

Ruby-throated Hummingbird

(*Archilochus colubris*)

December 1999

Fish and Wildlife Habitat Management Leaflet

Number 14



General Information

The ruby-throated hummingbird is one of the most colorful visitors to backyards and flower gardens in both physical appearance and behavior. As the only hummingbird that breeds east of the Mississippi River, it is difficult to mistake the hum of a hovering ruby-throat or the high-pitched chirps of dueling birds. Tiny in stature, averaging only 3.5 grams as an adult, the ruby-throat occupies the largest breeding range of any other hummingbird in North America.

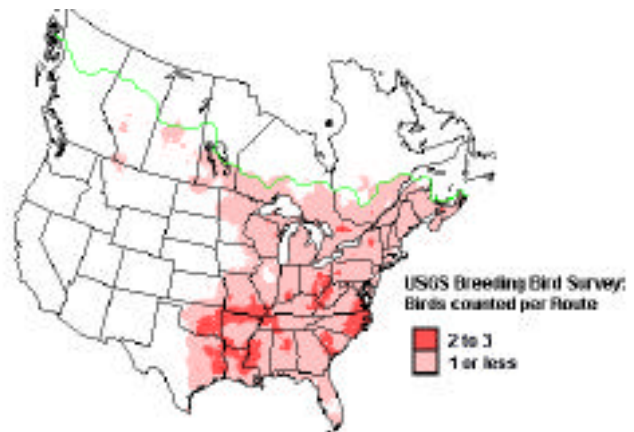
Hummingbirds migrate thousands of miles annually; migration movements typically coincide with the blooming of preferred flowers.

Ecologically, hummingbirds play an important role in pollination of the flowers of numerous species of shrubs and vines, some of which are specifically adapted to pollination by hummingbirds. As summer inhabitants of woodlands, parks, gardens, lawns, and landscaping, populations have remained fairly stable throughout the ruby-throat's range without concerted management efforts. Landowners can aid ruby-throated hummingbird populations by conducting some simple management activities.

This leaflet is designed to serve as an introduction to the habitat requirements of the ruby-throated hummingbird and to assist landowners and managers in the development of a comprehensive hummingbird management plan. The success of any species management plan depends on targeting the specific needs of the desired species and analyzing the designated habitat area as a whole to ensure that all required habitat elements are present. This leaflet provides a number of practical habitat management activities that can be conducted on private lands to attract hummingbirds and help maintain existing populations.

Range

The northern extent of the ruby-throated hummingbird's breeding range extends from central and southern Alberta to central Saskatchewan, southern Manitoba, southern Ontario, southern Quebec, New Brunswick, Prince Edward Island and Nova Scotia, Canada. Within the United States, ruby-throats summer from Minnesota, Iowa, central Kansas, Oklahoma and eastern Texas east to the Atlantic coast. Ruby-throats winter primarily in Central America, reaching as far south as northern Panama. Records have shown



Ruby-throated Hummingbird Summer Range

winter populations in Florida from the central peninsula through the Florida Keys, as well as small populations wintering on the Gulf Coast of Louisiana and Texas. However, these birds may be genetically distinct from migrating populations.

Habitat Requirements

General

Ruby-throated hummingbirds are primarily woodland birds, occupying mixed woodlands, eastern deciduous and pine forests, and woodland openings and forest edges throughout their range. Tropical deciduous forests, gardens, orchards, yards, old fields, overgrown pastures, citrus groves, scrub communities, hedgerows, and fencerows are used as well. These habitats are especially valuable to ruby-throats when located near marsh and stream edges or other water sources that support abundant insect life. Preserving and properly managing woodlands and rural open areas can help landowners support local ruby-throated hummingbird populations as well as populations of other species that rely on similar habitat.

Food

Ruby-throated hummingbirds feed by day on nectar from wildflower blossoms and the flowers of many species of shrubs and vines. Insects comprise a large percentage of the ruby-throat's diet, and tree sap is consumed when available as well. Ruby-throats draw nectar from flowers by hovering, but will feed while perched if possible. Insects are taken by hawking and by picking them from sap wells, leaves, and bark of trees, shrubs and other woody plants. Sap is consumed from sap wells excavated in birch trees by yellow-bellied sapsuckers and other hole-drilling birds.

Food Resources. The following items are important foods in the diet of the ruby-throated hummingbird. These items comprise a partial list and DO NOT represent all foods preferred and consumed.

Flowers* of: red buckeye jewelweed columbine trumpet creeper red morning-glory wild bergamot bee-balm scarlet painted-cup trumpet (or coral) honeysuckle fly-honeysuckle cardinal flower royal catchfly round-leaved catchfly fire-pink four o'clock phlox coral salvia lilies scarlet sage aloes penstemons many others

Insects: mosquitoes gnats fruit flies small bees

Other food items: spiders caterpillars aphids insect eggs willow catkins

*Some of these species may not be native to your locale; check with your local Native Plant Society or arboretum for suggestions on non-invasive flowering plants in your area.

Nesting Cover

Mixed, open woodlands, forest margins, orchards, and deciduous forests in the eastern and southern United States; pine and mixed pine communities throughout the southeast; and mature sugar maple-yellow birch-red spruce forests, forest edge, and old fields in eastern Canada comprise the nesting areas used by ruby-throated hummingbirds. Nests made of thistle, dandelion, and milkweed down, ferns, fireweed, young leaves, and mosses are constructed on branches five to 20 feet above ground. Spider webs (and occasionally webs from tent caterpillar nests) and pine resin are used to mount nests to saddle tree limbs and branches. Oaks, maples,



beechness, birch, hornbeam, hemlock, poplar, hackberry, pine, and spruce commonly serve as nesting trees. Nests are usually constructed under the shelter of overhead leaves and may be built over streams.

Winter Cover

Winter cover is not a concern throughout most of eastern North America, since ruby-throated hummingbirds migrate to more tropical regions. Within their winter range, ruby-throats seek cover provided by tropical deciduous and dry forests, citrus groves, second growth scrub and hedgerow communities, overgrown pastures, and marsh and forest edges. Climate and cover types found in winter ranges influence southern migration; birds move to areas that provide a reliable food source of nectar and insects.



Migratory habitat

Habitat and cover types used by ruby-throated hummingbirds during spring and fall migration are similar to those used as nesting cover.

Water

Nectar and insects consumed provide the ruby-throated hummingbird with an adequate amount of water.

Interspersion of Habitat Components

While a mixture of different habitat types benefits hummingbirds, they are capable of using a variety of microhabitats within mature forests (e.g., canopy gaps, vegetation gradients, and streamside riparian areas). A diversity of various habitat types (meadows, gardens, wetlands, riparian areas, shrub communities) within a matrix of mature hardwood forest may provide ideal habitat conditions. Suitable nesting cover and food resources located within close proximity to one another are important in maintaining hummingbird populations in a given area. Interspersion of cover types should consider the individual planning area as well as surrounding properties. Due to greater insect abundance, ponds, streams, and wetlands interspersed among upland cover types further enhance hummingbird habitat quality.

Minimum Habitat Area

No reasonable estimate of minimum habitat size exists for ruby-throated hummingbirds, as the size of individual male territories are established in direct relation to the availability of food, cover resources, and mating activities. When food resources within an area cannot support the breeding activities of each individual, males may move as much as two miles from food sources to establish separate breeding territories. Breeding males may occupy territories as close as 50 feet apart. Lands outside the immediate planning area should be considered when making the determination of minimum habitat size, as managed parcels of land may support ruby-throats when they are adjacent to lands that possess necessary habitat components.

Hummingbird feeders

Hummingbird nectar feeders can be used to attract hummingbirds to backyards and gardens. Following are some tips for using feeders to attract hummingbirds:

- Nectar can be made from dissolving one part table sugar in four parts boiling water. Store unused portion in the refrigerator.
- Place feeders in the shade in areas safe from house cats.
- Change the nectar and clean the feeder with hot water every 3-4 days -- more often in hot weather -- to prevent nectar from becoming rancid, cloudy, or moldy.
- If black mold forms inside the feeder, scrub it out with a brush. Add clean sand as an abrasive to the wash water to clean hard-to-reach spots.
- Do not use harsh detergents to clean the feeder.
- Use a water-filled ant guard or other device to keep ants out of the feeder.
- **Do not** add red food coloring, honey, or artificial sweeteners to the nectar -- these may cause hummingbird health problems.

Ruby-throated Hummingbird Habitat Requirements Summary Table

Habitat Component	Habitat Requirements
General	<ul style="list-style-type: none"> Mixed woodlands, eastern deciduous and pine forests, and tropical deciduous forests with openings and edges Gardens, orchards, yards, old fields, pastures, citrus groves, scrub, hedgerows, fencerows, wooded swamps and riparian areas
Food	<ul style="list-style-type: none"> Flowers of red buckeye, jewelweed, columbine, trumpet creeper, red morning-glory, wild bergamot, bee-balm, scarlet painted-cup, trumpet (or coral) honeysuckle, fly-honeysuckle, cardinal flower, royal catchfly, round-leaved catchfly, lilies, scarlet sage, and others Insects: mosquitoes, gnats, fruit flies, small bees, others Other food items: spiders, caterpillars, aphids, insect eggs, willow catkins
Cover - nesting	<ul style="list-style-type: none"> Eastern and Southern United States: mixed, open woodlands, forest margins, orchards, and deciduous forests Southeast: pine and mixed pine communities, bottomland hardwoods Eastern Canada: mature sugar maple-yellow birch-red spruce forests and forest edge, old fields Nests are built in a variety of deciduous and coniferous trees and shrubs.
Cover - winter	<ul style="list-style-type: none"> Tropical deciduous and dry forests, citrus groves, second growth scrub and hedgerow communities, overgrown pastures, marsh and forest edges
Migratory habitat	<ul style="list-style-type: none"> Similar to cover used for nesting
Water	<ul style="list-style-type: none"> Nectar consumed provides an adequate amount of water.
Interspersion	<p>Complex of :</p> <ul style="list-style-type: none"> Mixed woodlands, eastern deciduous and pine forests, tropical deciduous forests with openings and edges Gardens, orchards, yards, old fields, overgrown pastures, citrus groves, scrub communities, hedgerows, fencerows close to marsh and streams
Minimum Habitat Size	<ul style="list-style-type: none"> No reasonable estimate of minimum habitat size exists for ruby-throated hummingbirds; however, breeding males may occupy territories within 50 feet of one another.

Habitat Management

Wildflower plantings – Planting wildflower gardens or meadows that contain an assortment of native hummingbird habitat. Because hummingbirds rely heavily on nectar as their primary food source, wildflower gardens are most beneficial when planted with a variety of native wildflower species that bloom in different months throughout the growing season. Small backyards, porches, and office courtyards that lack nectar-rich flowers may attract hummingbirds simply by providing a few flower boxes or small plantings. In larger areas, expansive wildflower, tree, and shrub gardens or meadows can be established. Extreme care should be taken to **avoid use of invasive species** when establishing horticultural plantings for hummingbirds and other wildlife (see Marinelli and Hanson 1996). Both broadcast seeding (spreading seed over an area by hand or hand-held spreader) or mechanical seeding using a no-till drill can be conducted to plant wildflowers depending on the planting area’s size and topography. Application rates may differ among species planted. Preparing the seedbed is crucial. Areas seeded using the broadcast method should experience some form of minor disturbance to the planting surface such as raking or shallow disking to promote good seed to soil contact. Raking the soil following broadcast seeding (when practical) will aid with this as well. No-till drills can sow seeds directly into existing ground vegetation that is either dead-standing or growing at a height of eight inches or less. Seed can be sown directly into stubble when wildflower meadows are planted in harvested crop fields. Areas covered by dense grassy vegetation can be prepared for no-till seeding by applying a biodegradable, broad-spectrum herbicide such as Roundup (if necessary) to the area in the spring, and again two to three weeks prior to planting if vegetation persists. Consult federal or state conservation professionals before planning a wildflower meadow project. These professionals can

help with preparation activities (especially herbicide application) and may be helpful in obtaining plant seed and seeding equipment.

Garden design: Wildflower gardens planted to include taller trees and shrubs in the back followed by shorter species to the front (as shown in the picture to the right) can be aesthetically pleasing. Wildflower meadows generally cover a larger area and can be planted with any mixture of wildflowers. Mixing a small amount of native prairie grass seed into the wildflower mixture can be beneficial. Garden and meadow edges should be irregular to give the plantings a natural look. Irregular edges also create more usable edge for wildlife.



Create a water source: Although not required for drinking, providing a source of running water in the form of a fountain, fish pond waterfall, birdbath with a mister, or other mechanism can make a wildflower garden more attractive to ruby-throated hummingbirds.

Maintenance: Wildflowers may grow little in the first year as plants spend most of their energy on establishing root systems. Wildflowers should not be mown the first year they surface; however, hand-pulling weeds from beds may be necessary if practical. Mowing wildflower meadows once annually in the early spring (March-April) according to region to a height of eight to ten inches will help reduce competition from weeds while leaving good residual winter cover for wildlife that may use the wildflowers for winter cover.

Plants* attractive to ruby-throated hummingbirds

Early blooming plants	Intermediate blooming plants	Late blooming plants
Wildflowers: bleeding heart, blue phlox, carpet bugle, columbine, coral bells, fire pink, lyre-leaved sage, scarlet lychnis, Virginia bluebell	Wildflowers: beardtongues, blazing star, butterfly-weed, Canada lily, canna, common geranium, daylily, garden phlox, Indian paintbrush, iris, Turk’s cap lily	Wildflowers: bee-balm, cardinal flower, jewelweed, purple bergamot, red turtlehead, smartweed, spider flower, wild bergamot
Shrubs: flame azalea, lilac, pink azalea, winter jasmine	Shrubs: beauty bush, hardy fuschia, weigela, sweet azalea	Shrubs: butterfly bush, Rose of Sharon
Trees: flowering crab, horsechestnut, red buckeye, yellow poplar	Trees: locust	
	Vines: trumpet honeysuckle	Vines: trumpet creeper

* Some of these species may not be native to your locale; check with your local Native Plant Society or arboretum for suggestions on non-invasive flowering plants in your area.

Limiting Factors

For planning purposes, use the table below to inventory the site to subjectively rate the availability and quality of hummingbird habitat within a planning area, based on descriptions of the above habitat requirements. Habitat communities and components that are absent or rated low are likely limiting ruby-throated hummingbird habitat quality. Land uses on adjacent properties may need to be considered to accurately rate the quality of the site as ruby-throated hummingbird habitat. Management activities should focus on meeting habitat requirements currently not available onsite.

Ruby-throated Hummingbird (*Archilochus colubris*)

Habitat Component	Availability/Quality			
	High	Medium	Low	Absent
Food				
Nesting cover				
Winter cover (winter range areas only)				
Interspersion of habitat components				
Minimum habitat size				

Management Prescriptions

Management treatments should address the habitat components that are determined to be limiting ruby-throated hummingbird habitat potential. For planning purposes, select among the possible action items listed below to raise the quality or availability of each habitat component determined to be limiting. NRCS conservation practices and various programs that may provide financial or technical assistance to carry out specific management practices are listed where applicable.

Habitat Component	Management Options for Increasing Habitat Quality or Availability	Cons. Practices and Assistance Programs
Food	<ul style="list-style-type: none"> Plant red buckeye, jewelweed, columbine, trumpet creeper, red morning-glory, wild bergamot, bee-balm, scarlet painted-cup, trumpet (or coral) honeysuckle, fly-honeysuckle, cardinal flower, royal catchfly, round-leaved catchfly, and lilies, in yards, landscaping, and along streams and other open water areas. 	327, 390, 391, 645, 647 WHIP, EQIP, PFW
	<ul style="list-style-type: none"> Preserve fence-, tree-, and hedgerows growing along field edges and within old field and other grassy habitat that provide a diversity of flowering plant and insect life. 	380, 386, 422, 612, 650 WHIP, EQIP, PFW
	<ul style="list-style-type: none"> Limit herbicide and insecticide use on grassland, forb and orchard communities to small areas or use mechanical means so as to minimize loss of nectar-producing flowers, forbs, and invertebrates. 	
	<ul style="list-style-type: none"> Encourage insects by preserving and maintaining grassland/forb communities and edge habitat by conducting strip disking, prescribed rotational burning and rotational mowing when and where appropriate. 	338, 528A, 645, 647 WHIP, EQIP, PFW, CRP
	<ul style="list-style-type: none"> Place hummingbird feeders in wildflower gardens, backyards, and other shaded hummingbird habitat. 	
Nesting cover	<ul style="list-style-type: none"> Plant and preserve oak, maple, beech, birch, hornbeam, hemlock, poplar, hackberry, pine, and spruce trees within existing open stands, along streams, and close to wildflower plantings. 	391, 612, 645 WHIP, EQIP, PFW
	<ul style="list-style-type: none"> Preserve sugar maple-yellow birch-red spruce forest communities, and thin less-valuable trees from nesting trees when necessary. 	327, 391, 612, 645, 647 WHIP, EQIP, PFW
	<ul style="list-style-type: none"> Manage harvested woodlands to leave adequate nesting resources. (leave some mature nesting trees) 	
	<ul style="list-style-type: none"> Restore hydrology and vegetation in bottomland hardwood, forested wetlands. 	657 WRP, PFW
	<ul style="list-style-type: none"> Reduce herbicide use in orchards and other nesting habitats during peak nesting months (March-August) or when application results in loss of nesting cover. 	
Water	<ul style="list-style-type: none"> Create a source of running water in the form of a small yard fountain, fish pond waterfall, birdbath with a mister, or other mechanism. 	
Interspersion of habitat components	<ul style="list-style-type: none"> Combine above prescriptions to increase interspersion of habitat components and amount of suitable ruby-throated hummingbird habitat. 	

NRCS Conservation Practices that may be useful in undertaking the above management actions.

Code	Conservation Practice	Code	Conservation Practice
327	Conservation Cover	528A	Prescribed Grazing
338	Prescribed Burning	612	Tree/Shrub Establishment
380	Windbreak/Shelterbelt Establishment	645	Upland Wildlife Management
386	Field Border	647	Early Successional Habitat Development
390	Riparian Herbaceous Cover	650	Windbreak/Shelterbelt Renovation
391	Riparian Forest Buffer	657	Wetland Restoration
422	Hedgerow Planting		

Available Assistance

Landowners interested in making their individual efforts more valuable to the community can work with the Wildlife Habitat Council and NRCS to involve school, scout, and community groups and their families, as well as state and federal fish and wildlife agency personnel, in habitat projects when possible. On-site education programs demonstrating the benefits of a ruby-throated hummingbird habitat management project can greatly increase the value of an individual management project. Corporate landowners should encourage interested employees to become involved. Involving federal, state and non-profit conservation agencies and organizations in the planning and operation of a ruby-throated hummingbird management plan can greatly improve the project’s success. Assistance programs available through various sources are listed below.

Programs that provide technical and financial assistance to develop habitat on private lands.

Program	Land Eligibility	Type of Assistance	Contact
Conservation Reserve Program (CRP)	Highly erodible land, wetland, and certain other lands with cropping history. Stream-side areas in pasture land	50% cost-share for establishing permanent cover and conservation practices, and annual rental payments for land enrolled in 10 to 15-year contracts. Additional financial incentives are available for some practices	NRCS or FSA State or local Office
Environmental Quality Incentives Program (EQIP)	Cropland, range, grazing land & other agricultural land in need of treatment	Up to 75% cost-share for conservation practices in accordance with 5 to 10-year contracts. Incentive payments for certain management practices	NRCS State or local Office
Partners for Fish and Wildlife Program (PFW)	Most degraded fish and/or wildlife habitat	Up to 100% financial and technical assistance to restore wildlife habitat under minimum 10-year cooperative agreements	Local office of the U.S. Fish and Wildlife Service
Waterways for Wildlife	Private land	Technical and program development assistance to coalesce habitat efforts of corporations and private landowners to meet common watershed level goals	Wildlife Habitat Council (301-588-8994)
Wildlife at Work	Corporate land	Technical assistance on developing habitat projects into a program that will allow companies to involve employees and the community	Wildlife Habitat Council (301-588-8994)
Wetlands Reserve Program (WRP)	Previously degraded wetland and adjacent upland buffer, with limited amount of natural wetland, and existing or restorable riparian areas.	75% cost share for wetland restoration under 10-year contracts, and 30-year easements, and 100% cost-share on restoration under permanent easements. Payments for purchase of 30-year or permanent conservation easements	NRCS State or County Office
Wildlife Habitat Incentives Program (WHIP)	High-priority fish and wildlife habitats	Up to 75% cost-share for conservation practices under 5 to 10-year contracts	NRCS State or local Office
State fish and wildlife agencies and private groups may have assistance programs, publications, or other useful tools in your state.			State or local contacts

References

- Marinelli, J., and B. Hansen, eds. 1996. Invasive plants: weeds of the global garden. Brooklyn Botanical Garden Handbook No. 149. Brooklyn Botanical Garden, Inc., Brooklyn, NY. 111 pp.
- Robinson, T. R., R. R. Sargent, and M. B. Sargent. 1996. Ruby-throated hummingbird (*Archilochus colubris*). The Birds of North America, No. 204 (A. Poole and F. Gill eds.). The Birds of North America, Inc., Philadelphia, PA. 16 pp.
- Sauer, J. R., J. E. Hines, I. Thomas, J. Fallon, and G. Gough. 2000. The North American Breeding Bird Survey, Results and Analysis 1966 - 1999. Version 98.1, Patuxent Wildlife Research Center, Laurel, MD.
- Stokes, D., D. Stokes, and L. Q. Stokes. 1989. The hummingbird book : the complete guide to attracting, identifying, and enjoying. Little Brown & Co. 89 pp.
- Tufts, C. and P. Loewer. 1995. Gardening for wildlife. Rodale Press, Inc. Emmaus, PA. 192 pp.

NRCS
Wildlife Habitat Management Institute
100 Webster Circle, Suite 3
Madison, MS 39110
(601) 607-3131

In cooperation with partners, the mission of the Wildlife Habitat Management Institute is to develop and disseminate scientifically based technical materials that will assist NRCS field staffs and others to promote conservation stewardship of fish and wildlife and deliver sound habitat management principles and practices to America's land users.



www.nrcs.usda.gov
www.ms.nrcs.usda.gov/whmi

Wildlife
Habitat Council
1010 Wayne Avenue, Suite 920
Silver Spring, MD 20910
(301) 588-8994

The Wildlife Habitat Council's mission is to increase the amount of quality wildlife habitat on corporate, private, and public land. WHC engages corporations, public agencies, and private, non-profit organizations on a voluntary basis as one team for the recovery, development, and preservation of wildlife habitat worldwide.



www.wildlifehc.org

This leaflet was developed with assistance from
Robert Sargent
The Hummer/Bird Study Group, Inc.
P.O. Box 250
Clay, Alabama, 35048-0250

Additional information on hummingbirds can be obtained from The Hummer/Bird Study Group, Inc. by sending a self-addressed, legal sized envelope to the above address.

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternate means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.