

Appendix L: Species and Habitat Profile Template

Critical Habitat: [Name] *required for habitat profiles and species profiles*

Focal Species: [Name] *not required for habitat profiles*

Federal Listing: [Esa Listing Status] *not required for habitat profiles*

State Listing: [Rsa 212 Listing Status] *not required for habitat profiles*

Affected Species: [Species List] *not required for species profiles*

Global Rank: [Rank] *for habitats, list ranks of included NHB natural communities; for species, state species rank*

State Rank: [Rank] *for habitats, list ranks of included NHB natural communities; for species, state species rank*

Author: [Last Name, First Name, M.I.]

Affiliation: [Name]

NOTE: Italicized text should not be included in the profile. The format of the profile must follow the formatting of this template. Other formatting considerations such as time and date styles, abbreviations and acronyms, punctuation, citing literature in text, figure formats, etc. are covered in a separate document (Profile submission guidelines.doc). All bracketed fields must be completed to the extent possible.

Element 1: Distribution and Habitat

1.1 Habitat Description

[For habitat profiles, briefly list the key biotic and/or abiotic attributes that distinguish this habitat type from other habitat types. For species, briefly list habitat attributes that provide critical life history requirements.] *This field is a quick reference. Details about habitat health and quality will be described in subsequent fields where relevant. Citations for relevant literature on life history and habitat requirements should be included in Element 6.*

1.2 Justification:

[Briefly state the reason for conservation concern, the overall trend, or the pattern of change that indicates imperilment of the species and/or habitat (e.g., “throughout the northeast, alpine habitats are shrinking as timberline shifts upward in elevation”). Briefly justify the selection of this species/habitat and/or the exclusion of associated species (e.g., although species richness is typically lower in alpine habitats than adjoining systems, alpine habitats are rarer and generally have higher rates of endemism). Briefly link the health of the species/habitat to the health of taxonomically or ecologically associated species/habitats (e.g., changes in alpine communities may serve as an indicator of climate change, and provide early warning of impacts to wildlife at lower elevations).] *This field is a brief summary of the reasoning behind the inclusion of the species/habitat in the plan. Details about specific threats or anticipated benefits of conservation are described in subsequent fields where relevant.*

1.3 Protection and Regulatory Status:

[List pertinent (excluding ESA and RSA 212) federal, state, or local laws, ordinances, and rules regulating the take, transport, or use of the species and/or habitat.] *Proposed changes to NHB*

rankings, protection, or regulatory status should be addressed under Element 4 – Conservation Actions.

1.4 Population and Habitat Distribution:

[Briefly summarize the current and historic state range in a regional context (e.g. “approximately 75% of the northeastern population occurs within NH”). Describe spatial patterns of distribution within NH (e.g., biogeographical clustering vs. randomness, as in “clustered along northern rivers” or “scattered throughout the White Mountains”). Briefly identify patterns of isolation and fragmentation.] *This field is a brief summary of broad patterns of distribution. Details about specific locations will be described in subsequent fields.*

1.5 Town Distribution Map

[Map the distribution of species and/or habitats at the town level based on species occurrence data.] *To be provided by NHFG.*

1.6 Habitat Map

Completion of this field is required only for partners contracted to map species or habitat types. Relevant habitat maps will be provided to others that may require them to complete their habitat or species profiles.

[Describe the methodology used to map the locations of current, historical, and/or potential habitat patches, and evaluate limitations in the reliability of the resulting maps because of data, logistical, contractual, or methodological constraints.] *Provide a shapefile containing polygons delineating current, historical, and/or potential habitat patches. Further guidance will be provided to habitat-mapping contractors regarding information desired for shapefile attribute tables.*

1.7 Sources of Information:

[Briefly describe the sources or processes used (e.g., literature review, databases, meetings and forums, expert review or consultation) to gather information on the distribution of species/habitat during the planning process. Literature and other sources should be cited in text where applicable throughout the profile and full citations should be included in the profile bibliography in Element 6.]

1.8 Extent and Quality of Data:

[Justify the level of detail provided by describing the extent and quality of existing data on the distribution of the species/habitat across the state. Clearly identify gaps in knowledge about the distribution of the species/habitat.]

1.9 Distribution Research:

[List high priority survey, monitoring, and research efforts needed to provide unknown information about the distribution of the species/habitat.]

Element 2: Species/Habitat Condition

2.1 Scale:

[Identify an appropriate conservation planning unit (for use in Elements 2, 3, and 4) that directly links to polygons of species' populations and/or habitat patches. For instance, polygons may be: 1) grouped (e.g., by ecoregion subsection, Wildlife Management Unit, etc.), to reduce the number of units to a more manageable size for analysis; 2) split, to provide a more detailed ecological analysis (this may be the best option when polygons extend across a large geographic area); 3) treated individually. Spatial extent, configuration, and number of polygons should be considered.] *Scale will be resolved by the habitat mapper.*

2.2 Relative Health of Populations:

[Describe the relative abundance of the KEY populations/habitat occupying units mapped at the scale defined in section 2.1. Historical and potential occurrences should be included. Describe trends or viability of KEY populations in enough detail to identify where and what conservation actions need to take place under Element 4.]

2.3 Population Management Status:

Not required for habitat profiles. [Describe the relative efficacy of ongoing population management efforts with enough detail to identify populations potentially requiring conservation actions under Element 4, and to identify potential conservation opportunities.]

2.4 Relative Quality of Habitat Patches:

Required for all profiles. [Summarize the relative quality of KEY units mapped at the scale defined in section 2.1 in terms of their ability (or potential) to provide key ecological attributes of niches and habitats (e.g. availability of forage, nest sites, cover, diversity, and productivity). Describe KEY habitat patches in enough detail to identify where and what conservation actions need to take place under Element 4.]

2.5 Habitat Patch Protection Status:

[Summarize the relative protection status (e.g., fee, easement, other) of KEY units mapped at the scale defined in section 2.1 (e.g., ninety percent of mapped habitat patches in Wildlife Management Unit F are in fee-simple ownership by the state of New Hampshire, Division of Forests and Lands).]

2.6 Habitat Management Status:

[Summarize the relative efficacy of ongoing habitat management or restoration efforts with enough detail to identify habitat patches potentially requiring conservation action and to identify potential conservation opportunities.]

2.7 Sources of Information:

[Describe the process used (e.g., literature review, databases, meetings, expert review and consultation) to study the condition of species/habitat that were consulted during the planning process. Literature and other sources should be cited in text where applicable and included in the profile bibliography in Element 6.]

2.8 Extent and Quality of Data:

[Justify the level of detail provided by describing the extent and quality of existing data on the condition of species/habitat across the state. Clearly identify gaps in knowledge to adequately assess the condition of species/habitat.]

2.9 Condition Assessment Research:

[List high priority survey, monitoring, and research efforts needed to assess the current condition of species/habitat, including studies to develop measurable indicators of health and/or quality.]

Element 3: Species and Habitat Threat** Assessment

** *“THREAT” is used here synonymously with the term “Risk Factor”, which is used throughout the WAP. “Risk Factor” was adopted after this template was drafted.*

NOTE: Complete and attach Form 1: Risk Exposure, Form 2: Risk Factor Ranking, and Form 4: Local Threat Weighting. Technical assistance will be provided. Form 4 can not be completed without a map.

3.1.X [Name of Direct Threat, Threat Category, Categorical Rank] *Complete this field only for high-ranking direct threats identified in the threat ranking procedure. Technical assistance will be provided.*

(A) Exposure Pathway: [Describe the chain of causality (exposure pathway) that leads from human activity (regardless of scale or origin, e.g., local, state, regional, national, international), to a direct threat to the focal species and/or habitat, to a response in the focal species and/or habitat. Following is an example for describing the exposure pathway for wintering bats. “Recreational spelunkers that enter caves during the winter may disturb hibernating bats. This could result in the bats expending energy at a time of year when energy conservation is imperative to survival. As a result, direct mortalities may occur.”]

(B) Evidence: [Provide evidence to evaluate the severity, urgency, and underlying mechanisms of the direct threat for the species or habitat.]

3.2 Sources of Information:

[Describe the process used (e.g., literature review, databases, meetings, expert review and consultation) to study threats to species/habitat that were consulted during the planning process. Literature and other sources should be cited in text where applicable and included in the profile bibliography (Element 6).]

3.3 Extent and Quality of Data:

[Justify the level of detail provided by describing the extent and quality of existing data on the threats to the species/habitat across the state. Clearly identify gaps in knowledge about the threats to the species/habitat.]

3.4 Threat Assessment Research:

[List high priority survey, monitoring, and research efforts needed to identify threats that are adversely impacting the species and/or habitat, regardless of scale, including potential indicators of threats and evidence of their utility.]

Element 4: Conservation Actions

NOTE: Successful implementation of conservation actions rests on two assumptions: 1) that the conservation action will change the threat (i.e., conservation performance); 2) the targeted species/habitat will benefit by the change in the supposed threat (i.e., ecological response). Ideally, no action will be undertaken without reasonable evidence that the assumptions are true. However, there is no assurance that this will be the case. Because of this uncertainty, all actions that are undertaken need to be designed so that the assumptions can be evaluated. Doing so will allow practitioners to adapt conservation actions (if necessary) to focus on the correct problem or the correct implementation methods.

When there is insufficient information to elucidate whether a conservation action will clearly lead to a change in the threat (conservation performance) or that a change in the threat will lead to a change in the species or habitat (ecological response), then surveys, monitoring, or research should be indicated. The objectives of such research must focus on developing implementation methods to change the threat or evaluate whether or not the species/ habitat will respond beneficially to a proposed action.

4.1.X [Specific Conservation Action, Category] *For “Category,” list one of the following: Restoration and Management; Habitat Protection; Education and Outreach; Regulation and Policy. Specific conservation actions should correspond with “Category”. Examples include captive rearing, fee-simple acquisition, educational video production, revised collection permitting process, respectively.*

(A) [List of Direct Threats Affected] *Must include at least one high-ranking threat described in section 3.1.*

(B) Justification:

Briefly provide reasoning that the following assumptions/criteria are satisfied:

- 1) [the conservation action will actually impact the relevant threats in a measurable way in specific locations.]
- 2) [impacting those threats will actually cause a beneficial and measurable ecological response in specific populations or habitat patches]
- 3) [the spatial scale of the action is appropriate for the spatial scale of the threat]
- 4) [the timeframe of the action is appropriate for the urgency of the threat and responsiveness of the specific populations or habitat patches]
- 5) [the conservation action can be adapted to new information about the performance of the action to achieve the desired ecological response.]

(C) Conservation Performance Objective:

[Performance describes the causal relationship between the conservation action and the problem or threat. Define the desired performance of the conservation action by identifying the scale-appropriate attribute of the human or ecological system that the action is intended to *directly change*, the direction of the change, the desired magnitude of the change, the desired time period for the change to occur, and an endpoint. Identify a measurable indicator of the performance of the conservation action that is directly linked to the intended change. For example, “The objective of captive breeding is to increase the captive population of translocated and captive reared butterflies to a minimum of 200 adults for each brood over a three-year period, and

maintain the population for five years. Successful captive breeding will be indicated by the annual number of adult butterflies released into the wild.”]

(D) Performance Monitoring:

[Briefly describe methods for monitoring the performance indicator building on existing efforts and including specific objectives. Provide enough detail, including locations, justification for scale, and frequency of monitoring, to facilitate the development of more detailed methods at a later date. Describe how observed levels of performance indicators will influence management decisions.]

(E) Ecological Response Objective:

[Define the desired ecological response to the conservation action by identifying the scale-appropriate attribute of the ecological system that is expected to elicit a *beneficial response* to the change induced by the conservation action, the desired direction of the response, the desired magnitude of the response, the desired time period for the response to occur, and an endpoint. Identify a measurable indicator of the desired ecological response that is directly linked to the benefit intended for the ecological system. For example, “ The desired ecological response to captive breeding is to maintain on average a positive growth rate in the wild population until the wild population is self-sustaining. Successful population restoration will be indicated by a positive growth rate in the wild population and achievement of federal viability criteria.”]

(F) Response Monitoring:

[Briefly describe methods for monitoring the response indicator building on existing efforts and including specific objectives. Provide enough detail, including locations, justification for scale, and frequency of monitoring, to facilitate the development of more detailed methods at a later date. Describe how observed levels of response indicators will influence management decisions.]

(G) Implementation:

[Describe implementation of the conservation action sufficiently to guide the development and execution of specific projects and programs. Identify the frequency and intensity of the action, the time frame for initiating and completing the action, specific locations, and methodology. Describe the potential roles of state and federal agencies or local, regional, national, or international partners, and identify needs or opportunities to coordinate and collaborate with other states.

(H) Feasibility: [Categorical Rank]

[Discuss the feasibility of implementing the conservation action in sufficient detail to guide the prioritization of implementation and avoid potential roadblocks. Evaluate the preparedness and expertise of the agencies and partners with relevant roles, the funding requirements, personnel resources, and public and partner interest.] *Complete ranks on Form 5: Feasibility Ranking and Form 6: Local Feasibility Weighting (map and quantitative attributes required). Technical assistance will be provided.*

4.2 Conservation Action Research:

[When there is insufficient information to elucidate whether a conservation action will clearly lead to a change in the threat (conservation performance) or that a change in the threat will lead to a change in the species or habitat (ecological response), then surveys, monitoring, or research should be indicated. Provide enough detail to develop requests for proposals to implement research. Identify opportunities to build on existing programs.]

Element 5: References

Personal communications should be cited in text using Journal of Wildlife Management formatting guidelines.

5.1 Literature: [Provide full citations in *Journal of Wildlife Management* format for all literature cited in text. Use Council of Biology Editors style when citing websites
<http://www.webwritingthatworks.com/DResourcesCITE06cbe.htm>.]

5.2 Data Sources: [Use Council of Biology Editors style when citing databases
<http://www.webwritingthatworks.com/DResourcesCITE06cbe.htm>.]

Element 6: List of Figures [Provide a list of figures with caption. If appropriate, include a statement of credit at the end of the caption (e.g., "Photo by R. Dolbeer.", "Photo courtesy of United States Fish and Wildlife Service.")]

