

Environmental Assessment
Tenmile Subdivision WUI Mechanical/Chemical Treatments
DOI-BLM-R010-2009-EA-0051

BLM Office: Worland Field Office

Proposed Action Title / Type: Tenmile Subdivision WUI Mechanical/Chemical Treatment

Location: T48N, R92 & 93W, Sections various; Worland 7.5 min Quad; Foothills-Sagebrush Fire Management Unit.

RIPS-007759

1.0 PURPOSE and NEED for ACTION

1.1 Description of Proposed Action

The Worland, Wyoming Bureau of Land Management Office proposes to treat mechanically and chemically invasive Russian olive (*Elaeagnus angustifolia* L.) on public land adjacent to the Tenmile Subdivision in the Worland, Wyoming area.

1.2 Purpose and Need for Action

The area proposed for treatment is a mix of ecological sites with a dense over-story of Russian olive (*Elaeagnus angustifolia* L.), a Washakie County, Wyoming designated noxious weed, and both lanceleaf (*Populus ×acuminata* Rydb. (pro sp.) [angustifolia × deltoides]) and Plains cottonwood (*Populus deltoides* Bartr. ex Marsh. ssp. *monilifera* (Ait.) Eckenwalder). It is adjacent to a housing subdivision containing numerous homes, outbuildings, and sheds. The canopy cover and ladder fuel load of the area poses a fire risk to the subdivision. This area also harbors multiple weed taxa. The Hanover Canal passes through the public land of this parcel six months per year creating an extensive seed distribution system. Both woody and non-woody noxious weeds are treated through cooperative agreement with the Washakie County Weed and Pest District, but the Russian olives require more time consuming and expensive initial treatment. To reduce fire risk and make weed treatments more efficient, standing shrubs and trees must be cut or masticated to the ground level, have the stumps treated chemically, and then be monitored and retreated periodically to prevent sprouting.

1.3 Decisions to be Made

The Authorized Officer must determine whether to treat the area. The Authorized Officer could decide to not treat if treatment would cause unnecessary or undue degradation to the public lands, or if it would threaten another Federal law.

The Authorized Officer must determine whether the proposed action could result in significant impact to the human environment. If not, this determination would be documented in a Finding of No Significant Impact (FONSI). If the impacts could be significant, an environmental impact statement would be necessary.

1.4 Relationship to Statutes, Regulations, or other Plans

The following provides a description of the authorities that apply to the *Proposed Action*. This is not an all-inclusive list of statutes, limitations, and guidelines, but is a representative list of the types of laws and policy that guide the management of the public land. All laws, regulations, and policies, including BLM manuals, handbooks and internal memoranda, would be followed unless otherwise stated.

The National Environmental Policy Act (1969)

This act requires the preparation of Environmental Impact Statements (EIS) for federal projects that may have a significant effect on the environment and systematic, interdisciplinary planning to ensure the integrated use of natural and social sciences and environmental design arts in making decisions about major federal actions that may have a significant effect on the environment

Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement, Record of Decision (BLM, 2007)

The Record of Decision approved the use of 18 herbicide active ingredients and a scientific protocol to guide the analytical methodology for consideration of the use or non-use of herbicides by the BLM

Vegetation Treatments in 17 Western States, Programmatic Report (BLM, 2007)

This document addresses the general effects on the environment of using non-herbicide treatment methods, including mechanical, manual, and biological control methods.

Federal Land Policy and Management Act (1976)

Directs the BLM to “take any action necessary to prevent unnecessary and undue degradation of public land”

Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for the Public Lands Administered by the Bureau of Land Management in the State of Wyoming (1997)

The objectives of the rangeland health regulations are to promote healthy sustainable rangeland ecosystems; accelerate restoration and improvement of public rangelands to properly functioning conditions; and provide for the sustainability of the western livestock industry and communities that are dependent upon productive, healthy public rangelands.

Carlson-Foley Act (1968)

Directs federal agency heads to destroy noxious plants growing on public land managed by public agencies.

Federal Noxious Weed Act (1974), as amended by Sec. 15, Management of Undesirable Plants on Federal Lands, 1990

Congress amended the Federal Noxious Weed Act of 1974 and this amendment was signed into law November 28, 1990. This Act requires that each Federal Agency designate a lead office and person trained in the management of undesirable plants; establish and fund an undesirable plant management program; complete and implement cooperative agreements with State Agencies; and establish integrated management systems to control undesirable plant species.

Executive Order 13112, Invasive Species (1999)

This order directs federal agencies to prevent the introduction of invasive species and provide for their control, and to minimize the economic, ecological, and human health impacts that invasive species cause.

Public Rangelands Improvement Act (1978)

Requires the BLM to manage, maintain, and improve the condition of the public rangelands so that they become as productive as feasible.

Clean Air Act (1990), as amended (42 U.S.C. 7401, 7642), requires BLM to protect air quality, maintain federal- and state-designated air quality standards, and abide by the requirements of the State Implementation Plans.

Wyoming Air Quality Standards and Regulations specify the requirements for air permitting and monitoring to implement Clean Air Act and state ambient air quality standards.

WY010-EA04-34, Worland and Cody Field Office BLM-Management Plan for Invasive Weeds in the Bighorn Basin of Wyoming, 2004

1.5 Conformance with land use plan

As required by 43 CFR 1610.5, this plan was reviewed and found to conform to the Record of Decision and Approved Resource Management Plan for the Grass Creek Planning Area, 1996.

1.6 Scoping and Issues Identification

A public meeting was held on April 25, 2008 and all landowners in the proposed project area were invited by letter to attend. Public announcement of the proposed action will be made in local newspapers in Wyoming and Montana and the proposed treatment description will be accessible on the Worland Bureau of Land Management NEPA web site at the following address:

<http://www.blm.gov/wy/st/en/info/NEPA/wfodocs.html>

1.7 Project Area Description

The proposed treatment area is in Washakie County, Wyoming approximately 5 air miles northwest of the city of Worland (see map). It is a riparian area circumscribed by the Big Horn Canal with Tenmile Creek flowing through it from the northwest to the southeast. The potential project site is located in the Northern Intermountain Desertic Basins Major Land Resource Area (MLRA) and includes Lowland, Sub-irrigated Saline, Saline upland, and Loamy sites (see Appendix A). There are irrigation district access roads on the inside of the Big Horn Canal, BLM access roads to the north and west, and a livestock grazing allotment on its west side.

2.0 Proposed Action and Alternatives

2.1 Alternative Development Process

In developing the range of alternatives, a team consisting of the Bureau of Land Management's rangeland management and fuels specialists and engineer canvassed and assessed the area taking notes on percent native versus nonnative plants and overall plant community composition. GIS databases and observation records were consulted to determine the presence and use patterns of animal taxa. No threatened, endangered, or sensitive plant taxa are located within the proposed project area. Alternatives to chemical treatment were discussed and debated.

2.2 Alternatives Considered but not Analyzed in Detail

2.2.1 Prescription Fire Treatment

Prescription fire treatment in spring or early winter

Prescription fire in this area would be hazardous, putting the adjacent subdivision at risk from fire and smoke damage. Russian olive is highly flammable in dense stands with ladder fuels as are present in portions of the proposed treatment area. Burning Russian olive may only kill aboveground portions of the plant, leaving the root crown intact and able to produce vigorous sprouts. Observational evidence indicates that Russian olive is top-killed by prescribed fire but generally does not top-kill trees greater than 2-inch DBH. Other observations suggest that Russian olive found in mixed-species stands often become monospecific stands *via* vigorous root and stump sprouting following fire. Prescription fire would not eliminate the weed taxa that are present within the understory and would promote expansion of some, such as cheat grass (*Bromus tectorum* L.) and Canada thistle (*Cirsium arvense* (L.) Scop.). Cottonwoods, found dispersed within the area, are easily fire killed.

2.2.2 Mechanical Treatment Alone

Mechanical treatment of cutting or masticating trees to the ground level

Russian olive sprouts vigorously from cut stumps and roots following canopy disturbance. Sprouts can grow up to three foot per year following disturbance and have a glut of spines growing from them. Cutting without a subsequent chemical treatment would probably result in a dense canopy of sprouts that would either act as ladder fuel or remain a fire hazard, closer to the ground, and not serve as thermal cover for deer or as passerine nesting/perching sites.

2.3 Description of Proposed Action and Alternatives

2.3.1 Alternative 1– Gaps would be created in the Russian olive canopy. This action would reduce fire risk, by reducing ladder fuels and fuel load, maintain thermal cover for mule deer, leave adequate roosting/nesting areas for passerines, pheasants, and raptors, and provide easier access for Washakie County Weed and Pest to treat chemically other weeds growing in the area. This action would be accomplished by either cutting flush or masticating to the soil surface all Russian olive trees less than 12 inches diameter at breast height (dbh). Trees with dbh > 12 inches would be limbed up to a height of no less than four feet. Tree cutting and limbing would be with either hand or chainsaw and mastication with a shredder mounted on a rubber tired vehicle. Slash from tree cutting and limbing would be piled. These piles would be available for the public to take as firewood. If piles were left onsite for more than two years, they would be burned when snow is on the ground. Stumps would be sprayed immediately following cutting or mastication with 0.5% Habitat® (Label and MSDS Appendix B) mixed in water using a backpack sprayer. Habitat® is an herbicide approved for aquatic use that can be sprayed up to standing or flowing water edge (see Table 1). Herbicide treatments would be applied using Best Management Practices (Appendix C), recorded and documentation of applications maintained for 10 years by the Worland Field Office. Maintenance of the sprayed stumps would occur yearly, indefinitely.

--Proposed Action

Table 1 Properties of Habitat® (imazapyr)

Herbicide	Brand Name	Target weed species	Grazing Restriction
Imazapyr	Habitat®	Perennial grasses, broadleaf, vines, brambles, brush, woody stumps	None

2.3.2 Alternative 2 – No action

No mechanical or herbicide treatment would occur.

2.4 Comparison of Alternatives

Alternative	Effect
1	Russian olive density, fire risk, and weed presence will be maintained or decrease.
2	Russian olive density, fire risk, and weed presence will be maintained or increase.

3.0 Affected Environment

Resources and features not present, and not discussed in this EA, include Class I airsheds, prime or unique farmlands, hazardous or solid waste, Class I visual management areas, wild and scenic rivers, and wilderness. There are no known land uses, or proposals for use, that occur in the area, such as mineral extraction, that would be affected by or have the potential for cumulative impact with this proposed treatment. There are no issues pertaining to Environmental Justice for this area.

3.1 Location and Land Ownership

The proposed project area is in various sections of T48N R92W approximately 5 air miles northwest of the city of Worland, Wyoming. The area is 100% BLM managed land with private property north, east, and south of the treatment area.

3.2 Climate and Air Quality

Climate data collected for Worland, Wyoming is presented in Table 2.

Table 2 Climate data Worland, Wyoming

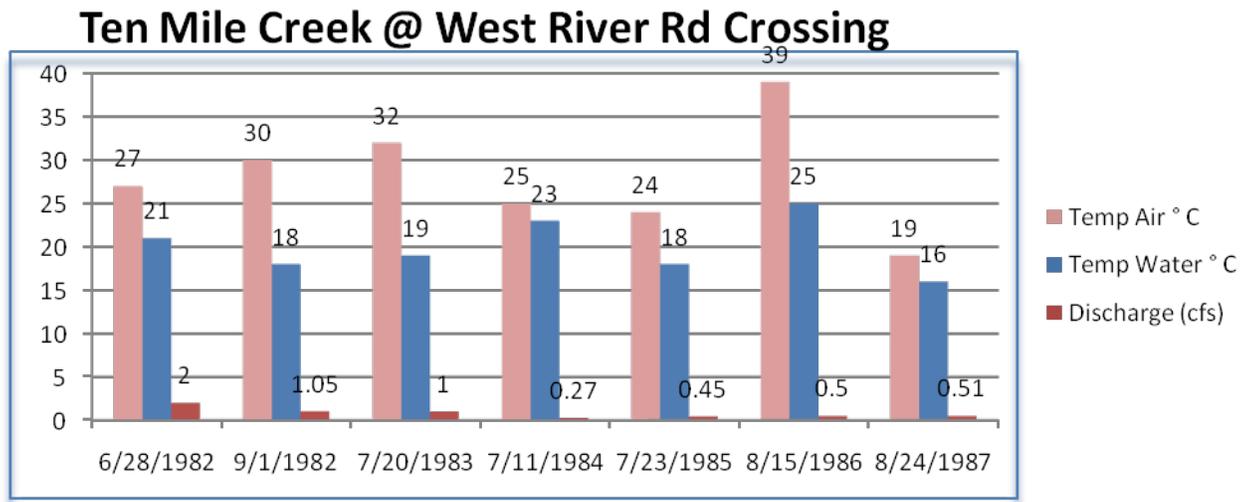
Town	Mean Annual High Temperature (°F)	Mean Annual Low Temperature (°F)	Mean Annual Precipitation Rain (Inches)	Mean Annual Precipitation Snow (Inches)
Worland	59.7	29.5	7.71	16.2

Areas of the country where air pollution levels persistently exceed the national ambient air quality standards may be designated nonattainment. According to the Wyoming Department of Environmental Quality, there are no nonattainment areas in the Bighorn Basin.

3.3 Water Quality

There is six years of BLM water quality data for Tenmile creek from 1982 through 1987. The collection site (BLM site ID #TEN-01) is located at the Tenmile Creek crossing of West River Road. There were seven grab samples collected yearly during the summer months of July or August. Other observations, such as discharge, air, and water temperatures, were either measured or estimated to correlate with the water quality data. These data represent base flow provided by seepage from the Bighorn Canal. During the non-irrigation months, the lower section of Tenmile creek in the proposed project area receives additional flow from runoff of snowmelt and other precipitation events. Table 3 shows baseline data for water flow and air and water temperatures and their correlation along this stream segment.

Table 3. Water Quality Data for Tenmile Creek



3.4 Wetlands

The proposed treatment area is located adjacent to the Bighorn Canal and has a portion of Tenmile Creek running through it from the northwest to the southeast. The National Wetland Inventory (NWI) reports that the wetlands present in this area are freshwater forest/shrub type.

The BLM field assessment of this riparian area indicates that Russian olive is common. Cottonwood trees are found interspersed with them and there is little cottonwood regeneration. Common herbaceous vegetation noted in the assessment includes horsetail (*Equisetum arvense* L.) and several species of sedges (*Carex spp.*) and cattails (*Juncus spp.*).

3.5 Soils, Vegetation, Forage, and Grazing

3.5.1 Soils

Most of the treatment area has been influenced from water seeping from the canal that in turn has had a profound effect on soil properties. Four soils typify the wetter portion treatment area; the Baroid sandy loam series, the Las Animas Variant sandy loam, the wet phase of the Lostwells clay loam, and the Youngston silty clay loam series. All four soils are characterized by a seasonal water table that is within three to five feet of the surface. The underlying soil material consists of stratified layers of sandy loam, fine sandy loam, sandy clay loam, and silt loam. Though the present plant community is dominated by Russian olive, these soils are capable of supporting two distinct ecological sites: Saline Sub Irrigated R032XY142WY, and Lowland, R032XY128WY (see Appendix A).

Those portions of the treatment area up gradient from the canal, or situated slightly higher on the landscape, are typified by the Lostwells sandy loam, Persayo clay loam, and Youngston silty clay loam soil series. These are shallow to deep soils with a seasonal water table that is greater than 6 feet below the surface. The underlying soil material consists of stratified layers of sandy loam, fine sandy loam, sandy clay loam, and silt loam. These soils support two upland ecological sites: Loamy R032XY122WY and Saline Upland R032XY144WY (See Appendix A).

3.5.2 Vegetation

The vegetative community of the proposed project areas is lanceleaf Cottonwood (*Populus* × *acuminata* Rydb. (pro sp.) [*angustifolia* × *deltoides*]) and Plains cottonwood gallery with associated grasses, forbs, and shrubs that transcends into Basin big sagebrush (*Artemisia tridentata* Nutt. ssp. *tridentata*) rangeland with associated grasses and forbs. A list of grass, forb, shrub, and tree taxa and invasive and noxious weeds identified to occur on the proposed project area is found in Appendix C.

3.5.2.1 Threatened and Endangered Plant Taxa

There are no threatened, endangered, or sensitive plant taxa on BLM lands within the area proposed for treatment.

3.5.3 Forage

Native plants available for wildlife include both browse and graze taxa. The proposed project area is deficit in quality browse and graze because of the invasive weeds that have established on it.

3.5.4 Grazing

The proposed treatment area is part of the Tenmile Allotment (#00671) and permits livestock grazing as follows:

Table 5. Authorized grazing

Livestock	Permitted Grazing Timeframe	Percent Public Land	Federal AUMs
1530 sheep	11/16 to 02/28	98	1035
1530 sheep	03/01 to 04/30	98	601

This allotment is on actual use billing. In the past eight years, in which two years were nonuse due to drought, the allotment has been grazed with an average of 1200 sheep from mid-December to mid-March with an average of 640 AUMs used.

3.6 Wildlife

The proposed treatment area provides habitat for numerous wildlife species seasonally and, for some, yearlong. These species inhabit the riparian tracts seeking forage and/or cover. Many passerines and raptors use the cottonwood and Russian olive stands for nesting and foraging habitat, while species like the mule and white-tailed deer depend more on the shrub and forb communities in the understory. Because of the proximity to the Hanover canal, this area is sub-irrigated and is able to sustain a productive vegetative community with a diversity of wildlife.

The proposed treatment area is not mapped as crucial winter range for mule deer, but it does provide winter and/or yearlong range for both mule and/or white-tailed deer. Other mammalian species common to this area are desert cottontail, coyote, porcupine, red fox, raccoon, bobcat, and badger. Numerous passerines and other small mammals also inhabit these vegetative communities. Raptor species that may occur in or around the project area include sharp-shinned hawk, Cooper's hawk, Swainson's hawk, red-tailed hawk, and the occasional bald eagle. There is an active bald eagle nest approximately 1.75 miles southeast of the project area.

The number of avian species inhabiting the treatment area is expected to be greatest during spring and fall migration periods. Several species are likely to spend the winter in the project area after moving from higher elevations in the mountains or more northern latitudes.

3.7 Invasive, non-native species

Canada thistle, Russian knapweed, and Russian olive are designated noxious weeds known to occur in the proposed project area, as are numerous invasive, non-native species (see Appendix B). The Bureau of Land Management has a mandate for their reduction or removal from the public land in the Tenmile Creek area by the Carlson-Foley Act (1968); Federal Noxious Weed Act (1974), as amended by Sec. 15; Management of Undesirable Plants on Federal Lands, 1990; and Executive Order 13112, Invasive Species (1999). Further, reduction and removal of these taxa over a period of a decade will enhance greatly the forage and browse potential for wildlife and livestock.

4.0. Environmental Consequences

4.1 Mandatory Critical Elements

	ALTERNATIVE 1 PROPOSED ACTION	ALTERNATIVE 2
Air Quality	See Section 4.2.1	See Section 4.2.2
Areas of Critical Environmental Concern	Not present	Not present
Cultural Resources	Not present	Not present
Prime or Unique Farmlands	Not present	Not present
Flood Plains	Not present	Not present
Native American Religious Concerns	Not present	Not present
Hazardous Wastes	Not present	Not present
Water Quality	See Section 4.3.1	See Section 4.3.2
Wetlands/Riparian Zones	See Section 4.4.1	See Section 4.4.2
Wild and Scenic Rivers	Not present	Not present
Wilderness	Not present	Not present
Environmental Justice	No effect	No effect
Invasive, Non-Native Species	See Section 4.7.1	See Section 4.7.2
Threatened or Endangered Species	No effect	No effect

4.2 Air Quality

4.2.1 Alternative 1

During Habitat® application, air quality would be affected in that some herbicide sprayed onto vegetation will evaporate and some drift is inevitable. Drift would be kept to a minimum by adjusting droplet size at the nozzles of spray equipment.

4.2.2 Alternative 2

There would be no effect.

4.3 Water Quality

4.3.1 Alternative 1

Canopy cover from Russian olive and cottonwood trees along the riparian corridor provides shade to the stream and regulates water temperature. The proposed treatment will potentially cause an increase in stream temperature from the loss of canopy. Potential increases in sediment input into the stream from equipment and surface disturbance can also affect the water quality by increasing the turbidity, stream temperature, and bacteria load, such as *E.coli* and fecal coliform.

Only Habitat® would be used on stumps up to water edge. Habitat® would be applied by backpack or truck mounted hand wand, and this would result in minimal risk to contamination of surface water. Leaching of Habitat® through soil is not a significant process, such as on canal faces. Mitigation measures (Section 6.0) and Best Management Practices (Appendix D) would serve to reduce the potential for possible adverse effects to aquatic organisms. The behavior in water of Habitat® is presented in Table 6.

Table 6. Herbicide behavior in water (Vencill 2002 and Gosselin et al. 1984)

HERBICIDE	Solubility mg/L	Average Half-Life
Habitat	11,272 (pH 7)	2 days

4.3.2 Alternative 2

There would be no effect.

4.3 Wetlands

4.4.1 Alternative 1

Native plant taxa would be affected by herbicide application, and may have decreased productivity for up to a year following treatment. Use of aquatic formulations of herbicides would negate negative impacts on macro- and micro-invertebrates. Decrease in density and distribution of Russian olive near the wetlands may provide for longer ground water retention and decreased flammability of the sedges and cattails in the wetlands.

4.4.2 Alternative 2

Without chemical treatment, Russian olive would increase density and distribution.

4.5 Soils, Vegetation, Forage, and Grazing

4.5.1 Soils

4.5.1.1 Alternative 1

The combination of groundwater within five feet of the surface and the proximity to both the canal and Tenmile Creek poses limitations on chemical selection and application. Though soil textures vary over the treatment area, the chemical will not bind as tightly to the coarse textured sandier soils. No direct impacts to the soil resource are anticipated, post treatment runoff and erosion should be nonexistent or minimal, and soil compaction is not anticipated.

Habitat® behavior in soil, obtained in the laboratory, is listed in Table 7. Chemicals with long half-lives and low mobility have the longest residence time in soil. Long residence times equate to longer time of plant kill.

Table 7. Herbicide behavior in soil (Vencill 2002)

HERBICIDE	AVERAGE SOIL HALF-LIFE (days)	Potential for Surface Runoff	Potential for Leaching
Habitat	25-141*	Low	Low

*May persist significantly longer depending upon soil type, low soil moisture, and rainfall.

4.5.1.2 Alternative 2

There would be no effect.

4.5.2 Vegetation

4.5.2.1 Alternative 1

Russian olive density would be diminished. Some cut or masticated stumps would not sprout and others would stump or root sprout, but not as vigorously as stumps that are cut but do not receive herbicide treatment. Herbaceous vegetation that is Habitat® sprayed or subject to drift would have decreases in productivity for days to months following treatment.

4.5.2.2 Alternative 2

Russian olive density and distribution would be maintained or increase. Herbaceous vegetation density and distribution would be maintained or decrease.

4.5.3 Forage

4.5.3.1 Alternative 1

Both Russian olive and non-target plants would have decreases in productivity for days to months following herbicide treatment: Russian olive from direct herbicide exposure and non-target plants from inevitable drift. Forage available for wildlife and livestock would increase as Russian olive productivity decreased and non-target plant productivity increased over time.

4.5.3.2 Alternative 2

Forage and browse would decrease while Russian olive density and distribution would be maintained or increase.

4.5.4 Grazing

4.5.4.1 Alternative 1

Grazing would be improved over years as Russian olive productivity decreased and non-target plant productivity increased.

4.5.4.2 Alternative 2

Grazing would be either maintained or decrease as Russian olive increased in density and distribution.

4.6 Wildlife

4.6.1 Alternative 1

Some wildlife, particularly mule and white-tailed deer, will likely be displaced away from the proposed treatment areas during project implementation then return once human presence is gone. Because of the timing and short duration of treatments being proposed under both alternatives, some disturbance to nesting passerines and/or raptors is anticipated but is not expected to negatively impact foraging or nesting behaviors. Because the proposed action calls for limited Russian olive removal, the treatment will result in an open-air understory beneath the cottonwood and Russian olive canopy. This will still provide for cover values while enhancing the foraging habitat for most native breeding passerines that are accustomed to an open understory of the native cottonwood galleries.

For long-term impacts, most wildlife species inhabiting the proposed treatment area are expected to benefit from the opening up of the understory and protection from potential wildfire.

The direct, indirect, and cumulative impacts to animals, including insects, from Habitat® application is expected to be negligible. Since Habitat® does not bioaccumulate and degrades through microbe metabolism in soil and photodegradation in water, the cumulative effects of the proposed use of herbicides would be insignificant. In addition, Habitat® kills plants by a mode of action that is unique to plants, and the toxic effects to animals, especially for dilute solutions, is relatively low or negligible.

Table 8. Herbicide toxicity and [EPA toxicity category] for Habitat® (imazapyr) (Vencill 2002)

HERBICIDE	Oral LD50 Mammals (Rat model) mg/kg	LD50 Birds (BW- bobwhite quail, M- Mallard duck) mg/kg	LC50 Fish (B-Bluegill sunfish, S-Atlantic salmon) mg/kg	Dermal LD50 Mammals (Rabbit) mg/kg
Habitat	>5,000 [slight]	>2,150 (BW, M) [low]	>100 (B) [moderate]	>2,000

The proposed use of herbicides is not expected to affect the habitat of animals. As previously discussed, the invasion of weeds into native habitats has the potential to seriously degrade them and make them unsuitable for wildlife, including threatened, endangered, sensitive, and proposed animals.

Some wildlife will be temporarily displaced from treatment areas during implementation. Because of the timing and short duration of treatments being proposed, some disturbance to nesting passerines and/or raptors is anticipated but is not expected to negatively impact foraging or nesting behaviors.

For long-term impacts, most wildlife species inhabiting the proposed project area are expected to benefit from the removal of invasive non-native vegetation and the return to predominantly native vegetation.

There are no threatened, endangered, proposed, or sensitive fish species in the Big Horn River.

4.6.2 Alternative 2

Habitat quality would be reduced for all animal species in the proposed project area.

4.7 Invasive non-native species

4.7.1 Alternative 1

Noxious and other invasive non-native plant taxa would be reduced or eliminated over a period of a decade or more. Browse and graze for wildlife and livestock would increase, and thermal cover and nesting habitat would be maintained or increase over time.

4.7.2 Alternative 2

Noxious and other invasive non-native plant taxa density would be the same or increase over a period of a decade or more. Browse and graze for wildlife and livestock would decrease, and thermal cover and nesting habitat would be maintained over time.

5.0 Cumulative Impacts

Cumulative effects of the proposed treatments would be evident over time, from months to years after completion. The following table shows the cumulative impacts on the proposed treatment area that were considered in this NEPA analysis:

Alternative	Direct Effects	Indirect Effects	Cumulative Effects
1	Maintenance or decrease in Russian olive and other weed density and distribution from the present. Fire risk would be maintained or decrease.	Non-target, native plants would be decreased following herbicide applications. Graze and browse for wildlife would be decreased for weeks to months following treatment. Consumptive and non-consumptive wildlife use would decrease during treatment application, then increase. Tenmile Creek flow might remain the same, increase, or decrease.	Decreased Russian olive and weed density and distribution with increased native plant density and distribution would be seen over time. If weather patterns change to hotter, drier summers or have decreased runoff from snow pack and distribution, less water use by Russian olive would translate to less loss of stream flow and sub-irrigation of riparian vegetation.
2	Maintenance or an increase in Russian olive and other weed density and distribution from the present. Fire risk would be maintained or increase.	Invasive weed distribution and density would increase resulting in decreases of native plants. Graze and browse for wildlife would be decreased resulting in less use by wildlife. Consumptive and non-consumptive wildlife use would decrease during treatment application, then either remain the same, increase, or decrease depending upon graze and browse availability. Tenmile Creek flow might remain the same, increase, or decrease.	Increased weed density and distribution with decreased native plant density and distribution or extirpated native plants. Graze and browse for wildlife would be decreased or extirpated. Wildlife numbers would be decreased or extirpated. If weather patterns change to hotter, drier summers or have decreased runoff from snow pack and distribution, maintained or increased water use by Russian olive would translate to a greater loss of stream flow and sub-irrigation of riparian vegetation.

6.0 Mitigation

The application of pesticides is tightly controlled by state and federal agencies. The Bureau of Land Management is required to follow all state and federal laws and regulations applicable to the application of herbicides. The following mitigation measures would be followed when applying herbicides:

Habitat® would not be directly applied to water.

Applicators would be required to wear (PPE) as required on the Habitat® label.

Habitat® would be secured (lock and key) at all times.

Habitat® would be transported according to safety requirements.

7.0 Consultation and Coordination

7.1 Preparer

Eve Warren, PhD, Natural Resource Specialist, Bureau of Land Management

7.2 Persons and Agencies Consulted

The following persons and their associated agencies were consulted:

Mike Bies, Cultural Resource Specialist, Bureau of Land Management

Jared Dalebout, Hydrologist, Bureau of Land Management

Mary Flanderka, Wyoming Game and Fish

Karen Hepp, Rangeland Management Specialist, Bureau of Land Management

Steve Kiracofe, Soil Scientist, Bureau of Land Management

Teryl Shryack, Rangeland Management Specialist, Bureau of Land Management

Tim Stephens, Wildlife Biologist, Bureau of Land Management

Jim Wolf, Fuels Management Specialist, Bureau of Land Management

Literature Cited

Gosselin, R. E., Smith, R. P. and Hodge, H. C. 1984. Clinical Toxicology of Commercial Products, Fifth Edition. Williams and Wilkins, Baltimore, MD. 2012 pp.

Vencill, W.K. 2002. Herbicide Handbook, Eighth Edition. Weed Science Society of America, Lawrence, Kansas. 493 pp.

Appendix A. Major Land Resource Area and Ecological Site Descriptions of the Proposed Project Area available at the following websites:

http://esis.sc.egov.usda.gov/esis_report/fsReport.aspx?id=R032XY122WY&rptLevel=all&approved=yes

http://esis.sc.egov.usda.gov/esis_report/fsReport.aspx?id=R032XY128WY&rptLevel=all&approved=yes

http://esis.sc.egov.usda.gov/esis_report/fsReport.aspx?id=R032XY142WY&rptLevel=all&approved=yes

http://esis.sc.egov.usda.gov/esis_report/fsReport.aspx?id=R032XY144WY&rptLevel=all&approved=yes

Appendix B. Habitat® Label available at the following websites:

http://aquat1.ifas.ufl.edu/guide/habitat_label.pdf

Habitat® Material Safety Data Sheet (MSDS) available at:

http://aquat1.ifas.ufl.edu/guide/habitat_msds.pdf

Appendix C. Best Management Practices

Pre-spray Best Management Practices

Comprehensive project files will be maintained.

Herbicides will only be used when they provide the most effective control relative to cost and do not present unacceptable environmental or safety risk.

Herbicides will be selected based on their ability to provide the most effective control and least cost.

Applicators will be required to read and understand the label and Material Data Safety Sheet for all herbicides being used.

The lowest effective herbicide/insecticide rate will be used.

Treatment sites will be checked both pre- and post-treatment by qualified personnel to ensure they are not occupied by threatened, endangered, or sensitive species.

Herbicide Spraying Best Management Practices

Individuals spraying herbicides will receive safety and application training prior to doing any treatment.

Spraying will not be done when the average wind speed exceeds 6 miles per hour or as indicated on the label.

Applications will not be done when there is a threat of rain or snow.

Treatment areas will be posted with information signs to inform the public and the permittee will be notified that herbicides are being used and the date of application.

Mixing of herbicides will not be done near water, recreation sites, residences, or areas frequented by the public.

Daily treatment records will be kept.

Applicators will use appropriate PPE.

Herbicide post-spray Best Management Practices

Treatment areas will be checked at least twice annually to assess efficacy.

Application records will be maintained in the project file, by year.

Managerial oversight will be done annually to ensure compliance with all requirements.

Appendix D. Plant Taxa and Weeds Identified to Occur in the Tenmile Creek Area

alkali sacaton (*Sporobolus airoides* (Torr.) Torr.)
annual wheatgrass (*Eremopyrum triticeum* (Gaertn.) Nevski)
barnyard grass (*Echinochloa crus-galli* (L.) Beauv.)
Basin big sagebrush (*Artemisia tridentata* Nutt. ssp. *tridentata*)
blue lettuce (*Lactuca tatarica* (L.) C.A. Mey. var. *pulchella* (Pursh) Breitung)
broadleaf cattail (*Typha latifolia* L.)
broom snakeweed (*Gutierrezia sarothrae* (Pursh) Britt. & Rusby)
climbing nightshade (*Solanum dulcamara* L.)
garden asparagus (*Asparagus officinalis* L.)
Geyer's willow (*Salix geyeriana* Anderss.)
giant sumpweed (*Cyclachaena xanthifolia* (Nutt.) Fresen.)
inland salt grass (*Distichlis spicata* (L.) Greene)
lanceleaf cottonwood (*Populus angustifolia* James)
maiden blue eyed Mary (*Collinsia parviflora* Lindl.)
Nebraska sedge (*Carex nebrascensis* Dewey)
northern bedstraw (*Galium boreale* L.)
orchard grass (*Dactylis glomerata* L.)
Plains cottonwood (*Populus deltoides* Bartr. ex Marsh. ssp. *monilifera* (Ait.) Eckenwalder)
Rubber rabbitbrush (*Ericameria nauseosa* (Pallas ex Pursh) Nesom & Baird ssp. *nauseosa* var. *nauseosa*)
russet buffaloberry (*Shepherdia canadensis* (L.) Nutt.)
Sandberg bluegrass (*Poa secunda* J. Presl.)
showy milkweed (*Asclepias speciosa* Torr.)
silverberry (*Elaeagnus commutata* Bernh. ex Rydb.)
silver buffaloberry (*Shepherdia argentea* (Pursh) Nutt.)
six weeks fescue (*Vulpia octoflora* (Walt.) Rydb.)
smooth brome (*Bromus inermis* Leyss. ssp. *inermis*)
streambank wheatgrass (*Elymus lanceolatus* (Scribn. & J.G. Sm.) Gould ssp. *lanceolatus*)
veiny dock (*Rumex venosus* Pursh)
western white clematis (*Clematis ligusticifolia* Nutt.)
Wood's rose (*Rosa woodsii* Lindl. var. *ultramontana* (S. Wats.) Jepson)

Weeds (*Noxious weed)

alkali swainsonpea (*Sphaerophysa salsula* (Pallas) DC.)
American licorice (*Glycyrrhiza lepidota* Pursh)
annual ragweed (*Ambrosia artemisiifolia* L.)
burningbush (aka kochia) (*Bassia scoparia* (L.) A.J. Scott)
Canada thistle (*Cirsium arvense* L.)
Canadian horseweed (*Conyza canadensis* (L.) Cronq.)
cheatgrass (*Bromus tectorum* L.)
crossflower (*Chorispora tenella* (Pallas) DC.)
curlycup gumweed (*Grindelia squarrosa* (Pursh) Dunal var. *quasiperennis* Lunell)
Japanese brome (*Bromus japonicus* Thunb. ex Murr.)
prickly Russian thistle (*Salsola tragus* L.)
rough cocklebur (*Xanthium strumarium* L.)
Russian knapweed (*Acroptilon repens* (L.) DC.)
Russian olive (*Elaeagnus angustifolia* L.)
saltlover (aka halogeton) (*Halogeton glomeratus* (Bieb.) C.A. Mey.)

Administrative Review or Appeal Opportunities

Any party who is adversely affected by this decision has a right to appeal to the Interior Board of Land Appeals, in accordance with the provisions described in 43 CFR Part 4.410. A person who wishes to appeal must file notice with the Field Manager, Bureau of Land Management, Worland Field Office, 101 S 23rd Street, Worland, WY 82401, within fifteen (15) days of publication of the decision. The notice of appeal must identify the decision being appealed, and may include a statement of reasons for and any argument the appellant wishes to make. If the notice does not include any statement of reasons for the appeal, the appellant shall file such a statement with the Interior Board of Land Appeals, Office of Hearings and Appeals, 4015 Wilson Boulevard, Arlington, Virginia 22203, within 30 days after the notice of appeal was filed. The appellant shall serve a copy of the notice of appeal and any statement of reasons and arguments to the Regional Solicitor, Rocky Mountain Region, U.S. Department of the Interior, P.O. Box 25007 D-105, Denver Federal Center, Denver, CO 80225 no later than 15 days after filing the document. Service of the copy may be made by delivering the copy personally or by sending it by registered or certified mail, return receipt requested.

Within 30 days of filing the *Notice of Appeal* a complete statement of the reasons why you are appealing must be filed with the United States Department of the Interior, Office of the Secretary, Board of Land Appeals, 4015 Wilson Blvd., Arlington Virginia 22203. No additional statement is needed, if you fully stated reasons for appealing the decision when filing the *Notice of Appeal*. A copy of the statement of reasons must also be filed with the Office of the Solicitor at the above address.

Request for Stay:

If you wish to file a petition (pursuant to regulation 43 CFR 4.21) for a stay (suspension) of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your *Notice of Appeal*. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the *Notice of Appeal* and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed with this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Contact Person

For additional information concerning this decision, contact Andrew Tkach, Planning and Environmental Coordinator, Bureau of Land Management, Worland Field Office, 101 S 23rd Street, Worland, WY 82401, 307-347-5251.