in lake level fluctuations, wetlands alterations, and an increase in impervious cover, (due for example, to trail and parking lot expansion, building construction, and other urbanization measures), and that flooding due to storm and tidal surge are a matter of record in Nassau County, it is simply

astounding that GOSR deliberately decided not to consider climate change effects in the EA.

15. Loss of local avifauna is also likely to have significant effects on human health, the local economy, and community recreation and education. Birds (especially swallows, flycatchers, and swifts such as are present at Hempstead Lake) provide excellent insect control. Reductions in the populations of these birds will harm human health by worsening mosquito prevalence which in turn will increase the numbers of people who fall victim to mosquito-borne illnesses, such as West Nile Virus, Zika, and the most deadly, Eastern Equine Encephalitis. *See* Christine Hauser, “States Warn Residents about Rare Mosquito-Borne Illness that has Killed 6,” *New York Times*, (September 19, 2019), available at <https://www.nytimes.com/search?dropmab=true&endDate=20200729&query=West%20Nile%20Virus&sort=best&startDate=20190729>, (last visited July 29, 2020); *see also* Associated Press, “First COVID-19, Now Mosquitos: Bracing for Bug-Borne Ills,” *New York Times* (July 20, 2020), available at <https://www.nytimes.com/aponline/2020/07/20/us/ap-us-virus-outbreak-insect-illnesses.html?searchResultPosition=9>, (last visited on July 29, 2020). And importantly, because of the demographic composition of the neighborhoods surrounding Hempstead Park, this increased health risk will likely fall disproportionately on people of color living in recognized New York State recognized Environmental Justice Communities, such as the Lakeview community.
16. Local birds attract birdwatchers who go to Hempstead Lake State Park to enjoy the flora and fauna also spend significant amounts of money at local businesses, purchasing photography equipment, outdoor clothing, and food. The loss of trees results in the displacement of different species and the diversion of numbers of birds in the Park, may reduce the number of visiting birders which in turn could negatively impacting local businesses. Furthermore, this would be happening at a time when birdwatching has become immensely popular and people seek to spend more time outdoors in response to the restrictions in place due to the pandemic. *See* Jacey Fortin, “The Birds Are Not in Lockdown, and More People Are Watching Them,” *New York Times* (May 29, 2020), available at <https://www.nytimes.com/2020/05/29/science/bird-watching-coronavirus.html>, (last visited on July 30, 2020); Associated Press, “Bird-watching takes flight amid coronavirus outbreak as Americans head back outdoors,” *Los Angeles Times* (May 2, 2020), available at <https://www.latimes.com/world-nation/story/2020-05-03/bird-watching-soars-amid-covid-19-as-americans-head-outdoors>, (last visited on July 30, 2020).
17. The many species and populations of birds at HLSP are important recreational and educational resources as well, with many organizations--such as the South Shore Audubon Society, a chapter of the National Audubon Society--and individuals using the Park as a destination for recreational and educational field trips.
18. In addition to decreasing the avian population at HLSP, the tree cutting will negatively affect the health of other wildlife in the Park. At a minimum, animals will be exposed to significantly elevated noise levels and disturbances from increased human activity. This is a highly significant habitat alteration. It is well-documented that these factors significantly increase stress hormone levels in birds which leads to reproductive malfunction, pathology, and death.

19. For example, tree swallows and white-crowned sparrows nesting near areas with high anthropogenic noise had higher stress hormone levels and increased molecular damage. See Injaian AS, et al., "Traffic noise exposure alters nestling physiology and telomere attrition through direct, but not maternal, effects in a free-living bird," *General and Comparative Endocrinology*, 276: 14-21 (2019), doi: 10.1016/j.ygcen.2019.02.017.
20. Furthermore, proximity to traffic has been found to be closely associated with reproductive success and physiological stress response in migratory landbirds. See Dietz MS, et al., "Distance to a road is associated with reproductive success and physiological stress response in a migratory landbird," *Wilson Journal of Ornithology*, 125: 50-61 (2013), <https://doi.org/10.1676/11-201.1>. American kestrels nesting in areas with increased human presence had higher stress hormone levels and were more likely to abandon their nests or experience nest failure. See Strasser, E.H. & Heath, J.A., "Reproductive failure of a human-tolerant species, the American kestrel, is associated with stress and human disturbance," *Journal of Applied Ecology*, 50:912-919 (2013), <https://doi.org/10.1111/1365-2664.12103>.
21. Habitat quality also matters, and even birds living in recently logged forests had high stress hormone levels. See Leshyk, et al., "Logging Affects Fledgling Sex Ratios and Baseline Corticosterone in a Forest Songbird," *PLOS ONE*, 7(3): e33124 (2014), <https://doi.org/10.1371/journal.pone.0033124>.
22. All of the above-mentioned bird species can be found at Hempstead Lake State Park.
23. The EA does not address how the release of dioxins or other chemicals from the soil disturbance related to tree removal will affect the birds in the Park and surrounding areas. Birds (and other animals) are extremely sensitive to these chemicals, exposure to which can cause neurological disorders, eggshell thinning, and death. See Kopf, P., Walk, MK, "Overview of developmental heart defects by dioxins, PCBs, and pesticides," *Journal of Environmental Science and Health- Part C Environmental Carcinogenesis and Ecotoxicology Reviews*, 27:276-285.
24. It is therefore entirely erroneous for GOSR to conclude *that tree removal would have no impact on birds*.
25. There is no support whatsoever for the Respondent GOSR's conclusion on this issue. The removal of trees at Hempstead Lake will have significant negative effects on the local bird populations. These effects, in turn, would carry over and cause negative impacts on local communities, the region's economy, and ecosystem health. Respondent GOSR's assertion that extensive tree removal in the Park will have no significant impact on bird populations is without any basis in fact, and calls into

significant impact on bird populations is without any basis in fact, and calls into question whether the Environmental Assessment was biased in favor of reaching a finding of no significant impact.

By: 
Carolyn M. Bauer, PhD

Sworn to before me on this 30th day of July, 2020


Notary Public

DENIS P. O'LEARY
Notary Public, State of New York
No. 4846221
Qualified in Kings County NY City
Commission Expires January 31, 2024