IEc

MEMORANDUM | August 12, 2024

TO	U.S. Fish and Wildlife Service
FROM	Industrial Economics, Incorporated (IEc)
SUBJECT	Draft Screening Analysis of the Likely Economic Impacts of the Proposed Rule to Revise Critical Habitat for the Canada Lynx

The Service intends to publish a proposed rule to revise critical habitat for the Canada lynx (Lynx canadensis). As part of the rulemaking process, the Service must consider the economic impacts, including costs and benefits, of the proposed rule in the context of three separate requirements:[1]

- Executive Order (E.O.) 12866 Regulatory Planning and Review, which directs Agencies to assess the costs and benefits of the regulatory action;[2]
- Section 4(b)(2) of the Endangered Species Act (the Act), which requires the Secretary of the Interior to consider economic impacts prior to designating critical habitat; and
- Regulatory Flexibility Act, which requires Federal agencies to prepare and make available for public comment an initial regulatory flexibility analysis that describes the effect of a proposed rule on small entities. No initial regulatory flexibility analysis is required if the head of the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities.[3,4]

This memorandum provides information to the Service on the potential costs and benefits of the proposed rule to determine whether the rule meets the threshold for a significant regulatory action under Section 3(f)(1) of E.O. 12866, as amended by E.O. 14094.[5] This memorandum also identifies the geographic areas or specific activities that could experience the greatest impacts, measured in

[1] Additional laws and executive orders require the consideration of the distribution of impacts on vulnerable subpopulations, such as state or local governments. These requirements for distributional analysis are beyond the scope of this memorandum.

[2] Published September 20, 1993. As affirmed by E.O. 13563 (Improving Regulation and Regulatory Review) of January 18, 2011 and amended by E.O. 14094 (Modernizing Regulatory Review) of April 6, 2023.

[3] 5 U.S.C. § 601 et seq.

[4] For a discussion of the Service's findings regarding the Regulatory Flexibility Act (RFA) and other relevant statutes, please refer to the preamble to the proposed rule published in the Federal Register.

[5] E.O. 14094, issued on April 6, 2023, amends E.O. 12866 to define a significant regulatory action under Section 3(f)(1) of that E.O. as any regulatory action likely to result in a rule that may have, among other things, an annual effect on the economy of $200 million or more. This threshold should be adjusted every three years to account for inflation.

terms of changes in social welfare, to inform the Secretary's decision under section 4(b)(2).[6] To prepare this assessment, we rely on: (1) geographic information systems (GIS) data layers provided by the Service; (2) the Service's incremental effects memorandum (IEM); (3) consultation history for the Canada lynx; (4) outreach to Federal agencies conducted by the Service; and (5) biological opinions from past section 7 consultations that considered the Canada lynx.

[6] The discipline of welfare economics focuses on maximizing societal well-being (see Just et. al. 2005. The Welfare Economics of Public Policy: A Practical Approach to Project and Policy Evaluation. Edward Elgar Publishing, Cheltenham and Northampton). It measures costs and benefits in terms of the opportunity costs of employing resources for the conservation of the species and individual willingness to pay to conserve those species. Opportunity cost is the value of the benefit that could have been provided by devoting the resources to their best alternative uses. Opportunity costs differ from accounting costs (e.g., actual expenses). Welfare economics is recognized by the U.S. Office of Management and Budget (OMB) as the appropriate tool for valuing the costs and benefits of proposed regulatory actions (OMB, "Circular A-4." November 9, 2023).

Findings of the Screening Analysis

The proposed rule would revise critical habitat for the Canada lynx. This memorandum evaluates the effects of the proposed revised critical habitat relative to existing critical habitat, last updated in 2014. The analysis focuses on assessing the costs of critical habitat areas that would be added to existing critical habitat (25,365 km^2) as well as cost savings where the proposed rule considers removing portions of existing critical habitat (29,640 km^2). Overall, the proposed rule would result in a net reduction in the size of critical habitat for the Canada lynx of 4,275 km^2. The proposed rule makes no updates to existing critical habitat in Maine and Minnesota, therefore this analysis does not consider the effects of critical habitat in those states.

In summary, the proposed rule is unlikely to generate costs or benefits having an annual effect on the economy of $200 million or more. In making this conclusion, we considered costs, cost savings, benefits, and forgone benefits. Therefore, the rule is unlikely to meet the threshold for a significant rule as defined in Section 3(f)(1) of E.O. 12866, as amended by E.O. 14094.

Section 7 Costs and Cost Savings

Based on how the Service implements section 7 of the Act with respect to existing Canada lynx critical habitat, the economic effects of the proposed will most likely be limited to changes in administrative effort to consider adverse modification of the Canada lynx critical habitat during consultations. This finding is based on the following:

- The proposed revised units are considered occupied by the Canada lynx, and occupied units are afforded significant baseline protection under the Act due to the presence of the listed species.
    - All projects with a Federal nexus would be subject to section 7 consultation regardless of the designation of critical habitat due to the presence of the listed species. Absent critical habitat, the Service consults on the species throughout the entire Species List Area (SLA).
    - Critical habitat is not likely to change the Service's recommendation for project modifications as part of future consultations considering the Canada lynx. A review of historical consultation finds that the Service makes similar recommendations within and outside of critical habitat.
- The Canada lynx receives additional baseline protection from co-occurring listed species, which include species with overlapping critical habitat and similar resource and habitat needs.

Based on past consultation activity for the Canada lynx in areas *added* to existing critical habitat, we find that the incremental cost of considering adverse modification in these consultations is on the order of $66,000 per year on average (2024 dollars). When considering areas *removed* from existing critical habitat, the cost savings associated with reduced requirements during section 7 consultations is on the order of $47,000 annually. The expected net effect of revising critical habitat for the Canada lynx is a $19,000 increase in administrative costs per year on average despite the net reduction in total size of critical habitat for the species.

Section 7 and Other Benefits and Forgone Benefits

The primary intended benefit of the critical habitat designation is the biological benefit to the Canada lynx of increased support for its conservation and recovery. As this economic screening analysis finds that the designation is not likely to result in any project modifications, ancillary economic benefits are not anticipated.

Alternate Baseline

This memorandum includes an additional assessment of the cost of proposed revised critical habitat relative to a world without existing critical habitat for the Canada lynx in the six states where the proposed rule revises existing critical habitat. Under this alternate baseline, total incremental administrative costs are on the order of $110,000 per year on average. Economic benefits are not anticipated under this alternate baseline.

Distribution of Costs by Geography and Activity Type

The location of future activities that will trigger section 7 consultations for the Canada lynx is uncertain. Based on consultation activity in the recent past, we anticipate that Colorado may experience the most costs associated with section 7 consultations that consider proposed revised critical habitat. Montana is anticipated to see the greatest cost savings of all states with revised critical habitat.

The activities most likely to result in section 7 consultation related to critical habitat for the Canda lynx are associated with timber harvest, silviculture, wildfire response and management, fuels reduction, recreation management, domestic livestock grazing, infrastructure/facilities maintenance/development, and residential development/construction.

Section 1. Background[7,8]

The Canada lynx is a medium-sized North American boreal forest carnivore whose population is strongly tied to its primary prey, the snowshoe hare (Lepus americanus). This cat, weighing approximately 20 pounds, has a grizzled appearance with gray-brown or pale brown fur on its back and gray-white fur on its belly, legs, and feet. With its long legs and well-furred paws on its large feet, the Canada lynx excels in transversing and hunting in deep, powdery snow, providing a competitive advantage over other terrestrial predators of the snowshoe hares.

Both Canada lynx and snowshoe hares are broadly distributed across the extensive classic boreal spruce-fir forests from eastern Canada to Alaska (known as taiga), with roughly 98 percent of the Canada lynx's range occurring north of the contiguous United States. In the southernmost parts of their ranges, both species occur in lower numbers and densities compared to their northern cores, as the boreal forest transitions naturally into less optimal temperate forest types that do not support Canada lynx. The range of lynx populations extends south into subalpine forest in the western United States and the boreal/hardwood forest ecotone in the eastern United States. Within these forest types, the Canada lynx is most likely to persist in areas with deep snow and a high density of snowshoe hares.

The main threat to the Canda lynx is climate change. The effects of warming include northward contraction of prevailing temperatures and spruce-fir habitats; reductions in snow volume, depth, and the duration of the snow season resulting in changes in conditions that may reduce lynx competitive advantage over other hare predators (e.g., bobcats, coyotes); reduced hare populations; increased frequency, size, and intensity of wildfires in lynx habitat; and changes in the size and intensity of forest insect outbreaks which may affect lynx habitat distribution and quality.

In 2000, the Service listed the contiguous United States population of the Canada lynx as a Distinct Population Segment (DPS) under the Act. Critical habitat for the lynx DPS was first designated in 2006, with revisions to the designation published in 2009 and 2014. The current proposed rule would revise the 2014 critical habitat designation based on recent empirical modeling that provides an updated understanding of the areas with suitable habitat conditions for the lynx. Relative to the 2014 designation, the proposed rule would result in the following changes:

- increasing the size of Unit 4 (North Cascades, Washington),
- decreasing the size of Unit 3 (Northern Rocky Mountains, Montana and Idaho) and Unit 5 (Greater Yellowstone Area, Wyoming), and
- adding a new Unit 6 (Southern Rocky Mountains, Colorado and New Mexico).

The proposed rule would make no updates to existing Unit 1 (Northern Maine) or Unit 2 (Northeastern Minnesota). Table 1 provides a summary of the previous designations of critical habitat for the Canda lynx as well the proposed rule that is the subject of this memorandum. Figure 1 maps the revised designation. Overall, the proposed rule would result in a net reduction in the

[7] U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Revise Critical Habitat for the Canada Lynx. May 31, 2024.

[8] U.S. Fish and Wildlife Service. (n.d.). Species Profile for Canada Lynx. Retrieved July 24, 2024: https://ecos.fws.gov/ecp/species/3652

size of critical habitat for the Canada lynx of 4,275 square kilometers (km^2). The Service considers all existing and proposed units to be occupied by the species.

The proposed revised critical habitat units contain the following physical and biological features (PBFs) essential to the conservation of the Canada lynx; these minor revisions update the primary constituent element (PCE) from previous critical habitat designations and apply to all existing and proposed critical habitat units.

- Snowshoe hare densities adequate to support lynx residency and reproduction over time, distributed across large landscapes.
- A mosaic of boreal/subalpine forest at variable forest structural stages, the majority of which provide year-round dense horizontal cover at ground or snow level.
- Winter conditions that provide and maintain deep fluffy snow for extended periods of time.
- Spatial and temporal arrangements of habitat large enough (≥1,250 km^2 (483 mi^2)) to support breeding populations.
- Permeable landscapes conducive to within-unit lynx daily movements and dispersal.[9]

The Service does not anticipate that the revision of PBFs will affect the way they will conduct adverse modification analysis throughout the Canda lynx designation, as they are still considering characteristics of the landscape that are essential to the conservation of the species.[10]

The proposed revised units are predominantly on Federal land. Additionally, the proposed critical habitat units overlap with 20 co-occurring listed species. These species include but are not limited to: North American wolverine (Gulo gulo luscus) (59.8 percent overlap), Whitebark pine (Pinus albicaulis) (50.5 percent), Grizzly bear (Ursus arctos horribilis) (41.9 percent), Yellow-billed cuckoo (Coccyzus americanus) (19.2 percent) and Gray wolf (Canis lupus) (12.3 percent). Many of these species are wide-ranging, forest-associated species that need large expanses of undeveloped forests, similar to lynx.

[9] Personal communication between IEc and the Service on August 8, 2024.

[10] Personal communication between IEc and the Service on August 5, 2024.

Table 1. Summary of Previous and Current Proposed Critical Habitat Designations for the Canada Lynx (in km^2)

Unit Number	Unit Name (State)	2006 Rule[1]	2009 Rule[2]		2014 Rule[3]		2024 Proposed Rule[4]	
		Total Size of Unit	Total Size of Unit	Change Relative to 2006	Total Size of Unit	Change Relative to 2009	Total Size of Unit	Change Relative to 2014
1	Northern Maine (Maine)		24,598	*+ 24,598*	26,218	*+ 1,621*	26,218	*No change*
2	Northeastern Minnesota (Minnesota)	822	20,888	*+ 20,066*	20,899	*+ 12*	20,899	*No change*
3	Northern Rocky Mountains (Montana and Idaho)	3,598	26,163	*+ 22,565*	25,337	*- 826*	20,613	*- 4,724 (19%)*
4	North Cascades (Washington)	348	4,755	*+ 4,407*	4,751	*- 4*	6,097	*+ 1,346 (28%)*
5	Greater Yellowstone Area (Wyoming)		24,606	*+ 24,606*	23,687	*- 919*	2,902	*- 20,785 (88%)*
6	Southern Rocky Mountains (Colorado and New Mexico)						19,889	*+ 19,889*
Total		**4,768**	**101,010**	***96,243***	**100,891**	***-119***	**96,617**	***-4,274***

Sources:

1. Federal Register, Volume 71, Number 217, November 9, 2006. Page 66030. Table 1.
2. Federal Register, Volume 74, Number 36, February 25, 2009. Page 8642. Table 1.
3. a) Federal Register, Volume 79, Number 177, September 12, 2014. Page 54823. Table 1. b) Information from the Service provided via email on August 5, 2023.
4. a) U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Revise Critical Habitat for the Canada Lynx. May 31, 2024. Pages 5-8. b) Information from the Service provided via email on August 5, 2023.

Note: Estimates are rounded to the nearest km^2 and may not sum to the totals reported due to rounding.

Figure 1. Overview of Proposed Revised Critical Habitat for the Canada Lynx

Source: IEc map using (1) proposed critical habitat shapefiles provided by the Service on May 31, 2024 and (3) Terrain with Labels Base shapefile from County of Jefferson, ID, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA and the USFWS.
Notes: Species List Area (SLA) are the regions defined by the Service as the range of the Canada lynx, indicating where the species may be present (Personal communication between IEc and the Service on July 7, 2024).

Section 2. Framework

Guidelines issued by the U.S. Office of Management and Budget (OMB) for the economic analysis of regulations direct Federal agencies to measure the costs, cost savings, and benefits of a regulatory action against a baseline (i.e., costs, cost savings, and benefits that are "incremental" to the baseline). OMB defines the baseline as the "best assessment of the way the world would look absent the proposed action."[11] In other words, the baseline includes any existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users affected by the designation of critical habitat. The baseline includes the economic impacts of listing the species under the Act, even if the listing occurs concurrently with critical habitat designation. In the case of the Canada lynx, the baseline also includes the existing critical habitat designation for the species. This is because, the Service describes that, absent adopting the proposed rule, existing critical habitat for the Canda lynx would remain in place.[12]

Impacts that are incremental to the baseline (i.e., occurring relative to existing conditions) are those that are solely attributable to the revision of critical habitat as described in the proposed rule. This screening analysis focuses on the likely incremental effects of the proposed revised critical habitat rule. We consider incremental effects in two key categories: (1) those that may be generated by section 7 of the Act; and (2) other types of impacts outside of the context of section 7:

- Incremental section 7 impacts: Activities with a Federal nexus that may affect listed species are subject to section 7 consultation to consider whether actions may jeopardize the existence of the species, even absent critical habitat.[13] As part of these consultations, critical habitat triggers an additional analysis evaluating whether an action will diminish the recovery potential or conservation value of the designated area. Specifically, following the designation, Federal agencies must also consider the potential for activities to result in the destruction or adverse modification of critical habitat. These consultations are the regulatory mechanism through which critical habitat rules are implemented. Any time and effort spent on this additional analysis, as well as the costs and benefits of implementing any recommendations resulting from this review, are economic impacts of the critical habitat designation.
- Other incremental impacts: Critical habitat may also trigger additional regulatory changes. For example, the designation may cause other Federal, state, or local permitting or regulatory agencies to expand or change standards or requirements. Regulatory uncertainty generated by critical habitat may also have impacts. For example, landowners or buyers may perceive that the rule will restrict land or water use activities in some way and therefore value the use of the land less than they would have absent critical habitat. This is a perception, or stigma, effect of critical habitat on markets.

[11] OMB, "Circular A-4," November 9, 2023. Circular A-4 provides "guidance to Federal Agencies on the development of regulatory analysis as required under Section 6(a)(3)(c) of E.O. 12866…", Page 1.

[12] Personal communication between IEc and the Service on June 12, 2024.

[13] A Federal nexus exists for activities authorized, funded, or carried out by a Federal agency.

As shown in Table 1 and Figure 1, the proposed revised critical habitat rule would result in a net reduction of total critical habitat area for the Canada lynx, as follows:

1. 24,134 km^2 of existing critical habitat in Units 3, 4, and 5 would remain critical habitat under the proposed revision.[14] For the areas in this first category, the proposed rule would not generate economic impacts because any section 7 or other impacts associated with critical habitat are expected to occur under the baseline scenario, which includes the existing critical habitat designation of this area.

2. 29,640 km^2 of existing critical habitat would be removed from existing critical habitat. For this second category (i.e., existing critical habitat excluded from revised proposed critical habitat), there is a reduction in section 7 consultation effort (i.e., consideration of adverse modification of critical habitat is no longer necessary), which results in the potential for cost savings and forgone benefits. In these areas, section 7 consultations would still occur but would be limited to the consideration of jeopardy only.

3. 25,365 km^2 of new critical habitat area would be added to existing critical habitat. Finally, for the area in this third category (i.e., added to existing critical habitat), there is an increase in section 7 effort (i.e., consideration of adverse modification of critical habitat is now necessary). Historically, the Service has consulted on the lynx throughout the Species List Area (SLA), so the new critical habitat area results in additional considerations during those consultations.

The net effect of the proposed rule considers the relative magnitude of these costs, cost savings, benefits, and forgone benefits.

Section 3. Section 7 Costs of the Critical Habitat Rule

Section 7 of the Act requires Federal agencies to consult with the Service to ensure that their actions will not jeopardize the continued existence of the Canda lynx regardless of whether critical habitat is designated. Thus, section 7 provides baseline protection and generates baseline costs associated with conservation and recovery of the Canda lynx due to the species listing, regardless of whether critical habitat is designated. Once critical habitat is designated, section 7 additionally requires that Federal agencies ensure their actions will not adversely modify critical habitat. Thus, a key focus of this screening analysis is to determine the likelihood that the revision of critical habitat would trigger project modifications to avoid adverse modification that would be above and beyond any modifications triggered by adverse effects to the species itself. Additionally, because revised proposed critical habitat removes some areas in the existing designation, this screening analysis seeks to determine the likelihood that project modifications in the baseline would no longer occur if the proposed rule went into effect.

This screening analysis finds that incremental effects (costs and cost savings) associated with section 7 consultations for the Canada lynx are likely limited to administrative costs. In other words, project modification recommendations to avoid adverse modification of critical habitat for the

[14] This sum only considers area in the existing units with proposed revisions (Units 3, 4, and 5) in Montana, Idaho, Washington, and Wyoming. It does not include area within Units 1 and 2, which are unaffected by proposed revised critical habitat; an additional 47,117 km^2 would remain critical habitat under the rule in Maine and Minnesota (see Table 1 for details).

Canada lynx are not anticipated to change given other baseline protections of the species and its habitat. Therefore, in all proposed units, the incremental effects of the proposed critical habitat rule are most likely limited to changes in the effort required to administer section 7 consultations. This conclusion is based on multiple factors:

- No change in costs in existing critical habitat that is included in proposed revised critical habitat. Requirements for section 7 consultations will not differ between existing critical habitat and revised proposed critical habitat. This is because consultations in these areas already require consideration of adverse modification regardless of the proposed rule. Therefore, section 7 consultation frequency and outcomes will not change in existing critical habitat that will also be part of revised proposed critical habitat.
- The listing status of the Canada lynx under the ESA provides substantial baseline protection throughout proposed revised critical habitat.
    - All projects with a Federal nexus will be subject to section 7 consultation regardless of whether critical habitat is designated. All proposed units are considered occupied by the species. The Service notes that activities that "currently require section 7 consultation (because all proposed critical habitat areas are occupied by lynx) will continue to require consultation regardless of critical habitat designation."[15] As additional evidence, the Service notes that it currently consults throughout the entire SLA for the Canada lynx, which includes areas within and outside of existing critical habitat. As a result, designating critical habitat is not expected to result in additional consultations beyond those required due to the presence of the species.
    - Critical habitat is not likely to change the Service's recommendations for project modifications as part of future consultations considering the Canada lynx. For future consultations that consider Canada lynx revised critical habitat, the Service anticipates that the same kinds of conservation recommendations made to avoid jeopardy would also avoid adverse modification of critical habitat. In particular, "[T]he Service does not anticipate that the outcomes of section 7 consultations for projects proposed in areas occupied by lynx will be different after critical habitat is designated or revised."[16] Confirming this assessment, the Service provided recent consultations for inside and outside of existing critical habitat, and the conservation recommendations were found to be similar (see "Likelihood of Project Modification Costs or Cost Savings" later in this section). Based on review of the consultation history, we find that the outcome of these consultations is unlikely to be different with or without the designation of critical habitat.
- Species and habitat protections for co-occurring listed species and critical habitats provide baseline protection for the Canada lynx. There are 20 co-occurring species listed under the Act that occur within the Canada lynx's proposed revised critical habitat.

[15] U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Revise Critical Habitat for the Canada Lynx. May 31, 2024. Page 11.

[16] Ibid. Pages 11-12.

> The Service states "The presence of other listed species and/or their designated critical habitats within the range of the lynx DPS is likely to provide conservation benefits to lynx, regardless of whether critical habitat is designated for lynx."[17] The Service also notes that there are multiple overlapping conservation requirements for some of the listed species. In particular, habitat protections for listed species in boreal and subalpine forests provide the largest conservation benefits. Listed species with ranges that fall into this category include the Gray wolf, grizzly bear, North American wolverine, and whitebark pine.

For these reasons, the incremental effects of section 7 consultations are likely to be limited to the changes in administrative effort during consultations. In the areas with new proposed critical habitat, these effects result in minor costs to consider adverse modification of Canda lynx critical habitat. In existing critical habitat removed from the proposed revised critical habitat, the effect is a cost savings from no longer needing to consider adverse modification during section 7 consultations. The following sections provide information on the anticipated levels of consultation activity to assess the likely magnitude of incremental costs and cost savings. This analysis finds that administrative costs and cost savings are on the order of $66,000 and $47,000 per year respectively (2024 dollars). The expected net effect of revising critical habitat for the Canada lynx is a $19,000 increase in administrative costs per year. The section concludes with a description of the likelihood of project modification costs or cost savings.

Expected Future Consultations

The number of potential section 7 consultations that may arise from projects or activities with a Federal nexus in proposed revised critical habitat for the Canda lynx is uncertain. To address this uncertainty, the Service conducted outreach to Federal agencies likely to consult on activities in proposed revised critical habitat. While the feedback from Federal partners was informative, these agencies did not quantify the frequency of future activity levels.[18]

Absent a specific forecast of activities likely to trigger section 7 consultations, we rely on data identifying past consultations that considered the species or its critical habitat to forecast the expected future consultation rate. This analysis considers the number of consultations that occurred for the 6.5 years from 2018 through present (partial year data were available for 2024), as provided by the Service in its IEM. The recorded consultations occurred throughout the lynx's SLA, which includes areas within and outside of both existing and proposed revised critical habitat and includes additional areas beyond critical habitat (see Figure 1). The consultation history was provided by state with critical habitat but is not specific to the proposed revised unit.

Because the Service provided the total number of consultations within the SLA, as opposed to specific locations within an SLA, this analysis assumes that consultations are equally distributed across the SLA and relies on geospatial information about the overlap between the SLA, existing critical habitat, and proposed revised critical habitat to estimate the future distribution of section 7 consultations. To isolate incremental costs, cost savings, and baseline costs, this analysis distinguished between consultations in existing critical habitat, proposed revised critical habitat,

[17] Ibid. Pages 16-18.

[18] The Service received feedback from the Bureau of Land Management (BLM), the Natural Resources Conservation Service (NRCS), and the Forest Service.

and the overlap between the two. The four overarching steps below demonstrate how this analysis estimated the number of past consultations in each category:

Step 1: Calculate the average annual number of historical consultations that considered Canada lynx by state. Table 2 identifies the consultations and technical assistances that considered the Canada lynx across its SLA from the recent past. These counts include the total number of consultations, as the Service does not have readily available information about which consultations considered jeopardy, adverse modification, or both. Because the Service did not provide data by year, this analysis relies on the calculated average annual number of consultations as the basis for projecting future consultation activity.

Table 2. Historical Canada Lynx Consultations Across SLA by State

State	Historical Consultations (2018-partial 2024)			Historical Average Annual Consultations		
	Formal Consultations	Informal Consultations	Technical Assistances	Formal Consultations	Informal Consultations	Technical Assistances
Montana	80	204	120	12.3	31.4	18.5
Idaho	10	70	200	1.5	10.8	30.8
Washington	0	127	112	0.0	19.5	17.2
Wyoming	23	44	8	3.5	6.8	1.2
Colorado	33	308	25	5.1	47.4	3.8
New Mexico	1	5	10	0.2	0.8	1.5

Source: U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Revise Critical Habitat for the Canada Lynx. May 31, 2024. Table 5 on page 26. IEc verified via personal communications on July 2, 2024, that Table 5 captures 2018 through partial 2024, equivalent to 6.5 years.
Notes: This table presents the output of Step 1 described in the main text.

Step 2: Inflate historical consultations to account for the likely increase in future wildfire suppression activities. In light of the recent wildfire management legislation, the Service suggests the potential for up to a 50 percent increase to the number consultations in the future.[19] The Service's determination is based on input from several Federal partners, including Colorado BLM and several regional offices for the Forest Service (Northern, Pacific Northwest and Southwest), anticipating more future consultations due to wildfire management needs.[20] We therefore assume a 50 percent increase in consultations and technical assistance effects relative to the annual counts presented in Table 2.

Step 3: Determine the rate of consultations (per km^2 per year) across the SLA by state with existing and proposed revised critical habitat First, we use spatial analysis to determine the total area within the SLA by state. Then, we determine the rate of consultations per year using the consultation numbers summarized in Step 1 and inflated in Step 2 to account for the future

[19] U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Revise Critical Habitat for the Canada Lynx. May 31, 2024. Page 26.

[20] The Service provided a summary of Federal agency responses via email on June 4, 2024.

increase in wildfire suppression activities with a Federal nexus. Table 3 presents those rates separately by consultation type and state with existing and proposed revised critical habitat.

Table 3. Rate of Future Consultations (per km^2 per year) Across the Canada Lynx SLA by State

State	Size of SLA (km^2)	Rate of Future Consultations (per km^2 per year)		
		Formal Consultations	Informal Consultations	Technical Assistances
Montana	136,848	0.00013	0.00034	0.00020
Idaho	81,077	0.00003	0.00020	0.00057
Washington	32,681	0.00000	0.00090	0.00079
Wyoming	44,656	0.00012	0.00023	0.00004
Colorado	85,217	0.00009	0.00083	0.00007
New Mexico	3,241	0.00007	0.00036	0.00071

Source: IEc calculations using geospatial data denoting the SLA as well as consultation numbers derived from Steps 1 and 2 described in the main text. Note that the consultation rates here adjust the historical consultations summarized in Table 2 based on the 50 percent increase described in Step 2.

Step 4: Calculate the average annual future consultations using information from Steps 1 through 3. To predict future consultation activity, we apply the rates calculated in Step 3 to the total size of areas with removed, added, or unaffected critical habitat. Table 4 presents the size of these areas by state.

Table 4. Total Critical Habitat Area Unaffected, Added, or Removed (km^2)

State	Critical Habitat Unaffected	Critical Habitat Added	Critical Habitat Removed
Montana	17,014	2,207	14,385
Idaho	92	1,300	25
Washington	4,328	1,769	423
Wyoming	2,701	201	14,807
Colorado	0	19,547	0
New Mexico	0	341	0

Source: Email communication between the Service and IEc on August 5, 2024. "Unaffected" area is critical habitat area that appears in both the existing and proposed revised critical habitat rule. "Added" critical habitat is new proposed area outside of existing critical habitat. "Removed" critical habitat is area within existing critical habitat that does not appear in the proposed revised critical habitat.

The resulting forecast (combining information from Table 3 and Table 4) distinguishes between consultation and technical assistance activities expected to occur in existing critical habitat areas that would remain critical habitat under the proposed designation ("unaffected"), new critical habitat areas that would be added ("additional effort"), and existing critical habitat areas that would be removed ("reduced effort"). As presented in Table 5, the forecast indicates the following:

- Additional administrative effort to consider adverse modification of critical habitat may occur during 2 formal consultations, 19 informal consultations, and 4 technical assistance efforts in each future year ("additional effort"). This additional effort would occur in Montana, Idaho, Washington, Wyoming, Colorado, and New Mexico.

- Reduced effort may occur during 4 formal consultations, 9 informal consultations, and 4 technical assistance efforts annually ("reduced effort"). This is because the proposed rule would remove existing critical habitat in select areas in Montana, Idaho, Wyoming and Washington and would no longer require the Service to consider adverse modification of critical habitat during future consultations.

- The effort devoted to 3 formal consultations, 10 informal consultations, and 7 technical assistance efforts in the area that includes both existing and proposed revised Canada lynx critical habitat is expected to be unaffected by the proposed rule ("unaffected"). This is because the requirements to consider adverse modification during these consultations exists regardless of the proposed rule. These unaffected consultations occur in Montana, Idaho, Washington, and Wyoming.[21]

When comparing the first two points above, this analysis finds a net decrease in formal consultations that will consider adverse modification while a net increase in informal consultations that will consider adverse modification. This is because the rate of informal consultations in Colorado, where most critical habitat is added (0.00083 per km^2 per year, see Table 4), is greater than the rate of formal consultations in Montana and Wyoming, where more critical habitat is removed than added (0.00013 and 0.00012 per km^2 per year, respectively, see Table 4). Therefore, despite the net reduction in the overall size of Canada lynx critical habitat within the proposed rule, the number of consultations that will consider adverse modification will increase given the geographic representation of historical consultations.

The Service also notes that it is possible that some ongoing projects may choose to reinitiate recently concluded section 7 consultations with the revision of critical habitat.[22] While no specific consultations were identified, the Service believes reinitiation is most likely in Colorado where most new critical habitat areas are added. Historically, there have been 1.8 formal consultations and 16 informal consultations on average per year in the areas of Colorado with additional critical habitat in the proposed rule (see Table 5).

As described in its IEM, the Service anticipates future consultations may address the following activities, based on ongoing or known future planned activities: [23]

- Timber harvest;
- Silviculture;
- Wildfire response and management;
- Fuels reduction;
- Recreation management;
- Domestic livestock grazing;
- Infrastructure/facilities maintenance/development; and

[21] This analysis does not consider consultation efforts in existing Canada lynx critical habitat in Maine and Minnesota, which are also unaffected by the proposed rule.

[22] Personal communication between IEc and the Service on June 12, 2024.

[23] U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Revise Critical Habitat for the Canada Lynx. May 31, 2024. Table 1, Pages 9-10.

- Residential development/construction.

Table 5. Projected Average Annual Section 7 Consultations Considering Critical Habitat for the Canada Lynx

State	Formal Consultations			Informal Consultations			Technical Assistances		
	Unaffected	Additional Effort	Reduced Effort	Unaffected	Additional Effort	Reduced Effort	Unaffected	Additional Effort	Reduced Effort
Montana	2.30	0.30	1.90	5.90	0.76	5.00	3.40	0.45	2.90
Idaho	<0.01	0.04	<0.01	0.02	0.26	<0.01	0.05	0.74	0.01
Washington	0.00	0.00	0.00	3.90	1.60	0.38	3.40	1.40	0.33
Wyoming	0.32	0.02	1.80	0.61	0.05	3.40	0.11	0.01	0.61
Colorado		1.80			16.00			1.30	
New Mexico		0.02			0.12			0.24	
Total	**2.60**	**2.10**	**3.70**	**10.00**	**19.00**	**8.70**	**7.00**	**4.20**	**3.90**

Source: IEc calculations using Tables 3 and 4 as well as assumptions described in the main text.
Notes:
1. Grey cells are not applicable because there is no critical habitat area of the relevant type (e.g., Colorado has no unaffected consultations because the units do not contain any baseline critical habitat areas).
2. See main text for definitions of formal and informal consultations and technical assistances that are “unaffected” or that require “additional effort” or “reduced effort” relative to the baseline.

Administrative Costs and Cost Savings of Section 7 Consultations

The cost associated with a section 7 consultation varies by both type of consultation as well as whether the consultation considers adverse modification, jeopardy, or both. Table 6 presents the per-consultation administrative costs, including 1) the total cost of consultations that consider both jeopardy and adverse modification and 2) the incremental cost of effort to consider adverse modification in a consultation that also considers jeopardy. In this analysis we apply the costs and reduced costs associated with additional administrative effort to evaluate the potential for adverse modification of Canda lynx critical habitat. These costs were developed using data from the 2024 Federal Government Schedule Rates and a previous review of consultation records from Service field offices across the country.

As shown in Table 6, the incremental costs for each formal, informal, and technical assistance effort are estimated to be $5,700, $2,700 and $440 respectively. These estimates assume that consultation actions will occur even in the absence of critical habitat due to the presence of the Canada lynx in the proposed critical habitat areas. The amount of administrative effort needed to address the critical habitat during this process is relatively minor.

Table 6. Range of Administrative Consultation Costs per Effort (2024 USD)

Consultation Type	Service	Federal Agency	Third Party	Biological Assessment	Total Costs
Total Cost of Consultation Considering Both Jeopardy and Adverse Modification					
Technical Assistance	$700	N/A	$1,100	N/A	$1,800
Informal	$3,000	$3,900	$2,100	$2,000	$11,000
Formal	$6,800	$7,700	$3,500	$4,800	$23,000
Programmatic	$21,000	$17,000	N/A	$5,600	$43,000
Additional Effort to Address Adverse Modification in a New Consultation Not Resulting from Critical Habitat Designation					
Technical Assistance	$180	N/A	$260	N/A	$440
Informal	$760	$960	$510	$500	$2,700
Formal	$1,700	$1,900	$880	$1,200	$5,700
Programmatic	$5,100	$4,300	N/A	$1,400	$11,000

Source: IEc analysis of administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2024, and a review of consultation records from several Service field offices across the country conducted in 2002. The Appendix to this memorandum provides additional details on the hour and wage rate assumptions used in the analysis.
Notes:

1. Estimates are rounded to two significant digits and may not sum to the totals reported due to rounding.
2. Estimates reflect average hourly time required by staff.

Specifically, to forecast the incremental costs associated with adding of new area to the proposed critical habitat designation, we multiplied the expected number of consultations and technical assistances with anticipated "additional effort" (Table 5) by the cost of additional administrative effort (Table 6). These administrative costs are expected to be approximately $66,000 in a given

year (undiscounted, 2024 dollars), including $12,000 for formal consultations, $52,000 for informal consultations and $1,800 for technical assistance efforts (see Table 7).

Separately, this analysis calculates the incremental cost savings of removing select critical habitat areas from existing Canada lynx critical habitat. To do this, we multiplied the expected number of consultations and technical assistances with anticipated "reduced effort" in areas removed from critical habitat (Table 5) by the cost of additional administrative effort (Table 6). These administrative cost savings total approximately $47,000, including $21,000 for formal consultations, $24,000 for informal consultations and $1,700 for technical assistance efforts (see Table 7).

Finally, we calculate the "net effect" of the proposed rule by subtracting the cost savings from the costs. In total, we identify a net increase in administrative costs relative to baseline effort devoted to section 7 consultations. This analysis estimates an increase in net costs associated with the administration of section 7 consultation activity for the Canda lynx on the order of $19,000 per year, including cost savings of $9,000 per year in formal consultations, additional costs on the order of $28,000 per year for informal consultations and $120 per year in technical assistance (see Table 7). As explained in the previous section, this analysis finds that despite the net reduction in the overall size of Canada lynx critical habitat within the proposed rule, the number of consultations that will consider adverse modification will increase, resulting in a net increase in overall administrative costs.

Table 7. Incremental Annual Administrative Section 7 Consultation Costs, Cost Savings, and Net Effects for the Canada Lynx by State and Consultation Type (2024 USD)

State	Formal Consultations			Informal Consultations			Technical Assistance			Total		
	Incremental Costs	Cost Savings	Net Effect	Incremental Costs	Cost Savings	Net Effect	Incremental Costs	Cost Savings	Net Effect	Incremental Costs	Cost Savings	Net Effect
Montana	$1,700	$11,000	-$9.400	$2,100	$14,000	-$11,000	$200	$1,300	-$1,100	**$4,000**	**$26,000**	**-$22,000**
Idaho	$210	$4	$210	$710	$14	$700	$320	$6	$320	**$1,200**	**$24**	**$1,200**
Washington	$0	$0	$0	$4,300	$1,000	$3,300	$610	$150	$470	**$5,000**	**$1,200**	**$3,800**
Wyoming	$140	$10,000	-$10,000	$130	$9,200	-$9,200	$4	$270	-$270	**$270**	**$20,000**	**-$20,000**
Colorado	$10,000		$10,000	$45,000		$45,000	$580		$580	**$55,000**		**$55,000**
New Mexico	$140		$140	$330		$330	$110		$110	**$580**		**$580**
Total	**$12,000**	**$21,000**	**-$9,100**	**$52,000**	**$24,000**	**$28,000**	**$1,800**	**$1,700**	**$120**	**$66,000**	**$47,000**	**$19,000**

Source: IEc calculations using Tables 5 and 6.
Notes:
1. Grey cells are not applicable because there is no incremental costs or cost savings area of the relevant type (e.g., Colorado has no cost savings consultations because the proposed rule would result in only new critical habitat area).
2. Estimates are rounded to two significant digits and may not sum to the totals reported due to rounding.

Likelihood of Project Modification Costs or Cost Savings

The Service anticipates that any future section 7 consultations for the Canada lynx critical habitat will not result in more or different conservation effort recommendations.[24] This is because the Service would request the same conservation efforts during section 7 consultations regardless of whether critical habitat was revised due to the listing status of the species.

To assess whether this has been the case in historical consultations, the Service provided biological opinions from recent consultations related to similar activities occurring within and outside of existing critical habitat for the Canada lynx, in particular amendments to forest management plans on Forest Service lands as well as ski area expansions.[25] Table 8 summarizes the findings of our review of these biological opinions. Biological opinions can be viewed online from the Service's Ecosphere database (reports.ecosphere.fws.gov/FWSPublicReports/Reports/Index?reportname=BiologicalOpinionReport) or can be requested from a Service field office.

In general, the documents show that the Service recommended similar project modifications to avoid jeopardy (within the species range but outside of critical habitat) as it did to avoid adverse modification (inside of critical habitat). Of note, even the consultations that occurred outside of existing critical habitat included recommendations for conserving and monitoring lynx habitat. The fact that the Service recommended the same set of practices both within and outside of critical habitat for the Canada lynx provides support to its claim that future section 7 consultation activities are unlikely to result in more or different conservation effort recommendations.

Typical recommendations as part of section 7 consultations for the Canada lynx include:

- Avoiding/minimizing impacts to lynx foraging habitats (i.e., areas capable of supporting high densities of snowshoe hares);
- Maintaining or improving the spatial and temporal mosaic of forest successional stages across landscapes;
- Minimizing new road building or road upgrades that would increase traffic speed or volume in areas occupied by lynx;
- Minimizing project footprints in lynx/hare habitats.[26]

[24] U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Revise Critical Habitat for the Canada Lynx. May 31, 2024. Page 11.

[25] Biological opinions provided via email from the Service to IEc on July 2, 2024.

[26] U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Revise Critical Habitat for the Canada Lynx. May 31, 2024. Page 12.

Table 8. Example Conservation Recommendations from Historical Consultations Within and Outside of Canada Lynx Existing Critical Habitat

Activity Type	Within Critical Habitat	Outside of Critical Habitat
Forest management plans from the Forest Service	In a February 2021 letter to the Forest Service regarding the revision of the Forest Plan for Helena-Lewis and Clark National Forest (in Montana), the Service recommended that the Forest Service 1) design vegetation management with consideration of snowshoe hare habitat needs, 2) maintain a mosaic of lynx habitat, 3) provide for continuing availability of lynx foraging habitat (snowshoe hare habitat), and 4) monitor the amount and condition of lynx habitat in unoccupied secondary habitat, following the lynx recovery outline.[1]	In a July 2008 letter to the Forest Service regarding amendments to the Land and Resource Management Plans for seven National Forests within the SLA for the Canada lynx (in Colorado and Wyoming), the Service recommended that the Forest Service 1) continue researching the lynx, preserving lynx habitat and linkage and adhering to key items identified in the lynx recovery outline, 2) monitor recreational and seasonal impacts on the lynx habitat to ensure they do not adversely affect the lynx or it's needs and 3) collaborate on developing the Implementation Guidelines and updating the SLA with the Service.[2]
Ski area expansions	In a September 2019 letter to the Forest Service regarding the expansion of the Whitefish Mountain Resort (Colorado), the Service recommended that the Forest Service 1) develop monitoring strategies to evaluate how scientific findings from Colorado apply to the Hellroaring Basin area and 2) assess habitat quality using alternative methods such as tracking snowshoe hare and skier use.[3]	In December 2018 letter to the Forest Service regarding the Leavell–McCombs Joint Venture and the National Forest Foundation (LMJV) developing its property into a resort community, the Service recommended that the Forest Service 1) use the LMJV and NFF wildlife conservation fund to support lynx conservation, 2) convene an advisory panel to recommend targeted conservation actions within the action area, 3) collaborate with Colorado Parks and Wildlife to track lynx movement across U.S. 160, and 4) work with the Colorado Department of Transportation and other partners to address highway impacts on lynx.[4]

Sources:

1. Biological Opinion on the Effects of the Helena-Lewis and Clark National Forest 2021 Forest Plan on Grizzly Bears, Canada Lynx, and Designated Lynx Critical Habitat. Dated February 10, 2021. Regarding consultation number 06E11000-2020-F-0519. Available online at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd889019.pdf
2. Biological Opinion on the Effects of the Southern Rocky Mountains Lynx Amendment (SRLA) on the Distinct Population Segment (DPS) of Canada lynx (Lynx canadensis) (lynx) in the contiguous United States in 2008. Dated July 25, 2008. Regarding consultation number BOES/LK-6-CO-08-F-024. . Available online at: https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5357385.pdf
3. Biological Opinion on the Effects of the Effects to Canada Lynx and Grizzly Bear from the Hellroaring Basin Improvement Project Flathead National Forest 2019. Dated September 27, 2019. 06E11000-2019-F-0649. . Available online at: https://www.swanview.org/public/assets/uploads/reports/12-03_HellroaringBasinSept2018BiologicalOpinion.pdf
4. Biological Opinion Regarding the Access for the Village at Wolf Creek under the Alaska National Interest Lands Conservation Act Rio Grande National Forest, Colorado. Dated December 18, 2018. 06E24100-2018-F-0348. . Available online at: https://ecos.fws.gov/tails/pub/document/11932071

Section 4. Other Costs of the Critical Habitat Rule

Critical habitat additionally has the potential to generate economic costs and benefits outside of the section 7 consultation process. These could stem from the designation triggering additional

requirements or project modifications under state laws or regulations, and perceptional effects on markets. These types of costs may occur even when activities do not have a Federal nexus for consultation.

Additional State or Local Regulation

Indirect incremental impacts may occur if the designation of critical habitat increases awareness of the presence of the species or the need for protection of its habitat, particularly when new regulations or requirements are triggered. The Service does not expect additional State or local regulations to be triggered by the designation of critical habitat for the Canada lynx.[27]

Possible Impacts of Public Perception

Comments received regarding proposed designations of critical habitat throughout the United States indicate that the public perceives critical habitat designation as potentially resulting in incremental changes to private property values, above and beyond any effects associated with specific forecasted project modifications under section 7 of the Act.[28] These commenters suggest that, all else being equal, a property that is inhabited by a threatened or endangered species or that lies within a critical habitat designation will have a lower market value than an identical property that is not inhabited by the species or that lies outside of critical habitat. This lower value results from the perception that critical habitat will preclude, limit, or slow development, or somehow alter the highest and best use of the property.

We have reviewed all existing studies on the potential property value impacts of critical habitat.[29] While some identify property value effects of critical habitat designation, others do not. Still other studies identify that critical habitat can positively affect property values. Mamun et al. (2024), which represents the most comprehensive analysis of critical habitat property value impacts conducted to date, find that, at a national level on average, critical habitat designation has "little to no effect" on values for developed and undeveloped properties. However, for specific critical habitat rules, they find variable results, including both positive and negative effects.[30] In general, the literature suggests that the potential for property value impacts is species-specific and not generalizable to all critical habitat designations.

Though the literature suggests perceptional effects on property values are possible, the likelihood, magnitude, and duration of such effects for any given designation are uncertain. Over time, as public awareness of the potential regulatory burden placed on designated lands evolves, particularly where no Federal nexus compelling a section 7 consultation exists, the effect of critical

[27] Personal communication between IEc and the Service on June 12, 2024.

[28] See, for example, public comments on the possible impact of designating private lands as critical habitat for the Northern spotted owl (as summarized in Industrial Economics, Incorporated. Economic Analysis of Critical Habitat Designation for the Northern Spotted Owl: Final Report. Prepared for the U.S. Fish and Wildlife Service. November 20, 2012. p.5-21) and the cactus ferruginous pygmy owl (as summarized in Industrial Economics, Incorporated. Economic Analysis of Critical Habitat Designation for the Cactus Ferruginous Pygmy-Owl. Prepared for the U.S. Fish and Wildlife Service. June 1999. p.44).

[29] For a review of the existing literature, see: Paterson, R. and M. Flight. "Critical Habitat Designation and Property Values." A white paper produced for the U.S. Fish and Wildlife Service. November 2023.

[30] Mamun, S., E. Nelson and C. Nolte. "Estimating the Impact of Critical-Habitat Designation on the Values of Developed and Undeveloped Parcels." Land Economics. 2023. Pg. 3. 2024, 100(1), page 166.

habitat designation on property values may attenuate. Existing literature provides little specific insight into the time horizon of potential property value effects. To inform the public of critical habitat designations, s, FWS provides a mapper of some proposed and final critical habitat designations.

Section 5. Geographic Distribution of Section 7 Costs and Cost Savings

The geographical distribution of future section 7 consultations and associated costs and cost savings is uncertain. If the consultation forecast outlined in Table 5 is a good predictor of the future distribution of section 7 consultations that consider Canada lynx critical habitat, then most future consultations (and associated administrative costs) are expected to occur in Colorado. In total, proposed revised critical habitat in Colorado would generate approximately $55,000 in net administrative costs (see Table 7). The state with the greatest cost savings is Montana, where a reduction in the size of critical habitat is likely to result in annual cost savings on the order of $22,000 per year on average (see Table 7).

Section 6. Section 7 and Other Economic Benefits

The primary intended benefit of critical habitat is to support the conservation of threatened and endangered species. Quantification and monetization of species conservation benefits requires information on: (1) the incremental change in the probability of conservation of the species that is expected to result from the designation; and (2) the public's willingness to pay for such beneficial changes. As described in this memorandum, additional efforts to conserve the Canada lynx are not predicted. As the designation is unlikely to result in additional or different project modifications, ancillary economic benefits are not anticipated.

Section 7. Alternate Baseline

The analysis presented in the preceding sections considers existing critical habitat for the Canada lynx as a key component of the baseline. This is because, absent the proposed rule, the Service anticipates that existing critical habitat would remain in place. The net effects of the proposed rule are therefore described relative to existing critical habitat.

In order to provide additional information to decision makers about the effects of critical habitat, this section offers an assessment of the cost of the proposed rule without consideration of existing critical habitat as part of the baseline. That is, this section compares the costs of critical habitat as described in the proposed rule against a world without any critical habitat for the lynx in Montana, Idaho, Washington, Wyoming, Colorado, and New Mexico.[31] In this case, all section 7 consultations that occur within the boundaries of the proposed revised critical habitat would result in the cost of additional administrative effort. Practically speaking, this means assigning administrative costs to the recent consultations that occurred in the "unaffected" and "additional effort" columns in Table

[31] Importantly, the analysis in this section does not consider the cost of critical habitat in Maine and Minnesota (Units 1 and 2), which are unaffected by the proposed rule. The best available information about the cost of critical habitat in those states may be found in the economic analysis that accompanied the 2014 revised critical habitat rule (see Industrial Economics, Incorporated. Screening Analysis of the Likely Economic Impacts of Proposed Revised Critical Habitat Designation for the Lynx canadensis. Prepared for the U.S. Fish and Wildlife Service. June 11, 2014.)

5. Given the baseline of "no critical habitat," areas proposed for exclusion from critical habitat (i.e., included in the 2014 designated and proposed for exclusion in the current proposed rule) would not be critical habitat for the lynx either under the baseline or proposed rule scenarios. This exclusion of these areas would not generate cost savings.

Table 9 provides the results of this assessment. Under the alternate baseline, total administrative costs are not expected to exceed $110,000 in a given year, including $27,000 to consider the cost of additional administrative effort during 5 formal consultations, $81,000 to consider the cost of additional administrative effort during 29 informal consultations, and $4,900 to consider adverse modification during 11 technical assistance efforts. These costs are significantly higher than the expected costs in the primary analysis because 1) we add costs to consider adverse modification in existing critical habitat that would remain critical habitat under the revised proposed designation and 2) we do not include the cost savings of removing critical habitat in select areas.

Table 9. Incremental Annual Cost of the Proposed Rule Under Alternate Baseline

State	Formal Consultations		Informal Consultations		Technical Assistance		Total Incremental Costs
	Number	Incremental Costs	Number	Incremental Costs	Number	Incremental Costs	
Montana	2.60	$15,000	6.60	$18,000	3.90	$1,700	$35,000
Idaho	0.04	$230	0.28	$760	0.79	$350	$1,300
Washington	0.00	$0	5.50	$15,000	4.80	$2,100	$17,000
Wyoming	0.34	$2,000	0.66	$1,800	0.12	$50	$3,800
Colorado	1.80	$10,000	16.00	$45,000	1.30	$580	$55,000
New Mexico	0.02	$140	0.12	$330	0.24	$110	$580
Total	**4.80**	**$27,000**	**29.00**	**$81,000**	**11.00**	**$4,900**	**$110,000**

Source: IEc calculations from consultation information documented in Table 5, and administrative consultation costs per effort as recorded in Table 6.

Notes: Estimates are rounded to two significant digits and may not sum to the totals reported due to rounding.

Section 8. Summary

In conclusion, the incremental effects of revising critical habitat for the Canada lynx are likely to be limited to changes in administrative effort to evaluate the potential for adverse modification of Canda lynx critical habitat. This analysis finds that administrative costs and cost savings are on the order of $66,000 and $47,000 respectively, in a given year (2024 dollars). The expected net effect of revising critical habitat for the Canada lynx is a $19,000 increase in administrative costs per year. Thus, this analysis findings that despite a net reduction in the size of critical habitat for the species, the costs of critical habitat are expected to increase given the geographic representation of consultations across the new and removed areas. Incremental economic benefits and forgone benefits are not anticipated. Therefore, the rule is unlikely to meet the threshold for a significant regulatory action as defined in Section 3(f)(1) of E.O. 12866, as amended by E.O. 14094.

This finding is based on several factors, including:

- No change in costs of complying with critical habitat in existing critical habitat that is included in the proposed revised critical habitat.
- The proposed units are considered occupied by the Canada lynx, and occupied units are afforded significant baseline protection under the Act due to the presence of the listed species.
    - All projects with a Federal nexus would be subject to section 7 consultation regardless of the designation of critical habitat due to the presence of the listed species.
    - Critical habitat is not likely to change the Service's recommendation for project modifications as part of future consultations considering the Canada lynx.
- The Canada lynx receives additional baseline protection from co-occurring listed species, which include species with overlapping critical habitat and similar resource and habitat needs.

The incremental effects resulting from the proposed critical habitat for the Canada lynx are subject to uncertainty due to limited information on what future projects may require section 7 consultation that considers Canada lynx habitat. However, the focus of the screening analysis is on the likelihood this proposed rule is significant under Section 3(f)(1) of E.O. 12866, and it is unlikely that additional data gathering and analysis to address uncertainty would change the findings of this analysis.

Appendix: Data and Assumptions for Estimating Administrative Costs of Section 7 Consultations

In 2002, IEc developed a model calculating the administrative costs of section 7 consultations to inform economic analyses of the Service's critical habitat rules. This effort included interviews with Federal agency staff with significant experience implementing section 7 consultations. The estimated level of effort for time spent in consultation is based on interviews with Federal agency staff. Specifically, staff provided information on hours or days spent by task and consultation type, as well as the staff level (in terms of the Federal General Schedule (GS) level) typically assigned to these tasks. To account for the range of complexity across consultations, the interviewees described time estimates and GS level assignments at low and high levels of effort for each consultation type. Separately, the model considers the number of hours and hourly rate to conduct Biological Assessments.

Wages for Federal agencies reflect the midpoint between Step 1 and Step 10 within each GS level using the GS Hourly Rates and are multiplied by 2.5 to account for overhead.[32] Based on these interviews, Table A-1 describes the resulting key assumptions related to total hours and wage level for consultations and technical assistances that considered both the listing of the species (jeopardy) and critical habitat (adverse modification). Of these total consultation costs, approximately 25 percent is the cost to consider adverse modification. Similarly, re-initiation of past consultations to address adverse modification require 50 percent of these total costs. The consultation costs in Table 6 of this analysis reflect the average across the low and high levels of effort by consultation type and party.

Table A-1. Key Hour and Wage Rate Assumptions Used in the Section 7 Cost Model

Consultation Type	Effort Level	FWS		Federal Action Agency		Third Party		Biological Assessments	
		Total Hours	GS Level	Total Hours	GS Level	Total Hours	Hourly Wage	Total Hours	Hourly Wage
Technical Assistance	Low	5	GS-10			6	$100		
	High	13	GS-10			15	$100		
Informal Consultation	Low	19	GS-10	23	GS-11	12	$100	0	$100
	High	45	GS-12	56	GS-12	29	$100	40	$100
Formal Consultation	Low	45	GS-12	56	GS-12	29	$100	40	$100
	High	74	GS-13	94	GS-12	41	$100	56	$100
Programmatic Formal Consultation	Low	200	GS-11	160	GS-11			56	$100
	High	280	GS-11	240	GS-11			56	$100

[32] For example, the hourly wage rate is $27.09 at GS-10 Step 1 and $35.21 at GS-10 Step 10, therefore the midpoint is $31.15. When multiplying by 2.5, the resulting wage rate used in the analysis is $77.88. Wage rates in this memorandum reflect the 2024 GS Schedule, available at: https://www.opm.gov/policy-data-oversight/pay-leave/salaries-wages/salary-tables/24Tables/html/GS_h.aspx