Subject: Verification report on the results of a Bureau of Land Management analysis of NEPA records and field verification for salvage harvest of timber.

Date: June 2, 2020

Analysts:

Wade Salverson
US Department of the Interior
Bureau of Land Management
20 M Street SE
Washington, DC 20003

Christian Schumacher
US Department of the Interior
Bureau of Land Management
20 M Street SE
Washington, DC 20003

INTRODUCTION

The purpose of this document is to explain the basis for the Bureau of Land Management (BLM) proposal to establish a new categorical exclusion (CX) for authorizing the harvest of dead or dying trees impacted by biotic or abiotic disturbances commonly referred to as "salvage harvest". Salvage harvest can help to recover economic value from timber, contribute to rural economies, accelerate reestablishment of native resilient forest tree species, reduce future wildfire fuel loads, and to reduce hazards to wildland firefighters, the public, and infrastructure from dead or dying trees. In addition to analysis through environmental assessments (EAs) and environmental impact statements (EISs), the BLM already relies upon its existing CX that addresses salvage harvest not to exceed 250 acres and intends to retain that CX (see discussion in Methods); the BLM is proposing this additional CX to increase its flexibility to respond to disturbances across larger areas, while keeping the tailored focus of the action.

This report reviews EAs for proposed actions for which no significant direct, indirect, or cumulative impacts were predicted, and reviews monitoring data and other information relating to the actual impacts from the projects as implemented. There were no instances where any of the evaluated projects included mitigation measures as features of the proposed action or alternatives in order to preclude the need to prepare an EIS. That is, in order to ensure that only actions which, of themselves do not result in significant impacts, individually or cumulatively, this review did not include, and this report does not rely on, situations where BLM relied on mitigated Findings of No Significant Impacts (FONSIs). The BLM is proposing the parameters of this CX based on project evaluation in NEPA documentation, scientific literature, professional experience, and monitoring data. This report includes the interpretation of that information and the rationale for the parameters of this proposed CX in the Methods and Findings sections.

Department of the Interior (DOI) procedures for complying with and implementing NEPA are codified at 43 CFR Part 46. BLM procedures for complying with and implementing NEPA, consistent with DOI procedures, are located in Chapter 11 of Part 516 of the Departmental Manual (516 DM 11). The list of actions eligible for categorical exclusion is located in section 11.9 of 516 DM. All references to the DM correspond with the manual text provided in the proposed revision (for example, this proposed CX is proposed for inclusion in an existing subsection of section 11.9, inserted as category number 10 in subsection C).

The use of CXs allows the BLM to act more efficiently by (a) reducing the resources spent analyzing proposals that generally do not have significant environmental impacts and (b)

focusing resources on proposals that may have significant environmental impacts.

Regardless of the level of NEPA compliance conducted, the BLM's actions are guided by land use plans on BLM-administered public lands. The land use plans identify where and under what conditions management activities can occur to conform to plan decisions. Therefore, notwithstanding the terms of any particular CX, the proposed action would also be constrained by any limits written into the applicable land use plan. By regulation, approval or revision of BLM land use plans must be supported by preparation of an EIS (43 CFR 1601.0-6). The BLM intends the proposed Timber Salvage CX to capitalize on the fact that each land use plan includes restrictions specific to the planning area and requires projects to be designed to include project design features to conform with these land use planning requirements. This will streamline documentation of NEPA compliance for actions proposed to implement that plan.

1. Proposed CX Language

The following italicized text is the BLM's proposed new CX at 516 DM citation: *11.9 C. (10)*

(10) Harvesting dead and dying trees resulting from fire, insects, disease, drought, or other disturbances not to exceed 1,000 acres for disturbances of 3,000 acres or less. For disturbances greater than 3,000 acres, harvesting shall not exceed 1/3 of a disturbance area but not to exceed 5,000 acres total harvest.

(a) Covered actions:

(i) Cutting, yarding, and removal of dead or dying trees and live trees needed for landings, skid trails, and road clearing. Includes chipping/grinding and removal of residual slash.

(ii) Jackpot burning, pile burning, or underburning.

(iii) Seeding or planting necessary to accelerate native species re-establishment.

(b) Such actions:

(i) May include construction of permanent roads not to exceed 1 mile in order to facilitate the covered actions. Permanent roads are routes intended to be part of the BLM's permanent transportation system.

(ii) If a permanent road is constructed to facilitate the covered actions, the segments shall conform to all applicable land use planning decisions for permanent road construction in the land use plan; and if travel management planning has been completed, the route specific designations related to the new segments shall be disclosed.

(iii) May include temporary roads, which are defined as roads authorized by contract, permit, lease, other written authorization, or emergency operation not intended to be part of the BLM's permanent transportation system and not

necessary for long-term resource management. Temporary roads shall be designed to standards appropriate for the intended uses, considering safety, cost of transportation, and impacts on land and resources.

(iv) Shall require the treatment of temporary roads constructed or used so as to permit the reestablishment, by artificial or natural means, or vegetative cover on the roadway and areas where the vegetative cover was disturbed by the construction or use of the road, as necessary to minimize erosion from the disturbed area. Such treatment shall be designed to reestablish vegetative cover as soon as practicable, but at least within 10 years after the termination of the contract.

(v) Shall require inclusion of project design features pertaining to the land use plan decisions providing for protections of the following resources and resource uses in the documentation of the categorical exclusion:
(1) Level of snag and downed wood creation/retention, and retention level of live trees;
(2) Specifications for erosion control features such as water bars, dispersed slash;
(3) Criteria for minimizing or remedying soil compaction;
(4) Types and extents of logging system constraints (e.g., seasonal, location, extent, etc.);
(5) Extent and purpose of seasonal operating constraints or restrictions;
(6) Criteria to limit spread of weeds;
(7) Size of riparian buffers and/or riparian zone operating restrictions;
(8) Operating constraints and restrictions for underburning or pile burning; and
(9) Revegetation standards for temporary roads.

(c) For this CX, a dying tree is defined as a standing tree that has been severely damaged by forces such as fire, wind, ice, insects, or disease, and that in the judgement of an experienced forest professional or someone technically trained for the work, is likely to die within a few years. Examples include, but are not limited to:
(i) Harvesting a portion of a stand damaged by a wind or ice event.
(ii) Harvesting fire damaged trees.

A. <u>Documentation Requirements for this CX</u>

The CEQ NEPA regulations direct federal agencies to rely on established categorical exclusions to approve or authorize actions meeting the specifications of those categories to reduce both paperwork and delay from those required for EIS process and documentation requirements (40 CFR 1500.4(p); 1500.5(k)). However, this direction is not an exemption from completing *any* documentation when necessary or appropriate for the use of the categorical exclusion. Bureau of Land Management (BLM) NEPA policy further clarifies that a categorical exclusion is a form of NEPA compliance, without the analysis that occurs in an EA or an EIS: it is not an exemption from the NEPA (BLM NEPA Handbook, p. 17). Where the BLM can document compliance with NEPA by reliance upon an applicable categorical exclusion, the BLM can fulfill the directive in the CEQ NEPA regulations to reduce paperwork and delay.

The BLM's NEPA policy recommends the BLM document the applicability of a categorical exclusion to a particular proposed action (BLM NEPA Handbook, p. 20). The BLM's documentation of the application of a category does not constitute a decision document. Specifically, BLM policy requires documentation of (BLM NEPA Handbook, Appendix 6):

- basic information (office name, project title, project location);
- a full description of the proposed action (including any specific project design features that are included in the project's design);
- discussions specific to land use plan conformance (including listing of specific decisions directing the action or protecting resources from the action);
- a discussion of compliance with NEPA (including listing of which specific category is applied for the action and documentation of the extraordinary circumstances review); and
- identification of an authorizing official and contact person.

The Department of the Interior (DOI) NEPA regulations require that all actions approved or authorized using a categorical exclusion established by the BLM must review the specifications of the action under consideration against the 12 extraordinary circumstances (43 CFR 46.215). The BLM's NEPA policy requires this review to be documented unless there is a good rationale for not doing so. The BLM NEPA policy requires documentation of the basic information and full description of the proposed action to support documentation of this review.

The BLM land use planning regulations at 43 CFR 1610.5-3 require that all actions approved or authorized by the BLM must conform to the existing land use plan for the area. Although it is not a NEPA requirement, the BLM includes a statement about the conformance of the proposed action with the existing land use plan in each of its NEPA documents, including documentation for categorical exclusions, to address this land use planning requirement. The BLM's land use planning regulations state that the term "conformity" or "conformance" means that "… a resource management action shall be specifically provided for in the plan, or if not specifically mentioned, shall be clearly consistent with the terms, conditions, and decisions of the approved plan or amendment" (43 CFR 1601.0-5(b)). Documentation of land use plan conformance involves documentation of the decisions that specifically provide for the action proposed, or documentation of how the action is clearly consistent with the land use plan decisions when it is not specifically provided for. The BLM NEPA policy requiring documentation of the full description of the proposed action to support documentation of this land use plan conformance, as both the action being taken and inclusion of any project design features is consistent with this requirement for land use planning conformity.

The BLM proposes through the establishment of this CX to require inclusion of project design features pertaining to the land use planning decisions related to the resources and activities listed in part (b)(v) of the proposed CX to both ensure documentation of conformance is met and to ensure that protective measures required to meet land use planning decisions applicable to the planning/action area are incorporated into the design of any project supported by the proposed CX. As discussed in the Methods section below, the BLM found in the review of the evaluated EAs and sampled CXs that projects including project design features addressing these resources and activities consistent with the decisions in the land use plan provided protections that assisted in determining that the proposed actions evaluated in the EAs had no significant impacts. These

are not "mitigated" FONSIs; rather, they are FONSIs reached for proposed actions limited by the requirement that they conform to the applicable land use plan. This element, that, for BLM, proposed actions must conform to the applicable land use plan, combined with the evaluation of extraordinary circumstances, ensures that the actions proposed for inclusion under the new CX would not result in significant impacts, but would also take into account the fact that environmental conditions vary by planning area and therefore the BLM must tailor its proposed actions accordingly.

BACKGROUND

Over the past three decades, forests in the western United States have experienced landscape-scale mortality events caused by wildfire, insect infestation and disease, drought, and other disturbances. From 2000 to 2017, an average of 6.8 million acres has burned annually in the U.S. (https://www.nifc.gov/fireInfo/fireInfo_statistics.html). For BLM-managed forests, fire has affected an average of 279,630 acres annually from 2009 to 2018. Insect and disease survey data collected in 2015 by the Forest Health Protection Program of the U.S. Forest Service identified 70 different mortality-causing agents and complexes on 5.2 million acres in the conterminous United States (Potter and Conkling 2017). The BLM assembled data from the U.S. Forest Service Aerial Detection Survey from 2008 to 2017 and found nearly two million acres of forest mortality were observed over that period (**Table 1**). A multiyear drought in California peaked in 2015 with approximately 250,000 acres of BLM-managed forest experiencing high levels of drought-induced mortality. These disturbance trends resulted in millions of acres of dead and dying trees. The forest mortality and wildfire threat that is exacerbated by the fuels buildup led to the California Governor issuing an Emergency Proclamation on March 22, 2019, which suspends the requirements of the California Environmental Quality Act for priority fuels reduction projects including the removal of dead trees.

Table 1: BLM forests/woodlands in the western continental United States.

BLM States	Total Estimated Acres of Forests/Woodlands on BLM Land	Estimated Acres of Dead/Dying Forests on BLM Land*	Percentage of Dead/Dying Forests*
Alaska**	24,000,000	269,000	1%
Arizona	832,000	3,000	0%
California	1,503,000	184,000	12%
Colorado	3,835,000	272,500	7%
Idaho	1,068,000	157,000	15%
Montana/Dakotas	931,000	358,000	38%
Nevada	6,149,000	693,000	11%
New Mexico/ Oklahoma/Texas	1,472,000	11,000	1%
Oregon/Washington	3,515,000	182,000	5%
Utah	5,233,000	19,000	0%
Wyoming	877,000	116,000	13%
TOTAL**	25,415,000	1,995,500	--

Source for the forest and woodland distribution: FIA imputed LANDFIRE raster converted to polygon data and clipped to BLM lands.
* Based on 2008-2017 USFS Aerial Detection Surveys for Disease & Insect cumulative mortality clipped on BLM forest lands. Certain BLM areas where not covered by the aerial surveys so dead forest stand acre estimates most likely are not complete.
** Alaska acres not included in totals due to incomplete data.

The BLM harvests dead and dying trees from areas impacted by disturbance to meet a number of objectives. These objectives include: hazard tree removal around infrastructure to ensure public

safety and prevent property damage; reduction of future hazardous fuel loads that impact firefighter safety or result in high intensity fires and snag hazards; and to contribute to one of the six principal or major uses of the public lands identified in the Federal Land Policy and Management Act of 1976, which recognizes "the Nation's need for domestic sources of timber and fiber." A significant number of BLM's recorded timber sales include salvage timber.[1] Records indicate that from 1986 through 2018 the BLM awarded approximately 809 timber sales with at least 30% of the volume consisting of salvage of dead or dying trees, and 779 of those timber sales were with at least 50% of the volume consisting of salvage of dead and dying trees.

The BLM is directed to inventory and implement salvage harvest by Executive Order 13855, *Promoting Active Management of America's Forests, Rangelands, and Other Federal Lands To Improve Conditions and Reduce Wildfire Risk*, and Secretarial Order 3372, *Reducing Wildfire Risks on Department of the Interior Land Through Active Management*. In response to these directives, the BLM conducted an inventory and produced a report titled, *BLM Salvage and Log Recovery Options from Lands Damaged by the 2017 and 2018 Fire Seasons, Insects, or Disease*. The report identified almost 300,300 acres of tree mortality with 142,800 acres of potential salvageable timber (**Table 2**) excluding Alaska.

Table 2: Estimated Tree Mortality and Salvage Opportunities by State from Fire in 2017 and 2018 and Insect and Disease from 2014 to 2018.

State	Estimated Acres of Tree Mortality	Estimated Acres of Salvage and Log Recovery
CA	68,400	400[2]
CO	96,500	63,500
ID	36,000[1]	36,000
MT	66,800	13,000
OR	21,300	900[2]
UT	1,300	1,000
WY	10,000	10,000
Total	300,300	124,800

[1] Idaho mortality includes pre-2014 acres due to continued salvage viability due to regional conditions.
[2] Salvage in California and Oregon is proportionally low due to a combination of rapid deterioration and poor markets.

The affected environment for a timber salvage operation encompasses resource conditions in which trees are dead and dying, primarily as a result of wildfire, disease, or significant weather events including severe drought. A common purpose across the salvage sales evaluated is to provide opportunity to salvage timber as soon after the disturbance as possible before it loses merchantable value due to deterioration of the wood product. For example, insects such as bark beetles and wood borers can begin to colonize fire-killed trees immediately after a wildfire. The most common defect caused by this rapid colonization is the introduction of bluestain fungus into the tree bole, which has been observed within two weeks postfire (Eglitis 2006). For small diameter, marginal value logs, rapid onset defects such as bluestain, checking, and cracking can affect the overall viability of a salvage sale in less than a year. Deterioration from decay is highly variable by species and post-mortality weather conditions and generally begins to affect logs in two to three years.

[1] The BLM's Timber Sale Information System (TSIS) database does not contain complete records prior to the mid-1990s, and so the precise number of timber sales the BLM implemented prior to this time is unknown. Data referenced here uses recorded TSIS sales.

Timing for salvage operations is critical given that the merchantable value of dead and dying timber declines rapidly depending upon environmental conditions. The average time frame for scoping, developing an EA in accordance with NEPA, and issuing the agency decision has historically taken the bureau six to twelve months, or as much as half of the deterioration-from-decay period typical for many species. By comparison, the process for completing NEPA compliance and decision-making for a salvage operation with a categorical exclusion is significantly quicker. For instance, the BLM relied on an existing CX for salvage operations (BLM CX C.8) following the 2018 Camp Fire in California, the deadliest wildfire in over a century (see Methods section below for more discussion about context of existing BLM CX C.8). The BLM initiated review of the proposed action for CX applicability on June 4, 2019, and completed the documentation of the CX and extraordinary circumstances review and decision document on July 8, 2019. The fire burned a total of 153,336 acres, of which 4,070 are managed by the BLM, claimed 85 lives, and incurred billions of dollars in economic losses. The total proposed project area for this salvage operation was the maximum allowed under the existing CX of 250 acres. This example demonstrates that the more expedient path of reliance on a CX provides greater flexibility for field managers to respond quickly in the wake of disaster to initiate and potentially finalize salvage operations before the next fire season begins.

Every EA and CX conducted for the 779 salvage operations recorded in the Timber Sale Information System from 1986 forward have concluded that there are no significant environmental impacts projected to occur as a result of the timber salvage action, or that required mitigations to avoid significant environmental impacts, with all of the projects conducted in conformance with the applicable land use plan, and all of the EAs resulting in FONSIs. The BLM has records of only two EISs that evaluate salvage projects, the circumstances for which this level of analysis was required are explained further in Section 4.

In contrast, many of the EAs projected more dangerous and environmentally adverse possibilities from not harvesting dead and dying timber under the analysis of the No Action alternatives. For instance, since 1996, bark beetles have affected more than 3.3 million acres in Colorado – with spruce beetle killing nearly 99 percent of large Engelmann spruce in the Gunnison Field Office. The epidemic even spurred the State of Colorado to enact legislation expanding their tax exemption on the sale of products made from beetle-kill wood harvests. The BLM's SW Gunnison Bark Beetle Salvage EA and FONSI, prepared in coordination with the 2012 Colorado Bark Beetle Strategic Plan, included a No Action Alternative in which the BLM would not have implemented salvage harvests, slash treatments, and associated road construction in 8,700 acres of beetle-infested landscape. The EA noted that the indirect effects of No Action would include an increase in fuel load due to increased beetle mortality over time that may increase the risk of severe wildfire, heavier fuel loadings of forest material on the ground causing intense wildfire temperatures, soil erosion, water conditions with higher peak flows and sediment yields, which in turn could impair stream functions. The analysis states that under the No Action alternative, high mortality areas could require 300 to 400 years before spruce dominance is restored.

ADMINISTRATIVE PROCESS

CXs are a form of NEPA compliance that identify certain types of actions for which it is not necessary to prepare an EA or EIS. Routine actions that a Federal agency has determined do not normally result in individually or cumulatively significant effects are good candidates for

categorically excluded actions. Federal agencies can establish CXs through an administrative process according to requirements set forth in CEQ's NEPA regulations and explained in CEQ guidance. The BLM is proposing this Timber Salvage CX as a new administrative CX consistent with the CEQ process.

Federal agencies may establish new or revised CXs in a variety of circumstances. New CXs may be identified after Federal agencies have performed NEPA reviews of a class of proposed actions and found that, when implemented, the actions resulted in no significant environmental impacts. When mitigation commitments are part of the basis for excluding a proposed category of actions, the agency should clearly present mitigation commitments as required project design features in the description of the category of actions being considered in the CX. In addition, the agency shall acknowledge extraordinary circumstances which would preclude the use of the CX and necessitate the preparation of an EA. Establishment of a new CX may be predicated on the development of other forms of evidence as well, including: benchmarking other Federal agencies CXs; results of pilot projects; exercise of professional judgment; and relevant scientific or technical data regarding the environmental consequences of the actions for which Federal agencies seek to establish a CX.[2]

An interdisciplinary team of subject matter experts (SME) within the BLM and the Department of the Interior (DOI) identified the information needed to determine whether the existing data supports establishment of a CX to harvest dead or dying trees post-fire, resulting from insect or disease, or other disturbances representing the actions detailed in this proposed CX. The SMEs considered whether, based on the BLM's experience, these actions normally do not have significant individual or cumulative environmental effects that require further environmental review. The information identified to evaluate the viability of the proposed CX consists of the following elements:

1. Previously implemented activities (including those currently underway) related to the proposed CX.
2. Evaluating the effects of implemented actions for which a FONSI was documented following preparation of an environmental assessment (EA).
3. Evaluation of peer-reviewed research findings, professional opinions, and reports.
4. Evaluation of Environmental Impact Statements (EIS) from projects containing salvage harvest.
5. Benchmarking to other Federal agency actions related to the proposed CX.
6. Categorical exclusions established by Congress.

Analysis of each of these elements is discussed individually in the Methods section.

Pursuant to Section 1507.3(a) of the CEQ regulations, Federal agencies are required to consult with the CEQ and publish the proposed CX in the *Federal Register* for public comment. Following public comment, the agency must consider and respond appropriately to any comments received, engage in additional consultation with CEQ, and publish the final CX.

[2] Council on Environmental Quality; Final Guidance for Federal Departments and Agencies on Establishing, Applying, and Revising Categorical Exclusions under the National Environmental Policy Act, 75 FR 75628, Dec. 6, 2010.

METHODS

1. Previously Implemented Actions

The BLM currently implements timber salvage sales supported by EAs, EISs, and (since 2007) in reliance upon the existing timber salvage CX (C.8), which allows for salvage harvest up to 250 acres.[3] The BLM has implemented salvage sales in response to insects and disease, windthrow, drought, and wildfires through commercial harvest using helicopter, cable yarding, and ground-based methods. Associated supporting actions have varied depending on the cause of damage and kind of action needed, but have included actions to support access, manage erosion and invasive plants, planting, and site preparation actions for planting. The approach to NEPA compliance for, and the post-implementation experience of these various kinds of actions informed this review for any significant and cumulative effects.

The BLM maintains a central database that was established in 1986 called the Timber Sale Information System (TSIS) that collects data on all BLM timber sales from advertisement of the timber sale to termination or cancellation of the timber sale contract. One of the timber sale attributes recorded in TSIS is the percent of the sale that is salvage timber. The BLM conducted a survey of the TSIS to determine how many salvage timber sales have been conducted since 1986 and the range of acreages of these sales. The survey excluded all sales with less than 50 percent salvage and sales where any amount of sale acreage was unyarded, indicating the harvest is not complete. The BLM selected 50 percent as the cutoff because sales below 50 percent salvage generally have objectives other than salvage as the purpose and need for the project. This query yielded a total of 779 sales, with 10 salvage sales of 1,000 acres or greater. TSIS does not contain data recording the level of NEPA for a completed timber sale but does include timber sale names. The BLM cross-walked timber sale names for the 10 sales greater than 1,000 acres to collect available NEPA records to review for this report, all of which were EAs. Note that it is common practice to award multiple timber sales from a single large-scale EA. The list of EAs identified can be found in **Table 3** and a description and evaluation of each EA can be found in Appendix A.

A. EAs

In addition to examining the largest salvage sales from TSIS, the BLM asked state office forestry program leads for EAs that analyzed salvage harvest from four ecoregions (see Appendix B for ecoregion descriptions). These ecoregions were developed to facilitate collection of sample EAs from a wide range of forest ecosystems and environmental conditions. The state leads relied on personal knowledge and BLM's online register, ePlanning (which houses NEPA and associated supporting documents for BLM actions, referenced by state, office, fiscal year, type of NEPA document, and program area). This resulted in the collection and examination of 14 EAs in ePlanning that had the word salvage in the title.

[3] Based on review of the existing CX C.8 as part of this process, the BLM does not intend to pursue removal of the 250-acre CX nor revise that CX to encompass the proposed scope of actions described in this report. The BLM sees a need for both CX categories. The 250-acre CX provides a more limited scope of actions that is useful, and the BLM has used the CX about 10 times a year for the last 5 years. The BLM expects existing CX C.8 would still get use for smaller areas where the BLM has no need for the additional tools this proposed CX would provide.

Through these two queries, the BLM identified the following18 EAs for evaluation:[4]

Table 3: Previously Implemented Timber Salvage Projects Approved through Environmental Assessments and FONSIs.

EA Count	Year	Salvage Acres	Area of BLM disturbance	Percent Treated	Document Name	BLM Location
1	1996	2,500	not defined	NA	Roaming Salvage II	Klamath Falls, Oregon
2	2005	1,930	2,400	80%	French Fire Salvage and Fuel Reduction Timber Sale	Redding, California
3	2007	40	40	100%	Salvage Sam Blow Down Recovery	Siuslaw, Oregon
4	2007	34	280	12%	Middle Fork Fire Salvage	Cascades, Oregon
5	2007	14	14	100%	Canyon Creek Salvage	Marys Peak, Oregon
6	2007	180	not defined	NA	2007/2008 Programmatic Timber Salvage	Marys Peak, Oregon
7	2013	889	3,226	28%	Sheep Fire Timber Salvage Project	Cottonwood, Idaho
8	2014	1,276	25,349	5%	Douglas Fire Complex Recovery Project	Medford, Oregon
9	2015	1,650	4,865	34%	Oregon Gulch Fire Salvage & Rehabilitation	Klamath Falls, Oregon
10	2015	683	2,425	28%	Oregon Gulch Fire Salvage Recovery Project	Ashland, Oregon
11	2015	8,700	24,894	35%	SW Gunnison Bark Beetle Salvage	Gunnison, Colorado
12	2015	2,900	31,767	9%	NW Fremont Bark Beetle Salvage	Royal Gorge, Colorado
13	2015	440	685	64%	Teddy Creek Forest Management	Rawlins, Wyoming
14	2016	41	5,900	1%	Lolo 80 Salvage	Cottonwood, Idaho
15	2016	904	26,885	3%	Cornet-Windy Ridge Fire Timber Salvage Project	Baker City, Oregon
16	2017	100	180	56%	Medicine Bow Rail-Trail Forest Management	Rawlins, Wyoming
17	2017	189	189	100%	Tanacross Blowdown Timber Salvage	Tanacross, Alaska
18	2019	*	not defined	NA	Hazard Removal and Vegetation Management Project Programmatic EA (HRVM)	California

* The acreage for the HRVM EA in California is not included because not all authorized treatment acres will include salvage harvests. The total planning area for the EA is approximately 551,000 acres of BLM-managed public land in central and northern California. The treatment threshold is less than 20 percent of a watershed over a 10 year period.

[4] The BLM's ePlanning national NEPA register has only been in-place nationwide since 2015. While the BLM has the capability to upload historical documents into ePlanning, it is not common practice unless a need for the document to be available is identified for a post-2015 project. As such, there is some, but not complete, overlap between the BLM's queries in TSIS and ePlanning to result in 18 EAs for evaluation.

B. EISs

To compare to the projects that were assessed in **Table 3**, the BLM also asked state office forestry program leads for all known salvage harvest projects that were analyzed with an EIS. Two EISs were identified: (1) Timbered Rock Fire Salvage and Elk Creek Watershed Restoration; and (2) Biscuit Fire Recovery Project, both in southwest Oregon. These EISs were examined to determine if the activities in the proposed CX differ from the activities analyzed in the EISs. Section 4, below, includes an evaluation of these EISs.

C. CXs

The BLM also queried these same sources to review samplings of timber salvage sales where the BLM relied on the existing timber salvage CX in order to identify which types of actions consistently cleared extraordinary circumstances review. While it is unknown what portion of the 779 sales found in TSIS are associated with CXs, the BLM identified a total of 56 filings of CXs with salvage in the title in ePlanning. Discussion of these findings is included throughout Section 2.

2. Evaluating the EAs documenting effects of implemented actions that consistently supported a Finding of No Significant Impact (FONSI)

The BLM reviewed and analyzed EAs listed in **Table 3**, and reviewed samplings of BLM's reliance on the existing timber salvage CX, to determine the following:

A. The type of NEPA document used to support the activity.

All eighteen projects reviewed were analyzed through EAs. Six of the eighteen EAs completed were landscape-scale or programmatic analyses (Hazard Removal and Vegetation Management Project Programmatic EA, Roaming Salvage II, 2007/2008 Programmatic Timber Salvage, SW Gunnison Bark Beetle Salvage, NW Fremont Bark Beetle Salvage, Teddy Creek Forest Management). Multiple disturbance agents, both biotic and abiotic, were the causal factors for the purpose and need for action identified in these EAs. These agents included insects and disease, fire, drought, and windstorms. The BLM found 56 CXs using the existing C.8 CX, which supported implementation of projects to respond to these same agents.

The BLM excluded timber sales relying on EISs from the TSIS data set reviewed for this report, because the proposed actions evaluated in these EISs differ dramatically from the scope of the actions proposed for the new CX (see section 4, below, for details). Each of the 779 salvage sales in the resulting data set was supported by either EA-level analysis, or by the BLM's existing CX for salvage sales that do not exceed 250 acres. The relatively high number of projects, and the fact that these projects are frequently supported by EA/FONSIs or a CX indicates that this type of salvage harvest is a routine activity, and that environmental analysis has been conducted repeatedly with findings of no significant environmental impacts.

B. Specific actions that were analyzed in each document.

All the project EAs reviewed in detail analyzed the harvest of dead and dying trees and most addressed the construction of temporary roads and maintenance of existing roads. Only one of the EAs reviewed, for the French Fire Salvage and Fuel Reduction Timber Sale, analyzed the

construction of a permanent road. However, permanent road construction is a common project element associated with timber harvest when continued access to a treatment area or project area is needed, including, at times, in salvage projects for the reforestation and forest development activities that occur over the years following the harvest activity. As this salvage harvest can need the facilitation of permanent roads sometimes, the BLM is including a limited amount of permanent road construction in this proposal. Since the salvage EAs reviewed for this analysis contained only one project analyzing permanent road, the BLM looked at additional timber harvest EAs where permanent roads were included and resulted in findings of no significant impacts. The BLM looked at these because it has not found that the environmental effects of the construction and management of a permanent road change in forested landscapes based upon whether the road is transporting salvage wood or green wood in a thinning or a regeneration harvest. Included in **Table 4** is a list of additional EAs sampled from BLM timber sales that approved permanent road construction. The sample includes projects with up to 30 miles of permanent road construction. For context, the identified projects average approximately 2,800 acres of treatment per mile of new permanent road. The BLM proposes to include no more than one mile of permanent road for up to 5,000 acres of salvage treatment. This amount is consistent but more conservative than the scale at which this has occurred with the referenced thinning and regeneration harvests projects and for which the BLM has regularly reached FONSIs. The BLM chose a more conservative rate of road length per acre of treatment, because the BLM as a general practice tries to optimize the permanent road network through careful planning and in support of land use plan implementation. Though records could justify permanent road construction at a higher rate while still having nonsignificance, the BLM is proposing this more restrictive one mile per 5,000 acre in an effort to constrain the scope and intensity of permanent road effects connected to salvage harvest.

A range of harvesting systems were analyzed including ground-based systems or tractor logging, helicopter logging, and cable logging. Activities covered within those logging systems include: cutting and yarding of whole are partial trees; construction of temporary landings to store and process trees and load logs and biomass for transport; construction of temporary stream crossing; renovation and maintenance of existing roads; and road decommissioning and revegetation. Projects used prescribed fire methods such as piling and burning slash, jackpot burning, and underburning, used equipment to install water bars and erosion control features on temporary roads and skid trails, and included tree planting. Additionally, safety and hazard tree proximity to roads or other public infrastructure was frequently cited as a reason to harvest a portion of the dead and dying timber. The actions covered in the proposed CX were developed from the actions analyzed in these EAs and accompanying FONSIs that the SME team reviewed. Appendix A includes a list of actions from each of the EAs evaluated.

Table 4: Previously Implemented Timber Harvest Projects Approved through an EA and FONSI that had Permanent Road Construction.

NEPA Number	Miles of Permanent Road Construction	Description of Connected Action	Analysis Area Acreage
DOI-BLM-ORWA-E050-2007-0002-EA	30	9,225 acres of commercial thinning	32,800
DOI-BLM-ORWA-E050-2009-0006-EA	35	8,975 acres of commercial thinning	21,000

NEPA Number	Miles of Permanent Road Construction	Description of Connected Action	Analysis Area Acreage
DOI-BLM-ORWA-R050-2010-0015-EA	3	1,650 acres of commercial thinning	46,136
DOI-BLM-CA-N050-2010-0032-EA	1.5	3,500 acres of commercial thinning	3,500
DOI-BLM-ID-B010-2010-0024-EA	2.1	1,293 acres of commercial thinning	4,180
DOI-BLM-ORWA-C040-2011-0006-EA	14	2,591 acres thinning; 461 acres regeneration harvest; 675 acres commercial thinning	32,219
DOI-BLM-MT-B010-2016-0008-EA	0.1	1,546 acres of commercial thinning	20,509

Consistent with the defined scope of the existing BLM CX (C.8), the salvage sales relying on the CX included harvest of dead and dying trees, incidental removal of live trees for landings or roads, and construction of no more than 0.5 miles of temporary road. Harvest methods used with the CX include helicopter logging, cable yarding, and ground-based systems or tractor logging on areas not exceeding 250 acres. Temporary road construction included installation of temporary stream crossings and required decommissioning and revegetation. The salvage sales supported by the CX included use of equipment to install waterbars and erosion control features on temporary roads and skid trails. The record of reliance on the existing timber salvage CX supports the BLM's establishment of the proposed CX to facilitate implementing routine salvage harvest using a variety of commercial harvest practices and associated actions without triggering extraordinary circumstances.

C. The size of each project.

The size of individual projects examined here ranged from 14 acres to 8,700 acres. Eight of the 18 EAs analyzed actions for post-fire salvage from seven fires. Total acres burned was 163,619 with a range of 1,170 to 48,672 acres. Total acres burned on BLM-managed lands was 71,330 with 7,407 acres or 10 percent authorized for salvage harvest. A comparison of the acres salvaged because of insect mortality or blowdown is impracticable given the large extent of the insect epidemics and windstorm events. Appendix A details individual sizes for each project. Additionally, acreage from the Hazard Removal and Vegetation Management Project Programmatic EA cannot be factored into appropriate acreage evaluations here, as that EA is programmatic, which means that the proposed action of this EA describes the type of actions, typical project design features, and the amount and extent of activities without necessarily identifying the specific location, design, size, or timing of individual actions. Specific location, design, size, and timing of individual actions will be identified by the BLM through subsequent tiered NEPA analysis or through Determinations of NEPA Adequacy (DNAs) to support individual decisions for site-specific actions.

Based on the acreage range for the EAs in **Table 3**, the average timber salvage project size is 1,322 acres. The acreage parameters in the proposed CX are generally consistent, though slightly more conservative than this average, and permit the harvest of up to 1,000 acres for disturbances

3,000 acres or less, and up to 1/3 of the disturbance area for disturbances greater than 3,000 acres, provided that harvesting shall not exceed 5,000 acres total harvest. The BLM recognizes that natural disturbances modify site conditions such that habitat changes favor some species and adversely affect other species. By limiting salvage harvest supportable by the proposed CX to only a portion of the disturbance area for disturbances greater than 1,000 acres, the BLM is limiting the intensity of the actions that can be taken before further NEPA analysis must occur, maintaining diverse site conditions on both the managed and unmanaged post-disturbance landscape, and in most cases leaving the majority of the disturbance area to recover naturally consistent with projects supported by the EAs reviewed in this report. The BLM proposes establishing an upper limit of 5,000 acres for the new timber salvage CX based on the need to remain within the range of the sample EAs while considering the overall size of the disturbances.

The BLM has over a decade of experience relying on a salvage CX that is limited to 250 acres. This evidence complements the findings from the review of the actions evaluated in the EAs to further establish that not only do the salvage activities covered by the existing salvage CX do not have significant environmental impacts, but also the greater acreage, and, as described in the next section, the additional actions proposed with this new CX would not result in significant environmental impacts either, even when implemented at a larger scale of up to 5,000 acres.

D. The intensity of the project (level of treatments)

The BLM reviewed the project intensity evaluated in each EA and noted two factors common to each of these projects. First was that each site had been impacted by a moderate to severe disturbance. For sites impacted by fire, the loss of vegetative cover, combustion of forest floor, and the loss of the organic layer of the soil in severe cases had already made sites susceptible to erosion. Counterintuitively, research has documented that the creation of additional bare soil on sites already impacted by high severity fire is actually minimal to nonexistent and in some cases the soil disturbance from logging operations can break up fire-induced hydrophobicity (Olorunfemi et al. 2014).

The second factor common in each project is the area affected by the proposed action relative to the landscape context and available habitat adjacent to the projects. For insect-induced mortality, the BLM projects treated only small fractions of the overall forest impacted by insects. For example, the SW Gunnison project examined a 24,894-acre portion on BLM lands of a bark beetle infestation affecting millions of acres across many ownerships, but only proposed treatment on 8,700 acres, or about 35% of BLM lands within the affected locale. For the projects that salvaged post-fire, none of the treatments occurred over the entire fire area. Mortality from drought is often associated with further mortality from insect and disease as tree vigor is reduced. As with insect-induced mortality, drought mortality typically impacts a large area and BLM salvage projects treat only a small portion of the overall disturbance area. Windthrow can affect a large area or small pockets from isolated wind bursts. In both cases, salvage activity is low intensity because the disturbance area is small (wind burst) or only a small portion of the large-scale wind storm would be salvaged.

While natural disturbances can create important habitat such as snags, downed logs, and early successional habitat, contemporary disturbance characteristics are generally more severe because of factors such as high stand density that resulted from decades of suppressing frequent low-

intensity fires that would have naturally kept stand densities low (Stephens et al. 2013). The salvage harvest projects evaluated in each of the EAs reviewed provided for retention of habitat features, such as snags. Maintaining snag and downed remnants of a disturbance across the extent of an affected area ensures that important site-level and landscape-level retention continue to provide key habitat and ecosystem processes and function.

When considering all of these elements of the pre-action disturbance severity, retention of habitat features, and the project sizes relative to the broader landscape impacted by the disturbance, the BLM determined that the actions analyzed were generally low intensity with some cases having localized moderate intensity. Overall, these findings on intensity support establishment of a salvage harvest CX and factor into the acreage parameters proposed for this CX. The BLM proposes limiting the treatment areas to 1,000 acres for all disturbances 3,000 acres or less and one-third of the disturbance area but not to exceed 5,000 acres total for events larger than 3,000 acres to address issues of intensity at a landscape scale consistent with the proportions of disturbance areas harvested in the projects evaluated by the EAs reviewed. The EAs evaluated, taken together, support the identified limit on treatment extent for large projects (see **Table 3**). Of the five non-programmatic projects that exceed 1,000 acres of treatment, the percentage of the disturbance area treated ranged from 5 percent to 80 percent and averaged 33 percent. The remaining extent of untreated area is a consequence of project design and are related to the character of the disturbance itself such as the spatial arrangement and variable intensity of the disturbance as driven by rugged and inaccessible terrain. This analysis and the basis for setting limits to treatments is constrained by the scope and intensity of the projects analyzed. For the largest projects, the various managers decided to leave a certain percentage of land untreated and the FONSIs reflect those landscape-level retention areas whether those retention decisions were deliberate or not. The proposed landscape-level limit is way to reflect the conditions present in the representative FONSIs to support a non-significance finding for the proposed CX.

Three of the EAs analyzed salvage harvest of 100 percent of the disturbance area on BLM managed land. For smaller disturbances, there is greater probability that a disturbance could be entirely within BLM managed lands and be practical to harvest. This is also apparent in salvage harvest projects covered by the BLM's existing 250-acre salvage CX (C.8). C.8 allows salvage harvest up to 250 acres without restriction, and there are numerous instances where 100 percent of the disturbance area was harvested. The EA record in this report supports 1,000-acre salvage harvest. In this proposed CX, the BLM is proposing to limit the intensity of salvage harvest by limiting the amount of a disturbance area that can be harvested once the action exceeds 1,000 acres. The principle behind this approach is that as the action increases in size it becomes important to maintain some unmanaged postfire landscape for habitat heterogeneity.

None of the large-acreage project EAs contemplated salvaging 100 percent of an affected area in the range of alternatives. The BLM does not generally include analyses of alternatives that are economically impractical or functionally impossible in the range of reasonable alternatives analyzed in an EA; and if addressed at all, these are generally described as alternatives considered, but not analyzed in detail. The projects evaluated in the EAs reviewed include project design features that limited the extent of treatment for reasons specific to each of the disturbances and landscapes where the disturbances occurred, and these limitations and untreated areas were a factor in the finding of non-significance. The review of larger scale project EAs and

subject matter experts' professional experience and judgement indicate that the 33 percent landscape threshold will provide a reasonable limit on landscape-level effects to ensure non-significance as reflected in the reviewed EAs.

This limitation is also supported by the BLM's experience with timber sales implemented in reliance on the existing salvage CX, and the intensity of the consequences of these projects. Of the projects reviewed that relied on this existing CXs, most were implementing salvage harvest at less than 33% of the area of disturbance. In the few circumstances where the BLM authorized harvest of the entire area of disturbance, such as the project that removed windburst blowdown or edge-effect blowdown of less than 15 acres, because the total harvest area was still such a small representation on the landscape, the BLM was able to rely on the existing CX, and, in fact, the harvest did not have significant effects, and, as predicted, none of the extraordinary circumstances resulted from the projects. The BLM already relies upon its existing CX that address salvage harvest not to exceed 250 acres and intends to retain that CX; the BLM is proposing this additional CX to increase its flexibility to respond to disturbances across larger areas, while keeping the tailored focus of the action. The BLM believes that the specific acreage limitations and proportions proposed for the new CX will appropriately address the intensity factor identified in the CEQ regulations describing significance.

Figure 1 below shows how treatment area limitations under the proposed CX would result for the area possible to salvage harvest using this CX across disturbance sizes.

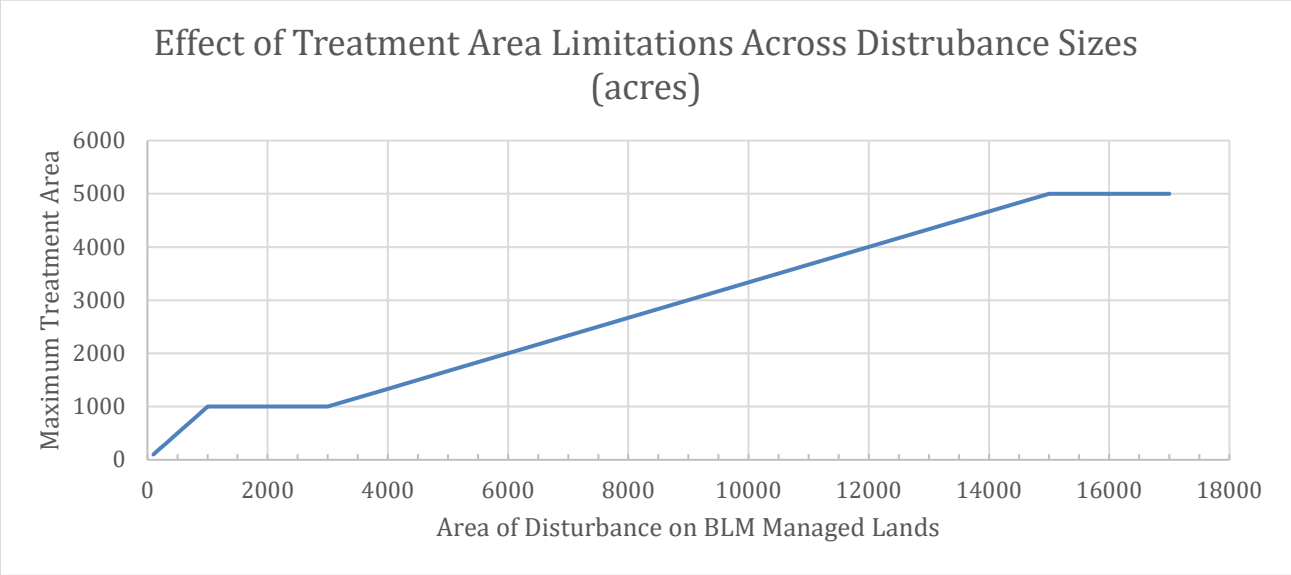

Figure 1. Effect of Treatment Area Limitations Across Disturbance Sizes (acres).

E. <u>What were the environmental consequences and were significant individual or cumulative impacts predicted for the proposed actions or any alternatives?</u>

The BLM reviewed each of the EAs in **Table 3** to determine the scope of environmental consequences anticipated to result from the proposed actions. Common consequences included soil disturbance, erosion, and wildlife disturbance during operations. Both positive and negative consequences were described in each of the EAs. Appendix A summarizes environmental

consequences for each EA but includes only negative consequences, as other sections of this report focus on the benefits of timber salvage projects.

None of the EAs reviewed predicted significant direct, indirect, or cumulative impacts to result from any of the actions or alternatives evaluated. The BLM reached a FONSI for each of the 18 EAs that were evaluated. No "mitigated FONSIs" or additional mitigation measures were required to reduce impacts below the threshold of significance.

All proposed actions and alternatives analyzed were determined to be in conformance with the applicable land use plans (LUP), and included project design features. In this report, the BLM refers to project design features as all components of a project including best management practices, standard operating procedures, LUP management direction, and other design components to minimize environmental consequences and optimize treatments to meet objectives. The following are a summary of project design features that are commonly applied to this class of projects.

- Retention of an appropriate number of large snags, coarse woody debris, and live trees to maintain wildlife habitat, soil productivity, and erosion prevention.
- Installation of erosion control features such as water bars, dispersed slash, and proper temporary road and ditch design.
- Prevention of soil compaction by ripping or subsoiling heavily used skid trails and landings.
- Prevention of erosion and compaction by limiting logging systems, i.e., ground-based systems on slopes less than 35 percent, helicopter logging on steep slopes where erosion is a particular concern and cable logging on slopes greater than 35 percent.
- Wet season operating restrictions to prevent erosion and compaction of soils and road runoff.
- Equipment washing to prevent spread of weeds.
- Exclusions for archeological resources.
- Riparian buffers and stream zone operating restrictions.
- Slash treatment.

Development of lists of standard project design features as required components of this proposed CX is not suitable given the variability in specifications by region and land use planning area. The BLM identifies actions required to manage BLM-administered lands for specific purposes through land use planning as appropriate to the resource conditions and legal framework specific to the planning area and region. The BLM will often also identify project design features appropriate to consider when designing actions implementing the direction in land use planning documents. All actions approved or authorized by the BLM must conform to the existing land use plan (43 CFR 1610.5-3), including those relying on a CX to comply with NEPA. To capture the project design features appropriate to working in a particular region or planning area, therefore, this proposed CX requires specific inclusion of project design features pertaining to the specific environmental considerations that the applicable LUPs require for forestry

treatments. Reinforcing that activities covered by the proposed CX must conform to the applicable LUP and requiring application of the protections specified by the LUP through project design features developed for the areas required by the CX (section (b)(v) of proposed text) allows the CX to be applied as appropriate in varying site conditions.

Evaluation of these EAs found no circumstances of significance from any of the action alternatives analyzed for the various projects. However, adverse impacts were predicted under the No Action alternatives. Examination of a No-Action alternative allows the BLM to evaluate the project's objectives and costs, benefits, and tradeoffs resulting from the recovery of damaged timber by acknowledging general conclusions from the literature about potential effects of repeat disturbances and contrasting these with the more predictable and controllable effects of the salvage activities. Section 3 of this report outlines some of the potential for adverse impacts from not conducting timber salvage based on best available science and literature.

Reliance on a CX is a form of NEPA compliance, available where action is appropriate without the need for the kind of analysis that occurs in an EA or EIS. The BLM, therefore, cannot compare the projects supported by the existing salvage CX with the projects analyzed in these EAs, with respect to analysis of anticipated environmental consequences or anticipated significant environmental or cumulative effects, except to say that insofar as none were expected when the BLM relied on the existing CX, and these EAs supported FONSIs even when the EAs evaluated these effects, they are consistent. In other words, no significant individual or cumulative impacts were predicted for the proposed actions or any alternatives in the EAs reviewed. And CXs cannot be used to comply with NEPA if there would be individual or cumulative impacts of significance, as determined through the review of the extraordinary circumstances. As such, the EAs and CXs reviewed for this report consistently identified a lack of significant effects from the actions proposed.

F. Observed environmental consequences of projects as implemented (validation)

The BLM conducts contract inspections for all timber sales to ensure contract compliance, and adherence to the specific project design features of the approved action. Monitoring of post-fire salvage has confirmed that the actions and protective measures described in EA analysis that supported FONSIs (individual or cumulative) occurred as described. Important wildlife habitat features created by fire, such as snags, are one of the resource issues monitored for salvage operations. BLM timber sale inspection reports show close monitoring of snag retention specifications with BLM personnel conducting unit-by-unit tallies showing snags were created or retained as described in the EA. The BLM also monitors erosion control measures and have documented proper installation and function during precipitation events. Design of erosion control features are based on project design features that vary by region and are based on soils, topography, and climate. For example, in an instance where these two resource issues were interrelated, the BLM conducted post-harvest monitoring on the 2013 Sheep Fire Timber Salvage Project (Table 3) in Cottonwood, Idaho. The primary concern for the project area as well as the adjacent untreated burn area was erosion and mass wasting. The field office fisheries biologist visited salvage harvested sites after harvest was completed to conduct effectiveness monitoring and found that project design features were effective at avoiding adverse impacts relative to erosion and mass wasting. This monitoring validated the analytical conclusions reached in the EA and FONSI that there would be no significant environmental or cumulative

impacts from the salvage harvest as designed in the selected alternative.

Another example is the French Fire salvage, which occurred on 1,930 acres of the 2,400 acres burned on BLM managed lands. Environmental analysis of the salvage harvest which included complete removal in patches of high severity burn and partial harvest in light to moderate severity burn predicted short-term erosion as the primary negative impact though not expected to be significant. Standard project design features were incorporated such as water bars and skid trails and roads to minimize erosion. Harvest was completed in 2005 and subsequent tree planting occurred. In 2018, an assessment was made to observe if predicted impacts were accurate and to evaluate reforestation success. Field observations were documented to show that areas of partial harvest had reduced surface fuels and were categorized as fire resilient. In areas of complete removal and subsequent planting, reforestation was effective with trees between 3 and 8 feet tall. Partially harvested areas naturally regenerated well from the surviving residual forest. An assessment was made to detect erosion through rills and gullies and other mass movements of soil. Very little evidence of erosion was observed as predicted.

The BLM has ample monitoring of these two, and other resource issues, and of having implemented timber salvage sales, and has found that in nearly all circumstances, the BLM successfully implemented the sales as designed and evaluated through the EA process, thereby confirming the validity of the FONSIs. That is, overall, there were no instances reported by the offices that conducted the EAs reviewed in this report where impacts were found during post-harvest monitoring that were different from those anticipated during the analysis of the salvage operations.

This is may be attributable to the monitoring and oversight process associated with timber sale contract administration. Sale administration requires BLM to regularly visit active sales to ensure implementation of the sale is occurring as required under the contract and to inspect key aspects of the implementation, such as adequacy of road construction and application of protective measures. Because of this ongoing and real-time inspection, deviations from authorized work are quickly addressed and remedid.The findings of BLM specialists conducting post-treatment monitoring comport with research that has also shown that regionally appropriate standard project design features have a proven record of effectiveness (Cristan et al. 2016).

The BLM is not aware of instances where a BLM salvage project was proposed and evaluated through an EA, but not implemented, where a fire then subsequently occurred to validate the analysis of a “No Action” alternative. However, observations from the Beaver Creek Fire, described later, provide some validation of descriptions of outcomes under No-Action alternatives.

As reliance on a CX to support action does not yield analysis of predicted environmental consequences against which observed results can be validated, the BLM’s project effectiveness monitoring post-harvest evaluates observed levels against known thresholds, standards, or other parameters appropriate to the ecoregion, and the BLM review team did not discover any reported instances where the environmental consequences observed during post-harvest monitoring of salvage sales implemented in reliance on the existing salvage CX appeared outside of known levels.

3. Evaluation of peer-reviewed research findings, professional opinions, and official reports

This literature review informed the development of this CX by providing evidence to suggest both the need for the CX in terms of a way to facilitate the timely authorization of projects that can realize the long-term benefits that salvage harvest can provide as well take advantage of the effectiveness of project design features to minimize adverse impacts. In addition, this review suggests consistency between the evaluation of environmental consequences for salvage harvest activities in LUPs as described in the reviewed EAs and the findings from peer reviewed scientific literature. For example, LUP requirements for project design features addressed the same environmental considerations examined in the scientific literature such as snag retention, coarse woody debris, and erosion control features. It is BLM policy to use best available science in the decision-making process. The proposed CX requires conformance with LUP guidelines, which have been developed based on scientific knowledge, adopted on the basis of an EIS, or EA (e.g., if included by amendment of an LUP), and ensure that environmental consequences are minimized.

A. Need for the CX

As previously stated, the BLM is directed to inventory and implement salvage harvest by Executive Order 13855, *Promoting Active Management of America's Forests, Rangelands, and Other Federal Lands To Improve Conditions and Reduce Wildfire Risk,* and Secretarial Order 3372, *Reducing Wildfire Risks on Department of the Interior Land Through Active Management.*

Although the long-term reduction of coarse fuels can decrease future fire intensity, there are also successional stages, seasonal fuel-moisture conditions, and severity indicators where the reduction in coarse fuels might have little benefit. Thompson et al. (2007) looked at reburn severity through vegetation mortality in salvaged and unsalvaged forests and found that the vegetation mortality was higher in areas that had burned severely 20 years prior. In addition, they found that salvage harvest and planting did not necessarily reduce vegetation mortality in the second fire. Findings like these have been used as an argument against claiming fuels reduction benefits resulting from salvage harvest. However this study, which used remote sensing, did not look at other factors indicating fire severity such as soil degradation. This report acknowledges that certain severity indicators might not decrease in a post-salvage landscape that reburns and that there are temporal limits to the fire risk reduction benefits of salvage harvest. Nevertheless, as discussed below, this does not negate that there can be reductions in potential reburn severity and reburn impacts resulting from salvage harvest.

One of the purposes of this proposed CX is to help mitigate the general fire hazard posed by heavy fuels resulting from severe tree mortality, across a larger landscape. In addition to fire intensity, heavy fuel loads in the form of dense snags and downed trees also impede fire suppression operations and present hazards to firefighter safety. The National Interagency Fire Center has documented several hazard warnings and accident reports that were attributed to high densities of snags from insect mortality. For example, the 2014 Holroyd Park Fire in Wyoming and the 2014 Tonahutu Fire also in Colorado both reported that trees killed 10 years prior during the mountain pine beetle epidemic hampered suppression efforts, created an extreme hazard to firefighters, and in the case of the Holroyd caused a serious firefighter injury (reports cited

below).

The 2016 Beaver Creek Fire in Colorado started in June and burned for over three months, impacting approximately 38,000 acres. Official incident decision documents report several adverse consequences from the abundance of dead trees from the mountain pine beetle epidemic. One argument against salvage harvest claims that dead trees that have lost their needles do not increase fire rate of spread. The Beaver Creek documents show that heavy fuels from dead standing trees (without needles) and fallen trees were the primary contributor of fire spread. The fine fuel moisture was such that fire was not spreading readily through live grasses, fine fuels, and shrubs. This can happen when long-term drought reduces heavy fuel moisture (1,000-hour fuels) while brief episodic rainfalls increase only the fine dead and live fuel moisture. The heavy fuels remain dry and contribute high heat energies when fires occur. Additionally, it was reported that the high levels of radiant heating emitted from the concentrations of snags and down wood were able to dry out wetter fuels resulting in crown fires in standing dead trees (absent dead needles). This observation contradicts a common argument that the risk of crown fire in stands of dead trees is short-term until the dead needles fall and helps to validate the assumptions underlying analysis of No Action alternatives. Salvage harvest is an effective action to reduce the density of dead trees that can pose a hazard to human safety and reduce heavy fuels loads that impede fire control efforts.

B. Effectiveness of Protection Measures for Reducing Environmental Consequences

Scientific literature examining salvage harvest post-fire as well as following large-scale beetle mortality events is extensive. Generally, salvage means that there is an intent to recover economic value from timber that that would otherwise be lost. In many cases, the scientific literature does not define salvage harvest and often includes a mix of activities in a study, which may include complete removal of live and dead trees in the harvest area, complete removal of dead and dying trees with or without thinning of live trees, and partial harvest of dead and dying trees with or without thinning of live trees. Harvest intensity as well as the type and severity of the disturbance is an important factor when evaluating if the actions in this proposed CX would have significant impacts. The CX proposal limits the harvest to dead, dying or damaged trees unless otherwise needed for roads, landings, or skid trails. Mixed activity studies are likely to describe greater direct environment impacts than would be expected from the actions proposed for categorical exclusion, as they would be limited by the terms of this new CX.

Fire is an important component for forest ecosystems across BLM-managed lands, and generally the applicable land use plans address this issue. It is well established that historically low to mixed severity fire regimes in the western U.S. are well outside the historic range of variability (Stephens et al. 2013). Reduced fire frequency has influenced forest structure and increased fuels and potential fire behavior (Taylor et al. 2014). The degree of beneficial effects and negative impacts depends on the intensity of the fire relative to the life cycle and adaptation of the organisms impacted by the fire. For example, a high intensity fire in a historically high-frequency, low-severity regime can have negative impacts on tree cover, soil properties and microbial abundance, wildlife habitat features (Ager et al. 2007, Anthony and Clark 2008, Clark et al. 2011), and hydrologic function.

Tree mortality from disturbances creates habitat that is important for many organisms.

Minimizing the impacts of salvage harvest entails maintaining a component of snags as well as downed logs. Salvage harvest that entails removal of only a portion of the dead and dying trees ensures perpetuation of these habitat features while also reducing future surface fuel loads as snags begin to fall.

Long-term increased fuel loads and potential fire intensity resulting from tree mortality caused by fire and insects have been well documented (Prichard and Kennedy 2014, Hansen et al. 2015). The primary fire characteristic of concern from a high density of dead trees is fire intensity (energy release) as well as the duration of the energy release due to the prolonged period that coarse woody debris such as large diameter logs can burn. High intensity fire can have negative impacts on soils by decreasing water infiltration and increasing erosion (Carroll et al. 2007, Olorunfemi et al. 2014), decreasing the organic horizon and soil carbon, and decreasing soil microbial abundance (Smith et al. 2011). High intensity fire occurring on sites several decades after a severe disturbance can also impede forest development by killing tree regeneration (Peterson et al. 2015). Partial harvest of dead and dying trees following a disturbance reduces coarse fuels that increase fire intensity.

Several studies evaluate post-fire salvage harvest for soil disturbance, soil compaction, soil movement and soil deposition into stream systems. James and Krumland (2018) found that salvage logging with proper practices can actually reduce erosion when implemented immediately post fire. Wegenbrenner and others (2015) document the site -level (plot) effects and larger unit-level (swale) effects of salvage logging on soil properties and sedimentation. Their study highlights the need for site specific management practices to prevent sedimentation and the influence of site variability on the study's conclusions. They found that salvage logging did not consistently increase sediment production in larger drainage features, but that logging can affect sediment production at a plot level, but this was highly influenced by the roughness of the surface provided by post logging debris and the level of compaction that occurred within logging trails caused by the various equipment types. Even so, the observed plot level effects where significantly reduced one year after harvest particularly on highly productive sites.

Site disturbance from the salvage operations is another consideration. Soil compaction can affect soil nutrients and productivity particularly in fine textured soils such as clays and loams. To minimize the impact of soil compaction, research suggests limiting operations during wet soil conditions is effective (McIver and Starr 2000). Partial harvest and skid trail layout can limit the extent of soil disturbance. Soil microbes have been shown to have no significant difference between sites that were post-fire logged and not logged (Smith et al. 2001). Soil erosion can be another risk, however on severely burned sites the soil is already exposed and prone to erosion and woody debris from harvesting can intercept surface water flow (McIver and Starr 2000).

4. Evaluation of EISs from projects containing salvage harvest

The BLM has records of only two EISs that evaluate salvage harvest projects. These two EISs were prepared in response to two large fires in southwest Oregon. The 2002 Timbered Rock Fire and the 2002 Biscuit Fire burned 27,000 and 499,965 acres respectively. These two EISs evaluated salvage harvest projects that are readily distinguishable from the routine salvage harvest projects under consideration for inclusion under this CX. These projects differ from the projects evaluated in the EAs reviewed for this report by the complexity of the issues identified

and the scope of the proposed activities. For example, the proposed action evaluated in the Timbered Rock EIS incorporated a research element to compare various treatment types including salvage within Riparian Reserves (RRs) and salvage of large trees in Late Successional Reserves (LSRs). These reserves are intended to provide habitat for special-status species and protect water quality. For the purposes of the proposed CX, however, it is important to keep in mind that the appropriateness of salvage within reserves is dependent upon each administrative unit's land use plan and suite of best-management practices included in the land use plan analyses and any proposed salvage action implementing the land use plan would both need to be consistent with these, as well as document that consistency in order for the BLM to rely on the proposed CX (See BLM NEPA Handbook 1790-1). Further, any proposed reliance on the new CX would face review against the DOI extraordinary circumstances. This review requires the authorized officer to consider 12 criterial including environmental impacts before using a CX, even if the action fits well within the parameters of the CX. If the review of the extraordinary circumstances demonstrate there would be significant individual or cumulative environmental effects, a CX cannot be used (BLM NEPA Handbook, Section 4.2.2).

The two projects evaluated in EISs are distinguishable from the routine salvage activities proposed for categorical exclusion in other ways, as well. The Biscuit Fire Recovery Project proposed fuels treatment including prescribed fire in Northern Spotted Owl Activity Centers, which would not likely meet the extraordinary-circumstance threshold for CXs. The scale of Timbered Rocks was also substantial with 6,780 acres total of salvage and green tree harvest and 100 miles of road maintenance with 11 stream crossing upgrades. For the Biscuit Fire Recovery Project, the BLM and the Forest Service prepared an interagency EIS. This Recovery Project was also complex and large-scale, and the EIS evaluated the proposed 300 miles of 400-foot-wide fuels management zones (shaded fuel breaks), 83,050 acres of prescribed fire, and 19,465 acres of salvage including salvage within reserves and inventoried roadless areas. Although the BLM portion of the project only included 195 acres of salvage harvest, the inclusion of 14 miles of fuel breaks, 3,300 acres of prescribed burning, and 5 miles of road stabilization and culvert replacement, and treatment in protected areas put this project in stark contrast to the limited extent of treatments that would be included under the proposed CX.

The findings from the review of the projects supported by these EISs with respect to the possible establishment of a salvage harvest CX indicate that these projects have complexity and scale that is very different from the kinds of activities the proposed CX would support. These projects involved extensive fuels management zones and are not the kinds of actions that would be suitable for CX with exception for roadside hazard trees in LSRs. In contrast, the types of projects evaluated in the EAs documented in this report have common features, similar environmental consequences, similar scope, and involve similar activities.

5. Comparison to other Federal agency NEPA analysis similar to the proposed CX

Timber salvage occurs across many Federally managed forest landscapes and is not an action exclusive to the BLM. Of these, the U.S. Forest Service manages the largest forested land base of all Federal agencies. While the BLM is not relying on the Forest Service's data or process to benchmark any part of the proposed CX in this report, the record of NEPA analysis collected for their initiative demonstrates the commonplaceness of salvage harvesting across multiple ecoregions. This demonstration further justifies the BLM's proposal for needing a new CX for

salvage harvesting.

The U.S. Forest Service has published a notice of proposed rule for a restoration CX (See report https://www.regulations.gov/document?D=FS-2019-0010-0004). To substantiate this CX, the Forest Service searched their NEPA records for forest restoration projects with the goal of identifying actions that are routine and do not individually or cumulatively have a significant effect on the environment. The Forest Service randomly selected 68 EAs from this search and documented the actions analyzed that could be suitable for a CX. Of those 68 EAs, 62 analyzed timber harvest and six EAs directly addressed post-fire salvage harvest. To verify the post-treatment effects of the projects covered in these NEPA documents, the Forest Service contacted available personnel involved with the projects. These personnel, including specialists with various backgrounds in biological and physical sciences, produced reports from 16 of the projects validating that observed effects of project implementation were consistent with the predictions in the NEPA analyses and FONSIs.

The BLM reviewed the Forest Service's supporting NEPA documentation. The NEPA records include EAs and FONSIs that analyzed the harvest of dead and dying trees as well as forest types and conditions under which the actions occur. The Forest Service's conclusion in those EAs and FONSI's that the salvage harvests they reviewed do not have significant direct, indirect, or cumulative impacts is consistent with the findings of this report.

6. Categorical exclusions established by Congress

The Forest Service and the BLM often conduct similar forest management activities under like circumstances often in the same forest types and watersheds. As described in the review of the scientific literature in this report, high severity wildfire resulting in large part from heavy fuel loads including from post-fire tree mortality is a prime concern. Congress has also recognized the need for increasing the pace and scale of treatments that reduce the risk of high severity fire. The CX proposed in this report has the same purpose as two CXs Congress has established for the Forest Service to use that directly or indirectly relate to fire risk reduction. These two CXs have been enacted into law through, respectively, the Agricultural Act of 2014, *P.L. 113-79,* and the Consolidated Appropriations Act of 2018, *P.L. 115-141* (Appendix C). These two CXs cover harvest of trees to treat areas up to 3,000 acres of National Forest units that are impacted by insect or disease infestations as well as to reduce fire risk and increase the resilience of forests to disturbances such as insects, disease, and wildfire. The BLM is unable to utilize these two CXs because Congress did not authorize them for the BLM to use. However, the BLM engages in activities similar in scope and purpose, and at times within the same watersheds, to those carried out by the Forest Service using these CXs. As the conditions on BLM-administered lands, particularly in shared watersheds, are often the same as conditions experienced on National Forest land during large scale disturbances, it is reasonable to conclude there is Congressional interest in facilitating the expeditious implementation of these kinds of projects.

FINDINGS

The purpose of evaluating project NEPA and subsequent monitoring reports was to determine whether activities associated with salvage harvest normally does not result in either individual or cumulative significant impacts on the quality of the human environment as determined by NEPA analysis and post-harvest monitoring. In the EAs reviewed, no significant individual or

cumulative impacts were predicted to result from the kinds of activities included in the proposed CX for salvage harvest, nor were any unanticipated impacts observed after treatments were implemented. Actual impacts were the same as predicted impacts in all cases. In the only case (Douglas Fire EA) where NEPA analysis of the proposed action under an EA was challenged administratively (appealed to the Interior Board of Lands Appeals), the analysis was upheld. Further, the BLM has implemented elements of the salvage actions proposed for this new CX in the current salvage CX and has not found significant impacts or instances where the presence of extraordinary circumstances prevented reliance on the existing salvage CX. In the two circumstances where the BLM completed EISs for salvage harvest, the specific combination of actions proposed, and the scale of the proposals warranted analysis through EISs. The scale and scope of the actions proposed for categorical exclusion are readily distinguishable from those evaluated in the EISs. Additionally, the BLM reviewed the scientific literature, including synthesis papers that surveyed the peer reviewed articles on various aspects of salvage harvest. This review indicates that salvage harvest conducted according to the parameters incorporated into this proposed CX both minimizes environmental impacts from the treatment itself and reduces the potential for future impacts from high intensity fire.

The review of EAs for this report showed that parameters for mitigating the effects of an action vary by region and that a one-size-fits-all approach to some of the CX parameters would impose ineffective and inefficient restrictions to many actions. A key feature of this proposed CX is the inclusion of the requirement that parameters from LUPs be documented as a component of any reliance on this CX. For example, the EAs reviewed for this report all had snag retention parameters, but they varied by region in count and size (Appendix A). The benefit of this plan conformance documentation feature is that parameters that are relevant to the local characteristics and conditions will be incorporated into the action as has been documented through salvage timber sale contract monitoring records, and, as tailored in this way, the BLM would be able to treat areas larger than 250 acres with confidence that no significant impacts would result. To facilitate the application of effective CX parameters, the BLM developed a list for the proposed CX that contains categories of common salvage harvest project design features to be disclosed each time the CX is used.

The establishment of a CX indicates that the category of actions can be implemented without the analysis that occurs in an EA or EIS. It is a form of NEPA compliance, not an exemption from NEPA. Nor does the CX, itself, list the specific project design features, including any protective measures required through project design features that a proposed action must include. Rather, it lists the categories of project design features that must be considered in order to use the proposed CX -many of which would be specified in the applicable LUP. That is, although the use of this proposed CX could depend on different parameters for actions in different regions, this review has determined that the scope of actions proposed for this CX do not require analysis under NEPA when parameters established by the governing LUPs are applied. The BLM found in the reviewed EAs that LUPs and regional standardized project design features, which are developed from findings in the scientific literature appropriate to the region, and which are themselves supported by EISs, provide the parameters for the proposed actions evaluated by the EAs that resulted in FONSIs. In other words, the reviewed FONSIs relied on applicable actions and measures required in the LUPs to meet the needs for their findings of non-significance. In

addition, experienced specialists in the field have confirmed that applying well-understood project design features is routine and from their experience of monitoring post-treatment results the project design features are effective.

CONCLUSIONS

The impacts from salvage harvest are well known through agency experience and documented in the scientific literature. Salvage harvest on the scale and scope that would be supported by this proposed CX is a common, effective tool that BLM uses to meet multiple forest and fuels management objectives as well as human health and safety and economic objectives. Impacts from these actions have been found to be similar, only differing in sensitivity across the variety of project areas and forest types evaluated in this report.

The BLM is experienced with analyzing and implementing the harvest of salvage timber in an environmentally sustainable manner and considers the activities described in this proposal to be routine and non-significant. Expediting the immediate removal of dead and dying trees is essential to maximize economic returns as wood deterioration and value begins to drop immediately after the day of the disturbance. Establishment of a new CX covering these actions associated with salvage harvest will facilitate implementation of other BLM land management priorities and will contribute economic benefit to communities by providing timber for the forest product manufacturing sector. Additionally, it is a further benefit to salvage as immediately post-disturbance as practicable as deteriorating timber can lose value and eventually become a cost to remove as hazardous fuels. As such, the BLM expects that the establishment of this CX would assist with streamlining BLM compliance with NEPA which could result in more salvage harvesting, particularly where limiting factors to harvest have included the components of rapid deterioration and where the time to complete NEPA compliance through an EA or EIS precluded the harvest before timber value was lost. Despite this expected increase, there is no clear way for the BLM to predict what that increase would be because multiple factors besides the time to complete NEPA compliance reviews, including land use plan decisions and even staff capacities, also influence decisions to pursue salvage harvest.

All proposed actions and alternatives evaluated in the EAs reviewed included project design features that minimize environmental consequences. Often, through application of locally-appropriate project design features, environmental effects are minimized to the level of non-significant, whereby resource issues were eliminated from further analysis due to application of these elements incorporated into project design. While there are long-term benefits of conducting salvage harvest to reduce fuel loads that result in neutral or no-effect findings, there are documented instances of adverse, residual environmental consequences associated with implementation of these actions. However, these adverse environmental consequences are not considered individually or cumulatively significant due to low to moderate intensity of the treatments, as discussed, and the limited extent of treatment area relative to the extent and intensity of the disturbed area. Requiring a review of extraordinary circumstances for each project, as required under 43 CFR 46.205, further ensures that there are no significant impacts to the human environment. Based on supporting evidence, adoption of the proposed Harvest of Dead or Dying Trees CX is recommended.

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APPENDIX A: ENVIRONMENTAL ASSESSMENT SUMMARIES

Table A: Table of Environmental Assessment Actions.

Project Description			Project Activities			Issues Considered (Yes / No)				Project Design Features Included (Yes / No)		
#	EA Name	Disturbance Type (fire, insect, or wind)	Acres salvaged	Road Construction (Yes/No)[1]	Fuels Treatments (Yes/No)[2]	Soil Disturbance	Sedimentation / Hydrological	Species / Habitat Disturbance	Fire	Seasonal Restrictions[3]	Area Restrictions[4]	Sang / Downed Wood Retention
1	Roaming Salvage II	Insect	2,500	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
2	French Fire Salvage and Fuel Reduction Timber Sale	Fire and Insect	1,930	Yes	Yes	Yes	Yes	No	No	No	No	Yes
3	Salvage Sam Blow Down Recovery	Wind	40	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
4	Middle Fork Fire Salvage	Fire	34	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes
5	Canyon Creek Salvage	Wind	14	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
6	2007/2008 Programmatic Timber Salvage	Wind	180	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	Sheep Fire Timber Salvage Project	Fire	889	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
8	Douglas Fire Complex Recovery Project	Fire	1,276	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes
9	Oregon Gulch Fire Salvage & Rehabilitation	Fire	1,650	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
10	Oregon Gulch Fire Salvage Recovery Project	Fire	683	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	SW Gunnison Bark Beetle Salvage	Insect	8,700	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Project Description			Project Activities			Issues Considered (Yes / No)				Project Design Features Included (Yes / No)		
#	EA Name	Disturbance Type (fire, insect, or wind)	Acres salvaged	Road Construction (Yes/No)[1]	Fuels Treatments (Yes/No)[2]	Soil Disturbance	Sedimentation / Hydrological	Species / Habitat Disturbance	Fire	Seasonal Restrictions[3]	Area Restrictions[4]	Sang / Downed Wood Retention
12	NW Fremont Bark Beetle Salvage	Insect	2,900	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
13	Teddy Creek Forest Management	Insect	440	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
14	Lolo 80 Salvage	Fire	41	Yes	No	Yes	No	No	No	No	No	Yes
15	Cornet-Windy Ridge Fire Timber Salvage Project	Fire	904	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
16	Medicine Bow Rail-Trail Forest Management	Insect	100	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
17	Tanacross Blowdown Timber Salvage	Wind	189	No	Yes	No	No	Yes	Yes	Yes	Yes	No
18	Hazard Removal and Vegetation Management Project Programmatic EA (HRVM)	Fire, Insect, and Drought	*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

[1] Road Construction includes temporary and permanent roads; however, only the French Gulch Fire EA had permanent road construction from this sample of EAs.
[2] EAs indicating Fuels Treatment are those that have actions such as constructing piles, prescribed fire, mastication, and fuels reduction.
[3] Seasonal Restrictions includes restrictions due to, potential road damage, wet soils and potential erosion, and wildlife reproduction and habitat use.
[4] Area restrictions include riparian reserves, stream buffers, sensitive plant or wildlife species buffers, and operating restrictions on slopes.

Appendix A: Environmental Assessment Summaries

1. Title: Roaming Salvage II.
NEPA#: DOI-BLM-OR014-03-06

Specific actions that were analyzed as well as acres or unit of measure for each action:

- Salvage with thinning in the immediate vicinity. Acreage estimated at a total of 2,500 acres of treatment spanning over five to ten years to address mortality and fuel accumulation resulting from drought stress and subsequent insect and disease infestations or small scale fire.
- Removal of hazard trees along roads, recreation sites and other infrastructure
- Temporary road construction (no mileage limit – length disclosures attached to TS decision) with up to 10 acres of ripping and subsoiling as a decommissioning tool

Footprint of project and analysis area (acres): approximately 215,000 acres (entire Klamath Falls Resource Area)

Intensity of project actions: Treats approximately 1.2% of the analysis area over a 5-10 year period with small scale individual tree or patch removal (e.g. very low intensity). Additionally the sites have already experienced severe disturbance from insects that was exacerbated by dense forest conditions.

Environmental consequences identified:

- Loss of habitat for cavity nesting species and species utilizing downed wood
- Slight increase in potential for noxious weed spread through ground disturbing activities.
- Increased potential for soil displacement and erosion on burned or hydrophobic soils and potential loss of soil productivity.
- Potential for sediment delivery to streams resulting from timber hauling, skidding or road construction.
- Potential effects to special status species and cultural resources.
- Affects to visual resources near recreation areas.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- Snag and down wood retention requirements. Limits salvage to areas with adequate surplus of snags and down wood to meet requirements.
- Weed project design features.
- Waterbarring, seeding, and covering with mulch or logging debris on disturbed areas to reduce erosion.
- Use of no-treatment stream buffers and equipment restrictions and best practices near streams.
- Slope limitations for some equipment types.
- Soil moisture restrictions and wet season exclusions for ground based equipment.

- Pre-disturbance surveys and seasonal restrictions for select known or identified special status species.
- Pre-disturbance surveys and exclusions areas for known or identified cultural resources.
- Temporary roads with seasonal closures and decommissioning. Road maintenance prior to and during timber haul and road use monitoring.
- Stump height limitations in/near recreation sites.
- Fire prevention and logging slash disposal

2. Title: French Fire Salvage and Fuel Reduction Timber Sale
NEPA#: DOI-BLM-CA-N060-2005-0001

Specific actions that were analyzed as well as acres or unit of measure for each action:

- Total of 1,930 acres of fire-killed and beetle infested salvage using ground based (100 ac), helicopter (1,530 ac), and cable systems (300 ac).
- 1,000 feet of permanent road construction.
- 80 acres of live tree thinning in low severity overstocked stands.
- 240 acres of reforestation. Road rehabilitation 1,000 feet. Road construction 1,000 feet.
- Build slash piles and burn.

Footprint of project and analysis area (acres): 13,000 acre fire perimeter.

Intensity of project actions: Total fire area was 13,000 acres. Area of BLM burned was 2,400 acres and area not treated was 390 acres. Live tree thinning units were low intensity and would retain 40% canopy cover of which 15% of that would be mature trees in accordance with the Northwest Forest Plan (NWFP). Additionally the site has already been disturbed by high severity fire which effectively muted additional disturbance from harvest.

Environmental consequences identified: Short term soil erosion. Some cultural resources were identified (ditch and shallow mine). Resources were determined to be poor quality and would not qualify for official listing. Determination was impacts of the action would not be significant.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- Cull logs to remain on site where felled and slash to be lopped and scattered.
- Water bar newly constructed road and close it to public access.
- Landings, skid roads, and cable corridors will be water barred and restored using local project design features.
- Any observed soil movement will be mulched and seeded.
- Straw bales installed below culverts.
- Compacted landings will be ripped.
- Snag retention.
- 100 feet of 20 inch logs for coarse woody debris per acre in severely burned areas per NWFP. Riparian reserve widths per NWFP.

3. Title: Salvage Sam Blow Down Recovery
NEPA#: DOI-BLM-ORWA-E050-2007-0004-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:

- 40 acres of salvage harvest of trees damaged in a wind storm. Ground based and cable yarding.
- Construct 1,000 feet of temporary road.
- Slash piling and burning.
- Reforestation.

Footprint of project and analysis area (acres): 40 acres

Intensity of project actions: Project actions are low intensity due to the 40 acre size relative to the abundance of undamaged forest around the project area.

Environmental consequences identified: Site was assessed for northern spotted owl and marbled murrelet and determined there would be no effect due to habitat modification.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- Dry season road use.
- Retain green trees and snags. Retention of coarse woody debris (85 trees over 17 acres with 83% greater than 12inches diameter).
- 210 foot riparian reserve.
- Half suspension cable yarding with full suspension through riparian zones.

4. Title: Middle Fork Fire Salvage
NEPA#: DOI-BLM-ORWA-N010-2007-0006-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:

- Fire salvage harvest of dead and dying trees on 34 acres. 23 acres cable and 11 acres ground based logging systems. Mechanical slash treatment.
- Construction of 0.22 miles of temporary road. 7.81 miles of existing road renovation.
- Reforestation.

Footprint of project and analysis area (acres): 34 acres of salvage harvest. 1,170 acre fire area with 280 acres on BLM.

Intensity of project actions: This project is low intensity given that only 34 acres of the 280 acres of BLM managed lands impacted by the fire are being salvaged. Additionally, the site has already been disturbed by high severity fire.

Environmental consequences identified:

The risk of short term (during the action and the first winter following) increases in stream turbidity as a result of road repair, fire trail rehabilitation and hauling may contribute to increased turbidity levels directly below road/stream intersections. These would be maintained below the limits required by the Oregon State DEQ. Cumulatively the limited magnitude (not visible more than 800 meters downstream of the crossing) and duration (primarily in the first winter following road repairs) of this effect would be non-detectable on the scale of the seventh field watershed and would be unlikely to have any effect on any designated beneficial uses.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- No harvest in riparian reserves.
- Road work and use limited to dry season.
- Retain an average of 6 – 8 snags and or green trees per acre. Retain coarse woody debris from all un-merchantable dead trees.
- Retain all old growth trees and Douglas-fir with greater than 20% live crown.

5. Title: Canyon Creek Salvage
NEPA#: DOI-BLM-ORWA-S050-2007-0012-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:

- Salvage harvest of blowdown timber on 14 acres using ground based logging systems.
- Slash piling, pile burning, and machine processing of logging residues.

Footprint of project and analysis area (acres): 14 acre project foot print.

Intensity of project actions: The project encompasses less than 0.01% of the forest cover within the Rickreall Creek Watershed and has a low intensity given the overall landscape context.

Environmental consequences identified: Yarding will create additional disturbance to understory vegetation and expose soil which can contribute to erosion. Temporary impacts to air quality from prescribed burning of piles.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- Seasonally restricting ground-based yarding, and timber hauling operations to avoid runoff and sedimentation.
- Operating equipment on top of slash and logging debris when possible to minimize compaction.
- Installing erosion control measures as needed such as water bars, sediment traps in ditchlines, silt fences, straw bales, and grass seeding exposed mineral soil areas.
- Stream protection zones (no cutting/no yarding) of at least 50 feet slope distance would be established along streams and identified wet areas within the treatment area.

- Existing snags and a portion of coarse woody debris would be reserved, except within road rights of way, yarding corridors/skid trails or for safety reasons.

6. Fiscal Year 2007/2008 Programmatic Timber Salvage Environmental Assessment
DOI-BLM-ORWA-SO50-2007-0007-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:
- 180 acres of salvage harvest of blowdown trees.
- Mechanical ground based and skyline logging.
- Pile burning.

Footprint of project and analysis area (acres): Project area is described by maps. Salvage area is widely scattered highly variable and described by location rather than discrete acreage.

Intensity of project actions: The project area was already disturbed during the wind storm incident and actions to reduce the high density of downed trees is low to moderate intensity. The 180 acres treatment is insignificant given the broader landscape context.

The Project would not affect: Public health or safety; Unique characteristics of the geographic area because there are no historic or cultural resources, parklands, prime farmlands, wild and scenic rivers, wilderness, or ecologically critical areas located within the project areas; Districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places, nor would the project cause loss or destruction of significant scientific, cultural, or historical resources. Furthermore, the project was not unique or unusual. The project did not set a precedent for future actions that may have significant effects, nor do they represent a decision in principle about a future consideration. The project did not adversely affect endangered or threatened species or habitat under the ESA.

Environmental consequences identified:
- Potential effects to special status species and species habitat
- Potential for soil disturbance and effects to water quality.
- Potential for spread of endemic bark beetles.
- Fire risk and fuels hazards.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:
- Seasonally restricting ground-based yarding, road construction and hauling operations to avoid runoff and sedimentation,
- Operating equipment on top of slash and logging debris when possible to minimize compaction,
- Installing erosion control measures as needed (water bars, sediment traps in ditchlines, silt fences, straw bales, and grass seeding exposed mineral soil areas),
- Establishing stream protection zones (no cutting/no yarding) of at least 50 feet slope distance along streams and identified wet areas within the treatment area,

- Reserving existing snags and a portion of the blow down trees, except within road rights-of-way, yarding corridors, skid trails or for safety reasons.

7. Title: Sheep Fire Timber Salvage Project
NEPA#: DOI-BLM-ID-C020-2013-0003-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:
- 889 acres of fire salvage with cable and ground based logging systems.
- Construct 1.96 miles of temporary road. Construction of temporary stream crossing.
- Reforestation on 941 acres.
- Slash piling and burning.

Footprint of project and analysis area (acres): Project area 3,326 acres and analysis area 18,217 acres.

Intensity of project actions: The project area was impacted by high severity fire which effectively muted the harvest impacts. The actions would be low to moderate intensity when factoring in the project design features, the relative size of the project compared to the overall fire perimeter, and the size of the watershed the project is inside.

Environmental consequences identified:
- The adverse effects of commercial harvest, including temporary road construction are localized and short-term in nature.
- Soil erosion from roads and skid trails is expected to remain on-site, with implementation of watershed protection measures to avoid or reduce impairing water quality and fisheries habitat.
- Short term disturbance to wildlife is expected during harvest.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:
- Retention of a minimum of 6 snags per acre, 3 of those being between 10 inches and 20 inches in diameter and 3 of those being greater than 20 inches in diameter where they exist.
- Temporary roads would be fully obliterated and re-contoured to near natural slope.
- 15 tons of slash per acre will be left onsite to reduce erosion and aide in nutrient cycling.
- Project related erosion/sediment reaching stream channels will have erosion control measures implemented (i.e. sediment traps, mulching placement of slash/large woody debris, etc.).
- Partial suspension while cable logging on moderate and high severity burn areas.
- Restrict activities when soils are wet to prevent resource damage (indicators include excessive rutting, soil displacement, and erosion).
- Reduce road surface erosion by rocking the approach and departure of existing stream crossings as needed.
- Buffer Riparian Conservation Areas from mechanical treatment.
- Place slash and woody debris as needed within cable logging corridors to inhibit erosion.

- Rip and/or mulch compacted areas (i.e., log landings) to inhibit them from generating overland flow and surface erosion, and maximizing their infiltration rate. Mulch may be straw or other materials and should provide at least 65 % soil cover, particularly in areas burned at high severity.

8. Title: Douglas Fire Complex Recovery Project
NEPA#: DOI-BLM-ORWA-MO70-2014-0006-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:

- Two other Alternatives Analyzed. The main difference between Alternative 2 & Alternative 3 was harvesting method (ground based versus cable versus helicopter) and the amount of temporary road construction needed ranging from 3.2 to 6.8 miles.
- Salvage harvest 1,276 acres of Matrix lands. Construct 4.1 miles of temporary road (to be decommissioned after use).

Footprint of project and analysis area (acres):

- Total footprint - The fire was 48,672 acres of which 25,349 acres burned at various intensities on BLM lands. Approximately 19,082 acres burned on the Medford BLM District and approximately 6,267 acres burned on the Roseburg District.
- Roseburg District – 6,267 Acres - With the exception of a few small salvage sales to cut and remove hazard trees along public access roads which totaled less than 1 million board feet and less than 100 acres, no other salvage harvesting occurred on the Roseburg District within the fire perimeter. Some "log decks" were also sold on the Roseburg District. These log decks resulted from suppression activities (fire line construction) during the fire. Most of the area that burned in the Roseburg District was located in Late Successional Reserves and about 70% (4,319 acres) was considered "Nesting, Roosting, & Foraging" habitat for the Northern Spotted Owl.
- Medford District – 19,082 Acres - Of the 19,082 acres analyzed, the Decision was to offer 1,276 acres via multiple salvage timber sales. The remaining acres were dropped as follows:
  - Low severity burn acres or young plantations - 14,286
  - Acres excluded because of low volume (uneconomical) – 681
  - Acres dropped within northern spotted owl high priority 0.5 mile core – 1,115
  - Acres dropped from Known Spotted Owl Activity Centers - 346
  - Timber Productivity Classification withdrawn lands - 93
  - Riparian Reserves – 879

Intensity of project actions: The amount of acres harvested on BLM relative to the number of BLM acres impacted by fire was approximately 5%. Fire severity was moderate to high in harvest areas. The project intensity in low to moderate given the landscape context and the minimal additional impact of the actions beyond the fire impacts.

Environmental consequences identified:

- *Wildlife:* Retain snags and down wood for wildlife habitat. Potential adverse impacts of creation of open spaces after salvage operations.

- *Northern spotted owl and avian habitat:* Potential loss of snags and green trees used for foraging, nesting or roosting.
- *Soil compaction and site productivity:* Effects to ground cover recovery and nutrient cycling. Potential impacts to fragile soils.
- *Hydrology/Aquatics:* Protection of water quality, fish and aquatic habitat.
- *Invasive species:* Spread of invasive species.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:
- Emergency Stabilization and Rehabilitation measures.
- Avoidance of harvesting low site areas.
- Invasive Weed control.
- No Salvage harvest in Riparian Reserves, avoiding unstable slopes.
- Retention requirements for green trees, snags and coarse woody debris.
- Soil protection measures; seasonal restrictions, road maintenance and construction guidelines.
- 100 acre Northwest Forest Plan northern spotted owl (NSO) activity centers and within 0.5 mile NSO nest cores.

9. Title: Oregon Gulch Fire Salvage and Rehabilitation Environmental Assessment
NEPA# DOI-BLM-ORWA-L040-2015-0001-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:
- Salvage harvest 1,650 acres including Northern Spotted Owl dispersal habitat; areas but burned areas would be reforested; construct 0.3 miles of temporary road; tree plant both harvested areas; and decommission 0.8 miles of road upon completion; fell roadside hazard trees.
- Addressed fire rehabilitation treatments such as fence repair and construction, noxious weed (medusahead rye) treatments, seeding, and replacement of a wildlife guzzler.

Footprint of project and analysis area (acres):
The fire burned approximately 35,300 acres at various intensities. Approximately 4,865 acres burned on the Lakeview BLM District, 2,425 acres on the Medford District, and 496 acres on the California Redding District. The remaining acres burned on private, state and US Forest Service lands.
- Medford District – 2,425 Acres
- Lakeview District – 4,865 Acres - Of the 4,865 acres analyzed, the Decision was to salvage harvest 1,650 (34%) acres. The remaining 3,215 acres (66%) were reserved from salvage harvest because they were in Late Successional Reserves (LSRs), Riparian Reserves (RRs), or Areas of Critical Environmental Concern (ACECs), Non-Forest, or were non-economical to harvest.

Intensity of project actions:
- As mentioned above, approximately 34% of the total burned area was salvaged harvested. The full suite of treatments included: timber harvesting, slash abatement, soil mitigation, snag retention, invasive weed control, temporary road construction, decommissioning and maintenance of existing roads, immediate grazing decisions
- Burn Intensity/Severity Acres: Of the area burned, approximately 19% was high intensity, 46% moderate intensity, 30% low intensity, and 5% unburned. Most of the salvage occurred

in the high and moderate intensity areas.
- The fire significantly impacted timber resources and wildlife habitat, created soil stabilization issues, exposed cultural sites, created health and safety issues (snag formation and complete road sign obliteration) and left a landscape that will favor the colonization and spread of noxious weed populations.

Environmental consequences identified:
- Effects of proposed project actions on the northern spotted owl (NSO) and its habitat.
- Effects of proposed project actions on wildlife (other than the NSO), particularly snag-dependent, cavity-nesting and cavity-excavating species.
- Short term effects of proposed activities on water quality and hydrologic function.
- Effects of proposed project actions on the spread of noxious weeds, particularly medusahead rye.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:
- No salvage harvest in LSRs, RRs, or ACECs.
- Avoidance of harvesting low site, low intensity uneconomical burned areas.
- Invasive weed control.
- Soil stabilization and protection measures.
- Snag retention requirements; coarse woody debris requirements.
- Seasonal restrictions; road maintenance and construction guidelines.
- Endangered and Special Status Species protection measures.

10. Title: Oregon Gulch Fire Salvage Recovery Project
NEPA#: DOI-BLM-ORWA-M060-2015-0004-EA

Specific actions that were analyzed as well as acres or unit of measure for each action: 683 acres of fire salvage harvest comprised of 86% high severity and 13% moderate severity burned areas. Treatment includes harvest residue reduction, site preparation, planting, fertilization, and seedling protection. Temporary road construction (0.7 miles), road renovation and decommissioning (2.3 miles).

Footprint of project and analysis area (acres): The project harvested approximately 683 (40%) of the 1,700 acres of mid to high severity burned area on BLM land within the administrative unit. The total burned area within Medford District was 2,425 acres (28% treated). The total fire burned area was 35,300 acres on both public and private lands. Another salvage EA for the same fire was completed by an adjacent administrative unit (Klamath Falls Field Office).

Intensity of project actions: High site-specific intensity but limited spatial extent.

Environmental consequences identified:
- Post treatment forest structure and fire risk.
- Potential effects to soil productivity from displacement, erosion and compaction.

- Potential effects to water quality and aquatic species
- Potential effects to specific special status species
- Potential for weed spread related to treatment activities
- Potential effects to archeological (cultural resources).

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:
- Snag and downed wood retention requirement.
- Seasonal and spatial restriction on harvest and road use to limit potential effects to soil.
- Equipment and treatment limitations near streams and on steep slopes.
- Seasonal and spatial restrictions related to known and identified special status species.
- Pre-disturbance surveys for specific special status species.
- Weed project design features.
- Pre-disturbance identification and exclusion of known cultural resources.
- Fuels and logging residue reduction and reforestation.
- Seeding, mulching, and/ slash covering of disturbed areas.
- Road construction and maintenance project design features.

11. Title: SW Gunnison Bark Beetle Salvage
NEPA#: DOI-BLM-CO-S060-2015-0004-EA

Specific actions that were analyzed as well as acres or unit of measure for each action: Harvest of 8,700 acres of dead, dying, or beetle infested trees in areas of 50% mortality/infestation or greater within three discrete analysis unit boundaries. Post treatment conditions similar to seed-tree regeneration harvest. Temporary road construction as needed.

Footprint of project and analysis area (acres): analysis area was defined as 24,894; analysis also used 229,426 acres in 11 watersheds; treatment affects approximately 34% of analysis area. Total statewide beetle mortality affecting 3.3 million acres of which 227,000 are BLM lands; treatment addresses appx 0.3% of statewide and 3.8% of BLM insect mortality issue.

Intensity of project actions: High site-specific intensity but limited spatial extent.

Environmental consequences identified:
- Fire risk and fuels management.
- Potential for soil compaction, displacement and erosion associated with harvest and road use.
- Potential for water quality degradation associated harvest and road activities
- Potential effects to wetlands and riparian resources
- Public health and safety
- Changes to vegetative (range and forest) resources and subsequent effects to dependent species
- Potential effects to proximate wilderness resources
- Potential effects to cultural resources.

- Potential effects to special status species or select wildlife species.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:
- Snag and downed wood retention requirements.
- Landing placement restrictions outside of riparian areas (LUP management direction).
- Erosion prevention and project design features (water-bars, mulch and vegetative/slash cover) (LUP management direction).
- Equipment restrictions near riparian areas (LUP management direction)
- Soil moisture and season restrictions for harvest activity (LUP management direction)
- Road maintenance requirements and road-use seasonal restrictions and exclusions (LUP management direction).
- Road construction exclusion near riparian areas.
- Pre-disturbance surveys and exclusions or known or identified archeological resources.
- Pre-disturbance surveys and exclusion or restrictions for known or identified special status species or other species of interest.

12. Title: NW Fremont Bark Beetle Salvage
NEPA#: DOI-BLM-CO-F020-2015-0039-EA

Specific actions that were analyzed as well as acres or unit of measure for each action: Harvest of 2,900 acres of dead, dying, or beetle infested green trees in areas of 50% mortality/infestation or greater. Post treatment conditions similar to seed-tree regeneration harvest. Hazard tree removal along public infrastructure. Temporary road construction as needed.

Footprint of project and analysis area (acres): The project area was defined as 31,767acres. The treatment reflects 9.1% of the project area. The analysis also used 207,523 acres in 9 watersheds; treatment affects approximately 1.3% of watershed analysis area. Total statewide beetle mortality affecting 3.3 million acres of which 227,000 are BLM lands; treatment addresses appx 0.1% of statewide and 1.2% of the BLM insect mortality issue.

Analysis included an unselected alternative to increase the intensity of treatment to include green tree harvest in the immediate vicinity of the salvage areas

Intensity of project actions: High site-specific intensity but limited spatial extent.

Environmental consequences identified:
- Fire risk and fuels management.
- Potential for soil compaction, displacement and erosion associated with harvest and road use.
- Potential for water quality degradation associated harvest and road activities
- Potential effects to wetlands and riparian resources
- Public health and safety
- Changes to vegetative cover and structure resources and subsequent effects to dependent species

- Potential effects to lands with wilderness characteristics.
- Potential effects to cultural resources.
- Potential for increases in invasive and non-natives species
- Potential effects to special status and other species

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- Snag and downed wood retention requirements.
- Landing placement restrictions outside of riparian areas (LUP management direction).
- Erosion prevention and project design features (water-bars, mulch and vegetative/slash cover) (LUP management direction).
- Equipment restrictions near riparian areas (LUP management direction)
- Soil moisture and seasonal restrictions for harvest activity (LUP management direction)
- Road maintenance requirements and road-use seasonal restrictions and exclusions (LUP management direction).
- Road construction exclusion near riparian areas.
- Pre-disturbance surveys and exclusion areas around known or identified archeological resources.
- Pre-disturbance surveys and exclusions (seasonal and areal) in and around known or identified special status or other specific species habitats.
- Weed project design features and pre-treatment of known infestations.
- Harvest slash reduction.

13. Title: Teddy Creek Forest Management
NEPA#: DOI-BLM-WY-D030-2015-0059-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:

- Sanitation Salvage of 440 acres: The cutting removal and sale of merchantable timber previously killed by, currently infested, or likely to be killed by Mountain Pine Beetle. And the cutting and removal and sale or burning along with piled logging slash of products other than logs depending on market conditions.
- Pre-commercial Thinning of 161 acres: Reduction of stand densities through hand thinning, with slash treatment by lop and scatter to increase stand vigor. Treatment occurred in stand that are less than 8” in diameter.
- Prescribed Fire/Mechanical Fuels Reduction on 83 Acres: Treatment of forested stands not suitable for timber production through salvage by a combination of prescribed fire and mechanical methods with an objective or reducing vegetative cover by 50 to 75 percent.
- Roads: Open up to five miles of currently closed roads, construct temporary roads as needed for timber harvest.

Footprint of project and analysis area (acres): 685 acre project area.

Intensity of project actions: The project area and surrounding landscape were impacted by high tree mortality due to insect infestation. The intensity of the actions was low given the landscape context the low to moderate harvest intensity.

Environmental consequences identified:

- Short term increases in erosion, sediment delivery to stream systems and water storage capacity are anticipated.
- Impacts to wildlife are anticipated during the treatment phase of the project and are anticipated to last 1 to 2 years. Negative effects to wildlife would include displacement, short term loss of forage, and birds selecting different nesting sites. These short term negative impacts would be offset by reductions in fuel loadings and a more rapid recovery of the forested stand post treatment.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- Wyoming State Forestry Division, Forestry project design features where adopted.
- Standard cultural resource design features that address buried discoveries apply and would minimize the potential for the loss or destruction of unanticipated historic properties should they be encountered during forest management activities.
- Major skid trails would be spaced at approximately one hundred fifty (150) feet apart unless otherwise agreed to in writing by the Authorized Officer. Minor (feeder) trails would be placed to minimize surface disturbance. No skid trails are permitted in unstable areas, unless approved in advance in writing by the Authorized Officer. All skid trails would be at a thirty five percent (35%) or less grade unless approved in advance by the Authorized Officer. Landings, reopened roads and temporary roads on BLM lands would be re-contoured, if necessary, and seeded from a site specific seed pick list.
- Temporary roads are constructed only for the duration of the timber harvests and rehabilitated after their use. Any temporary road built as part of a timber sale shall be designed with the goal of reestablishing vegetative cover on the roadway and adjacent disturbed area within ten years after the termination of the contract.

14. Title: Lolo 80 Salvage
NEPA#: DOI-BLM-ID-C020-2016-0015-EA
Specific actions that were analyzed as well as acres or unit of measure for each action:

- Salvage of 41 acres of fire killed trees using ground based and cable logging systems.
- Build 0.4 miles of temporary road.

Footprint of project and analysis area (acres): 41 acre project area within an 80 acre isolated parcel. Total of 5,900 of BLM managed lands burned.

Intensity of project actions: Intensity of actions are low given the fire size of 47,260 acres and the size of the salvage area relative to the area not being salvage on BLM managed lands. Additionally the project area is mostly in high to moderate severity burn area which indicates that the fire already

significantly impacted the site and the additional impacts from salvage would be negligible.

Environmental consequences identified:
- Soil and vegetation disturbance from construction of temporary road.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:
- Leave 4 – 9 snags per acre.
- Leave fire damaged live trees that are expected to survive postfire.
- Rip and seed any compacted soil on landings or temporary roads.
- Woody debris retention to prevent soil erosion.

15. Title: Cornet-Windy Ridge Fire Timber Salvage Project
NEPA#: DOI-BLM-ORWA-V000-2016-033-EA
Specific actions that were analyzed as well as acres or unit of measure for each action:
- Salvage logging on 904 acres using ground based and cable logging systems.
- Roadside hazard tree removal.
- Lop and scatter of slash.
- Pile burning.
- Tree planting on 3,879 acres.
- 20 miles road maintenance.
- Up to two miles of temporary road construction.

Footprint of project and analysis area (acres): Total burn area was 103,791 acres (26,885 acres BLM, 29,915 acres U.S. Forest Service, 46,991 acres private land). 5,655 acres of burn area on BLM was classified as commercial forest lands of which 5,015 was high severity.
Intensity of project actions: The intensity is determined to be low since the area designated for harvest was impacted by high severity fire. In addition, the harvest area is occurring on less than 20% of the forested area burned at high intensity.
Environmental consequences identified:
- Air quality impacts from pile burning.
- Soil disturbance and compaction.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.
Included project design features:
- Any trees that are determined to be able to survive will be left.
- All temporary roads will be built outside of riparian and aquatic habitat.
- Construction and utilization will only occur when soil moisture is low or in frozen conditions to reduce sediment delivery to streams.
- Road construction and maintenance will occur only when weather and soil moisture conditions are suitable.

- Temporary roads will be rehabilitated by installing waterbars and/or employing methods that lift, fracture, and loosen compacted soil to allow maximum infiltration of water.
- Slashing and seeding with native vegetation will occur to enhance rehabilitation.
- Snag creation will consist of two trees/acre ≥18" dbh and three snags ≥12" dbh in a clump and 3 downed logs/acre ≥ 12" diameter will be retained.
- Timber haul in all units will be restricted to dry ground conditions to prevent potential increases in sediment delivery to stream channels.
- Ground based logging systems will be used on slopes less than 35%.

16. Title: Medicine Bow Rail-Trail Forest Management
NEPA#: DOI-BLM-WY-D030-2017-0042-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:

- Sanitation Salvage of 100 acres: The cutting removal and sale of merchantable timber previously killed by, currently infested, or likely to be killed by Mountain Pine Beetle. Cutting, removal, and sale or burning along with piled logging slash of products other than logs.
- Pre-commercial thinning of 180 acres: hand thinning with slash treatment by lop and scatter of trees less than 8" in diameter.
- Harvest merchantable timber on 180 acres within previously pre-commercially thinned units for post and poles.
- Prescribed Fire/Mechanical Fuels Reduction on 125 Acres: prescribed fire to reduce vegetative cover by 50 to 100 percent.
- Roads: construct one mile of temporary road for timber harvest. Recommission and maintain existing road.

Footprint of project and analysis area (acres): 180 acre project area.
Intensity of project actions: Intensity of actions are low given the site has already experienced disturbance due to insect induced tree mortality. Furthermore the treatment scale is insignificant in the broader landscape context.

Environmental consequences identified:

- Slash disposal and broadcast burns both create smoke which adds varying amounts of particulates to the air and can affect air quality in the immediate area.
- Short term increases in erosion, sediment delivery to stream systems and water storage capacity are anticipated.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- Wyoming State Forestry Division project design features.
- Impacts to wildlife are anticipated during the treatment phase of the project and are anticipated to last 1 to 2 years. Negative effects to wildlife would include displacement, short term loss of forage, and birds selecting different nesting sites.

- Elk crucial winter range no operation from November 15th to April 30th.
- Elk parturition May 1st to June 30th no operation.
- April 10 to July 10th migratory bird no operation.
- Seeding, out sloping (re-contouring), removal of culverts, and constructing water bars or cross ditches on temporary roads.
- Reestablish vegetative cover on temporary roadways and adjacent disturbed area within ten years after the termination of the contract.

17. Title: Tanacross Blowdown Timber Salvage
NEPA#: DOI-BLM-AK-F020-2017-0015-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:

- 189 acres of salvage harvest of blowdown trees. Mechanical ground based logging and hand methods.
- Pile burning.

Footprint of project and analysis area (acres): Project area is 189 acres.
Intensity of project actions: The project area was already disturbed during the wind storm incident and actions to reduce the high density of downed trees is low to moderate intensity. The 189 acres treatment is insignificant given the broader landscape context.

Environmental consequences identified:

- Spread of invasive weeds.
- Removal of trees from the area will impact migratory and resident nesting and foraging birds.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- Use of heavy equipment during winter months only.
- No cutting of live trees within 100 feet of Tanana River.
- Pressure washing of any vehicles, trailers, and heavy equipment that will be used to conduct the proposed action will be done prior to moving vehicles to the site.
- Vehicles and equipment will not be driven through vegetated areas during transport to the site or staged in vegetated areas at the site so that seeds from invasive plants do not become embedded or lodged in axels, wheel treads, tracks, or other parts of the vehicles.
- Chainsaws, other equipment, and footwear will be thoroughly cleaned prior to entering the site to remove mud and vegetative debris.
- On site BLM personnel will conduct early detection and rapid response for new detections of invasive species.
- Avoid the migratory bird nesting period of May 1 to July 15.

18. Title: Hazard Removal and Vegetation Management Project Programmatic EA
DOI-BLM-CA-9000-2018-0002-EA

Specific actions that were analyzed as well as acres or unit of measure for each action:

- This EA analyzed treatments within 200 feet of infrastructure across the entire analysis area which included: fuels reduction, tree thinning and harvest down to 40% canopy cover, salvage harvest, prescribed fire, hazard tree removal, mastication, manual and mechanical vegetation removal, wood product removal, construction of temporary roads, pile burning,
- Infrastructure includes: roads, energy infrastructure, recreation areas, water facilities, communications and weather infrastructure, historic features, and private property.

Footprint of project and analysis area (acres): The analysis area includes 551,000 acres across the state of California. Treatments cannot exceed 20% of a HUC 10 watershed over a ten year period.

Intensity of project actions: The intensity of treatments analyzed are reduced by controlling the amount of any one watershed that can be treated in any 10 year period. That coupled with project design features indicate that the intensity is low.

Environmental consequences identified:

- Soil compaction and erosion after treatments that disturb soils and use heavy equipment.
- Temporary increased surface fuels in certain treatments such as mastication.
- Potential spread of weeds.
- Temporary displacement of wildlife.

Were significant individual or cumulative impacts predicted for the proposed actions or any of the alternatives: No.

Included project design features:

- Retain downed woody debris and snags for wildlife.
- Pressure wash equipment to reduce the spread of weeds.
- Restrict operations during wet soil conditions.
- Buffers for sensitive species, soils, riparian areas, or other resources of concern.
- Decommission temporary roads and landings and rehabilitate with seeding, mulching, or blocking to allow regeneration.
- Install water bars on roads.

APPENDIX B: ECOREGION DESCRIPTIONS

1. Pacific Coast Forest – This ecoregion includes of temperate rainforest along the coast west of the Cascade Mountains in western Oregon and along the coastal range of northern California as far south as Fort Bragg. The Pacific Coast Forest consists of mixed conifer as well as pure stands of Douglas-fir and Redwood.

2. Intermountain Dry Forest – This ecoregion includes of montane forests from the Rocky Mountains west to the Sierra Nevada Mountains. Common tree species of the Intermountain Dry Forest include: ponderosa pine, Jeffrey pine, lodgepole pine, Douglas-fir, white fir, and various other white pines, fir, and spruce.

3. Boreal Forest – This ecoregion is primarily in Alaska. Boreal Forest consists of mixed hardwoods and conifer including white spruce, black spruce, quaking aspen, and birch.

4. Pinyon pine, Juniper, and Woodland Ecosystems – This ecoregion is found in the Great Basin and desert southwest. At mid elevations, the ecoregion supports conifer trees including: single leaf pinyon, pinyon pine, Utah juniper, Rocky Mountain juniper, western juniper, and other conifer and deciduous tree species.

APPENDIX C: CATEGORICAL EXCLUSIONS ESTABLISHED BY CONGRESS

Agricultural Act of 2014, Sec. 8204. Insect and disease infestation.

An insect and disease project may be categorically excluded from documentation in an environmental assessment or an environmental impact statement and exempt from pre-decisional objections. In order to use this CX, projects must:

- Have a size of up to 3,000 acres.
- Maximize old growth and large trees to the extent the trees promote stands that are resilient to insect and disease threats;
- Consider the best available scientific information; and
- Be developed through a collaborative process that:
  - includes multiple interested persons representing diverse interests;
  - and is transparent and non-exclusive, or meets the requirements of a resource advisory committee under subsections (c) through (f) of section 205 of the Secure Rural Schools and Community Self-Determination Act.

Limitations:

- Shall be located in the wildland urban interface, or in an area in condition classes 2 or 3 in Fire Regime Groups I, II, or III, if outside the Wildland Urban Interface (WUI).
- May not include the establishment of permanent roads, but may allow for necessary maintenance and repairs on existing permanent roads and may allow for the construction of temporary roads (where not otherwise prohibited) for the purposes of carrying out this section. Temporary roads would have to be decommissioned no later than three years after the date of project completion.

May not be used in areas that are:

- Congressionally designated Wilderness and Wilderness Study Areas;
- Areas where the removal of vegetation is restricted or prohibited by statute or by Presidential proclamation; and
- Areas where the activities described above would be inconsistent with the applicable land use plan.

Consolidated Appropriations Act 2018: Categorical Exclusion for Wildfire Resilience Projects (Sec 202)

Components of the CX that are similar to the 2014 HFRA CX are:

- Project size is up to 3,000 acres.
- Maximize old growth and large trees to the extent the trees promote stands that are resilient to insect and disease, and reduce the risk or extent of, or increase the resilience to, wildfires;
- Consider the best available scientific information; and
- Be developed through a collaborative process that:
  - includes multiple interested persons representing diverse interests;

- and is transparent and non-exclusive, or meets the requirements of a resource advisory committee under subsections (c) through (f) of section 205 of the Secure Rural Schools and Community Self-Determination Act.

Limitations:

- Projects can occur within the WUI or lands outside of WUI within condition classes 2 or 3 in Fire Regime groups 1, 2, or 3.
- No new permanent roads. Temporary roads must be decommission within 3 years after project.

May not be used in areas that are:

- Congressionally designated Wilderness and Wilderness Study Areas;
- Areas where the removal of vegetation is restricted or prohibited by statute or by Presidential proclamation; and
- Areas where the activities described above would be inconsistent with the applicable land use plan.