



ADOT Herbicide Treatment Program on Bureau of Land Management Lands in Arizona

Pesticide Use Proposal (PUP)
Mitigation Measures

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APPENDIX A – BLM Approved Herbicides and Adjuvants (BLM PEIS 2007)

APPENDIX B – BLM Approved Herbicide Formulations as of May 14, 2014

APPENDIX C – BLM PEIS Max Application Rates for Herbicide Active Ingredients (BLM PEIS 2007)

APPENDIX D – Ecotoxicity Ratings for Herbicide Active Ingredients Approved for Use on BLM-Administered Lands (USFWS 2007)

ACRONYM LIST & DEFINITIONS

AESO – Arizona Ecological Services Office

BEE – Butoxyethyl Ester

POEA – Polyethoxylated Tallow Amine

SOP – Standard Operating Procedure

SR – State Route

TEP – Threatened, Endangered, or Proposed

US – United States

USFWS – US Fish and Wildlife Service

Low boom height is defined as up to 20 inches above ground (BLM 2007)

A. Habitat Conservation Measures

A(1). Aquatic Habitats

- a. Do not use diquat, fluridone, terrestrial formulations of glyphosate, or triclopyr BEE in habitats where aquatic TEP species occur or may potentially occur.
- b. Avoid using glyphosate formulations that include the surfactant R-11 in the future and either avoid using any formulations with the surfactant POEA, or seek to use the formulation with the lowest amount of POEA available, to reduce risks to aquatic organisms.
- c. Follow all instructions and SOPs to avoid spill and direct spray scenarios into aquatic habitats. Special care should be followed when transporting and applying 2,4-D, bromacil, clopyralid, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, tebuthiuron, and triclopyr.
- d. Do not broadcast spray diuron, glyphosate, picloram, or triclopyr BEE in upland habitats adjacent to aquatic habitats that support (or may potentially support) aquatic TEP species under conditions that would likely result in off-site drift.
- e. In watersheds that support TEP species or their habitat, do not apply bromacil, diuron, tebuthiuron, or triclopyr BEE in upland habitats within ½ mile upslope of aquatic habitats that support aquatic TEP species under conditions that would likely result in surface runoff.

A(2). Terrestrial Habitats

- a. When conducting herbicide treatments in or near terrestrial habitat occupied by TEP herpetofauna, avoid using the following herbicides, where feasible: clopyralid, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr.
- b. When conducting herbicide treatments in upland habitats occupied by TEP herpetofauna, do not broadcast spray 2,4-D, clopyralid, glyphosate, hexazinone, picloram or triclopyr; do not broadcast spray these herbicides in areas adjacent to habitats occupied by TEP herpetofauna under conditions when spray drift onto the habitat is likely.
- c. If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in upland habitats occupied by TEP herpetofauna, utilize the typical, rather than the maximum, application rate.
- d. If spraying imazapyr or metsulfuron methyl in or adjacent to upland habitats occupied by TEP herpetofauna, apply at the typical, rather than the maximum, application rate.

B. Herbicide Specific Conservation Measures

B(1). 2,4-D

- a. Assess local site conditions when evaluating the risks from surface water runoff to TEP plants located within ½ mile down gradient from the treatment area.
- b. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.
- c. Do not use 2,4-D in terrestrial habitats occupied by TEP herpetofauna; do not broadcast spray 2,4-D within ¼ mile of terrestrial habitat occupied by TEP herpetofauna.

B(2). Bromacil

- a. Do not apply within 1,200 feet of terrestrial TEP plant species.
- b. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.
- c. Do not apply in upland habitats within ½ mile upslope of aquatic habitats that support aquatic TEP species under conditions that would result in off-site drift.
- d. Do not apply in upland habitats upslope of aquatic habitats that support (or potentially support) TEP amphibians under conditions that would result surface runoff.

B(3). Chlorsulfuron

- a. Do not apply by ground methods within 1,200 feet of terrestrial TEP species.
- b. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(4). Clopyralid

- a. Since the risks associated with using a high boom are unknown, use only a low boom during ground applications of this herbicide within ½ mile of terrestrial TEP plant species.
- b. Do not apply by ground methods at the typical application rate within 900 feet of terrestrial TEP species.
- c. Do not apply by ground methods at the maximum application rate within ½ mile of terrestrial TEP species.
- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(5). Dicamba

- a. If using a low boom at the typical application rate, do not apply within 1,050 feet of terrestrial TEP plant species.
- b. If using a low boom at the maximum application rate, do not apply within 1,050 feet of terrestrial TEP plant species.
- c. If using a high boom, do not apply within 1,050 feet of terrestrial TEP plant species.
- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(6). Diflufenzopyr

- a. If using a low boom at the typical application rate, do not apply within 100 feet of terrestrial TEP plant species.
- b. If using a low boom at the maximum application rate, do not apply within 900 feet of terrestrial TEP plant species.
- c. If using a high boom, do not apply within 500 feet of terrestrial TEP plant species.
- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(7). Diflufenzopyr+dicamba (Overdrive®)

- a. If using a low boom at the typical application rate, do not apply within 100 feet of terrestrial TEP plant species.
- b. If using a low boom at the maximum application rate, do not apply within 900 feet of terrestrial TEP plant species.
- c. If using a high boom, do not apply within 900 feet of terrestrial TEP plant species.

- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(8). Diquat

- a. Do not apply by ground methods within 900 feet of terrestrial TEP species at the typical application rate
- b. Do not apply by ground methods within 1,000 feet of terrestrial TEP species at the maximum application rate.

B(9). Diuron

- a. Do not apply within 1,100 feet of terrestrial TEP species.
- b. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.
- c. Do not apply in upland habitats within ½ mile upslope of aquatic habitats that support aquatic TEP species under conditions that would result in off-site drift.
- d. Do not apply in upland habitats upslope of aquatic habitats that support (or potentially support) TEP amphibians under conditions that would result in surface runoff.

B(10). Fluridone

- a. Since effects on terrestrial TEP plant species are unknown, do not apply within ½ mile of terrestrial TEP species.

B(11). Glyphosate

- a. Since the risks associated with using a high boom are unknown, use only low boom applications of this herbicide within ½ mile of terrestrial TEP plant species.
- b. Do not apply at the typical application rate within 50 feet of terrestrial TEP plant species.
- c. Do not apply at the maximum application rate within 300 feet of terrestrial TEP plant species.

B(12). Hexazinone

- a. Since the risks associated with using a high boom are unknown, only apply this herbicide using a low boom within ½ mile of terrestrial TEP plant species.
- b. Do not apply at the typical application rate within 300 feet of terrestrial TEP plant species.
- c. Do not apply at the maximum application rate within 900 feet of terrestrial TEP plant species.
- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(13). Imazapic

- a. Do not apply within 30 feet of terrestrial TEP species.
- b. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(14). Imazapyr

- a. Since the risks associated with using a high boom are unknown, use only low boom applications of this herbicide within ½ mile of terrestrial TEP plant species.
- b. Do not apply at the typical application rate, within 900 feet of terrestrial TEP plant species.
- c. Do not apply at the maximum application rate, within ½ mile of terrestrial TEP plant species.

- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(15). Metsulfuron Methyl

- a. Since the risks associated with using a high boom are unknown, use only a low boom application of this herbicide within ½ mile of terrestrial TEP plant species.
- b. Do not apply at the typical application rate within 900 feet of terrestrial TEP plant species.
- c. Do not apply at the maximum application rate within ½ mile of terrestrial TEP plant species.
- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(16). Picloram

- a. Do not apply at any application rate, within ½ mile of terrestrial TEP plant species.
- b. Assess local site conditions when evaluating the risks from surface water runoff to TEP plants located within ½ mile down gradient from the treatment area.
- c. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.
- d. Do not broadcast spray in upland habitats adjacent to aquatic habitats that support (or may potentially support aquatic TEP species under conditions that would result in off-site drift.

B(17). Sulfometuron Methyl

- a. Do not apply within 1,500 feet of terrestrial TEP species.
- b. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(18). Tebuthiuron

- a. If using a low boom at the typical application rate, do not apply within 30 feet of terrestrial TEP plant species.
- b. If using a low boom at the maximum application rate or a high boom at the typical application rate, do not apply within 50 feet of terrestrial TEP plant species.
- c. If using a high boom at the maximum application rate, do not apply within 900 feet of terrestrial TEP plant species.
- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.
- e. Do not apply in upland habitats within ½ mile upslope of aquatic habitats that support aquatic TEP species under conditions that would result in off-site drift.

B(19). Triclopyr Acid

- a. Since the risks associated with using a high boom are unknown, use only low boom applications of this herbicide within ½ mile of terrestrial TEP plant species.
- b. Do not apply at the typical application rate within 300 feet of terrestrial TEP plant species.
- c. Do not apply at the maximum application rate within ½ mile of terrestrial TEP plant species or aquatic habitats in which TEP plant species occur.
- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.

B(20). Triclopyr BEE

- a. Since the risks associated with using a high boom are unknown, use only a low boom application of this herbicide within ½ mile of terrestrial TEP plant species.

- b. Do not apply at the typical application rate within 300 feet of terrestrial TEP plant species.
- c. Do not apply at the maximum application rate within ½ mile of terrestrial TEP plant species.
- d. In areas where wind erosion is likely, do not apply within ½ mile of TEP plant species.
- e. Do not apply in upland habitats within ½ mile upslope of aquatic habitats that support aquatic TEP species under conditions that would result in off-site drift.
- f. Do not apply in upland habitats upslope of aquatic habitats that support (or potentially support) TEP amphibians under conditions that would result in surface runoff.

C. General Conservation Measures for Threatened and Endangered Species

C(1). Surveys

- a. All pretreatment special status species surveys shall be conducted by a qualified biologist.

C(2). Threatened, Endangered, and Proposed Plants

- a. If herbicide treatments are planned within delineated suitable habitat areas for TEP plants, conduct a species-specific presence/absence survey within 1 to 3 years prior to the treatment per the species-specific conservation measures.
 - Pretreatment surveys shall be conducted per protocol, or in the absence of a protocol, during the season and conditions in which the species is most likely to be encountered (e.g. flowering season, fruiting season). Contact the USFWS AESO (602.242.0210) for current approved survey protocols.
 - If individuals are found, the surveyed habitat is considered to be occupied even if the species is absent from the habitat for some portion during the calendar year (e.g. dormant period, subterranean period).
 - If individuals are found, do not apply herbicide within the appropriate avoidance distance specified in the species- or herbicide-specific conservation measures for plants or occupied habitat.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat area for the species.

C(3). Threatened, Endangered, and Proposed Animals

- a. If herbicide treatments are planned within delineated suitable habitat for TEP animals, contact the USFWS AESO (602.242.0210) within 60 days prior to herbicide treatment to determine if the habitat is occupied.
 - If the USFWS requests that pretreatment surveys be conducted, pretreatment surveys shall be conducted per protocol, or in the absence of a protocol, during the season and conditions in which the species is most likely to be encountered (e.g. breeding season). Contact the USFWS AESO (602.242.0210) for current approved survey protocols.
 - Delineated suitable habitats are considered to be occupied even if the species is absent from the habitat for some portion during the calendar year (e.g. migration, hibernation).

- Within occupied habitats, do not apply herbicide within the appropriate avoidance distance specified in the species- or herbicide-specific conservation measures.
- b. If species occupancy is unknown and surveys have not been conducted during the most recent appropriate survey season prior to treatment, assume that the species is present, delineate species-specific suitable habitat, and apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat.

D. Threatened and Endangered Species-Specific Conservation Measures

D(1). Arizona Cliffrose (Purshia subintegra)

- a. Conduct pretreatment surveys for Arizona cliffrose in suitable habitat along US Highway 93 within 3 years prior to treatment. If Arizona cliffrose is found:
- Do not apply herbicide within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the plant.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	60 feet
Liquid	20 feet	60 feet
Ultra-low volume or dust	150 feet	150 feet

- Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of the plant and use only manual applications within ½ mile of the plant.
 - Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat area for the species.

D(2). Arizona Hedgehog Cactus (Echinocereus triglochidiatus var. arizonicus)

- a. Conduct pretreatment surveys for Arizona hedgehog cactus in suitable habitat along SR 77 within 3 years prior to treatment. If Arizona hedgehog cactus are found within the action area:
- Do not apply herbicide within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the plant.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	60 feet
Liquid	20 feet	60 feet
Ultra-low volume or dust	150 feet	150 feet

- Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of the plant and use only manual applications within ½ mile of the plant.
 - Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat area for the species.

D(3). Bonytail Chub (*Gila elegans*)

- a. Herbicide applications using mechanized ground equipment along the Colorado River on SR 95S and SR 95 should use either liquid streams or relatively coarse sprays to minimize spray drift.
- b. Do not conduct herbicide treatments during bonytail chub spawning season (May through July) within ½ mile of the Colorado River along SR 95 and SR 95S.
- c. Do not use herbicides that rate as Class 1 in the species toxicity group for Warm Water Fish (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the Colorado River shoreline along SR 95S and SR 95.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	10 feet	50 feet
Liquid	10 feet	80 feet*
Ultra-low volume or dust	150 feet	150 feet
Alternative Buffer Zones: * An avoidance distance of 50 feet may be used if herbicide is applied by a sprayer with low pressure nozzles that deliver a spray ranging from coarse to very coarse in droplet size		

- d. Do not use herbicides that rate as Class 2 in the species toxicity group for Warm Water Fish (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the Colorado River shoreline along SR 95S and SR 95.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	80 feet
Liquid	20 feet	100 feet
Ultra-low volume or dust	200 feet	200 feet

- e. Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.

D(4). Brady Pincushion Cactus (*Pediocactus bradyi*)

- a. Conduct pretreatment surveys for Brady pincushion cactus in suitable habitat along US Highway 89A during the survey season prior to treatment. If Brady pincushion cactus are found within the action area:

- Do not apply herbicide within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the plant.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	60 feet
Liquid	20 feet	60 feet
Ultra-low volume or dust	150 feet	150 feet

- Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of the plant and use only manual applications within ½ mile of the plant.
 - Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat area for the species.

D(5). California Condor (*Gymnogyps californianus*)

- a. The following measures will be implemented in Mitigation Area 1:

- Three days prior to herbicide application along SR 389 and US Highway 89A, the applicator shall contact the USFWS Field Office in Flagstaff (928.226.0614) to determine the nesting and roosting locations and status of any condors within 1 mile of the action area.
- Do not conduct herbicide treatments within ¼ mile of currently occupied nests, roosts or release sites.
- Do not use dicamba in Mitigation Area 1.
- Do not use 2,4-D or diuron in Mitigation Area 1 unless the action area has been surveyed for roadkill within 2 days prior to treatment and all carrion/roadkill has been removed prior to spraying.
- Do not broadcast spray clopyralid, diuron, glyphosate, hexazinone, picloram, or triclopyr within Mitigation Area 1; do not broadcast spray these herbicides in areas adjacent to California condor nesting or roosting habitat under conditions when spray drift onto the nesting or roosting habitat is likely.
- Where feasible, avoid use of the following herbicides within Mitigation Area 1: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram, and triclopyr.

- b. The following measures will be implemented in Mitigation Areas 1, 2, and 3:
- The applicator shall avoid any interaction with condors and shall immediately contact the USFWS Field Office in Flagstaff (928.226.0614) if a condor is present within the action area. Any activity that could result in harm to condors shall cease and shall not resume until the condor leaves on its own accord or as a result of individuals working under an appropriate permit from USFWS.
 - Do not use dicamba in Mitigation Areas 1, 2 or 3.
 - If broadcast spraying bromacil, diquat, imazapyr, or metsulfuron methyl in or adjacent to California condor nesting or roosting habitat, apply at the typical, rather than the maximum, application rate.
 - If conducting manual spot applications of glyphosate, hexazinone, or triclopyr to vegetation in California condor nesting or roosting habitat, utilize the typical, rather than the maximum, application rate.

D(6). Chiricahua Leopard Frog (Lithobates chiricahuensis)

- a. Do not use 2,4-D, diquat, fluridone glyphosate, or imazapyr within suitable habitat along SR 83, SR 90, and SR 80.
- b. Contact the USFWS AESO (602.242.0210) prior to herbicide treatment within suitable habitat along SR 83, SR 90, and SR 80, to determine if the habitat is occupied by Chiricahua leopard frogs. If Chiricahua leopard frogs (adults, tadpoles and eggs) are present within the action area:
- Do not apply herbicides that rate as Class 1 in the species toxicity group for Aquatic-Amphibian, or as Class 2 or Class 3 for the species toxicity group Aquatic Arthropod and/or Terrestrial Arthropod (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the edge of the annual high water line of the waterbody or wetland, or any contributing channel or tributary to the waterbody or wetland in which the Chiricahua leopard frog occurs.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	30 feet	300 feet
Liquid	30 feet	350 feet*
Ultra-low volume or dust	400 feet	400 feet
Alternative Buffer Zones: * An avoidance distance of 300 feet may be used if herbicide is applied by a sprayer with low pressure nozzles that deliver a spray ranging from coarse to very coarse in droplet size.		

- Do not apply herbicides that rate as Class 2 in the species toxicity group for Aquatic-Amphibian (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the edge of the annual high water line of the waterbody or wetland, or any contributing channel or tributary to the waterbody or wetland in which the Chiricahua leopard frog occurs.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	50 feet	350 feet
Liquid	50 feet	350 feet
Ultra-low volume or dust	450 feet	450 feet

- Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- c. If species occupancy is unknown along SR 83, SR 90, and SR 80, assume that the species is present, delineate suitable Chiricahua leopard frog habitat within the action area and apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat.

D(7). Fickeisen Plains Cactus (Pediocactus peeblesianus var. fickeiseniae)

- a. Conduct pretreatment surveys for Fickeisen plains cactus on suitable substrates along US Highway 89A during the survey season prior to treatment. If Fickeisen plains cactus are found within the action area:
- Do not apply herbicide within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the plant.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	60 feet
Liquid	20 feet	60 feet
Ultra-low volume or dust	150 feet	150 feet

- Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of the plant and use only manual applications within ½ mile of the plant.
 - Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat area for the species.

D(8). Gierisch Mallow (Sphaeralcea gierischii)

- a. Spray individual target plants by hand wand only within Gierisch mallow critical habitat along Interstate 15.
- b. Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of Gierisch mallow critical habitat and use only manual applications of these herbicides within ½ mile of the critical habitat to protect pollinators for the Gierisch mallow.

- c. Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.

D(9). Holmgren Milk-Vetch (*Astragalus holmgreniorum*)

- a. Conduct pretreatment surveys for Holmgren milk-vetch within suitable habitat along Interstate 15 during the survey season prior to treatment. If Holmgren milk-vetch is found:

- Do not apply herbicide within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the plant.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	60 feet
Liquid	20 feet	60 feet
Ultra-low volume or dust	150 feet	150 feet

- Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of the plant and use only manual applications within ½ mile of the plant.
 - Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.

- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat area for the species.

D(10). Huachuca Water Umbel (*Lilaeopsis schaffneriana ssp recurva*)

- a. Do not use 2,4-D, diquat, fluridone glyphosate, or imazapyr within 1 mile of suitable habitat along SR 82 and SR 90.

- b. Contact the USFWS AESO (602.242.0210) prior to herbicide treatment within suitable habitat along SR 82, and SR 90, to determine if the habitat is occupied by Huachuca water umbel. If Huachuca water umbel are present within the action area:

- Do not apply herbicide within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the edge of the waterbody or wetland, or any contributing channel or tributary to the waterbody or wetland in which the plant occurs.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	50 feet	350 feet
Liquid	50 feet	350 feet
Ultra-low volume or dust	450 feet*	450 feet*
Alternative Buffer Zones: * An avoidance distance of 350 feet may be used if herbicide is applied by a sprayer with low pressure nozzles that deliver a spray ranging from coarse to very coarse in droplet size.		

- Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of the plant and use only manual applications within ½ mile of the plant.
 - Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- c. If species occupancy is unknown along SR 82, and SR 90, assume that the species is present, and apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat.

D(11). Mojave Desert Tortoise (Gopherus agassizii)

- a. In desert tortoise habitat, conduct herbicide treatments during the fall and winter months (October 15 through March 15), when desert tortoises are least active.
- b. If Mojave Desert tortoises are encountered during herbicide treatments, application shall cease and shall not resume until the tortoise moves over 100 feet from treatment area on its own accord.
- c. Do not use dicamba within suitable habitat for Mojave Desert tortoise along I-15.
- d. Use only sprays with coarse droplet sizes within suitable habitat for Mojave Desert tortoise along I-15.
- e. Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
- f. Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.

D(12). Narrow-headed Gartersnake (Thamnophis rufipunctatus)

- a. Do not use 2,4-D, diquat, fluridone glyphosate, or imazapyr within suitable habitat along SR 75, US Highway 70 and US Highway 191, or within 1 mile upstream from suitable habitat along any contributing channel, tributary or spring run.
- b. Contact the USFWS AESO (602.242.0210) prior to herbicide treatment within 1 mile of a perennial waterway along SR 75, US Highway 70 and US Highway 191, to determine if the habitat is occupied by narrow-headed gartersnake. If narrow-headed gartersnakes are present:
 - Do not use herbicides that have a species toxicity rating of Class 0 or Class 1 (Appendix C) in the species toxicity groups for Reptile or Warm Water Fish within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures). The avoidance distance applies to the occupied waterway, or any contributing channel, tributary or spring run within 1 mile upstream of the occupied waterway.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	30 feet*	300 feet
Liquid	30 feet*	350 feet ^H
Ultra-low volume or dust	400 feet ^H	400 feet ^H
Alternative Buffer Zones: * An avoidance distance of 10 feet may be used if the herbicide application and formulation is approved by USFWS ^H An avoidance distance of 300 feet may be used if herbicide is applied by a sprayer with low pressure nozzles that deliver a spray ranging from coarse to very coarse in droplet size		

- Do not use herbicides that have a species toxicity rating of Class 2 (Appendix C) in the species toxicity groups for Reptile or Warm Water Fish within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures). The avoidance distance applies to the occupied waterway, or any contributing channel, tributary or spring run within 1 mile upstream of the occupied waterway.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	50 feet	350 feet
Liquid	50 feet	350 feet
Ultra-low volume or dust	450 feet	450 feet

- Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- c. If species occupancy is unknown along SR 75, US Highway 70 and US Highway 191, assume that the species is present, delineate suitable narrow-headed gartersnake habitat within the action area and apply the appropriate species and herbicide-specific conservation measures to the delineated suitable habitat.

D(13). Northern Mexican Gartersnake (Thamnophis eques megalops)

- Do not use 2,4-D, diquat, fluridone glyphosate, or imazapyr within suitable habitat along SR 75, SR 77, SR 82, SR 83, SR 90, SR 92 and US Highway 191, or within 1 mile upstream from suitable habitat along any contributing channel, tributary or spring run.
- Contact the USFWS AESO (602.242.0210) prior to herbicide treatment within 1 mile of a perennial waterway along SR 75, SR 77, SR 82, SR 83, SR 90, SR 92 and US Highway 191, to determine if the habitat is occupied by northern Mexican gartersnake. If northern Mexican gartersnakes are present:
 - Do not use herbicides that have a species toxicity rating of Class 0 or Class 1 (Appendix C) in the species toxicity groups for Reptile or Warm Water Fish within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures). The avoidance distance applies to the occupied waterway, or any contributing channel, tributary or spring run within 1 mile upstream of the occupied waterway.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	30 feet*	300 feet
Liquid	30 feet*	350 feet ^H
Ultra-low volume or dust	400 feet ^H	400 feet ^H
Alternative Buffer Zones: * An avoidance distance of 10 feet may be used if the herbicide application and formulation is approved by USFWS ^H An avoidance distance of 300 feet may be used if herbicide is applied by a sprayer with low pressure nozzles that deliver a spray ranging from coarse to very coarse in droplet size		

- Do not use herbicides that have a species toxicity rating of Class 2 (Appendix C) in the species toxicity groups for Reptile or Warm Water Fish within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures). The avoidance distance applies to the occupied waterway, or any contributing channel, tributary or spring run within 1 mile upstream of the occupied waterway.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	50 feet	350 feet
Liquid	50 feet	350 feet
Ultra-low volume or dust	450 feet	450 feet

- Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- c. If species occupancy is unknown along SR 75, SR 77, SR 82, SR 83, SR 90, SR 92 and US Highway 191, assume that the species is present, delineate suitable northern Mexican gartersnake habitat within the action area and apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat.

D(14). Ocelot (Leopardus pardalis)

- a. Prior to herbicide treatment in the ~~Globe, Safford or Tucson~~ Southeast and Southcentral ADOT districts contact USFWS AESO (602.242.0210) to determine if any recent sightings of ocelot have occurred near the treatment area. If an ocelot has been sighted within 6 months of the scheduled herbicide treatment:
- Do not use 2,4-D, bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, picloram and triclopyr within 5 miles of where the ocelot was sighted.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures

D(15). Peebles Navajo Cactus (Pediocactus peeblesianus var. peeblesianus)

- a. Conduct pretreatment surveys for Peebles Navajo cactus on suitable substrates along Interstate 40 during the survey season prior to treatment. If Peebles Navajo cactus are found within the action area:

- Do not apply herbicide within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the plant.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	60 feet
Liquid	20 feet	60 feet
Ultra-low volume or dust	150 feet	150 feet

- Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of the plant and use only manual applications within ½ mile of the plant.
 - Herbicide applications using mechanized ground equipment should use either liquid streams or relatively course sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat area for the species.

D(16). Pima Pineapple Cactus (Coryphantha scheeri var. robustispina)

- a. Conduct pretreatment surveys for Pima pineapple cactus within suitable habitat along SR 83, SR 86 and SR 286 within 3 years prior to treatment. If Pima pineapple cactus are found within the action area:

- Do not apply herbicide within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the plant.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	60 feet
Liquid	20 feet	60 feet
Ultra-low volume or dust	150 feet	150 feet

- Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of the plant and use only manual applications within ½ mile of the plant.
 - Herbicide applications using mechanized ground equipment should use either liquid streams or relatively course sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat area for the species.

D(17). Razorback Sucker (*Xyrauchen texanus*)

- a. Herbicide applications using mechanized ground equipment along the Colorado River on SR 95S and SR 95 should use either liquid streams or relatively coarse sprays to minimize spray drift.
- b. Do not conduct herbicide treatments during razorback sucker spawning season (January to May) within ½ mile of the Colorado River along SR 95 and SR 95S.
- c. Do not use herbicides that rate as Class 1 in the species toxicity group for Warm Water Fish (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the Colorado River shoreline along SR 95S and SR 95.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	10 feet	50 feet
Liquid	10 feet	80 feet*
Ultra-low volume or dust	150 feet	150 feet
Alternative Buffer Zones: * An avoidance distance of 50 feet may be used if herbicide is applied by a sprayer with low pressure nozzles that deliver a spray ranging from coarse to very coarse in droplet size		

- d. Do not use herbicides that rate as Class 2 in the species toxicity group for Warm Water Fish (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the Colorado River shoreline along SR 95S and SR 95.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	80 feet
Liquid	20 feet	100 feet
Ultra-low volume or dust	200 feet	200 feet

- e. Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.

D(18). Siler Pincushion Cactus (*Pediocactus sileri*)

- a. Conduct pretreatment surveys for Siler pincushion cactus within suitable habitats along SR 89 and SR 389 during the survey season prior to treatment. If Siler pincushion cactus are found within the action area:
 - Do not apply herbicide within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the plant.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	60 feet
Liquid	20 feet	60 feet
Ultra-low volume or dust	150 feet	150 feet

- Do not apply herbicides that rate as Class 2 or Class 3 in the species toxicity group for Bee and/or Terrestrial Arthropod (Appendix C) within 300 feet of the plant and use only manual applications within ½ mile of the plant.

- Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the appropriate species- and herbicide-specific conservation measures to the delineated suitable habitat area for the species.

D(19). Sonoran Pronghorn (Antilocapra americana sonoriensis)

- a. Contact the USFWS AESO (602.242.0210) prior to herbicide treatment within the action area along Interstate 8 in Yuma County and along SR 85 in Pima County, to determine if action area is sensitive pronghorn habitat, such as foraging and fawning areas. If sensitive pronghorn habitats area present within the action area:
- Do not conduct herbicide treatments in fawning areas.
 - Do not broadcast spray herbicides in key pronghorn foraging areas.
 - Do not use 2,4-D within ¼ mile of sensitive Sonoran pronghorn habitat.
 - Where feasible, avoid use of the following: bromacil, clopyralid, diquat, diuron, glyphosate, hexazinone, imazapyr, metsulfuron methyl, diflufenzopyr + dicamba, picloram, tebuthiuron, and triclopyr.
 - If broadcast spraying imazapyr, metsulfuron methyl, or tebuthiuron in or near Sonoran pronghorn habitat, apply at the typical, rather than the maximum, application rate.
 - If conducting manual spot applications of glyphosate, hexazinone, imazapyr, metsulfuron methyl, tebuthiuron, or triclopyr utilize the typical, rather than the maximum, application rate.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If presence of sensitive pronghorn habitat is unknown along Interstate 8 in Yuma County and along SR 85 in Pima County, assume that sensitive pronghorn habitat is present, delineate sensitive habitat areas within the action area and apply the appropriate species- and herbicide-specific conservation measures to the delineated sensitive habitat.

D(20). Southwestern Willow Flycatcher (Empidonax traillii extimus)

- a. Contact the USFWS AESO (602.242.0210) prior to herbicide treatment within suitable riparian corridor habitats, to determine if the habitat is occupied by southwestern willow flycatcher. If southwestern willow flycatchers are present within or adjacent to the action area:
- Do not conduct herbicide treatment within occupied riparian corridor habitat.
 - Do not conduct herbicide treatment within ½ mile of the occupied riparian corridor habitat during the southwestern willow flycatcher nesting season.
 - Do not use 2,4-D within occupied riparian corridor habitat, and do not broadcast spray 2,4-D within ¼ mile of the occupied riparian corridor habitat

- Do not broadcast spray clopyralid, diquat, diuron, glyphosate, hexazinone, picloram, or triclopyr in areas adjacent to occupied habitat under conditions when spray drift onto the habitat is likely.
- If broadcast spraying imazapyr or metsulfuron methyl adjacent to southwestern willow flycatcher habitat, apply at the typical, rather than the maximum, application rate.
- Do not use herbicides that rate as Class 1 in the species toxicity group for Small Avian (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the occupied riparian corridor habitat.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	none	30 feet*
Liquid	none	30 feet*
Ultra-low volume or dust	80 feet	80 feet
Alternative Buffer Zones: * An avoidance distance is unnecessary for these formulations if the herbicide is placed in the soil below a 1½-inch depth.		

- Do not use herbicides that rate as Class 2 in the species toxicity group for Small Avian (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the occupied riparian corridor habitat.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	10 feet*	60 feet*
Liquid	10 feet*	60 feet*
Ultra-low volume or dust	150 feet	150 feet
Alternative Buffer Zones: * An avoidance distance is unnecessary for these formulations if the herbicide is placed in the soil below a 1½-inch depth.		

- Herbicide applications using mechanized ground equipment should use either liquid streams or relatively coarse sprays to minimize spray drift.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If southwestern willow flycatcher presence is unknown within suitable riparian corridor habitats, assume that the species is present, and apply the appropriate species- and herbicide-specific conservation measures to the suitable riparian corridor habitat.

D(21). Virgin River Chub (Gila seminuda)

- Herbicide applications using mechanized ground equipment along the Virgin River on I-15 should use either liquid streams or relatively coarse sprays to minimize spray drift.
- Do not conduct herbicide treatments during Virgin River chub spawning season (April through July) within ½ mile of the Virgin River along Interstate 15.

- c. Do not use herbicides that rate as Class 1 in the species toxicity group for Warm Water Fish (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the Virgin River floodplain along Interstate 15.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	10 feet	50 feet
Liquid	10 feet	80 feet*
Ultra-low volume or dust	150 feet	150 feet
Alternative Buffer Zones: * An avoidance distance of 50 feet may be used if herbicide is applied by a sprayer with low pressure nozzles that deliver a spray ranging from coarse to very coarse in droplet size		

- d. Do not use herbicides that rate as Class 2 in the species toxicity group for Warm Water Fish (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the Virgin River floodplain along Interstate 15.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	80 feet
Liquid	20 feet	100 feet
Ultra-low volume or dust	200 feet	200 feet

- e. Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.

D(22). Woundfin (*Plagopterus argentissimus*)

- a. Do not conduct herbicide treatments during woundfin spawning season (April through July) within ½ mile of the Virgin River along Interstate 15.
- b. Do not use herbicides that rate as Class 1 in the species toxicity group for Warm Water Fish (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the Virgin River floodplain along Interstate 15.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	10 feet	50 feet
Liquid	10 feet	80 feet*
Ultra-low volume or dust	150 feet	150 feet
Alternative Buffer Zones: * An avoidance distance of 50 feet may be used if herbicide is applied by a sprayer with low pressure nozzles that deliver a spray ranging from coarse to very coarse in droplet size		

- c. Do not use herbicides that rate as Class 2 in the species toxicity group for Warm Water Fish (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the Virgin River floodplain along Interstate 15.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	80 feet
Liquid	20 feet	100 feet
Ultra-low volume or dust	200 feet	200 feet

- d. Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.

D(23). Yellow-billed Cuckoo (Coccyzus americanus)

- a. Contact the USFWS AESO (602.242.0210) prior to herbicide treatment within suitable riparian corridor habitats, to determine if the habitat is occupied by yellow-billed cuckoo. If yellow-billed cuckoo are present within or adjacent to the action area:

- Do not conduct herbicide treatment within the occupied riparian corridor habitat.
- Do not conduct herbicide treatment within ¼ mile of the occupied riparian corridor habitat during the yellow-billed cuckoo nesting season.
- Do not use herbicides that rate as Class 1 in the species toxicity group for Small Avian (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the occupied riparian corridor habitat.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	none	30 feet*
Liquid	none	30 feet*
Ultra-low volume or dust	80 feet	80 feet
Alternative Buffer Zones: * An avoidance distance is unnecessary for these formulations if the herbicide is placed in the soil below a 1½-inch depth.		

- Do not use herbicides that rate as Class 2 in the species toxicity group for Small Avian(Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of the occupied riparian corridor habitat.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	10 feet*	60 feet*
Liquid	10 feet*	60 feet*
Ultra-low volume or dust	150 feet	150 feet
Alternative Buffer Zones: * An avoidance distance is unnecessary for these formulations if the herbicide is placed in the soil below a 1½-inch depth.		

- Herbicide applications using mechanized ground equipment should use either liquid streams or relatively course sprays to minimize spray drift.

- b. If yellow-billed cuckoo present is unknown within suitable riparian corridor habitats, assume that the species is present, and apply the appropriate species- and herbicide-specific conservation measures to the suitable riparian corridor habitat.

D(24). Yuma Clapper Rail (*Rallus longirostris yumanensis*)

- a. Contact the USFWS AESO (602.242.0210) prior to herbicide treatment along SR 95S, SR 95 near the Colorado River and Interstate 15 near the Virgin River, to determine if the habitat is occupied by Yuma clapper rail. If Yuma clapper rails are present
- Do not conduct herbicide treatment within ½ mile of the occupied habitat during the nesting season.
 - Do not use 2,4-D within occupied habitat, and do not broadcast spray 2,4-D within ¼ mile of the occupied habitat
 - If broadcast spraying metsulfuron methyl in or adjacent to Yuma clapper rail habitat, apply at the typical, rather than the maximum, application rate.
 - If conducting manual spot applications of, hexazinone, or triclopyr to vegetation in Yuma clapper rail habitat, utilize the typical, rather than the maximum, application rate.
 - Do not broadcast spray clopyralid, diquat, diuron, glyphosate, hexazinone, picloram, or triclopyr in areas adjacent to occupied habitat under conditions when spray drift onto the habitat is likely.
 - Do not use herbicides that rate as Class 1 in the species toxicity group for Small Avian (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of suitable habitat along the Colorado River shoreline along SR 95S and SR 95 or suitable habitat along the Virgin River floodplain along Interstate 15.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	10 feet	50 feet
Liquid	10 feet	80 feet*
Ultra-low volume or dust	150 feet	150 feet
Alternative Buffer Zones: * An avoidance distance of 50 feet may be used if herbicide is applied by a sprayer with low pressure nozzles that deliver a spray ranging from coarse to very coarse in droplet size		

- Do not use herbicides that rate as Class 2 in the species toxicity group for Small Avian (Appendix C) within the following appropriate avoidance distance (or greater if specified in the herbicide-specific conservation measures) of suitable habitat along the Colorado River shoreline along SR 95S and SR 95 or suitable habitat along the Virgin River floodplain along Interstate 15.

Herbicide Formulations	Herbicide Application Method	
	Manual	Mechanized Ground
Solid	20 feet	80 feet
Liquid	20 feet	100 feet
Ultra-low volume or dust	200 feet	200 feet

- Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.

- b. If Yuma clapper rail presence is unknown along the Colorado River along SR 95S and SR 95 or along the Virgin River along Interstate 15, assume that the species is present, delineate suitable Yuma clapper rail habitat within the action area, and apply the appropriate species- and herbicide-specific conservation measures to the suitable habitat.

E. BLM Sensitive Species-Specific Conservation Measures

*E(1). Blue Sand Lily (*Triteleiosis palmeri*)*

- a. Conduct pretreatment surveys for blue sand lily within all suitable habitat along Interstate 8 during the survey season prior to treatment. If blue sand lily is found within the action area:
 - Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

*E(2). California Flannelbush (*Fremontodendron californicum*)*

- a. Conduct pretreatment surveys for California flannelbush within all suitable habitat along SR 89 during the survey season prior to treatment. If California flannelbush are found within the action area:
 - Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

*E(3). Huachuca Golden Aster (*Heterotheca rutteri*)*

- a. Conduct pretreatment surveys for Huachuca golden aster within all suitable habitat along SR 82 and SR 83 during the survey season prior to treatment. If Huachuca golden aster is found within the action area:
 - Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

E(4). Marble Canyon Indigo Bush (*Psorothamnus arborescens* var. *pubescens*)

- a. Conduct pretreatment surveys for Marble Canyon indigo bush within all suitable habitat along US Highway 89A during the survey season prior to treatment. If Marble Canyon indigo bush is found within the action area:
 - Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

E(5). Paradine (Kaibab) Plains Cactus (*Pediocactus paradinei*)

- a. Conduct pretreatment surveys for Paradine plains cactus within all suitable habitat along US Highway 89A during the survey season prior to treatment. If Paradine plains cactus are found within the action area:
 - Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

E(6). Paria Plateau Fishhook Cactus (*Sclerocactus sileri*)

- a. Conduct pretreatment surveys for Paria Plateau fishhook cactus within all suitable habitat along US Highway 89A within 3 years prior to treatment. If Paria Plateau fishhook cactus is found within the action area:
 - Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

E(7). Pima Indian Mallow (*Abutilon parishii*)

- a. Conduct pretreatment surveys for Pima Indian mallow within all suitable habitat along SR 77, SR 177, and SR 96 during the survey season prior to treatment. If Pima Indian mallow is found within the action area:

- Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

*E(8). Scaly Sand Food (*Pholisima arenaria*)*

- a. Conduct pretreatment surveys for scaly sand food within all suitable habitat along SR 72 and SR 95 during the survey season prior to treatment. If scaly sand food is found within the action area:
- Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

*E(9). Schott Wire-lettuce (*Stephanomeria schottii*)*

- a. Conduct pretreatment surveys for Schott wire-lettuce within all suitable habitat along Interstate 8 during the survey season prior to treatment. If Schott wire-lettuce is found within the action area:
- Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

*E(10). Smooth Catseye (*Cryptantha semiglabra*)*

- a. Conduct pretreatment surveys for smooth catseye within all suitable habitat along US Highway 89A during the survey season prior to treatment. If smooth catseye are found within the action area:
- Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.

- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

E(11). Sonoran Desert Tortoise (Gopherus morafkai)

- a. In Sonoran desert tortoise habitat, when feasible, conduct herbicide treatments during the fall and winter months (October 15 to March 15), when desert tortoises are least active.
- b. If any Sonoran desert tortoises are encountered during construction, the applicator shall adhere to the most recent agency guidance for Sonoran desert tortoise encounters to determine whether the tortoise may be moved out of the treatment area. If the guidance does not allow for tortoises to be moved, application shall cease and shall not resume until the tortoise moves over 100 feet from treatment area on its own accord or enters a burrow.

E(12). White-margined Penstemon (Penstemon albomarginatus)

- a. Conduct pretreatment surveys for white-margined penstemon within all suitable habitat along Interstate 40 during the survey season prior to treatment. If white-margined penstemon is found within the action area:
 - Do not apply herbicide within 30 feet (or greater if specified in the herbicide-specific conservation measures) of the plant.
 - Establish buffer zones for other special conditions based on the herbicide-specific conservation measures.
- b. If species-specific presence/absence pretreatment surveys have not been conducted during the specified time-frame and appropriate season prior to the treatment, apply the avoidance distance (30 feet or greater if specified in the herbicide-specific conservation measures) to the delineated suitable habitat area for the species.

APPENDIX A

BLM-Approved Herbicides and Adjuvants (BLM PEIS 2007)

Herbicide (Active Ingredient)	Characteristics and Target Species	Species Selective Herbicide	Target Vegetation Types				
			Annual	Perennial	Broadleaf	Grasses	Riparian/ Aquatic
2, 4-D	Foliar absorbed; post-emergent. Targets kochia, mustards, and Russian thistle.	x	x	x	x		x
Bromacil	Inhibits photosynthesis. Targets kochia, Russian thistle, weeds, and brush.		x		x	x	
Chlorsulfuron	Inhibits enzyme activity. Targets biennial thistles, annual and perennial mustards	x	x	x	x	x	
Clopyralid	Mimics plant hormones. Targets knapweeds, mesquite, starthistle, and other thistles.	x	x	x	x		
Dicamba	Growth regulator. Targets knapweeds, kochia, Russian thistle, other thistles, brush, and trees.		x	x	x		
Diflufenzopyr	Post-emergent; inhibits auxin transport. Controls annual and perennial broadleaf weeds and suppresses annual grasses.		x	x	x	x	
Diflufenzopyr +Dicamba	Post-emergent; inhibits auxin transport. Targets knapweeds, kochia, Russian thistle, and other thistles.				x		
Diquat	Foliar applied. Targets giant salvinia, hydrilla, and watermilfoils.						x
Diuron	Pre-emergent control. Targets kochia, Russian thistle, and weeds.		x	x	x	x	
Fluridone	Controls submersed aquatic plants. Targets hydrilla and watermilfoils.						x
Glyphosate	Targets grasses, weeds, woody shrubs, and sedges.		x	x	x	x	x
Hexazinone	Foliar or soil applied; inhibits photosynthesis. Targets mesquite and scrub oak.		x	x	x	x	
Imazapic	Post-emergent. Targets downy brome, leafy spurge, medusahead, and mustards.	x			x	x	
Imazapyr	Pre-and post-emergent; absorbed through foliage and roots. Targets tamarisk.		x	x	x		x
Metsulfuron methyl	Post-emergent; inhibits cell division in roots and shoots. Targets mustards and biennial thistles.	x	x	x	x		

Herbicide (Active Ingredient)	Characteristics and Target Species	Species Selective Herbicide	Target Vegetation Types				
			Annual	Perennial	Broadleaf	Grasses	Riparian/ Aquatic
Picloram	Foliar and root absorption; mimics plant hormones. Targets knapweeds, leafy spurge, and starthistle.	x	x	x	x		
Sulfometuron methyl	Pre-and post-emergent; inhibits cell division. Targets downy brome, mustards, and medusahead.				x	x	
Tebuthiuron	Soil activated; pre-and post- emergent. Targets creosotebush, oak, Russian olive, and sagebrush.		x	x	x	x	
Triclopyr	Growth regulator. Targets mesquite and tamarisk.				x		x

APPENDIX B

BLM Approved Herbicide Formulations as of May, 14 2014

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
2,4-D	Agrisolution 2,4-D LV6	Agriliance, L.L.C.	1381-101
	Agrisolution 2,4-D Amine 4	Agriliance, L.L.C.	1381-103
	Agrisolution 2,4-D LV4	Agriliance, L.L.C.	1381-102
	2,4-D Amine 4	Albaugh, Inc./Agri Star	42750-19
	2,4-D LV 4	Albaugh, Inc./Agri Star	42750-15
	Solve 2,4-D	Albaugh, Inc./Agri Star	42750-22
	2,4-D LV 6	Albaugh, Inc./Agri Star	42750-20
	Five Star	Albaugh, Inc./Agri Star	42750-49
	D-638	Albaugh, Inc./Agri Star	42750-36
	Alligare 2,4-D Amine	Alligare, LLC	81927-38
	Alligare 2,4-D LV 6	Alligare, LLC	81927-39
	2,4-D LV6	Helena Chemical Company	4275-20-5905
	2,4-D Amine	Helena Chemical Company	5905-72
	2,4-D Amine 4	Helena Chemical Company	42750-19-5905
	Opti-Amine	Helena Chemical Company	5905-501
	Barrage HF	Helena Chemical Company	5905-529
	HardBall	Helena Chemical Company	5905-549
	Unison	Helena Chemical Company	5905-542
	Clean Amine	Loveland Products Inc.	34704-120
	Low Vol 4 Ester Weed Killer	Loveland Products Inc.	34704-124
	Low Vol 6 Ester Weed Killer	Loveland Products Inc.	34704-125
	Saber	Loveland Products Inc.	34704-803
	Salvo	Loveland Products Inc.	34704-609
	Savage DS	Loveland Products Inc.	34704-606
	Aqua-Kleen	Nufarm Americas Inc.	71368-4
	Aqua-Kleen	Nufarm Americas Inc.	228-378
	Esteron 99C	Nufarm Americas Inc.	62719-9-71368
	Weedar 64	Nufarm Americas Inc.	71368-1
	Weedone LV-4	Nufarm Americas Inc.	228-139-71368
	Weedone LV-4 Solventless	Nufarm Americas Inc.	71368-14
	Weedone LV-6	Nufarm Americas Inc.	71368-11
	Formula 40	Nufarm Americas Inc.	228-357
	2,4-D LV 6 Ester	Nufarm Americas Inc.	228-95
	Platoon	Nufarm Americas Inc.	228-145
	WEEDstroy AM-40	Nufarm Americas Inc.	228-145
	Hi-Dep	PBI Gordon Corp.	2217-703
	2,4-D Amine	Setre (Helena)	5905-72
	Barrage LV Ester	Setre (Helena)	5905-504
	2,4-D LV4	Setre (Helena)	5905-90
	2,4-D LV6	Setre (Helena)	5905-93
Clean Crop Amine 4	UAP-Platte Chem. Co.	34704-5 CA	
Clean Crop Low Vol 6 Ester	UAP-Platte Chem. Co.	34704-125	
Salvo LV Ester	UAP-Platte Chem. Co.	34704-609	
2,4-D 4# Amine Weed Killer	UAP-Platte Chem. Co.	34704-120	

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
2,4-D - cont.	Clean Crop LV-4 ES	UAP-Platte Chem. Co.	34704-124
	Savage DS	UAP-Platte Chem. Co.	34704-606
	Cornbelt 4 lb. Amine	Van Diest Supply Co.	11773-2
	Cornbelt 4# LoVol Ester	Van Diest Supply Co.	11773-3
	Cornbelt 6# LoVol Ester	Van Diest Supply Co.	11773-4
	Amine 4	Wilbur-Ellis Co.	2935-512
	Lo Vol-4	Wilbur-Ellis Co.	228-139-2935
	Lo Vol-6 Ester	Wilbur-Ellis Co.	228-95-2935
	Base Camp Amine 4	Wilbur-Ellis Co.	71368-1-2935
	Base Camp LV6	Wilbur-Ellis Co.	2935-553
	Broadrange 55	Wilbur-Ellis Co.	2217-813-2935
	Agrisolution 2,4-D LV6	Winfield Solutions, LLC	1381-101
	Agrisolution 2,4-D Amine 4	Winfield Solutions, LLC	1381-103
	Agrisolution 2,4-D LV4	Winfield Solutions, LLC	1381-102
	Phenoxy 088	Winfield Solutions, LLC	42750-36-9779
Rugged	Winfield Solutions, LLC	1381-247	
Shredder E-99	Winfield Solutions, LLC	1381-195	
Bromacil	Bromacil 80DF	Alligare, LLC	81927-4
	Bromacil 80WG	Alligare, LLC	81927-4
	Ceannard Bromacil 80DF	Ceannard, Inc.	58035-19
	Hyvar X	DuPont Crop Protection	352-287
	Hyvar XL	DuPont Crop Protection	352-346
Chlorsulfuron	Alligare Chlorsulfuron	Alligare, LLC	81927-43
	Chlorsulfuron 75	Alligare, LLC	81927-43
	Telar DF	DuPont Crop Protection	352-522
	Telar XP	DuPont Crop Protection	352-654
	Nufarm Chlorsulf SPC 75 WDG Herbicide	Nufarm Americas Inc.	228-672
	Chlorsulfuron E-Pro 75 WDG	Nufarm Americas Inc.	79676-72
Clopyralid	Spur	Albaugh, Inc.	42750-89
	Pyramid R&P	Albaugh, Inc.	42750-94
	Clopyralid 3	Alligare, LLC	42750-94-81927
	Clopyralid 3	Alligare, LLC	81927-14
	Cody Herbicide	Alligare, LLC	81927-28
	Reclaim	Dow AgroSciences	62719-83
	Stinger	Dow AgroSciences	62719-73
	Transline	Dow AgroSciences	62719-259
	CleanSlate	Nufarm Americas Inc.	228-491
Dicamba	Dicamba DMA	Albaugh, Inc./Agri Star	42750-40
	Vision	Albaugh, Inc.	42750-98
	Cruise Control	Alligare, LLC	42750-40-81927
	Banvel	Arysta LifeScience N.A. Corp.	66330-276
	Clarity	BASF Corporation	7969-137

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
	Vision	Helena Chemical Company	5905-576
	Rifle	Loveland Products Inc.	34704-861
	Banvel	Micro Flo Company	51036-289
Dicamba – cont	Diablo	Nufarm Americas Inc.	228-379
	Vanquish Herbicide	Nufarm Americas Inc.	228-397
	Vanquish	Syngenta	100-884
	Sterling Blue	Winfield Solutions, LLC	7969-137-1381
Dicamba + Diflufenzopyr	Distinct	BASF Corporation	7969-150
	Overdrive	BASF Corporation	7969-150
NOTE: In accordance with the Record of Decision for the <i>Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (PEIS)</i>, the aerial application of this herbicide is prohibited.			
Diquat	Alligare Diquat	Alligare, LLC	81927-35
	NuFarm Diquat SPC 2 L Herbicide	Nufarm Americas Inc.	228-675
	Diquat SPC 2 L Herbicide	Nufarm Americas Inc.	79676-75
	Diquat E-Ag 2L	Nufarm Americas Inc.	79676-75
	Reward	Syngenta Professional Products	100-1091
Diuron	Diuron 80DF	Agrilience, L.L.C.	9779-318
	Diuron 80DF	Alligare, LLC	81927-12
	Ceannard Diuron 80DF	Ceannard, Inc.	58035-16
	Karmex DF	DuPont Crop Protection	352-692
	Karmex XP	DuPont Crop Protection	352-692
	Karmex IWC	DuPont Crop Protection	352-692
	Direx 4L	DuPont Crop Protection	352-678
	Direx 80DF	Griffin Company	1812-362
	Direx 4L	Griffin Company	1812-257
	Diuron 4L	Loveland Products Inc.	34704-854
	Diuron 80 WDG	Loveland Products Inc.	34704-648
	Diuron 4L	Makteshim Agan of N.A.	66222-54
	Diuron 80WDG	UAP-Platte Chem. Co.	34704-648
	Vegetation Man. Diuron 80 DF	Vegetation Man., LLC	66222-51-74477
	Diuron-DF	Wilbur-Ellis	00352-00-508-02935
Diuron 80DF	Winfield Solutions, LLC	9779-318	
Fluridone	Avast!	SePRO	67690-30
	Sonar AS	SePRO	67690-4
	Sonar Precision Release	SePRO	67690-12
	Sonar Q	SePRO	67690-3
	Sonar SRP	SePRO	67690-3
Glyphosate	Aqua Star	Albaugh, Inc./Agri Star	42750-59
	Forest Star	Albaugh, Inc./Agri Star	42570-61

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
	GlyStar Gold	Albaugh, Inc./Agri Star	42750-61
	Gly Star Original	Albaugh, Inc./Agri Star	42750-60
	Gly Star Plus	Albaugh, Inc./Agri Star	42750-61
	Gly Star Pro	Albaugh, Inc./Agri Star	42750-61
Glyphosate - cont.	Glyphosate 4 PLUS	Alligare, LLC	81927-9
	Glyphosate 4 +	Alligare, LLC	81927-9
	Glyphosate 5.4	Alligare, LLC	81927-8
	Glyfos	Cheminova	4787-31
	Glyfos PRO	Cheminova	67760-57
	Glyfos Aquatic	Cheminova	4787-34
	ClearOut 41 Plus	Chem. Prod. Tech., LLC	70829-3
	Accord Concentrate	Dow AgroSciences	62719-324
	Accord SP	Dow AgroSciences	62719-322
	Accord XRT	Dow AgroSciences	62719-517
	Accord XRT II	Dow AgroSciences	62719-556
	Glypro	Dow AgroSciences	62719-324
	Glypro Plus	Dow AgroSciences	62719-322
	Rodeo	Dow AgroSciences	62719-324
	Showdown	Helena Chemical Company	71368-25-5905
	Mirage	Loveland Products Inc.	34704-889
	Mirage Plus	Loveland Products Inc.	34704-890
	Aquamaster	Monsanto	524-343
	Roundup Custom	Monsanto	524-343
	Roundup Original	Monsanto	524-445
	Roundup Original II	Monsanto	524-454
	Roundup Original II CA	Monsanto	524-475
	Honcho	Monsanto	524-445
	Honcho Plus	Monsanto	524-454
	Roundup PRO	Monsanto	524-475
	Roundup PRO Concentrate	Monsanto	524-529
	Roundup PRO Dry	Monsanto	524-505
	Roundup PROMAX	Monsanto	524-579
	Aqua Neat	Nufarm Americas Inc.	228-365
	Credit Xtreme	Nufarm Americas Inc.	71368-81
	Foresters	Nufarm Americas Inc.	228-381
	Razor	Nufarm Americas Inc.	228-366
	Razor Pro	Nufarm Americas Inc.	228-366
	GlyphoMate 41	PBI/Gordon Corporation	2217-847
	AquaPro Aquatic Herbicide	SePRO Corporation	62719-324-67690
	Rattler	Setre (Helena)	524-445-5905
Buccaneer	Tenkoz	55467-10	
Buccaneer Plus	Tenkoz	55467-9	
Mirage Herbicide	UAP-Platte Chem. Co.	524-445-34704	
Mirage Plus Herbicide	UAP-Platte Chem. Co.	524-454-34704	

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
	Gly-4 Plus	Universal Crop Protection Alliance, LLC	72693-1
	Gly-4 Plus	Universal Crop Protection Alliance, LLC	42750-61-72693
Glyphosate - cont.	Gly-4	Universal Crop Protection Alliance, LLC	42750-60-72693
	Glyphosate 4	Vegetation Man., LLC	73220-6-74477
	Agrisolutions Cornerstone	Winfield Solutions, LLC	1381-191
	Agrisolutions Cornerstone Plus	Winfield Solutions, LLC	1381-192
	Agrisolutions Rascal	Winfield Solutions, LLC	1381-191
	Agrisolutions Rascal Plus	Winfield Solutions, LLC	1381-192
	Cornerstone 5 Plus	Winfield Solutions, LLC	1381-241
Hexazinone	Velpar ULW	DuPont Crop Protection	352-450
	Velpar L	DuPont Crop Protection	352-392
	Velpar DF	DuPont Crop Protection	352-581
	Velossa	Helena Chemical Company	5905-579
	Pronone MG	Pro-Serve	33560-21
	Pronone 10G	Pro-Serve	33560-21
	Pronone 25G	Pro-Serve	33560-45
Imazapic	Panoramic 2SL	Alligare, LLC	66222-141-81927
	Plateau	BASF	241-365
	Nufarm Imazapic 2SL	Nufarm Americas Inc.	71368-99
Imazapyr	Imazapyr 2SL	Alligare, LLC	81927-23
	Imazapyr 4SL	Alligare, LLC	81927-24
	Ecomazapyr 2SL	Alligare, LLC	81927-22
	Rotary 2 SL	Alligare, LLC	81927-6
	Arsenal Railroad Herbicide	BASF	241-273
	Chopper	BASF	241-296
	Arsenal Applicators Conc.	BASF	241-299
	Arsenal	BASF	241-346
	Arsenal PowerLine	BASF	241-431
	Stalker	BASF	241-398
	Habitat	BASF	241-426
	Polaris	Nufarm Americas Inc.	228-534
	Polaris AC	Nufarm Americas Inc.	241-299-228
	Polaris AC	Nufarm Americas Inc.	228-480
	Polaris AC Complete	Nufarm Americas Inc.	228-570
	Polaris AQ	Nufarm Americas Inc.	241-426-228
	Polaris RR	Nufarm Americas Inc.	241-273-228
	Polaris SP	Nufarm Americas Inc.	228-536
	Polaris SP	Nufarm Americas Inc.	241-296-228
	Polaris Herbicide	Nufarm Americas Inc.	241-346-228

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
	Habitat Herbicide	SePRO	241-426-67690
	SSI Maxim Arsenal 0.5G	SSI Maxim Co., Inc.	34913-23
	SSI Maxim Arsenal 5.0G	SSI Maxim Co., Inc.	34913-24
	Ecomazapyr 2 SL	Vegetation Man., LLC	74477-6
	Imazapyr 2 SL	Vegetation Man., LLC	74477-4
	Imazapyr 4 SL	Vegetation Man., LLC	74477-5
Metsulfuron methyl	MSM 60	Alligare, LLC	81927-7
	AmTide MSM 60DF Herbicide	AmTide, LLC	83851-3
	Escort DF	DuPont Crop Protection	352-439
	Escort XP	DuPont Crop Protection	352-439
	MSM E-Pro 60 EG Herbicide	Etigra, LLC	81959-14
	MSM E-AG 60 EG Herbicide	Etigra, LLC	81959-14
	Patriot	Nufarm Americas Inc.	228-391
	PureStand	Nufarm Americas Inc.	71368-38
	Metsulfuron Methyl DF	Vegetation Man., L.L.C.	74477-2
Picloram	Triumph K	Albaugh, Inc.	42750-81
	Triumph 22K	Albaugh, Inc.	42750-79
	Picloram K	Alligare, LLC	81927-17
	Picloram 22K	Alligare, LLC	81927-18
	Grazon PC	Dow AgroSciences	62719-181
	OutPost 22K	Dow AgroSciences	62719-6
	Tordon K	Dow AgroSciences	62719-17
	Tordon 22K	Dow AgroSciences	62719-6
	Trooper 22K	Nufarm Americas Inc.	228-535
Sulfometuron methyl	SFM 75	Alligare, LLC	81927-26
	Oust DF	DuPont Crop Protection	352-401
	Oust XP	DuPont Crop Protection	352-601
	SFM E-Pro 75EG	Etigra, LLC	79676-16
	Spyder	Nufarm Americas Inc.	228-408
	SFM 75	Vegetation Man., L.L.C.	72167-11-74477
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Tebuthiuron	Alligare Tebuthiuron 80 WG	Alligare, LLC	81927-37
	Alligare Tebuthiuron 20 P	Alligare, LLC	81927-41
	Spike 20P	Dow AgroSciences	62719-121
	Spike 80DF	Dow AgroSciences	62719-107
	SpraKil S-5 Granules	SSI Maxim Co., Inc.	34913-10
Triclopyr	Triclopyr 3	Alligare, LLC	81927-13
	Triclopyr 4	Alligare, LLC	81927-11
	Triclopyr RTU	Alligare, LLC	81927-33
	Element 3A	Dow AgroSciences	62719-37
	Element 4	Dow AgroSciences	62719-40

ACTIVE INGREDIENT	TRADE NAME	MANUFACTURER	EPA REG. NUMBER
	Forestry Garlon XRT	Dow AgroSciences	62719-553
	Garlon 3A	Dow AgroSciences	62719-37
	Garlon 4	Dow AgroSciences	62719-40
	Garlon 4 Ultra	Dow AgroSciences	62719-527
	Remedy	Dow AgroSciences	62719-70
	Remedy Ultra	Dow AgroSciences	62719-552
	Pathfinder II	Dow AgroSciences	62719-176
	Trycera	Helena Chemical Company	5905-580
Triclopyr – cont.	Relegate	Nufarm Americas Inc.	228-521
	Relegate RTU	Nufarm Americas Inc.	228-522
	Tahoe 3A	Nufarm Americas Inc.	228-384
	Tahoe 3A	Nufarm Americas Inc.	228-518
	Tahoe 3A	Nufarm Americas Inc.	228-520
	Tahoe 4E	Nufarm Americas Inc.	228-385
	Tahoe 4E Herbicide	Nufarm Americas Inc.	228-517
	Renovate 3	SePRO Corporation	62719-37-67690
	Renovate OTF	SePRO Corporation	67690-42
	Ecotriclopyr 3 SL	Vegetation Man., LLC	72167-49-74477
	Triclopyr 3 SL	Vegetation Man., LLC	72167-53-74477

APPENDIX C

BLM PEIS Max Application Rates for Herbicide Active Ingredients (BLM PEIS 2007)

Common Name/ Active Ingredient	Alternative Name/ e.g., trade name®	EIS Max Application Rate (lbs a.i. or a.e./ac)	Units	Page in BLM PEIS	Use**	CASRN
Aminopyralid		0.11	lbs a.e./ac	2015 ERA ¹	C,ROW, R/P, U	150114-71-9
Bromacil		12.0	lbs a.i./ac	C-9	C,U	314-40-9
Chlorsulfuron		0.062	lbs a.i./ac	C-9	C	64902-72-3
Clopyralid		1.0	lb a.e./ac	4-56	C,R/P, U	1702-17-6
2, 4-D	Chlorophenoxy- Acetic Acid	1.9 (terrestrial) 8.0 (aquatic)	lbs a.i./ac lbs a.i./ac	4-56	C,R/P, U	94-75-7
Dicamba	Anisic Acid				C,R/P	1918-00-9
Diflufenzopyr		0.1	lbs a.i./ac	C-9	C	109293-97-2
Diquat (aquatic)	Diquat dibromide	4.0	lbs a.i./ac	C-9	W	85-00-7
Diquat (nonaquatic)	Diquat dibromide				C,U	85-00-7
Diuron (see note below)		20.0	lbs a.i./ac	C-9	C	330-54-1
Fluridone (aquatic)	e.g., Sonar	1.3	lbs a.i./ac	C-9	W	5976-60-4
Fluroxypyr (acid formulation)					C,P	69377-81-7
Glyphosate (nonaquatic)	e.g., Roundup				C,R/P, U, W	1071-83-6
Hexazinone		8.0	lbs a.i./ac	4-59	C,F,R/P	51235-04-2
Imazapic		0.1875	lb a.i./ac	C-9	C	1928-43-4
Imazapyr (technical formulation)		1.5	lbs a.i./ac	4-59	C,ROW, R/P	81334-34-1
Metsulfuron-methyl (see note below)		0.15	lb a.i./ac	4-60	C	74223-64-6
Overdrive		0.35	lb a.i./ac	C-9	R/P, ROW	

Common Name/ Active Ingredient	Alternative Name/ e.g., trade name®	EIS Max Application Rate (lbs a.i. or a.e./ac)	Units	Page in BLM PEIS	Use**	CASRN
Picloram (see note below)	e.g., Tordon	1.0	lb a.e./ac	4-61	C,R/P	1918-02-1
Rimsulfuron					C	122931-48-0
Sulfometuron-methyl	Sulfometuron	0.38	lb a.i./ac	C-9	R/P,ROW	74222-97-2
Tebuthiuron		4.0	lb a.i./ac	C-9	R/P,U	34104-18-1
Triclopyr (amine salt formulations)	e.g., Garlon 3A	10.0	lbs a.e./ac	4-62	F,R/P, ROW	55226-06-3
Triclopyr (ester formulations)	e.g., Garlon 4				F,R/P, ROW	55335-06-3

** C = Cropland, F = Forest, P = Pasture, R/P = Rangeland and/or Pasture, ROW = Right-of-way, U = Urban, W = Water

¹ BLM Vegetation Treatments Ecological Risk Assessment - Aminopyralid, March 2014, in Feb 14, 2015 document:
http://www.blm.gov/style/medialib/blm/wo/Planning_and_Renewable_Resources/vegeis.Par.12091.File.dat/Aminopyralid%20Ecological%20Risk%20Assessment.pdf

APPENDIX C

Ecotoxicity Ratings for Herbicide Active Ingredients
Approved for Use on BLM-Administered Lands (USFWS 2007)

Herbicide				Species toxicity groups*H §																		
Common Name/ Active Ingredient	Alternative Name/ e.g., trade name®	Use**	CASRN	L-MA	P-MA	S-MA	G-AV	L-AV	P-AV	S-AV	W-AV	REP	A-AM	T-AM	CW-F	WW-F	A-AR	BEE	T-AR	FW-M	PLANT	
Aminopyralid		C,ROW, R/P, U	150114-71-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D
Bromacil		C,U	314-40-9	1	1	1	0	0	0	0	0	0	1	1	1	1	1	0	1	1	NS	
Chlorsulfuron		C	64902-72-3	1e	1e	1e	1e	1e	1e	1e	1e	1e	0	1e	0	0	0	0	0	0	NS	
Clopyralid		C,R/P, U	1702-17-6	1e	1e	1e	1e	1e	1e	1e	1e	1e	0	1e	0	0	0	0	0	0	0	D
2, 4-D (acid formulations)	Chlorophenoxy-Acetic Acid	C,R/P, U	94-75-7	1e	1e	1e	1e	1e	1e	1e	1e	1e	1	1	1	0	1	0	1	1	D	
2, 4-D (aquatic amine salt formulations)		W	Various CASRNs	1e	1e	1e	1e	1e	1e	1e	1e	1e	0	1e	0	0	2		2	2	Daq	
2, 4-D (nonaquatic amine salt formulations)		C,R/P, U	Various CASRNs	1e	1e	1e	1e	1e	1e	1e	1e	1e	0	1e	0	0	2		2	2	D	
2, 4-D (aquatic ester formulations)	e.g., Aqua- kleen	W	Various CASRNs	1	1	1	0	0	0	0	0	0	1	1	2	2	3		3	3	Daq	
2, 4-D (nonaquatic ester formulations)		C,R/P, U	Various CASRNs	1	1	1	0	0	0	0	0	0	1	1	2	2	3		3	3	D	
Dicamba	Anisic Acid	C,R/P	1918-00-9	2e	2e	2e	2e	2e	2e	2e	2e	2e	1	2e	1	1	1	0	1	1	D	
Diflufenzopyr		C	109293-97-2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	D
Diquat (aquatic)	Diquat dibromide	W	85-00-7	2	1	1	1	1	1	1	1	1	1	1	1	1	2	0	2	2	NSaq	
Diquat (nonaquatic)	Diquat dibromide	C,U	85-00-7	2	1	1	1	1	1	1	1	1	1	1	1	1	2	0	2	2	NS	
Diuron (see note below)		C	330-54-1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	0	2	2	NS	
Fluridone (aquatic)	e.g., Sonar	W	5976-60-4	0	0	0	0	0	0	0	0	0	1	1	1	1	1		1	1	NSaq	
Fluroxypyr (acid formulation)		C,P	69377-81-7	1	1	1	0	0	0	0	0	0	1	1	1	1	0	0	0	0	D	
Glyphosate (nonaquatic)	e.g., Roundup	C,R/P, U, W	1071-83-6	1e	1e	1e	1e	1e	1e	1e	1e	1e	1	1	1	1	1	0	1	1	NS	
Hexazinone		C,F,R/P	51235-04-2	1e	1e	1e	1e	1e	1e	1e	1e	1e	0	1e	0	0	1	0	1	1	NSf	

Herbicide				Species toxicity groups*H §																		
Common Name/ Active Ingredient	Alternative Name/ e.g., trade name®	Use**	CASRN	L-MA	P-MA	S-MA	G-AV	L-AV	P-AV	S-AV	W-AV	REP	A-AM	T-AM	CW-F	WW-F	A-AR	BEE	T-AR	FW-M	PLANT	
Imazapic		C	1928-43-4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NS
Imazapyr (technical formulation)		C,ROW, R/P	81334-34-1	1e	1e	1e	1e	1e	1e	1e	1e	1e	0	1e	0	0	0	0	0	0	0	NS
Imazapyr (aquatic)	e.g., Habitat	W	81334-34-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NSaq
Imazapyr (nonaquatic)	e.g., Arsenal	C,ROW, R/P	81334-34-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NS
Metsulfuron-methyl (see note below)		C	74223-64-6	1e	1e	1e	1e	1e	1e	1e	1e	1e	1	1e	1	1	1	1	1	1	0	NS
Picloram (see note below)	e.g., Tordon	C,R/P	1918-02-1	1	1	1	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	NS
Rimsulfuron		C	122931-48-0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NS
Sulfometuron-methyl	Sulfometuron	R/P,ROW	74222-97-2	0	0	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	1	NS
Tebuthiuron		R/P,U	34104-18-1	1	1	1	0	0	0	0	0	0	1	1	1	1	0	1	1	0	0	NSf
Triclopyr (amine salt formulations)	e.g., Garlon 3A	F,R/P, ROW	55226-06-3	1e	1e	1e	1e	1e	1e	1e	1e	1e	0	1e	0	0	0	0	0	0	0	D
Triclopyr (ester formulations)	e.g., Garlon 4	F,R/P, ROW	55335-06-3	1	1	1	0	0	0	0	0	0	2	2	2	2	1	0	1	1	1	D

C = Cropland, F = Forest, P = Pasture, R/P = Rangeland and/or Pasture, ROW = Right-of-way, U = Urban, W = Water

*	A-AM = Aquatic Amphibian	CW-F = Cold Water Fish	G-AV= Gallinaceous Avian	L-MA= Large Mammal	P-MA = Predatory Mammal	S-AV = Small Avian	T-AM = Terrestrial Amphibian	W-AV =Waterfowl Avian
	A-AR = Aquatic Arthropod	FW-M = Freshwater Mollusk	L-AV = Large Avian	P-AV = Predatory Avian	REP = Reptile	S-MA = Small Mammal	T-AR =Terrestrial Arthropod	WW-F =Warm Water Fish

H Animal ecotoxicity classes: 0 =practically non-toxic, 1 =slightly to moderately toxic, 2 = highly toxic, 3 =very highly toxic; Plant ecotoxicity classes: D= dicot-specific, NS = non-specific for dicots or monocots

§ Subscripts: aq = aquatic formulation, e = eye irritation rating, f = formulation-dependent

Notes:

diuron = herbicide may be released as urine into waterbodies by ungulates that have grazed on field-applied
metsulfuron = metsulfuron is rated as Class 1 in toxicity groups for fish and amphibians due to reported mortality incidents not indicated by toxicity data
picloram = picloram is used mostly for broad-leaved plants but can harm some grasses and other monocots