

## **AGENDA**

Mansfield Conservation Commission

Wednesday, May 18, 2011

Audrey P. Beck Building

CONFERENCE ROOM B

7:30 PM

1. **Call to Order**
2. **Roll Call**
3. **Opportunity for Public Comment**
4. **Minutes**
  - a. April 20, 2011
5. **New Business**
  - a. IWA Referrals: W1477 - Walker - Riverview Rd - Solar Energy Installation  
W1474-Plimpton Subdivision (Public Hearing Continued until 6/6/11)
  - b. Water Supply Forum- May 11 meeting
  - c. Other
6. **Continuing Business**
  - a. Town Council letter on the UConn Water Supply Plan
  - b. Natchaug River Basin Conservation Compact-signing April 29
  - c. Protecting Dark Skies in the Last Green Valley
  - d. Water Source Study for the Four Corners Area (available on Mansfield's website)
  - e. Swan Lake Discharge Mirror Lake Dredging and other UConn Drainage Issues
  - f. UConn Agronomy Farm Irrigation Project
  - g. Eagleville Brook Impervious Surface TMDL Project (April 2011 CLEAR Report)
  - h. UConn Hazardous Waste Transfer Station (to be discussed at future Town/University Relations Committee meeting)
  - i. Ponde Place Student Housing Project
  - j. CL&P "Interstate Reliability Project" (application to State DPUC expected to be submitted in 2011)
  - k. Other
7. **Communications**
  - a. Minutes
    - Open Space (4/19/11) • PZC (4/19/11 & 5/2/11) • IWA (5/2/11)
  - b. Inland Wetlands Agent Monthly Activity Report
  - c. 4/26/11 letter Re: UConn Water Supply Plan
  - d. Spring 2011 Willimantic River Review
  - e. 4/28/11 The Impervious Cover TMDL Project Update
  - f. Spring 2011 "The Habitat"
  - g. May/June 2011 "CT Wildlife"
  - h.
  - i. Other
8. **Other**
9. **Future Agendas**
10. **Adjournment**

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Town of Mansfield  
**CONSERVATION COMMISSION**  
Meeting of 20 April 2011  
Conference B, Audrey P. Beck Building  
**(draft) MINUTES**

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

1. The meeting was **called to order** at 7:38p by Chair Quentin Kessel.
2. The draft **minutes of the 16 March 2011 meeting** were approved as written.
3. A public hearing on **W1474 (Plimpton, Wormwood Hill & Gurleyville Rds)** has been scheduled for 2 May. The Commission sees no need to enlarge upon its previous comment (Minutes of 16 March 2011, item 3a).
4. UConn has released its **March 2011 Draft Water Supply Plan**, which (a) estimates the water needs of the University (and other users supplied by its system) through 2060 and (b) surveys and assesses various options for meeting this demand with a margin of safety of 1.15 (= ratio of supply to demand). Currently, the system's water is supplied by wells in aquifers along the Willimantic and Fenton Rivers. Low rainfall in late summer and early fall limits supply just when demand increases with the return of students; in fall 2010, the University operated under a water emergency as the system's margin of safety dropped below 1.0. Shortfalls of a few days duration can be covered by water stored in tanks; those of longer duration require reducing demand or increasing supply. In the short to medium term, the University proposes to reduce demand, mainly by reclaiming water (i.e., re-using treated water) for heating, cooling, and irrigation. In the longer term, additional supplies must be secured, perhaps by relocating wells in the Willimantic aquifer, more probably by importing water from elsewhere (e.g., Mansfield Hollow or Shenipsit Reservoirs).

Town comments on the Draft Plan are due by 26 April. After some discussion, the Commission agreed unanimously on the following motion (Buck, Silander):

The Commission authorizes its Chair to prepare a letter to the Mansfield Town Council covering the issues discussed, to be circulated by e-mail for editorial comments/changes before forwarding to the Town Planner for incorporation into the Town's comments on the Draft University of Connecticut Water Supply Plan.

The "issues discussed" include (a) concurrence with the Willimantic River Alliance's comment, (b) additional historical background on the water supply problem, (c) moving Fenton Well A farther from the river to limit 'induced infiltration,' as recommended in the University's Fenton River study, and (d) protecting water quality in Fenton Well D by avoiding diversion of storm runoff to Roberts Brook.

5. A public hearing on proposed **revisions to the Mansfield Zoning Regulations** will be held on 16 May. These are additions to or elaborations of existing regulations, and appear not to raise any significant issues of interest to the Commission. Kessel may offer an individual comment on lighting provisions (V.A.3.d.17, V.A.5.g, X.A.11.g), based on what he learned at the 28 February Green Valley Institute presentation on light pollution.

6. The wheel of fortune turns again for **Ponde Place**. According to Meitzler, 2 of 3 monitoring wells drilled near Meadowbrook Lane (to assess the impact on neighborhood wells of extracting water from a new well on the property) have struck water and appear capable of supplying 20 gpm each. The developers are now applying to have the two wells approved as production wells, enabling the project to be scaled back up in size. It is not yet clear whether substantial withdrawals would draw in contaminants from the old UConn chemical landfill.

7. A public hearing on a zoning permit for the proposed **Storrs Center parking garage/bus station** is scheduled for 4 May. The Commission has nothing – save perhaps a hope that this facility will permit people to park their cars and wait for a bus inside, out of the weather – to add to its 18 April 2007 comment on the proposed Storrs Center project (PZC 1256-57), regarding provisions for preserving open space and protecting water quality & wildlife.

8. The Town Council has agreed to the **Natchaug River Basin Conservation Compact**. Kessel plans to attend a signing ceremony in Chaplin on 29 April.

9. The Commission is pleased to learn from the Town Manager's recent report to the Town Council of "a strong group of finalists" for the **position of Director of Planning and Development** (aka "Town Planner"), to succeed Greg Padick, who is retiring in June. Inasmuch as the Town Planner influences the balance between conservation and development in Mansfield, the Commission observes that it would have been appropriate to include a representative from it on the interview panel.

10. **Adjourned** at 8:47p.

Scott Lehmann, Secretary, 21 April 2011

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 # 1477  
W  
Fee Paid \$185-  
Official Date of Receipt 4-25-11

*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 Harriet (and Crayton) Walker  
Mailing Address 65 Riverview Rd.  
Mansfield Ctr., CT Zip 06250  
Telephone-Home 860-423-7169 Telephone-Business n.a.

Title and Brief Description of Project  
Proposed photovoltaic system  
Location of Project 65 Riverview Rd.  
Intended Start Date May 18, 2011

Part B - Property Owner (if applicant is the owner, just write "same")  
Name same  
Mailing Address \_\_\_\_\_  
Zip \_\_\_\_\_  
Telephone-Home \_\_\_\_\_ 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

*See attached*

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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

*See attached*

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

*See attached*

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a) include *type* of material used as fill or to be excavated \_\_\_\_\_

b) include *volume* of material to be filled or excavated \_\_\_\_\_

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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).

*See attached*

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**Part D - Site Description**

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

*See attached*

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**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.

See attached  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**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 April 22, 2011

3) Zone Classification R-20

4) Is your property in a flood zone?  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

See attached  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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.***

Harriet A. Walker  
Applicant's Signature

4/22/2011  
Date

## Part C - Project Description

1) The overall project we propose is a grid-tied photovoltaic system for our house at 65 Riverview Road, Mansfield Center, CT. The project will use a ground-mounted solar panel array placed about 30 feet northeast of our house, and, at its closest point, roughly 50 feet from the Natchaug River. This position for the solar array was chosen to provide good sun exposure on our property.

The project work that is most relevant to the Agency is the construction of a ground-mount rack for the panel array, and burying an electric cable that carries current from the array to the house.

The ground-mount work is scheduled to begin May 18, 2011. Work involving electrical components is expected to start a week later.

2) The solar panel array overall measures approximately 12 feet by 35 feet. The mounting rack by itself is approximately 8 feet by 34 feet.

3) The mounting rack is a simple pressure-treated wood frame made of two 34-foot 4"x6" beams, each beam supported by 5 vertical 4"x4" posts, braced as needed. The support posts rest on concrete piers buried in the ground.

The concrete piers are constructed on site using 12-inch diameter form tubes (Sonotube or similar) set at least 40 inches deep in a hole excavated by 2-man auger or small excavator. The forms are then filled with concrete mixed on-site using a portable mixer. The pier forms are back-filled by hand. Since there are 10 piers (five per beam) the total amount of material excavated and not used for back-fill is around 26 cubic feet. The material to be excavated in this area is mostly a mix of sand, silty sand, and gravel.

An electrical cable will run from the array to the northwest corner of our garage. The ditch for this cable will be about 50 feet in length. Its construction has minimal wetlands significance because 1) it is small (around 3" by 20") and 2) the cable to be buried in it is so small the ditch will be backfilled with almost 100% of the material excavated from it.

4) To minimize adverse effects on the nearby watercourse, we intend to stake hay bales between the river and the excavated area. Pressure-treated wood will be sawed over tarps. Sawdust will be collected and separately disposed of.

#### Part D - Site Description

The general character of the land is cleared, well-drained, largely flat land with a slight slope toward the river.

#### Part E - Alternatives

Alternative photovoltaic systems use a) roof-mounted or b) pole-mounted solar panel arrays.

Neither of these options is appropriate here. Our house does not have a south-facing roof large enough for a useful roof-mounted array. As compared to a ground-mounted system, a pole-mounted system is both more expensive and requires much more excavation for the very large concrete foundation needed to secure its suspended array.

As to a different location for our array, given the heavily treed nature of most of our land, the most practical course is to site the array where the fewest trees need to be taken down.

#### Part F - Map/Site Plan

- 1) Site plan attached
- 2) Applicant's map date: April 22, 2011
- 3) Zone Classification: R-20
- 4) Property in a flood zone? Yes, between the 100 and 300-year limits.

#### Part H - Notice to Abutting Property Owners

- 1) Names and addresses of abutting property owners: see list attached.



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Rec'd 4.28.11  
LGM

Mr. Scott Plimpton  
627 Wormwood Hill Rd.  
Mansfield Center, CT 06250

Dear Mr. Plimpton,

At your request, a vernal pool investigation was performed on the northern portion of the property located at 627 Wormwood Hill Rd., Mansfield Center, CT, 06250. It is my understanding that subdivision of the property is proposed, with the placement of a shared driveway in the vicinity of a wetland featuring characteristics of a vernal pool environment. Attachments to this letter report include a map identifying the wetland region of the property reviewed, and photo documentation of the site survey.

### Vernal Pool Review

On April 18, 2011, I conducted a vernal pool investigation on the wetland (see attached map). The average depth of the vernal pool was 14-17 inches, with a maximum depth of 32 inches. The soils to the south/southwest of the vernal pool are well drained, with moderately drained soils to the northwest of the vernal pool. Poorly drained soils are located directly west, and north/northeast of the vernal pool. Woodland surrounding the vernal pool provides good habitat for both wood frogs (*Rana sylvatica*), and salamanders. The following obligate species were observed in the vernal pool:

- Spotted salamander (*Ambystoma maculatum*) egg masses (approximately 60-75)
- Wood frog egg masses, common
- Wood frog tadpoles, common

Additionally, facultative vernal pool species, including Spring peeper frog (*Pseudacris crucifer*) egg masses and a northern water snake (*Nerodia s. sipedon*) was observed during the vernal pool survey.

### Potential Mitigation Measures

Management decisions and measures can be taken to mitigate the potential negative impacts on the vernal pool, that may result from development of the property. Calhoun and Klemens' (2002) Best Development Practices outlines planning practices that can be employed to assure appropriate measures are taken to with development in the vicinity of a vernal pool. Some recommendations for short-term construction impacts include:

- Use of erosion and sediment control best management practices to reduce erosion, such as staggered silt fencing, use of combinations of silt fencing and hay bales to reduce barrier affects, immediate re-seeding and permanent re-vegetation of native species with 85% cover, and prompt removal of silt fencing upon completion.

- Minimize disturbed areas to protect down gradient buffers, including a well established vegetated buffer to the vernal pools.

Some recommendations for long-term negative impact mitigation should include:

- Reduce the amount of roadway and impervious surfaces required for placement of residential properties, through the use of a shared drive-way and permeable material such as gravel.
- Do not clear regions and maintain a natural vegetative buffer within 100 ft of the vernal pool depression (envelope) and limit development to less than 25% of the critical terrestrial habitat located within 750 ft of the vernal pool.
- Stormwater best management practices must be applied, including detention and biofiltration ponds place appropriate distances from vernal pool habitat, treat stormwater using grassy swales less than 1:4 sloping edges, use of hydrodynamic barriers, avoidance of increase or decreases in wetland water levels, and limitation of impervious surfaces.
- Selection of a portion of the property as a conservation easement would establish a connection with adjacent open space parcels and provide a corridor for migration of wildlife species.

Please contact me if you have any questions or concerns with the completed study.

Sincerely,



Kimberly Bradley  
Project Scientist/Ecological Consultant  
GEI Consultants

## References

Calhoun, A. J. K. and M. W. Klemens. 2002. Best development practices: Conserving pool-breeding amphibians in residential and commercial developments in the northeastern United States. MCA Technical Paper No. 5, Cary Institute of Ecosystem Studies. Millbrook, NY.

CTDEP. October 1997. An Introduction to the Connecticut Inland Wetlands and Watercourses Act Prepared by the CT DEP Bureau of Water Management, Inland Water Resources Division, Wetlands Management Section.

Kenney, L.P. and M.R. Burne. 2001. A Field Guide to the Animals of Vernal Pools. Massachusetts Division of Fisheries and Wildlife and Natural Heritage and Endangered Species Program. Westborough, Massachusetts. 77p.

Klemens, M. W. 2000. Amphibians and Reptiles in Connecticut: A Checklist with Notes on Conservation Status and Distribution. Connecticut Department of Environmental Protection. Hartford, Connecticut Bulletin 32:1-90.



## Photographs

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Photo 1: Vernal pool habitat, center of the northeastern portion of the wetland view west.

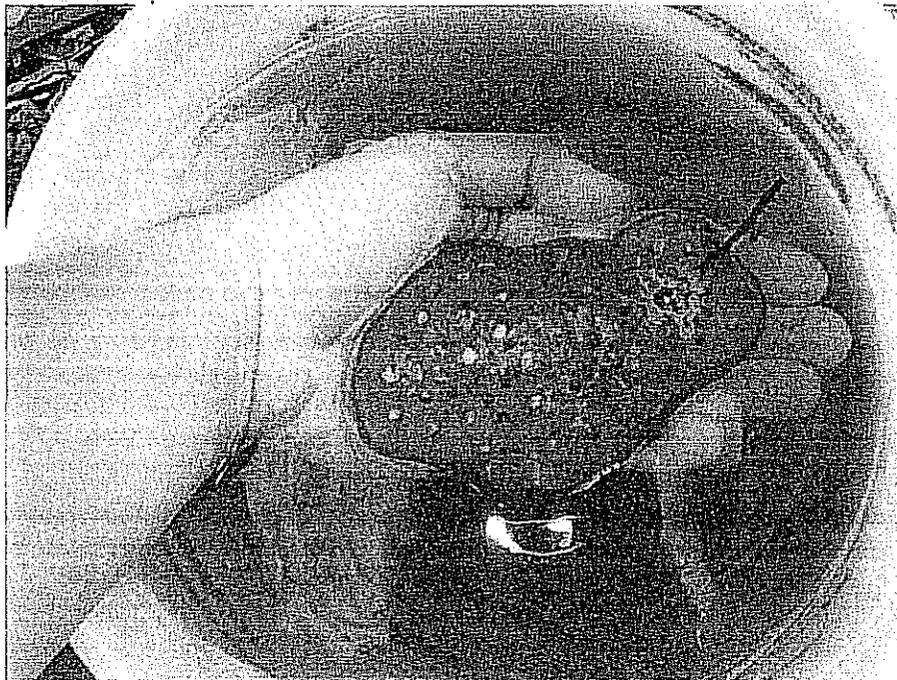


Photo 2: Spotted salamander egg mass collected along western edge of vernal pool.



**Photo 3: Remnant wood frog egg sack and wood frog tadpoles collected from the vernal pool.**



**Photo 4 : Center of vernal pool, view south.**



Photo 5: Center of vernal pool, view north.

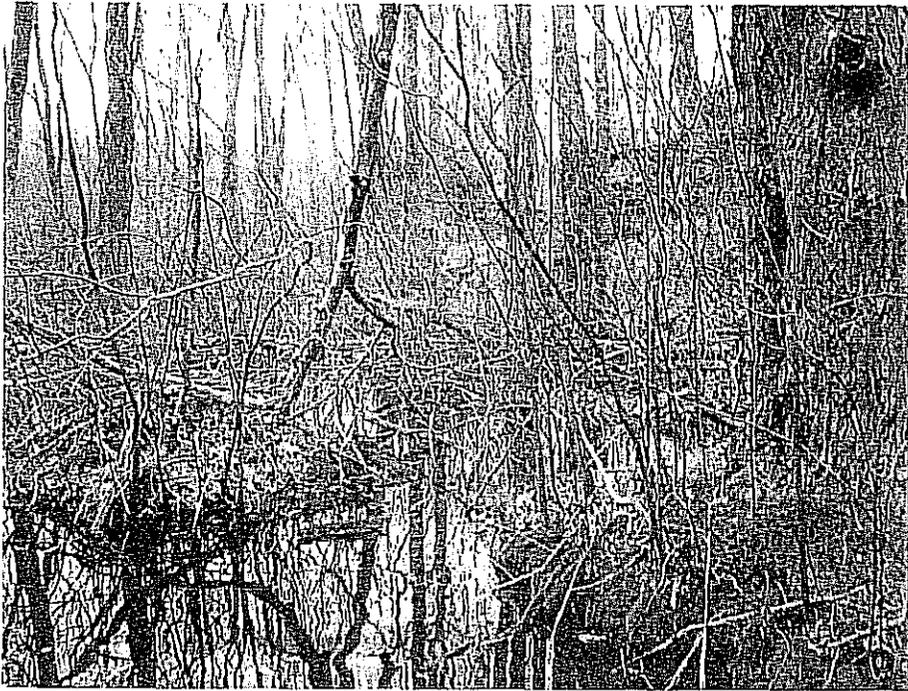
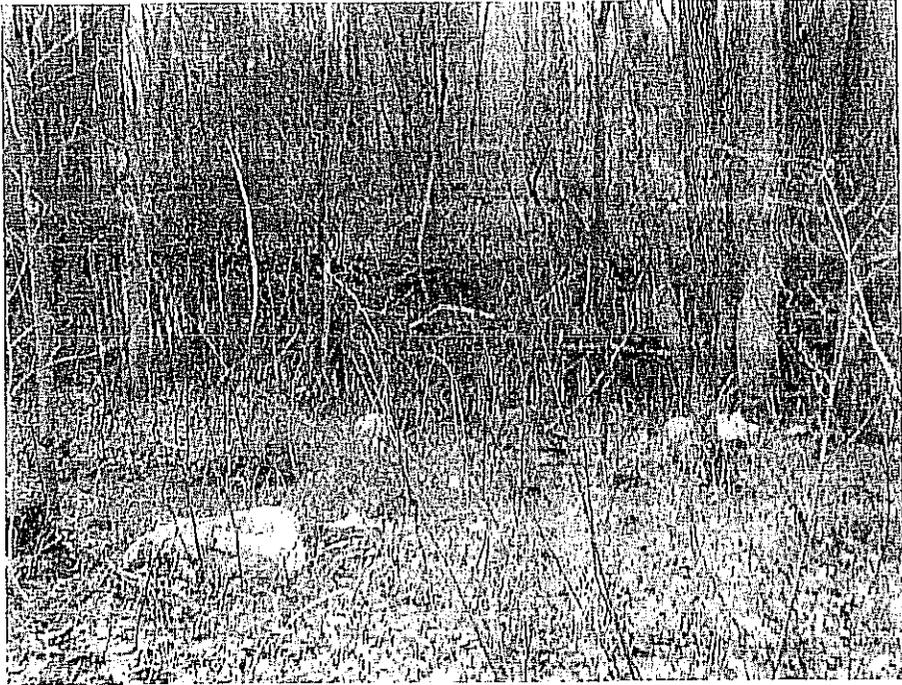


Photo 6 : Northern region of the vernal pool, view east.



**Photo 7 : Vernal pool from up gradient eastern portion of the property.**

**Mansfield Open Space Preservation Committee**  
DRAFT Minutes of April 19, 2011 meeting

Members present: Jim Morrow (chair), Quentin Kessel, Vicky Wetherell, Ken Feathers.

1. Meeting was called to order at 7:35.
2. Vicky was appointed acting secretary.
3. Minutes of the March 15, 2011 meeting were approved.
- 4 **New Business**
  - The committee reviewed Proposed Revisions to the Mansfield Zoning Regulations. Comments will be forwarded to PZC and Greg Padick.
5. **Old Business**
  - The committee continued discussion of possible open space initiatives.
6. Meeting adjourned at 9:00.
7. Next meeting on May 17, 2011.

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MINUTES  
MANSFIELD PLANNING AND ZONING COMMISSION  
Regular Meeting  
Tuesday, April 19, 2011  
Council Chamber, Audrey P. Beck Municipal Building

Members present: R. Favretti (Chairman), M. Beal, R. Hall, K. Holt G. Lewis,  
B. Pociask, B. Ryan  
Members absent: J. Goodwin, P. Plante  
Alternates present: F. Loxsom  
Alternates absent: K. Rawn, V. Ward  
Staff Present: Gregory J. Padick, Director of Planning, Curt Hirsch, Zoning Agent

Chairman Favretti called the meeting to order at 7:02 p.m. Chairman Favretti appointed alternate Loxsom to act in Goodwin's absence.

**Minutes:**

04-04-11- Hall MOVED, Lewis seconded, to approve the 4/4/11 minutes as written. MOTION PASSED with all in favor except Ryan who disqualified herself. Beal noted he had listened to the recording of the meeting.

**Zoning Agent's Report:**

Hirsch related that his review of the Wildwood Road noise complaint is ongoing and he expected to have a report for the next meeting. He also reported that Chairman Favretti and he had approved a parking modification at the Southeast School site.

Favretti raised a concern regarding clothing collection structures at the southeast corner of Routes 44 and 195. Hirsch will investigate.

**Old Business:**

1. **3-Lot Subdivision Application, (2 New Lots) 6 Puddin Lane, R. Hellstrom-applicant/Sterling Trust Company, owner, PZC File #1299 (M.A.D. 5/11/11)**

A 4-14-11 report from the Director of Planning was referenced. Rob Hellstrom, applicant, briefly discussed the proposal. After a number of members indicated that an open space dedication did not appear appropriate, Hall volunteered to work with staff on a draft motion.

2. **Approval Request: Revised Plans for exhibit building Paideia Greek Theater Project, 28 Dog Lane, File #1049-7**

Pociask disqualified himself. A 4-15-11 report from Director of Planning was noted. Representing the property owner, E. Tomazos, explained their new plans for the exhibit area and upper plaza. Mr. Tomazos said he had met with the Fire Marshal and Building Official regarding access to the upper plaza and he was awaiting their review comments. He also noted that with the PZC's approval of the new plans, Paideia would begin installing landscape improvements along Dog Lane in the fall of 2011.

After discussing with Mr. Tomazos the various issues raised in the Director of Planning's 4-15-11 memo, members informed Mr. Tomazos that in addition to addressing the upper plaza access issue, he needs to provide specific details on the proposed upper plaza railing and a specific timetable for implementing the approved landscape plan. Chairman Favretti then provided an opportunity for neighborhood comments:

Richard Schwab, who lives at the corner of Willowbrook Road and Dog Lane, expressed frustration over the site's appearance, the overall lack of progress on completing the project and in particular the landscape improvements that have yet to be implemented. Schwab also stated that, at a minimum, the landscaping needs to be completed as soon as possible. He recommended that no additional approvals be granted until landscaping improvements are done.

Suzanne Bansel, 67 Willowbrook Rd, related that neighbors have three main concerns: potential changes

in stage and amphitheatre façade treatment, railing design and associated visual impacts, and the current lack of landscaping. She submitted a letter providing more details on these concerns.

Peter Millman, who resides on Dog Lane, supported previously raised concerns and noted the property in its current state has had a negative impact on neighboring property values.

Karen Zimmer, who resides on Dog Lane, sought a more specific completion timetable from Mr. Tomazos. He replied that the project would be completed “as soon as possible”.

It was agreed to table the subject request, until additional information is submitted from Mr. Tomazos and reviewed by staff.

3. **March Draft: UConn Water Supply Plan update**

A 4/14/11 report from Director of Planning was noted. Lewis noted that the plan supports many supply improvements, including the Reclaimed Water Facility, but they have not been implemented. He emphasized that attention needs to be given to reducing demand as well as identifying new supply. Member agreed that these issues should be incorporated into the Town’s letter. After additional discussion, Beal MOVED, Holt seconded, that the Planning and Zoning Commission Chairman be authorized to co-endorse with the Mayor, consolidated Town comments on the University of Connecticut’s May 2011 Draft Water Supply Plan. Review comments from the Director of Planning and the Conservation Commission and discussion at the 4/19/11 PZC meeting shall be considered in formulating the consolidated letter. MOTION PASSED UNANIMOUSLY.

4. **Request to stop collecting bond escrow funds for Freedom Green Phase 4C**

Item tabled pending the 5/2/11 meeting.

5. **4-Lot Subdivision Application, (3 New Lots) Wormwood Hill & Gurleyville Roads, S. Plimpton o/a, PZC File #1298**

Item tabled pending a 5/2/11 Public Hearing.

6. **3/30/11 Draft revisions to the Zoning Regulations, PZC File #907-35**

Item tabled pending a 5/16/11 Public Hearing.

7. **Request to review and revise Plan of Conservation and Development regarding Hunting Lodge Road area**

Item tabled - referred to Regulatory Review Committee.

**New Business:**

1. **New Special Permit Application, Proposed Veterinary Hospital, 266 Stafford Rd, W. Ernst-applicant/ Y. Desiato-owner, PZC File #1300**

Holt MOVED, Loxsom seconded, to receive the Special Permit application (file # 1300) submitted by Wendy Ernst for a proposed Veterinary Hospital on property located 266 Stafford Road owned by Y. Desiato, as shown on plans dated March 17, 2011 and as shown and described in application submissions, and to refer said application to the staff, Committee on Needs for Persons with Disabilities and Design Review Panel for review and comments and to set a Public Hearing for May 16, 2011. MOTION PASSED UNANIMOUSLY.

2. **New Application to amend the Zoning Regulation to add Place of Assembly-Banquet Hall as a permitted use in the Neighborhood Business 2 Zone, M. Healy, applicant, PZC File #1301**

Holt MOVED, Beal seconded, to receive the application of Michael Healey to amend Article VII, Section S.2. of the Zoning Regulations, (File #1301), to add a new permitted use category in the Neighborhood Business 2 zone: Places of Assembly-Banquet Hall, as submitted to the Commission, and to refer it to staff and the Town Attorney for review and comment, and to set a Public Hearing for June 6, 2011. MOTION PASSED UNANIMOUSLY.

3. **Regulatory Review Committee recommended revisions to the Zoning Regulations regarding Agricultural Uses**

Holt MOVED, Lewis seconded, that a public hearing be scheduled for May 16<sup>th</sup>, 2011 to hear comments on the attached 4/14/11 draft revisions to the Zoning Regulations regarding Agricultural Uses. The draft regulations shall be referred to the Town Attorney, WINCOG Regional Planning Commission, adjacent municipalities, Town Council, Zoning Board of Appeals, Agriculture Committee, Conservation Commission, Eastern Highlands Health District and Open Space Preservation Committee. MOTION PASSED UNANIMOUSLY.

4. **Review of roadway/parking plans for Storrs Center Village Street**

A 4/14/11 report from the Director of Planning was noted. Padick reviewed with members the planned revisions to the Village Street layout and the introduction of diagonal parking. Both concern and support for diagonal parking was expressed. The primary concern was for backing out movements. After discussion, the consensus of the Commission was that the proposed diagonal parking could be considered consistent with PZC approved plans as long as parking space widths and aisle widths are wide enough.

5. **Zoning Permit Application for Storrs Center Parking Garage/Intermodal Center**

(Downtown Partnership Public Hearing - May 4, 2011 at 7:00 p.m. in the Buchanan Center)

a 4/14/11 memo from the Director of Planning was noted. Copies of the submitted Zoning Permit application were distributed and members agreed to review the proposal at their May 2<sup>nd</sup> meeting.

6. **4/2011 CLEAR Recommendations for Low Impact Development Practices**

Holt MOVED, Beal seconded, to refer the Low Impact Development Practices recommendation to the Regulatory Review Committee for review and comment. MOTION PASSED UNANIMOUSLY.

**Reports from Officers and Committees:**

Beal, as chairman of the Regulatory Review Committee, noted the next meeting is scheduled for 4/27/11 at 1:15 p.m. in Conference Room B.

Beal related that he is seeking a replacement representative for the Town/University Relations Committee, which typically meets on the 1<sup>st</sup> Tuesday of the month.

**Communications:**

Communications listed on the agenda were noted.

**Adjournment:**

Chairman Favretti declared the meeting adjourned at 8:48 p.m.

Respectfully submitted,

Katherine Holt, Secretary

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Memorandum:

April 25, 2011

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. Chernushek'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**

- 2.18.10: Same - they are in the process of rebuilding the engine on the payloader.
- 3.30.10: Same - Mr. Bednarczyk indicates a continuing problem finding engine parts.
- 4.13.10: Owner indicates the payloader is operating again.
- 4.15.10: Owner indicates he will have the cars moved this week.
- 4.23.10: No vehicles are within 25' of wetlands.**
- 5.17.10: Inspection - no vehicles are within 25' of wetlands.
- 6.02.10: Inspection - no vehicles are within 25' of wetlands.
- 6.23.10: Inspection - no vehicles are within 25' of wetlands.
- 7.15.10: Inspection - no vehicles are within 25' of wetlands.
- 9.01.10: Inspection - no vehicles are within 25' of wetlands. Mr. Bednarczyk has started removing tires from the westerly part of his site using roll-off containers. With this arrangement a moderately steady rate of removal of the tires should be possible to maintain until the tires are completely removed.
- 9.28.10: Inspection - no vehicles are within 25' of wetlands. Tire removal is continuing with 1 to 2 roll-off containers being removed per month.
- 10.07.10: Inspection - no vehicles are within 25' of wetlands. Tire removal has been continuing.
- 11.29.10: Inspection - no vehicles are within 25' of wetlands. Owner has been trucking cars for crushing with 6 tires per vehicle. He indicates 3 cars per day or 18 tires per day. The actual number is probably lower than 18.
- 12.23.10: Inspection - no vehicles are within 25' of wetlands.
- 1.07.11: Inspection - no vehicles are within 25' of wetlands.
- 1.20.11: Vehicle storage areas are snowed in and inaccessible.
- 1.26.11: Snows remain, although some clearing has been done I could not count on being able to get out.
- 2.24.11: Inspection - no vehicles are within 25' of wetlands.
- 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.

**TOWN OF MANSFIELD**  
Planning and Zoning Commission



AUDREY P. BECK BUILDING  
FOUR SOUTH EAGLEVILLE ROAD  
MANSFIELD, CT 06268-2599  
(860) 429-3330  
Fax: (860) 429-6863

April 26, 2011

Mr. Jason Coite, Environmental Compliance Analyst  
University of Connecticut office of Environmental Policy  
31 LeDoyt Road Unit 3088  
Storrs, Connecticut 06269-3055

Re: University of Connecticut Water Supply Plan, May 2011 draft

Dear Mr. Coite:

Mansfield officials have reviewed the University of Connecticut's draft May 2011 Water Supply Plan and associated Water Conservation and Wellfield Management plans. The following comments are provided for your consideration and transmittal to the State Department of Public Health:

1. Mansfield officials commend and support the University of Connecticut's continuing efforts to upgrade its water supply system and provide a safe and adequate supply of potable water for our community's existing and future needs. The University of Connecticut's May 2011 draft Water Supply Plan and associated Water Conservation and Wellfield Management Plans provide valuable information regarding the existing system and future water supply needs and are considered a significant improvement over the 2006 plans.
2. In addition to identifying a number of important system improvements, the draft plan emphasizes the importance of managing wellfield withdrawals and the need for obtaining additional sources of potable water. Securing additional sources of water is particularly important for both the Town of Mansfield and the University as a number of important recommendations in our land use plans are directly linked with a need for public water and sewer services. Mansfield officials pledge our continued cooperation in helping to protect wellfield watersheds, in helping to identify and obtain additional sources of water, in helping to manage and regulate off campus water use and in addressing other water supply system issues of mutual interest.

3. While the plan clearly and appropriately identifies a need for an additional source of water for future projects, the plan's shorter term supply assumptions rely on the construction of the Reclaimed Water Facility (scheduled for 2011/2012) and the potential year round use of Fenton River well D. The Reclaimed Water Facility has not yet commenced construction and the use of Fenton well D during droughts has not been approved. To address the needs of existing users and committed projects, it is essential that construction begin this year on the Reclaimed Water Facility and that the University continue pursuing the potential year round use of Fenton River Well D.
4. Over the last few years, over 14.6 million dollars have been spent improving the water supply system. The University clearly has made a concerted effort to replace and upgrade various system components and improve overall efficiencies. It is essential that infrastructure improvements continue and that water conservation efforts be intensified to help reduce existing system demands. The approximate 15% of total water use that is "unaccounted for water usage" needs to be addressed.
5. The draft Wellfield Management Plan incorporates, into a consolidated management program, recommendations from the 2006 Fenton River Aquatic Habitat study and the 2010 Willimantic River study. Previous water supply plans did not include a detailed wellfield management plan. This is a very important element of the draft plan and a very significant achievement.
6. The 2006 Fenton River study recommended relocated Well A farther away from the river. This should be given a high priority, to protect not only the river's aquatic habitat but also the quality of the water being pumped by reducing "induced infiltration" (river water drawn into the well's cone of depression). M. T. Gidding demonstrated that under certain conditions as much as 40 percent of the pumped water came from the river, as opposed to groundwater recharge ("Induced Infiltration at the University of Connecticut Well Field," University of Connecticut Master's Thesis, 1966). The only reference to induced infiltration in the Water Supply Plan (p. 3-21) indicates that an eight-day pumping test to evaluate induced infiltration was carried out in September of 2000. The plan uses the resulting numbers to estimate safe yield for wells B, C, and D, but fails to discuss the induced infiltration results and their impact on water quality.
7. The State Aquifer Land Use Regulations protect only those areas already designated as Level A protection areas. In this case, the regulations protect the watersheds contributing groundwater to the Willimantic River wells and the Fenton River Well A. Due to a peculiarity of the State's Level A mapping regulations, the subwatersheds contributing groundwater to the Fenton River Wells B, C, and D, do not enjoy Level A protection. Therefore, the University must assume responsibility for minimizing further impairment of these subwatersheds. Consideration should be given to treating the watersheds contributing to the Fenton River wells B, C, and D as if they had been designated Level A aquifer protection areas.
8. Section 3.3, Source Water Assessment and 3.4, Source Water Protection, briefly summarize the May 2003 Source Water Protection Report which is included as Appendix C. As recommended in the report, the Town of Mansfield has, for decades, used zoning and inland wetland regulations to protect the watershed of the Willimantic River and the public water supply watershed of the Fenton River. More recently, in recognition of the limitations of the State's aquifer protection policies, the Town has adopted local measures to better protect the Town's aquifers.

9. Of note: Only about 110 of the 3000 water source acres are designated as preserved land. (Appendix C, Tables 4 for the Willimantic and Fenton rivers). A substantial portion of the remaining 2890 acres of the unprotected land is owned by the University of Connecticut. This land may currently be undeveloped, but it is not preserved land dedicated to the protection of the Source Water Area. The source water protections of Section 3.4 should make clear what is required of the University for the management of those acres which are significant for the protection of the University's water supplies, for example, permitting only low impact activities in these watersheds and perhaps dedicating crucial areas as permanent open space.
10. Of lesser importance are some historical references that might be included in Section 2.1:

Last in the 1880-1910 era: "1905-1906, the College's Annual Report recommended the elimination of the eastward sewage outlet to avoid the possible typhoid infection of the Willimantic water supply."

First in the 1910-1920 era: "1912-1914, the College's Biennial Report quoted the president as saying, 'The sewage from the eastern side of the campus, the drainage from which is toward the Fenton river, the source of the Willimantic water supply, is now diverted and filtered, the effluent finding its way to the Willimantic River on the opposite side of the watershed.'"

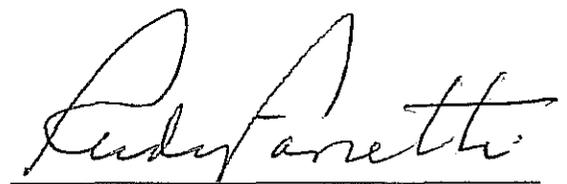
The third item, first sentence in the 1920-1930 era might be changed to read: "With State funds awarded to the College and the Town of Mansfield, the College developed Well A at the Fenton River in 1926-1927 to replace the Pink Ravine Facility."

If you have any issues regarding these comments, please contact Mansfield's Director of Planning, Gregory J. Padick, at (860) 429-3329.

Very truly yours,



Elizabeth C. Paterson, Mayor  
Mansfield Town Council



Rudy J. Favretti, Chairman  
Mansfield Planning and Zoning Commission

cc: Richard Miller, Director of Environmental Policy, Univ. of CT  
Barry Feldman, Vic-Pres./Chief Operating Officer, Univ. of Connecticut  
Thomas Callahan, , AVP Administration and Operations, Univ. of CT  
Richard Miller, Director of Environmental Policy, Univ. of CT  
Eugene Roberts, Director of Facilities Operations, Univ. of CT  
Alex Roë, Director of Planning Univ. of CT  
George Kraus, Dir. Architectural & Engineering Svcs., Univ. of CT  
Mansfield Town Council  
Mansfield Planning & Zoning Commission  
Mansfield Conservation Commission

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# Willimantic River Review

Spring 2011

## Looking for Water

One of the many challenges of the 21<sup>st</sup> century is the rising demand for clean water as population grows and development spreads. Three towns in the river's watershed are currently facing this challenge. **Tolland** has applied for a permit to double withdrawals from its wells along the river (to 511,000 gallons per day), and to connect to a Ct. Water Company (CWC) pipeline (from Shenipsit Lake) for a back-up water supply. **Coventry** needs additional water in Coventry Village during the summer months and possibly for fire hydrants. In **Mansfield** the town is seeking water (projected at 170,000 gallons per day) for the Four Corners upgrade in Storrs and for new development elsewhere in Storrs, such as an assisted living facility. Both Mansfield and Coventry are considering a new well along the Willimantic River and possibly sharing it.

The **University of Connecticut** has drafted an update to its five-year water supply plan (which WRA is reviewing). The plan acknowledges that the Storrs campus needs more water during dry summers. In fact, there have been three conservation alerts in the past five summers; the 2010 alert lasted from late June into November. One of UConn's proposals to address this shortage is a new wellfield by the Willimantic River.

Mansfield and UConn are also considering an interconnection with an existing public water supply. CWC could provide water from Shenipsit Lake via their **proposed regional pipeline** that would extend along Rt. 195 from Tolland to Storrs. CWC may apply for permits as early as this summer. This pipeline would involve transferring significant water amounts from the Hockanum River watershed to the Willimantic River watershed. It could also result in the demand for more intense development in the pipeline corridor along Route 195 in Tolland, Coventry and Mansfield.

To conserve water, UConn is also pursuing a **reclaimed water facility** to recycle treated wastewater from their sewage treatment plant. This could save up to 400,000 gallons per day of drinking water, but it would reduce the flow in the Willimantic River below the treatment plant's outfall at Eagleville dam even as the plant receives additional flow from Four Corners.

All of these options overlap and have both positive and negative impacts. Addressed separately, these water supply decisions could create unintended consequences. The Alliance is advocating for a **coordinated regional approach** where all of the parties can explore solutions with mutual benefits and minimal adverse impacts.

## Water Trail Signs

The **Willimantic River Water Trail** will become more visible this spring, as water trail signs show up at launch sites from Stafford to Columbia. The sign's format is being tested before permanent signs are made for several water trails in northeast Connecticut. The Alliance has been pioneering a regional water trail development project with the National Park Service (NPS) and The Last Green Valley (TLGV). In addition to posting signs, WRA has updated its website with a new paddling page and a NPS paddling guide (pdf format).

NPS and TLGV are organizing water trail projects on several rivers and coordinating a joint application for local water trails to be recognized as National Recreation Trails. Before the November deadline, WRA will be tuning up its application and meeting with partner towns and DEP about their participation in managing launch areas.

## Algae Alert

An invasive algae has shown up in the Farmington River downstream of Riverton. Didymo (also known as "rock snot") covers the river bottom and smothers small plants and insects. To prevent the spread of didymo, be sure to clean your fishing and boating equipment. Visit [www.ctflyfish.org](http://www.ctflyfish.org) for more information and cleaning tips.

## Riverwatch

### KILL THIS BILL

A year ago, the Ct. DEP held hearings on the first Connecticut **Stream Flow Standards and Regulations**. These regulations would promote stream flow rates that allow aquatic life to survive in rivers and streams, especially during low-flow conditions. Water users such as industries, farms and water companies objected to these regulations, claiming that there would be heavy restrictions on water supplies and too much expense to change their infrastructure so it could return sufficient water to a watercourse. During the past year, the draft regulations were reviewed by the legislature's Regulations Review Committee. After water users complained to this committee, the draft regulations were referred back to DEP twice for revisions.

The most recent attempt to prevent these regulations from being approved is the legislature's **Senate Bill 1020**. It would create an approval procedure that would stall that process for many years and require approval by the Dept. of Commerce and Development (DOCD) and the Dept. of Agriculture (DA) as part of the process. When this bill was considered in the legislature's Commerce Committee, the Alliance submitted testimony to Rep. Gregg Haddad (Mansfield/Chaplin), Vice-Chair of that committee. We asked him to vote against this bill, explaining the inappropriate power granted to DOCD and DA and the impossible approval process being proposed. Gregg stepped up to the plate and voted against the bill, in spite of a 15-2 majority voting in favor. Thank you Gregg!

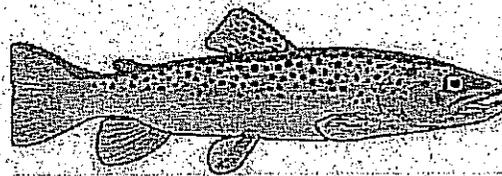
The bill is now moving through the legislative mill, and the Alliance will continue to monitor its progress and advocate for its rejection. These stream flow regulations have been five years in the making, and it is time for the Regulations Review Committee to find a compromise rather than start all over again. DEP is aiming to have another draft ready by the summer.

### SEWERS ADVANCE

The extensive housing development around the **Bolton lakes** has contributed to poor water quality in the lakes and in their outflow into the Hop River. Bolton and Vernon have received grants and permits to begin a four-phase sewer construction project. Phase One is almost complete, and the first connections will be made to Manchester's wastewater treatment plant. When this project is completed, water quality will be much better in the lakes, in the Hop River and ultimately in the Willimantic River (from Columbia through Windham).

### Spring Paddling Tips

**Water levels** can make or break a canoe/kayak trip on the river. Before going out, check the USGS Willimantic River stream gauge (in South Coventry) at the Alliance website's Recreation page, Paddling section. **Launch sites and maps** for the 24-mile Water Trail are also in this section. **Safety tips:** state law requires that between October 1 and May 30, each person must wear a life jacket (PFD), and year-round there must be a PFD aboard for each person. Bring an extra rope and paddle, and tell someone where you plan to launch and take out. If you are a beginner, the safest place to try river paddling is in the slow current at River Park's handicapped-access boat launch on Plains Road (off of Rt. 32 just south of the Rt. 44 intersection in Mansfield Depot).



### Fishing Season Opens

The river is stocked with trout, and the first day to try your luck is **Saturday, April 16**. For information about fishing in the river, visit the Alliance website's Recreation page, Fishing section.

## Calendar

The Alliance is now posting events on its **blog**. You can link to it from our website's Events page and find the latest posting.

### Wednesday April 27

#### WRA's Annual Meeting and Open House

Join us for pizza at Willington Pizza House on Rt. 32 in South Willington from 6 to 7 p.m. to share news and photos of the river and Alliance projects. Who will receive a "Spirit of the River" honor this year? Annual meeting precedes at 5:30.

### Saturday, April 30

#### Upper Willimantic River Paddle

Canoe or kayak down this beautiful stretch of river for 8 miles from Tolland to River Park in Mansfield. Sponsored by AMC Ct. Chapter. For experienced paddlers with their own boats. Bring water and lunch. Life jackets required. Contact Betty at 860-429-3206 or [pbrobinson@snet.net](mailto:pbrobinson@snet.net) to register.

### Saturday, May 21

#### Willimantic Riverfest

Family paddling down the river from Eagleville Dam to Willimantic, Sponsored by The Chamber of Commerce. Information: [www.windhamchamber.com](http://www.windhamchamber.com) or 860-423-6389.

### Saturday, June 4

#### Family Cruise on the Willimantic River

Easy flatwater trip for canoes and kayaks from River Park to Eagleville Lake. Choice of short or long (two mile) round trip. Bring your own boat. Life jackets required for all participants. Bring water, lunch optional. Moderate to heavy rain cancels. Time: 10 a.m. to noon. Meet at River Park on Plains Road in Mansfield. Sponsored by Willimantic River Alliance and Mansfield Parks and Recreation Department. For information, call 429-3015 x 204.

## Water Supply Forum

In response to issues highlighted on Page One, the Alliance is hoping to sponsor a public informational meeting concerning regional water supply issues. The forum is being planned for May at the new Storrs Community Church on Rt. 195 by the river in Coventry. Details will be available on the Alliance blog via our website's Events page.

Contributors: Vicky Wetherell, Meg Reich

Design and Layout: Dagmar S. Noll

Inquiries or submissions for the Fall 2011 Edition may be submitted to:

WRA, P.O. Box 9193, Bolton, CT 06043-9193 or [info@willimanticriver.org](mailto:info@willimanticriver.org)

View previous newsletters at [www.willimanticriver.org](http://www.willimanticriver.org).

### Get Outside!

It's time to enjoy the great outdoors! Visit the Willimantic River Greenway Parks and Trails Guide as [www.willimanticriver.org](http://www.willimanticriver.org) to discover 25 public access sites along the river. Or visit the website's Paddling page for detailed information about the river's 24-mile canoe-kayak route.

**Willimantic River Alliance – Membership Form**

Name \_\_\_\_\_  
 Address \_\_\_\_\_  
 Town \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 E-Mail \_\_\_\_\_ Phone \_\_\_\_\_

Contact me about volunteer opportunities for the WRA

Mail completed form and check to:

WRA at P.O. Box 9193, Bolton CT 06043-9193

Memberships	Annual Dues
Senior/Student Individual	\$ 5.00
Family	\$10.00
River Steward	\$15.00
Patron	\$ 50.00
	\$ 250.00 (Lifetime Member)

**Thank you for joining the Alliance! Your membership dues may be tax deductible.**

# Willimantic River Alliance

Founded in 1996, the Alliance has a mission “to protect and preserve the Willimantic River through cooperative and educational activities that promote regional awareness, stewardship, and enjoyment of the river and its watershed.” As a coalition of citizens, officials and local agencies, the Alliance sponsors events such as regional forums and outings and publications, including a newsletter and website [www.willimanticriver.org](http://www.willimanticriver.org). Our email address is [info@willimanticriver.org](mailto:info@willimanticriver.org).

Willimantic River Alliance, Inc. is a nonprofit 501 (c) (3) tax-exempt corporation. The Alliance promotes development of the Willimantic River Greenway, an official state greenway along the river's 25 miles from Stafford Springs to Willimantic. This regional project aims to connect recreational, historical and natural resource features along the river. These connections are being created by the nine riverside towns through natural resource preservation and recreation projects, such as linking trails and improving access to the river.

The river's watershed includes seventeen towns: (in Ct.) Andover, Ashford, Bolton, Columbia, Coventry, Ellington, Hebron, Lebanon, Mansfield, Stafford, Union, Tolland, Vernon, Willington, Windham, and (in Mass.) Monson, Wales.

Spring 2011

**WILLIMANTIC RIVER ALLIANCE**  
 PO Box 9193  
 Bolton, CT 06043-9193

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# The Impervious Cover TMDL Project

*An update for Mansfield commissions and citizens*

April 28, 2011

## Summary

The Town of Mansfield and the University of Connecticut are engaged in a national precedent-setting project to protect local water resources from the effects of urban runoff. This project focuses not on specific pollutants but on the impervious, or impenetrable, surfaces that play a large role in the degradation of waterways in urbanizing areas. The emphasis of the project is on reducing and treating stormwater from roofs and paved surfaces through the use of "low impact development" (LID). LID encompasses an array of innovative site-level practices that involve promotion of infiltration of stormwater into the ground, and the use of soils and vegetation to absorb and treat runoff. Progress is being made: a number of LID practices have already been installed on campus; a watershed plan to help guide future action is being developed, and; Mansfield and University officials are working with the project team to ensure that official plans, procedures, and regulations support LID.



Project team members check drainage patterns on campus (the hard way).

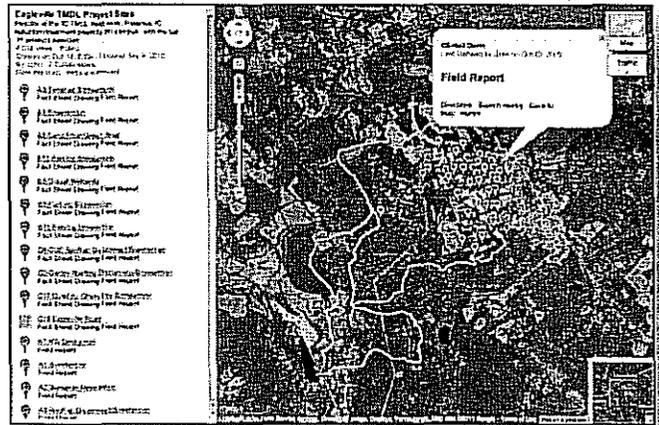
## Background

The *Total Maximum Daily Load* (TMDL) section of the national Clean Water Act directs states to develop and implement pollutant "budgets" for waterways that are known to be degraded. In 2007, the Connecticut Department of Environmental Protection (CTDEP) issued the first TMDL in the country based on impervious cover, which has been shown by both national and statewide research to be a strong indicator of the impacts of urbanization on water resources. The location for the Impervious Cover TMDL ("IC-TMDL") is Eagleville Brook, a small watershed in Mansfield that is part of the Willimantic River system and drains much of the UConn campus. The innovative idea of using a *surrogate* pollutant such as impervious cover is a response to the fact that many streams in urbanizing areas suffer from a complex array of problems that cannot easily be separated. Since the use of this surrogate approach is very likely to expand in the future, the Eagleville project is important nationally, as well as locally.

## The IC-TMDL Project

A partnership was formed between CTDEP, UConn and Mansfield to fashion a logical and feasible response to the IC-TMDL. The project team is led by the *Nonpoint Education for Municipal Officials* (NEMO) Program, an outreach program of UConn's Center for Land Use Education and Research. The watershed evaluation phase was carried out by NEMO faculty and experts from the Center for Watershed Protection, a widely respected national nonprofit, and Horsley Witten Group, a consulting firm from Massachusetts with extensive LID expertise and experience. 51 potential sites for stormwater "retrofit" projects – LID installations in already developed areas – were identified by the project team, most of them on the UConn campus. Of

these, a list of ten priority projects was compiled. These “Top Ten” projects include a wide range of practices, located in a cross-section of campus environments and treating stormwater from a number of different types of impervious cover. The list includes green roofs, vegetated “bioretention” areas, porous pavements, and other practices. The location of these practices, and additional information on each (including fact sheets and drawings of the Top Ten) can be found in the “Findings” section of the project website (bottom of page). Recommendations have been made for changes to University and Town policies, and a watershed plan to frame the future of the project is under development.

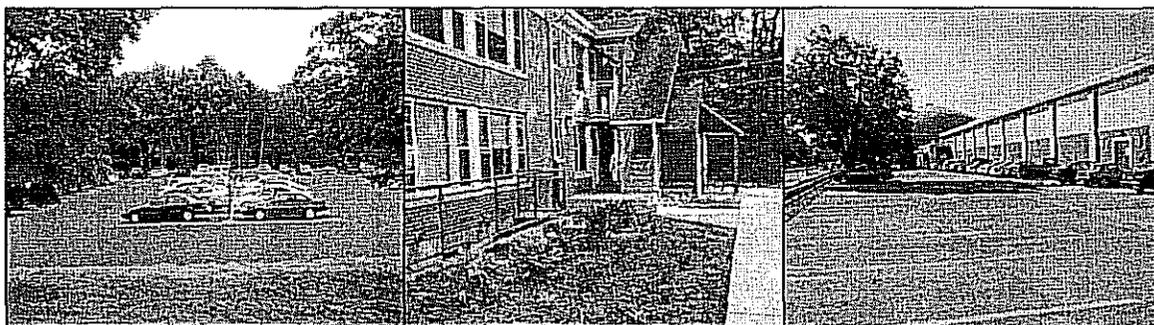


A Google Maps “mashup” shows potential retrofit projects. The yellow line is the Eagleville watershed boundary. Visitors can click on the “balloons” for more information on each site.

### Progress

As new construction, renovation and maintenance projects on campus are planned, LID practices are being built in. Already, a porous concrete lot in front of the Field House (below, right) and a porous asphalt lot near the Towers dorms (below, left) have been completed, and both porous parking and rain gardens treating roof runoff have been built at Northwoods Apartments (below, middle). The new academic building under construction includes a partial green roof and bioretention cells.

Although the focus to date has been on the heavily developed central campus region, the goal of both University and Mansfield planning officials is to establish LID as the norm for both new development and redevelopment – not just in the Eagleville watershed, but in all other areas as well. The project is entering a critical phase toward realizing this goal, as both the University and the Town consider changes to plans, regulations and procedures that will codify, and thus help to ensure, strategies for reducing the impact of stormwater runoff on their water resources.



LID projects on campus. Left: Towers parking lot repaved with porous asphalt. Center: all buildings in the Northwoods Apartment complex have rain gardens to accept roof runoff. Right: porous concrete parking lot at the UConn Field House.

<http://clear.uconn.edu/projects/tmdl>

*This fact sheet was produced by the NEMO program of the UConn Center for Land Use Education and Research (CLEAR), May 2011. Comments and questions: Dr. Mike Dietz, Dept. of Extension, 860-345-5225, michael.dietz@uconn.edu*

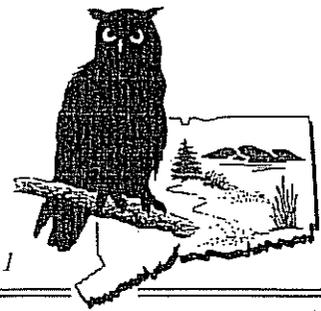


# THE HABITAT

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

SPRING 2011

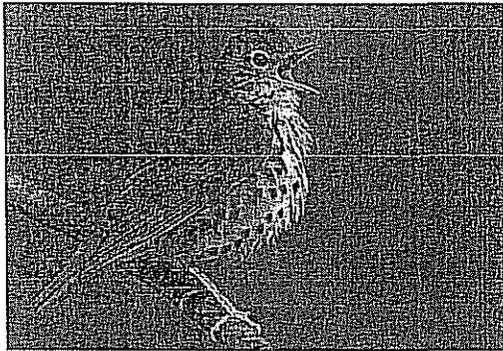
volume 23 number 1



## Habitat Conservation Begins at the Municipal Level

by Milan G. Bull

Spring is in full bloom, Trillium and Blood Root add color to the forest floor, and the beautiful, flute-like song of the Wood Thrush rings through the woods like a hymn of praise.



Brown Trasher  
Photo Credit: Paul Fusco, CT DEP Photographer  
and Editor, Connecticut Wildlife

It all looks so perfect, but is it? With nearly 50% of our birds in decline, it pays for us to take a closer look at exactly how efficient our protected lands are at conserving birds and their habitats.

We now know, for example, that some forest birds, like the Wood Thrush, require hundreds of acres of unfragmented forest

Currently, much of land acquisition, at both the state and municipal level is a reactive process. More often than not, only when a property is offered up for sale is it considered by the town or the state for acquisition. This shortsighted approach attempts to squeeze habitat protection into land that just happens to be available for sale. Not every open space acquisition provides suitable habitat protection for many of our declining native bird species. More often, wildlife habitat is just one item on a long list of criteria favoring acquisition that includes

in order to reproduce productively. In other words, the thrush that nests in your town park cannot fledge enough young each year to offset the natural mortality of the species due to elevated numbers of raccoons, housecats and other predators that like to associate with people and their neighborhoods. Therefore, as we continue to sprawl our developments through the forest, many of our birds decline. Case in point – have you seen many Ruffed Grouse around lately?

The key to habitat protection begins at home, at the municipal level. All present and future protected land, whether large acreages or small, are in someone's municipality and that is exactly where our planning and acquisition effort need to be focused.

*“Conservation Commissions and Town Planners would best serve the conservation community and the public by working first to identify and prioritize important habitat areas for protection, then for compatible uses.”*

horseback riding, camping, dog walking, ball fields, and other forms of public recreation. These are sometimes, but not always, compatible with habitat

protection. There is some concern that biodiversity declines as public recreation increases on protected open spaces. The Trout Brook Valley (TBV) acquisition in Easton and Weston may serve as an example. This 700 plus acre preserve was purchased by the State of Connecticut, The Nature

Inside ★

	PAGE
CACIWC New Briefs	2
2010-2011 Membership List	3
Forestry and Wetlands Act - Legal Horizon	4
Year of the Turtle	6
POCD Part II	8
DEP Wetlands Training Program	10

conservation, continued, page 13

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# CACWIC News Briefings

With this issue of *The Habitat*, the CACIWC Board of Directors is introducing a new column, entitled *CACIWC NEWS BRIEFINGS*, designed to provide conservation and wetlands commissioners, agents, directors and other readers with highlights of recent decisions and other news from our board and committee meetings. We hope that you will find this column informative. Please do not hesitate to contact us via email at [board@caciwc.org](mailto:board@caciwc.org) if you have any questions or comments on these items.

Thank you - Alan J. Siniscalchi, President

1. The CACIWC Board of Directors is very pleased to invite you to our **34<sup>th</sup> Annual Meeting and Environmental Conference** now scheduled for Saturday, November 12, 2011 at MountainRidge in Wallingford, CT. The Annual Meeting Committee is already working to recruit another series of informative speakers and workshop leaders. Watch for additional news in the next issue of *The Habitat* and on our website: [www.caciwc.org](http://www.caciwc.org).

2. To ensure that we are providing topics of interest to our members, the Board is encouraging readers to submit **ideas for workshop topics, speakers, and displays** to us at: [AnnualMtg@caciwc.org](mailto:AnnualMtg@caciwc.org). Please let us know of your suggestions!

3. The Annual Meeting Committee is currently evaluating **registration fees** for our 2011 Meeting. The Committee plans to offer reduced registration fee to members from town commissions who are current with their membership dues. (Please see the list of current member commissions in this issue.) It's not too late to pay your 2010-2011 dues!

4. **Membership dues** are an essential part of our operating budget. They support various CACIWC programs including our Annual Meeting, educational materials, and *The Habitat*. You will be receiving a reminder and renewal form next month for the 2011-2012 membership year, which begins on July 1, 2011. Additional information can be found on our website: [www.caciwc.org](http://www.caciwc.org).

5. Would you like to serve on the CACIWC Board of Directors? A full board strengthens our ability to represent the needs and concerns of our member towns and commissions. The CACIWC board is comprised of four officers, and both a regular and alternate county representative. **Board vacancies** have occurred or are anticipated in all eight counties. Our bylaws specify that any past or present member of Connecticut conservation or inland wetlands commissions or their agent are eligible serve. Please submit your name to be considered for nomination at: [board@caciwc.org](mailto:board@caciwc.org) Let us know if you currently do not have time to serve on the board, but wish to volunteer in support of our many administrative, education, and outreach activities.

Thank you for your interest in CACIWC!



# 2010-2011 Membership

# Is Your Commission Here?

Andover	CC		Groton	CC	Ridgefield	Z+IW	
Ashford	IW		Groton	IW	Ridgefield	CC	
Ashford	CC		Haddam	CC	Roxbury	IW	
Avon	CC		Haddam	IW	Roxbury	CC	
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Beacon Falls	CC		Hamden	IW	Shelton	CC	
Beacon Falls	IW		Hampton	CC	Shelton	IW	
Bethany	CC	(SUS)	Hampton	IW	(SUS)	Sherman	CC
Bethany	IW	(SUS)	Harwinton	IW		Sherman	IW
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Cheshire	CC		Manchester	Z+IW		Thompson	IW
Cheshire	IW		Mansfield	Z+IW		Thompson	CC
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Darien	CC+IW	(SUS)	Milford	CC		Wallingford	CC
Deep River	CC+IW		Montville	IW		Wallingford	IW
Durham	CC	(SUS)	New Canaan	Z+IW		Warren	CC+IW (SUS)
Durham	IW		New Canaan	CC		Washington	IW
East Haddam	IW		New Hartford	CC		Waterford	CC (SUS)
East Haddam	CC		New Hartford	IW		Watertown	CC+IW
East Hampton	IW		New London	CC+IW		Westbrook	CC (SUS)
East Hampton	CC		New Milford	CC		Westbrook	IW
East Lyme	CC		New Milford	IW		Weston	CC
East Lyme	IW		Norfolk	CC		Westport	CC+IW
East Windsor	CC+IW		North Haven	IW		Wethersfield	IW
Eastford	CC		North Stonington	CC		Willington	CC
Eastford	IW		North Stonington	IW		Willington	IW
Easton	CC+IW		Norwalk	IW	(SUS)	Wilton	IW
Ellington	IW		Old Lyme	IW		Wilton	CC
Ellington	CC		Old Saybrook	CC	(SUS)	Winchester	CC
Enfield	CC		Old Saybrook	IW	(SUS)	Winchester	IW
Enfield	IW		Oxford	CC+IW	(SUS)	Windsor	CC
Farmington	CC		Plainfield	IW		Windsor	IW
Farmington	Z+IW		Plainfield	CC		Windsor Locks	IW
Glastonbury	CC+IW	(SUS)	Plainville	IW		Windsor Locks	CC
Goshen	CC		Plainville	CC		Woodbridge	IW
Goshen	IW		Pomfret	CC		Woodbridge	CC
Granby	CC		Pomfret	IW		Woodbury	CC (SUS)
Granby	IW		Prospect	CC	(SUS)	Woodbury	IW (SUS)
Greenwich	IW	(SUS)	Prospect	IW	(SUS)		
Greenwich	CC	(SUS)	Redding	CC+IW	(SUS)		

WE APPRECIATE YOUR SUPPORT! THANK YOU!

As of our March 15, 2011 records, the Town commissions above have supported CACIWC through membership dues for the 2010-2011 fiscal year (July 1, 2010 ~ June 30, 2011). If your Commission is not on the list please encourage your commission to join. For a membership form go to [caciwc.org](http://caciwc.org), About CACIWC, scroll to membership and download form; or email [todell@snet.net](mailto:todell@snet.net). If we are in error we apologize and would appreciate knowing. Member Commissions receive a copy of *The Habitat* for each commissioner if dues have been paid. Please consider joining as a sustaining member.

CC = Conservation Comm.    CC+IW = Combined Comm.    IW = Inland Wetlands Comm.    Z+ IW = Zoning/ Inland Wetlands



## Forestry and the Wetlands Act

**F**orestry is another one of the activities that is, at least in part, covered by the exemption provisions of the wetlands act. I've written a number of articles on the farming exemption in this column. Forestry is a form of agriculture, as far as the legislature is concerned. The statutory definition of "agriculture" and "farming," found in CT General Statutes § 1-1(q), "shall include . . . forestry . . ." *If your agency has adopted the 2006 DEP Model Regulations, you will find § 1-1(q) as an appendix to your regulations.* If a regulatory scheme hasn't established a definition of "agriculture," then the general definition will apply. The wetlands act hasn't, so § 1-1(q) is the place to look. End of discussion. Your agency cannot exclude forestry from the definition of agriculture.

Again, as with farming proposals, the wetlands agency determines whether the activity is exempt. Maybe your agency calls it a "jurisdictional ruling" or a "determination of exemption." Hopefully, the agency is not requiring the use of a permit application. That will confuse the agency members into thinking that they consider alternatives and revise the proposal. This is an up-or-down decision: it falls within the exemption or it does not. The challenging part, as with all agricultural activities, is determining whether *all* of the activities associated with the forestry operation are exempt, or if some are not included within the exemption provision, and thus still require a permit.

Section 22a-40 (a) in the wetlands act sets forth the exemption provision, also known as the activities permitted as of right. That means, if the activity falls within the activities listed, no wetlands permit is necessary. That is because wetlands agencies have authority over "regulated activities" which specifically exclude the activities listed in § 22a-40 (a). Either an activity is "regulated," and thus requires a permit, or it is exempt, and does not.

*If the "activity" consists of many individual activities, you evaluate each activity separately. For example, let's say that the proposal includes (1) planting of*

*blueberry bushes and fruit trees, (2) construction of a barn, (3) road construction directly related to getting the fruit to and from the barn, and (4) construction of a small dwelling for the farm family to live in. You are not free to determine that the entire proposal requires a permit because the construction of the house does not fall within the agricultural exemption.*

DEP has created a resource that is very helpful to agencies and foresters conducting timber harvests: *Best Management Practices, 2007 Connecticut Field Guide*. This can be found on the DEP website at: [www.ct.gov/dep/lib/dep/forestry/best\\_management\\_practices/best\\_practicesmanual.pdf](http://www.ct.gov/dep/lib/dep/forestry/best_management_practices/best_practicesmanual.pdf). The resource offers guidance, not regulations. Its stated objective is "to have an economically viable timber harvest that protects water quality and site productivity." The BMPs publication does not establish one uniform approach to conducting a timber harvest. Foresters who rely on that document to "authorize" their activities are mistaken. The wetlands agency has the right to determine whether activities fall within the exemption. On the other hand, agencies cannot use the BMPs manual to create a list of conditions that a forester must comply with, if the operations fall within the exemption.

Applying the exemption provision to a forestry operation, just like a traditional farming operation, involves a 2-step process. Step (1): Does the activity fall within the first sentence of § 22a-40(a)(1): "Grazing, farming, nurseries, gardening and harvesting of crops and farm ponds of three acres or less . . ." The answer is yes, because as stated above, agriculture is defined to include forestry. Step (2): Does the second sentence of § 22a-40(a)(1) cause the activity to be removed from the exemption provision and brought back into the sphere of regulated activity? The second sentence reads: "*The provisions of this subdivision shall not be construed to include road construction or the erection of buildings not directly related to the farming operation, relocation of watercourses with continual flow, forestry, continued next page*"

forestry, continued from page 4

**filling or reclamation of wetlands or watercourses with continual flow, clear cutting of timber except for the expansion of agricultural crop land, the mining of top soil, peat, sand, gravel or similar material from wetlands or watercourses for the purposes of sale.**

(I'll explain in this article why I put certain words in boldface print.)

One activity commonly part of a timber harvest operation that is not common to a farming proposal is the use of temporary portable bridges, skid roads, "corduroy," etc. I hesitate to use the word "construction." The temporary access way is kept in place just as long as needed for the timber harvest. The felling of the trees is surely included in the meaning of "forestry." What about the ability to remove the felled trees from the property and sell the product? Isn't that integral to the forestry operation? DEP has gathered information anecdotally at two wetlands training conferences almost a decade apart, yielding the same results: *half the wetlands agencies determine the temporary road measures require a permit and half do not.*

For the agencies that determine the temporary road access activities do require a permit, possibly they rely on the word "fill" in the statute (see the boldfaced word "fill" in the statute above) to support their decision. They conclude that the placing of temporary portable bridges, "corduroy" and the like, despite being temporary and being totally removable, are "fill." Other agencies may look to the phrase "road construction . . . not directly related to the farming operation" (see the boldfaced word "fill" in the statute above). Here the reasoning gets murky. Some agencies would allow road construction if no materials were used in the road construction, because the materials = fill,

which is referred to later in that same sentence (see above). I have heard Steve Tessitore, municipal liaison at DEP, espouse this position on a number of occasions. His position: if someone can use floodplain soils to drive a vehicle across, that road construction is allowed. However, to me, use of floodplain soils is not the construction of a road. The use of the word "construction" implies the use of materials. Steve and I agree to disagree on this point. With Steve's final thought -- that's what the courts are for. On that point, we agree.

This spring the state Supreme Court is scheduled to hear oral argument in a farming exemption case. The issue is whether, as a matter of law, the construction of a farm road that will use fill in making the road, is an exempt activity. It may not answer the question that arises in a timber harvest context, but it will likely shed some light on future exemption issues.

DEP defers to municipal agencies to determine whether these temporary roads are within the farming exemption. With 169 municipalities and the 50-50 split that DEP has found to exist regarding municipal determinations on temporary roads for timber harvests, there is too much variation. I've concluded in a previous article on the farming exemption with the notion that the wetlands act should be amended with clear language establishing the procedure and the activities that are exempt. An exemption provision that allows such seemingly contradictory results from town to town is irrational and not in the public interest. I continue to believe that an amended statute would benefit the agencies, the farming and timber producers and the public.

Janet P. Brooks practices law in East Berlin. You can read her blog at: [www.ctwetlandslaw.com](http://www.ctwetlandslaw.com).



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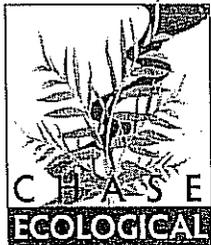
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# 2011 Is the Year of the Turtle

## DEP to Increase Awareness of Turtle Conservation in Connecticut

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**T**urtles are in trouble. Because of the issues surrounding turtles and the need to raise awareness, Partners in Amphibian and Reptile Conservation (PARC), of which the Connecticut Department of Environmental Protection (DEP) has been a member since 1999, has proclaimed 2011 as the Year of the Turtle. Through outreach efforts to researchers, educators, natural resource managers, and the public, the “Year of the Turtle” campaign aims to increase U.S. involvement in local-to-national turtle issues. State and federal wildlife agencies, along with several conservation and turtle organizations, are partnering with PARC to help spread the word about the plight of turtles.

“The DEP Wildlife Division also has made a commitment to inform Connecticut residents about the state’s native turtles through monthly press releases, articles and species profiles in issues of our bimonthly magazine, Connecticut Wildlife, a children’s art contest, and related events,” said Rick Jacobson, Director of the DEP Wildlife Division.

Currently, 328 species of turtles are known worldwide -- 57 (20% of the world’s turtle species) are found in the United States and Canada. The United States has more native turtle species than any other country; it is a turtle biodiversity hotspot. Twelve turtle species (including four sea turtles) occur in Connecticut. Seven of these turtles are currently on the state’s List of Endangered, Threatened and Special Concern Species.

### Connecticut’s Native Turtle Species

Bog Turtle (*endangered*)

Common Musk Turtle

Eastern Box Turtle (*special concern*)

Common Snapping Turtle

Wood Turtle (*special concern*)

Painted Turtle

Atlantic Green Sea Turtle (*threatened*)

Spotted Turtle

Atlantic Ridley Sea Turtle (*endangered*)

Northern Diamondback Terrapin

Leatherback Sea Turtle (*endangered*)

Loggerhead Sea Turtle (*threatened*)

Turtles (which include tortoises) occur in fresh water, salt water, and on land. Their shells make them some of the most distinctive animals on Earth. Turtles are typically slow creatures. This isn’t limited to their speed; they also grow slowly. It may take 10-15 years before individuals of some species can reproduce. A thriving turtle population relies on turtles surviving many years, if not decades. But if a population loses adults and begins to decline, a slow recovery can be expected. Because of these “slow” characteristics, the primary threats to turtles are intensified.

### Threats to U.S. Turtles

Humans caused the largest harm to turtle populations, but we have the power to make positive changes toward turtle survival. The largest threats to turtle populations include:

- Habitat loss and degradation;
- Overharvest of wild turtles for food, traditional medicines, and pets;
- Mortality from roads, agricultural machinery, fishing by catch, and predators;
- Exotic invasive species and diseases;
- Loss of unique genetic makeup due to hybridization; and
- Climate change.

### Conservation Action Can Help

Careful stewardship and conservation action can successfully slow or reduce the declining trend of turtles. Because turtles can respond well to population management and conservation, it is not too late to preserve our turtle heritage. Three basic approaches for species conservation include:

- Protecting rare species and their habitats;
- Managing common turtle species and their habitats so that they remain common; and
- Managing crisis situations, such as species in peril from acute hazards, such as oil spills.

Important progress is already being made in the United States. The freshwater turtle science and conservation community, in conjunction with state and federal wildlife agencies, recently developed

*turtle, continued next page*

turtle, continued from page 6

recommendations for managing freshwater and land turtle populations. These recommendations include better monitoring and tracking of turtle harvests, as well as the need for more long-term population studies on wild turtles.

Look for more information to come about turtles and turtle conservation in Connecticut. One of the best ways to learn more about turtles during the "Year of the Turtle" is to subscribe to the DEP's Connecticut Wildlife magazine ([www.ct.gov/dep/wildlifemagazine](http://www.ct.gov/dep/wildlifemagazine)). You also can visit PARC's Web site at [www.yearoftheturtle.org](http://www.yearoftheturtle.org), as well as the Year of the Turtle page on the DEP's Web site ([www.ct.gov/dep/yearofturtle](http://www.ct.gov/dep/yearofturtle)).

### What Is PARC?

Partners in Amphibian and Reptile Conservation (PARC) is an inclusive partnership dedicated to the conservation of the herpetofauna--reptiles and amphibians--and their habitats. Membership comes from all walks of life and includes individuals from state and federal agencies, conservation organizations,

museums, pet trade industry, nature centers, zoos, energy industry, universities, herpetological organizations, research laboratories, forest industries, and environmental consultants. The diversity of its membership makes PARC the most comprehensive conservation effort ever undertaken for amphibians and reptiles. PARC is habitat-focused, and centers on endangered and threatened species and keeping common native species common.



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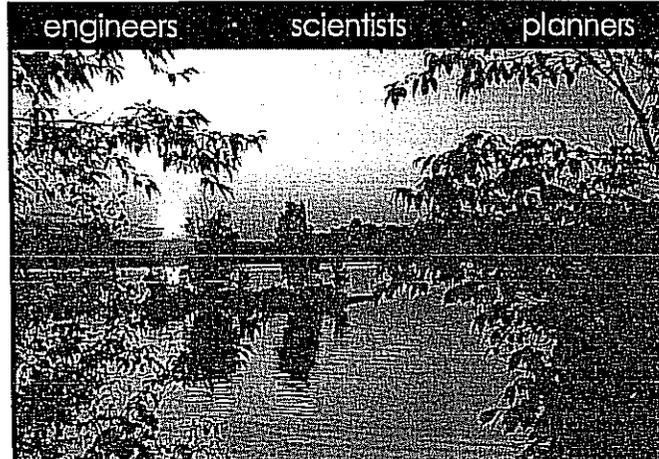
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*Editor's Note: Part I of this article appeared in the 2010 Winter issue. It summarized the legal basis for a conservation commission's role in a POCD. Part II describes the elements essential to an open space plan and critical for town approval.*

## Ensuring That Your Open Space Plan is an Important Part of the Plan of Conservation and Development: Part II

by Tom ODell and Ann Letendre

### INTRODUCTION

If your updated Open Space Plan has been reviewed and approved, then the pathway to inclusion in the Plan of Conservation and Development (POCD) has been smoothed. A key message here to Conservation Commissions who will be involved in this process in the near future is to start early and plan ahead. Give yourself at least a year to prepare an approved, updated Open Space Plan before your POCD process begins.

### Part II - IS YOUR OPEN SPACE PLAN READY FOR THE POCD?

An Open Space Plan generally provides recommendations for land to be used for conservation purposes. It also designates areas for preservation as open space. A POCD may include these recommendations provided such designations are approved by a majority vote of the legislative body of the municipality. If you are creating an Open Space Plan for the first time (or revising the plan), you will need to obtain or update the following elements that are essential to the plan, and critical for town approval.

#### Natural Resource Inventory (NRI)

Conducting and maintaining an NRI is a critical step in ensuring that your Open Space Plan is relevant and meaningful to the community. The NRI is essential to making recommendations on the utilization of land areas. There are excellent web sites containing interactive GIS maps of your town that can help. (See "Resources" below). A good place to start is the UCONN Cooperative Extension's NEMO Program (Tools and Resources). The NEMO Community Resources Inventory (CRI) is made up of three different resource inventories (natural, cultural and economic), and will enable you to develop a CRI for your

town. More recent GIS-based NRI on-line mapping, also available for your town, includes information on forest fragmentation, riparian buffers and grass lands. In addition, Connecticut Environmental Conditions On-Line provides maps and geospatial planning for management, planning, education and research.

#### Identify and Map Critical Natural Resources and Habitats

Review current information on statewide wildlife and endangered species habitats to see if your Open Space Plan should be updated to include key wildlife and endangered species habitats. A good start is Connecticut DEP's recent Comprehensive Wildlife Strategy, and

Endangered and Threatened Species web site. Milan Bull's article on Page 1, "Habitat Conservation Begins at the Municipal Level," provides excellent advice; "...identify and prioritize important habitat areas, first for protection, then for compatible uses..." (See "Resources" below).

#### Identify Unprotected Open Space

Make sure your "index" of unprotected open space is updated to the time period of each POCD revision. Review municipal planning and assessor's maps and conduct on-site review to identify parcels that have not been developed. You may also need to determine if an open parcel is protected by conservation restrictions or some other legal document that requires a land area to remain in its natural state. Assessor's records of Public Act 490 lands (forestry; agriculture and open space) should also be reviewed to see if there has been any recent change.

#### Current Community Open Space Priorities

Is your Plan consistent with resident priorities for open space protection? Have priorities changed since the last POCD? If you do not know, find out

*POCD, continued next page*

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*"Is your Plan consistent with resident priorities for open space protection? Have priorities changed since the last POCD? If you do not know, find out..."*

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by conducting workshops or surveys to determine current community priorities for protecting and preserving open space. If available, utilize updated GIS maps with town roads and land parcels to show development, protected open space and unprotected open space. Engage natural resource professionals to assist with workshops. State DEP, UConn Cooperative Extension (Forestry, NEMO and CLEAR), and Regional Planning Agencies are excellent resources.

### Current Protection Mechanisms

Options that are available in your town to permanently protect open space should be identified in your Open Space Plan. There are a variety of protection mechanisms, some requiring funds for direct purchase such as municipal bonding and cost share with the *State's Open Space and Watershed Land Acquisition Grant Program*. Others require actions by the town planning and zoning agencies such as subdivision permanent open space set-asides and Purchase of Development Rights Programs that pay landowners for conservation easements/restrictions. Protection mechanisms should be described in your open space plan and, when appropriate, protection mechanisms recommended for specific open space parcels identified in the plan for acquisition.

### Town Approval Process for Open Space Plan

Identify who needs to review and approve a new or revised Open Space Plan to make it an official town document. This process, if defined, can vary from town to town. Usually, the approval process starts with the Planning Commission, since Connecticut State Statutes, Section 8-24, require the Planning Commission to confirm that all proposed land acquisitions comply with the POCD.

*Tom ODell is Chairman of the Westbrook Conservation Commission, and is currently on the Westbrook POCD Steering Committee; he is editor of The Habitat.*

*Ann Letendre served on the Vernon Conservation Commission and participated in the Vernon POCD process.*

### Resources for Open Space Plans and the POCD Process

#### Articles/Publications:

Jim Gibbons; "Putting Conservation into the Municipal Planning Process": *The Habitat*, Autumn 1995, Vol. IX No. 3:

Karl Wagener; "Greenway Law Puts New Tools into the Hands of Commissions": *The Habitat*, Autumn 1995, Vol. IX No. 3:

Michael A. Zizka; "What's Legally Required? A Guide to the Rules for making local land-use decisions in the State of Connecticut"; DEP Bulletin 39, 2004

Marjorie Shansky, Attorney; "The Conservation Commission: Your Town's Key to Natural Resource Protection": *The Habitat*, Spring 2005, Vol. XVII No. 2: <http://caciwc.org/library/habitat/index.html>

John Mullaney and Michael O'Leary; "Hebron's Coordinated Approach to Riparian Area Protection": *The Habitat*, Winter 2008, Vol. XX No. 1: <http://caciwc.org/library/habitat/index.html>

#### NEMO Program websites:

Tools and Resources: <http://nemo.uconn.edu/tools.htm>.

Community Resource Inventory: <http://clear.uconn.edu/projects/cri/index.htm>,

Forest, grasslands, buffers: <http://clear.uconn.edu/projects/landscape/forestfrag/> and <http://nemo.uconn.edu/tools/fotc/index.htm>.

Ct Environmental Conditions: [www.cteco.uconn.edu/](http://www.cteco.uconn.edu/)

#### DEP sites:

Wildlife Strategy: [www.ct.gov/dep/cwp/view.asp?a=2723&q=329520&depNav\\_GID=1719](http://www.ct.gov/dep/cwp/view.asp?a=2723&q=329520&depNav_GID=1719)

Endangered Species: [www.ct.gov/dep/nddbrequest](http://www.ct.gov/dep/nddbrequest).




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# Municipal Inland Wetlands Commissioners Training Program

## State of Connecticut, Department of Environmental Protection

The State of Connecticut Inland Wetlands and Watercourses Act requires at least one member of a municipal inland wetlands agency, or staff of the agency, to complete this training program. In addition, this training program meets the agent training requirements pursuant to CT General Statute Section 22a-42a(c)(2). The Statute requires duly authorized wetland agents to complete the DEP's comprehensive training program before the above authority can be delegated to them by their inland wetlands agency. Agents who have completed all segments of a DEP Municipal Inland Wetland Commissioners Training Program offered annually since 1995 meet this requirement. Other agents must complete all segments of this or a future training program to meet this requirement.

### Segment 1: A Primer for New Inland Wetlands Agency Members and Staff (March/April)

Segment 1 is designed for new agency members and staff. Participants will learn the fundamentals of the Connecticut Inland Wetlands and Watercourses Act. The segment will also include a presentation on map reading, and a brief summary of the functions and values of wetlands and watercourses with a focus on fisheries habitat and stream crossings. The Segment 1 face to face sessions were held in March and early April. However a new Segment 1 - Online Training Option will be available later this year that will allow you to receive the same curriculum and credit for this Segment. If you would like to complete Segment 1 online, go to <http://vista-survey.com/survey/v2/survey2.dsb?ID=7097619499> and provide your contact information. You will be contacted when the online course is available. You may then choose to complete your registration for the same program fee, \$65 per workshop session or free with DEP voucher.

### Segment 2: A Legal, Administrative, and Resource Management Update (May/June)

Segment 2 is recommended for all agency members and staff. DEP representatives will provide a synopsis of the 2011 legislative session, including any amendments to the Inland Wetlands and Watercourses Act. The program will continue with representatives from the Office of the Attorney General presenting

an examination of recent court cases. A number of issues associated with these cases will be discussed including, but not limited to, enforcement of the Inland Wetlands and Watercourses Act, agricultural issues, and the Upland Review Area. This portion of the program will conclude with an open question and answer session.

The second half of Segment 2 will focus on the subject of storm water management. Storm water results from rain or snowmelt that runs off surfaces such as rooftops, paved roads, or parking lots; or infiltrates into the ground. Along the way, the water may pick up and transport contaminants including motor oils, gasoline, antifreeze, brake dust, fertilizers, pesticides, and soil sediments. Storm water may result in significant pollution to surface water affecting aquatic life and recreational activities. Joseph Bushey, Assistant Professor at the University of Connecticut,

*training, continued on page 11*



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Department of Civil & Environmental Engineering, will provide an overview of the storm water topic including a review of different contaminants.

Additionally, municipal land-use decisions, and the design and management of municipal facilities, especially storm water management systems, impact the quality and quantity of surface and ground waters. The U.S. Environmental Protection Agency (EPA) has mandated a number of permit programs to deal with storm water pollution, which are administered in Connecticut by the CT DEP. The DEP Storm Water Permitting and Enforcement Section will discuss these state permit programs, including the Small Municipal Separate Storm Sewer Systems (MS4) General Permit and the specific requirements.

**Register for workshops:**

<http://continuingstudies.uconn.edu/professional/dep/wetlands.html#seg2>

**Segment 2: Locations**

Saturday, May 21: 9am-4pm, Storrs, UConn

Thursday, May 26: 9am-4pm, Torrington, UConn

Saturday, June 4: 9am-4pm, Old Lyme, DEP Offices

Friday, June 10: 9am-4pm, Bridgeport, Housatonic Community College

Tuesday/Thursday, June 14 and 16; 6:30-9:30PM - Hartford, UConn Business School

**Segment 3: Field Workshop (October-November)**

Segment 3 is designed for municipal inland wetlands staff and experienced commission members. This all-day program will provide participants with an introduction to a selected topic, combining classroom instruction and practical experience, often in the field. Information on the special topic and registration for this segment will be available in September.

If you have program content questions, please contact Darcy Winther, Inland Water Resources Division, Bureau of Water Management, DEP, at 860.424.3063 or [Darcy.Winther@ct.gov](mailto:Darcy.Winther@ct.gov).



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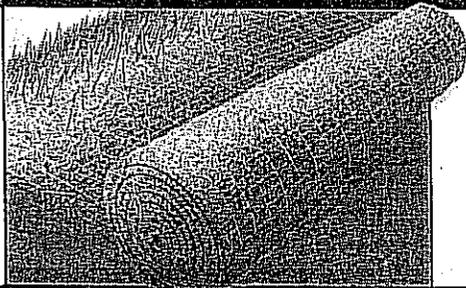
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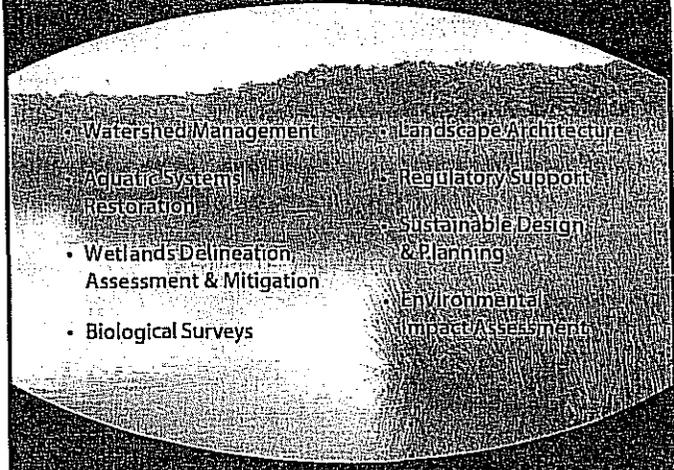


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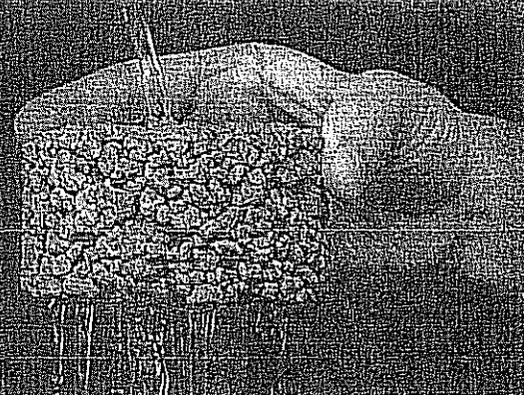
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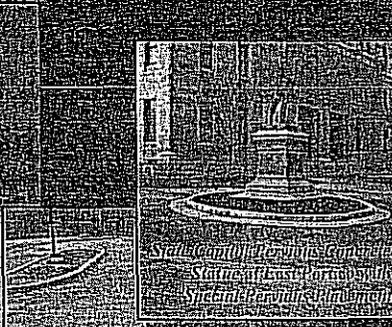
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Conservancy, the Town of Weston and the Aspetuck Land Trust. A large block of undeveloped forest and wetland, TBV was owned by a water utility company who strictly enforced a no-trespassing regulation. With little or no human activity for many decades, the forest became a Mecca for many species requiring low human impact, including forest dependant birds. After acquisition, and in response to constituents, Trout Brook Valley is now a maze of hiking, biking and horseback trails and is widely known and heavily used as a dog park. Unquestionably, there is still a wide variety of bird species as well as other wildlife that utilize TBV, but just as certainly, biodiversity and abundance has declined here. Increasing are those species that are well-adapted to suburbia, and although no comprehensive diversity and abundance surveys have been done on the site, observers have noted an understandable decline in other species that nest on or near the ground or are intolerant of proximate human activity. Although some protection is better than no protection, this has left many conservationists who signed petitions in favor of the acquisition scratching their heads.

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*"Many land trusts and conservation agencies are skilled at land acquisition and conservation easements but need assistance with managing protected land in a way that benefits wildlife and ensures that the land continues to provide quality habitat."*

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Clearly, there is need, and indeed room to accommodate all stakeholders in the process of land protection, and this is best accomplished with foresight and planning. Conservation Commissions and Town Planners would best serve the conservation community and the public by working first to identify and prioritize important habitat areas for protection, then for compatible uses. With important habitats identified, trails and other recreational activities can be designed or avoided to reduce negative impacts on sensitive wildlife resources. Also important is the need for cooperative planning among town agencies, as critical habitats are often borderless and green infrastructure, the interconnected network of woodlands, wetlands, farmland and other natural areas often flow from one community to another.

Town planners and Conservation Commissions should assure that there is an up-to-date inventory of all land within their municipality, both public and private, that

is suitable for conservation purposes and establishes a process for keeping that inventory current.

Bird and wildlife habitat, as well as size and proximity to similar adjacent properties, are important considerations in evaluating potential conservation acquisitions. Towns should establish a target for open space protection that is primarily for conservation and limits incompatible uses. Meetings between Conservation Commissions/Town Planners and local State Legislators are often helpful when planning conservation needs and objectives.

Maintenance and management of protected habitats are often the next challenge faced by municipal as well as private land agencies. The Brown Thrasher and Blue-winged Warbler habitat you just worked so hard to protect will soon transform to mature forest if not managed. Many land trusts and conservation agencies are skilled at land acquisition and conservation easements, but need assistance with managing protected land in a way that benefits wildlife and ensures

that the land continues to provide quality habitat. Fortunately, there are a number of resources available to assist the landowner with land and habitat management. These are available through private, state and Federal agencies.

The CT DEP offers a Landowner Incentive Program which offers technical advice and cost assistance to private landowners for habitat management practices: <http://www.ct.gov/dep/cwp/view.asp?A=2723&Q=325734>, and the U.S. Natural Resource Conservation Service provides help to conservation-minded landowners who want to develop and improve wildlife habitat on agricultural land, nonindustrial private forest land, and Tribal land: <http://www.nrcs.usda.gov/programs/whip/>. Management plans are useful to the government agencies providing assistance to the landowner and ensure that land management practices continue to benefit wildlife habitat.

The Connecticut Audubon Society offers science-based habitat restoration and management plans

conservation, continued from page 13  
 through its conservation offices: <http://0323048.netsolhost.com/WordPress/wp-content/uploads/2010/11/CAS-Conservation-Services-brochure-2011.pdf>

Collaboration among public and private agencies, land trusts and conservation organizations has made great strides for land conservation over the last few decades, and regional initiatives in the Northeast, such as Wildlands and Woodlands ([www.wildlandsandwoodlands.org](http://www.wildlandsandwoodlands.org)), provide a vision for a future that supports both biodiversity and economic health for our forests.

A cohesive plan for land acquisition and protection at the local level that is proactive rather than reactive and considers the habitat needs of our declining bird populations is an essential asset for the community, enhances our natural resources and quality of life and will ensure that the song of the Wood Thrush will continue to reverberate throughout our forests.

*Milan Bull is Senior Director of Science and Conservation, Connecticut Audubon Society and Vice-Chairman, Fairfield Conservation Commission.* 

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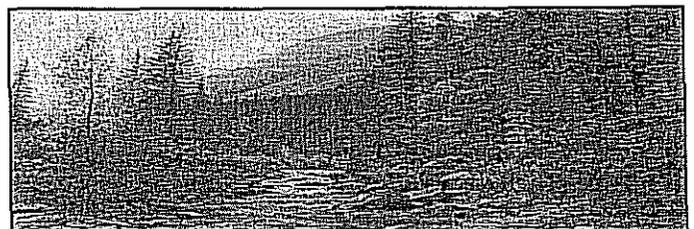
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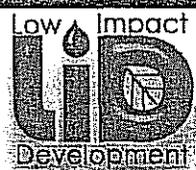
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“Furthermore,” Wagner said, “Data show that residents continue to buy air conditioners and refrigerators that are not ENERGY STAR efficient; this contributes to greater demand for electricity from seldom-used, highly-polluting power plants on the hottest summer days when air quality already is at its worst. So in 2010, we ended up with less air pollution on average but with more days when the air violated health standards – a paradox that can be explained partly by warming temperatures and partly by our continuing use of inefficient air conditioners and refrigerators.”

The core of the report is a standardized set of 33 environmental indicators with which the Council tracks progress in air, water, land and wildlife. A few of those indicators measure human activities that are expected to affect the air, land and water of the future. “Most of those indicators are not encouraging,” Wagner said. “Recycling appears to have stagnated, compliance with environmental regulations took a negative turn in 2010, bus ridership declined, and people’s use of electricity at home went up for the first time in several years.”

Wagner concluded by saying that “the state’s future does not have to be bound by recent trends. The data from our report suggest ways to make the indicators jump toward the target, to get us to our goals in our lifetimes.” Wagner

report called “Routes to Progress:”

- Continuous public and private investment in the control of water pollution.
- A plan for conserving farmland, parks, forests, and greenways, which involves determining how much land has already been preserved.
- Incentives for growth and development in the right places, which should help create demand for commercial development of brownfields.
- More widespread use of more efficient refrigerators and air conditioners.

Environmental Quality in Connecticut can be viewed in its entirety on the Council’s web site at [www.ct.gov/ceq/AnnualReport](http://www.ct.gov/ceq/AnnualReport).

*Editor’s Note: The annual report, Environmental Quality in Connecticut, is a paperless web publication. This report marks the 40th anniversary of the CEQ’s establishment. The CEQ is required by law to submit this comprehensive summary of the state’s progress in protecting and improving the state’s air, water, land and wildlife. The summary above is from CEQ’s April 21, 2011 News Release.*



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### “2010 Showed Us What Still Needs To Be Done”

Connecticut's environment changed very little in 2010, and that will be the story for years to come unless steps are taken to advance the state toward its goals for clean air, sewage-free rivers, and conservation of land. This is the central conclusion of the Council on Environmental Quality's annual report on the condition of the state's environment, which was recently submitted to Governor Dannel P. Malloy.

In its cover letter to Governor Malloy, the CEQ said that “For drinking water and wildlife, the lack of change is a good thing; in some other areas the constancy is not encouraging.” The Council's report gives several examples of where environmental progress has been slow:

- Connecticut residents and businesses have made sizable investments in successful water pollution control projects over the past 40 years, but many miles of rivers and coast still receive raw or poorly-treated sewage and other pollutants.
- The deep waters of Long Island Sound that have low oxygen levels during the summer showed improvement in 2010, but this was preceded by five years of decline.
- Coastal beaches were closed slightly more often, and the cure – control of sewage overflows and polluted runoff – is not in the immediate future.
- Residents breathed unhealthy air on 29 days in 2010, the most since 2005, even as pollution levels improved on most other days to their best levels in decades.

Council Chair Barbara C. Wagner used the air quality data to illustrate the vexing challenges that Connecticut residents face even as they enjoy the benefits of past successes. “Connecticut residents generate less air pollution nearly every year, but the state constantly is battling the weather patterns and warmer temperatures that create unhealthy concentrations of pollution,” Wagner said.

*CEQ continued on page 15*

# Connecticut Wildlife



# From the Director's Desk



What does it mean to celebrate diversity? *TheFreeDictionary.com* defines celebrate as "to praise publicly," and diversity as "the state or quality of being different or varied." These definitions comport with the interpretation of an African-American friend of mine whose car carried the slogan as a bumper sticker. To him, it meant that we should revel in our racial and ethnic differences. For others, the focus shifts to rejoicing a world rich in the diverse array of natural resources our wonderful state has to offer. To me, it means all of those and more.

We are a community bound by an affection for wild things. Yet, those passionate about our shared natural resources bring remarkably diverse and often disparate perceptions to the role of humans in our natural world. For some, watching wildlife is a fulfilling experience and the notion of taking a wild animal, whether for food, fur, or wildlife management action, is untenable. For others, harvesting wild animals is the highest and most sensible use of a publicly held renewable natural resource. Paradoxically, these perspectives come from a deep, heart-felt connection with our natural world.

There is remarkable strength in that connection and, if we choose to use that strength, we can accomplish great things, including conserving wild places, and fostering restoration of natural habitats and a resurgence of our native flora and fauna. If we choose to squander it, we will fail, regardless of the parochial battles won. It is with that in mind, as we debate the various actions we take, each of us is encouraged to celebrate our diversity, as in it lies our strength.

Rick Jacobson

*"What we have to do... is to find a way to celebrate our diversity and debate our differences without fracturing our communities."*

Hillary Clinton

## Cover:

The Eastern box turtle is of conservation concern in all of the states at its northeastern range limit, including Connecticut. See page 19 to learn more about the box turtle.

Photo courtesy of Paul J. Fusco

## "Connecticut Wildlife" Can Now Be Ordered Online

Thinking about ordering a subscription to Connecticut Wildlife for a friend or family member? The magazine can now be ordered online with a credit card through the DEP Store ([www.ctdepstore.com](http://www.ctdepstore.com)). While you are visiting the DEP Store Web page, take some time to explore the great selection of books and other environmental items that are available through the store.

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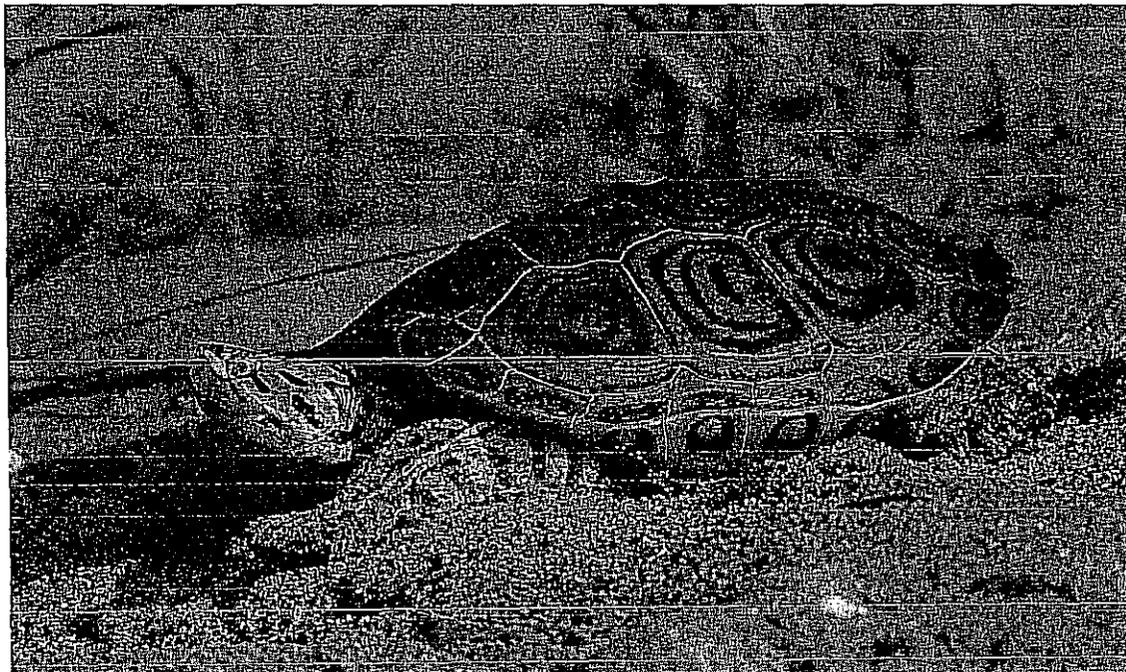
# Children's Art Contest and More Planned for the Year of the Turtle

The DEP Wildlife Division and the Friends of Sessions Woods, as part of the Year of the Turtle awareness campaign with Partners in Amphibian and Reptile Conservation (PARC), are sponsoring a turtle art contest for children in kindergarten through fifth grade. Children entering the contest should draw, paint, or sketch a turtle species native to Connecticut. Entries will be judged in three age groups: K-1st grade, 2nd-3rd grade, and 4th-5th grade. First, second, third, and honorable mention prizes will be awarded in each age group. The Connecticut Science Center, in Hartford,

has graciously donated a Family Pass package for each first place winner. The Friends of Sessions Woods Paul Petersen Memorial Fund has donated various turtle-related prizes, such as ribbons and books, for the winning pieces of artwork (first through honorable mention). First place winners also will have their artwork published in *Connecticut Wildlife* magazine.

All of the artwork will be on display at the Wildlife Division's Sessions Woods Conservation Education Center, in Burlington, at a special "Year of the Turtle Day," scheduled for Sunday, June 26, from 1:00-4:00 PM. Award winners also will be announced to the public during Turtle Day. Educational programs on turtles, live turtles, and kid's crafts are all planned for Turtle Day. More information about the event will be on the DEP's Year of the Turtle Web page at [www.ct.gov/dep/yearofturtle](http://www.ct.gov/dep/yearofturtle) as it becomes available.

An entry form, art contest guidelines, and the list of native turtles that can be illustrated are available on the DEP's Year of the Turtle Web page at [www.ct.gov/dep/yearofturtle](http://www.ct.gov/dep/yearofturtle). This information also can be obtained by contacting the DEP Wildlife Division's Sessions Woods office at P.O. Box 1550, Burlington, CT 06013;



F. J. FUSCO

The Northern diamondback terrapin is the only species of turtle in North America, including Connecticut, that spends its life in brackish water (water that is less salty than sea water). Diamondback terrapins are most abundant in tidal estuaries west of the Connecticut River.

860-675-8130 (Mon-Fri, 8:30 AM-4:30 PM). All entries must be postmarked by June 8, 2011. The native turtles that can be illustrated for this contest include the bog turtle, Eastern box turtle, common musk turtle, common snapping turtle,

painted turtle, spotted turtle, wood turtle, Northern diamondback terrapin, Atlantic ridley sea turtle, Atlantic green sea turtle, loggerhead sea turtle, and leatherback sea turtle.

*Attend Year of the Turtle Day at Sessions Woods WMA on June 26, from 1:00-4:00 PM. Visit [www.ct.gov/dep/yearofturtle](http://www.ct.gov/dep/yearofturtle) or call 860-675-8130 to learn more!*

## What You Can Do to Help Turtles

- Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.
- Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.
- Do not disturb turtles nesting in yards or gardens.
- As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females and they should be helped on their way and not collected. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side they are headed. Never relocate a turtle to another area that is far from where you found it.
- Do not litter. Turtles and other wildlife may accidentally ingest or become entangled in garbage (especially plastic garbage) and die.
- Learn more about turtles and their conservation concerns. Spread the word to others on how they can help Connecticut's box turtle population.

# The Conservation of Tidal Marsh Birds:

## *Guiding action at the intersection of our changing land and seascapes*

Written by Min T. Huang, DEP Wildlife Division, and Chris Elphick, Associate Professor, University of Connecticut

Connecticut, along with several other state partners from Maine to Virginia, is about to embark on a multi-year study to better identify critical areas for tidal marsh bird conservation and identify which tidal marshes and species in the Northeast/Mid-Atlantic are the most sensitive to land and seascape change. This is a wide-ranging and ambitious project, bringing together a diversity of partners, all with a common goal. The partners in this project include state and federal agencies, five major research universities, and many non-governmental conservation groups.

### *Importance of Tidal Marshes*

Tidal marshes are critically important ecosystems that form the dominant transition zone between terrestrial and marine communities throughout eastern North America. In fact, the eastern North American shoreline possesses the highest level of vertebrate biodiversity of any tidal marsh region in the world. Eastern tidal marshes are home to 83 breeding vertebrate species, 22% of which occur only in tidal marshes, or possess subspecies found only in tidal marshes. How-

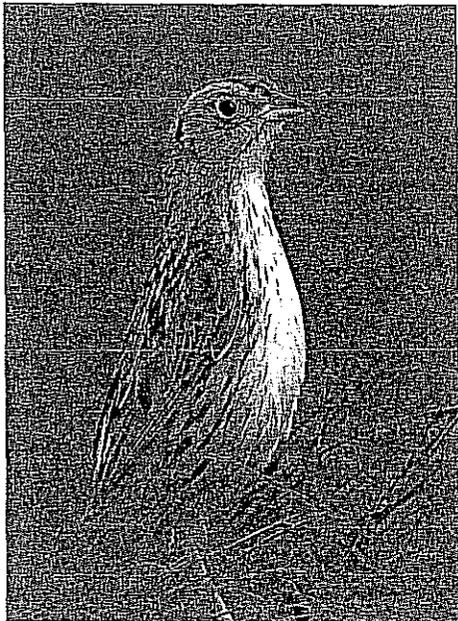


The clapper rail is a secretive marsh bird that nests exclusively in salt marshes. Its close relative, the king rail, is a freshwater marsh nester.

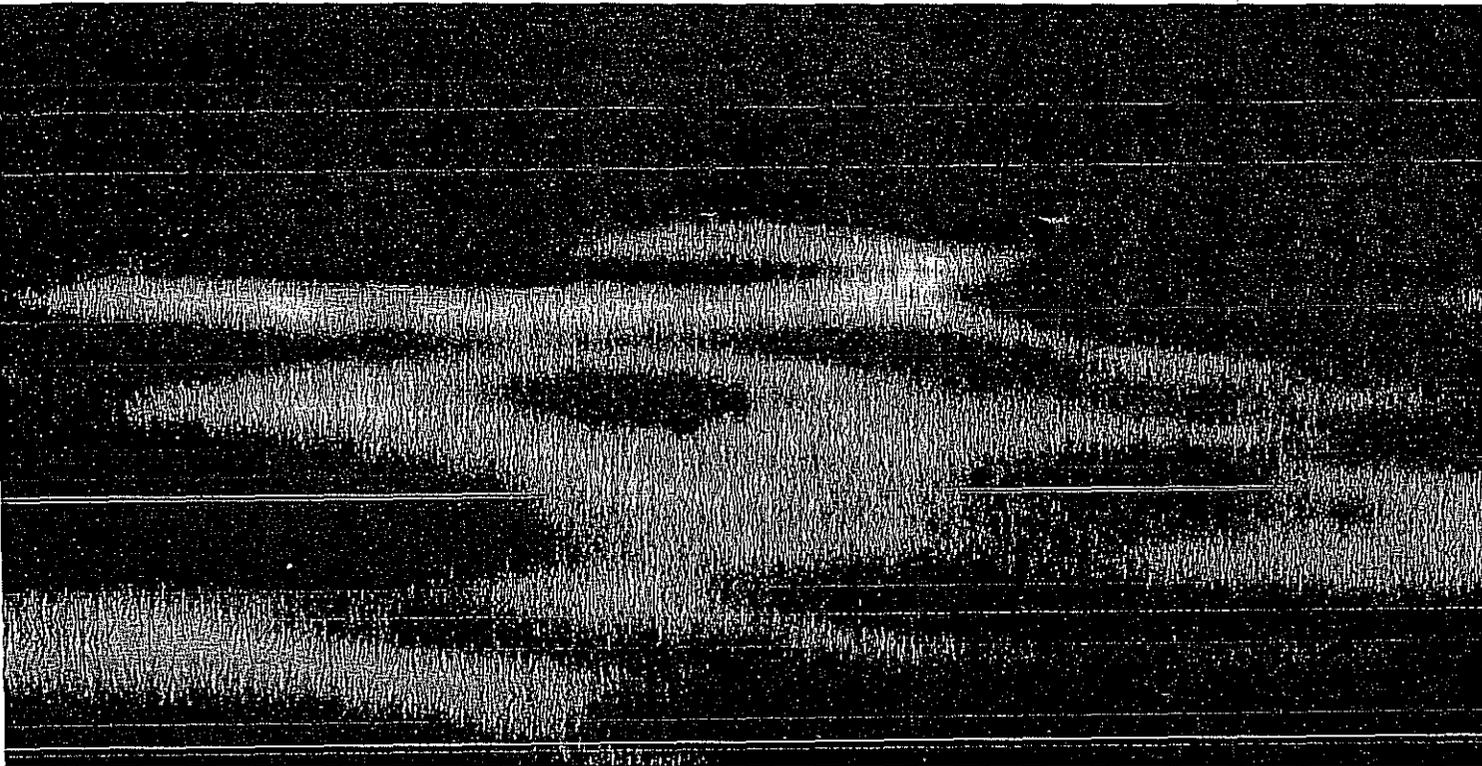
ever, our tidal marshes also are under some of the greatest environmental stress of any ecosystem in the world.

There are a myriad of factors that

negatively impact these sensitive areas, including continued development infringement; nitrification; contamination by heavy metals; spread of invasive plant



From left to right are the saltmarsh sparrow, seaside sparrow, and Nelson's sparrow. Connecticut may harbor 15-20% of the world's breeding population of saltmarsh sparrows.



Willetts readily use salt pannes for foraging in salt marshes. Wetland restoration efforts that restore tidal flow also create/improve salt panne habitat.

and animal species; increases in avian nest predators; widespread ditching and other hydrologic alterations for insect management; and increases in salinity due to the retention of river flows for human use. The single greatest threat to our tidal marshes, however, is likely climate change and associated sea level rise. Apart from altering the vegetative structure and composition of salt marshes, climate change also may impact the unique bird assemblage of the tidal marsh by increasing the frequency and intensity of flooding. Periodicity of flooding and the resulting water levels in the marsh are strong determinants of avian nesting success and productivity, and thus, long-term population viability.

It is estimated that over 50% of Connecticut's original tidal marshes have been lost. Remaining marshes are in various states of degradation due to past alteration (grid ditching), development, and other factors. The situation is similar throughout the northeastern United States. It is unlikely that we could ever substantially increase the amount of functional tidal marsh to benefit the many obligate marsh species that are at high risk. Therefore, it is critical that the relative importance of tidal marshes throughout the region be assessed so that the limited resources that are available to conservation can be best put to use.

### *Study Will Provide Answers*

The new, multi-year study aims to assess avian species and tidal marsh sensitivity to various stressors, and determine the regional importance of each area. To accomplish these goals, the project will estimate the distribution and relative geographic abundance of bird species breeding in tidal high marshes from Maine to Virginia using a combination of passive and broadcast surveys designed by the North American Secretive Marsh Bird Monitoring Program. The majority of effort will be concentrated on five high marsh obligate species (saltmarsh sparrow, Nelson's sparrow, seaside sparrow, willet, and clapper rail). Efforts also will be made to assess abundance of the American black duck and black rail. Additionally, surveys will be conducted for a third suite of species that includes wading birds, Virginia rails, and some of the high marsh fringe songbirds, such as yellow warblers.

Understanding distribution and abundance, however, is only a small part of actually being able to determine vulnerability to climatic change. Management histories of each marsh, where available, will be used to examine current species distribution and abundance relative to past and current management actions. We will then assess nesting density, nesting success, and adult survival of the marsh

sparrows. These data will help in the development of population models that will be used in conjunction with regional habitat loss scenarios (e.g., sea level rise) to conduct population viability analyses across the study area. The resulting products will inform managers across the study area about the importance, from a regional and local perspective, of tidal marshes in their states and their regional contribution to the overall persistence of the species being studied. A standardized survey protocol also will be established to provide a platform for long-term monitoring and assessment.

Ultimately, this study will enhance our understanding of the current extinction risk faced by tidal marsh bird species and identify potential ways to minimize risk at local, state, and regional scales. The resulting information will allow immediate actions to be taken where they are most likely to guarantee success, and will quantitatively show both what success should look like and how best to manage local tradeoffs with economic, development, and conservation concerns. More information about the study can be found at [www.tidalmarshbirds.org](http://www.tidalmarshbirds.org).

*This project is funded, in part, through the competitive State Wildlife Grants Program.*



# Prescribed Burning on State Lands in Connecticut

Written by Emery Gluck, DEP Division of Forestry

Historically, fire has had a profound impact on Connecticut's landscape. Periodic fires were once integral to sustaining eastern grasslands, oak savannas, much of the oak forest, and pitch pine/scrub oak forests. The elimination of fire in recent times has led to instability in these ecosystems. Without fire or mowing, woody vegetation quickly reclaims grasslands. Grassland habitat has diminished so much in New England that some butterflies (e.g., fritillaries) and grassland birds (e.g., eastern meadowlark) have experienced sharp population declines.

Grasslands were once created in a variety of ways. Native Americans purposely created extensive grasslands in southern New England by setting frequent fires. The natives also used fire in abandoned agricultural fields to provide habitat for game animals. Numerous smaller inland meadows were created naturally through

the work of beavers. These "beaver meadows" appeared after beavers abandoned their dams and the water behind the dams was able to drain out.

After a long period of fire suppression

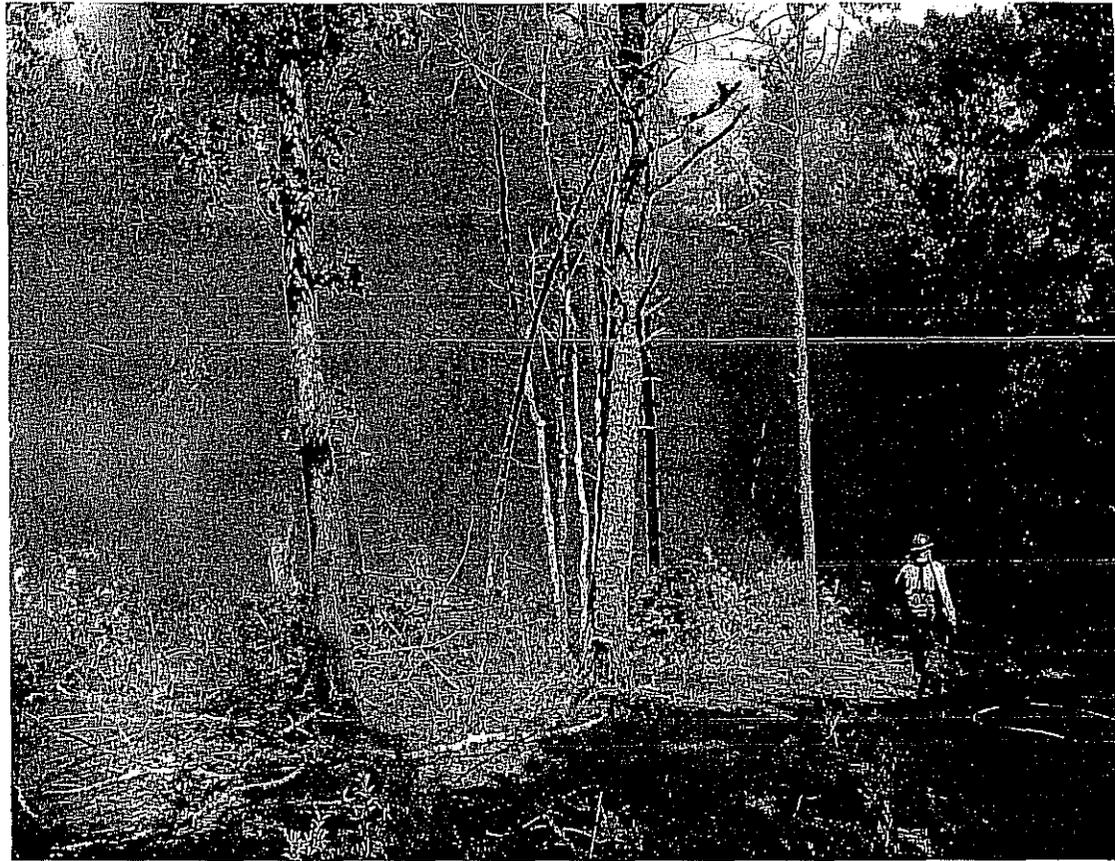
on state land, the DEP Division of Forestry has reintroduced prescribed fires to Connecticut state forests, wildlife management areas, and state parks as an ecological management measure. Repeated prescribed burns are currently being done to maintain little bluestem and other native warm season

grasses along the Connecticut coast and Connecticut River, where eastern grasslands historically occurred.

## Creating an Oak Savanna

In addition to coastal grasslands, other fields are burned repeatedly to offset the loss of early successional habitat to development and forest succession. Prescribed burns are currently being applied at a site in Nehantic State Forest, in Lyme, to simulate an oak savanna. Oak savannas (open, grassy woodlands) were probably common around Native American villages in southern New England, as the natives frequently burned forests. The forest was burned to improve habitat for game animals, increase berry production, facilitate gathering of firewood and acorns, ease travel, drive game, and eliminate cover that potentially concealed their enemies. Oak savannas have disappeared in Connecticut primarily because of fire exclusion.

After several burns at the Nehantic



Prescribed fire, in combination with a harvest of white pine, is used to help restore a pitch pine/scrub oak forest in Hopeville Pond State Park Natural Area, in Griswold.



Prescribed burns create early successional habitat, which benefits many species, including the prairie warbler.

*After a long period of fire suppression on state land, the DEP Division of Forestry has reintroduced prescribed fires to Connecticut state forests, wildlife management areas, and state parks as an ecological management measure.*



E. GLUCK, DEP FORESTRY DIVISION

State Forest site, the thin-barked trees (e.g., maples and birches) have succumbed or been weakened by fire injury, while the thick-barked oaks are surviving. The affects from the fire are stimulating the growth of herbaceous vegetation while eliminating or suppressing the woody understory vegetation.

According to historical accounts, oak forests near Native American populations had open grassy understories. This grassy understory (above) developed after a regeneration harvest and prescribed burn at Nehantic State Forest.

### ***Perpetuating Oak Forests***

Prescribed fire also is being applied to help perpetuate oak forests. Except on the driest sites, oak forests are not currently sustaining themselves. Old growth forests on mesic (well-balanced supply of moisture) sites depend on frequent fires and other disturbances to allow new generations of oak to develop and grow into overstory trees. Fire and/or other disturbances are needed to allow adequate sunlight to reach oak seedlings and reduce the competitiveness of shade-tolerant tree and shrub species in the understory. Connecticut's existing oak forests have formed after widespread clearcutting, fires, the abandonment of farmland, and the chestnut blight that occurred near the beginning of the twentieth century. Noticeably under-represented in the present forest are the vigorous, young understory oaks and substantial patches of young oak forest. This can be traced to a precipitous decline in the amount of forest fires, clearcuts, and abandoned farmland in recent years.

An adequate amount of disturbance is needed to sustain oak forests because dense shrubs (e.g., mountain laurel, pepperbush, or hophornbeam) and shade-tolerant understory trees (e.g., American beech) likely prevent oak seedlings from graduating to the overstory. Prescribed fire often top-kills the understory vegetation, only providing a short window for oaks to develop vigorously in the understory. Disturbance in the upper canopy

that creates a gap in the overstory is necessary for understory oaks to succeed to the overstory. Historically, canopy disturbances in southern New England have been caused by windthrow from severe storms or mortality from insect and/or disease infestations.

A supervised commercial harvest can mimic the disturbance needed in the overstory. Prescribed burns have been performed in conjunction with commercial harvests to promote the development of even-aged, two-aged, and multiple-aged patches in oak forests. These treatments should help sustain the oak community as part of the forested landscape.

### ***Restoring Pitch Pine/Scrub Oak Ecosystems***

The pitch pine/scrub oak sand plain forest is one of 13 imperiled ecosystems in Connecticut. Pitch pine is also known as "candlewood" or "torch pine" because the early settlers and Native Americans used pitch pine staves and pine knots as torches and candles. Candlewood Hill, Candlewood Mountain, and the several Candlewood Roads around the state are so named because of the tree that populates these locales. Prior to the American Revolution, the pines were tapped for turpentine and burned in dirt covered kilns to produce tar and pitch. The numerous Tarkiln Roads and two Tarkiln villages in southern New England are witness to local pineries from the past. Historically,

pitch pine ecosystems were more prevalent in the pre-settlement forest because they were sustained by the relatively frequent fires. An estimated 95% of the pitch pine/scrub oak forest has been developed for gravel pits and commercial or residential housing. The remaining pitch pine forests are losing out to succession. Pitch pines are often shaded over by more common and taller trees, such as white pine. Summer fires historically consumed the thick pine litter layer, creating a good seed bed for pitch pine seeds and providing adequate sunlight by killing a substantial number of trees.

DEP is currently using a combination of harvests and prescribed burns to sustain the pitch pine/scrub oak ecosystem. Commercial harvests remove the overtopping white pine and other trees. The harvest increases the chance that the ecosystem can be restored with fire because the logging slash provides an adequate amount of fuel and the openings allow the fuel to dry out.

The land use history of the past 300 plus years and elimination of fire have altered the historic disturbance regime that maintained Connecticut's forest ecosystems. With a combination of well-planned land use practices, such as mowing, the judicious harvest of trees, and the application and management of prescribed fire, there will be a greater likelihood of success in sustaining a diverse landscape on Connecticut's public lands.

# Meet the Waterwolf

Written by Ed Machowski, DEP Inland Fisheries Division

The northern pike (*Esox lucius*) (a.k.a. waterwolf, snake, northern, "the luce") is the largest predatory freshwater fish in Connecticut. It also is one of the most popular gamefish across North America and elsewhere around the globe. The pike's sleek body, fin placement, low-

Mythological accounts and folklore aside, pike are capable of growing to incredible sizes for a freshwater fish species (World Record—55 lbs; North American Record—46 lbs; CT State Record—29 lbs). While pike are considered a "cool water" species, they are adaptable to a wide

ta and stocked into Bantam Lake to help control an out-of-balance (stunted) perch population. This management strategy worked and, at the same time, created an exciting pike fishery. As the pike's popularity soared, the DEP Inland Fisheries Division expanded the program to meet

demand. Five more lakes, plus the Connecticut River, were destined to become pike fisheries. Lakes were selected based on a need for a top predator, habitat suitability, geographic location, and forage fish abundance. Today, northern pike provide anglers with more than 20,000 hours of fishing fun in Connecticut, with much of this occurring during ice-fishing season.

Although pike can spawn naturally in Connecticut, two elements severely limit natural reproduction: 1) many marshes where pike could spawn have been "cut off" by road crossings and development; and 2) water levels in most marshes drop precipitously following spring freshets,

causing unhatched eggs to desiccate and die. Without help from Inland Fisheries Division biologists, there would be very few pike around. Rather than purchasing juvenile pike "fingerlings" from out-of-state sources, biologists use Connecticut marshes to help pike boost their own populations. As a result, nearly 55 acres of managed marshes in Litchfield, Kent, Haddam, and Mansfield allow adult pike to produce an average of 15,000 home-grown progeny annually.

## How It Works

Pike spawning coincides with ice-out conditions, snow melt, and spring rains. Marshes and backwater locations in rivers become warm sooner than surrounding deep-water habitats. This temperature difference helps guide pike to their spawning grounds. Emergent grasses, hummock

slung jaw, and razor-sharp teeth make it a fast, efficient predator. It is this voracity, plus its fighting ability, that endear this fish to so many anglers worldwide.

It may be the fish's behavior, or possibly its appearance, that seem to create a shroud of mystery surrounding the pike. Present day stories from anglers, as well as tall tales in folklore and mythology, abound. The "Mannheim Pike," for example, supposedly lurked in the moat surrounding a medieval German castle and was purported to have lived for 267 years while growing to a shocking 550 pounds (don't go for a swim in that moat!). But, the pike's place in mythology is only half the story. There also are accounts of alchemists using pike hearts and galls to cure pleurisy, pike ashes to treat burns, and pike bones as talismans against witchcraft.

range of environmental and water quality conditions. This adaptability allows northern pike to be the most circumpolar species of the five-member Esocidae family (the other members are redfin pickerel, chain pickerel, muskellunge, and amur pike). The only two environments where pike seldom grow well or survive are lakes that are extremely cold and oligotrophic (poor in nutrients and plant life, but rich in oxygen) and shallow waters that mostly remain very warm. Anything in between these two extremes is suitable for pike survival.

In Connecticut, historic records indicate that pike were introduced into the Connecticut River in the mid-1800s. However, the first waterbody actively managed for pike was Bantam Lake, in Litchfield and Morris, beginning in 1970. Adult pike were procured from Minneso-

DEP INLAND FISHERIES DIVISION



Inland Fisheries Division biologist Ed Machowski releases an adult female pike into a managed spawning marsh.

grass, and submerged brushy vegetation found in shallower marsh areas are necessary for successful spawning. Pike do not create a nest like trout or bass. Instead, females broadcast small eggs into the water over submerged vegetation where males fertilize them. The eggs "stick" to the vegetation, keeping them in oxygen-rich water and out of the mucky, marsh sediment.

Each spring, biologists collect adult pike in nets and traps to stock them directly into the managed marshes. The total number of spawning pike needed is based on the size of females captured and the size of each marsh. Biologists generally stock 10–20 pounds of female pike per acre in each location, while also adding two males for each female. They also monitor conditions and return the adults to the lake/river where captured once the

spawning activity ceases.

The speed at which the eggs hatch is dependent on water temperature. The warmer the water, the quicker they hatch. Generally, this process takes about two to three weeks. Newly-hatched pike are fascinating in that they are born with a sucker disc-like mouth. This is another adaptation which keeps the non-swimming young pike attached to vegetation and out of the bottom mud. They begin to swim and actively feed on zooplankton only after the yolk sac is absorbed. The fingerling pike grow to approximately four to five inches long by late June. At this time, the water in each marsh is slowly released through a trap at the marsh's outlet. Biologists capture, count, and measure the fingerlings, stocking them in vegetated areas outside the marsh. Stocking densities are predetermined for each

lake and range from two to 15 fingerlings per acre.

While the managed marshes have proven successful in producing fingerling pike, there is a tremendous amount of year-to-year variability in annual production. Many environmental and biological factors (e.g., fertilization success, pH changes, temperature changes, and flooding) ultimately control fingerling production on a yearly basis. The Inland Fisheries Division is currently investigating more efficient ways of managing our marshes and developing methods to reduce annual variations in production. In addition, the Division will be monitoring natural pike reproduction in Mansfield Hollow Reservoir (and possibly Winchester Lake) to determine if natural reproduction alone can support recreational fisheries at those locations.

## Trophy Fish Award Program

*Written by Bill Gerrish, DEP Inland Fisheries Division*

The DEP Inland Fisheries Division has maintained the Trophy Fish Award Program for more than 46 years. Three years ago the Annual Trophy Fish Award Ceremony was established to honor these exceptional anglers. The Award Ceremony recognizes anglers for catching the largest fish in several categories. Those categories include marine and inland species of fish.

The catches have become more impressive each year. Several individuals stood out from the crowd during the Annual Fish Award Ceremony, held on January 19, 2011.

- Daniel E. S. Kornegay III, of East Hampton was recognized as the Angler of the Year. Mr. Kornegay III also received an award for catching and releasing the largest walleye (30.0 inches) and the largest rock bass (11.75 inches).
- Harry C. Barber, of Middlefield, was presented with an award for receiving the most Trophy Fish Awards in one year. Mr. Barber earned nine awards for his skill in harvesting channel catfish in 2010. He also was given the first Lifetime Achievement Award ever issued by the DEP for being the recipient of 74 Trophy Fish Awards. Since 1983, Mr. Barber has

earned awards for winter flounder (1), white catfish (1), largemouth bass (3), northern pike (5), brown trout (11), and channel catfish (53).

- Nathan Dean, of Wallingford, was presented with an award for harvesting the largest tiger trout (5 pounds, 0 ounces; 24.0 inches) of any youth in 2010. A tiger trout is a brown trout/brook trout hybrid.

The rules and application form for entering the Trophy Fish Award Program can be found in the 2011 Angler's Guide and at [www.ct.gov/dep/fishing](http://www.ct.gov/dep/fishing).



Inland Fisheries Division Director Peter Aarrestad (left) poses with Daniel E. S. Kornegay III, of East Hampton.



Bill Gerrish (left) of the Inland Fisheries Division poses with Harry C. Barber, of Middlefield.



Inland Fisheries Division Director Peter Aarrestad (left) poses with Nathan Dean, of Wallingford.

PHOTOS PROVIDED BY DEP INLAND FISHERIES DIVISION

## Open House at Rainbow Dam Fishway in Windsor

Visit the Rainbow Dam Fishway, in Windsor, on June 4, 2011, from 10:00 AM-3:30 PM. Visitors will be allowed into the counting house to watch migrating fish through the viewing window. Take I-91 to exit 40; go west on Rt. 20 to the Hamilton Road South exit; turn left, then right onto Rainbow Road; the area is 1/4-mile on the left (look for signs).

# What's the Buzz About Native Solitary Bees?

Written by Laura Saucier and photography by Nelson DeBarros, DEP Wildlife Division

Scientists have estimated that approximately 4,000 bee species are found in North America. Many people are surprised by this fact as the image of a European honey bee or a bumble bee is what typically comes to mind. In actuality, bees vary in size, coloration, and habits, much like birds do. There are sweat bees that can be bright green in color and measure less than a quarter of an inch long to bumble bees that are yellow and black and well over an inch long. There are bees that only specialize on particular types of flowers, and those that do not create nests at all but lay their eggs in other bee nests. The differences are amazing, but the common thread is that they all drink nectar for sustenance and females use a nest and provision it with pollen and nectar (for the offspring to eat) that they gather from flowers.

Native bees are thought to be responsible for more than 90% of the pollination of North American wildflowers. These plants, in turn, provide food and cover for a multitude of wild-life species. Having such an important role in nature is why bees are considered to be keystone species — that is, a species that helps to support an ecosystem of which they are a part.

What makes a bee a bee? Although related to wasps and ants, bees differ from their close insect relatives in that they have branched hairs all over their bodies, giving them a fuzzy appearance (sometimes only seen under a microscope). These branched hairs are responsible for making bees such great pollinators. Bees fly from bloom to bloom, collecting pollen for their nests and drinking nectar for energy, all the while carrying excess pollen on their furry bodies. This excess pollen is what pollinates the next few flowers the bee visits. It is an ingenious system of plants providing a reward, in the form of nectar, to lure bees to visit them. The bees, subsequently, transport pollen to other plants, ensuring gene exchange among individual plants.

## Bee Life History

There are social bees and solitary bees. Most bee species in North America are solitary creatures, meaning that they do not live socially like the European honey bee does. European honey bees (*Apis mellifera*) are domestic bees that live in a hive within a highly-ordered social system that benefits the hive as a whole. Female solitary bees — by themselves — will make a nest, provision that nest with food for their larvae after hatching, and sometimes guard nests from predators and parasites like cuckoo bees. In good nesting habitat, solitary bees may nest in close proximity to one another, giving the appearance of social behavior. However, this aggregation is not social behavior but merely taking advantage of prime real estate.

Approximately 70% of solitary bee species nest in the ground. The other 30% nest in wood, hollow plant stems, or the abandoned nests of other animals, such as small mammals and beetles. Often, the nest is merely a hollowed out chamber in which the female constructs a gallery of compartments. An egg is laid in each compartment, typically on top of a ball of pollen, sometimes call “bee bread,” that she has collected. Once an egg hatches, the larva eats the bee bread as it develops into an adult bee.

Based on recent research, scientists believe that approximately 324 species of bees are found in Connecticut. Following

are descriptions of a few groups of solitary bees that can be found in your backyard, some noticeable and some less so!

## Large Carpenter Bees (Genus *Xylocopa*)

Only one species represents this group in Connecticut, *Xylocopa virginica*. This carpenter bee is large, with a shiny black abdomen. It sometimes is considered a nuisance to homeowners when it chooses to excavate a nest in a structure. Females excavate nest tunnels in soft or rotten wood and typically will not reuse old nest tunnels. The female will create multiple egg chambers (cells) in a row within the tunnel. Males are protective of the nest that their mate has created and will aggressively defend it, often frightening people by buzzing by them. This behavior is purely for show because male carpenter bees cannot sting (only female bees can sting and carpenter bees rarely sting). Carpenter bees have a habit of “robbing” nectar from flowers that they cannot fit their body into. Because the bee does not enter the bloom but instead cuts a hole at the base of it to gain access to nectar, the flower does not get pollinated.

## Squash Bees (Genus *Peponapis*)

Squash bees are the best pollinators for our native cucumbers, melons, pumpkins, and squashes. These medium-sized, golden yellow bees are ground nesters that emerge in late summer when squash blossoms begin to appear. Unlike other bees that prefer the warmth of late morning, females forage for pollen and nectar in the early mornings. Males can often be found sleeping in squash flowers in the afternoon.

## Mason Bees (Genus *Osmia*)

Mason bees are small to medium-sized, typically metallic or iridescent, and green to blue in color. They nest in cavities in plant stems or wood. These bees have readily adapted to nesting in blocks of wood with man-made holes drilled in them (called bee blocks). Mason bees construct their nests inside these holes with various materials, such as pieces of leaves and mud. Mason bees are efficient pollinators, especially of orchard crops, such as apples.

## Mining Bees (Genus *Andrena*)

*Andrena* bees are called mining bees because they are ground nesters. These medium-sized bees are typically green or black. Andrenids are interesting in that they are partial to certain types of plants, unlike most bees that are generalist pollinators. Some species will only collect pollen from a limited range of plants, some only one species of plant.

## Green Sweat Bees (Genus *Agapostemon*)

Green sweat bees are small (around one-third inch in length) and can be entirely bright green or green on the upper body with a yellow and black abdomen. They are ground-nesters that are known to pollinate many different flowers, including strawberry plants. Sweat bees are often attracted to human perspiration, and will land on our skin to collect the salts that are excreted when we sweat.

## Leaf-cutter Bees (Genus *Megachile*)

Leaf-cutter bees are medium-sized and typically have dark

abdomens with light-colored bands. These bees may nest in hollow stems or in the ground, but what unifies this group is that the female will chew off pieces of leaves to use in the construction of a nest. Males are often territorial and will guard a particular patch of flowers, muscling other males away from “their” flowers. Leaf-cutter bees also can be found nesting in man-made bee blocks.

### Cuckoo Bees (multiple genuses)

Cuckoo bees are a fascinating group in that they are cleptoparasites. Cleptoparasites lay their eggs in nests of other bee species (like cuckoo birds do to other birds) so that their offspring will hatch and consume provisions left by the host bee. This earns them the name “clepto” as they are stealing the resources of the host larva. Cuckoo bees in the genus *Nomada* specialize in parasitizing the nests of *Andrena* species. Female *Nomadids* can be seen flying low to the ground searching for *Andrena* nests to parasitize. Cuckoo bees lack the typical fuzzy bee appearance and can vary widely in coloration, from a reddish brown to yellow and black-striped.

### Bee Conservation

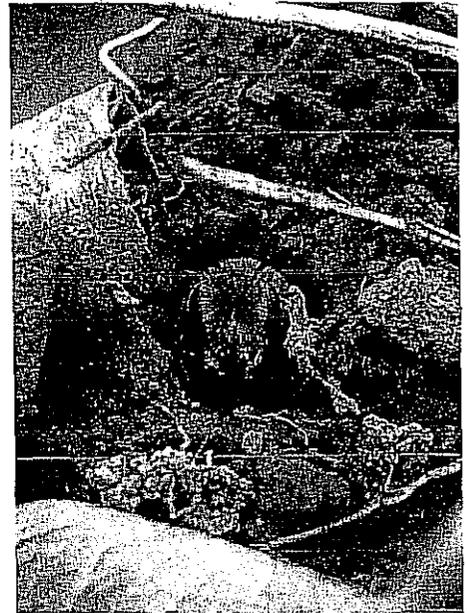
Since the 1990s, scientists have detected a decline in bee species that were once quite common. The spread of foreign diseases to our native bumble bees has been implicated in some declines. The reason for the decline in other bee species is still unclear. Native bees, like most wildlife species, are susceptible to habitat fragmentation and degradation by pollution, pesticides, and other environmental stressors. These stressors all take their toll on a species’ ability to adapt to its changing environment.

### You Can Help Native Bees

- Avoid pesticides around your home and garden. Pesticides kill more than just pests – they kill many other beneficial insects. Learn about organic lawn care and gardening, and put those techniques into practice.
- If pesticides are necessary, apply them when the plants are not in flower to reduce bee exposure. If the plant is in flower, apply pesticides in the evening when bees are not actively foraging. Use the minimum amount of chemical needed for effectiveness.
- Provide food for bees by planting a variety of native wildflowers that will bloom throughout the growing season.
- Provide nesting habitat in your yard by leaving bare patches of soil (free of mulch) that receive sun. This will provide nesting opportunities for the 70% of bees that nest in the ground. Also, leaving “wild” (unmanicured) areas in your yard will provide



(Left) Bees, like this metallic green sweat bee come in many colors and patterns – not just yellow and black-striped. (Right) Seventy percent of bee species nest in the ground. Leaving sunny areas of your yard free of mulch will benefit bees like this mining bee.



(Left) Green sweat bees are often attracted to human sweat and will land on us to drink it for the salt content. (Right) Squash bees are specialists on the flowers of the squash family (Cucurbitaceae). Mating actually occurs inside the cucurbit flowers.



dead, woody stems that many other bees use for nesting.

Will attracting bees to your yard mean more opportunities for getting stung? Bees get a bad reputation for causing painful stings, yet wasps, yellow jackets, and hornets are the more likely culprit. For the most part, solitary bees are not aggressive because they do not defend a hive like wasps or social bees do. Also, only female solitary bees sting; males do not have the same ability.

To learn more about native pollinators, visit the Xerces Society Web site at [www.xerces.org](http://www.xerces.org).



# The Bird with the Bubbly Song - The Bobolink

Article and photography by Paul Fusco, DEP Wildlife Division

The bubbly, plinking song of the male bobolink brightens a spring meadow as the bird perches, singing from the taller weeds that rise above the grass. The bobolink song is a long series of bubbling notes rising in pitch. When one male begins his song, others answer with their own version. At times

they will take to the air, hovering in flight like a helicopter, as they sing from an elevated height above the thick grasses of their territories.

## Description

Bobolinks are small members of the blackbird family. They are slightly larger

than a house sparrow. Their short tail has stiff, pointed feathers, and they have pointed wings. Bobolinks are sometimes also known as reed birds or rice birds.

Male bobolinks have an elegant and unique look during the breeding season. Their plumage is black below and mostly white above, and they have a buffy nape. They are the only North American songbird whose plumage is dark below and light above. Females are quite different and suggestive of a large, buff-colored sparrow with dark streaking on the back and flanks and crown stripes. Females have a large, pinkish bill, while males have a black bill. Males have a similar appearance to females after the breeding season. Immature birds are similar to adult females, but are more yellow with less streaking on the flanks.

In mid- to late summer, bobolinks gather into flocks that may gradually become very large as the birds get ready for the fall migration. At this time, they can be heard giving their typical flight call, a metallic "pink."

## Behavior

During the breeding season, bobolinks are found in extensive open grassland habitat, usually wet meadows and hayfields with thick vegetation. They will use agricultural fields and weedy fields with grasses during fall migration. Their fall migration takes them as far south as Argentina, where they spend the winter. Amazingly, their round trip journey is 11,000 miles, the longest of any North American songbird.

Bobolinks are insectivorous during spring and summer, switching to grass seeds, weed seeds, and grain in fall. In fact, large migratory flocks of bobolinks have a history of being destructive to unharvested grain, including rice. Although they have a reputation for causing damage to grain crops, bobolinks provide an incalculable benefit by consuming large amounts of harmful insects and noxious weed seeds.

## Breeding

Males arrive at their grassland breeding areas in early May, about a week or two before females. Nesting begins shortly after the females arrive. Simple, open-topped nests are constructed of grass and built on the ground next to



During the breeding season, male bobolinks are unique in that they are the only songbirds that are light on top and dark on the underside.



Female bobolinks are slightly larger than a sparrow. They have dark crown stripes, streaking on the back and flanks, and a pinkish bill.

clumps of thick grass or other vegetation. The nests are well concealed.

Bobolinks are polyandrous, meaning that nests may contain eggs that were sired by different males. The normal clutch size is four to seven eggs. Incubation takes about 12 days. Young are fed by both adults and they leave the nest after about 10 days. Young tend to wander around in the grass for a few more days before learning to fly. At this stage, the young birds are extremely vulnerable.

### *Conservation*

Unfortunately, the bubbly song of the bobolink has been disappearing from Connecticut's landscape as the bird has experienced a widespread decline in the Northeast. The bobolink is listed as a Connecticut Species of Special Concern.

In the early twentieth century, before migratory bird protection laws were enacted, bobolinks were shot in large numbers in the southern states during fall migration. Farmers would kill the birds by the thousands when they stopped to feed on grain and rice crops before the crops could be harvested. It was common

practice for farmers to wait until the birds had the chance to fatten up before killing them so that they would fetch a higher price at market.

Although those days are long gone, bobolinks have never recovered their former numbers in our region. They now are facing new threats from early haying practices that impede their breeding success and habitat loss due to succession and development. Bobolink populations also are affected by pesticide use and heavy hunting on their South American wintering grounds, where they are still considered agricultural pests.

When hayfields are mowed can make the difference between sustaining a bobolink colony or losing it. Bobolinks have high site fidelity, meaning that birds from successful breeding colonies return to the same site year after year. Sites with birds that are unsuccessful in breeding and raising young will die out. Farmers who have bird conservation in mind know that the proper time to mow a bobolink field is two weeks after young have fledged the nest, which in Connecticut is in early to mid-July. This time frame gives the

young birds time to build their flight muscles and gain strength. Of course, the insects that bobolinks depend on for food are also affected by mowing.

The Wildlife Division has been, and is currently, monitoring grassland bird populations. The DEP began a statewide Grassland Habitat Initiative in 2006 with funding from the federal State Wildlife Grants Program. By partnering with other state agencies, agricultural groups, and non-governmental organizations, a working committee was tasked with establishing grassland conservation goals. Ongoing field surveys, mapping, data collection, and land use assessments have allowed staff to assign conservation priorities.

Maintaining and managing healthy grassland habitat is a top priority that will benefit all of Connecticut's grassland species. The bobolink's future in our state depends on the stewardship of declining grassland habitat and ensuring that field mowing schedules are enabling the birds to raise their young successfully.

# Zebra Mussels in Western Connecticut

## *A well-known aquatic invader expands its range in New England*

Article and Photography by Barb St. John White, Research Biologist, Biodrawiversity LLC

**Z**ebra mussels (*Dreissena polymorpha*) are small bivalve mollusks native to drainages of the Black and Caspian Seas in Russia and Eastern Europe. They were first introduced to the United States during the late 1980s in the ballast of ships passing through the St. Lawrence Seaway, and are now one of the most ecologically significant invasive species in North America.



This zebra mussel was one of several discovered in the Housatonic River impoundments of Lake Zoar and Lake Lillinonah in southwest Connecticut during fall 2010.

### *The Invasion*

The first records of zebra mussels outside their native range are from the late eighteenth and early nineteenth centuries, when they spread through canal systems across Western Europe. Zebra mussels were first found in North America in Lake St. Clair, between Lake Erie and Lake Huron, in 1988. By the mid-1990s, they were documented throughout the Great Lakes region and in 20 states in the United States, having moved as far east as the Hudson River in New York, Lake Champlain in Vermont, and East Twin Lake in northwestern Connecticut.

In the Northeast, zebra mussels remained primarily within the Hudson and Lake Champlain watersheds until 2009, when they were discovered in Laurel Lake in the Housatonic River in Massachusetts. Most recently, during fall 2010, limited numbers of mostly young animals (less than 20 millimeters in length) were found at several locations in the impoundments of Lake Lillinonah and Lake Zoar in the lower Housatonic River in southwest Connecticut. It is likely these animals were only just introduced, and while they may have come from an upstream source or been transported by recreational boaters, their exact origin is unknown.

Adult zebra mussels rarely reach more than 50 millimeters in length. Their

black-and-white striped shells consist of two valves joined by a hinge, the same as other bivalve clams and mussels. The ventral side, or bottom, is flat, and the mussels attach to rocks or other hard substrates by fibers called byssal threads. Zebra mussels can inhabit both lakes and rivers, although they prefer lake habitats or areas of slow-moving water. They may occur sparsely or in high densities, completely covering the surfaces they colonize. They feed by filtering algae, small zooplankton, bacteria, and other particulate matter from the water. A single adult can filter approximately one liter of water per day.

As veligers, or larvae, zebra mussels are no more than 200 thousandths of a millimeter in size, invisible without a microscope. In one season, a single female mussel releases several hundred thousand veligers directly into the water. The microscopic larvae float freely and are dispersed by currents, easily moving more than 50 miles downstream in a river before settling in new locations. Adult zebra mussels have few natural predators of significance in North America, although some fish and aquatic birds are known to consume them in moderate quantities.

While zebra mussels seem to spread easily, research tells us they are not likely

to become established in waterbodies with a pH below 7.4 and calcium levels less than 12.0 mg/liter. Streams and lakes with calcareous underlying geology, including those in the Western New England Marble Valleys of the upper Housatonic River in Massachusetts and northwest Connecticut, are highly susceptible to colonization. Lake Zoar and Lake Lillinonah, further downstream, are less alkaline and at lower risk. In both impoundments, pH is near 7.5, just over the minimum zebra

mussels require. Calcium concentrations in Lake Zoar are approximately 17.0 mg/L, and 23.0 mg/L in Lake Lillinonah, making them moderately susceptible. Continued monitoring of the populations in the impoundments and vigilance on the part of local residents and visitors will be important in preventing further colonization.

### *Ecological Impacts*

Zebra mussels can have significant ecological impacts. They will attach to any hard underwater surfaces, including rocky substrates, boats, dock installations, water intake pipes, and even native freshwater mussels. They may occur at densities as high as several thousand adult mussels per square meter, and can severely alter availability and quality of habitat of the benthos (bottom) of streams and lakes.

Aside from physical changes that are easily seen, zebra mussels also transform ecosystems in drastic ways that may not be noticed by the casual observer. Because zebra mussels filter vast quantities of suspended material from the water and digest and deposit this material on the bottom as pseudofaeces, food sources for bacteria and invertebrates and ultimately other organisms are depleted

and transferred to lake or stream bottoms. This shift in resources effectively alters basic properties of food webs and destabilizes important established processes of many aquatic ecosystems.

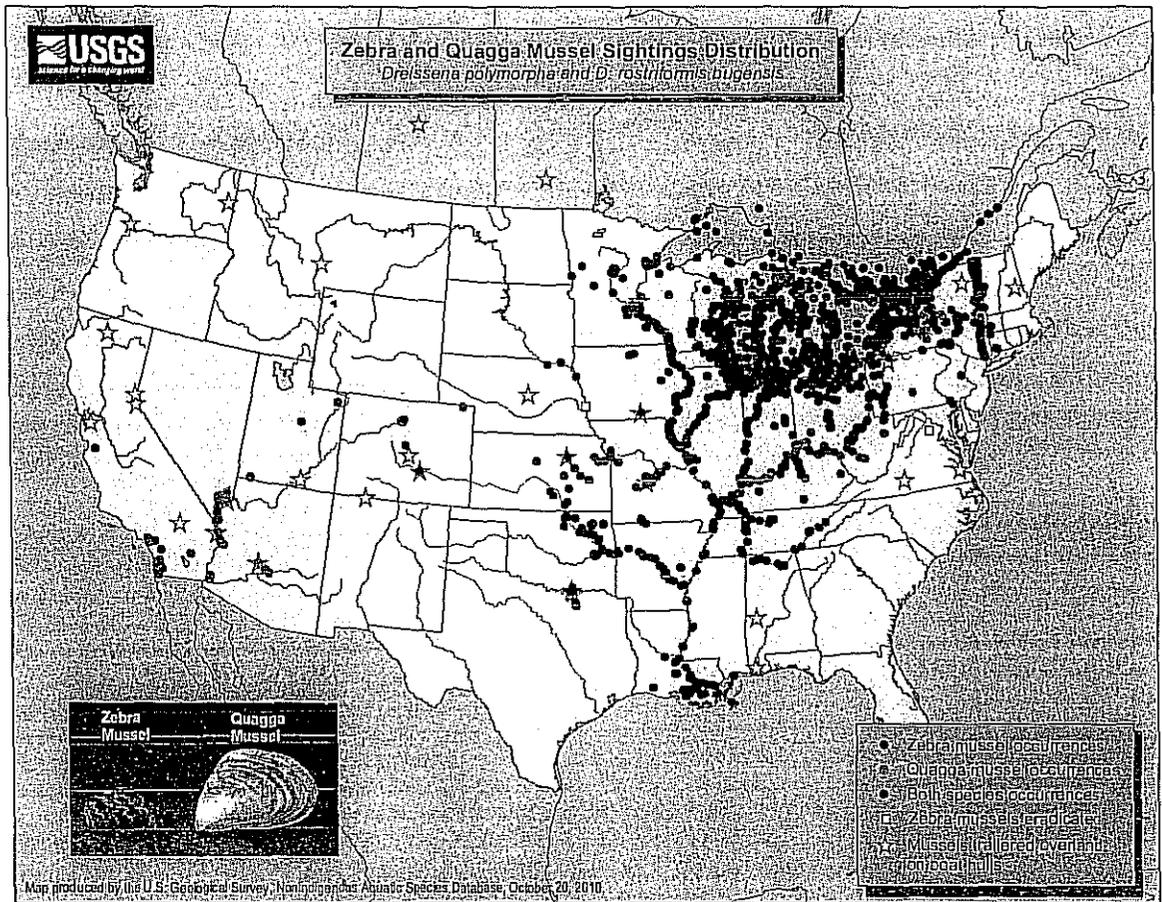
Closely tied to the ecological impacts of zebra mussels are their direct economic costs, which are estimated to be in the billions of dollars in the United States alone. These costs are associated with a variety of damages, including loss of function in industrial facilities whose operations are impeded by biofouling, damage to ships and ports, and the loss of native sport fisheries.

In the United States, approximately 50,000 alien and invasive species like the zebra mussel continue to disrupt long-established steady states of ecosystems they inhabit, generating unprecedented ecological damages and economic costs. People and their activities are intricately linked to ongoing introductions and the spread of these species. Through our own preventive actions we have the ability to slow or put a stop to further introductions.

### How to Help

In the case of zebra mussels, vigilance and precautionary measures on the part of local residents, anglers, boaters, and anyone else in close contact with streams and lakes is critical. Bilge water, live wells, and engine cooling water of boats should be discarded before leaving a boat launch, and boats and equipment should be rinsed with a bleach solution, if possible. Bait buckets should never be emptied into a lake or stream. It also is important that fish, crayfish, or plants never be transported among waterbodies.

The DEP is monitoring for the presence of zebra mussels at Lake Zoar, Lake Lillinonah, and other locations throughout the state. Possible sightings of zebra mussels should be reported to the DEP's Inland Fisheries Division at 860-424-3474.



### Learn More About Zebra Mussels

More information on zebra mussels and other aquatic nuisance species can be found on the DEP website ([www.ct.gov/dep](http://www.ct.gov/dep)).

Other sources of information include:

- Rhode Island Sea Grant Fact Sheet: Zebra Mussel: An Unwelcome Visitor ([http://seagrant.gso.uri.edu/factsheets/zebra\\_mussel.html](http://seagrant.gso.uri.edu/factsheets/zebra_mussel.html))
- USGS Zebra and Quagga Mussel Information Resource Page (<http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel/>)
- Information Crossfile – Lessons from the mollusk that made headlines, ParkScience ([www.nature.nps.gov/ParkScience/index.cfm?ArticleID=389](http://www.nature.nps.gov/ParkScience/index.cfm?ArticleID=389)).

### Tips for Preventing the Spread of Aquatic Nuisance Species

- Avoid boating through dense beds of aquatic plants.
- Inspect your boat and trailer, removing all visible aquatic organisms (zebra mussels and any aquatic plants) from boat, propeller, anchor, lines, and trailer before leaving any body of water. Discard vegetation in trash away from water and the shore.
- Drain your boat motor, wet well, and bilge on land before leaving the waterbody to remove larval stages.
- Flush engine cooling system, bilge areas, and live wells with tap water.
- Dry out your boat for at least two days (five is best) or wash down hull with tap water on land before launching again.
- Do not throw purchased bait or vegetative packing material from bait into the water when you are done fishing. Small organisms can live on the plant material used to keep the bait moist.



# Connecticut State Parks – Adventure is Waiting for You

Written by Diane Joy, DEP Division of State Parks & Public Outreach

With an area of just a little over 5,000 square miles, Connecticut has 107 state parks and 32 state forests, quite remarkable for the third smallest state in the nation and the fourth most densely populated. Within 10 minutes of most people's homes is the opportunity to visit one of these fabulous locations. Wildlife viewing is just one of the many activities you can do in Connecticut State Parks and Forests. Whether you are looking for a marsh wren or a little blue heron – Sherwood Island State Park in Westport is the place to go. Stop by the Sherwood Island Nature Center to see the exhibits and also take some time to appreciate the beautiful bird photographs on display by A.J. Hand.



Trying out fishing during the No Child Left Inside®: The Great Park Pursuit, at Squantz Pond State Park, in New Fairfield.



S. BATTISTINI, DEP STATE PARKS LIFEGUARD PROGRAM

A beautiful summer day at Rocky Neck State Park in East Lyme.

You can enjoy the sun and surf at Rocky Neck State Park in East Lyme; catch a trout at Southford Falls in Southbury; paddle a canoe or kayak in Mashapaug Pond at Bigelow Hollow in Union; or enjoy a picnic lunch and hike to the tower at Sleeping Giant in Hamden. Perhaps you prefer bicycling or horseback riding on the Air Line Trail, which travels along an old railroad route for over 50 miles in eastern Connecticut, from Salmon River State Park in East Hampton all the way to the Massachusetts border just past Quaddick State Park in Thompson.

Are you a history buff? Take a step back in time as you visit Putnam Memorial State Park in Redding, the site of the 1779 Continental Army's winter encampment. Love dinosaurs? Then travel back 200 million years to the Jurassic Period when dinosaurs roamed the earth and left their tracks at Dinosaur State Park in Rocky Hill.

Whether you prefer waking up to the smell of salt air at Hammonasset Beach State Park (Madison), located on Long Island Sound, or hearing the roar of the Farmington River as you camp at the Austin F. Hawes Memorial Campground (Barkhamsted), the opportunities are endless. There are campgrounds at 11 state parks and two state forests. Reservations can be made at [www.ReserveAmerica.com](http://www.ReserveAmerica.com) or by calling toll free at 1-877-668-CAMP (2267). Find out more information about camping at [www.ct.gov/dep/camping](http://www.ct.gov/dep/camping).

The DEP's No Child Left Inside® (NCLI®) program has teamed up with the Connecticut Library Consortium to provide State Park Day Passes for each of the 169 town main libraries. Similar to checking out a book, you can check out a State Park Day Pass. Show your Day Pass at the ticket booth and it will allow you to park for free at the sites where there is a parking fee or obtain access for a limited number of people to Dinosaur, Fort Trumbull, or Gillette Castle State Parks.

No Child Left Inside® has been actively engaging families in the pursuit of outdoor adventures for the past five years. This year there is a slightly new twist to the NCLI® Great Park Pursuit — it is the Great Park Pursuit Outdoor Recreation Challenge. A booklet has been created that will serve as your family's passport to the challenge. Within the booklet is a list of 10 or more state park and forest locations that have been determined by DEP staff to be "the best" for fishing, swimming, hiking, biking, camping, letterboxing, boating, birding, picnicking, winter activities, and historic sites. A box containing a stamp will be at each of the locations so you can keep track of all your visits. To download a copy of the "Great Park Pursuit: Outdoor Recreation Challenge" passport or for additional information on Family Days associated with the challenge, go to [www.NoChildLeftInside.org](http://www.NoChildLeftInside.org). Whether you want a challenge or a walk in the park – Connecticut state parks and forests are wonderful places waiting to be discovered.

## Purchase a Season Pass for State Parks

Many of the state parks and forests do not charge a parking fee and others charge only on weekends and holidays. The frequent park visitor can purchase a "Season Pass" for only \$67 (CT residents), which allows unlimited vehicle access. Purchase the pass online at the DEP Store ([www.ctdepstore.com](http://www.ctdepstore.com)) and affix it to the window of your vehicle. Connecticut residents 65 years of age or older can get a free Charter Oak Pass, which allows unlimited access to state Parks and forests.

# How Old Is this Fish?

Written by Penny Howell,

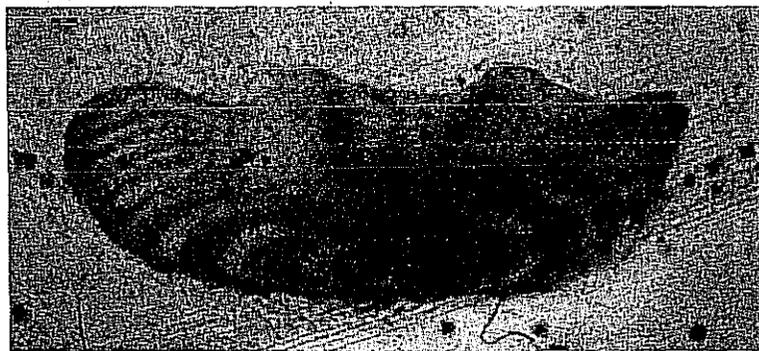
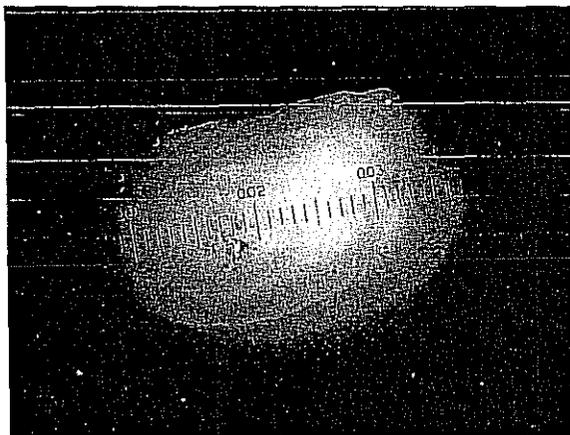
DEP Marine Fisheries Division: Photos provided by DEP Marine Fisheries Division

**D**EP marine biologists use several techniques to age different species of fish so their rate of growth and reproduction can be tracked. Fish grow faster when the water is warm, but grow slower, or not at all, when it is cold. Various growth periods show up differently on the fish's scales, bones, or other 'hard parts.' During fast growth periods, the scale or bone is laid down thinly with little color, while a slow growth period leaves a thicker, dark ring.

Often, these rings can be seen by holding a cleaned fish scale in front of a bright light. A more accurate count requires magnification and, if the fish is old, sometimes the thicker bones may need to be cross-sectioned with a specially designed diamond-blade cutter.



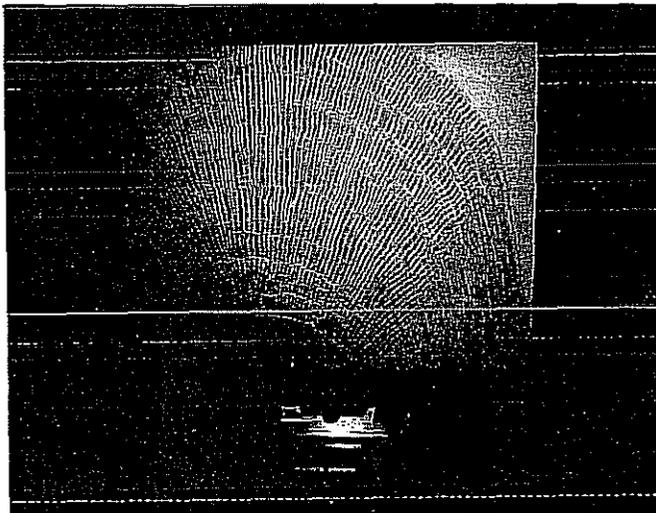
To make accurate measurements of a fish's growth, scales or bones are magnified with a specialized projector so the annual growth rings are easier to see, measure, and count.



The growth rings on a six-year-old winter flounder otolith (ear bone) are fairly clear (right) when magnified whole under a microscope. But, the otolith from a 10-year-old required cross-sectioning (left) to reveal clearer thick and thin rings. The image is more highly magnified in a microfiche reader with a built-in measurement scale.



Bones, like these operculars (gill covers) from a tautog, show large growth rings at the base when the fish was young. Smaller rings can be seen on the edge when the fish was older and its growth slowed. A large bone is needed to age tautog because they can live to be 20 to 30 years old.



This magnified image of a summer flounder scale shows very clear annual growth rings. The image is a negative of the actual scale so the light lines mark every fall when growth stops, and the darker areas represent fast summer growth.

# Injured Golden Eagle Rehabilitated and Released in CT

In late March 2011, Audubon Sharon, the DEP Wildlife Division, and rehabilitators from Tufts University released a golden eagle at Mohawk State Forest in Cornwall. The eagle had been found by snowmobilers in early February in Amenia, New York, near the New York/Connecticut border. The bird had sustained multiple puncture wounds on its leg (possibly from an animal it was trying to capture). It was transported over the border by the people who found it and taken to the Sharon Audubon Center in Sharon, Connecticut. The nature center staff took it to Kensington Animal Hospital for examination and then to rehabilitator Mary Beth Kaeser in Ashford, who then transferred it to the Tufts Wildlife Clinic and Center for Conservation Medicine in North Grafton, Massachusetts. The bird was cared for by the medical staff at Tufts for over a month,



Dr. Todd Katzner and Emily Christianson from Tufts Wildlife Clinic prepare to release the eagle at Mohawk State Forest.

eventually making a complete recovery and regaining full mobility of its injured leg and foot. The eagle was fitted with a leg band and GPS-GSM telemetry by Dr. Todd Katzner, a professor at West

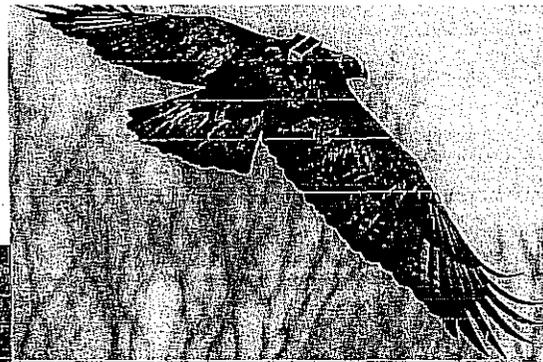
Virginia University. Dr. Katzner has fitted about 25 golden eagles with telemetry gear since 2006 for the purpose of studying the eastern population of North America's golden eagles. This

population is small, geographically separate, and potentially genetically distinct from western populations. Eagles from the eastern population breed in northeastern Canada and winter in the southern Appalachians, so it is only possible to find this species in Connecticut during migration or in the winter.

This successful release was a team effort that included volunteers at Sharon Audubon Center who cared for the bird, Connecticut veterinarians who donated their time and efforts, the rehabilitator who transported the bird to Tufts University, the veterinarians at Tufts, Dr. Katzner, and the DEP.

## Solar Powered Satellite Transmitter Used in Eagle Release

The solar powered transmitter was attached to the bird's back with a harness (seen in photo at right). It records GPS location points from satellites and transmits those data points through cell phone technology. The map shows the eagle's movements over the three weeks following its release. After remaining in the area for a while, the bird traveled north, up the Hudson River Valley, over the Adirondack Mountains in upstate New York, and on into southern Quebec.



# Eastern Box Turtle

*State Species of Special Concern*

*Terrapene carolina carolina*

## Description

The eastern box turtle is probably the most familiar turtle found in Connecticut. It has a high-domed carapace (top shell) with irregular yellow or orange blotches on a brown to black background that mimic sunlight dappling on the forest floor. The plastron (bottom shell) may be brown or black and have an irregular pattern of cream or yellow. The length of the carapace usually ranges from 4.5 to 6.5 inches, but can measure up to eight inches long. The shell is made up of a combination of scales and bones, and it includes the ribs and much of the backbone.

Each individual turtle has distinctive head markings. Males usually have red eyes and a concave plastron, while females have brown eyes and a flat plastron. Box turtles also have a horny beak, stout limbs, and feet that are webbed at the base. This turtle gets its name from its ability to completely withdraw into its shell, closing itself in with a hinged plastron.

## Habitat and Diet

This terrestrial turtle lives in a variety of habitats, including woodlands, field edges, thickets, marshes, bogs, and stream banks. It is typically found in well-drained forest bottomlands and open deciduous forests. Wetland areas also are used. During the hottest part of a summer day, box turtles will find springs and seepages where they can burrow into the moist soil. Activity is restricted to mornings and evenings during summer, with little to no nighttime activity, except for egg-laying females. Box turtles have a limited home range where they spend their entire life, ranging from 0.5 to 10 acres (usually less than 2 acres).

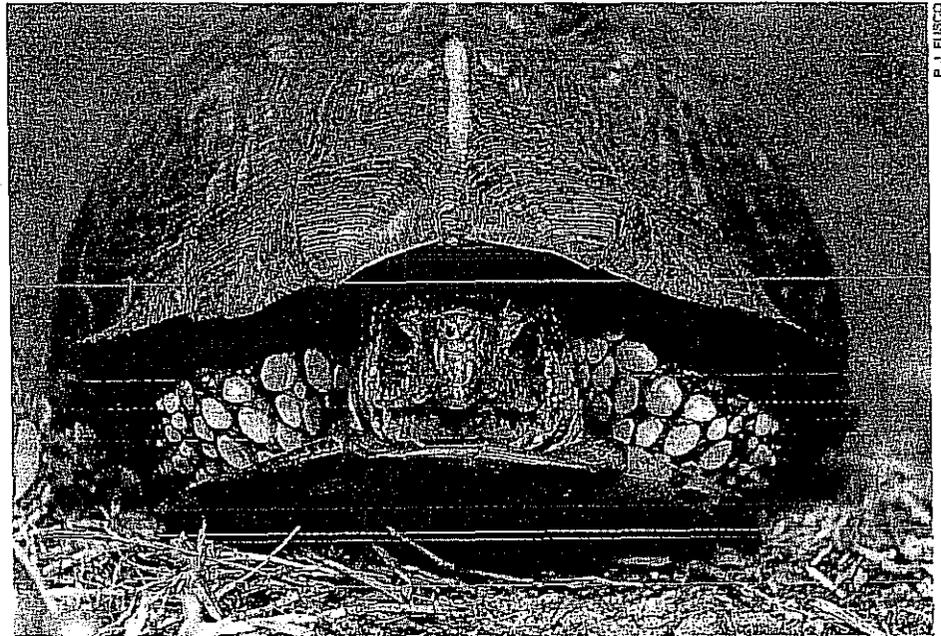
Box turtles are omnivorous and will feed on a variety of food items, including earthworms, slugs, snails, insects, frogs, toads, small snakes, carrion, leaves, grass, berries, fruits, and fungi.

## Life History

From October to April, box turtles hibernate by burrowing into loose soil, decaying vegetation, and mud. They tend to hibernate in woodlands, on the edge of woodlands, and sometimes near closed canopy wetlands in the forest. Box turtles may return to the same place to hibernate year after year. As soon as they come out of hibernation, the turtles begin feeding and searching for mates.

The breeding season begins in April and may continue through fall. Box turtles usually do not breed until they are about 10 years old. They have a long lifespan, which can range up to 50 to even over 100 years of age. Females do not have to mate every year to lay eggs as they can store sperm for up to four years. In mid-May to late June, females will travel from a few feet to more than a mile within their home range to find a location to dig a nest and lay their eggs. The three to eight eggs are covered with soil and left to be warmed by the sun. During this vulnerable time, skunks, foxes, snakes, crows, and raccoons often raid nests, sometimes destroying the entire nest.

Eggs hatch in late summer to early fall (about 2 months after



R. J. FUSCO

being laid). If they hatch in fall, the young turtles may spend the winter in the nest and come out the following spring. As soon as the young turtles hatch, they are on their own and receive no care from the adults. This is a dangerous time for young box turtles because they do not develop the hinge for closing into their shell until they are about four to five years old. Until then, they cannot entirely retreat into their shells. Raccoons, skunks, foxes, dogs, and some birds will prey on young turtles.

## Conservation Concerns

The box turtle was once common throughout the state, mostly in the central Connecticut lowlands. However, its distribution is now spotty, although where found, turtles may be locally abundant. Because of the population decline, the box turtle was added to Connecticut's List of Endangered and Threatened Species as a species of special concern when the list was revised in 1998. The box turtle also is protected from international trade by the 1994 Convention on International Trade in Endangered Species (CITES) treaty. It is of conservation concern in all the states at its northeastern range limit, which includes southern New England and southeastern New York.

Many states, including Connecticut, have laws that protect box turtles and prohibit their collection from the wild. State regulations provide some protection, but not enough to combat the even bigger threats these animals face, such as loss and fragmentation of habitat due to deforestation and suburban development; vehicle strikes on the busy roads that bisect the landscape; and indiscriminate and illegal collection of individuals for pets. Loss of habitat for shelter, feeding, hibernation, and nesting is probably the greatest threat of all to turtles. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated.

Adult box turtles are relatively free from predators due to their unique, hard shells. However, the shell is not hard enough to protect turtles that are run over by vehicles. Most vehicle fatalities are pregnant females searching for nest sites.

# Wood Turtle

*Glyptemys insculpta*

State Species of Special Concern

## Background and Range

Wood turtles may be found throughout Connecticut, but they have become increasingly rare due to their complex habitat needs. Wood turtles also have become more scarce in Fairfield County due to the fragmentation of suitable habitat by urban development.

Wood turtles can be found across the northeastern United States into parts of Canada. They range from Nova Scotia through New England, south into northern Virginia, and west through the Great Lakes region into Minnesota.

## Description

The scientific name of the wood turtle, *Glyptemys insculpta*, refers to the deeply sculptured or chiseled pattern found on the carapace (top shell). This part of the shell is dark brown or black and may have an array of faint yellow lines radiating from the center of each chiseled, pyramid-like segment due to tannins and minerals accumulating between ridges. These segments of the carapace, as well as those of the plastron (bottom shell), are called scutes. The carapace also is keeled, with a noticeable ridge running from front to back. The plastron is yellow with large dark blotches in the outer corners of each scute. The black or dark brown head and upper limbs are contrasted by brighter pigments ranging from red and orange to a pale yellow on the throat and limb undersides. Orange hues are most typical for New England's wood turtles. The hind feet are only slightly webbed, and the tail is long and thick at the base. Adults weigh approximately 1.5 to 2.5 pounds and reach a length of five to nine inches.

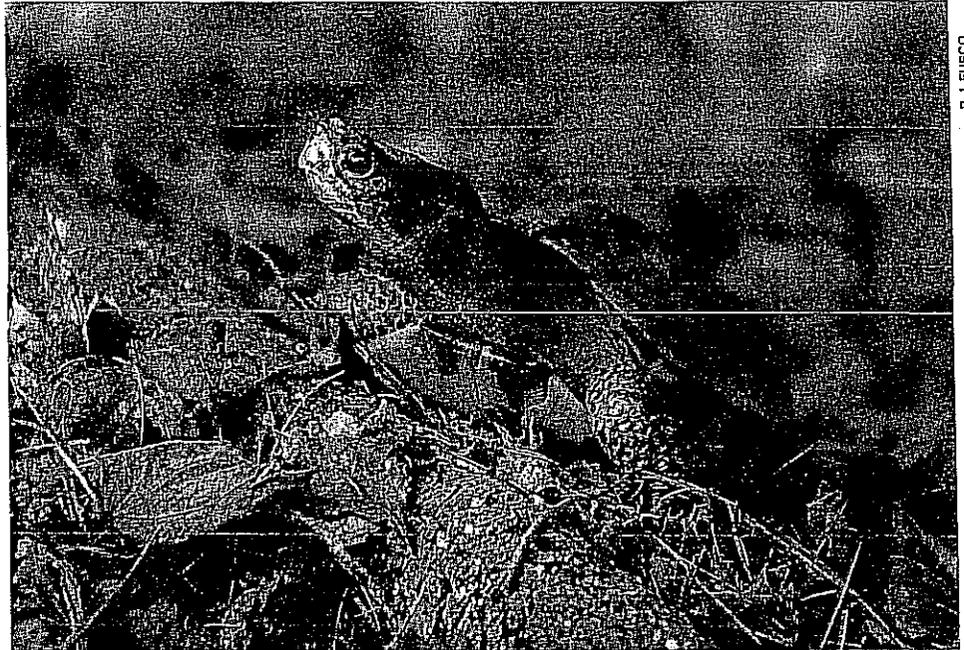
## Habitat and Diet

Wood turtles use aquatic and terrestrial habitats at different times of the year. Their habitats include rivers and large streams, riparian forests (adjacent to rivers), wetlands, hayfields, and other early successional habitats. Terrestrial habitat that is usually within 1,000 feet of a suitable stream or river is most likely used. Preferred stream conditions include moderate flow, sandy or gravelly bottoms, and muddy banks.

Wood turtles are omnivorous and opportunistic. They are not picky eaters and will readily consume slugs, worms, tadpoles, insects, algae, wild fruits, leaves, grass, moss, and carrion.

## Life History

From late spring to early fall, wood turtles can be found roaming their aquatic or terrestrial habitats. However, once temperatures drop in autumn, the turtles retreat to rivers and large streams for hibernation. The winter is spent underwater, often tucked away below undercut riverbanks within exposed tree roots. Dissolved oxygen is extracted from the water, allowing the turtle to remain submerged entirely until the arrival of spring. Once warmer weather sets in, the turtles will become increasing-



P. J. FUSCO

ly more active, eventually leaving the water to begin foraging for food and searching for mates. Travel up or down stream is most likely, as turtles seldom stray very far from their riparian habitats.

Females nest in spring to early summer, depositing anywhere from four to 12 eggs into a nest dug out of soft soil, typically in sandy deposits along stream banks or other areas of loose soil. The eggs hatch in late summer or fall and the young turtles may either emerge or remain in the nest for winter hibernation. As soon as the young turtles hatch, they are on their own and receive no care from the adults.

Turtle eggs and hatchlings are heavily preyed upon by a wide variety of predators, ranging from raccoons to birds and snakes. High rates of nest predation and hatchling mortality, paired with the lengthy amount of time it takes for wood turtles to reach sexual maturity, present a challenge to maintaining sustainable populations. Wood turtles live upwards of 40 to 60 years, possibly more.

## Conservation Concerns

Loss and fragmentation of habitat are the greatest threats to wood turtles. Many remaining populations in Connecticut are low in numbers and isolated from one another by human-dominated landscapes. Turtles forced to venture farther and farther from appropriate habitat to find mates and nesting sites are more likely to be run over by cars, attacked by predators, or collected by people as pets. Other sources of mortality include entanglements in litter and debris left behind by people, as well as strikes from mowing equipment used to maintain hayfields and other early successional habitats.

The wood turtle is imperiled throughout a large portion of its range and was placed under international trade regulatory protection through the Convention on International Trade in Endangered Species (CITES) in 1992. Wood turtles also have been included on the International Union for Conservation of Nature's (IUCN) Red List as a vulnerable species since 1996. They are listed as a species of special concern in Connecticut and protected by the Connecticut Endangered Species Act.

# Results for the 2010 Fall Wild Turkey Hunting Seasons

Written by Michael Gregonis, DEP Wildlife Division

Hunters have many choices regarding which game species they would prefer to hunt during the fall period. Based on permit issuance and overall harvest, fall wild turkey hunting often takes a back seat to deer and small game hunting. However, for those individuals looking for a challenge, Connecticut's fall archery and firearms seasons offer that.

## Fall Archery Season

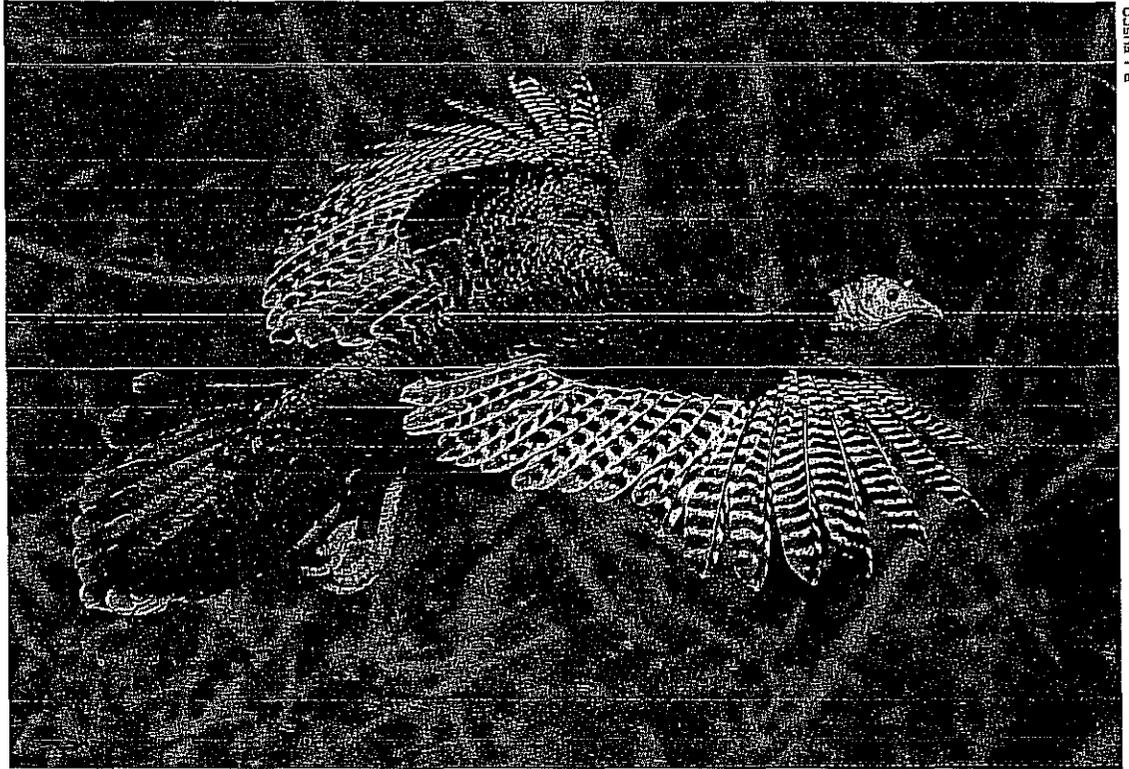
Many bowhunters purchase a fall archery turkey permit hoping for a chance encounter with a turkey while deer hunting. The archery turkey and deer seasons run concurrently, extending to the end of January in some areas of the state. A total of 1,862 permits were issued during 2010 and 50 birds were harvested. Forty-seven hunters harvested at least one turkey for a 2.5% statewide success rate. The fall archery harvest consisted of 40% adult females, 28% adult males, 23% juvenile females, and nine percent juvenile males. Harvest increased by 22% from 2009 and permit issuance dropped by 26%. Only three archers were successful in harvesting two birds. At least one bird was harvested from 38 of Connecticut's 169 towns. Newtown (5 birds) and Thompson (3 birds) recorded the highest harvest. On a regional basis, wild turkey management zones 11 (16 birds), 5 (8 birds), and 1 (5 birds) recorded the highest harvest.

## Fall Firearms Season

The fall firearms turkey season continues to be the more popular of the fall turkey seasons. A total of 2,444 permits were issued in 2010 and 64 turkeys were harvested, resulting in a statewide success rate of two percent. Private land hunters harvested seven times more birds

Turkey management zones 4A (11 birds), 2 (8 birds), and 5 (8 birds) recorded the highest harvest.

Connecticut continues to have liberal fall turkey hunting seasons and bag limits. A fall hunter could potentially harvest two birds with archery equipment, and one bird on state land and two



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than state land hunters (56 birds versus 8 birds). Harvest did not change from 2009; however, permit issuance declined by 26%. The harvest included 36% adult females, 22% juvenile females, 22% juvenile males, and 20% adult males. Turkeys were harvested from 35 towns with Stafford and Willington (both 4 birds) reporting the highest harvest.

birds on private land with a shotgun. The fall archery season length in some areas of Connecticut can run for over 120 days and the firearms season runs from the first Saturday in October to the end of the month. Besides the challenge of fall turkey hunting, the rewards of enjoying the fall foliage and fine table fare are also outstanding.

## Report Turkey Brood Sightings

The Wildlife Division conducts the annual Wild Turkey Brood Survey to estimate the average number of turkey poults (young-of-the-year) per hen statewide and to assess annual fluctuations in the turkey population. This index allows the Division to gauge reproductive success each year and to evaluate recruitment of new birds into the fall population. Weather, predation, and habitat conditions during the breeding and brood-rearing seasons can all significantly impact nest success, hen survival, and poult survival.

What's involved? From June 1 to August 31, volunteers and Department staff record all of the hens and poults observed during normal travel. Each observation is categorized by total number of hens observed, total poults, and total number of hens with poults. Observations of male (tom) turkeys are not requested for this survey. If you would like to participate, download a DEP Wild Turkey Observation Form to record your observations ([www.ct.gov/dep/wildlife](http://www.ct.gov/dep/wildlife); click on "Volunteer Opportunities" under the Featured Links box on the right). Instructions are on the data sheet. This is a great way to partner with the Wildlife Division to help monitor the state's wild turkey population.

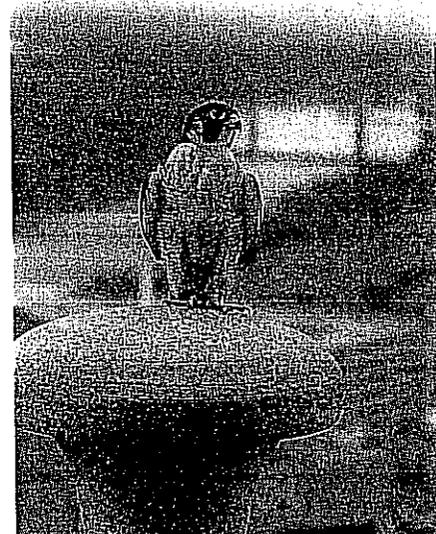


## Wildlife Division Welcomes Nelson DeBarros

The Wildlife Division is pleased to welcome a new plant ecologist to the Natural Diversity Data Base program. Nelson DeBarros joined the Division in mid-January. A graduate of Providence College and Pennsylvania State University, Nelson brings a diverse knowledge of plant ecology and conservation. He has worked with the New England Wildflower Society on rare and state and federally listed plant conservation, and the Association to Preserve Cape Cod to identify and monitor the flora and fauna of tidal-restricted coastal saltmarshes. Nelson also has taught plant identification at both the undergraduate and graduate levels.

An expert in the flora resource provisioning of wild bees, he has published technical papers and general outreach materials on bee conservation, habitat enhancements for pollinator conservation, and landscaping for beneficial insects. Among his many activities, Nelson has helped design and establish a community garden and does technical illustrations of plants. Despite his short time on the job, Nelson has already provided assistance in completing environmental reviews for state-listed plants and rare ecological communities and has started to make headway on the numerous plant conservation projects that were put on hold when Ken Metzler retired from the Division in 2009. Other wildlife staff are looking forward to the 2011 field season and the ability to have a plant ecologist aid in the management and conservation of wildlife habitats.

*Jenny Dickson, DEP Wildlife Division*



## Peregrine Watch at the Travelers Tower

Birders, students, and any others interested in the peregrine falcon have an opportunity to once again monitor the progress of a nesting pair of falcons on the Travelers Tower in Hartford. The *Peregrine Watch at the Travelers Tower* web cam is up and running, providing constant views of the nesting platform. As of March 29, the female was tending to four eggs in the nest. The web cam can be accessed at [www.falconcam.travelers.com](http://www.falconcam.travelers.com). You also can visit the DEP Web site to learn more about peregrine falcons ([www.ct.gov/dep/wildlife](http://www.ct.gov/dep/wildlife); click on "Learn About CT's Wildlife") The peregrine web cam is possible through a partnership among The Children's Museum, Travelers Insurance, and the DEP.

## Call for Help

Do you have a bat house/colony on your property, or enjoy watching bats emerge in the early evening to forage? If so, please consider being a bat citizen scientist for the Wildlife Division! Assistance is needed with summer maternity roost counts and the Division is asking for your help. Please contact Jen Pacelli at the Sessions Woods office (860-675-8130) to express your interest in volunteering or to report your bat colony.

In addition, if you find a dead bat, please let us know as we may want to collect the specimen for additional research. We also are interested in collecting other specimens, such as small mammals, weasels, and owl pellets.

The Wildlife Division appreciates any help citizen scientists can provide as we continue to gather knowledge about Connecticut's bats and other small mammals.

*Jen Pacelli, DEP Wildlife Division*

## Junior Naturalist Series at the Belding Wildlife Management Area

The Junior Naturalist programs at Belding WMA in Vernon are for children of all ages. There is no fee to participate and children can sign up for one or more programs. Registration is required; please call 860-306-5418. Programs start at 9:00 AM and end by 12:00 noon. Parking for Belding WMA is on Bread and Milk Road in Vernon.

**June 30 – Birds.** What makes a bird a bird? Where do birds live? What kinds of homes do they make? See and hear a variety of birds, look at bird homes, and play a bird game or two.

**July 7 – Butterflies, Dragonflies, Ladybugs, Beetles!** How many different kinds of butterflies are there? What do dragonflies eat? Can you make a hoverfly land on your finger? Walk the wildflower meadow looking for all kinds of fascinating insects.

**July 14 – Plants.** Take a walk around the fields, forest, and wetlands to see where different plants grow and learn how to identify them. Learn about native plants vs. ALIENS! After the walk, use certain plants to make plant artwork.

**July 21 – Stream Life.** The streams at Belding WMA are full of creatures — you just have to know how to find them. Get your hands wet looking for stream-dwelling animals.

**July 28 – Signs of Wildlife.** Animals are all around, but many avoid being seen by humans. Look for evidence of wildlife and learn to identify the signs that different animals leave when they pass through. Go on a wildlife scavenger hunt.

**August 4 – Nature Photography.** Photography is a great way to learn about nature. Learn some basics of nature photography and then head out into the wildflower meadow for some great shots. Return after lunch for a viewing of everyone's photos.

# Calendar of Events

- May-August..... Respect fenced and posted shorebird nesting areas when visiting Connecticut beaches, and also when viewing fireworks displays near these areas. Keep dogs and cats off shoreline beaches to avoid disturbing nesting birds. Herons and egrets are nesting on offshore islands in Long Island Sound. Refrain from visiting these areas during the nesting season.
- ..... Dispose of fishing line in covered trash containers or specifically marked recycling receptacles. Improperly discarded fishing line is a hazard for wildlife. A list of recycling receptacle locations is available at [www.ct.gov/dep/whatooidowith](http://www.ct.gov/dep/whatooidowith).
- June 4..... National Trails Day, sponsored by the Connecticut Forest and Park Association (CFPA). Hikes and other events will be held throughout the state. To learn more, visit the CFPA Web site ([www.ctwoodlands.org](http://www.ctwoodlands.org)) or call 860-346-2372.
- June 4..... Rainbow Dam Fishway Open House in Windsor, from 10:00 AM-3:30 PM (see page 9 for more information).
- June 25..... Pollinator Walk, at the Wildlife Division's Belding WMA, in Vernon, starting at 9:00 AM. Take a walk to find various pollinators during Pollinator Week. Parking is on Bread and Milk Road in Vernon. Call 860-306-5418 for more information.
- June 26-July 2..... National Mosquito Awareness Week – go to [www.mosquito.org](http://www.mosquito.org) for more information. Visit Connecticut's mosquito Web page at [www.ct.gov/mosquito](http://www.ct.gov/mosquito) to learn more about mosquitoes and West Nile Virus.

## Programs at the Sessions Woods Conservation Education Center

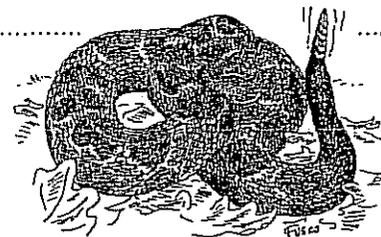
Programs are a cooperative venture between the Wildlife Division and the Friends of Sessions Woods. Please pre-register by calling 860-675-8130 (Mon.-Fri., 8:30 AM-4:30 PM). Programs are free unless noted. An adult must accompany children under 12 years old. No pets allowed! Sessions Woods is located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

- May 14..... Charcoal to Iron: An Interpretive Hike, starting at 1:30 PM. Join Master Wildlife Conservationist Shirley Sutton for a hiking talk, featuring Sessions Woods and the importance of the charcoal industry. Shirley is an avid educator about the history of Connecticut's past land use. She has presented programs on the "Leatherman" and "Native Americans in Northwest Connecticut." This program will include a slide presentation indoors and an outdoors hike to view signs of past land use.
- May 25..... Plants and their Wildlife Value, from 10:00 AM-12:00 PM. Join Jack Hamill on an interpretive walk to identify plants and shrubs and their use to wildlife as food or shelter. A mile or so in length, this program will traverse mild terrain. Please wear appropriate outdoor gear and meet in the exhibit room.
- June 4..... Trails Day Educational Walk at Sessions Woods, starting at 1:30 PM. Sessions Woods will be participating in National Trails Day with an educational walk to learn about wildlife and wildlife habitat on a one-mile hike to the beaver marsh. Participants can return the same way or continue on their own to complete a three-mile loop of the property. Meet leader Laura Rogers-Castro at the flagpole in front of the Conservation Education Center.
- June 26..... Year of the Turtle Day, from 1:00-4:00 PM. View artwork submitted for the Turtle Art Contest for Kids. Also planned for the event are educational programs on turtles, a display of live turtles, and crafts for kids. More information about the event will be on the DEP's Year of the Turtle Web page at [www.ct.gov/dep/yearofturtle](http://www.ct.gov/dep/yearofturtle).
- July 9..... Butterflies of Sessions Woods, starting at 10:00 AM. Visit the flowers and fields at Sessions Woods to identify the local butterfly fauna with Wildlife Division Natural Resources Educator Laura Rogers-Castro. Participants will learn the basics to butterfly identification, including tips on distinguishing the various butterfly families.
- Sept. 24..... Connecticut Hunting & Fishing Day. Save the date! Stay tuned to the Web page at [www.ct.gov/huntfishday](http://www.ct.gov/huntfishday) to find out more details about this fun, free, family event.

## Hunting and Fishing Season Dates

April 27-May 28..... Spring Turkey Hunting Season. Consult the 2011 Connecticut Hunting and Trapping Guide for specific season dates and details. Printed guides are available at more than 350 locations statewide – including town halls, bait and tackle shops, DEP facilities, and commercial marinas and campgrounds. The guide also is available on the DEP Web site ([www.ct.gov/dep/hunting](http://www.ct.gov/dep/hunting)). Go to [www.ct.gov/dep/sportsmenlicensing](http://www.ct.gov/dep/sportsmenlicensing) to purchase Connecticut hunting, trapping, and fishing licenses. The system accepts payment by VISA or MasterCard.

# Connecticut Wildlife



## Subscription Order

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Help fund projects that benefit songbirds, threatened and endangered species, reptiles, amphibians, bats, and other wildlife species.

# Connecticut Wildlife

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

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A female gray fox usually gives birth to a litter of four to five pups in spring. Gray fox dens are typically located in dense brush, cavities in stumps and trees, rock crevices, or under out-buildings, such as barns and sheds. The pups stay in the den until they are about four to five weeks of age, after which they emerge and begin to play outside the den entrance. At about 12 weeks of age, the pups are weaned and join the adults on hunting forays, learning to catch food for themselves.