Written comments must be received by September 18th, 2015.

Privacy Act Statement

In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, including any personal information the commenter provides to *www.regulations.gov,* as described in the system of records notice (DOT/ALL–14 FDMS), which can be reviewed at *www.dot.gov/privacy.*

Issued in Washington, DC, on September 11th, 2015.

Patrick T. Warren,

Acting Associate Administrator for Railroad Safety and Chief Safety Officer.

[FR Doc. 2015–23233 Filed 9–11–15; 4:15 pm]

BILLING CODE 4910–06–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R5–ES–2015–0136; 4500030113]

Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To List the New England Cottontail as an Endangered or Threatened Species

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of 12-month petition finding.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), announce a 12-month finding on a petition to list the New England cottontail (*Sylvilagus transitionalis*) as an endangered or threatened species and to designate critical habitat under the Endangered Species Act of 1973, as amended (Act). After review of the best available scientific and commercial information, we find that listing the New England cottontail is not warranted at this time. However, we ask the public to submit to us any new information that becomes available concerning the threats to the New England cottontail or its habitat at any time.

DATES: The finding announced in this document was made on September 15, 2015.

ADDRESSES: This finding is available on the Internet at *http://www.regulations.gov* at Docket Number FWS–R5–ES–2015–0136. Supporting documentation we used in preparing this finding is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, New England Field Office, 70 Commercial Street, Suite 300, Concord, NH 03301. Please submit any new information, materials, comments, or questions concerning this finding to the above address.

FOR FURTHER INFORMATION CONTACT: Thomas R. Chapman, Field Supervisor, New England Field Office (see **ADDRESSES**); by telephone at 603–223–2541; or by facsimile at 603–223–0104. If you use a telecommunications device for the deaf (TDD), please call the Federal Information Relay Service (FIRS) at 800–877–8339.

SUPPLEMENTARY INFORMATION:

Background

Section 4(b)(3)(B) of the Act (16 U.S.C. 1531 *et seq.*), requires that, for any petition to revise the Federal Lists of Endangered and Threatened Wildlife and Plants that contains substantial scientific or commercial information that listing the species may be warranted, we make a finding within 12 months of the date of receipt of the petition. In this finding, we will determine that the petitioned action is: (1) Not warranted, (2) Warranted, or (3) Warranted, but the immediate proposal of a regulation implementing the petitioned action is precluded by other pending proposals to determine whether species are endangered or threatened, and expeditious progress is being made to add or remove qualified species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Section 4(b)(3)(C) of the Act requires that we treat a petition for which the requested action is found to be warranted but precluded as though resubmitted on the date of such finding, that is, requiring a subsequent finding to be made within 12 months. We must publish these 12-month findings in the **Federal Register**. Until now, making a 12-month finding that listing is warranted or not warranted for the New England cottontail was precluded by other higher priority national listing actions (71 FR 53756, September 12, 2006; 72 FR 69034, December 6, 2007; 73 FR 75176, December 10, 2008; 74 FR 57804, November 9, 2009; 75 FR 69222, November 10, 2010; 76 FR 66370, October 26, 2011; 77 FR 69993, November 21, 2012; 78 FR 70103, November 22, 2013; 79 FR 72449, December 5, 2014).

Previous Federal Actions

On December 30, 1982, we published our notice of review classifying the New England cottontail as a Category 2 species (47 FR 58454). Category 2 status included those taxa for which information in the Service's possession indicated that a proposed rule may be appropriate, but for which sufficient data on biological vulnerability and threats were not available to support a proposed rule at that time. This classification remained valid for the species in subsequent review publications for animals that occurred on September 18, 1985 (50 FR 37958), January 6, 1989 (54 FR 554), November 21, 1991 (56 FR 58804), and November 15, 1994 (59 FR 58982). In the February 28, 1996, candidate notice of review (CNOR) (61 FR 7596), we discontinued the designation of Category 2 species as candidates; therefore, the New England cottontail was no longer a candidate species.

On August 30, 2000, we received a petition dated August 29, 2000, from the Biodiversity Legal Foundation, Conservation Action Project, Endangered Small Animals Conservation Fund and Defenders of Wildlife, requesting that the New England cottontail be listed under the Act and critical habitat be designated. We acknowledged the receipt of the petition in a letter to The Biodiversity Legal Foundation, dated September 14, 2000, and stated that, due to funding constraints in fiscal year (FY) 2000, we would not be able to begin processing the petition in a timely manner. Those funding constraints persisted into FY 2001.

On December 19, 2000, Defenders of Wildlife sent a Notice of Intent (NOI) to sue the Service for violating the Act by failing to make a timely 90-day finding on the August 2000 petition. On February 8, 2002, Defenders of Wildlife sent another NOI to sue in response to the Service's failure to make a timely 12-month finding on the August 2000 petition. On May 14, 2002, we advised Defenders of Wildlife that we would begin action on the petition in FY 2002.

On June 30, 2004, the Service published in the **Federal Register** a 90-day finding that the petition presented substantial scientific and commercial information indicating that listing the New England cottontail as endangered may be warranted (69 FR 39395). We also announced the initiation of a status review to determine if listing the species was warranted and requested additional information and data regarding this species. On September 12, 2006, the Service published a finding that the petition presented substantial scientific and commercial information indicating that listing the New England cottontail as threatened or endangered was warranted, but precluded (71 FR 53756).

The Service has annually reviewed the status of the New England cottontail and reaffirmed the 2006 finding that listing of the species remained warranted but precluded with a Listing Priority Number of 2 in our CNORs published in 2007 (72 FR 69034; December 6, 2007), 2008 (73 FR 75176; December 10, 2008), 2009 (74 FR 57804; November 9, 2009), 2010 (75 FR 69222; November 10, 2010), 2011 (76 FR 66370; October 26, 2011), 2012 (77 FR 69993; November 21, 2012), 2013 (78 FR 70103; November 22, 2013), and 2014 (79 FR 72449; December 5, 2014).

Subsequent to the 2006 petition finding, the Service developed a national multi-year listing work plan associated with a multidistrict settlement agreement with the Center for Biological Diversity and WildEarth Guardians (*In re Endangered Species Act Section 4 Deadline Litigation, No. 1–377 (EGS), MDL Docket No. 2165 (D.D.C. May 20, 2011*)). The work plan represents a systematic process for the Service to make determinations as to whether the 250 identified candidate species still warrant listing as either threatened or endangered pursuant to the Act, and if so, proceed with appropriate rulemakings. Conversely, if the Service was to determine that listing of any candidate species is no longer warranted, candidate status would be withdrawn. Through the aforementioned work plan, we agreed to complete a final listing determination for the New England cottontail by September 30, 2015. This document constitutes the 12-month finding on the August 29, 2000, petition to list the New England cottontail as an endangered or threatened species and fulfills the aforementioned settlement agreement.

For additional previous Federal actions, see the New England cottontail's species' profile page at: *http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A09B.*

Species Information

Species Description and Taxonomy

The New England cottontail (*Sylvilagus transitionalis*) is a medium-large-sized cottontail rabbit that may reach 1,000 grams (g) (2.2 pounds (lb)) in weight and is the only endemic cottontail in New England (Bangs 1894, p. 411; Allen 1904, entire; Nelson 1909, pp. 169, 170–171). Sometimes called the gray rabbit, brush rabbit, wood hare, or cooney, it can usually be distinguished from the sympatric (similar, but different, species that occur in the same area and are able to encounter each other) eastern cottontail (*S. floridanus*) and snowshoe hare (*Lepus americanus*) by several features. In general, the New England cottontail can be distinguished by its shorter ear length, slightly smaller body size, presence of a black spot between the ears, absence of a white spot on the forehead, and a black line on the anterior edge of the ears (Litvaitis *et al.* 1991, p. 11). Like the congeneric (separate species of the same genus) eastern cottontail, the New England cottontail can be distinguished from the snowshoe hare by its lack of seasonal variation in pelage (mammal's coat consisting of fur, hair, etc.) coloration.

New England and eastern cottontails can be difficult to distinguish in the field by external characteristics (Chapman and Ceballos 1990, p. 106). However, cranial (referring to the skull) differences, specifically the length of the supraorbital process (elongated bony structure located posterior (behind) to the eye) and the pattern of the nasal frontal suture (the junction between the nasal and frontal bones), are a reliable means of distinguishing the two cottontail species (Johnston 1972, pp. 6–11).

Prior to 1992, the New England cottontail was described as occurring in a mosaic pattern from southeastern New England, south along the Appalachian Mountains to Alabama (Bangs 1894, pp. 405 and 411; Nelson 1909, p. 196; Hall 1981, p. 305). However, Ruedas *et al.* (1989, p. 863) questioned the taxonomic status of *Sylvilagus transitionalis* based upon the presence of two distinct chromosomal races (genetically differentiated populations of the same species) within its geographic range. Individuals north and east of the Hudson River Valley in New York had diploid (a cell containing two sets of chromosomes (structure that contains genetic material) counts of 52, while individuals west and south of the Hudson River had counts of 46. Ruedas *et al.* (1989, p. 863) stated, ''To date, *Sylvilagus transitionalis* represents the only chromosomally polymorphic taxon within the genus *Sylvilagus,*'' and suggested that the two forms of *S. transitionalis* be described as distinct species.

Chapman *et al.* (1992, pp. 841–866) conducted a review of the systematics and biogeography of the species and proposed a new classification. Based upon morphological variation and earlier karyotypic (pertaining to the characteristics of a species' chromosomes) studies, Chapman *et al.* (1992, p. 848) reported clear evidence for two distinct taxa within what had been regarded as a single species. Accordingly, Chapman *et al.* (1992, p. 858) defined a new species, the Appalachian cottontail (*Sylvilagus obscurus*), with a range south and west of the Hudson River in New York. Thus, the New England cottontail (*S. transitionalis*) was defined as that species east of the Hudson River through New England. No subspecies of the New England cottontail are recognized (Chapman and Ceballos 1990, p. 106).

Litvaitis *et al.* (1997, entire) studied the variation of mtDNA (mitochondrial DNA, genetic material inherited from the mother) in the *Sylvilagus* complex occupying the northeastern United States. They found no evidence to suggest that hybridization is occurring between the New England cottontail and the eastern cottontail that was introduced into the New England cottontail's range, supporting the conclusions of others that the New England cottontail and the eastern cottontail have maintained genetic distinction (Wilson 1981, p. 99). Also, the limited variation observed in mtDNA led Litvaitis *et al.* (1997, p. 602) to conclude that the reclassification of *S. obscurus* as a distinct species was not supported. However, the more recent scientific view urges caution in interpreting the results of earlier mtDNA-based studies. Litvaitis *et al.* (1997, p. 597) sampled 25 individual *S. transitionalis/obscurus* across 15 locations in a geographic area that extended from southern Maine to Kentucky. The number of individuals sampled ranged from one to seven per site with a mean sample size of 1.7 individuals per location (Litvaitis *et al.* 1997, p. 598).

Allendorf and Luikart (2006, p. 391) warn that, ''many early studies that used mtDNA analysis included only a few individuals per geographic location, which could lead to erroneous phylogeny inferences'' regarding interpretations of descent and relationship among evolutionary species or groups. Furthermore, their analysis concentrated on the ''proline tRNA and the first 300 base pairs of the control region,'' which represents a relatively small fragment of mtDNA that can result in a failure to detect significant genetic differentiation when used to delineate taxonomic separation (Litvaitis *et al.* 1997, p. 599; King *et al.* 2006, p. entire). Strict adherence to the requirement of reciprocal monophyly (a genetic lineage where all members of the lineage share a more recent common ancestor with each other than with any other lineage on the evolutionary tree) in mtDNA as the sole delineating criterion for making taxonomic decisions often ignores important phenotypic, adaptive, and behavioral differences that are

important (Allendorf and Luikart 2006, p. 392; Knowles and Carstens 2007, pp. 887–895; Hickerson *et al.* 2006, pp. 729–739).

Notwithstanding the analyses discussed above, the results from Chapman *et al.* (1992) have been accepted by the scientific community (Wilson and Reeder 2005, pp. 210–211). The Service accepts the recognized taxonomic reclassification provided by Chapman *et al.* 1992 (p. 848) and concludes that *Sylvilagus transitionalis* and *S. obscurus* are valid taxa and are two separate species. Consequently, we find that the New England cottontail meets the definition of a species, as provided in section 3 of the Act, and is a listable entity.

Life History

The New England cottontail, like all cottontails, is primarily an herbivore and feeds on a wide variety of grasses and herbs during spring and summer and the bark, twigs, and buds of woody plants during winter (Dalke and Sime 1941, p. 216; Todd 1927, pp. 222–228). Cottontails are short-lived (usually less than 3 years), with predation being the cause of death of most individuals (Chapman and Litvaitis 2003, p. 118). Reproduction in cottontails begins at an early age with some juveniles breeding their first season (Chapman *et al.* 1982, p. 96). Litters probably contain three to five altricial (born in an underdeveloped state and requiring parental care) young, which are born in fairly elaborate nests where they receive maternal care (Chapman *et al.* 1982, p. 96). The number of litters produced by wild New England cottontails is unknown, but may attain a maximum of seven, based on the number of litters produced by other cottontail species (Chapman *et al.* 1982, p. 96). Young grow rapidly and are weaned by 26 days from birth (Perrotti, *in litt.* 2014). Female New England cottontails have a high incidence of post partum breeding (ability to mate soon after giving birth) (Chapman *et al.* 1982, p. 96). The reproductive capacity of cottontails remains relatively stable across population densities and is not believed to be a significant factor in regulating cottontail populations. Instead, survival, influenced mainly by predation, is believed to be the primary factor in regulating populations (Edwards *et al.* 1981, pp. 761–798; Chapman and Litvaitis 2003, p. 118). Consequently, habitat that provides abundant shelter is crucial to cottontail abundance (Chapman and Ceballos 1990, p. 96).

Metapopulation Dynamics

The relationship between habitat and survival of wild New England cottontails in New Hampshire was investigated by Barbour and Litvaitis (1993, entire). Their study revealed that the survival rate of cottontails occupying small patches was lower (0.35) than in larger patches (0.69) (Barbour and Litvaitis (1993, p. 325). Subsequent research found that by late winter rabbits in smaller patches were subsisting on a poorer diet, had lower body weights, were presumably less fit, and experienced greater predation rates, most likely as a result of the need to forage in areas of sparse cover (Villafuerte *et al.* 1997, p. 148). Based on the poor survival of cottontails on the smaller habitat patches, Barbour and Litvaitis (1993, p. 326) considered patches less than 2.5 hectares (ha) (less than 6.2 acres (ac)) in size to be ''sink habitats'' where mortality exceeds recruitment (reproduction and immigration). As a consequence of the variable quality of habitat patches and their ability to maintain occupancy, New England cottontail populations are believed to function as metapopulations; that is, a set of local populations comprising individuals moving between local patches (Hanski and Gilpin 1991, p. 7; Litvaitis and Villafuerte 1996, p. 686). Therefore, the spatial structure of a species' populations in addition to the species' life-history characteristics must be considered when formulating management systems for the species' viability (Hanski 1998, p. 41).

In metapopulations, population extinction and colonization at the patch-specific scale are recurrent rather than unique events (Hanksi 1998, p. 42). As with many metapopulations, local extinctions in New England cottontail populations are likely the result of demographic, environmental, and genetic stochasticities (Gaggiotti and Hanski 2004, pp. 337–366). For example, New England cottontails exhibit indicators of demographic stochasticity influencing local populations, because individuals on small patches are predominantly male (Barbour and Litvaitis 1993, entire). While there are no examples of genetic stochasticity that have led to inbreeding depression, recent analysis of gene flow among extant populations of New England cottontails in southeastern New Hampshire and Maine revealed evidence of genetic drift and population isolation due to geographic distance and fragmentation (Fenderson *et al.* 2014, entire), which may be a predictor of ongoing or future effects of genetic stochasticity (Gaggiotti and Hanski 2004, pp. 347–353).

Winter snow depth and persistence is an example of a stochastic environmental factor that could cause a local extinction. However, we recognize that winter severity operates at a regional scale that is not easily addressed. Therefore, the most effective means of addressing the effects of snow depth and persistence on New England cottontail is to ensure (1) representation of population diversity across the historical range; (2) resiliency of populations by ensuring enough individuals exist at local and patch scales to buffer environmental, demographic, and genetic stochasticity; and (3) redundancy of populations, because multiple populations will help guard against unexpected catastrophes such as disease outbreaks (Shaffer *et al.* 2002, p. 138). See Fuller and Tur (2012, pp. 32–41) for more information about the metapopulation dynamics of the New England cottontail.

Habitat Characteristics

New England cottontails occupy native shrublands associated with sandy soils or wetlands and regenerating forests associated with small-scale disturbances that set back forest succession. New England cottontails are considered habitat specialists, as they are dependent upon these early successional habitats, frequently described as thickets (Litvaitis 2001, p. 466). Suitable habitats for the New England cottontail contain dense (approximately greater than 9,000 woody stems per ha (greater than 3,600 stems per ac)), primarily deciduous understory cover (Litvaitis *et al.* 2003a, p. 879), with a particular affinity for microhabitats containing greater than 50,000 stem-cover units/hectare (ha) (20,234 stem-cover units/acre (ac)) (Barbour and Litvaitis 1993, p. 324; Gottfried 2013, p. 20). New England cottontails are also associated with areas containing average basal area (area occupied by trees) values of 53.6 square meters (m^2) per ha (233.6 square feet (ft^2) per ac), which indicates that tree cover is an important habitat component for the New England cottontail (Gottfried 2013, pp. 20–21). In addition to demonstrating a strong affinity for habitat patches of heavy cover, New England cottontails generally do not venture far from the patches (Smith and Litvaitis 2000, p. 2134). Smith and Litvaitis (2000, p. 2136) demonstrated via a winter experiment using animals in an enclosed pen that, when food was not available within the cover of thickets, New England cottontails were reluctant to forage in the open, lost a

greater proportion of body mass, and succumbed to higher rates of predation compared to eastern cottontails in the same enclosure. Consequently, New England cottontail populations decline rapidly as understory habitat thins during the processes of forest stand maturation (Litvaitis 2001, p. 467).

Today, New England cottontail habitats are typically associated with beaver (*Castor canadensis*) flowage wetlands, idle agricultural lands, power line corridors, coastal barrens, railroad rights-of-way, recently harvested forest, ericaceous thickets comprising *Kalmia* and *Rhododendron;* invasive-dominated shrublands comprising *Rosa multiflora, Lonicera spp.,* and others; forest understories dominated by *Smilax spp.;* and pine barrens (Litvaitis 1993b, p. 869; Tash and Litvaitis 2007, p. 594). In contrast, eastern cottontails appear to have relatively generalized habitat requirements, and although they sometimes co-occur with the New England cottontail, they can also be found in residential areas, where they utilize lawns and golf courses, and in active agriculture areas, where relatively small patches of thick cover are insufficient to support New England cottontails (Chapman and Ceballos 1990, p. 102).

Range and Distribution

Historical Distribution

In our previous assessments we described the historical distribution of the New England cottontail (71 FR 53756; 72 FR 69034; 73 FR 75176; 74 FR 57804; 75 FR 69222; 76 FR 66370; 77 FR 69993; 78 FR 70103; 79 FR 72449) as following the circa 1960 range delineation presented by Litvaitis *et al.* (2006, entire). This range description included the area east of the Hudson River in New York (excepting Long Island); all of Connecticut, Massachusetts, and Rhode Island; and much of Vermont, New Hampshire, and southwestern Maine (Litvaitis *et al.* 2006, p. 1191). We have reanalyzed existing information as well as previously unavailable information regarding land use and predator patterns (see Summary of Information Pertaining to the Five Factors—Factor A and Factor C, respectively, below). Based on this more thorough analysis, we conclude that the 1960 range of the New England cottontail was a product of extensive land use changes that led to a substantial increase in the availability of habitat and human pressure that altered ecological processes (Bernardos *et al.* 2004, p. 150; Ahn *et al.* 2002, p. 1). For the New England cottontail, these changes led to an artificially inflated abundance and distribution (Foster *et al.* 2002, p. 1345).

Lacking a description of the species' distribution prior to this range expansion, we relied on information pertaining to the distribution of habitat in the pre-European landscape and our understanding of the ecological factors (*e.g.,* competition with snowshoe hare and eastern cottontail (see Summary of Information Pertaining to the Five Factors—Factor C below) related to the species. Based on our review, we surmise that the historical distribution of the New England cottontail was confined to areas from the Hudson River in New York through southern New England to southeastern New Hampshire, with occurrences being confined to areas in close proximity to coastal areas, perhaps extending no farther inland than 100 kilometers (km) (60 miles (mi)), with occurrences also found on several offshore islands, including Nantucket Island and Martha's Vineyard, Massachusetts, and Long Island, New York (Cardoza, *pers. comm.*. 1999; Nelson 1909, pp. 196–199; A. Tur, *pers. comm.,* 2015).

Our full analysis of the historical distribution of the New England cottontail can be found at *http://www.regulations.gov.*

Current Distribution and Status

For the New England cottontail and other early-successional species, abundance and distribution increased with land clearing that peaked by the mid-19th century and persisted into the early 20th century, but then subsequently declined (Bernardos *et al.* 2004, pp. 142–158; Foster *et al.* 2002, pp. 1345–1346). By the mid-1900s, afforestation was progressing, and the abundant shrubby young growth that had fostered the expanded distribution of the New England cottontail's range was beginning to age. Decreases in the abundance of the New England cottontail were reported in the Champlain Valley, which may have been attributed to increases in red fox (*Vulpes vulpes*) or the increased mechanization that resulted in ''clean'' farming practices, such as drainage of wetlands and the removal of old rail fences that had favored shrubby field edges (Foote 1946, p. 37).

By the 1970s, contraction of the range of the New England cottontail was well underway. In Massachusetts, those declines were evident by the mid-1950s when Fay and Chandler (1955, entire) documented the distribution of cottontails within that State. Declines were also reported in Connecticut (Linkkila 1971, p. 15; Johnston 1972, p. 17). Jackson (1973, p. 21) conducted an extensive analysis of the distribution of cottontails in northern New England and stated that declines were ongoing in Vermont, Maine, and New Hampshire.

A systematic comprehensive survey consisting of standardized sampling units comprising U.S. Geological Survey 7.5-minute topographic quarter quadrangles and field collection protocols to determine the current distribution of the New England cottontail within its recent (1990 to 2004) historical range was conducted during the 2000–2001 through 2003–2004 winter seasons (Litvaitis *et al.* 2006, pp. 1190–1197). The results indicated that the range had declined substantially from the 1960 maximum historical distribution, estimated at 90,000 square kilometers (km^2) (34,750 square miles (mi^2)) to approximately 12,180 km^2 (4,700 mi^2), representing a reduction of approximately 86 percent (Litvaitis *et al.* 2006, p. 1192). Contraction of the New England cottontail's distribution occurred primarily toward the southern and eastern coastal regions, as well as interior landscapes associated with the Hudson, Housatonic, and Merrimack River valleys and associated uplands located respectively in New York, Connecticut, and New Hampshire (Litvaitis *et al.* 2006, p. 1193). This contraction was attributed primarily to habitat loss and fragmentation (Litvaitis *et al.* 2006, p. 1193). See Summary of Information Pertaining to the Five Factors—Factor A below for more information.

In addition to the observed range contraction, Litvaitis *et al.* (2006, p. 1193) stated that the range had been fragmented into five geographic areas, ranging in size from 1,260 to 4,760 km^2 (487 to 1,840 mi^2). These areas and their sizes are: (1) The seacoast region of southern Maine and New Hampshire, 3,080 km^2 (1,190 mi^2); (2) The Merrimack River Valley of New Hampshire, 1,260 km^2 (490 mi^2); (3) A portion of Cape Cod, Massachusetts, 980 km^2 (376 mi^2); (4) Eastern Connecticut and Rhode Island, 2,380 km^2 (920 mi^2); and (5) Portions of western Connecticut, eastern New York, and southwestern Massachusetts, 4,760 km^2 (1,840 mi^2). These acreage figures, however, substantially exceed the actual area occupied by the species because the calculations were based on the total area within each 7.5 minute USGS quadrangle map where one or more sites with an extant occurrence of the New England cottontail was recorded, rather than the total area of the actual habitat patches.

Since the 2000 to 2004 comprehensive rangewide survey,

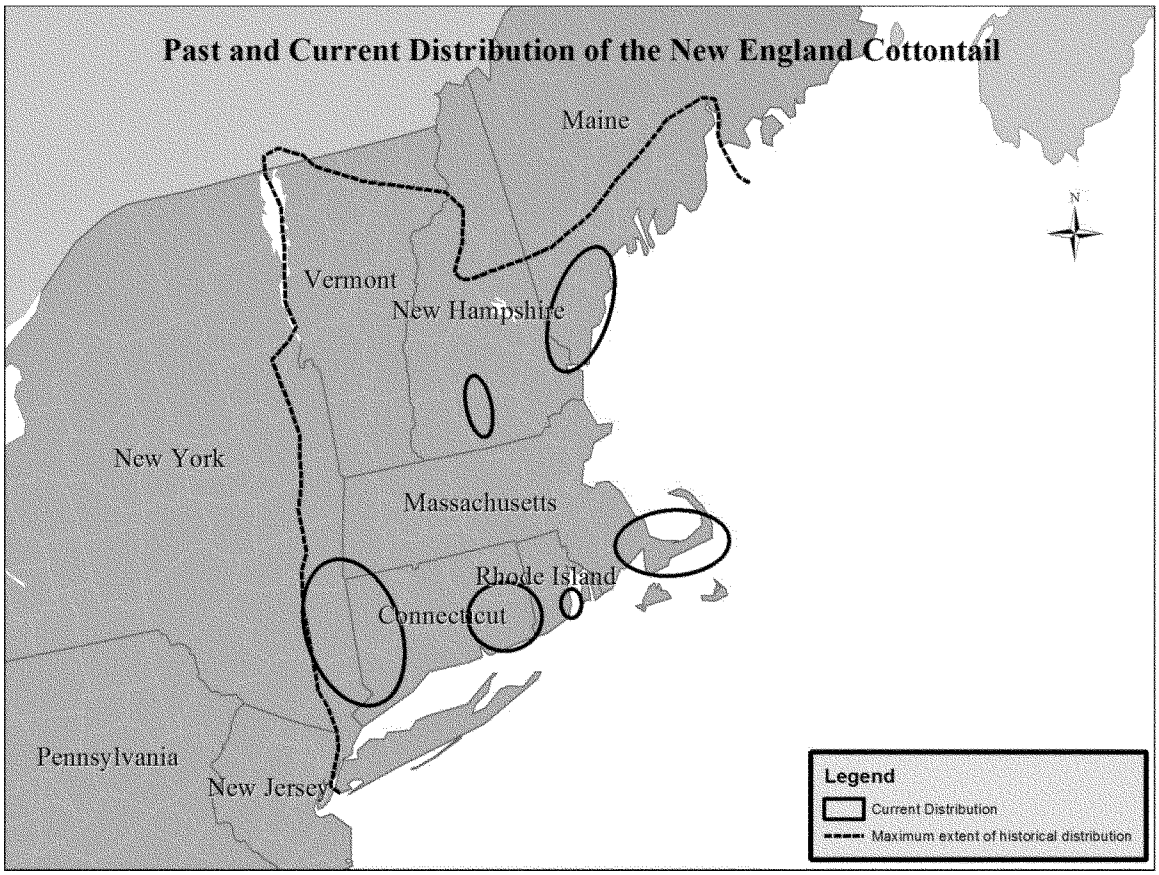
numerous efforts to determine the presence of New England cottontails have been expended throughout the species' range. Because those efforts involve wide variation in search intensity and methodology (*e.g.,* fecal pellet collection, hunter surveys, live trapping, and road mortality), direct comparison with the results of Litvaitis *et al.* (2006, pp. 1190–1197) is not appropriate for the purpose of determining trends in the species' status. Despite this shortcoming, the results of these various survey efforts provide useful information, including the detection of New England cottontails in a few notable areas previously considered vacant (*e.g.,* Cape Cod National Seashore and Nantucket Island, Massachusetts) (Beattie, *in litt.* 2013; Scarpitti, *in litt.* 2013). However, some biologists involved in these survey efforts conclude that the New England cottontail has declined since the early 2000s, particularly along the middle Merrimack River valley in New Hampshire, extending northward from the City of Manchester to Concord, and in the region of northern Rhode Island (Tur, *in litt.* 2005; Holman *et al., in litt.* 2014; Tefft *et al., in litt.* 2014).

Obtaining population estimates for species such as the New England cottontail, that are cryptic and subject to wide population fluctuations within relatively broad geographic areas occupied by similar species, is challenging. Nevertheless, wildlife biologists estimated New England cottontail population sizes for each State within the species' range by utilizing area-specific information that included factors such as the extent of potential habitat, the occurrence of sympatric eastern cottontail populations and local New England cottontail survey results. When totaled, these 2014 local estimates yield a rangewide population estimate of approximately 17,000 individual New England cottontails, consisting of: (1) Fewer than 100 rabbits in Rhode Island (Tefft *et al., in litt.* 2014); (2) Approximately 10,000 in Connecticut (Kilpatrick *et al., in litt.* 2014); (3) As many as 4,600 in Massachusetts (Scarpitti and Piche, *in litt.* 2014); (4) 700 in Maine (Boland *et al., in litt.* 2014); (5) 180 or fewer in New Hampshire (Holman *et al., in litt.* 2014); and (6) Approximately 1,600 in New York (Novak *et al., in litt.* 2014).

Rangewide, some of the occupied areas are quite small and support few New England cottontails. For example, two-thirds of the occupied habitat patches in Maine are less than 2.5 ha (6.2 ac) in size and are considered population sinks (Barbour and Litvaitis 1993, p. 326; Litvaitis and Jakubas 2004, p. 41) because these patches do not contain the necessary forage and shelter components for long-term occupancy. In New Hampshire, more than half of the 23 sites occupied by the New England cottontail are less than 3 ha (7.4 ac) (Litvaitis *et al.* 2006, p. 1194). Litvaitis *et al.* (2006, p. 1194) report that sampled patches in eastern Massachusetts, as well as the majority of those constituting the largest extant New England cottontail population (western Massachusetts, southeastern New York, and western Connecticut), are less than 3 ha (7.4 ac), probably supporting no more than three to four New England cottontails per site.

In 2014, State biologists estimated that there was: (1) More than 180 km^2 (46,000 ac) of potential habitat in Connecticut (Kilpatrick *et al., in litt.* 2014); (2) Approximately 6 km^2 (1,500 ac) in Maine (Boland *et al., in litt.* 2014); (3) 1.8 km^2 (450 ac) in New Hampshire (Holman *et al., in litt.* 2014); (4) 87 km^2 (21,000 ac) in New York (Novak *et al., in litt.* 2014); and (5) 30 km^2 (7,600 ac) in Rhode Island (Tefft *et al., in litt.* 2014). Estimates for Massachusetts are not available. However, there are several large habitat expanses in Massachusetts, such as at the 60 km^2 (15,000 ac) of unfragmented habitat found at the Massachusetts Military Reservation and a 2.4-km^2 (600-ac) or larger patch within Myles Standish State Forest in the southeastern part of the State (Scarpitti and Piche, *in litt.* 2014). While these population estimates are encouraging, it is not yet known whether they are sustainable due to their current distribution and quality of habitat. The population estimates in Connecticut, Massachusetts, and New York consist of areas where the species is likely secure because the populations are large enough to be self-sustaining and the habitat supporting those self-sustaining populations is being managed to maintain its suitability.

Figure 1. Past and current distribution of the New England cottontail



Summary of Range and Distribution—In summary, the distribution of the species at the time of European contact is unknown; however, the species was most likely found in greatest abundance in coastal areas where shrublands were concentrated and suitable habitat patches are presumed to have been relatively large. New England cottontail occurrence likely progressively diminished inland where suitable habitat patches tend to be smaller and relatively short lived. The presence of the snowshoe hare, a potential competitor, along with climatic conditions that favor the hare, likely naturally contributed to the foreshortened distribution of the New England cottontail. However, these natural control processes were disrupted when the land use patterns that accompanied European settlement changed. The land use patterns altered the abundance and distribution of shrublands, particularly in interior New England, and thus artificially inflated the amount of suitable habitat available to the New England cottontail. This artificial increase in suitable habitat offset the naturally controlling factors of climate and competition, thereby allowing the New England cottontail to disperse in more northerly and inland directions.

Despite the spatial and temporal gaps in the species' distribution records, analysis of the best available information documents the changes in the historical distribution of the New England cottontail over time. The evidence clearly indicates that the distribution greatly increased during the 19th and early 20th centuries, when regionwide conversion of mature forest to young forest habitat within the interior uplands was at its peak and shifts in snowshoe hare abundance provided ample expansion opportunities for the New England cottontail. In the case of the Hudson River and Lake Champlain valleys, the best available information indicates that over a 107-year period the species extended its range northward from Troy, New York, to the Canadian border, a distance of approximately 257 km (160 mi), at a rate of approximately 2.4 km (1.5 mi) per year (Bachman 1837, p. 328; Foote 1946, p. 39). In the latter half of the 20th century, harvesting of interior upland forests waned, and young forest habitat capable of maintaining New England cottontail populations and the distribution of the species contracted southward and eastward toward coastal areas. This contraction, however, is not representative of the species' pre-Columbian baseline distribution, because extensive amounts of the intervening landscape have been converted to other land uses that have degraded habitat for the species and contributed to its currently disjunct distribution.

Rangewide Conservation Efforts

Beginning in 2008, State and Service biologists began organizing a conservation effort for the New England cottontail. A governance structure was formalized in 2011 to enhance cooperation between the Maine Department of Inland Fisheries and Wildlife (MDIFW), the New Hampshire Fish and Game Department (NHFGD), the Massachusetts Division of Fisheries and Wildlife (MDFW), the Rhode Island Department of Environmental Management), the Connecticut Department of Energy and Environmental Protection, the New York Department of Environmental Conservation, the U.S. Department of

Agriculture's Natural Resources Conservation Service (NRCS), and the Service (hereafter referred to as the Parties). The Parties established an Executive Committee, facilitated by the Wildlife Management Institute (WMI), and adopted bylaws (Fuller and Tur 2012, p. 4) ''to promote recovery, restoration, and conservation of the New England cottontail and its associated habitats so that listing is not necessary'' (New England cottontail Executive Committee, *in litt.* 2011). This Executive Committee comprises high-level agency representatives, capable of making staffing and funding decisions.

The Executive Committee established a Technical Committee, comprising staff-level biologists with biological and conservation planning expertise, and delegated eight initial charges to advance the work of New England cottontail conservation, including preparation of a multifaceted conservation strategy with quantifiable objectives to measure conservation success (New England cottontail Executive Committee, *in litt.* 2011). The Technical Committee drafted, and the Executive Committee approved, the 2012 peer-reviewed *Conservation Strategy for the New England Cottontail* (Conservation Strategy) (Fuller and Tur 2012, available at *http://www.newenglandcottontail.org* (accessed March 18, 2015)). This Conservation Strategy describes: (1) An assessment of the conservation status of and threats facing the New England cottontail; (2) The process used to develop a conservation design that includes those landscapes, hereafter referred to as Focus Areas, where conservation actions will be taken to achieve a series of explicit conservation goals; (3) The objectives related to achieving those goals; (4) Important conservation actions needed to protect and manage habitat; (5) Communications needed to ensure implementation; (6) Research needed to improve understanding of the ecology of the New England cottontail; (7) Monitoring techniques to evaluate the effectiveness of the implemented actions and identify any changes needed to increase their effectiveness; (8) The commitment of the participating agencies to carry out the conservation effort; and (9) The process for modifying the Conservation Strategy in the future, if necessary, in light of any new and relevant information (Fuller and Tur 2012, p. 4). The Conservation Strategy focuses on securing New England cottontail within its current distribution (see figure 1). The Conservation Strategy includes an implementation plan through 2030.

Summary of Information Pertaining to the Five Factors

Section 4 of the Act (16 U.S.C. 1533) and implementing regulations (50 CFR part 424) set forth procedures for adding species to, removing species from, or reclassifying species on the Federal Lists of Endangered and Threatened Wildlife and Plants. Under section 4(a)(1) of the Act, a species may be determined to be endangered or threatened based on any of the following five factors:

(A) The present or threatened destruction, modification, or curtailment of its habitat or range;

(B) Overutilization for commercial, recreational, scientific, or educational purposes;

(C) Disease or predation;

(D) The inadequacy of existing regulatory mechanisms;

(E) Other natural or manmade factors affecting its continued existence.

In making this finding, information pertaining to the New England cottontail in relation to the five factors provided in section 4(a)(1) of the Act is discussed below. In considering what factors might constitute threats, we must look beyond the mere exposure of the species to the factor to determine whether the species responds to the factor in a way that causes actual effects to the species. If there is exposure to a factor, but no response, or only a positive response, that factor is not a threat. If there is exposure and the species responds negatively, the factor may be a threat and we then attempt to determine how significant a threat it is. If the threat is significant, it may drive or contribute to the risk of extinction of the species such that the species warrants listing as endangered or threatened as those terms are defined by the Act. This does not necessarily require empirical proof of a threat. The combination of exposure and some corroborating evidence of how the species is likely affected could suffice. The mere identification of factors that could affect a species negatively is not sufficient to compel a finding that listing is appropriate; we require evidence that these factors are operative threats that act on the species to the point that the species meets the definition of an endangered or threatened species under the Act. Although this language focuses on impacts negatively affecting a species, section 4(b)(1)(A) of the Act requires us to consider efforts by any State, foreign nation, or political subdivision of a State or foreign nation to protect the species. Such efforts would include measures by Federal agencies, Native American Tribes, businesses, organizations, and individuals that positively affect the species' status. Also, Federal, Tribal, State, and foreign recovery actions (16 U.S.C. 1533(f)), and Federal consultation requirements (16 U.S.C. 1536) constitute conservation measures.

Read together, sections 4(a)(1) and 4(b)(1)(A), as reflected in our regulations at 50 CFR 424.119(f), require us to take into account those factors that either positively or negatively affect a species status so that we can determine whether a species meets the definition of threatened or endangered. In so doing, we analyze a species' risk of extinction by assessing its status (*i.e.,* is it in decline or at risk of decline and at what rate) and consider the likelihood that current and future conditions and actions will promote or threaten a species' persistence by increasing, eliminating, or adequately reducing one or more threats to the species. This determination requires us to make a prediction about the future persistence of a species.

In making our 12-month finding on the petition, we considered and evaluated the best available scientific and commercial information.

Factor A. The Present or Threatened Destruction, Modification, or Curtailment of Its Habitat or Range

The New England cottontail requires thicket habitat and is frequently associated with shrublands and other ephemeral stages of forest regeneration after a disturbance such as fire, forest insect outbreak, timber harvesting, or beaver activity (Litvaitis 2001, p. 466). Because early successional species require habitats that generally persist only for a short time, continual turnover of mature forest somewhere on the landscape is necessary for the species to maintain its distribution and abundance.

The amount of early successional forest cover is limited in the States where the New England cottontail occurs. Data from the U.S. Department of Agriculture indicate that the area of early successional forest cover in the southern New England States (Massachusetts, Connecticut, and Rhode Island) declined from 36 percent of the total timber land area in the early 1950s to 5 percent in the late 1990s (Brooks 2003, p. 68). Jackson (1973, p. 21) reported a decline in New England cottontails in Vermont, New Hampshire, and Maine, and attributed the decline to changes in habitat, primarily to the reduction of cover on a landscape scale.

Inventories from the U.S. Forest Service reveal that the extent of forest in the seedling-sapling stage (thickets favorable to the New England cottontail) declined by more than 80 percent in New Hampshire from 845,425 ha (2,089,091 ac) to 131,335 ha (324,536 ac) during the period 1960 to 1983 (R. Brooks, personal communication, in Litvaitis and Villafuerte 1996, p. 689) and by 14 percent in New York from 1980 to 1993 (Askins 1998, p. 167). While the forest inventory results reported by Brooks (2003, p. 68) found an increase in the early successional forest component of northern New England States, most of the increase occurred in the industrial forest land of northern Maine, well north of the historical and current range of the New England cottontail. Maine's southernmost counties (York and Cumberland) that still support populations of New England cottontails, have experienced declines in young forest stands, from about 38 percent in 1971 to 11 percent in 1995 (Litvaitis *et al.* 2003b, p. 881). Litvaitis *et al.* (1999, p. 106) reported that remaining shrub-dominated and early successional habitats in the northeast continue to decline in both coverage and suitability to the wildlife species dependent upon them.

The decline of early successional forest in the Northeast is primarily due to forest maturation (Litvaitis 1993b, p. 870), which is a natural process. However, other influences are compounding the situation. Habitat destruction and modification are occurring as a result of human population growth and development (Brooks 2003, p. 65). The three southern New England States, Connecticut (greater than 270 inhabitants per km^2 (700 inhabitants per mi^2)), Rhode Island (greater than 380 inhabitants per km^2 (1,000 inhabitants per mi^2)), and Massachusetts (greater than 300 inhabitants per km^2 (800 inhabitants per mi^2)), which constitute the center of the New England cottontail's range, are among the most densely populated areas in the United States, with only New Jersey and the District of Columbia being more densely populated (U.S. Census Bureau, 2012). Similarly, New York, at greater than 150 inhabitants per km^2 (400 inhabitants per mi^2), ranks eighth among the 50 States in population density, though much of this density is centered around a few urban areas, especially New York City. Rhode Island is most developed to the east of Narragansett Bay; the largest forest patches remain along the less developed western edge of the State. Connecticut is most developed in the southwestern corner and up the Connecticut River Valley. Notably, the most densely human-populated areas of Connecticut and Rhode Island are relatively devoid of New England cottontails. In association with human populations, early successional habitats that once supported New England cottontails have been converted to a variety of uses that make them unsuitable for the cottontail, thereby contributing to habitat loss and fragmentation (Litvaitis *et al.* 2006, p. 1194). In the Seacoast Region of New Hampshire and Maine, the effects of habitat fragmentation are having a deleterious effect on remnant populations of the New England cottontail, such that enhancing gene flow by improving habitat or conducting translocations may be required to maintain populations in those landscapes (Fenderson *et al.* 2014, pp. 1–23). Among shrub-dominated plant communities, scrub oak and pitch pine barrens that provide cottontail habitat have been heavily modified or destroyed by development (Patterson 2002, unpublished presentation abstract).

Litvaitis *et al.* (1999, p. 106) concluded that shrub-dominated and early successional habitat may be the most altered and among the most rapidly declining communities in the Northeast. Based on changes in human populations and associated development, without intervention, this trend will likely continue. For example, U.S. Census Bureau data for the New England States indicate a 3.8-percent population growth, equating to an increase of 522,348 people, during the period 2000 to 2010 (U.S. Census Bureau 2011). Analyses of U.S. Census data demonstrates that, in 1982, the number of acres developed for every new person was 0.68 in New England (*http://wrc.iewatershed.com* (accessed May 2006)), but in 1997, the number of acres developed for every new person was 2.33, an almost four-fold increase. Given the 1997 rate of development for each additional resident (0.94 ha (2.33 ac) per person) and the measured population growth for New England, 491,007 additional ha (1.2 million additional ac) of wildlife habitat would have been converted and fragmented during the period 2000 to 2010 (adapted from U.S. Census Bureau 2011, (*http://wrc.iewatershed.com* (accessed May 2006)), and it is highly likely that this included habitat that was suitable and supported New England cottontails.

As an example, The Society for the Protection of New Hampshire's Forests (Sundquist and Stevens 1999, p. entire) estimated that New Hampshire will lose approximately 80 percent of its forest land to various types of development by the year 2020. Further, this analysis predicted that the greatest loss of forest lands, approaching 24,281 ha (60,000 ac), would occur in the southeastern portion of the State, principally in Rockingham, Hillsborough, and Strafford Counties. These counties account for all known New England cottontail occurrences in the State. In fact, observations by Service biologists in 2005 confirmed that 2 of the 23 New Hampshire cottontail sites known to be occupied at some time from 2001 to 2003 had been lost to development, and 5 other sites were posted ''for sale.''

Noss and Peters (1995, p. 10) consider eastern barrens to be among the 21 most endangered ecosystems in the United States. Some eastern barrens, such as the pitch pine and scrub oak barrens of Cape Cod, Massachusetts, are suitable habitat for the New England cottontail. It is unclear to what extent barrens in other States also supported occurrences of New England cottontails; however, as of 2014 the barrens of southeastern Massachusetts are known to be occupied by the New England cottontail (Scarpitti and Piche, *in litt.* 2014).

Within the historical range of the New England cottontail, the abundance of early successional habitats continues to decline (Litvaitis *et al.* 1999, p. 106; Brooks 2003, p. 65), and for the most part, remaining patches are small and located in substantially modified landscapes (Litvaitis and Villafuerte 1996, p. 687; Litvaitis 2003, p. 115; Litvaitis *et al.* 2008, p. 179). The fragmentation of remaining suitable habitats into smaller patches separated by roads and residential and other types of development can have profound effects on the occupancy and persistence of New England cottontail populations. Barbour and Litvaitis (1993, p. 321) found that New England cottontails occupying small patches of habitat less than or equal to 2.5 ha (approximately 6 ac) were predominantly males, had lower body mass, consumed lower quality forage, and had to feed farther from protective cover than rabbits in larger patches (5 ha or greater than 12 ac). This study also demonstrated that New England cottontails in the smaller patches had only half the survival rate of those in the larger patches due to increased mortality from predation. Barbour and Litvaitis (1993, p. 321) state that the skewed sex ratios (or single occupant) and low survival among rabbits on small patches may effectively prevent reproduction from occurring on small patches. Due to skewed sex ratios and low survival rates, the presence of New

England cottontails in these small patches is dependent on the dispersal of individuals from source populations (Barbour and Litvaitis 1993, p. 326). Litvaitis *et al.* (2008, p. 179) and Barbour and Litvaitis (1993, p. 321) view these small patches as sink habitats. The relationship between winter survival and food resources is supported by a 2010 study on eastern cottontail, the results of which could be extrapolated to New England cottontail, which concluded supplemental feeding of animals in small habitat patches enhanced winter survival (Weidman 2010, p. 20).

Natural or anthropogenic disturbances that create small, scattered openings may no longer provide habitats capable of sustaining New England cottontail populations because, in contemporary landscapes, generalist predators effectively exploit prey restricted to such patches (Brown and Litvaitis 1995, p. 1005; Villafuerte *et al.* 1997, p. 148). Barbour and Litvaitis (1993, p. 321) concluded that local populations of New England cottontails may be vulnerable to extinction if large patches of habitat are not maintained. The Service concludes this likely explains why 93 percent of the apparently suitable habitat patches that were searched by Litvaitis *et al.* (2006, pp. 1190–1197) were found to be unoccupied.

Human population growth has had another effect, in addition to habitat loss and fragmentation, on forests within the New England cottontail range. Between 1950 and 2000, the human population increased 44 percent in southern New England and 71 percent in northern New England (Brooks 2003, p. 70). With the increase in human population, an increase in the parcelization (*i.e.,* the fragmentation of ownership) of northeastern forests into smaller and smaller parcels followed. The majority of private northeastern forest owners, excluding industrial forest owners, own less than 4 ha (10 ac) each; about 12 percent of timberland in the Northeast is publicly owned (Brooks 2003, p. 69). An increasingly urbanized landscape, with many small, partially forested residential parcels, imposes societal and logistical restrictions on forest management options (Brooks 2003, p. 65). Shrublands, clear cuts, and thickets are ''unpopular habitats'' among the public (Askins 2001, p. 407), and private forest owners are resistant to managing for this type of habitat (Trani *et al.* 2001, p. 418; Kilpatrick *et al., in litt.* 2014). Timber harvesting and fire or other disturbance regimes that would maintain or regenerate early successional habitat for thicket-dependent species like the New England cottontail are less likely to occur in a landscape with many small landowners.

Based on computer simulations demonstrating that populations dominated by small patches were likely to go extinct (Livaitis and Villafuerte 1996, entire), Litvaitis *et al.* (2006, p. 1194) conclude that the five remaining disjunct populations of the New England cottontail, as currently configured, do not represent a stable condition for long-term persistence. More recently, genetic analysis of New England cottontail populations in Maine and Seacoast New Hampshire corroborated the negative effects of fragmentation (Fenderson *et al.* 2014, pp. 13 and 17). Fenderson *et al.*'s (2014, p. 17) findings of isolated populations with low effective population sizes and low genetic diversity suggest that populations in the study area were vulnerable to extirpation.

In summary, the best available information indicates that in parts of the species' range, New England cottontails occur on small parcels, where food quality is low and winter mortality to predators (see Factor C below) is unsustainably high (Barbour and Litvaitis 1993, p. 321; Brown and Litvaitis 1995, p. 1005). In contrast, several large habitat tracts occur in the Cape Cod area of Massachusetts, western Connecticut, and eastern New York, and those populations are likely secure (Scarpitti and Piche, *in litt.* 2014; Kilpatrick *et al., in litt.* 2014; Novak *et al., in litt.* 2014). Further, the current distribution of the species is discontinuous, being divided by expanses of unsuitable habitat that separate the range into five population clusters.

Among the factors contributing to the long-term and rangewide reduction in habitat, habitat succession was considered by Litvaitis (1993b, p. 866) to be the most important. However, at a local or individual patch scale, loss or modification of habitat due to development is also significant. In general, the range of the New England cottontail has contracted by 86 percent since 1960 (Litvaitis *et al.* 2006, p. 1190), and current land use trends in the region indicate that the rate of change, about 2 percent range loss per year, is likely to continue if conservation actions to address the decline are not implemented (Litvaitis and Johnson 2002, p. 4; Litvaitis *et al.* 2006, p. 1195; Fenderson *et al.* 2014, p. 17). This is supported by results from various State surveys conducted since 2004 (Tefft *et al., in litt.* 2014; Holman *et al., in litt.* 2014; Boland *et al., in litt.* 2014; Kilpatrick *et al., in litt.* 2014).

Conservation Efforts To Reduce Habitat Destruction, Modification, or Curtailment of Its Range

As described above, the Conservation Strategy (Fuller and Tur 2012, entire) guides the New England cottontail's rangewide conservation and was specifically developed to consider the species' life-history traits or resource needs. These traits commonly include morphological, developmental, and behavioral characteristics such as body size; growth patterns; size and age at maturity; reproductive effort; mating success; the number, size, and sex of offspring; and rate of senescence (Ronce and Olivieri 2004, p. 227). Factors addressing habitat quality and quantity were also considered. Given the species' life history characteristics, the key to its viability is ensuring that ample resources are available to support population increases, as opposed to maximizing the survival of individuals. In addition, we also recognize that the landscape-level alterations occurring throughout the species' range have fragmented New England cottontail populations and substantially increased the risk of extinction (Litvaitis *et al.* 2006, p. 1195; Fenderson *et al.* 2014, p. 17).

The Conservation Strategy (Fuller and Tur 2012, p. 19) contains a summary of the information contained in the Service's 2013 Species Assessment and Listing Priority Assignment Form (Service 2013, entire) and concluded that the primary threat to the species was habitat modification resulting, in part, from: (1) Forest maturation; (2) Disruption of disturbance regimes that set back succession; and (3) Habitat modification, fragmentation, and destruction resulting from development (Fuller and Tur 2015, pp. 19, 21–23). The Conservation Strategy prescribes forest management practices on public and private lands to reverse forest maturation and increase habitat capable of supporting the New England cottontail (Fuller and Tur 2012, pp. 20–21) and identifies potential landscapes (*e.g.,* Focus Areas) where conservation actions would be implemented. The Conservation Strategy identified 41 separate Focus Areas distributed across all 6 States within the species' current range and containing a total habitat area in excess of 20,000 ha (50,000 ac). Each individual Focus Area will contain populations ranging from 100 to 2,500 animals, as appropriate (Fuller and Tur 2012, p. 30).

The Conservation Strategy specifies that conservation of the species will be achieved by implementing rangewide conservation actions that establish:

○ 1 New England cottontail landscape capable of supporting 2,500 or more individuals;

○ 5 landscapes each capable of supporting 1,000 or more individuals; and

○ 12 landscapes each capable of supporting 500 or more individuals.

Each New England cottontail landscape/Focus Area should comprise a network of 15 or more habitat patches, each 10 ha (25 ac) or greater in size, and situated within dispersal distance (less than 1 km (0.6 miles)) to other patches of suitable habitat (Fuller and Tur 2012, p. 43). This dispersal distance was based on Litvaitis and Villafuerte's (1996, p. 689) conclusion that dispersal of New England cottontail fits a geometric distribution, with a maximum distance of 3 km (1.9 mi). Recent analysis of gene flow confirms the accuracy of this distance, as evidenced by Fenderson *et al.'*s (2014, p. 15) conclusion that New England cottontails have difficulty traversing distances greater than 5 km (3 mi).

The Conservation Strategy Landscape planning further specifies that actions should take into account the habitat matrix (condition of the landscape surrounding habitat patches), because areas with numerous anthropogenic features or substantial natural barriers are likely to be highly fragmented and form barriers to dispersal that may otherwise encumber conservation efforts (Fuller and Tur 2012, p. 43). The Technical Committee addressed the habitat matrix conditions by building in redundancy as expressed in the creation of the 41 Focus Areas—not all 41 Focus Areas will be needed to achieve the landscape goals specified above. The Conservation Strategy identifies a suite of implementation objectives, many of which are intended to reduce the threat of habitat destruction, modification, and curtailment of the New England cottontail's range (Fuller and Tur 2012, pp. 44–87).

The Conservation Strategy's 2014 Annual Performance Report documents previous and ongoing implementation actions that have and are addressing loss of habitat for the New England cottontail (Fuller and Tur 2015, entire). For example, by the autumn of 2013, approximately 14,000 ac (5,666 ha) of habitat were under evaluation or contract for appropriate management actions, and by the end of 2014, specific habitat treatments were estimated to be complete on more than 6,700 ac (2,711 ha) of State, other public, or private land (Fuller and Tur 2015, p. 55). In addition, more than 10,000 ac (4,047 ha) of self-sustaining New England cottontail habitat has been identified (Fuller and Tur 2015, p. 55). However, although we have evidence of demonstrated implementation success, not all of the actions implemented have yet to show full effectiveness for the species (see Policy for the Evaluation of Conservation Efforts Analysis section below). The 2014 Annual Performance Report acknowledges that suitable habitat is not equally distributed across the Focus Areas and that due to the ephemeral nature of most of the species' habitat, additional management and maintenance actions are necessary to keep the habitat in suitable condition (Fuller and Tur 2015, p. 55).

Summary of Factor A—We identified a number of threats to New England cottontail habitat that have resulted in the destruction and modification of habitat and a concomitant curtailment in the species' range. Although implementation of the Conservation Strategy is underway, the population and habitat levels specified have not yet been attained (Fuller and Tur 2015, p. 18). Consequently, despite previous and ongoing conservation actions, we conclude that the destruction, modification, or curtailment of the New England cottontail's range continues to be a threat. In the Policy for the Evaluation of Conservation Efforts Analysis section below we further evaluate the Conservation Strategy to determine if the threat is expected to persist into the future.

Factor B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Recreational Hunting

The New England cottontail is considered a small game animal by the northeastern States' wildlife agencies. It is legally hunted within season and with bag limitations in four of the six States known to have extant populations: New York, Connecticut, Massachusetts, and Rhode Island. Maine closed its cottontail season in 2004, and it remains closed (MEDIFW 2004, MEDIFW 2015). New Hampshire has modified its hunting regulations to prohibit the take of cottontails in those portions of the State where the New England cottontail is known to occur (NHFG 2004, NHFG 2015).

One turn-of-the-century account relative to hunting New England cottontails (Fisher 1898, p. 198) states that ''although hundreds are killed every winter nevertheless they appear to be just as common at the present time as 20 years ago.'' Tracy (1995, p. 12) reported extensive hunting as a possible cause for the lack of cottontails at one Connecticut site, but provided no supporting data.

Carlton *et al.* (2000, p. 46) suggest that overhunting of New England cottontails led to their decline in the mid-20th century, and that this decline indirectly contributed to the deleterious introduction of eastern cottontails by hunters seeking to compensate for the lost opportunity to hunt rabbits. The Service concurs that the introduction of eastern cottontails, a nonnative competitor, has been a factor in the decline of New England cottontail populations (see Factor C below) because eastern cottontails are now the predominant rabbit throughout all of the former range of the New England cottontail, except southern Maine. The prevailing view indicates the primary determinant of cottontail abundance is habitat (Chapman *et al.* 1982, p. 114). Available evidence suggests that habitat loss through forest maturation and other causes (Jackson 1973, p. 21; Brooks and Birch 1988, p. 85; Litvaitis *et al.* 1999, p. 101), rather than hunting pressure, was the primary reason for the decline of New England cottontail populations in the mid-20th century.

Although hunting of New England cottontails occurs, hunting pressure is low relative to the overall abundance of eastern and New England cottontails and not a significant source of mortality compared to other factors. State wildlife biologists postulate that hunting has a minimal effect on the New England cottontail population in those States where hunting is legal (Parker, *in litt.* 2004; Stolgitis, *in litt.* 2000; Scarpitti and Piche, *in litt.* 2014; Tefft *et al., in. litt.* 2014; Kilpatrick *et al., in litt.* 2014, Novak *et al., in litt.* 2014). Most States now have fewer rabbit and other small game hunters than in earlier decades (S. Cabrera, *in litt.* 2003; J. Organ, *in litt.* 2002; U.S. Department of the Interior and U.S. Department of Commerce 2002), and the New England cottontail is not the rabbit species harvested by most small game hunters. For example, in a 54-month study of eastern and New England cottontails in Connecticut, approximately 87 percent of the 375 rabbits killed by hunters and examined by the State were identified as eastern cottontails, and approximately 13 percent were New England cottontails (adapted from Goodie *et al.* 2005, p. 4 and Table 2). Similarly, in Rhode Island, most rabbit hunting occurs on farm lands, where the eastern cottontail is most often the targeted species and New England cottontails are absent (Stolgitis, *in litt.* 2000; Tefft *et al., in litt.* 2014). In a New Hampshire study prior to the closing of cottontail hunting, of 50 collared New England cottontails

monitored, only 1 was taken by a hunter (J. Litvaitis, *pers. comm.,* 2000).

In addition to level of hunter effort, the New England cottontail's behavior also influences its risk of exposure to hunting mortality. For example, New England cottontails forage within or close to dense cover (Smith and Litvaitis 2000, p. 2134), and typically hold in safe areas when disturbed. They also tend to remain in dense habitat and are, therefore, not as easily run by hounds and taken by hunters as eastern cottontails or snowshoe hares (Kilpatrick *et al., in litt.* 2014). Research shows that New England cottontails are more vulnerable to mortality from predation in smaller patches of habitat than in larger ones (Barbour and Litvaitis 1993, p. 321). This pattern may hold true for hunting mortality as well because rabbits on small patches eventually exploit food available in the best cover, and venture farther from shelter to feed where there is less escape cover in which to hide.

Pest Management

Rabbits may be regarded as pests and killed by gardeners and farmers. However, because of differences in habitat preference of the two cottontail species, most farmers and homeowners are more likely to encounter eastern cottontails, which occur in the more open habitats of farms and residential lawns, than New England cottontails. Therefore, targeted pest management of rabbits is unlikely to be a significant source of mortality of New England cottontails.

In summary, based on the best available information, we concur with Litvaitis' (1993a, p. 11) previous assessment that hunting restrictions or other nonhabitat-based management will likely have no influence on current or future populations of the species, and we conclude that current hunting pressure is a stressor for only a very limited number of individual New England cottontails and does not appear to be a significant mortality factor or threat for the species as a whole. While the best available information indicates the hunting is not a threat now or likely to be in the future, should the New England cottontail's population decline to substantially low levels in the future such that the viability of individual animals become substantially important to the species as a whole, the current stressor of hunting mortality may rise to the level of a threat. In addition, we have no information to indicate that pest management actions are affecting New England cottontails.

Conservation Efforts To Reduce Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

As discussed above, New Hampshire does not allow cottontail hunting in areas where the New England cottontail is known to occur, and Maine does not allow cottontail hunting at all. We are unaware of any other conservation efforts to eliminate the very limited hunting mortality occurring in the species' range. However, as discussed above, increasing habitat patch size (Factor A) may further reduce the limited exposure that individual New England cottontails have to hunting mortality.

Summary of Factor B—We conclude based on the best scientific and commercial information available that overutilization for commercial, recreational, scientific, or educational purposes does not currently pose a threat to the New England cottontail, nor is it likely to become a threat in the future.

Factor C. Disease or Predation

Disease

Cottontails are known to contract a number of different diseases, such as tularemia, and are naturally afflicted with both ectoparasites such as ticks, mites, and fleas and endoparasites such as tapeworms and nematodes (Eabry 1968, pp. 14–15). Disease has been attributed to population declines in rabbits over numerous areas (Nelson 1909, p. 35); however, there is little evidence to suggest disease is currently a limiting factor for the New England cottontail. DeVos *et al.* (1956) *in* Eabry (1983, p. 15) stated that the introduced eastern cottontail on the Massachusetts islands of Nantucket and Martha's Vineyard probably competed with the native New England cottontail and introduced tularemia to the islands. However, it is not known whether tularemia played a role in the disappearance of New England cottontail from the islands. Chapman and Ceballos (1990, p. 96) do not identify disease as an important factor in the dynamics of contemporary cottontail populations. Rather, they indicate that habitat is key to cottontail abundance and that populations are regulated through mortality and dispersal (see the Life History and Factor A sections above for further discussion regarding the importance of habitat).

Three efforts are currently underway involving research and monitoring of disease and parasites in the New England cottontail. First, wild New England cottontails obtained as breeding stock for the captive-breeding effort at the Roger Williams Park Zoo in Providence, Rhode Island, receive a complete veterinary exam (Fuller and Tur 2015, p. 50). Additionally, researchers at Brown University are studying the disease ecology of New England and eastern cottontails (Smith, *in litt.* 2014). And lastly, in New York, researchers are studying parasites (Fuller and Tur 2015, p. 54). To date, no incidences of disease or parasites have been reported from these three monitoring efforts or from other sources. The best available information indicates that disease is not a threat to the New England cottontail.

Predation

Brown and Litvaitis (1995, p. 1007) found that mammalian predators accounted for the loss of 17 of 40 New England cottontails in their study. Barbour and Litvaitis (1993, p. 325) determined that coyotes (*Canis latrans*) and red foxes were the primary predators of New England cottontails in New Hampshire. Coyotes first appeared in New Hampshire and Maine in the 1930s, in Vermont in the 1940s, and in southern New England in the 1950s (Foster *et al.* 2002, p. 1348; DeGraaf and Yamasaki 2001, p. 341). Since then, coyote populations have increased throughout the Northeast (Foster *et al.* 2002, p. 1348; Litvaitis and Harrison 1989, p. 1180), and they even occur on many offshore islands. Further, coyotes have become especially abundant in human-dominated habitats (Oehler and Litvaitis 1996, p. 2070). Litvaitis *et al.* (1984, p. 632) noted that cottontails were a major prey of bobcats (*Felis rufus*) in New Hampshire during the 1950s, and were recorded in the stomachs of 43 percent of the bobcats examined; later, it was determined that the cottontails found in the bobcat study were most likely all New England cottontails (Litvaitis, *in litt.* 2005). In addition to coyotes and bobcats, other mammalian predators of cottontail rabbits in New England include weasels (*Mustela sp.*) and fishers (*Martes pennanti*). Avian predation is also considered a source of mortality for New England cottontails (Smith and Litvaitis 1999, p. 2136), and both barred owls (*Strix varia*) and great horned owls (*Bubo virginianus*) took cottontails in a New Hampshire study, where an enclosure prevented losses to mammalian predators. Litvaitis *et al.* (2008, p. 180) conclude that the abundance of hunting perches for red-tailed hawks (*Buteo jamaicensis*) and other raptors reduces the quality of

habitat afforded cottontails along power lines.

Winter severity, measured by persistence of snow cover, is believed to affect New England cottontail survival because it increases the rabbits' vulnerability to predation, particularly in low-quality habitat patches (Brown and Litvaitis 1995, pp. 1005–1011). Compared to snowshoe hares, New England cottontails have proportionately heavier foot loading (*i.e.,* feet sink farther into the snow) and do not turn white in winter (pelage color contrasts with snow making the species more visible to predators). Villafuerte *et al.* (1997, p. 151) found that snow cover reduces the availability of high-quality foods, and likely results in rabbits becoming weakened nutritionally. In a weakened state, rabbits are more vulnerable to predation. Brown and Litvaitis (1995, pp. 1005–1011) found that, during winters with prolonged snow cover, a greater proportion of the cottontails in their study were killed by predators. Eighty-five percent of the current occurrences of the New England cottontail are within 50 miles of the coast, and 100 percent are within 75 miles of the coast. Litvaitis and Johnson (2002, p. 21) hypothesize that snow cover may explain this largely coastal distribution of this species in the Northeast (generally less snow falls and fewer snow cover days occur in coastal versus interior areas) and may be an important factor defining the northern limit of its range. The preceding studies suggest that a stochastic event, such as a winter or consecutive winters with unusually persistent snowfall (see Factor E—Climate Change), will reduce the number and distribution of New England cottontails due to predation. This effect would not have been a concern under historical conditions. However, with the current level of habitat fragmentation and the number of small patches of habitat (Factor A), coupled with vulnerability to predation in these small patches, winter severity could affect the persistence of local populations and could contribute to further reductions in the range of the species.

New England cottontails are known or expected to be killed by domestic dogs (*Canis familiaris*) and cats (*Felis catus*) (Walter *et al.* 2001, p. 17; Litvaitis and Jakubas 2004, p. 15; Kays and DeWan 2004, p. 4). The significance of the domestic cat as a predator on numerous species is well known (Coleman *et al.* 1997, pp. 1–8). The domestic cat has been identified as a significant predator of the endangered Lower Keys marsh rabbit (*Sylvilagus palustris hefneri*), and is considered the single biggest threat to the recovery of that species (Forys and Humphrey 1999, p. 251). According to the American Veterinary Medical Association (2002), cats occur in 31.6 percent of homes in the United States, and the average number of cats per household is 2.1. We do not have direct evidence regarding the role of domestic cats in influencing New England cottontail populations; however, Rhode Island biologists hypothesize that cats may be a threat to New England cottontails in that State (Tefft *et. al., in litt.* 2014). Given the high human population and housing densities found throughout the range of the New England cottontail, the domestic cat may be a predator of the species, though the lack of specific information makes it impossible to determine the extent of the possible predation.

Predation is a natural source of mortality for all rabbits. Under historical circumstances predation would not have been a factor that posed a risk to the New England cottontail's survival. However, the majority of present-day thicket habitats supporting New England cottontails are of an insufficient size to provide adequate cover and food to sustain the species' populations amid high predation rates from today's more diverse set of natural and human-induced mid-sized carnivores (Brown and Litvaitis 1995, pp. 1005–1011; Villafuerte *et al.* 1997, pp. 148–149).

The best available information suggests that land use patterns influence predation rates and New England cottontail survival in several ways. Brown and Litvaitis (1995, pp. 1005–1011) compared the survival of transmitter-equipped New England cottontails with habitat features in surrounding habitat patches. They found that the extent of developed lands, coniferous cover, and lack of surface water features were associated with an increase in predation rates. In addition, Oehler and Litvaitis (1996, pp. 2070–2079) examined the effects of contemporary land uses on the abundance of coyotes and foxes and concluded that the abundance of these generalist predators doubled as forest cover decreased and agricultural land use increased. Thus, the populations of predators on the New England cottontail increased substantially at the times prior to the regeneration of agricultural and other lands to more mature forests, which further depressed New England cottontail populations.

The abundance of food and risk of predation are highly influential in determining the persistence of small- and medium-sized vertebrates such as the New England cottontail. Barbour and Litvaitis (1993, pp. 321–327) found that, as food in the most secure areas was depleted, New England cottontails were forced to utilize lower quality forage or feed farther from cover where the risk of predation was greater and that, as a result, New England cottontails on small patches of habitat were killed at twice the rates and earlier in winter than cottontails on larger habitat patches. Furthermore, Villafuerte *et al.*'s (1997, pp. 149–150) study of New England cottontail urea nitrogen:creatinine ratios demonstrated that New England cottontails on small patches exhibited reduced ratios that were indicative of nutrient deprivation and that may have led individuals to forage in suboptimal cover where they experienced higher predation rates than individuals occupying larger patches (Villafuerte *et al.* 1997, pp. 149–150). Villafuerte *et al.* (1997, p. 151) concluded that forage limitations imposed by habitat fragmentation determine the viability of local populations of New England cottontails by influencing their vulnerability to predation.

Thus, as landscapes become more fragmented, vulnerability of New England cottontails to predation increases not only because there are more predators, but also because cottontail habitat quantity and quality (forage and escape cover) are reduced (Smith and Litvaitis 2000, pp. 2134–2140). Individuals on larger patches were less vulnerable to predation; therefore, large patches of habitat may be essential for sustaining populations of this species in a human-altered landscape.

Conservation Efforts To Reduce Disease or Predation

As discussed above, disease is not known to be a threat to the New England cottontail. Therefore, no conservation measures to manage disease have been planned or implemented (Fuller and Tur 2012, p. 55). Nevertheless, as described above, three conservation efforts are underway to monitor and investigate new instances of disease should they occur within the species.

Predation is considered to be a stressor, in that small New England cottontail populations occupying landscapes containing insufficient amounts of high-quality habitat are particularly vulnerable. Currently, there are no efforts in place to suppress predator numbers to increase New England cottontail survival (Fuller and Tur 2012, p. 65; Boland *et al., in litt.* 2014; Holman *et al., in litt.* 2014; Scarpitti and Piche, *in litt.* 2014; Tefft *et*

al., in litt. 2014; Kilpatrick *et al., in litt.* 2014; Novak *et al., in litt.* 2014). Instead, conservation efforts to increase habitat availability, as described in the Conservation Actions to Reduce Habitat Destruction, Modification, or Curtailment of Its Range section above, are being implemented that indirectly reduce New England cottontail vulnerability to predation.

Summary of Factor C—Disease does not appear to be an important factor affecting New England cottontail populations and is not considered a threat to the species, nor is it expected to become a threat in the future. Predation is a routine aspect of the life history of most species, and under natural conditions (*i.e.,* prior to settlement by Europeans in the Northeast and the substantial habitat alteration that has followed) predation was likely not a threat to the persistence of the New England cottontail. Today, however, the diversity of predators has increased, the amount of suitable cottontail habitat has decreased, and the remaining habitat is highly fragmented with remnant habitat patches often small in size. The best available information strongly suggests that most cottontails occupying small habitat patches will be killed by predators, as few rabbits that disperse into or are born in those areas live long enough to breed; thus, most small thicket habitat patches are unoccupied by cottontails. Since predation is strongly influenced by habitat quantity and quality, we conclude that the primary threat to the species is the present destruction, modification, and curtailment of its habitat and range (Factor A), and that predation is a contributing threat to the New England cottontail's viability. In the Policy for the Evaluation of Conservation Efforts Analysis section below we further evaluate the Conservation Strategy to determine if the threat of predation is expected to persist into the future.

Factor D. The Inadequacy of Existing Regulatory Mechanisms

There are only limited regulatory mechanisms available to address the destruction or modification of New England cottontail habitat, especially on private lands. Local governments regulate development through zoning ordinances; we are unaware of any locally developed regulatory mechanisms that specifically address threats to New England cottontail habitat. Some New England cottontail occurrences are associated with sites that contain or are adjacent to riparian vegetation, such as borders of lakes, beaver wetlands, and rivers. However, the New England cottontail is primarily an upland, terrestrial species that sometimes occurs along the margins of these wetland types. Federal and State laws, such as section 404 of the Clean Water Act of 1972 (86 Stat. 816) and Maine's Natural Resources Protection Act (Title 38, section 435–449), that provide protection to wetlands and upland buffers offer protection to only a small number of New England cottontail occurrences.

State wildlife agencies in the Northeast have the authority to regulate hunting of the New England cottontail by setting hunting seasons and bag limits. However, most northeastern States cannot restrict the take of New England cottontails without also reducing hunting opportunities for the eastern cottontail, a common species, because the two species are similar in appearance and cannot be easily distinguished at a distance, and sometimes occur within the same habitat patches (Walter *et al.* 2001, p. 21). In Maine, where the only cottontail species is the New England cottontail, cottontail hunting has been prohibited since 2004 (MEDIFW 2004; MEDIFW 2014). In recognition of the declining status of the New England cottontail, New Hampshire similarly closed the eastern cottontail hunting season in 2004/2005 in those portions of the State where New England cottontails are known to occur, and it has remained closed (NHFG 2004; NHFG 2014). Harvest of New England cottontail is legal in Massachusetts, Rhode Island, Connecticut, and New York (see discussion under Factor B). Under Factor B, above, we concluded that hunting, by itself, is not a threat to the New England cottontail at the species level, but may be a concern for small localized populations where hunting mortality may contribute to further declines in those areas.

The New England cottontail is currently listed under State endangered species laws in Maine and New Hampshire (Boland *et al., in litt.* 2014; Holman *et al., in litt.* 2014). No other State currently lists the New England cottontail as a threatened or endangered species. The Endangered Species Conservation Act (ESCA) of New Hampshire prohibits the export, take, and possession of State species that have been identified as endangered or threatened (Revised Statutes Annotated [RSA] 212–A:7). However, the executive director of NHFGD may permit certain activities, including those that enhance the survival of the species. Penalties for violations of RSA 212–A:7 of the ESCA are identified (RSA 212–A:10, II). The Maine Endangered Species Act (MESA) prohibits the export, take, and possession of State species that have been identified as endangered or threatened (12 MRS sections 12801–12810). Under MESA's endangered designation, the State agencies have the ability to review projects that are carried out or funded by State and Federal agencies and assess those projects for effects to the New England cottontail. In some cases, projects may be modified or mitigated to ensure that deleterious effects to the New England cottontail are minimized. However, the existing statutes cannot require the creation and maintenance of suitable habitat at the spatial scales described under Factor A; consequently, the loss of habitat due to natural forest succession is likely to proceed.

Since the State listing of the species, the distribution of the New England cottontail has continued to decline in Maine (Fenderson 2010, p. 104), while in New Hampshire the distribution declined, but is now improving at some locations where active management is occurring (Fenderson 2014, p. 12; H. Holman, *pers. comm.,* 2015). This slight improvement, however, is likely attributed to implementation of voluntary conservation measures to improve habitat and population augmentation efforts described under Factor A (H. Holman, *pers. comm.,* 2015), and not to regulatory processes. The New England cottontail has been identified as a ''Species of Greatest Conservation Concern'' (SGCN) in all seven State Comprehensive Conservation Strategies throughout the species' historical and current range. Species of Greatest Conservation Concern are defined as species that are rare or imperiled or whose status is unknown. As a result, the New England cottontail is receiving additional attention by State managers. For example, New Hampshire suggests development of early successional habitat networks in landscapes currently occupied by the species (*http://www.wildlife.state.nh.us/Wildlife/wildlife_plan.htm* (accessed March 2015)). However, the identification of the New England cottontail as an SGCN is intended to convey concern so as to draw conservation attention to the species and provides no regulatory function.

Conservation Efforts To Increase Adequacy of Existing Regulations

While there are conservation efforts to raise awareness of the species' habitat needs, these are not regulatory in nature. We are unaware of any ongoing conservation efforts to increase the

adequacy of existing regulatory mechanisms.

Summary of Factor D—We conclude that the best available information indicates hunting is not a limiting factor for the species and the existing regulatory mechanism to control the legal take of New England cottontails through hunting is adequate. Conversely, we are unaware of any locally developed regulatory mechanisms, such as local zoning ordinances, specifically designed to address the threat of habitat destruction, modification, or curtailment for this species. While we cannot consider non-regulatory mechanisms here under Factor D, we acknowledge in Factor A above and the Policy for the Evaluation of Conservation Efforts section below that the threat of habitat destruction, modification, or curtailment is being managed now and is likely to continue to be managed into the future.

Factor E. Other Natural or Manmade Factors Affecting Its Continued Existence

Competition

The eastern cottontail was released into much of the range of the New England cottontail, and the introduction and spread of eastern cottontails have been a factor in reducing the range and distribution of the New England cottontail. Prior to their introduction, the eastern cottontail extended northeast only as far as the lower Hudson Valley (Bangs 1894, p. 412). By 1899, tens of thousands of individuals of four or five different subspecies of the eastern cottontail were introduced to the New England cottontail's range, beginning on Nantucket Island, Massachusetts (Johnston 1972, p. 3). By the 1930s, eastern cottontails were known to occur in western Connecticut (Goodwin 1932, p. 38), most likely as a result of introductions (Hosley 1942, p 18). Large-scale introductions of eastern cottontails to New Hampshire (Silver 1957, p. 320), Rhode Island (Johnston 1972, p. 6), Massachusetts (Johnston 1972, pp. 4–5), and possibly Vermont (Kilpatrick, *in litt.* 2002) have firmly established the eastern cottontail throughout most of New England where it remains common. The exception is Maine, where the New England cottontail remains the only *Sylvilagus* species (Litvaitis et al. 2006, p. 1193; Boland *et al., in litt.* 2014; Kilpatrick *et al., in litt.* 2014; Tefft *et al., in litt.* 2014; Novak *et al., in litt.* 2014).

The eastern cottontail is larger (1,300 gm (2.9 lb)) than the New England cottontail (Chapman and Ceballos 1990, p. 96). Probert and Litvaitis (1996, p. 289) found that eastern cottontails, though larger, were not physically dominant over New England cottontails and concluded that interference competition did not explain the change in the distribution and abundance of the latter. In a follow-up investigation, Smith and Litvaitis (2000, entire) assessed winter foraging strategies used by the two species by monitoring the response of eastern and New England cottontails to variations in food and cover within large enclosures. Smith and Litvaitis (2000, p. 239) found that the eastern cottontail was able to maintain physical condition when food resources in cover were low by venturing into open areas to feed from feeders supplied with commercially available rabbit forage. In contrast, New England cottontails were reluctant to venture into open areas to exploit these resources, and their physical condition declined (Smith and Litvaitis 2000, p. 2138). Smith and Litvaitis (2000, pp. 2138–2139) also found that when New England cottontails did venture into open areas for forage, they experienced higher rates of predation by owls than did eastern cottontails.

Smith and Litvaitis (2000, p. 2139) suggest that the increased survival of eastern cottontails foraging in low cover areas is made possible by their enhanced predator detection ability. In a companion study, Smith and Litvaitis (1999, p. 57) reported that the eastern cottontail had a larger exposed surface area of the eye and consequently had a greater reaction distance to a simulated owl than did New England cottontails. Consequently, eastern cottontails have the ability to use a wider range of habitats, including relatively open areas such as meadows and residential back yards, compared to the New England cottontail, and may be able to exploit newly created habitats sooner than New England cottontails (Litvaitis *et al.* 2008).

In addition to the morphological and behavioral differences between the two species, there are important physiological differences that may influence competition between the two species. Tracy (1995, pp. 65–67) compared the metabolic physiology of the two species and found that the eastern cottontail had a significantly higher basal metabolism (the amount of energy expended while at rest). Based on the findings, Tracy (1995, pp. 68–75) suggested that the difference in metabolic rate may confer a competitive advantage on eastern cottontails, by affording eastern cottontails an increased reproductive capacity and predator avoidance capability, and to displace the New England cottontail from areas containing high quality food resources. Conversely, eastern cottontails may be unable to meet their metabolic demands in habitats characterized by relatively nutrient poor food resources such as ericaceous (related to the heath family) forests, whereas the New England cottontail may be able to persist. The ability to maintain winter body condition while occupying small habitat patches may be the reason the eastern cottontail is more fecund (capable of producing offspring) than the New England cottontail (Chapman and Ceballos 1990, p. 96) and the reason eastern cottontails, once established, are not readily displaced by New England cottontails (Probert and Litvaitis 1996, p. 292).

The competitive advantage of eastern cottontails, however, may be lost in nutrient-deficient sites, such as in pine barrens and ericaceous shrublands, where resources to meet the higher energy demands of this species are lacking but may be adequate to support the resource needs of the New England cottontail (Tracy 1995, p. 69). These nutrient-deficient sites are relatively stable and persistent through time in comparison to other disturbance-generated habitats, such as young forests. Litvaitis et al. (2008, p 176) suggested that relatively stable shrublands may allow New England cottontails to coexist with eastern cottontails. This ability to persist in stable habitats may explain why habitats occupied by the New England cottontail in Connecticut are characterized by greater canopy cover and basal area than sites occupied by eastern cottontails (Gottfried 2013, p. 18).

Throughout most of the New England cottontail's range, conservationists consider the presence of eastern cottontails among the most substantial conservation issues to be addressed if efforts to restore the New England cottontail are to be successful (Probert and Litvaitis 1996, p. 294; Fuller and Tur 2012, p. 20; Scarpitti and Piche, *in litt.* 2014; Tefft *et al., in litt.* 2014; Kilpatrick *et al., in litt.* 2014; Novak *et al., in litt.* 2014). Uncertainty remains, however, regarding the best approaches to managing New England and eastern cottontail populations to ensure that the former persists (Fuller and Tur 2012, pp. 20–21). The best available information strongly suggests that competition with eastern cottontails has been a factor in the decline of the New England cottontail and that the effect is greatest in landscapes comprising small habitat patches. Therefore, we conclude that the primary threat to the species is the present destruction, modification, and curtailment of its habitat and range

(Factor A), and that competition with eastern cottontails is a contributing threat to the New England cottontail's viability.

White-Tailed Deer Herbivory

In our previous CNORs (71 FR 53756; 72 FR 69034), we concluded that competition with, and habitat degradation by, white-tailed deer (*Odocoileus virginianus*) may be a risk factor to the New England cottontail as a result of the deer's effect on forest regeneration. This earlier conclusion was based on the white-tailed deer's high population densities (J. McDonald, *in litt.* 2005), their similar food habits to cottontails (Martin *et al.* 1951, pp. 241–242, 268–270), and their documented negative direct and indirect effects on forest vegetation in many areas of the eastern United States (Latham *et al.* 2005, pp. 66–69, 104; deCalesta 1994, pp. 711–718). While it was reasonable to conclude at the time that white-tailed deer may be competing with New England cottontail for food because the two species overlapped in areas of occurrence and it was the best available information, we had no direct evidence that deer herbivory was having an actual effect on New England cottontail. Since then, we requested specific information from State wildlife agencies indicating that the presence of deer is affecting the status of the New England cottontail. The State wildlife agencies responded that they had no information indicating deer herbivory was affecting New England cottontail (Boland *et al., in litt.* 2014; Holman *et al., in litt.* 2014; Scarpitti and Piche, *in litt.* 2014; Tefft *et al., in litt.* 2014; Kilpatrick *et al., in litt.* 2014; Novak *et al., in litt.* 2014). Furthermore, we have no such information from any other source that this one-time potential risk factor is presently having negative effects on New England cottontail. Consequently, lacking direct evidence that herbivory by white-tailed deer is currently compromising habitat quality and quantity for the New England cottontail, we conclude that excessive herbivory by white-tailed deer is currently not a threat to the species.

Road Mortality

State wildlife agencies report that road kills are an important source for obtaining specimens of rabbits, including the New England cottontail. Road-killed rabbits were second only to hunting mortality as a source for cottontail specimens for a distributional study in Connecticut: Of 108 cottontail specimens obtained, 3 were identified as New England cottontails (Walter *et al.* 2001, pp. 13–19). Although road mortality does result in the death of a few individuals, New England cottontail populations are not considered to be significantly affected by vehicular mortality (Boland *et al., in litt.* 2014; Holman *et al., in litt.* 2014; Scarpitti and Piche, *in litt.* 2014; Tefft *et al., in. litt.* 2014; Kilpatrick *et al., in litt.* 2014; Novak *et al., in litt.* 2014).

Small Population Size

As provided in the Life History section, extant populations of New England cottontails are believed to function as metapopulations with local extinction events likely the result of demographic, environmental, and genetic stochasticity. Existing populations in Maine likely contain fewer than 700 individuals scattered across four separate areas (Boland *et al., in litt.* 2014). Similarly, in New Hampshire the current population is thought to contain fewer than 200 individuals located within two distinct areas (Holman *et al., in litt.* 2014). As a consequence of habitat fragmentation and loss, these populations exhibit the effects of small population size, as evidenced by the presence of genetic drift (change in the frequency of alleles (gene variants) in a population due to random sampling of individuals) and critically low effective population sizes (number of individuals who contribute offspring to the next generation) (Fenderson *et al.* 2014, entire). For these populations, Fenderson *et al.* (2014, p. 17) suggested that habitat creation alone may be insufficient to improve their status and that translocations may be necessary to augment existing populations. The effect of small population size is likely exhibited in Rhode Island's remaining population, since current estimates indicate that there are fewer than 100 individuals within the State (Tefft *et al., in litt.* 2014). In the remainder of the New England cottontail's range, populations are generally larger and presumed to be less affected by fragmentation (Scarpitti and Piche, *in litt.* 2014; Kilpatrick *et al., in litt.* 2014; Novak *et al., in litt.* 2014); consequently, the effects of small population size are not anticipated to be a significant biological consequence throughout the species' range. However, if the total number of New England cottontail populations continues to decline, the remaining populations may experience the deleterious effects of small population size.

Climate Change

Our analyses under the Act include consideration of observed or likely environmental effects related to ongoing and projected changes in climate. As defined by the Intergovernmental Panel on Climate Change (IPCC), ''climate'' refers to average weather, typically measured in terms of the mean and variability of temperature, precipitation, or other relevant properties over time, and ''climate change'' thus refers to a change in such a measure that persists for an extended period, typically decades or longer, due to natural conditions (*e.g.,* solar cycles) or human-caused changes in the composition of the atmosphere or in land use (IPCC 2013, p. 1450). Detailed explanations of global climate change and examples of various observed and projected changes and associated effects and risks at the global level are provided in reports issued by the IPCC (2014 and citations therein); information for the United States at national and regional levels is summarized in the National Climate Assessment (Melillo *et al.* 2014 entire and citations therein; see Melillo *et al.* 2014, pp. 28–45 for an overview). Because observed and projected changes in climate at regional and local levels vary from global average conditions, rather than using global-scale projections we use ''downscaled'' projections when they are available and have been developed through appropriate scientific procedures, because such projections provide higher resolution information that is more relevant to spatial scales used for analyses of a given species and the conditions influencing it (see Melillo *et al.* 2014, Appendix 3, pp. 760–763 for a discussion of climate modeling, including downscaling). In our analysis, we use our expert judgment to weigh the best scientific and commercial information available in our consideration of relevant aspects of climate change and related effects.

Downscaled climate change models for the Northeastern United States (Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania) indicate that temperatures will increase in the future, more so in summer than in winter (Hayhoe *et al.* 2008, p. 433). Overall, the region is expected to become drier overall, but average seasonal precipitation is expected to shift toward winter increases of 20 to 30 percent with slightly drier summers (Hayhoe *et al.* 2008, p. 433). Variations across the region are also expected, with northern portions of the region drying out more than southern areas, with a ''hot spot'' developing over coastal southern Maine (Hayhoe *et al.* 2008, p. 433). Although the New England cottontail is a habitat specialist that is reliant upon dense

shrublands (see Life History section), sites occupied by the species are variable and range from droughty (*e.g.,* pitch pine-scrub oak) to wet (*e.g.,* shrub wetlands). Given the range of habitats occupied by the species, predicting the effects of climate change is complicated.

Climate change is anticipated to alter the frequency, intensity, duration, and timing of forest disturbance (Dale *et al.* 2001, entire), which is likely to positively influence habitat for the species. Climate change is also expected to affect invasive species disproportionately to native species (Hellmann *et al.* 2008, entire), which is likely to influence the distribution and abundance of the eastern cottontail, as well as those habitats comprising exotic invasive shrubs (*e.g., Rosa multiflora* and *Lonicera spp.*), and, therefore, may affect the New England cottontail. Consequently, accurately predicting climate change effects to the New England cottontail is not easily disentangled. That said, the bioclimatic envelope (species distribution as predicted by climate) for the New England cottontail is predicted to increase by 110 percent by the end of the century and shift approximately 1 degree poleward (Leach *et al.* 2014, p. 126), which suggests that the species' distribution may increase with climate change.

Conservation Efforts To Reduce Other Natural or Manmade Factors Affecting Its Continued Existence

Competition

As previously described under Conservation Actions to Reduce Habitat Destruction, Modification, or Curtailment of Its Range, there are many previous and ongoing conservation efforts to increase and maintain suitable habitat. Increased habitat patch size and connectivity will reduce the effects of eastern cottontail competition. However, there remain uncertainties regarding the best approaches to managing sympatric populations; therefore, research and monitoring has been identified as a top-priority need to address the conservation needs of the New England cottontail (Fuller and Tur 2012, pp. 20, 53, 77–80, 114–120). For example, a study to determine the efficacy and benefits of managing eastern cottontails for the benefit of the New England cottontail is underway, and the results will be integrated into the Conservation Strategy's adaptive management process so that it may inform future management actions (Tur and Eaton, *in litt.* 2013; Fuller and Tur 2012, p. 114) (see the Policy for the Evaluation of Conservation Efforts Analysis section below for additional information).

Small Population Size

To address the threat of small population size, the Conservation Strategy identifies the need for specific population management objectives, including captive breeding and relocation of New England cottontails (Fuller and Tur 2012, p. 61–67), which is further corroborated by Fenderson *et al.* (2014, entire) for populations in New Hampshire and Maine. A captive-breeding pilot program has been initiated at the Roger Williams Park Zoo (RWPZ) to evaluate and refine husbandry, captive propagation, and reintroduction protocols for the New England cottontail. A Technical Committee Captive-breeding Working Group facilitates and monitors implementation of this conservation tool. Since 2011, approximately 131 young have been produced at the RWPZ, and individually marked New England cottontails are released at sites in Rhode Island and New Hampshire (Fuller and Tur 2015, pp. 49–53). Success of these efforts is indicated by the presence of unmarked animals, which suggests that released animals are successfully breeding (Fuller and Tur 2015, pp. 51–52).

Through these efforts, populations of New England cottontails may be increasing and less susceptible to demographic and environmental stochastic events. Since these introductions involve the descendants from numerous geographic areas (Perrotti, *in litt.* 2014), we anticipate that genetic drift has been ameliorated and the possibility of genetic stochasticity affecting remnant populations in Rhode Island and New Hampshire has been reduced or eliminated. Nevertheless, genetic monitoring to determine the genetic health of these populations will be conducted (Fuller and Tur 2012, p. 54) (see the Policy for the Evaluation of Conservation Efforts Analysis section below). In contrast, plans to implement population augmentation in Maine may not occur until 2030 (Boland *et al., in litt.* 2014). Given the critically low effective population sizes in Maine, however, habitat creation alone may be insufficient (Fenderson *et al.* 2014, p. 17).

Summary of Factor E—In summary, habitat modification resulting from high densities of white-tailed deer was once thought to be a threat to the New England cottontail, but is no longer a concern. The best available information indicates that climate change and road mortality are not threats: In fact, climate change may benefit the species. Eastern cottontails compete with New England cottontails for food and space and may be suppressing New England cottontail populations. Since the effects of small population size and competition with eastern cottontails are inextricably linked to habitat quality, quantity, and connectivity, we conclude that the primary threat to the species throughout most of its range is the present destruction, modification, and curtailment of its habitat and range (Factor A), and that small population size is a contributing threat to the New England cottontail's viability. In the Policy for the Evaluation of Conservation Efforts Analysis section below we further evaluate the Conservation Strategy to determine if the threat of small population size and eastern cottontails is expected to persist into the future, as required by section 4(b)(1)(A) of the Act.

Cumulative Effects From Factors A Through E

As discussed above, habitat loss (Factor A) is the most significant threat to the New England cottontail. This directly affects the species through insufficient resources to feed, breed, and shelter and indirectly affects the species by amplifying the effects of predation (Factor C), competition with eastern cottontails (Factor E), and small population size (Factor E). In our analysis of these threats, we discussed previous and ongoing conservation efforts addressing these rangewide threats, which will be further analyzed in the Policy for the Evaluation of Conservation Efforts Analysis section below.

Policy for Evaluation of Conservation Efforts Analysis

As presented in the Summary of Information Pertaining to the Five Factors above, section 4(b)(1)(A) of the Act and our regulations at 50 CFR 424.119(f) require us to consider efforts by any State, foreign nation, or political subdivision of a State or foreign nation to protect the species. Such efforts would include measures by Native American Tribes and organizations. Also, Federal, Tribal, State, and foreign recovery actions (16 U.S.C. 1533(f)) and Federal consultation requirements (16 U.S.C. 1536) constitute conservation measures.

In addition to identifying such efforts under the Act and our policy implementing this provision, known as the Policy for Evaluation of Conservation Efforts (PECE) (68 FR 15100; March 28, 2003), we must, at the time of the listing determination,

evaluate whether formalized conservation efforts provide sufficient certainty of effectiveness on the basis of whether the effort or plan establishes specific conservation objectives; identifies the necessary steps to reduce threats or factors for decline; includes quantifiable performance measures for the monitoring of compliance and effectiveness; incorporates the principles of adaptive management; and is likely to improve the species' viability by eliminating or adequately reducing one or more of the threats identified in our section 4(a)(1) analysis. We must also evaluate the conservation efforts to determine the certainty that they will be implemented on the basis of the availability of resources necessary to carry out the effort; the authority of the parties to carry out the identified actions; the regulatory and procedural requirements necessary to carry out the action are in place; the schedule for completing and evaluating the efforts; and the extent of voluntary participation necessary to achieve the conservation goals has been identified and will be secured. The criteria for PECE are not considered comprehensive evaluation criteria for evaluating certainty of the formalized conservation effort, and consideration of species, habitat, location, and effort is provided when it is appropriate. To satisfy the requirements of PECE, conservation plans should, at a minimum, report data on existing populations, describe activities taken toward conservation of the species, demonstrate either through data collection or best available science how these measures will alleviate threats, provide a mechanism to integrate new information (adaptive management), and provide information regarding certainty of implementation.

An integral part of determining whether a species meets the definition of threatened or endangered requires us to analyze a species' risk of extinction. Central to this risk analysis is an assessment of the status of the species (*i.e.,* is it in decline or at risk of decline, and what is the rate of decline or risk of decline) and consideration of the likelihood that current or future conditions or actions will promote or threaten a species' persistence. This determination requires us to make a prediction about the future persistence of a species, including consideration of both future negative and positive effects of anticipated human actions. For formalized conservation efforts that are not fully implemented, or where the results have not been demonstrated, we will consider PECE criteria in our evaluation of whether, and to what extent, the formalized conservation efforts affect the species' status under the Act. The results of our analysis may allow us to conclude that the threats identified in the section 4(a)(1) analysis have been sufficiently reduced or eliminated to such an extent that the species does not meet the definition of threatened or endangered, or is threatened rather than endangered.

An agreement or plan intended to improve a species' status may contain numerous conservation objectives, not all of which are sufficiently certain to be implemented and effective. Those conservation efforts that are not sufficiently certain to be implemented and effective cannot contribute to a determination that listing is unnecessary, or a determination to list as threatened rather than endangered. Further, it is important to note that a conservation plan is not required to have absolute certainty of implementation and effectiveness to contribute to a listing determination. Rather, we need to be certain that the conservation objectives identified within the plan will be implemented and effective, such that the threats to the species are expected to be sufficiently reduced or eliminated. Regardless of the adoption of a conservation agreement or plan, if the best scientific and commercial information indicates that the species meets the definition of endangered or threatened on the day of the listing decision, then we must proceed with appropriate rulemaking under section 4 of the Act.

Because the certainty of implementation and effectiveness of formalized conservation efforts may vary, PECE specifies that each effort will be evaluated individually (68 FR 15114). In the Rangewide Conservation Efforts section above, we introduced the development of a conservation planning effort beginning in 2008, which was later formalized in 2011 and resulted in the development of the Conservation Strategy (Fuller and Tur 2012, entire). This Conservation Strategy represents the Parties' planning process and guides actions intended to improve and maintain populations of New England cottontails throughout the species' current range. There are a number of other formalized actions interrelated to the Conservation Strategy, some of which precede its completion but were integral to its development and implementation. Since these interrelated formalized actions contribute to the overall Conservation Strategy and its goal of addressing the New England cottontail's primary threat—loss of habitat—we conclude that they can be batched as a single conservation effort, and that we are not required to analyze each agreement separately; rather, we briefly describe in our full PECE analysis (available at *http://www.regulations.gov*) those actions, such as the two Candidate Conservation Agreements with Assurances for Maine and New Hampshire, as contributing to the collective effort.

Using the criteria in PECE, we evaluated the degree of certainty to which the Conservation Strategy would be effective at minimizing or eliminating threats to the New England cottontail. Our evaluation was facilitated by a recent report, entitled *New England Cottontail Conservation Progress, 2014 Annual Performance Report* (Fuller and Tur 2015, entire, available at *www.newenglandcottontail.org*), hereafter referred to as the Performance Report. In addition to our review of performance, we assessed the status of the New England cottontail, the specific threats to New England cottontail populations, and conservation actions planned and implemented to address those threats, at the local or Focus Area-specific scale. This information was provided in individual Focus Area Status Screening Templates (FASSTs) that were prepared for most of the Focus Areas identified in the Conservation Strategy (Fuller and Tur 2012, pp. 90–113). We used this information to determine if the conservation actions planned within the Focus Areas would maintain or increase populations to the extent that they might contribute to the goals of the Conservation Strategy. Further, in October 2014, we convened a meeting of the Parties, with facilitation support provided by WMI, to assess the Parties' commitment to implementing the Conservation Strategy and its individual components.

PECE Analysis Summary

Using the criteria in PECE, we evaluated the certainty of implementation and effectiveness of the Conservation Strategy. We have determined that the conservation objectives described therein have a high certainty of being implemented, based on the Parties' previous actions and commitments (Fuller and Tur 2015, entire) and the recent reaffirmation to its continuation (Sparks *et al., in litt.* 2014; Riexinger *et al., in litt.* 2014; Hyatt *et al., in litt.* 2014; Connolly, *in litt.* 2014; MacCallum, *in litt.* 2014; Ellingwood and Kanter, *in litt.* 2014; Weber, *pers. comm.* 2014; Weller, *pers. comm.* 2014). We have determined that the Conservation Strategy provides a high degree of certainty that it will be

effective. This is supported, in part, by the identification of all known threats, the development of actions to ameliorate them, monitoring, and application of the principles of adaptive management. Specifically, we find that the Conservation Strategy presents an effective approach that establishes a network of habitats of sufficient quality and quantity that is likely to compensate for the destruction, modification, and curtailment of the New England cottontail's habitat and range, the primary threat to the species. For example, the Conservation Strategy identifies 3,310 ha (8,179 ac) for land management activities to create, restore, or maintain suitable habitat; these management activities have been planned, initiated or completed and the initiated or completed projects have demonstrated examples of populations that have increased within specific patches (Fuller and Tur 2015, entire). Based on our evaluation of the conservation effort described in the Conservation Strategy and associated documents, we find that the conservation effort provides a high degree of certainty of implementation and effectiveness.

Our full analysis of the New England cottontail conservation effort pursuant to PECE can be found at *http://www.regulations.gov.*

Finding

As required by the Act, we considered the five factors in assessing whether the New England cottontail is endangered or threatened throughout all of its range. We examined the best scientific and commercial information available regarding the past, present, and future threats faced by the New England cottontail. We reviewed the petition, information available in our files, and other available published and unpublished information, and we consulted with recognized species and habitat experts and other Federal, State, and Tribal agencies. Based on our evaluation of the threats to the New England cottontail, we find that the present or threatened destruction, modification, or curtailment of its habitat or range (Factor A) is the most significant threat to the species. This directly affects the species through insufficient resources to feed, breed, and shelter and indirectly affects the species by amplifying the effects of predation (Factor C), competition with eastern cottontails (Factor E), and small population size (Factor E). Without the ongoing and planned implementation of the conservation measures described in the Conservation Strategy, these identified threats would remain at a level that would warrant listing of the New England cottontail.

Thus, we next considered conservation efforts pursuant to section 4(b)(1)(A) of the Act and our regulations at 50 CFR 424.119(f). This consideration includes an evaluation under the PECE policy of those conservation efforts within the Conservation Strategy, including commitments of funding and other resources, that have been implemented and not yet shown to be effective and those actions proposed for the future (see the Policy for the Evaluation of Conservation Efforts Analysis section above). Based on our evaluation of the conservation effort, as described in the Conservation Strategy and associated documents, we find that sufficient certainty of implementation and effectiveness is provided and the conservation effort forms part of the basis for our final listing decision for the New England cottontail. We find those actions taken under the auspices of the Conservation Strategy have yet to completely remove the threats specified above, but have been successful, and are anticipated to be fully successful in the future, in ameliorating the threats. For example, as of January 2015, the NRCS created or maintained approximately 3,700 ac (1,497 ha) of New England cottontail habitat under the Working Lands for Wildlife program (Fuller and Tur 2015, p. 59), and the agency anticipates implementing management actions on additional habitat as part of NRCS' 5-year plan. In addition, the 2,107 ac (852 ha) of scrub oak shrublands found on the Camp Edwards Training Site owned by the MDFW and leased to the Massachusetts Army National Guard are considered a stronghold for the New England cottontail, and conservation efforts to maintain and expand habitats are ongoing primarily through the use of prescribed fire (McCumber, *in litt.* 2015). Therefore, we conclude that the conservation efforts have reduced or eliminated current and future threats to the New England cottontail to the point that the species no longer is in danger of extinction now or in the foreseeable future.

Additionally, although the current rangewide estimate suggests there are approximately 17,000 New England cottontails, we estimate that only 10,500 individuals currently occupy landscapes where persistence of the species is anticipated. This estimate falls short of the population goal of 13,500 individuals. Nevertheless, the conservation actions implemented have demonstrably improved the population status of the New England cottontail at some locations, and that improvement is expected to continue through the Conservation Strategy's 2030 planning period, based on a high degree of certainty that the conservation effort will continue to be implemented and effective.

On the basis of the best scientific and commercial information available, we find that the current and future threats are not of sufficient imminence, intensity, or magnitude to indicate that the New England cottontail is in danger of extinction (endangered), or likely to become endangered within the foreseeable future (threatened). Therefore, the New England cottontail does not meet the definition of a threatened or endangered species, and we are withdrawing our previous ''warranted, but precluded findings'' and removing the species from the list of ''candidate'' species.

Significant Portion of the Range

Under the Act and our implementing regulations, a species may warrant listing if it is in danger of extinction or likely to become so throughout all or a significant portion of its range. The Act defines ''endangered species'' as any species which is ''in danger of extinction throughout all or a significant portion of its range,'' and ''threatened species'' as any species which is ''likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.'' The term ''species'' includes ''any subspecies of fish or wildlife or plants, and any distinct population segment [DPS] of any species of vertebrate fish or wildlife which interbreeds when mature.'' We published a final policy interpreting the phrase ''Significant Portion of its Range'' (SPR) (79 FR 37578). The final policy states that (1) if a species is found to be endangered or threatened throughout a significant portion of its range, the entire species is listed as an endangered or a threatened species, respectively, and the Act's protections apply to all individuals of the species wherever found; (2) a portion of the range of a species is ''significant'' if the species is not currently endangered or threatened throughout all of its range, but the portion's contribution to the viability of the species is so important that, without the members in that portion, the species would be in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range; (3) the range of a species is considered to be the general geographical area within which that species can be found at the time FWS or NMFS makes any particular status determination; and (4) if a vertebrate species is endangered or

threatened throughout an SPR, and the population in that significant portion is a valid DPS, we will list the DPS rather than the entire taxonomic species or subspecies. As stated above, we find the New England cottontail does not warrant listing throughout its range. Therefore, we must consider whether there are any significant portions of the range of the New England cottontail.

The SPR policy is applied to all status determinations, including analyses for the purposes of making listing, delisting, and reclassification determinations. The procedure for analyzing whether any portion is an SPR is similar, regardless of the type of status determination we are making. The first step in our analysis of the status of a species is to determine its status throughout all of its range. If we determine that the species is in danger of extinction, or likely to become so in the foreseeable future, throughout all of its range, we list the species as an endangered (or threatened) species and no SPR analysis will be required. If the species is neither in danger of extinction nor likely to become so throughout all of its range, we determine whether the species is in danger of extinction or likely to become so throughout a significant portion of its range. If it is, we list the species as an endangered or a threatened species, respectively; if it is not, we conclude that listing the species is not warranted.

When we conduct an SPR analysis, we first identify any portions of the species' range that warrant further consideration. The range of a species can theoretically be divided into portions in an infinite number of ways. However, there is no purpose to analyzing portions of the range that are not reasonably likely to be significant and endangered or threatened. To identify only those portions that warrant further consideration, we determine whether there is substantial information indicating that (1) the portions may be significant and (2) the species may be in danger of extinction in those portions or likely to become so within the foreseeable future. We emphasize that answering these questions in the affirmative is not a determination that the species is endangered or threatened throughout a significant portion of its range—rather it is a step in determining whether a more detailed analysis of the issue is required. In practice, a key part of this analysis is whether the threats are geographically concentrated in some way. If the threats to the species are affecting it uniformly throughout its range, no portion is likely to warrant further consideration. Moreover, if any concentration of threats apply only to portions of the range that clearly do not meet the biologically based definition of ''significant'' (*i.e.,* the loss of that portion clearly would not be expected to increase the vulnerability to extinction of the entire species), those portions will not warrant further consideration.

If we identify any portions that may be both (1) significant and (2) endangered or threatened, we engage in a more detailed analysis to determine whether these standards are indeed met. The identification of an SPR does not create a presumption, prejudgment, or other determination as to whether the species in that identified SPR is endangered or threatened. We must go through a separate analysis to determine whether the species is endangered or threatened in the SPR. To determine whether a species is endangered or threatened throughout an SPR, we will use the same standards and methodology that we use to determine if a species is endangered or threatened throughout its range.

Depending on the biology of the species, its range, and the threats it faces, it may be more efficient to address the ''significant'' question first, or the status question first. Thus, if we determine that a portion of the range is not ''significant,'' we do not need to determine whether the species is endangered or threatened there; if we determine that the species is not endangered or threatened in a portion of its range, we do not need to determine if that portion is ''significant.''

The threats currently affecting the New England cottontail, without consideration for the planned or implemented conservation efforts, are occurring throughout the species' range. Habitat loss, predation, and the effects of small population size are affecting the species relatively uniformly across its range. In addition, the Conservation Strategy and its specific actions will continue to be implemented throughout the species' range, and we have a high level of certainty that those efforts will be effective in addressing the species' rangewide threats. Therefore, we find that factors affecting the species are essentially uniform throughout its range, indicating no portion of the range warrants further consideration of possible endangered or threatened status under the Act.

Our review of the best available scientific and commercial information indicates that the New England cottontail is not in danger of extinction (endangered) nor likely to become endangered within the foreseeable future (threatened), throughout all or a significant portion of its range. Therefore, we find that listing the New England cottontail as an endangered or threatened species under the Act is not warranted at this time.

We request that you submit any new information concerning the status of, or threats to, the New England cottontail to our New England Field Office (see **ADDRESSES** section) whenever it becomes available. New information will help us monitor the New England cottontail and encourage its conservation. If an emergency situation develops for the New England cottontail, we will act to provide immediate protection.

References Cited

A complete list of references cited is available on the Internet at *http://www.regulations.gov* at Docket Number FWS–R5–ES–2015–0136 and upon request from the New England Field Office (see **ADDRESSES** section).

Author(s)

The primary author(s) of this document are the staff members of the New England Field Office.

Authority

The authority for this section is section 4 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: August 26, 2015.

Daniel M. Ashe,

Director, U.S. Fish and Wildlife Service.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

[Docket No. FWS–R4–ES–2015–0129; 4500030113]

RIN 1018–BA93

Endangered and Threatened Wildlife and Plants; Threatened Species Status for Platanthera integrilabia (White Fringeless Orchid)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), propose to list *Platanthera integrilabia* (white fringeless orchid), a plant species from Alabama, Georgia, Kentucky, Mississippi, South Carolina, and Tennessee, as a threatened species under the Endangered Species Act (Act). If we finalize this rule as proposed, it