AGENDA
Inland Wetland Agency
Regular Meeting
Monday, March 5, 2012
Council Chambers, Audrey Beck Building

Call to Order: 7:00 PM

Review of Minutes of Previous Meetings and Action Thereon:
2.06.2012 - Regular Meeting
2.14.12 - Field Trip

Communications:
Conservation Commission: W1492 - Common Fields
GM monthly business memorandum

Public Hearings:

Old Business:
W1492 - Common Fields - 474 Storrs Rd - barn conversion & site work in buffer

New Business:
W1494 - Moskowitz - landscaping work within 150'.
W1495 - Sabatelli - Stearns Rd - addition in buffer

Reports of Officers and Committees:

Other Communications and Bills:
Habitat
Clearsacape - geospatial learning
Connecticut Wildlife
DEP notice re: Curtin Pond treatment - Farmstead Rd

Adjournment:

DRAFT MINUTES
MANSFIELD INLAND WETLANDS AGENCY
Tuesday, February 6, 2012
Council Chambers, Audrey P. Beck Municipal Building

Members present:	J. Goodwin (Chairman), K. Holt, G. Lewis, B. Pociask, P. Plante, K. Rawn, B. Ryan
Members absent:	M. Beal, R. Hall
Alternates present:	B. Chandy, S. Westa
Alternates absent:	V. Ward
Staff present:	Grant Meitzler (Wetlands Agent)

Chairman Goodwin called the meeting to order at 7:00 p.m. and appointed alternates Chandy and Westa to act in members' absence.

Minutes:
1-03-2012 - Regular Meeting- Plante MOVED, Ryan seconded, to approve the 1-03-12 minutes as written. MOTION PASSED with all in favor except Pociask who disqualified himself.

Communications:
The 2-1-12 Wetlands Agent's Monthly Business report and the draft minutes of the 1-18-12 Conservation Commission were noted.

Continued Public Hearing:
W1490 - Eastbrook Mall - 95 Storrs Rd - brook crossing, work in regulated area
Chairman Goodwin opened the Continued Pubic Hearing at 7:01 p.m. Members present were Goodwin, Holt, Lewis, Pociask, Plante, Rawn, Ryan and alternates Chandy and Westa, both of whom were appointed to act.

G. Meitzler, Wetlands Agent, noted the following communications received and distributed to members: a 1/30/12 memo from G. Meitzler, Wetlands Agent; a 1/31/12 email with revised sheet SP1-A (removing the out-parcel); a 1/31/12 letter from J. Shamas, Department of Energy and Environmental Protection Natural Diversity Database Wildlife Division.

John Whitcomb, of BL Companies, stated that the only significant change to the plans was the deletion of the out-parcel and associated access/exit from Storrs Road. He noted that should Eastbrook F, LLC choose to pursue this option again, it will file a new application.

Jeff Shamas, of DEEP's Wildlife Division, answered questions about, and confirmed the presence of, wood turtles in the brook and environs.

There were no further comments or questions from the Agency, the public or the applicant. At 7:07 p.m. Plante MOVED, Ryan seconded, to close the Public Hearing. MOTION PASSED UNANIMOUSLY.

Old Business:
W1488 - DEEP Legislation and Regulations Advisory - minor changes to statutes
Ryan MOVED, Holt seconded, that the Mansfield Inland Wetlands Agency adopt the attached Mansfield Inland Wetlands Regulation revisions, pursuant to Connecticut General Statutes and state regulations, revising Section 4.1.B; Section 4.1.G through K.; Section 7.9, and Section 11.7, as presented at the Agency's January 3, 2012 Public Hearing.

The proposed regulation revisions have been referred to the Commissioner of the Department of Energy and Environmental Protection, the Mansfield Town Council, the Mansfield Conservation Commission, and Dennis O'Brien, Town Attorney, and they are to become effective on February 15, 2012.

Staff is further instructed to forward a copy of the adopted regulations to the Commissioner of the Department of Energy and Environmental Protection and to the Town Clerk. MOTION PASSED with all in favor except Pociask and Westa who disqualified themselves.

W1491 - Cumberland Farms - 643 Middle Turnpike & 1660 Storrs Road

Atty. Joseph Williams and Kevin Thatcher, representing the applicant, gave a brief presentation of the proposal. Prior to the vote on this application, Westa stated that she reviewed all pending applications. Holt MOVED, Plante seconded, to approve the application for wetlands file W1491, for a Cumberland Farms Convenience Store and Gasoline Sales located at 643 Middle Turnpike and 1660 Storrs Road on land of Kathleen A. Jones, and P. Michael Lahan et al, Trustees, as depicted on a plan dated 1/23/2012, for portions of work located within the 150-foot regulated areas, and as described in application submissions and presentations made to the Mansfield Inland Wetlands Agency at its January 03, 2012 and February 06, 2012 meetings.

This action is based on a finding of no significant impact, and is conditioned on the following provisions being met:

1. All erosion and sediment controls (as shown on the plans) shall be in place prior to construction, maintained during construction, and removed when disturbed areas are completely stabilized.
2. Silt fence shall be extended along Middle Turnpike to the proposed drive on Middle Turnpike, and catch basin sediment protection shall be provided for the two catch basins located along that frontage.
3. A proposed stockpile location shall be depicted on the plan.
4. Construction traffic shall be limited to the tracking pad locations at each of the proposed drives for the site.
5. The present connections between water flow from Wetland B and the existing and proposed drainage systems are to be maintained.

This approval is valid for a period of five years (until February 06, 2017) unless additional time is requested by the applicant and granted by the Inland Wetlands Agency. The applicant shall notify the Wetlands Agent before any work begins, and all work shall be completed within one year. Any extension of the activity period shall come before this Agency for further review and comment. MOTION PASSED with all in favor except Pociask who disqualified himself.

W1490 - Eastbrook Mall - 95 Storrs Rd - brook crossing, work in regulated area

Holt MOVED, Plante seconded, to approve the application for wetlands file W1490, for a 14,528 square feet addition to the Eastbrook Mall Building with appurtenant improvements on land of Eastbrook F LLC, as depicted on a plan dated January 30, 2012, for portions of work located within 150 foot regulated areas, and as described in application submissions and presentations made to the Inland Wetlands Agency at public hearing sessions held at January 3, 2012 and February 6, 2012 meetings.

This action is based on a finding of no significant impact, and is conditioned on the following provisions being met:

1. All erosion and sediment controls (as shown on the plans) shall be in place prior to construction, maintained during construction, and removed when disturbed areas are completely stabilized.

2. The satellite building including its appurtenant improvements as driveway brook crossing and Route 195 driveway, are to be removed from the plans. The final plans shall be drawn to include only the proposed work on Sheet No. "SP-1A, Alternate 1" showing the mall addition without the satellite building and its improvements.

3. The final plans drawn according to section 2. of this motion shall include improvements to the leak-offs from the present parking lot along Sawmill Brook north of the mall entrance, and removal of the accumulated sand bar from the existing drive as presently depicted on the plans.

This approval is valid for a period of five years (until February 6, 2017), unless additional time is requested by the applicant and granted by the Inland Wetlands Agency. The applicant shall notify the Wetlands Agent before any work begins, and all work shall be completed within one year. Any extension of the activity period shall come before this Agency for further review and comment. MOTION PASSED with all in favor except Pociask and Westa who disqualified themselves.

Inland Wetlands Agency Review of By-Laws
Holt MOVED, Plante seconded, to approve the proposed changes to the Inland Wetlands Agency By-Laws. MOTION PASSED UNANIMOUSLY.

New Business:
W1492 - Common Fields - 474 Storrs Rd - barn conversion & site work in buffer
Ryan MOVED, Holt seconded, to receive the application submitted by Michael C. Healey-Common Fields. (File #W1492) under the Wetlands and Watercourses Regulations of the Town of Mansfield, for barn renovations, additions and site improvements, on property located at 476 Storrs Road, as shown on a map dated January 17, 2012, and as described in application submissions, and to refer said application to staff and Conservation Committee, for review and comments. MOTION PASSED UNANIMOUSLY. A field trip was set for 2/14/12 at 1:30 p.m.

Communications: Noted.

Adjournment: Plante MOVED, Holt seconded, that the meeting be adjourned at 7:27 p.m. MOTION PASSED UNANIMOUSLY.

Respectfully submitted,

Katherine Holt, Secretary

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DRAFT MINUTES

MANSFIELD PLANNING AND ZONING COMMISSION
INLAND WETLANDS AGENCY
CONSERVATION COMMISSION
FIELD TRIP
Special Meeting
Tuesday, February 14, 2012

Members present:	M. Beal, K. Holt, B. Ryan, K. Rawn, S. Westa
Staff present:	G. Meitzler, Wetlands Agent/Assistant Town Engineer L. Painter, Director of Planning and Development J. Kaufman, Parks and Recreation Coordinator
Others present:	S. Lehman, Conservation Commission

The field trip began at 1:30 p.m.

1. M. Healey – 476 Storrs Rd - Barn Conversion and site work in buffer, File # W1492
   Members were met by property owner M. Healey. Members observed current conditions, locations of proposed work and site characteristics. No decisions were made.

The field trip ended at approximately 2:30 p.m.

Respectfully submitted,

K. Holt, Secretary

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Town of Mansfield
CONSERVATION COMMISSION
Meeting of 15 February 2012
Conference B, Audrey P. Beck Building
(draft) MINUTES

Members present: Aline Booth (Alt.), Joan Buck (Alt.), Neil Facchinetti (from 8:35p), Quentin Kessel, Scott Lehmann, John Silander. *Members absent*: Peter Drzewiecki, Robert Dahn, Frank Trainor. *Others present:* Grant Meitzler (Wetlands Agent).

1. The meeting was **called to order** at 7:32p by Chair Quentin Kessel. Aline Booth and Joan Buck were designated voting members for this meeting.

2. The draft **minutes** of **the 18 January meeting** were approved with the correction of a typo.

3. IWA Referral: W1492 (Healey, 476 Storrs Rd.) {Lehmann's report on the 02/14 IWA Field Trip to this site is attached.} The applicant proposes to renovate an old barn in Mansfield Center for a banquet and wedding facility. From the barn, land slopes gently down to a large pond. The leaching field for the facility's septic system would be below the barn and about 100 ft from the pond at its closest point. Beds of plantings are planned for the area between the leaching field and the fence at the Town's right-of-way along the pond's edge. Walkways around the barn would have a pervious brick surface; roof drainage would be directed into dry wells at the north edge of the property. A culvert in the drainage swale from Storrs Rd to the pond along the south edge of the property would direct runoff from Storrs Rd and the adjacent Mansfield's Restaurant parking area toward the pond; sections of perforated pipe would allow some of it to seep into the ground along the way, and several catchments would impede movement of sand and sediment into the pond.

After some discussion, focusing on the potential for damage to the pond from nutrient loading and sedimentation, the Commission agreed (**motion**: Booth, Buck; all in favor save Facchinetti, who had not yet arrived) to comment to the IWA that:

> Because of the sensitive nature of the pond (classified as a bog) below the barn, this development will have a negative impact on wetlands unless proper precautions are taken. Bogs like this one are very sensitive to nutrient loading, and the coarse soils in this area facilitate movement of ground water. Nutrients from septic leachate and fertilizer will compromise the bog if they reach it; sedimentation can also be a problem. For more information, the IWA should consult testimony in the public record on The Farms, a development proposed (c.1989) for this area but not approved by PZC, and DEP's *Water Quality Guidelines* (c. 2005). It may be possible to prevent damage to the bog by properly engineering drainage: location & design of the leaching field, rain gardens, catchments for sand and sediments, perforated culvert, etc.

4. Dark Skies. Kessel reported that the screening of "The City Dark," a documentary film on light pollution, at E. O. Smith Auditorium on 13 February had attracted a large (100-150) audience. The film was introduced by Mansfield resident and amateur astronomer William Shakalis; afterward, Leo Smith from the International Dark-Sky Association and Richard Stevens from the UConn Health Center answered questions from the audience. Mr. Shakalis organized and promoted the event and deserves most of the credit for its success; also to be thanked are Matt Hart, who enabled purchase of the DVD, and Jennifer Kaufman, who made the

arrangements with E. O. Smith.

The Commission unanimously agreed (**motion:** Kessel, Booth) that light pollution is a problem that should be acknowledged in the next edition of the Plan of Conservation and Development and addressed in part through lighting regulations based on the *Model Lighting Ordinance* proposed by the Illuminating Engineering Society and International Dark-Sky Association.

5. UConn Water Source Study. Meitzler reported that test wells are now being drilled in some of UConn's water supply study areas – the lower Willimantic River area just south of Eagleville and the area off Bassetts Bridge road. Kessel attended a presentation on expanding the study to include moving Well A in the Fenton River well-field farther from the river, in the thought that more water might be extracted from the relocated well without drawing down the river itself. He pointed out that the proposed location is near the University's pistol range, where lead contamination of the soil may be a problem.

6. Hazardous Waste Transfer Station. In response to a query from Booth, Kessel reported on the current status of plans to move UConn's Hazardous Waste Transfer Station from its present location behind Horsebarn Hill to a site that is not in a public water supply watershed. At one time it was to be relocated near the University's sewage treatment plant, but that site is no longer available. UConn now appears to be thinking of putting it in the new Tech Park.

7. Adjourned at 8:50p.

Scott Lehmann, Secretary, 16 February 2012.

Attachment: 02/14/12 IWA Field Trip Report

W1492 (Healey, 476 Storrs Rd.) The applicant proposes to renovate an old barn off Storrs Rd in Mansfield Center so that it can be used for weddings and other events. The land slopes gently from the barn down to a pond. Standard erosion controls should suffice to protect the pond during construction. Walkways around the barn are to be paved in pervious brick, with plantings and other landscaping between them and the Town's fenced right-of-way along the pond. Rainwater from the roof will be directed into drywells. A drainage swale runs along the south edge of the property to the pond from Storrs Rd. The applicant proposes to improve its appearance and performance by directing runoff (most of it from the adjacent parking lot of Mansfield's Restaurant) into a buried culvert with catchments to trap sand.

Scott Lehmann

Memorandum: February 29, 2012
To: Inland Wetland Agency
From: Grant Meitzler, Inland Wetland Agent
Re: Monthly Business

W1419 - Chernushek - hearing on Order

3.10.09: The hearing on the Order remains open and should continue until the permit application under consideration is acted upon.
(The Order was dropped on approval of the application required in the Order.)

4.30.09: Former rye grass seeding is beginning to show green. I spoke with Mr. Chernushek this afternoon who indicated health problems that delayed his starting but indicated he will be working this weekend. I will update on this Monday evening.

5.26.09: A light cover of grass growth has come in. Mr. Chernushek indicates health problems and two related deaths have delayed his start of work since the permit approval was granted. It appears that some light work has started. He has further indicated that he will start a vacation on June 22, 2009 to finish the work.

6.13.09: Work is underway.

6.21.09: Bulldozer work has been completed - finish work remains. The additional silt fencing has been placed along the northerly wetlands crossing, and the additional pipe under the southerly crossing has been installed. Remaining work includes finish grading along edges, spreading stockpiled topsoil, and establishing grass growth.

7.01.09: I spoke with Mr. Chernushek who indicated he expects work to be completed by September 1, 2009. (Site photo attached).

9.03.09: Mr. Chernushek has been working on levelling and grading. The formerly seeded areas have become fairly thick growth surrounding the central wet areas. He has further indicated that with the combination of weather and the slower moving of earth with the payloader compared to the earlier rented bulldozer has led him to contact contractors for earth moving estimates which have not yet been received. The site is not yet finished but has remained quite stable.

9.12.09: I met with Mr. Chernushek today and discussed again what his plans are for stabilizing this work site.

10.01.09: Mr. Chernushek indicated he has not heard back from the contractor he had spoken with about removing material, and is in progress of contacting others. In discussion is removal of material from the site either within the 100 cubic yard limit or obtaining a permit for such removal.

10.28.09: Mr. Chernushek has indicated he has made arrangements with DeSiato Sand & Gravel to remove 750 cubic yards of material. Staff is in the process of clarifying permit requirements.

W1445 - Chernushek - application for gravel removal from site

11.30.09: Packet of information representing submissions by Mr. Chernushek, Mr. DeSiato and myself is in this agenda packet as Mr. Chernusheks's request for modification.

12.29.09: Preparation of required information for PZC special permit application is in progress. Tabling any action until the February 1, 2010 meeting is recommended.

1.12.10: 65 day extension of time received.
2.18.10: No new information has been received.
2.25.10: This application has been **withdrawn.**
6.30.10: As viewed from the adjacent property, the upstream and downstream areas have grown to a decent protected surface. I did not see indication of sediment movement.
10.26.10: A sale of the East portion of the Chernushek property has been in negotiation.
12.27.10: The property exchange has been completed. The owner is now the neighboring property owner Bernie Brodin. He has indicated his intention to stabilize the area as weather permits.
4.25.11: Mr. Brodin indicates he is starting with grading and spreading hay and seed to stabilize disturbed areas.

Mansfield Auto Parts - Route 32
3.09.11: Inspection - no vehicles are within 25' of wetlands.
3.22.11: Inspection - no vehicles are within 25' of wetlands.
4.25.11: Inspection - no vehicles are within 25' of wetlands.
5.17.11: Inspection - no vehicles are within 25' of wetlands. Mr. Bednarczyk's estimate is that approximately 100 tires per month are being removed from the site.
6.14.11: Inspection - no vehicles are within 25' of wetlands.
7.12.11: Inspection - no vehicles are within 25' of wetlands.
8.04.11: Inspection - no vehicles are within 25' of wetlands.
9.13.11: Inspection - no vehicles are within 25' of wetlands.
11.03.11: Inspection - two vehicles are within 25' of wetlands. Vehicle doors and a camper or trailer are stored in the extreme rear lot not approved by zoning for use.
11.30.11 Inspection - two vehicles are within 25' of wetlands. Employees indicate cars will be moved soon. Payloader repair parts are to be there later today and cars will be moved as soon as parts are installed.
Owner indicated in earlier discussion that the doors would be moved.
Rate of tire removal has increased with a company in Massachusetts removing them by truckload. At time of this discussion (about a week ago) nearly 2,000 tires had been removed from the lot by the railroad tracks.
12.07.11: Inspection - two vehicles are within 25' of wetlands. Payloader rerpairs not yet completed. Weekly inspections will be made until the two vehicles and doors are moved.
12.27.11: Inspection - 1 vehicle within 25' of wetlands - owner indicates it will be moved this week. Payloader is back in operation. Owner indicatees doors in "rear" lot will be moved this week. Large number of tires have been moved from lot by RR tracks - approximately 65% of tires have been removed.
2.01.12: Inspection - employee indicates payloader repair has had problems and the one car within 25' has not yet been moved. Tire removal has continued and about 90 percent of the tires have been removed. A truck from the company removing the tires arrived while I was at the site.
3.01.12: Inspection - owner indicates payloader is repaired. Owner indicates the one car within 25' will be moved. Tire removal is nearing completion.

Memorandum: March 1, 2012
To: Inland Wetland Agency
From: Grant Meitzler, Inland Wetland Agent
Re: W1492 - Common Fields - 476 Storrs Rd - barn renovation, addition and site improvements
plan reference: dated ... 1.17.2012

This application is to improve the existing barn, with minor additions, for use as a wedding venue and meeting facility. Most of the work area is within 150' of the adjacent bog located at the rear of the property. This site was recently approved for construction of a trail within an easement leading between two adjacent Town owned properties.

The adjacent wetland is a "kettle" formation located near the edge of the large gravel plain east of Mansfield Center. This is a groundwater fed body of open water. There is no direct brook flow into this bog. The bog does catch flow from a drain carrying runoff from Storrs Rd in addition to flow from developed sites located along Storrs Rd. Water levels are modified somewhat by an agricultural pond outlet structure on the north side of Cemetery Rd.

The Conservation Commission has expressed concern for adverse impact on the bog from nutrient loading indicating bog formations are very sensitive to nitrogen and phosphorous in particular.

It is recommended that the use of chemicals and fertilizer on the large planted area planned at the rear of the site be based on soil testing to avoid over use that will change the chemistry of the bog.

The improvements planned have emphasized below ground treatment with:

1. drives and terrace area surface with brick pavers. The detail sheet indicates a stone drainage collection layer underneath these surfaces that will allow greater infiltration than pavers alone.
2. the pipe extensions that will replace a "swale" along the south boundary have been provided with 160' of sections of perforated pipe and a stone filled trench for the perforated sections that will allow for infiltration.
3. roof drains from the small existing building and from the south portions of the barn are directed to this southerly pipe.
4. other roof drains for the barn are directed to two drywells on the north of the barn.

In respect for the nutrient sensitivity of the bog, I recommend the addition of a Water Quality Volume retention area in the south east of the work site area where a very small sediment trap now exists. The flow directed to the pipe discharging to the bog will be from on site roof and drives and adjacent parking lot and Storrs Rd runoff. This kind of retention area is sized to contain the first inch of rainfall over the total contributing drainage area. Guidelines are available in the "2004 Conn. Stormwater Quality Manual".

I recommend waiting until the next meeting to allow time for the plans to be revised.

TOWN OF WINDHAM
WATER WORKS
174 Storrs Road
Mansfield Center, CT 06250
Tel. 860-465-3075 • FAX 860-465-3085

(X) Inland Wetlands Commission
( ) Zoning Commission
( ) Planning & Zoning Commission
( ) Zoning Boards of Appeals

TOWN:	( )	Ashford	( )	Chaplin	( )	Eastford
	( )	Hampton	(X)	Mansfield	( )	Pomfret
	( )	Union	( )	Willington	( )	Windham
	( )	Woodstock				

INSPECTED BY: _____
Troy Quick W.W. Watershed Inspector

DATE: February 16, 2012 WW file #M0112

The Windham Water Works has received notification of a proposed project per the requirements of Public Act 89-301.

PROJECT DESCRIPTION:

Renovations & additions to barn & associated site improvements.

Applicant: Michael Healey

COMMENTS:

The Windham Water Works has reviewed the proposed project and with best management practices and with proper soil and erosion control measures throughout the duration, we would have no objections, we will monitor accordingly.

Memorandum: March 1, 2012
To: Inland Wetland Agency
From: Grant Meitzler, Inland Wetland Agent
Re: New Business for March 5, 2012 meeting

W1494 - Moskowitz - 117 Stone Mill Rd - landscaping work in buffer

	yes	no
fee paid	x	
certified receipts	to come in	
map dated	2.28.2012	

This application is for placing fill and doing minor grading on land directly adjacent to the Stone Mill Bridge Project.

Receipt and referral to the Conservation Commission is appropriate.

W1495 - Sabatelli - Stearns Rd - addition in buffer

	yes	no
fee paid	x	
certified receipts	x	
map dated	3.01.2012	

This application is for a house addition within the 150' regulated area next to wetlands. Applicant will bring in the owner's signature shortly. The addition is for a one car garage.

Receipt and referral to the Conservation Commission is appropriate.

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APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3330
FAX: 860-429-6863

FOR OFFICE USE ONLY	
File #	1494
Fee Paid	$185.00
Date Received	2-15-12

Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact Grant Meitzler, Inland Wetlands Agent at the telephone numbers above.

Please print or type or use similar format for computer; attach additional pages as necessary.

Part A - Applicant

Name Robert Moskowitz

Mailing Address 117 Stonemill Road

Storrs CT Zip 06268

Telephone-Home 8604296109 Telephone-Business 8604296109

Title and Brief Description of Project
LANDSCAPING WORK NEXT TO STONE MILL BRIDGE PROJECT

Location of Project 117 Stonemill Rd

Intended Start Date 3-4 months

Part B - Property Owner (if applicant is the owner, just write "same")

Name same

Mailing Address same

Zip

Telephone-Home same Telephone-Business same

Owner's written consent to the filing of this application, if owner is not the applicant:

Signature date

Applicant's interest in the land: (if other than owner)

Part C - Project Description (attach extra pages, if necessary)

1) Describe in detail the proposed activity here or on an attached page. **(See guidelines at end of application – page 6.)**
Please include a description of all activity or construction or disturbance:
a) ***in*** the wetland/watercourse
b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is ***off*** your property

2) Describe the amount or area of disturbance (in square feet or cubic yards or acres):
a) ***in*** the wetland/watercourse
b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is **off** your property

600 sq ft

3) Describe the type of materials you are using for the project:

gravel fill with existing material cover seeded to match existing

a) include ***type*** of material used as fill or to be excavated
b) include ***volume*** of material to be filled or excavated 20-25 yds

4) Describe measures to be taken to minimize or avoid any adverse impacts on the wetlands and regulated areas (silt fence, staked hay bales or other Erosion and Sedimentation control measures).

Perimeter silt fence either hay bales or silt fence in place until seeding is established

Part D - Site Description

Describe the general character of the land. (Hilly? Flat? Wooded? Well drained? etc.)

Flat

Part E - Alternatives

Have you considered any alternatives to your proposal that would meet your needs and might have less impact on the wetland/watercourse? Please list these alternatives.

N/A

Part F - Map/Site Plan (all applications)

1) Attach to the application a map or site plan showing **existing conditions** and the **proposed project** in relation to wetland/ watercourses. Scale of map or site plan should be 1" = 40'; if this is not possible, please indicate the scale that you are using. A sketch map may be sufficient for small, minor projects. **(See guidelines at end of application – page 6.)**

2) Applicant's map date and date of last revision 2-28-12

3) Zone Classification RAR-90

4) Is your property in a flood zone? X Yes _____ No _____ Don't Know

Part G - Major Applications Requiring Full Review and a Public Hearing

See Section 6 of the Mansfield Regulations for additional requirements.

Part H - Notice to Abutting Property Owners

1) List the names and addresses of abutting property owners

Name Address

Fosbur Trust

2) **Written Notice to Abutters.** You must notify abutting property owners by certified mail, return receipt requested, stating that a wetland application is in progress, and that abutters may contact the Mansfield Inland Wetlands Agent for more information. Include a brief description of your project. ***Postal receipts of your notice to abutters must accompany your application.*** (This is not needed for exemptions).

Part I - Additional Notices, if necessary

1) Notice to Windham Water Works is attached. If this application is in the public watershed for the Windham Water Works (WWW), you must notify the WWW of your project within 7 days of sending the application to Mansfield--sending it by certified mail, return receipt requested. Contact the Mansfield Inland Wetlands Agent to find out if you are in this watershed.

2) Notice to Adjoining Town. If your property is within 500 feet of an adjoining town, you must also send a copy of the application, on the same day you sent one to Mansfield, to the Inland Wetlands Agency of the adjoining town, by certified mail, return receipt requested.

3) The Statewide Reporting Form (attached) shall be part of the application and specified parts must be completed and returned with this application.

Part J - Other Impacts To Adjoining Towns, if applicable

1) Will a significant portion of the traffic to the completed project on the site use streets within the adjoining municipality to enter or exit the site?___Yes___No___Don't Know

2) Will sewer or water drainage from the project site flow through and impact the sewage or drainage system within the adjoining municipality?____ Yes ____No____ Don't Know

3) Will water run-off from the improved site impact streets or other municipal or private property within the adjoining municipality?____ Yes ____No____Don't Know

Part K - Additional Information from the Applicant

Set forth (or attach) any other information which would assist the Agency in evaluating your application. (*Please provide extra copies of any lengthy documents or reports, and extra copies of maps larger than 8.5" x 11", which are not easily copied.)*

Part L - Filing Fee

Submit the appropriate filing fee. (Consult Wetlands Agent for the fee schedule available in the Mansfield Inland Wetlands and Watercourses Regulations.)

___$1,000. ___ $750. ___$500. ___$250. ___$125. ____$100. ___$50. ___$25.

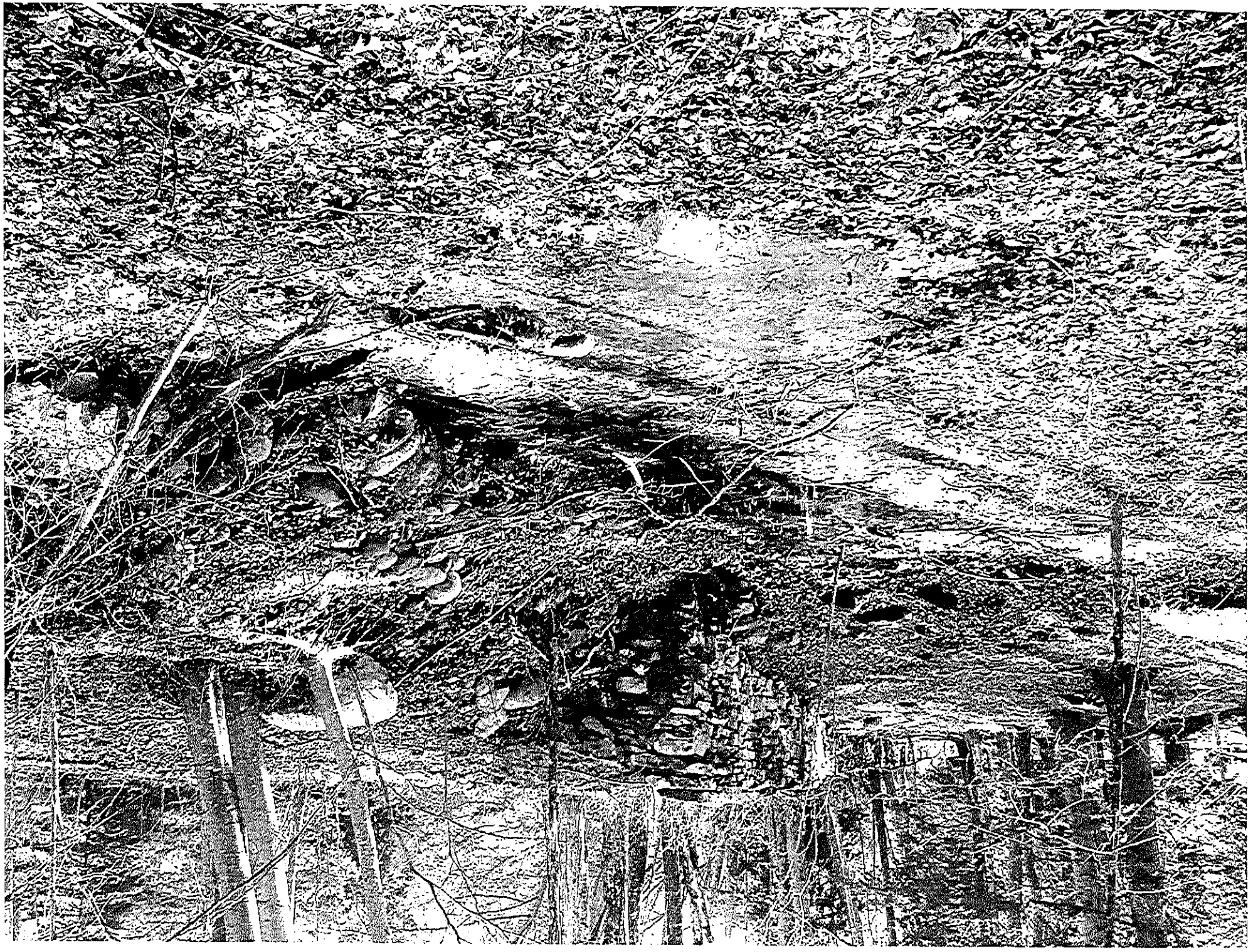
___ $60 State DEP Fee

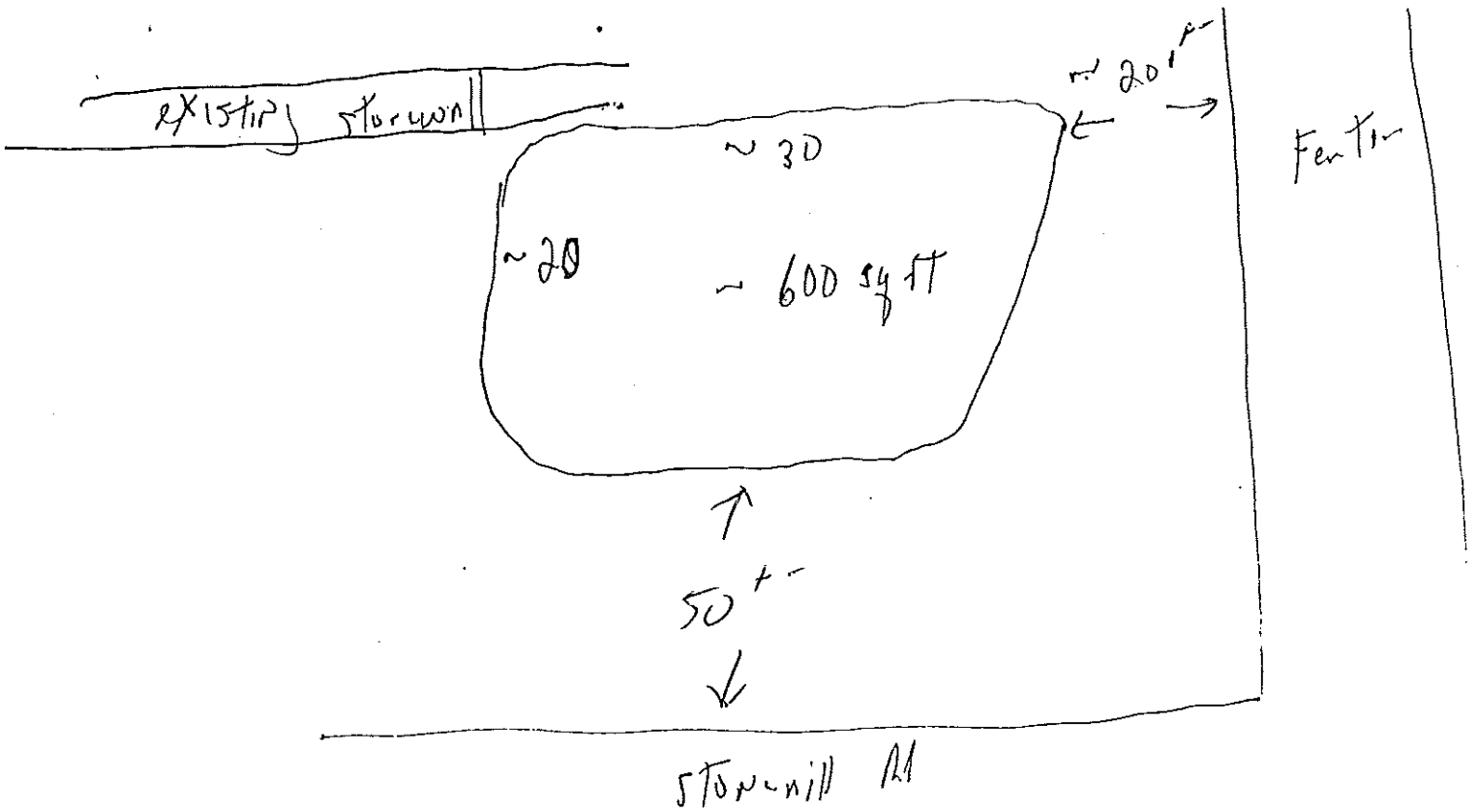
Note: The Agency may require you to provide additional information about the regulated area which is the subject of the application, or about wetlands or watercourses affected by the regulated activity. If the Agency, upon review of your application, finds the activity proposed may involve a "significant activity" as defined in the Regulations, additional information and/or a public hearing may be required.

The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Inland Wetlands Agency, at reasonable times, both before and after the permit in question has been granted by the Agency.

_____ _____

Applicant's Signature Date




existing structure
~ 20'
~ 30
~ 20
~ 600 sq ft
50 +-
Fence
Stonehill Rd

APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3330
FAX: 860-429-6863

FOR OFFICE USE ONLY	
File #	1495
Fee Paid	$185-
Date Received	2-29-12 SP

Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact Grant Meitzler, Inland Wetlands Agent at the telephone numbers above.

Please print or type or use similar format for computer; attach additional pages as necessary.

Part A - Applicant

Name CHRIS NIARHAKOS

Mailing Address 68 BROOKSIDE LANE

MANSFIELD, CT Zip 06250

Telephone-Home _____ Telephone-Business 860-617-5396

Title and Brief Description of Project

1 CAR GARAGE ADDITION

Location of Project 306 STEARNS RD MANSFIELD, CT

Intended Start Date APRIL 1ST 2012

Part B - Property Owner (if applicant is the owner, just write "same")

Name LINDA SABATELLI

Mailing Address 306 STEARNS RD

MANSFIELD, CT Zip 06250

Telephone-Home 860-423-1721 Telephone-Business _____

Owner's written consent to the filing of this application, if owner is not the applicant:

Signature _____ date _____

Applicant's interest in the land: (if other than owner) _____

Part C - Project Description (attach extra pages, if necessary)

1) Describe in detail the proposed activity here or on an attached page. **(See guidelines at end of application – page 6.)**
Please include a description of all activity or construction or disturbance:
a) ***in*** the wetland/watercourse
b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is ***off*** your property

NONE

2) Describe the amount or area of disturbance (in square feet or cubic yards or acres):
a) ***in*** the wetland/watercourse
b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is **off** your property

GARAGE ADDITION WITHIN 150 FT OF WETLANDS

3) Describe the type of materials you are using for the project:
CONCRETE FDN & SLAB WOOD FRAMING/SIDING/TRIM

a) include ***type*** of material used as fill or to be excavated USE ON SITE MATERIAL
b) include ***volume*** of material to be filled or excavated 17 YDS

4) Describe measures to be taken to minimize or avoid any adverse impacts on the wetlands and regulated areas (silt fence, staked hay bales or other Erosion and Sedimentation control measures).
SILT FENCE

Part D - Site Description
Describe the general character of the land. (Hilly? Flat? Wooded? Well drained? etc.)
WOODED/HILLY

Part E - Alternatives

Have you considered any alternatives to your proposal that would meet your needs and might have less impact on the wetland/watercourse? Please list these alternatives.

NO

Part F - Map/Site Plan (all applications)

1) Attach to the application a map or site plan showing **existing conditions** and the **proposed project** in relation to wetland/ watercourses. Scale of map or site plan should be 1" = 40'; if this is not possible, please indicate the scale that you are using. A sketch map may be sufficient for small, minor projects. **(See guidelines at end of application – page 6.)**

2) Applicant's map date and date of last revision MARCH 1ST 2012

3) Zone Classification RAR90

4) Is your property in a flood zone? _____Yes __X__No _____ Don't Know

Part G - Major Applications Requiring Full Review and a Public Hearing

See Section 6 of the Mansfield Regulations for additional requirements.

Part H - Notice to Abutting Property Owners

1) List the names and addresses of abutting property owners

Name	Address
CHUANRONG & LI WEIDON ZHANG	5 CANDIDE LA MANSFIELD
PING & WEI WEI WANG	11 CANDIDE LA MANSFIELD

2) **Written Notice to Abutters.** You must notify abutting property owners by certified mail, return receipt requested, stating that a wetland application is in progress, and that abutters may contact the Mansfield Inland Wetlands Agent for more information. Include a brief description of your project. ***Postal receipts of your notice to abutters must accompany your application.*** (This is not needed for exemptions).

Part I - Additional Notices, if necessary

1) Notice to Windham Water Works is attached. If this application is in the public watershed for the Windham Water Works (WWW), you must notify the WWW of your project within 7 days of sending the application to Mansfield--sending it by certified mail, return receipt requested. Contact the Mansfield Inland Wetlands Agent to find out if you are in this watershed. NOT IN WATERSHED.

2) Notice to Adjoining Town. If your property is within 500 feet of an adjoining town, you must also send a copy of the application, on the same day you sent one to Mansfield, to the Inland Wetlands Agency of the adjoining town, by certified mail, return receipt requested.

3) The Statewide Reporting Form (attached) shall be part of the application and specified parts must be completed and returned with this application.

Part J - Other Impacts To Adjoining Towns, if applicable

1) Will a significant portion of the traffic to the completed project on the site use streets within the adjoining municipality to enter or exit the site?___Yes_X_(No)___Don't Know

2) Will sewer or water drainage from the project site flow through and impact the sewage or drainage system within the adjoining municipality?____ Yes ____(No) X ___ Don't Know

3) Will water run-off from the improved site impact streets or other municipal or private property within the adjoining municipality?____ Yes ____(No) X ___Don't Know

Part K - Additional Information from the Applicant

Set forth (or attach) any other information which would assist the Agency in evaluating your application. (*Please provide extra copies of any lengthy documents or reports, and extra copies of maps larger than 8.5" x 11", which are not easily copied.)*

Part L - Filing Fee

Submit the appropriate filing fee. (Consult Wetlands Agent for the fee schedule available in the Mansfield Inland Wetlands and Watercourses Regulations.)

___$1,000. ___ $750. ___$500. ___$250. _X_ $125. ____$100. ___$50. ___$25.

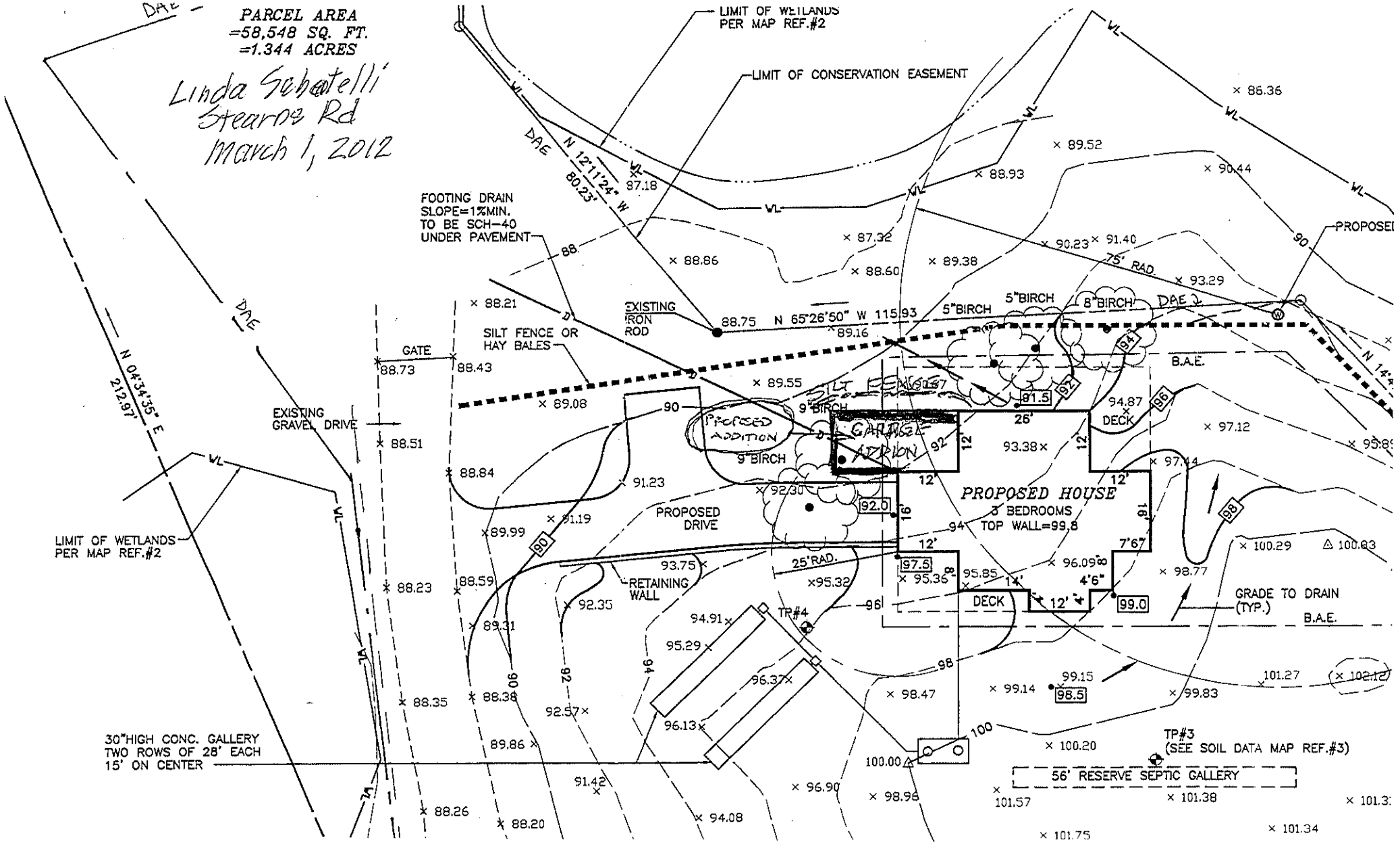
_X_ $60 State DEP Fee

Note: The Agency may require you to provide additional information about the regulated area which is the subject of the application, or about wetlands or watercourses affected by the regulated activity. If the Agency, upon review of your application, finds the activity proposed may involve a "significant activity" as defined in the Regulations, additional information and/or a public hearing may be required.

The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Inland Wetlands Agency, at reasonable times, both before and after the permit in question has been granted by the Agency.

[signature] 3-1-12

Applicant's Signature Date


PARCEL AREA
=58,548 SQ. FT.
=1.344 ACRES
Linda Sebastelli
Stearns Rd
March 1, 2012
LIMIT OF WETLANDS
PER MAP REF.#2
LIMIT OF CONSERVATION EASEMENT
DAE
N 12°11'24" W
80.23'
FOOTING DRAIN
SLOPE=1%MIN.
TO BE SCH-40
UNDER PAVEMENT
EXISTING
IRON
ROD
88.75 N 65°26'50" W 115.93
SILT FENCE OR
HAY BALES
GATE
EXISTING
GRAVEL DRIVE
N 04°34'35" E
212.97'
PROPOSED
ADDITION
GARAGE
ATRIUM
PROPOSED HOUSE
3 BEDROOMS
TOP WALL=99.8
PROPOSED
DRIVE
RETAINING
WALL
25'RAD.
75' RAD.
DECK
GRADE TO DRAIN
(TYP.)
B.A.E.
TP#4
TP#3
(SEE SOIL DATA MAP REF.#3)
30"HIGH CONC. GALLERY
TWO ROWS OF 28' EACH
15' ON CENTER
56' RESERVE SEPTIC GALLERY
5"BIRCH
8"BIRCH
9"BIRCH
LIMIT OF WETLANDS
PER MAP REF.#2

THE HABITAT

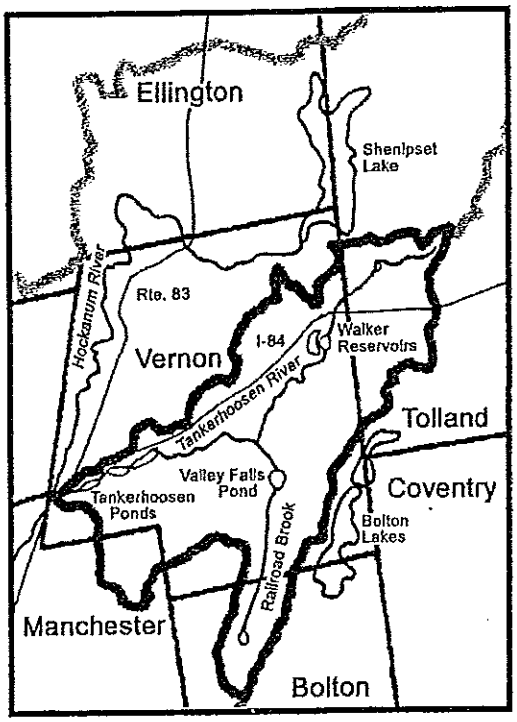
A newsletter of the Connecticut Association of Conservation and Inland Wetlands Commissions, Inc.

winter 2011 *volume 23 number 4*

VERNON CONSERVATION COMMISSION IMPLEMENTS TOWN-WIDE INVASIVE AQUATIC PLANT MANAGEMENT PROGRAM

by Thomas Ouellette, Vernon Conservation Commission

The Town of Vernon, led by the Conservation Commission and the Department of Parks and Recreation, has been engaged since 2008 in a program to proactively identify, monitor, and control populations of non-native invasive aquatic plants within two principal watersheds, and to plan for their removal. Concerns relate to the exclusion of native aquatic vegetation by proliferating non-native species, and to the resulting oxygen depletion and elimination of fish and wildlife habitat in surface waters. Impairment of recreational activities, i.e., swimming, boating, and fishing, are also of concern. The town's coordinated effort, which includes both professional field investigations and volunteer surveys as described below, may be instructive to other communities striving to protect the health of their rivers and ponds.



Hockanum River and Tankerhoosen River Watersheds.

Vernon is traversed by two rivers, the Hockanum and the Tankerhoosen. The Hockanum River originates at Shenipset Lake, extends through Rockville and southern Ellington, reenters Vernon at the location of the Town's Water Pollution Treatment Facility, and then flows more than four miles south to Manchester. Within Vernon, the Hockanum River, which transits industrial, commercial, residential and natural environments, is designated by the Connecticut Department of Energy and Environmental Protection (DEEP) as impaired for recreation and for habitat for fish, other aquatic life and wildlife.

The Tankerhoosen River is a tributary of the Hockanum River, with headwaters in Tolland. From Walker Reservoir East near I-84 Exit 67 in Vernon, the Tankerhoosen extends approximately five miles to its confluence with the Hockanum River at the Manchester town line. It is fed by a number of streams, including Railroad Brook, which originates at Bolton Notch Pond in Bolton and flows through Valley Falls Pond, a recreational impoundment within Vernon's Valley Falls Park. The upper 3.5 miles of the Tankerhoosen River, which crosses through the pristine woodlands of the Belding Wildlife Management Area, fully support recreation and habitat for fish, other aquatic life and wildlife, as designated by DEEP. These waters sustain Class-1 wild trout habitat, one of only two such designated trout management areas east of the Connecticut River. The lower reach of the river, which is influenced by residential and commercial development, is designated impaired habitat for fish, other aquatic life and wildlife.

Vernon, continued on page 2

Inside

The Habitat is the newsletter of the Connecticut Association of Conservation and Inland Wetlands Commissions (CACIWC). Materials from *The Habitat* may be reprinted with credit given. The content of *The Habitat* is solely the responsibility of CACIWC and is not influenced by sponsors or advertisers.

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Associate Editor: Ann Letendre

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www.caciwc.org

Vernon, continued from page 1

In the summer of 2008, variable leaf milfoil *(Myriophyllum heterophyllum)* was discovered growing along the shores of Valley Falls Pond, as confirmed by Aquatic Control Technology, Inc. (ACT) of Sutton, MA. ACT also confirmed that both milfoil and fanwort *(Cabomba caroliniana)* were abundant in Walker Reservoir East. While both plants, which propagate by fragmentation, have the potential to populate downstream areas, particular concern surrounded the threat of the aggressive fanwort to trout habitat. Vernon subsequently contracted with Dr. George Knoecklein of Northeast Aquatic Research of Mansfield, CT to further survey those two ponds and the three Tankerhoosen River impoundments listed above to determine the extent of infestation. Dr. Knoecklein also conducted shoreline surveys of Walker Reservoir West, Eckers Pond and South Street Pond. (The Walker Reservoirs are not water supply reservoirs.) The surveys were conducted in August of 2009.

Survey results were presented to the Vernon Conservation Commission in a public forum. Dr. Knoecklein confirmed ACT's observations, and reported milfoil and fanwort immediately below the Walker Reservoir East dam, but found no non-native invasive plants in the six other ponds. The meeting included discussion of options for removal of the milfoil from Valley Falls Pond and milfoil and fanwort from and Walker Reservoir East. Mechanical harvesting was rejected due to the potential for fragmentation, as was suction harvesting due to the projected expense. Winter drawdowns were ruled out because of the rapid recharge of the ponds and the potential adverse impacts on beneficial species. Introduction of sterile grass carp was rejected due to concern about their likely nutrient enrichment of, and potential escape from, the ponds. Consequently, the use of herbicides was approved by the Town and permitted by CT DEEP, with slow-release fluridone (Sonar) used in Walker Reservoir East and 2,4-D (Navigate) in Valley Falls Pond. The herbicides were applied by ACT in June 2010. Fluridone is the only herbicide shown to be effective in controlling fanwort, while 2,4-D is the preferred treatment for milfoil. Both are systemic herbicides that are trans-located by the plant into root and shoot tissues, thereby providing multiple years of control (Knoecklein).

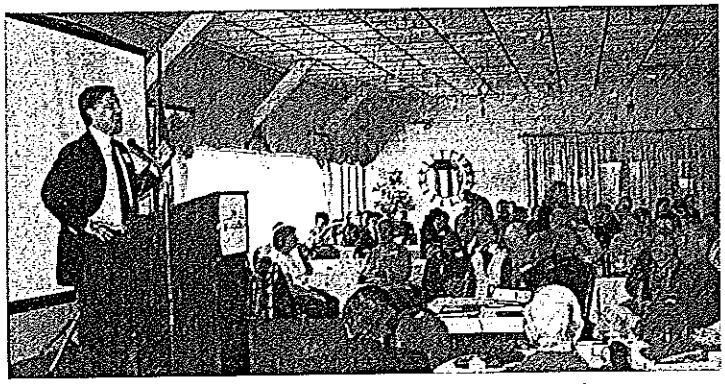
Dr. Knoecklein conducted follow-up inspections in 2011. He found no non-native invasive plants in any of the larger Tankerhoosen River watershed ponds, including those that were resurveyed from 2009, with the exception of very small specimens of variable-leaf milfoil in Walker Reservoir East. The limited, selected use of herbicides in 2010 solved an urgent need. Given the slow rate at which the milfoil has returned, it is anticipated that suction harvesting in 2012 will be a cost-

Vernon, continued on page 13

CACIWC's 34th Annual Meeting
Connecticut Commissioners and Staff Participate in Successful Annual Conference

Despite massive tree damage and widespread power outages throughout Connecticut from the historic October snow storm, the Wallingford MountainRidge conference facility opened in time for CACIWC's 34th Annual Meeting & Environmental Conference held on Saturday, November 12, 2011. Most of the Connecticut conservation and inland wetlands commissioners who attended the conference had been without power for several days to a week or more. Some municipal staff and other professionals had struggled to run their offices for days without phone and internet service.

Despite these adversities, many returned to our annual conference to help us celebrate this year's conference theme of, "Celebrating Five Decades of Environmental Conservation and Habitat Protection." This theme recognizes the many contributions made by Connecticut commissioners and staff in the decades since the 1961 enabling legislation authorizing the formation of municipal conservation commissions in Connecticut.



Daniel C. Esty, Commissioner DEEP, Key Note Speaker. Photo courtesy of "Moments in Time Photography"- Brenda Cataldo.

Keynote Speaker

CACIWC was pleased to host **Daniel C. Esty, Commissioner of the Connecticut Department of Energy and Environmental Protection (DEEP),** as the keynote speaker of our 34th Annual Meeting & Environmental Conference. Commissioner Esty discussed the challenges faced by his newly reorganized agency during the historic October snowstorm while recovering the preceding Tropical Storm Irene. He inspired the crowd with his vision of how to better integrate energy and environmental policies and help Connecticut to build a sustainable and prosperous 21st century economy. Commissioner Esty emphasized the value of dedicated local conservation and wetlands commissioners and staff in continuing their local habitat preservation efforts in partnership with the DEEP and other agencies.

Commissioner Esty was appointed by Governor Dannel P. Malloy in March, 2011 to serve as Commissioner of what was then the Connecticut Department of Environmental Protection (DEP). He became Commissioner of DEEP when that agency came into being in July 2011.

Prior to becoming Commissioner, Esty was the Hillhouse Professor of Environmental Law and Policy at Yale University. He also served as the Director of the Yale Center for Environmental Law and Policy and the Center for Business & Environment at Yale. Commissioner Esty, who holds a BA from Harvard, an MA from Oxford, and a law degree from Yale, is the author or editor of numerous books and articles on environmental policy issues and the relationships between environment and corporate strategy. Commissioner Esty is a native of Connecticut. His career included serving in a variety of senior positions for the US Environmental Protection Agency as well as practicing law in Washington, DC and serving as an advisor on the 2008 Obama Presidential campaign and transition team.

Workshops & Displays

Four newly organized workshop tracks were introduced at this year's annual conference: Open Space & Conservation Biology, Land Use Law & Legal Updates, Best Management Practices & Procedures, and Low Impact Development & Sustainability.

These four tracks included a total of twelve informative workshops lead by experts in various fields of interest for conservation and wetlands commissioners and their staff. These covered a variety of topics relevant to Connecticut commissioners including emergency authorization procedures and wetlands law updates, invasive

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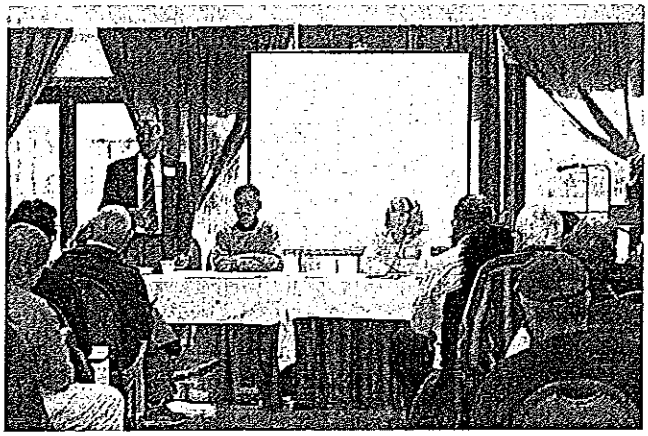
diatoms and changing mammal population dynamics, concepts in low impact development and best management practices, along with new approaches to sustainable site design and use of sustainability in



Attorneys Mark Branse, David Winn and Janet Brooks presenting workshop on Wetlands Law Update and Q&A for 2011. Photo courtesy of "Moments in Time Photography"- Brenda Cataldo.

town planning. We thank all the workshop leaders for their time spent preparing and presenting these well-received forums. Over two dozen commercial entities and non-profit groups provided a rich array of displays to further inform visitors of current issues relevant to their work and volunteer efforts. The CACIWC Board of Directors has begun a detailed review of the evaluations forms submitted by participants of this conference. In addition to informing us of their opinions of the educational sessions, the participants also provided valuable suggestions for workshop topics for next year's conference. To allow other members the opportunity to submit ideas for workshop topics and other suggestions, the CACIWC Annual Meeting Committee has decided again to maintain the AnnualMtg@caciwc.org email throughout the year. Please keep those suggestions coming! We thank the staff at MountainRidge for hosting the conference again this year and extend our sincere appreciation to our 2011 conference sponsors. We look forward to seeing you again at our 2012 Annual Meeting and Environmental Conference!

From l to r, Edward Pyznar (CT DEEP Environmental Conservation Officer), Brett Bogus (CT DEEP Volunteer), Rod Parlee (CACIWC Director), Daniel C. Esty (Commissioner DEEP), Katherine Dugus (CT Agriculture Experiment Station). Photo courtesy of "Moments in Time Photography"- Brenda Cataldo.

Awards

Two annual CACIWC awards were given at the Saturday November 12, 2011 ceremony.

Anita Goerig, vice-chairperson of the Beacon Falls Conservation Commission received the 2011 **"Conservation Commissioner of the Year"** award. Ms. Goerig, who served on the Conservation Commission both as its Vice-Chair and Chair of Community Outreach, was recognized for her many contributions to the Town of Beacon Falls. Anita tirelessly works to support all the Conservation Commission's activities. As Chair of Community Outreach, she strives to advance the Conservation Commission's natural resource planning initiatives by educating the stakeholders on the value of these resources and the importance of engaging the community and its leaders of its efforts.

Ms. Goerig works with other advocates to create opportunities to promote habitat conservation and environmental awareness among the residents of the Town of Beacon Falls. During 2011, she worked to expand the annual community forum into a two-day environmental event by coordinating with school officials, securing sponsors, and recruiting an impressive panel of speakers, awards, and other activities. Her almost single-handed efforts to organize and manage this event brought important information on conservation and environmental advocacy to many residents including the many students who participated in the Discovery Day events scheduled the following day in a local park. CACIWC was pleased award this special honor in recognition of her dedicated efforts on behalf of her town.

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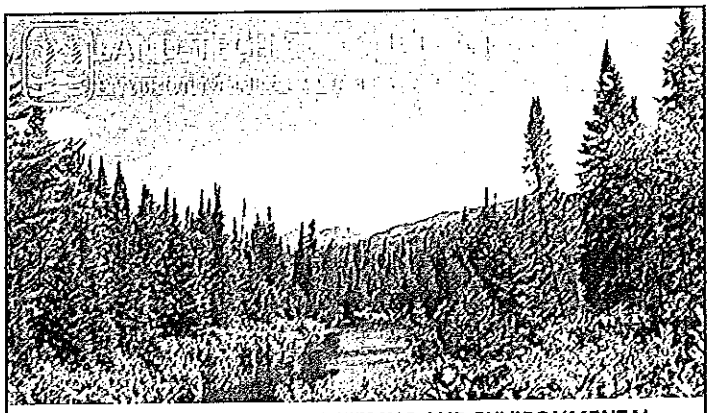

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The Norfolk Conservation Commission received the 2011 **"Conservation Commission of the Year"** award. We all have witnessed the fine work of many commissions since the Connecticut General Assembly passed enabling legislation fifty years ago authorizing the formation of conservation commissions within Connecticut municipalities. Despite this legislative authority and our long-term advocacy, many towns have not created separate inland wetlands and conservation commissions. In 2005, the Norfolk combined Conservation Commission/Inland Wetlands Agency established a subcommittee to create a natural resources inventory for Norfolk. The Natural Resources Inventory Subcommittee became the separate Conservation Commission in February 2009. This young commission worked to not only inventory Norfolk's natural resource, but to work to conserve its pristine habitats through many outreach and educational initiatives.

One major priority is the commission's efforts to educate the town on invasive species. Their initial efforts included a media recognized project on Town Hall property to replace large existing barberry and burning bush with native shrubs and flowers donated by the Northwest Conservation District. They have continued their efforts to address many important invasives through well publicized programs that include free native replacements. Ms. Shelley Harms, who serves as the Conservation Commission Chair, deserves special recognition for her zealous leadership of this inspiring group. CACIWC was very pleased recognize the many efforts of one of Connecticut's youngest commissions by selecting it as the recipient of our 2011 Conservation Commission of the Year award.

Attendees at the CACIWC's 34th Annual Meeting & Environmental Conference were also surprised by two special recognition awards.

The first was a **Lifetime Achievement Award** given to recently retired DEEP wildlife biologist **Julie Victoria** for her more than three decades of service on behalf of Connecticut's endangered and threatened species. Julie began her career in 1979 serving with the Young Adult Conservation Corps (YACC). She was hired as a part-time worker with the DEP Deer Program in January 1979 and became a DEP seasonal employee

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annual, continued from page 5

in May. In 1985, Julie joined what was known as the DEP Non-harvested Wildlife Program (Wildlife Diversity Program) and focused her efforts on the preservation of Connecticut raptors, shorebirds, reptiles and amphibians.

Julie Victoria (Retired from DEEP) receiving Special Award from Alan Siniscalchi (CACIWC President). Photo courtesy of "Moments in Time Photography"- Brenda Cataldo.

Julie's dedication was seen in her willingness to place herself in the environments of the species that she protected including rappelling out the top of the Traveler's Tower in Hartford to check and tag the latest Peregrine Falcon chicks. The continued success of her efforts will be assured by the productive relationships that she forged with other wildlife agencies and organizations and the many volunteers that she inspired. CACIWC was honored to recognize her years of dedication to the protection of Connecticut's threatened and endangered species and their habitats.

The second **Lifetime Achievement Award** was given to another recently retired DEEP official, **Steven F. Tessitore** for his many years of dedicated service toward the preservation of Connecticut's inland wetlands and watercourses. Steve served as a DEP soil scientist, having received his MS degree in Forest Soil Science from the University of Massachusetts. Mr. Tessitore spent many years as a supervisor in the Connecticut DEP Environmental Permitting & Enforcement Section and developed an understanding of the challenges faced by many CACIWC members in their efforts to issue and enforce environmental permits.

However, Steve is best remembered by our members for his service as supervisor in the DEP Inland Water Resources Division. In addition to tracking wetlands enforcement activities, he strived to bring the best education and training efforts to Connecticut municipal wetlands agency commissioners and staff. He and Darcy Winther produced a widely-recognized wetlands training DVD that received a Telly Award for excellence. With the training of hundreds of Connecticut wetlands commissioners and staff and the production of their second DVD, Steven can enjoy his retirement knowing that he has made a lasting impact on Connecticut inland wetlands habitats. CACIWC was pleased to honor Steve with this special award.

JOURNEY TO THE LEGAL HORIZON *by Attorney Janet Brooks*

Substantial Evidence Sufficient to Support Wetlands Agency Denial: *Proceed with Caution*

AvalonBay Communities, Inc. v. Inland Wetlands & Watercourses Agency, 130 Conn. App. 69 (2011)[1]

In July the Appellate Court issued its decision affirming the Superior Court's overturning of the Stratford inland wetlands and watercourses agency denial of an affordable housing apartment project. This case was included at the CACIWC annual meeting workshop on 2011 legislation and case law update. The discussion was enhanced by comments from Steve Danzer, a Professional Wetlands Scientist, Soil Scientist, and former staff to the Town of Stratford, who attended the workshop. Steve has agreed to continue our musings in writing for this column.

Janet: The Connecticut Appellate Court's most recent AvalonBay decision continues the trend that began with the Connecticut Supreme Court's reasoning in *River Bend Associates, Inc. v. Conservation & Inland Wetlands Commission.*[2] That ruling includes the following statements: "Evidence of general environmental impacts, mere speculation, or general concerns do not qualify as substantial evidence." [3] Also: "The sine qua non of review of inland wetlands applications is a determination whether the proposed activity will cause an *adverse impact* to a wetland or watercourse." [4]

The application was for a proposed affordable housing apartment project with no activities proposed in wetlands, watercourses or the upland review area. The wetlands agency gave four reasons for denial. The Appellate Court, agreeing with the Superior Court, found no substantial evidence to support any of the reasons and thus reversed the agency denial.

Reason 1: The wetlands and watercourses will be negatively impact by sedimentation. While the courts agreed that there was evidence that some sediment would reach a brook and adjacent wetlands, there was no evidence that such would constitute an adverse impact. The courts ruled that there was nothing beyond speculation of adverse impact. Neither quantitative (amount of flow) nor qualitative (whether the impact would be adverse) evidence was in the record. The agency "could not simply assume that the entry of sediment and siltation would adversely affect the wetlands and watercourse without evidence that it would in fact do so." [5]

Reason 2: "The proposed intense development of the site will clearly alter the hydrologic regime of the wetlands." [6] The courts concluded this was a generalized concern, which did not rise above speculation." The fact that "hydrologic changes would occur did not necessarily mean that those changes would adversely affect [wetlands.]" [7]

Reason 3: The pocket wetland would be totally lost. The courts concluded that the wetland was 360 square feet, consisted of a man-made drainage ditch and earthen berm. The watershed serving the wetland would be reduced from 2.4 acres to .99 acre with sufficient flow to maintain the wetland. "(N)o evidence supports the [agency's] finding that any impact necessarily would be adverse." [9]

Reason 4: "potential for acid generation from the rock exposed by blasting at the site." [10] The Appellate Court reviewed the record and concluded while the agency "was free to reject the plaintiff's [applicant's] expert evidence, which concluded that the potential for environmental impact due to acid rock drainage was minimal, it was not entitled to conclude that the opposite was true without any evidence to justify that conclusion." [11]

Steve, what kind of consideration did the court decision in *River Bend* and specifically the statements about speculative evidence play in preparing your environmental review?

Steve: "Speculation! Expert report dismissed!"

Obviously, no environmental professional wants to hear this message from the courts. But the reality is that every professional (and commission) should be prepared to understand why this may happen to them (frustrating as it is), and equally more important, perhaps every commission should understand how this could happen to their own cases as they make it up the ladder of appeal.

horizon, continued on page 9

horizon, continued from page 8

There were a few interesting background tidbits worth mentioning that may not be so obvious from the decision alone.

First, as much as *River Bend* has been drummed into our heads over the last few years (Prove! Don't Speculate!), the court case at issue here stemmed from a series of two applications that appeared before the Stratford Commission in 2000 and 2001. *River Bend*, the standard that all experts now attempt to emulate, stemmed from a court decision in 2004, three years later. In 2004, the *AvalonBay* case from Stratford was still (and is still) winding its way through the legal system, and the new River Bend standard (Prove! Don't Speculate!) was applied retroactively by the courts once the case made its way to the Superior and then Appellate Court. A carefully crafted, factually dense, pre-2004 record was now reevaluated based upon the application of a new set of standards. From the Commission's perspective, this was most unfortunate.

The real issue in *AvalonBay v. Stratford*, in my opinion, was not whether the Commission's team of experts (disclosure – I was one of them) credibly proved harm to the wetland due to the applicants proposed activities, but whether a Commission's team of experts can credibly testify that the applicant ***has not*** successfully proven that there would be no impact to the wetlands.

Janet: From a legal perspective, the Supreme Court in *River Bend* relied on cases from the 1980s to establish that speculation cannot form the basis for substantial evidence. What ***was*** new in *River Bend* was applying that to denials issued by wetlands agencies. Previously, the case law about speculative evidence meant that applicants, who have the burden of proving they are entitled to a permit, were unsuccessful. Or, it meant that environmental intervenors or abutters to projects, who appealed the granting of a wetlands permit, failed to meet their burden because they offered only speculative evidence.

With *River Bend* we can document the shift to scrupulous examination of the agency's reasons for denial and the search for substantial evidence to support the reasons. The dissent in *River Bend* believed the majority opinion in *River Bend* shifted the burden of proof from the applicant to prove its entitlement to the agency to disprove the applicant's entitlement. The majority opinion denied that it was shifting the burden of proof to the agency. What is clear now is that when

horizon, continued on page 10

horizon, continued from page 9
an agency denies an application on the merits -- because of the impact of the project, that reason must be supported by substantial evidence. That means the following phrases are insufficient as a matter of law: "possible impact," "increased risk," "concern" and similar words. What the agency needs to have in the record are phrases like: "reasonably likely to cause an actual adverse impact to this specific pond/wetland."

In the *Unistar*[12] case the Supreme Court ***has*** upheld an agency's permit denial where the applicant refused to provide information on the impact to wildlife. There, the agency didn't deny the permit because the impact was unacceptable, but because the applicant didn't come forward with evidence to prove it was entitled to a permit.

In the future I expect that agencies will focus on whether the applicant has provided sufficient evidence to prove it is entitled to a permit.

Steve: This legal "War on Speculation", in my opinion, involves the inability for the judicial system to understand the limitations of the scientific method as it is applied to wetlands reviews.

In science, everything is speculation, until proven experimentally. Obviously, in the case of wetlands review there is not time enough to perform a proper experiment, so what we are left with is scientific concepts and patterns that are agreed upon by the relevant co-professionals. For example, all professionals agree that sediment is bad for a wetland, without the need to design an experiment. Someone has to define these types of scientific concepts – ostensibly the experts. What tends to be frustrating is when a court discounts the experts (who are speculating to the best of their ability and training) and then enters the ring themselves. At what point does the court raise the bar too high as to what constitutes proof rather than speculation?

Does this mean that there is ***no role*** for experts in a review, especially when it may be difficult to quantify an impact (despite the fact that an impact, or a lack of impact, is "obvious" to all involved?). Absolutely not!

Experts serve many valuable functions to a Commission. They may offer constructive criticism to the project, help soften the impact of an activity, offer leverage to a Commission to suggest to an applicant a better alternative, and generally speaking, keep the applicant's experts on their toes.

Janet P. Brooks practices law in East Berlin. You can read her blog at: www.ctwetlandslaw.com. Steve Danzer is the principal of Steven Danzer PhD & Associates, a wetlands and environmental consulting firm.

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[1] As of the date the article was written, the Supreme Court had not yet ruled on the agency's petition for certification, i.e., the agency's request for the right to further appeal. (There is no absolute right to further appeal in land use decisions issued by the Superior Court (trial court)).

[2] *River Bend Associates, Inc. v. Conservation & Inland Wetlands Commission*, 269 Conn. 57 (2004).

[3] Id., 269 Conn. 57, 70-71 (2004).

[4] (Emphasis in original.) Id., 269 Conn. 57, 74 (2004).

[5] *AvalonBay Communities, Inc. v. Inland Wetlands & Watercourses Agency,*
130 Conn. App. 69, 78 (2011).

[6] Id., 130 Conn. App. 69, 78 (2011).

[7] Id., 130 Conn. App. 69, 81 (2011).

[8] Id., 130 Conn. App. 69, 80 (2011).

[9] Id., 130 Conn. App. 69, 86 (2011).

[10] Id., 130 Conn. App. 69, 86 (2011).

[11] Id., 130 Conn. App. 69, 87 (2011).

[12] *Unistar Properties, LLC v. Conservation & Inland Wetlands Commission, 293 Conn. 93 (2009).*

Streamflow Regulations Enacted Into Law!

On December 12, 2011, regulations to conserve streamflows in Connecticut waterways became the law of the state. These regulations represent a vital step forward in protecting rivers and streams for today and tomorrow. Connecticut has now taken the lead in New England and very likely the nation in officially recognizing that naturally flowing rivers and streams are essential to life, health, and economic wellbeing.

To have water in the future, we must protect the water we have now. Draining streams dry for short-term convenience endangers the natural world and all its creatures (including us). For quality of life and economic wellbeing, there is no more valuable resource than water. It is liquid gold.

Connecticut has been trying to devise a fair, effective flow regulation since the 1970s. In 1979, a minimum-flow regulation was enacted, but it was so minimal and so complicated that it had little effect. In 1982, the state passed the Water Diversion Policy Act, which put reasonable limits on most new takings of water but included a giant loophole that grandfathered "rights" to hundreds of millions of gallons of water. (Whether these grandfathered claims to water were really "rights" was never entirely clarified.)

A decade and a half later, threats to water flows led to two prominent legal cases involving the Shepaug River in Litchfield County and the Mill River in New Haven. The legislature created the Water Planning Council in 2001 in the hope that the state agencies with jurisdiction over water could come up an acceptable method of water allocation to forestall complex and expensive litigation.

In 2004, frustrated river advocates, including Rivers Alliance, Nature Conservancy, and Trout Unlimited began a campaign to persuade the legislature and the agencies -- primarily the Departments of Environmental Protection (DEP) and the Department of Public Health (DPH) -- to support a law to protect streamflows. Newly appointed DEP Commissioner Gina McCarthy took the lead. Water utilities manifested a willingness to negotiate.

In 2005, with agreement from all major stakeholders, the legislature unanimously (!) passed An Act Concerning the Minimum Water Flow Regulations. From 2005 to the end of 2011, extremely difficult bargaining and politicking led finally to the regulation now in place.

These are its good features:

- It affirms the public trust in water, which requires a balance between water consumption and water conservation.
- It applies to all watercourses.
- It applies to all major water-supply reservoirs.
- It requires variable flows based upon the seasonal flows that are natural to streams.
- It creates a classification system for river segments, from high-quality water flows (Class 1) to poor-quality water flows (Class 4), thus enabling long-term planning.
- It sets a goal of 75% natural flow for high-quality (Class 2) rivers and fairly protective, variable releases for segments below water-supply reservoirs.
- It guarantees that water supplies will be adequate for public health and economic wellbeing.
- It is flexible, taking into account special needs in times of drought and special conditions faced by individual utilities.
- It provides for public participation in river classification and planning.

These are its weaknesses:

- It does not regulate groundwater diversion, that is, wellfield pumping that draws down streams. The potential for stream impairment or destruction by pumping is high, as witness the extreme damage to the Fenton River at the University of Connecticut in 2005. Lawmakers were clear that they would not pass the regulation if it included groundwater, but several pledged to work to introduce a regulation on groundwater as soon as possible.
- There are a number of significant exemptions, including agriculture and golf courses.
- The timeline for compliance is very long, possibly five years for classification, ten years for compliance, with extensions readily available.
- The regulation is complicated and will be difficult to monitor.

The regulation was rejected three times in 2010-2011 by the General Assembly's Regulation Review Committee before finally passing unanimously in November 2011. Negotiations were intense throughout 2011, managed by Betsey Wingfield of the new Department of Energy and Environmental Protection

streamflow, continued on page 12

streamflow, continued from page 11
(DEEP). Participants included representatives from DPH, Connecticut Water Works Association, Aquarion Water Company, Connecticut Water Company, South Central Connecticut Regional Water Authority, Wallingford Water Department, Connecticut Business and Industry Association, Rivers Alliance of Connecticut, Housatonic Valley Association, Nature Conservancy, and Connecticut Fund for the Environment.

Invigorated by weekly supplies of homemade cakes and other sweets, the participants reached consensus on the following knotty issues (put in bullet and sub-bullet form by DEEP).

- Definitions, including adequate margin of safety (MOS), releases, and outlet structures;
- Exemption provisions including golf courses, small watersheds that naturally yield little water and certain man-made conveyances;
- Release rule criteria and considerations for Class 4 stream segments;
- Classification certainty for existing public water supply diversions, added consideration for classification of potential future water supplies, expanded consultation with other state agencies (including the Department of Economic and Community Development), and additional criteria considering economic impacts, ecological benefits, and adequate MOS as considerations in finalizing classifications;
- Protection of MOS of water utilities while moving long term to full release by:
  - A tiered reduction of releases, with conditions, to provide relief to water utilities that would be left with an inadequate supply to meet current demands, including a self implementing 50% reduction and a greater than 50% reduction subject to implementing an approved plan;
  - Flexibility to reduce releases by 15% during a dry spring in order to maintain reservoir storage for water supply and summer releases;
  - Opportunity for extension of time to comply with release rules;
  - Opportunity to obtain renewable variances to address temporary hardships;
  - Opportunity for customized release requirements through site specific release plans; and
- Simplified reporting requirements including added flexibility and alternative methods.

The regulation and its history can be viewed at the DEEP website. Do a search on DEEP and then "streamflow regulation."

The price of making this work will be eternal vigilance, but the reward will be a unique state water management plan that includes an allocation for the environment. Streamflow protection has been the top priority for Rivers Alliance since 2002, and we are delighted to have something to be vigilant about.

Next step: rules for wellfields!

Margaret Miner, Rivers Alliance of Connecticut, December 2011

Vernon, continued from page 2
effective method for subsequent removal of that species and of fanwort if it also recurs.

Volunteer Program

Based on concern about the potential exclusion of fish habitat resulting from the proliferation of non-native plants, the Conservation Commission organized a volunteer survey in the summer of 2010 to determine whether milfoil and/or fanwort had become established within the mainstem of Tankerhoosen River. Requests for volunteers were issued through local newspapers, the Town website and Community Access television, and in related public meetings. Riparian owners were notified by mail of the planned activities.

The river was divided into four segments extending from Walker Reservoir East downstream to Tankerhoosen Pond. River segments ranged from 0.50 to 1.26 miles in length, and were delimited by road crossings at which volunteers' vehicles could be parked or spotted.

On July 24, 2010, following field training by lake management specialist Mieke Schuyler, field assistant to Dr. Knoecklein, a total of 17 volunteers in four teams surveyed assigned river segments. Volunteers used as reference, *Connecticut's Invasive Aquatic and Wetland Plants Identification Guide* (Connecticut Agricultural Experiment Station (CAES), 2010). Participants walked along the stream banks, entering the water to collect and document the locations of observed vegetation. Surveys were completed for two Tankerhoosen River segments and for Railroad Brook, totaling a length of 3.16 miles. Failure to complete the river survey was due to the difficulty of transiting dense streambank vegetation. Volunteers confirmed the presence of milfoil and fanwort below the Walker Reservoir East outlet, but found no other specimens in the river. Reinspection and removal if necessary of the milfoil and fanwort below the dam will be conducted in 2012.

The Conservation Commission expanded its volunteer program in 2011 to survey small ponds located on tributaries of the Tankerhoosen and Hockanum Rivers that had not been inspected in professional surveys, and that could potentially harbor invasive plants which, if discharged downstream, could threaten riverine habitat. Vernon's GIS specialist Aaron Nash and volunteer George Arthur identified 53 such ponds, ranging in size from 0.02 to 1.78 acres. Twenty-four small ponds are

Vernon, continued on page 14

Vernon, continued from page 13
located in the Hockanum River watershed and 29 are in the Tankerhoosen River subwatershed.

The small ponds were prioritized for inspection according to their potential for affecting river habitat, and to make the most effective use of volunteers' time and efforts. Highest priority was assigned to impoundments either on the mainstems of the Tankerhoosen and Hockanum Rivers or directly connected to them by open channels or culverts, and to impoundments on primary tributaries within 0.5 miles of the either river. Moderate priority was assigned to impoundments on or directly connected to primary tributaries, but located more than 0.5 miles from the mainstems. Stream miles were determined using the GIS measuring tool. Of lowest priority were impoundments on or directly connected to secondary or lesser-order tributaries, and self contained waterbodies.

The Conservation Commission's initial goal in 2011 was to inspect all high- priority ponds in Vernon. However, it was subsequently decided to separate the effort and to conduct a broader assessment of continuing threats to the Tankerhoosen River watershed rather than surveying ponds in the Hockanum River watershed before it is known whether, or to what extent, the Hockanum River was already infested with invasive plants. To support this approach, Dr. Knoecklein's 2011 survey was designed to include an upstream reach of the Hockanum River early in the field season. Results in fact showed the presence of variable leaf milfoil and curly-leaf pondweed *(Potomogeton crispus)* in the river in the vicinity of the Vernon Water Pollution Treatment Facility.

Volunteers sampling for invasive aquatic plants. Photo credit: Thomas Ouellette

Eleven high- and moderate-priority small ponds were identified in the Tankerhoosen River watershed, including 4 State-owned and 7 privately-owned ponds. Access was approved for 5 private ponds and 2 public ponds. Those 7 ponds were surveyed over the course of four weekends in August and September by a total of thirteen volunteers. In addition to the ponds, 0.65 additional miles of the Tankerhoosen River were inspected, continuing the 2010 river survey. Volunteer training was again conducted prior to the surveys. Pond surveys consisted of the inspection of aquatic plants that could be reached from shore or by careful wading. A canoe was used to inspect one pond. Volunteers again used the CAES field guide. Volunteer identification of specimens collected from the ponds and the river was confirmed by Dr. Knoecklein. No non-native invasive species were found in any of the ponds or in the additional river segments surveyed.

Volunteer efforts in future years will include inspection of the remaining limited number of high-priority ponds in the Tankerhoosen River watershed and the remaining river reaches. A parallel goal will be to inspect the mainstem of the Hockanum River in Vernon to ascertain whether the variable leaf milfoil and curly-leaf pondweed observed in 2011, or other non-native invasive species, are present elsewhere in the river. Based on those observations, it will then be determined whether a benefit is to be gained toward protection of the Hockanum River by inspection of small ponds in the Hockanum watershed. A planned survey of Papermill Pond, an impoundment on the Hockanum River near its headwaters in Rockville, was deferred in 2011. Completion of that inspection may help to determine the source of the milfoil and pondweed found in the river.

It must be noted that a separate but equally important component of Vernon's town-wide program is the continuing assessment of invasive aquatic plants in the Bolton Lakes. The lakes are the largest water bodies in Vernon, draining to the Willimantic River watershed. Inspections conducted at intervals by the Connecticut Agricultural Experiment Station (CAES) and by Dr. Knoecklein have shown the presence of very limited shoreline concentrations of variable leaf milfoil and brittle waternymph *(Najas minor)*. Results of the most recent CAES Lower Bolton Lake survey are pending. Winter drawdowns of various depths have been conducted annually in Middle Bolton Lake for many years to control the growth of variable leaf milfoil there.

Vernon, continued on page 15

Vernon, continued from page 14

In summary, Vernon's joint professional and volunteer programs have enabled a comprehensive, community-wide approach to management of non-native invasive aquatic plants. The Conservation Commission's volunteer surveys were conducted in a logical sequence to sustain volunteer interest and meet realistic goals. Survey goals were prioritized according to the most urgently-needed information, so as to determine the potential impacts of no-action alternatives. The Parks and Recreation Department was an invaluable partner in bringing these issues to the attention of the public and to the Town Council, and in securing successive annual appropriations for professional studies and for volunteer training.

Photos title: Volunteers sampling for invasive aquatic plants. Photo credit: Thomas Ouellette

Vernon's program is a work in progress, meeting and furthering the goals of both the Town's recently-updated Plan of Conservation and Development and the comprehensive Tankerhoosen River Watershed Management Plan. The results to date in the Tankerhoosen River watershed have been largely positive. We must nevertheless continue both the professional and volunteer efforts described above, even as we shift our focus to conditions in the Hockanum River watershed. Ongoing monitoring will best insure that both remaining and newly identified invasive aquatic plant problems may be treated in the most timely, cost-effective and environmentally responsible manner. For more information please contact Tom Ouellette via email at tom.r.ouellette@gmail.com

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ANNOUNCING THE CT DEEP MUNICIPAL INLAND WETLANDS COMMISSIONERS TRAINING PROGRAM: SEGMENT 1 ON-LINE COURSE

Segment 1 of DEEP's Municipal Inland Wetland Commissioners Training Program is tailored for new agency members and provides an overview of the Connecticut Inland Wetlands and Watercourses Act, the responsibilities of municipal inland wetlands agencies, a review of the functions and values of wetland and watercourse resources, a lesson on map reading and site plan review, and much more.

This new Segment 1 online training opportunity is comprised of ten modules and provides the same informational content as the day-long, face-to-face workshop. The online format is self-paced; participants may start the course at any time during the calendar year and proceed through the materials in a manner that is convenient for their schedule.

An official announcement of the Segment 1 online course, including registration information for both the online and workshop options, will be provided in a program brochure that will be mailed to all municipal inland wetlands agencies in mid-February. To obtain additional Municipal Inland Wetland Commissioners Training Program information, or to register for the any aspect of the training program, see: http://continuingstudies.uconn.edu/professional/dep/wetlands.html. Information can also be obtained by contacting the DEEP's Wetlands Management Section at (860) 424-3019.

Errata: Fall 2011 issue (Vol.23, No.3), Pgs. 10 (inset) and 13 (last paragraph); "...authorization by the Corps does supersede any other agencies' jurisdiction and does take the place of all other permits required by law." **Should read, "...authorization by the Corps does NOT supersede any other agencies' jurisdiction and does not take the place of all other permits required by law."**

January/February 2012

Connecticut Wildlife

CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
BUREAU OF NATURAL RESOURCES
DIVISIONS OF WILDLIFE, INLAND & MARINE FISHERIES, AND FORESTRY

From the Director's Desk

Celebrating 75 Years of Partnership for American Wildlife

On September 2, 1937, with the country still reeling from an economic crash, President Franklin D. Roosevelt signed the Pittman-Robertson Wildlife Restoration Act into law. The bill, co-sponsored by Senator Key Pittman of Nevada and Congressman A. Willis Robertson of Virginia, catalyzed a radical transformation in wildlife conservation across the nation, by diverting an excise tax on sporting guns and ammunition to fund future wildlife restoration. This Act fostered partnerships between federal and state fish and wildlife agencies, the sporting arms industry, conservation groups, and sportsmen and sportswomen to benefit wildlife, and has been key to implementing the North American Model of Wildlife Conservation.

In 1950, the Dingell-Johnson Sport Fish Restoration Act was signed into law. Together, the Wildlife and Sport Fish Restoration Programs have contributed more than $14 billion to fish and wildlife conservation in the United States — more than any other single conservation effort.

In 2012, we proudly observe 75 years of the Wildlife and Sport Fish Restoration programs and the success of working through partnerships to conserve and manage fish and wildlife and their habitats for the use and enjoyment of current and future generations. With your support, the Wildlife and Sport Fish Restoration programs will continue to conserve habitat for fish and wildlife, and recreational opportunities for anglers, boaters, hunters, and shooters for the future. By purchasing your license you are contributing to this important work and we thank you.

Rick Jacobson, Director, Wildlife Division

Cover:

Sometimes known by the descriptive but unflattering name of "skunkhead," the surf scoter is the largest of the three scoter species that inhabit the waters of Long Island Sound during winter. To learn more, see page 12.

Photo courtesy of Paul J. Fusco

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The Federal Aid in Wildlife Restoration Program was initiated by sportsmen and conservationists to provide states with funding for wildlife management and research programs, habitat acquisition, wildlife management area development, and hunter education programs. Connecticut Wildlife contains articles reporting on Wildlife Division projects funded entirely or in part with federal aid monies.

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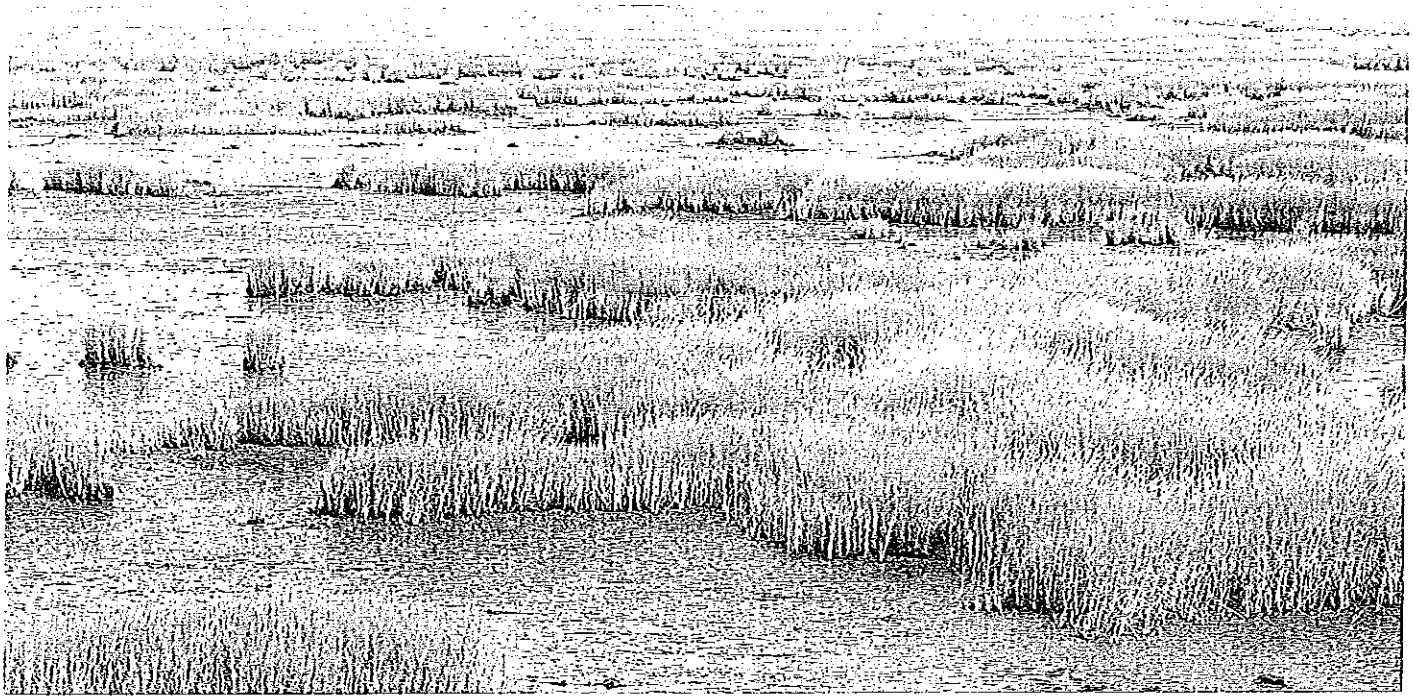
Celebrating 75 Years of Partnership for American Wildlife

In the mid-1930s, at a time when Congress was in the process of abolishing excise taxes on some goods, sportsmen groups and other conservationists saw an opportunity to use the excise tax on guns and ammunition to fund wildlife restoration projects. Ammunition companies supported the proposal, and Carl Shoemaker, former chief of the Oregon Department of Fish and Game, drafted the legislation. Shoemaker enlisted the support of Senator Key Pittman of Nevada to introduce the bill in the Senate, and approached Congressman A. Willis Robertson for support in the House of Representatives. The Pittman-Robertson (P-R) Federal Aid to Wildlife Restoration Act sailed through Congress. President Franklin D. Roosevelt signed the bill into law on September 2, 1937, turning a deaf ear to protests that earmarking funds from excise taxes was not in the country's best interest. Today, on its 75th anniversary, the program has proved without a doubt that it has been in the very best interest of the country.

From the outset, P-R projects included improvement of wildlife habitat, wildlife research, and the purchase of land for wildlife restoration. The P-R program also gave birth to scientific wildlife management in this country. It has turned into one of the most successful federal-state-conservationist-sportsmen partnerships in history.

Following the success of the P-R Program, sportsmen and other conservationists sought to establish a stable and secure mechanism to fund the restoration of America's fisheries. In 1950, the United States established a Federal Aid in Sport Fish Restoration Act that generates funding for fisheries research, habitat restoration, recreational boating access, construction of fish hatcheries, and aquatic education.

Sportsmen have contributed more than $14 billion to conservation through license revenues and the Wildlife and Sport Fish Restoration (WSFR) Programs, annually providing more than 80% of the funding for most state fish and wildlife agencies. For 75 years, WSFR has been driving the restoration and management of our fish and wildlife resources. It has been justly called the most successful conservation management program in the world. America's hunters, shooters, anglers, and boaters should be proud that they have held the program on their shoulders for 75 years.



P.J. FUSCO

With the help of Pittman-Robertson funding, Connecticut has been able to acquire thousands of acres of conservation land, including key wetlands along Long Island Sound and the Connecticut River.

Senator Key Pittman

Representative
A. Willis Robertson

President
Franklin D. Roosevelt

The Wildlife & Sportfish Restoration Program is celebrating its 75th anniversary in 2012. *Connecticut Wildlife* will highlight the accomplishments of this extremely successful program throughout the year. Go to www.wsfr75.com and www.ct.gov/deep/wildlife to learn more.

Migratory Game Bird Management Throughout the Years

Written by Min T. Huang, DEEP Wildlife Division

The Pittman-Robertson (P-R) Program is truly a success story of monumental proportion. The Program, initiated in 1937 at the behest of sportsmen, provides funding to protect critical habitats and conduct needed research and management activities throughout the United States, benefiting a myriad of species, including hunted and non-hunted species.

The P-R Program gave birth to scientific wildlife management in this country. The influx of a stable source of funding for wildlife management transitioned the management of wildlife from a game-oriented emphasis to the more encompassing discipline that it is now. Stable funding made it possible to focus not only on habitat acquisition, but on key research that would better inform management. The Program focuses on "can-do" projects that have provided critical information for guiding sound management of all wildlife species.

The P-R Program has also made partnering with sportsmen's groups, like the National Wild Turkey Federation and Ducks Unlimited, a priority. These partnerships provide matching funds and support for research projects which embody the North American Conservation Model's philosophy of public responsibility and ownership for wildlife. Beyond the foundation of the public trust doctrine for wildlife, the North American Model is based on the concept of a user pay system for conservation. Under the P-R Program, this model has worked well for game bird species – a vast majority of the migratory game birds in North America are doing well and are above stated population goals. This is an unprecedented success story. It is because hunters have provided the funding and political influence to make migratory game birds and their habitats a conservation priority that most of these populations are doing well. The P-R Program has provided funding for habitat acquisition and, just as importantly, targeted research that provides information for managing migratory game birds.

Focusing on Woodcock

One important P-R funded project in Connecticut that focused on migratory game birds was the woodcock habitat use and survival project, which was initiated by the Wildlife Division in 2005. This project embodied all of the positive aspects of both the P-R Program and the North American Conservation Model. The project was funded by the P-R Program and through partnerships with sportsman's groups and others who were concerned about the well-being of American woodcock.

The study looked at habitat use and survival of woodcock. Study sites were either excellent quality (large, contiguous blocks specifically managed for young forest habitat) or lower quality (disjunct, patchy, suburban interface). Researchers hypothesized that survival rates and habitat use would differ between woodcock inhabiting large, high quality blocks of habitat and those found in more patchy, fragmented, lower quality habitats.

Over the course of a three-year period, it was found that habitat quality and quantity are largely governing survival rates of male woodcock in Connecticut. Higher quality habitats in the study were characterized by higher standing basal area, fewer stems per acre, and fewer and larger openings than lower quality sites. This is a bit contrary to what was expected going into the study. Woodcock in Connecticut primarily seem to be using forest stands that are more mature than was thought. Researchers in the Mississippi Flyway found that migrating woodcock used mature forests more than expected. In both cases, this was likely a function of availability. Quantity of woodcock habitat in Connecticut is lacking, as demonstrated by the large home ranges used by Connecticut birds.

It seems clear from our research that the fragmentation of young forest habitat in Connecticut serves as an ecological sink. In low quality sites, which represented most of the existing woodcock habitat in the state, survival rates in two of three years were lower than would be

What is the North American Model of Wildlife Conservation?

The North American Model of Wildlife Conservation is the world's most successful system of policies and laws to restore and safeguard fish and wildlife and their habitats through sound science and active management.

Hunting and angling are the cornerstones of the North American Model with sportsmen and women serving as the foremost funders of conservation. These activities continue to be the primary source of funding for conservation efforts in North America. Through a 10% to 12% excise tax on hunting, angling, and shooting sports equipment, hunters and anglers have generated more than $14 billion toward wildlife conservation since 1937.

How does the model work? The excise taxes, combined with a tax on motorboat fuels, are collected by the federal government and distributed to each state's fish and wildlife agency. State fish and wildlife agencies then combine these funds with monies collected through the sale of hunting and fishing licenses to conserve, manage, and enhance fish and wildlife and their habitats and to create fish and wildlife recreational and educational opportunities.

Although sportsmen-funded conservation efforts have focused on wildlife that is legally hunted and fished, the emphasis of the management is on restoring and conserving habitats that benefit a wide range of fish and wildlife, including non-hunted species. This also benefits everyone who enjoys nature. Regardless of whether one chooses to actively participate in hunting or angling, it is important that people interested in wildlife and its future understand the conservation role sportsmen play.

Currently, there are no alternative, dedicated funding systems in place (beyond excise taxes and license fees) to help support fish and wildlife conservation. Without the most traditional outdoor users' contributions or new funding streams, America's conservation legacy could be in peril. Go to www.wsfr75.com to learn more about the North American Model of Wildlife Conservation.

required for population maintenance and growth. Differences between size of core use areas and the corresponding higher survival rates that were detected in birds using high quality sites were indicative of the influence that habitat across the landscape has on these birds. Although we were unable to fully assess nesting success and female survival, the low survival rates of males and the downward trend in statewide surveys indicate that the current habitat condition in most of Connecticut is unlikely to result in a positive growth rate for woodcock in the state.

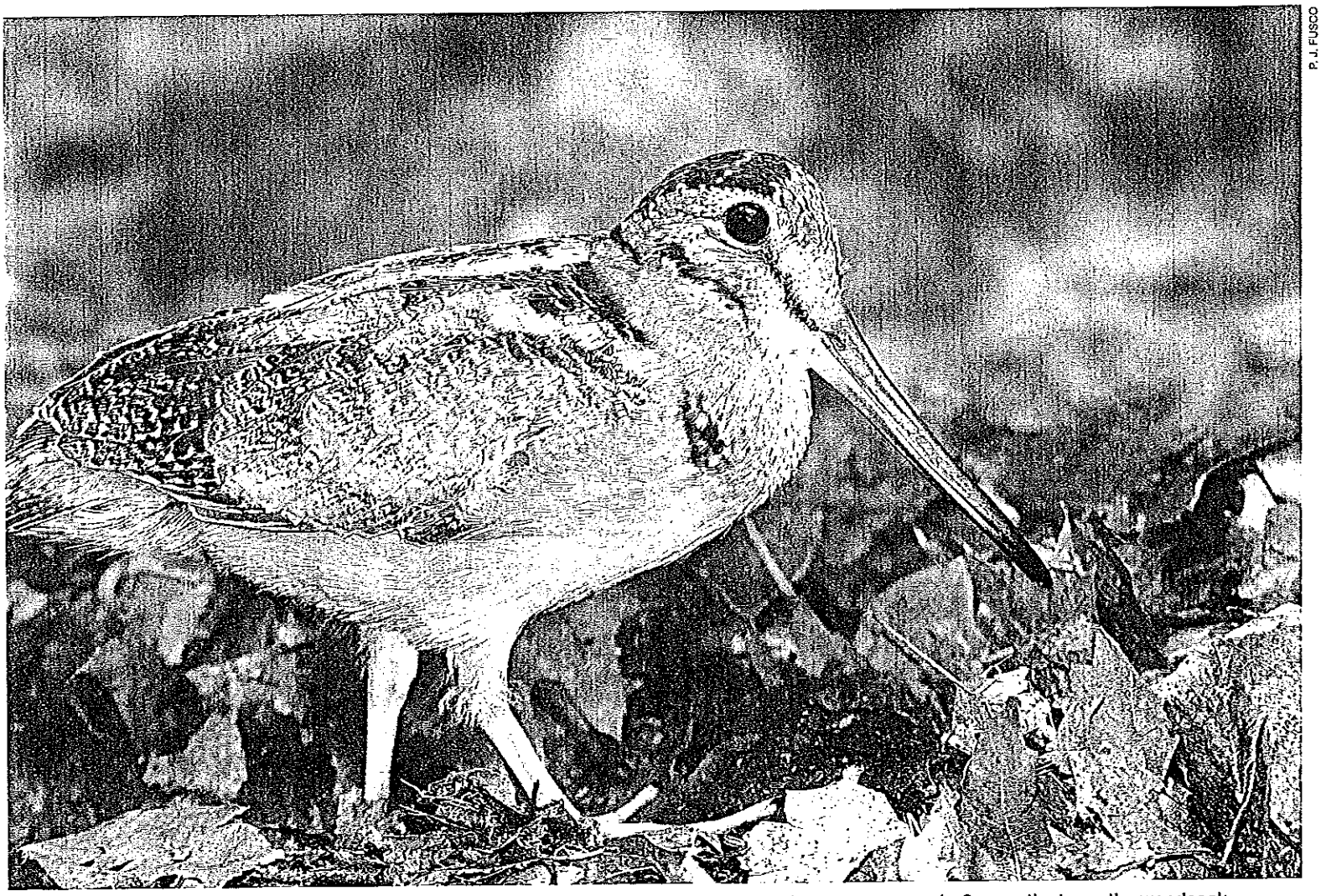
Applying Lessons Learned

This work has led to changes in the way land management is conducted for woodcock and other avian species that rely on young forest habitat. The traditional mantra that numerous small openings within a matrix of younger-aged forest stands represent the most beneficial management for woodcock may not apply to urbanized states like Connecticut. This work also indicated that woodcock habitats containing fewer, larger-sized openings result in higher survival rates for birds than habitats containing more smaller-sized openings. This has had a profound effect on how habitat projects for woodcock and other obligate young forest habitat species are conducted.

The Wildlife Division has already been applying the lessons learned from this study to on-the-ground habitat work. For example, we are no longer clearcutting small areas to create young forest or shrubland habitat. Recent habitat work for shrubland species has involved large scale habitat manipulation, on the order of 20- to 25-acre cuts. These cuts should result in an increase in nest survival for all of the bird species using the areas. The cuts are also benefitting New England cottontails.

Looking to the Future

Historically, hunters have borne the cost of the P-R Program ostensibly for the perpetuation of hunted species and the habitats they require. As an intended, but often overlooked bonus, non-hunted species have also benefitted from this stable source of funding. Whenever we are enjoying wildlife and natural places, we should be thanking hunters and anglers for their continual contributions towards conservation. Furthermore, now is the time to develop and implement a program similar to the P-R Program where all wildlife enthusiasts can contribute to projects that benefit non-hunted species. Whether this program is federally-based or legislated through state government, it is critically needed if we are to perpetuate the natural world for future generations to enjoy.



P. J. FUSCO

One important migratory gamebird project that received funding from the Pittman-Robertson program in Connecticut was the woodcock habitat use and survival project, which was initiated by the Wildlife Division in 2005.

CT's Role in Restoring the New England Cottontail

Written by Paul Rothbart, DEEP Wildlife Division

The New England cottontail is listed as a priority species in Connecticut's Comprehensive Wildlife Conservation Strategy and is one of nine spotlight species within the U.S. Fish and Wildlife Service (USFWS) Region 5 area. It also has been designated as a candidate for threatened or endangered status by the USFWS. The species has experienced an 86% decline in its historic range and, within these areas, 60% of occupied habitats are considered population sinks. The New England cottontail is the only rabbit native to Connecticut, and its population continues to be jeopardized by human disturbance, habitat fragmentation, and natural plant succession.

State, federal, and non-governmental wildlife organizations have implemented a region-wide effort to study New England cottontails and restore their habitat. Suitable habitat can be targeted and managed with rapid benefit to the rabbit, along with 46 other greatest conservation need species.

Initial Restoration Grant

The Wildlife Division has been surveying the distribution patterns of New England cottontails since 2000 and has been actively engaged in recovery efforts since 2009. The Division obtained a USFWS grant in 2009, in conjunction with New Hampshire, Massachusetts, New York, and Maine, that targets regional efforts, including habitat management, research/monitoring, and outreach, to preclude federal listing of the species. Under this grant, Connecticut committed to restoring/enhancing a minimum of 150 acres of habitat on state-owned lands; conducting pre-management habitat assessment surveys; and continuing ongoing New England cottontail distribution surveys. Such management will provide secure critical habitat, as well as demonstration areas that can be used to educate private landowners and engage them in future habitat activities. Connecticut's land is 90% privately owned and participation by private landowners is essential if restoration efforts are to be truly successful over the long-term. The restoration initiative has grown into a multi-agency effort led by several state wildlife agencies, the USFWS, Natural Resources Conservation Service (NRCS), and Wildlife Management Institute.

Specific habitat practices are being conducted to create early successional young forest/shrubland sites that are ideally 25 acres in size, along with dense thickets consisting of 20,000 stems per acre, all within one mile of other suitable habitat. The practices include forest clearings, shrub and tree plantings, and associated non-native invasive plant control.

The properties selected for restoration through the 2009 grant met a variety of screening criteria, including proximity to recent or historic New England cottontail locations, soil types, wetlands, and proximity to other conservation lands. The screening process led to the development of 12 Focus Areas throughout the state that have specific New England cottontail habitat (24,000 acres) and population (12,000) goals. These designations are valuable tools in setting management priorities that are necessary for conducting activities in a systematic and cost-effective manner over the long-term period of this initiative.

Second Restoration Grant

In 2011, Connecticut partnered with Massachusetts, New Hampshire, and the Wildlife Management Institute in another successful USFWS grant application. The Wildlife Division was awarded funds to 1) enhance 150 acres of New England cottontail habitat on state-owned lands; 2) monitor vegetation and New England cottontail population response to management treatments; 3) continue ongoing distribution surveys; 4) participate in regional planning/coordination efforts; and 5) participate in a newly established breeding population project at Roger Williams Zoo in Rhode Island.

The process of selecting sites and conducting inventories and surveys associated with these potential new projects are currently underway. Preliminary site reviews have resulted in the selection of eight state-owned parcels: Spignesi Wildlife Management Area (WMA; Scotland), Bear Hill WMA (Bozrah), Pease Brook WMA (Lebanon), Bartlett Brook WMA (Lebanon), Sessions Woods WMA (Burlington), Roraback WMA (Harwinton), Camp Columbia State Forest, and Pachaug State Forest. These potential project sites total 437 acres, with individual projects ranging in size from four acres to 128 acres. Treatments and monitoring activities will remain consistent with those carried out under the first grant (i.e., creation of young forest habitat approximately 25 acres in size, non-native invasive plant control, and monitoring the response of vegetation and the New England cottontail population).

Engaging Private Landowners

Actively engaging private landowners in this recovery effort is essential if it is to be successful. Although the Wildlife Division's Landowner Incentive Program has been conducting habitat management on private lands for the past several years, projects were not specific to New England cottontails, and unfortunately funding has not been allocated for the

Habitat Restoration Funded by 2009 Grant on 184 Acres of State-owned Lands

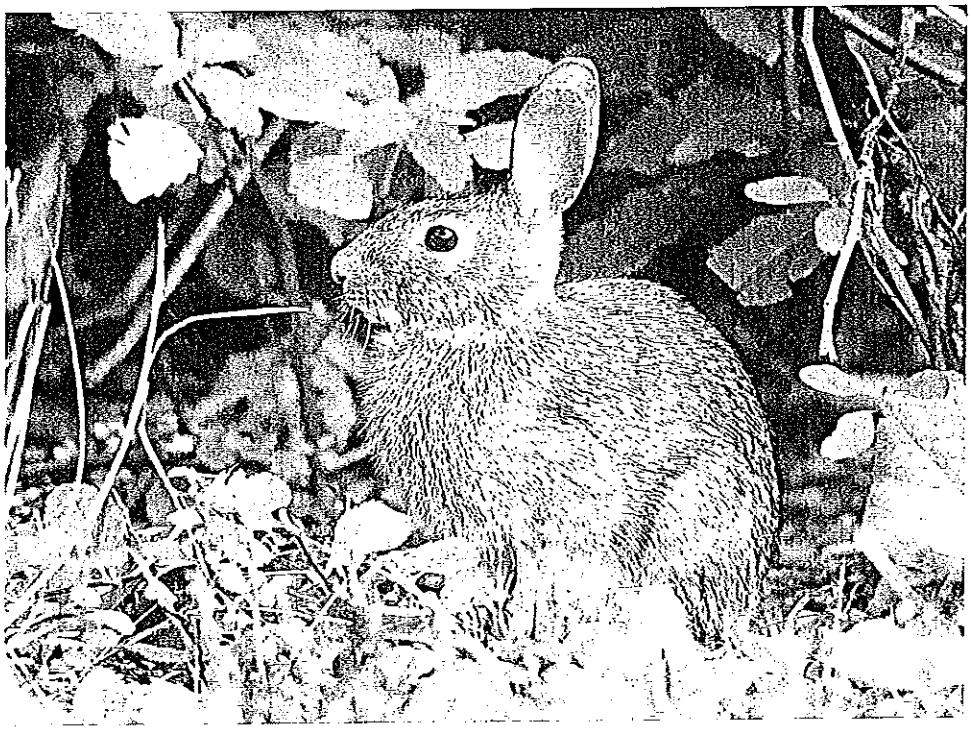
Parcel	Town	Habitat	Treatment	Acres	Completed
Roraback 1	Harwinton	Sawtimber mixed hardwoods	Commercial clearcut	24.17	Feb. 2011
Roraback 2	Harwinton	Mixed hardwoods/old fields	Non-commercial clearcut	27.73	Feb. 2011
Housatonic 1	Kent	Aspen/mixed hardwoods	Commercial clearcut	33.73	March 2011
Housatonic 2	Kent	Old field/invasives	Brontosaurus/mowing	24.24	March 2011
Goshen 1	Goshen	Mixed hardwood sawtimber	Commercial clearcut	57	Scheduled Jan. 2012
Goshen 2	Goshen	Hardwood pole	Brontosaurus/feller buncher	13	March 2011
Camp Columbia	Morris	Hardwood pole stand	Brontosaurus/tree sheer	4	March 2011

program to continue. Recently, the Division, in partnership with the Wildlife Management Institute, received a third related grant from the National Fish and Wildlife Foundation. This award, entitled "Connecticut Shrubland Habitat Technical Assistance Program," has provided funding to hire one licensed forester and one wildlife resource specialist to work with private landowners on New England cottontail and other early successional habitat efforts.

Program staff is committed to: 1) creating and enhancing 200 acres of habitat over a two-year period; 2) developing forestry and wildlife plans required by the NRCS to facilitate habitat projects funded through Farm Bill programs, such as the Wildlife Habitat Incentives Program (WHIP), Environmental Quality Incentives Program (EQIP), and Wetlands Reserve Program (WRP); 3) conducting workshops and other outreach programs to develop a knowledgeable and engaged group of private landowners; and 4) tracking measurable results.

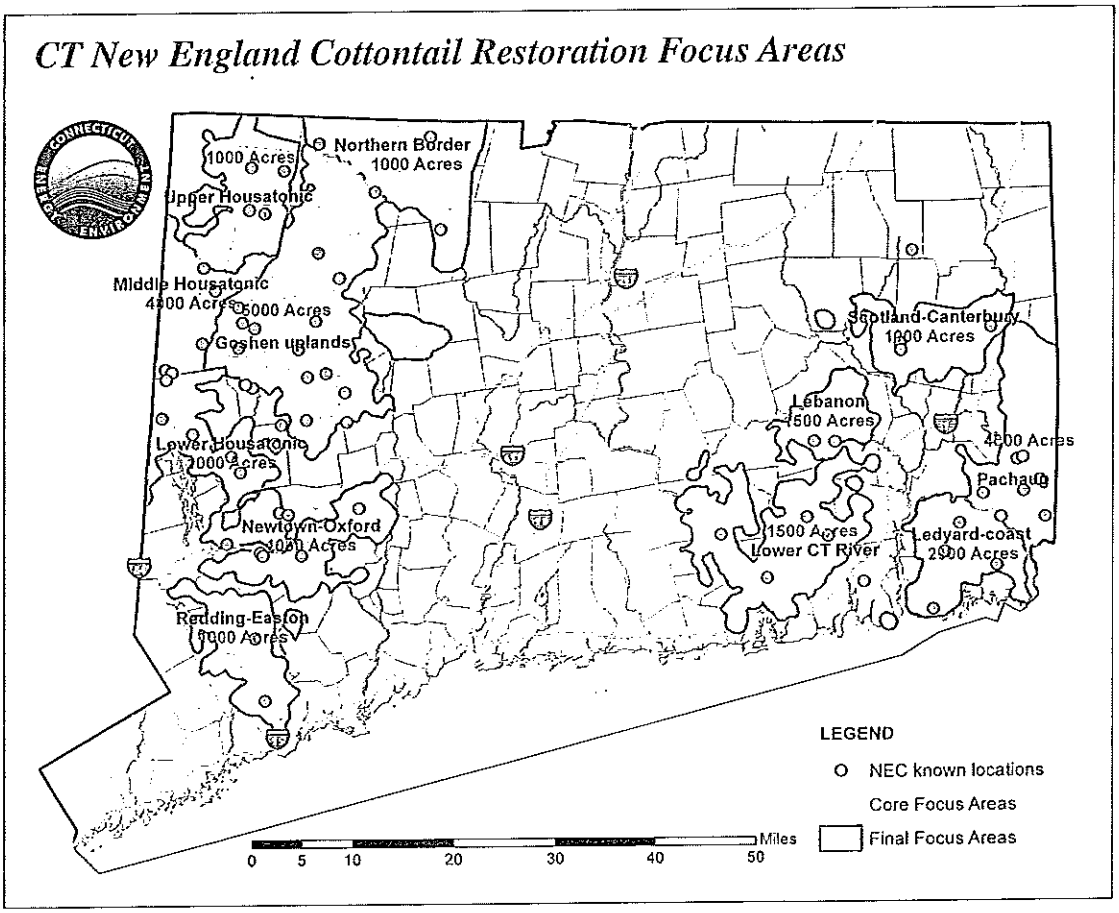
Efforts have been progressing well since the program officially began in August 2011. Staff has conducted two outreach workshops, made several presentations to sportsmen's organizations, provided technical assistance to the NRCS, initiated four private land projects totaling 110 acres, and assisted in the development of regional management guidelines that will serve as Best Management Practices.

Connecticut is a critical player in the region-wide New England cottontail recovery initiative. Over a decade of work by Wildlife Division biologist Howard Kilpatrick and his staff has documented that the state is a relative stronghold for the remaining populations of New England cottontails throughout the six state range (Connecticut, Rhode Island, New York, Massachusetts, New Hampshire, and Maine). New England cottontails are known to occur in over 40 Connecticut towns, and through continued region-wide efforts to manage habitats and research rabbit populations, it is anticipated that the New England cottontail can be kept off the list of threatened and endangered species.



P. J. FUSCO

Two cottontail species occur in Connecticut: the eastern cottontail is an introduced species while the New England cottontail is the only native rabbit.



One Fish, Two Fish: How Do You Know How Many There Are?

Written by Penny Howell, DEEP Marine Fisheries Division

One of the first tasks given to fisheries biologists is to keep track of the numbers of fish, crabs, and other animals living in the state's waters, especially those that are favorites of sport anglers and commercial harvesters. In fact, recreational and commercial catches are one of the ways that biologists estimate the abundance of popular species. However, because there are many reasons why these catches can vary, a more dependable method is needed to measure fish abundance and health.

K. SPRANKLE, U.S. FISH & WILDLIFE SERVICE (2)

A Passive Integrated Transponder (PIT) tag, similar to those used by people to 'mark' their pets, is implanted in an American shad by U.S. Fish and Wildlife Service biologists during the fish's annual migration up the Connecticut River to spawn. 'Marked' shad are detected as they swim through the lift elevator at the Holyoke Dam. This information is used to estimate what percentage of the population successfully reaches habitat above the dam.

Marked vs.. Unmarked

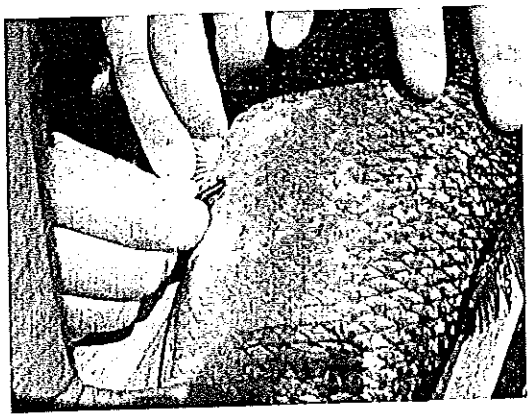
The problem is much like the proverbial jar of jellybeans that you have to look at and guess how many are in the jar. Only, in this case you can't see very far into the jar! However, you can get an estimate of the total if you take out some of the jellybeans – or net out some fish – mark them so you can distinguish them from the rest, put them back into the jar and mix them around, and then take out a second sample and see how many have marks. The ratio of marked to unmarked jellybeans in the second sample multiplied by the total number originally marked is an estimate of the total in the jar. If you do this many times, the average value is a better estimate of the total. In addition to abundance trends, marking programs also shed light on migration patterns, growth schedules, and spawning cycles, as well as occurrences of disease and injury.

Biologists have devised many marking techniques so that the tags will not harm the animal while still being visible with all the necessary information, in some cases for many years.

Connecticut Projects

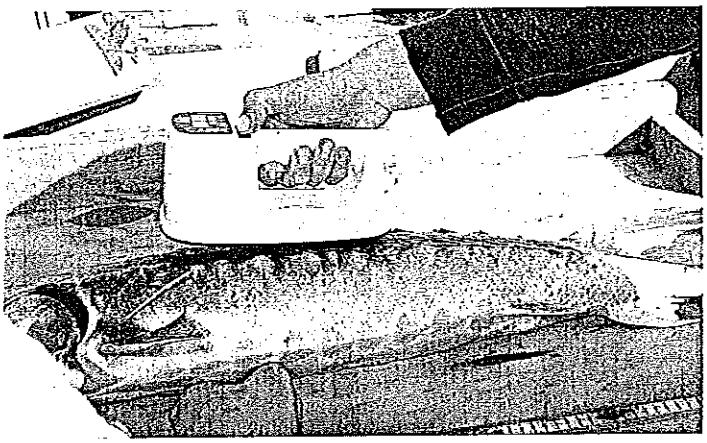
DEEP Marine and Inland Fisheries Division staff have carried out several marking programs, and have often asked for the public's help in releasing and then reporting recapture of the marked fish they catch. So, if you catch a tagged fish or see a tagged crab on the beach, report the tag information to the DEEP Marine or Inland Fisheries Divisions and help keep that species healthy and abundant.

One vital program is a long-term tagging study of the endangered shortnosed sturgeon in the Connecticut River (see the March/April 2011 issue of *Connecticut Wildlife*). Results of this program have shown that the numbers of this struggling population have increased from about 850 fish in the early 1990s to more than 1,800 by 2002.

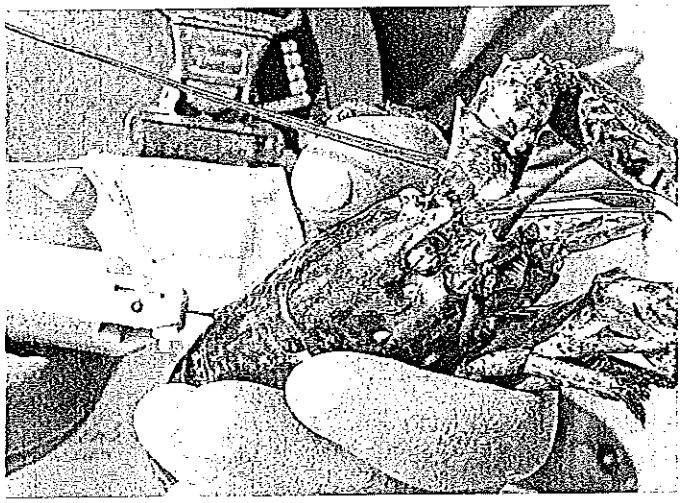


In addition to the shortnosed sturgeon program, the DEEP has undertaken or assisted with marking programs for the larger Atlantic sturgeon, Atlantic salmon, horseshoe crab, lobster, shad, white perch, striped bass, scup (porgy), and newly-hatched winter flounder. Each one of these species presented distinct challenges that required a different kind of mark or tag. For most species, an external tag attached through a peripheral part of the body works well. In the same way that people have their ears pierced for earrings, a plastic t-bar tag anchored to a dorsal fin is hardly noticed by the fish and ignored by predators because its not recognized as part of the fish. However, it is visible to anyone recapturing the animal miles away or years later. A unique number is printed on the tag, along with instructions on how to report this number with the capture date and location to the tagging agency.

Larger, wide-ranging fish, such as Atlantic sturgeon, can be 'marked' with a small internally implanted radio transmitter. The Marine Fisheries Division maintains acoustic receivers buoyed throughout Long Island Sound to record marked fish movements without the stress of repeated handling. Other state and federal agencies do the same all along the Atlantic coast. Connecticut fish have been tracked as far south as Georgia while



A small Atlantic sturgeon is tagged externally with two yellow t-bar tags and an internal transponder is being read by a hand-held receiver.



CT DEEP MARINE FISHERIES DIVISION (2)

A four-year cooperative tagging program between Marine Fisheries Division biologists and commercial lobstermen showed that lobsters in Long Island Sound have limited movement patterns and, therefore, strong local reproduction is necessary to sustain this fishery.

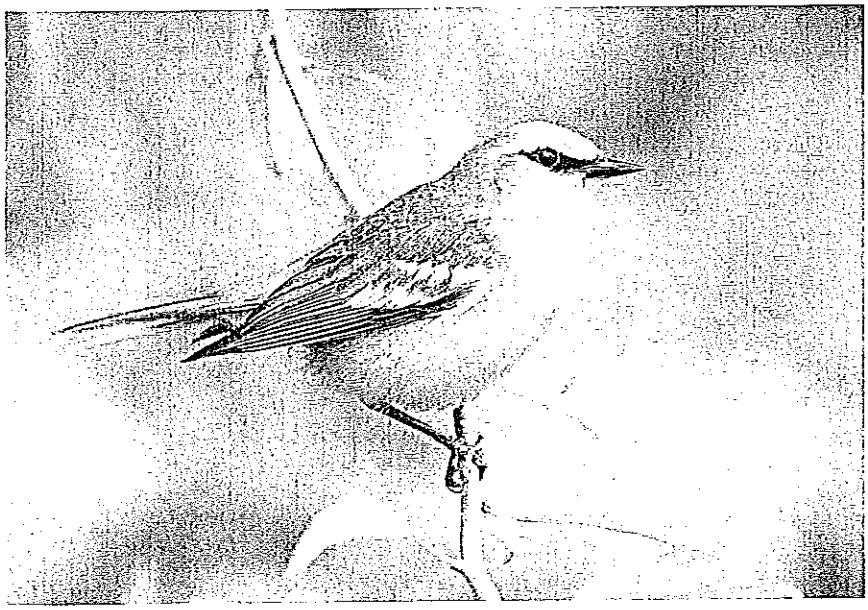
we have detected fish from many other states. The receivers are clearly marked as important research tools, but unfortunately are vulnerable to vandalism.

Some animals are too delicate or too small for tags big enough to be seen. Tiny transponders placed under a fish's skin can be detected with an electronic receiver held over the fish. In the case of newly-hatched winter flounder, a small amount of colored latex is injected just under the skin on the white (blind) underside of the animal. The color and position of the mark conveys where and when the fish was first captured. Recapture of the marked flounder by Marine Division staff shows that these young fish are abundant all summer in the harbors and embayments where they were hatched. The health of these heavily impacted areas, therefore, plays an important role in sustaining the entire winter flounder population.

Managing DEEP Lands to Support Shrubland Birds

Written by Shannon Kearney, DEEP Wildlife Division

Shrub dominated habitats and the bird species that occupy them have declined from historic levels in the northeastern United States and continue to decline rapidly as the result of forest succession, changes in timber harvest practices, disruption of natural disturbance regimes, and residential and industrial development. Because of these significant population declines, Connecticut's Comprehensive Wildlife Conservation Strategy stresses the need to conserve and increase breeding populations of early successional shrubland birds.



P. J. FUSCO

It is estimated that DEEP land management for shrubland habitat supports less than 10% of the population goal for the blue-winged warbler.

Shrublands are ephemeral, and natural disturbances can no longer be depended upon for maintenance of this habitat type. Therefore, habitat suitable for shrubland birds can be expected to persist only on actively managed properties. Unfortunately, there are no good estimates of how much suitable shrubland habitat currently exists in Connecticut and what population size this habitat supports.

Recent research by the Wildlife Division has estimated the abundance and distribution of protected shrubland habitat managed by the DEEP and the population of four regionally important shrubland birds that are supported by these managed lands. It is estimated that DEEP land management supports less than 10% of the population goal for blue-winged warbler, eastern towhee, and field sparrow, and less than 20% of the population goal for prairie warbler. Efforts are underway to understand how private land management may contribute to habitat protection for these species of conservation concern.

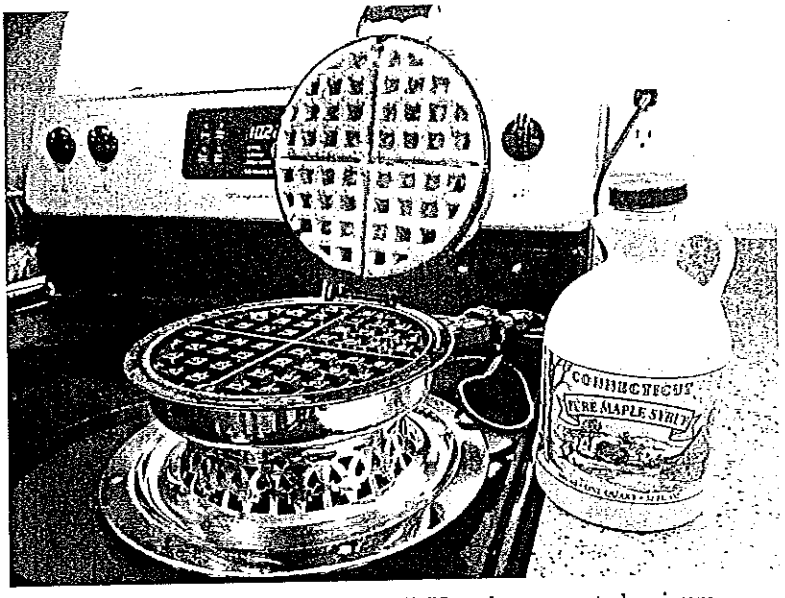
Make Your Own Maple Syrup

Article and photography by Jerry Milne, DEEP Division of Forestry

Many Connecticut families enjoy making a few gallons of maple syrup from their backyards. Nothing is more satisfying (or tasty) than sitting down to breakfast and pouring your own homemade maple syrup over hot waffles. All you need are maple trees (sugar or red maples), some specialized equipment from local maple supply dealers, basic kitchen tools, and Yankee ingenuity.

When to Tap

Sap usually begins to flow in mid- to late February in Connecticut, when daytime temperatures reach 40 degrees and nighttime lows are in the 20s. After that, sap will flow whenever daytime thaws and freezing nights occur, usually until the end of March. Each year is different – sometimes sap begins to run in late January and sometimes not until early March.



How to Tap

You should only tap trees with healthy canopies, so start looking for candidates in summer when the leaves are in full growth. Numerous dead branches or dieback in the crown indicate a declining tree that should not be tapped.

Trees should be at least 12 inches in diameter (38 inches in circumference) at chest height to receive one tap. Trees over 18 inches in diameter (56 inches in circumference) can get two taps. Do not put in more than two taps, no matter how big the tree.

New tapholes should be at least six inches to the right or left from old tapholes, and at least 12 inches above or below. A spiral or staggered pattern will spread the holes effectively.

The tap hole should be 1.5 inches deep, and slanted slightly upwards to allow the sap to flow out. Use a hammer to lightly tap the spout into the hole until snug. Don't hit too hard or you'll split the wood around the hole, injuring the tree.

Tapping, when done properly, will not hurt a healthy tree (it's similar to a person giving blood). At the end of the sugaring season, remove the taps. The hole should close within two years on a healthy tree.

(Top) Left arrow shows a closed taphole, but the spout was hammered too hard, causing the bark to split. Right arrow shows a one-year-old taphole beginning to heal. (Bottom) Plastic spouts are needed if tubing is used.

How to Collect Sap

All equipment must be clean. Many people sanitize with a solution of one part bleach to 20 parts water, followed by a thorough rinsing with water. Make sure all equipment is approved for food processing. Do not use old antifreeze jugs or joint compound buckets! Used four-gallon buckets can be obtained cheaply from bakeries (they originally contained jelly for doughnuts). Try to get the covers as well. You also can get aluminum sap buckets from maple dealers. These buckets come with metal covers. Old galvanized buckets have lead solder in the seams and are not recommended.

Tap the spouts gently into the trees, hang the buckets from the taps, covering them to keep out twigs and rain. Another method is to run tubing from the spout into a plastic bucket with a hole drilled in the lid. This has the advantage of keeping out insects.

On a good day, one to two gallons of sap will drip from each tap. The ping-ping of dripping sap into a metal bucket is a classic New England sound. The sap will run faster than you can boil it, so you will need a clean plastic barrel for storage. Two gallons of storage are needed per taphole.

Sap is basically sugar water, and an ideal breeding ground for bacteria, so you must keep it cold (pile snow around the

Equipment List

Drill and 5/16" bit

5/16" tapping spouts (also called spiles)

Buckets (aluminum or plastic)

30-50 gallon plastic barrel

Evaporator pan

Candy thermometer (or specialized maple syrup thermometer)

Syrup hydrometer and hydrometer cup

Filter cloth

Seasoned firewood (1 cord per 50 taps)

barrel and keep it in the shade) and boil it as soon as possible. You also can save milk jugs, fill them with water, freeze them, and float them in the barrel to keep the sap cold. If the sap turns cloudy, it has become infested with bacteria, and the syrup you make will be dark and have an off flavor. Do not mix clear with cloudy sap hoping to dilute it.

Sometimes a very cold night will cause some of the sap to freeze in the bucket. If you don't need the ice to keep the sap cold, or you are going to boil right away, you can throw out the ice (it's just water). This will make your sap more concentrated and take less time to turn into syrup.

How to Make Maple Syrup

Making maple syrup essentially involves evaporation on a large scale. Thirty-nine gallons of water need to be boiled off to produce one gallon of syrup, so this is not something you do in your kitchen unless you want to remove the wallpaper.

You can build a wood fire in an outdoor arch of brick or cinder blocks. There are also homemade evaporators made out of 55-gallon drums turned on their side or used oil tanks cut in half. Maple equipment dealers also sell hobbyist-sized evaporators, and there are even pans made to fit propane barbecue grills.

Use a large, flat pan to boil the sap, such as an industrial-sized lasagna pan. Continue to add sap at the same rate it evaporates, keeping track of how much sap you boil so you know about how much syrup you can expect to make (40:1 ratio). As the sap is boiling, do not let it get too low in the pan (keep it at least 1 to 2 inches deep). If the sap gets too low, the pan may burn, resulting in a coating of scorched carbon that is very difficult to remove. You'll also ruin the syrup.

Gradually, as the sap becomes more concentrated, it will darken. When the syrup is nearly ready, you can finish the process on the kitchen stove. In the kitchen, boil water in a separate pot and check the temperature of the water. The boiling point of water changes depending on barometric pressure. It can vary a few degrees from day to day, even during the same day if a weather front moves in.

Boil the syrup until it reaches 7 ½ degrees above the boiling point of water for that day. The syrup is ready at that point. It will be bubbling and foaming, rising in the pot, and can overflow. To control this foaming, turn down the heat or sprinkle a few drops of cream or butter in the syrup. To get the exact density required for syrup, test it with a hydrometer. Fill the hydrometer cup to the top with syrup and insert the hydrometer. When the syrup is the correct density, the hydrometer will float at the red line.

Packaging and Storing

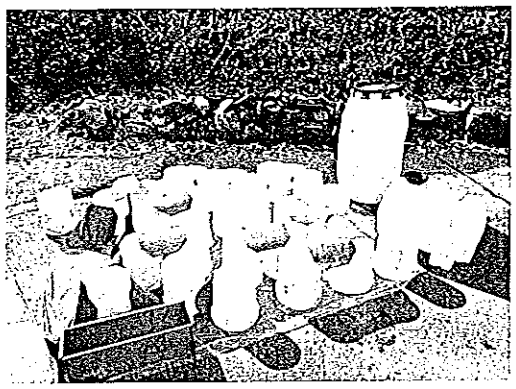
Pour the syrup through filters (I insert a paper cone filter inside a cloth one). These filters are available from maple equipment dealers. Collect the strained syrup, and reheat it to at least 180 degrees F. I use a coffee percolator that's never been used for coffee. Percolators heat the syrup to 190 degrees F, which will kill all bacteria. Draw the syrup directly from the percolator into clean canning jars or plastic jugs that are available from dealers. Lay the containers upside down for a few minutes to sterilize the lids. Then store the containers in a cool, dry place. The syrup should last indefinitely.

Sugar-on-Snow

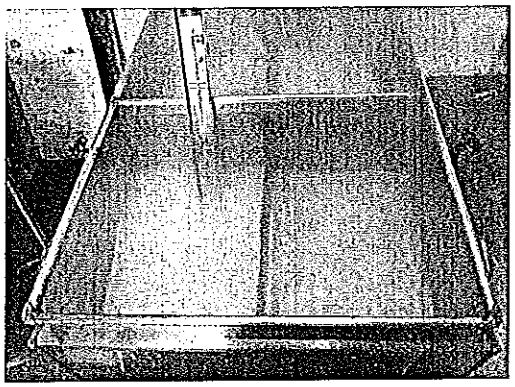
Another fun family treat is sugar-on-snow. Heat the syrup to 25 degrees above the boiling point of water. Drizzle it into dishes of snow. Use a fork to wind the chewy taffy-like spaghetti. Between bites of sugar-on-snow, it is traditional to eat sour pickles and plain raised doughnuts to offset the sweet maple taffy.

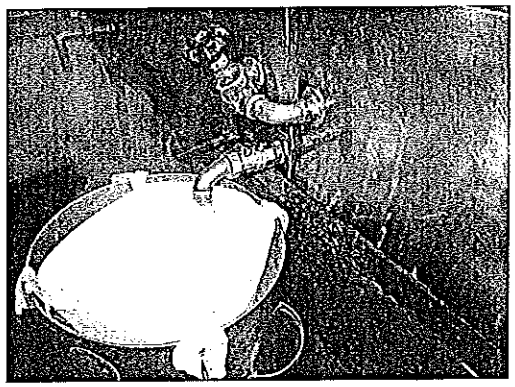
Join the Maple Syrup Producers Association of CT

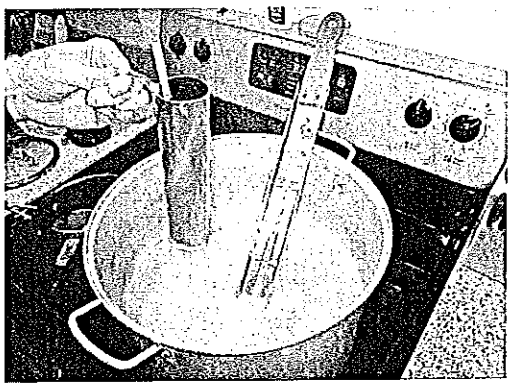
If you are thinking about making maple syrup, check out the Maple Syrup Producers Association of Connecticut (www.ctmaple.org). The Association encourages the production and handling of high-quality maple syrup products. Attend meetings, which are held in November and January, to ask questions of more experienced sugarmakers, listen to expert speakers, and buy supplies (equipment dealers are often at these events). The Association is also planning to hold a workshop for those interested in learning how to correctly tap maple trees and make maple syrup. Check the Web site regularly to find out when the next workshop will be held, and to download the Connecticut Maple Syrup Producers Manual.



The buckets, lids, and barrels needed to store sap for a 30 tap maple syrup operation.







(Top) The front two compartments of the evaporator are called syrup pans. The syrup in the left pan is ready to draw off. (Middle) When the syrup reaches the correct temperature, it is drawn off from the evaporator into the filter tank. (Bottom) Empty the filter tank into a big pot and finish boiling the syrup on the kitchen stove. Test the density with a hydrometer (left side of photo). Don't let it boil over!

Ole' Skunkhead - The Surf Scoter

Article and photography by Paul Fusco

Sometimes known by the descriptive but unflattering name of "skunkhead," the surf scoter is the largest of the three scoter species that inhabit the waters of Long Island Sound during winter. Scoters are large, stocky sea ducks. Males are primarily black, while females are dark brown. The surf scoter gets its name from its habit of foraging in or just beyond breaking waves, where it can be seen diving for its favorite winter food, mussels and other shellfish. The black scoter and the white-winged scoter are the other two scoter species that are found in our area.

The massive, bulbous bill of the drake surf scoter is unique among the sea ducks.

Description

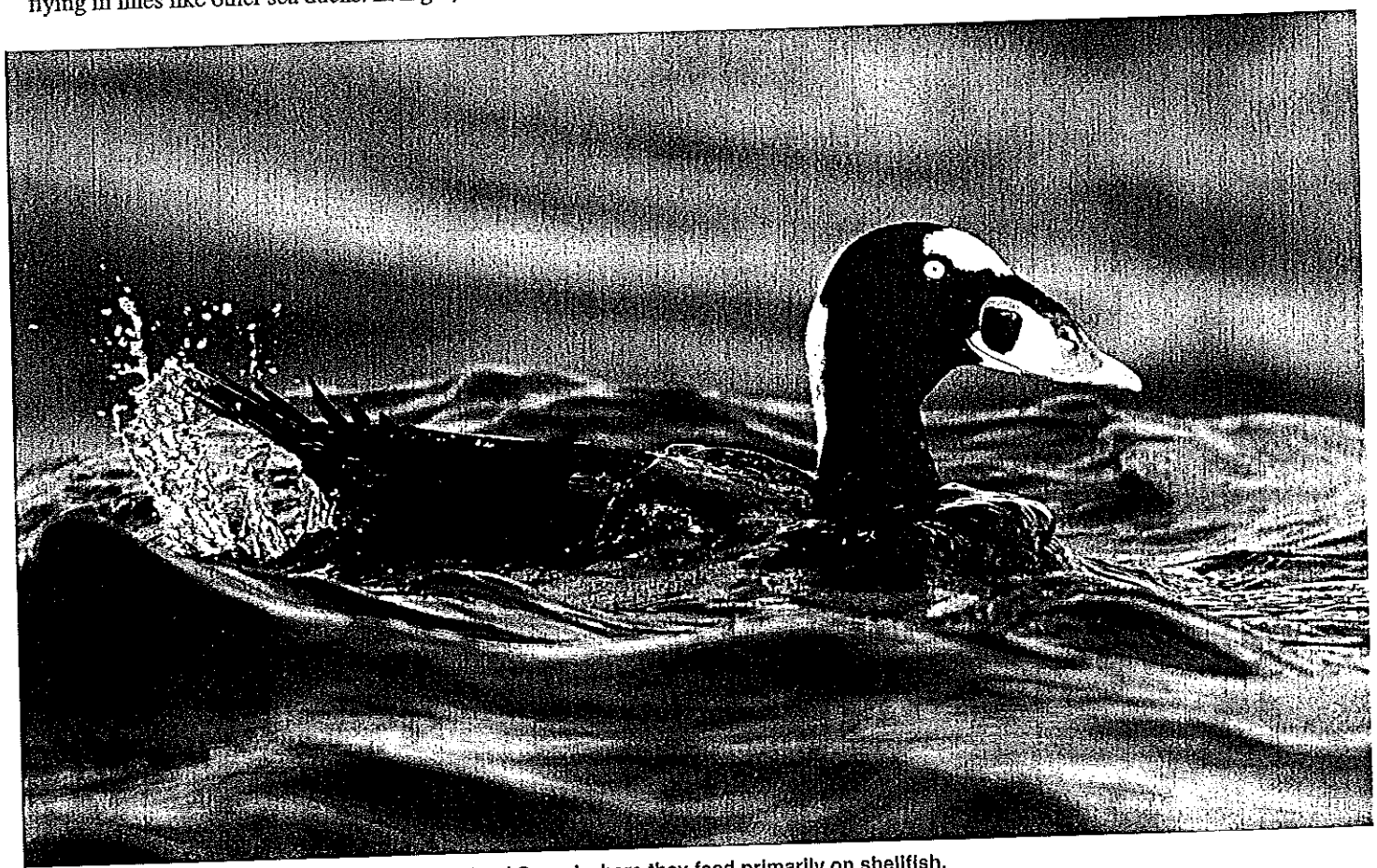
Male surf scoters are striking and somewhat bizarre looking. Their massive, bulbous bill, which appears to be swollen at the base, is brightly patterned with red, orange, black, and white. The plumage is velvety black, with the exception of two conspicuous white patches, one on the forehead and one on the nape.

Females are dark brown and gray, with two pale smudgy patches on the head – one patch is at the base of the bill, the other on the cheek below and behind the eye. The female's bill is dark greenish black and not as large as the male's. The legs and feet of males are bright reddish orange, while females have duller brownish red legs and feet. Female surf scoters may be difficult to distinguish from female white-winged scoters.

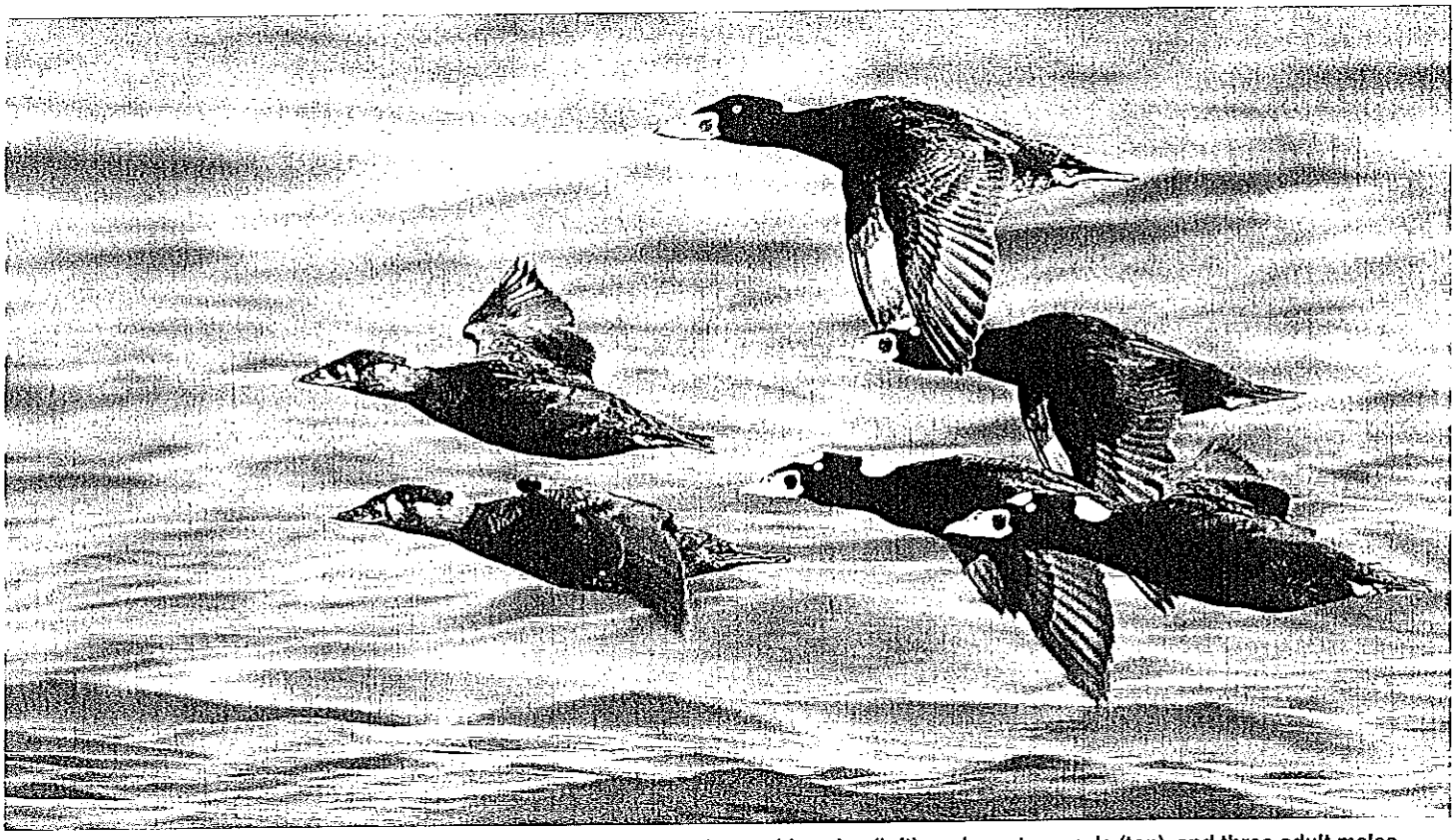
Flocks tend to fly in large, irregular formations, seldom flying in lines like other sea ducks. In flight, a scoter's wings produce a whistling sound. Otherwise, surf scoters are generally silent, although at times they may make a low-pitched gurgling or croaking sound.

Range and Habitat

Of the three species, only the surf scoter breeds exclusively in North America. The other two, the black and white-winged, are



Surf scoters can be found wintering on Long Island Sound where they feed primarily on shellfish.



A flock of surf scoters flies in to a feeding location. This group is made up of females (left), an immature male (top), and three adult males.

holarctic breeders (of North America, Europe, and Asia).

Freshwater lakes in boreal and sparsely wooded tundra regions from Alaska through Canada are the prime breeding habitats for surf scoters. Females nest on the ground, where their well-concealed nests contain seven to nine eggs. Scoters are thought to be long-lived, with low reproductive recruitment.

In winter, flocks can be found in shallow coastal waters, including bays and estuaries, where large congregations may gather at sites with extensive shellfish beds. Their winter range in the west extends along the coast from the Aleutian Islands and southern Alaska south to Baja California. In the east, they can be found from Newfoundland south to Virginia, although the highest concentrations are in the mid-Atlantic region. Small numbers may reach as far south as Florida. Some may also overwinter on parts of the Great Lakes.

In Connecticut, surf scoters are considered to be uncommon to fairly common migrants and winter visitors. National Audubon Society Christmas Bird Counts have indicated erratic numbers with population spikes in some years, although the general trend seems to be low numbers with a long-term decline. Winter waterfowl surveys conducted by the DEEP Wildlife Division in recent years have shown that average numbers have been at historic lows. It should be noted that these trends and numbers are for wintering birds that may be using other areas in the region from year to year. Scoters are inconsistent in Connecticut waters and, at some times, may be using areas far offshore, making them difficult to survey.

From the 1800s to the early 1950s, surf scoters and other sea ducks concentrated at the mouth of the Housatonic River to take advantage of a bountiful supply of dwarf surf clams, which are small, thin-shelled bivalves. Gradually, the waters filled in and the clams disappeared, along with the scoters. For a time, there also was a similar phenomenon in the Thimble Islands off of Branford where large shoals of dwarf surf clams were found. Those disappeared by the early 1990s. The reasons for the disappearance of this important food source are uncertain, but some theories suggest that it may be associated with the large amount of chlorine that is dumped into Long Island Sound by wastewater treatment plants, to the extent that the small clams could not survive.

Conservation

Population estimates for surf scoters are problematic because of difficulties with breeding surveys, stemming from secretive nesting habits, the difficulty of differentiating females from white-winged scoters, and incomplete survey coverage. Rough estimates put the entire North American surf scoter population between 500,000 and one million birds. All scoter populations are believed to have declined by approximately 50% since the 1950s. The causes are unknown and, because of imprecise population estimates and trends, comprehensive management is difficult. More research is needed into their general ecology, breeding biology, and population dynamics. Harvest data have shown that the number of immature birds per adult harvested has dropped significantly since the early 1960s, suggesting a decrease in productivity or an increase in female mortality. The importance of harvest data reported by waterfowl hunters is significant for conservation and management of the species.

Scoters are not alone – most North American sea duck populations are showing widespread declines. Some scientists fear that extensive ecological degradation may be causing the declines to the ducks directly or to their food sources. Other factors may include energy exploration and development in wintering areas, heavy metal contaminants, oil spills, and climate changes that are affecting their boreal forest breeding habitat.

Surf scoters are designated by the U.S. Fish and Wildlife Service as a Bird of Management Concern. It is hoped that further studies focusing on surf scoters will shed light on the reasons for the decline in the surf scoter population, as well as for other sea ducks.

Winter Drawdown Effects on Lake Ecosystems

Article and photography by Chris McDowell, DEEP Inland Fisheries Division

Winter drawdown is a common lake management tool capable of altering lake ecosystems in numerous ways. Drawdowns may have both beneficial and deleterious effects on lake ecosystems. Effective management of lakes requires extensive knowledge of the complexities and interconnections of the many different links within these ecosystems. Lowering water levels in lakes and ponds reduces water volume and surface area, impacting animal and plant communities and their aquatic habitats. When used improperly, drawdowns have the potential to cause irreversible harm.

What Is Winter Drawdown and Why Is it Done?

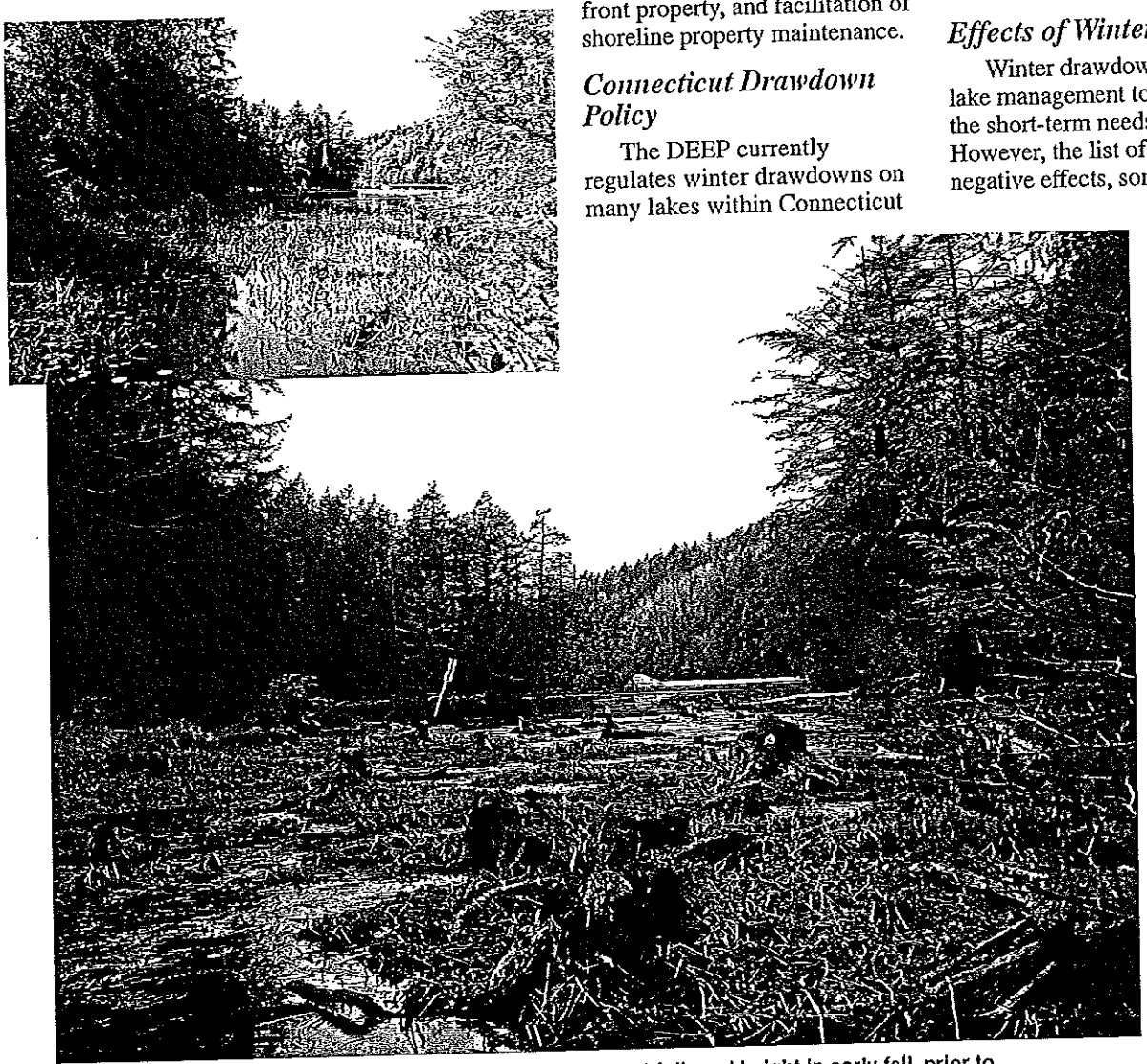
Winter drawdown involves lowering a lake's water level. This is done by means of water level control structures. Drawdowns typically start in mid-fall and are held at lowered levels throughout the winter. Drawdowns are most often performed on lakes that are high in nutrients and support extensive amounts of aquatic vegetation. Reasons for conducting drawdowns include: maintaining lake aesthetics and recreational use through nuisance/invasive aquatic vegetation control, prevention of ice damage to lake front property, and facilitation of shoreline property maintenance.

Connecticut Drawdown Policy

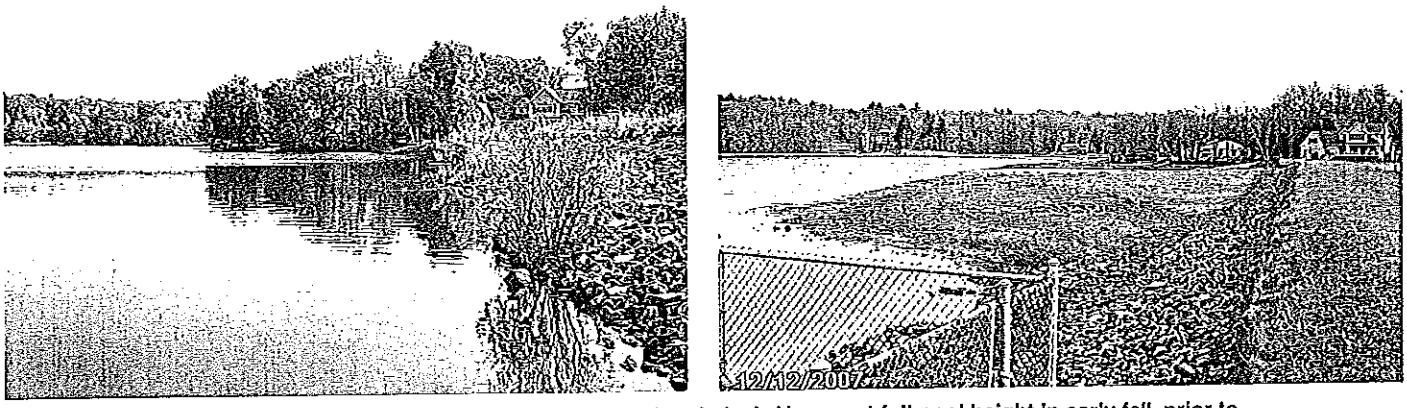
The DEEP currently regulates winter drawdowns on many lakes within Connecticut where the State has property rights. Winter drawdown requests are coordinated through the Office of Environmental Review and typically come from State or town officials, lake front property owners, or lake associations. Current policy states that drawdowns cannot begin prior to September 10, and the duration must be minimal and cannot extend past completion of the stated purpose. If maintained all winter, refill must occur by April 15. Three feet below normal pool height is the typical maximum allowable drawdown, although deeper drawdown requests are evaluated on a case-by-case basis.

Effects of Winter Drawdowns

Winter drawdowns are a low cost lake management tool typically serving the short-term needs of lake residents. However, the list of scientifically proven negative effects, some of which are not immediately perceptible to lake residents and which may take multiple years to become established, typically outweigh any positive benefits. As such, the DEEP often takes a conservative stance when approving drawdowns to ensure protection of natural resources. Attempts are made to lessen the depth/duration of the drawdown so as to minimize any negative impacts. The needs of the drawdown requestors, as well as the potential environmental impacts are weighed and a decision is made based upon the best available information. A winter drawdown can potentially affect the water quality, lake sediment, aquatic vegetation, food web, and fishery of a lake ecosystem.



The top photo is a view of a cove at Bigelow Pond in Union at full pool height in early fall, prior to commencement of a three-foot winter drawdown. The bottom photo is of the same area, but in February while the lake was down three feet. During this drawdown, a large majority of this cove was dewatered and left exposed to the elements. Approximately 30% of the lake's water volume was removed, consequently exposing 2.1 acres of lake bottom.



The photo on the left was taken from the dam area at Middle Bolton Lake in Vernon at full pool height in early fall, prior to commencement of a six-foot winter drawdown. The photo on the right was taken in the same general area, but in February when the lake was down six feet. During this drawdown, approximately 49.5% of the lake's water volume was removed, consequently exposing 13.4 acres of lake bottom.

Water Quality

Winter drawdown can change a lake's water quality by adding nutrients back into the system from organic matter found in aquatic vegetation and bottom soils. Because most of Connecticut's lakes are already nutrient rich, this addition can increase the potential for the occurrence of noxious and annoying algal blooms. These blooms may occur during the drawdown process and in subsequent summers. More organic waste results in increased decomposition, which consumes large quantities of oxygen found in the water column. If a lake is frozen while decomposition is occurring, oxygen levels can become dangerously low because there is no oxygen exchange between the lake surface and the atmosphere. This can cause lake-wide mollusk, snail, amphibian, turtle, and fish kills.

Lake Sediment

During a winter drawdown, large areas of sediment that would normally be under water are exposed to air, wind and wave action, and ice scour. Exposed materials become dry, compact, and chemically altered. Fine sediment particles are transported with the receding water to deeper areas, thus leaving larger material behind. Without this finer material, aquatic plants, insects, and fish habitats are degraded, ultimately leading to an unhealthy lake.

Aquatic Vegetation

Though winter drawdowns may effectively control aquatic vegetation through exposure and freezing of root systems, it works best on certain species and only over the short term. A winter drawdown is not selective in the type of aquatic vegetation it controls, meaning beneficial native species can be eliminated just as easily as invasives, resulting in temporary or complete shifts in species composition, relative abundance, and diversity. If the type of vegetation in the lake is not completely known, a drawdown may extend the vegetation's occupied area through seed dispersal or vegetative part transport. If this vegetation is invasive, it will likely overrun the lake, out-competing native species and negatively altering the aquatic habitat, as well as potentially impacting recreational activities.

Food Web

Slow moving organisms, such as snails, insects, and crayfish, can become stranded, are eaten by birds or other vertebrates, or are forced to relocate as waters recede. Those that survive become concentrated and are exposed to new environmental conditions to which they are not adapted. Crayfish, an important food source for many fish species, may eventually burrow into the bottom in the near-shore area where they will likely perish when the exposed lake bottom freezes. These food web alterations result in impacts to higher level organisms, such as a decrease in fish to populations and fewer or no visits by waterfowl to the lake.

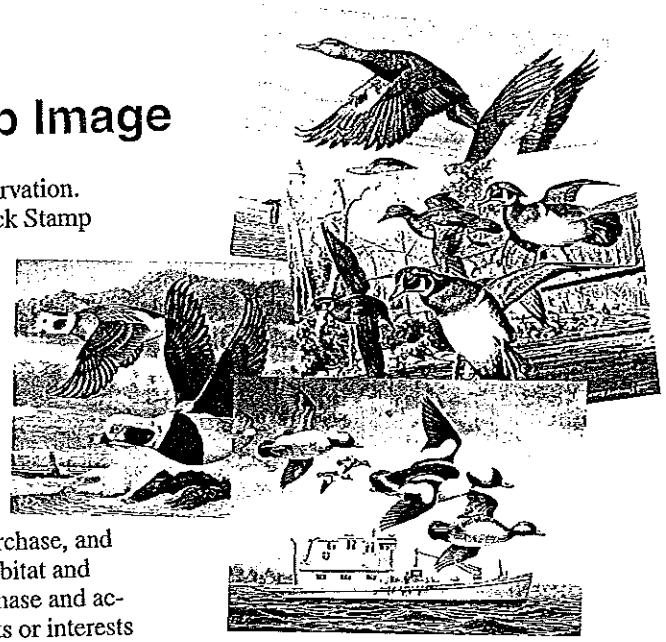
The Fishery

Receding water may strand small fish, particularly those living in the area of the lake containing rooted vegetation. As the water drops, mats of vegetation can trap fish in water pockets, which dry up or freeze. Small fish that are not stranded are forced to seek refuge in open water with little protective cover, making them susceptible to predation by larger fish, birds, and fish-eating mammals. The process can cull many smaller fish from the population without greatly reducing larger fish. This may benefit larger fish by increasing their growth rates over the short term. Selective culling may also benefit smaller fish and bait fish through numbers reduction, which decreases competition for food, thereby increasing overall fitness. In Connecticut, increased predation occurs for a brief period at the start of a winter drawdown in mid-fall when water temperatures are above 55 degrees Fahrenheit. Above this temperature, active feeding still occurs. Below this temperature, fish predation and digestion rates diminish due to their cold-blooded physiology.

The DEEP currently regulates winter drawdowns on many lakes within Connecticut where the State has property rights.

At the end of the drawdown, if the lake does not refill soon enough, juvenile fish production may be disrupted due to the lack of suitable spawning habitats for adults. This impact will have a ripple effect on the production of future fish stocks.

New Contest to Select the 2013 Migratory Bird Conservation Stamp Image



To promote wetland conservation, the DEEP is initiating a contest where artists can enter an original piece of artwork that depicts a waterfowl species (duck, goose, or brant) that occurs in Connecticut. The winning entry will be featured on the 2013 Connecticut Migratory Bird Conservation Stamp.

Contest Details

The contest is open to all artists (including Junior Duck Stamp artists), regardless of residence, age, or experience. Artwork may be in any full-color medium, including acrylic, oil, colored pencil, and watercolor. Images that include a Connecticut scene or landmark are preferred. Entries will be judged on originality, artistic composition, anatomical accuracy, general rendering, and suitability for reproduction.

Entries must be received in person or postmarked on or before March 15, 2012, to be eligible. Full contest rules and information on where entries should be submitted are available on the DEEP Web site at www.ct.gov/deep/ctduckstamp or by calling the Wildlife Division's Franklin office at 860-642-7239.

History of CT's Duck Stamp Program

The Connecticut Migratory Bird Conservation Stamp Program is a great example of how conservation works – concerned citizens paying into a program that was formed to protect and enhance vital habitat. The Duck Stamp Program was initiated in the early 1990s when concerned sportsmen worked with the DEEP to develop legislation that would generate revenue for wetland conservation. Modeled after the federal Duck Stamp Program, the Connecticut program requires the purchase of a state Duck Stamp, along with a hunting license, to legally hunt waterfowl in the state. By state law, funds generated from the sale of Duck Stamps can only be used for the development, management, preservation, conservation, acquisition, purchase, and maintenance of waterfowl habitat and wetlands, as well as the purchase and acquisition of recreational rights or interests relating to migratory birds.

The first Connecticut Duck Stamp debuted in 1993 with a fee of $5.00. From 1993-2002, the sale of Duck Stamps and prints generated over $1.2 million in revenue. Print sales gradually declined over time and the print program was discontinued with the 2002 Duck Stamp. Hunters and conservationists have consistently expressed strong support for the Duck Stamp Program and associated conservation projects. The sale of stamps alone currently generates approximately $50,000 per year.

With the return of full-color artistic Duck Stamps in 2013, art enthusiasts, stamp collectors, and conservationists are encouraged to purchase as many stamps as they wish to provide funds for wetland conservation projects. Full-color prints may also be available at the discretion of the winning artist.

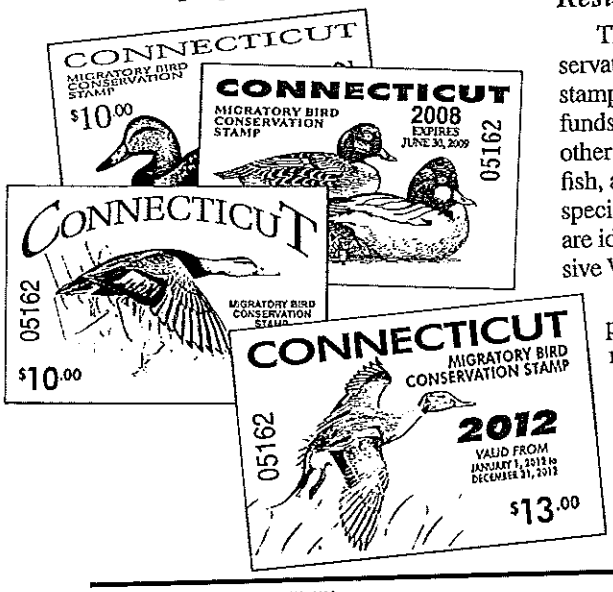
Duck Stamp Dollars Deliver Results

The Connecticut Migratory Bird Conservation Stamp is more than just a "duck" stamp because the conservation work it funds provides habitat for a multitude of other wildlife species like herons, egrets, fish, and amphibians, along with several species of greatest conservation need that are identified in Connecticut's Comprehensive Wildlife Conservation Strategy.

- Funds generated through the program have been responsible for restoring and enhancing over 3,145 acres of critical wetlands. Projects have encompassed nearly 50 sites, mostly on state-owned wildlife management areas. In 2011, two more projects, one in Tolland and another in Haddam, were completed using Duck Stamp funds.
- Specialized large equipment was purchased to conduct extensive marsh restoration work, particularly along the coast.
- Connecticut was the first state in the nation to establish a unit dedicated to wetland restoration. The DEEP's Wetland Restoration Unit receives no state funds and operates solely off of outside monies and Connecticut Duck Stamp funds.
- A 75-acre addition to the Wangunk Meadows Wildlife Management Area in Portland was purchased.
- Duck Stamp funds have generated additional monies for Connecticut through matching grants from federal conservation initiatives. By combining Duck Stamp funds with these additional monies, over $4 million have been available to complete wildlife conservation projects. Thus, Connecticut has received a 4:1 return on Duck Stamp monies.

The Duck Stamp Program is a prime example of a user fee program that has greatly benefitted not only wildlife, but also the people of Connecticut by improving the health of our local environments.

Buying a Connecticut Duck Stamp is the best investment a conservationist can make in the future of our state's wetlands. Duck Stamps can be purchased online at www.ct.gov/deep/sportsmenlicensing or at DEEP License and Revenue, 79 Elm Street, Hartford.



Cottontail Rabbits

New England Cottontail (*Sylvilagus transitionalis*)

Eastern Cottontail (*Sylvilagus floridanus*)


P. J. FUSCO

Background

The eastern cottontail was introduced into New England in the late 1800s and early 1900s and has been expanding its range ever since. The New England cottontail is the only rabbit native to Connecticut. In the mid-1930s, New England cottontails were still considered abundant and more numerous than the eastern cottontail. However, as agricultural areas reverted to forest and these forests matured, populations of both species were reduced. The eastern cottontail is now the predominant species.

The DEEP has been conducting research on New England and eastern cottontails since 2000. Studies have been implemented to determine the distribution of each species, evaluate survival and causes of mortality, estimate home range size, and assess potential competition between the two species. The DEEP Wildlife Division also has assisted in the development of a captive breeding program designed to propagate New England cottontails in captivity for release in states throughout their range to augment or expand existing populations. Habitat enhancement projects have been implemented on several Connecticut state forests and wildlife management areas to expand existing populations.

Range

The New England cottontail occurs in New England west to the Hudson River. The eastern cottontail occurs in the eastern United States and southern Canada south to eastern Mexico and into Central America. Another population is in Texas, New Mexico, and Arizona. The eastern cottontail is more abundant than the New England cottontail. Also, its range is expanding, while the New England cottontail's range is diminishing.

Description

The cottontail rabbit is somewhat stocky, with large hind feet, long ears, and a short, fluffy tail that resembles a cotton ball. Its long, coarse coat varies in color from reddish-brown to grayish-brown. The underparts are white. The New England cottontail weighs between 1.64 and 2.94 pounds and measures from 14.2 to 18.8 inches. The eastern cottontail weighs between 1.8 and 2.95 pounds and measures from 14.8 to 18 inches.

New England and eastern cottontails are almost identical in appearance, except for a slight variation in color. About half of the eastern cottontail population shows a white, star-like shape on the forehead, while New England cottontails do not exhibit this trait. A comparison of skull characteristics or DNA analysis are the most reliable ways to distinguish the two species.

Habitat and Diet

Eastern cottontails tend to use open fields, meadows, yards, and other grassy areas. New England cottontails prefer early successional forests, often called thickets, with thick and tangled vegetation. These young forests are generally less than 25 years old. Once large trees grow in a stand, the shrub layer tends to become thin, creating habitat that the New England cottontail no longer finds suitable.

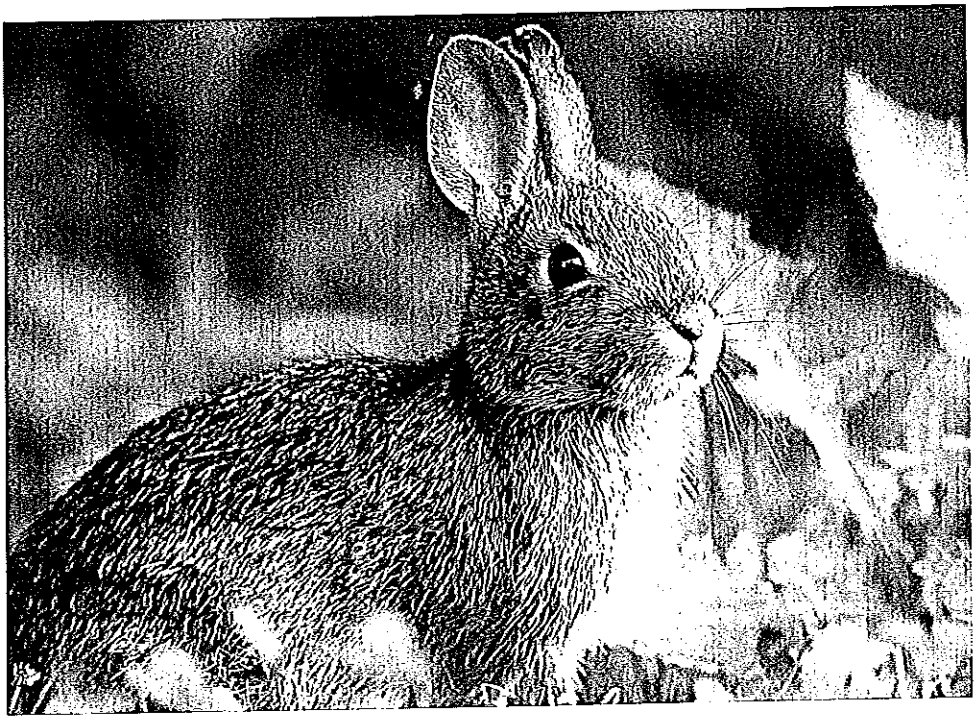
In summer, cottontails feed almost entirely on tender grasses and herbs. Crops, such as peas, beans, and lettuce, are also eaten. In winter, bark, twigs, and buds of shrubs and young trees are eaten. Rabbits will also re-ingest their own fecal pellets, increasing their level of vitamins and minerals.

Life History

Breeding occurs from March through early fall. Females do not dig their own nest burrows but rather scratch out a slight depression in the ground in an area of dense grass for concealment. The nest is lined with fur and dry grass. The gestation period is about 28 days. Cottontails usually have 2 to 4 litters per year with about 3 to 8 young per litter. Young rabbits are born blind, naked, and helpless but grow rapidly, leaving the nest after only 2 to 3 weeks. They are weaned and totally independent at 4 to 5 weeks. On average, 15% of the young will survive their first year. Adults are usually solitary by nature, except when a female is caring for its young.

Interesting Facts

Cottontail rabbits are active all year long, foraging mainly at dusk or night. During the day, they remain concealed in dense brush, protected from predators and harsh weather. In times of


P. J. FUSCO

extreme weather conditions or to escape predators, rabbits will readily use an abandoned woodchuck burrow, stone walls, brush piles, or other structures for protection. A rabbit's home range varies greatly with the quality of habitat, but generally averages 9 acres. Males have larger home ranges than females.

Cottontails have keen eyesight and hearing. When danger is sensed, a rabbit will usually freeze in place until danger has passed, but it will flush readily if approached too closely. Rabbits normally move slowly in short hops or jumps, but when frightened they can achieve speeds up to 18 miles per hour over a short distance. They often zig-zag to confuse a pursuing predator. Although they do not take to the water often, rabbits are good swimmers.

Rabbits will thump the ground with their hind feet regularly, probably as a means of communication. When playing, breeding, or fighting, they often make low purring, growling, or grunting sounds. If captured by a predator, the animal may produce a loud, shrill scream.

Because of its high productivity rate, the cottontail rabbit is an important link in the food chain and a principal prey item for many species. Depending on its availability, the cottontail can be considered a buffer prey species, meaning if rabbit numbers are high, predators will concentrate on them, thus reducing the pressure on other prey species.

The cottontail rabbit is a popular game species throughout its range. The regular hunting season in Connecticut occurs from fall into winter. Consult the current Connecticut Hunting and Trapping Guide for specific season dates and information. The guide is available at town halls, DEEP offices, and on the DEEP website (www.ct.gov/deep/hunting).

Conservation Concerns

A petition was submitted to the U.S. Fish and Wildlife Service (USFWS) in August 2000 to list the New England cottontail as a threatened or endangered species. The USFWS designated the New England cottontail as a candidate for threatened or endangered status in September 2006.

Historically, New England cottontails were distributed statewide in Connecticut, but limited research over the past 50 years has indicated that populations have declined in abundance and distribution in the state and throughout New England. Biologists believe the reduced extent of thicket habitat is the primary reason for the decline in numbers and range of New England cottontails. Prior to European settlement, New England cottontails were probably found along river valleys where floods and beavers created the disturbances needed to generate its preferred habitat. Forest insect outbreaks, large storms like hurricanes and ice storms, and wild fire also created disturbances in the forest that promoted thicket growth. During colonial times, much of the New England forest was cleared for agriculture and then subsequently abandoned during the early 1900s. This abandoned farmland allowed for a great deal of early successional habitats to develop. Today, these habitats are aging while others have been developed and are no longer suitable for New England cottontails.

The introduction of exotic invasive species, such as multiflora rose, honeysuckle bush, and autumn olive, in the last century has changed the type of habitat available to New England cottontails. These plants form the major component of many patches where cottontails can be found. It may be that stands dominated by non-native species do not provide rabbits with the food resources that native plant species do.

A research project was initiated in Connecticut in October 2000 by the Wildlife Division to document the historic and current distribution of New England and eastern cottontail rabbits. The project involves a statewide collection effort to obtain distribution information of cottontails throughout the state. Four common methods are used to collect data on cottontail distribution: hunter harvest, live trapping, and collection of roadkills and fecal pellets. Dead cottontail specimens are frozen to preserve tissue for future DNA analysis if needed for species identification. An ear sample is collected from all live-trapped rabbits for DNA analysis. Specimens are identified as eastern or New England cottontails by using skull morphology or DNA analysis. To confirm species identification, all intact skulls are skinned and skull morphology is examined.

Since October 2000, cottontails have been collected from 115 (67%) of Connecticut's 169 towns. New England cottontails were found in 26 of the 115 (23%) towns and eastern cottontails were found in 108 of the 115 (94%) towns. Twelve additional towns were documented as having New England cottontails by the University of New Hampshire between 2003 and 2006 through fecal DNA analysis.

Helping the New England Cottontail

The New England cottontail continues to be the subject of research and habitat management in Connecticut, New York, and the other New England states. Halting the decline of scrub and brushland habitat is paramount, as is identifying potential habitat free of competing eastern cottontails to which New England cottontails could be restored. Working together, state and federal agencies may help improve the chances of survival for the New England cottontail.

The U.S. Fish and Wildlife Service provided some of the information used to compile this fact sheet (www.fws.gov).

Chimney Swift Field Season Update, 2011

Written by Shannon Kearney-McGee, DEEP Wildlife Division

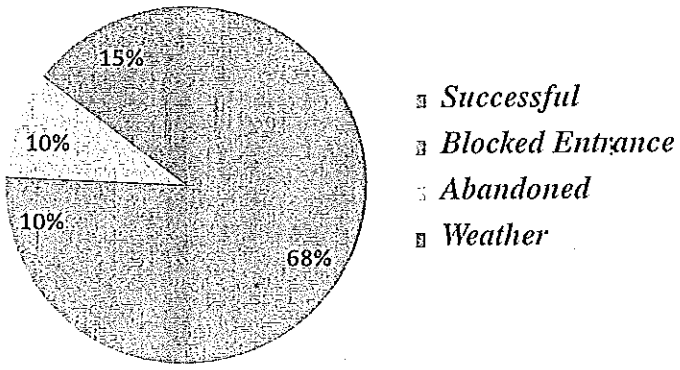
Chimney swifts have been the focus of increased research and monitoring by the Wildlife Division for the past six years. Since 2002, chimney swifts have been declining at one of the highest rates (7%) among passerine birds in the Northeast, placing them on Bird Life International's Red list as near threatened. Although chimney swifts are often observed in the Connecticut landscape, the cause of their decline is not understood.

In an effort to understand the needs and dynamics of chimney swifts in Connecticut, the Wildlife Division conducted research in 2011 that encompassed nesting site preference, chimney capping rates, nesting success, diet, and roost dynamics. Nesting site preference was investigated through field measurements of chimneys and interviews conducted by staff with homeowners to find out if they have swifts in their chimneys. Interviews were conducted at 274 homes in Thomaston and with homeowners surrounding 22 known nesting locations around the state for a total of approximately 350 chimneys.

Preliminary analyses of these data revealed that chimney swifts are not particularly "picky" about the chimneys in which they place their nests. They prefer chimneys that are larger than 2.5 bricks by 2.5 bricks, but they will also use smaller chimneys. Chimney swifts do not discriminate based on the location – north, south, east, or west – nor do they eliminate those chimneys with slate caps or clay liners. Because swifts are flexible in the chimneys that they will use, the biggest limitation to nesting is the installation of stainless steel liners and wire cage caps. A wire cage cap prevents birds from entering a chimney, making it impossible for them to nest. The installation of stainless steel liners creates a slippery surface to which the birds cannot attach their nests. Birds that enter steel chimneys may even become trapped. Steel-lined chimneys should always have a wire cage cap so that unknowing birds do not become trapped.

In an effort to track the rate at which chimneys are becoming unavailable for nesting swifts through wire cage capping, the Wildlife Division monitored 11 survey routes to determine if previously available chimneys were still available for chimney swift use. In 2011, 23% of previously available chimneys were capped, which is similar to the past two years. Although past DEEP research indicates that chimneys are readily available in the landscape, this rate of chimney capping may start to become a problem in the future as chimneys become less available for swifts to use.

Chimney Swift 2011 Nest Results



Percentage of chimneys capped per year, 2009-2011

Year	% Chimneys Capped
2009	20%
2010	27%
2011	23%

Building upon research results indicating that the availability of nesting chimneys is not limiting chimney swifts in Connecticut, the Division began to investigate swift nesting success in 2011. Nesting success was tracked with the help of homeowner "swiftlords" at 20 nests. Statistical analysis of nesting observations estimated that each nesting chimney had a 49% chance of fledging at least one swift. Raw data indicated that 68% of swift nests were successful. Nests failed because they were blocked by caps or other exclusion devices, abandoned, or knocked down by strong rainstorms.

Swiftlords also assisted research by allowing Wildlife Division staff to collect guano samples from nesting sites. Analysis of guano by cooperators at Trent University in Ontario, Canada, is planned. This analysis will identify which invertebrates are being consumed by chimney swifts in Connecticut. Preliminary analysis from guano collected in 2010 in Connecticut and Ontario indicated that the chimney swift diet may be associated with the population decline. Ongoing research will link the diet with nesting success to understand how diet may be affecting productivity in Connecticut.

Efforts were made to understand roost dynamics and explore the potential for using roost numbers as an index for productivity. Chimney swifts don't always roost in their nest chimney. In fact, there is rarely more than one nest per chimney. Despite this nest territoriality, chimney swifts regularly flock up in large numbers – as many as thousands of birds – and descend into a single chimney. These are roosting birds, and there are no nests in these chimneys when this roosting phenomenon occurs. The birds in these roosts in spring and fall are often migrating, but over the summer they consist of a combination of non-breeding birds and nesting birds that are not brooding over eggs. After birds fledge from their nests, they will join these roosts. By tracking these roosts properly, there may be a potential to determine how many chicks are fledged by the change in numbers of birds over the summer season.

In the pilot year of the study, volunteers and DEEP staff monitored 26 roosts. Observers were surprised by the variation in time when birds entered roosts and also by the number of birds, depending on the season. Roost numbers ranged from one to over 1,000. Certain roosts appeared to be more important in the breeding season, while others provided shelter to more birds during migration. More refined analysis is planned to understand how these numbers might be used to track chimney swift populations.

If you know of a chimney swift roosting or nesting site, please contact Shannon Kearney at the Wildlife Division's Sessions Woods office (860-675-8130), shannon.kearney@ct.gov.

FROM THE FIELD

First Federal Aid Projects in Connecticut

According to the "23rd Biennial Report of the State Board of Fisheries and Game for 1938-1940," federal allotments from the Pittman-Robertson Program were as follows:

1938-1939	*$2,499.22*
1939-1940	*$3,931.37*
1940-1941	*$5,853.34*

The first project submitted for Connecticut was approved in December 1939 and completed in June 1940. It was a development project on the Scoville Sanctuary, a tract of about 30 acres, given to the State in 1937. Development consisted of fencing to exclude livestock, and plantings and thinning for winter cover and game food (mainly for upland game and pheasants).

The second project, approved in December 1940, was a study of ruffed grouse and other wildlife on 3,000 acres of forest land on three State Forests. The results of this study recommended changes in existing forestry practices to create conditions beneficial to wildlife.

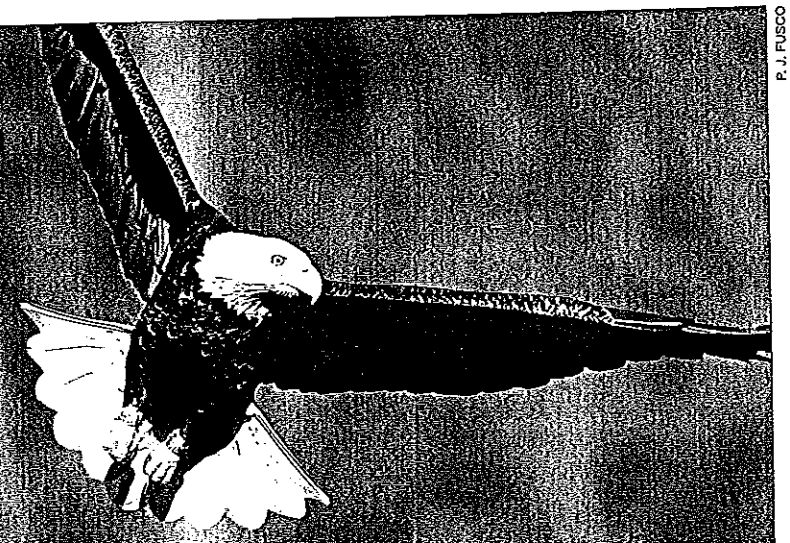
A third project involved a study of pheasant mortality and nesting success. Results of this work eventually influenced pheasant stocking policy in the state.

Winter Bat Sightings Wanted

As part of the Wildlife Division's ongoing efforts to monitor white-nose syndrome (WNS) in Connecticut's bat population, the Wildlife Diversity Program is interested in obtaining information on any bats that are seen flying during January, February, and March. During winter, bats typically hibernate below ground—sleeping safely and soundly until insects are active and warm weather arrives in spring. Bats suffering from the fungal infection that causes WNS are often unable to hibernate properly and may be seen flying about searching for food and water in a frozen landscape. They may also cling to the sides of buildings or flop about on the snow as their energy reserves dwindle.

If you see a bat behaving unusually during winter, please let the Wildlife Division know. A digital photograph of the bat would be helpful if you are able to take one. Not all bats observed over the winter will display the white fuzzy noses or wings that are associated with WNS. The fungus responsible for the fuzzy appearance changes quickly in response to temperature and humidity fluctuations and is seldom noticeable with the naked eye outside of a cave environment. A bat reported to the Wildlife Division by a concerned state resident last February and saved for testing turned out to be the first confirmation of WNS in New London County, underscoring the importance of the public's assistance in tracking WNS. Bats can be reported via E-mail to dep.batprogram@ct.gov or by calling the Division's Sessions Woods office, at 860-675-8130 (Monday through Friday, from 8:30 AM-4:30 PM).

Jenny Dickson, DEEP Wildlife Division



P. J. FUSCO

Midwinter Bald Eagle Survey

Nationwide counts of wintering eagles have been conducted every January since 1979. Initially coordinated by the National Wildlife Federation (1979 - 1992), the counts were a key focus of the Raptor Research and Technical Assistance Center (now the U.S. Geological Survey) for many years and are now coordinated at the national level by the Army Corps of Engineers. The survey was initiated to establish an index of the total wintering bald eagle population in the lower 48 states; determine eagle distribution during a standardized survey period; and identify important winter habitat.

Since 1984, participants in each state have been counting eagles along standard routes using the same method (e.g. stationary point, boat, vehicle) at approximately the same time of day each year. These counts are held during the first two weeks of January with two "target days" identified as the preferred survey dates. Survey participants range from employees of state or federal conservation agencies to conservation organizations to scores of hardy volunteers who help make the survey a success. Coordinators from each state organize local counts, line up participants, identify areas to be covered, and compile data to eliminate duplicate sightings and overlapping routes. Sizes of survey routes vary from single fixed points to 150 miles. Connecticut is one of 27 states that identified and began surveying standard routes in 1986 and has participated annually.

The annual midwinter survey is a unique source of long-term, baseline data on both breeding and non-breeding eagles during a time of year when survival is challenging. It also helps biologists monitor modifications or threats to important wintering areas. Volunteers and biologists have endured freezing, snowy, and often icy mornings to collect information that has helped document a steady increase in eagle numbers in Connecticut and confirmed the Northeast region as having the greatest population trend increase since standardized surveys began in 1986. Look for results from the 2012 Midwinter Eagle Survey (scheduled for January 14) in a future issue of *Connecticut Wildlife*.

Jenny Dickson, DEEP Wildlife Division

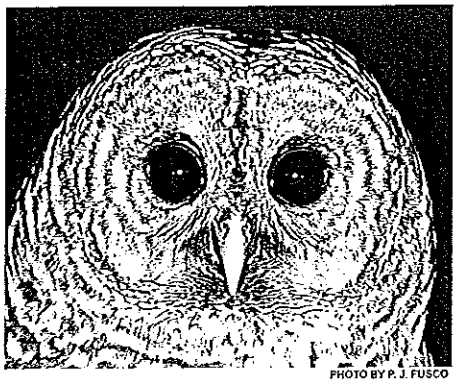


PHOTO BY P. J. FUSCO

Update on Summer Night Bird Monitoring, 2011

This past field season, the Wildlife Division organized volunteers and staff to conduct summer night bird surveys to determine the distribution of whip-poor-wills and northern saw-whet owls in Connecticut. This effort was in cooperation with the Northeast Regional Nightjar Survey for the seventh year.

In Connecticut, surveys are conducted each year along 14 standardized routes containing 10 roadside points each. A callback recording of a northern saw-whet owl is used during the surveys, which are conducted two times between May 1 and July 15 on nights when the moon is at least 50% illuminated and not obscured by clouds.

The weather this past summer made it difficult for volunteers to complete their routes during the designated survey windows. Only 12 routes were completed in 2011. Volunteers detected 13 individual whip-poor-wills on five different routes during the survey. Although raw numbers were down from last year, the whip-poor-will index for Connecticut remains similar to last year at 51% occupancy.

Other night birds observed during these surveys included three northern saw-whet owls, one eastern screech owl, one long-eared owl, 10 barred owls, and five great-horned owls. Observers also reported observations of bats, deer, gray fox, killdeer, American woodcock, porcupine, and many frog species.

Shannon Kearney-McGee, DEEP Wildlife Division

2012 – Year of the Lizard

The "2012 –Year of the Lizard" campaign is sponsored by Partners in Amphibian and Reptile Conservation (PARC) to raise awareness for lizard conservation. As 2012 unfolds, PARC and its Conservation Partners will shine a spotlight on amazing lizard fauna and highlight the work of researchers, land managers, and the public to develop conservation measures to identify threats and forestall losses at local levels.

Why lizards, and why now? The growth of human communities and our effects on natural habitats are taking a toll on lizards. Habitat loss and fragmentation are the main threats to lizards, but other factors are being raised as issues as well – overexploitation, predation, and climate variation. Throughout the year, PARC and Conservation Partners (including the DEEP Wildlife Division) will be raising awareness of the issues surrounding lizards. Look for more information to come on PARC's Web site at www.yearofthelizard.org and the Wildlife section of the DEEP Web site (www.ct.gov/deep/wildlife). Can anyone name the lizard or lizards that are native to Connecticut? Find out in the next issue of *Connecticut Wildlife*.

DEEP and CCEA Study Highlights Economic Impact of CT State Parks and Forests

Connecticut's state parks and forests offer numerous outdoor recreation activities that are part of what makes Connecticut a special place to live – and a new study concludes they are also good for the economy. An extensive analysis conducted by UConn's Connecticut Center for Economic Analysis (CCEA) showed that outdoor activities on state lands have an economic impact of more than $1 billion a year, representing the amount spent by state residents and visitors on a variety of outdoor activities, including camping, boating, fishing, and hunting. The study also concluded that for every dollar the state spends on the state park system, it receives an estimated $38 in economic activity; and nearly 9,000 private sector jobs statewide result from the support of outdoor recreation pursuits.

The study is an economic impact analysis CCEA developed of the state's recreational activities, including visits to state parks and forests, hunting, fishing, boating, and other sporting activities. Of the $1 billion spent on recreation in the state in 2010, visitors to parks and forests spent $544 million on general tourism activities, such as lodging, meals, groceries, and other activities and goods during their stay. In addition, individuals holding licenses and permits issued by DEEP spent the following amounts:

- Fishing accounted for $264 million in expenditures
- Hunting accounted for $100 million in expenditures
- Recreational boating accounted for nearly $37 million in expenditures
- $26.2 million came from skiing and attending educational and other venues

The study also shows that the nearly 9,000 private sector jobs credited to the state parks system and associated recreational activities resulted in $343 million in personal income, estimated to grow to $595 million in current dollars in 2020. Of that $343 million, $253 million is considered disposable income, increasing to $471 million by 2020.

Along with the tangible benefits DEEP-managed outdoor recreation opportunities create in the state, the CCEA report also found that DEEP's 250,000 acres of open space increases property values for those whose land borders or overlooks the state green spaces. In addition to the benefit to property owners, the increased property values generated an estimated $3.1 to $5.4 million to municipalities.

75 Years

Previously published in
The Connecticut Wildlife Conservation Bulletin, March/April 1956

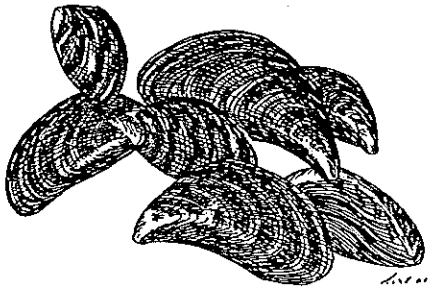
Federal Aid Programs Help Connecticut Wildlife: *"During the last fiscal year (1954-1955), $123,784.74 in federal funds were made available to the State of Connecticut for wildlife conservation work.*

Fish ($44,2888 in federal funds): Lake and pond survey, striped bass study, trout study on Wononskopomuc Lake, state-wide fish habitat improvement work, Willimantic River and Morey Pond acquisitions, establishment of the wall-eyed pike at Lake Lillinonah, Salter brown trout study, acquisition of water rights to Uncas Lake and Norwich Pond, and coordination work for these projects.

Game ($79,496.74 in federal funds): Management studies on deer populations, tree and shrub plantings, furbearer populations, waterfowl brood surveys, waterfowl banding and grouse populations; purchase of land at Great Harbor, Guilford; development work for farm and forest game, waterfowl and furbearers; project planning, inspection, and coordination.

During the year ending June 30, 1955, more than 32,650,000 persons, or approximately one-fifth of the population of the United States, held various state hunting and/or fishing licenses and federal duck stamps. The money spent for these licenses and the tax paid on hunting and fishing equipment pays practically all the expense of developing better conditions for wildlife."

Zebra Mussels Confirmed in Lake Housatonic



Adult zebra mussels have been found in Lake Housatonic by divers working for Biodrawversity LLC, the consulting firm hired by the DEEP to survey for zebra mussels in the Housatonic River system and other nearby high calcium content waters. This survey was supported by Federal Aquatic Nuisance Species funding. Lake Housatonic, located in Derby, Monroe, Oxford, Seymour, and Shelton, is the most downstream of the three large impoundments of the Housatonic River. The mussels were found on the lake bottom in the southern end of the lake. The presence of zebra mussels is not unexpected as mussels were found in Lakes Zoar and Lillinonah, the two large impoundments located immediately upstream of Lake Housatonic, in November 2010. Zebra mussels were first found in the Housatonic River in 2009 when they were discovered in Laurel Lake in Lee, Massachusetts, and subsequent sampling found them in the lake's outflow into the mainstem river.

The non-native zebra mussel is a black-and-white-striped bivalve mollusk that was unintentionally introduced into North American waters through the discharge of ship ballast water. Since its discovery in Lake St. Clair (Michigan/Ontario) in 1988, the zebra mussel has spread throughout the Great Lakes, the Mississippi River system and most of New York State. Zebra mussels have fairly specific water chemistry requirements and are limited to waters with moderate to high calcium concentrations and pH. In Connecticut, suitable habitat is mostly limited to a number of waterbodies in western portions of the state. Under highly favorable conditions, the mussels can foul boat hulls and engine cooling water systems and clog power plant, industrial, and public drinking water intakes.

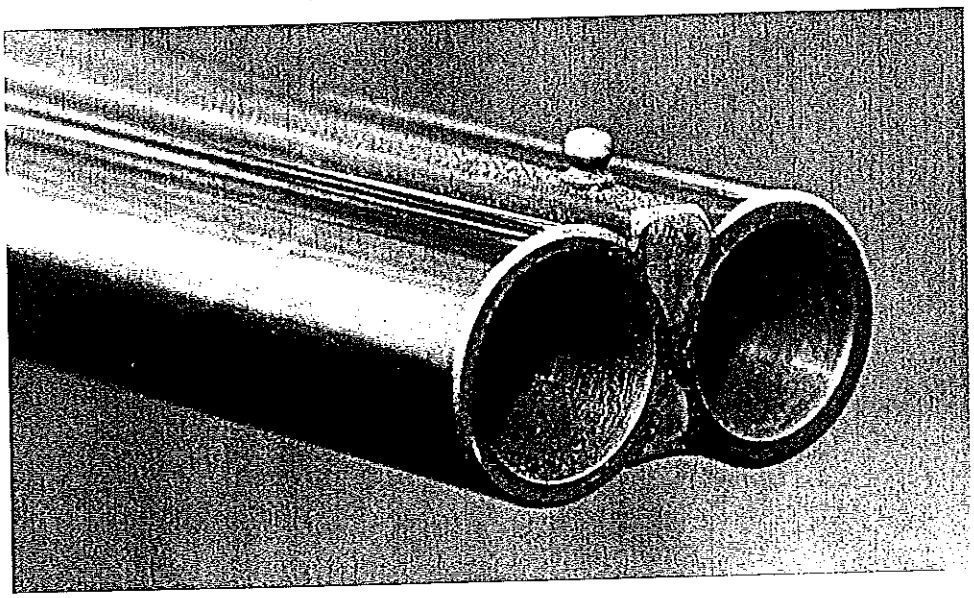
While zebra mussels can be spread by natural methods, such as birds and by drift of larval stages, boaters and anglers can also transport them unwittingly when they move from infected waters to clean waters. Outreach and education (properly checking and cleaning boats, gear, etc) are often the most effective tools to control the introduction and spread of zebra mussels and other invasive species. For well over 10 years, education appears to have prevented their spread from the Twin Lakes (Salisbury) to nearby waters suitable for zebra mussels. Since they were first found in East Twin Lake in 1998, information about the presence of zebra mussels has been posted at access points to the two lakes, in DEEP's annual Connecticut Angler's Guide, and included in the approved permit packets for fishing tournaments.

In 2011, the DEEP increased seasonal staff presence at Lakes Lillinonah and Zoar and the state's largest lake, Candlewood Lake, to educate boaters about what they can do to keep zebra mussels out of other waters. Staff also inspected boats at state boat launches on weekends and holidays throughout the summer. A new program was developed in which local residents were trained to educate boaters and inspect boats for the presence of aquatic plants and animals. The DEEP will continue to monitor for the presence of zebra mussels at these lakes and others throughout the state. Individuals wishing to report possible sightings of zebra mussels and other aquatic nuisance species can contact DEEP's Inland Fisheries Division at 860-424-3474. If you are interested in learning how you can educate boaters on ways to prevent the spread of invasive species, contact the Boating Division at 860-447-4339. More information on zebra mussels and other aquatic nuisance species can be found on the DEEP Web site at www.ct.gov/deep/invasivespecies.

Outdoor Safety

Do You Know Where Your Muzzle Is Pointing?

Muzzle direction is one of the most important safety rules in gun handling. The muzzle is the end of the gun where the bullet exits. When first picking up a gun, while keeping the muzzle pointed in a safe direction, you should always visually inspect the gun's chamber and check to see if it is unloaded. Once you have determined that the gun is unloaded, you should continue to handle the gun as if it were loaded.



Point the muzzle in a safe direction. Think about where the bullet will go if the gun were fired. What will the bullet hit? Could someone be injured? Will it cause damage? All of these questions should be going through your mind when you are handling a gun.

Control the muzzle of your gun. While hunting and handling a loaded gun, the muzzle direction should be your first safety concern. Determine the safest direction in which to point the muzzle. Use your best judgment, depending on the situation. Remember the environment around you and that conditions can change quickly. Be prepared to adapt the muzzle direction and carrying position so that the muzzle continues to point safely.

James Warner, DEEP Wildlife Division

This is the muzzle of a 20 gauge double-barrel shotgun. The muzzle is the end of the gun where the bullet exits. When handling a gun, always point the muzzle in a safe direction.

Conservation Calendar

Dec. 28-Mar. 14 ..... **Observe bald eagles at the Shepaug Bald Eagle Viewing Area in Southbury.** Observation times are Wednesdays, Saturdays, and Sundays between 9:00 AM and 1:00 PM. Although admission is free-of-charge, advance reservations are required. To make reservations for individuals, families, and groups, call toll-free at 1-800-368-8954 between 9:00 AM and 3:00 PM on Tuesdays through Fridays or go to www.shepaugeagles.info.

Feb. 4 ..... **No Child Left Inside Winter Festival,** at Black Rock State Park in Watertown, from 9:00 AM to 3:00 PM. Activities for this FREE event include ice fishing, fish stocking, snowshoeing, marshmallow roasting, and much more! Visit the DEEP Web site (www.ct.gov/deep) for directions and more information.

March 10 ..... **Wild Turkey Hunting Safety Seminar,** at Fairfield County Fish and Game, starting at 8:00 AM. Both experienced and first-time turkey hunters will benefit from this seminar, which emphasizes safe hunting practices, specialized equipment, calls, site setup, and other strategies for harvesting turkeys. The seminar is coordinated by volunteer instructors from the Wildlife Division's Conservation Education/Firearms Safety Program. Participants need to bring eye and ear protection; their own shotgun with a turkey choke; turkey ammunition; and lunch. Fairfield County Fish and Game is located at 310 Hammertown Road in Monroe. To register for this FREE seminar, call the Division's Sessions Woods office at 860-675-8130 (Mon.-Fri. from 8:30 AM-4:30 PM).

Programs at the Sessions Woods Conservation Education Center

Programs are a cooperative venture between the Wildlife Division and the Friends of Sessions Woods. Please pre-register by calling 860-675-8130 (Mon.-Fri., 8:30 AM-4:30 PM). Programs are free unless noted. An adult must accompany children under 12 years old. No pets allowed! Sessions Woods is located at 341 Milford St. (Route 69) in Burlington.

Feb. 22 ..... **Wildlife Tracks & Sign for Kids,** starting at 10:00 AM. Wildlife may not be readily seen in winter, but with good observation skills, evidence of their presence can be found. Learn about wildlife tracks indoors with Natural Resource Educator Laura Rogers-Castro and Master Wildlife Conservationist Shirley Sutton, and then head outside for a short walk to look for animal signs. Children also will make a wildlife track to take home. An adult must accompany all children.

Feb. 26 ..... **Bluebirds with Master Wildlife Conservationist Fred Lowman,** starting at 1:30 PM. MWC Fred Lowman has been monitoring bluebird nest boxes on his property for several years. This indoor program will provide an informative discussion on bluebirds as Fred shares his success stories. He also will provide tips for getting bluebirds to nest in your backyard, too.

Hunting Season Dates

Jan. 16-Feb. 15 ..... Special late Canada goose season in the south zone only

Audubon Connecticut to Sponsor a Master Bird Conservationist Program

Calling all birders! Want to improve your bird identification skills and gain knowledge on creating, restoring, and protecting bird habitat? Are you looking for opportunities to use your skills for the benefit of bird conservation? Consider participating in the Audubon Connecticut Master Bird Conservationist Program. Through this four-day workshop, participants will:

- Gain knowledge on bird species of conservation concern.
- Attend talks on conservation strategies that range from global to those you can apply in your own backyard.
- Receive training in field ornithology techniques, such as bird surveys, bird banding, ebird, etc.

When: February 22, March 7, March 21, and April 4, from 9:00 AM – 5:00 PM.

Where: The first three days of the workshop will be held at Bridgeport City Hall. The last day will involve field trips to Important Bird Areas.

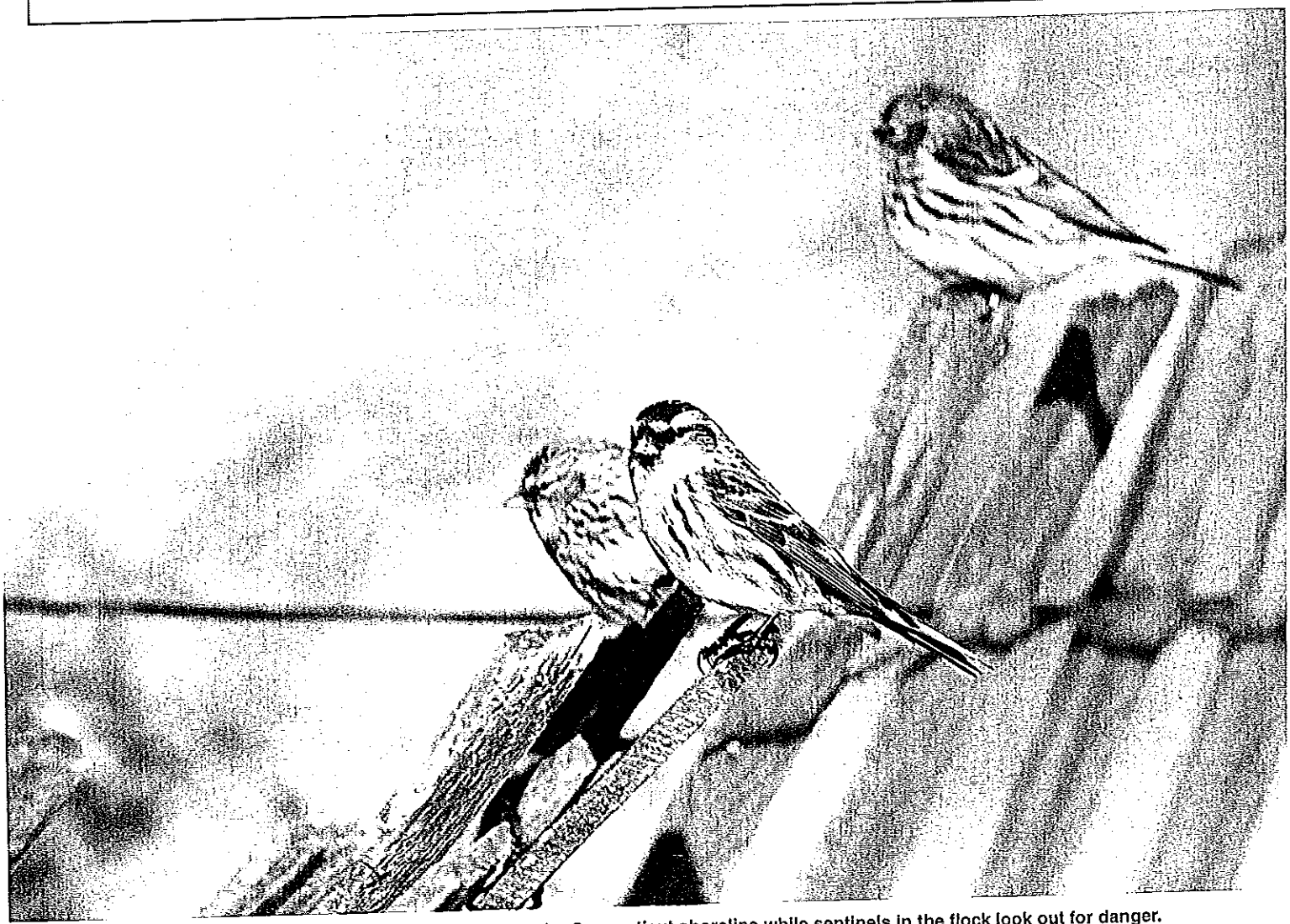
To participate, contact Karen Dixon (203-869-5272, kdixon@audubon.org) or visit http://ct.audubon.org/ for an application. The program is free, but participants will be required to commit to 20 hours of volunteer service by participating in citizen science programs, educational outreach activities, or conservation advocacy. This program was made possible through the generous support of the Leon Levy Foundation.

Connecticut Wildlife

PERIODICALS POSTAGE PAID AT BURLINGTON, CT, AND ADDITIONAL OFFICES

Connecticut Department of Energy and Environmental Protection
Bureau of Natural Resources / Wildlife Division
Sessions Woods Wildlife Management Area
P.O. Box 1550
Burlington, CT 06013-1550

EXPIRES COMP.
MANSFIELD CONSV/INLD WETLANDS
TOWN HALL
4 S EAGLEVILLE RD
STORRS CT 06268-2574



A small flock of common redpolls finds food and cover along the Connecticut shoreline while sentinels in the flock look out for danger.

In This Issue

CLEARSCAPES

CLEAR

A Newsletter of the Center for Land Use Education and Research at the University of Connecticut

Outreach

The Geospatial Training Program (GTP)

Working at Local, State, National and Cyberspace Levels

CLEAR's Geospatial Training Program (GTP) is actually much more than its name implies, working on a wide range of projects involving geospatial analysis and tool development, as well as developing and delivering training. All of this is primarily done by CLEAR's Cary Chadwick and Emily Wilson, who not only do their own projects but also provide ongoing support to CLEAR's other programs. As we like to say, the line outside their office is long. Here are some things that GTP is doing.

One of GTPs core functions is to develop and run training programs on geographic information systems (GIS), global positioning systems (GPS), and, increasingly, a wide range of technologies that can be described as "web mapping" techniques. The audience for these classes, which are frequently sold out, includes private sector professionals, academics, agency staff, nonprofit organization members, and of course CLEAR's main audience of community staff and commissioners. The GTP Training Schedule page is one of the most frequently accessed parts of the CLEAR website.

In collaboration with CLEAR's National NEMO Network, the GTP is also providing national training to members of the USDA National Water Program, a network that includes researchers, extension professionals,

GTP's Cary Chadwick leads the Pictures, Points & Places: An Introduction to GPS class.

and other people at Land Grant and Sea Grant universities across the country. GTP conducts training sessions on online mapping techniques at the annual water program national conference and at specially scheduled regional workshops. To date, the team has been to South Carolina, California, Hawaii, Maine, West Virginia, Rhode Island Massachusetts, and New Hampshire.

. . . continued on pg 2

The NEW Community & Natural Resource Planning Program

CLEAR would like to welcome the Community and Natural Resource Planning (CNP) Program to its family of partners. This new organization evolved out of the Green Valley Institute (GVI) which conducted land use education and outreach in the 35 towns of The Last Green Valley National Heritage Corridor since 1999. CNP will expand GVI's mission—improving the knowledge base from which land use and natural resource decisions are made—to reach a larger audience. The new format and collaborations will address community and natural resource planning issues throughout the entire state of Connecticut.

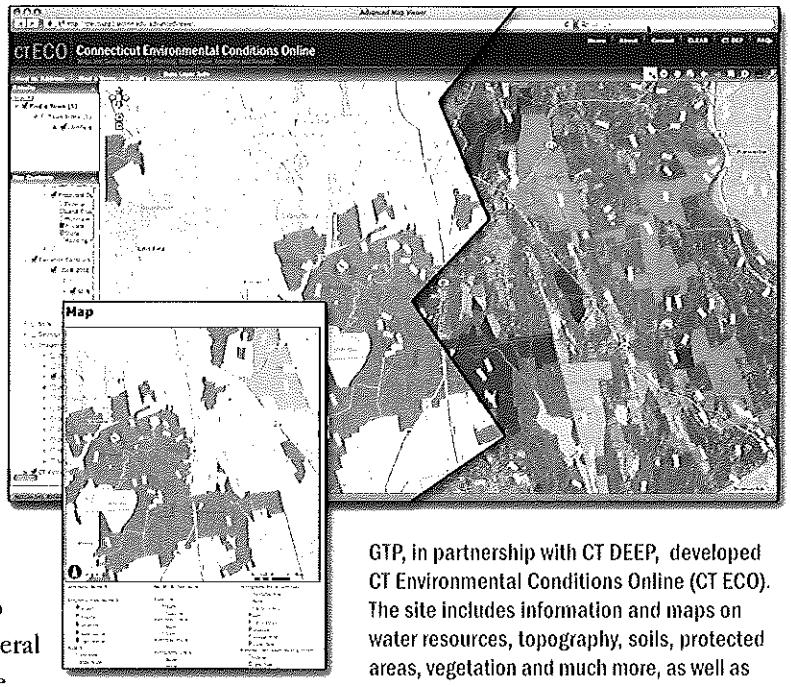
In partnership with the Connecticut Environmental Review Team and the Eastern Connecticut Resource Conservation and Development Area, CNP is conducting a series of land use workshops this year. In the fall of 2011, CNP conducted two series of four workshops each in conjunction with the Central CT Regional Planning Agency and the CT River Estuary Regional Planning Agency. This spring CNP will present two additional workshop series in conjunction with the Northwestern CT Council of Governments, the Litchfield Hills Council of Elected Officials and the Southeastern CT Council of Governments.

. . . continued on pg 4

Geospatial Training Program

...continued from page 1

On the tool development front, GTP has increasingly moved to online mapping tools. These tools, as opposed to desktop tools that require specialized expertise, are typically accessible to users at all levels of geospatial expertise. While there have been web tools on the CLEAR site for some time, including NEMO's Online Community Resource Inventory and the Connecticut's Changing Landscape site, the culmination of this work to date has been the creation of Connecticut Environmental Conditions Online, or "CT ECO." CT ECO was developed as a full partnership with the CT Department of Energy and Environmental Protection (CT DEEP). CT ECO uses advanced web mapping technology to provide local, state and federal agencies, and the general public with convenient access to the most up-to-date and complete natural resource information available statewide. Included is information and maps on water resources, topography, soils, protected areas, vegetation and much more, as well as the latest statewide high resolution aerial photos. CT ECO is at: www.cteco.uconn.edu.



GTP, in partnership with CT DEEP, developed CT Environmental Conditions Online (CT ECO). The site includes information and maps on water resources, topography, soils, protected areas, vegetation and much more, as well as the latest statewide high resolution aerial photos. (Images, above) CT ECO's Advanced Map Viewer shows an area of Litchfield displaying multiple layers including protected open space, elevation and waterbodies. Maps can be viewed both with and without aerial imagery. (Image inset) Users can print customized map layouts.

As noted, GTP also conducts analysis and mapping in support of CLEAR's other programs. GTP, for instance, analyzes the land cover data produced by the Connecticut's Changing Landscape project, and creates the statistics, maps and websites needed to get that information out to the public. Occasionally, GTP will do an analysis at the town or watershed level, funding and time permitting. For instance, GTP and NEMO collaborated with the Connecticut Office of Policy and Management and the Central Naugatuck Region Council of Governments on a study of the planning technique known as a "buildout analysis." That study was focused primarily on a regional analyses and its implications for feasibility of conducting a statewide buildout (see nemo.uconn.edu/publications/about_buildouts.pdf). In contrast, a more recent project with the Town of Kent was conducted to provide information to the town as it develops revisions to its Plan of Conservation and Development. This project was taken on due to Kent's unusual soils-based zoning, and also broke new technological ground in that the data on building locations used in the analysis was provided by local volunteers via Google Earth.

GTP is not only its own program, but in many ways the glue that holds the many CLEAR programs together.

For more information, contact Cary Chadwick at cary.chadwick@uconn.edu, or visit: clear.uconn.edu/geospatial.

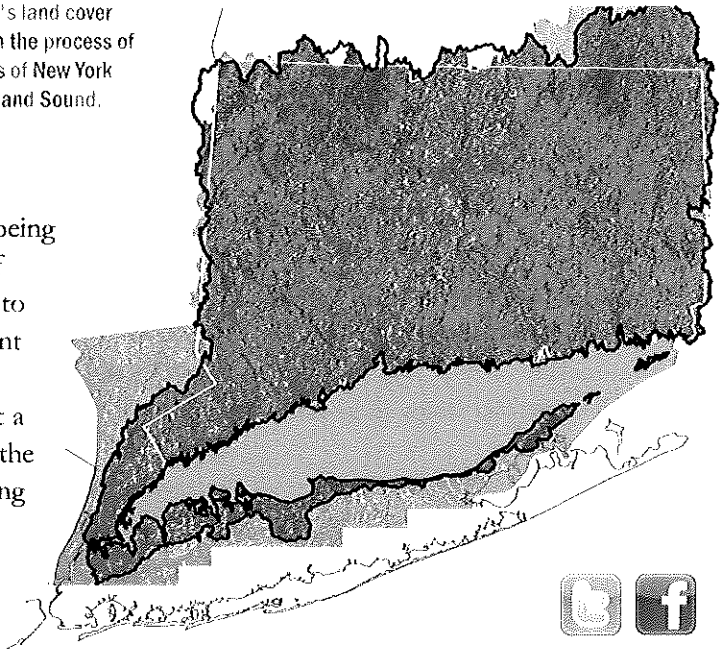
GTP Spring 2012 Training Schedule

The new GTP Spring 2012 training schedule has just been announced. Visit clear.uconn.edu/geospatial/training.htm for more details and registration or contact Cary Chadwick.

- **April 18-20** - Intro to GIS: Geospatial Technologies at Work
- **April 25** - Intro to ModelBuilder: Creating and Using Geospatial Models
- **May 1-2** - Intro to Python Scripting: Developing Custom Geoprocessing Tools
- **June 14-15** - Intro to GPS: Pictures, Points & Places
- **June 20-22** - Intro to GIS: Geospatial Technologies at Work

Program Updates

(Map, right) CLEAR's land cover change project is in the process of adding the portions of New York draining to Long Island Sound.



▶ **CLEAR's Land Use Academy (LUA)** held its first-ever **Advanced Training** on November 5, 2011. Attendance was at capacity, attracting 85 land use commissioners and professional planners from 36 towns for the day long training held on the Central Connecticut State University campus in New Britain. LUA Director Bruce Hyde developed the program in response to feedback from attendees of the Academy's Basic Training sessions, and after soliciting input from both town planners and planning and zoning commissioners. The Academy is a partnership with the Connecticut Bar Association (CBA), and the Advanced Training featured four talks from prominent CBA land use attorneys on topics like *Bias and Conflicts, Conditions and Modification,* and *Running a Meeting.* Based on the success of the November session, another **Advanced Training is scheduled for March 31, 2012.** Details for the upcoming training and the agenda and copies of the talks from November can be found at: clear.uconn.edu/lua/advanced. (the next **Basic Training is scheduled for April 21, 2012.** Details on the website clear.uconn.edu/lua)

▶ **The Land Use Academy** is also working on two projects recently funded by the U.S. Department of Housing and Urban Development. The projects focus on **transit oriented development (TOD), value capture and affordable housing** in communities along the New Haven-Hartford-Springfield rail corridor. For both projects, one led by the Connecticut Department of Economic Development (DECD) and the other by the Capitol Region Council of Governments (CRCOG), LUA will be developing educational programs on Affordable Housing. In addition, research is being conducted on the use of tax increment financing to promote the development of affordable housing. These projects represent a new topical strength for the LUA, and involve working with new partners like DECD, CRCOG, and the Partnership for Strong Communities program.

For more information contact: Bruce Hyde, 860-345-5229, bruce.hyde@uconn.edu.

▶ **The Connecticut's Changing Landscape (CCL)** project is in the midst of expanding its geographic range and extending the time period covered by the study. The project is funded by the federal/state Long Island Sound Study, which uses CCL land cover change data to help track Long Island Sound conditions and trends. CLEAR is in the final stages of **adding the portions of New York** (see image, above) that drain to the Sound (which includes most of Westchester County and the northern shore of Long Island) to the CCL database for the 1985 – 2006 period. Maps and information for the newly expanded study area will be made available this spring on the web using cutting-edge internet mapping technology. Basic land cover, impervious cover, and riparian (streamside) cover change will all be included. Following quickly on the heels of the NY addition will be an **update of the CCL using 2010 imagery**, thus creating a nationally unique database charting 25 years (1985-2010) of change.

For more information contact: CLEAR, 860-345-4511, clear@uconn.edu.

Websites & Webinars

2012 CLEAR Webinar Series

The 2012 CLEAR Webinar Series is getting underway. This year's topics cover a wide range, from the latest web mapping technology to low impact development to climate change adaptation, and even community food security! As always, our webinars are only one hour long and free of charge. First on the schedule are:

- **February 28** - An Introduction to "Buildout" Analyses
- **March 13** - LID in Connecticut: a Virtual Tour of Where It's Working
- **May 8** - ArcGIS.com: A User-Friendly Tool for Creating Maps Online

Visit the CLEAR website to register and for the full 2012 schedule, **clear.uconn.edu (see Events & Information).**

CLEAR is Blogging!

We hope our blog will be useful in keeping you up-to-date on our latest research projects, training classes, workshops, webinars, publications, and anything else we feel like talking about! Check out our new blog at **clear.uconn.edu/blog.**

Outreach Continued...

The NEW Community & Natural Resource Planning Program continued from page 1

Each RPA conducted a brief online survey to assess the educational needs of the land use decision-makers in their region. As a result, the fall workshop series addressed the following issues:

- Development Alternatives
- Economics of Land Use
- Growth and Community Character
- Building Sustainable Communities
- Low Impact Development

Other CLEAR partner organizations, including CT NEMO, are participating by providing expertise on low impact development and other topics of interest.

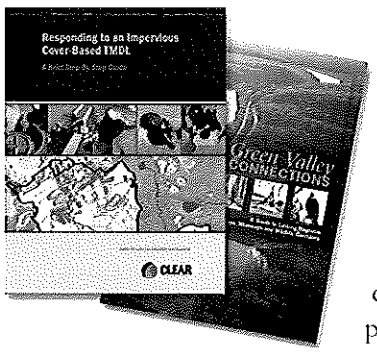
CNP's staff includes Susan Westa, Associate Extension Educator who specializes in land use planning and policy and Paula Stahl, Assistant Extension Educator, licensed Landscape Architect and community finance specialist. They bring together a wealth of information and experience addressing a wide range of issues from community planning and design to economic development. Other CNP staff and organizational partnerships provide expertise in natural resource protection. Holly Drinkuth, CNP Natural Resource Program Coordinator also serves as the Director of Education and Outreach Programs for The Nature Conservancy in Connecticut, focusing on the benefits of healthy natural systems for communities. She currently works with CLEAR's Extension Forestry Program to provide information and support to Connecticut woodland owners, managers and community land use decision makers. CNP's work program will continue to evolve over the next year as it works with different communities and identifies educational needs of land use decision-makers throughout the state.

For more information contact: Susan Westa, 860-774-9600, susan.westa@uconn.edu.

New CLEAR Publications

CLEAR came out with a number of publications recently that may be worth a look:

- CLEAR published ***Land Cover Change in the Riparian Corridors of Connecticut*** in the Fall 2011 issue of Watershed Science Bulletin. This paper looks at statewide development trends in these critical streamside areas, and discusses the implications for watershed health and local land use controls. Copies cannot be posted on the web until Sept. 2012, but we can send individual PDF copies.



Email Chet Arnold at chester.arnold@uconn.edu.

- CLEAR's Community and Natural Resource Planning program (see article, page 1) published ***Green Valley Connections: A Guide to Linking Regional Greenways, Blueways and Wildlife Corridors***. This guide is a hands-on manual that describes the benefits of, and processes involved with, building "green infrastructure" at the town and regional level. While the manual uses examples from towns in Northeastern Connecticut, the process guidance, including the step-by-step workbook that comprises the second half of the book, is relevant to any community.

The guide is online at clear.uconn.edu/publications/GVConnections.pdf. Printed copies may be available, for more information contact Paula Stahl at paula.stahl@uconn.edu.

- CLEAR's NEMO program has published ***Responding to an Impervious Cover-Based TMDL: A Brief Step-By-Step Guide***, a new booklet providing guidance for communities faced with impervious surface-related regulations. The booklet is based largely on NEMO's recent experience with the Eagleville Brook Impervious Cover Total Maximum Daily Load (IC-TMDL) project, a partnership of CLEAR, CT DEEP, the University of Connecticut, and the Town of Mansfield. Impervious cover-based regulations are likely to be an increasing trend in the future, and the process outlined in the booklet can be of use to any town concerned about protecting its water resources from stormwater runoff.

The booklet can be downloaded at: clear.uconn.edu/projects/TMDL/library/IC-TMDL-Guide_final.pdf.

Contact CLEAR at: University of Connecticut, CES, 1066 Saybrook Road, P.O. Box 70, Haddam, CT 06438 • Phone: (860) 345-4511
• Email: clear@uconn.edu • Web: clear.uconn.edu
• Editor: Chet Arnold • Designer: Kara Bonsack

The University of Connecticut Center for Land Use Education and Research (CLEAR) provides information, education and assistance to land use decision makers, in support of balancing growth and natural resource protection. CLEAR is a partnership of the Department of Extension and the Department of Natural Resources and the Environment at the College of Agriculture and Natural Resources, and the CT Sea Grant College Program. Support for CLEAR comes from the University of Connecticut and from state and federal grants.

University of Connecticut
College of Agriculture and Natural Resources

Connecticut Department of
Energy & Environmental Protection
Bureau of Materials Management & Compliance Assurance
Engineering & Enforcement Division

Permit Application for the Use of Pesticides in State Waters

Please complete this form in accordance with section 22a-66z CGS and the instructions (DEP-PEST-INST-200) in order to ensure the proper handling of your application. Print or type unless otherwise noted. You must submit the initial fee along with this form.

CPPU USE ONLY
App #:_____
Doc #:_____
Check #:_____
_____

Part I: Application Description

Town where site is located: Mansfield

Brief Description of Project: Application of Aquashade and Sonar to control algae and duckweed in pond (Water hole #35)

Part II: Fee Information

A fee of $200.00 [#1009] is to be submitted with *each* permit that you are applying for. Each site requires a separate permit. There is no discount for municipalities. The application will not be processed without the fee. The fee shall be non-refundable and shall be paid by check or money order to the Department of Energy and Environmental Protection.

Part III: Site Location

Name of Waterbody: Curtin waterhole #35

Street address and/or description of location: **15 Farmstead Road**

City/Town: **Storrs** State: **CT** Zip Code: **06268**

Part IV: Applicant Information

- **If an applicant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of State. If applicable, the applicant's name shall be stated **exactly** as it is registered with the Secretary of State.* This information can be accessed at CONCORD. (www.concord-sots.ct.gov/CONCORD/index.jsp)

- *If an applicant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).*

Part IV: Applicant Information (continued)

1. **Applicant Name:** William M. Curtin

Mailing Address: 15 Farmstead Road

City/Town: Storrs State: CT Zip Code: 06268

Business Phone: ext.: Fax:

Contact Person: Self Phone: (860) 429-3407 ext.

*E-mail: wcurtn27@yahoo.com

*By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject application. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes.

a) Applicant Type (check one): ☒ individual ☐ *business entity ☐ federal agency
☐ state agency ☐ municipality ☐ tribal

*If a business entity:

i) check type: ☐ corporation ☐ limited liability company ☐ limited partnership
☐ limited liability partnership ☐ statutory trust ☐ Other: _____

ii) provide Secretary of the State business ID #:_____This information can be accessed at CONCORD

iii) ☐ Check here if you are **NOT** registered with the Secretary of State's office.

b) Applicant's interest in property at which the proposed activity is to be located:

☒ site owner ☐ option holder ☐ lessee
☐ easement holder ☐ operator ☐ pesticide applicator
☐ other (specify): _____

☐ Check if any co-applicants. If so, attach additional sheet(s) with the required information as requested above.

2. **Billing contact, if different than the applicant.**

Name: **William M. Curtin**

Mailing Address: 15 Farmstead Road

City/Town: Storrs State: CT Zip Code: 06268

Business Phone: ext.: Fax:

Contact Person: Self Phone: (860) 429-3407 ext.

E-mail: wcurtn27@yahoo.com

3. **Primary contact for departmental correspondence and inquiries, if different than the applicant.**

Name:

Mailing Address:

City/Town: State: Zip Code:

Business Phone: ext.: Fax:

Contact Person: Phone: ext.

*E-mail:

*By providing this e-mail address you are agreeing to receive official correspondence from the department, at this electronic address, concerning the subject application. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify the department if your e-mail address changes.

Part IV: Applicant Information (continued)

4. **List only one owner of the site to be treated.**

Name: **William M. Curtin**

Mailing Address: 15 Farmstead Road

City/Town: Storrs State: CT Zip Code: 06268

Business Phone: ext.: Fax:

Contact Person: Self Phone: (860) 4293507 ext.

E-mail: wcurtn27@yahoo.com

5. **List the person or company applying the pesticides.**

Name: **William M. Curtin**

Mailing Address: 15 Farmstead Road

City/Town: Storrs State: CT Zip Code: 06268

Business Phone: ext.: Fax:

Contact Person: Self Phone: (860) 429-3407 ext.

E-mail: wcurtn27@yahoo.com

Certification Number:

Part V: Site Information

1. **COASTAL AREA:** Is the pesticide application located in a municipality within the coastal area?

☐ Yes ☒ No *(check town list in the instructions)*

If yes, is the water being treated subject to the ebb and flow of the tides, or inundated by saline or brackish water at least once a month? ☐ Yes ☐ No

If the water being treated is subject to the ebb and flow of the tides, or is inundated by saline or brackish water at least once a month, you must submit a *Coastal Consistency Review Form* (DEP-APP-004) with your application as Attachment C.

For assistance in determining if the water being treated is affected by tidal water as described above or in completing the Coastal Consistency Review form, contact the Office of Long Island Sound Programs (OLISP) at 860-424-3034.

2. **ENDANGERED OR THREATENED SPECIES:** According to the most current "State and Federal Listed Species and Natural Communities Map", is the activity which is the subject of this application located within an area identified as a habitat for endangered, threatened or special concern species or located less than ½ mile upstream or downstream of such an area? ☐ Yes ☒ No Date of Map: **Dec. 2011**

If yes, complete and submit a *Request for NDDB State Listed Species Review Form* (DEP-APP-007) to the address specified on the form, **prior** to submitting this application. **Please note NDDB review generally takes 4 to 6 weeks and may require additional documentation from the applicant.** A **copy** of the completed *Request for NDDB State Listed Species Review Form* **and** The CT NDDB response ***must*** be submitted with this completed application as Attachment D.

For more information visit the DEEP website at www.ct.gov/deep/nddbrequest or call the NDDB at 860-424-3011.

Part V: Site Information (continued)

3. **AQUIFER PROTECTION AREAS:** Is the site located within a town required to establish Aquifer Protection Areas, as defined in section 22a-354a through 354bb of the General Statutes (CGS)?

   ☐ Yes ☒ No To view the applicable list of towns and maps visit the DEEP website at www.ct.gov/deep/aquiferprotection

   If yes, is the site within an area identified on a Level A or Level B map? ☐ Yes ☐ No

   If your site is on a Level A or Level B map, you are not required to register under the Aquifer Protection Program, ***however*** you must follow proper spill control measures to prevent potential contamination of drinking water. If you should have a spill, please call the emergency hotline ***immediately*** at 860-424-3338.

4. **CONSERVATION OR PRESERVATION RESTRICTION:** Is the property subject to a conservation or preservation restriction? ☐ Yes ☒ No

   If Yes, proof of written notice of this application to the holder of such restriction or a letter from the holder of such restriction verifying that this application is in compliance with the terms of the restriction must be submitted as Attachment F.

5. Type of area to be treated: ☐ Tidal Waters ☒ Pond or Lake ☐ Stream

6. Is the waterbody located in a public water supply watershed? ☐ Yes ☒ No

7. Where does the waterbody flow to? **Willimantic River**

   Is the outflow usually flowing? ☐ Yes ☒ No Can outflow be stopped? ☐ Yes ☐ No

8. Identify the size of the waterbody: **80 feet** Length (ft.) **60 feet** Width (ft.) **.10** Acres

   8 feet Maximum Depth (ft.) **4 feet** Average Depth (ft.) **.40** Volume (Ac-ft)

9. Portion of the waterbody to be treated: **.10** Acres **.40** Volume (Ac-ft.)

10. Does the waterbody have public access? ☒ Yes ☐ No

11. Is the waterbody stocked with fish by the state? ☐ Yes ☒ No

12. Identify use(s) of waterbody:

    ☐ domestic water supply ☐ irrigation ☐ watering livestock ☐ swimming ☐ fishing

13. Are there any downstream users of the water who may be affected by treatment? ☐ Yes ☒ No

    If yes, please explain:

Part V: Site Information (continued)

14. Within 1/2 mile of the treatment area, are there any public or private drinking water wells 50 ft. or less from the shoreline? ☐ Yes ☒ No

15. Identify all plants or animals to be controlled: **Algae and duck weed**

16. Identify all types of fish present: **sunfish and catfish**

17. Identify proposed chemicals to be used, the amount per treatment and number of treatments:

Chemical	*Amount per Treatment*	*Number of Treatments*
a) **Aquashade**	**12 oz.**	**2**
b) **Sonar**	**2 oz.**	**2**
c)		

18. Projected date(s) of pesticide use: **Aqua shade: March Aquashadeand April; Sonar: June and July**

19. List prior years in which chemicals were applied to this waterbody:
Aquashade 2001 to 2007, 2009 to 2011; Sonar 2009 to 2011

Part VI: Supporting Documents

Be sure to read the instructions (DEP-PEST-INST-200) to determine whether the attachments listed are applicable to your specific activity. Check the applicable box below for each attachment being submitted with this application form. When submitting any supporting documents, please label the documents as indicated in this part (e.g., Attachment A, etc.) and be sure to include the applicant's name as indicated on this application form.

☒ Attachment A:	An 8-1/2" x 11" legible copy or original of a USGS Topographic Quadrangle Map (scale 1:24,000) indicating the exact location of the area to be treated.
☐ Attachment B:	*Applicant Compliance Information Form* (DEP-APP-002), if applicable.
☐ Attachment C:	*Coastal Consistency Review Form* (DEP-APP-004), if applicable.
☐ Attachment D:	**Copy** of the completed *Request for NDDB State Listed Species Review Form* (DEP-APP-007) **and** the NDDB response, if applicable.
☐ Attachment E:	Copy of certified mail receipt verifying that this completed application has been sent to the local inland wetlands agency. For multiple applications submitted to the local inland wetlands agency under one certified mail receipt, please attach a copy of such receipt to each application being submitted to the department.
☐ Attachment F:	Conservation or Preservation Restriction Information, if applicable.

Please note that local inland wetlands agencies may have additional requirements pertaining to the application of aquatic pesticides to waterbodies located under their jurisdiction.

Part VII: Application Certification

The applicant *and* the individual(s) responsible for actually preparing the application must sign this part. An application will be considered insufficient unless *all* required signatures are provided. Please also check the box and provide the date for which you sent one copy of this completed application to the appropriate local inland wetland agency.

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief.

I understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with section 22a-6 of the General Statutes, pursuant to section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

I certify that this application is on complete and accurate forms as prescribed by the commissioner without alteration of the text.

☐ I also certify that I have sent one copy of this completed application to the appropriate local inland wetland agency on **February 28, 2012** "

Date

William M. Curtin	**February 28, 2012**
Signature of Applicant	Date
William M. Curtin	
Name of Applicant (print or type)	Title (if applicable)
Signature of Preparer (if different than above)	Date
Name of Preparer (print or type)	Title (if applicable)

☐ Check here if additional signatures are required. If so, please reproduce this sheet and attach signed copies to this sheet.

Note: Please submit this completed Application Form, Fee, and all Supporting Documents to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

Please also submit a copy of this completed application to the local inland wetlands agency.

Water hole #:
15 Farmtea
Storrs, CT
0626