

From: David Yih <yyih@wesleyan.edu>
Sent: Saturday, April 14, 2018 7:32 PM
To: Wagener, Karl
Cc: Hearn, Peter; sigrun.n.gadwa@gmail.com; whmoorhead@optonline.net
Subject: Proposed Tilcon quarry expansion
Attachments: CBS testimony to CEQ RE Tilcon Lenard Report 2018-04-13_WM_DY.pdf;
Traprock_ridge_rare_plantsDraft#6_4-5-17-2011_SG_WHM_DY_2017
Traprock_ridge_rare_plantsDraft.pdf; Bullets_TilconExpansion_REMAforBLT.pdf;
2018SpringCBSnewsletterR3HiRes.pdf; Species List Ragged Mtn 5-18-13 Brierely land
Sheet1.pdf

Dear Mr. Wagener,

Attached, please find my letter on behalf of the Connecticut Botanical Society's Ecology and Conservation Committee, regarding the proposed Tilcon quarry expansion, with accompanying attachments.

Thank you for your consideration of our views and data,

David Yih
President, Connecticut Botanical Society

Connecticut Botanical Society

P.O. Box 9004, New Haven, CT 06532

~ Established 1903 ~

Karl Wagener
Executive Director,
Connecticut Council on Environmental Quality
79 Elm Street, Hartford, CT 06106

RE: Lenard Environmental Study On a Change in Use of New Britain Water Company Land

The Connecticut Botanical Society (CBS) is appreciative that a study has been conducted, and that the proposed quarry footprint has been reduced somewhat, to 72 acres, no longer including much of the higher elevation, western portion of the site, that consists largely of three different subacidic (traprock) critical habitats. However, the limit of the quarry should certainly be east of the extremely rare mountain fir moss (*Huperzia appressa*) stations, and east of the most productive of the three Jefferson salamander pools.

The narrative in Chapter 7 of the Lenard report has insufficient detail and impact analysis. Plant species lists for wetlands and vernal pool envelopes appear to be incomplete, in contrast to the thorough species list provided for the western upland habitats. Especially for the mountain fir moss and the wetland and vernal pool habitats, the Davison Environmental chapter lacks a thoughtful assessment of potential environmental impacts to the biological resources and a discussion of possible mitigation measures.

The brevity of the discussion of the discovery of an apparently robust population of mountain fir moss fails to adequately emphasize the high scientific and biodiversity significance of this occurrence. Prior to this report of it on Bradley Mountain, it was known in Connecticut from a single station somewhere near New Haven, where it was last documented in 1879. (The exact location of that historic station is unknown). This Bradley Mountain occurrence is now the only known extant occurrence of this northern-affinity species in Connecticut. It is of high biodiversity significance, and its occurrence is the single most obvious biological evidence of Bradley Mountain's uniqueness. With only one historic occurrence and only one known extant occurrence, mountain fir moss is rarer than all but a handful of the 331 state-listed rare plants in Connecticut. It is not only rare in Connecticut but also regionally rare, tracked as a rare plant in all New England states in which it occurs. The Davison Environmental report gave only a few sentences to the amazing discovery of this species, and included no discussion of the potential significance of the destruction of these two stations. This plant is an SC historic "presumed extirpated" species. CBS will request that CTDEEP invoke the emergency reclassification provision of the Connecticut Endangered Species Act to reclassify this species as Endangered. Several decades ago a mountain sedge, *Carex wildenowii*, classified as "SC historic" was rediscovered on West Rock, and it was reclassified as Endangered. CBS recommends that a provision be made for the preservation of this occurrence of the extremely rare species, mountain

CBS recommends that it be clarified whether or to what extent these two critical habitat forest types occur on property and whether they were given detailed scrutiny for rare plants and invertebrates.

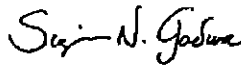
Chapter 7 inadequately characterized valuable, high-functioning wetland resources on the site and down-gradient, such as the tributary that feeds into the Shttle Meadow Reservoir, which is fed by the two tributaries within the proposed quarry footprint. Are they really intermittent streams or examples of the very small spring-fed streams so often found at the base of trap slopes? We would recommend collection of additional mapping and ecological data during the remainder of 2018, and a more thorough inventory of the biota in the headwaters wetlands and seepage areas, both plants and aquatic macro-invertebrates (also sometimes rare). This would help address the lacunae in Chapter 7 of the Lenard Report.

Finally, like most of the environmental organizations in our state, we are deeply concerned about the precedent of building a new reservoir on a water company open space property, when the primary goal appears to be tax revenue from the quarry operation. Other more suitable, less ecologically valuable locations for trap rock mining and for a new reservoir could be found, especially as the Lenard report does not make a strong case that the reservoir is very much needed.

Respectfully Submitted,



David Yih, Ph.D.
CBS President



Sigrun N. Gadwa, MS, PWS
Chair, Conservation & Ecology Committee

CBS Traprock Subcommittee Members: William Moorhead, Juan Sanchez, Lauren Brown, Sonya Wulff, Roberta Mack

Attachments:

- 1) CBS List of Rare and Uncommon Vascular Plant Species of Traprock Habitats.
- 2) Summary of Lenard report's deficiencies (prepared on behalf of the Berlin Land Trust by Sigrun Gadwa and George Logan of REMA Ecological Services LLC, including maps showing locations of threatened resources).
- 3) A recent CBS-compiled species list from Ragged Mountain.
- 4) Current issue of the *Connecticut Botanical Society Newsletter*

Table 1: Rare and Uncommon Vascular Plant Species of Traprock Habitats

Attachment 1a- Table 1: Connecticut Endangered, Threatened, & Special Concern Plant Species (August 2016 legal list),
Conservanda 2012 species, and Uncommon species of Traprock Habitats

Conservation Status	Scientific name	Common name	Preferred habitat
Ferns			
UC	<i>Asplenium rhizophyllum</i>	walking fern	Usually upland, shaded, high pH cliffs, tree basses
T	<i>Asplenium ruta-muraria</i>	wall-rue spleenwort	Moist ledges
E	<i>Cheilanthes lanosa</i>	hairy lip fern	Dry ledges
UC	<i>Cystopteris bulbifera</i>	bulbil fragile fern	Cliffs, balds, or ledges, ridges or ledges, talus and rocky slopes
E	<i>Diplazium pycnocarpon</i>	narrow-leaved glade fern	Rich moist soil, shade, toe of slope
SC	<i>Dryopteris goldiana</i>	Goldie's wood fern	Rich, moist soils
UC	<i>Gymnocarpium dryopteris</i>	northern oak fern	Cliffs, balds, or ledges, forests, talus and rocky slopes
SC	<i>Lygodium palmatum</i>	climbing fern	Forests, forest edges and swamp margins, mainly on peaty, acidic, sandy soils
UC	<i>Pellaea atropurpurea</i>	purple cliff-brake	Rock crevices on high-pH cliffs
UC	<i>Woodsia ilvensis</i>	rusty cliff fern	Cliffs, balds, ridges or ledges, talus and rocky slopes
UC	<i>Woodsia obtusa</i>	blunt-lobed cliff fern	Cliffs and rocky slopes, predominantly on high- pH substrate
Orchids			
SC(F)	<i>Aplectrum hyemale</i>	putty root	Moist to wet deciduous forests, often rocky
E	<i>Coeloglossum viride</i>	long-bracted green orchid	Mesic to wet-mesic deciduous and evergreen- deciduous forests, fens, swamps, meadows
UC	<i>Corallorhiza odontorhiza</i>	fall coral-root	Moist upland forests, usu. open understory
SC	<i>Cypripedium parviflorum</i>	yellow lady's-slipper	Wooded swamps, moist decid. woods
E	<i>Cypripedium reginae</i>	showy lady's-slipper	Wooded swamps

Table 1: Rare and Uncommon Vascular Plant Species of Traprock Habitats

E	<i>Bouteloua curtipendula</i>	sideoats grama	Glades, open dry soil
Div. 2 Flora Cons. 2012	<i>Elymus glabriflorus</i>	southeastern wild-rye	Dry-mesic, deciduous forests, usually occurring on hills ridges, including trap rock, in shallow soils associated with <i>Quercus</i> and/or <i>Carya</i>
UC	<i>Elymus trachycanthus</i>	slender wild-rye (wheat grass)	Thin, dry, rocky woods
E	<i>Milium effusum</i>	millet grass	Mesic, deciduous forests, often at mid-elevations and frequently associated with circumneutral or basic bedrock
E	<i>Muhlenbergia capillaris</i>	hair-awned mubly	Rocky forests and woodlands where it occurs on ridges and trap rock
E	<i>Piptatherum pungens</i>	short-awned mountain-rice grass	Deciduous or mixed evergreen-deciduous woodlands and barrens, dry-mesic to xeric openings
Div. 2 Flora Cons. 2012	<i>Poa sativensis</i> ssp. <i>languida</i>	weak spear grass	Slightly moist to wet, cliff bases
SC	<i>Setyochne purpurascens</i>	false meic grass (purple oat grass)	Dry rocky woods
Div. 2(a) Flora Cons. 2012	<i>Sphenopholis nitida</i>	shiny wedgescale	Dry-mesic to mesic forests and woodlands, often on hillsides and rocky slopes, sometimes associated with cliff bases and outcrops
E	<i>Sporobolus clandestinus</i>	hidden dropseed	On ledge and thin soils of ridges and rocky slopes, usually on trap rock, but also occurring on limestone
(98 SC)	<i>Sporobolus compositus</i>	rough dropseed	dry roadsides, ledges, thin subacidic soil
E	<i>Sporobolus heterolepis</i>	prairie dropseed	dry open soil
E	<i>Sporobolus neglectus</i>	small dropseed	Ledges, river shore outcrops, dry sandy soil of roadsides and fields, often in regions of high-pH bedrock and/or till
E	<i>Trisetum spicatum</i>	narrow false oat	River shore outcrops, ledges, often in regions of high-pH bedrock
	Other herbaceous plants		
E	<i>Agastache nepetoides</i>	camp giant-hyssop (yellow giant-hyssop)	Forest borders and fragments, shaded roadsides, rocky banks
E	<i>Agastache scrophulariifolia</i>	purple giant-hyssop	Forests, frequently dry-mesic, rocky types, forest fragments, roadsides, river banks, riparian forests
UC	<i>Asclepias verticillata</i>	whorled milkweed	Rocky woodlands, open glades, balds, cliff bases
SC(H)	<i>Blechnum hirsutum</i>	hairy wood-mint	Glades, dry woods
UC	<i>Boechera stricta</i>	Canada rockcress	Rocky woodlands and forests, cliffs, and talus slopes in regions of moderate to high-pH bedrock

Table 1: Rare and Uncommon Vascular Plant Species of Traprock Habitats

T	<i>Houstonia longifolia</i>	Long-leaf bluet	Glades, river & lake shores, often in wetlands
SC(H)	<i>Hybanthus concolor</i>	(eastern) green violet	Rich, deciduous forests and woodlands, rocky slopes
E	<i>Hydrastis canadensis</i>	goldenseal	Rich, mesic, often rocky forests, usually associated with limestone and trap bedrock
SC	<i>Hydrophyllum virginianum</i>	eastern waterleaf (Virginia waterleaf)	Rich, moist soil, rocky subacidic hillsides, usually wetlands
SC	<i>Lespedeza repens</i>	creeping bush-clover	Dry glades, open upland areas
SC	<i>Liatris novae-angliae</i>	northern blazing star	open upland areas
E	<i>Linnaea borealis</i> ssp. <i>americana</i>	American twinflower	Wetlands, forests- usually evergreen
E	<i>Moehringia macrophylla</i>	Large-leaved grove-sandwort	cliffs, talus, and thin soil over ledges and boulders, usually associated with serpentine bedrock but infrequently on limestone and trap rock
E	<i>Moneses uniflora</i>	one-flowered-shinleaf (single delight)	Dry-mesic to hydric, deciduous to evergreen forests and swamps
UC	<i>Myosotis verna</i>	spring forget-me-not	Ledges, pastures, woodlands, dry, open banks, waste areas
E	<i>Oligoneuron rigidum</i>	stiff flat-topped-goldenrod	Upland edges, subacidic soil
SC	<i>Opuntia humifusa</i>	eastern prickly-pear	Open upland areas
SC	<i>Oxalis violacea</i>	violet wood sorrel	Rich soil, moist - dry glades
E	<i>Packera anonymsa</i>	Small's ragwort or groundsel	Open fields, meadows, roadsides, disturbed sites, in drying or sandy soils
E	<i>Packera paupercula</i>	balsam groundsel (balsam ragwort)	Glades, thin soil
SC	<i>Panicum quinquefolium</i>	American ginseng	Rich, moist forest, occ. in wetlands
SC(H)	<i>Phaseolus polystachios</i> var. <i>polystachios</i>	wild bean	
E	<i>Polymnia canadensis</i>	white-flowered leaf-cup	Subacidic, rocky soil, talus slopes, upland forest
UC	<i>Polygonum tenue</i>	slender knotweed	Uplands roadsides, edges
UC	<i>Pycnanthemum x-citropodioides</i>	basil mountain-mint	woods, thickets, hybrid not species per Haines 2011
E	<i>Pycnanthemum torrei</i>	Torrey's mountain-mint	Dry woods, thickets

Table 1: Rare and Uncommon Vascular Plant Species of Traprock Habitats

Code	Species	Habitat	Total #
T	<i>Populus heterophylla</i>	swamp cottonwood	NI
UC	<i>Quercus prinoides</i>	dwarf chestnut oak	
UC	<i>Quercus stellata</i>	post oak	NI
SC(H)	<i>Rhus aromatica</i>	fragrant sumac	
SC	<i>Rubus cuneifolius</i>	seed blackberry	NI
UC	<i>Sorbus americana</i>	American mountain-ash	
UC	<i>Taxus canadensis</i>	American yew	NI
UC	<i>Vaccinium stamineum</i>	deerberry	
UC	<i>Viburnum rafinesquianum</i>	downy arrowwood	NI
SC(H)	<i>Vaccinium vitis-idaea</i> ssp. <i>minus</i>	mountain cranberry	

NOTES:
Total E: 34
Total T: 5
Total SC: 27
Total SC(H): 11
Total CT listed: 77
Total Div. 2 FL Co: 10
Total UC: 43 (uncommon)
Total that may occur in wetlands: 79

Appendix 1 - USACE Codes for Wetland Indicator Status
OBL = Obligate - occurs only in wetland
FAC = Facultative species equally likely to be found in wetland as upland.
UPL = occurs only in uplands
FACW = facultative wetland species occurs in both wetlands and uplands. More often in wetland
FACU = facultative upland species occurs in both wetlands and uplands. More often in upland
NI = Not an indicator species (not listed)

Not on official US Army Corps (USACE) Northcentral and Northeast 2016 Regional Wetland Plant List. Frequently rare plants not on list. NI-uplands or NI-wetland; status herein based on personal observations and published accounts of species habitats.

Sources of Habitat & Nomenclature Information
 1. Haines, Arthur. 2013 Flora Nova-Englac. New England Wildflower Society. Yale University Press. <https://gobotany.newenglandwild.org/>
 2. Arsenault, Matt et al. 2013 The Sedges of Maine

Appendix 2 - State Endangerment Codes. Connecticut (State of Connecticut Dept. of Energy & Environmental Protection, Bureau of Natural Resources 2016, Public Act 89-224.
E = Endangered - any native species documented by biological research and inventory to be in danger of extirpation throughout all or a significant portion of its range within Connecticut and to have no more than five occurrences in the state, and any species determined to be an "endangered species" pursuant to the federal Endangered Species Act
T = Threatened - any native species documented by biological research and inventory to be likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range within Connecticut and to have no more than nine occurrences in the state, and any species determined to be a "threatened species" pursuant to the federal Endangered Species Act, except for such species determined to be endangered by the Commissioner in accordance with section 4 of Public Act 89-224.
SC = Special Concern - any native plant species or any native nonharvested wildlife species documented by scientific research and inventory to have a naturally restricted range or habitat in the state

Table 1: Rare and Uncommon Vascular Plant Species of Traprock Habitats

Flora

USACE Wetland Indicator Status

NI

NI

UPL

EACW

EACW

EAC

EACU

EACW

UPL

UPL

UPL

NI

EAC

NI

EAC

EACW