

Field, Old-fields, and Shrublands for Wildlife



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Fields and shrublands in the NH Landscape

About 84% of NH is covered in forest



•The “typical” NH forest is comprised of trees averaging 70 -100 years old...

NH lacks *young forests, fields, old fields*: this has special consequences to wildlife

Result of decline in field and shrubland habitats

Grasshopper Sparrow



Upland Sandpiper



Henslow's Sparrow



Reasons for Decline of fields and shrublands

Natural Succession



Development



Change in Management



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Fields and shrublands in the NH Landscape

70% of the 250 birds, mammals, reptiles & amphibians that breed in NH, use fields, old fields, or young forest habitats at some time during their life



This doesn't include the countless numbers of insects!

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Fields and shrublands in the NH Landscape

60 wildlife species *require* fields, old fields, or young forest as their *primary* habitat type



New England cottontail



American woodcock



savannah sparrow



meadow jumping mouse



brown thrasher



eastern towhee

Populations of many of these species are declining as farmland reverts to forest and as forests become more mature

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Fields and shrublands in the NH Landscape



fields & grassy openings



shrubby "old" fields



forests less than 10 years old

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Areas with grasses, wildflowers, or shrubs attract unique species and provide cover and foraging habitat that's not available in forests



field & farm edges

most properties



"strip" cover crops



hayfields & pastures

larger properties



cover-cropped fields

I'll refer to these collectively as "Open Habitats"

A Checklist of Factors that determine what wildlife will use "open habitats":

1) How big is the habitat "patch"?



very small or narrow



slightly larger & "blocky"



medium to large (fields +1 acre)

A Checklist of Factors that determine what wildlife will use "open habitats":

- 1) How big is the habitat "patch"?
- 2) How tall & dense are the plants within the patch?



short (less than ~12")



tall & dense (e.g., hay field)



mixed height & density (e.g., old field)

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A Checklist of Factors that determine what wildlife will use "open habitats":

- 1) How big is the habitat "patch"?
- 2) How tall & dense are the plants within the patch?
- 3) What types of plants are in the patch?



mostly grass



grasses & wildflowers



mostly shrubs or small trees

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A Checklist of Factors that determine what wildlife will use "open habitats":

- 1) How big is the habitat "patch"?
- 2) How tall & dense are the plants within the patch?
- 3) What types of plants are in the patch?
- 4) Where is the patch located on the property?



isolated in a larger opening



in larger opening, but connected to the edge



along the edge

A Checklist of Factors that determine what wildlife will use "open habitats":

- 1) How big is the habitat "patch"?
- 2) How tall & dense are the plants within the patch?
- 3) What types of plants are in the patch?
- 4) Where is the patch located on the property?
- 5) What's the landscape surrounding the property?



opening is less than a few acres & surrounded by forest

opening is more than 5 acres or part of a larger complex of open habitats, wetlands, forests



Managers can control most of these factors that determine what wildlife species will be attracted to open habitats!

- 1) Size of the habitat "patch"
- 2) Height & density of vegetation in the patch
- 3) Plant species in the patch
- 4) Where the patch occurs on the property
- 5) Landscape surrounding the property



Let's look at specific open habitats and see what wildlife species can be expected to use those areas

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Wildlife Using Very Small "Grassy" Strips or Patches

Narrow grassy strips (<20 ft wide) are probably most beneficial to pollinating (and predatory) insects



Most beneficial if they contain a diversity of flowering plants

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Wildlife Using Very Small "Grassy" Strips or Patches

Flower strips within and along field edges can improve pollination of crops and increase native pollinators



Syrphid "flower" flies



solitary bees



bumble bees



honey bees



butterflies



moths

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Wildlife Using Very Small "Grassy" Strips or Patches

These strips are most beneficial to pollinators when:



- many different flower species are in bloom at the same time
- flowers bloom in succession throughout the entire growing season
- flowers occur in blocks of same color blooms
(blocks at least 4'x 4' seem to be the best)

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Wildlife Using Very Small "Grassy" Strips or Patches



American goldfinch

•some birds can be attracted to a single row of flowers if those flowers are allowed to go to seed



carpenter bee



•some native pollinators will lay eggs or overwinter in stems of flowers that you leave uncut

Small "Grassy" Strips or Patches are Dangerous!

Predators focus their hunting efforts in *small & narrow* cover patches



eastern coyote



red fox



red-tailed hawk



house cats

•most birds & small mammals tend to avoid these areas...

The larger areas of cover will attract & support more wildlife

(So, how "big" is big enough?)...

A small number of bird species require very large fields for nesting



bobolink (5-10 acres)



meadowlark (25 acres)



savannah sparrow (20 acres)



grasshopper sparrow (30 acres)
(Threatened in NH)

A small number of bird species require very large fields for breeding

These grassland birds tend to:

- nest toward the center of square or round fields
- forage on field edges but avoid them for nesting
- avoid nesting in narrow fields (too much edge)



If the property includes large fields there may be opportunity to benefit grassland bird species

Wildlife using openings with grasses & forbs less than 12 inches tall



pastures & mowed hayfields



openings maintained by frequent mowing
(e.g., field edges, woods roads)



cover-cropped openings
(e.g., legumes, oats, buckwheat)

Wildlife are specifically attracted to:

- highly palatable plant species or varieties
- young, nutritious, very digestible plants
- short or sparse vegetation

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Wildlife using openings with grasses & forbs less than 12 inches tall

These openings often the first areas to turn green in the spring



white-tailed deer

These plants important to help deer and bears recover from winter and produce milk for their young



black bear

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Wildlife using openings with grasses & forbs less than 12 inches tall



Male turkeys prefer to display in short grass openings in the spring...

toms, hens, & chicks forage in openings with short grasses & forbs throughout the year



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Wildlife using openings with grasses & forbs less than 12 inches tall

These birds prefer to forage in areas with short grasses



chipping sparrow



mourning dove



American robin



American crow

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Wildlife using openings with grasses & forbs less than 12 inches tall



porcupine



groundhog



eastern cottontail

These common mammals eat young grasses, legumes and forbs in openings with short plants

These species will often use *very* small openings

Wildlife using fields with grasses & forbs less than 12 inches tall

•Canada geese graze in short-grass openings from spring through winter...



and are particularly attracted to fields containing corn or grain stubble



•Snow buntings are attracted to wind-blown, short-grass fields in late fall through winter where they feed on exposed grass & weed seeds



Wildlife using fields with grasses & forbs less than 12 inches tall



mallards

- If these fields contain any ponded water they can serve as important resting sites for migrating ducks and geese

- Wilson's snipe will also use wet depressions in these fields during migration



Wilson's snipe

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Wildlife using openings with sparse vegetation & exposed soil

- Some species are attracted to exposed soils on the edges of openings



northern flickers eat ants, beetles & grasshoppers along field edges



ruffed grouse & turkeys use dry, sandy soils here for dust "bathing"

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Wildlife using openings with sparse vegetation & exposed soil



painted turtle nesting

- painted, snapping, Blanding's, spotted, box, & wood turtles all nest in dry, loose soil along the edges of fields, gardens, roads



solitary bee nests

- some native pollinators make their nests in exposed soils



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Wildlife using fields with sparse vegetation & exposed soil



e.g., grazed pastures, infertile hayfields



horned larks



killdeer

- These birds make a shallow depression on the ground for a nest
- They forage on seeds, insects, or worms in areas with short grass or exposed soil

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Openings with grasses & forbs taller than 12"



fields mowed at least once every two years



cover-cropped plots & fields



wide cover-cropped strips

Wildlife are specifically attracted to:

- tall herbaceous plants for cover
- flowers, seeds, & insects for food
- important winter food & cover

Wildlife using large fields with grasses & forbs taller than 12"



bobolink

Bobolinks & meadowlarks prefer to:



- nest in areas with tall, lush hay grasses (this is the best cover)



eastern meadowlark



- forage in areas with lots of wildflowers (these areas have the most insects)

Wildlife using large fields with grasses & forbs taller than 12"

Savannah sparrows nest in areas of tall grasses and wildflowers, but...



savannah sparrow



← nesting habitat



← feeding habitat



they feed mainly in areas with short crops, short grasses, & exposed soil 35

Wildlife using openings with grasses & forbs taller than 12"



•white-tailed deer fawns regularly hide in the cover of tall grasses and wildflowers

•turkeys often nest on field edges within tall cover of grasses, forbs, and shrubs



•Blanding's turtles will use dense, tall grasses & wildflowers as cover from summer heat

(Blanding's turtles are Endangered in NH)

Wildlife using openings with grasses & forbs taller than 12"

These snakes use a variety of farm habitats including tall grass & forb cover



smooth green snake
(species of special concern)



northern black racer
(Threatened in NH)

Populations of these snakes have been declining in New England due mainly to loss of required habitat

Wildlife using tall grasses & forbs in wet areas

If a grassy area is low and wet, it may attract some different species than similar sites that are drier



These wet areas typically occur as:

•drainage ditches or swales that extend into drier areas or along access roads

•depressions within or along the edges of crop fields, hayfields, and pastures

Wildlife using tall grasses & forbs in wet areas



pickerel frog

Pickerel frogs very common in most grassy areas where the ground is moist or saturated

Box turtles are uncommon, but will use moist field edges to escape the heat of summer



eastern box turtle
(species of special concern)

Wildlife using tall grasses & forbs in wet fields or field edges



Those field areas that are too wet to mow until mid-summer...

can provide great foraging habitat for bitterns and herons



American bittern



great blue heron

Wildlife using wet fields with ponded water

Many wildlife species use grassy areas that have ponded water:



spring peeper



Jefferson's & blue-spotted salamanders
(Threatened in NH)



red winged blackbird



ribbon snake



spotted turtle
(Threatened in NH)

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Wildlife using shrubby old-fields and shrubby farm edges

As soon as shrubs & small trees invade fields or field edges you generally increase the number of wildlife species that will use the opening



Shrubs & trees rarely need to be planted – they will usually grow on their own!

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Wildlife using wet swales with scattered shrubs

The simple addition of a few shrubs within a wet drainage can attract additional wildlife species:



song sparrow



gray catbird



common grackle



common yellowthroat

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Shrub edges provide numerous benefits to wildlife

- Providing a gradual transition from fields to forest provides an area of unique habitat used by both field & forest wildlife species



This abrupt transition from field to forest is called a "hard edge" and it provides limited habitat opportunities to wildlife

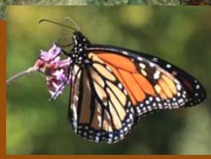


This "soft edge" is much better habitat – areas like this usually support the greatest number of wildlife species on a property

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Shrub edges provide numerous benefits to wildlife

- The combination of grasses *and* shrubs provides diverse foraging habitat



Shrub edges provide numerous benefits to wildlife

- Many native shrubs produce fruits eaten by birds & mammals



northern arrowwood



nannyberry



silky dogwood



high bush blueberry



common elderberry



sumacs

You should favor native shrubs over non-native, invasive shrubs whenever possible!

Wildlife that eat fruits produced by shrubs on field-forest edges



purple finch



rose-breasted grosbeak



Baltimore oriole



eastern chipmunk



white-footed mouse



yellow-bellied sapsucker



black-capped chickadee



cedar waxwing

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Wildlife nesting or foraging in shrub cover on field edges



eastern towhee



brown thrasher



American woodcock



meadow jumping mouse




chestnut-sided warbler




black-billed cuckoo

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Predators that hunt in shrubby field-forest edges




eastern coyote




eastern hognose snake
(Endangered in NH)




sharp-shinned hawk




ermine



bobcat




great horned owl




gray fox

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Wildlife using small edges and hedgerows




northern cardinal




northern mockingbird



white-throated sparrow



dark-eyed junco



fox sparrow

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Field edges and hedgerows that are *at least* 30 feet wide generally provide the best habitat for wildlife



Irregular (scalloped) edges provide better cover and probably lower predation risk than straight edges

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Wildlife using shrubby fields

Some wildlife really need brushy “old-fields” where shrubs grow throughout most, or all of an old-field or pasture:



field sparrow



willow flycatcher



prairie warbler



blue-winged warbler

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New England cottontails require “shrubby” areas at least 12 acres



NE cottontails require large patches of *very dense* cover to avoid predators



Properties in southern NH may provide habitat for this state-Endangered species!

New England cottontail (Endangered in NH)

Wildlife using fence lines or single trees in fields as perches



These might occur as:

- trees within or along the edges of planted fields

- trees or clumps of trees within fields or pastures



Wildlife using fence lines or scattered trees in fields as perches



eastern phoebe



eastern bluebird



eastern kingbird



indigo bunting



northern shrike



brown-headed cowbird

Wildlife using large trees as perches or roosts

Large hardwood trees with big & wide branches provide ideal perches or roosts along field edges



wild turkeys roosting

red-tailed hawk



Wildlife that use tree cavities in or near fields/shrublands

Live & dead standing trees with cavities provide important habitat for many wildlife species



- Even small trees with cavities have value to wildlife
- Larger trees accommodate larger bodied animals

Trees over 24" in diameter support the most species

Wildlife that use tree cavities in or near fields/shrublands



American kestrel



eastern screech owl



barred owl



saw whet owl



eastern bluebird



tree swallow



pileated woodpecker



white-breasted nuthatch

Wildlife that use tree cavities in or near fields/shrublands



little brown bat



big brown bat



gray squirrel



northern flying squirrel



raccoon



Virginia opossum



grey fox



grey tree frog

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Identify Your Objectives Before You Begin Managing



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Maintain a diversity of plant species and different plant structure!

- To maintain the greatest diversity of habitat conditions...



Manage fields, old-fields, shrublands in context with others occurring on nearby properties

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Mowing timing & frequency determines wildlife use of openings



Very frequent mowing (once/month)

- primarily clover, chicory, alfalfa food plots
- keeps forages vigorous, nutritious, attractive
- discourages grasses & “weeds” (like your lawn)
- great bugging for turkeys, grouse

Frequent mowing (1-3 times/year)

- classic “hayfield”
- cover & forage (deer, turkey, bears)
- bird nesting & fawning cover

Ideally mow after August 1st



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Mowing timing & frequency determines wildlife use of fields/food plots



Infrequent mowing (once/2-3 years)

- greatest diversity of non-woody plants
- great cover for fawns, turkeys
- great foraging for turkey broods (and grouse along field edges)
- blueberries (dry/wet sites), cranberries (wet sites) provide additional forage

Lots of pollinating insects, small mammals, snakes

Great low-maintenance way to manage small fields to benefit many wildlife species!

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Mowing grassy openings usually accomplished with a brush hog



- Often best to mow larger fields in blocks to always maintain some cover
- Fields 5 acres or larger may support grassland birds and warrant regular maintenance to maintain grassy conditions

Often more beneficial to let smaller fields revert to combination of grasses, forbs & shrubs



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Mowing timing & frequency determines wildlife use of fields/food plots

Very Infrequent mowing (once/4-10 years)



- >3 yrs fields get shrubby
- fruiting shrubs & small trees
- diversity of cover & food:
 - bears
 - deer & moose
 - turkeys & grouse
 - woodcock

Very ephemeral (grows up quickly), very uncommon habitat in NH!

Many wildlife species that require this habitat are in decline

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Brontosaurus or similar forestry mower used to mow large shrubs and trees less than 4" in diameter



Can mow selectively around fruiting trees and shrubs



Grinds woody material into fibrous strips that stay on the ground



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Area is mowed and allowed to regrow naturally...
mowed every 10-15 years



Autumn mowing



Plant growth following
summer

Getting the most wildlife benefit from mowing with a brontosaurus

- Mow openings at least 2 acres in size
- Create a new opening at least every 5 years
- Each opening gets mowed about once every 15-20 years



Year 1	Year 4
Year 16	Year 4
Year 8	Year 12
Year 8	Year 12

Financial Help for Landowners

- Federal programs
 - EQIP (Environmental Quality Incentives Program)
 - WHIP (Wildlife Habitat Incentives Program)
 - Partners Program (US Fish and Wildlife Service)
- State program
 - New Hampshire Fish and Game Small Grants Program



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Financial Help for Landowners

- **EQIP and WHIP**
 - Private Landowners
 - Individuals
 - Organizations (NGOs)
- **Partners Program**
 - Private Landowners
 - Town Lands
- **NH Fish & Game Small Grants**
 - Private Landowners
 - Individuals
 - Organizations
 - Local government
 - Minimum of 25 acres
 - Land must be unposted (must be open to non-motorized public use, **including hunting**)



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