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STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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SITING COUNCIL

In Re:

APPLICATION OF NEW CINGULAR WIRELESS PCS,
LLC (AT&T) FOR A CERTIFICATE OF ENVIRONMENTAL
COMPATIBILITY AND PUBLIC NEED FOR THE
CONSTRUCTION, MAINTENANCE, AND OPERATION
OF A TELECOMMUNICATIONS TOWER FACILITY AT
8 BARNES ROAD IN THE TOWN OF CANAAN
(FALLS VILLAGE), CONNECTICUT

DOCKET: 409

February 10, 2011

**WRITTEN TESTIMONY OF THE INLAND WETLANDS AND CONSERVATION
COMMISSION OF THE TOWN OF CANAAN (FALLS VILLAGE), CONNECTICUT**

1. The Inland Wetlands and Conservation Commission of the Town of Canaan (Falls Village) is a dual Town Commission deriving its authority from two Connecticut statutory schemes. [IW/CC Br. at pages 1-6] As the Conservation Commission of the Town of Canaan, our Commission was created under Conn. Gen. Stat. 7-131a and by authorization at Town Meeting to adopt an ordinance. [Exhibit IW4]. Under this statute, our Commission was established:

for the development, conservation, supervision and regulation of natural resources, including water resources, within its territorial limits.

2. As the Inland Wetlands Commission of the Town of Canaan, our Commission was created under Conn. Gen. Stat. 22a-42. Our jurisdiction is over regulating and permitting all activities that may affect the wetlands and watercourses in the Town of Canaan, and our considerations include those comprehended by (included in, but not limited to) Conn. Gen. Stat. Sec. 22a-41: (1) The environmental impact of the proposed activity on wetlands or watercourses; (2) The applicant's purpose for, and any feasible and prudent alternatives to, the proposed regulated activity which alternatives would cause less or no environmental impact to wetlands or watercourses; (3) The relationship between the short-term and long-term impacts of the proposed regulated activity on wetlands or watercourses and the maintenance and enhancement of long-term productivity of such wetlands or watercourses; (4) Irreversible and irretrievable loss of wetland or watercourse resources which would be caused by the proposed regulated activity, including the extent to which such activity would foreclose a future ability to protect, enhance or restore such resources, and any mitigation measures which may be considered as a condition of issuing a permit for such activity including, but not limited to, measures to (A) prevent or minimize pollution or other environmental damage, (B) maintain or enhance existing environmental quality, or (C) in the following order of priority: Restore, enhance and create productive wetland or watercourse resources; (5) The character and degree of injury to, or

interference with, safety, health or the reasonable use of property which is caused or threatened by the proposed regulated activity; and (6) Impacts of the proposed regulated activity on wetlands or watercourses outside the area for which the activity is proposed and future activities associated with, or reasonably related to, the proposed regulated activity which are made inevitable by the proposed regulated activity and which may have an impact on wetlands or watercourses.

3. Under our mandate as an Inland Wetlands Commission, Conn. Gen. Stat. Sec. 22a-41 "wetlands or watercourses" includes (1) aquatic, plant or animal life and habitats in wetlands or watercourses, and (2) "habitat" in which an organism or biological population normally lives or occurs. As the exclusive permitting authority in the Town of Canaan, under authority of memorandum of agreement between the State of Connecticut and the Federal government, authorized by state statute and town ordinance, we are required by law to regulate "activities affecting the wetlands and watercourses within the territorial limits of the various municipalities or districts." (C.G.S. Sec. 22a-42)

4. Our great concern in all matters under our jurisdiction is our directive from the State Legislature (C.G.S. Sec. 22a-36. Inland wetlands and watercourses. Legislative finding.) that:

The inland wetlands and watercourses of the state of Connecticut are an indispensable and irreplaceable but fragile natural resource with which the citizens of the state have been endowed. The wetlands and watercourses are an interrelated web of nature essential to an adequate supply of surface and underground water; to hydrological stability and control of flooding and erosion; to the recharging and purification of groundwater; and to the existence of many forms of animal, aquatic and plant life. Many inland wetlands and watercourses have been destroyed or are in danger of destruction because of unregulated use by reason of the deposition, filling or removal of material, the diversion or obstruction of water flow, the erection of structures and other uses, all of which have despoiled, polluted and eliminated wetlands and watercourses. Such unregulated activity has had, and will continue to have, a significant, adverse impact on the environment and ecology of the state of Connecticut and has and will continue to imperil the quality of the environment thus adversely affecting the ecological, scenic, historic and recreational values and benefits of the state for its citizens now and forever more. The preservation and protection of the wetlands and watercourses from random, unnecessary, undesirable and unregulated uses, disturbance or destruction is in the public interest and is essential to the health, welfare and safety of the citizens of the state. It is, therefore, the purpose of sections 22a-36 to 22a-45, inclusive, to protect the citizens of the state by making provisions for the protection, preservation, maintenance and use of the inland wetlands and watercourses by minimizing their disturbance and pollution; maintaining and improving water quality in accordance with the highest standards set by federal, state or local authority; preventing damage from erosion, turbidity or siltation; preventing loss of fish and other beneficial aquatic organisms, wildlife and vegetation and the destruction of the natural habitats thereof; deterring and inhibiting the danger of flood and pollution; protecting the quality of wetlands and watercourses for their conservation, economic, aesthetic, recreational and other public and private uses and values; and protecting the state's potable fresh water supplies from the dangers of drought, overdraft, pollution,

misuse and mismanagement by providing an orderly process to balance the need for the economic growth of the state and the use of its land with the need to protect its environment and ecology in order to forever guarantee to the people of the state, the safety of such natural resources for their benefit and enjoyment and for the benefit and enjoyment of generations yet unborn.

5. With these statutory underpinnings, we assert, first and foremost, that our Commission has a set of rigorous requirements that must be met, to protect the said Town of Canaan inland wetlands and watercourses, before we can consider permitting construction of any project. We have an established procedure for project review. [Exhibits IW5, IW8]

6. We applied for party status in these proceedings to facilitate a process that we engage in regularly when an applicant for a building process initiates the inland wetlands permitting process by filing for his permit with our Commission. From the Application document rendered to the Connecticut Siting Council entitled "Application of new Cingular Wireless PCS, LLC (AT&T) for a Certificate of Environmental Compatibility and Public Need for the Construction, Maintenance and Operation of a Telecommunications Tower Facility at 8 Barnes Road in the Town of Canaan (Falls Village), Connecticut" we have discerned the following specific concerns falling under the Siting Council's jurisdiction that would also have to be addressed by our Commission in considering an application for a permit. In view of the Town's suggestion of an alternative site, it would be premature to go through the full inland wetlands permit process until the final tower site and attendant site issues are determined through these proceedings.

7. The dual Inland Wetlands/Conservation Commission of the Town of Canaan is made up of unpaid volunteers and it would be wasteful use of Town human resources as well as financial resources of the Applicant to go through the full permitting process prematurely when there are a number of environmental issues which will most probably result in a modification to the proposal. The Commission has become a party to the proceedings in order to provide advice, suggestions and appropriate inquiries to assist the Connecticut Siting Council in reaching its final findings of fact and conclusions of law regarding the location, compound, access road, special environmental precautions and similar matters. After the final approval of the proposed tower, including any additional requirements covering such matters as the approach road and the compound and structures, as well as any specific environmental requirements, such as dams, swales, clear cutting, storm water runoff, then it is anticipated that Cingular Wireless will apply to the Inland Wetlands Commission for a permit.

8. Specific concerns of matters raised by the New Cingular application to the Siting Council that need to be addressed in the Siting Council Docket 409 Evidentiary Hearing include:

Canopy Removal and Soil Disturbance

9. The Bormann and Likens Hubbard Brook watershed ecosystem study has demonstrated that there is a direct relationship between canopy removal and alterations to the chemical composition of the water exiting from a watershed [Exhibit IW10]. Watershed canopy removal, soil disturbance and the conversion of pervious surfaces into impervious surfaces all contribute to alterations in the chemical composition of the water exiting the watershed, as well as alterations to the quantity and velocity of the water. The proposed access road modifications and

construction of the tower site compound will entail significant permanent alteration to the forest floor and forest canopy, which will indeed, alter the current nutrient composition of the water associated with the runoff from this project; the current quantity and quality of this runoff will likewise be altered due to increases in impervious surfaces and alterations of and/or creation of drainage courses. The proposed project occurs within two watersheds (the Wangum Brook and Hollenbeck River Watersheds), both which are directly associated with the contiguous Robbins Swamp.

10. It has been demonstrated that graveled roads, previously considered to be pervious, do in fact, demonstrate the same impervious characteristics of paved roads. By upgrading the current access road by adding additional material, there will undoubtedly be an increase to the impermeability of the road surface. This increased impermeability will likely result in an increase to the current water flow of the Wangum Brook watershed.

11. The applicant proposes the construction of an extensive series of drainage swales and outflow areas to receive and disperse water flow accumulating from road runoff. Distances between swale outflows in several areas can be up to several hundred feet. It is of concern that these level outflow areas may not be able to accommodate total water flow at each of these sites; total amount of water flow at each exit area does not appear to have been calculated. If these outfall areas are not able to disperse all the water received, severe erosion could occur below the exit areas of this concentrated flow.

12. The Robbins Swamp Natural Area Preserve Management Plan, in acknowledging the interrelationship of Robbins Swamp and the upland contiguous watersheds, emphasizes that any alteration of the quality, quantity and timing of the water flowing into Robbins Swamp will be detrimental to its unique calcareous ecosystem [Exhibit IW 65]. The proposed access road modifications entail significant soil removal and deposition on steep slopes directly above an area recognized by numerous state officials as unique and worthy of protection [Exhibits IW66, IW67 and IW68]. The fragile soils associated with the steep slopes of Cobble Hill are shallow to bedrock and are considered erodable. The project poses an increased risk for erosion and the migration of sedimentation of these soils into Robbins Swamp.

13. An additional concern to the preservation of the ecology of Robbins Swamp is the potential for the introduction of invasive species into this ecosystem via the vehicles used on site during the construction phase of the project. It is now common knowledge that many invasive species are introduced into previously pristine areas both through seeds in soils brought to the site in conjunction with filling, as well as through seeds in soil imbedded within tire treads of the construction vehicles. Additional invasives in Robbins Swamp will alter the flora composition of the swamp which will ultimately alter and degrade its unique habitats. Native vegetation typically cannot outcompete invasive species and often disappears from an ecosystem, which in turns alters the associated fauna that is dependent on the native vegetation.

Hollenbeck Watershed

14. The proposed compound area for the tower site is within the Hollenbeck River watershed, which has been documented to contain the highest amount of extant rare species (i.e. 60) of all

HUC12 watersheds in New England [Exhibit IW 80]. There are two swales proposed to be drained directly upslope from the Hollenbeck River, over excessively steep terrain and erodable soils.

15. It is very likely that sediment from these newly created drainageways will ultimately reach the Hollenbeck River ecosystem. The Hollenbeck River is a known habitat for the state endangered burbot. This fish has been closely studied by the CT D.E.P. and USFWS and it has been documented that this species prefers “low amounts of fine sediment...” All caution should be taken to prevent any alteration to the sediment load of Hollenbeck River, which could affect the burbot’s preferred and known habitat.

Fragmentation

16. While the applicant proposes to utilize an existing logging road, plans to alter the location of the road, to extensively cut and fill, to create new drainage swales through the forest, and to remove additional canopy, will all contribute to a more severe degree of forest fragmentation of this upland forested ecosystem adjacent to Robbins Swamp. In management plans for State Natural Area Preserves in and abutting Robbins Swamp, it is acknowledged that activities occurring upland from the Swamp need to be monitored for potential adverse impacts to the adjacent Robbins Swamp ecosystem. These impacts do not only apply to the above-mentioned concerns for increases in erosion and sedimentation, but to alterations in habitats for resident fauna that may use these upland areas for foraging and/or cover. Fragmentation and associated roadways can lead to changes in patterns of habitat utilization by birds, as well as encouraging the introduction of species that typically do not occur in interior forested areas.

Non-Thermal Biological Effects

17. The Commission shares the USFWS concerns [Exhibits IW59, IW61] that scientific studies show that non-thermal biological effects on wildlife could have a harmful effect on this well-documented sensitive and unique area known as Robbins Swamp. Much of this area has been preserved by the State and other land preservation organizations specifically because of the unique ecosystem this land possesses. It deserves the efforts of all the citizens of the State of Connecticut to aid in its continued protection and preservation.

Historic Commitment to Conservation

18. The State has protected Canaan Mountain and Robbins Swamp, and has treated the two preserves as a connected ecosystem. Management plans for the Canaan Mountain Natural Area Preserve and the Robbins Swamp Natural Area Preserve demonstrate and recognize the ecological ties between the two preserves. [Exhibits IW65, IW66, IW67, IW68]

19. The Town of Canaan, founded in 1739, has a long tradition of preservation of natural resources as well, through both official bodies and the efforts of private citizens. [Exhibits IW81, IW82] As the present-day custodians of this tradition, we must tread with great care before introducing potentially damaging activities and industrial installations with the constant

risk of accidents, spillage of harmful chemicals (from maintenance sheds and fuel), and other unanticipated factors.

Endangered Species

20. The application asserts that there are no state listed, endangered and threatened species on the construction site, but make no mention of habitat and such species in the adjoining area. According to Endangered Species Project Review Protocol of the USFWS, the pertinent area for review is the "action area"

Step 1. - Determine whether any listed, proposed, or candidate species (T/E species) are likely to occur within the proposed project action area based on location of the proposed project

[Exhibit 55]

USFWS defines an action area in much broader terms [Exhibit 56] than the area examined by the applicant, therefore the application appears to be defective in this regard.

21. Those areas include a number of endangered and threatened species. [Exhibits IW31, IW32, IW33, IW34, IW36, IW38, IW40, IW41, IW42, IW43, IW45, IW46, IW48, IW77] Federally endangered species include the Bog Turtle and the Small Whorled Pogonia. [Exhibits IW52, IW53, IW54]

Need for Current DEP-Ordered NDDDB Endangered and Listed Species Inventory

22. A thorough on-ground inventory has not been conducted on or around Cobble Hill in recent memory. We strongly recommend that the D.E.P. or an unbiased, qualified consultant complete a thorough on-ground inventory prior to any decision regarding tower placement at the Cobble Hill site.

23. This inventory should be conducted during the migratory and growing seasons to have validity. This inventory is an absolute necessity as Cobble Hill is in fact virtually surrounded by one of Connecticut's most valuable wetlands, which presumably has a symbiotic relationship with the Cobble Hill ecology.

Visibility

24. Another issue for the IW/CC is the proposed 150 foot New Cingular tower's high visibility in our township, making it a severe intrusion on our landscape and view-shed.

25. The existing high-tension lines do not provide justification to further spoil our landscape. The view-shed is an important attribute for Falls Village [Exhibit IW7], as this community is one of the more bucolic, rural areas remaining in Connecticut -- highly treasured by a number of environmental organizations, including the Nature Conservancy, the Housatonic River Commission, the Berkshire-Litchfield Environmental Council, and the Appalachian Mountain

Club, among others—a primary reason people reside and visit here. [Exhibits IW42, IW43, IW69, IW20, IW21, IW22]

Scenic Road and Ethan Allen Highway Historic Sites and Vistas

26. Route 7 from North Canaan to Kent has been designated by the Connecticut DOT as a "Scenic Highway". That designation signifies:

A potential state scenic highway must abut significant natural or cultural features such as agricultural land or historic buildings and structures which are listed on the National or State Register of Historic Places, or afford vistas of marshes, shoreline, forests with mature trees or other notable natural or geologic feature which singularly or in combination set the highway apart from other state highways as being distinct. The Highway shall have a minimum length of one (1) mile and shall abut development which is compatible with its surroundings. Such development must not detract from the scenic or natural character or visual qualities of the highway area.

[Exhibit IW19]

27. The scenic designation will be compromised by the proximity of the proposed tower to Route 7 and by towering above the National Register landmark South Canaan Meetinghouse [Exhibits IW24, IW25, IW26]. The Meetinghouse is surrounded by a group of other historic structures. [Exhibit IW28] These buildings are a picturesque and strong attraction to visitors, especially during the summer months when summer rental residences fill, when tourists visit the foothills of the Berkshires and Litchfield County, and when travelers use Route 7 for access to the Housatonic River as well as the Berkshires and cultural attractions in Massachusetts.

Historic South Canaan Meetinghouse

28. This structure was designated a National Landmark in 1983 [Exhibit IW24]. The Meetinghouse currently hosts the Falls Village-Canaan Historical Society's annual "Tuesdays at Six" lecture series and many local historical society events. The building appears on the inventory of historic sites of the Upper Housatonic Valley National Heritage Area. [Exhibit IW20, IW21, IW22, IW23] The Meetinghouse is surrounded by a group of other historic structures [IW28] which add to its importance and historic value, all of which will be adversely affected by the visibility of a modern industrial facility. Contrary to the applicant's claim, there is photographic proof that the new tower will be visible from the Meetinghouse site, and will create an unacceptable aesthetic incompatibility. [IW26]

Town of Canaan Historic Sites

29. The Town of Canaan is a quiet, historic rural community listed on the National Register where people choose to live because of its natural beauty, open vistas, and abundant wildlife. The assertion by the applicant's consultant that the State Historic Preservation Officer ["SHPO"] says there is "No Effect" of the proposed installation on the historic character of the town is

plainly superficial and requires testimony to explain the grounds for the SHPO's conclusion, along with an opportunity for cross-examination.

30. Hunting and fishing abound in our local swamps, ponds, streams and rivers. The Housatonic River below the Great Falls is a prized trout-fishing area known throughout the northeast. Hikers, bicyclists, kayakers, canoeists, and wildlife enthusiasts flock to this area bringing in eco-tourism and business to our local merchants. Our un-interrupted views of natural mountain ridge lines bring scores of motorists to our town especially in the spring, summer, and fall, again contributing to our local economy. [Exhibits IW20, IW21, IW22, IW23]

31. Route 7 through our town is State designated "scenic road" and many come to enjoy it. Cobble Hill lies in the center of our town and is the visual epicenter for the occasional, part-time, and full time residents of the Robbins Swamp, Undermountain, Music Mountain, Barrack Mountain, Beebe Hill, and Battle Hill areas.

32. The Town of Canaan's Inland Wetlands/Conservation Commission – as the Town itself in its Plan of Conservation and Development [Exhibit IW7] -- is proud to protect these vital assets of our area, and realize that once they are gone, they are gone forever.

33. Despite multiple statements by the applicant of the invisibility of the proposed facility from a majority of locations in town, the Commission finds these statements to be mistaken, and will correct this in the record in this proceeding including the prominence of the proposed site from the perspective of homeowners, designated historic areas, and scenic roads.

34. The visibility information provided by the applicant in both the main application as well as in the supplemental "leaf off" view information is erroneous. The data provided is by "drive-by" reconnaissance, and does not take into account areas where people live, work, and play. The calculation by the Applicant's consultant VHB of 513 acres for the 150' monopole grossly understates the visual impact.

35. Assuming we should calculate total land area impacted because of people living, hunting, hiking, fishing, and traveling in our town, using basic geometric math applications we calculate there are approximately 2600 plus/minus acres in the view shed of the tower. This comprises approximately 30%-33% of the 8042 acre study area, assuming leaf off conditions, and that if a tree is blocking a view movement a few feet one side or another gives full view of the tower. [See testimony of Salvatore Dziekan]

36. The assertion by VHB that only 19 homes are affected is also incorrect. Views from homes and areas on Johnson Road, Amy Road, Deer Run, Battle Hill Road, and Kellogg Road were not considered or included. [Exhibit IW83] The report also does not take into account residences and areas other than what can be accessed by drive-by reconnaissance. This is a significant and material omission. It appears that the VHB report omits all consideration of any residences along Route 7, our State-designated "scenic road."

37. Three properties in Canaan are currently listed on the National Register of Historic Places, as well as the Town itself. These properties include the South Canaan Meeting House,

the Holabird House, and Music Mountain. The VHB report contains material errors regarding the Meeting House and Holabird House.

38. There is year-round visibility of the tower from the South Canaan Meeting House. This is confirmed in the Applicant's supplemental information report submitted January 11, 2011. The Commission's own photographs taken on Nov. 12th confirm this visibility.

39. The assertion by the Applicant that the tower is not visible from the historic Holabird House is also in error. The Applicant's view was taken from the road. The tower would be in full view from this property itself. Again, this is confirmed by View 11 of the Applicant's January 11, 2011 supplemental report. This View is the Scott property. It is approximately 400 feet north of the Holabird House. The view from the backyard of the Holabird House is nearly identical. This signifies year-round visibility from many places on the property.

40. Another material error in the supplemental report is that views 11 and 12 are exactly the same photographs.

41. Approximately .7 miles of Rt. 7 running north to south would view the tower and approximately .9 miles of Rt. 7 running south to north would see the tower. State Scenic Road designation is conditional. Where the vistas of a scenic road are spoiled, the Scenic Road designation may be rescinded. The Commission is concerned that the "scenic road" designation of Route 7 through our town would be compromised by the views of this tower. From the standpoint of visibility, the IWCC of Canaan believes that siting a tower in such a visually spectacular scenic area – in a region known for its natural beauty is detrimental to our town's economy and a major town asset: unspoiled natural beauty. Alternatives must be considered so that our town will not have vast unspoiled natural vistas arbitrarily destroyed forever.

Conservation Area of High Priority

42. Furthermore, Northwestern CT is the northern-most terminus of the Highlands Coalition, authorized by Congress as the Highland Conservation Act to protect areas of high conservation priority. This assessment is being made at this time.

43. Without a study in this context, it is not determined what the opening of the forest canopy at both the site and the expanded logging road would have on the habitat quality of Cobble Hill. As previously stated, tower site approval before adequate assessment and inventory is made in this ecologically sensitive area would be premature and possibly preemptive under Federally sponsored projects, such as the Upper Housatonic Valley National Heritage Area and the Highlands Coalition. Consideration of less vulnerable sites to provide adequate coverage is appropriate.

Extreme Height of Tower of Special Concern

44. The tower proposed would have a height of 150 feet. It is now no longer in doubt that millions of migratory birds are killed in nighttime collisions with telecommunications towers [Exhibits IW60, IW61]. Because birds migrate at night using celestial cues, navigating by the

stars and moon, and also relying on magnetic fields of the earth, they literally 'are not looking where they are going' while concentrating on these cues above and below them. This is the explanation for the finding of scores of bird carcasses at dawn at the base of towers. Birds are either attracted by the steady glow of tower sidelights; circle the red lamps; fatally strike guy wires; or collide with the unlighted tower itself.

45. A growing body of evidence now also shows that the operational tower's RF emissions interfere with birds' natural navigational tools -- a head reservoir of magnetite and a chemical reaction in the birds' eyeballs. [*Ibid.*]

46. The logical and reasonable solution to this problem, and one that is in keeping with the Siting Council's statutory mandate is to require the applicant to use existing towers to co-locate.

47. The proposed site on Cobble Hill is located in an area with large numbers of migratory birds, and therefore violates the recommendations of the USFWS. [*Ibid.*]

Ridgeline and Low Hill Affects Scenic Beauty, Violates Local Zoning Regulations and Places RF Radiation in Close Proximity to Critical Habitat and Delicate Calcareous Wetland

48. Apparently in order to avoid running directly afoul of the Town of Canaan's Planning and Zoning Regulations regarding protected ridgelines, the Applicant has altered its proposed location from the crest of the hill to the foot of the hill. This change is insufficient to dodge the violation of the ridgeline protections, and increases the impact of the operational tower on amphibian and aquatic life in a wetland the Nature Conservancy and the State of Connecticut recognize as:

[A] unique geology of Canaan Mountain and Robbins Swamp giv[ing] rise to a rich collection of plants, animals and natural communities, some of which are found nowhere else on Earth. The endangered timber rattlesnake and northern metalmark butterfly are found here as well as three rare bird species and 23 rare species of plants, including a variety of trees, flowering plants, grasses and sedges.

[Exhibit IW43]

49. According to a new study on RF effects on tadpoles by Alfonso Balmori [Exhibit IW70], large numbers of newly hatched frogs are killed as a result of exposure to the RF radiation.

50. This is not simply a minor effect. This is not simply a deleterious effect. This is a catastrophic effect in a wetland.

Robbins Swamp

51. According to the Connecticut D.E.P., the NDDB data [Exhibit IW77] for this area include known populations of:

Aegolius acadicus, Northern saw-whet owl SC
Agrotis stigmata, Spotted dart moth SC
Ambystoma jeffersonianum, Jefferson salamander "complex" SC
Ambystoma laterale, Blue-spotted salamander E/SC
Apodrepanulatrix liberaria, New Jersey tea inchworm T
Atylotus ohioensis, Tabanid fly SC
Botaurus lentiginosus, American bittern E
Calephelis borealis, Northern metalmark E
Catocala herodias gerhardi, Herodias underwing E
Crotalus horridus, Timber rattlesnake E
Empidonax alnorum, Alder flycatcher SC
Erynnis lucilius, Columbine duskywing E
Euphyes bimacula, Two-spotted skipper T
Euphyes dion, Sedge skipper SC
Glyptemys insculpta, Wood turtle SC
Gomphus ventricosus, Skillet clubtail SC
Hemaris gracilis, Slender clearwing T
Hybomitra luridus, Horse fly SC
Lota lota, Burbot E
Lycaena hyllus, Bronze copper SC
Notropis bifrenatus, Bridle shiner SC
Papaipema leucostigma, Columbine borer T
Passerculus sandwichensis, Savannah sparrow SC
Rana pipiens, Northern leopard frog SC
Sargus fasciatus, Soldier fly SC
Satyrodes eurydice, Eyed brown SC
Speranza exornata, Barrens itame T
Sturnella magna, Eastern meadowlark SC
Agastache nepetoides, Yellow giant hyssop E
Alopecurus aequalis, Orange foxtail T
Anemone canadensis, Canada anemone T
Asplenium ruta-muraria, Wallrue spleenwort T
Calamagrostis stricta ssp. *inexpansa*, Reed bentgrass SC
Cardamine douglassii, Purple cress SC
Carex alopecoidea, Foxtail sedge T
Carex aquatilis var. *aquatilis* Sedge SC
Carex castanea, Chestnut-colored sedge E
Carex cumulata, Clustered sedge T
Carex formosa, Handsome sedge SC
Carex hitchcockiana, Hitchcock's sedge SC
Carex oligocarpa, Eastern few-fruit sedge SC
Carex prairea, Prairie sedge SC
Carex sterilis, Dioecious sedge SC
Carex trichocarpa, Sedge SC
Carex tuckermanii, Tuckerman's sedge SC
Cryptogramma stelleri, Slender cliff-brake E

Cypripedium parviflorum, Yellow lady's-slipper SC
Cypripedium reginae, Showy lady's-slipper E
Draba reptans, Whitlow-grass SC
Dryopteris goldiana, Goldie's fern SC
Equisetum scirpoides, Dwarf scouring rush E
Gentianella quinquefolia, Stiff gentian E
Hepatica nobilis var. *acuta*, Sharp-lobed hepatica SC
Linnaea borealis ssp. *americana*, Twinflower E
Lythrum alatum, Winged loosestrife E
Malaxis brachypoda, White adder's-mouth E
Mitella nuda, Naked miterwort SC
Petasites frigidus var. *palmatum*, Sweet coltsfoot T
Pinus resinosa, Red pine E
Plantago virginica, Hoary plantain SC
Platanthera orbiculata, Large round-leaf orchid SC*
Potamogeton hillii, Hill's pondweed E
Quercus macrocarpa, Bur oak SC
Ribes triste, Swamp red currant E
Salix serissima, Autumn willow SC
Schizachne purpurascens, Purple oat SC
Schoenoplectus acutus, Hard-stemmed bulrush T
Sibbaldiopsis tridentata, Three-toothed cinquefoil T
Thuja occidentalis, Northern white cedar T
Trisetum spicatum, Narrow false oats SC
Trollius laxus, Spreading globe flower T
Uvularia grandiflora, Large-flowered bellwort E
Viola nephrophylla, Northern bog violet SC

Are Taxpayer Dollars Being Squandered?

52. The Robbins Swamp and Canaan Mountain Natural Area Preserves are not just important and sensitive ecosystems and preserves, they represent a significant investment by taxpayers. The Robbins Swamp Management Plan and acquisition has been funded by taxpayers [Exhibits IW65, IW66, IW67, and IW68]. Biological studies performed by the State Department of Environmental Protection are taxpayer-funded. The Nature Conservancy preserves, contiguous with Robbins Swamp [Exhibits IW42 and IW43], benefit from local property and state and federal income tax relief as properties of a §501(c)(3) entity.

53. Collaborative efforts between the federal U.S. Fish and Wildlife Service ("USFWS") and the State Department of Environmental Protection include the USFWS "State Wildlife Grants" program ("SWG") in Connecticut. That federally-funded collaboration resulted recently in "Connecticut's Comprehensive Wildlife Conservation Strategy: Creating a vision for the future of wildlife conservation," a publication paid for by federal funds under the USFWS State Wildlife Grants (SWG) program. According to the USFWS,

The SWG program provides funds to states for the conservation of wildlife designated as "species of greatest conservation need." These species can be fish, mammals, birds, reptiles, amphibians, or invertebrates. In order to participate in the SWG program, states must have created a comprehensive State Wildlife Action Plan that looked at all species and habitats found in their state, and design criteria to identify the species of greatest conservation need. The Plan must also identify threats and conservation actions to address those threats. States were required to seek public and stakeholder input to their plans.

[See attached Exhibit IW85 hereto.] (Emphasis supplied.)
[IW85: Connecticut State Wildlife Grants: Taking Conservation into the Future; Connecticut Comprehensive Wildlife Conservation Strategy, CT Department of Environmental Protection, Wildlife Division, 2009]

54. This stated purpose is official acknowledgement that, in contrast to the assertions made by the applicant, there is a great conservation interest at stake in this application proceeding. Connecticut made a commitment under the SWG program to accomplish these stated goals. The resulting publication is incorporated here as a material part of the IW/CC's testimony and direct case [Exhibits IW48 and IW85]. Federal monies received under the SWG plan alone consist of:

\$607,549 in 2007

\$615,231 in 2008

\$610,704 in 2009

and \$764,966 2010 [Figures received from USFWS SWG program by email, 2/9/11.]

55. This federal investment of just over five million dollars in four years binds the agreement to implement the action plan inherent to the Comprehensive Wildlife Conservation Strategy, or the program and its funding are meaningless.

56. The IW/CC has an obligation to consider these investments -- and so many others over the years made for the very purpose of leaving Robbins Swamp and environs untouched and in a natural state -- in light of the recently published SWG-funded study, "Habitat Use and Population Demographics of Burbot in Northwestern Connecticut." Because of the Burbot's rarity, the Environmental Protection officials will not disclose the exact location of endangered or threatened species that are the subjects of such studies due to the possibility that their population might be jeopardized by publicity.

57. But the IW/CC has no such secretive policy where, after years of public investment in preserving habitat the likelihood that the Burbot's known habitat may be destroyed is at issue. The Hollenbeck River, directly over which the applicant proposes to build an industrial complex and new access road, is the known home to the Burbot. If all of the studies and all of the management plans are ignored now, why bother with studies and management plans at all? The IW/CC's review of the application and its own consultation with professionals and scientific studies (including an engineering report, GIS professional, and Exhibits IW70, IW71, IW72, IW73, IW74, IW75, IW76, IW77, IW78A & B, IW84) demonstrates a direct and harmful effect on the Hollenbeck where this federally endangered species lives in Falls Village.

58. While the applicant has failed to acknowledge the existence of any species of concern near the proposed site, the federal government, the state government, the town government and taxpayer studies and management plans do. It is apparent that not only the burbot would be affected; additional affected species include the dozens of other species listed by the CT D.E.P. in the NDDDB data acquired by the IW/CC. [IW77]

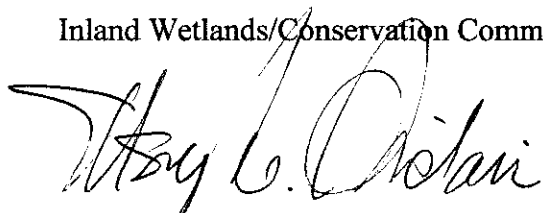
59. For this data to mean anything, especially in the face of growing evidence of biological harm to organisms from proximity to RF antennas [Exhibits IW70, IW71, IW 72, IW73, IW74, IW75, IW76, IW84] and the USFWS concern over this same evidence [Exhibits IW60 and IW61], policy must have significance in a certification or permitting setting.

60. The evidentiary hearing on this subject is an opportunity to bring forth the facts that important and state and federally protected species will be directly affected by the proposed project, in the "action area" as described by the USFWS [Exhibit IW56], a consideration completely disregarded by the applicant. [Exhibits IW54, IW55, IW56, IW57, IW58]

CONCLUSION

61. Local public officials as well as state and federal officials are caretakers for the expenditure of taxpayer money to protect the environment. This certification proceeding presents a head-on challenge to our responsibilities. As the frontline guardians of the public interest and the fragile natural heritage of Connecticut, we must take every precaution to prevent harm and potential destruction to a resource in which so much public money and private contributions and concern have been invested. Therefore it is our joint responsibility with the Siting Council to be absolutely certain that these public interests are fully protected in this proceeding.

Inland Wetlands/Conservation Commission of the Town of Canaan, Connecticut, by



Ellery W. Sinclair, Chairman
Inland Wetlands/Conservation Commission
Town of Canaan (Falls Village)
201 Under Mountain Road
Falls Village, CT 06031
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February 10, 2011

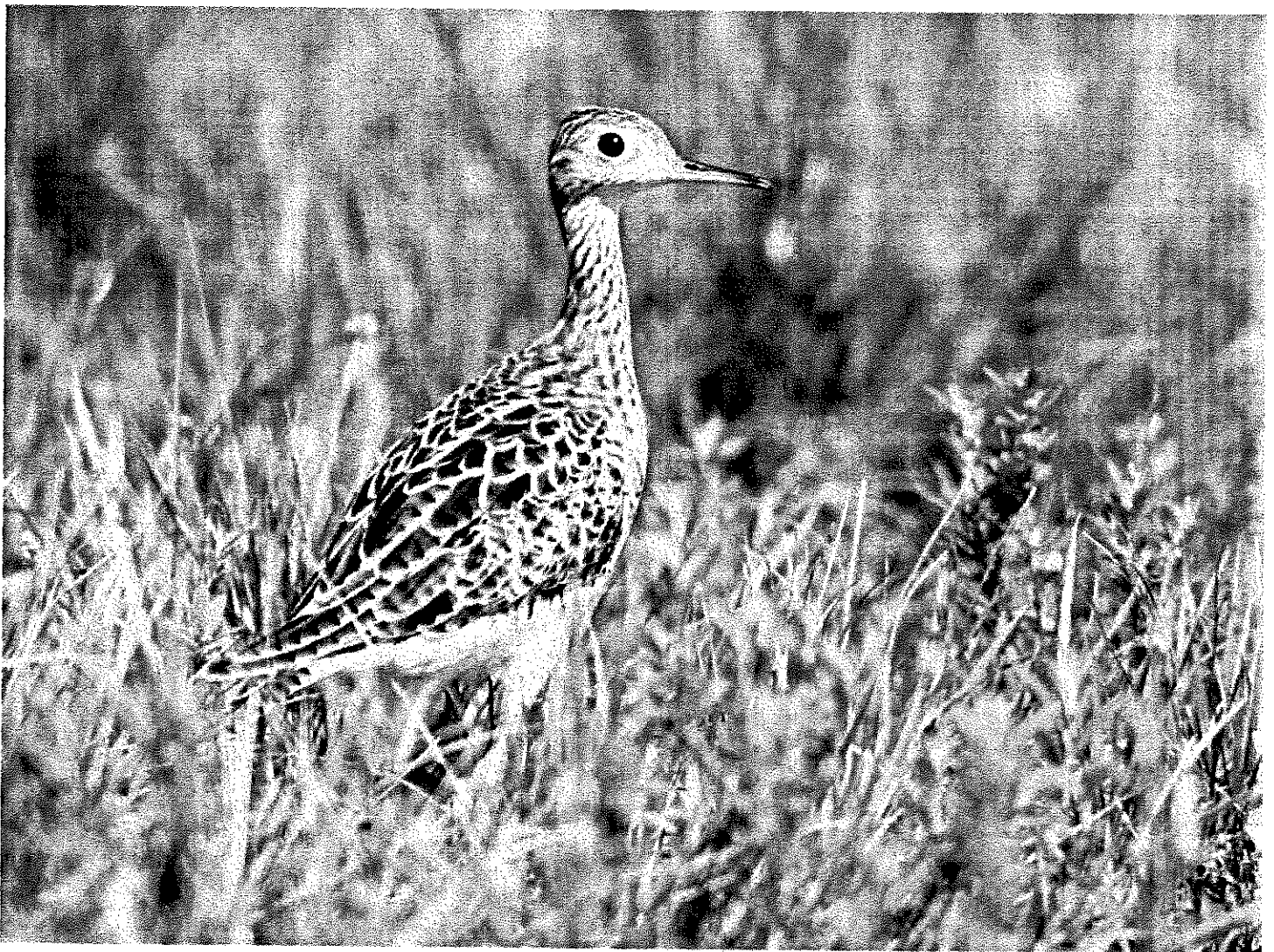
CONNECTICUT STATE WILDLIFE GRANTS

Taking Conservation into the Future

IW85

"The State Wildlife Grant Program provides the greatest opportunity in the history of Connecticut for pro-active conservation."

– Gina McCarthy, Commissioner,
Connecticut Department of Environmental Protection



Connecticut Department of Environmental Protection
www.ct.gov/dep

Taking Conservation into the Future

"The wildlife and its habitat cannot speak. So we must and we will."
– Theodore Roosevelt



P. J. FUSCO

Since 2001, the State Wildlife Grants Program has provided funding for over 50 projects that have greatly benefitted knowledge of the distribution and abundance of wildlife species of greatest conservation need (GCN) in Connecticut and the factors limiting their populations. The American black duck, which is considered a very important GCN species, is currently the focus of a project studying habitat use, carrying capacity, and winter survival.

Cover:

In 2006, the Connecticut DEP started a Grassland Habitat Initiative as the first major statewide conservation action to be addressed under the state's Comprehensive Wildlife Conservation Plan. With the help of funding provided by the State Wildlife Grants Program, efforts were undertaken to identify the locations and quality of existing warm-season grasslands that provide important habitat for upland sandpipers and other grassland birds. See page 4 for more detailed information.

Front and back cover photos: Paul J. Fusco



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Contact for Connecticut's Comprehensive Wildlife Conservation Strategy (Wildlife Action Plan):

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President Theodore Roosevelt and other early conservationists recognized the need and initiated efforts in the early 1900s to protect the nation's diminishing natural heritage. Since then, most efforts have focused on restoring or enhancing game species, and there have been many success stories. In Connecticut, the Department of Environmental Protection (DEP), through its Wildlife and Fisheries Divisions, initiated successful restorations of game species, such as wild turkey, striped bass, and fisher. These and other efforts were made possible through funds derived from the sale of fishing and hunting licenses and the payment of federal excise taxes by hunters and anglers on hunting and fishing equipment.

As the field of wildlife conservation evolved, efforts by state and federal agencies were expanded beginning in the 1960s and 1970s to protect nongame wildlife. Because funding was minimal in most states and at the federal level, most of this work has been focused on endangered and threatened species. Despite these constraints, Connecticut has had several success stories for nongame species, such as the recovery of the osprey, eastern bluebird, and bald eagle.

In 2001, the U.S. Congress, acting in response to the states' need for comprehensive conservation for all of America's wildlife, approved the Wildlife Conservation and Restoration Act Program that subsequently led to the establishment of the State Wildlife Grants (SWG) Program. The SWG Program provides federal grants to all states to benefit wildlife and their habitats, with the goal of preventing species from becoming endangered. Funds are appropriated annually and must be used for projects that improve the conservation of species identified as those of Greatest Conservation Need (GCN) within



P. J. FUSCO (2)

New England and eastern cottontails were equipped with radio collars and followed with the use of radio telemetry antennas. This State Wildlife Grant funded study provided data on movements, survival, and habitat use of the two rabbit species.

a state's Comprehensive Wildlife Conservation Strategy (CWCS), also known as a state's Wildlife Action Plan. Connecticut's CWCS, which was completed in 2005, was the culmination of a comprehensive two-year planning effort that included input from a variety of species experts, conservation groups, and other stakeholders. The CWCS guides the projects for GCN species that are funded through the SWG Program. This summary describes a sample of projects that were made possible through SWG funds. These

projects have greatly benefited knowledge of the distribution and abundance of GCN species in Connecticut and the factors limiting their populations. This information is critical to future conservation efforts.

Assessing the Distribution and Abundance of New England Cottontails

The New England cottontail (NEC) is the only native rabbit species found in Connecticut. Limited research over the past 50 years suggests that the distribution and abundance of NECs have declined in Connecticut and elsewhere. In 2006, the U.S. Fish and Wildlife Service designated the NEC as a candidate for threatened or endangered status under the federal Endangered Species Act.

Starting in 2002, State Wildlife Grant funds have been used to help determine the status of NECs in Connecticut. NEC distribution was assessed by collecting rabbit specimens from live-trapping efforts, hunter harvest, and roadkills. Data on movements, survival, and habitat use of NECs and eastern cottontails (a similar



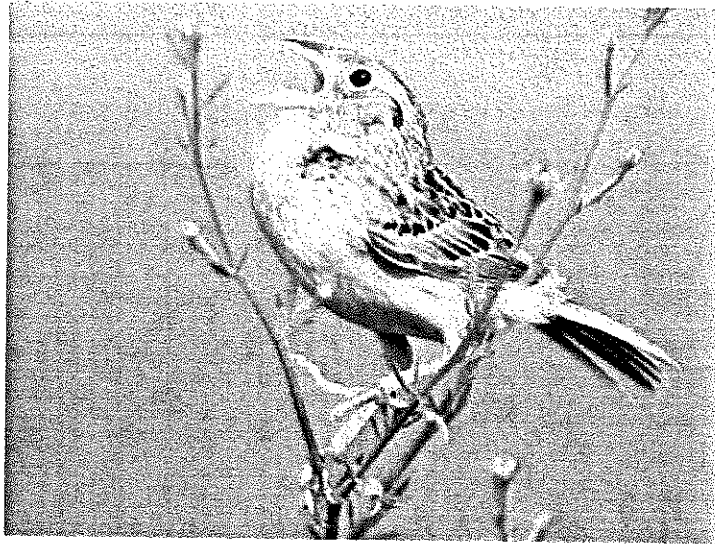
The New England cottontail is the only native rabbit species found in Connecticut. The distribution and abundance of this rabbit have declined in Connecticut and elsewhere.

and more abundant non-native rabbit) were collected through radio-telemetry studies. Rabbit specimens were identified as NECs or eastern cottontails (EC) by examining skull morphology or conducting DNA analyses. This study documented the occurrence of NECs in several new locations. Distribution data indicate that NECs are well-established in southwest Connecticut and the western third of the state.

Movements, survival, and habitat use of NECs and ECs equipped with radio-collars were monitored at four locations in eastern Connecticut. These studies indicated that creating large patches of dense cover is critical to maximizing winter survival of NECs.

Grassland Habitat Initiative

Grasslands are one of the top priority habitats recognized by Connecticut's CWCS. They provide habitat for approximately 80 bird species in the state (13 of which are on Connecticut's Threatened and Endan-



Connecticut's Grassland Habitat Initiative has led to the identification of several new breeding and nesting locations for some of Connecticut's most threatened and endangered bird species, including the grasshopper sparrow.

gered Species List), as well as for several mammals, reptiles, amphibians, and rare invertebrate species. Grassland habitat is in serious decline statewide, especially in the Connecticut River Valley, from the Hartford area north into Massachusetts, where most of the prime warm-season grassland habitat is located. In 2006, in light of this compelling

need, the DEP implemented a Grassland Habitat Initiative as the first major statewide conservation action to be addressed under the CWCS.

To guide the direction of the initiative, a committee consisting of representatives from the DEP, other state agencies, the agricultural community, and numerous non-governmental organizations was formed. The committee was charged with reviewing existing data, identifying research needs, and establishing conservation goals. By including all stakeholders in the decision-making process, this initiative has garnered wide-reaching support.

With funding provided by the SWG Program, efforts to identify the locations and quality of existing warm-season grasslands and lands suitable for grassland creation began in 2006. A model was developed to screen potential warm-season grasslands statewide and 800 sites were identified. Three field seasons later, all 800 sites have been visited and a quality assessment based



Grasslands are one of the top priority habitats recognized by Connecticut's Comprehensive Wildlife Conservation Strategy. They provide habitat for approximately 80 bird species in the state (13 of which are on Connecticut's Threatened and Endangered Species List), as well as for several mammals, reptiles, amphibians, and rare invertebrate species.

P. J. FUSCO (2)

on current land use, wildlife observations, and proximity to other known grasslands has been completed.

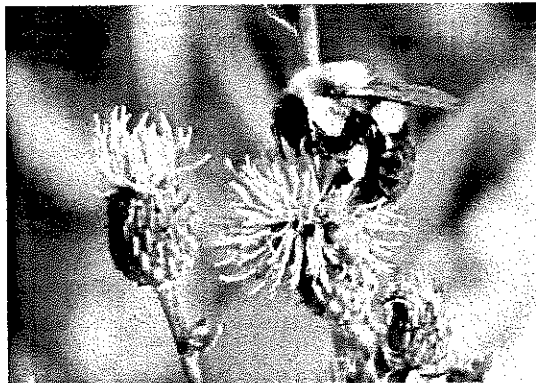
Because grassland birds are easily detected during field surveys, avian species were selected as a primary indicator of current grassland condition. The data collected during site visits included bird species present, bird behavior, land cover, land use, and the condition of surrounding areas. These efforts have led to the identification of several new breeding and nesting locations for some of Connecticut's most threatened and endangered bird species, including the horned lark, eastern meadowlark, and American kestrel.

A major milestone in the Grassland Habitat Initiative was reached when a large parcel identified through this SWG project as a high-quality grassland site was acquired in 2008. In November, Connecticut Governor M. Jodi Rell and Massachusetts Governor Deval Patrick announced the preservation of approximately 450 acres of grassland straddling the Connecticut and Massachusetts border. The property will be managed jointly by the two states as habitat for a variety of grassland species, like upland sandpipers, grasshopper sparrows, bobolinks, and savannah sparrows. Protection of this large block of grassland habitat helps both states accomplish major conservation actions identified in their state CWCS.

Researching Native Bee Pollinators

The need for information on native pollinators is urgent. Fruit growers and scientists alike are reporting rapid and serious declines in pollinators nationwide. In Connecticut, wild honeybee hives, common in the state just two decades ago, are disappearing. Dependence on managed hives is increasing and many fruit growers believe yields are limited due to the lack of managed hives.

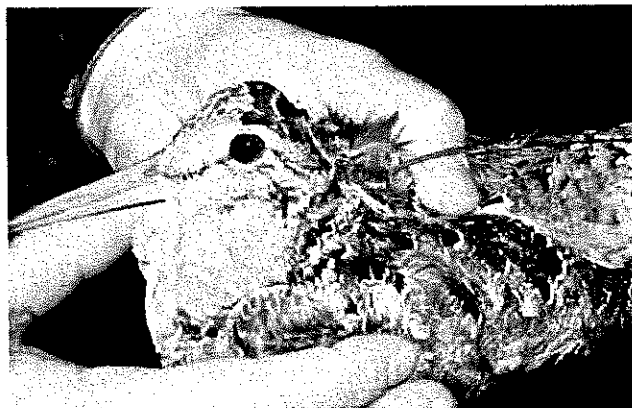
Many eastern bee species are declining rapidly. The large, familiar bumblebee, which was common less than a decade ago, is now rare. There is growing concern that a number of North American bumblebee species are sliding toward global extinction. In an effort to address these serious and immediate conservation challenges, a tremendous amount of data on Connecticut bees has been collected and evaluated during 2007-2009 through a SWG-funded collaborative project with



Many eastern bee species are declining rapidly. The large, familiar bumblebee, which was common less than a decade ago, is now rare. PHOTO BY J. S. ASCHER

the University of Connecticut. To date, over 6,900 records of individual bees have been entered into a statewide database. All occurrence data on bees, including GPS location coordinates, are entered into the American Museum of Natural History's Bee Database and are available at <https://research.amnh.org/pbi/locality/>. The records are also uploaded on a regular basis to Discover Life (<http://www.discoverlife.org/>), where they can be mapped and the records can contribute information for regional and national pollinator conservation efforts.

As a result of the inventory and assessment project, four bees have been proposed for state listing (1 endangered and 3 special concern species). Unfortunately, the three special concern species are thought to be extirpated from the state, and it may be too late to take action on their behalf. When the listing update is finalized in 2009, Connecticut will become the first eastern state in North America to provide legal protection for its bee pollinators through the state's Endangered and Threatened Species Act. Conserving native pollinators that are experiencing seri-



In the springs of 2005-2007, 98 breeding male woodcock were captured at five study areas and equipped with radio transmitters. Data were collected on the movements and survival of the birds.

PHOTO BY M. HUANG

ous declines is important to both the biodiversity of Connecticut and the state's economy.

Habitat Use and Survival of American Woodcock

American woodcock populations have experienced a long-term decline throughout North America, primarily due to loss of suitable habitat. This project assessed habitat use by woodcock in high quality and lower quality areas and estimated survival rates within those habitats.

In the springs of 2005-2007, 98 breeding male woodcock were captured at five study areas and equipped with radio transmitters. Over the three-year period, it was found that habitat quality and quantity are largely governing survival rates of male woodcock in Connecticut. Woodcock in the state primarily seem to be using forest stands that are more mature than what previous research has found. Results indicate that woodcock habitats containing fewer, larger-sized openings result in higher survival rates for birds than those habitats containing more smaller-sized openings. Project results will better aid future land management for woodcock.

Habitat Use, Carrying Capacity, and Survival of Wintering Black Ducks

The American black duck has been identified as a very important GCN species in Connecticut. One poorly understood aspect of the black duck's biology is how wintering condition affects survival and production. Winter condition is largely governed by the amount of food resources available throughout winter. Loss of coastal wetlands in Connecticut and along the Atlantic Coast has been detrimental to wintering black ducks. If black ducks preferentially select certain habitats, it is critical to understand why.

The objective of this SWG project is to determine winter habitat use, hen survival rates, time and energy budgets, and food availability of black ducks in Connecticut. The collection of these critical data will serve as the framework for long-term conservation and management efforts in the state.

In the winters of 2008-2009, black ducks were captured along the coast and equipped with radio transmitters. Samples of available



The SWG Program has provided funding for a project to determine habitat use, carrying capacity, and winter survival of black ducks in Connecticut. The project involved the use of radio transmitters to track movements and survival of the ducks.

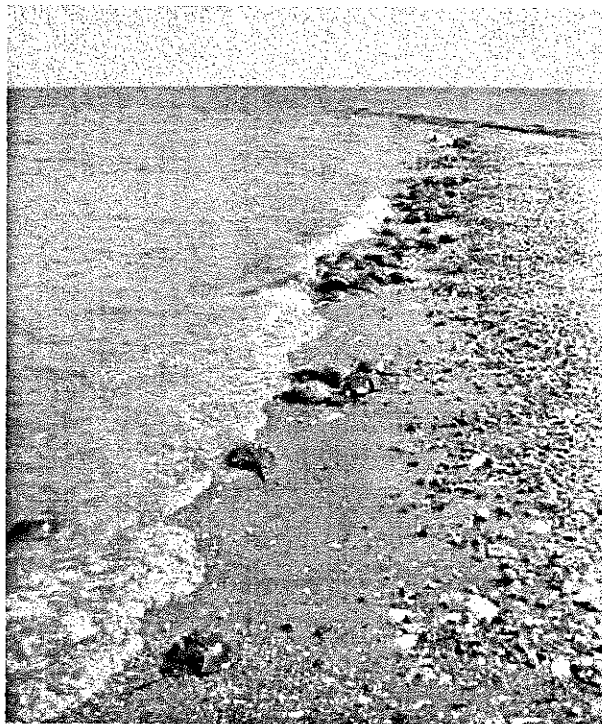
food resources were also collected. When this study is completed, wildlife biologists will be able to determine whether wintering black ducks use all available habitat or whether human disturbance, development, or amount of open water on the marshes affect black duck use.

Identification of Habitat Characteristics of Horseshoe Crab Spawning Beaches

The horseshoe crab is an excellent "keystone species" which can be used to gauge the overall health and integrity of shallow water and beach communities in Long Island Sound. For thousands of years, horseshoe crabs have gathered every spring to spawn on Connecticut's beaches. However, during recent decades, declines in their abundance have been reported along the Atlantic coast, including in Connecticut. The DEP has responded to this decline by establishing three limited areas that have been closed to harvest since 2007.

In 2008, the DEP and University of Connecticut initiated a SWG funded study to identify the habitat characteristics that determine the

selection of a spawning beach by horseshoe crabs and which beaches are the most critical spawning locations. Horseshoe crabs provide direct economic value by supporting a small



In 2008, the DEP and University of Connecticut initiated a SWG funded study to identify the habitat characteristics that determine the selection of a spawning beach by horseshoe crabs and which beaches are the most critical spawning locations. PHOTO BY P. HOWELL

bait fishery, and they are ecologically important to the Long Island Sound ecosystem.

Local abundance of spawning horseshoe crabs in Connecticut has been monitored by volunteers at up to 33 beach locations since 1999. This solely volunteer effort has provided valuable information on abundance levels at some spawning locations. However, this survey is not designed to detect long-term trends or determine the characteristics of the most successful spawning beaches. This new horseshoe crab project will provide necessary information for predictions about which areas, if protected and managed, would be most valuable to the long-term stability of Connecticut's population.

Atlantic Sturgeon in Long Island Sound and Connecticut Waters

Atlantic sturgeon are large, long-lived anadromous fish (breed in freshwater, live in saltwater) that are native to large rivers along the East Coast of the United States. These prehistoric-looking fish can reach lengths of 12 feet, weights of several hundred pounds, and can live for 60 years or more. Although their residence in coastal waters along the entire East Coast can span decades, little is known of their coastal habitat preferences or movements. Despite being one of the largest of Connecticut's GCN fish species, there is a lack of information about the numbers or habits of Atlantic sturgeon in Connecticut. Stocks of native Atlantic sturgeon are currently believed to be extirpated in Connecticut rivers. However, Atlantic sturgeon have been collected in the lower Connecticut River every year since 1988.

Through SWG-funded research, the DEP Fisheries Division has identified prey items and documented the importance of polychaetes (worms) and callinid shrimp for sturgeon. Also, two areas in Long Island Sound have been identified as seasonal sturgeon concentration areas. Through the recapture of previously-tagged fish, movement of Atlantic sturgeon from New York, Maryland, Delaware, North Carolina, and as far away as Georgia to Connecticut has been documented. Ultrasonic telemetry work has helped in understanding movement patterns of these fish in Connecticut waters. Future efforts will allow important habitats to be mapped so that this GCN species can be better understood and protected.



Atlantic sturgeon are seasonally present in Long Island Sound and the lower sections of Connecticut rivers. In this photo, two externally applied t-bar tags can be seen on this sturgeon (small, yellow "threads"); one is above the left pectoral fin and one is below the dorsal fin. DEP staff examined, measured, weighed, and tagged this sturgeon before releasing it.

Field Guide to Freshwater Mussels of Connecticut

Six of Connecticut's 12 species of native freshwater mussels are listed as state endangered, threatened, or special concern – a clear message that this species group is in trouble. Freshwater mussels are keystone species and good biological indicators of what is occurring in a river ecosystem. When mussels start to disappear from an area, it could be a signal that water quality has been degraded. Current threats to this species group include loss of habitat by damming and impounding rivers, dredging and channelization of streams, degradation of water quality, and the introduction of non-native species like the zebra mussel.

In 2001, the DEP Wildlife Division published "A Field Guide to the Freshwater Mussels of Connecticut." This guide highlights life cycle information, identification tips, and searching techniques, and features color photographs of all the native Connecticut

freshwater mussel species.

In a classic example of "citizen science," two amateur naturalists on a canoe trip on the Connecticut River during 2006 located an unusual mussel and, thinking that it was a unique find, took photographs of it. After their trip, they went to the DEP's website (www.ct.gov/dep) and used "A Field Guide to the Freshwater Mussels of Connecticut" to identify it as a yellow lamp mussel, a species which had not been seen in Connecticut since 1961. Experts later verified the identification.

Information provided by those using the guide has expanded knowledge on the distribution of these species and aided the DEP in evaluating potential environmental impacts from development projects.

Long Island Sound Wintering Waterbird Survey

Data are lacking on the distribution and habitat use of wintering waterbirds in Long Is-

land Sound (LIS). Funds from the SWG Program have allowed the DEP Wildlife Division to initiate a project to help fill this information gap. A combination of ground, aerial, and boat surveys was used to document the distribution and abundance of waterbirds in LIS during the winters of 2004-2006. Sixty-eight species were observed, including rarities like the Eurasian wigeon, king eider, red-necked grebe, northern gannet, and razorbill. The surveys demonstrated that LIS is a very important wintering and staging area for migratory waterbirds. An examination of diversity indices showed that the western part of LIS (Housatonic River west to Greenwich Harbor) supported the greatest diversity of species during the wintering period. The diversity of species was greatest in February and March, near the end of the wintering period, when the birds are preparing for spring migration to their breeding grounds.

Areas of high use were mapped and identified as "areas of importance" for



A combination of ground, aerial, and boat surveys was used to document the distribution and abundance of waterbirds in Long Island Sound during the winters of 2004-2006. Sixty-eight species were observed, including the greater scaup (pictured above), and even rarities like the Eurasian wigeon, king eider, red-necked grebe, northern gannet, and razorbill.

waterbirds. This information will help the DEP make wise conservation management decisions regarding any potential environmental impacts to Long Island Sound.

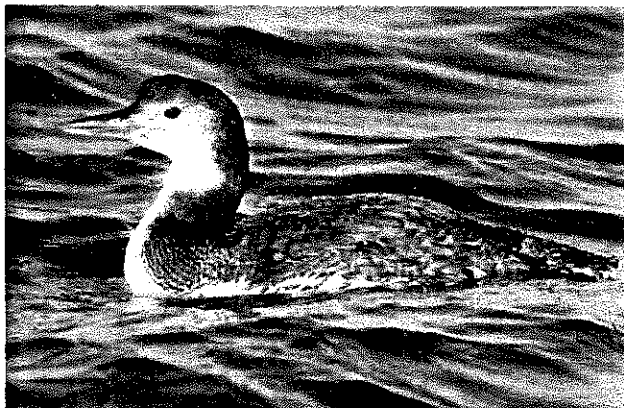
Eastern Spadefoot Toad and Blue-spotted Salamander Mapping and Inventory

There is scarce information on the distribution, movements, and habitat requirements of eastern spadefoot toads and the diploid population of blue-spotted salamanders (diploid organisms have two complete sets of chromosomes; pure diploid populations are an isolated genetic variation). In Connecticut, the diploid population of blue-spotted salamanders is only located in the eastern part of the state, the same area that is home to eastern spadefoot toads.

In 2008, a SWG project was initiated to determine movement patterns of these two GCN species. Spadefoot toads and blue-spotted salamanders were collected on rainy nights during the spring breeding season, either on the edges of breeding pools or

while moving across roads. Collected animals were transported to a lab and implanted with radio-implants or "PIT" tags (Passive Integrated Transponders), which allow identification of re-captured individuals. Biological measurements were taken on all collected animals. Animal locations were documented through coordinates obtained via GPS and habitat characteristics were recorded for each location.

Data from this study will provide a better



The Wintering Waterbird Surveys demonstrated that Long Island Sound is a very important wintering and staging area for migratory waterbirds, like this common loon.

understanding of the type and extent of habitat needed to protect these species. This information will help in determining the potential impact of disturbances to the species' habitats and will be critical in evaluating development project proposals. It will also give land managers baseline information for prioritizing land protection efforts.

Whip-poor-will Surveys

The whip-poor-will, named for its call, is a unique insect-eating bird that feeds in open areas at night. Data are lacking on whip-poor-wills; however, all indications suggest they are experiencing a long-term decline. Because of the bird's nocturnal habits and cryptic nature, standard survey and monitoring techniques do not work well. As a result, long-term data that could be used to quantify whip-poor-will population status or to understand population declines have been sparse. Obtaining this much needed information on whip-poor-wills in the Northeast has been a long-term goal of state biologists and

Partners In Flight. The State Wildlife Grants Program has enabled the DEP Wildlife Division to work with other Northeastern states to develop better survey protocols for whip-poor-wills. Surveys were conducted at night, over a three-year period (2005-2007), using many "citizen scientist" volunteers. Results helped biologists better refine survey methods and were often consistent with general observations of whip-poor-wills made by the public. Information on land use and habitat characteristics was collected at sites where whip-poor-wills were documented. These data will be analyzed and should provide information on preferred habitats, as well as enhance understanding and conservation of this unique species.

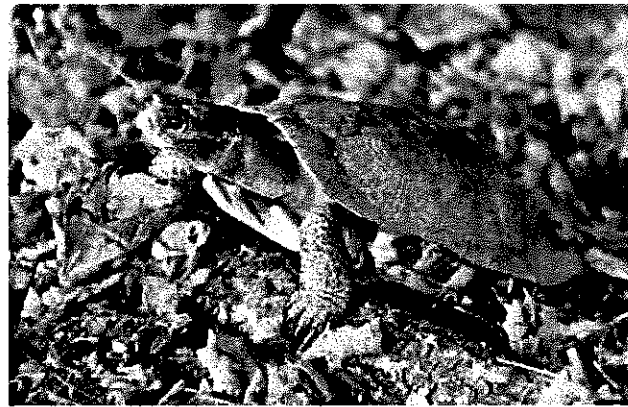
Wood Turtles in Fairfield County

Wood turtles were once widely distributed in Fairfield County and neighboring Westchester County, in New York. However, populations of this semi-aquatic turtle are becoming increasingly rare. Wood turtles inhabit floodplain forests, meadows, and other open areas, such as power-line right-of-ways. Habitat loss and fragmentation of suitable habitat due to development, coupled with the degradation of remaining habitats, are considered the main reasons for the decline of wood turtles, especially in Fairfield County.

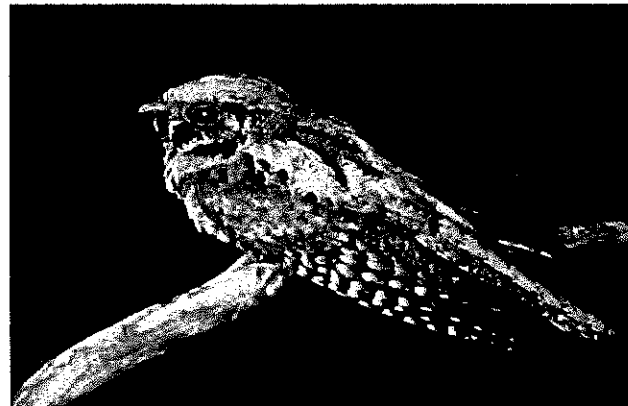
SWG funds have allowed the DEP Wildlife Division to conduct a two-year study on wood turtle populations in Fairfield County to collect baseline data in highly impacted areas. Visual wood turtle surveys were conducted from March 2007 through June 2008 in various rivers and streams throughout the county. Biological data (age, weight, and sex) were taken from all individual turtles found and habitat use was recorded. Each turtle was individually marked for future identification. Two previously documented populations were verified and three new populations were discovered as a result of this study. The aquatic and terrestrial habitats



In 2008, a State Wildlife Grant project was initiated to determine movement patterns of the eastern spadefoot toad, a Connecticut endangered species. Project results will give land managers baseline information for prioritizing land protection efforts. PHOTO BY P. J. FUSCO



Habitat loss and fragmentation of suitable habitat due to development, coupled with the degradation of remaining habitats, are considered the main reasons for the decline of wood turtles. SWG funds have allowed the DEP Wildlife Division to conduct a two-year study on wood turtle populations in Fairfield County to collect baseline data in highly impacted areas. PHOTO BY P. J. FUSCO



The whip-poor-will is experiencing a long-term population decline. The SWG Program helped the DEP Wildlife Division work with other Northeastern states to develop better survey protocols for this unique bird. Survey data should provide information on preferred habitats, as well as enhance understanding and conservation of whip-poor-wills. PHOTO BY P. J. FUSCO

used by these populations will be mapped and incorporated into existing watershed management plans for consideration in future land use planning decisions.

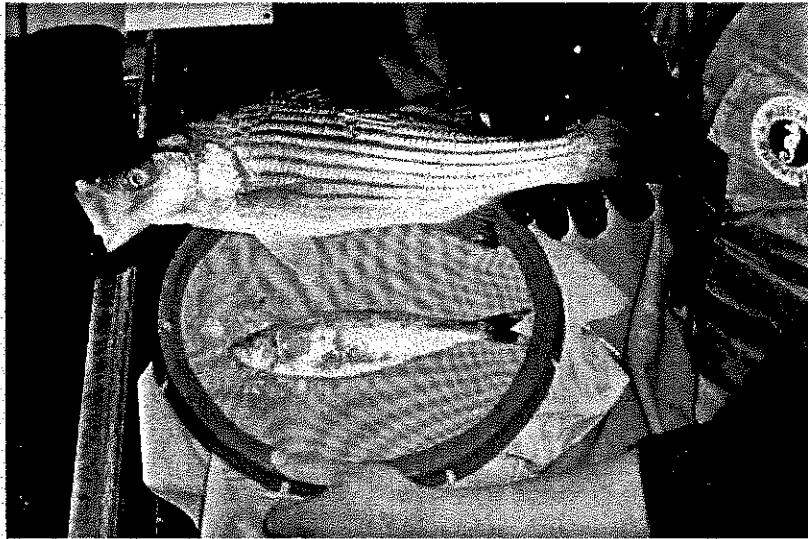
Assessment of River Herring and Striped Bass Populations in the Connecticut River

This SWG investigation was prompted by recent precipitous declines in annual returns to the Connecticut River of anadromous river herring (alewives and blueback herring), two species that have considerable ecological importance. The goal is to determine the degree to which predation by striped bass has contributed to these declines. Striped bass numbers have increased dramatically over the same time frame as river herring have decreased.

In this project, biologists from the University of Connecticut collected data on the abundance, distribution, and population structure of river herring and striped bass over a section of the Connecticut River during the spawning migration of these species. Data on the diet of striped bass have also been collected. Boat electrofishing was used to capture river herring and striped bass during nighttime sampling operations in the springs of 2005-2008. All river herring were measured, and a sub-sample was retained for sex, species, age, spawning history, and fecundity analysis. All striped bass were measured and subjected to gastric lavage (stomach pumping) to determine diet composition. Striped bass were tagged and returned to the river.

The research showed that the overwhelming majority of river herring captured were virgin three- and four-year-olds; whereas, older repeat spawners (5-6 years old) dominated historic runs. A wide size range (6-48 inches) of striped bass was captured. Striped bass in the size range of 24-35 inches preyed most heavily on river herring,

while striped bass greater than 35 inches consumed primarily American shad. Striped bass less than 24 inches fed primarily on other smaller species. The data on diet and consumption of individual striped bass are being combined with estimates of striped bass abundance to derive population-wide estimates of predation on river herring. Population modeling will enable researchers to quantify the impact of striped bass recovery on the abundance river herring.



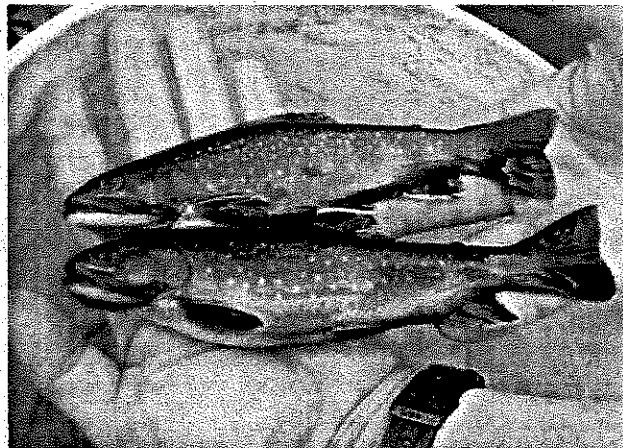
A striped bass captured in the Connecticut River near Windsor Locks in May 2007 is shown with a blueback herring removed from its stomach via gastric lavage. As is evident from the picture, striped bass are voracious predators that have no problem consuming prey items up to 60-65% of their body size. PHOTO BY E. SCHULTZ

Investigating Stream Temperature and Brook Trout Population Fragmentation

The brook trout has been in decline throughout its range in eastern North America. Many current populations have been fragmented and are now restricted to headwater streams. Watershed development and climate change pose serious threats to the persistence of this species.

Current research is investigating brook trout populations in two headwater stream channel networks in Connecticut. The objectives are to document the relatedness patterns (genetic structures) and spatial distributions of brook trout populations within headwater systems so as to make inferences about the effect of future climate change and groundwater withdrawals on brook trout persistence.

Field work started in summer 2008. Genetic samples (fin clips), information on the movement of individual fish, and data on population abundance were collected. Stream water temperature data are being collected using temperature loggers. In general, brook trout distributions were not uniform along the stream networks, and many adult fishes moved upstream, sometimes into tributaries and up to 1.2 miles during



University of Connecticut and DEP Fisheries Division biologists are collaborating on an investigation of brook trout populations in two headwater stream channel networks in Connecticut. PHOTO BY J. VOKOUN



A cooperative project was initiated in 2005 by the DEP and the University of Connecticut to collect information necessary for the conservation and restoration of the state endangered burbot. PHOTO BY D. EDWARDS

the autumn spawning season. This research has documented the importance of diverse habitats and the need for connectivity within a watershed. This study will provide critical information for the conservation of brook trout, not only in study areas but also in other areas where climate change is predicted to reduce the extent of coldwater within watersheds.

Survey of Short- and Long-tailed Weasels

Connecticut is home to short-tailed and long-tailed weasels, both listed as GCN species. Starting in 2007, SWG funding has enabled the DEP Wildlife Division to conduct a survey to assess the distribution of the two species in the state. For this project, weasels were captured using three types of live traps and roadkills were collected throughout the state.

Although long-tailed weasels tend to be larger than short-tailed weasels, it can be very difficult to distinguish these species from one another. Tissue samples were collected and used for DNA analyses to accurately identify each individual weasel.

Results of this study indicate that long-tailed weasels are common throughout the entire state, while short-tailed weasels are less common and typically found in northwestern Connecticut. With further analysis, this project will expand knowledge of weasel distribution and habitat associations in the state, greatly contributing to future management decisions.

Mapping Key Wildlife Habitats

The development of Connecticut's CWCS identified the need for better mapping of key habitats important to GCN species. This project will result in a digital map showing the distribution and extent of key habitat types important to GCN species, along with

information about habitat size, condition, and associated vegetation. Some of the key habitats that will be considered include Atlantic white cedar swamps, bogs, calcareous fens, sand barrens, brackish and freshwater tidal marshes, coastal dunes, and sea-level fens. The information from this project, which will become part of the state's Natural Diversity Data Base, will be used to review the environmental status of the habitats and to set priorities for site management and conservation.

Habitat Use and Population Demographics of Burbot in Northwestern Connecticut

Burbot are the only members of the cod family that live in freshwater. The species is of global conservation concern and may be particularly vulnerable in areas like Connecticut, which are near the southern extent of its range. In Connecticut, burbot are listed as a state endangered species having only a single known viable population in northwestern Connecticut. A cooperative project was initiated in 2005 by the DEP and the University of Connecticut to collect information necessary for the conservation and restoration of this unique species.

Habitat features were surveyed at stream sites where burbot were found and at locations where they were absent. Researchers determined that the most important habitat characteristics for burbot are a substrate with lots of boulders and low amounts of fine sediment, and relatively deep water. On a larger scale (200–400 yards of stream length), lower water temperatures, a relatively high gradient, and low stream channel sinuosity (less curves and bends) were also important.

The demographics and diet of the burbot population were also studied. Connecticut fish were small compared to more northerly populations, averaging only 7.5 inches, with the largest fish at 14 inches. The fish also appeared to have surprisingly short life spans with a maximum age of only five years. Burbot fed primarily on mayflies but also consumed a variety of other invertebrates. Surprisingly, fish were consumed by only three of the burbot that were examined. Compared to other burbot populations, Connecticut burbot stay small, reproduce at a length and age



P. DEAN

Starting in 2007, the DEP Wildlife Division has been conducting surveys to assess the distribution of short- and long-tailed weasels in Connecticut. This project will expand knowledge of weasel distribution and habitat associations in the state, greatly contributing to future management decisions.



K. METZLER

One of the key habitats important to greatest conservation need species, as identified in Connecticut's CWCS, is the grassy glade and bald on a trap rock ridge (shown in the above photograph). A habitat mapping project will result in a digital map showing the distribution and extent of these key habitat types, along with information about habitat size, condition, and associated vegetation.

which are typical of juvenile burbot elsewhere, and do not develop a fish-based diet. The information obtained in this study will be

used by the DEP to conserve Connecticut's only existing burbot population and to guide future restoration efforts.

This adult whip-poor-will and its nestling are just one example of a species that was the focus of a State Wildlife Grant project.

Since its inception in 2001, the State Wildlife Grant Program has provided funding for over 50 projects on birds, mammals, fish, invertebrates, reptiles, and amphibians in Connecticut.



Connecticut Comprehensive Wildlife Conservation Strategy

What is a wildlife action plan?

Congress asked each state to develop a wildlife action plan, known technically as a comprehensive wildlife conservation strategy. These proactive plans examine the health of wildlife and prescribe actions to conserve wildlife and vital habitat before they become more rare and more costly to protect.

Connecticut snapshot

Landscape: Stretching from southern coastal plains to mountain ridges and valleys in the northwest and northeast corners, Connecticut is bisected by the broad Connecticut River Valley and Metacomet Ridge. Both salt and fresh water define the state, including mountain streams, tidal creeks, numerous lakes and ponds, the Connecticut and Housatonic Rivers, and the southerly bounding Long Island Sound.

Management: The Connecticut Department of Environmental Protection, through its Bureau of Natural Resources has a long and successful record in wildlife management. This is credited to a dedicated professional staff, and the science-based wildlife management that has been implemented with the help of many conservation partners. Most of the success, to date, has involved the restoration of game species including birds, fish and mammals, such as the wild turkey, the striped bass and the fisher. These and other efforts were made possible by the revenue derived from both the sale of fishing and hunting licenses, and the payment, by anglers and hunters, of federal excise taxes on fishing and hunting equipment as required pursuant to the

public laws known today as Pittman-Robertson and Dingell-Johnson. These laws were enacted many decades ago because congress recognized that a stable, long-term funding mechanism was needed to reverse the decline in the populations of many of these species across the nation. In keeping with the Department's commitment to wildlife management, the comprehensive strategy creates a framework for wildlife conservation for the next decade.



Freshwater Marsh/USFWS

At the heart of this strategy are conservation actions. Implementing these actions will improve the quality of life for the citizens of Connecticut by conserving the diversity of ecosystems and wildlife in the state. Additionally, the likelihood of new species being listed as endangered or threatened will be minimized, helping to keep today's common species common in the future.

Wildlife: Connecticut is home to a variety of terrestrial, freshwater, estuarine, and marine species, including black bears, bog turtles, bald eagles and burbot. Here, too, live globally significant populations of species such as the saltmarsh sharp-tailed sparrow and the blue-winged warbler. Ancient species such as the horseshoe

"This is an historic opportunity to help reverse the decline of wildlife populations and the loss of key habitats, with the goal of keeping common species common and minimizing the need to list additional species as endangered or threatened."

— Edward C. Parker, Chief, Connecticut DEP Bureau of Natural Resources



Backpack Fishing/CT DEP

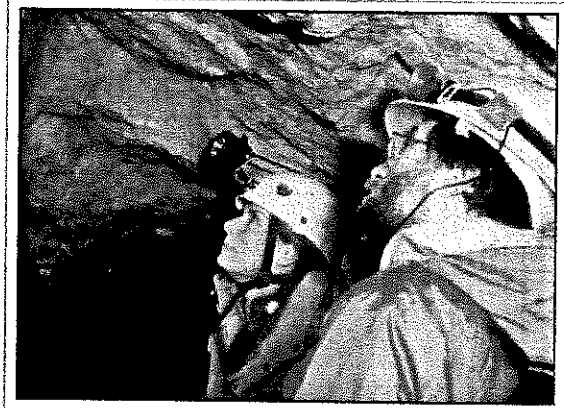
crab share the state with species expanding their ranges and species that are newly discovered and as yet unnamed. Porcupines reside in the north-west corner's most remote areas; peregrine falcons hunt the skies of Connecticut's most urbanized areas; diamond-back terrapins float in the quiet covers and inlets along the states' extensive shoreline. Connecticut's wildlife is remarkably diverse for a small state. This diversity is due to the state's wide range of landscapes, waterscapes, and habitat diversity.

Connecticut's planning approach

The strategy was developed after an exhaustive two-year planning and coordination process that included the compilation and review of an extensive inventory of natural resource information and conservation programs, in consultation with a diversity of stakeholders in the state, region and nation. In addition, information on the full array of wildlife and wildlife conservation efforts in Connecticut was solicited, researched, and compiled. From these data, DEP Bureau of Natural Resources staff, an Endangered Species Scientific Advisory Committee, and conservation partners identified those species of greatest conservation need. Altogether, 475 species of greatest conservation need were identified, including 27 mammals, 148 birds, 30 reptiles and

amphibians, 74 fish and 196 invertebrates. A lack of information on the status of many GCN species, especially invertebrates, confirms the need for targeted research so that these species can be addressed in future revisions of this Strategy.

Internal and external scientific experts and stakeholders associated the GCN species with 12 key habitats and 43 sub-habitats located throughout Connecticut. Each of these habitats was linked to standardized state, regional and national vegetation classification systems. These habitats, including both terrestrial and aquatic, were identified as those of greatest conservation need in Connecticut. They include several types of forest, wetlands, and other unique communities such as sparsely vegetated areas, caves, and coastal beaches. The location, distribution and condition of each of these habitats were researched and summarized. Threats facing the key habitats and GCN species along with priority research,



Bat Research/CT DEP

Wildlife	Total number of species	Species in need of conservation *	Threatened/endangered listed species
Invertebrates	More than 20,000	196	170
Fish	168	74	7
Reptiles and Amphibians	49	30	18
Birds	335	148	50
Mammals	84	27	11
Totals		475	256

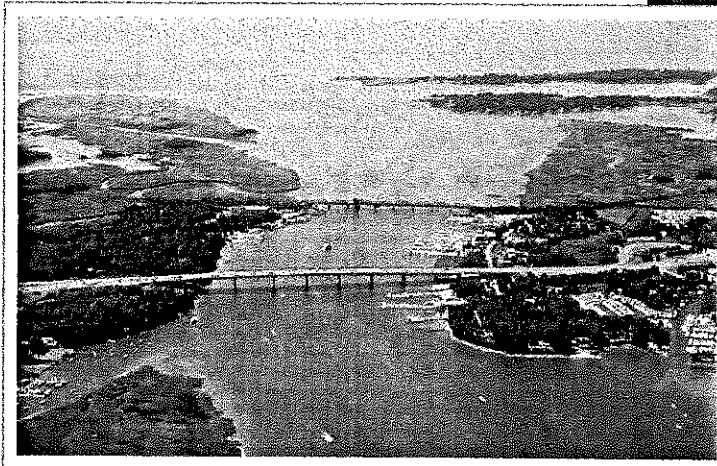
* Each state is using its own criteria for this category. Connecticut defines species of greatest conservation need as those legally listed as threatened or endangered, as well as those with declining or vulnerable populations, those having special conservation or management needs, or those for which Connecticut has a global responsibility for conservation.

Wildlife highlights

Highlight habitats	Wildlife (examples)	Issue (examples)	Action (examples)
Upland Woodland and Shrub Ownership: mix of private/public	<ul style="list-style-type: none"> • New England cottontail • Brown thrasher 	Lack of wildlife conservation on most private lands.	<ul style="list-style-type: none"> • Implement specialized management techniques (e.g., burning) to benefit certain Greatest Conservation Need species.
Upland Herbaceous Ownership: mix of private/public	<ul style="list-style-type: none"> • Upland sandpiper • Bobolink 	Loss, degradation, or fragmentation of habitats from development or changes in land use.	<ul style="list-style-type: none"> • Identify and protect key grassland areas. • Monitor population trends of grassland birds within Connecticut and as part regional efforts among other Northeastern states.
Estuarine Aquatic Ownership: mix of private/public	<ul style="list-style-type: none"> • Horseshoe crab • Atlantic sturgeon 	Disturbance, destruction, alteration, or loss of critical habitat structure or function.	<ul style="list-style-type: none"> • Minimize disturbance of spawning habitat of horseshoe crabs. • Work with the DEP Environmental Quality Branch to mitigate the effects of sediment pollution, water contamination, nutrients and pesticides.

Recommended actions to conserve Connecticut's wildlife

survey and monitoring needs, and conservation actions to address these threats were then developed for each habitat. Key partnership opportunities for implementation, priority areas for conservation, proposed performance measures for each research and conservation action, and a list of sources for more information were developed for each key habitat.



Connecticut River Estuary/CT DEP

By identifying the species and habitats of greatest conservation need, and defining the conservation actions and research needs required to conserve them, the plan serves as a comprehensive guide to the conservation of wildlife in Connecticut for the next decade.

Primary challenges to conserving wildlife in Connecticut

Connecticut is the 3rd smallest state in the nation and the 4th most densely populated. Despite this, Connecticut ranks third in forest cover and supports a wide variety of wildlife from black bears to Atlantic sturgeon. The challenge of balancing



Horseshoe crabs/CT DEP

"The Comprehensive Wildlife Conservation Strategy [Wildlife Action Plan] provides the greatest opportunity in the history of Connecticut for pro-active wildlife conservation."

*—Gina McCarthy,
Commissioner,
Connecticut Department of
Environmental Protection*

natural resource protection with cultural priorities requires smart planning and an informed and committed public.

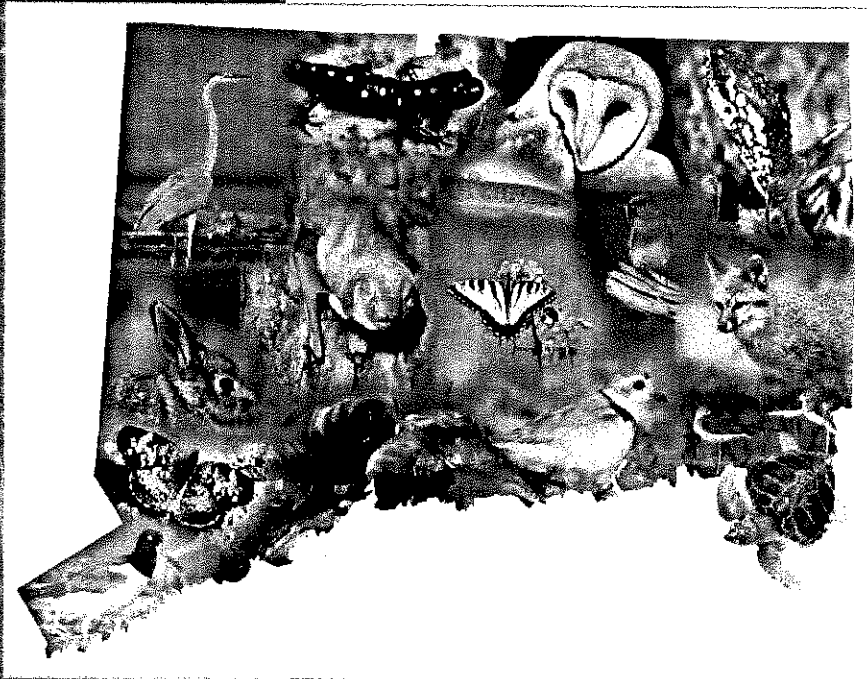
The most significant threats to Connecticut's land and waterscapes include habitat loss, degradation, and fragmentation from development; changes in land use; and competition from non-native, invasive species. Other threats include insufficient scientific knowledge regarding wildlife and their habitats (distribution, abundance and condition); the lack of landscape-level conservation; insufficient resources to maintain or enhance wildlife habitat; and public indifference toward conservation. In total, Connecticut's plan identifies 43 threats to wildlife species and their habitats. These threats are categorized as statewide, species-focused or habitat-focused.

Working together for Connecticut's wildlife

Connecticut's conservation actions address threats at multiple scales and levels. For this reason, implementation of these actions will be coordinated with key partners, including the U.S. Fish and Wildlife Service, U.S. Forest Service, Natural Resources Conservation Service, U.S. Army Corps of Engineers, Connecticut Office of Policy and Management, The Nature Conservancy, Partners in Flight, Connecticut Audubon, Audubon Connecticut, Connecticut Forest and Parks Association, Ducks Unlimited, Trout Unlimited, tribal groups, watershed groups, land trusts, and many others.

As the plan is implemented, the State will continue to use the best scientific information available, while communicating and collaborating with conservation partners and constituents. New information on species distribution and abundance derived from this effort will help these many partners make informed decisions on issues that affect wildlife and their habitats in Connecticut.

At a time when Connecticut's wildlife species and their habitats face formidable threats, the strategy helps provide the vision necessary for conservation partners to work together over the next decade to conserve Connecticut's wildlife.



CWCS Logo/CT DEP

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CERTIFICATE OF SERVICE

I hereby certify that on this day, an original and twenty copies of the foregoing was served on the Connecticut Siting Council by hand, and copy of same was sent postage prepaid to:

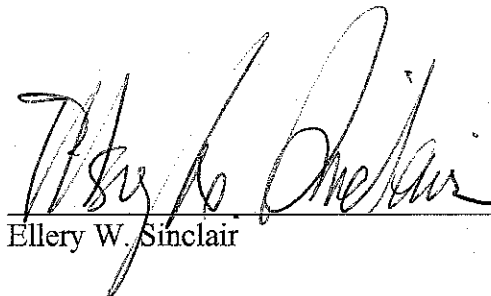
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Ellery W. Sinclair

Dated: February 14, 2011