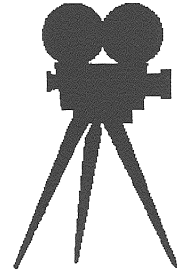


**Westbrook Factory Stores
Multiplex Movie Theater
Westbrook, Connecticut**



**Eastern Connecticut
Environmental Review
Team Report**

WESTBROOK FACTORY STORES MULTIPLEX MOVIE THEATER

WESTBROOK, CONNECTICUT



Environmental Review Team Report

**Prepared by the
Eastern Connecticut Environmental Review Team
of the
Eastern Connecticut
Resource Conservation and Development Area, Inc.**

**for the
Inland Wetlands and Watercourses Commission
Westbrook, Connecticut**

March 1998

**CT Environmental Review Teams
1066 Saybrook Road
P.O. Box 70
Haddam, CT 06438
(860) 345-3977**

ACKNOWLEDGMENTS

This report is an outgrowth of a request from the Westbrook Inland and Watercourses Commission to the Middlesex County Soil and Water Conservation District (SWCD). The SWCD referred this request to the Eastern Connecticut Resource Conservation and Development Area (RC&D) Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The Eastern Connecticut Environmental Review Team Coordinator, Elaine Sych, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this report.

The field review took place on Tuesday, February 17, 1998.

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I would also like to thank Heidi Wallace, inland wetlands enforcement officer, John Arnold, Bob Peterson, Raymond Fontaine, representatives of the inland wetlands and watercourses commission, Frank Lusk, first selectman, Jay Costello,

project engineer, Thomas Pietras, project soil scientist, and Nina Regan representing the Westbrook Factory Stores, for their cooperation and assistance during this environmental review.

Prior to the review day, each Team member received a summary of the proposed project with location and soils maps. During the field review Team members were given updated plans and additional information. Following the review, reports from each Team member were submitted to the ERT coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site plans or detailed solutions to development problems. The Team does not recommend what final action should be taken on a proposed project - all final decisions rest with the Town and landowner. This report identifies the existing resource base and evaluates its significance to the proposed development, and also suggests considerations that should be of concern to the Town and landowner. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in reviewing and making your decision on this proposed movie theater.

If you require additional information please contact:

Elaine Sych, ERT Coordinator
CT ERT Program
P.O. Box 70
Haddam, CT 06438
(860) 345-3977

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INTRODUCTION

Introduction

The Westbrook Inland Wetlands and Watercourses Commission has requested assistance from the Eastern Connecticut Environmental Review Team in reviewing a proposed multiplex movie theater.

The applicant is proposing to expand development on the site of the Westbrook Factory Stores to include a multiplex movie theater (approximately 1900 seats) and associated parking, drainage, fill, landscaping and lighting.

The entire site is 49.28 acres which currently contains retail space, office space, parking and access roads. The new area to be developed with the proposed theater is 9.3 acres (this includes additional parking in the northeast corner, which at the time of the ERT field review was under consideration for a variance to lower or eliminate this parking requirement). Previously disturbed land totals 7.8 acres with 1.5 acres to be newly cleared and disturbed. A .02 acre wetland is proposed to be filled for parking lot expansion.

Objectives of the ERT Study

The Town has asked for assistance with the review of wetland assessments, impacts to wetlands and wildlife on and off site, stormwater management and erosion and sediment control. A report is also included from the Office of State Archaeology.

The ERT Process

Through the efforts of the Inland Wetlands and Watercourses Commission this environmental review and report was prepared for the Town of Westbrook.

This report provides an information base and a series of recommendations and guidelines which cover the topics requested by the Town. Team

members were able to review maps, plans and supporting documentation provided by the applicant.

The review process consisted of four phases:

1. Inventory of the site's natural resources;
2. Assessment of these resources;
3. Identification of resource areas and review of plans; and
4. Presentation of education, management and land use guidelines.

The data collection phase involved both literature and field research. The field review was conducted on Tuesday, March 17, 1998. The emphasis of the field review was on the exchange of ideas, concerns and recommendations. Being on site allowed Team members to verify information and to identify other resources.

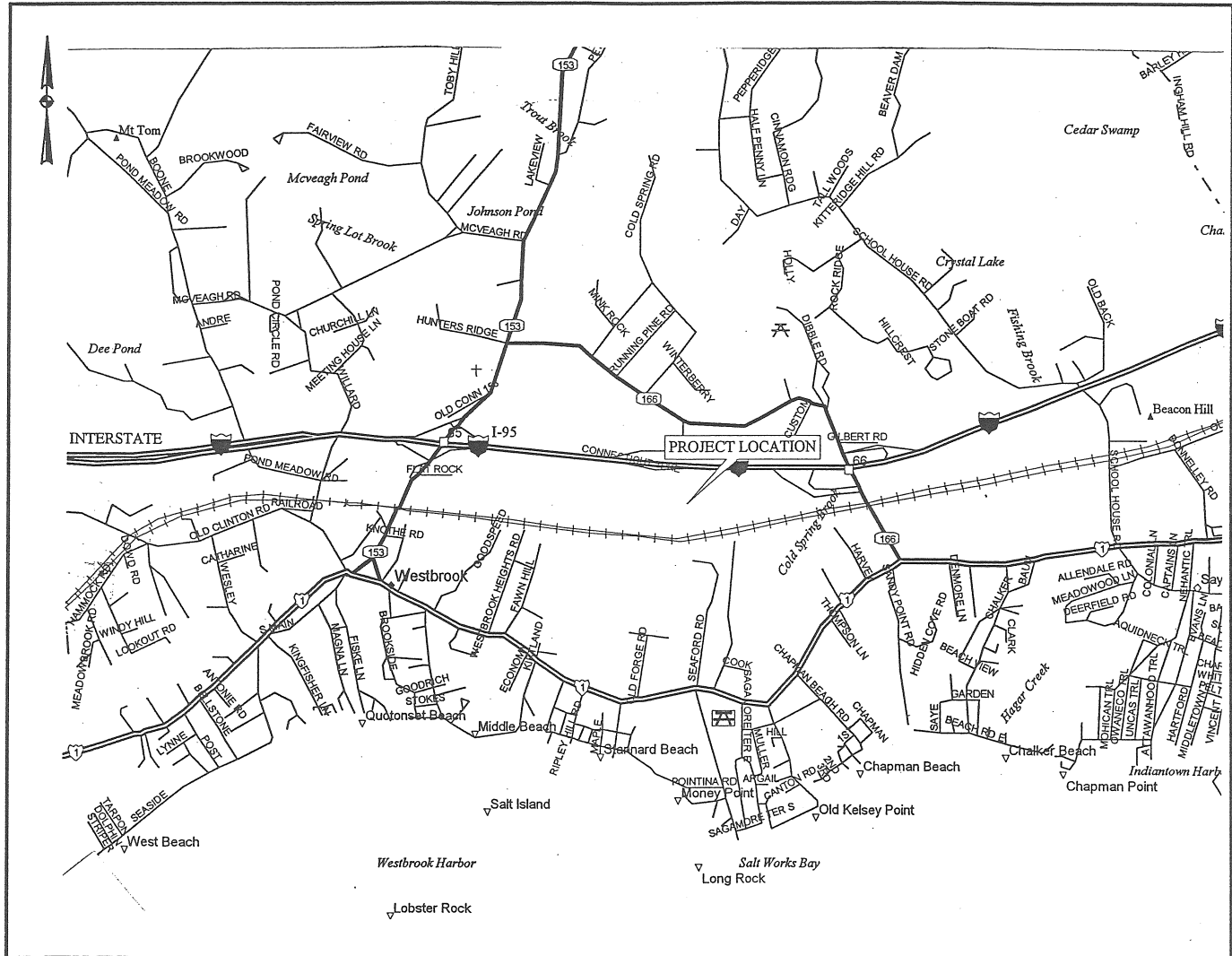
Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into this final ERT report.

Figure 1

Location Map



NTS



WETLAND RESOURCES

The most prominent issue related to wetlands protection at this proposed development site is the direct impact of 0.02 acres of wetland due to filling for the parking lot. This wetland was rated low in all categories by the applicant's environmental consultant primarily due to its small, isolated nature. During the ERT site visit the Team wetland specialist observed nothing to dispute this finding. This wetland appears to originally have been a "seep" type wetland receiving its hydrologic input from groundwater breaking through to the surface and flowing down-gradient for a short distance where it recedes once again to a depth at which wetland indicators disappear. More recently, this wetland began to receive surface inputs generated from a stormwater outlet. No indicators of permanent watercourses or water bodies were observed within this wetland.

A primary, indirect impact to other wetlands in the vicinity of this proposed project may be as a result of erosion and sedimentation. Please refer to the District section and the stormwater management section of this report for a discussion of this topic.

Possible mitigation for the above referenced 0.02 acres of direct impact was discussed by the applicant's environmental consultant to be in the form of the plantings of trees and shrubs within the wetland buffers. A majority of the planned development occurring near wetlands is occurring 10-20 feet above the elevation of the wetland. While plantings in these wetlands buffer areas may, with the proper species, serve to diversify wildlife habitat, its function to "isolate human activity and movement from wildlife" may not be needed due to this elevation difference.

The applicant's stated that "[T]here appears to be little opportunity to create wetlands on Lot 7 without disturbing established buffer areas. Also, there does not appear to be any wetlands on Lot 7 that have been previously filled that could be restored." There does appear to be one area which could be investigated further for the purpose of wetland creation/restoration (see Figure 3). The area indicated seems to be an old access road or logging road where fill was used to construct it. Removal of this fill, additional excavation to the east, and proper wetland plantings could result in restoration of this area into a functional wetland to augment the wetland lobe located to the east of the old road.

Figure 3



Possible Wetland Restoration/Creation Area



SOIL AND WATER CONSERVATION DISTRICT REVIEW

1. There has been some concern over the site engineer' s desire to move and re-use one of the *VortechincsTM* units already located on the site. The District Team member had an opportunity to discuss the feasibility of this move with the engineering staff from the *VortechincsTM* company. They indicated that they had had a recent discussion with the site engineer, and all had come to an agreement that re-location and re-use of the unit on site would not occur. There was concern over the size and internal configuration of the unit already on site. The unit onsite is a model 2000, whereas the site conditions require a model 3000 and a model 16000 for the new parts of the project.
2. A properly constructed sedimentation basin is part of the project, as required in the Pollution Prevention Plan for the State of Connecticut Stormwater General Permit for construction activities. Specifications for the basin, including proper size, and outlet and spillway configurations, are included in the *Connecticut Guidelines for Soil Erosion and Sedimentation Control* (CT Council on Soil and Water Conservation, 1986). Site engineers should check that the sedimentation basin as shown on the plans is properly designed, and show that it will function properly through the course of the project.
3. There are other locations on the project site where additional slope protection will be needed, especially in the east side of the site. Careful attention should be made to treatment and inspection of these areas. In addition, the plan specification sheets provided for installation of erosion control mats should include more detail. They should indicate that the mats should be "keyed in" at the top of the slope, and that mats should be overlapped on the sides to prevent gaps.
4. Prior to the site visit, the District Team member spent several hours reviewing plans with Heidi Wallace, Inland Wetlands Officer for the Town of Westbrook. The plans provided at the site walk were updated, including many of her initial concerns. However, more details need to be included on the plans, and careful attention should be made to the provisions of the state General Permits. Also, the site developers should clarify for the town commissions and staff just how they plan to ensure that proper inspection and maintenance of stormwater controls will be completed in this part of the Westbrook Factory Stores development.

STORMWATER MANAGEMENT

Since the construction involves the disturbance of over five acres, Connecticut's General Permit for the Discharge of Stormwater and Dewatering Wastewaters, issued October 1, 1997 (the "construction permit") will cover the project. The permit requires that the site engineer register with the Department of Environmental Protection (CTDEP) at least thirty days before the start of construction. The registrant must then prepare and keep on site during the construction project a Stormwater Pollution Control Plan (the "Plan"). Please note that this review is based primarily on the state Permit, many of the erosion and sedimentation issues are included in the Connecticut Guidelines for Soil Erosion and Sediment Control (the "guidelines"), and are issues that must be dealt with on a local level before being included in the Plan. The Plan and permit registration must be submitted to CTDEP at least thirty days prior to commencement of construction.

The Plan must include a site map as described in Section 6.b.6.A. of the Permit and a copy of the erosion and sedimentation (E&S) control plan for the site. The E&S plan that has already been approved by the Town in conjunction with the CT DEP Inland Water Resources Division (IWRD) and the local soil and water conservation district may be included in the Plan. This plan and site map must include specifics on controls that will be used during each phase of construction. Specific site maps and controls will have to be described in the Plan, as well as construction details for each control used. The permit requires that "the plan shall ensure and demonstrate compliance with" the guidelines. The permit notations below all reference permit Section 6.b.6.

The plan must be specific about phasing, and what controls will be used for each phase (subsection B.). The permit (subsection C.ii.2) requires that for areas where between two and five acres are disturbed at one time, the Plan must show that a sediment basin or trap will be available that will store a minimum of 134 cubic yards of water per acre disturbed, and in areas where five or more acres are disturbed at one time, the Plan must show that a sediment basin will store a minimum of 134 cubic yards of water per acre disturbed. Installation of the sediment basin(s) must be completed prior to the start of grubbing and clearing activities. All contractors and subcontractors must sign the contractor certification (subsection E.ii.).

The permit (subsection D) requires inspections at least once every seven calendar days and after every storm event of 0.1 inches or greater. The Plan must also allow for the inspector to require additional measures if the inspection finds them necessary, and should note the qualifications of personnel doing the inspection. Due to Charter Oak's inability to provide these inspections or properly maintain erosion and sedimentation controls during a previous project on this site, it is recommended (and CTDEP may require it in the Plan) that the inspections are performed by a professional engineer licensed to practice in Connecticut.

In addition, the plan must include monthly inspections of stabilized areas for at least three months *following* stabilization. Charter Oak has not shown that they will ensure the follow-up inspections, maintenance, and adjustments necessary to completely stabilize all slopes, which is clearly demonstrated by the fact that there are still unstable slopes remaining from the building of the Factory Outlet Mall. The plan must contain specific personnel and procedures to ensure that all permit requirements are met.

The specific erosion and sedimentation controls shown on sheets 10 - 11 and 15 should be expanded to better provide for slope protection during construction. Due to the slopes involved and the amounts of exposed area, silt fence should be backed up by haybales or stone along the eastern edge of the project, particularly in the southeast corner during stage 2. Controls must be continually monitored during the course of the project and additional or alternative controls implemented immediately as required by circumstances.

Subsection C.ii. of the permit requires post-construction stormwater management. The *Vortechnic* units appear to meet this requirement. However, since the Plan calls for moving these units, a practice without precedent in Connecticut, additional notation on how this is going to be accomplished, what type of review and inspections will take place as these units are moved, and correspondence from the manufacturer relating to this issue must be included in the plan.

A plan to manage the system post-construction will be crucial to its proper operation. The WFOM currently is covered under Connecticut's General Permit for the Discharge of Stormwater from Commercial Activities. The Stormwater Management Plan ("SWMP") must be expanded to include the cinemas and the plan must be followed. Charter Oak does not have a track record of maintaining compliance with this permit, particularly in the area of structure maintenance,

and will need to identify specific personnel with responsibility for overseeing this permit and ensuring that it is implemented. In addition, Charter Oak must add to their SWMP (per Commercial Permit Part V.B.3.) a method for ensuring that the permit will continue to be implemented in the event of personnel changes.

WILDLIFE RESOURCES

Habitats and Wildlife Use

An accurate general description of the wetlands and upland habitats has been provided in the consultant's report. Although there has been extensive amounts of habitat loss and fragmentation in this area, a relatively diverse group of wildlife potentially can inhabit the property (see Appendix A) given the presence of the wetland complex. A diversity of wildlife species are attracted to wetlands due to the complex vegetative structure and the presence of an abundance of foods in the form of insects, fruits and seeds. However, as wildlife habitat continues to shrink, the value of the remaining habitat becomes less. Perhaps the greatest current threat to wildlife abundance in this area is the road system which includes I-95, the railroad and Flat Rock Place. Roadways can represent a serious threat to terrestrial wildlife not only by way of direct mortality, i.e., road kills, but also by impeding seasonal movements and population dispersal; this is particularly true for amphibians and reptiles. Because amphibians and reptiles have small home ranges, relatively limited dispersal capability and high site fidelity, they are highly sensitive to local environmental disturbances such as loss of adjacent upland habitats, pollution and fragmentation. It is likely that forest interior breeding birds that require large tracts of unbroken forest and are most sensitive to disturbance and habitat fragmentation will not occupy the property.

Recommendations

Efforts should be directed toward protecting the remaining wetlands with properly maintained pollution and sedimentation control devices and by maximizing the buffers of vegetation around the wetlands. The consultant's recommendation for wetland mitigation appears reasonable given the site constraints. In terms of benefits to wildlife, wetlands #3, 5 and 6 will be best served by the addition of the plantings. The locations and species of mitigation plantings suggested would provide additional food and cover for wildlife, contribute to water quality protection, and provide aesthetic value. Additional plantings that could be considered are provided in Appendix B. Depending on the density of deer in the area, establishing some of these species may be difficult if they are not protected from over-browsing. A list of preferred deer foods is provided in Appendix C. Initially, the use of fencing or repellents may be

required. Consideration should be given to planting an even greater number of softwoods than has been suggested. Plantings of white pine, cedar and pitch pine intermixed with the shrubs and trees would increase structural diversity and provide winter cover, a component which is now limited on the property.

Backyard habitat management practices could be implemented around buildings and other developed areas to enhance wildlife habitat, aesthetics and wildlife viewing opportunities. Natural landscaping techniques which avoid or minimize the creation of manicured lawns and chemical applications should be utilized whenever possible to reduce the acreage of lost habitat and the potential for wetland contamination. Landscaping these areas with a variety of wildflowers and native, berry and mast-producing trees, shrubs and vines will attract numerous species of songbirds, small mammals and butterflies. Nest boxes with predator guards also could be placed on posts in semi-open habitat with scattered trees and short ground cover to provide potential nesting sites for eastern bluebirds. However, this should only be considered if you have an individual who is willing to monitor and maintain the boxes. Nest box plans are included in Appendix D.

ARCHAEOLOGICAL SENSITIVITY

A review of the archaeological site files and maps shows no known archaeological sites in the area. However, the Office of State Archaeology does have three archaeological sites located in close proximity on the south side of the wetland associated with the project area. These three archaeological sites consist of prehistoric Native American encampments which may date as early as 4,000 years ago. Artifacts recovered consist of various stone projectile points and stone axes. The sites represent prehistoric hunting and gathering activities along the coast and salt marshes.

A field review of the project area indicates that some portions have already been affected by the past sand and gravel operations; however, it is suggested that areas that have not been previously disturbed by development projects and lie along the brook and marsh ecosystem would have a high probability of yet undiscovered archaeological resources. The Office of State Archaeology recommends that these undisturbed areas be surveyed to locate and preserve any archaeological sites which may be there. The Office of State Archaeology is prepared to offer any technical assistance to the developer in conducting this archaeological survey. Please feel free to contact them at the University of Connecticut, (860) 486-5248.

APPENDIX A

The following wildlife species are most likely to inhabit the property based on habitat type and size:

REPTILES

Common Snapping Turtle
Eastern Painted Turtle
Northern Water Snake
Northern Brown Snake
Eastern Garter Snake
Eastern Ribbon Snake
Northern Black Racer

MAMMALS

Virginia Opossum
Short-tailed Shrew
Eastern Mole
Star-nosed Mole
Little Brown Myotis
Big Brown Bat
Eastern Cottontail
Eastern Chipmunk
Woodchuck
Gray Squirrel
White-footed Mouse
Meadow Vole
Muskrat
Norway Rat
Raccoon
Striped Skunk
White-tailed Deer

AMPHIBIANS

Spotted Salamander
 Red-spotted newt
 Northern Dusky Salamander
 Northern Two-lined Salamander
 Eastern American Toad
 Northern Spring Peeper
 Gray Treefrog
 Wood Frog
 Pickerel Frog

BIRDS

Wood Duck	House Wren
Mallard	Eastern Bluebird
Red-tailed Hawk	American Robin
American Kestrel	Gray Catbird
Spotted Sandpiper	Northern Mockingbird
Killdeer	European Starling
Herring Gull	Blue-winged Warbler
Rock Dove	Yellow Warbler
Mourning Dove	Common Yellowthroat
Downy Woodpecker	Northern Cardinal
Northern Flicker	Rose-breasted Grosbeak
Eastern Phoebe	Chipping Sparrow
Blue Jay	Song Sparrow
American Crow	Red-winged Blackbird
Fish Crow	Common Grackle
Black-capped Chickadee	Brown-headed Cowbird
Tufted Titmouse	Northern Oriole
White-breasted Nuthatch	House Finch
Carolina Wren	American Goldfinch
	House Sparrow

APPENDIX B

Connecticut Native Trees and Shrubs Availability List

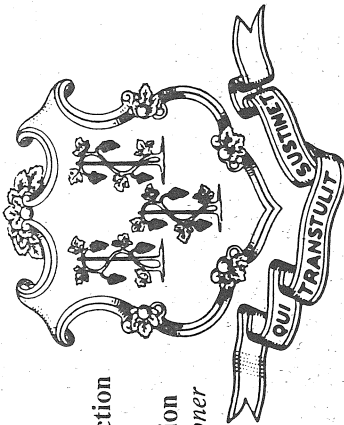
Connecticut Native Shrubs

— Availability List —



State of Connecticut
Department of Environmental Protection
Wildlife Division

State of Connecticut
Lowell P. Weicker, Jr., Governor
Department of Environmental Protection
Timothy R. E. Keeney, Commissioner
Branch of Environmental Conservation
Thomas J. Dudchik, Deputy Commissioner
Wildlife Division
George E. Brys, Acting Director



Department of Environmental Protection
Wildlife Division
Room 254, State Office Building
165 Capitol Avenue
Hartford, CT 06106

Prepared by
Peter M. Picone
Urban Wildlife Biologist
Cover illustration by Paul J. Fusco
Catbird (*Dumetella carolinensis*)
Shadbush serviceberry (*Amelanchier canadensis*)

Thanks are extended to Northeast Utilities for funding the printing of this edition of the Connecticut Native Shrubs--Availability List

The Connecticut Department of Environmental Protection is an equal opportunity agency that provides services, facilities and employment opportunities without regard to race, color, religion, age, sex, physical or mental disability, national origin, ancestry, marital status and political beliefs.



Habitat Management for Wildlife

As Connecticut's landscape becomes more urbanized, a general decline in habitat diversity occurs. Wildlife habitat can be restored, however, through the planting of native vegetation in landscaping projects, whether they are at a suburban mall or in an urban backyard.

While the wildlife value of some non-native plants is undeniable, many tend to be invasive, displacing naturally occurring plants. Autumn olive (*Eleagnus umbellata*) is a typical example. Black chokeberry (*Aronia melanocarpa*) and shadbush serviceberry (*Amelanchier canadensis*) are good native alternatives for autumn olive. Additional benefits of using native plants are that they have adapted to the climate of the area, making them more hardy, and that wildlife have evolved using those plants for food and cover.

This availability list is designed to assist homeowners, landscapers and conservation organizations in locating native planting stock for wildlife habitat enhancement. It was compiled from a mail survey of 341 of Connecticut's registered nurseries. Of the 88 survey respondents, 52 indicated that they have native shrubs in stock or by special order. Although, some of the listed nurseries are strictly wholesalers (indicated by an asterisk), shrubs can be ordered from them through a local nursery or garden center.

Landscaping with native plants may require gathering additional information. The following list of references will assist you in learning about plant descriptions, flowering and fruiting periods, site requirements and wildlife values.

- *Discover Wildlife in Connecticut's Backyard*, Rita M. Duclos and Kathy F. Herz, Connecticut Department of Environmental Protection, Wildlife Division, Publication No. NHW-21. 1989. 38 pp. Available from DEP Wildlife Division, Nonharvested Wildlife Program (584-9830).
- *Native Shrubs for Landscaping*, Sally L. Taylor, Glenn Dreyer and William A. Niering, The Connecticut College Arboretum, New London, CT. Bulletin #30. 1987. 40 pp. Available from DEP Natural Resources Center (566-7719).
- *Landscaping for Wildlife*, Carrol L. Henderson, Minnesota Department of Natural Resources, Minnesota, 1987. 144 pp. Available from Minnesota Department of Natural Resources, 500 Lafayette Rd., Box 7, St. Paul, MN 55155-4007.
- *Trees, Shrubs and Vines for Attracting Birds*, Richard M. DeGraaf and Gretchen M. Witman, University of Massachusetts Press, Amherst, MA. 1979. 194 pp.
- *American Wildlife & Plants, A Guide to Wildlife Food Habits*, Alexander C. Martin, Herbert S. Zim and Arnold L. Nelson, Dover Publications, Inc., NY. 1951. 500 pp.

A backyard wildlife habitat area, developed by Wildlife Division biologists, is a feature of the CEDARS Conservation Education Center at Sessions Woods Wildlife Management Area in Burlington. The area demonstrates wildlife management techniques that may be implemented in the backyard, with an emphasis on native plantings. For more information, contact the Wildlife Division at Sessions Woods W.M.A., P.O. Box 1550, Burlington, CT 06013, (203/584-9830) or CEDARS (203/584-0229).

How to Use This Guide

The following is a suggested list of native shrubs; not all are available from local nurseries at this time. Look up the shrub species in which you are interested and write down the numbers in the column to the right. These numbers indicate which nursery has that plant in stock. Bold numbers indicate that the nursery will special order the plant. Cross-reference the numbers with the nurseries listed on pages 7 - 10.

Dogwoods

Alternate-leaf Dogwood <i>Cornus alternifolia</i>	7, 19, 25, 27, 29, 34, 35, 43
Silky Dogwood <i>Cornus amomum</i>	11, 13, 18, 19, 22, 34, 36, 37
Gray Dogwood <i>Cornus racemosa</i>	1, 19, 29, 34, 37, 52
Roundleaf Dogwood <i>Cornus rugosa</i>	19
Red-osier Dogwood <i>Cornus sericea</i>	1, 3, 5, 6, 11, 12, 13, 19, 22, 25, 27, 28, 29, 30, 33, 34, 35, 36, 42, 43, 44, 47, 50, 51, 52

Honeysuckles

American Fly Honeysuckle 11, 23, 31

Lonicera canadensis

Swamp Fly Honeysuckle

Lonicera oblongifolia

Laurels

Sheep Laurel, Lambkill

Kalmia angustifolia

Mountain Laurel

Kalmia latifolia

3, 4, 7, 20, 23, 24, 25, 27, 28, 34, 36, 40, 42, 43, 50
2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52

11, 27, 34, 43, 52

Bog Laurel
Kalmia polifolia

Maples

Striped Maple 7, 25, 34

Acer pensylvanicum

Mountain Maple 23

Acer spicatum

Rhododendrons

Wild Honeysuckle 1, 7, 22, 23, 25, 27, 29, 40

Rhododendron nudiflorum

Swamp Azalea 3, 4, 5, 7, 9, 11, 12, 13, 16, 22, 23, 27, 28, 29, 34, 40, 42, 44, 46, 47, 50, 51

Rhododendron viscosum

Sumacs

Shining Sumac 1, 13, 23, 34, 37

Rhus copallina

Smooth Sumac 1, 13, 19, 23, 34, 37, 43, 50, 52

Rhus glabra

Viburnums

Mapleleaf Viburnum 3, 12, 13, 20, 25, 34, 42

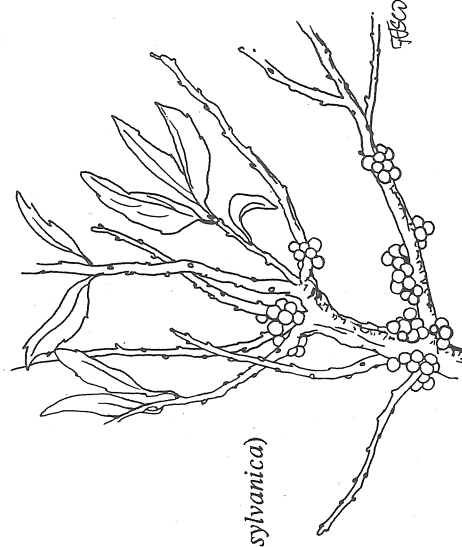
Viburnum acerifolium

Hobblebush 25

Viburnum alnifolium

Witherod, Wild Raisin 36

Viburnum cassinoides



Bayberry
(*Myrica pensylvanica*)

Nannyberry
Viburnum lentago
 Arrowwood
Viburnum recognitum
 American Cranberry Bush
Viburnum trilobum

1, 3, 11, 13, 19, 29, 33, 34, 36, 37, 43,
 47

1, 2, 3, 6, 11, 12, 13, 19, 21, 23, 25,
 29, 34, 36, 37, 42, 43, 47, 50, 52
 1, 2, 3, 4, 6, 11, 12, 13, 18, 19, 25,
 28, 29, 34, 36, 40, 42, 47, 50, 52

Other Native Shrubs

Shadbush Serviceberry
Amelanchier canadensis

1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 16, 18,
 19, 20, 21, 23, 25, 27, 28, 29, 33, 34,
 35, 36, 37, 39, 40, 42, 43, 44, 45, 47,
 48, 50, 51, 52

Black Chokeberry
Aronia melanocarpa

1, 12, 29, 34, 35, 43, 47, 50

Jersey Tea
Ceanothus americanus

29, 34

Buttonbush
Cephalanthus occidentalis

27, 34, 40, 42, 50

Leatherleaf
Chamaedaphne calyculata

1, 2, 3, 4, 6, 7, 8, 12, 17, 18, 19, 20,
 22, 23, 24, 25, 26, 27, 29, 33, 34, 35,
 36, 37, 40, 42, 43, 44, 46, 47, 50, 51,
 52

Sweet Fern
Comptonia peregrina

3, 23, 25, 34

Bush Honeysuckle
Diervilla lonicera

3, 5, 11, 13, 34, 36, 48

Leatherwood
Dirca palustris

1, 3, 4, 6, 11, 12, 13, 16, 23, 24, 27,
 28, 29, 33, 34, 35, 36, 37, 39, 42, 44,
 45, 46, 50, 52

Witch Hazel
Hamamelis virginiana

Winterberry
Ilex verticillata

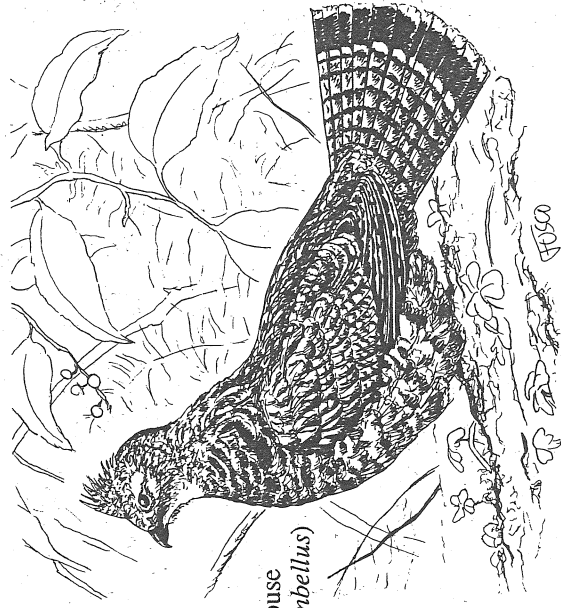
1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 16, 17, 18,
 19, 21, 22, 23, 24, 25, 26, 27, 28, 29,
 33, 34, 35, 36, 37, 39, 40, 42, 43, 44,
 47, 48, 49, 50, 51, 52

Ground Juniper
Juniperus communis

3, 13, 14, 20, 23, 25, 31, 33, 34, 36,
 40, 41, 42, 47, 48, 50, 52

Labrador Tea
Ledum groenlandicum

27, 29, 40, 42, 50, 52



Ruffed Grouse
(Bonasa umbellus)

Spicebush

3, 7, 8, 11, 12, 13, 19, 23, 25, 27, 29,
 34, 36, 40, 42, 43, 44, 50, 52

Lindera benzoin

40

Huckleberry, Maleberry

Lyonia ligustrina

Bayberry

1, 2, 3, 6, 8, 11, 12, 13, 16, 18, 19, 23,
 25, 26, 27, 28, 29, 31, 33, 34, 37, 40,
 41, 42, 43, 44, 47, 48, 50, 51, 52

Myrica pensylvanica

Mountain Holly

40, 48

Nemopanthus mucronata

Shrubby Cinquefoil

3, 5, 6, 8, 12, 17, 18, 19, 21, 27, 28,
 29, 33, 34, 36, 40, 42, 43, 44, 45, 46,
 47, 48, 50, 52

Potentilla fruticosa

Elderberry

1, 23, 29, 31, 34, 43

Sambucus canadensis

Meadowsweet Spiraea

3, 11, 25, 34, 40

Spiraea latifolia

Bladdernut

Staphylea trifolia

Canada Yew

11, 13, 15, 31, 32, 48, 50

Taxus canadensis

Highbush Blueberry

1, 3, 5, 6, 7, 11, 12, 13, 17, 19, 20,
 22, 23, 25, 26, 27, 28, 29, 31, 34, 35,
 36, 37, 40, 42, 43, 44, 45, 47, 50, 52

Vaccinium corymbosum

Connecticut Growers (Retail) of Native Shrubs

1. **Alpine Distributors***
c/o J. Arnow
57 Home Fair Dr.
Fairfield, CT 06430
372-2551
2. **Robert Baker, Inc.***
1700 Mountain Rd.
West Suffield, CT 06093
668-7371
3. **Ballek's Garden Center**
Maple Ave.
East Haddam, CT 06423
873-8878
4. **Bell Nurseries, Inc.**
1301 Hartford Tpke
North Haven, CT 06473
248-5086 / 281-0164
5. **Berger Nursery**
729 Chamberlain Highway
P.O. Box 7283
Kensington, CT 06037
828-0399
6. **Samuel Bridge Nursery & Greenhouses**
437 North St.
Greenwich, CT 06830
869-3418
7. **Broken Arrow Nursery**
c/o R. A. Jaynes
13 Broken Arrow Rd.
Hamden, CT 06518
288-1026
8. **Burr Farm Garden Center**
c/o Gary E. Ober
Obtuse Road South
Brookfield, CT 06804
775-2477
9. **Chappell Nursery**
1114 Trumbull Highway
Lebanon, CT 06249
642-6896
10. **Clark's Greenhouse & Nursery**
98 Gardner Ave.
New London, CT 06320
442-3974
11. **D'Andrea's Nursery**
Deerfield Dr.
Greenwich, CT 06830
869-0730
12. **East Haven Landscape Products***
10 Mill St.
East Haven, CT 06512
467-6260
13. **Evergreen Nursery, Inc.**
c/o F. Kuhr
567 Woodruff St.
Southington, CT 06489
628-0325
14. **Farmington Valley Nursery**
c/o H. Wilcox
138 Waterville Rd.
Avon, CT 06001
677-2773
15. **Robert B. Gambino***
Old Mill Rd., R.R. 3
New Milford, CT 06776
354-3319
16. **Gastler Farm Nursery**
Middlefield Rd., Route 147
Durham, CT 06422
349-1515
17. **Glazier Nursery***
South Rd.
Harwinton, CT 06791
485-0604
18. **Hop River Nursery***
251 Hop River Rd.
Bolton, CT 06040
646-7099
19. **Imperial Nurseries***
90 Salmon Brook Rd.
Granby, CT 06035
653-4541
20. **Johnson Garden Service**
398 Chamberlain Highway
Kensington, CT 06037
828-6820
21. **Ken's Landscaping***
c/o K. Crooke
113 Jared Sparks Rd.
West Willington, CT 06279
487-1535
22. **Knuttel Nursery, Inc.**
124 South Main St.
East Windsor, CT 06088
623-3873
23. **John La Viola Landscaping**
400 Narrow Lane
Orange, CT 06477
795-4425
24. **Meier Nursery Gardens**
c/o H. Hansen
1241 Hulls Highway
Southport, CT 06490
255-6511
25. **R. S. Merriman**
R.R. #3
Burlington, CT 06013
583-0329
26. **North Granby Nursery***
127 Loomis St.
North Granby, CT 06060
653-2829
27. **Oliver Nurseries**
1159 Bronson Rd.
Fairfield, CT 06430
259-5609
28. **Pebble Beech**
120 Butlerstown Rd.
Waterford, CT 06385
29. **Planters' Choice***
c/o C. Newman
140 Huntington Rd.
Newtown, CT 06470
426-4037
30. **Pocono Country Farms**
50 Maplewood Terrace
Hamden, CT 06514
31. **Prospect Nursery & Garden Center**
New Haven Rd., Route 69
Prospect, CT 06712
758-4909
32. **Ridolfo Nursery**
c/o Giacomo Ridolfo
5 Grace St.
Windsor, CT 06095
688-2959
33. **Riverside Nursery**
Route 179
Canton, CT 06019
693-0147
34. **Salem Country Gardens**
380 New London Rd.
Route 85
Salem, CT 06415
859-2508
35. **Salisbury Garden Center**
Route 44
Salisbury, CT 06068
435-2439
36. **Al Seifert's Nursery, Inc.**
128 Old Canterbury Tpke
Norwich, CT 06360
889-4233
37. **Seven Maples Nursery**
c/o Bradford Orr
P.O. Box 211
Trumbull CT 06611
261-9010

38. **Still River Farm**
30 Old Colony Rd.
Eastford, CT 06242
974-0719
39. **Stonagate Gardens, Inc.**
69 Bushy Hill Rd.
Granby, CT 06035
653-3835
40. **Summer Hill Nursery, Inc.***
c/o M. Johnson
Summer Hill Rd.
Madison, CT 06443
421-3055
41. **Sunset Acres**
c/o Edward Muollo
101 Miller Rd.
Preston, CT 06360
42. **Taylor's Nursery**
Comer Rt. 85 & Rt. 207
Amston, CT 06231
228-4277 / 228-3810
43. **Twombly Nursery, Inc.**
163 Barn Hill Rd.
Monroe, CT 06468
261-2133
44. **Van Wilgen Nurseries**
Valley Rd.
North Branford, CT 06471
488-2110
45. **Wakeman's Nursery**
6923 Main St.
Trumbull CT 06611
261-3926
46. **White Flower Farm**
Route 63
Litchfield, CT 06759
567-8789
47. **Whitney Nurseries, Inc.**
c/o P. Whitney
65 North St.
Plymouth, CT 06782
283-5787
48. **Willow Tree Nursery, Inc.**
188 Leavenworth Rd.
Shelton, CT 06484
929-1905
49. **Winterberry Nursery***
c/o P. Cumpstone
104 Parker Hill Rd. Ext.
Killingworth, CT 06417
663-2747
50. **Woodland Gardens**
c/o J. Zapadka
168 Woodland St.
Manchester, CT 06040
643-8474
51. **Young's Nurseries, Inc.**
Attn: Hans Kuring
211 Danbury Rd.
Wilton, CT 06897
762-5511
52. **Pride's Corner Farm**
c/o Jim Hallene
122 Waterman Rd.
Lebanon, CT 06249
642-7535
- Landscaping with Native Shrubs**
- SHRUBS FOR DRY, SUNNY AREAS**
- Bayberry (*Myrica pensylvanica*)
Lowbush Blueberry (*Vaccinium angustifolium*)
Ground Juniper (*Juniperus communis*)
New Jersey Tea (*Ceanothus americanus*)
Sweet Fern (*Comptonia peregrina*)
- SHRUBS FOR MOIST SITES**
- Buttonbush (*Cephalanthus occidentalis*)
Dogwoods (*Cornus spp.*)
Elderberry (*Sambucus canadensis*)
Highbush Blueberry (*Vaccinium corymbosum*)
Inkberry (*Ilex glabra*)
Pussy Willow (*Salix discolor*)
Shadbush Serviceberry (*Amelanchier canadensis*)
Sheep Laurel (*Kalmia angustifolia*)
Spicebush (*Lindera benzoin*)
Spiraea (*Spiraea latifolia*)
Swamp Azalea (*Rhododendron viscosum*)
Sweet Pepperbush (*Clethra alnifolia*)
Viburnums (*Viburnum spp.*)
Winterberry (*Ilex verticillata*)
Witch Hazel (*Hamamelis virginiana*)
- SHRUBS FOR SHADED SITES**
- Hazelnut (*Corylus americana, C. cornuta*)
Mountain Laurel (*Kalmia latifolia*)
Rhododendrons (*R. maximum, R. catawbiense*)
Swamp Azalea (*Rhododendron viscosum*)
Viburnums (*V. acerifolium, V. cassinoides, V. alnifolium*)
Wintergreen (*Gaultheria procumbens*)

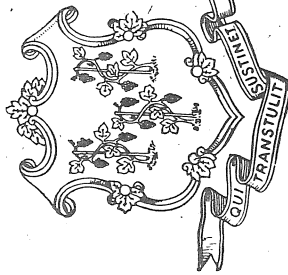
* wholesalers

Connecticut Native Trees

— Availability List —



State of Connecticut
Department of Environmental Protection
Wildlife Division



State of Connecticut
Lowell P. Weicker, Jr., Governor
Department of Environmental Protection
Timothy R. E. Keeney, Commissioner
Branch of Environmental Conservation
George P. Avitabile, Deputy Commissioner
Bureau of Natural Resources
John H. Spencer, Chief
Wildlife Division
George E. Brys, Acting Director

Department of Environmental Protection Wildlife Division

Room 254, State Office Building
165 Capitol Avenue
Hartford, CT 06106

Prepared by
Peter M. Picone
Urban Wildlife Biologist

Cover illustration by Paul J. Fusco
Gray Squirrel on Shagbark Hickory Tree

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Wildlife Division Publication No. NHW-26 3/93

Introduction

This availability list is designed to assist homeowners, landscapers and conservation organizations in locating native planting stock for wildlife habitat enhancement. It was compiled from a mail survey of 341 of Connecticut's registered nurseries. Of the 114 respondents, 84 indicated that they have native trees in stock or would obtain them by special order. Although some of the listed nurseries are strictly wholesalers, trees can be ordered from them through a local nursery or garden center.

Every plant is native to some location. When a plant is grown outside its original location, it is usually classified as an exotic plant. For example, a Norway maple (*Acer platanoides*) is a native tree in Norway, but in the United States it is considered an exotic that now comprises a large segment of the street trees in our cities and suburbs. The adaptability and vigor of the Norway maple is undeniable; however, if a disease or insect infestation occurs in a monoculture, a large die-off may occur. Planting different species is a good buffer against that.

By their very nature, native trees and plants have adapted to the climate of the area, making them more hardy. Wildlife have evolved using them for food, cover and shelter. Proper selection, care and placement of trees can produce a landscape that is both visually attractive and of benefit to wildlife. Landscaping with native plants may require gathering more information. Native plant descriptions, flowering and fruiting periods, site requirements and wildlife habitat values may be found in the references below.

- *Discover Wildlife in Connecticut's Backyard*, Rita M. Duclos and Kathy F. Herz, Connecticut Department of Environmental Protection, Wildlife Division, Publication No. NHW-21. 1989. 38 pp. Available from DEP Wildlife Division, Nonharvested Wildlife Program (584-9830).
- *Native Shrubs for Landscaping*, Sally L. Taylor, Glenn Dreyer and William A. Niering, The Connecticut College Arboretum, New London, CT. Bulletin #30. 1987. 40 pp. Available from DEP Natural Resources Center (566-7719).
- *Landscaping for Wildlife*, Carrol L. Henderson, Minnesota Department of Natural Resources. 1987. 144 pp. Available from Minnesota Department of Natural Resources, 500 Lafayette Rd., Box 7, St. Paul, MN 55155-4007.
- *Trees, Shrubs and Vines for Attracting Birds*, Richard M. DeGraaf and Gretchin M. Witman, University of Massachusetts Press, Amherst, MA. 1979. 194 pp.
- *American Wildlife & Plants, A Guide to Wildlife Food Habits*, Alexander C. Martin, Herbert S. Zim and Arnold L. Nelson, Dover Publications, Inc., NY. 1951. 500 pp.
- *Connecticut's Notable Trees*, Glenn D. Dreyer, Memoirs of the Connecticut Botanical Society, No. 2, 1989. 2nd ed. 1990. 94 pp. Available from DEP Natural Resources Center (566-7719).

The following is a list of suggested native trees; not all are available from local nurseries at this time. Look up the species in which you are interested and write down the numbers from the column on the right. These numbers indicate which nurseries have that tree in stock. Bold numbers indicate that the nursery will special order the tree. Cross-reference the numbers with the nurseries listed on pages 10-14.

Evergreens

Cedars

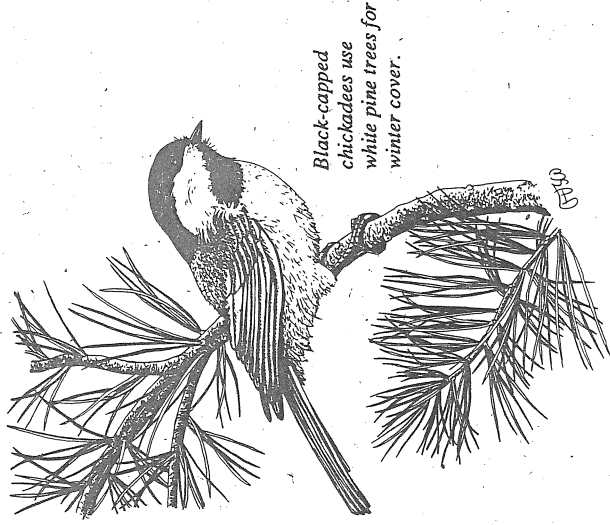
- Atlantic White Cedar
(*Chamaecyparis thyoides*)
- Eastern Red-cedar
(*Juniperus virginiana*)
- Northern White Cedar
(*Thuja occidentalis*)

Pines

- Red Pine
(*Pinus resinosa*)
- Pitch Pine
(*Pinus rigida*)
- White Pine
(*Pinus strobus*)

Spruces

- Black Spruce
(*Picea mariana*)
- Red Spruce
(*Picea rubens*)



Black-capped chickadees use white pine trees for winter cover.

- 10, 15, 16, 17, 31, 36, 47, 56, 63, 64, 71, 78, 79, 81
- 2, 5, 15, 16, 20, 25, 31, 39, 41, 49, 51, 52, 56, 57, 64, 69, 71, 77, 78, 79, 83
- 5, 14, 15, 16, 19, 25, 27, 31, 46, 47, 49, 51, 55, 57, 64, 67, 69, 71, 73, 83
- 2, 15, 16, 31, 46, 51, 56, 57, 64, 79
- 15, 16, 46, 51, 56, 64, 81, 83
- 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36, 39, 40, 41, 42, 44, 46, 47, 48, 49, 50, 51, 52, 54, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 75, 77, 78, 79, 81, 83, 84
- 5, 15, 16, 25, 46, 47, 56, 57, 64
- 16, 51, 64, 83

Eastern Hemlock (*Tsuga canadensis*)

- 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 19, 20, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 35, 36, 37, 38, 39, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 56, 57, 58, 59, 60, 61, 62, 63, 64, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 77, 78, 79, 80, 81, 82, 83, 84

Deciduous Trees

Ashes

- White Ash
(*Fraxinus americana*)
- Black Ash
(*Fraxinus nigra*)
- Green Ash
(*Fraxinus pennsylvanica*)

Birches

- Yellow Birch
(*Betula alleghaniensis*)
- Black Birch
(*Betula lenta*)
- Paper Birch
(*Betula papyrifera*)
- Gray Birch
(*Betula populifolia*)

Cherries/Plums

- Allegheny Plum
(*Prunus alleghaniensis*)
- American Plum
(*Prunus americana*)
- Pin Cherry
(*Prunus pennsylvanica*)
- Black Cherry
(*Prunus serotina*)
- Choke Cherry
(*Prunus virginiana*)

Chestnuts

- American Chestnut
(*Castanea dentata*)
- American Hybrid-cross
(*Castanea spp.*)

57, 64, 75, 79

79

Cottonwoods/Aspens

- Eastern Cottonwood
(*Populus deltoides*)
- Bigtooth Aspen
(*Populus grandidentata*)
- Swamp Cottonwood
(*Populus heterophylla*)
- Quaking Aspen
(*Populus tremuloides*)

46, 51, 64, 78

64

46, 51, 56, 64, 79

Elms

- American Elm
(*Ulmus americana*)
- Slippery Elm
(*Ulmus rubra*)

13, 15, 16, 36, 51, 56, 64, 75, 79

16, 64, 79

Hawthornes

- Round-leaved Hawthorne
(*Crataegus chrysocarpa*)
- Cockspur Hawthorne
(*Crataegus crus-galli*)
- Frosted Hawthorne
(*Crataegus pruinosa*)
- Dotted Hawthorne
(*Crataegus punctata*)
- Fleshy Hawthorne
(*Crataegus succulenta*)

64

13, 30, 56, 60, 71

48

25

Hickories

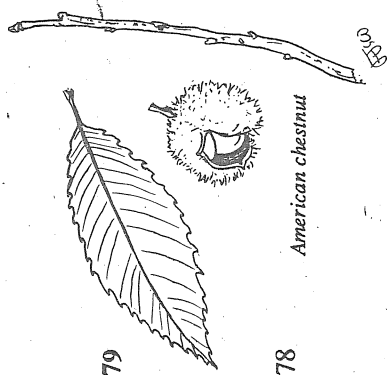
- Bitternut Hickory
(*Carya cordiformis*)
- Pignut Hickory
(*Carya glabra*)
- Shagbark Hickory
(*Carya ovata*)
- Mockernut Hickory
(*Carya tomentosa*)

64, 79

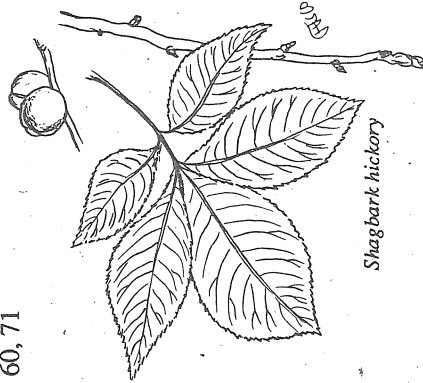
64, 79

16, 51, 56, 64, 75, 79, 83

64



American chestnut



Shagbark hickory

Maples

- Boxelder
(*Acer negundo*)
- Black Maple
(*Acer nigrum*)
- Red Maple
(*Acer rubrum*)
- Silver Maple
(*Acer saccharinum*)
- Sugar Maple
(*Acer saccharum*)

20, 31, 46, 79

64

1, 2, 8, 9, 10, 11, 13, 14, 15, 16, 18, 19,
20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31,
32, 37, 38, 39, 41, 42, 44, 46, 47, 48, 49,
50, 51, 52, 56, 57, 64, 68, 69, 70, 71, 74,
75, 78, 79, 81, 83
2, 3, 6, 9, 14, 16, 18, 20, 21, 25, 26, 27,
36, 41, 44, 46, 50, 51, 52, 56, 57, 60, 64,
70, 71, 75, 78, 79, 81, 83

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15,
16, 18, 19, 20, 21, 23, 25, 26, 27, 29, 30,
32, 33, 36, 38, 39, 41, 42, 43, 46, 47, 49,
50, 51, 52, 56, 57, 64, 66, 68, 69, 71, 75,
78, 79, 81, 83
9, 44, 64

- Mountain Maple
(*Acer spicatum*)

Oaks

- White Oak
(*Quercus alba*)
- Swamp White Oak
(*Quercus bicolor*)
- Scarlet Oak
(*Quercus coccinea*)
- Chinkapin Oak
(*Quercus muehlenbergii*)
- Chestnut Oak
(*Quercus prinus*)
- Northern Red Oak
(*Quercus rubra*)
- Post Oak
(*Quercus stellata*)
- Black Oak
(*Quercus velutina*)

13, 16, 20, 25, 27, 36, 46, 50, 51, 56, 57,
64, 70, 75, 79

46, 51, 56, 57, 64, 69, 79

2, 20, 27, 39, 46, 50, 51, 79

64

56, 64

1, 2, 13, 15, 19, 20, 25, 27, 30, 32, 36,
39, 46, 49, 50, 51, 54, 56, 57, 60, 64, 70,
79, 81

64

50, 56, 64

Walnuts

- Butternut Walnut
(*Juglans cinera*)

16, 46, 64, 75, 78, 79

Black Walnut
(*Juglans nigra*)

16, 20, 25, 26, 51, 57, 64, 78, 79, 83

Other deciduous trees

American Hornbeam
(*Carpinus caroliniana*)

15, 20, 25, 27, 39, 46, 49, 50, 51, 56, 57, 64, 70

Hackberry
(*Celtis occidentalis*)

5, 16, 46, 51, 64, 79

Redbud

(*Cercis canadensis*)

1, 2, 3, 6, 7, 8, 10, 13, 15, 16, 17, 18, 20, 21, 25, 26, 27, 28, 30, 31, 36, 39, 41, 42, 44, 46, 47, 49, 50, 51, 52, 54, 56, 57, 58, 60, 63, 64, 65, 68, 69, 70, 73, 75, 77, 78, 79, 82, 83

Flowering Dogwood
(*Cornus florida*)

1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, 16, 18, 19, 20, 21, 23, 25, 26, 27, 30, 31, 32, 34, 36, 39, 41, 42, 43, 44, 46, 47, 48, 49, 50, 51, 52, 54, 56, 57, 58, 60, 63, 64, 66, 68, 70, 71, 73, 75, 78, 79, 80, 81, 82, 83

Common Persimmon
(*Diospyros virginiana*)

78

American Beech

(*Fagus grandifolia*)

5, 13, 15, 16, 22, 23, 46, 50, 51, 56, 57, 64, 70, 75, 79, 82, 83

American Holly

(*Ilex opaca*)

2, 3, 5, 9, 11, 13, 15, 16, 18, 20, 22, 25, 27, 30, 31, 34, 36, 39, 44, 46, 47, 49, 50, 51, 52, 56, 57, 58, 63, 64, 65, 68, 69, 70, 71, 73, 77, 82, 83

Sweetgum

(*Liquidambar styraciflua*)

2, 3, 6, 10, 13, 15, 16, 19, 20, 25, 26, 27, 30, 32, 44, 46, 47, 49, 50, 51, 56, 57, 60, 64, 78

Tulip Tree (Yellow Poplar)

(*Liriodendron tulipifera*)

3, 15, 16, 20, 23, 42, 44, 46, 49, 50, 51, 56, 64, 70, 75, 78, 79, 83

Red Mulberry

(*Morus rubra*)

16, 46, 56, 57, 64, 68, 79

Black Gum (Tupelo)

(*Nyssa sylvatica*)

5, 13, 15, 20, 25, 32, 46, 47, 50, 51, 56, 64, 79

Eastern Hop Hornbeam

(*Ostrya virginiana*)

13, 20, 27, 46, 50, 51, 56, 57, 70, 79

American Sycamore

(*Platanus occidentalis*)

3, 7, 13, 15, 16, 20, 25, 30, 32, 36, 46, 50, 51, 56, 57, 60, 64, 70, 71, 75, 79, 83

Willow
(*Salix spp.*)

1, 2, 3, 8, 9, 10, 13, 14, 15, 16, 20, 23, 25, 26, 27, 30, 32, 36, 38, 39, 41, 46, 49, 50, 51, 52, 56, 57, 60, 64, 69, 71, 73, 75, 79, 81, 83

Sassafras

(*Sassafras albidum*)

16, 46, 50, 57, 70, 79, 83

American Mountain-ash

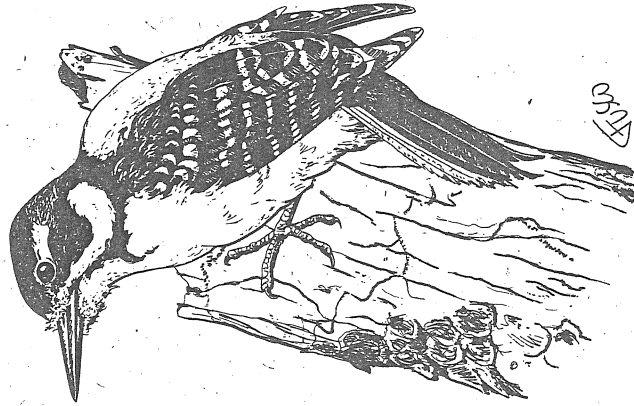
(*Sorbus americana*)

13, 23, 24, 27, 33, 46, 50, 56, 57, 58, 64, 70, 72, 75, 79, 83

American Basswood

(*Tilia americana*)

13, 57, 64, 79, 83



Snags (dead or dying standing trees) are important wildlife habitat components. The hairy woodpecker is among the numerous wildlife species which depend on snags for part of their habitat requirements. When leaving snags on your property, careful consideration for human safety is recommended.

Connecticut Growers (Retail) of Native Trees

(*Indicates nursery is strictly a wholesaler)

1. **Atlantic Tree Service**
1700 Mountain Rd.
West Suffield, CT 06093
668-7371
2. **Robert Baker, Inc.**
1700 Mountain Rd.
West Suffield, CT 06093
668-7371
3. **Bell Nurseries, Inc.**
1301 Hartford Tpk
North Haven, CT 06473
248-5086 / 281-0164
4. **Kenneth A. Bradley**
986 Mansfield City Rd.
Storrs, CT 06268
429-2228
5. **Brimfield Gardens Nursery**
c/o W. Marshall
3109 Main St.
Rocky Hill, CT 06067
529-0795
6. **Burns Garden Mart**
1376 Hopmeadow St.
Simsbury, CT 06070
658-2428
7. **Caesar's Nursery**
c/o C. Dambrowski
883 Federal Rd.
Brookfield, CT 06804
775-2944
8. **Calvanese Nursery**
1588 Meriden-Waterbury Rd.
Route 322
Milldale, CT 06467
628-5888
9. **Cannavo Gardens**
920 Main St.
Winsted, CT 06098
379-2626
10. **Cheshire Nursery, Inc.**
c/o M. Cohen
1317 South Main St.
Cheshire, CT 06410
272-3228
11. **Country Farm & Nursery**
c/o E. Coppola
37 Erskine Rd.
Stamford, CT 06903
322-1000
12. **Denny Tree Farm**
617 Ridge Rd.
Orange, CT 06477
799-2766
13. **Designs By Lee, Inc.**
c/o L. Pepin
129 Interlaken Rd.
Stamford, CT 06903
322-2206
14. **Dom D'Agostino's Nursery**
95 Stony Hill Rd.
Bethel, CT 06801
743-2606
15. **East Haven Landscape Products**
10 Mill St.
East Haven, CT 06512
467-6260
16. **Evergreen Nursery, Inc.**
c/o F. Kuhr
567 Woodruff St.
Southington, CT 06489
628-0325
17. **Farmington Valley Nursery**
c/o H. Wilcox
138 Waterville Rd.
Avon, CT 06001
677-2773
18. **Garden Acres Nursery**
c/o Mr. Pieper
399 Clintonville Rd.
North Haven, CT 06473
239-3275
19. **Gerow's Garden Center**
181 Route 37
P.O. Box 8252
New Fairfield, CT 06812
746-2506
20. **G. K. J. Nurseries, Inc.**
1285 Bronson Rd.
Fairfield, CT 06430
259-5660
21. **Gloria's Garden Center**
258 Boston Post Rd.
Milford, CT 06460
877-2776
22. **Greenwich Landscaping Co.**
c/o D. Gospodinoff
732 North St.
Greenwich, CT 06830
869-1022
23. **High Ridge Nursery**
c/o G. Malagisi
1854 High Ridge Rd.
Stamford, CT 06903
329-9957
24. **Hillside Garden Nursery**
c/o M. A. Malinski
8 Brewer St.
Uncasville, CT 06382
848-9839
25. **Hilltop Gardens of Huntington**
245 Walnut Tree Hill Rd.
Huntington, CT 06484
929-0456
26. **Holdridge Farm Nursery**
Route 117
P.O. Box 29
Ledyard, CT 06339
464-8400
27. **James S. Hoskins Nursery**
114 Porter St.
P.O. Box 6
Watertown, CT 06795
274-8889
28. **Jeffrey Stevens**
10 Old Turnpike Rd.
Brookfield, CT 06804
775-8567
29. **Johnson Garden Service**
398 Chamberlain Highway
Kensington, CT 06037
828-6820
30. **Kenneth Twombly Nursery**
163 Barn Hill Rd.
Monroe, CT 06468
261-2133
31. **Ken's Landscaping***
c/o K. Crooke
113 Jared Sparks Rd.
West Willington, CT 06279
487-1535
32. **Kent Greenhouses**
Route 7
P.O. Box 128
Kent, CT 06757
927-3480
33. **Kogut Florist & Nurseryman**
Yale Ave.
Meriden, CT 06450
235-6378
34. **Meier Nursery Gardens**
c/o H. Hansen
1241 Hulls Highway
Southport, CT 06490
255-6511

35. **Mel's Farm Market***
3450 Whitney Ave.
Hamden, CT 06514
248-9101
36. **Monroe Turnpike Nursery**
c/o A. Armitage
288 Monroe Tpke
Monroe, CT 06468
268-0174
37. **Mountain View Nursery**
225 Harrison Rd.
Cheshire, CT 06410
38. **Mulnite Farms Nursery**
Miller Rd.
P.O. Box 28
Broad Brook, CT 06016
623-6918
39. **Kennedy Nursery, Inc.**
201 Clapboard Ridge Rd.
Greenwich, CT 06831
869-3152
40. **Nancy Sawicky**
Route 87
P.O. Box 81
North Franklin, CT 06254
642-7740
41. **Nash's Garden Center**
c/o P. Hourihan
215 Wauregan Rd.
Danielson, CT 06239
774-0412
42. **New Leaf Landscapes, Inc.**
4 Lisa Lane
Bloomfield, CT 06002
242-1987
43. **Northwood Tree Farm**
c/o H. Semrow
270 Wolcott Rd.
Wolcott, CT 06716
879-2423

44. **Nutrico, Inc.**
c/o J. M. Magness
82 Howard Ave.
Bridgeport, CT 06605
334-5899
45. **O'Donnell Nursery**
Stuart Rd.
Bridgewater, CT 06752
354-5028
46. **Old Farm Nursery**
158 Limerock Rd.
Lakeville, CT 06039
435-2272
47. **Oliver Nurseries**
1159 Bronson Rd.
Fairfield, CT 06430
259-5609
48. **Palmieri & Sons**
492 North Main St.
Westport, CT 06880
225-5675
49. **Planters' Choice**
c/o C. Newman
140 Huntington Rd.
Newtown, CT 06470
426-4037
50. **Pinchbeck Nursery**
340 Peaceable St.
Ridgefield, CT 06877
438-2604
51. **Pride's Corner Farm, Inc.**
122 Waterman Rd.
Lebanon, CT 06249
642-7535
52. **Reynolds Farm Nurseries**
c/o V. Deorio
23 Richards Ave.
South Norwalk, CT 06854
866-5757

53. **Ridolfo Nursery**
c/o Giacomo Ridolfo
5 Grace St.
Windsor, CT 06095
688-2959
54. **Riverside Nursery**
Route 179
Canton, CT 06019
693-0147
55. **Robert B. Gambino**
Old Mill Rd.
R.R. #3
New Milford, CT 06776
354-3319
56. **Salem Country Gardens**
385 New London Rd.
Route 85
Salem, CT 06415
859-2508
57. **Salisbury Garden Center**
Route 44
Salisbury, CT 06068
435-2439
58. **Samuel Bridge Nursery & Greenhouses**
437 North St.
Greenwich, CT 06830
869-3418
59. **Scheu's Nursery**
29 Geer St.
Cromwell, CT 06416
635-0733
60. **Shemin Nurseries, Inc.**
1081 King St.
Greenwich, CT 06830
531-6700
61. **Spring Hill Farm**
238 Maple Rd.
Storrs, CT 06268



White oak

62. **Stonegate Gardens, Inc.**
69 Bushy Hill Rd.
P.O. Box 810
Granby, CT 06035
653-3835
63. **Summer Hill Nursery, Inc.**
c/o M. Johnson
Summer Hill Rd.
Madison, CT 06443
421-3055
64. **Steck Nursery**
Putnam Park Rd.
Bethel, CT 06801
748-1385
65. **Sunset Acres**
c/o Edward Muollo
101 Miller Rd.
Preston, CT 06360
66. **Tashua Farms, Inc.**
58 Fuller Rd.
Trumbull, CT 06611

Native Trees for Wildlife Food and Cover

Summer Foods for Wildlife

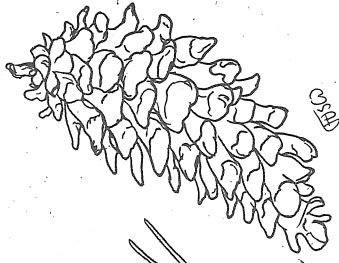
- Black Cherry (*Prunus serotina*)
- Choke Cherry (*Prunus virginiana*)
- Red Mulberry (*Morus rubra*)

Fall Foods for Wildlife

- Eastern Red-cedar (*Juniperus virginiana*)
- Flowering Dogwood (*Cornus florida*)
- Hackberry (*Celtis occidentalis*)
- Hawthornes (*Crataegus* spp.)
- Hickories (*Carya* spp.)
- Oaks (*Quercus* spp.)
- Walnuts (*Juglans* spp.)

Winter Cover for Wildlife

- Atlantic White Cedar (*Chamaecyparis thyoides*)
- Black Spruce (*Picea mariana*)
- Eastern Hemlock (*Tsuga canadensis*)
- Eastern Red-cedar (*Juniperus virginiana*)
- Northern White Cedar (*Thuja occidentalis*)
- White Pine (*Pinus strobus*)



White pine



The Blackburnian warbler can be found feeding on insects in the canopy of Connecticut's deciduous trees.

- 67. Treat's Trees*
c/o Robert Treat
61 Bolton Center Rd.
Bolton, CT 06043
649-2377
- 68. Van Noort Nursery & Garden Center
Route 20
East Granby, CT 06026
653-6212
- 69. Vasileff Nurseries, Inc.
740 North St.
Greenwich, CT 06830
869-0242
- 70. Young's Nurseries, Inc.
Attn: Hans Kuring
211 Danbury Rd.
Wilton, CT 06897
762-5511
- 71. Wakeman's Nursery
6923 Main St.
Trumbull, CT 06611
261-3926
- 72. Weber's Nursery
33 Charles St.
New Britain, CT 06051
223-7887
- 73. Weston Gardens, Inc.
c/o Craig Smith
Goodhill Rd.
Weston, CT 06880
227-3871
- 74. Westview Orchard Farm
Market
Bradford Hill
P.O. Box 707
Plainfield, CT 06374
564-2136
- 75. Willow Tree Nursery, Inc.
188 Leavenworth Rd.
Shelton, CT 06484
929-1905
- 76. Winterberry Nursery
c/o P. Cumpstone
104 Parker Hill Rd. Ext.
Killingworth, CT 06417
663-2747
- 77. Woodland Gardens
c/o J. Zapadka
168 Woodland St.
Manchester, CT 06040
643-8474
- 78. Wrights Mill Tree Farm
63 Creasey Rd.
Canterbury, CT 06331
774-1455
- 79. Zurko Farm Nurseries
287 West Ave.
Milford, CT 06460
874-2609
- 80. Verkade's Nursery
351 Brooklyn Rd.
Canterbury, CT 06331
546-9504
- 81. Still River Farm
30 Old Colony Rd.
Eastford, CT 06242
974-0719
- 82. R. S. Merriman
R.R. #3
Burlington, CT 06013
583-0329
- 83. Chappell Nursery
1114 Trumbull Highway
Lebanon, CT 06249
642-6896

APPENDIX C

Preference List of Deer Foods



STATE OF CONNECTICUT WILDLIFE BUREAU INFORMATIONAL SERIES

PREFERENCE LIST OF DEER FOODS

PREFERRED WINTER FOODS

Cedar, white or arbor-vitae
Yew
Apple
Sassafras
Maple, mountain
Wintergreen
Maple, striped
Dogwood, alternate leaved
Dogwood, flowering
Sumac, staghorn
Maple, red
Witch Hobble
Basswood
Elderberry
Elder, red berried
Ash, mountain
Cucumber tree
Cranberry, highbush
Nannyberry
Arbutus
Honeysuckle, Japanese
Honeysuckle
Hemlock
Wild raisin
Blueberry, highbush
Dogwood, silky
Dogwood, red osier
Dogwood, round-leaved
Willow*

READILY EATEN

Greenbriar
Ash, white or black
Maple, sugar
Arrow wood, maple leaved
Oaks*
Grape, wild
Birch, yellow & black
Chestnut
Hickory
Cherry, choke
Cherry, wild black
Witch hazel
Spice bush
Elm

READILY EATEN-cont'd

Chokeberry, black
Honeysuckle, bush
Walnut, black
Butternut
Hazelnut
Juneberry or shadbush
Blueberry, low sweet
Blueberry, sourtop or low bush
Leatherwood

OTHER CHOICES

Lespedeza
Snowberry
Blackgum
Snakeweed
Bearberry
Wild rose
Crabapple
Coralberry
Honey locust
Lady's tobacco
Plantain
Strawberry
Speedwell
Poison Ivy
Mints
Goldenrod
Pussytoes
Aster
Teaberry
Acorn

PREFERRED SPRING FOODS

May hawthorn
Clover
Alfalfa
Cinquefoil
Dandelion
Corn
Treffoils
Sunflower
Pokeweed
Jewelweed

PREFERRED SPRING FOODS - cont'd

New Jersey tea
Bitterbush
Serviceberry
Big and Little bluestem
Curly Mesquite
Tall dropseed
Magnolia
Big leaf gallberry

PREFERRED SUMMER FOODS

Blackberry
Ferns
Mushrooms
Bluegrass
Wheatgrass
Black-eyed Susan
Soybean
Wild hydrangea
Cabbage palm

PREFERRED AUTUMN FOODS

Acorns
Oxalis
Plains lovegrass
Whorled nodviolet
Mat euphorbia
Arrowleaf sida
Creeping blueberry
Palmetto berries
Wild grape
Bittersweet
Red raspberries

*There is considerable difference in palatability or preference of the different species of this genus. They vary from this point to very low.

APPENDIX D

Eastern Bluebird Information

WILDLIFE IN CONNECTICUT

INFORMATIONAL SERIES

No. 3

Eastern Bluebird

Sialia sialis

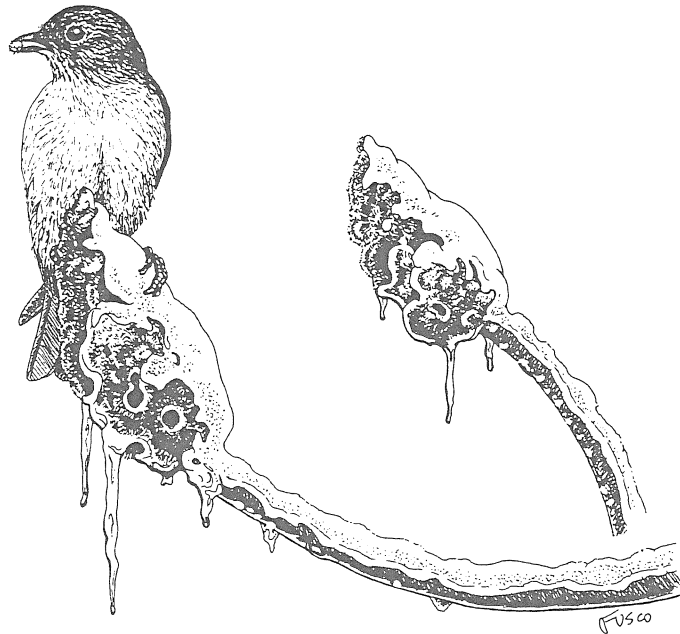
Background Information

Common throughout Connecticut in the early to mid-1800s, the Eastern Bluebird, one of the most loved and beneficial birds, declined in numbers from the late 1800s through the 1980s. One significant contributing factor to this decline was the lack of suitable nesting cavities needed by the bluebird to successfully raise young. This lack of nesting cavities resulted from changing land use patterns and increasing urbanization. Competition for nesting cavities from introduced European starlings and house sparrows, the loss of open field habitats, pesticide use, and severe weather conditions have also played a role in the decline of bluebird populations. The construction of nest boxes and establishment of nest box "trails" in appropriate habitat is helping the bluebird make a comeback. Proper construction and placement of nest boxes will encourage bluebirds and not their alien competitors.

Description and Field Marks

Eastern Bluebirds are small members of the thrush family, measuring from six to eight inches in length. They have large eyes, round heads, and slender, short bills which are wide at the base.

The Eastern Bluebird is the only bluebird species found in New England. Mountain and Western Bluebirds are found west of the prairie states. The male Eastern Bluebird has a bright blue back and reddish-brown breast, sides, and flanks. The underparts are white. The coloration of the female



Although low in nutritional value, sumac is a critical late winter food source for Connecticut's bluebirds.

is similar, although paler and more muted than that of the male. Juvenile bluebirds are grayish, with brown and white spots on the back and breast; only the wings and tail show any blue.

During the breeding season, as part of the courtship display, males may flutter the tips of their long, pointed wings after landing. Bluebirds have a squat appearance when perched.

The song is a sweet, melodious whistling and the call is a rising "chur chur-lee chur-lee." Both sexes may sing, although male bluebirds are most often heard singing from their nesting territories early in the breeding season. Bluebirds also utter a variety of short call notes.

Habitat

Birds of semi-open habitat, bluebirds prefer orchards, parklands, meadows, and other areas with

scattered trees and short ground cover. They perch in the open, scanning the ground for their prey of insects and spiders. In the fall and winter, their diets change to wild fruits and berries. Small flocks of bluebirds may be seen foraging along the edges of wooded swamps. During fall migration, dogwood and viburnum berries are very important foods. Typical winter foods are the fruits of Virginia creeper, eastern red cedar, sumac, bayberry, honeysuckle, winterberry, and many other berry-producing shrubs and vines.

Breeding

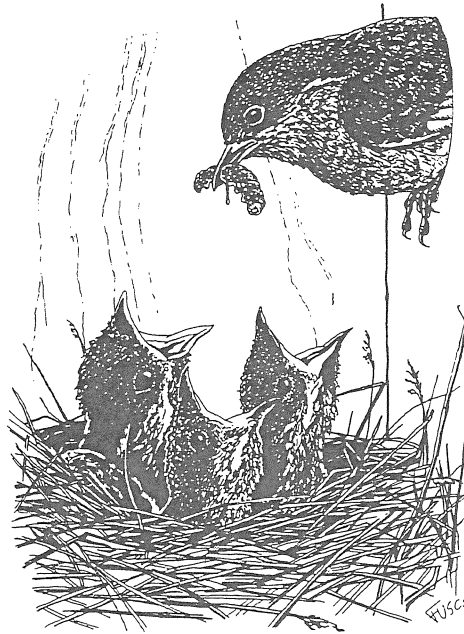
Bluebirds search for natural cavities or nest boxes along the edges of woods or pastures, and in orchards, meadows, and large gardens. Hollow limbs, holes in trunks, or deserted woodpecker "apartments" are used as nest sites. These cavities range from three to 30 or more feet above ground. Competition with starlings for these natural cavities often forces bluebirds to seek nest boxes. The nest, built by the female, is composed chiefly of grass, but often contains fine rootlets, pine needles, or deer hair. The three to seven eggs are oval and light blue in color. White eggs are possible, but rare. Eggs are laid from early April to mid-August in Connecticut. Incubation, done mostly by the female, normally takes 13 to 14 days, but can take longer in cold weather. Bluebirds produce two broods yearly, and sometimes three if weather conditions are favorable and food supplies are adequate.

Distribution in New England

Bluebirds are both migrants and summer residents in New England. They may be winter residents in southern New England, and they are becoming more common year-round in certain areas of Connecticut.

Parasites

Bluebirds are sometimes infected by the parasitic blowfly (*Protocalliphora sialia*), which prefers cavity-nesting birds. The cycle of this parasite begins when the adult female blowfly lays eggs in the nesting material. When the eggs hatch, the larvae attach themselves to the nestlings at night and suck their blood. When gorged sufficiently, the larvae burrow back into the nesting material, surrounding themselves with a flexible membrane



to resemble a small brown egg. This is the pupal stage. In 10 to 14 days, adult blowflies emerge from the pupal case, or puparia, and fly away to repeat the cycle.

Ordinarily, no action against this parasite needs to be taken. If other stress factors, such as prolonged rain, drought, or food shortages occur, blowfly parasitism can seriously weaken nestlings and control measures may be necessary to save the brood. Removal of the larvae or replacement of heavily infested nests (with dry straw) are the best control techniques. Pesticides like rotenone or pyrethrins may be effective, but they will also kill a tiny parasitic wasp (*Nasonia vitripennis*) that controls blowflies naturally by preying on blowfly pupae. Few studies have been done on the effects of these pesticides on wild birds.

Installing and Monitoring a Nest Box

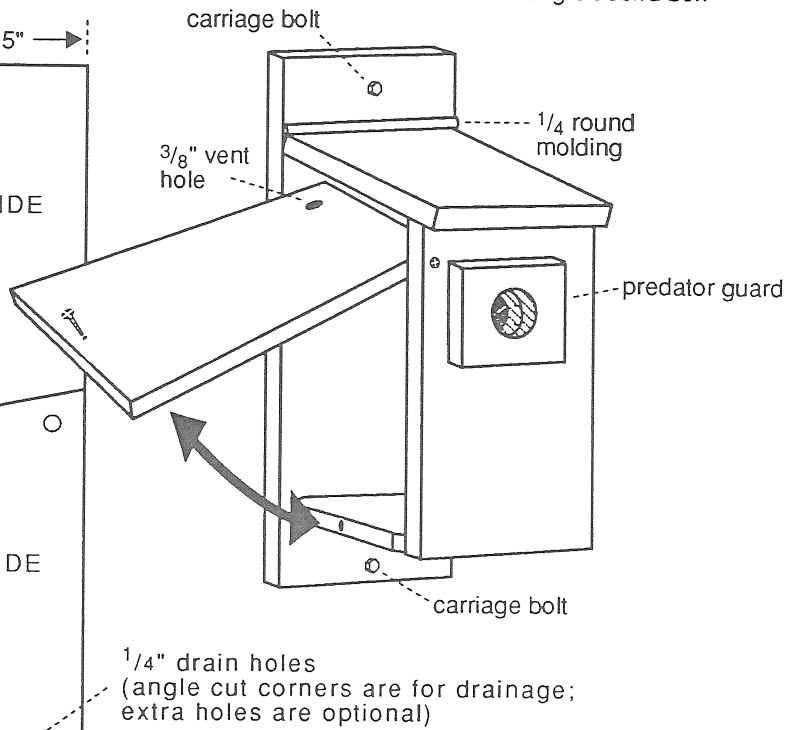
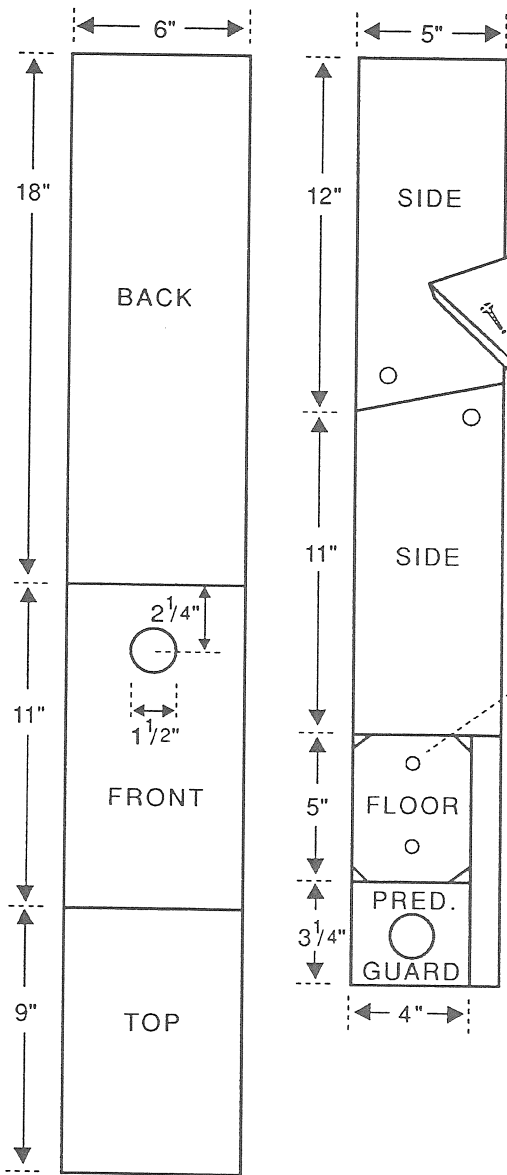
The following are tips for establishing and maintaining a successful bluebird nest box. They apply to both backyards and bluebird nest box trails.

- **Select good habitat.** Open, rural country with low or sparse ground cover and scattered trees is best. Pastures, large lawns, golf courses, parks, and cemeteries are all good sites for nest box trails. Vandalism and excessive human distur-

Connecticut D.E.P. Bluebird Box Plans (Side-opening)

All boards are $\frac{3}{4}$ " to 1" thick
(varies with milling)

Use $\frac{15}{8}$ " drywall screws for
constructing bluebird box

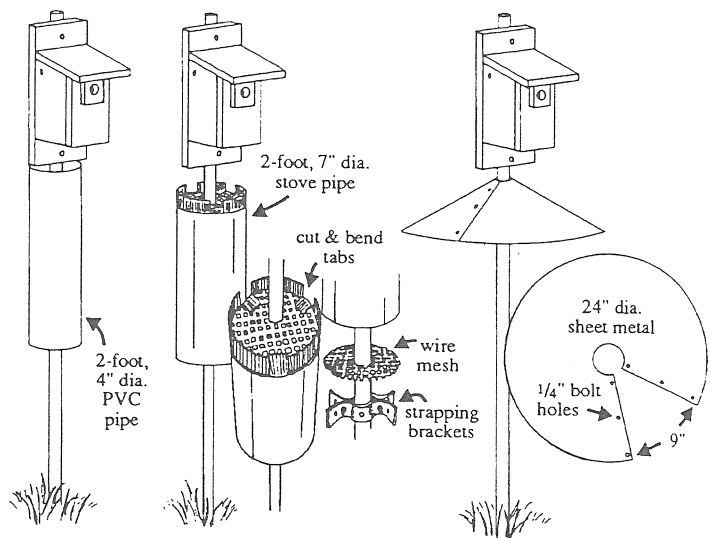


Seal vent holes in winter for warmer
roosting conditions

Place box 5 to 6 feet off the ground and
at least 10 feet away from woody cover

Please read text for more details

Predator Guard Recommendations



PVC Pipe
Guard

Stove Pipe Guard

Sheet Metal Guard

bance may present problems in some public places. Poor habitat selection often results in more house sparrows rather than bluebirds.

- **Avoid brushy and heavily wooded areas.**

These habitats are far more suitable for house wrens, which will probably dominate existing nest boxes.

- **Avoid areas where house sparrows are abundant.** Do not place the boxes close to houses or barns. House sparrows will kill bluebirds and destroy eggs and young.

- **Avoid areas of pesticide use.**

- **Face boxes toward open areas in any direction.** Ideally, the entrance hole should face away from prevailing winds. A tree or suitable perch 40 to 100 feet from the box provides a perfect rest stop for young on their first flight.

- **Keep boxes at least 100 yards apart.** This allows the bluebirds to establish a territory around the nest box.

- **Protect boxes against predators.** Snakes, raccoons, housecats, and other predators can quickly reduce bluebird numbers. Repeated nest box raids often cause abandonment of the box. Follow the tips for predator guards on page 3 to prevent bluebird losses.

- **Monitor the boxes.** Check them once a week during the nesting season to record progress of the nestlings and to control house sparrows. Establishing a nest box trail in a loop is most convenient for monitoring. You will end up near where you started monitoring and avoid disturbing the birds as you backtrack.

- **Always remove house sparrow nests immediately when found.** To encourage second or third broods, remove bluebird and other nests as soon as young birds fledge from the nest box.

- **Inspect boxes in early fall and late winter; clean and repair if necessary.** Bluebirds are less likely to nest in a box that has an old nest in it. Old nests increase the numbers of parasites in the box, often resulting in nest failure.

- **Keep a bluebird journal.** Record the date, species using the box, number of nestlings, number of young fledged, and any other interesting observations.

- **Share your results.** Complete and return a Bluebird Nest Box Survey Card. These postage-paid cards help the Wildlife Division's Nonharvested Wildlife Program monitor bluebird populations statewide. Relatives, friends, and neighbors are often delighted to hear about your results, too. You may interest someone else in bluebird conservation!

New boxes and trails should be established and older boxes cleaned and repaired prior to the start of the bluebird nesting season. Ideally, boxes should be available by mid-March in Connecticut. However, since bluebirds have more than one brood a year, boxes may be put up at any time of the year. The success rate for box use drops as the nesting season progresses.

What Else Can You Do to Help?

Learn to recognize the nest and eggs of the house sparrow and remove them from your nest box. House sparrow nests, eggs, adults, and young are not protected by law and may be legally removed or destroyed. It may take many weeks of removal to discourage house sparrows from using your bluebird box.

A house sparrow nest is very sloppy. It is made of coarse grass, rootlets, leaves, straw, and possibly bits of cloth and litter, which fill the cavity. It often has a domed roof when built in a nest box and may vary in size. The three to seven eggs are oval and white, gray or greenish, with irregular, brown speckles.

Plant native trees, shrubs, and vines that will provide fall and winter food for bluebirds.

The following are some bluebird favorites:

Quick Guide to Nest Identification

Bluebird: a neat nest of fine grasses or pine needles.

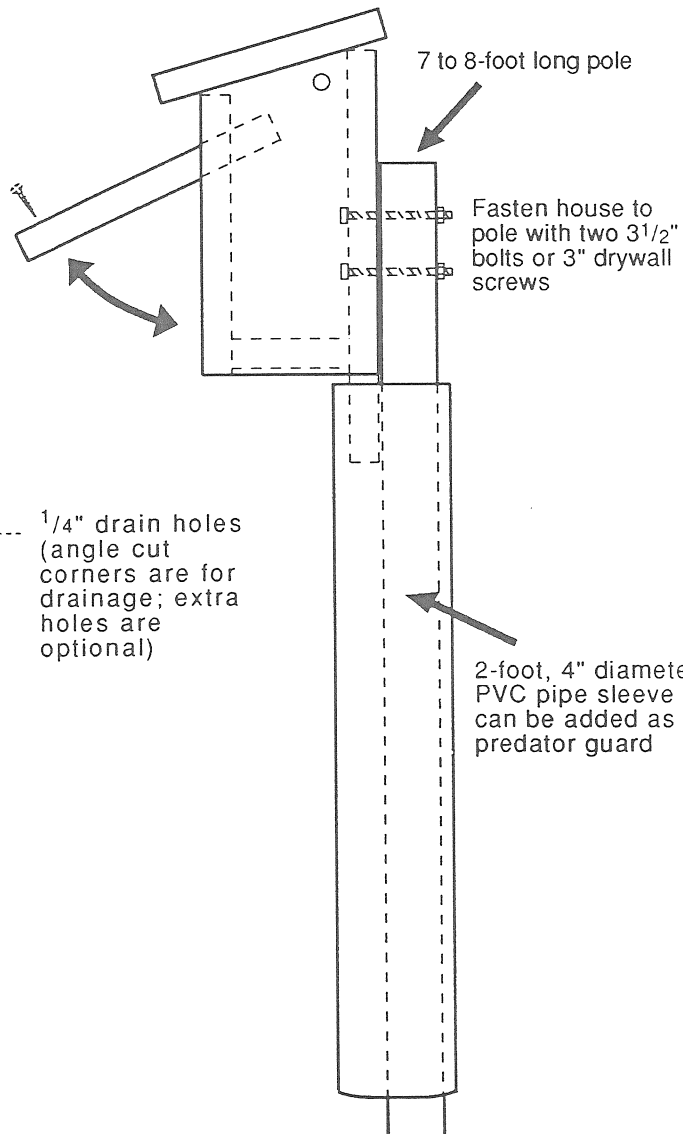
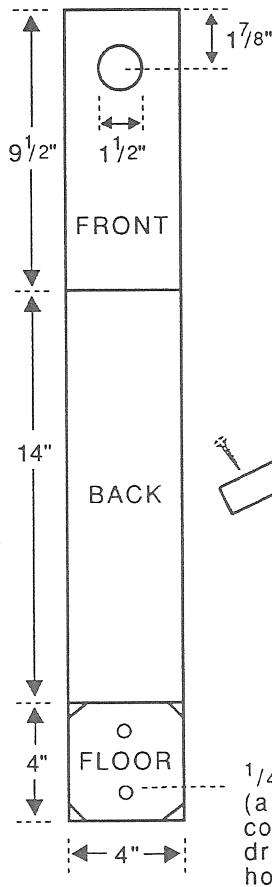
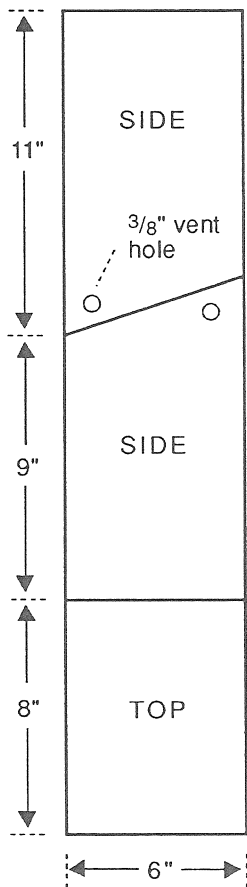
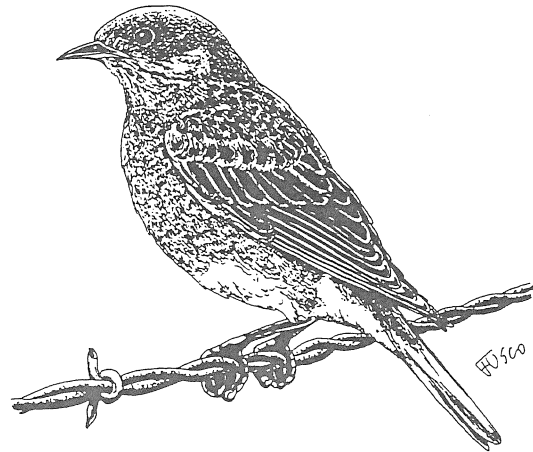
Tree swallow: a nest of grasses lined with feathers.

Black-capped chickadee or tufted titmouse: a downy nest of mosses, fur, and soft plant fibers.

House wren: a messy nest of twigs, occasionally lined with finer fibers.

House sparrow: a nest with a jumble of odds and ends, such as grasses, cloth, feathers, twigs, and possibly bits of litter.

Connecticut D.E.P. Bluebird Box Plans (Front-opening)



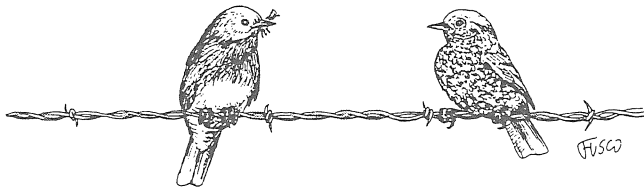
All boards are $\frac{3}{4}$ " to 1" thick
(varies with milling)

Use $1\frac{5}{8}$ " drywall screws for
constructing bluebird box

Seal vent holes in winter for warmer
roosting conditions

Place box 5 to 6 feet off the ground and
at least 10 feet away from woody cover

Please read text for more details



The Bluebirder's Timetable

Nest building: 1 - 6 days

Egg laying: 5 - 7 days

Incubation: 13 - 14 days

Fledging: 16 - 21 days

Trees

American Mountain Ash (*Sorbus americana*)

Shadbush (*Amelanchier canadensis*)

Flowering Dogwood (*Cornus florida*)

Alternate-leaf Dogwood (*Cornus alternifolia*)

American Holly (*Ilex opaca*)

Shrubs

Highbush Cranberry (*Viburnum trilobum*)

Gray Dogwood (*Cornus racemosa*)

Silky Dogwood (*Cornus amomum*)

Red-osier (red-stemmed) Dogwood (*Cornus stolonifera*)

Smooth Sumac (*Rhus glabra*)

Staghorn Sumac (*Rhus typhina*)

Vines

Virginia Creeper (*Parthenocissus quinquefolia*)

Grape (*Vitis spp.*)

Use "paired boxes" if nesting bluebirds are harassed or driven off by tree swallows.

Quickly set up a second box 20 to 30 feet from the first. A tree swallow pair will select one box for nesting and defend the other box against use by other swallows, allowing the bluebirds to claim it. This strategy makes it possible to encourage the successful nesting of both the bluebirds and the equally beneficial tree swallows.

Bluebird Nest Box Plans and Instructions

The nest box illustrated on page 3 was designed by the Connecticut Bluebird Working Group. More skill is required for constructing this box, but it is easier to mount. This nest box has an entry-hole predator guard and opens on the side for easy monitoring and cleaning.

Plans for a simple, yet effective, nest box are illustrated on page 5. The box is designed not only to meet bluebird needs, but to be durable and easy

to clean and repair. It is easily constructed with hand tools and a minimum of materials.

Nest boxes can be made out of almost any wood, but cedar, pine, or cypress are preferred. Do not use pressure-treated lumber or exterior plywood, both of which are chemically treated and unsuitable for nest boxes. If rough-cut wood is not used, score or groove the interior surface of the front, below the entry hole, to aid nestlings in climbing out of the box.

Both nest box styles should be assembled using dry wall screws, which make repairs to the box easier. Use of Phillips-head screws helps deter curious passersby from opening the nest box.

If weatherproofing of the nest box is desired, the outside surface can be treated with linseed oil. Allow the oil to be totally absorbed before installing the box. It is best not to stain or paint nest boxes. However, a light-colored stain or latex paint may be applied to the outside of the nest box. **Avoid using dark colors and never stain or paint the inside of the box or entrance hole.**

Nest boxes should be mounted five feet above ground level on galvanized pipe or six- to seven-foot metal garden stakes. Flatten the tabs on the stakes to discourage raccoons. Boxes can be attached to metal stakes with carriage bolts or to galvanized pipe with screws or pipe brackets. **Boxes should not be mounted on trees.**

Pole-mounted nest boxes are still subject to predation. Predation rates vary dramatically from location to location and year to year. Three types of predator guards are shown on page 3. Most experienced "bluebirders" have a favorite style; however, no single design is favored unanimously. All do agree that an additional predator guard is very important and, in some areas, essential to successfully raising bluebirds.

Keep a Nest Box Journal

Maintaining a log or journal on your nest boxes helps document box success or failure for end-of-season surveys. A journal provides information on when eggs are expected to hatch, when young are likely to make their first flights, and why a problem may have developed with the nestlings. Keep records in a way that makes sense to you and is easy to complete. Some suggestions:

Date: time and weather conditions

Nest: type, materials used, date started, date completed, height of nest

Eggs: number, date first egg laid, date last egg laid

Young: number, hatch date, age (hatch date = day 1), condition

Parasites: type, any control measures taken

Fledglings: number, date

Comments: any observations of interest, such as competitors, predation problems, banding information, behavioral notes

Aging of Bluebird Nestlings

Determining the age of young bluebirds is extremely difficult. The size, weight, and development of nestling birds vary greatly and are dependent on food, weather, temperature, and the number of birds in a nest. Despite these variations, some common clues can help you approximate the age of nestling bluebirds.

- Day 1: Eyes closed; black down on head and sometimes spine; young are a little larger than egg.
- Day 2-4: Eyes closed; body weight has at least doubled; feathers begin to appear as dark areas on wings and head (day 4).
- Day 5-7: Eyes open as slits; feathers break through skin on wings and head; feathers begin to open (day 7).
- Day 8-11: Eyes wide open; primary wing feathers still opening; weight is 75 percent of adult weight. By day 11, wing feathers on males may appear bright blue and on females, pale blue-gray. Nestlings may preen a little.
- Day 12-21: White eye ring; young actively stretching, preening, and flexing their wings.

Note: Opening the nest box after day 12 is not advisable unless a problem arises. The increasingly active nestlings may fall or hop out of the nest box, reducing their chances for survival.

For More Information

Department of Environmental Protection
Nonharvested Wildlife Program
Sessions Woods Wildlife Management Area
P.O. Box 1550
Burlington, CT 06013
(203) 584-9830

North American Bluebird Society
P.O. Box 6295
Silver Spring, MD 20906-0295
(301) 384-2798

References and Additional Reading

- Grooms, S. and D. Peterson. 1991. *Bluebirds!* NorthWord Press, Minocqua, WI. 160pp.
- Harrison, H. H. 1975. *A field guide to birds' nests found east of the Mississippi River.* Houghton Mifflin Co., Boston. 285pp.
- Stokes, D. and L. 1991. *The bluebird book: the complete guide to attracting bluebirds.* Little, Brown and Company, Boston, MA. 96 pp.
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- Zickefoose, J. 1993. *Enjoying bluebirds more.* Bird Watcher's Digest Press, Marietta, OH. 33pp.

Bluebird Videos

- Jewels of Blue: the Story of the Eastern Bluebird.* 1988. Birds Eye View Productions, Afton, MN. 30 minutes.
- Bluebird Trails: How to Start and Maintain a Bluebird Trail.* 1989. Birds Eye View Productions, Afton, MN. 37 minutes.
- Backyard Blues.* 1991. Birds Eye View Productions, Afton, MN. 47 minutes.

CT D.E.P. Wildlife Division Nonharvested Wildlife Program

The Connecticut Department of Environmental Protection Wildlife Division's Nonharvested Wildlife Program was formally established in 1986 through Public Act 86-370. Program activities center around the inventory, research, management, and conservation of wildlife species that are not traditionally hunted. These include songbirds, raptors, shorebirds, small mammals, reptiles, amphibians, and invertebrates.



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