APPENDIX A – SUMMARY OF AVAILABLE AND RELEVANT TOXICITY DATA FOR RIMSULFURON

APPENDIX A.1 – BIBLIOGRAPHY LIST

COMPLETE LISTING OF TOXICITY REFERENCES EVALUATED FOR

Rimsulfuron

Martins, J.M.; Chevre, N. L.; Spack, L.; Tarradellas, J.; Mermoud, A. 2001. Degradation in soil and water and ecotoxicity of rimsulfuron and its metabolites. Chemosphere 45:515-522

USEPA. 1988a. 14-day Toxicity Test with *Colinus virginianus* Exposed Orally. Data Evaluation Report reviewed by C. Laird, U.S. Environmental Protection Agency. Date Reviewed 1991. MRID 41356304.

USEPA. 1988b. 8-day Toxicity Test with *Colinus virginianus* Exposed via Diet. Data Evaluation Report reviewed by C. Laird, U.S. Environmental Protection Agency. Date Reviewed 1991. MRID 41356305.

USEPA. 1988c. 9-day Toxicity Test with *Anas platyrhynchos* Exposed via Diet. Data Evaluation Report reviewed by C. Laird, U.S. Environmental Protection Agency. Date Reviewed 1991. MRID 41356306.

USEPA. 1989a. 48-hour Acute Contact Toxicity Test with *Apis mellifera.* Evaluation Report reviewed by C. Laird, U.S. Environmental Protection Agency. Date Reviewed 1991. MRID 41356331.

USEPA. 1989b. 48-hour Static Acute Toxicity Test with *Daphnia magna.* Evaluation Report reviewed by C. Laird, U.S. Environmental Protection Agency. Date Reviewed 1991. MRID 41356309.

USEPA. 1989c. 96-hour Static Acute Toxicity Test with *Lepomis macrochirus.* Evaluation Report reviewed by C. Laird, U.S. Environmental Protection Agency. Date Reviewed 1991. MRID 41356308.

USEPA. 1989d. 96-hour Static Acute Toxicity Test with *Oncorhynchus mykiss.* Evaluation Report reviewed by C. Laird, U.S. Environmental Protection Agency. Date Reviewed 1991. MRID 41356307.

USEPA. 1990a. 14-day Toxicity Test with *Anas platyrhynchos* Exposed Orally. Data Evaluation Report reviewed by A. Vaughn, U.S. Environmental Protection Agency. Date Reviewed 1994. MRID 41931629.

USEPA. 1990b. 14-day Toxicity Test with *Anas platyrhynchos* Exposed Orally. Data Evaluation Report reviewed by H. Mansfield, U.S. Environmental Protection Agency. Date Reviewed 1994. MRID 41931630.

USEPA. 1990c. 14-day Toxicity Test with *Colinus virginianus* Exposed Orally. Data Evaluation Report reviewed by A. Vaughn, U.S. Environmental Protection Agency. Date Reviewed 1994. MRID 41931631.

USEPA. 1990d. 48-hour Static Acute Toxicity Test with *Daphnia magna.* Evaluation Report reviewed by H. Mansfield, U.S. Environmental Protection Agency. Date Reviewed 1994. MRID 41931621.

USEPA. 1990e. 8-day Toxicity Test with *Anas platyrhynchos* Exposed via Diet. Data Evaluation Report reviewed by A. Vaughn. Mansfield, U.S. Environmental Protection Agency. Date Reviewed 1994. MRID 41931633.

USEPA. 1990f. 8-day Toxicity Test with *Colinus virginianus* Exposed via Diet. Data Evaluation Report reviewed by A. Vaughn, U.S. Environmental Protection Agency. Date Reviewed 1994. MRID 41931632.

USEPA. 1990g. 96-hour Flow Through Acute Toxicity Test with *Crassostrea virginica.* Evaluation Report reviewed by H. Mansfield, U.S. Environmental Protection Agency. Date Reviewed 1994. MRID 42471301.

USEPA. 1990h. 96-hour Static Acute Toxicity Test with *Lepomis macrochirus.* Evaluation Report reviewed in 1994. MRID 41931620.

USEPA. 1992a. 14-day Static Toxicity Test with *Lemna gibba.* Evaluation Report reviewed by C. Lewis, U.S. Environmental Protection Agency. Date Reviewed 1993. MRID 42471308.

USEPA. 1992b. 5-day Static Toxicity Test with *Anabaena flos-aquae.* Evaluation Report reviewed by C. Lewis, U.S. Environmental Protection Agency. Date Reviewed 1993. MRID 42471306.

USEPA. 1992c. 5-day Static Toxicity Test with *Navicula pelliculosa.* Evaluation Report reviewed by C. Lewis, U.S. Environmental Protection Agency. Date Reviewed 1993. MRID 42471307.

USEPA. 1992d. 5-day Static Toxicity Test with *Selenastrum capricornutum.* Evaluation Report reviewed by C. Lewis, U.S. Environmental Protection Agency. Date Reviewed 1993. MRID 42471305.

USEPA. 1992e. 96-hour Flow Through Acute Toxicity Test with *Americamysis bahia.* Evaluation Report reviewed by H. Mansfield, U.S. Environmental Protection Agency. Date Reviewed 1994. MRID 42471302.

USEPA. 1992f. 96-hour Flow Through Acute Toxicity Test with *Cyprinodon variegatus.* Evaluation Report reviewed by H. Mansfield, U.S. Environmental Protection Agency. Date Reviewed 1994. MRID 42471303.

USEPA. 1992g. Multi-species Toxicity Tests with Plants Exposed via Soil and Direct Spray. Evaluation Report reviewed by C. Lewis, U.S. Environmental Protection Agency. MRID 42471304.

USEPA. 1993a. Multi-species Toxicity Tests with Plants Exposed via Soil and Direct Spray. Evaluation Report reviewed by C. Lewis, U.S. Environmental Protection Agency. MRID 42471304.

USEPA. 1993b. 5-day Static Toxicity Test with *Skeletonema costatum.* Evaluation Report reviewed by A. Vaughn, U.S. Environmental Protection Agency. MRID 43043601.

USEPA. 1994a. 20-week Toxicity Test with *Colinus virginianus* Exposed Orally. Data Evaluation Report reviewed by M. Feken. Date Reviewed 1997. MRID 43277201.

USEPA. 1994b. Multi-species Toxicity Tests with Plants Exposed via Soil and Direct Spray. Evaluation Report reviewed by M. Mossler. MRID 43539201.

USEPA. 2007. Acute Oral Toxicity Study with Rats. MRID 41356310. *As cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. Acute Oral Toxicity Study with Rats. MRID 41356311. *As cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit;*

Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.

USEPA. 2007. Acute Dermal Toxicity Study with Rabbits. MRID 41356312. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. Acute Dermal Toxicity Study with Rabbits. MRID 41356313. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. 90-day Oral Toxicity Study with Rats. MRID 41356321. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. 90-day Oral Toxicity Study with Beagle Dogs. MRID 41356322. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. 90-day Oral Toxicity Study with Mice. MRID 41356323. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. 90-day Prenatal Development Study with Rats. MRID 41356324. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. 90-day Prenatal Development Study with Rabbits. MRID 41356325. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. Acute Oral Toxicity Study with Mice. MRID 41931623. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. Acute Dermal Toxicity Study with Rabbits. MRID 41931624. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit;*

Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.

USEPA. 2007. Acute Oral Toxicity Study with Rats. MRID 41931634. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. Acute Dermal Toxicity Study with Rabbits. MRID 41931635. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. Chronic Toxicity Study with Beagle Dogs. MRID 41931643. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

USEPA. 2007. Toxic Effects on Reproduction and Fertility in Rats. MRID 41931644. A*s cited in USEPA. 2007. Memorandum: Rimsulfuron: Human Health Risk Assessment for Proposed Uses on Almonds; Citrus Fruit; Grapes; Pistachio; Pome Fruit; Stone Fruit; and Tree Nuts. PC Code: 129009, Petition No: 5F7019, DP Num: 333256. May 16, 2007.*

APPENDIX A – SUMMARY OF AVAILABLE AND RELEVANT TOXICITY DATA FOR RIMSULFURON

APPENDIX A.2 – SPREADSHEET OF TOXICITY DATA FOR RIMSULFURON TRV

Formulation	% purity a.i.	General Taxonomic Group	Common Name	Scientific Name	Age	Test Type	Means of Exposure	Exposure Duration	Test Duration	Biological Endpoint	Statistical Endpoint	Toxicity Value (a.i.)[1]			Units	Lab	MRID Number	Data Source[2]	EPA Reviewer	Date Reviewed	Used for TRV derivation
Rimsulfuron	98.8%	Terrestrial Plant	Sorghum	*Sorghum bicolor*	Seedling	Seedling germination	Soil	5 d	5 d	Germination	EC25	>	0.50		OZA	Dupont E.I. Corporation, Delaware	42471304	1992g[3,4]	C. Lewis	1993	Yes
Rimsulfuron	**98.8%**	**Terrestrial Plant**	**Sorghum**	***Sorghum bicolor***	**Seedling**	**Seedling germination**	**Soil**	**5 d**	**5 d**	**Germination**	**NOEL**		**0.50**		**OZA**	**Dupont E.I. Corporation, Delaware**	**42471304**	**1992g[3,4]**	**C. Lewis**	**1993**	**Yes**
Rimsulfuron	98.6%	Aquatic Plant	Green algae	*Selenastrum capricornutum*	Not reported	Static	Water	5 d	5 d	Growth	EC50	>	29		ppb	Malcolm Pernie Inc. New York	42471305	1992d[3,4]	C. Lewis	1993	Yes
Rimsulfuron	98.6%	Aquatic Plant	Green algae	*Selenastrum capricornutum*	Not reported	Static	Water	5 d	5 d	Growth	NOEL		29		ppb	Malcolm Pernie Inc. New York	42471305	1992d[3,4]	C. Lewis	1993	Yes
Rimsulfuron	98.6%	Aquatic Plant	Bluegreen algae	*Anabaena flos-aquae*	Not reported	Static	Water	5 d	5 d	Growth	EC50	>	35		ppb	Malcolm Pernie Inc. New York	42471306	1992b[3,4]	C. Lewis	1993	No
Rimsulfuron	98.6%	Aquatic Plant	Bluegreen algae	*Anabaena flos-aquae*	Not reported	Static	Water	5 d	5 d	Growth	NOEL		35		ppb	Malcolm Pernie Inc. New York	42471306	1992b[3,4]	C. Lewis	1993	No
Rimsulfuron	98.6%	Aquatic Plant	Freshwater diatom	*Navicula pelliculosa*	Not reported	Static	Water	5 d	5 d	Growth	EC50	>	30		ppb	Malcolm Pernie Inc. New York	42471307	1992c[3,4]	C. Lewis	1993	Yes
Rimsulfuron	98.6%	Aquatic Plant	Freshwater diatom	*Navicula pelliculosa*	Not reported	Static	Water	5 d	5 d	Growth	NOEL	<	30		ppb	Malcolm Pernie Inc. New York	42471307	1992c[3,4]	C. Lewis	1993	Yes
Rimsulfuron	**98.6%**	**Aquatic Plant**	**Duckweed**	***Lemna gibba***	**Not reported**	**Static**	**Water**	**14 d**	**14 d**	**Growth**	**EC50**		**11.6**		**ppb**	**Malcolm Pernie Inc. New York**	**42471308**	**1992a[3,4]**	**C. Lewis**	**1993**	**Yes**
Rimsulfuron	**98.6%**	**Aquatic Plant**	**Duckweed**	***Lemna gibba***	**Not reported**	**Static**	**Water**	**14 d**	**14 d**	**Growth**	**NOEL**		**0.09**		**ppb**	**Malcolm Pernie Inc. New York**	**42471308**	**1992a[3,4]**	**C. Lewis**	**1993**	**Yes**
Rimsulfuron	**98.8%**	**Terrestrial Plant**	**Rape**	***Brassica sp.***	**Seedling**	**Seedling emergence**	**Soil**	**14 d**	**14 d**	**Germination**	**EC25**		**0.002**		**OZA**	**Dupont E.I. Corporation, Delaware**	**42471304**	**1992g[3,4]**	**C. Lewis**	**1993**	**Yes**
Rimsulfuron	**98.8%**	**Terrestrial Plant**	**Rape**	***Brassica sp.***	**Seedling**	**Seedling emergence**	**Soil**	**14 d**	**14 d**	**Germination**	**NOEL**	**<**	**0.002**		**OZA**	**Dupont E.I. Corporation, Delaware**	**42471304**	**1992g[3,4]**	**C. Lewis**	**1993**	**Yes**
Rimsulfuron	98.8%	Terrestrial Plant	Rape	*Brassica sp.*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	EC25		0.0005		OZA	Dupont E.I. Corporation, Delaware	42471304	1992g[3,4,6]	C. Lewis	1993	Supplemental
Rimsulfuron	98.8%	Terrestrial Plant	Rape	*Brassica sp.*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	NOEL	<	0.0005		OZA	Dupont E.I. Corporation, Delaware	42471304	1992g[3,4,6]	C. Lewis	1993	Supplemental
Rimsulfuron	98.8%	Aquatic invertebrate	Water flea	*Daphnia magna*	<24 hr	Static	Water	48 hr	48 hr		EC50	>	360		ppm	Dupont E.I. Corporation, Delaware	41356309	1989b[3,4]	C. Laird	1991	Yes
Rimsulfuron	**98.8%**	**Insecta**	**Honey bee**	***Apis mellifera***	**Worker**	**Contact**	**Direct contact**	**48 hr**	**48 hr**	**Mortality**	**LD50**	**>**	**100**		**ug/bee**	**Wildlife International Inc., MD**	**41356331**	**1989a[3,4]**	**C. Laird**	**1991**	**Yes**
Rimsulfuron	98.8%	Insecta	Honey bee	*Apis mellifera*	Worker	Contact	Direct contact	48 hr	48 hr	Mortality	NOEL		100		ug/bee	Wildlife International Inc., MD	41356331	1989a[3,4]	C. Laird	1991	Yes
Rimsulfuron	99%	Aquatic invertebrate	Mysid	*Americamysis bahia*	<24 hr	Flow through	Water	96 hr	96 hr	Mortality	LC50	>	110		ppm	Wildlife International Inc., MD	42471302	1992e[3,4]	H. Mansfield	1994	No
Rimsulfuron	99%	Aquatic invertebrate	Mysid	*Americamysis bahia*	<24 hr	Flow through	Water	96 hr	96 hr		NOEL		110		ppm	Wildlife International Inc., MD	42471302	1992e[3,4]	H. Mansfield	1994	No
Rimsulfuron	99%	Mollusca	Eastern oyster	*Crassostrea virginica*	SPAT	Flow through	Water	96 hr	96 hr		EC50	>	120		ppm	Wildlife International Inc., MD	42471301	1990g[3,4]	H. Mansfield	1994	No
Rimsulfuron	99%	Mollusca	Eastern oyster	*Crassostrea virginica*	SPAT	Flow through	Water	96 hr	96 hr		NOEL	<	120		ppm	Wildlife International Inc., MD	42471301	1990g[3,4]	H. Mansfield	1994	No

Formulation	% purity a.i.	General Taxonomic Group	Common Name	Scientific Name	Age	Test Type	Means of Exposure	Exposure Duration	Test Duration	Biological Endpoint	Statistical Endpoint	Toxicity Value (a.i.)[1]	Units	Lab	MRID Number	Data Source[2]	EPA Reviewer	Date Reviewed	Used for TRV derivation
Rimsulfuron	98.8%	Aquatic invertebrate	Water flea	*Daphnia magna*	<24 hr	Static	Water	48 hr	48 hr		EC50	1000	ppm	Haskell Laboratory, E.I. Dupont Corp.	41931621	1990d[3,4,6]	H. Mansfield	1994	Supplemental
Rimsulfuron	98.8%	Aquatic invertebrate	Water flea	*Daphnia magna*	<24 hr	Static	Water	48 hr	48 hr		NOEL	800	ppm	Haskell Laboratory, E.I. Dupont Corp.	41931621	1990d[3,4,6]	H. Mansfield	1994	Supplemental
Rimsulfuron	**98.8%**	**Fish**	**Rainbow trout**	***Oncorhynchus mykiss***	**0.57 g**	**Static**	**Water**	**96 hr**	**96 hr**	**Mortality**	**LC50**	**> 390**	ppm	**Dupont E.I. Corporation, Delaware**	**41356307**	**1989d[3,4]**	**C. Laird**	**1991**	**Yes**
Rimsulfuron	**98.8%**	**Fish**	**Rainbow trout**	***Oncorhynchus mykiss***	**0.57 g**	**Static**	**Water**	**96 hr**	**96 hr**		**NOEL**	**390**	**ppm**	**Dupont E.I. Corporation, Delaware**	**41356307**	**1989d[3,4]**	**C. Laird**	**1991**	**Yes**
Rimsulfuron	**98.8%**	**Fish**	**Bluegill sunfish**	***Lepomis macrochirus***	**0.44 g**	**Static**	**Water**	**96 hr**	**96 hr**	**Mortality**	**LC50**	**> 390**	**ppm**	**Dupont E.I. Corporation, Delaware**	**41356308**	**1989c[3,4]**	**C. Laird**	**1991**	**Yes**
Rimsulfuron	**98.8%**	**Fish**	**Bluegill sunfish**	***Lepomis macrochirus***	**0.44 g**	**Static**	**Water**	**96 hr**	**96 hr**		**NOEL**	**390**	**ppm**	**Dupont E.I. Corporation, Delaware**	**41356308**	**1989c[3,4]**	**C. Laird**	**1991**	**Yes**
Rimsulfuron	99%	Fish	Sheepshead minnow	*Cyprinodon variegatus*	0.36 g	Flow through	Water	96 hr	96 hr	Mortality	LC50	> 110	ppm	Wildlife International Inc., MD	42471303	1992f[3,4]	H. Mansfield	1994	No
Rimsulfuron	99%	Fish	Sheepshead minnow	*Cyprinodon variegatus*	0.36 g	Flow through	Water	96 hr	96 hr		NOEL	110	ppm	Wildlife International Inc., MD	42471303	1992f[3,4]	H. Mansfield	1994	No
Rimsulfuron	98.8%	Bird	Bobwhite quail	*Colinus virginianus*	18 w	Oral (gavage or capsule)	Oral	14 d	14 d	Mortality	LD50	> 2250	mg/kg bw	Wildlife International Inc., MD	41356304	1988a[3,4]	C. Laird	1991	Yes
Rimsulfuron	98.8%	Bird	Bobwhite quail	*Colinus virginianus*	18 w	Oral (gavage or capsule)	Oral	14 d	14 d		NOEL	2250	mg/kg bw	Wildlife International Inc., MD	41356304	1988a[3,4]	C. Laird	1991	Yes
Rimsulfuron	**98.8%**	**Bird**	**Mallard duck**	***Anas platyrhynchos***	**20 w**	**Oral (gavage or capsule)**	**Oral**	**14 d**	**14 d**	**Mortality**	**LD50**	**> 2,000**	**mg/kg bw**	**Wildlife International Inc., MD**	**41931630**	**1990b[3,4]**	**H. Mansfield**	**1994**	**Yes**
Rimsulfuron	**98.8%**	**Bird**	**Mallard duck**	***Anas platyrhynchos***	**20 w**	**Oral (gavage or capsule)**	**Oral**	**14 d**	**14 d**		**NOEL**	**1,000**	**mg/kg bw**	**Wildlife International Inc., MD**	**41931630**	**1990b[3,4]**	**H. Mansfield**	**1994**	**Yes**
Rimsulfuron	25 G	Bird	Bobwhite quail	*Colinus virginianus*	30 w	Oral (gavage or capsule)	Oral	14 d	14 d	Mortality	LD50	> 562.5	mg/kg bw	Wildlife International Inc., MD	41931631	1990c[3,4,6]	A. Vaughan	1994	Supplemental
Rimsulfuron	25 G	Bird	Bobwhite quail	*Colinus virginianus*	30 w	Oral (gavage or capsule)	Oral	14 d	14 d		NOEL	337.5 [24]	mg/kg bw [mg/kg bw/d]	Wildlife International Inc., MD	41931631	1990c[3,4,6]	A. Vaughan	1994	Supplemental
Rimsulfuron	25 G	Bird	Mallard duck	*Anas platyrhynchos*	23 w	Oral (gavage or capsule)	Oral	14 d	14 d	Mortality	LD50	> 2250	mg/kg bw	Wildlife International Inc., MD	41931629	1990a[3,4]	A. Vaughan	1994	Yes
Rimsulfuron	25 G	Bird	Mallard duck	*Anas platyrhynchos*	23 w	Oral (gavage or capsule)	Oral	14 d	14 d		NOEL	292	mg/kg bw	Wildlife International Inc., MD	41931629	1990a[3,4]	A. Vaughan	1994	Yes
Rimsulfuron	**98.8%**	**Bird**	**Bobwhite quail**	***Colinus virginianus***	**14 d**	**Dietary**	**Diet**	**5 d**	**8 d**	**Mortality**	**LC50**	**> 5,620 [16,969]**	**ppm [mg/kg bw]**	**Wildlife International Inc., MD**	**41356305**	**1988b[3,4]**	**C. Laird**	**1991**	**Yes**
Rimsulfuron	**98.8%**	**Bird**	**Bobwhite quail**	***Colinus virginianus***	**14 d**	**Dietary**	**Diet**	**5 d**	**8 d**		**NOEL**	**5,620 [3,394]**	**ppm [mg/kg bw/d]**	**Wildlife International Inc., MD**	**41356305**	**1988b[3,4]**	**C. Laird**	**1991**	**Yes**
Rimsulfuron	98.8%	Bird	Mallard duck	*Anas platyrhynchos*	9 d	Dietary	Diet	5 d	8 d	Mortality	LC50	> 5,620 [2,810]	ppm [mg/kg bw]	Wildlife International Inc., MD	41356306	1988c[3,4]	C. Laird	1991	Yes
Rimsulfuron	98.8%	Bird	Mallard duck	*Anas platyrhynchos*	9 d	Dietary	Diet	5 d	8 d		NOEL	5620 [562]	ppm [mg/kg bw/d]	Wildlife International Inc., MD	41356306	1988c[3,4]	C. Laird	1991	Yes
Rimsulfuron	25%	Bird	Mallard duck	*Anas platyrhynchos*	10 d	Dietary	Diet	8 d	8 d	Mortality	LC50	> =1378 [1,102]	ppm [mg/kg bw]	Wildlife International Inc., MD	41931633	1990e[3,4,6]	A. Vaughan	1994	Supplemental

Formulation	% purity a.i.	General Taxonomic Group	Common Name	Scientific Name	Age	Test Type	Means of Exposure	Exposure Duration	Test Duration	Biological Endpoint	Statistical Endpoint	Toxicity Value (a.i.)[1]	Units	Lab	MRID Number	Data Source[2]	EPA Reviewer	Date Reviewed	Used for TRV derivation
Rimsulfuron	25%	Bird	Mallard duck	*Anas platyrhynchos*	10 d	Dietary	Diet	8 d	8 d		NOEL	1378 [137.8]	ppm [mg/kg bw/d]	Wildlife International Inc., MD	41931633	1990e[3,4,6]	A. Vaughan	1994	Supplemental
Rimsulfuron DPXE-9636	25%	Bird	Bobwhite quail	*Colinus virginianus*	10 d	Dietary	Diet	8 d	8 d	Mortality	LC50	> 1339 [6,469]	ppm [mg/kg bw]	Wildlife International Inc., MD	41931632	1990f[3,4,6]	A. Vaughan	1994	Supplemental
Rimsulfuron DPXE-9636	25%	Bird	Bobwhite quail	*Colinus virginianus*	10 d	Dietary	Diet	8 d	8 d		NOEL	1339 [809]	ppm [mg/kg bw/d]	Wildlife International Inc., MD	41931632	1990f[3,4,6]	A. Vaughan	1994	Supplemental
Rimsulfuron	98.8%	Terrestrial Plant	Onion	*Allium cepa*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	EC25	Not reported	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Onion	*Allium cepa*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	NOEL	< 0.0078	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Aquatic Plant	Marine diatom	*Skeletonema costatum*	Not reported	Static	Water	5 d	5 d	Growth	EC50	> 48	ppb	Wildlife International Inc., MD	43043601	1993b[3,4,6]	A. Vaughan	1994	Supplemental
Rimsulfuron	98.8%	Terrestrial Plant	Sorghum	*Sorghum bicolor*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	EC25	> 0.06	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Sorghum	*Sorghum bicolor*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	NOEL	> 0.0625	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Tomato	*Lycopersicon esculentum*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	EC25	> 0.062	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Tomato	*Lycopersicon esculentum*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	NOEL	> 0.0625	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Garden pea	*Pisum sativum*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	EC25	0.0078	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4,5]	C. Lewis	1994	No
Rimsulfuron	98.8%	Terrestrial Plant	Garden pea	*Pisum sativum*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	NOEL	< 0.0039	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4,5]	C. Lewis	1994	No
Rimsulfuron	98.8%	Terrestrial Plant	Onion	*Allium cepa*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	EC25	0.0097	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Onion	*Allium cepa*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	NOEL	0.00391	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Sorghum	*Sorghum bicolor*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	EC25	0.003	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Sorghum	*Sorghum bicolor*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	NOEL	0.0039	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Tomato	*Lycopersicon esculentum*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	EC25	> 0.5	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Tomato	*Lycopersicon esculentum*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	NOEL	> 0.5	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Wheat	*Triticum aestivum*	Juvenile	Vegetative vigor	Direct spray	14 d	14 d	Vegetative vigor	EC25	0.06	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Wheat	*Triticum aestivum*	Juvenile	Vegetative vigor	Direct spray	14 d	14 d	Vegetative vigor	NOEL	0.0625	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes
Rimsulfuron	98.8%	Terrestrial Plant	Wheat	*Triticum aestivum*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	EC25	0.0078	OZA	Dupont E.I. Corporation, Delaware	42471304	1993a[3,4]	C. Lewis	1994	Yes

Formulation	% purity a.i.	General Taxonomic Group	Common Name	Scientific Name	Age	Test Type	Means of Exposure	Exposure Duration	Test Duration	Biological Endpoint	Statistical Endpoint	Toxicity Value (a.i.)[1]	Units	Lab	MRID Number	Data Source[2]	EPA Reviewer	Date Reviewed	Used for TRV derivation
Rimsulfuron	**98.8%**	**Terrestrial Plant**	**Wheat**	***Triticum aestivum***	**Juvenile**	**Vegetative vigor**	**Direct spray**	**21 d**	**21 d**	**Vegetative vigor**	**NOEL**	**0.00195**	**OZA**	**Dupont E.I. Corporation, Delaware**	**42471304**	**1993a[3,4]**	**C. Lewis**	**1994**	**Yes**
Rimsulfuron	**98.8%**	**Fish**	**Bluegill sunfish**	***Lepomis macrochirus***	**0.44 g**	**Static**	**Water**	**96 hr**	**96 hr**	**Mortality**	**LC50**	**> 390**	**ppm**	**Haskell Laboratory, E.I. Dupont Corp.**	**41931620**	**1990h[3,4]**	**Contract Draft-KBN**	**1994**	**Yes**
Rimsulfuron	**98.8%**	**Fish**	**Bluegill sunfish**	***Lepomis macrochirus***	**0.44 g**	**Static**	**Water**	**96 hr**	**96 hr**		**NOEL**	**390**	**ppm**	**Haskell Laboratory, E.I. Dupont Corp.**	**41931620**	**1990h[3,4]**	**Contract Draft-KBN**	**1994**	**Yes**
Rimsulfuron	98%	Terrestrial Plant	Cucumber	*Cucumis sativus*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	EC25	0.091	OZA	Haskell Laboratory, E.I. Dupont Corp.	43539201	1994b[3,4,6]	M. Mossler (KBN)	1997	Supplemental
Rimsulfuron	98%	Terrestrial Plant	Cucumber	*Cucumis sativus*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	NOEL	0.031	OZA	Haskell Laboratory, E.I. Dupont Corp.	43539201	1994b[3,4,6]	M. Mossler (KBN)	1997	Supplemental
Rimsulfuron	98.1%	Terrestrial Plant	Garden pea	*Pisum sativum*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	EC25	0.025	OZA	Haskell Laboratory, E.I. Dupont Corp.	43539201	1994b[3,4,6]	M Mossler	1997	Supplemental
Rimsulfuron	98.1%	Terrestrial Plant	Garden pea	*Pisum sativum*	Seedling	Seedling emergence	Soil	14 d	14 d	Germination	NOEL	0.016	OZA	Haskell Laboratory, E.I. Dupont Corp.	43539201	1994b[3,4,6]	M Mossler	1997	Supplemental
Rimsulfuron	98.1%	Terrestrial Plant	Garden pea	*Pisum sativum*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	EC25	0.006	OZA	Haskell Laboratory, E.I. Dupont Corp.	43539201	1994b[3,4,6]	M. Mossler (KBN)	1997	Supplemental
Rimsulfuron	98.1%	Terrestrial Plant	Garden pea	*Pisum sativum*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	NOEL	0.004	OZA	Haskell Laboratory, E.I. Dupont Corp.	43539201	1994b[3,4,6]	M. Mossler (KBN)	1997	Supplemental
Rimsulfuron	98.1%	Terrestrial Plant	Cucumber	*Cucumis sativus*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	EC25	0.063	OZA	Haskell Laboratory, E.I. Dupont Corp.	43539201	1994b[3,4,6]	M. Mossler (KBN)	1997	Supplemental
Rimsulfuron	98.1%	Terrestrial Plant	Cucumber	*Cucumis sativus*	Juvenile	Vegetative vigor	Direct spray	21 d	21 d	Vegetative vigor	NOEL	0.002	OZA	Haskell Laboratory, E.I. Dupont Corp.	43539201	1994b[3,4,6]	M. Mossler (KBN)	1997	Supplemental
Rimsulfuron	99%	Bird	Bobwhite quail	*Colinus virginianus*	Early life	Reproduction		20 w	20 w	Reproduction	LOEL	> 1250 [755]	ppm [mg/kg bw/d]	Wildlife International Inc., MD	43277201	1994a[3,4,6]	M. Feken (KBN)	1997	Supplemental
Rimsulfuron	99%	Bird	Bobwhite quail	*Colinus virginianus*	Early life	Reproduction		20 w	20 w	Reproduction	NOEL	1250 [755]	ppm [mg/kg bw/d]	Wildlife International Inc., MD	43277201	1994a[3,4,6]	M. Feken (KBN)	1997	Supplemental
pure	**99.5%**	**Aquatic invertebrate**	**Water flea**	***Daphnia magna straus***	**<24 hr**	**Acute**	**Static**	**24 hr**	**48 hr**	**immobility**	**EC50**	**> 50**	**mg/L**		**NR**	**Martins et al 2001**			**Yes**
pure	**99.5%**	**Aquatic invertebrate**	**Water flea**	***Daphnia magna straus***	**<24 hr**	**Acute**	**Static**	**48 hr**	**48 hr**	**immobility**	**EC50**	**> 50**	**mg/L**		**NR**	**Martins et al 2001**			**Yes**
Rimsulfuron		**Mammal**	**Rat**			**Acute**	**Oral**			**Mortality**	**LD50**	**> 5000**	**mg/kg bw**		**41356311 41356310 41931634**	**as cited in USEPA 2007**			**Yes**
Rimsulfuron		**Mammal**	**Mouse**			**Acute**	**Oral**			**Mortality**	**LD50**	**> 5000**	**mg/kg bw**		**41931623**	**as cited in USEPA 2007**			**Yes**
Rimsulfuron		**Mammal**	**Rabbit**			**Acute**	**Dermal**			**Mortality**	**LD50**	**> 2000**	**mg/kg bw**		**41356312 41356313 41931624 41931635**	**as cited in USEPA 2007**			**Yes**
Rimsulfuron		Mammal	Rat			Chronic	Oral	90 d	90 d	Reduced body weight	NOAEL	75	mg/kg bw/d		41356321	as cited in USEPA 2007			Yes

Formulation	% purity a.i.	General Taxonomic Group	Common Name	Scientific Name	Age	Test Type	Means of Exposure	Exposure Duration	Test Duration	Biological Endpoint	Statistical Endpoint	Toxicity Value (a.i.)[1]	Units	Lab	MRID Number	Data Source[2]	EPA Reviewer	Date Reviewed	Used for TRV derivation
Rimsulfuron		Mammal	Rat			Chronic	Oral	90 d	90 d	Reduced body weight	LOAEL	375	mg/kg bw/d		41356321	as cited in USEPA 2007			Yes
Rimsulfuron		Mammal	Mouse			Chronic	Oral	90 d	90 d	Increased RBC and hemoglobin and decreased body weight	NOAEL [m]	56.25	mg/kg bw/d		41356323	as cited in USEPA 2007			Yes
Rimsulfuron		Mammal	Mouse			Chronic	Oral	90 d	90 d	Increased RBC and hemoglobin and decreaed body weight	LOAEL [m]	225	mg/kg bw/d		41356323	as cited in USEPA 2007			Yes
Rimsulfuron		Mammal	Dog			Chronic	Oral	90 d	90 d	Urinary volume and osmolarity	NOAEL	6.25	mg/kg bw/d		41356322	as cited in USEPA 2007			Yes
Rimsulfuron		Mammal	Dog			Chronic	Oral	90 d	90 d	Urinary volume and osmolarity	LOAEL	125	mg/kg bw/d		41356322	as cited in USEPA 2007			Yes
Rimsulfuron	98.8%	Mammal	Rat		gestation days 7-16	Chronic	Gavage		10 d	Prenatal development	NOAEL	> 6000	mg/kg bw/d		41356324	as cited in USEPA 2007			Yes
Rimsulfuron	98.8%	Mammal	Rabbit		gestation days 7-19	Chronic	Gavage		13 d	Prenatal development - Maternal effects	NOAEL	170	mg/kg bw/d		41356325	as cited in USEPA 2007			Yes
Rimsulfuron	98.8%	Mammal	Rabbit		gestation days 7-19	Chronic	Gavage		13 d	Prenatal development - Maternal death and reduced weight gain	LOAEL	500	mg/kg bw/d		41356325	as cited in USEPA 2007			Yes
Rimsulfuron	98.8%	Mammal	Rabbit		gestation days 7-19	Chronic	Gavage		13 d	Prenatal development	NOAEL	500	mg/kg bw/d		41356325	as cited in USEPA 2007			Yes
Rimsulfuron	98.8%	Mammal	Rabbit		gestation days 7-19	Chronic	Gavage		13 d	Fetus viability	LOAEL	1500	mg/kg bw/d		41356325	as cited in USEPA 2007			Yes
Rimsulfuron	98.8%	Mammal	Rat			Chronic	Diet	2 gen	2 gen	Reproduction	NOAEL [m]	165	mg/kg bw/d		41931644	as cited in USEPA 2007			Yes
Rimsulfuron	98.8%	Mammal	Rat			Chronic	Diet	2 gen	2 gen	Decreased body weight gain	LOAEL [m]	830	mg/kg bw/d		41931644	as cited in USEPA 2007			Yes
Rimsulfuron	98.8%	Mammal	Rat			Chronic	Diet	2 gen	2 gen	Reproduction	NOAEL	1316	mg/kg bw/d		41931644	as cited in USEPA 2007			Yes
Rimsulfuron	**98.8%**	**Mammal**	**Rat**			**Chronic**	**Diet**	**2 gen**	**2 gen**	**Reproduction - offspring**	**NOAEL [m]**	**217**	**mg/kg bw/d**		**41931644**	**as cited in USEPA 2007**			**Yes**
Rimsulfuron	98.8%	Mammal	Rat			Chronic	Diet	2 gen	2 gen	Decreased body weight gain	LOAEL	1316	mg/kg bw/d		41931644	as cited in USEPA 2007			Yes
Rimsulfuron	**98.8%**	**Mammal**	**Dog**	**Beagle**		**Chronic**	**Diet**	**1 y**	**1 y**		**NOAEL [m]**	**81.8**	**mg/kg bw/d**		**41931643**	**as cited in USEPA 2007**			**Yes**
Rimsulfuron	98.8%	Mammal	Dog	Beagle		Chronic	Diet	1 y	1 y	Increased liver and kidney weights	LOAEL [m]	342.4	mg/kg bw/d		41931643	as cited in USEPA 2007			Yes

Formulation	% purity a.i.	General Taxonomic Group	Common Name	Scientific Name	Age	Test Type	Means of Exposure	Exposure Duration	Test Duration	Biological Endpoint	Statistical Endpoint	Toxicity Value (a.i.)[1]	Units	Lab	MRID Number	Data Source[2]	EPA Reviewer	Date Reviewed	Used for TRV derivation

Notes

Boldface indicates study selected for derivation of toxicity reference value (TRV) used in risk assessment.

If the USEPA had reviewed the study and classified the study as "acceptable", the study's findings were considered "acceptable" for development of TRVs. "Supplemental" studies were used to fill in gaps where "Core" studies were unavailable.

[1] Toxicity values relate the dose of a compound with a potentially adverse effect. Values are reported as they were presented in the reviewed source.

[2] See the bibliography of this ecological risk assessment (ERA) document, Appendix A of the associated literature review document, and source footnote for complete citations.

[3] As cited in USEPA 2010.

[4] No author listed.

[5] Invalid study. See '*Pesticide Ecological Effects Database Guidance Manual-Updated 10/26/05* ' (USEPA 2005). Invalid studies were not used for TRV derivation.

[6] Supplemental study. See '*Pesticide Ecological Effects Database Guidance Manual-Updated 10/26/05* ' (USEPA 2005). Supplemental studies were not used for TRV derivation.

Abbreviations

a.i. - active ingredient
bw - body weight
EPA - Environmental Protection Agency
g - grams
kg - kilogram
m - male
mg - milligram
MRID - Master Record Identification Number
NR - Not reported
OZA - Ounce per acre
ppb - parts per billion
ppm - parts per million
RBC - red blood cell
ug - microgram

Endpoints

EC_{25} - 25% effect concentration
EC_{50} - 50% effect concentration
LC_{50} - median lethal concentration, 50% mortality
LD_{50} - median lethal dose, 50% mortality
LOAEL - lowest observable adverse effect level
LOEL - lowest observable effect level
NOAEL - no observable adverse effect level
NOEL - no observable effect level

Durations

d - days
gen - generations
hr - hours
mo - months
w - weeks
y - years

APPENDIX B – ECOLOGICAL RISK ASSESSMENT WORKSHEETS

Table B-1: Direct spray of terrestrial receptors and exposure from indirect contact with foliage

Parameter		Pollinating Insect	Small Mammal	Units
Duration of Exposure (T)		24	24	hours
Body weight (W)		0.000093	0.02	kg
Surface Areas (A): cm^2 = 12.3 * BW(g)^0.65				
		2.63	86.21	cm^2
Application rates (R)				
	Typical	0.0469	0.0469	mg/cm^2
	Maximum	0.0625	0.0625	
Amount deposited on 1/2 receptor (Amnt): 0.5 × A × R				
	Typical	0.000691267	0.022659363	mg
	Maximum	0.000921198	0.030196379	
Dose Estimate Assuming 100% Dermal Adsorption				
Absorbed Dose: Amnt × Prop ÷ W				
	Typical	7.43E+00	1.13E+00	mg/kg bw
	Maximum	9.91E+00	1.51E+00	
Dose Estimate Assuming First Order Dermal Adsorption				
First-order dermal absorption rates (k)				
	Central estimate (ka)	0.11552453	0.11552453	$hour^{-1}$
Proportion absorbed over period T (Prop): 1-exp(-k T)				
	Typical	0.002397122	0.002397122	unitless
	Maximum	0.002397122	0.002397122	
Absorbed Dose: Amnt × Prop ÷ W				
	Typical	1.78E-02	2.72E-03	mg/kg bw
	Maximum	2.37E-02	3.62E-03	

RISK QUOTIENTS - Direct Spray	Toxicity Reference Value	Typical Application	Maximum Application
Small mammal - 100% absorption	10227	1.53E-04	2.03E-04
Pollinating insect - 100% absorption	1075	6.91E-03	9.21E-03
Small mammal - 1st order dermal adsorption	10227	3.66E-07	4.87E-07
Pollinating insect - 1st order dermal adsorption	1075	1.66E-05	2.21E-05

RISK QUOTIENTS - Indirect Contact *	Toxicity Reference Value	Typical Application	Maximum Application
Small mammal - 100% absorption	10227	1.53E-05	2.03E-05
Pollinating insect - 100% absorption	1075	6.91E-04	9.21E-04
Small mammal - 1st order dermal adsorption	10227	3.66E-08	4.87E-08
Pollinating insect - 1st order dermal adsorption	1075	1.66E-06	2.21E-06

Surface area calculation for mammals from Stahl, 1967 (presented in USEPA, 1993).
No surface area calculation identified for insects. Mammalian equation used as a surrogate.
Risk Quotient = Estimated Dose/Toxicity Reference Value
* Exposure from indirect contact assumed to be 1/10 of direct spray exposure

Table B-2: Consumption of contaminated berries by a small mammal - acute exposure scenario

Parameters/Assumptions		Value	Units	Notes
Body Weight (W)		0.02	kg	
Food ingestion rate (dry weight)		0.0033641	kg dw/day	[1]
Food ingestion rate (wet weight, A)		0.014626644	kg ww/day	[2]
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Residue rate - berries (rr)				
	Typical	1.5	mg/kg per lb/acre	
	Maximum	7		
Concentration on berries (C): R × rr				
	Typical	0.07035	mg/kg fruit	
	Maximum	0.4375		
Dose estimates (D): C × A / W				
	Typical	5.14E-02	mg/kg bw	
	Maximum	3.20E-01		

RISK QUOTIENTS - Ingestion	Toxicity Reference Value	Typical Application	Maximum Application
Small mammal - acute exposure	10227	5.03E-06	3.13E-05

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987 for rodents; where

Food Ingestion Rate (g dw/day) = 0.621*(BW g)^0.564; converted into kg dw/day

[2] Assumes fruit is 77% water (USEPA, 1993; Table 4-2 - value for fruit pulp and skin)

Table B-3: Consumption of contaminated fruit by a small mammal - chronic exposure scenario

Parameters/Assumptions		Value	Units	
Duration of exposure (T)		90	days	
Body Weight (W)		0.02	kg	
Food ingestion rate (dry weight)		0.0033641	kg dw/day	[1]
Food ingestion rate (wet weight, A)		0.014626644	kg ww/day	[2]
Half life on vegetation (t50)				
	Herbicide specific	6	days	
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Residue rate - berries (rr)				
	Typical	1.5	mg/kg per lb/acre	
	Maximum	7		
Drift (Drift)				
	Typical	1	unitless	
	Maximum	1		
Decay Coefficient (k): ln(2)/t50				
	Typical	0.11552453	$days^{-1}$	
	Maximum	0.11552453		
Initial concentration on berries (C0): R × rr × Drift				
	Typical	0.07035	mg/kg fruit	
	Maximum	0.4375		
Concentration on berries at time T: C0 * exp(-k*T)				
	Typical	2.14691E-06	mg/kg fruit	
	Maximum	1.33514E-05		
Time-weighted Average Concentration on vegetation (CTWA): C0 * (1-exp(-k*T))/(k*T)				
	Typical	0.006766033	mg/kg fruit	
	Maximum	0.042077321		
Proportion of Diet Contaminated (Prop)				
	Typical	1	unitless	
	Maximum	1		
Dose estimates (D): CTWA × A × Prop / W				
	Typical	0.004948218	mg/kg bw	
	Maximum	0.030772499		

RISK QUOTIENTS - Ingestion	Toxicity Reference Value	Typical Application	Maximum Application
Small mammal - chronic exposure	444	1.11E-05	6.93E-05

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987 for rodents; where

Food Ingestion Rate (g dw/day) = 0.621*(BW g)^0.564; converted into kg dw/day

[2] Assumes fruit is 77% water (USEPA, 1993; Table 4-2 - value for fruit pulp and skin)

Table B-4: Consumption of contaminated grass by a large mammal - acute exposure scenario

Parameters/Assumptions		Value	Units	Notes
Body Weight (W)		70	kg	
Food ingestion rate (dry weight)		1.9211536	kg dw/day	[1]
Food ingestion rate (wet weight, A)		6.40384532	kg ww/day	[2]
Duration of exposure (D)		1	day	
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Residue rate - grass (rr)				
	Typical	92	mg/kg per lb/acre	
	Maximum	110		
Concentration on grass (C): R × rr				
	Typical	4.3148	mg/kg grass	
	Maximum	6.875		
Drift (Drift)				
	Typical	1	unitless	
	Maximum	1		
Proportion of Diet Contaminated (Prop)				
	Typical	1	unitless	
	Maximum	1		
Dose estimates: Drift × Prop × C × A ÷W				
	Typical	3.95E-01	mg/kg bw	
	Maximum	6.29E-01		

RISK QUOTIENTS - Ingestion	Toxicity Reference Value	Typical Application	Maximum Application
Large mammal - acute exposure	1330	2.97E-04	4.73E-04

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987 for herbivores; where

Food Ingestion Rate (g dw/day) = 0.577*(BW g)^0.727; converted into kg dw/day

[2] Assumes grass is 70% water (USEPA, 1993; Table 4-2 - lowest value for young grasses)

Table B-5: Consumption of contaminated grass by a large mammal - chronic exposure scenario

Parameters/Assumptions		Value	Units	Notes
Duration of exposure (T)		90	day	
Body Weight (W)		70	kg	
Food ingestion rate (dry weight)		1.921153597	kg dw/day	[1]
Food ingestion rate (wet weight, A)		6.403845323	kg ww/day	[2]
Half life on vegetation (t50)				
	Herbicide specific	6	days	
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Residue rate - grass (rr)				
	Typical	92	mg/kg per lb/acre	
	Maximum	110		
Drift (Drift)				
	Typical	1	unitless	
	Maximum	1		
Decay Coefficient (k): ln(2)/t50				
	Typical	0.11552453	$days^{-1}$	
	Maximum	0.11552453		
Initial concentration on grass (C0): R × rr × Drift				
	Typical	4.3148	mg/kg grass	
	Maximum	6.875		
Concentration on grass at time T: C0 * exp(-k*T)				
	Typical	0.000131677	mg/kg grass	
	Maximum	0.000209808		
Time-weighted Average Concentration on vegetation (CTWA): C0 * (1-exp(-k*T))/(k*T)				
	Typical	0.414983373	mg/kg vegetation	
	Maximum	0.661215048		
Proportion of Diet Contaminated (Prop)				
	Typical	1	unitless	
	Maximum	1		
Dose estimates: CTWA × A × Prop / W				
	Typical	3.80E-02	mg/kg bw	
	Maximum	6.05E-02		

RISK QUOTIENTS - Ingestion	**Toxicity Reference Value**	**Typical Application**	**Maximum Application**
Large mammal - chronic exposure	53	7.16E-04	1.14E-03

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987 for herbivores; where
Food Ingestion Rate (g dw/day) = 0.577*(BW g)^0.727; converted into kg dw/day

[2] Assumes grass is 70% water (USEPA, 1993; Table 4-2 - lowest value for young grasses)

Table B-6: Consumption of contaminated small mammals by a large mammal - acute exposure scenario

Parameters/Assumptions		Value	Units	Notes
Body Weight (W)		12	kg	
Food ingestion rate (dry weight)		0.52971677	kg dw/day	[1]
Food ingestion rate (wet weight, A)		1.6553649	kg ww/day	[2]
Duration of exposure (D)		1	day	
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Amount deposited on small mammal prey (Amnt_mouse): 0.5 × SurfaceArea × R				
	Typical	0.02265936	mg	
	Maximum	0.03019638		
Drift (Drift)				
	Typical	1	unitless	
	Maximum	1		
Proportion of Diet Contaminated (Prop)				
	Typical	1	unitless	
	Maximum	1		
Dose estimates: Drift × Prop × Amnt_mouse/BW_mouse × A ÷W				
	Typical	1.56E-01	mg/kg bw	
	Maximum	2.08E-01		

RISK QUOTIENTS - Ingestion	Toxicity Reference Value	Typical Application	Maximum Application
Large carnivorous mammal - acute exposure	2066	7.56E-05	1.01E-04

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987; where

Food Ingestion Rate (g dw/day) = 0.0687*(BW g)^0.822; converted into kg dw/day

[2] Assumes mammals are 68% water (USEPA, 1993)

Table B-7: Consumption of contaminated small mammals by a large mammal - chronic exposure scenario

Parameters/Assumptions		Value	Units	Notes
Duration of exposure (T)		90	day	
Body Weight (W)		12	kg	
Food ingestion rate (dry weight)		0.529716769	kg dw/day	[1]
Food ingestion rate (wet weight, FIR_coyote)		1.655364903	kg ww/day	[2]
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Drift (Drift)				
	Typical	1	unitless	
	Maximum	1		
Decay Coefficient (k): ln(2)/t50				
	Typical	0.11552453	$days^{-1}$	
	Maximum	0.11552453		
Initial concentration on mammal (C0): 0.5 × SurfaceArea × R/BW_smallmammal				
	Typical	1.132968153	mg a.i./kg mammal	
	Maximum	1.509818968		
Concentration absorbed in small mammal at time T (C90): C0 * exp(-k*T)				
	Typical	0.002715863	mg/kg mammal	
	Maximum	0.003619221		
Proportion of Diet Contaminated (Prop)				
	Typical	1	unitless	
	Maximum	1		
Dose estimates: C90 × FIR_coyote × Prop / W				
	Typical	3.75E-04	mg/kg bw	
	Maximum	4.99E-04		

RISK QUOTIENTS - Ingestion	Toxicity Reference Value	Typical Application	Maximum Application
Large mammal - chronic exposure	83	4.51E-06	6.02E-06

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987; where

Food Ingestion Rate (g dw/day) = 0.0687*(BW g)^0.822; converted into kg dw/day

[2] Assumes mammals are 68% water (USEPA, 1993)

Table B-8: Consumption of contaminated insects by a small bird - acute exposure scenario

Parameters/Assumptions		Value	Units	Notes
Body Weight (W)		0.08	kg	
Food ingestion rate (dry weight)		0.01124177	kg dw/day	[1]
Food ingestion rate (wet weight, A)		0.03626376	kg ww/day	[2]
Duration of exposure (D)		1	day	
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Residue rate - insects (rr)				
	Typical	33	mg/kg per lb/acre	
	Maximum	58		
Concentration on insects (C): R × rr				
	Typical	1.5477	mg/kg insect	
	Maximum	3.625		
Drift (Drift)				
	Typical	1	unitless	
	Maximum	1		
Proportion of Diet Contaminated (Prop)				
	Typical	1	unitless	
	Maximum	1		
Dose estimates: Drift × Prop × C × A ÷W				
	Typical	7.02E-01	mg/kg bw	
	Maximum	1.64E+00		

RISK QUOTIENTS - Ingestion	Toxicity Reference Value	Typical Application	Maximum Application
Small bird - acute exposure	16969	4.13E-05	9.68E-05

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987 for all birds; where

Food Ingestion Rate (kg dw/day) = 0.0582*(BW)^0.651

[2] Assumes insects are 69% water (USEPA, 1993; Table 4-1 - value for grasshoppers and crickets)

Table B-9: Consumption of contaminated insects by a small bird - chronic exposure scenario

Parameters/Assumptions		Value	Units	Notes
Duration of exposure (T)		90	day	
Body Weight (W)		0.08	kg	
Food ingestion rate (dry weight)		0.011241767	kg dw/day	[1]
Food ingestion rate (wet weight, A)		0.036263763	kg ww/day	[2]
Half life on insect (t50)				
	Herbicide specific	6	days	
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Residue rate - insects (rr)				
	Typical	33	mg/kg per lb/acre	
	Maximum	58		
Drift (Drift)				
	Typical	1	unitless	
	Maximum	1		
Decay Coefficient (k): ln(2)/t50				
	Typical	0.11552453	$days^{-1}$	
	Maximum	0.11552453		
Initial concentration on insects (C0): R × rr × Drift				
	Typical	1.5477	mg/kg insect	
	Maximum	3.625		
Concentration on insects at time T: C0 * exp(-k*T)				
	Typical	4.72321E-05	mg/kg insect	
	Maximum	0.000110626		
Time-weighted Average Concentration on insects (CTWA): C0 * (1-exp(-k*T))/(k*T)				
	Typical	0.148852732	mg/kg insect	
	Maximum	0.348640662		
Proportion of Diet Contaminated (Prop)				
	Typical	1	unitless	
	Maximum	1		
Dose estimates (D): CTWA × A × Prop / W				
	Typical	6.75E-02	mg/kg bw	
	Maximum	1.58E-01		

RISK QUOTIENTS - Ingestion	Toxicity Reference Value	Typical Application	Maximum Application
Small bird - chronic exposure	3394	1.99E-05	4.66E-05

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987 for all birds; where

Food Ingestion Rate (kg dw/day) = 0.0582*(BW)^0.651

[2] Assumes insects are 69% water (USEPA, 1993; Table 4-1 - value for grasshoppers and crickets)

Table B-10: Consumption of contaminated vegetation by a large bird - acute exposure scenario

Parameters/Assumptions		Value	Units	Notes
Body Weight (W)		3.72	kg	
Food ingestion rate (dry weight)		0.13688203	kg dw/day	[1]
Food ingestion rate (wet weight, A)		0.91254687	kg ww/day	[2]
Duration of exposure (D)		1	day	
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Residue rate - vegetation (rr)				
	Typical	35	mg/kg per lb/acre	
	Maximum	125		
Concentration on vegetation (C): R × rr				
	Typical	1.6415	mg/kg veg	
	Maximum	7.8125		
Drift (Drift)				
	Typical	1	unitless	
	Maximum	1		
Proportion of Diet Contaminated (Prop)				
	Typical	1	unitless	
	Maximum	1		
Dose estimates: Drift × Prop × C × A ÷W				
	Typical	4.03E-01		
	Maximum	1.92E+00		

RISK QUOTIENTS - Ingestion	Toxicity Reference Value	Typical Application	Maximum Application
Large bird - acute exposure	2000	2.01E-04	9.58E-04

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987 for all birds; where

Food Ingestion Rate (kg dw/day) = 0.0582*(BW)^0.651

[2] Assumes vegetation is 85% water (USEPA, 1993; Table 4-2 - value for dicots)

Table B-11: Consumption of contaminated vegetation by a large bird - chronic exposure scenario

Parameters/Assumptions		Value	Units	Notes
Duration of exposure (T)		90	day	
Body Weight (W)		3.72	kg	
Food ingestion rate (dry weight)		0.13688203	kg dw/day	[1]
Food ingestion rate (wet weight, A)		0.912546869	kg ww/day	[2]
Half life on vegetation (t50)				
	Herbicide specific	6	days	
Application rates (R)				
	Typical	0.0469	lb/acre	
	Maximum	0.0625		
Residue rate - vegetation (rr)				
	Typical	35	mg/kg per lb/acre	
	Maximum	125		
Drift (Drift)				
	Typical	1	unitless	
	Maximum	1		
Decay Coefficient (k): ln(2)/t50				
	Typical	0.11552453	$days^{-1}$	
	Maximum	0.11552453		
Initial concentration on vegetation (C0): R × rr × Drift				
	Typical	1.6415	mg/kg veg	
	Maximum	7.8125		
Concentration on vegetation at time T: C0 * exp(-k*T)				
	Typical	5.00946E-05	mg/kg veg	
	Maximum	0.000238419		
Time-weighted Average Concentration on vegetation (CTWA): C0 * (1-exp(-k*T))/(k*T)				
	Typical	0.157874109	mg/kg veg	
	Maximum	0.751380736		
Proportion of Diet Contaminated (Prop)				
	Typical	1	unitless	
	Maximum	1		
Dose estimates (D): CTWA × A × Prop / W				
	Typical	3.87E-02	mg/kg bw	
	Maximum	1.84E-01		

RISK QUOTIENTS - Ingestion	Toxicity Reference Value	Typical Application	Maximum Application
Large bird - chronic exposure	1000	3.87E-05	1.84E-04

Risk Quotient = Estimated Dose/Toxicity Reference Value

[1] Calculated using algorithm developed by Nagy, 1987 for all birds; where
Food Ingestion Rate (kg dw/day) = 0.0582*(BW)^0.651

[2] Assumes vegetation is 85% water (USEPA, 1993; Table 4-2 - value for dicots)

Table B-12: Impact to aquatic species from accidental spray drift to pond

OFF-SITE DRIFT - modeled in AgDrift
TYPICAL APPLICATION RATE

Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration (mg/L)	Risk Quotients - Acute: Fish	Risk Quotients - Acute: Aquatic Invertebrates	Risk Quotients - Acute: Non-Target Aquatic Plants	Risk Quotients - Chronic: Fish	Risk Quotients - Chronic: Aquatic Invertebrates	Risk Quotients - Chronic: Non-Target Aquatic Plants
Plane	Forested	100	5.70E-04	1.46E-06	1.14E-05	4.91E-02	4.38E-06	3.41E-05	**1.90E+01**
Plane	Forested	300	2.49E-04	6.39E-07	4.99E-06	2.15E-02	1.92E-06	1.49E-05	**8.31E+00**
Plane	Forested	900	7.99E-05	2.05E-07	1.60E-06	6.89E-03	6.15E-07	4.79E-06	**2.66E+00**
Plane	Non-Forested	100	2.47E-04	6.33E-07	4.94E-06	2.13E-02	1.90E-06	1.48E-05	**8.23E+00**
Plane	Non-Forested	300	1.05E-04	2.70E-07	2.10E-06	9.07E-03	8.09E-07	6.30E-06	**3.51E+00**
Plane	Non-Forested	900	4.94E-05	1.27E-07	9.88E-07	4.26E-03	3.80E-07	2.96E-06	**1.65E+00**
Helicopter	Forested	100	3.36E-05	8.62E-08	6.72E-07	2.90E-03	2.59E-07	2.01E-06	**1.12E+00**
Helicopter	Forested	300	8.60E-06	2.21E-08	1.72E-07	7.41E-04	6.62E-08	5.15E-07	2.87E-01
Helicopter	Forested	900	1.38E-06	3.54E-09	2.76E-08	1.19E-04	1.06E-08	8.26E-08	4.60E-02
Helicopter	Non-Forested	100	2.03E-04	5.20E-07	4.05E-06	1.75E-02	1.56E-06	1.21E-05	**6.76E+00**
Helicopter	Non-Forested	300	7.73E-05	1.98E-07	1.55E-06	6.66E-03	5.94E-07	4.63E-06	**2.58E+00**
Helicopter	Non-Forested	900	3.58E-05	9.17E-08	7.15E-07	3.08E-03	2.75E-07	2.14E-06	**1.19E+00**
Ground	Low Boom	25	3.20E-05	8.20E-08	6.39E-07	2.76E-03	2.46E-07	1.91E-06	**1.07E+00**
Ground	Low Boom	100	1.75E-05	4.49E-08	3.51E-07	1.51E-03	1.35E-07	1.05E-06	5.84E-01
Ground	Low Boom	900	3.38E-06	8.67E-09	6.76E-08	2.91E-04	2.60E-08	2.02E-07	1.13E-01
Ground	High Boom	25	5.13E-05	1.32E-07	1.03E-06	4.43E-03	3.95E-07	3.07E-06	**1.71E+00**
Ground	High Boom	100	2.71E-05	6.94E-08	5.41E-07	2.33E-03	2.08E-07	1.62E-06	9.02E-01
Ground	High Boom	900	4.30E-06	1.10E-08	8.60E-08	3.71E-04	3.31E-08	2.57E-07	1.43E-01

OFF-SITE DRIFT - modeled in AgDrift
MAXIMUM APPLICATION RATE

Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration (mg/L)	Risk Quotients - Acute: Fish	Risk Quotients - Acute: Aquatic Invertebrates	Risk Quotients - Acute: Non-Target Aquatic Plants	Risk Quotients - Chronic: Fish	Risk Quotients - Chronic: Aquatic Invertebrates	Risk Quotients - Chronic: Non-Target Aquatic Plants
Plane	Forested	100	7.22E-04	1.85E-06	1.44E-05	6.22E-02	5.55E-06	4.32E-05	**2.41E+01**
Plane	Forested	300	3.14E-04	8.06E-07	6.28E-06	2.71E-02	2.42E-06	1.88E-05	**1.05E+01**
Plane	Forested	900	1.01E-04	2.59E-07	2.02E-06	8.71E-03	7.77E-07	6.05E-06	**3.37E+00**
Plane	Non-Forested	100	3.38E-04	8.66E-07	6.76E-06	2.91E-02	2.60E-06	2.02E-05	**1.13E+01**
Plane	Non-Forested	300	1.47E-04	3.76E-07	2.93E-06	1.26E-02	1.13E-06	8.78E-06	**4.89E+00**
Plane	Non-Forested	900	6.98E-05	1.79E-07	1.40E-06	6.02E-03	5.37E-07	4.18E-06	**2.33E+00**
Helicopter	Forested	100	4.30E-05	1.10E-07	8.61E-07	3.71E-03	3.31E-07	2.58E-06	**1.43E+00**
Helicopter	Forested	300	1.10E-05	2.83E-08	2.21E-07	9.52E-04	8.49E-08	6.61E-07	3.68E-01
Helicopter	Forested	900	1.73E-06	4.44E-09	3.46E-08	1.49E-04	1.33E-08	1.04E-07	5.77E-02
Helicopter	Non-Forested	100	2.11E-03	5.41E-06	4.22E-05	1.82E-01	1.62E-05	1.26E-04	**7.03E+01**
Helicopter	Non-Forested	300	6.09E-04	1.56E-06	1.22E-05	5.25E-02	4.69E-06	3.65E-05	**2.03E+01**
Helicopter	Non-Forested	900	2.58E-04	6.62E-07	5.16E-06	2.23E-02	1.99E-06	1.55E-05	**8.61E+00**
Ground	Low Boom	25	4.26E-05	1.09E-07	8.52E-07	3.67E-03	3.28E-07	2.55E-06	**1.42E+00**
Ground	Low Boom	100	2.34E-05	5.99E-08	4.67E-07	2.01E-03	1.80E-07	1.40E-06	7.79E-01
Ground	Low Boom	900	4.51E-06	1.16E-08	9.02E-08	3.89E-04	3.47E-08	2.70E-07	1.50E-01
Ground	High Boom	25	6.84E-05	1.75E-07	1.37E-06	5.90E-03	5.26E-07	4.10E-06	**2.28E+00**
Ground	High Boom	100	3.60E-05	9.24E-08	7.21E-07	3.11E-03	2.77E-07	2.16E-06	**1.20E+00**
Ground	High Boom	900	5.72E-06	1.47E-08	1.14E-07	4.93E-04	4.40E-08	3.43E-07	1.91E-01

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Shading and boldface indicates plant RQs greater than 1.
Shading and boldface indicates acute RQs greater than 0.05 for fish and invertebrates.
Shading and boldface indicates chronic RQs greater than 0.5 for fish and invertebrates.

Table B-13: Impact to aquatic species from accidental spray drift to stream

OFF-SITE DRIFT - modeled in AgDrift
TYPICALAPPLICATION RATE

Mode of Application	Application Height or Type	Distance From Receptor (ft)	Stream Concentration (mg/L)	Risk Quotients - Acute: Fish	Risk Quotients - Acute: Aquatic Invertebrates	Risk Quotients - Acute: Non-Target Aquatic Plants	Risk Quotients - Chronic: Fish	Risk Quotients - Chronic: Aquatic Invertebrates	Risk Quotients - Chronic: Non-Target Aquatic Plants
Plane	Forested	100	7.87E-04	2.02E-06	1.57E-05	6.78E-02	6.05E-06	4.71E-05	**2.62E+01**
Plane	Forested	300	2.87E-04	7.35E-07	5.73E-06	2.47E-02	2.20E-06	1.72E-05	**9.55E+00**
Plane	Forested	900	8.35E-05	2.14E-07	1.67E-06	7.20E-03	6.42E-07	5.00E-06	**2.78E+00**
Plane	Non-Forested	100	3.59E-04	9.21E-07	7.18E-06	3.10E-02	2.76E-06	2.15E-05	**1.20E+01**
Plane	Non-Forested	300	1.15E-04	2.96E-07	2.31E-06	9.95E-03	8.88E-07	6.91E-06	**3.85E+00**
Plane	Non-Forested	900	5.02E-05	1.29E-07	1.00E-06	4.32E-03	3.86E-07	3.00E-06	**1.67E+00**
Helicopter	Forested	100	5.30E-05	1.36E-07	1.06E-06	4.57E-03	4.08E-07	3.18E-06	**1.77E+00**
Helicopter	Forested	300	9.91E-06	2.54E-08	1.98E-07	8.55E-04	7.63E-08	5.94E-07	3.30E-01
Helicopter	Forested	900	1.55E-06	3.96E-09	3.09E-08	1.33E-04	1.19E-08	9.25E-08	5.15E-02
Helicopter	Non-Forested	100	2.99E-04	7.68E-07	5.99E-06	2.58E-02	2.30E-06	1.79E-05	**9.98E+00**
Helicopter	Non-Forested	300	8.65E-05	2.22E-07	1.73E-06	7.46E-03	6.66E-07	5.18E-06	**2.88E+00**
Helicopter	Non-Forested	900	3.66E-05	9.39E-08	7.32E-07	3.16E-03	2.82E-07	2.19E-06	**1.22E+00**
Ground	Low Boom	25	5.92E-05	1.52E-07	1.18E-06	5.10E-03	4.55E-07	3.54E-06	**1.97E+00**
Ground	Low Boom	100	1.74E-05	4.46E-08	3.48E-07	1.50E-03	1.34E-07	1.04E-06	5.80E-01
Ground	Low Boom	900	1.74E-06	4.46E-09	3.48E-08	1.50E-04	1.34E-08	1.04E-07	5.80E-02
Ground	High Boom	25	9.63E-05	2.47E-07	1.93E-06	8.31E-03	7.41E-07	5.77E-06	**3.21E+00**
Ground	High Boom	100	2.73E-05	7.00E-08	5.46E-07	2.35E-03	2.10E-07	1.63E-06	9.10E-01
Ground	High Boom	900	2.31E-06	5.91E-09	4.61E-08	1.99E-04	1.77E-08	1.38E-07	7.69E-02

OFF-SITE DRIFT - modeled in AgDrift
MAXIMUM APPLICATION RATE

Mode of Application	Application Height or Type	Distance From Receptor (ft)	Stream Concentration (mg/L)	Risk Quotients - Acute: Fish	Risk Quotients - Acute: Aquatic Invertebrates	Risk Quotients - Acute: Non-Target Aquatic Plants	Risk Quotients - Chronic: Fish	Risk Quotients - Chronic: Aquatic Invertebrates	Risk Quotients - Chronic: Non-Target Aquatic Plants
Plane	Forested	100	9.98E-04	2.56E-06	2.00E-05	8.60E-02	7.67E-06	5.97E-05	**3.33E+01**
Plane	Forested	300	3.61E-04	9.25E-07	7.21E-06	3.11E-02	2.77E-06	2.16E-05	**1.20E+01**
Plane	Forested	900	1.05E-04	2.70E-07	2.11E-06	9.09E-03	8.11E-07	6.31E-06	**3.52E+00**
Plane	Non-Forested	100	4.81E-04	1.23E-06	9.63E-06	4.15E-02	3.70E-06	2.88E-05	**1.60E+01**
Plane	Non-Forested	300	1.60E-04	4.10E-07	3.20E-06	1.38E-02	1.23E-06	9.58E-06	**5.33E+00**
Plane	Non-Forested	900	7.14E-05	1.83E-07	1.43E-06	6.16E-03	5.49E-07	4.28E-06	**2.38E+00**
Helicopter	Forested	100	6.75E-05	1.73E-07	1.35E-06	5.82E-03	5.19E-07	4.04E-06	**2.25E+00**
Helicopter	Forested	300	1.27E-05	3.27E-08	2.55E-07	1.10E-03	9.80E-08	7.63E-07	4.25E-01
Helicopter	Forested	900	1.95E-06	5.00E-09	3.90E-08	1.68E-04	1.50E-08	1.17E-07	6.50E-02
Helicopter	Non-Forested	100	4.14E-04	1.06E-06	8.27E-06	3.57E-02	3.18E-06	2.48E-05	**1.38E+01**
Helicopter	Non-Forested	300	1.19E-04	3.06E-07	2.39E-06	1.03E-02	9.19E-07	7.15E-06	**3.98E+00**
Helicopter	Non-Forested	900	5.06E-05	1.30E-07	1.01E-06	4.36E-03	3.89E-07	3.03E-06	**1.69E+00**
Ground	Low Boom	25	7.89E-05	2.02E-07	1.58E-06	6.80E-03	6.07E-07	4.72E-06	**2.63E+00**
Ground	Low Boom	100	2.32E-05	5.95E-08	4.64E-07	2.00E-03	1.78E-07	1.39E-06	7.73E-01
Ground	Low Boom	900	2.32E-06	5.95E-09	4.64E-08	2.00E-04	1.78E-08	1.39E-07	7.73E-02
Ground	High Boom	25	1.28E-04	3.29E-07	2.57E-06	1.11E-02	9.88E-07	7.69E-06	**4.28E+00**
Ground	High Boom	100	3.64E-05	9.32E-08	7.27E-07	3.13E-03	2.80E-07	2.18E-06	**1.21E+00**
Ground	High Boom	900	3.07E-06	7.88E-09	6.15E-08	2.65E-04	2.37E-08	1.84E-07	1.02E-01

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Table B-14: Impact to non-target terrrestrial plants from direct spray and spray drift

DIRECT SPRAY	Terrestrial Concentration (lb a.i./acre)	Typical Species RQ	Threatened & Endangered Species RQ
Typical application rate	0.0469	**3.75E+02**	**3.91E+02**
Maximum application rate	0.0625	**5.00E+02**	**5.21E+02**

OFF-SITE DRIFT - modeled in AgDrift
TYPICAL APPLICATION RATE

Mode of Application	Application Height or Type	Distance From Receptor (ft)	Soil Concentration (mg a.i./kg)	Typical Species RQ	Threatened & Endangered Species RQ
Plane	Forested	100	7.20E-03	**5.76E+01**	**6.00E+01**
Plane	Forested	300	2.60E-03	**2.08E+01**	**2.17E+01**
Plane	Forested	900	8.00E-04	**6.40E+00**	**6.67E+00**
Plane	Non-Forested	100	1.70E-03	**1.36E+01**	**1.42E+01**
Plane	Non-Forested	300	8.00E-04	**6.40E+00**	**6.67E+00**
Plane	Non-Forested	900	4.00E-04	**3.20E+00**	**3.33E+00**
Helicopter	Forested	100	6.00E-04	**4.80E+00**	**5.00E+00**
Helicopter	Forested	300	9.19E-05	7.35E-01	7.66E-01
Helicopter	Forested	900	1.41E-05	1.13E-01	1.18E-01
Helicopter	Non-Forested	100	1.40E-03	**1.12E+01**	**1.17E+01**
Helicopter	Non-Forested	300	6.00E-04	**4.80E+00**	**5.00E+00**
Helicopter	Non-Forested	900	3.00E-04	**2.40E+00**	**2.50E+00**
Ground	Low Boom	25	2.00E-04	**1.60E+00**	**1.67E+00**
Ground	Low Boom	100	1.00E-04	8.00E-01	8.33E-01
Ground	Low Boom	900	2.86E-05	2.29E-01	2.38E-01
Ground	High Boom	25	3.00E-04	**2.40E+00**	**2.50E+00**
Ground	High Boom	100	2.00E-04	**1.60E+00**	**1.67E+00**
Ground	High Boom	900	3.61E-05	2.89E-01	3.01E-01

OFF-SITE DRIFT - modeled in AgDrift
MAXIMUM APPLICATION RATE

Mode of Application	Application Height or Type	Distance From Receptor (ft)	Soil Concentration (mg a.i./kg)	Typical Species RQ	Threatened & Endangered Species RQ
Plane	Forested	100	9.10E-03	**7.28E+01**	**7.58E+01**
Plane	Forested	300	3.30E-03	**2.64E+01**	**2.75E+01**
Plane	Forested	900	1.00E-03	**8.00E+00**	**8.33E+00**
Plane	Non-Forested	100	2.40E-03	**1.92E+01**	**2.00E+01**
Plane	Non-Forested	300	1.20E-03	**9.60E+00**	**1.00E+01**
Plane	Non-Forested	900	6.00E-04	**4.80E+00**	**5.00E+00**
Helicopter	Forested	100	8.00E-04	**6.40E+00**	**6.67E+00**
Helicopter	Forested	300	1.00E-04	8.00E-01	8.33E-01
Helicopter	Forested	900	1.77E-05	1.42E-01	1.48E-01
Helicopter	Non-Forested	100	1.90E-03	**1.52E+01**	**1.58E+01**
Helicopter	Non-Forested	300	9.00E-04	**7.20E+00**	**7.50E+00**
Helicopter	Non-Forested	900	4.00E-04	**3.20E+00**	**3.33E+00**
Ground	Low Boom	25	3.00E-04	**2.40E+00**	**2.50E+00**
Ground	Low Boom	100	2.00E-04	**1.60E+00**	**1.67E+00**
Ground	Low Boom	900	3.82E-05	3.06E-01	3.18E-01
Ground	High Boom	25	1.30E-03	**1.04E+01**	**1.08E+01**
Ground	High Boom	100	4.00E-04	**3.20E+00**	**3.33E+00**
Ground	High Boom	900	5.46E-05	4.37E-01	4.55E-01

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Table B-15: Consumption of contaminated fish from pond by predatory bird - one time exposure. Pond impacted by spray drift modeled in AgDrift.

Parameters/ Assumptions	Value	Units	Notes
Body Weight (W)	5.15	kg	
Food ingestion rate (dry weight)	0.101786153	kg dw/day	[1]
Food ingestion rate (wet weight, A)	0.40714461	kg ww/day	[2]
Bioconcentration factor (BCF)	1	L/kg fish	
Proportion of Diet Contaminated (Prop)	1	unitless	
Toxicity reference value (TRV)	1000	mg/kg-bw/day	

TYPICAL APPLICATION RATE

Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration (mg/L)	Concentration in fish (C_{Fish}): WC × BCF	Dose estimate (D): C_{Fish} × A × Prop / W	Risk Quotient
Plane	Forested	100	5.70E-04	5.70E-04	4.51E-05	4.51E-08
Plane	Forested	300	2.49E-04	2.49E-04	1.97E-05	1.97E-08
Plane	Forested	900	7.99E-05	7.99E-05	6.32E-06	6.32E-09
Plane	Non-Forested	100	2.47E-04	2.47E-04	1.95E-05	1.95E-08
Plane	Non-Forested	300	1.05E-04	1.05E-04	8.32E-06	8.32E-09
Plane	Non-Forested	900	4.94E-05	4.94E-05	3.90E-06	3.90E-09
Helicopter	Forested	100	3.36E-05	3.36E-05	2.66E-06	2.66E-09
Helicopter	Forested	300	8.60E-06	8.60E-06	6.80E-07	6.80E-10
Helicopter	Forested	900	1.38E-06	1.38E-06	1.09E-07	1.09E-10
Helicopter	Non-Forested	100	2.03E-04	2.03E-04	1.60E-05	1.60E-08
Helicopter	Non-Forested	300	7.73E-05	7.73E-05	6.11E-06	6.11E-09
Helicopter	Non-Forested	900	3.58E-05	3.58E-05	2.83E-06	2.83E-09
Ground	Low Boom	25	3.20E-05	3.20E-05	2.53E-06	2.53E-09
Ground	Low Boom	100	1.75E-05	1.75E-05	1.39E-06	1.39E-09
Ground	Low Boom	900	3.38E-06	3.38E-06	2.67E-07	2.67E-10
Ground	High Boom	25	5.13E-05	5.13E-05	4.06E-06	4.06E-09
Ground	High Boom	100	2.71E-05	2.71E-05	2.14E-06	2.14E-09
Ground	High Boom	900	4.30E-06	4.30E-06	3.40E-07	3.40E-10

MAXIMUM APPLICATION RATE

Mode of Application	Application Height or Type	Distance From Receptor (ft)	Pond Concentration (mg/L)	Concentration in fish (C_{Fish}): WC × BCF	Dose estimate (D): C_{Fish} × A × Prop / W	Risk Quotient
Plane	Forested	100	7.22E-04	7.22E-04	5.71E-05	5.71E-08
Plane	Forested	300	3.14E-04	3.14E-04	2.48E-05	2.48E-08
Plane	Forested	900	1.01E-04	1.01E-04	7.98E-06	7.98E-09
Plane	Non-Forested	100	3.38E-04	3.38E-04	2.67E-05	2.67E-08
Plane	Non-Forested	300	1.47E-04	1.47E-04	1.16E-05	1.16E-08
Plane	Non-Forested	900	6.98E-05	6.98E-05	5.52E-06	5.52E-09
Helicopter	Forested	100	4.30E-05	4.30E-05	3.40E-06	3.40E-09
Helicopter	Forested	300	1.10E-05	1.10E-05	8.73E-07	8.73E-10
Helicopter	Forested	900	1.73E-06	1.73E-06	1.37E-07	1.37E-10
Helicopter	Non-Forested	100	2.11E-03	2.11E-03	1.67E-04	1.67E-07
Helicopter	Non-Forested	300	6.09E-04	6.09E-04	4.82E-05	4.82E-08
Helicopter	Non-Forested	900	2.58E-04	2.58E-04	2.04E-05	2.04E-08
Ground	Low Boom	25	4.26E-05	4.26E-05	3.37E-06	3.37E-09
Ground	Low Boom	100	2.34E-05	2.34E-05	1.85E-06	1.85E-09
Ground	Low Boom	900	4.51E-06	4.51E-06	3.57E-07	3.57E-10
Ground	High Boom	25	6.84E-05	6.84E-05	5.41E-06	5.41E-09
Ground	High Boom	100	3.60E-05	3.60E-05	2.85E-06	2.85E-09
Ground	High Boom	900	5.72E-06	5.72E-06	4.52E-07	4.52E-10

Risk Quotient = Estimated Dose/Toxicity Reference Value
Shading and boldface indicates piscivorous bird RQs greater than 0.1.

[1] Calculated using alorithm developed by Nagy, 1987 for all birds; where
Food Ingestion Rate (kg dw/day) = 0.0582*(BW)^0.651
[2] Assumes fish are 75% water (USEPA, 1993; Table 4-1 - value for bony fishes)

Table B-16: Impact to aquatic species from surface runoff to pond

SURFACE RUNOFF - modeled in GLEAMS TYPICAL APPLICATION RATE		Risk Quotients - Acute			Risk Quotients - Chronic		
GLEAMS ID	Pond Concentration (mg/L)	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_SAND_005_POND_TYP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_POND_TYP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_POND_TYP	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_POND_TYP	2.83E-06	7.26E-09	5.67E-08	2.44E-04	2.18E-08	1.70E-07	9.44E-02
G_BASE_CLAY_010_POND_TYP	1.04E-07	2.66E-10	2.08E-09	8.95E-06	7.98E-10	6.21E-09	3.46E-03
G_BASE_LOAM_010_POND_TYP	9.99E-10	2.56E-12	2.00E-11	8.62E-08	7.69E-12	5.98E-11	3.33E-05
G_BASE_SAND_025_POND_TYP	6.58E-05	1.69E-07	1.32E-06	5.67E-03	5.06E-07	3.94E-06	**2.19E+00**
G_BASE_CLAY_025_POND_TYP	1.89E-07	4.85E-10	3.79E-09	1.63E-05	1.46E-09	1.13E-08	6.31E-03
G_BASE_LOAM_025_POND_TYP	8.67E-06	2.22E-08	1.73E-07	7.47E-04	6.67E-08	5.19E-07	2.89E-01
G_BASE_SAND_050_POND_TYP	8.57E-05	2.20E-07	1.71E-06	7.39E-03	6.59E-07	5.13E-06	**2.19E+00**
G_BASE_CLAY_050_POND_TYP	2.36E-06	6.06E-09	4.73E-08	2.04E-04	1.82E-08	1.42E-07	7.88E-02
G_BASE_LOAM_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_BASE_SAND_100_POND_TYP	1.50E-04	3.84E-07	3.00E-06	1.29E-02	1.15E-06	8.97E-06	**4.99E+00**
G_BASE_CLAY_100_POND_TYP	4.16E-05	1.07E-07	8.32E-07	3.59E-03	3.20E-07	2.49E-06	**1.39E+00**
G_BASE_LOAM_100_POND_TYP	5.92E-05	1.52E-07	1.18E-06	5.11E-03	4.56E-07	3.55E-06	**1.97E+00**
G_BASE_SAND_150_POND_TYP	1.95E-04	4.99E-07	3.89E-06	1.68E-02	1.50E-06	1.17E-05	**6.49E+00**
G_BASE_CLAY_150_POND_TYP	6.40E-05	1.64E-07	1.28E-06	5.51E-03	4.92E-07	3.83E-06	**2.13E+00**
G_BASE_LOAM_150_POND_TYP	7.21E-05	1.85E-07	1.44E-06	6.22E-03	5.55E-07	4.32E-06	**2.40E+00**
G_BASE_SAND_200_POND_TYP	1.70E-04	4.36E-07	3.40E-06	1.47E-02	1.31E-06	1.02E-05	**5.67E+00**
G_BASE_CLAY_200_POND_TYP	8.46E-05	2.17E-07	1.69E-06	7.29E-03	6.50E-07	5.06E-06	**2.82E+00**
G_BASE_LOAM_200_POND_TYP	7.97E-05	2.04E-07	1.59E-06	6.87E-03	6.13E-07	4.77E-06	**2.66E+00**
G_BASE_SAND_250_POND_TYP	1.31E-04	3.37E-07	2.63E-06	1.13E-02	1.01E-06	7.87E-06	**4.38E+00**
G_BASE_CLAY_250_POND_TYP	9.90E-05	2.54E-07	1.98E-06	8.53E-03	7.62E-07	5.93E-06	**3.30E+00**
G_BASE_LOAM_250_POND_TYP	8.63E-05	2.21E-07	1.73E-06	7.44E-03	6.64E-07	5.17E-06	**2.88E+00**
G_ARV1_050_POND_TYP	9.78E-06	2.51E-08	1.96E-07	8.43E-04	7.53E-08	5.86E-07	3.26E-01
G_ARV2_050_POND_TYP	6.99E-05	1.79E-07	1.40E-06	6.02E-03	5.38E-07	4.18E-06	**2.33E+00**
G_ARV3_050_POND_TYP	7.39E-05	1.90E-07	1.48E-06	6.37E-03	5.69E-07	4.43E-06	**2.46E+00**
G_ERV1_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_ERV2_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_ERV3_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_RGV1_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_RGV2_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_RGV3_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_SLV1_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_SLV2_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_SLV3_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_STV1_050_POND_TYP	2.23E-05	5.73E-08	4.47E-07	1.93E-03	1.72E-07	1.34E-06	7.45E-01
G_STV2_050_POND_TYP	2.36E-05	6.06E-08	4.73E-07	2.04E-03	1.82E-07	1.42E-06	7.88E-01
G_STV3_050_POND_TYP	1.13E-05	2.90E-08	2.26E-07	9.75E-04	8.70E-08	6.77E-07	3.77E-01
G_VGV1_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_VGV2_050_POND_TYP	4.57E-05	1.17E-07	9.14E-07	3.94E-03	3.51E-07	2.74E-06	**1.52E+00**
G_VGV3_050_POND_TYP	5.14E-05	1.32E-07	1.03E-06	4.44E-03	3.96E-07	3.08E-06	**1.71E+00**

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Table B-16: Impact to aquatic species from surface runoff to pond

SURFACE RUNOFF - modeled in GLEAMS MAXIMUM APPLICATION RATE		Risk Quotients - Acute			Risk Quotients - Chronic		
GLEAMS ID	Pond Concentration (mg/L)	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants	Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
G_BASE_SAND_005_POND_MAX	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_POND_MAX	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_POND_MAX	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_POND_MAX	3.78E-06	9.68E-09	7.55E-08	3.25E-04	2.90E-08	2.26E-07	1.26E-01
G_BASE_CLAY_010_POND_MAX	1.38E-07	3.55E-10	2.77E-09	1.19E-05	1.06E-09	8.28E-09	4.61E-03
G_BASE_LOAM_010_POND_MAX	1.33E-09	3.42E-12	2.66E-11	1.15E-07	1.02E-11	7.98E-11	4.44E-05
G_BASE_SAND_025_POND_MAX	8.76E-05	2.25E-07	1.75E-06	7.55E-03	6.74E-07	5.25E-06	**2.92E+00**
G_BASE_CLAY_025_POND_MAX	2.52E-07	6.47E-10	5.05E-09	2.18E-05	1.94E-09	1.51E-08	8.41E-03
G_BASE_LOAM_025_POND_MAX	1.16E-05	2.96E-08	2.31E-07	9.96E-04	8.88E-08	6.92E-07	3.85E-01
G_BASE_SAND_050_POND_MAX	1.14E-04	2.93E-07	2.29E-06	9.85E-03	8.79E-07	6.84E-06	**3.81E+00**
G_BASE_CLAY_050_POND_MAX	3.15E-06	8.08E-09	6.30E-08	2.71E-04	2.42E-08	1.89E-07	1.05E-01
G_BASE_LOAM_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_BASE_SAND_100_POND_MAX	2.00E-04	5.12E-07	3.99E-06	1.72E-02	1.54E-06	1.20E-05	**6.65E+00**
G_BASE_CLAY_100_POND_MAX	5.54E-05	1.42E-07	1.11E-06	4.78E-03	4.26E-07	3.32E-06	**1.85E+00**
G_BASE_LOAM_100_POND_MAX	7.89E-05	2.02E-07	1.58E-06	6.80E-03	6.07E-07	4.73E-06	**2.63E+00**
G_BASE_SAND_150_POND_MAX	2.59E-04	6.65E-07	5.19E-06	2.24E-02	2.00E-06	1.55E-05	**8.65E+00**
G_BASE_CLAY_150_POND_MAX	8.53E-05	2.19E-07	1.71E-06	7.35E-03	6.56E-07	5.10E-06	**2.84E+00**
G_BASE_LOAM_150_POND_MAX	9.61E-05	2.46E-07	1.92E-06	8.29E-03	7.39E-07	5.76E-06	**3.20E+00**
G_BASE_SAND_200_POND_MAX	2.27E-04	5.81E-07	4.53E-06	1.95E-02	1.74E-06	1.36E-05	**7.56E+00**
G_BASE_CLAY_200_POND_MAX	1.13E-04	2.89E-07	2.25E-06	9.71E-03	8.67E-07	6.75E-06	**3.76E+00**
G_BASE_LOAM_200_POND_MAX	1.06E-04	2.72E-07	2.12E-06	9.15E-03	8.17E-07	6.36E-06	**3.54E+00**
G_BASE_SAND_250_POND_MAX	1.75E-04	4.49E-07	3.50E-06	1.51E-02	1.35E-06	1.05E-05	**5.84E+00**
G_BASE_CLAY_250_POND_MAX	1.32E-04	3.38E-07	2.64E-06	1.14E-02	1.01E-06	7.90E-06	**4.40E+00**
G_BASE_LOAM_250_POND_MAX	1.15E-04	2.95E-07	2.30E-06	9.91E-03	8.85E-07	6.89E-06	**3.83E+00**
G_ARV1_050_POND_MAX	1.30E-05	3.34E-08	2.61E-07	1.12E-03	1.00E-07	7.81E-07	4.35E-01
G_ARV2_050_POND_MAX	9.31E-05	2.39E-07	1.86E-06	8.03E-03	7.16E-07	5.58E-06	**3.10E+00**
G_ARV3_050_POND_MAX	9.85E-05	2.53E-07	1.97E-06	8.49E-03	7.58E-07	5.90E-06	**3.28E+00**
G_ERV1_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_ERV2_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_ERV3_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_RGV1_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_RGV2_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_RGV3_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_SLV1_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_SLV2_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_SLV3_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_STV1_050_POND_MAX	2.98E-05	7.63E-08	5.95E-07	2.57E-03	2.29E-07	1.78E-06	9.92E-01
G_STV2_050_POND_MAX	3.15E-05	8.08E-08	6.30E-07	2.72E-03	2.42E-07	1.89E-06	**1.05E+00**
G_STV3_050_POND_MAX	1.51E-05	3.86E-08	3.01E-07	1.30E-03	1.16E-07	9.02E-07	5.02E-01
G_VGV1_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_VGV2_050_POND_MAX	6.09E-05	1.56E-07	1.22E-06	5.25E-03	4.68E-07	3.64E-06	**2.03E+00**
G_VGV3_050_POND_MAX	6.86E-05	1.76E-07	1.37E-06	5.91E-03	5.27E-07	4.11E-06	**2.29E+00**

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Table B-18: Impact to non-target terrrestrial plants from surface runoff

SURFACE RUNOFF - modeled in GLEAMS
TYPICAL APPLICATION RATE

GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb a.i./acre)	Typical Species RQ	Threatened & Endangered Species RQ
G_BASE_SAND_005_TERR_TYP	5	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_TERR_TYP	5	10	0.05	0.015	0.401	weeds (79)	Clay	2.45E-07	7.84E-06	1.96E-03
G_BASE_LOAM_005_TERR_TYP	5	10	0.05	0.015	0.401	weeds (79)	Loam	2.55E-07	8.17E-06	2.04E-03
G_BASE_SAND_010_TERR_TYP	10	10	0.05	0.015	0.401	weeds (79)	Sand	1.89E-06	6.06E-05	1.51E-02
G_BASE_CLAY_010_TERR_TYP	10	10	0.05	0.015	0.401	weeds (79)	Clay	8.23E-06	2.63E-04	6.58E-02
G_BASE_LOAM_010_TERR_TYP	10	10	0.05	0.015	0.401	weeds (79)	Loam	1.90E-05	6.07E-04	1.52E-01
G_BASE_SAND_025_TERR_TYP	25	10	0.05	0.015	0.401	weeds (79)	Sand	4.25E-05	1.36E-03	3.40E-01
G_BASE_CLAY_025_TERR_TYP	25	10	0.05	0.015	0.401	weeds (79)	Clay	6.54E-05	2.09E-03	5.23E-01
G_BASE_LOAM_025_TERR_TYP	25	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_050_TERR_TYP	50	10	0.05	0.015	0.401	weeds (79)	Sand	4.66E-10	1.49E-08	3.73E-06
G_BASE_CLAY_050_TERR_TYP	50	10	0.05	0.015	0.401	weeds (79)	Clay	5.02E-10	1.61E-08	4.02E-06
G_BASE_LOAM_050_TERR_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	1.11E-09	3.54E-08	8.85E-06
G_BASE_SAND_100_TERR_TYP	100	10	0.05	0.015	0.401	weeds (79)	Sand	2.38E-08	7.62E-07	1.91E-04
G_BASE_CLAY_100_TERR_TYP	100	10	0.05	0.015	0.401	weeds (79)	Clay	1.00E-08	3.21E-07	8.02E-05
G_BASE_LOAM_100_TERR_TYP	100	10	0.05	0.015	0.401	weeds (79)	Loam	8.05E-09	2.58E-07	6.44E-05
G_BASE_SAND_150_TERR_TYP	150	10	0.05	0.015	0.401	weeds (79)	Sand	9.65E-08	3.09E-06	7.72E-04
G_BASE_CLAY_150_TERR_TYP	150	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_150_TERR_TYP	150	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_200_TERR_TYP	200	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_200_TERR_TYP	200	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_200_TERR_TYP	200	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_250_TERR_TYP	250	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_250_TERR_TYP	250	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_250_TERR_TYP	250	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00
G_ARV1_050_TERR_TYP	50	1	0.05	0.015	0.401	weeds (79)	Loam	1.11E-09	3.54E-08	8.85E-06
G_ARV2_050_TERR_TYP	50	100	0.05	0.015	0.401	weeds (79)	Loam	1.11E-09	3.54E-08	8.85E-06
G_ARV3_050_TERR_TYP	50	1000	0.05	0.015	0.401	weeds (79)	Loam	1.11E-09	3.54E-08	8.85E-06
G_ERV1_050_TERR_TYP	50	10	0.05	0.015	0.05	weeds (79)	Loam	1.10E-09	3.52E-08	8.80E-06
G_ERV2_050_TERR_TYP	50	10	0.05	0.015	0.2	weeds (79)	Loam	1.10E-09	3.52E-08	8.80E-06
G_ERV3_050_TERR_TYP	50	10	0.05	0.015	0.5	weeds (79)	Loam	1.11E-09	3.54E-08	8.85E-06
G_RGV1_050_TERR_TYP	50	10	0.05	0.023	0.401	weeds (79)	Loam	1.11E-09	3.54E-08	8.85E-06
G_RGV2_050_TERR_TYP	50	10	0.05	0.046	0.401	weeds (79)	Loam	1.10E-09	3.52E-08	8.80E-06
G_RGV3_050_TERR_TYP	50	10	0.05	0.15	0.401	weeds (79)	Loam	1.10E-09	3.52E-08	8.80E-06
G_SLV1_050_TERR_TYP	50	10	0.005	0.015	0.401	weeds (79)	Loam	1.10E-09	3.52E-08	8.80E-06
G_SLV2_050_TERR_TYP	50	10	0.01	0.015	0.401	weeds (79)	Loam	1.10E-09	3.52E-08	8.80E-06
G_SLV3_050_TERR_TYP	50	10	0.1	0.015	0.401	weeds (79)	Loam	1.11E-09	3.56E-08	8.89E-06
G_STV1_050_TERR_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	2.32E-07	7.43E-06	1.86E-03
G_STV2_050_TERR_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	2.10E-07	6.73E-06	1.68E-03
G_STV3_050_TERR_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	2.34E-06	7.49E-05	1.87E-02
G_VGV1_050_TERR_TYP	50	10	0.05	0.015	0.401	Shrub	Loam	1.11E-09	3.54E-08	8.85E-06
G_VGV2_050_TERR_TYP	50	10	0.05	0.015	0.401	Rye Grass	Loam	1.11E-09	3.54E-08	8.85E-06
G_VGV3_050_TERR_TYP	50	10	0.05	0.015	0.401	Conifer-Hardwood	Loam	2.51E-10	8.03E-09	2.01E-06

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Table B-18: Impact to non-target terrrestrial plants from surface runoff

SURFACE RUNOFF - modeled in GLEAMS
MAXIMUM APPLICATION RATE

GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Terrestrial Concentration (lb a.i./acre)	Typical Species RQ	Threatened & Endangered Species RQ
G_BASE_SAND_005_TERR_MAX	5	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_TERR_MAX	5	10	0.05	0.015	0.401	weeds (79)	Clay	3.27E-07	1.05E-05	2.61E-03
G_BASE_LOAM_005_TERR_MAX	5	10	0.05	0.015	0.401	weeds (79)	Loam	3.40E-07	1.09E-05	2.72E-03
G_BASE_SAND_010_TERR_MAX	10	10	0.05	0.015	0.401	weeds (79)	Sand	2.52E-06	8.07E-05	2.02E-02
G_BASE_CLAY_010_TERR_MAX	10	10	0.05	0.015	0.401	weeds (79)	Clay	1.10E-05	3.51E-04	8.77E-02
G_BASE_LOAM_010_TERR_MAX	10	10	0.05	0.015	0.401	weeds (79)	Loam	2.53E-05	8.09E-04	2.02E-01
G_BASE_SAND_025_TERR_MAX	25	10	0.05	0.015	0.401	weeds (79)	Sand	5.66E-05	1.81E-03	4.53E-01
G_BASE_CLAY_025_TERR_MAX	25	10	0.05	0.015	0.401	weeds (79)	Clay	8.71E-05	2.79E-03	6.97E-01
G_BASE_LOAM_025_TERR_MAX	25	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_050_TERR_MAX	50	10	0.05	0.015	0.401	weeds (79)	Sand	6.21E-10	1.99E-08	4.97E-06
G_BASE_CLAY_050_TERR_MAX	50	10	0.05	0.015	0.401	weeds (79)	Clay	6.69E-10	2.14E-08	5.35E-06
G_BASE_LOAM_050_TERR_MAX	50	10	0.05	0.015	0.401	weeds (79)	Loam	1.47E-09	4.72E-08	1.18E-05
G_BASE_SAND_100_TERR_MAX	100	10	0.05	0.015	0.401	weeds (79)	Sand	3.17E-08	1.02E-06	2.54E-04
G_BASE_CLAY_100_TERR_MAX	100	10	0.05	0.015	0.401	weeds (79)	Clay	1.34E-08	4.28E-07	1.07E-04
G_BASE_LOAM_100_TERR_MAX	100	10	0.05	0.015	0.401	weeds (79)	Loam	1.07E-08	3.43E-07	8.58E-05
G_BASE_SAND_150_TERR_MAX	150	10	0.05	0.015	0.401	weeds (79)	Sand	1.29E-07	4.12E-06	1.03E-03
G_BASE_CLAY_150_TERR_MAX	150	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_150_TERR_MAX	150	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_200_TERR_MAX	200	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_200_TERR_MAX	200	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_200_TERR_MAX	200	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_250_TERR_MAX	250	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_250_TERR_MAX	250	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_250_TERR_MAX	250	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00
G_ARV1_050_TERR_MAX	50	1	0.05	0.015	0.401	weeds (79)	Loam	1.47E-09	4.72E-08	1.18E-05
G_ARV2_050_TERR_MAX	50	100	0.05	0.015	0.401	weeds (79)	Loam	1.47E-09	4.72E-08	1.18E-05
G_ARV3_050_TERR_MAX	50	1000	0.05	0.015	0.401	weeds (79)	Loam	1.47E-09	4.72E-08	1.18E-05
G_ERV1_050_TERR_MAX	50	10	0.05	0.015	0.05	weeds (79)	Loam	1.47E-09	4.69E-08	1.17E-05
G_ERV2_050_TERR_MAX	50	10	0.05	0.015	0.2	weeds (79)	Loam	1.47E-09	4.69E-08	1.17E-05
G_ERV3_050_TERR_MAX	50	10	0.05	0.015	0.5	weeds (79)	Loam	1.47E-09	4.72E-08	1.18E-05
G_RGV1_050_TERR_MAX	50	10	0.05	0.023	0.401	weeds (79)	Loam	1.47E-09	4.72E-08	1.18E-05
G_RGV2_050_TERR_MAX	50	10	0.05	0.046	0.401	weeds (79)	Loam	1.47E-09	4.69E-08	1.17E-05
G_RGV3_050_TERR_MAX	50	10	0.05	0.15	0.401	weeds (79)	Loam	1.47E-09	4.69E-08	1.17E-05
G_SLV1_050_TERR_MAX	50	10	0.005	0.015	0.401	weeds (79)	Loam	1.47E-09	4.69E-08	1.17E-05
G_SLV2_050_TERR_MAX	50	10	0.01	0.015	0.401	weeds (79)	Loam	1.47E-09	4.69E-08	1.17E-05
G_SLV3_050_TERR_MAX	50	10	0.1	0.015	0.401	weeds (79)	Loam	1.48E-09	4.74E-08	1.19E-05
G_STV1_050_TERR_MAX	50	10	0.05	0.015	0.401	weeds (79)	Loam	3.09E-07	9.90E-06	2.47E-03
G_STV2_050_TERR_MAX	50	10	0.05	0.015	0.401	weeds (79)	Loam	2.80E-07	8.97E-06	2.24E-03
G_STV3_050_TERR_MAX	50	10	0.05	0.015	0.401	weeds (79)	Loam	3.12E-06	9.98E-05	2.49E-02
G_VGV1_050_TERR_MAX	50	10	0.05	0.015	0.401	Shrub	Loam	1.47E-09	4.72E-08	1.18E-05
G_VGV2_050_TERR_MAX	50	10	0.05	0.015	0.401	Rye Grass	Loam	1.47E-09	4.72E-08	1.18E-05
G_VGV3_050_TERR_MAX	50	10	0.05	0.015	0.401	Conifer-Hardwood	Loam	3.35E-10	1.07E-08	2.68E-06

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Shading and boldface indicates plant RQs greater than 1.

Table B-17: Impact to aquatic species from surface runoff to pond

SURFACE RUNOFF - modeled in GLEAMS
TYPICAL APPLICATION RATE

GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Stream Concentration (mg/L)	Risk Quotients - Acute: Fish	Risk Quotients - Acute: Aquatic Invertebrates	Risk Quotients - Acute: Non-Target Aquatic Plants	Risk Quotients - Chronic: Fish	Risk Quotients - Chronic: Aquatic Invertebrates	Risk Quotients - Chronic: Non-Target Aquatic Plants
G_BASE_SAND_005_STREAM_TYP	5	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_STREAM_TYP	5	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_STREAM_TYP	5	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_STREAM_TYP	10	10	0.05	0.015	0.401	weeds (79)	Sand	4.97E-08	1.27E-10	9.94E-10	4.29E-06	3.82E-10	2.98E-09	1.66E-03
G_BASE_CLAY_010_STREAM_TYP	10	10	0.05	0.015	0.401	weeds (79)	Clay	2.03E-09	5.21E-12	4.06E-11	1.75E-07	1.56E-11	1.22E-10	6.77E-05
G_BASE_LOAM_010_STREAM_TYP	10	10	0.05	0.015	0.401	weeds (79)	Loam	1.60E-11	4.10E-14	3.20E-13	1.38E-09	1.23E-13	9.57E-13	5.33E-07
G_BASE_SAND_025_STREAM_TYP	25	10	0.05	0.015	0.401	weeds (79)	Sand	1.66E-06	4.24E-09	3.31E-08	1.43E-04	1.27E-08	9.91E-08	5.52E-02
G_BASE_CLAY_025_STREAM_TYP	25	10	0.05	0.015	0.401	weeds (79)	Clay	4.36E-09	1.12E-11	8.71E-11	3.75E-07	3.35E-11	2.61E-10	1.45E-04
G_BASE_LOAM_025_STREAM_TYP	25	10	0.05	0.015	0.401	weeds (79)	Loam	1.87E-07	4.79E-10	3.74E-09	1.61E-05	1.44E-09	1.12E-08	6.23E-03
G_BASE_SAND_050_STREAM_TYP	50	10	0.05	0.015	0.401	weeds (79)	Sand	2.80E-06	7.17E-09	5.59E-08	2.41E-04	2.15E-08	1.67E-07	9.32E-02
G_BASE_CLAY_050_STREAM_TYP	50	10	0.05	0.015	0.401	weeds (79)	Clay	4.86E-08	1.25E-10	9.73E-10	4.19E-06	3.74E-10	2.91E-09	1.62E-03
G_BASE_LOAM_050_STREAM_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_BASE_SAND_100_STREAM_TYP	100	10	0.05	0.015	0.401	weeds (79)	Sand	5.56E-06	1.43E-08	1.11E-07	4.80E-04	4.28E-08	3.33E-07	1.85E-01
G_BASE_CLAY_100_STREAM_TYP	100	10	0.05	0.015	0.401	weeds (79)	Clay	1.29E-06	3.31E-09	2.58E-08	1.11E-04	9.93E-09	7.73E-08	4.30E-02
G_BASE_LOAM_100_STREAM_TYP	100	10	0.05	0.015	0.401	weeds (79)	Loam	2.75E-06	7.04E-09	5.49E-08	2.37E-04	2.11E-08	1.64E-07	9.15E-02
G_BASE_SAND_150_STREAM_TYP	150	10	0.05	0.015	0.401	weeds (79)	Sand	7.88E-06	2.02E-08	1.58E-07	6.80E-04	6.06E-08	4.72E-07	2.63E-01
G_BASE_CLAY_150_STREAM_TYP	150	10	0.05	0.015	0.401	weeds (79)	Clay	2.09E-06	5.37E-09	4.19E-08	1.81E-04	1.61E-08	1.25E-07	6.98E-02
G_BASE_LOAM_150_STREAM_TYP	150	10	0.05	0.015	0.401	weeds (79)	Loam	3.76E-06	9.64E-09	7.52E-08	3.24E-04	2.89E-08	2.25E-07	1.25E-01
G_BASE_SAND_200_STREAM_TYP	200	10	0.05	0.015	0.401	weeds (79)	Sand	9.16E-06	2.35E-08	1.83E-07	7.90E-04	7.05E-08	5.48E-07	3.05E-01
G_BASE_CLAY_200_STREAM_TYP	200	10	0.05	0.015	0.401	weeds (79)	Clay	2.80E-06	7.18E-09	5.60E-08	2.41E-04	2.15E-08	1.68E-07	9.34E-02
G_BASE_LOAM_200_STREAM_TYP	200	10	0.05	0.015	0.401	weeds (79)	Loam	4.50E-06	1.15E-08	8.99E-08	3.88E-04	3.46E-08	2.69E-07	1.50E-01
G_BASE_SAND_250_STREAM_TYP	250	10	0.05	0.015	0.401	weeds (79)	Sand	9.65E-06	2.47E-08	1.93E-07	8.32E-04	7.42E-08	5.78E-07	3.22E-01
G_BASE_CLAY_250_STREAM_TYP	250	10	0.05	0.015	0.401	weeds (79)	Clay	3.30E-06	8.46E-09	6.60E-08	2.84E-04	2.54E-08	1.98E-07	1.10E-01
G_BASE_LOAM_250_STREAM_TYP	250	10	0.05	0.015	0.401	weeds (79)	Loam	5.07E-06	1.30E-08	1.01E-07	4.37E-04	3.90E-08	3.04E-07	1.69E-01
G_ARV1_050_STREAM_TYP	50	1	0.05	0.015	0.401	weeds (79)	Loam	1.63E-07	4.18E-10	3.26E-09	1.40E-05	1.25E-09	9.75E-09	5.43E-03
G_ARV2_050_STREAM_TYP	50	100	0.05	0.015	0.401	weeds (79)	Loam	8.18E-06	2.10E-08	1.64E-07	7.06E-04	6.30E-08	4.90E-07	2.73E-01
G_ARV3_050_STREAM_TYP	50	1000	0.05	0.015	0.401	weeds (79)	Loam	2.22E-05	5.68E-08	4.43E-07	1.91E-03	1.70E-07	1.33E-06	7.39E-01
G_ERV1_050_STREAM_TYP	50	10	0.05	0.015	0.05	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_ERV2_050_STREAM_TYP	50	10	0.05	0.015	0.2	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_ERV3_050_STREAM_TYP	50	10	0.05	0.015	0.5	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_RGV1_050_STREAM_TYP	50	10	0.05	0.023	0.401	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_RGV2_050_STREAM_TYP	50	10	0.05	0.046	0.401	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_RGV3_050_STREAM_TYP	50	10	0.05	0.15	0.401	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_SLV1_050_STREAM_TYP	50	10	0.005	0.015	0.401	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_SLV2_050_STREAM_TYP	50	10	0.01	0.015	0.401	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_SLV3_050_STREAM_TYP	50	10	0.1	0.015	0.401	weeds (79)	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_STV1_050_STREAM_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	6.08E-07	1.56E-09	1.22E-08	5.24E-05	4.68E-09	3.64E-08	2.03E-02
G_STV2_050_STREAM_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	6.58E-07	1.69E-09	1.32E-08	5.67E-05	5.06E-09	3.94E-08	2.19E-02
G_STV3_050_STREAM_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	2.83E-07	7.25E-10	5.65E-09	2.44E-05	2.17E-09	1.69E-08	9.42E-03
G_VGV1_050_STREAM_TYP	50	10	0.05	0.015	0.401	Shrub	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_VGV2_050_STREAM_TYP	50	10	0.05	0.015	0.401	Rye Grass	Loam	1.42E-06	3.65E-09	2.85E-08	1.23E-04	1.09E-08	8.52E-08	4.74E-02
G_VGV3_050_STREAM_TYP	50	10	0.05	0.015	0.401	Conifer-Hardwooc	Loam	1.69E-06	4.34E-09	3.38E-08	1.46E-04	1.30E-08	1.01E-07	5.64E-02

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Table B-17: Impact to aquatic species from surface runoff to pond

SURFACE RUNOFF - modeled in GLEAMS
MAXIMUM APPLICATION RATE

GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Stream Concentration (mg/L)	Risk Quotients - Acute: Fish	Risk Quotients - Acute: Aquatic Invertebrates	Risk Quotients - Acute: Non-Target Aquatic Plants	Risk Quotients - Chronic: Fish	Risk Quotients - Chronic: Aquatic Invertebrates	Risk Quotients - Chronic: Non-Target Aquatic Plants
G_BASE_SAND_005_STREAM_MAX	5	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_STREAM_MAX	5	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_STREAM_MAX	5	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_STREAM_MAX	10	10	0.05	0.015	0.401	weeds (79)	Sand	6.63E-08	1.70E-10	1.33E-09	5.71E-06	5.10E-10	3.97E-09	2.21E-03
G_BASE_CLAY_010_STREAM_MAX	10	10	0.05	0.015	0.401	weeds (79)	Clay	2.71E-09	6.94E-12	5.42E-11	2.33E-07	2.08E-11	1.62E-10	9.03E-05
G_BASE_LOAM_010_STREAM_MAX	10	10	0.05	0.015	0.401	weeds (79)	Loam	2.13E-11	5.46E-14	4.26E-13	1.84E-09	1.64E-13	1.28E-12	7.10E-07
G_BASE_SAND_025_STREAM_MAX	25	10	0.05	0.015	0.401	weeds (79)	Sand	2.21E-06	5.66E-09	4.41E-08	1.90E-04	1.70E-08	1.32E-07	7.35E-02
G_BASE_CLAY_025_STREAM_MAX	25	10	0.05	0.015	0.401	weeds (79)	Clay	5.80E-09	1.49E-11	1.16E-10	5.00E-07	4.46E-11	3.48E-10	1.93E-04
G_BASE_LOAM_025_STREAM_MAX	25	10	0.05	0.015	0.401	weeds (79)	Loam	2.49E-07	6.39E-10	4.98E-09	2.15E-05	1.92E-09	1.49E-08	8.31E-03
G_BASE_SAND_050_STREAM_MAX	50	10	0.05	0.015	0.401	weeds (79)	Sand	3.73E-06	9.55E-09	7.45E-08	3.21E-04	2.87E-08	2.23E-07	1.24E-01
G_BASE_CLAY_050_STREAM_MAX	50	10	0.05	0.015	0.401	weeds (79)	Clay	6.48E-08	1.66E-10	1.30E-09	5.59E-06	4.99E-10	3.88E-09	2.16E-03
G_BASE_LOAM_050_STREAM_MAX	50	10	0.05	0.015	0.401	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_BASE_SAND_100_STREAM_MAX	100	10	0.05	0.015	0.401	weeds (79)	Sand	7.41E-06	1.90E-08	1.48E-07	6.39E-04	5.70E-08	4.44E-07	2.47E-01
G_BASE_CLAY_100_STREAM_MAX	100	10	0.05	0.015	0.401	weeds (79)	Clay	1.72E-06	4.41E-09	3.44E-08	1.48E-04	1.32E-08	1.03E-07	5.73E-02
G_BASE_LOAM_100_STREAM_MAX	100	10	0.05	0.015	0.401	weeds (79)	Loam	3.66E-06	9.38E-09	7.32E-08	3.16E-04	2.82E-08	2.19E-07	1.22E-01
G_BASE_SAND_150_STREAM_MAX	150	10	0.05	0.015	0.401	weeds (79)	Sand	1.05E-05	2.69E-08	2.10E-07	9.06E-04	8.08E-08	6.29E-07	3.50E-01
G_BASE_CLAY_150_STREAM_MAX	150	10	0.05	0.015	0.401	weeds (79)	Clay	2.79E-06	7.16E-09	5.58E-08	2.41E-04	2.15E-08	1.67E-07	9.30E-02
G_BASE_LOAM_150_STREAM_MAX	150	10	0.05	0.015	0.401	weeds (79)	Loam	5.01E-06	1.29E-08	1.00E-07	4.32E-04	3.86E-08	3.00E-07	1.67E-01
G_BASE_SAND_200_STREAM_MAX	200	10	0.05	0.015	0.401	weeds (79)	Sand	1.22E-05	3.13E-08	2.44E-07	1.05E-03	9.39E-08	7.31E-07	4.07E-01
G_BASE_CLAY_200_STREAM_MAX	200	10	0.05	0.015	0.401	weeds (79)	Clay	3.73E-06	9.57E-09	7.47E-08	3.22E-04	2.87E-08	2.24E-07	1.24E-01
G_BASE_LOAM_200_STREAM_MAX	200	10	0.05	0.015	0.401	weeds (79)	Loam	5.99E-06	1.54E-08	1.20E-07	5.16E-04	4.61E-08	3.59E-07	2.00E-01
G_BASE_SAND_250_STREAM_MAX	250	10	0.05	0.015	0.401	weeds (79)	Sand	1.29E-05	3.30E-08	2.57E-07	1.11E-03	9.89E-08	7.70E-07	4.29E-01
G_BASE_CLAY_250_STREAM_MAX	250	10	0.05	0.015	0.401	weeds (79)	Clay	4.40E-06	1.13E-08	8.80E-08	3.79E-04	3.38E-08	2.63E-07	1.47E-01
G_BASE_LOAM_250_STREAM_MAX	250	10	0.05	0.015	0.401	weeds (79)	Loam	6.76E-06	1.73E-08	1.35E-07	5.83E-04	5.20E-08	4.05E-07	2.25E-01
G_ARV1_050_STREAM_MAX	50	1	0.05	0.015	0.401	weeds (79)	Loam	2.17E-07	5.56E-10	4.34E-09	1.87E-05	1.67E-09	1.30E-08	7.23E-03
G_ARV2_050_STREAM_MAX	50	100	0.05	0.015	0.401	weeds (79)	Loam	1.09E-05	2.80E-08	2.18E-07	9.40E-04	8.39E-08	6.53E-07	3.64E-01
G_ARV3_050_STREAM_MAX	50	1000	0.05	0.015	0.401	weeds (79)	Loam	2.95E-05	7.57E-08	5.91E-07	2.55E-03	2.27E-07	1.77E-06	9.84E-01
G_ERV1_050_STREAM_MAX	50	10	0.05	0.015	0.05	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_ERV2_050_STREAM_MAX	50	10	0.05	0.015	0.2	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_ERV3_050_STREAM_MAX	50	10	0.05	0.015	0.5	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_RGV1_050_STREAM_MAX	50	10	0.05	0.023	0.401	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_RGV2_050_STREAM_MAX	50	10	0.05	0.046	0.401	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_RGV3_050_STREAM_MAX	50	10	0.05	0.15	0.401	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_SLV1_050_STREAM_MAX	50	10	0.005	0.015	0.401	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_SLV2_050_STREAM_MAX	50	10	0.01	0.015	0.401	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_SLV3_050_STREAM_MAX	50	10	0.1	0.015	0.401	weeds (79)	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_STV1_050_STREAM_MAX	50	10	0.05	0.015	0.401	weeds (79)	Loam	8.10E-07	2.08E-09	1.62E-08	6.98E-05	6.23E-09	4.85E-08	2.70E-02
G_STV2_050_STREAM_MAX	50	10	0.05	0.015	0.401	weeds (79)	Loam	8.76E-07	2.25E-09	1.75E-08	7.55E-05	6.74E-09	5.25E-08	2.92E-02
G_STV3_050_STREAM_MAX	50	10	0.05	0.015	0.401	weeds (79)	Loam	3.77E-07	9.66E-10	7.54E-09	3.25E-05	2.90E-09	2.26E-08	1.26E-02
G_VGV1_050_STREAM_MAX	50	10	0.05	0.015	0.401	Shrub	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_VGV2_050_STREAM_MAX	50	10	0.05	0.015	0.401	Rye Grass	Loam	1.90E-06	4.86E-09	3.79E-08	1.64E-04	1.46E-08	1.14E-07	6.32E-02
G_VGV3_050_STREAM_MAX	50	10	0.05	0.015	0.401	Conifer-Hardwooc	Loam	2.25E-06	5.78E-09	4.51E-08	1.94E-04	1.73E-08	1.35E-07	7.51E-02

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Table B-19: Consumption of contaminated fish from pond by predatory bird - long term exposure. Pond impacted by surface runoff modeled in GLEAMS.

Parameters/ Assumptions	Value	Units	Notes
Body Weight (W)	5.15	kg	
Food ingestion rate (dry weight)	0.101786153	kg dw/day	[1]
Food ingestion rate (wet weight, A)	0.40714461	kg ww/day	[2]
Bioconcentration factor (BCF)	1	L/kg fish	
Proportion of Diet Contaminated (Prop)	1	unitless	
Toxicity reference value (TRV)	1000	mg/kg-bw/day	

TYPICAL APPLICATION RATE

GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (mg/L)	Concentrations in fish (C_{Fish}): WC × BCF	Dose estimates (D): C_{Fish} × A × Prop / W	Risk Quotient
G_BASE_SAND_005_POND_TYP	5	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_POND_TYP	5	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_POND_TYP	5	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_POND_TYP	10	10	0.05	0.015	0.401	weeds (79)	Sand	2.83E-06	2.83E-06	2.24E-07	2.24E-10
G_BASE_CLAY_010_POND_TYP	10	10	0.05	0.015	0.401	weeds (79)	Clay	1.04E-07	1.04E-07	8.21E-09	8.21E-12
G_BASE_LOAM_010_POND_TYP	10	10	0.05	0.015	0.401	weeds (79)	Loam	9.99E-10	9.99E-10	7.90E-11	7.90E-14
G_BASE_SAND_025_POND_TYP	25	10	0.05	0.015	0.401	weeds (79)	Sand	6.58E-05	6.58E-05	5.20E-06	5.20E-09
G_BASE_CLAY_025_POND_TYP	25	10	0.05	0.015	0.401	weeds (79)	Clay	1.89E-07	1.89E-07	1.50E-08	1.50E-11
G_BASE_LOAM_025_POND_TYP	25	10	0.05	0.015	0.401	weeds (79)	Loam	8.67E-06	8.67E-06	6.85E-07	6.85E-10
G_BASE_SAND_050_POND_TYP	50	10	0.05	0.015	0.401	weeds (79)	Sand	8.57E-05	8.57E-05	6.78E-06	6.78E-09
G_BASE_CLAY_050_POND_TYP	50	10	0.05	0.015	0.401	weeds (79)	Clay	2.36E-06	2.36E-06	1.87E-07	1.87E-10
G_BASE_LOAM_050_POND_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_BASE_SAND_100_POND_TYP	100	10	0.05	0.015	0.401	weeds (79)	Sand	1.50E-04	1.50E-04	1.18E-05	1.18E-08
G_BASE_CLAY_100_POND_TYP	100	10	0.05	0.015	0.401	weeds (79)	Clay	4.16E-05	4.16E-05	3.29E-06	3.29E-09
G_BASE_LOAM_100_POND_TYP	100	10	0.05	0.015	0.401	weeds (79)	Loam	5.92E-05	5.92E-05	4.68E-06	4.68E-09
G_BASE_SAND_150_POND_TYP	150	10	0.05	0.015	0.401	weeds (79)	Sand	1.95E-04	1.95E-04	1.54E-05	1.54E-08
G_BASE_CLAY_150_POND_TYP	150	10	0.05	0.015	0.401	weeds (79)	Clay	6.40E-05	6.40E-05	5.06E-06	5.06E-09
G_BASE_LOAM_150_POND_TYP	150	10	0.05	0.015	0.401	weeds (79)	Loam	7.21E-05	7.21E-05	5.70E-06	5.70E-09
G_BASE_SAND_200_POND_TYP	200	10	0.05	0.015	0.401	weeds (79)	Sand	1.70E-04	1.70E-04	1.34E-05	1.34E-08
G_BASE_CLAY_200_POND_TYP	200	10	0.05	0.015	0.401	weeds (79)	Clay	8.46E-05	8.46E-05	6.69E-06	6.69E-09
G_BASE_LOAM_200_POND_TYP	200	10	0.05	0.015	0.401	weeds (79)	Loam	7.97E-05	7.97E-05	6.30E-06	6.30E-09
G_BASE_SAND_250_POND_TYP	250	10	0.05	0.015	0.401	weeds (79)	Sand	1.31E-04	1.31E-04	1.04E-05	1.04E-08
G_BASE_CLAY_250_POND_TYP	250	10	0.05	0.015	0.401	weeds (79)	Clay	9.90E-05	9.90E-05	7.83E-06	7.83E-09
G_BASE_LOAM_250_POND_TYP	250	10	0.05	0.015	0.401	weeds (79)	Loam	8.63E-05	8.63E-05	6.82E-06	6.82E-09
G_ARV1_050_POND_TYP	50	1	0.05	0.015	0.401	weeds (79)	Loam	9.78E-06	9.78E-06	7.73E-07	7.73E-10
G_ARV2_050_POND_TYP	50	100	0.05	0.015	0.401	weeds (79)	Loam	6.99E-05	6.99E-05	5.52E-06	5.52E-09
G_ARV3_050_POND_TYP	50	1000	0.05	0.015	0.401	weeds (79)	Loam	7.39E-05	7.39E-05	5.84E-06	5.84E-09
G_ERV1_050_POND_TYP	50	10	0.05	0.015	0.05	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_ERV2_050_POND_TYP	50	10	0.05	0.015	0.2	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_ERV3_050_POND_TYP	50	10	0.05	0.015	0.5	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_RGV1_050_POND_TYP	50	10	0.05	0.023	0.401	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_RGV2_050_POND_TYP	50	10	0.05	0.046	0.401	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_RGV3_050_POND_TYP	50	10	0.05	0.15	0.401	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_SLV1_050_POND_TYP	50	10	0.005	0.015	0.401	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_SLV2_050_POND_TYP	50	10	0.01	0.015	0.401	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_SLV3_050_POND_TYP	50	10	0.1	0.015	0.401	weeds (79)	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_STV1_050_POND_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	2.23E-05	2.23E-05	1.77E-06	1.77E-09
G_STV2_050_POND_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	2.36E-05	2.36E-05	1.87E-06	1.87E-09
G_STV3_050_POND_TYP	50	10	0.05	0.015	0.401	weeds (79)	Loam	1.13E-05	1.13E-05	8.94E-07	8.94E-10
G_VGV1_050_POND_TYP	50	10	0.05	0.015	0.401	Shrub	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_VGV2_050_POND_TYP	50	10	0.05	0.015	0.401	Rye Grass	Loam	4.57E-05	4.57E-05	3.61E-06	3.61E-09
G_VGV3_050_POND_TYP	50	10	0.05	0.015	0.401	Conifer-Hardwooc	Loam	5.14E-05	5.14E-05	4.07E-06	4.07E-09

Risk Quotient = Estimated Dose/Toxicity Reference Value
Shading and boldface indicates piscivorous bird RQs greater than 0.1.

[1] Calculated using alorithm developed by Nagy, 1987 for all birds; where
Food Ingestion Rate (kg dw/day) = 0.0582*(BW)^0.651
[2] Assumes fish are 75% water (USEPA, 1993; Table 4-1 - value for bony fishes)
GLEAMS footnotes

Table B-19: Consumption of contaminated fish from pond by predatory bird - long term exposure. Pond impacted by surface runoff modeled in GLEAMS.

Parameters/ Assumptions	Value	Units	Notes
Body Weight (W)	5.15	kg	
Food ingestion rate (dry weight)	0.101786153	kg dw/day	[1]
Food ingestion rate (wet weight, A)	0.40714461	kg ww/day	[2]
Bioconcentration factor (BCF)	1	L/kg fish	
Proportion of Diet Contaminated (Prop)	1	unitless	
Toxicity reference value (TRV)	1000	mg/kg-bw/day	

MAXIMUM APPLICATION RATE

GLEAMS ID	Annual Precipitation (inches)	Application Area (acres)	Hydraulic Slope (ft/ft)	Surface Roughness	USLE Soil Erodibility Factor (ton/ac per EI)	Vegetation Type	Soil Type	Pond Concentration (mg/L)	Concentrations in fish (C_{Fish}): WC × BCF	Dose estimates (D): C_{Fish} × A × Prop / W	Risk Quotient
G_BASE_SAND_005_POND_max	5	10	0.05	0.015	0.401	weeds (79)	Sand	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_CLAY_005_POND_max	5	10	0.05	0.015	0.401	weeds (79)	Clay	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_LOAM_005_POND_max	5	10	0.05	0.015	0.401	weeds (79)	Loam	0.00E+00	0.00E+00	0.00E+00	0.00E+00
G_BASE_SAND_010_POND_max	10	10	0.05	0.015	0.401	weeds (79)	Sand	3.78E-06	3.78E-06	2.98E-07	2.98E-10
G_BASE_CLAY_010_POND_max	10	10	0.05	0.015	0.401	weeds (79)	Clay	1.38E-07	1.38E-07	1.09E-08	1.09E-11
G_BASE_LOAM_010_POND_max	10	10	0.05	0.015	0.401	weeds (79)	Loam	1.33E-09	1.33E-09	1.05E-10	1.05E-13
G_BASE_SAND_025_POND_max	25	10	0.05	0.015	0.401	weeds (79)	Sand	8.76E-05	8.76E-05	6.93E-06	6.93E-09
G_BASE_CLAY_025_POND_max	25	10	0.05	0.015	0.401	weeds (79)	Clay	2.52E-07	2.52E-07	1.99E-08	1.99E-11
G_BASE_LOAM_025_POND_max	25	10	0.05	0.015	0.401	weeds (79)	Loam	1.16E-05	1.16E-05	9.13E-07	9.13E-10
G_BASE_SAND_050_POND_max	50	10	0.05	0.015	0.401	weeds (79)	Sand	1.14E-04	1.14E-04	9.03E-06	9.03E-09
G_BASE_CLAY_050_POND_max	50	10	0.05	0.015	0.401	weeds (79)	Clay	3.15E-06	3.15E-06	2.49E-07	2.49E-10
G_BASE_LOAM_050_POND_max	50	10	0.05	0.015	0.401	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_BASE_SAND_100_POND_max	100	10	0.05	0.015	0.401	weeds (79)	Sand	2.00E-04	2.00E-04	1.58E-05	1.58E-08
G_BASE_CLAY_100_POND_max	100	10	0.05	0.015	0.401	weeds (79)	Clay	5.54E-05	5.54E-05	4.38E-06	4.38E-09
G_BASE_LOAM_100_POND_max	100	10	0.05	0.015	0.401	weeds (79)	Loam	7.89E-05	7.89E-05	6.24E-06	6.24E-09
G_BASE_SAND_150_POND_max	150	10	0.05	0.015	0.401	weeds (79)	Sand	2.59E-04	2.59E-04	2.05E-05	2.05E-08
G_BASE_CLAY_150_POND_max	150	10	0.05	0.015	0.401	weeds (79)	Clay	8.53E-05	8.53E-05	6.74E-06	6.74E-09
G_BASE_LOAM_150_POND_max	150	10	0.05	0.015	0.401	weeds (79)	Loam	9.61E-05	9.61E-05	7.60E-06	7.60E-09
G_BASE_SAND_200_POND_max	200	10	0.05	0.015	0.401	weeds (79)	Sand	2.27E-04	2.27E-04	1.79E-05	1.79E-08
G_BASE_CLAY_200_POND_max	200	10	0.05	0.015	0.401	weeds (79)	Clay	1.13E-04	1.13E-04	8.91E-06	8.91E-09
G_BASE_LOAM_200_POND_max	200	10	0.05	0.015	0.401	weeds (79)	Loam	1.06E-04	1.06E-04	8.39E-06	8.39E-09
G_BASE_SAND_250_POND_max	250	10	0.05	0.015	0.401	weeds (79)	Sand	1.75E-04	1.75E-04	1.38E-05	1.38E-08
G_BASE_CLAY_250_POND_max	250	10	0.05	0.015	0.401	weeds (79)	Clay	1.32E-04	1.32E-04	1.04E-05	1.04E-08
G_BASE_LOAM_250_POND_max	250	10	0.05	0.015	0.401	weeds (79)	Loam	1.15E-04	1.15E-04	9.09E-06	9.09E-09
G_ARV1_050_POND_max	50	1	0.05	0.015	0.401	weeds (79)	Loam	1.30E-05	1.30E-05	1.03E-06	1.03E-09
G_ARV2_050_POND_max	50	100	0.05	0.015	0.401	weeds (79)	Loam	9.31E-05	9.31E-05	7.36E-06	7.36E-09
G_ARV3_050_POND_max	50	1000	0.05	0.015	0.401	weeds (79)	Loam	9.85E-05	9.85E-05	7.79E-06	7.79E-09
G_ERV1_050_POND_max	50	10	0.05	0.015	0.05	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_ERV2_050_POND_max	50	10	0.05	0.015	0.2	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_ERV3_050_POND_max	50	10	0.05	0.015	0.5	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_RGV1_050_POND_max	50	10	0.05	0.023	0.401	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_RGV2_050_POND_max	50	10	0.05	0.046	0.401	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_RGV3_050_POND_max	50	10	0.05	0.15	0.401	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_SLV1_050_POND_max	50	10	0.005	0.015	0.401	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_SLV2_050_POND_max	50	10	0.01	0.015	0.401	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_SLV3_050_POND_max	50	10	0.1	0.015	0.401	weeds (79)	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_STV1_050_POND_max	50	10	0.05	0.015	0.401	weeds (79)	Loam	2.98E-05	2.98E-05	2.35E-06	2.35E-09
G_STV2_050_POND_max	50	10	0.05	0.015	0.401	weeds (79)	Loam	3.15E-05	3.15E-05	2.49E-06	2.49E-09
G_STV3_050_POND_max	50	10	0.05	0.015	0.401	weeds (79)	Loam	1.51E-05	1.51E-05	1.19E-06	1.19E-09
G_VGV1_050_POND_max	50	10	0.05	0.015	0.401	Shrub	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_VGV2_050_POND_max	50	10	0.05	0.015	0.401	Rye Grass	Loam	6.09E-05	6.09E-05	4.81E-06	4.81E-09
G_VGV3_050_POND_max	50	10	0.05	0.015	0.401	Conifer-Hardwooc	Loam	6.86E-05	6.86E-05	5.42E-06	5.42E-09

Risk Quotient = Estimated Dose/Toxicity Reference Value
Shading and boldface indicates piscivorous bird RQs greater than 0.1.

[1] Calculated using alorithm developed by Nagy, 1987 for all birds; where
Food Ingestion Rate (kg dw/day) = 0.0582*(BW)^0.651
[2] Assumes fish are 75% water (USEPA, 1993; Table 4-1 - value for bony fishes)

Table B-20: Impact to non-target terrrestrial plants from wind erosion

WIND EROSION - modeled in CalPuff

TYPICAL APPLICATION RATE

Cal Puff Scenario ID	Watershed Location	Distance From Receptor (km)	Terrestrial Concentration (lb a.i./acre)	Typical Species TRV	Typical Species RQ	Threatened & Endangered Species TRV	Threatened & Endangered Species RQ
dust_MT_0.5_typ	MT	0.5	1.17E-05	1.25E-04	9.37E-02	1.20E-04	9.76E-02
dust_MT_5_typ	MT	5	3.44E-07	1.25E-04	2.75E-03	1.20E-04	2.86E-03
dust_MT_50_typ	MT	50	1.20E-08	1.25E-04	9.61E-05	1.20E-04	1.00E-04
dust_OR_0.5_typ	OR	0.5	1.35E-04	1.25E-04	**1.08E+00**	1.20E-04	**1.12E+00**
dust_OR_5_typ	OR	5	3.60E-06	1.25E-04	2.88E-02	1.20E-04	3.00E-02
dust_OR_50_typ	OR	50	8.79E-08	1.25E-04	7.03E-04	1.20E-04	7.33E-04
dust_WY_0.5_typ	WY	0.5	6.92E-05	1.25E-04	5.54E-01	1.20E-04	5.77E-01
dust_WY_5_typ	WY	5	2.48E-06	1.25E-04	1.98E-02	1.20E-04	2.07E-02
dust_WY_50_typ	WY	50	7.90E-08	1.25E-04	6.32E-04	1.20E-04	6.59E-04

WIND EROSION - modeled in CalPuff

MAXIMUM APPLICATION RATE

Cal Puff Scenario ID	Watershed Location	Distance From Receptor (km)	Terrestrial Concentration (lb a.i./acre)	Typical Species TRV	Typical Species RQ	Threatened & Endangered Species TRV	Threatened & Endangered Species RQ
dust_MT_0.5_max	MT	0.5	1.56E-05	1.25E-04	1.25E-01	1.20E-04	1.30E-01
dust_MT_5_max	MT	5	4.58E-07	1.25E-04	3.66E-03	1.20E-04	3.82E-03
dust_MT_50_max	MT	50	1.60E-08	1.25E-04	1.28E-04	1.20E-04	1.33E-04
dust_OR_0.5_max	OR	0.5	1.79E-04	1.25E-04	**1.44E+00**	1.20E-04	**1.50E+00**
dust_OR_5_max	OR	5	4.79E-06	1.25E-04	3.84E-02	1.20E-04	4.00E-02
dust_OR_50_max	OR	50	1.17E-07	1.25E-04	9.37E-04	1.20E-04	9.76E-04
dust_WY_0.5_max	WY	0.5	9.23E-05	1.25E-04	7.38E-01	1.20E-04	7.69E-01
dust_WY_5_max	WY	5	3.30E-06	1.25E-04	2.64E-02	1.20E-04	2.75E-02
dust_WY_50_max	WY	50	1.05E-07	1.25E-04	8.42E-04	1.20E-04	8.78E-04

RQ = Risk Quotient = Estimated Dose/Toxicity Reference Value

Shading and boldface indicates plant RQs greater than 1.

Table B-21: Impact to aquatic species from accidental spill to pond

Parameters/Assumptions	Value	Units
Volume of pond (Vp)	1011715	L
Volume of spill		
Truck ($Vspill_t$)	757	L
Helicopter($Vspill_h$)	529.9	L
Herbicide concentration		
Truck mixture (Cm_t)	299.60	mg a.i./L
Helicopter mixture (Cm_h)	1497.99	mg a.i./L

Scenario	Concentrations in water (Cw): Cm × Vspill / Vp	Units	Risk Quotients: Fish	Risk Quotients: Aquatic Invertebrates	Risk Quotients: Non-Target Aquatic Plants
Truck spill into pond	0.22	mg a.i./L	5.75E-04	4.48E-03	**1.93E+01**
Helicopter spill into pond	0.78	mg a.i./L	2.01E-03	1.57E-02	**6.76E+01**

Shading and boldface indicates plant RQs greater than 1.
Shading and boldface indicates acute RQs greater than 0.05 for fish and invertebrates.

Table B-22: Impact to aquatic species from accidental direct spray of pond and stream

Parameters/Assumptions		Value	Units
Application rates (R)			
	Typical	0.0469	lb/acre
	Maximum	0.0625	lb/acre
Area of pond (Area)		0.25	acre
Volume of pond (Vol)		1011715	L
Mass sprayed on pond (R x Area)			
	Typical	5318.3662	mg
	Maximum	7087.375	mg
Concentration in pond water (Mass/Volume)			
	Typical	0.005256783	mg/L
	Maximum	0.007005308	mg/L
Width of stream		2	m
Length of stream impacted by direct spray		636.15	m
Area of stream impacted by spray (Area)		1272.3	m2
Depth of stream		0.2	m
Instantaneous volume of stream impacted by direct spray (Vol)		254460	L
Mass sprayed on stream (R x Area)			
	Typical	59.671	lb
	Maximum	79.519	lb
Mass sprayed on stream - converted to mg			
	Typical	6688.271	mg
	Maximum	8912.941	mg
Concentration in stream water (Mass/Vol)			
	Typical	0.026284175	mg/L
	Maximum	0.035026885	mg/L

Scenario		Concentration in water (mg/L)	Risk Quotients Fish	Aquatic Invertebrates	Non-Target Aquatic Plants
Acute					
Direct spray to pond					
	Typical application	5.26E-03	1.35E-05	1.05E-04	4.53E-01
	Maximum application	7.01E-03	1.80E-05	1.40E-04	6.04E-01
Direct spray to stream					
	Typical application	2.63E-02	6.74E-05	5.26E-04	**2.27E+00**
	Maximum application	3.50E-02	8.98E-05	7.01E-04	**3.02E+00**
Chronic					
Direct spray to pond					
	Typical application	5.26E-03	4.04E-05	3.15E-04	**1.75E+02**
	Maximum application	7.01E-03	5.39E-05	4.19E-04	**2.34E+02**
Direct spray to stream					
	Typical application	2.63E-02	2.02E-04	1.57E-03	**8.76E+02**
	Maximum application	3.50E-02	2.69E-04	2.10E-03	**1.17E+03**

Shading and boldface indicates plant RQs greater than 1.
Shading and boldface indicates acute RQs greater than 0.05 for fish and invertebrates.

APPENDIX C – SPECIES LISTED UNDER THE ENDANGERED SPECIES ACT FOR 17 BLM STATES

TABLE C-1

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Plants						
Acanthomintha ilicifolia	San Diego thornmint	T[2]	CA	Yes	None	No
Allium munzii	Munz's onion	E	CA	Yes	63 acres	No
Ambrosia pumila	San Diego ambrosia	E	CA	Yes	None	No
Amsonia kearneyana	Kearney's blue-star	E	AZ	No	--	Yes
Arabis mcdonaldiana	McDonald's rock-cress	E	CA, OR	No	--	Yes
Arctomecon humilis	Dwarf bear-poppy	E	UT	No	--	Yes
Arctostaphylos morroensis	Morro manzanita	T	CA	No	--	Yes
Arctostaphylos myrtifolia	Ione manzanita	T	CA	No	--	No
Arenaria paludicola	Marsh sandwort	E	OR	No	--	Yes
Argemone pleiacantha ssp. *pinnatisecta*	Sacramento prickly poppy	E	NM	No	--	Yes
Asclepias welshii	Welsh's milkweed	T	AZ, UT	Yes	1,760 acres (UT)	Yes
Astragalus albens	Cushenbury milk-vetch	E	CA	Yes	839 acres	Yes
Astragalus ampullarioides	Shivwitz milk-vetch	E	UT	Yes	819 acres	Yes
Astragalus applegatei	Applegate's milk-vetch	E	OR	No	--	Yes
Astragalus brauntonii	Braunton's milk-vetch	E	CA	Yes	None	Yes
Astragalus desereticus	Deseret milk-vetch	T	UT	No	--	No
Astragalus holmgreniorum	Holmgren milk-vetch	E	AZ, UT	Yes	362 acres (AZ); 2,447 acres (UT)	Yes
Astragalus humillimus	Mancos milk-vetch	E	CO, NM	No	--	Yes
Astragalus jaegerianus	Lane Mountain milk-vetch	E	CA	Yes	9,897 acres	No
Astragalus lentiginosus var. *coachellae*	Coachella Valley milk-vetch	E	CA	Yes	3,494 acres	No
Astragalus magdalenae var. *peirsonii*	Peirson's milk-vetch	T	CA	Yes	20,779 acres	No
Astragalus lentiginosus var. *piscinensis*	Fish Slough milk-vetch	T	CA	Yes	5,430 acres	Yes
Astragalus montii	Heliotrope milk-vetch	T	UT	Yes	None	Draft
Astragalus osterhoutii	Osterhout milk-vetch	E	CO	No	--	Yes
Astragalus phoenix	Ash Meadows milk-vetch	T	NV	Yes	458 acres	Yes
Astragalus tricarinatus	Triple-ribbed milk-vetch	E	CA	No	--	No
Atriplex coronata var. *notatior*	San Jacinto Valley crownscale	E	CA	Yes	None	No
Baccharis vanessae	Encinitis baccharis	T	CA	No	--	No
Berberis nevinii	Nevin's barberry	E	CA	Yes	5 acres	No
Brodiaea filifolia	Thread-leaved brodiaea	T	CA	Yes	53 acres	No
Calyptridium pulchellum	Mariposa pussypaws	T	CA	No	No	No
Calystegia stebbinsii	Stebbins' morning-glory	E	CA	No	--	Yes
Camissonia benitensis	San Benito evening-primrose	T	CA	No	--	Yes
Carex specuicola	Navajo sedge	T	UT	Yes	None	Yes
Castilleja campestris ssp. *succulenta*	Fleshy owl's-clover	T	CA	Yes	289 acres	Yes
Caulanthus californicus	California jewelflower	E	CA	No	--	Yes

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Plants (Cont.)						
Ceanothus ferrisae	Coyote ceanothus	E	CA	No	No	Yes
Ceanothus roderickii	Pine Hill ceanothus	E	CA	No	--	Yes
Centaurium namophilum	Spring-loving centaury	T	CA, NV	Yes	806 acres (NV)	Yes
Chamaesyce hooveri	Hoover's spurge	T	CA	Yes	38 acres	Yes
Chlorogalum purpureum var. *purpureum*	Purple amole	T	CA	Yes	None	No
Chorizanthe howellii	Howell's spineflower	E	CA	No	--	Yes
Chorizanthe orcuttiana	Orcutt's spineflower	E	CA	No	--	No
Chorizanthe pungens var.*pungens*	Monterey spineflower	T	CA	Yes	1,204 acres	Yes
Chorizanthe rogusta var. *robusta*	Robust spineflower	E	CA	No	--	No
Cirsium fontinale var. *obispoense*	Chorro Creek bog thistle	E	CA	No	--	Yes
Cirsium scariosum var. *loncholepis*	La Graciosa thistle	E	CA	Yes	None	No
Clarkia springvillensis	Springville clarkia	T	CA	No	--	No
Coryphantha robbinsorum	Cochise pincushion cactus	T	AZ	No	--	Yes
Coryphantha scheeri var. *robustispina*	Pima pineapple cactus	E	AZ	No	--	No
Coryphantha sneedii var. *leei*	Lee pincushion cactus	T	NM	No	--	Yes
Coryphantha sneedii var. *sneedii*	Sneed pincushion cactus	E	NM	No	--	Yes
Cycladenia humilis var. *jonesii*	Jones cycladenia	T	CA, AZ, UT	No	--	Outline
Deinandra (= *hemizonia*) *conjugens*	Otay tarplant	T	CA	Yes	None	Yes
Deinandra increscens ssp. *villosa*	Gaviota tarplant	E	CA	Yes	None	No
Delphinium luteum	Yellow larkspur	E	CA	Yes	None	No
Dodecahema leptoceras	Slender-horned spineflower	E	CA	No	--	No
Dudleya cymosa ssp. *marcescens*	Marcescent dudleya	T	CA	No	--	Yes
Echinocactus horizonthalonius var. *nicholli*	Nichol's Turk's head cactus	E	AZ	No	--	Yes
Echinocereus fendleri var. *kuenzleri*	Kuenzler hedgehog cactus	E	NM	No	--	Yes
Echinocereus triglochidiatus var. *arizonicus*	Arizona hedgehog cactus	E	AZ	No	--	No (Draft)
Echinomastus erectocentrus var. *acunensis*	Acuna cactus	E	AZ	Proposed	--	No
Enceliopsis nudicaulis var. *corrugata*	Ash Meadows sunray	T	NV	Yes	773 acres	Yes
Eremalche kernensis	Kern mallow	E	CA	No	--	Yes
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woolly-star	E	CA	No	--	No
Erigeron decumbens var. *decumbens*	Willamette daisy	E	OR	Yes	208 acres	Yes
Erigeron parishii	Parish's daisy	T	CA	Yes	945 acres	Yes
Erigeron rhizomatus	Zuni fleabane	T	AZ, NM	No	--	Yes
Eriodictyon altissimum	Indian Knob mountain balm	E	CA	No	--	Yes
Eriodictyon capitatum	Lompoc yerba santa	E	CA	Yes	None	No

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
INTRODUCTION **Plants (Cont.)**						
Eriogonum apricum	Ione buckwheat	E	CA	No	--	No
Eriogonum gypsophilum	Gypsum wild-buckwheat	T	NM	Yes	537 acres	Yes
Eriogonum ovalifolium var. *vineum*	Cushenbury buckwheat	E	CA	Yes	423 acres	Yes
Eriogonum ovalifolium var. *williamsiae*	Steamboat buckwheat	E	NV	No	--	Yes
Eriogonum pelinophilum	Clay-loving wild-buckwheat	E	CO	Yes	None	Yes
Erysimum menziesii	Menzies' wallflower	E	CA	No	--	Yes
Eutrema penlandii	Penland alpine fen mustard	T	CO	No	--	No
Fremontodendron californicum ssp. *decumbens*	Pine Hill flannelbush	E	CA	No	--	Yes
Fremontodendron mexicanum	Mexican flannelbush	E	CA	Yes	224 acres	No
Fritillaria gentneri	Gentner's fritillary	E	OR	No	--	Yes
Galium californicum ssp. *sierrae*	El Dorado bedstraw	E	CA	No	--	Yes
Gaura neomexicana var. *coloradensis*	Colorado butterfly plant	T	CO, WY	Yes	None	Outline
Gilia tenuiflora ssp. *arenaria*	Monterey gilia	E	CA	No	--	Yes
Grindelia fraxino-pratensis	Ash Meadows gumplant	T	CA, NV	Yes	292 acres (CA)	Yes
Hackelia venusta	Showy stickseed	E	OR	No	--	Yes
Hedeoma todsenii	Todsen's pennyroyal	E	NM	Yes	None	Yes
Helianthus paradoxus	Pecos sunflower	T	NM	Yes	None	Yes
Howellia aquatilis	Water howellia	T	CA, ID, MT, OR	No	--	Draft
Ipomopsis polyantha	Pagosa skyrocket	E	CO	Yes	42 acres	Outline
Ivesia kingii var. *eremica*	Ash Meadows ivesia	T	NV	Yes	335 acres	Yes
Ivesia webberi	Webber ivesia	PT	CA, NV	Proposed	Proposed	No
Lasthenia conjugens	Contra Costa goldfields	E	CA	Yes	None	Yes
Layia carnosa	Beach layia	E	CA	No	--	Yes
Lepidium barnebyanum	Barneby ridge-cress	E	UT	No	--	Yes
Lepidium papilliferum	Slickspot peppergrass	T	ID	Proposed	57,756 acres (proposed)	No
Lesquerella congesta	Dudley Bluffs bladderpod	T	CO	No	--	Yes
Lesquerella tumulosa	Kodachrome bladderpod	E	UT	No	--	Outline
Lilaeopsis schaffneriana var. *recurva*	Huachuca water-umbel	E	AZ	Yes	484 acres	No
Lilium occidentale	Western lily	E	CA, OR	No	--	Yes
Limnanthes floccosa ssp. *californica*	Butte County meadowfoam	E	CA	Yes	None	Yes
Limnanthes floccosa ssp. *grandiflora*	Large-flowered woolly meadowfoam	E	OR	Yes	None	Draft
Lomatium bradshawii	Bradshaw's desert-parsley	E	OR	No	--	Yes
Lomatium cookii	Cook's lomatium	E	OR	Yes	1,621 acres	Draft
Lupinus sulphureus ssp. *kincaidii*	Kincaid's lupine	T	OR, WA	Yes	34 acres (OR)	Yes

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Plants (Cont.)						
Mentzelia leucophylla	Ash Meadows blazingstar	T	NV	Yes	509 acres	Yes
Mirabilis macfarlanei	MacFarlane's four-o'clock	T	ID, OR	No	--	Yes
Monardella viminea	Willowy monardella	E	CA	Yes	No	No
Monolopia congdonii (formerly *Lembertia congdonii*)	San Joaquin woolly-threads	E	CA	No	--	Yes
Neostapfia colusana	Colusa grass	T	CA	Yes	7 acres	Yes
Nitrophila mohavensis	Amargosa niterwort	E	CA, NV	Yes	1,200 acres (CA)	Yes
Opuntia treleasei	Bakersfield cactus	E	CA	No	--	Yes
Orcuttia californica	California orcutt grass	E	CA	No	--	Yes
Orcuttia inaequalis	San Joaquin Valley orcutt grass	T	CA	Yes	289 acres	Yes
Orcuttia pilosa	Hairy orcutt grass	E	CA	Yes	18 acres	Yes
Orcuttia tenuis	Slender orcutt grass	T	CA	Yes	17,077 acres	Yes
Oxytheca parishii var. *goodmaniana*	Cushenbury oxytheca	E	CA	Yes	84 acres	Draft
Pediocactus bradyi	Brady pincushion cactus	E	AZ	No	--	Yes
Pediocactus despainii	San Rafael cactus	E	NM, UT	No	--	Draft
Pediocactus knowltonii	Knowlton's cactus	E	CO, NM	No	--	Yes
Pediocactus peeblesianus var. *fickeiseniae*	Fickeisen plains cactus	E	AZ	Proposed	--	No
Pediocactus peeblesianus var. *peeblesianus*	Peebles Navajo cactus	E	AZ	No	--	Yes
Pediocactus sileri	Siler pincushion cactus	T	AZ, UT	No	--	Yes
Pediocactus winkleri	Winkler cactus	T	UT	No	--	Draft
Penstemon debilis	Parachute beardtongue	T	CO	Yes	13,912 acres	Outline
Penstemon grahamii	Graham's beardtongue	PT	CO, UT	Proposed	Proposed	No
Penstemon haydenii	Blowout penstemon	E	WY	No	--	Yes
Penstemon penlandii	Penland beardtongue	E	CO	No	--	Yes
Penstemon scariosus var. *albifluvis*	White River beardtongue	PT	CO, UT	Proposed	Proposed	No
Phacelia argillacea	Clay phacelia	E	UT	No	--	No
Phacelia formosula	North Park phacelia	E	CO	No	--	Yes
Phacelia submutica	DeBeque phacelia	T	CO	Yes	22,013 acres	Outline
Phlox hirsuta	Yreka phlox	E	CA	No	--	Yes
Physaria obcordata	Dudley Bluffs (Piceance) twinpod	T	CO, UT	No	--	Yes
Piperia yadonii	Yadon's piperia	E	CA	Yes	No	Yes
Plagiobothrys hirtus	Rough popcornflower	E	OR	No	--	Yes
Plantanthera praeclara	Western prairie fringed orchid	T	MT, WY	No	--	Yes
Pogogyne nudiuscula	Otay mesa-mint	E	CA	No	--	Yes
Primula maguirei	Maguire primrose	T	UT	No	--	Yes
Pseudobahia bahiifolia	Hartweg's golden sunburst	E	CA	No	--	No

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Plants (Cont.)						
Pseudobahia peirsonii	San Joaquin adobe sunburst	T	CA	No	--	No
Purshia subintegra	Arizona cliff-rose	E	AZ	No	--	Yes
Ranunculus aestivalis	Autumn buttercup	E	UT	No	--	Yes
Schoenocrambe argillacea	Clay reed-mustard	T	NM, UT	No	--	Yes
Schoenocrambe barnebyi	Barneby reed-mustard	E	ID, UT	No	--	Yes
Schoenocrambe suffrutescens	Shrubby reed-mustard	E	UT	No	--	Yes
Sclerocactus brevispinus	Pariette cactus	T	UT	No	--	Outline
Sclerocactus glaucus	Colorado hookless cactus	T	CO	No	--	Outline
Sclerocactus mesae-verdae	Mesa Verde cactus	T	CO, NM, UT	No	--	Yes
Sclerocactus wrightiae	Wright fishhook cactus	E	UT	No	--	Yes
Senecio layneae	Layne's butterweed	T	CA	No	--	Yes
Sidalcea keckii	Keck's checker-mallow	E	CA	Yes	0.2 acres	No
Sidalcea nelsoniana	Nelson's checker-mallow	T	OR	No	--	Yes
Sidalcea oregana var. *calva*	Wenatchee Mountains checker-mallow	E	OR	Yes	None	Yes
Silene spaldingii	Spalding's catchfly	T	ID, MT, OR, WA	No	--	Yes
Sphaeralcea gierischii	Gierisch mallow	E	AZ, UT	Yes	9,406 acres (AZ) 1,982 acres (UT)	No
Spiranthes delitescens	Canelo Hills ladies'-tresses	E	AZ	No	--	No
Spiranthes diluvialis	Ute ladies'-tresses	T	CO, ID, MT, NV, OR, UT, WY, NE, WA	No	--	Draft
Stephanomeria malheurensis	Malheur wire-lettuce	E	OR	Yes	103 acres	Yes
Streptanthus albidus ssp. *albidus*	Metcalf Canyon jewelflower	E	CA	No	--	Yes
Thelypodium howellii ssp. *spectabilis*	Howell's spectacular thelypody	T	OR	No	--	Yes
Townsendia aprica	Last Chance townsendia	T	UT	No	--	Yes
Tuctoria greenei	Greene's tuctoria	E	CA	Yes	7.2 acres	Yes
Verbena californica	Red Hills vervain	T	CA	No	--	No
Yermo xanthocephalus	Desert yellowhead	T	WY	Yes	357 acres	Outline
Mollusks						
Assiminea pecos	Pecos assiminea snail	E	NM	Yes	No	No (state plan)
Helminthoglypta walkeriana	Morro shoulderband snail	E	CA	Yes	5 acres	Yes
Juturnia kosteri	Koster's springsnail	E	NM	Yes	No	No (state plan)
Lanx sp.	Banbury Springs limpet	E	ID	No	--	Yes
Oxyloma haydeni kanabensis	Kanab ambersnail	E	AZ, UT	Proposed	--	Yes
Physa natricina	Snake River physa snail	E	ID	No	--	Yes
Pyrgulopsis bruneauensis	Bruneau Hot springsnail	E	ID	No	--	Yes

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Mollusks (Cont.)						
Pyrgulopsis neomexicana	Socorro springsnail	E	NM	No	--	Yes
Pyrgulopsis roswellensis	Roswell springsnail	E	NM	Yes	No	No
Taylorconcha serpenticola	Bliss Rapids snail	T	ID	No	--	Yes
Tryonia alamosae	Alamosa springsnail	E	NM	No	--	Yes
Arthropods						
Ambrysus amargosus	Ash Meadows naucorid	T	NV	Yes	None	Yes
Boloria acrocnema	Uncompahgre fritillary butterfly	E	CO	No	--	Yes
Branchinecta conservatio	Conservancy fairy shrimp	E	CA	Yes	7 acres	Yes
Branchinecta longiantenna	Longhorn fairy shrimp	E	CA	Yes	31 acres	Yes
Branchinecta lynchi	Vernal pool fairy shrimp	T	CA, OR	Yes	4,122 acres (CA); 423 acres (OR)	Yes
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	T	CA	Yes	None	Yes
Euphydryas editha quino	Quino checkerspot butterfly	E	CA	Yes	11,444 acres	Yes
Euphydryas editha taylori	Taylor's checkerspot butterfly	E	OR	Yes	None	No
Euproserpinus euterpe	Kern primrose sphinx moth	T	CA	No	--	Yes
Gammarus desperatus	Noel's amphipod	E	NM	Yes	None	No
Hesperia leonardus montana	Pawnee montane skipper	T	CO	No	--	Yes
Icaricia icarioides fenderi	Fender's blue butterfly	E	OR	Yes	249 acres	Yes
Lepidurus packardi	Vernal pool tadpole shrimp	E	CA	Yes	15,749 acres	Yes
Nicrophorus americanus	American burying beetle	E	MT, WY	No	--	Yes
Pseudocopaeodes eunus obscurus	Carson wandering skipper	E	CA, NV	No	--	Yes
Speyeria zerene hippolyta	Oregon silverspot butterfly	T	OR	Yes	None	Yes
Thermosphaeroma thermophilus	Socorro isopod	E	NM	No	--	No
Fishes						
Acipenser transmontanus	White sturgeon (Kootenia River population)	E	ID, MT	Yes	42 acres (ID)	Yes
Catostomus microps	Modoc sucker	E	CA	Yes	None	No
Catostomus santaanae	Santa Ana sucker	T	CA	Yes	26 acres	No
Catostomus warnerensis	Warner sucker	T	CA, NV, WA	Yes	None	Yes
Chasmistes brevirostris	Shortnose sucker	E	CA, OR	Yes	9 miles stream, 1,390 acres lake (OR)	Yes
Chasmistes cujus	Cui-ui	E	NV	No	--	Yes
Chasmistes liorus	June sucker	E	UT	Yes	None	Yes
Crenichthys baileyi baileyi	White River springfish	E	NV	Yes	1 acre	Yes
Crenichthys baileyi grandis	Hiko White River springfish	E	NV	Yes	None	Yes

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Fishes (Cont.)						
Crenichthys nevadae	Railroad Valley springfish	T	NV	Yes	129 acres	Yes
Cyprinella formosa	Beautiful shiner	T	AZ, NM	Yes	None	Yes
Cyprinodon diabolis	Devil's Hole pupfish	E	NV	No	--	Yes
Cyprinodon macularius	Desert pupfish	E	AZ, CA	Yes	485 acres (CA)	Yes
Cyprinodon nevadensis mionectes	Ash Meadows Amargosa pupfish	E	NV	Yes	62 acres	Yes
Cyprinodon nevadensis pectoralis	Warm Springs pupfish	E	NV	No	--	Yes
Cyprinodon radiosus	Owens pupfish	E	CA	No	--	Yes
Deltistes luxatus	Lost River sucker	E	CA, OR	Yes	351 acres (OR)	Yes
Empetrichthys latos	Pahrump poolfish	E	NV	No	--	Yes
Eremichthys acros	Desert dace	T	NV	Yes	1,955 acres	Yes
Eucyclogobius newberryi	Tidewater goby	E	CA	Yes	None	Yes
Gambusia nobilis	Pecos gambusia	E	NM	No	--	Yes
Gasterosteus aculeatus williamsoni	Unarmored threespine stickleback	E	CA	No	--	Yes
Gila bicolor mohavensis	Mohave tui chub	E	CA	No	--	Yes
Gila bicolor snyderi	Owens tui chub	E	CA	Yes	None	Yes
Gila bicolor ssp.	Hutton tui chub	T	OR	No	--	Yes
Gila boraxobius	Borax Lake chub	E	OR	Yes	320 acres	Yes
Gila cypha	Humpback chub	E	AZ, CO, UT, WY	Yes	1,953 acres (UT); 323 acres (CO)	Yes
Gila elegans	Bonytail chub	E	AZ, CA, CO, NV, UT, WY	Yes	6,214 acres (AZ); 1,480 acres (CA); 323 acres (CO); 1,953 acres (UT)	Yes
Gila intermedia	Gila chub	E	AZ, NM	Yes	1,911 acres (AZ)	No
Gila robusta jordani	Pahranagat roundtail chub	E	NV	No	--	Yes
Gila seminuda	Virgin River chub	E	AZ, NV, UT	Yes	879 acres (AZ); 818 acres (NV); 420 acres (UT)	Yes
Hybognathus amarus	Rio Grande silvery minnow	E	NM	Yes	96 acres	Yes
Hypomesus transpacificus	Delta smelt	T	CA	Yes	1,752 acres	Yes
Lepidomeda albivallis	White River spinedace	E	NV	Yes	None	Yes
Lepidomeda mollispinis pratensis	Big Spring spinedace	T	NV	Yes	32 acres	Yes
Lepidomeda vittata	Little Colorado spinedace	T	AZ	Yes	None	Yes
Meda fulgida	Spikedace	E	AZ, NM	Yes	41 miles (AZ); 12 miles (NM)	Yes
Moapa coriacea	Moapa dace	E	NV	No	--	Yes
Notropis girardi	Arkansas River shiner	T	NM	Yes	None	No

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Fishes (Cont.)						
Notropis simus pecosensis	Pecos bluntnose shiner	T	NM	Yes	293 acres	Yes
Oncorhynchus clarki ssp. *henshawi*	Lahontan cutthroat trout	T	CA, CO, NV, OR, UT	No	--	Yes
Oncorhynchus clarki ssp. *stomias*	Greenback cutthroat trout	T	CO	No	--	Yes
Oncorhynchus gilae	Gila trout	T	AZ, NM	No	--	Yes
Oncorhynchus keta	Chum salmon					
	Columbia River ESU[3]	T	OR	Yes	<1 mile (WA)	No
	Hood Canal Summer-run ESU	T	OR	Yes	None	Yes
Oncorhynchus kisutch	Coho salmon					
	Central California Coast ESU	E	CA, OR	Yes	NA	Yes
	Oregon Coast ESU	T	OR	Yes	688 miles	No
	Southern Oregon/Northern California Coasts ESU	T	CA, OR	Yes	NA	No
	Lower Columbia River ESU	T	OR	Proposed	--	Yes
Oncorhynchus mykiss	Steelhead					
	Southern California DPS[4]	E	CA	Yes	1 mile	Yes
	South Central California Coast DPS	T	CA	Yes	9 miles	Yes (Draft)
	California Central Valley DPS	T	CA	Yes	56 miles	No
	Northern California DPS	T	CA	Yes	125 miles	No
	Central California Coast DPS	T	CA	Yes	4 miles	No
	Snake River Basin DPS	T	ID, OR	Yes	147 miles (ID); 24 miles (OR); 7 miles (WA)	No
	Upper Willamette River DPS	T	OR	Yes	42 miles (OR)	Yes
	Upper Columbia River DPS	T	OR	Yes	4 miles (WA)	Yes
	Lower Columbia River DPS	T	OR	Yes	16 miles (OR); 2 miles (WA)	Yes
	Middle Columbia River DPS	T	OR	Yes	324 miles (OR); 21 miles (WA)	Yes
Oncorhynchus nerka	Sockeye salmon					
	Snake River, Idaho ESU	E	ID, OR	Yes	None	No
Oncorhynchus tshawytscha	Chinook salmon					
	California Coastal ESU	T	CA	Yes	63 miles	No
	Central Valley Spring-run ESU	T	CA	Yes	32 miles	No
	Sacramento River Winter-run ESU	E	CA, OR	Yes	NA	No
	Snake River Fall-run ESU	T	ID, OR	Yes	NA	No

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Fishes (Cont.)						
Oncorhynchus tshawytscha (cont.)	Chinook salmon (Cont.)					
	Snake River Spring/Summer-run ESU	T	ID, OR	Yes	NA	No
	Lower Columbia River ESU	T	OR	Yes	8 miles (OR/WA)	Yes
	Upper Willamette River ESU	T	OR	Yes	37 miles (OR)	Yes
	Upper Columbia River Spring-run ESU	E	OR	Yes	1 mile (WA)	Yes
Oregonichythys crameri	Oregon chub	T	OR	Yes	None	Yes
Plagopterus argentissimus	Woundfin	E	AZ, NV, NM, UT	Yes	879 acres (AZ); 420 acres (UT)	Yes
Poeciliopsis occidentalis	Gila topminnow	E	AZ, NM	No	--	Yes (Draft)
Ptychocheilus lucius	Colorado pikeminnow	E, XN	AZ, CA, CO, NM, UT, WY	Yes	2,644 acres (CO); 67 acres NM; 5,119 acres (UT)	Yes
Rhinichthys osculus lethoporus	Independence Valley speckled dace	E	NV	No	--	Yes
Rhinichthys osculus nevadensis	Ash Meadows speckled dace	E	NV	Yes	60 acres	Yes
Rhinichthys osculus oligoporus	Clover Valley speckled dace	E	NV	No	--	Yes
Rhinichthys osculus ssp.	Foskett speckled dace	T	OR	No	--	Yes
Rhinichthys osculus thermalis	Kendall Warm Springs dace	E	WY	No	--	Yes
Salvelinus confluentus	Bull trout	T, XN	ID, MT, NV, OR	Yes	7,669 acres, 907 miles (ID); 2,048 acres, 210 miles (OR); 25 miles (MT); 12 miles (NV)	Yes
Scaphirhynchus albus	Pallid sturgeon	E	CO, MT, WY	No	--	Yes
Tiaroga cobitis	Loach minnow	E	AZ, NM	Yes	41 miles (AZ); 13 miles (NM)	Yes
Xyrauchen texanus	Razorback sucker	E	AZ, CA, CO, NM, NV, UT, WY	Yes	822 acres (AZ); 1,076 acres (CA); 1,996 acres (CO); 4,734 acres (UT)	Yes
Amphibians						
Ambystoma californiense	California tiger salamander	T, E	CA	Yes	38 acres	No
Ambystoma tigrinum stebbinsi	Sonora tiger salamander	E	AZ	No	--	Yes
Anaxyrus canorus	Yosemite toad	PT	CA	Proposed	Proposed	No
Batrachoseps aridus	Desert slender salamander	E	CA	No	--	Yes

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Amphibians (Cont.)						
Bufo baxteri	Wyoming toad	E	WY	No	--	Yes
Bufo californicus (= *microscaphus*)	Arroyo toad	E	CA	Yes	453 acres	Yes
Rana chiricahuensis	Chiricahua leopard frog	T	AZ, NM	Yes	1,364 acres (AZ) 27 acres (NM)	Yes
Rana draytonii	California red-legged frog	T	CA	Yes	5,207 acres	Yes
Rana muscosa	Mountain yellow-legged frog (Northern DPS)	PE	CA	Proposed	None	No
Rana pretiosa	Oregon spotted frog	PT	OR	Proposed	Proposed	No
Rana sierrae	Sierra Nevada yellow-legged frog	PE	CA	Proposed	None	No
Reptiles						
Crotalus willardi obscurus	New Mexican ridge-nosed rattlesnake	T	AZ, NM	Yes	None	Yes
Gambelia silus	Blunt-nosed leopard lizard	E	CA	No	--	Yes
Gopherus agassizii	Desert tortoise (Mojave population)	T	AZ, CA, NV, UT	Yes	288,069 acres (AZ); 2,720,438 acres (CA); 1,024,579 acres (NV); 96,002 acres (UT)	Yes
Thamnophis eques megalops	Northern Mexican garter snake	PT	AZ	Proposed	Proposed	No
Thamnophis gigas	Giant garter snake	T	CA	No	--	Yes (Draft)
Thamnophis rufipunctatus	Narrow-headed garter snake	PT	AZ, NM	Proposed	Proposed	No
Uma inornata	Coachella Valley fringe-toed lizard	T	CA	Yes	2,358 acres	Yes
Birds						
Brachyramphus marmoratus	Marbled murrelet	T	CA, OR	Yes	85,495 acres (CA); 483,018 acres (OR)	Yes
Centrocercus minimus	Gunnison sage-grouse	PE	CO, UT	Proposed	Proposed	No
Centrocercus urophasianus	Greater sage-grouse (Bi-State DPS)	PT	CA	Proposed	Proposed	No
Charadrius melodus	Piping plover	T	CO, MT, NM, WY	Yes	1,758 acres (MT)	Yes
Charadrius nivosus nivosus	Western snowy plover (Pacific population)	T	CA, OR	Yes	67 acres (CA); 273 acres (OR)	Yes
Coccyzus americanus	Yellow-billed cuckoo (Western DPS)	PT	AZ, CA, CO, ID, MT, NM, NV, OR, WY, UT	No	--	No

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Birds (Cont.)						
Empidonax traillii extimus	Southwestern willow flycatcher	E	AZ, CA, CO, NV, NM, UT	Yes	96 miles (AZ); 9.4 miles (CA); 20.6 miles (CO); 22 miles (NM); 19 miles (NV); 25 miles (UT)	Yes
Eremophila alpestris strigata	Streaked horned lark	T	OR	Yes	None	No
Falco femoralis ssp. *septentrionalis*	Northern aplomado falcon	E, XN	AZ, NM	No	--	Yes
Grus americana	Whooping crane	E, XN	CO, ID, MT, WY	Yes	35 acres (CO); 379 acres (ID)	Yes
Gymnogyps californianus	California condor	E, XN	E = CA XN = UT, AZ	Yes	3,964 acres (CA)	Yes
Pipilo crissalis eremophilus	Inyo California towhee	T	CA	Yes	695 acres	Yes
Polioptila californica californica	Coastal California gnatcatcher	T	CA	Yes	8,862 acres	No
Polysticta stelleri	Steller's eider	T	AK	Yes	597 acres	Yes
Rallus longirostris yumanensis	Yuma clapper rail	E	AZ, CA, NV	No	--	Yes (Draft)
Somateria fischeri	Spectacled eider	T	AK	Yes	1 acre	Yes
Sterna antillarum	Least (interior) tern	E	CO, MT, NM, WY	No	--	Yes
Strix occidentalis caurina	Northern spotted owl	T	CA, OR	Yes	1,328,612 acres	Yes
Strix occidentalis lucida	Mexican spotted owl	T	AZ, CA, CO, NM, UT	Yes	795 acres (AZ); 61,994 acres (CO); 2,341 acres (NM); 1,456,144 acres (UT)	Yes (Draft)
Tympanachus pallidicinctus	Lesser prairie-chicken	PT	CO, NM, OK	No	--	No
Vireo bellii pusillus	Least Bell's vireo	E	CA	Yes	None	Yes (Draft)
Mammals						
Antilocapra americana sonoriensis	Sonoran pronghorn	E, XN	AZ	No	--	Yes
Brachylagus idahoensis	Pygmy rabbit	E	OR	No	--	Yes (Draft)
Canis lupus	Gray wolf	E, XN	AZ, CO, ID, NM, NV, MT, OR, UT, WY	Yes	None	Yes
Cynomys parvidens	Utah prairie dog	T	UT	No	--	Yes
Dipodomys heermanni morroensis	Morro Bay kangaroo rat	E	CA	Yes	None	Yes (Draft)
Dipodomys ingens	Giant kangaroo rat	E	CA	No	--	Yes
Dipodomys merriami parvus	San Bernardino Merriam's kangaroo rat	E	CA	Yes	1,030 acres	No

TABLE C-1 (Cont.)

Species Addressed in This Ecological Risk Assessment

Scientific Name	Common Name	Status	State[1]	Critical Habitat	Critical Habitat on BLM Lands	USFWS/NMFS Recovery Plan
Mammals (Cont.)						
Dipodomys nitratoides exilis	Fresno kangaroo rat	E	CA	Yes	None	Yes
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	E	CA	No	--	Yes
Dipodomys stephensi	Stephens' kangaroo rat	E	CA	No	--	Yes (Draft)
Gulo gulo luscus	North American wolverine	PT	ID, MT, WY	No	--	No
Leopardus pardalis	Ocelot	E	AZ	No	--	Yes
Leptonycteris curosoae yerbabuenae	Lesser long-nosed bat	E	AZ, NM	No	--	Yes
Leptonycteris nivalis	Mexican long-nosed bat	E	NM	No	--	Yes
Lynx canadensis	Canada lynx	T, PT	AK, CO, ID, MT, NM, OR, UT, WY	Yes	3 acres (ID); 103,475 acres (MT); 2,531 acres (OR); 1,426 acres (WY)	(Recovery Outline)
Microtus californicus scirpensis	Amargosa vole	E	CA	Yes	3,847 acres	Yes
Microtus mexicanus hualpaiensis	Hualapai Mexican vole	E	AZ	No	--	Yes
Mustela nigripes	Black-footed ferret	E, XN	E = AZ, CO, MT, UT, WY XN = AZ, CO, MT, UT, WY	No	--	Yes
Neotoma fuscipes riparia	Riparian woodrat	E	CA	No	--	Yes
Odocoileus virginianus leucurus	Columbian white-tailed deer	E	OR	No	--	Yes
Ovis canadensis ssp. *nelsoni*	Peninsular bighorn sheep	E	CA	Yes	102,686 acres	Yes
Ovis canadensis ssp. *sierrae*	Sierra Nevada bighorn sheep	E	CA	Yes	990 acres	Yes
Panthera onca	Jaguar	E	AZ, NM	Proposed	Proposed	Yes
Rangifer tarandus caribou	Woodland caribou	E	OR	Proposed	None	Yes
Sorex ornatus relictus	Buena Vista Lake ornate shrew	E	CA	Yes	None	Yes
Spermophilus brunneus brunneus	Northern Idaho ground squirrel	T	ID	No	--	Yes
Ursus arctos horribilis	Grizzly bear	T	ID, MT, OR, WY	No	--	Yes
Vulpes macrotis mutica	San Joaquin kit fox	E	CA	No	--	Yes
Zapus hudsonius luteus	New Mexico meadow jumping mouse	PE	AZ, CO, NM	Proposed	None	No
Zapus hudsonius preblei	Preble's meadow jumping mouse	T	CO, WY	Yes	6 acres (CO)	No

[1]State refers to the administrative jurisdiction of the BLM state office for the state listed. Therefore, MT indicates that the species may occur in Montana, North Dakota, and/or South Dakota; NM indicates that the species may occur in New Mexico, Texas, and/or Kansas; OR indicates that the species may occur in Oregon and/or Washington; and WY indicates that the species may occur in Wyoming and/or Nebraska. Some aquatic species do not occur in all the states listed, but could still be affected by activities in those states if aquatic systems were altered.
[2]E = Federally listed as endangered; T = federally listed as threatened; PE = proposed for listing as endangered; PT = proposed for listing as threatened; and XN = experimental, non-essential population.
[3]ESU = Evolutionarily Significant Unit.
[4]DPS = Distinct Population Segment.
NA = Due to incomplete information, recent listing, or recent change in the status of critical habitat, number of acres of critical habitat on BLM-administered lands is unknown at this time.
Note: Some estimates of critical habitat are based on digital information downloaded from the USFWS critical habitat data portal (http://ecos.fws.gov/crithab/). Therefore, they may not reflect additional critical habitat that was not digitized at the time the data were downloaded.