

MEMORANDUM | April 30, 2014

TO U.S. Fish and Wildlife Service (Service)
FROM Industrial Economics, Incorporated (IEc)
SUBJECT Screening Analysis of the Likely Economic Impacts of Critical Habitat Designation for the Oregon Spotted Frog

On August 29, 2013, the Service published a proposed rule to designate critical habitat for the Oregon spotted frog (*Rana pretiosa*) under the Endangered Species Act (the Act).¹ As part of the rulemaking process, the Service must consider the economic impacts, including costs and benefits, of the proposed critical habitat rule in the context of two separate requirements:²

- **Executive Order (EO)12866 *Regulatory Planning and Review***, which directs Agencies to assess the costs and benefits of regulatory actions and quantify those costs and benefits if that action may have an effect on the economy of \$100 million or more in any one year; and
- **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.³

This memorandum provides information to the Service on the potential for the proposed critical habitat rule to result in costs exceeding \$100 million in a single year. If costs do not exceed this threshold, EO 12866 suggests that a qualitative assessment may be sufficient. This memorandum also identifies the geographic areas or specific activities that could experience the greatest impacts, measured in terms of changes in social welfare, to inform the Secretary's decision under section 4(b)(2).⁴

¹ Proposed Rule, Designation of Critical Habitat for the Oregon Spotted Frog, 78 FR 53538. A separate rule, also published on August 29, 2013, proposed to list the species as threatened under the Act, 78 FR 53582.

² Additional laws and executive orders require the consideration of the distribution of impacts on vulnerable subpopulations, such as small entities and state or local governments. These requirements for distributional analysis are beyond the scope of this memorandum.

³ Published September 20, 1993. As affirmed by *Executive Order 13563: Improving Regulation and Regulatory Review*. January 18, 2011.

⁴ The discipline of welfare economics focuses on maximizing societal well-being. (Just, R.E., D.L. Hueth, and A. Schmitz. 2004. *The Welfare Economics of Public Policy: A Practical Approach to Project and Policy Evaluation*. Edward Elgar Publishing: Northampton, MA.) 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 the measurement of accounting costs (e.g., actual expenses). Welfare

To prepare this assessment, we rely on: (1) the draft proposed rule and associated geographic information systems (GIS) data layers; (2) the Service's incremental effects memorandum, which is described in greater detail later in this memorandum; (3) the results of the Service's outreach efforts to other Federal agencies concerning the likely effects of critical habitat; and (4) limited interviews with relevant stakeholders.

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. (U.S. Office of Management and Budget. 2003. *Circular A-4*.)

FINDINGS OF THE SCREENING ANALYSIS

Critical habitat designation for the Oregon spotted frog is unlikely to generate costs exceeding \$100 million in a single year. Data limitations prevent the quantification of benefits.

Section 7 Costs

- Consultations for grazing, water management, land restoration and conservation, agriculture, recreation, and transportation activities are anticipated in areas affecting proposed critical habitat for the Oregon spotted frog. However, economic impacts of critical habitat designation are expected to be limited to additional administrative effort to consider adverse modification in section 7 consultations. This finding is based on the following factors:
 - In occupied areas, activities with a Federal nexus will be subject to section 7 consultation requirements regardless of critical habitat designation, due to the presence of the listed species;
 - In areas not known to be occupied, Agencies are in most cases likely to treat areas as potentially occupied due to their proximity to occupied areas;
 - Project modifications requested to avoid adverse modification are likely to be the same as those needed to avoid jeopardy.
 - Total incremental administrative costs associated with all known future actions are estimated to be \$190,000.

Other Costs

- The designation of critical habitat is not expected to trigger additional requirements under state or local regulations. This conclusion is based on the existing awareness of state and local agencies of the presence of the species.
- The designation of critical habitat has the potential to cause ranchers and landowners to perceive that private lands will be subject to use restrictions, which could result in perceptual effects related to the value of lands for grazing and, in some areas, development.

Section 7 and Other Benefits

Various economic benefits may result from the incremental conservation efforts identified in this analysis, including: (1) those associated with the primary goal of species conservation (i.e. direct benefits), and (2) those additional beneficial services that derive from conservation efforts but are not the purpose of the Act (i.e. ancillary benefits). However, due to existing data limitations, we are unable to assess the likely magnitude of these benefits.

Geographic Distribution of Costs

The unit likely to incur the largest incremental administrative costs is Unit 9 (Little Deschutes River) due to a relatively high number of anticipated consultations to consider grazing allotments intersecting the unit.

SECTION 1. BACKGROUND

The Oregon spotted frog is an amphibian species that inhabits emergent wetland habitats in forested landscapes, though the species is not typically found under forest canopy. The species is known to inhabit emergent wetland habitats in the Pacific Northwest from southwestern British Columbia through the Puget Trough, and in the Cascades Range from south-central Washington to the Klamath Basin in southern Oregon. Unlike other native frog species in the area, the Oregon spotted frog does not have a terrestrial life stage; it is nearly always found in or near a perennial body of water.⁵ The Service proposed to list the species as threatened under the Act on August 29, 2013.⁶

The proposed critical habitat rule would designate approximately 68,500 acres and 24 stream miles of critical habitat across 14 units in the states of Oregon and Washington. The proposed designation includes occupied habitat, as well as areas that are not known to be occupied. Proposed critical habitat areas not known to be occupied (i.e., occupancy suspected but is currently undetermined) exist in five of the proposed units and total 365 acres, and less than one river mile of the proposed designation.

Approximately 67 percent of the total proposed critical habitat designation is located on Federal lands, 30 percent on private lands, and three percent on State lands. Exhibit 1 provides an overview of the proposed critical habitat units, including the areas not known to be occupied by the species. Exhibit 2 provides an overview map of the proposed designation.

⁵ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Oregon Spotted Frog (*Rana pretiosa*). January 14, 2014. (p. 2- 4)

⁶ Proposed Listing Rule. 78 FR 53582.

EXHIBIT 1. LAND OWNERSHIP (ACRES)

UNIT		ACRES (OCCUPIED)						STREAM MILES								
		FEDERAL	STATE	COUNTY	PRIVATE/ LOCAL MUNICI- PALITIES	TOTAL	NOT KNOWN TO BE OCCUPIED	FEDERAL	FEDERAL/ PRIVATE	STATE	STATE/ PRIVATE	COUNTY	COUNTY/ PRIVATE	PRIVATE/ LOCAL MUNICI- PALITIES	TOTAL	
1	Lower Chilliwack River	-	-	13	267	280	137	-	-	-	-	-	-	-	7.63	7.63
2	South Fork Nooksack River	-	-	-	111	111	-	-	-	-	-	-	-	-	3.56	3.56
3	Samish River	-	<1	<1	982	984	-	-	-	-	-	-	-	-	1.73	1.73
4	Black River	877	375	151	3,478	4,881	-	0.06	0.06	0.45	0.05	0.64	0.27	5.9	7.42	
5	White Salmon River	108	1,084	-	33	1,225	-	0.91	-	-	-	-	-	2.3	3.2	
6	Middle Klickitat River	4,048	-	2	2,796	6,846	-	-	-	-	-	-	-	-	-	-
7	Lower Deschutes River	89	-	-	6	96	-	-	-	-	-	-	-	-	-	-
8A	Upper Deschutes River: Below Wickiup Dam	1,180	180	45	961	2,366	135	-	-	-	-	-	-	-	-	-
8B	Upper Deschutes River: Above Wickiup Dam	22,031	-	-	<1	22,031	-	-	-	-	-	-	-	-	-	-
9	Little Deschutes River	5,275	216	81	5,789	11,361	45	-	-	-	-	-	-	-	-	-
10	McKenzie River	98	-	-	-	98	-	-	-	-	-	-	-	-	-	-

UNIT		ACRES (OCCUPIED)						STREAM MILES							
		FEDERAL	STATE	COUNTY	PRIVATE/ LOCAL MUNICI- PALITIES	TOTAL	NOT KNOWN TO BE OCCUPIED	FEDERAL	FEDERAL/ PRIVATE	STATE	STATE/ PRIVATE	COUNTY	COUNTY/ PRIVATE	PRIVATE/ LOCAL MUNICI- PALITIES	TOTAL
11	Middle Fork Willamette River	292	-	-	-	292	-	-	-	-	-	-	-	-	-
12	Williamson River	10,417	-	-	4,915	15,332	13	-	-	-	-	-	-	-	-
13	Upper Klamath Lake	1,250	9	-	1,077	2,336	35	-	-	-	-	-	-	-	-
14	Upper Klamath Lake	100	-	-	162	262	-	-	-	-	-	-	-	-	-
Total		45,766	1,865	293	20,577	68,501	365	0.97	0.06	0.05	0.05	0.63	0.27	21.12	23.54

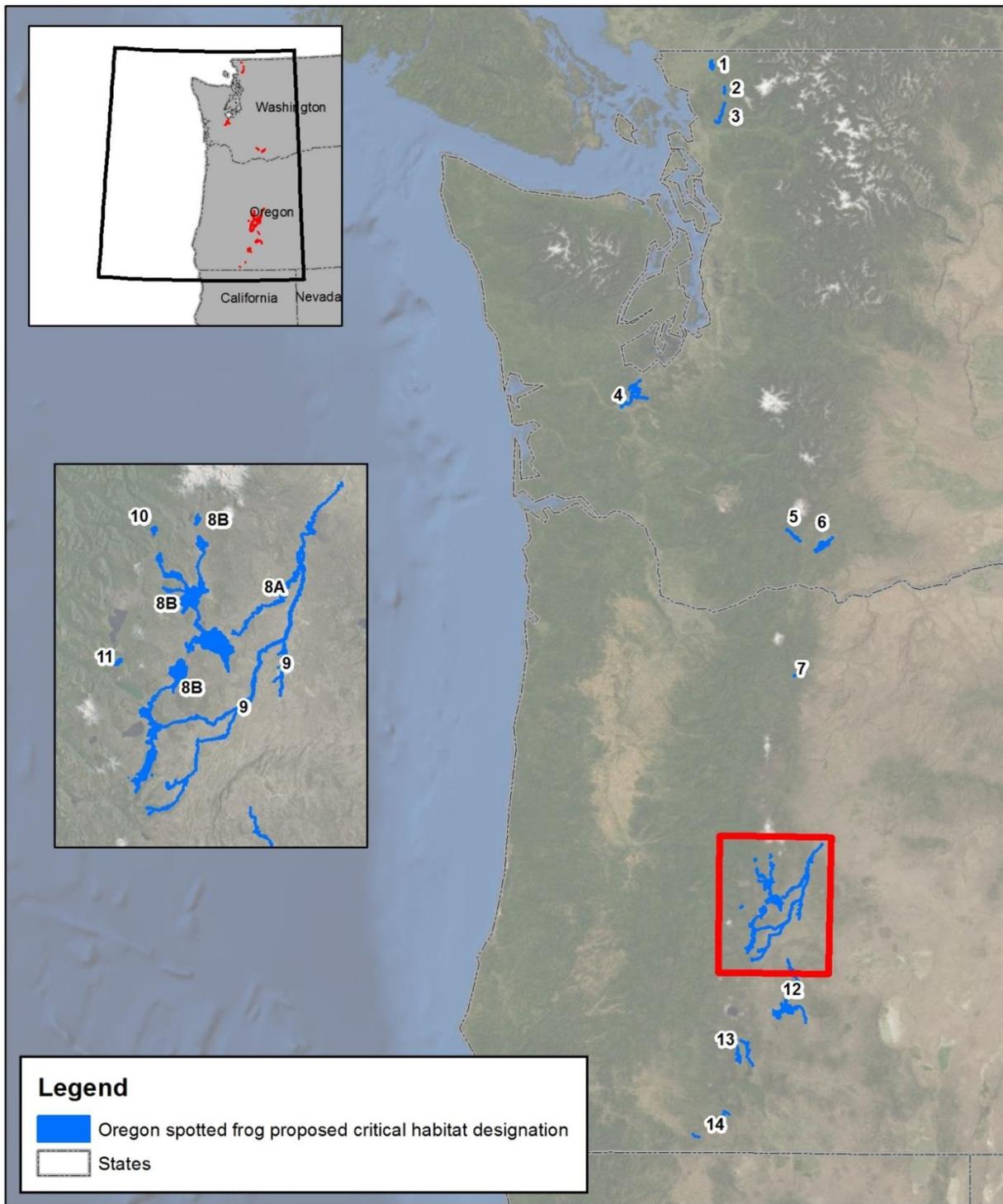
Note: Multi-ownership stream mile categories indicate different ownership on each side of the river/stream/creek. Source: US Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for Oregon Spotted Frog. January 14, 2014; US Fish and Wildlife Service. Addendum to the Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for Oregon Spotted Frog, February 13, 2014.

Because the listing for the Oregon spotted frog is not yet final, no consultations have been conducted for the species. However, review of the proposed rule and the Service's incremental effects memorandum identified the following economic activities that have the potential to affect the Oregon spotted frog and its habitat:

- (1) Water management;
- (2) Restoration and conservation projects;
- (3) Agriculture;
- (4) Livestock grazing;
- (5) Recreation; and
- (6) Transportation activities.⁷

⁷ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Oregon Spotted Frog (*Rana pretiosa*). January 14, 2014; and Proposed Critical Habitat Rule, 78 FR 53538.

EXHIBIT 2. OVERVIEW OF PROPOSED FROG CRITICAL HABITAT



Data Sources:
 1. U.S. Fish and Wildlife Service
 2. ESRI
 Projection: NAD 1983 UTM Zone 10N



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 and benefits of a regulatory action against a baseline (i.e., costs 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.”⁸ 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. Impacts that are incremental to the baseline (i.e., occurring over and above existing constraints) are those that are solely attributable to the designation of critical habitat. This screening analysis focuses on the likely incremental effects of the critical habitat designation.

We consider incremental effects of the designation 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.⁹ 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 perceptual, or stigma, effect of critical habitat on markets.

⁸ OMB, “Circular A-4,” September 17, 2003, available at http://www.whitehouse.gov/omb/circulars_a004_a-4. Circular A-4 provides “guidance to Federal Agencies on the development of regulatory analysis as required under Section 6(a)(3)(c) of Executive Order 12866...” (p. 1)

⁹ A Federal nexus exists for activities authorized, funded, or carried out by a Federal agency.

SECTION 3. SECTION 7 COSTS OF THE CRITICAL HABITAT RULE

In this section, we discuss the likelihood that the designation of critical habitat will result in incremental costs through the section 7 consultation process. In the baseline, section 7 of the Act requires Federal agencies to consult with the Service to ensure that their actions will not jeopardize the frog. Once critical habitat is designated, section 7 also requires Federal agencies to ensure that their actions will not adversely modify the critical habitat for the frog. Thus, a key focus of this screening analysis is whether the designation 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.

As described in Section 1, the proposed critical habitat designation includes areas within five units with unknown occupancy by Oregon spotted frog. Because these areas have not been surveyed, they are separately identified although they may, in fact, be occupied by the species. According to the Service, “Due to the proximity of these areas to adjacent occupied critical habitat, we anticipate that Federal agencies would likely consider the not known to be occupied areas to be occupied in most cases in order to simplify the analysis of potential impacts of their actions during section 7 consultation.”¹⁰

In general, the quality of Oregon spotted frog habitat is closely linked to species survival.¹¹ Specifically, the Service states that “in occupied critical habitat, it is unlikely that an analysis would identify a difference between measures needed to avoid the destruction or adverse modification of critical habitat from measures needed to avoid jeopardizing the species.”¹² As such, section 7 impacts in occupied areas are anticipated to be limited to administrative costs. In addition, because the Service believes that agencies are likely to treat areas of unknown occupancy as if they were occupied, impacts in these areas are also generally anticipated to be limited to administrative costs.

ADMINISTRATIVE COSTS

In order to estimate the likely magnitude of administrative costs, we provide information on the likely intensity of future consultation activity. We consider information provided by Federal agencies to the Service regarding specific projects that may require future consultation, in particular USFS and BLM.

In the process of developing the proposed rule, the Service requested information from Federal agencies that manage land within the proposed designation regarding ongoing and planned activities. We use this information to develop a consultation forecast. Consultations included are listed in Appendix A.

¹⁰ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Oregon Spotted Frog (*Rana pretiosa*). January 14, 2014.

¹¹ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Oregon Spotted Frog (*Rana pretiosa*). January 14, 2014. Page 39-40.

¹² U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Oregon Spotted Frog (*Rana pretiosa*). January 14, 2014.

The information provided by Federal agencies identifies 37 known projects likely to require formal consultation, as well as three projects likely to require informal consultation. Exhibit 3 presents the average consultation costs used in this analysis.

EXHIBIT 3. RANGE OF INCREMENTAL ADMINISTRATIVE CONSULTATIONS COSTS (2014\$)

CONSULTATION TYPE	SERVICE	FEDERAL AGENCY	THIRD PARTY	BIOLOGICAL ASSESSMENT	TOTAL COSTS
ADDITIONAL EFFORT TO ADDRESS ADVERSE MODIFICATION IN A NEW CONSULTATION					
Technical Assistance	\$140	n/a	\$260	n/a	\$410
Informal	\$610	\$780	\$510	\$500	\$2,400
Formal	\$1,400	\$1,600	\$880	\$1,200	\$5,000
Programmatic	\$4,200	\$3,500	n/a	\$1,400	\$9,000
<p>Source: IEC analysis of administrative costs is based on data from the Federal Government Schedule Rates, Office of Personnel Management, 2013, and a review of consultation records from several Service field offices across the country conducted in 2002.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. Estimates are rounded to two significant digits and may not sum due to rounding. 2. Estimates reflect average hourly time required by staff. 					

While we cannot, at this time, predict the precise number of anticipated future consultations, we find that the annual number of future formal consultations is likely to be fewer than 37 in any given year, according to the project information provided by Federal agencies.

Thus, we estimate that incremental administrative costs associated with including consideration of critical habitat in section 7 consultations could be approximately \$190,000 in 2014, based on the conservative assumption that all anticipated consultations would occur in the first year of the designation, and all identified projects result in formal consultations.

SECTION 4. OTHER COSTS OF THE CRITICAL HABITAT RULE

This section discusses the potential for incremental costs to occur outside of the section 7 consultation process. These types of costs include additional requirements or project modifications under state laws or regulations that could be triggered by critical habitat, and perceptual effects on markets. These types of costs may occur even when activities do not have a Federal nexus for consultation.

ADDITIONAL STATE 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. While there is no State Endangered Species Act in Washington, the Washington Fish and Wildlife Commission has the authority to list species. The Oregon spotted frog was listed as a State endangered species in 1997, protecting the species from direct take and/or malicious take, but their habitat is not directly protected. The Oregon spotted frog is also a Priority Species under Washington Department of Fish and Wildlife's Priority Habitats and Species Program, giving it some habitat protection during environmental reviews of applications for county and municipal development permits. Additionally, under the Washington Shoreline Management Act, counties must maintain a Shoreline Master Program, which may afford some protection to frog habitat.¹³

The Oregon spotted frog is not listed under Oregon's State Endangered Species Act, though it is part of the state's sensitive species list. A Federal listing does not guarantee a listing under the Oregon State Endangered Species Act, rather a listing requires a separate rule-making process and findings made by the Oregon Fish and Wildlife Commission. Thus, there are no guarantees of additional protection on State owned and managed lands.¹⁴

The Oregon spotted frog's status in both states demonstrates that state agencies are aware of the presence of the species. Because the Service anticipates that Federal agencies would likely consider the not known to be occupied areas to be occupied in most cases in order to simplify the analysis of potential impacts of their actions during section 7 consultation, we assume that the designation of critical habitat will not provide new information to states about the need to conserve the species and its habitat.¹⁵ As a result, the designation is not expected to trigger state-level impacts as a result of increased awareness of the species and its habitat in states where the Oregon spotted frog is afforded some conservation status.

POSSIBLE IMPACTS OF PUBLIC PERCEPTION

Comments received regarding proposed designations of critical habitat in various locations 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 those associated with specific forecast project modifications under section 7 of the Act.¹⁶ These commenters believe that, all else being equal, a property

¹³ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Oregon Spotted Frog (*Rana pretiosa*). January 14, 2014 (p. 28-29).

¹⁴ U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Oregon Spotted Frog (*Rana pretiosa*). January 14, 2014 (p. 32).

¹⁵ U.S. Fish and Wildlife Service. Personal communication on January 24, 2014.

¹⁶ See, for example, public comments on the potential 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*

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. Public attitudes about the limits and costs that the Act may impose can cause real economic effects to the owners of property, regardless of whether such limits are actually imposed. Over time, as public awareness grows of the regulatory burden placed on designated lands, particularly where no Federal nexus compelling section 7 consultation exists, the effect of critical habitat designation on properties may subside. To evaluate the possible magnitude of such costs, we conduct a bounding analysis.

To identify the type of land use most likely to be subject to perceptual effects, we consider the physical characteristics of proposed critical habitat. The frog is an aquatic frog species that is almost always found in or near a perennial body of water.¹⁷ Based on information in the Proposed Rule, the Incremental Effects Memorandum, as well as visual examination of satellite imagery of the designation, we determine that the primary use of land within the majority of the designation is for livestock grazing.

For the majority of privately owned lands in critical habitat that are used for grazing activities, we estimate per acre grazing land values. In addition, we estimate per acre land values for privately owned lands considered most likely to be developed.¹⁸ Public perception may diminish land values by some percent of these total values. Data limitations prevent us from estimating the size of this percent reduction or its attenuation rate.

The total value of the properties represents the upper bound on possible costs rather than a best estimate of likely costs. Assuming the entire value of the parcel is lost would likely overstate impacts and is not supported by the limited, existing academic literature investigating endangered species-related public perception effects.¹⁹ In addition, these properties may experience similar perception-related effects for a variety of other reasons, including the presence of the Oregon spotted frog, reducing the incremental portion of the impact attributable to Oregon spotted frog critical habitat.

To consider lost value to land used for grazing, we apply National Agricultural Statistics Service (NASS) Agricultural Land Values for the states of Oregon and Washington to the 24,400 acres of privately owned land within the proposed designation.²⁰ In some specific circumstances, grazing may be considered a

Analysis of Critical Habitat Designation for the Cactus Ferruginous Pygmy-Owl. Prepared for the U.S. Fish and Wildlife Service. June 1999. p. 44).

¹⁷ Proposed Critical Habitat Rule, 78 FR 53541.

¹⁸ See Industrial Economics, Incorporated. U.S. Fish and Wildlife Service on “Supplemental Information on Perceptual Effects on Land Values - Critical Habitat Designation for the Oregon Spotted Frog.” April 15, 2014.

¹⁹ For a discussion of the available literature describing potential perceptual effects resulting from the Act, see Industrial Economics, Incorporated. Memorandum to the U.S. Fish and Wildlife Service on “Supplemental Information on Perceptual Effects on Land Values - Critical Habitat Designation for the Oregon Spotted Frog.” April 15, 2014.

²⁰ US Department of Agriculture, National Agricultural Statistics Service. Land Values: 2013 Summary. August.

management tool to maintain frog habitat. For the purposes of this portion of the analysis, this potential benefit is not taken into consideration. We conclude that the total value of these acres is unlikely to exceed \$100 million. Because costs resulting from public perception of the effect of critical habitat designation would likely represent some fraction of this total value, such perceptual effects are unlikely to exceed a threshold of \$100 million in a given year.²¹

SECTION 5. SECTION 7 AND OTHER ECONOMIC BENEFITS

The primary intended benefit of critical habitat is to support the conservation of threatened and endangered species, such as the frog. Quantification and monetization of species conservation benefits requires information on: (1) the incremental change in the probability of frog conservation that is expected to result from the designation; and (2) the public's willingness to pay for such beneficial changes.²²

Several public commenters request that our analysis consider incremental economic benefits of the designation. These commenters suggest that improved river conditions resulting from the designation could lead to increases in tourism and recreation, thus benefiting local economies.²³ If water management activities change at Wickiup and Crane Prairie Reservoirs as a result of critical habitat designation, various benefits could occur within the conservation pool areas, and it is conceivable that the quality of recreational activities near the reservoirs could improve. If perceptual effects cause changes in future land use, benefits to the species and environmental quality may also occur. However, due to existing data limitations, we are unable to assess the magnitude of such potential benefits.²⁴

SECTION 6. SUMMARY

This analysis estimates direct (section 7) and indirect costs likely to result from the proposed critical habitat designation for the Oregon spotted frog. The economic impacts of implementing the rule through section 7 of the Act are expected to be limited to additional administrative effort to consider adverse modification in section 7 consultations, which are not expected to exceed \$200,000 in a typical year. The unit likely to incur the largest incremental administrative costs is Unit 9 (Little Deschutes

²¹ For additional detail describing our analysis of land values, see Industrial Economics, Incorporated. Memorandum to the U.S. Fish and Wildlife Service on "Supplemental Information on Perceptual Effects on Land Values - Critical Habitat Designation for the Oregon Spotted Frog." March 7, 2014.

²² The actions undertaken to achieve conservation can also generate other types of environmental improvements. Estimation of the value of these additional benefits requires quantification of the physical changes and information about the public's willingness to pay for such improvements.

²³ M. Moore. Public comment submitted on November 13, 2013; M. Tripp. Public comment on behalf of Trout Unlimited submitted on December 2, 2013; D. LaPlaca. Public comment on behalf of Visit Bend submitted on November 12, 2013.

²⁴ For a detailed discussion of these data limitations, see Flight, M. and R. Unsworth, Industrial Economics, Incorporated. 2011. *Quantifying Benefits of Critical Habitat Designation for Listed Species*. Memorandum to Douglas Krofta, U.S. Fish and Wildlife Service.

River) due to a relatively high number of anticipated consultations to consider grazing allotments intersecting the unit.

In terms of indirect costs, this analysis concludes that the designation of critical habitat is unlikely to trigger additional requirements under state or local regulations. In addition, this analysis is supplemented by a separate memorandum assessing the potential perceptual effects on the value of privately-owned grazing lands. This analysis concludes that the aggregate value of private lands is less than \$100 million.

Therefore, we conclude that the critical habitat designation for the frog is unlikely to generate costs exceeding \$100 million in a single year. The magnitude of benefits is highly uncertain, and quantification would require primary research and the generation of substantial amounts of new data, which is beyond the scope of this memorandum and Executive Order 12866.²⁵

²⁵ Executive Order 12866 directs agencies to base regulatory decisions on “the best reasonably obtainable scientific, technical, economic, and other information concerning the need for, and consequences of, the intended regulation” (58 FR 51736). For a detailed discussion of data limitations associated with the estimation of critical habitat benefits, see Flight, M. and R. Unsworth, Industrial Economics, Incorporated. 2011. *Quantifying Benefits of Critical Habitat Designation for Listed Species*. Memorandum to Douglas Krofta, U.S. Fish and Wildlife Service.

APPENDIX A | PLANNED PROJECTS BY CRITICAL HABITAT UNIT

UNIT	PROBABLE PROJECT	FEDERAL ACTION AGENCY / LAND OWNER	CONSULTATION TYPE
Units 1-14	National Fire Retardant Consultation	USFS	Formal
Units 1-14	Aquatic Restoration Biological Opinion	BLM, USFS, BIA	Formal
Units 1-6	WDOT programmatic - general maintenance program and fish passage culvert replacements	Federal Highways	Formal
Units 1-6	WREP, CREP, EQIP, WHIP	NRCS/FSA	Formal
Units 1-6	Washington Statewide Beaver Removal Activities	USDA APHIS/Wildlife Services	Formal
Unit 3	WRP Restoration Cost Share Agreement with Whatcom Land Trust	NRCS	Formal
Unit 4	Interagency Agreement with Nisqually NWR Complex for Black River wetland vegetation manipulations on WRP easements	NRCS/USFWS	Formal
Unit 11	Campground and Trail Maintenance	USFS (Willamette NF)	Formal
Unit 11	Grazing Allotments	USFS (Willamette NF)	Formal
Unit 8A	Ryan Ranch Meadow Inundation	USFS (Deschutes NF)	Formal
Unit 8b	Reservoir Operation	BOR	Formal
Unit 9	Marsh Planning Area	USFS (Deschutes NF)	Formal
Unit 8 and 9	Special Use Permits/Renewals	USFS (Deschutes NF)	Formal
Units 8 and 9	Deschutes and Ochoco NF Invasive Species EIS - reinitiation	USFS (Deschutes NF)	Formal
Unit 9	Marsh Planning Area	USFS (Deschutes NF)	Formal
Unit 9	Grazing Allotments (8 consultations)	BLM (Prineville FO)	Formal
Units 12-14	Aquatic Restoration Projects	USFWS-PFW	Formal
Units 12-14	Grazing Allotment (Antelope, Buck/Indian, Fourmile Springs, Yamsi)	USFS (Fremont-Winema NF)	Formal
Unit 13	Sevenmile water right purchase	USFS (Fremont-Winema NF)	Formal
Unit 13	Sevenmile mover/screen diversion	USFS (Fremont-Winema NF)	Formal
Units 12-14	Noxious weeds EIS - reinitiation	USFS (Fremont-Winema NF)	Informal
Units 12-14	WRP and CREP	NRCS	Formal
Unit 12	Jack Creek Restoration project	USFS (Fremont-Winema NF)	Informal
Unit 12	Williamson River restoration project (Blue Jay project)	USFS (Fremont-Winema NF)	Informal
Unit 12	Williamson River restoration project	USFWS-Refuge	Formal
Unit 13	Wood River OSF Habitat Enhancement (bank improvements and water withdrawal for predator control)	BLM (Klamath Falls)	Formal
Unit 13	Wood River Wetland Management and Operations Biological Opinion - reinitiation	BLM (Klamath Falls)	Formal

Note: Some records represent multiple consultations.
Source: U.S. Fish and Wildlife Service. Incremental Effects Memorandum for the Economic Analysis for the Proposed Rule to Designate Critical Habitat for the Oregon Spotted Frog (*Rana pretiosa*). January 14, 2014 (p. 46-49).