Shawn O'Sullivan
5 Hunting Ridge Rd.
Hamden, CT 06518

November 20, 2020

Melanie A. Bachman, Esq.
Executive Director/Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Petition 1425 - Gaylord Mountain Solar Project 2019, LLC

Honorable Executive Director Bachman and Commissioners of the Siting Council:

I am writing in my opposition to Petition 1425. My neighbors and I have hired a professional wetland scientist from Carya Ecological Services, LLC (attachment) to do an environmental impact report on the proposed project site.

This study shows the environmental damage that will be done by this project and it demonstrates that this application is in the worst interest of The Town of Hamden.

We agree with The Forest Subgroup of the Governor's Taskforce on Climate Change (Attachment A) which does not recommend using mature forested sites for solar facilities in view of their value for carbon sequestration, air pollution filtering and associated health benefits, cooling as well as for wildlife habitat.

Any benefit from this solar project would be more than offset by the forest loss of 12+ acres of clear cutting of the trees.

I do not think that there is anyone in the Town of Hamden that is for this project once they realize the devastation that would be done to the proposed site. There are over 1,000 signatures against this project so far. Hamden Mayor Leng, State Representative Josh Elliot and Senator Martin Looney are all opposed to this project.

Thank you for your consideration and review of our environmental impact report and review of The Forest Subgroup of the Governor 's task Force on Climate Chand (GC3).

Sincerely,

Shawn P. O'Sullivan

Shawn P. O'Sullivan

Carya Ecological Services, LLC

183 Guinevere Ridge
Cheshire, CT 06410
(203) 271-1949

sigrun.n.gadwa@gmail.com

November 16, 2020

Melanie A. Bachman, Esq. Executive Director/Staff Attorney

Connecticut Siting Council

10 Franklin Square New Britain, CT 06051

Re: *Petition 1425 - Gaylord Mountain Solar Project 2019,LLC*
Petition for a Declaratory Ruling, Pursuant to Connecticut General Statutes §4-176 and §16-50k, for the Proposed Construction, Maintenance and Operation of a 1.9-Megawatt AC Solar Photovoltaic Electric Generating Facility Located at 360 Gaylord Mountain Road in Hamden, Connecticut, and Associated Electrical Interconnection

Dear Ms. Bachman,

Thank you for the opportunity to provide written testimony. Carya Ecological Services, LLC was retained by several adjoining property owners to review Petition No. 1425 for a solar facility at 360 Gaylord Mountain Road. I have reviewed the Environmental Assessment (EA) prepared by All Point Technology Corp. of Waterford, Connecticut and the accompanying plan set for the proposed Gaylord Mountain Solar Project 2019, submitted to the Siting Council in August 2020. I also reviewed on-line mapping resources, read the RWA testimony dated November 9, 2020, and walked the property on 9-30-2020, since “No trespassing” signs were not evident.

I am a professional wetland scientist, a botanist/plant ecologist with a special interest in traprock flora, and a registered soil scientist. I chair the Ecology & Conservation Committee of the CT Botanical Society. My resume is attached.

Forest Services to Ecosystem, Climate & Society

First, a petition for a declaratory ruling of no environmental impact is inappropriate for the mature forested site proposed for this facility, because it is widely acknowledged that mature forest provides valuable ecosystem and societal services, and in particular, helps lessen climate change. Regardless of the particular forest community, the benefits from this new solar facility to climate and society would be offset by the forest losses. The Forest Subgroup of the Governor's Task Force on Climate Change (GC3) researched and prepared a detailed report on forests which does not recommend using mature forested sites for solar facilities, in view of their value *for carbon sequestration, air pollution filtering and associated health benefits, cooling, as well as for wildlife, property, values, and spiritual/psychological health.* Attachment A is a compilation of pertinent excerpts of this draft GC3 report, whose public comment review period ended last month. For the Siting Council to grant this petition would be an unwise precedent, undermining the GC3 initiative.

Carya also agrees with the RWA testimony entered into the record by John Hudak, an environmental scientist, that forest trees and forest soils also prevent and desynchronize flooding, thereby lessening soil erosion, property losses, and degradation by runoff of drinking water reservoirs as well as natural watercourses. The mechanism is as follows:

1) Tree foliage and branches intercept and slow down precipitation, so that more infiltration into soil occurs, and less runoff, and some of the water evaporates;

2) Tree roots take up substantial groundwater from surface soils, which increases soil porosity and capacity for infiltration.

3) The porosity of forest soil is enhanced by tree roots and humus from decomposing leaf litter.

4) Trees also *transpire* large volumes of water vapor, of great value, for cooling the local climate, preventing drought, and quality of life.

Site-Specific Ecological Losses

The petitioner provided only generic information on the forest resource to be lost, underestimating its value. Several dominant woody species were mentioned, but the report omits that this site is the south slope of a traprock/arkose ridge! All Point's brief tree list omitted woody species typical of trap/arkose hillsides, like maple leaf viburnum, ironwood, shagbark hickory, and hop hornbeam. There is no information on the herb stratum, which is expected to be rich in wildflowers to include unusual ferns and sedges in a traprock/arkose hillside forest community.

Because the bedrock beneath this particular hillside is traprock and arkose, soils are *less acidic and expected to be more botanically diverse,* with greater ecological value than forests underlain by the more acidic bedrock types, provided they have not been degraded by significant land disturbance. We saw no evidence of past farming, grazing, or other intensive uses during a site visit on September 30th, 2020, just selective logging. This moist to well-drained south-facing hillside has steep, irregular ground topography, variable vegetation structure and hydrology, rich moss and fern flora, old fungus-covered logs, snags, and boulders. Invasive species are scarce; there are multiple ecological niches for vascular plants, insects, bryophytes, and wildlife. It is comparable to the diverse, forested slopes of other preserved local traprock hills and ridges, such as Rocky Top, Sleeping Giant, and West Rock.

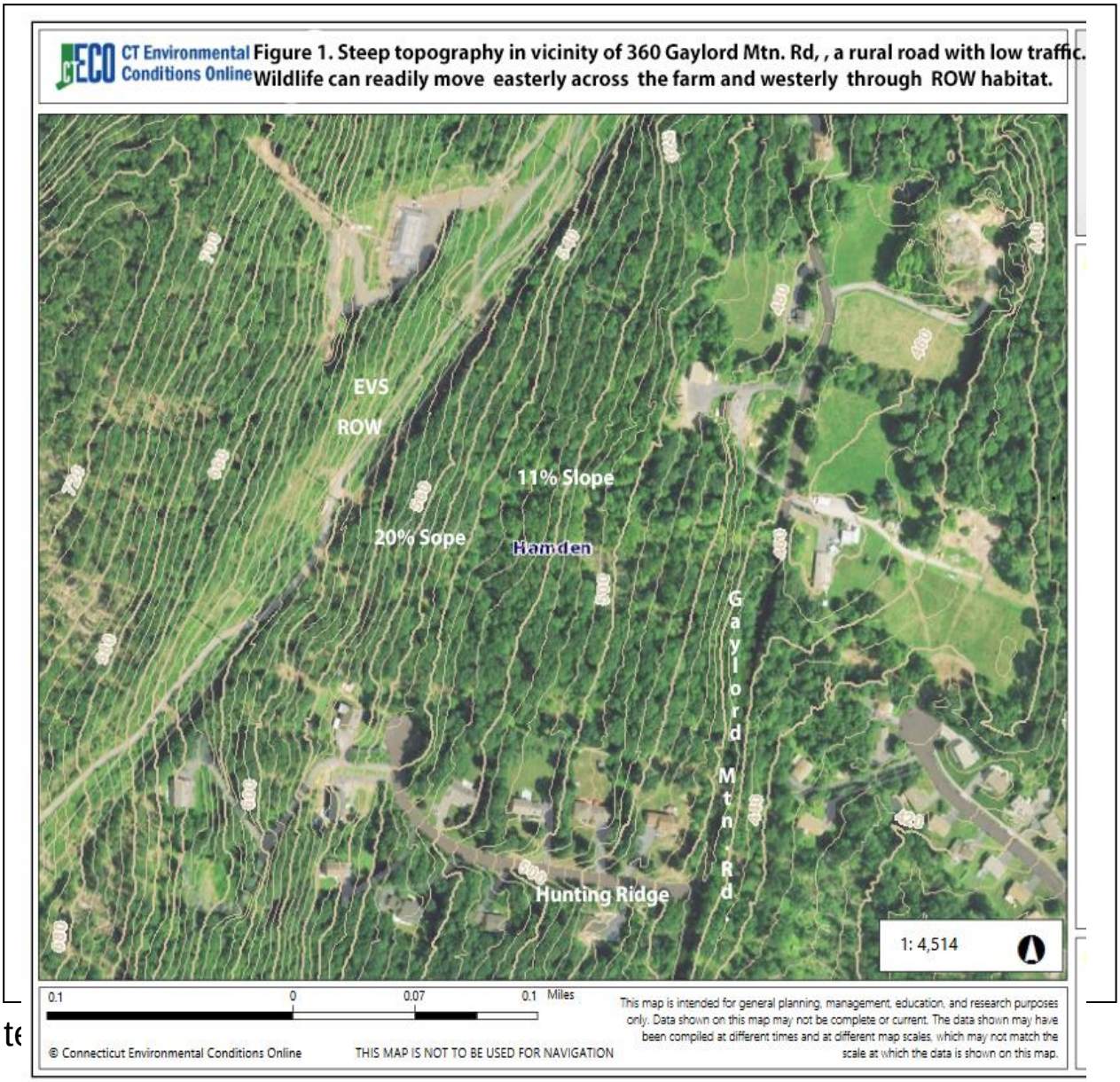
Hydrologic impacts

Botanists in the Connecticut Botanical Society know from past field experience that spring wildflower and sedge flora are typically especially well developed on the moist lower slopes and in the slope base wetlands of these hillsides, though few are identifiable in mid fall. Their habitats are high in organic matter and fed by hillside seepage rich in mineral nutrients weathered from traprock and red rock parent materials. This seepage is, however*, not* enriched with nitrogen and phosphorus, which is effectively removed by tree roots.
.

Unavoidably, the proposed project will alter groundwater chemistry and well as the existing diffuse flow patterns of groundwater infiltration and lateral flow, over the long term. Infiltration will not take place through the clay-lined sides of the stormwater basin or the berm for aesthetics. The riprap conveyance swale from the northeast will bring in addition runoff, with chemistry different from forest seepage, e.g. with elevated dissolved phosphorus levels. This favors Phragmites and cattail growth, rather than the existing diverse wetland flora, which is lower and less competitive. Discharge from the upgradient stormwater basin will all be directed to the southwestern end of the wetland. Note that the slope-base wetland (300 series) that parallels Gaylord Mountain Road received the highest functional rating of the site's wetlands. Changes in the quality and flow patterns of groundwater are also a potential threat to the downgradient mature sugar maple grove, which supports a local maple syrup operation with tourism value (South of Gaylord Mountain Rd.)

Erosion & Sedimentation

In the short term, during construction, sedimentation risks to this slope base wetland, Eaton's Brook, and eventually Lake Whitney, are unusually high for a solar project due to the steepness of the slopes, as shown in Figure 1, and the erodibility of the soils, as also noted in



te

Wethersfield loams and Ludlow silt loams rated by USDA as having high erosion potential. The

1) They have a high content of *fine soil particles, which are* readily dislodged by raindrops or flowing water

2) The small soil particles remain suspended for multiple days in stormwater detention areas, often exiting as overflow.
3) Under pressure, they pass though haybales and the mesh in silt fence, also though the fiber filling in a coir log. Compost filled coir logs do filter clay and silt, but their permeability is low, and there are prone to overtopping.

Wilbraham and Ludlow soils will also be *prone to puddling*, rather than infiltration on the construction site*. Saturation occurs quickly* because the soils are underlain by a *confining layer* of lodgement till or bedrock. In view of the seasonal groundwater expression in several small wetlands in the close vicinity of the proposed array, e.g. the "500 wetland flag series), and the lush understory vegetation, *depth to maximum groundwater* should have been measured at the site of the proposed infiltration basin, in the spring. This is the season when erosion risk is highest, when protective vegetative cover is not well-developed.

Underestimation of Wildlife Habitat Function

The petitioner argues that the proposed site has minimal value for wildlife, because of the low proportion of core forested habitat (more than 300 feet from a forest edge, needed by forest interior birds.) A look at the location of the site in the context of the larger landscape setting (See Figure 2) shows an very large expanse of continuous forest to the west, northwest, and southwest, along West Rock Ridge, but relatively little land with fields and other open habitat. Forest interior birds are just one of multiple different guilds of fauna that can use naturally vegetated Connecticut habitat.

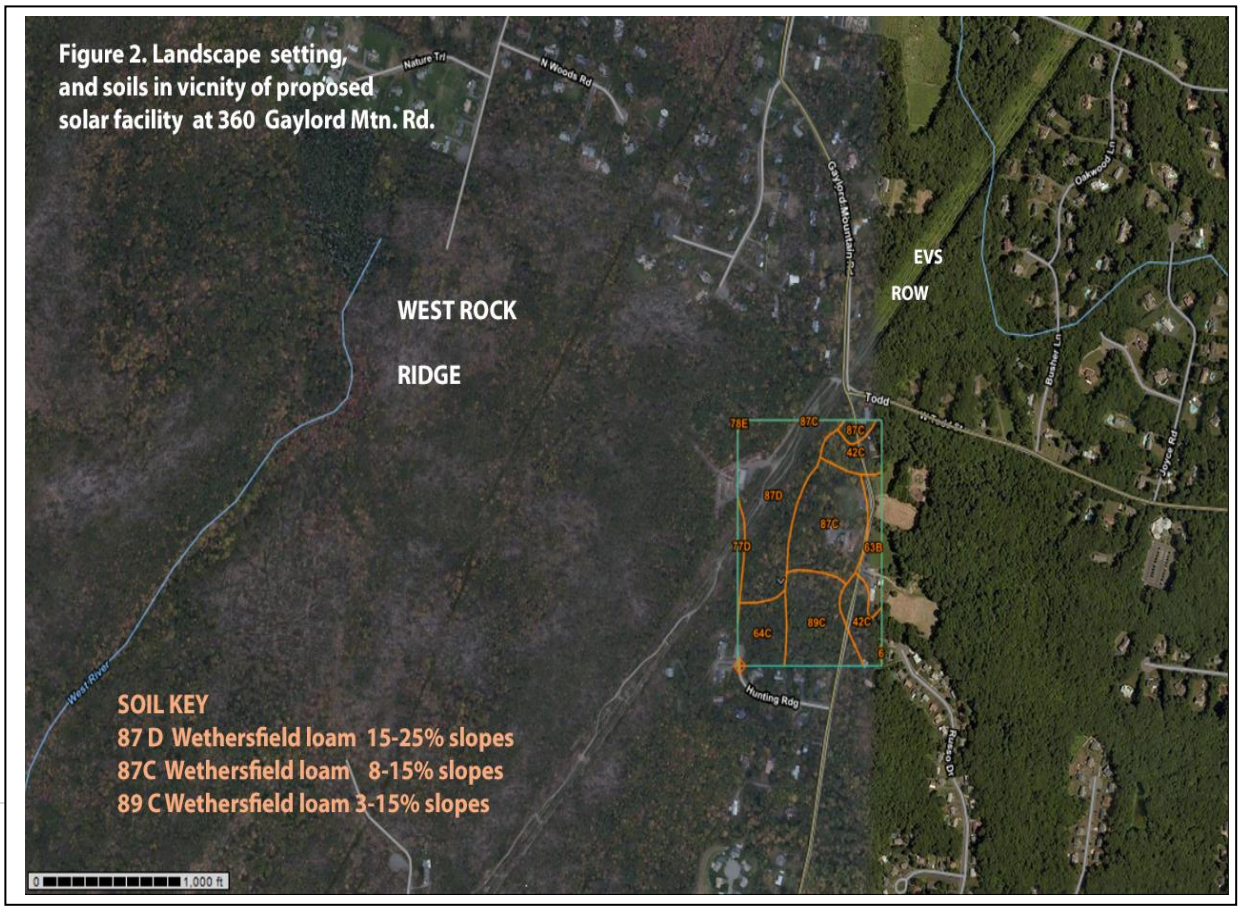
As multiple wildlife specialists know, early successional habitat is indeed valuable ecologically to a suite of declining wildlife species. Forest edges do not lessen the wildlife value of a property; they support a suite of flowering and fruiting species used by birds and insects, not found within core forest – hence all the concern about

gravelling and excessive mowing of utilities rights of way. Disturbed forest edges are, however, vulnerable to colonization by invasives, as noted by Mr. Hudak. Several forest songbirds, like Rose-breasted grosbeak, red shouldered hawk, and gray fox need landscapes with both forested and early successional habitat.

Incidentally, Table 1 on p. 14 of the EA has a serious error, inconsistent with the text: It states that the project will occupy 12.9 acres of early successional habitat and 2.4 acres of forested habitat, whereas the reverse is true.

Underestimation of Scenic value

The scenic appeal of the "backwoods of Hamden" may not have been formalized by placement local roads on a list of scenic highways, but its beauty and potential tourism appeal are undisputed. This section of Gaylord Mountain Road is appreciated more than most since many people come to KayCee Farm (just across the road

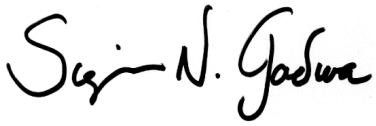


from the proposed facility) to buy maple syrup, and enjoy views of grazing cows and large, spreading sugar maples.

Conclusion

In summary, for all the above-stated reasons, we ask that you not approve this petition. There are many potential sites for solar facilities that are entirely appropriate, such as capped landfills, large mugwort infestations, and roofs of warehouses or industrial buildings, that have gone out of business. Denying this petition would lead to more solar applications with suitable locations.

Respectfully submitted,



Sigrun N. Gadwa, MS, PWS
Plant Ecologist, Professional Wetland Scientist,
Registered Soil Scientist
CARYA ECOLOGICAL SERVICES, LLC

Attachment 1:

EXCERPTS OF TESTIMONY TO CT SITING COUNCIL

BY JOHN HUDAK, ENVIRONMENTAL PLANNING MANAGER

SOUTH CENTRAL REGIONAL WATER AUTHORIT, INTERVENOY

pp. 2 & 3: “Forestlands on the RWA’s water supply watersheds are the first layer of a multi-barrier approach to ensure that high quality drinking water is delivered to our customers.

Forests are the most beneficial land cover for protecting water quality for the following reasons:

• Trees intercept rain and snow before guiding this precipitation to the humus layer of the forest floor, which acts like a sponge. Water is held in the forest floor soil layers, promoting infiltration and uptake by tree roots;

• Forests have very little soil erosion; thus less sediment and nutrients are transported to streams, lakes, and reservoirs; • Forests reduce runoff flow and velocities, further reducing streambank erosion and sediment transport;

• *Forests use nutrients* from soil, atmospheric deposition, and stormwater runoff that *would otherwise help fuel harmful algae blooms in lakes and reservoirs.*

• Forests help mitigate impacts of climate change on water quality, such as moderating stream temperatures and, attenuating runoff from extreme precipitation events. The water quality of lakes and reservoirs is in large part a function of watershed forest cover. The overall cost of treatment necessary to meet state and federal drinking water requirements and customer expectations is generally less for a forested vs. a developed watershed."

pp. 4 & 5

"The solar array site proposed in this application is located on the watershed of Eaton Brook, which flows to the Mill River. From here, the river passes near the RWA's Mount Carmel wellfield before flowing downstream to the Lake Whitney reservoir, both of which are active drinking water sources for RWA customers. The applicant's petition proposes to clear-cut 12 acres of mature forest on land characterized by *steep slopes and highly erosive soil types.* The attached map shows where the various water resources are located."

p. 6: “Soil survey information available from the Natural Resources Conservation Service (NRCS) indicate that site soil types are mostly a mix of hydrologic Class B and C soils. According to the NRCS, infiltration rates generally range from 0.15-0.30 in/hr for Class B soils and 0.05-0.15 in/hr for Class C soils. Attenuation and infiltration of precipitation and runoff in forests are important water quality benefits, and part of the reason that the RWA has invested so heavily in watershed preservation.”

pp. 7 & 8

A. We are opposed to this petition for declaratory ruling based on the following reasons:
7 • The project will result in an irretrievable loss of forestland that protects the affected RWA sources of supply in the Mill River watershed. Even if the solar array is eventually dismantled and abandoned, it is likely that the invasive species presently documented within the adjacent power utility right of way will colonize the site and effectively prevent the regeneration of the forest cover that now exists;

• When considering drinking water source protection, the distinction of forest vs. core forest is immaterial. All forest is valuable in this regard;

• The “site selection process” contained in the petition appears to consider the various alternative sites in terms of real estate market cost, but does not adequately factor the value of the chosen site in terms of ecosystem services, such as the aforementioned benefits to water quality. A former industrial site within the Lake Whitney watershed, which has stood vacant and demolished for at least 12 years, was considered and rejected (100 Skiff Street, Hamden). We believe that a solar array at this alternate site could be designed to have net water quality and environmental benefits;

• We are concerned how the loss of forest cover will affect water quality, water temperatures, and peak flows in Eaton Brook. While

there are no direct water withdrawals from this stream, these impacts could add further stress to the Mill River ecosystem and disrupt the ongoing balancing of interests amongst current watershed development, public water supply needs, and cold-water fish habitat;

•Approval of the petition will set a detrimental precedent and potentially promote and incentivize the destruction of other forestlands now serving to protect drinking water sources used by the RWA and other Connecticut water providers.

P.9 "On September 3, 2019, Governor Ned Lamont issued Executive Order No. 3, which re-established and expanded the membership and responsibilities of the **Governor's Council on Climate Change**, also known as the **GC3**. According to the DEEP's website, the purpose of the [GC3's]Working and Natural Lands Working Group is to evaluate "the role of nature-based solutions (e.g., scaling up the preservation and restoration of forests and coastal wetlands, green and natural infrastructure, agricultural lands) in climate change mitigation and adaptation and how to best incorporate the economic, social, and environmental co-benefits of these solutions into Connecticut's climate change planning strategies."

"The report from the Forests subgroup was released in September for public comment, recommends a no-net loss policy for Connecticut forestlands and strongly discourages the conversion of such lands to solar installations."

CARYA ECOLOGICAL SERVICES, LLC, 183 GUINEVERE RIDGE, CHESHIRE, CONNECTICUT, 06410
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SIGRUN.N.GADWA@GMAIL.COM WWW.CARYAECOLOGICAL.COM

Curriculum vitae

Sigrun N. Gadwa, MS, PWS
Ecologist/Botanist/Wetland Scientist

EDUCATION:

M.S., Plant Ecology, University of Connecticut, Storrs, CT, 1997.

B.A., Biology, Brown University, Providence, R.I., 1975.

Continuing Education

16 credit hours in Soil Science and Geology, 1993 – 2001
University of Connecticut, Storrs

Graduate course in Phycology, Pan American University, Brownsville, Texas, 1982

Arboriculture course, Quinnipiac College, Hamden, CT, 1984

Five Plant Pathology courses, Cook College, Rutgers University, New Brunswick, N. J. 1978 - 1979

CT DEEP training workshop Series: Rapid Bioassessment Techniques, & Stream Ecology Workshops. Bethany.1996 & 7.

Riparian Buffer Function, Performance & Limitations. Urban Riparian Buffers Conference & Technical Training Session. April 1999.

Freshwater Mussel Workshop. New Hampshire Department of Environmental Conservation. August 2004.

Sedimentation and Erosion Control Review Session. USDA Natural Resource Conservation Service and CPESC (Certified Professionals in Erosion Control), Concord, NH, September, 2001.

Moss Identification & Ecology,1-week course; Eagle Hill Institute. 6-19.

CERTIFICICATIONS:

Registered Soil Scientist,
Society of Soil Scientists of Southern New England

Certified Professional Wetland Scientist
Society of Wetland Scientists

Organic Land Care Professional. NOFA (Northeast Organic Farming Association)

EXPERIENCE:

As a plant ecologist Ms. Gadwa inventories, assesses, photographs, and monitors ecological communities, often in support of open space acquisition initiatives, including teaching local citizens & students about the resources. She plans & guides control programs for invasive plants, and searches for listed plant and turtle populations and assesses their habitat. Botanical specialties include vascular plant identification and winter botany. As a wetland scientist, she is experienced with delineation of wetland and watercourse jurisdictional boundaries (CT and U.S. Army Corps of Engineers), planning wetland mitigation and restoration, third party reviews of development projects, vernal pools studies, water quality testing and data analysis, and in-stream bio-assessments.

Curriculum vitae: *(continued)*

Sigrun N. Gadwa, MS, PWS
Ecologist/Botanist/Wetland Scientist

EMPLOYMENT HISTORY:

1999 to present	**Carya Ecological Services, LLC**, **Principal,** *subcontractor* to **Rema Ecological Services**, LLC, Manchester, CT, an environmental science collaborative; Ecological fieldwork, planning, and reporting.
2013 to 2018	**K & W Construction,** Southbury, CT, *subcontractor* Erosion & Sediment Control Inspections, Turbidity testing for CT DEEP
2014 to 2019	**South Central CT Regional Water Authority**, New Haven, CT Responsible for long term vegetation monitoring each fall, and reporting for compliance with CT DEEP Wellfield Diversion Permit.
2015 to present	**Post University, Waterbury Campus** Adjunct Professor of Botany & Ecology Methods.
2001 to 2004	**CT DEEP Wildlife Division,** *subcontractor* Vegetation and wetland inventories & mapping of large Wildlife Management Areas (WMAs).
2003 to May 2016	**Ships' Hole Farm Partnership,** Smithtown, Long Island, NY Responsible for vegetation management & invasive control; growing seed and nursery stock of native species on family farm.
1995 to 2000	**Quinnipiac River Watershed Association Meriden, CT** Executive Director/Staff Scientist Led botany hikes and a volunteer monitoring program, including stream bio-assessments, turbidity testing, and bird/wildlife surveys; site plan reviews of projects impacting the watershed; wrote testimony, grants, publicity, and educational materials; liaison with officials. Chair of Habitat Work Group of the **Watershed Partnership**, which identified and documented Quinnipiac watershed habitats in need of protection or restoration until 2003. Continue as advisor/coordinator for turtle monitoring program.
1991 to 1995	**De Leuw-Cather, Inc.,** East Hartford, CT Environmental Planner/Field Ecologist Field data collection, analysis, and report preparation, primarily for large highway projects; specialties included listed plant searches, wetland functional assessments, mitigation design, vegetation monitoring, & wetland delineation (ACOE method).

Curriculum vitae: *(continued)*

Sigrun N. Gadwa, MS, PWS
Ecologist/Botanist/Wetland Scientist

EMPLOYMENT HISTORY:
(continued)

1987 to 1991	**Univ. of Connecticut Department of Civil Engineering,** Storrs, CT Wetlands Researcher Part of an interdisciplinary team, studying man-made replication wetlands and natural reference wetlands. Took part in research design; collected vegetation, soils, & hydrologic data; literature searches; data analysis. Research used for wetlands mitigation-related manual for the Connecticut Department of Transportation and for master's thesis.
1974 to 1975	**Brown University,** Providence, RI Teaching Assistant, Plant Systematics
1968 to 1975	**Long Island Nature Conservancy,** Stewardship Volunteer Nature trail development & maintenance, botanical inventories, wrote preserve descriptions & self-guided nature trail brochures.
	Carya E.S. clients have included Berlin Land Trust, Avalonia Land Conservancy, Groton Open Space Association, Cardinal Engineering, Joshua's Trust, Wright-Pierce, RACE Coastal Engineering, and Catherine Pratt (landlord of CT River shoreline property)

PROFESSIONAL AFFILIATIONS:

Connecticut Botanical Society (Board of Directors)
Connecticut Invasive Plant Working Group (CIPWG)
Connecticut Association of Wetland Scientists
Society of Soil Scientists of Southern New England
Connecticut Ornithological Society
Ecological Society of America
Native Plant Trust (PCV - Plant Conservation Volunteer Program)

PUBLICATIONS:

Lefor, M.W. Barklay, J.S. Cooke, R.S. Craig, S.N. Gadwa, T.S. Murray, April 1990. *Annotated Bibliography for Wetland Mitigation*.

August 1990. *Patterns of Herb Layer Species Association*. In Lefor, M.W. et al *Wetland Mitigation: Interim Report* No. CT-RD-JHR-90-8, TheTransportation Institute, Storrs, Conn. 97 pp.

1994. *Forests.* In Chesanow et al. *Trails*. The Cheshire Land Trust and the Cheshire Environment Commission, Cheshire, CT 96 pp.

Curriculum vitae: *(continued)*

Sigrun N. Gadwa, MS, PWS
Ecologist/Botanist/Wetland Scientist

PUBLICATIONS, cont. :

May 1995. *Wetland Mitigation: Botany*. Volume 1 of 6. Lefor, M.W. and S.N. Gadwa. Report No. JR95-241. Dept. Civil Engineering, Joint Highway Research Council, Transportation Institute, Storrs, Conn. 259 pp.

December 1997. *Plant Colonization Processes and Patterns along Shorelines of Man-made Mitigation Basins in Relation to Reproductive and Life History Traits.* MS Thesis. Dept. Ecology & Evolutionary Biology. Univ. of Connecticut, Storrs, CT. 181 pp.

River Resources Education Series, Quinnipiac River Watershed Association, Meriden, CT. May 1995 *New Haven Oysters;* June 1996 *What Good are Streamside Woods:* August 1996 *Taking a Close Look at Streamside Woods;* June 1997 *Foraging in the Quinnipiac Estuary;* March 1998 *Stream Biosurveys* (G.T. Logan & S. Gadwa) ; Sept. 2000 *Muddy Waters.*

Logan, G.T. & S.N. Gadwa. *Quinnipiac River Watershed Association Stream Study*. Water Quality in the Quinnipiac River. Proceedings of a Symposium on the Impact of Nonpoint Source Pollution in the Quinnipiac River Watershed, pp. 66-70.

October 2000. *A Report on the Water Quality of the Quinnipiac River*. M. Tyrell, C. Cappannari, D. Galt, S. Gadwa, L. MacMillan, R. Walters. Report to the Steering Committee of the Quinnipiac River Watershed Partnership. Q.R.W.P. Water Quality Workgroup, New Haven, CT. 19 pp.

Winter 2003. *Management of Invasive Plants: On-Site Open Space Management.* The Habitat 15(2):3-4 Connecticut Association of Conservation and Inland Wetland Commissions, Inc.

.

Spring 2003. *Management of Invasive Plants: Protecting Open Space and Wetlands, Tools for Land Use Boards and Town Staff.* The Habitat 15(3):4-5. Connecticut Association of Conservation and Inland Wetland Commissions, Inc.

July 2003. Interpreting Quinnipiac Songbird Surveys: Effects of Landscape Setting on Avian Community Composition. *The Connecticut Warbler*. 23(3):81-114.

June 2004. *Connecticut Turtles of Special Concern.* Quinnipiac River Watershed Association. 4 page pamphlet. (illustrations by Tony Ianello)

Curriculum vitae: *(continued)*

Sigrun N. Gadwa, MS, PWS
Ecologist/Botanist/Wetland Scientist

PUBLICATIONS, cont. :

Fall 2005. S. N. Gadwa. *Preliminary Assessment of the Habitat & Historic Resources in North Cheshire, West of Route 10 & Recommended Protection Measures.* The Cheshire Land Trust & Habitat Workgroup of the Watershed Partnership.

October 2011 S. N. Gadwa & G.T. Logan. *The Scientific Basis for Wetland & Watercourse Buffer Zones*. 23 pp. White Paper. Rema Ecological Services, LLC.

Spring 2014. Sigrun N. Gadwa. *The Invasive Threat to Connecticut's Upland Critical Habitats*. 3pp. Connecticut Botanical Society Newsletter 41: 1.

Spring 2020. Sigrun N. Gadwa. *Gabbro Habitats in Southeastern Connecticut.* Connecticut Botanical Society Newsletter 47: 1.

WORKSHOPS & CONFERENCES

SA Mid-Atlantic Chapter Symposium, Blacksburg Virginia
Lessons for Mitigation Design from Shoreline Seedling Colonization Patterns April 12-14. 2012. ***(selected)***: *(Poster presentation based on MS thesis)*

New England Invasive Plant Summit, Framingham Massachusetts: Wetlands permitting – a potentially powerful tool to control invasive plants. September 19-20. 2003. (*Poster Presentation)*.

Environmentally Sensitive Development along the Ten Mile River. Riverside Landscaping Conference. The Rivers Alliance of Connecticut. June 1998. (*Guest Lecturer*)

Water Quality in the Quinnipiac River: A Symposium on the Impact of Non-Point Source Pollution in the Quinnipiac River Watershed. November 1998. *(Presenter)*

October, 2014. Documenting and Conserving Eastern Box Turtles in Central Connecticut: 19 years of Citizen Monitoring. Berlin Land Trust and Nature Center. Evening Membership Program. (*Guest Lecturer)*

2011 to 2119. For CT Botanical Society, have led 1-3 guided botany field trips and/or field botany workshops each year.

October 2016 Sigrun Gadwa ,MS & Todd Mervosch PHD. Connecticut Invasive Plant Working Group (CIPWG) Symposium, UConn College of Agriculture, Health, & Natural Resources. *Artemisia vulgaris (Mugwort): Overlooked Infiltrator of Meadow Habitats. (Poster Presentation).*

https://portal.ct.gov/DEEP/Climate-Change/GC3/GC3-Working-group-reports

Governor's Council on Climate Change (GC3)

Excerpts of the DRAFT REPORT for Public Comment

Forests Sub-Group of the

Working and Natural Lands Working Group 9/10/2020

The U.S. Climate Alliance estimates that "within Alliance states [including Connecticut], natural and working lands offset 16% of the GHG (Green House Gas) emissions from energy, transportation, and other sources in 2016." [22]

The ability of trees to take in or sequester and store carbon dioxide, turning it to wood and other forest components including soil, provides significant potential to mitigate climate change by retaining existing forests and improved forest management. A study in the Proceedings of the National Academy of Sciences finds that "natural climate solutions" could reduce land-based emissions and store additional carbon equivalent to more than a third (37%) of needed emissions reductions to keep global temperatures at or below 2 degrees Celsius through 2030, although benefits decrease beyond that date due to saturation of natural systems among other factors. Among the strategies found to deliver the most benefit, according to the paper, are "reforestation" (conversion of non-forest to forest) and "avoided forest conversion" that along with "natural forest management," represent easily available and effective solutions. [23]

Trees are also effective air filters, removing pollution and particulate matter through their respiration, with studies showing significant reduction of asthma and improved respiratory health in urban areas with more tree cover.[24]Roadside trees could reduce nearbyair pollution by more than 50%,[25]but the potential for air pollution reduction varies among species and as a function of tree size and landscape position.[26]

That said, the existence of trees in areas with limited canopy cover can sometimes literally be the difference between life and death.

Neighborhoods with little to no trees can, on average, be 5 to 7 degrees hotter during the day and up to 22 degrees hotter at night than neighborhoods with good tree cover. Treeless neighborhoods also have worse air pollution because trees trap air pollutants and the hotter temperatures in these treeless neighborhoods help cook air pollutants into dangerous smog. That's one of the reasons why health experts project a ten-fold increase in heat-related deaths across America's cities.[156]

The Forests Sub-Group recommends an overarching "no-net-loss of forest" (NNLF) policy for Connecticut. This policy would support the top priority recommendation in both the Adaptation/Resilience and Mitigation sections of this report which is to KEEP FORESTS AS FORESTS. To achieve this NNLF policy goal will take concerted actions at the local, regional, and statewide levels. Fortunately, the state of Maryland has been working on implementing its "no-net-loss of forest" policy which was adopted in in 2013 with passage of the MD Forest Preservation Act.[37]This landmark legislation accomplished four goals:[38]•Establishing no-net-loss of forest as the policy of the State of Maryland.•Encouraging the retention of family-owned forests by doubling the income tax credit for forest management activities and expanding the range of activities to include the planting of streamside forests, removing invasive species, and improving wildlife habitat.•Broadening the State Reforestation Law to support tree planting and forest health management on family-owned forests.•Ensuring that local fees under the Forest Conservation Act of 1991 are used for tree planting and conservation.The NNLF policy has helped establish several mechanisms at the statewide and county levels to slow the rate of forest losses in Maryland. This policy should be adapted to work for Connecticut, and the climate crisis makes this an urgent priority.

The following recommendations are based on those proposed for Maryland to implement its NNLF policy:[39]
(1) Avoid Forest Conversion–protect existing public-and privately-owned forestland from conversion to non-forest purposes to retain the

benefits of increased carbon storage, biodiversity, public health, green infrastructure, etc. (see benefits in previous chapter);
(2) Protect Healthy, Intact Forests–ensure that impacts upon forests, sensitive habitats, and other natural climate solutions and priorities (wetlands, soils, rivers, farmland, etc.) are considered at every level of planning –urban, suburban, and rural –and across all landscapes;

(3) Offset All Planned or Permitted Forest Losses–it is not practical to protect all forested areas from conversion and periodic natural disturbances may also result in temporary forest losses. However, it is essential to offset all planned or permitted forest losses through a combination of compensatory mitigation requirements and tools such as compensatory reforestation, replanting programs, and acquiring local or regional forest mitigation banks;

(4) Provide Incentives for Stewardship, Forest Retention, and Forest Resiliency–since71% of the state's woodlands are privately owned by individuals/families, corporate landholders, and land trusts, a no-net-loss policy must include financial and technical assistance measures. Adopt a statewide "No-Net-Loss of Forest" policy in the CT General Assembly.
Engage private landowners in maintaining and increasing sequestration and storage of forest carbon as well as incentives for critical ecosystem services that their forests provide. For example, as a participating state in the Regional Greenhouse Gas Initiative or RGGI, Connecticut should study forest carbon offset allowances available through compliance and voluntary markets for reforestation, improved forest management, avoided conversion, and proforestation as well as programs that aggregate, evaluate and monitor forest offsets, in order to implement a system of paying landowners for enhanced carbon sequestration and storage with verifiable climate benefits and strict certification standards in place; and

(5) Protect Urban Forests, Build More Parks,and Plant More Trees–planting, re-planting, and caring for trees and establishing neighborhood parks in Connecticut's cities not only provides improved

health, reduced energy costs, and other co-benefits, but also often provides more equitable access to parks and the outdoors for people of color and other vulnerable communities disproportionately impacted by climate change. If this is implemented with appropriate community engagement rather than as a top-down program, this can result in more healthy, equitable, and resilient communities.[40]

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