

Supplement Analysis
for the
Columbia River Basin Tributary Habitat Restoration EA
(DOE/EA-2126/SA-12)

Wenas Wildlife Area Aerial Herbicide Applications
(Update to previously issued SA on August 17, 2021)
BPA project number 2006-004-00
BPA contract number 74314 REL 134 and 86468

Bonneville Power Administration
Department of Energy



Introduction

In December 2020, Bonneville Power Administration completed the Columbia River Basin Tributary Habitat Restoration Environmental Assessment (DOE/EA-2126). The EA analyzed the potential impacts of implementing tributary fish and wildlife restoration projects across the Columbia River Basin, ranging from fencing and planting, to bridge construction, instream habitat improvements, and invasive plant treatments. These actions could be funded by Bonneville to mitigate for effects of the development and operation of the Federal Columbia River Power System (FCRPS) on fish and wildlife.

Consistent with the EA, this supplement analysis (SA) analyzes the proposed funding of invasive plant treatments using aerial herbicide treatments at the Wenas Wildlife Area by the Washington Department of Fish and Wildlife (WDFW). Aerial applications are needed to treat large and inaccessible invasive plant infestations that cannot be practically treated by ground-based methods. Invasive species are present within the wildlife area due to historical overgrazing and human use of the wildlife area. In addition, several wildfires occurred in recent years that burned thousands of acres of native vegetation and promoted the spread of invasive species.

This SA analyzes the site-specific impacts of invasive plant treatments using aerial herbicides within Wenas Wildlife Area to determine if the action is within the scope of the analysis considered in the Programmatic EA. It also evaluates whether the proposed action presents significant new circumstances or information relevant to environmental concerns that were not addressed by the EA. The findings of this SA determine whether additional National Environmental Policy Act (NEPA) analysis is needed pursuant to 40 Code of Federal Regulations (CFR) § 1502.9(d).

Proposed Activities

Bonneville, in coordination with WDFW, is proposing to provide funding for management of invasive and noxious weeds on the Wenas Wildlife Area by aerial herbicide treatments. Wenas Wildlife Area is located in Kittitas and Yakima Counties in south-central Washington between the towns of Yakima and Ellensburg. The portion of the wildlife area where Bonneville funds would be used for management activities encompasses 74,212 acres, and includes the Umtanum Creek, Roza Creek, and South Umtanum Ridge management units. These actions would support ongoing efforts to mitigate for effects of the FCRPS on fish and wildlife in the mainstem Columbia River and its tributaries pursuant to the

Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act) (16 U.S.C. (USC) 839 et seq.).

Present habitat conditions were influenced primarily by past agricultural practices, extensive livestock grazing, and fires. Years of soil disturbance, uncontrolled vehicle use, and fires all contributed to degraded shrub steppe and riparian habitats and widespread weed infestations throughout the wildlife area. Major weed species requiring aerial control include, but are not limited to: Russian and diffuse knapweed (*Rhaponticum repens* and *Centaurea diffusa*), downy and Japanese brome (*Bromus tectorum* and *Bromus japonicus*), Russian thistle (*Salsola kali*), kochia (*Kochia scoparia*), as well as other invasive grasses and broadleaf species.

Approximately 1,000 acres of invasive plants would be treated aerially on an annual basis. Aerial applications would be made from a light helicopter using boom-mounted nozzles for liquids or rotary broadcasters for granular formulations. Given the steep terrain within the project area, spraying would be done from a height of 8 to 15 feet to allow a margin of safety for the helicopter. A low-pressure nozzle would be used to deliver droplets from medium to coarse size (300 to 800 microns in diameter). Drift control agents would be used to thicken the droplets and minimize spray drift onto non-target areas, when appropriate. Drift reduction techniques such as half boom shut off, smoke generator, and droplet analysis would also be used.

Aerial herbicide applications would occur during the spring, summer, and fall dependent upon the target invasive species. The duration of application would be dependent on the length of suitable weather conditions and the number of helicopter flights. Given the load capacity of the helicopters that would be used, and assuming weather conditions remain favorable, the herbicide applications would be expected to occur over 5 to 10 working days annually. Aerial seeding may be used in conjunction with herbicide treatments to introduce a native seed source to compete against reestablishment of the invasive plant species. Some aerial herbicide applications are conducted in places that were seeded in the past and would now be treated to help the natives out-compete invasive weed species. Other areas would be sprayed to rid them of weeds in preparation of seeding.

Application buffers would be applied based on the hydrology of the adjacent water feature and the presence of ESA-listed species. Avoidance of these sensitive areas would be achieved through the implementation of conservation measures identified in the Biological Opinions issued by NMFS and the USFWS and through the use of on-board global positioning systems (GPS) in the helicopter making the application. Post treatment monitoring of GPS-based applications has shown it to be accurate within approximately 10 to 15 feet (pers. comm. Cindi Confer Morris [WDFW], August 2014; NMFS 2012). Aerial herbicide spraying is subject to certain wind speed limitations, no-spray buffers next to water bodies, use of less-toxic chemicals near water, and additional restrictions below (see Table 1).

Table 1. Aerial Application Buffers.

Water Type / ESA Feature	Buffer (feet)	Maximum Wind Speed	Special Restrictions
Fish-bearing streams	100 feet	6 mph sustained, 10 mph gust	No-spray buffer of 100 feet slope distance on either side of fish-bearing stream channel, or outer edge or riparian vegetation, whichever is greatest.
Ponds, lakes, springs, and wetlands	100 feet	6 mph sustained, 10 mph gust	No-spray buffer of 100 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond or lake; or 100 feet from outer edges of the riparian vegetation surrounding a water body or wetland or extent of the seasonally saturated soil, whichever is greatest.
Non-fish-bearing intermittent drainages (wetted channel)	50 feet	6 mph sustained, 10 mph gust	No-spray buffer of 50 feet slope distance either side of wetted stream channel, or outer edge or riparian vegetation, whichever is greatest. No spraying of picloram within 100 feet of any live waters or shallow water tables.

Proposed Herbicides

The project is proposing to use the following herbicides identified in Table 2. Herbicides targeting grasses and/or broadleaf plants may be used singly or in combination to more effectively target specific weed species. Spray additives such as adjuvants or surfactants may also be added to the herbicide active ingredient to improve their effectiveness.

Table 2. Herbicides Proposed for Aerial Application.

Herbicide Active Ingredient	Application Timing	Application Rate	Target Species
2,4-D	Spring/summer/fall	0.175-2.0 lbs ai/ac	Broadleaf weeds
Aminopyralid	Spring/summer/fall	0.06-0.11 lb ai/ac	Broadleaf weeds
Chlorsulfuron	Spring/summer/fall	0.01-0.055 lb ai/ac	Broadleaf weeds
Clopyralid	Summer/fall	0.09-0.49 lb ai/ac	Knapweed
Dicamba	Spring/summer/fall	0.06-2.0 lbs ai/ac	Broadleaf weeds
Fluroxypyr	Summer	0.13-0.33 lb ai/ac	Russian thistle; kochia
Glyphosate	Early Spring; late Fall	0.12-0.24 lb ai/ac	<i>Bromus tectorum /japonicas</i>
	Spring/Summer/Fall	1.0-4.0 lbs ai/ac	All weed species
Imazapic	Fall (some Spring)	0.03-0.18* lb ai/ac	Ventenata/ <i>B. tectorum /japonicus</i>

Herbicide Active Ingredient	Application Timing	Application Rate	Target Species
Picloram	Summer/Fall	0.12-0.48 lb ai/ac	Russian knapweed; broadleaf weeds

Environmental Effects

The typical environmental impacts associated with the Columbia River Basin Tributary Habitat Restoration EA are described in Chapter 3 of the EA, and are incorporated by reference and summarized in this document. Below is a description of the potential site-specific impacts of the Wenas Wildlife Area aerial herbicide applications and an assessment of whether these impacts are consistent with those described in the Columbia River Basin Tributary Habitat Restoration EA.

1. Fish

The effects of aerial herbicide treatments at Wenas Wildlife Area are consistent with the analysis in the Programmatic EA, Section 3.2.3, which describes that the herbicides included in this category of action were selected due to their low to moderate aquatic toxicity to fish, including ESA-listed salmonids and bull trout, and the use of chemicals to control noxious weeds would be designed to minimize the risk of adverse toxic effects. In general, when herbicides contaminate the aquatic ecosystem, they can cause deleterious effects on the organisms in that environment; and organisms that live in regions impacted by these substances, whose breeding period coincides with the application period of the herbicides, suffer serious risks of development and survival of their offspring (Marin-Morales et al. 2013). Herbicide applications would be conducted according to the mitigation measures and conservation measures prescribed from ESA consultations (see discussion below), so all applications would be timed and conducted to minimize the impacts to ESA-listed fish, and thereby, most other species.

Two ESA-listed aquatic species occur in the project area: (1) Mid Columbia River Steelhead, listed as threatened, are known to use the mainstem Yakima River for spawning and migration and year round rearing for juveniles, and are expected to occur in Umtanum Creek, a tributary to the Yakima, up to the falls; and (2) bull trout, also listed as threatened, may be present in the mainstem Yakima River as occasional migrants, but there is no record of spawning, rearing, or foraging occurring. Consultation on the effects of these projects on these species was completed with both NMFS and USFWS.

Based on the steelhead life stages present within Wenas Wildlife Area, NMFS concluded that the proposed activities may result in adverse effects to steelhead associated with potential exposure to transient pulses and/or chronic low concentrations of herbicide and surfactants that may enter a fish-bearing stream through leaching and runoff. Given the limited amount of perennial water on the Wenas Wildlife Area, there would be little potential for herbicides to reach steelhead habitat from most of the treated areas. Some aerial spraying would occur near riparian buffer zones (e.g., to treat fire-burned areas along the Yakima River) and some steelhead may be exposed. However, exposure time would be limited to minutes as pulses of herbicide flow downstream and concentrations are quickly diluted.

Within the project area, occasional migrant bull trout may be present in the mainstem Yakima River during spring applications of herbicides when stream temperatures are favorable. They may be directly or indirectly exposed to spray, wind drift, spills and leakage, wind-blown soils into water bodies, and/or leaching and runoff. Project conservation measures, such as storage and handling procedures, no-spray buffers, wind speed and weather restrictions, drift reduction techniques and the use of GPS-based

application technology, would minimize the potential for exposure. The USFWS determined the proposed activities are "not likely to adversely affect" bull trout and its designated critical habitat due to these conservation measures, relative small scale of treatment area (1.3 percent of the project area, annually), low herbicide application rates, and the limited occurrence of bull trout in the project area during application.

The anticipated amount of activity and the level of impacts to aquatic species are consistent with the analysis in the Programmatic EA found at Section 3.3.2.2 and 3.3.1.2.2.3, which concluded there would be low to moderate impacts.

2. Wildlife

The effects of using aerial herbicide treatments on Wenas Wildlife Area are consistent with the analysis in the Tributary Habitat EA, Section 3.2.3.2.1, which concludes that impacts to wildlife, though they may be exposed to herbicides, are unlikely to experience lethal effects because the herbicides and application rates proposed are structured to be less than known levels of toxicity; and chronic exposure over a long period of time is unlikely given the short, singular, annual seasons of application and the naturally short life-span of small animals likely to receive direct exposure.

The gray wolf is the only ESA-listed terrestrial species with suitable habitat or known occurrences in Wenas Wildlife Area. (WDFW 2015b; pers. comm. with Cindi Confer Morris [WDFW] on May 21, 2015; and Greg Van Stralen [USFWS] on June 24, 2015). Consultation on the effects of aerial herbicide treatments on gray wolves was completed with the USFWS, with a determination that project actions would not likely adversely affect the species. The relative chance of gray wolves being exposed to direct herbicide application spray or wind drift would be discountable given the low occurrence of gray wolves within the project area, the lack of denning or rendezvous sites, and the proposed project application and conservation measures (i.e., use of a helicopter and implementation of spray buffers). Wolves may be temporarily disturbed by the noise associated with the use of helicopters and may temporarily leave the area, but would return post-treatment. In addition, the potential for incidental dermal exposure or ingestion of these contaminants would be so small that it is unlikely to result in sublethal effects that rise to the level of harm. Similar effects would be expected in non-listed species.

As noted in Section 3.2.3.2.1 of the Programmatic EA, small resident mammals such as mice would likely be present when herbicide is applied and could receive direct contact; medium and large-sized mammals (such as coyotes and elk or deer) would likely flee the site before any direct contact with spray. Foraging could be disrupted and/or result in avoidance, but the disturbance would be of short duration (up to 8 hours across a 1,000-acre area) and infrequent (five to 10 days annually); therefore, would not result in changes in survivorship or reproductive success. Effects on wildlife would be moderate, which is consistent with expected impacts presented in the Programmatic EA.

3. Water Resources

The effects of aerial herbicide treatments at Wenas Wildlife Area are consistent with the analysis in the Programmatic EA in Section 3.3.2, "Water Resources." There would be no effect to water quantity, as these actions make no water withdrawals. The Programmatic EA, Section 3.3.2.3, describes overall low impacts to water quality after considering moderate short-term adverse effects and beneficial long-term effects.

Many factors affect the mobility of herbicide and the likelihood it would impair surface or groundwater quality, including the manner, amount, frequency, and timing of application, and the chemical properties of the pesticide. As described in the Programmatic EA, these are short-term effects which would be lessened by the application of mitigation measures. Appendix C of the Programmatic EA lists mitigation measures specific to aerial herbicide applications that are consistent with the measures that WDFW would take in planning and implementing herbicide treatments. No-spray buffer zones would be applied. Wind velocities for aerial chemical applications of herbicides must be six mph or less in all instances. Aerial spraying would be avoided during periods of adverse weather conditions such as snow, wind, and rain. The WDFW would limit aerial applications to 1,000 acres/year, and no more than 500 acres per 6th-field hydrologic unit code (HUC) per year. Because this is a small portion of the wildlife area, and there are few stream channels, most of the spraying would likely occur well beyond the no-spray riparian buffer zones of 100 feet, further limiting the amount of herbicides that would reach surface waters. The level of effect to water quality, given these mitigation measures, would be low, as is stated in the Programmatic EA.

4. Vegetation

The effects of applying herbicides aerially on the Wenas Wildlife Area are consistent with the analysis in the Programmatic EA, Section 3.2.3.1, which concludes that impacts to vegetation (both “target” and “non-target”) directly sprayed would likely be high, since the killing of vegetation is the purpose for the action, but application of the prescribed mitigation measures would minimize exposure of non-target species outside of any treatment area such that effects there would be low to moderate.

Much of the Wenas Wildlife Area is dominated by shrub-steppe vegetation. Present habitat conditions were influenced primarily by past agricultural practices, extensive livestock grazing, and fires. Prior to WDFW’s ownership, lands with flat topography containing decent soil types were converted to agricultural fields, as attempts were made to farm these fields with little to no irrigation. Livestock grazed the majority of the areas that were not farmed. Past range fires on all the units have created a unique mosaic of grassland and shrubland habitats that are interspersed throughout the Wenas Wildlife Area. Over the past 30 years, wildfires burned close to 75% of the Roza watershed; portions of the Roza Unit have burned more than once. As a result, much of the shrub habitat was converted to grassland. Riparian bottoms also burned multiple times and are currently recovering from fire disturbance and past livestock grazing. Following wildfire, invasive plants are likely to colonize the disturbed area before native species have a chance to reestablish, creating large monocultures that are difficult to treat due to their physical size and location. Pre-emergent herbicides would be used to prevent that early establishment of invasive plants. When needed to ensure native plant re-establishment, treated areas may be seeded to encourage native plant regrowth. Over the long term, therefore, the effects to vegetation from such actions would be the restoration, improvement, or maintenance of native plant communities, and are consistent with the Programmatic EA.

5. Wetlands and Floodplains

Much of the Wenas Wildlife Area is dominated by grassland and shrub-steppe vegetation, with low annual precipitation. Wetland areas on Wenas Wildlife Area are limited to riparian areas along creeks such as North Wenas, Dry and Umtanum Creeks. Herbicide application buffers of 100 feet would be applied to these riparian areas and as a result would also prevent herbicide applications in wetlands and floodplain areas (see Table 1).

The effects of applying herbicides aerially on the Wenas Wildlife Area are consistent with the analysis in the Programmatic EA, “Wetlands and Floodplains,” Section 3.3.4. The Programmatic EA, Section 3.3.4.3, describes that actions such as herbicide application would have no or inconsequential short-term

adverse effects, but would provide some long-term beneficial effect as non-native plant species are removed and native plant species are allowed to reestablish.

6. Geology and Soils

The effects of applying herbicides aerially on the Wenas Wildlife Area are consistent with the analysis in the Programmatic EA, “Geology and Soils,” Section 3.3.6. The Programmatic EA, Section 3.3.6.2, describes that herbicide use could affect soils adversely. Studies generally indicate that the impacts of herbicide application on soil function are only minor and temporary, but there some that suggest effects that could substantially alter soil function. These include disruptions to earthworm ecology in soils exposed to glyphosate; inhibition of soil N-cycling (including biological N₂-fixation, mineralization, and nitrification) by sulfonyleurea herbicides in alkaline or low organic matter soils; and site-specific increases in disease resulting from the application of a variety of herbicides (Rose et al 2016). Though short-term impacts to soil would be experienced, the long-term effects of these restoration actions would ultimately improve soil quality and productivity with an overall low impact.

7. Transportation

The effects of aerial herbicide treatments are consistent with the analysis in the Programmatic EA Section 3.3.7, “Transportation.” The Programmatic EA, Section 3.3.7.3, describes low impacts to transportation. These actions in the Wenas Wildlife Area would not impact any roads, either open or closed, public or private. No roads would be closed; none would be temporarily blocked; none would be relocated. This level of impact would be low, as is stated in the Programmatic EA.

8. Land Use and Recreation

There would be no effect on land use or recreation from these proposed projects. Land uses would not change; and public recreational opportunity on these private lands would not change. This level of effect is consistent with that described in the Programmatic EA at Section 3.3.8.3 which states that land use practices underlying project sites would not be changed for most projects.

9. Visual Effects

The effects of aerial herbicide treatments in the Wenas Wildlife Area are consistent with the analysis in the Programmatic EA Section 3.3.9, “Visual Resources.” The Programmatic EA, Section 3.3.9.3, describes low impacts to visual resources. The proposed aerial herbicide treatments in Wenas Wildlife Area would be predominantly in remote, roadless areas and thus, would not be visible to any other landowners and few recreators. As discussed above under “Vegetation,” there would be no large-scale soil disturbance (as was assessed for some projects in the Programmatic EA), and changes to the visual landscape would thus be temporary, limited to months or a year at most as native vegetation reclaims the treatment areas, and nearly undetectable to most viewers. This level of impact would be low, as is stated in the Programmatic EA.

10. Air Quality, Noise, and Public Health and Safety

The effects of the proposed projects in and along the spring creeks and the Pahsimeroi River are consistent with the analysis in the Programmatic EA, “Air Quality, Noise, and Public Health and Safety”,

Section 3.3.10. The Programmatic EA, Section 3.3.10.3, describes low impacts to air quality, noise, and public health and safety.

It is possible that people recreating in the Wildlife Area could be exposed to herbicides, though unlikely due to the fact that aerial treatments would be focused on remote, inaccessible areas of the Wildlife Area that cannot be reached by roads. Signage would be placed at trailheads or parking areas notifying the public of the timing of planned treatments to allow people to avoid those areas.

As noted in the Programmatic EA, Section 3.2.3.2.3, workers that handle and apply the herbicides would likely be exposed but would be protected by appropriate personal protective equipment. However, careful application of the mitigation measures would prevent or minimize exposures, and if exposure did occur, the concentration and toxicities would be low such that effects on humans would be low.

The proposed restoration actions in Wenas Wildlife Area are far from any major population center and would be predominantly in remote, roadless areas where the public would be unlikely to be recreating; thus, they would not have any potential to directly impact the public. Air quality and noise would be affected temporarily by operations and emissions from the aircraft to be used during treatments. But this is very short-term, and likely too far from any population area to be heard or seen; no long-term source of emissions or noise would be created. No action proposed has the potential to impact public safety infrastructure (e.g., roads, telecommunications) or place a burden on emergency services (police, fire, ambulance). This level of impact would be low, as is stated in the Programmatic EA.

11. Cultural Resources

Cultural resources impacts are consistent with the analysis in the Tributary Habitat EA, Section 3.2.3.2.1. Use of herbicides may have an impact on Native American traditional plant foods and medicine gathering. Native peoples are known to stop harvesting in areas where herbicides have been applied, and have expressed concerns about the impacts on health from chemical toxicity. They have also reported that medicinal plants that have been gathered from herbicide-treated areas are less effective.

In a letter dated August 8, 2020, Bonneville notified the consulting parties of the Confederated Tribes and Bands of the Yakama Nation (Yakama Nation), the Confederated Tribes of the Colville Reservation (CTCR), and the Washington Department of Archaeology and Historic Preservation (DAHP) of proposed annual operations and maintenance activities including invasive plant management by several treatment methods (e.g., herbicides).

The majority of the Wenas Wildlife Area was previously impacted by agricultural activity, heavy grazing, and an increased frequency of widespread seasonal wildfires, often caused by human activities on the property. The proposed activities would result in predictable, minimal impacts with a low likelihood of adversely affecting historic properties. DAHP concurrence on the no adverse effect determination was received on September 29, 2020 (WA 2020 109). No response was received from the Yakama Nation. CTCR stated no concern with the proposed activities.

12. Socioeconomics and Environmental Justice

The effects of these invasive plant treatments throughout the Wenas Wildlife Area are consistent with the analysis in the Programmatic EA, "Socioeconomics and Environmental Justice," Section 3.3.10. The Programmatic EA, Section 3.3.10.3, describes low impacts to socioeconomics and environmental justice. As described in the Programmatic EA, none of the herbicide treatments would generate a requirement for additional permanent employees nor would they require individuals to leave the local area, or

relocate within it. There would be no effect on housing available for local populations. These actions would not displace people or eliminate residential suitability from lands being restored, or from lands near restoration project sites. The treatments would generate short-term employment for those directly implementing the herbicide treatments and would provide small short-term cash inputs to local businesses for fuel, equipment, and meals. This degree of effect would be low. There are no environmental justice populations present that could be affected, as these projects and their impacts are limited to the public lands on which they are located, and no offsite effects are anticipated that could impact such populations elsewhere.

13. Climate Change

The effects of these invasive plant treatments throughout the Wenas Wildlife Area are consistent with the analysis in the Programmatic EA Section 3.3.10, "Climate Change." The Programmatic EA, Section 3.3.10.3, describes low impacts to climate change. The projects would have a low level of effect on climate change from short-term emissions from aircraft operations during implementation of the herbicide treatments, but these would be offset to some degree by the ameliorating effects of vegetation regrowth by native species following treatments, increased carbon sequestration in expanded and improved riparian wetlands, and decreased water temperatures from improved instream and riparian habitat conditions. The overall effects on climate change would be low, which is consistent with the Programmatic EA.

Findings

Bonneville finds that the types of actions and the potential impacts related to the proposed Wenas Wildlife Area Aerial Herbicide Application have been examined, reviewed, and consulted upon and are similar to those analyzed in the Columbia River Basin Tributary Habitat Restoration EA (DOE/EA-2126) and Finding of No Significant Impact. There are no substantial changes in the EA's Proposed Action and no significant new circumstances or information relevant to environmental concerns bearing on the EA's Proposed Action or its impacts within the meaning of 10 CFR § 1021.314(c)(1) and 40 CFR §1502.9(d). Therefore, no further NEPA analysis or documentation is required.

/s/ Carolyn Sharp

Carolyn Sharp
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Concur:

/s/ Sarah T. Biegel

Sarah T. Biegel
NEPA Compliance Officer

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