

CHAPTER 15
DESIGNATED CRITICAL HABITAT EFFECTS ANALYSIS
BROMOXYNIL

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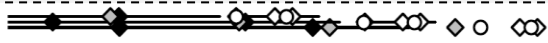
15 EFFECTS OF THE ACTION ANALYSIS – DESIGNATED CRITICAL HABITAT

15.1 Introduction

See Chapters 4 (Approach to the Assessment), 11 (Effects Analysis Introduction), and 12 (Effects of the Action to ESA-listed Species) for descriptions of the methods and information used in this section. In this section we integrate the exposure and response information to evaluate the likelihood of adverse effects from stressors of the action to designated critical habitat. The information is organized by species. Within each section the information is presented in the following order:

1. R- Plots figures: Demonstrate the relationship between geographically-specific potential exposure distributions and assessment measures (response distributions). These figures also convey the prevalence of registered use sites within the species designated critical habitat by providing potential acreage of allowed uses within the designated critical habitat and the percent overlap of that use relative to the size of the designated critical habitat. See Table 1 below, the assessment framework (chapter 4), and the introduction to the effects analysis (Chapter 11) for more information on the interpretation of risk plots.

Table 1. General risk plot components

<p>Title</p> <p>Species name is given, with ESU or DPS abbreviated, for example:</p> <p>Chum salmon CR (5180) Habitat: 58 HUC12s</p> <p>“(4799)” is an identification number used for internal tracking purposes. “Habitat” indicates that the species designated critical habitat, rather than the entire range, was used to calculate overlap percentages. The number of individual sub-watersheds (HUC-12) that make up the designated critical habitat is also provided, here 58.</p>
<p>Toxicity Data</p> <p>See Chapter 11 for bromoxynil and prometryn specific information.</p>
<p>Uses</p> <p>The overlap category is listed, followed by the acres within species designated critical habitat, a graphical depiction of the exposure estimates, and the percent of species habitat composed of those acres, for example:</p> <p>Corn (29905)  0.44 % (0.26, 0.58)</p> <p>See chapter 11 for a crosswalk of authorized use sites to overlap category. Note that there are three rows of estimated exposure concentrations for each overlap category; each row represents a different time-weighted average: 1-day (bottom row); 4-day (middle row); and 21-day (top row).</p>

2. Likelihood of exposure tables: Tables summarizing assessment of likelihood of exposure to each pesticide use that can occur within the species designated critical habitat.
3. Risk Hypotheses Tables: tables for each risk hypothesis summarizing risk and confidence associated with each registered use that occurs within the species designated critical habitat.
4. Final effects analysis table and narrative summary: Each sections concludes with a table indicating which risk hypotheses were supported and associated narrative summary of overall risk of the action to the designated critical habitat.

15.2 Bromoxynil Effects Analysis

15.2.1 Columbia River Chum Salmon (*O. keta*) Designated Critical Habitat; Bromoxynil

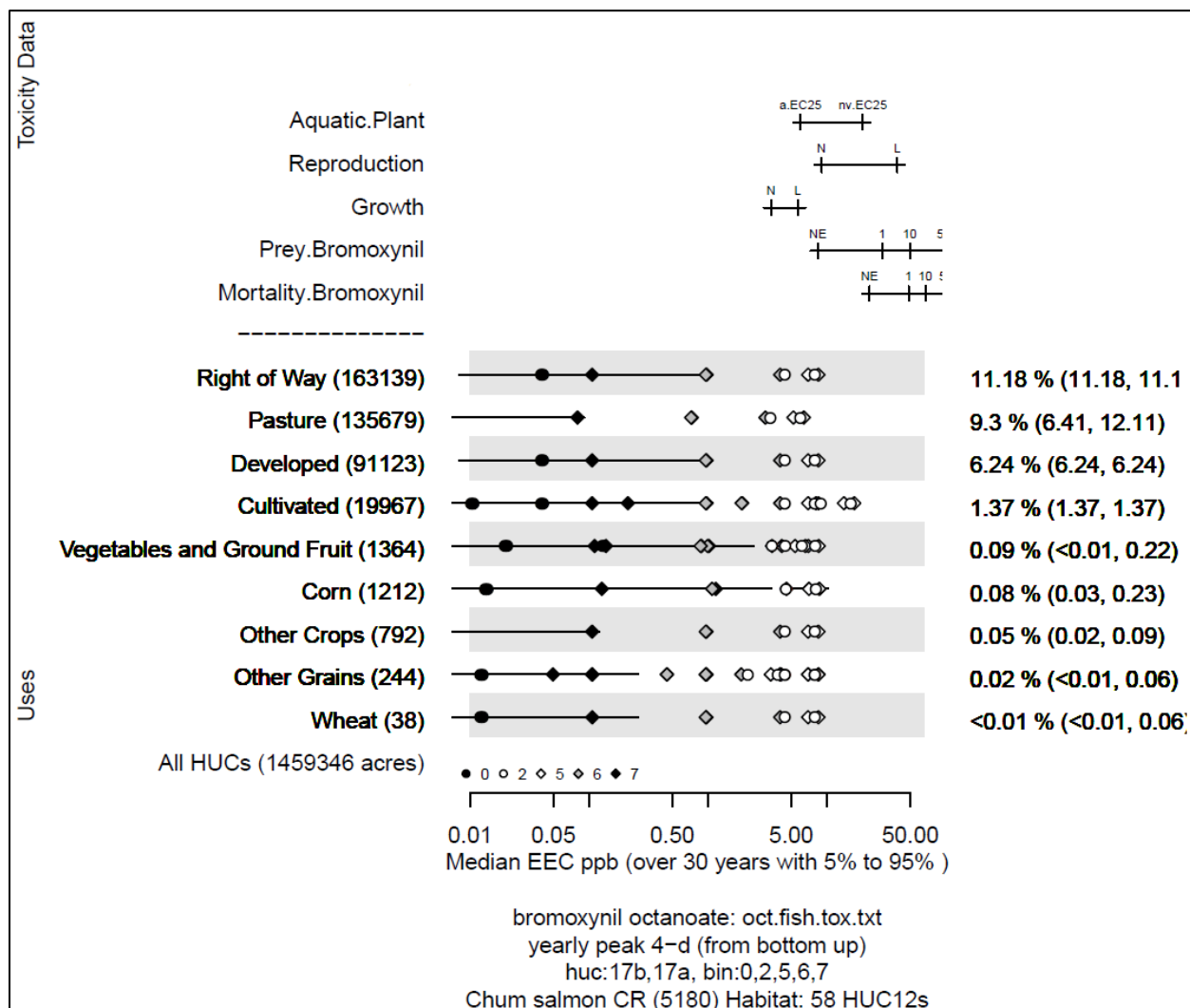


Figure 1. Effects analysis R-plot; chum salmon, Columbia River ESU designated critical habitat; aquatic plants.

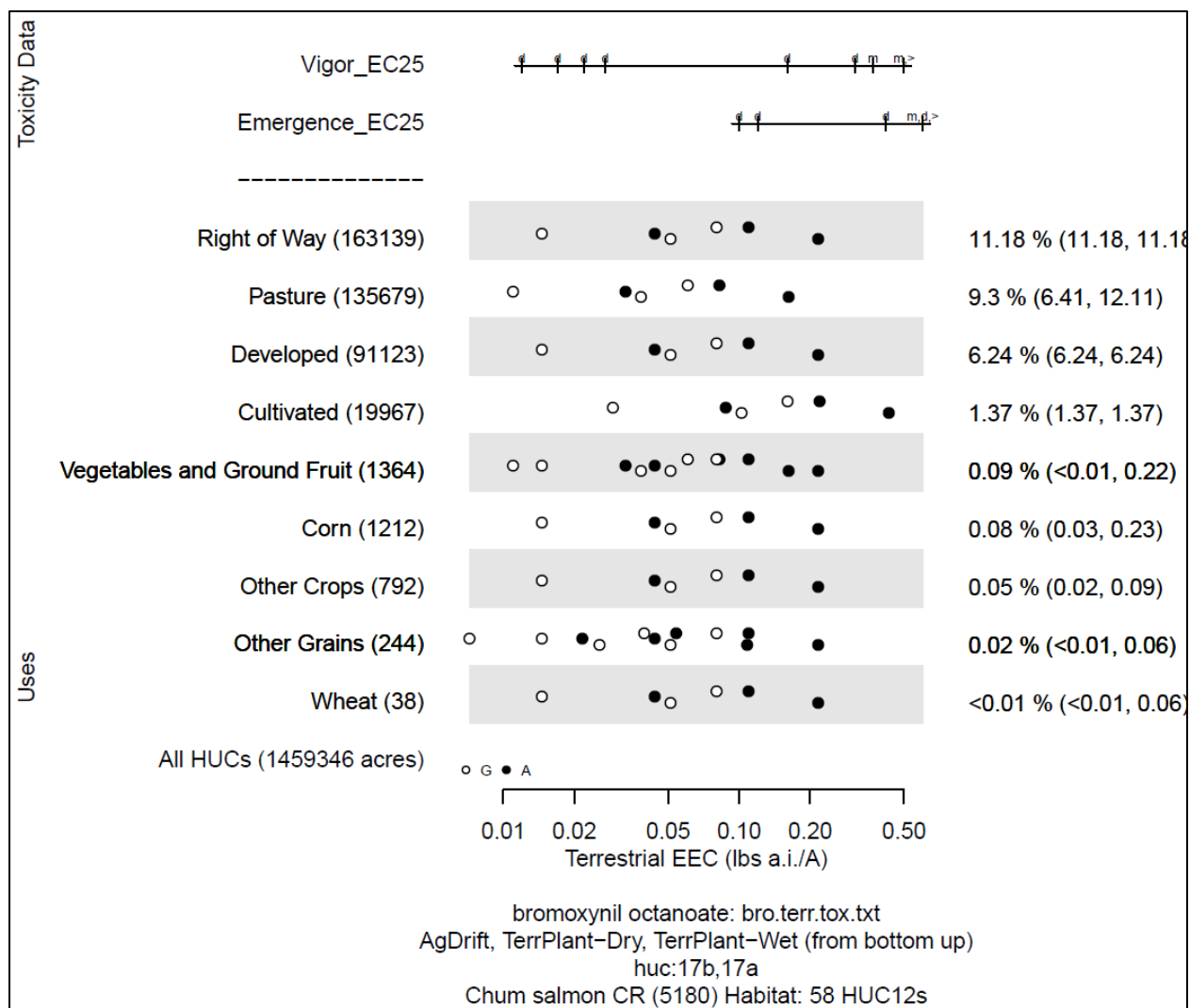


Figure 2. Effects analysis R-plot; chum salmon, Columbia River ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 2. Likelihood of exposure determination for chum salmon, Columbia River ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low	
Right of Way	3	no	no	NA	Medium	
Developed	3	no	no	NA	Medium	
Cultivated	1	no	no	NA	Low	
Other Crops	1	no	no	yes	Medium	
Corn	1	no	no	yes	Medium	
Wheat	1	no	no	yes	Medium	
Veg. & Ground Fruit	1	no	no	yes	Medium	
Other Grains	1	no	no	no	Low	

Table 3. Prey risk hypothesis; chum salmon, Columbia River ESU designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	0.3 (9.3)	Low	Low
Right of Way	11.2	Low	Medium
Developed	6.2	Low	Medium
Fallow; CRP (cultivated)	0.2; 5.9 (1.4)	Medium	Low
Other Crops	0.1	Low	Medium
Corn	0.1	Low	Medium
Wheat	<0.1	Low	Medium
Vegetables and Ground Fruit	0.1	Low	Medium
Other Grains	<0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 4. Vegetative cover risk hypothesis; chum salmon, Columbia River ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.3 (9.3)	Medium	Low
Right of Way	11.2	Medium	Medium
Developed	6.2	Medium	Medium
Fallow; CRP (cultivated)	0.2; 5.9 (1.4)	Medium	Low
Other Crops	0.1	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	<0.1	Medium	Medium
Vegetables and Ground Fruit	0.1	Medium	Medium
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.3 (9.3)	Medium	Low
Right of Way	11.2	Medium	Medium
Developed	6.2	Medium	Medium
Fallow; CRP (cultivated)	0.2; 5.9 (1.4)	High	Low
Other Crops	0.1	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	<0.1	Medium	Medium
Vegetables and Ground Fruit	0.1	Medium	Medium
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 5. Water quality risk hypothesis; chum salmon, Columbia River ESU designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 6. Effects analysis summary table; chum salmon, Columbia River ESU designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Columbia River chum salmon designated critical habitat. The anticipated bromoxynil

levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.2 Hood Canal summer-run Chum (*O. keta*) Designated Critical Habitat; Bromoxynil

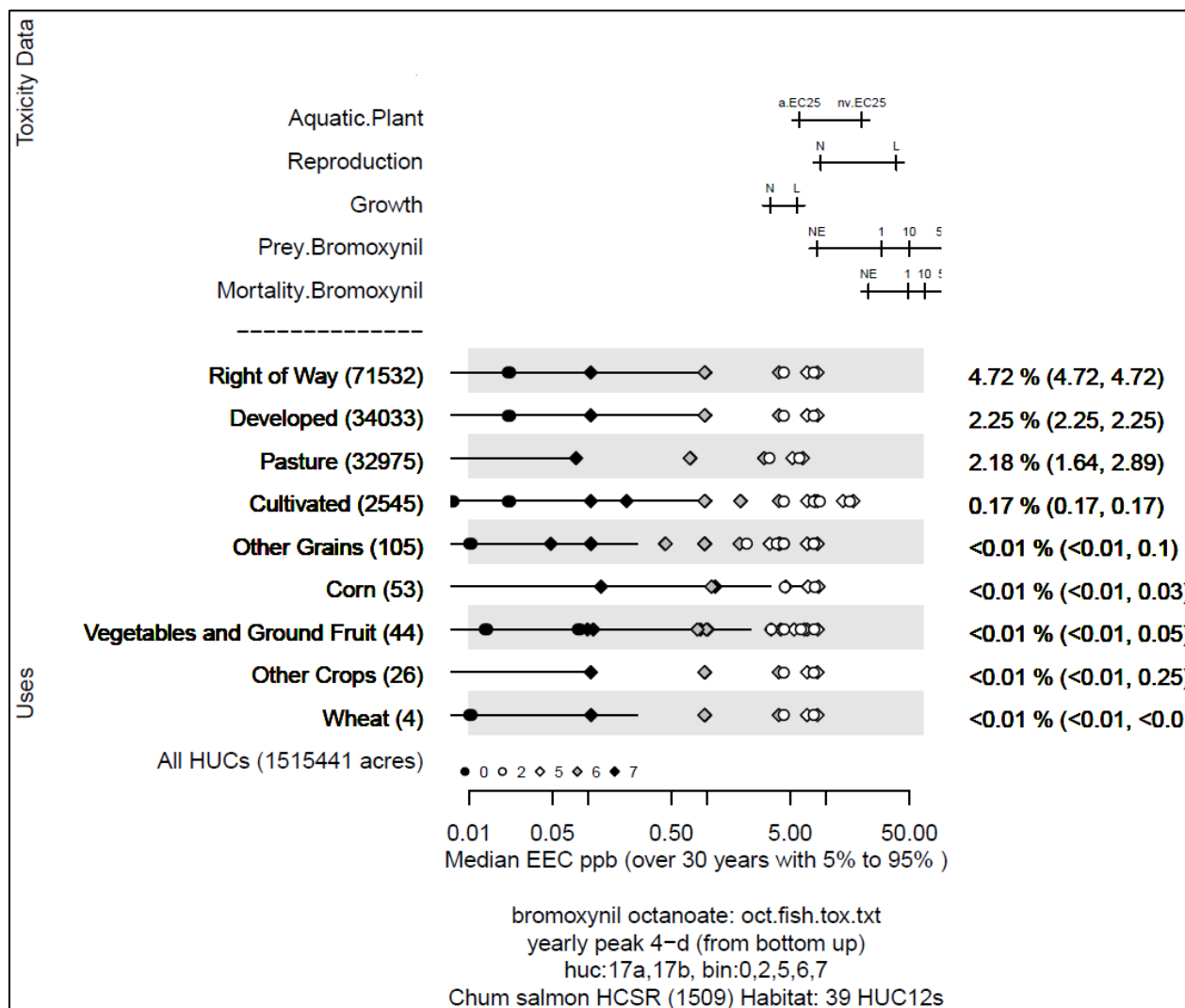


Figure 3. Effects analysis R-plot; chum salmon, Hood-Canal summer-run ESU designated critical habitat; aquatic plants

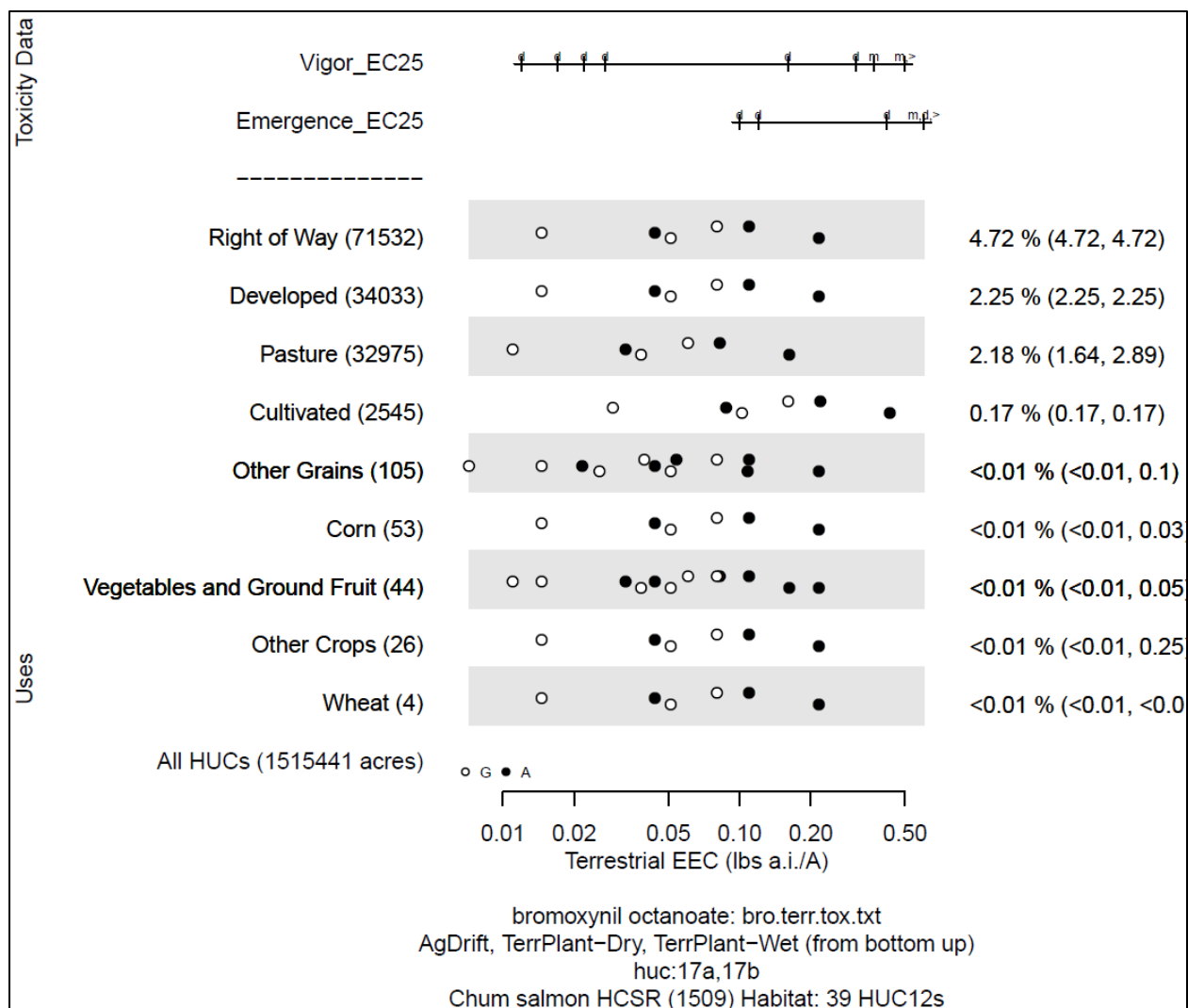


Figure 4. Effects analysis R-plot; chum salmon, Hood-Canal summer-run ESU designated critical habitat; terrestrial plants riparian habitat

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low	
Right of Way	2	no	no	NA	Medium	
Developed	2	no	no	NA	Medium	
Cultivated	1	no	no	NA	Low	
Other Crops	1	no	no	no	Low	
Corn	1	no	no	no	Low	
Wheat	1	no	no	no	Low	
Veg. & Ground Fruit	1	no	no	no	Low	
Other Grains	1	no	no	no	Low	

Figure 5. Likelihood of exposure determination for Hood Canal summer-run ESU designated critical habitat

Table 7. Prey Risk Hypothesis; Chum salmon, Hood Canal summer-run ESU designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	<0.1 (2.2)	Low	Low
Right of Way	4.7	Low	Medium
Developed	2.3	Low	Medium
Fallow; CRP (cultivated)	<0.1; 0.4 (0.2)	Medium	Low
Other Crops	<0.1	Low	Low
Corn	<0.1	Low	Low
Wheat	<0.1	Low	Low
Vegetables and Ground Fruit	<0.1	Low	Low
Other Grains	<0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 8. Vegetative cover risk hypothesis; Chum salmon, Hood Canal summer-run ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	<0.1 (2.2)	Medium	Low
Right of Way	4.7	Medium	Medium
Developed	2.3	Medium	Medium
Fallow; CRP (cultivated)	<0.1; 0.4 (0.2)	Medium	Low
Other Crops	<0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	<0.1 (2.2)	Medium	Low
Right of Way	4.7	Medium	Medium
Developed	2.3	Medium	Medium
Fallow; CRP (cultivated)	<0.1; 0.4 (0.2)	High	Low
Other Crops	<0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 9. Water quality risk hypothesis; Chum salmon, Hood Canal summer-run ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 10. Effects analysis summary table; chum salmon, Hood Canal summer-run ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Hood Canal summer-run chum designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.3 California Coastal Chinook (*O. tshawytscha*) Designated Critical Habitat;

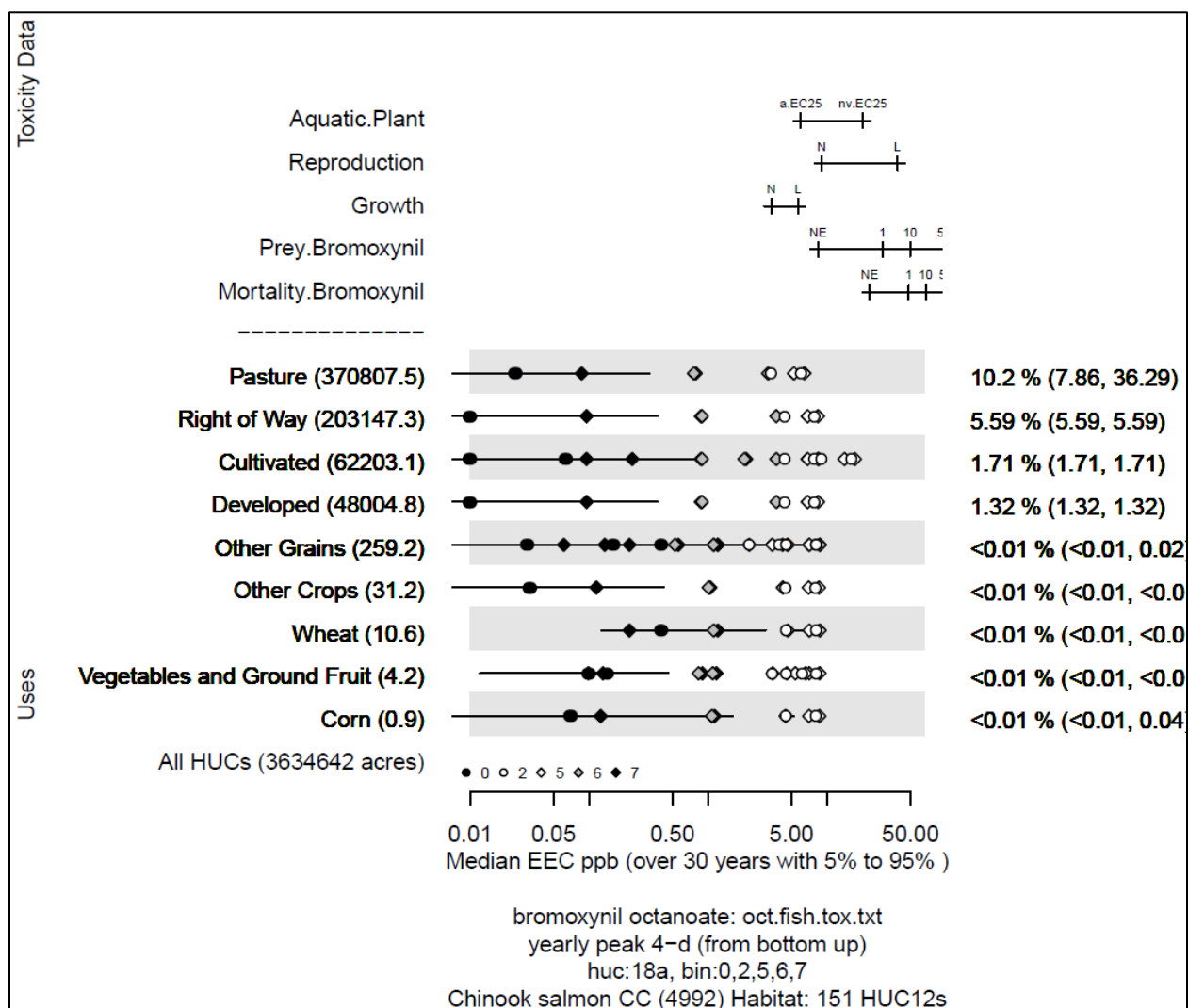
Bromoxynil

Figure 6. Effects analysis R-plot; Chinook salmon, California Coastal ESU designated critical habitat; aquatic plants.

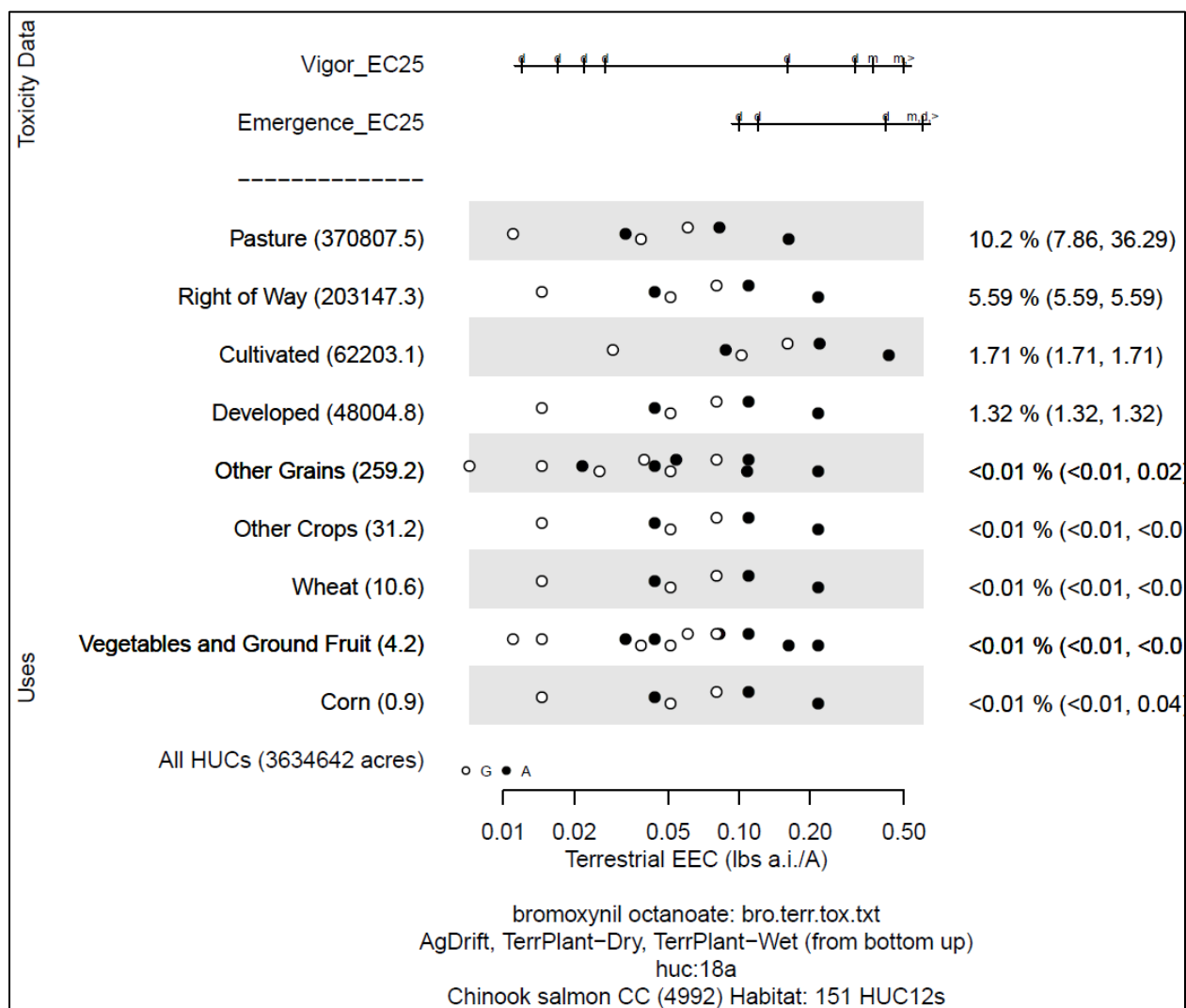


Figure 7. Effects analysis R-plot; Chinook salmon, California Coastal ESU designated critical habitat; terrestrial plants riparian habitat.

Table 11. Likelihood of exposure determination for California Coastal Chinook designated critical habitat

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low
Right of Way	NA	NA	NA	NA	NA
Developed	2	no	no	NA	Medium
Cultivated	NA	NA	NA	NA	NA
Other Crops	1	no	no	no	Low
Corn	1	no	no	no	Low
Wheat	1	no	no	no	Low
Veg. & Ground Fruit	1	no	no	no	Low
Other Grains	1	no	no	no	Low

Table 12. Prey Risk Hypothesis; Chinook salmon, California Coastal ESU designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	<0.1 (10.2)	Low	Low
Right of Way	NA	NA	NA
Developed	1.3	Low	Medium
Cultivated	NA	NA	NA
Other Crops	<0.1	Low	Low
Corn	<0.1	Low	Low
Wheat	<0.1	Low	Low
Vegetables and Ground Fruit	<0.1	Low	Low
Other Grains	<0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 13. Vegetative cover risk hypothesis; Chinook salmon, California Coastal ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	<0.1 (10.2)	Medium	Low
Right of Way	NA	NA	NA
Developed	1.3	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	<0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	<0.1 (10.2)	Medium	Low
Right of Way	NA	NA	NA
Developed	1.3	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	<0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 14. Water quality risk hypothesis; Chinook, California coastal ESU; designated critical habitat.

Endpoint: Water Quality

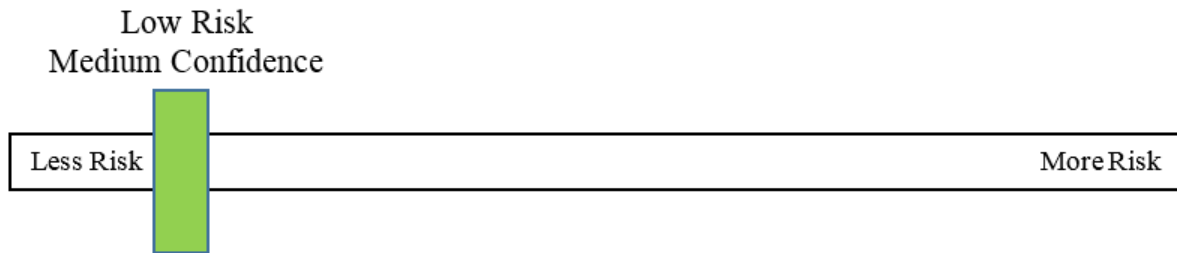
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 15. Effects analysis summary table; Chinook, California coastal ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of California Coastal Chinook designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is low and the confidence associated with that risk is medium due to the minimal extent of authorized use sites and resulting exposures predicted in critical habitats over the 15-year duration of the action.



15.2.4 Central Valley Spring-run Chinook Designated Critical Habitat; Bromoxynil

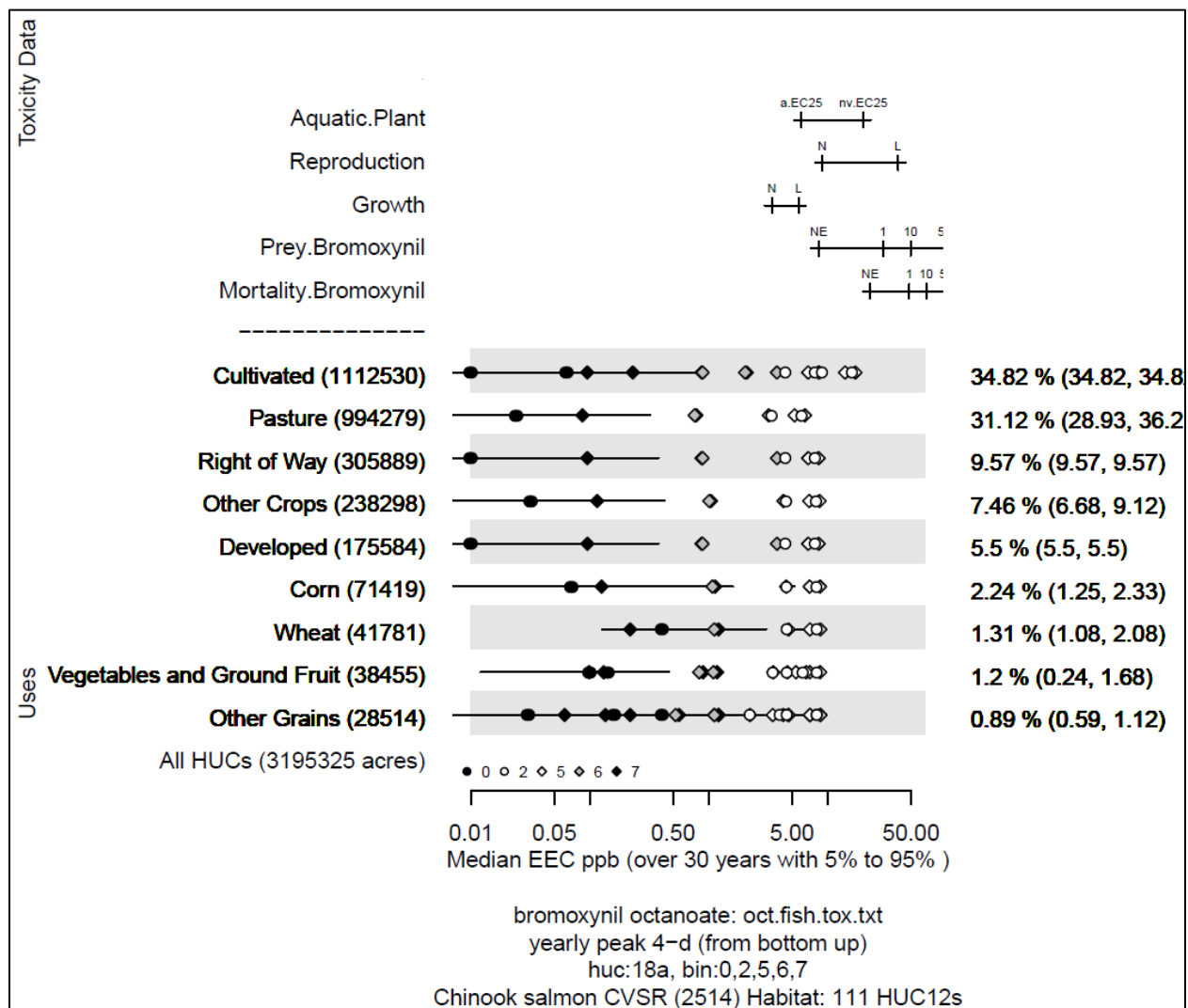


Figure 8. Effects analysis R-plot; Chinook salmon, Central Valley spring-run ESU designated critical habitat; aquatic plants.

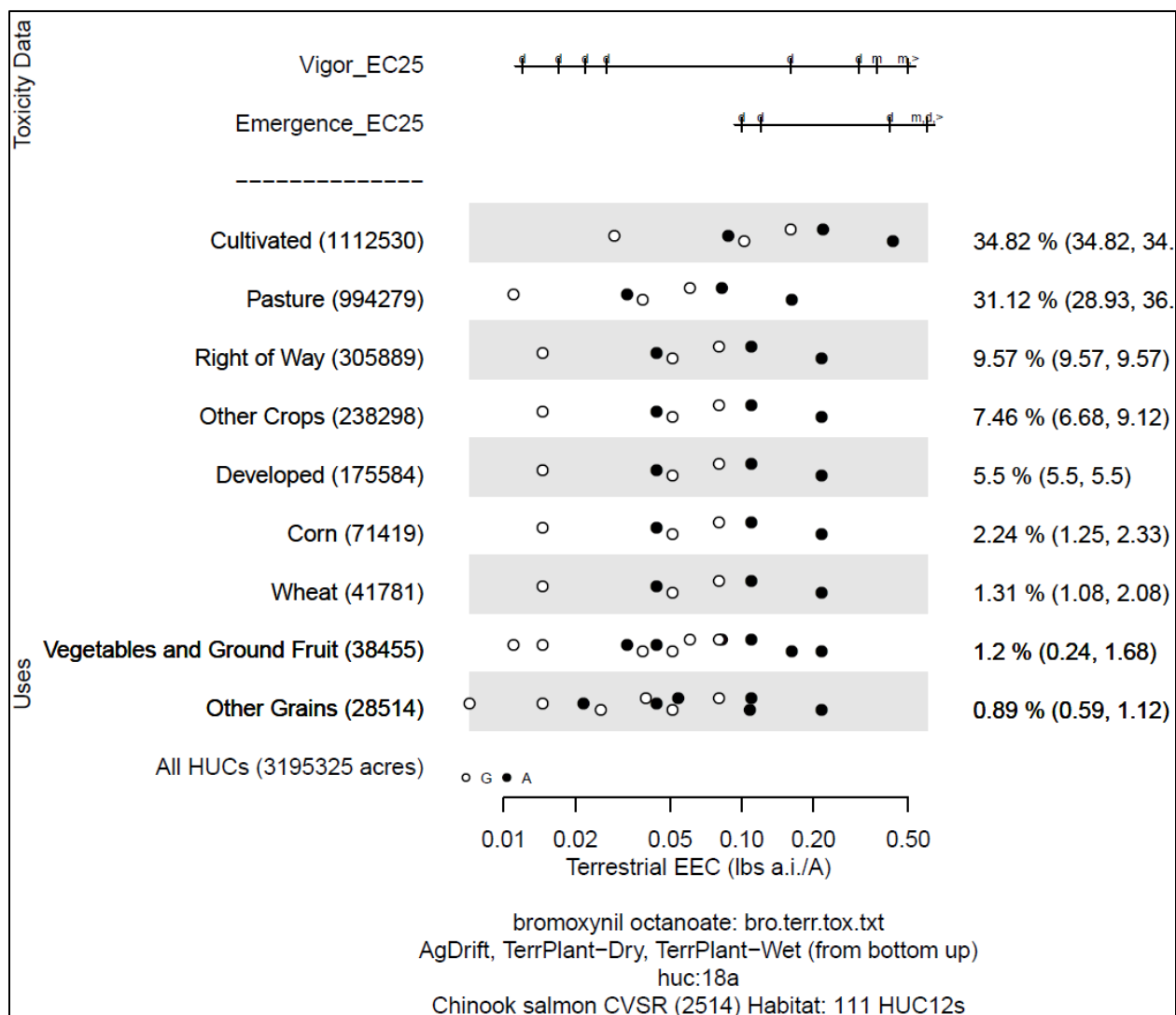


Figure 9. Effects analysis R-plot; Chinook salmon, Central Valley spring-run ESU designated critical habitat; terrestrial plants riparian habitat.

Table 16. Likelihood of exposure determination for Central Valley spring-run Chinook designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	2	no	no	NA	Medium
Right of Way	NA	NA	NA	NA	NA
Developed	3	no	no	NA	Medium
Cultivated	NA	NA	NA	NA	NA
Other Crops	2	no	no	no	Medium
Corn	2	no	no	no	Medium
Wheat	2	no	no	no	Medium
Veg. & Ground Fruit	2	no	no	no	Medium
Other Grains	1	no	no	no	Low

Table 17. Prey risk hypothesis; Chinook, Central Valley spring-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	1.6 (31.1)	Low	Medium
Right of Way	NA	NA	NA
Developed	5.5	Low	Medium
Cultivated	NA	NA	NA
Other Crops	7.5	Low	Medium
Corn	2.2	Low	Medium
Wheat	1.3	Low	Medium
Vegetables and Ground Fruit	1.2	Low	Medium
Other Grains	0.9	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 18. Vegetative cover risk hypothesis; Chinook, Central Valley spring-run ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	1.6 (31.1)	Medium	Medium
Right of Way	NA	Medium	NA
Developed	5.5	Medium	Medium
Cultivated	NA	Medium	NA
Other Crops	7.5	Medium	Medium
Corn	2.2	Medium	Medium
Wheat	1.3	Medium	Medium
Vegetables and Ground Fruit	1.2	Medium	Medium
Other Grains	0.9	Medium	Low
Terrestrial			
Alfalfa (pasture)	1.6 (31.1)	Medium	Medium
Right of Way	NA	Medium	NA
Developed	5.5	Medium	Medium
Cultivated	NA	High	NA
Other Crops	7.5	Medium	Medium
Corn	2.2	Medium	Medium
Wheat	1.3	Medium	Medium
Vegetables and Ground Fruit	1.2	Medium	Medium
Other Grains	0.9	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 19. Water quality risk hypothesis; Chinook, Central Valley spring-run ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 20. Effects analysis summary table; Chinook, Central Valley spring-run ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Central Valley spring-run Chinook designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.5 Lower Columbia River Chinook Designated Critical Habitat; Bromoxynil

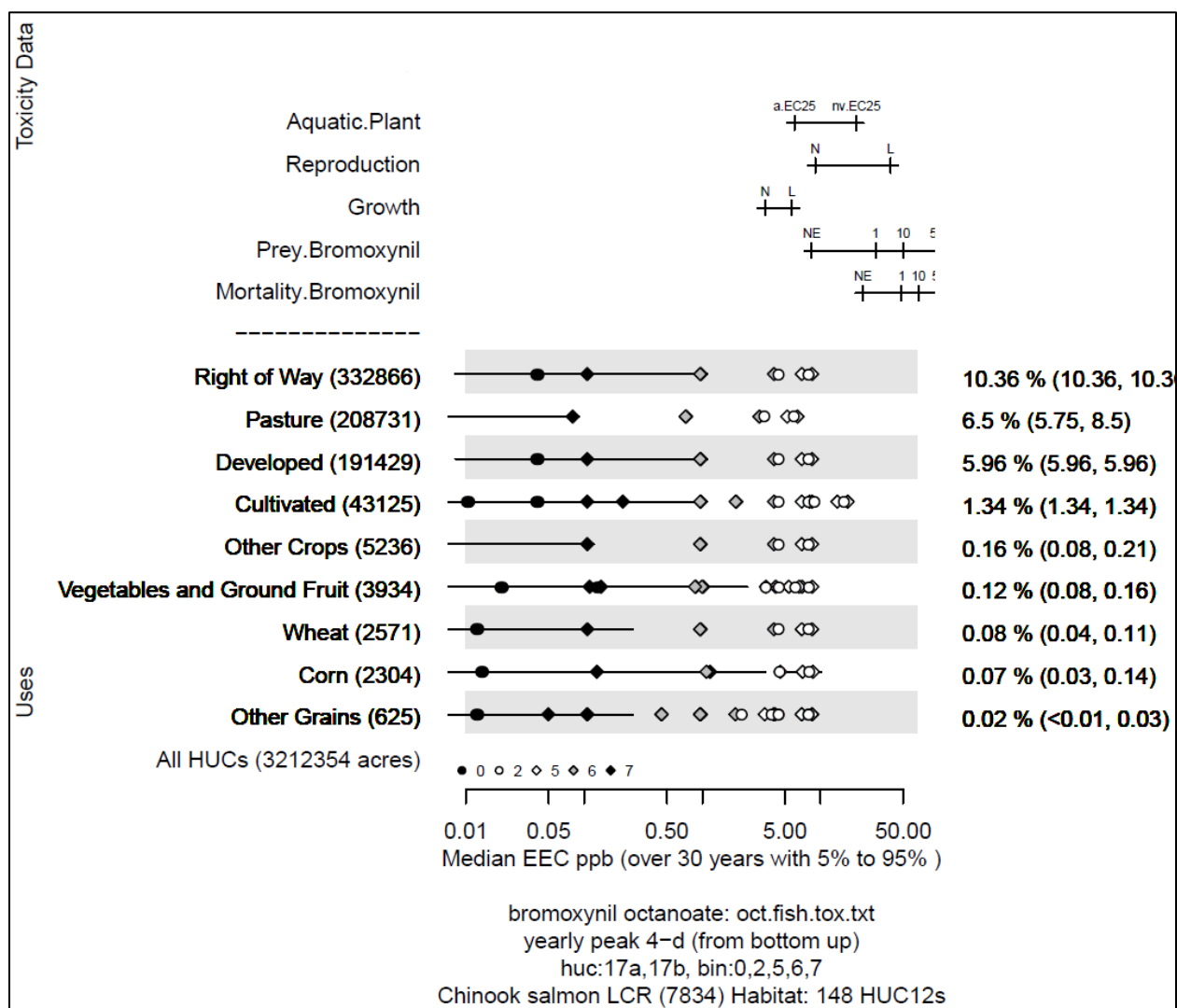


Figure 10. Effects analysis R-plot; Chinook salmon, Lower Columbia River ESU designated critical habitat; aquatic plants.

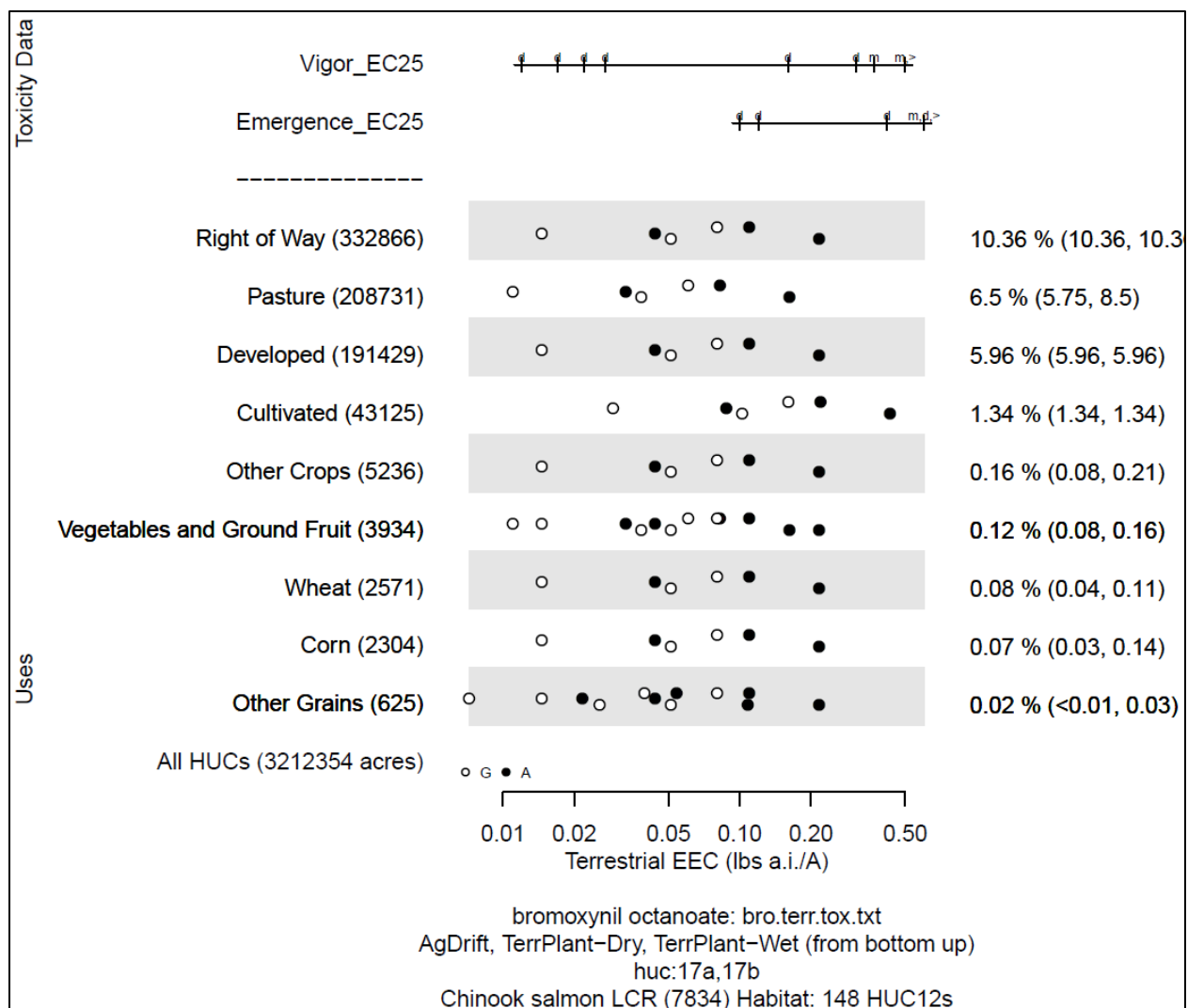


Figure 11. Effects analysis R-plot; Chinook salmon, Lower Columbia River ESU designated critical habitat; terrestrial plants riparian habitat.

Table 21. Likelihood of exposure determination for Chinook, Lower Columbia River ESU designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low
Right of Way	3	no	no	NA	Medium
Developed	3	no	no	NA	Medium
Cultivated	1	no	no	NA	Low
Other Crops	1	no	no	yes	Medium
Corn	1	no	no	yes	Medium
Wheat	1	no	no	yes	Medium
Veg. & Ground Fruit	1	no	no	yes	Medium
Other Grains	1	no	no	no	Low

Table 22. Prey risk hypothesis; Chinook, Lower Columbia River ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	0.2 (6.5)	Low	Low
Right of Way	10.4	Low	Medium
Developed	6.0	Low	Medium
Fallow; CRP (cultivated)	0.2; 4.3 (1.3)	Medium	Low
Other Crops	0.2	Low	Medium
Corn	0.1	Low	Medium
Wheat	0.1	Low	Medium
Vegetables and Ground Fruit	0.1	Low	Medium
Other Grains	<0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 23. Vegetative cover risk hypothesis; Chinook, Lower Columbia River ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.2 (6.5)	Medium	Low
Right of Way	10.4	Medium	Medium
Developed	6.0	Medium	Medium
Fallow; CRP (cultivated)	0.2; 4.3 (1.3)	Medium	Low
Other Crops	0.2	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	0.1	Medium	Medium
Vegetables and Ground Fruit	0.1	Medium	Medium
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.2 (6.5)	Medium	Low
Right of Way	10.4	Medium	Medium
Developed	6.0	Medium	Medium
Fallow; CRP (cultivated)	0.2; 4.3 (1.3)	High	Low
Other Crops	0.2	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	0.1	Medium	Medium
Vegetables and Ground Fruit	0.1	Medium	Medium
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 24. Water quality risk hypothesis; Chinook, Lower Columbia River ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 25. Effects analysis summary table; Chinook, Lower Columbia River ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Lower Columbia River Chinook designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.6 Puget Sound Chinook Designated Critical Habitat; Bromoxynil

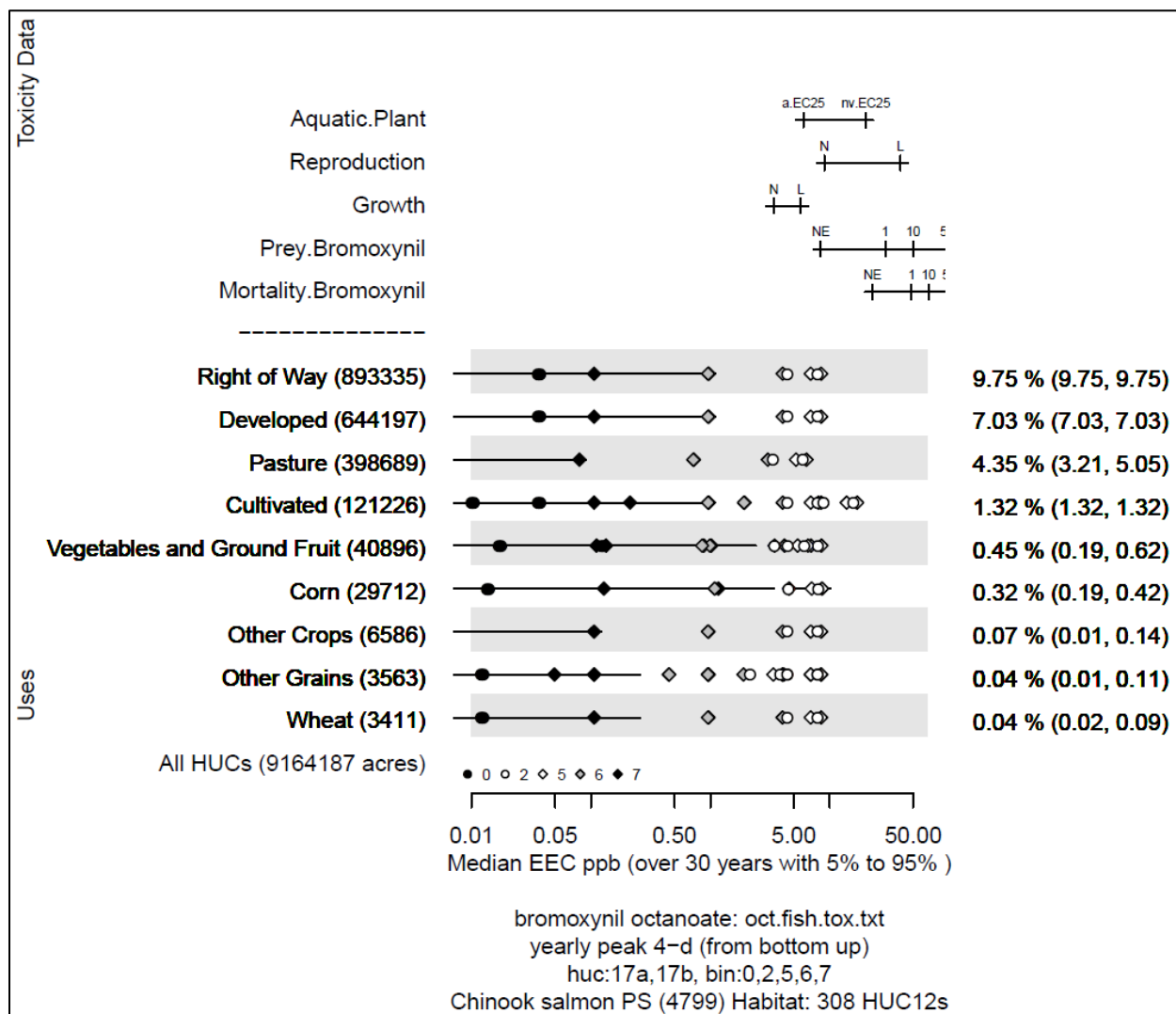


Figure 12. Effects analysis R-plot; Chinook salmon, Puget Sound ESU designated critical habitat; aquatic plants.

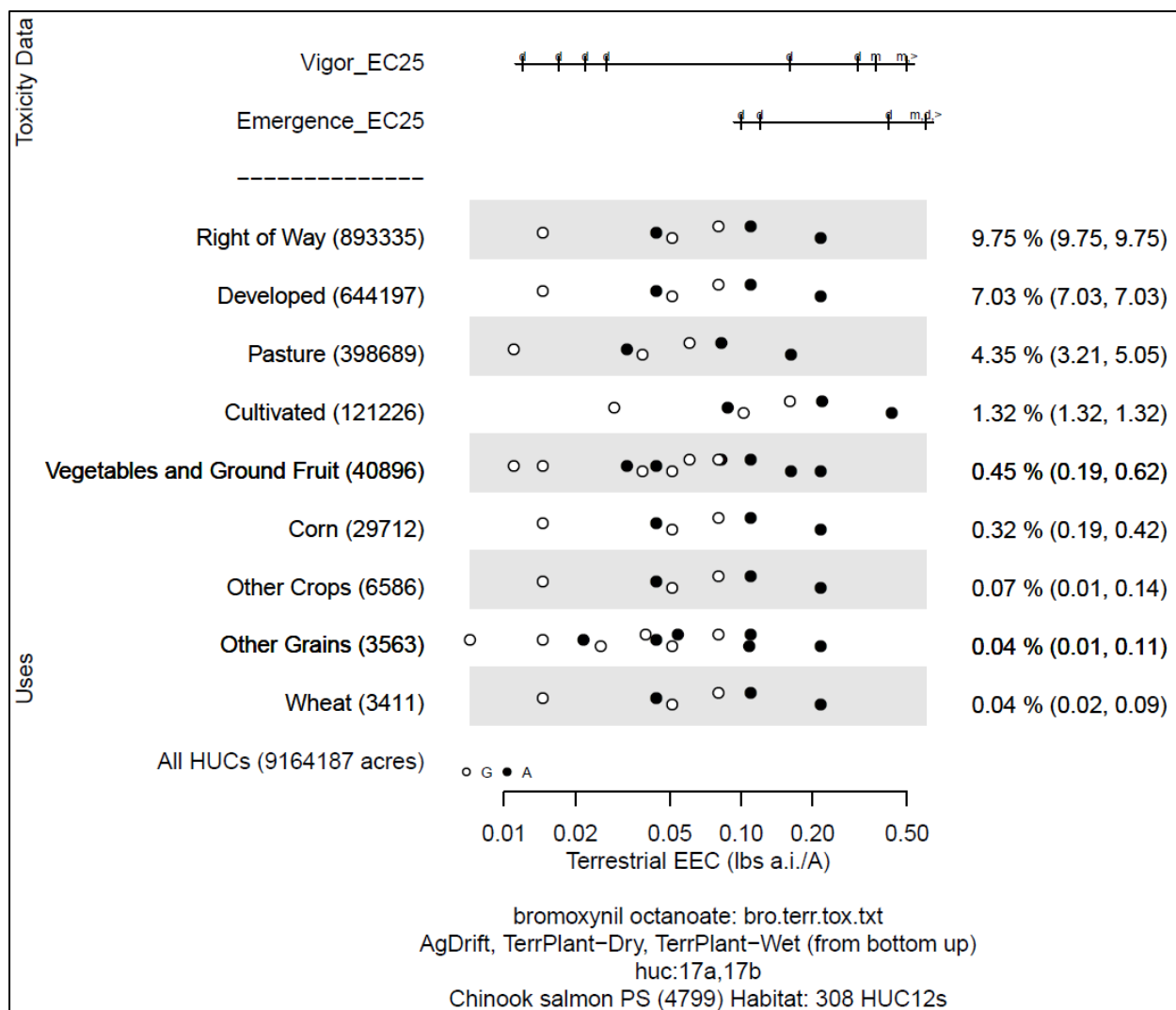


Figure 13. Effects analysis R-plot; Chinook salmon, Puget Sound ESU designated critical habitat; terrestrial plants riparian habitat.

Table 26. Likelihood of exposure determination for Chinook, Puget Sound ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low	
Right of Way	3	no	no	NA	Medium	
Developed	3	no	no	NA	Medium	
Cultivated	1	no	no	NA	Low	
Other Crops	1	no	no	no	Low	
Corn	1	no	no	yes	Medium	
Wheat	1	no	no	no	Low	
Veg. & Ground Fruit	1	no	no	yes	Medium	
Other Grains	1	no	no	no	Low	

Table 27. Prey risk hypothesis; Chinook, Puget Sound ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	<0.1 (4.4)	Low	Low
Right of Way	9.8	Low	Medium
Developed	7.0	Low	Medium
Fallow; CRP (cultivated)	<0.1; 1.4 (1.3)	Medium	Low
Other Crops	0.1	Low	Low
Corn	0.3	Low	Medium
Wheat	<0.1	Low	Low
Vegetables and Ground Fruit	0.5	Low	Medium
Other Grains	<0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 28. Vegetative cover risk hypothesis; Chinook, Puget Sound ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	<0.1 (4.4)	Medium	Low
Right of Way	9.8	Medium	Medium
Developed	7.0	Medium	Medium
Fallow; CRP (cultivated)	<0.1; 1.4 (1.3)	Medium	Low
Other Crops	0.1	Medium	Low
Corn	0.3	Medium	Medium
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	0.5	Medium	Medium
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	<0.1 (4.4)	Medium	Low
Right of Way	9.8	Medium	Medium
Developed	7.0	Medium	Medium
Fallow; CRP (cultivated)	<0.1; 1.4 (1.3)	High	Low
Other Crops	0.1	Medium	Low
Corn	0.3	Medium	Medium
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	0.5	Medium	Medium
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 29. Water quality risk hypothesis; Chinook, Puget Sound ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 30. Effects analysis summary table; Chinook, Puget Sound ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of the Puget Sound Chinook designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



**15.2.7 Sacramento River Winter-run Chinook Salmon Designated Critical Habitat;
Bromoxynil**

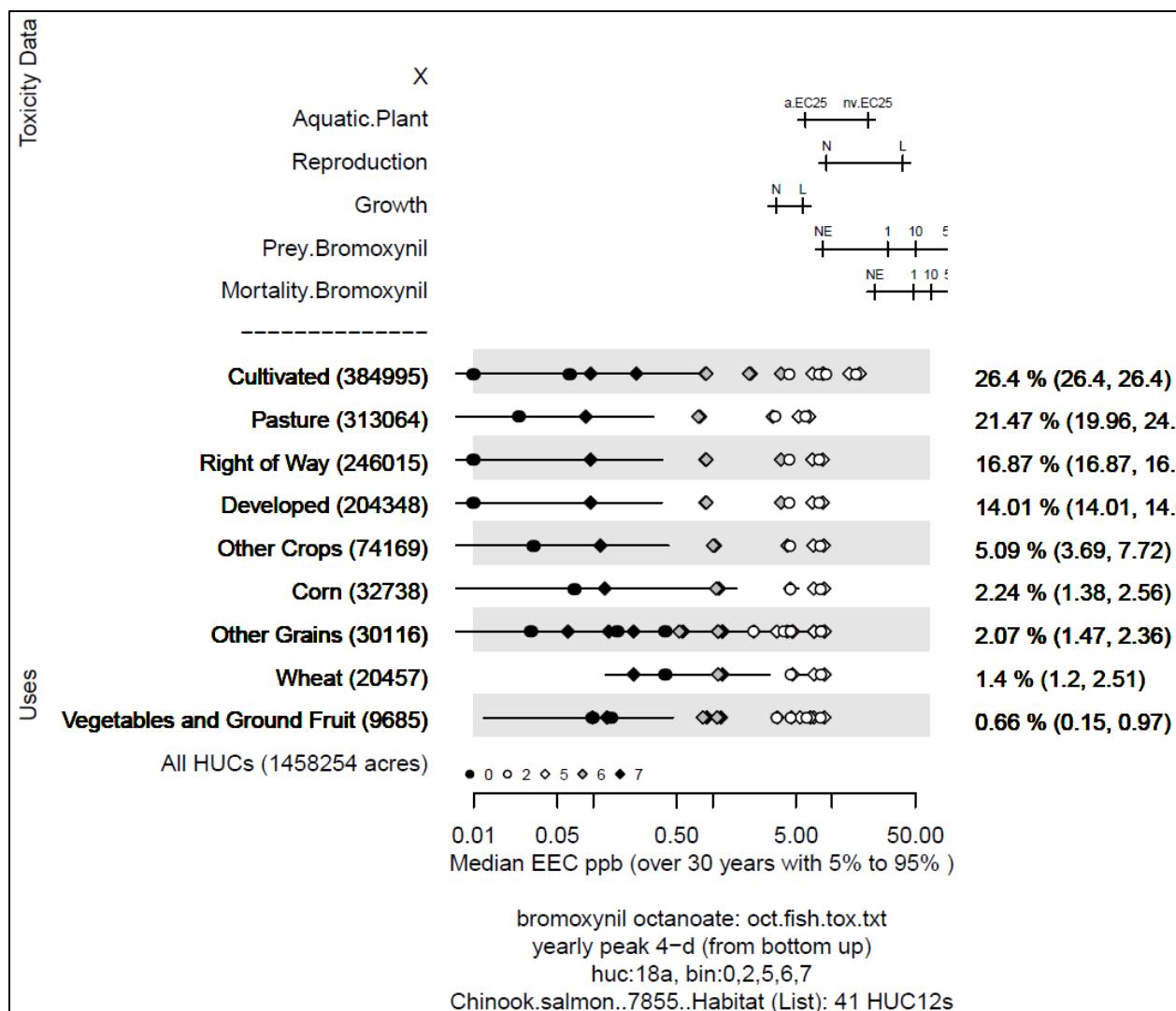


Figure 14. Effects analysis R-plot; Chinook salmon, Sacramento River winter-run ESU designated critical habitat; aquatic plants.

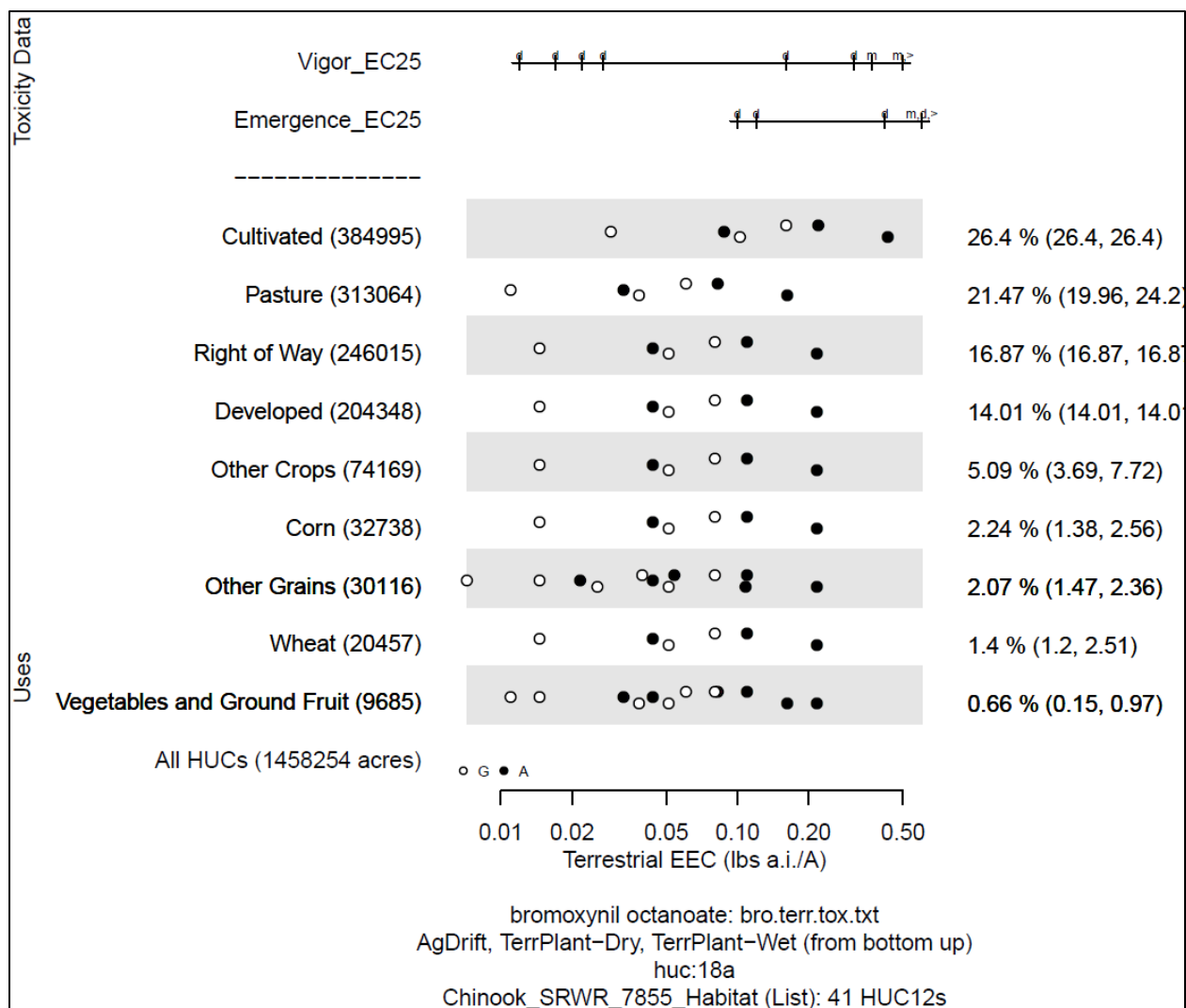


Figure 15. Effects analysis R-plot; Chinook salmon, Sacramento River winter-run ESU designated critical habitat; terrestrial plants riparian habitat.

Table 31. Likelihood of exposure determination for Chinook salmon, Sacramento River winter-run ESU designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low
Right of Way	NA	NA	NA	NA	NA
Developed	3	no	no	NA	Medium
Cultivated	NA	NA	NA	NA	NA
Other Crops	3	no	no	NA	Medium
Corn	2	no	no	NA	Medium
Wheat	2	no	no	NA	Medium
Veg. & Ground Fruit	1	no	no	yes	Medium
Other Grains	2	no	no	NA	Medium

Table 32. Prey risk hypothesis; Chinook, Sacramento River winter-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	0.8 (21.5)	Low	Low
Right of Way	NA	NA	NA
Developed	14.0	Low	Medium
Cultivated	NA	NA	NA
Other Crops	5.1	Low	Medium
Corn	2.2	Low	Medium
Wheat	1.4	Low	Medium
Vegetables and Ground Fruit	0.7	Low	Medium
Other Grains	2.1	Low	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 33. Vegetative cover risk hypothesis; Chinook, Sacramento River winter-run ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.8 (21.5)	Medium	Low
Right of Way	NA	Medium	NA
Developed	14.0	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	5.1	Medium	Medium
Corn	2.2	Medium	Medium
Wheat	1.4	Medium	Medium
Vegetables and Ground Fruit	0.7	Medium	Medium
Other Grains	2.1	Medium	Medium
Terrestrial			
Alfalfa (pasture)	0.8 (21.5)	Medium	Low
Right of Way	NA	NA	NA
Developed	14.0	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	5.1	Medium	Medium
Corn	2.2	Medium	Medium
Wheat	1.4	Medium	Medium
Vegetables and Ground Fruit	0.7	Medium	Medium
Other Grains	2.1	Medium	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 34. Water quality risk hypothesis; Chinook, Sacramento River winter-run ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 35. Effects analysis summary table; Chinook, Sacramento River winter-run ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of the Sacramento River winter-run Chinook designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.8 Snake River Fall-run Chinook Salmon Designated Critical Habitat; Bromoxynil

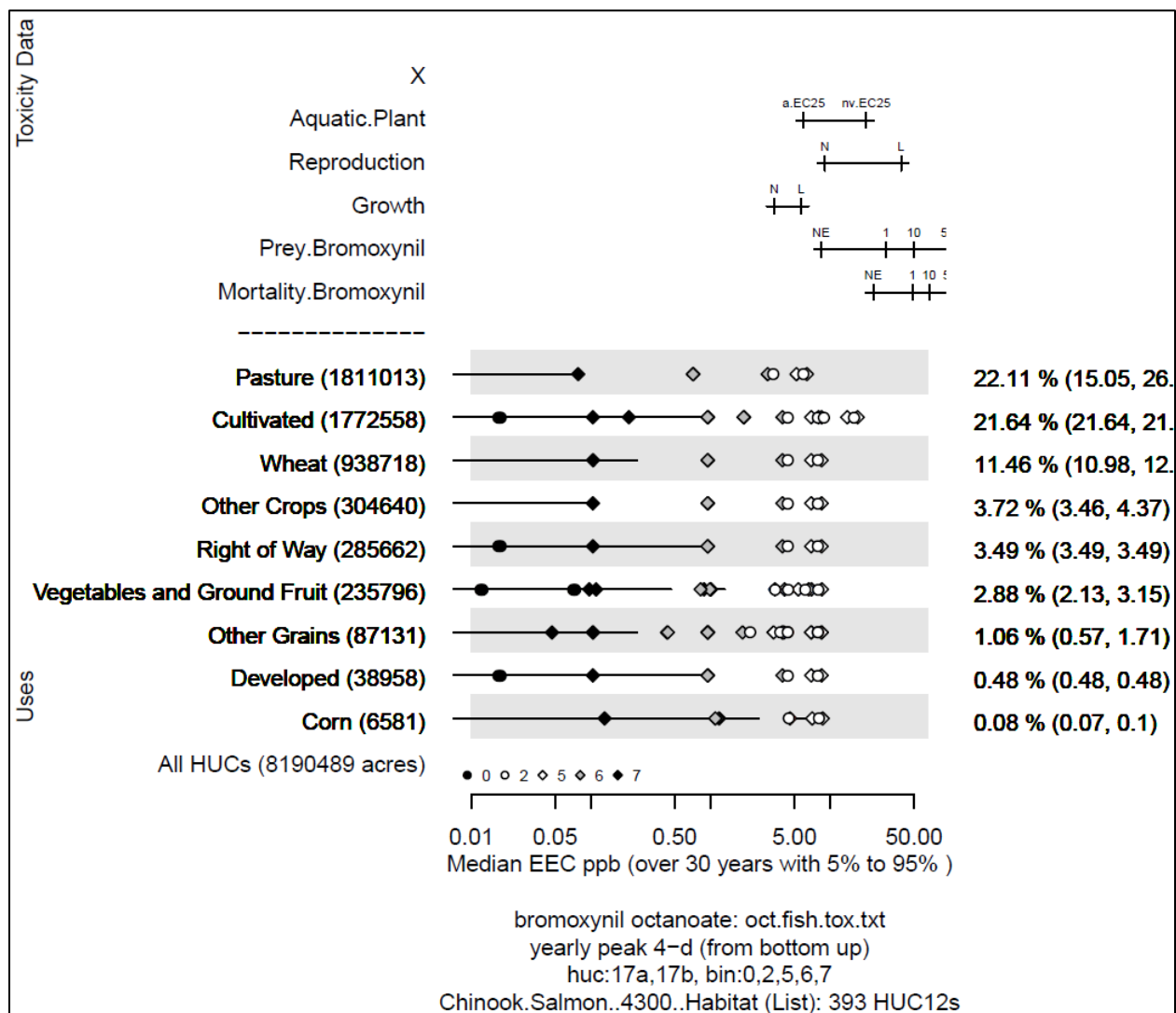


Figure 16. Effects analysis R-plot; Chinook salmon, Snake River fall-run ESU designated critical habitat; aquatic plants.

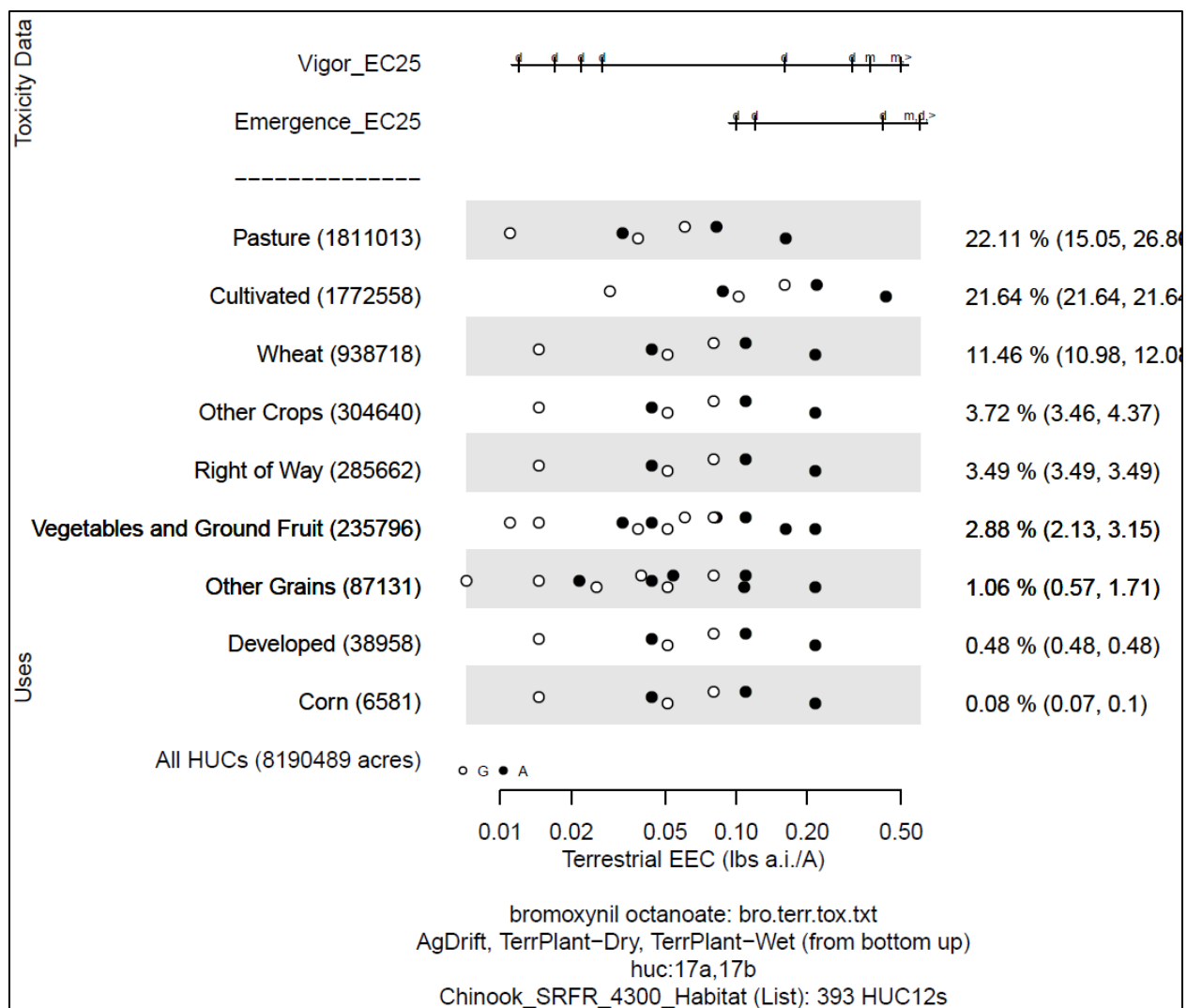


Figure 17. Effects analysis R-plot; Chinook salmon, Snake River fall-run ESU designated critical habitat; terrestrial plants riparian vegetation.

Table 36. Likelihood of exposure determination for Chinook salmon, Snake River fall-run ESU designated critical habitat.

		<div>Percent Overlap Category</div> <div>Persistence</div> <div>Multiple Applications</div> <div>Proximity Analysis</div> <div>Likelihood of Exposure</div>				
Pasture	2	no	no	NA	Medium	
Right of Way	2	no	no	NA	Medium	
Developed	1	no	no	no	Low	
Cultivated	2	no	no	NA	Medium	
Other Crops	2	no	no	NA	Medium	
Corn	1	no	no	yes	Medium	
Wheat	3	no	no	NA	Medium	
Veg. & Ground Fruit	2	no	no	yes	Medium	
Other Grains	2	no	no	NA	Medium	

Table 37. Prey risk hypothesis; Chinook salmon, Snake River fall-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	1.7 (22.1)	Low	Medium
Right of Way	3.5	Low	Medium
Developed	0.5	Low	Low
Fallow; CRP (cultivated)	3.9; 11.6 (21.6)	Medium	Medium
Other Crops	3.7	Low	Medium
Corn	0.1	Low	Medium
Wheat	11.5	Low	Medium
Vegetables and Ground Fruit	2.9	Low	Medium
Other Grains	1.1	Low	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 38. Vegetative cover risk hypothesis; Chinook salmon, Snake River fall-run ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	1.7 (22.1)	Medium	Medium
Right of Way	3.5	Medium	Medium
Developed	0.5	Medium	Low
Fallow; CRP (cultivated)	3.9; 11.6 (21.6)	Medium	Medium
Other Crops	3.7	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	11.5	Medium	Medium
Vegetables and Ground Fruit	2.9	Medium	Medium
Other Grains	1.1	Medium	Medium
Terrestrial			
Alfalfa (pasture)	1.7 (22.1)	Medium	Medium
Right of Way	3.5	Medium	Medium
Developed	0.5	Medium	Low
Fallow; CRP (cultivated)	3.9; 11.6 (21.6)	High	Medium
Other Crops	3.7	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	11.5	Medium	Medium
Vegetables and Ground Fruit	2.9	Medium	Medium
Other Grains	1.1	Medium	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 39. Water quality risk hypothesis; Chinook salmon, Snake River fall-run ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

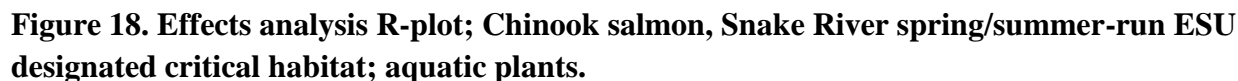
Table 40. Effects analysis summary table; Chinook salmon, Snake River fall-run ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of the Snake River fall-run Chinook designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.





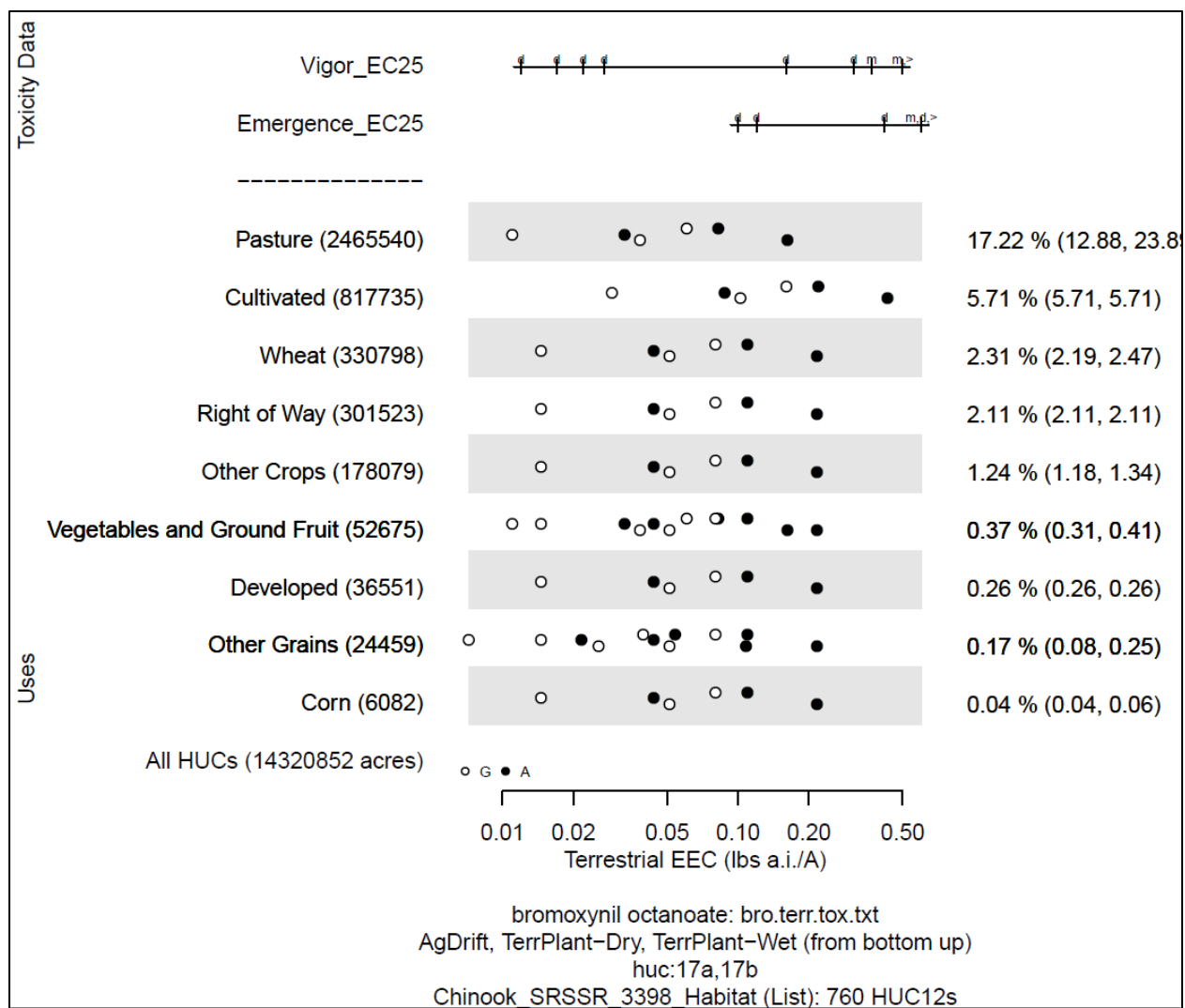


Figure 19. Effects analysis R-plot; Chinook salmon, Snake River spring/summer-run ESU designated critical habitat; terrestrial plants riparian habitat.

Table 41. Likelihood of exposure determination for Chinook salmon, Snake River spring/summer-run ESU designated critical habitat.

		<div>Percent Overlap Category</div> <div>Persistence</div> <div>Multiple Applications</div> <div>Proximity Analysis</div> <div>Likelihood of Exposure</div>				
Pasture	1	no	no	NA	Medium	
Right of Way	2	no	no	NA	Medium	
Developed	1	no	no	no	Low	
Cultivated	1	no	no	NA	Medium	
Other Crops	2	no	no	yes	Medium	
Corn	1	no	no	yes	Medium	
Wheat	2	no	no	NA	Medium	
Veg. & Ground Fruit	1	no	no	yes	Medium	
Other Grains	1	no	no	yes	Medium	

Table 42. Prey risk hypothesis; Chinook salmon, Snake River spring/summer-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	1.1 (17.2)	Low	Medium
Right of Way	2.1	Low	Medium
Developed	0.3	Low	Low
Fallow; CRP (cultivated)	0.8; 10.7 (5.7)	Medium	Low
Other Crops	1.2	Low	Medium
Corn	<0.1	Low	Medium
Wheat	2.3	Low	Medium
Vegetables and Ground Fruit	0.4	Low	Medium
Other Grains	0.8	Low	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 43. Vegetative cover risk hypothesis; Chinook salmon, Snake River spring/summer-run ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	1.1 (17.2)	medium	Medium
Right of Way	2.1	Medium	Medium
Developed	0.3	Medium	Low
Fallow; CRP (cultivated)	0.8; 10.7 (5.7)	Medium	Low
Other Crops	1.2	Medium	Medium
Corn	<0.1	Medium	Medium
Wheat	2.3	Medium	Medium
Vegetables and Ground Fruit	0.4	Medium	Medium
Other Grains	0.8	Medium	Medium
Terrestrial			
Alfalfa (pasture)	1.1 (17.2)	Medium	Medium
Right of Way	2.1	Medium	Medium
Developed	0.3	Medium	Low
Fallow; CRP (cultivated)	0.8; 10.7 (5.7)	High	Low
Other Crops	1.2	Medium	Medium
Corn	<0.1	Medium	Medium
Wheat	2.3	Medium	Medium
Vegetables and Ground Fruit	0.4	Medium	Medium
Other Grains	0.8	Medium	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 44. Water quality risk hypothesis; Chinook, Snake River spring/summer-run ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 45. Effects analysis summary table; Chinook, Snake River spring/summer-run ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Snake River spring/summer-run Chinook designated critical habitat. The anticipated

bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.10 Upper Columbia River Spring-run Chinook Salmon Designated Critical Habitat; Bromoxynil

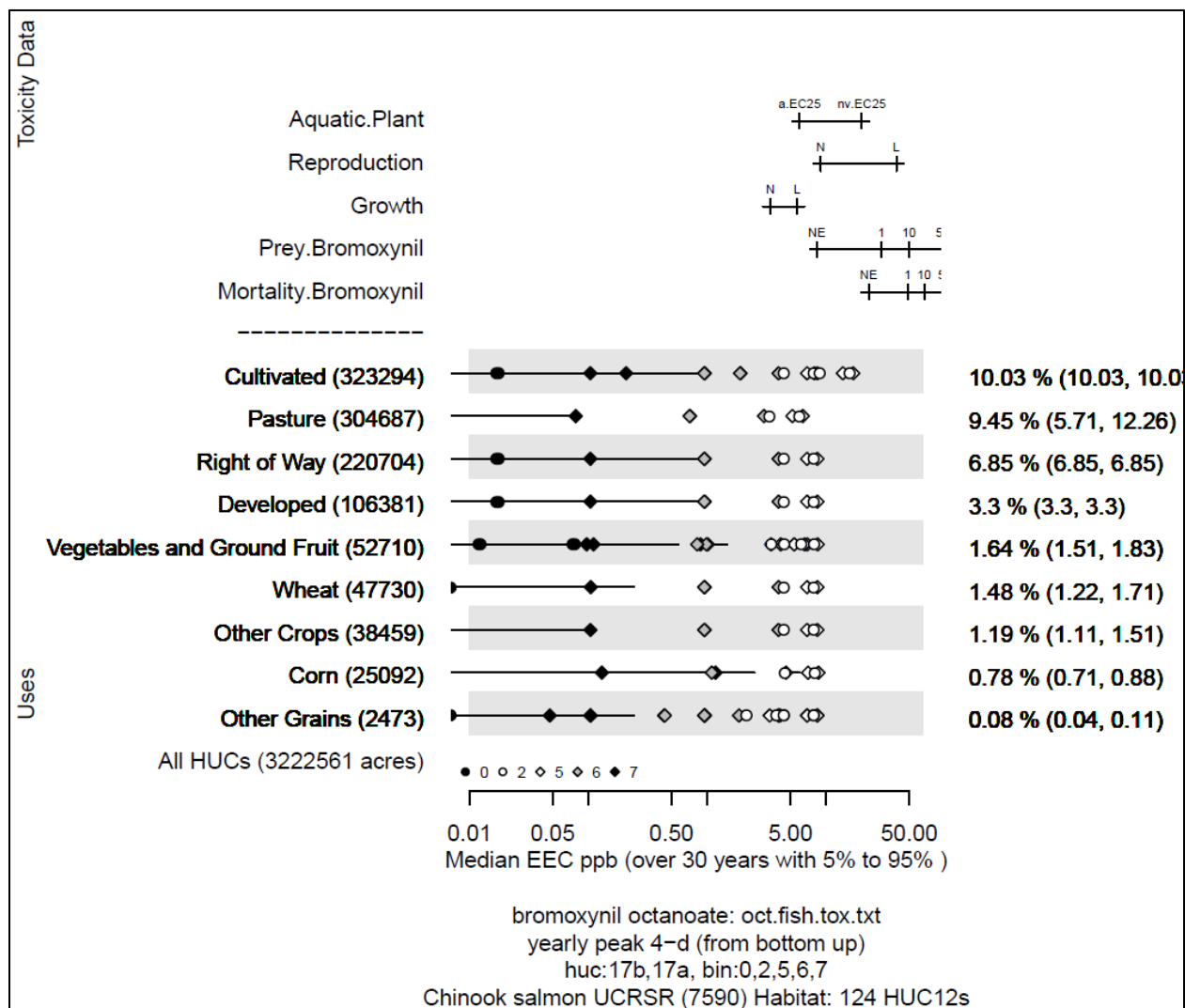


Figure 20. Effects Analysis R-plot; Chinook salmon, Upper Columbia River Spring-run ESU designated critical habitat; aquatic plants.

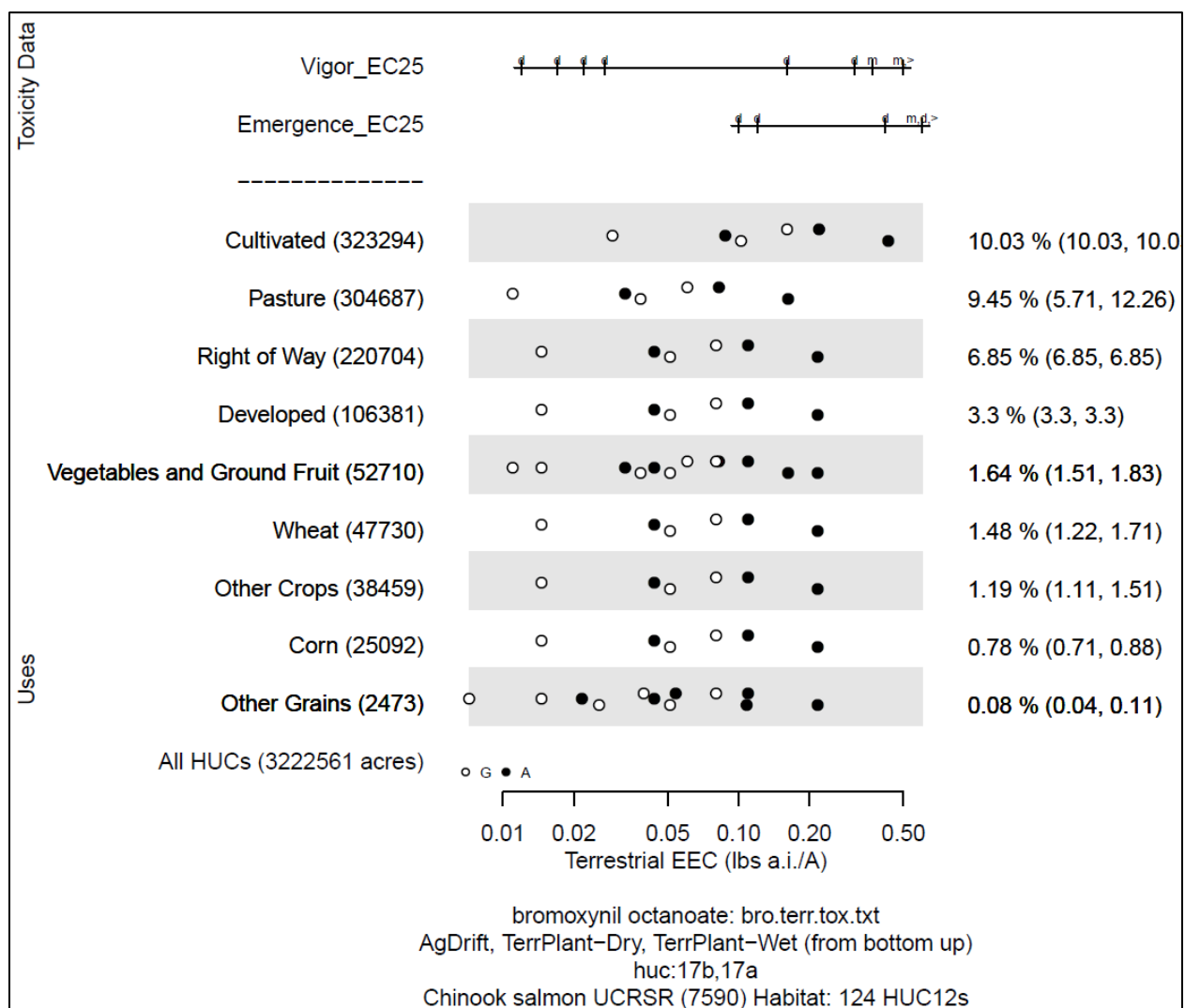


Figure 21. Effects Analysis R-plot; Chinook salmon, Upper Columbia River Spring-run ESU designated critical habitat.

Table 46. Likelihood of exposure determination for Chinook salmon, Upper Columbia River Spring-run ESU designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	2	no	no	NA	Medium
Right of Way	3	no	no	NA	Medium
Developed	2	no	no	NA	Medium
Cultivated	2	no	no	NA	Medium
Other Crops	2	no	no	NA	Medium
Corn	1	no	no	yes	Medium
Wheat	2	no	no	NA	Medium
Veg. & Ground Fruit	2	no	no	NA	Medium
Other Grains	1	no	no	no	Low

Table 47. Prey risk hypothesis; Chinook salmon, upper Columbia River spring-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	1.2 (9.5)	Low	Medium
Right of Way	6.9	Low	Medium
Developed	3.3	Low	Medium
Fallow; CRP (cultivated)	2.3; 10.0 (10.0)	Medium	Medium
Other Crops	1.2	Low	Medium
Corn	0.8	Low	Medium
Wheat	1.5	Low	Medium
Vegetables and Ground Fruit	1.6	Low	Medium
Other Grains	<0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 48. Vegetative cover risk hypothesis; Chinook salmon, upper Columbia River spring-run ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	1.2 (9.5)	Medium	Medium
Right of Way	6.9	Medium	Medium
Developed	3.3	Medium	Medium
Fallow; CRP (cultivated)	2.3; 10.0 (10.0)	Medium	Medium
Other Crops	1.2	Medium	Medium
Corn	0.8	Medium	Medium
Wheat	1.5	Medium	Medium
Vegetables and Ground Fruit	1.6	Medium	Medium
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	1.2 (9.5)	Medium	Medium
Right of Way	6.9	Medium	Medium
Developed	3.3	Medium	Medium
Fallow; CRP (cultivated)	2.3; 10.0 (10.0)	High	Medium
Other Crops	1.2	Medium	Medium
Corn	0.8	Medium	Medium
Wheat	1.5	Medium	Medium
Vegetables and Ground Fruit	1.6	Medium	Medium
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 49. Water quality risk hypothesis; Chinook salmon, upper Columbia River spring-run ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 50. Effects analysis summary table; Chinook salmon, upper Columbia River spring-run ESU; designated critical habitat

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Upper Columbia River spring-run Chinook designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.11 Upper Willamette River Chinook Salmon Designated Critical Habitat; Bromoxynil

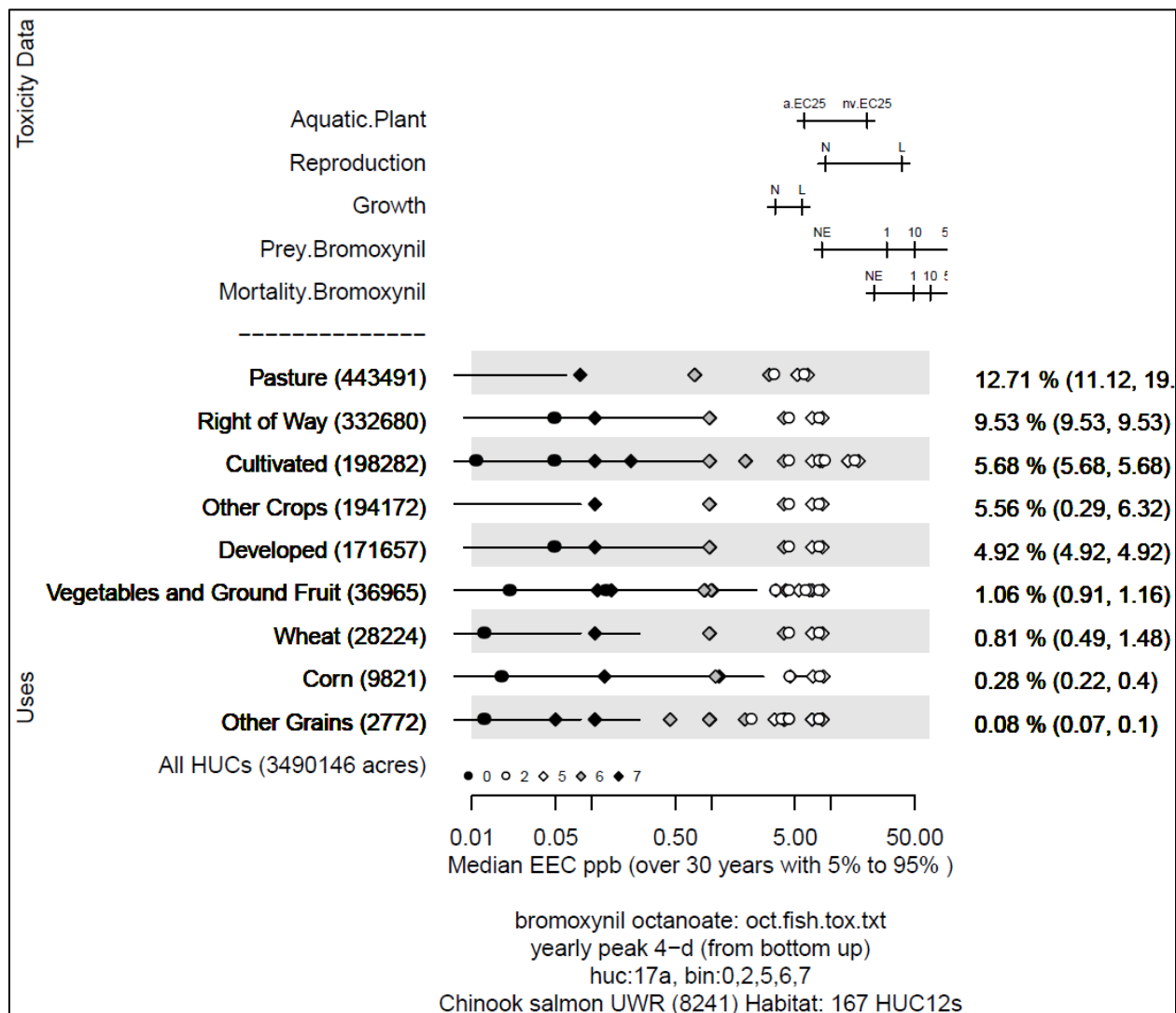


Figure 22. Effects analysis R-plot; Chinook salmon, Upper Willamette River ESU designated critical habitat; aquatic plants.

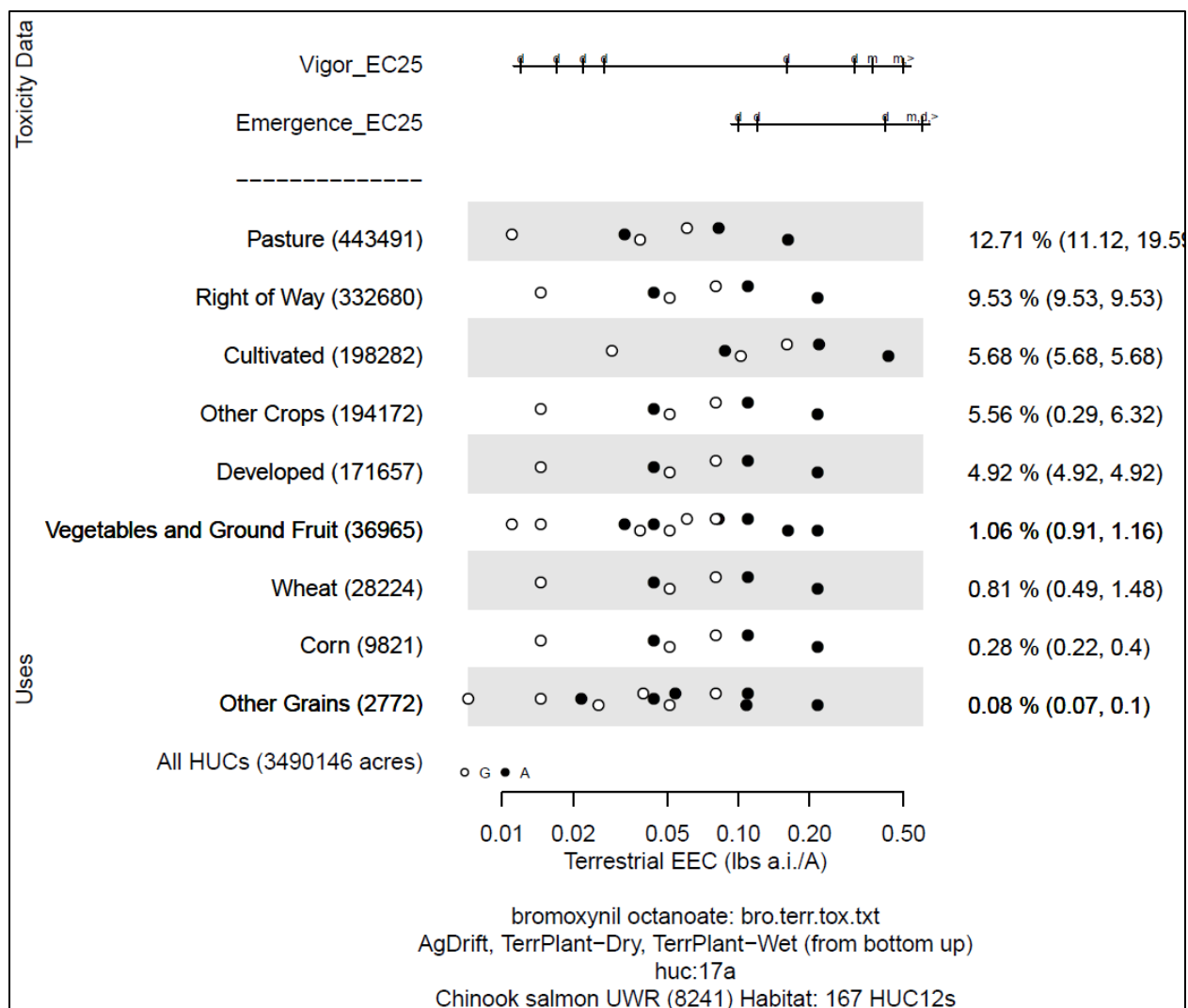


Figure 23. Effects analysis R-plot; Chinook salmon, Upper Willamette River ESU designated critical habitat; terrestrial plants riparian habitat.

Table 51. Likelihood of exposure determination for Chinook, upper Willamette River ESU designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low
Right of Way	3	no	no	NA	Medium
Developed	2	no	no	NA	Medium
Cultivated	1	no	no	NA	Low
Other Crops	3	no	no	NA	Medium
Corn	1	no	no	no	Low
Wheat	1	no	no	no	Low
Veg. & Ground Fruit	2	no	no	NA	Medium
Other Grains	1	no	no	no	Low

Table 52. Prey risk hypothesis; Chinook, upper Willamette River ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	0.1 (12.7)	Low	Low
Right of Way	9.5	Low	Medium
Developed	4.9	Low	Medium
Fallow; CRP (cultivated)	0.2; 0.6 (5.7)	Medium	Low
Other Crops	5.6	Low	Medium
Corn	0.3	Low	Low
Wheat	0.8	Low	Low
Vegetables and Ground Fruit	1.1	Low	Medium
Other Grains	0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 53. Vegetative cover risk hypothesis; Chinook salmon, Chinook, upper Willamette River ESU ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.1 (12.7)	Low	Low
Right of Way	9.5	Medium	Medium
Developed	4.9	Medium	Medium
Fallow; CRP (cultivated)	0.2; 0.6 (5.7)	Medium	Low
Other Crops	5.6	Medium	Medium
Corn	0.3	Medium	Low
Wheat	0.8	Medium	Low
Vegetables and Ground Fruit	1.1	Medium	Medium
Other Grains	0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.1 (12.7)	Low	Low
Right of Way	9.5	Medium	Medium
Developed	4.9	Medium	Medium
Fallow; CRP (cultivated)	0.2; 0.6 (5.7)	Medium	Low
Other Crops	5.6	Medium	Medium
Corn	0.3	Medium	Low
Wheat	0.8	Medium	Low
Vegetables and Ground Fruit	1.1	Medium	Medium
Other Grains	0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 54. Water quality risk hypothesis; Chinook, upper Willamette River ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 55. Effects analysis summary table; Chinook, upper Willamette River ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Upper Willamette River Chinook designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.





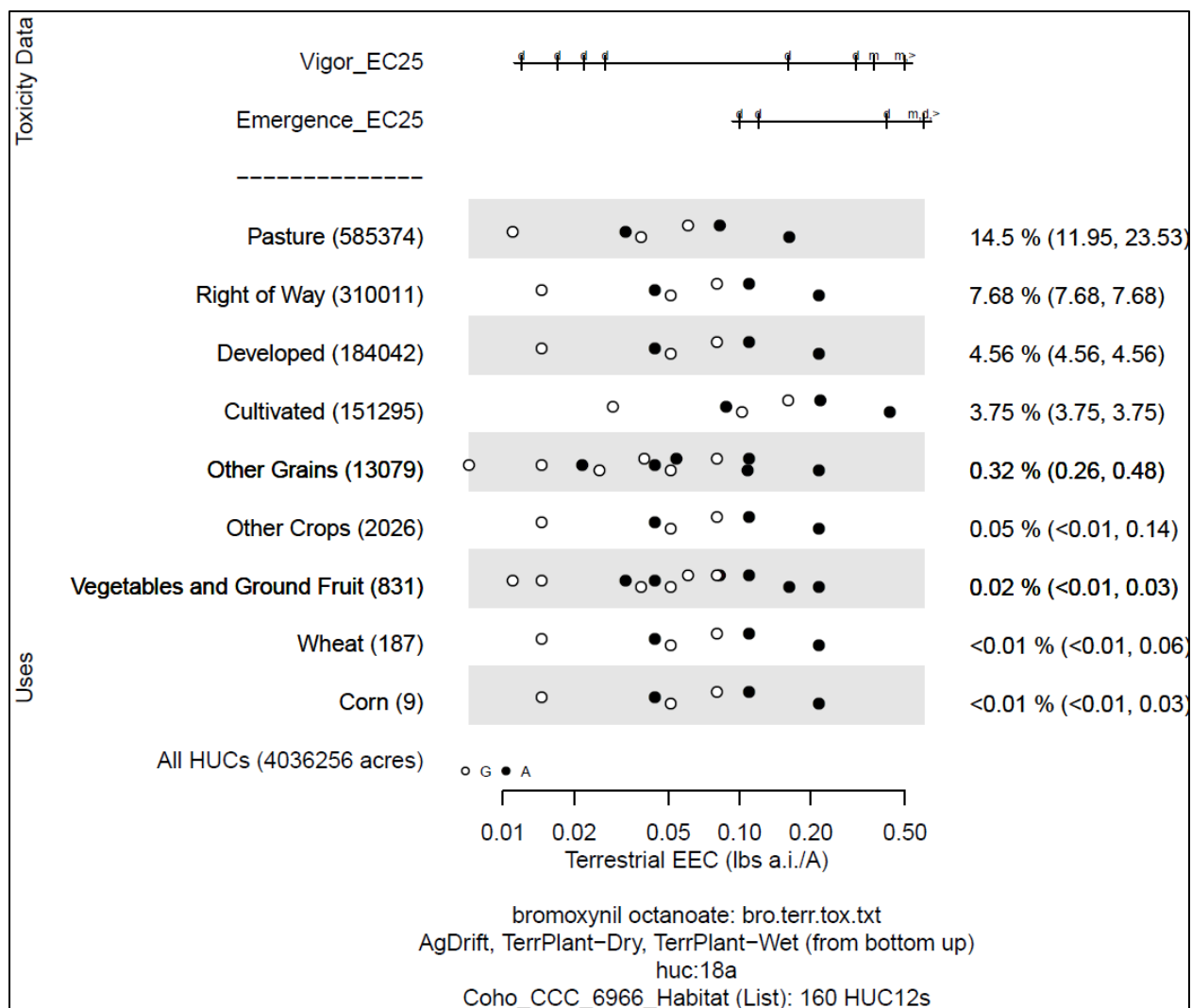


Figure 25. Effects analysis R-plot; Coho, Central California Coast ESU designated critical habitat; terrestrial plants riparian habitat.

Table 56. Likelihood of exposure determination for Coho, Central California Coast ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low	
Right of Way	NA	NA	NA	NA	NA	
Developed	2	no	no	NA	Medium	
Cultivated	NA	NA	NA	NA	NA	
Other Crops	1	no	no	no	Low	
Corn	1	no	no	no	Low	
Wheat	1	no	no	no	Low	
Veg. & Ground Fruit	1	no	no	no	Low	
Other Grains	1	no	no	no	Low	

Table 57. Prey risk hypothesis; Coho, Central California Coast ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	0.4 (14.5)	Low	Low
Right of Way	NA	NA	NA
Developed	4.6	Low	Medium
Cultivated	NA	NA	NA
Other Crops	0.1	Low	Low
Corn	<0.1	Low	Low
Wheat	<0.1	Low	Low
Vegetables and Ground Fruit	<0.1	Low	Low
Other Grains	0.3	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 58. Vegetative cover risk hypothesis; Coho, Central California Coast ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure

Aquatic			
Alfalfa (pasture)	0.4 (14.5)	Medium	Low
Right of Way	NA	NA	NA
Developed	4.6	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	0.3	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.4 (14.5)	Medium	Low
Right of Way	NA	NA	NA
Developed	4.6	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	0.3	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 59. Water quality risk hypothesis; Coho, Central California Coast ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated

critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

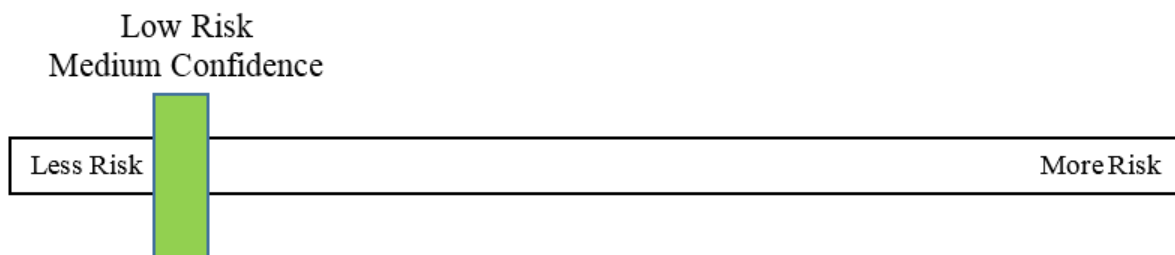
Table 60. Effects analysis summary table; Coho, Central California Coast ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Central California Coast Coho designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is low and the confidence associated with that risk is medium due to the minimal extent of

authorized use sites and resulting exposures predicted in critical habitats over the 15-year duration of the action.



15.2.13 Lower Columbia River Coho Salmon Designated Critical Habitat; Bromoxynil

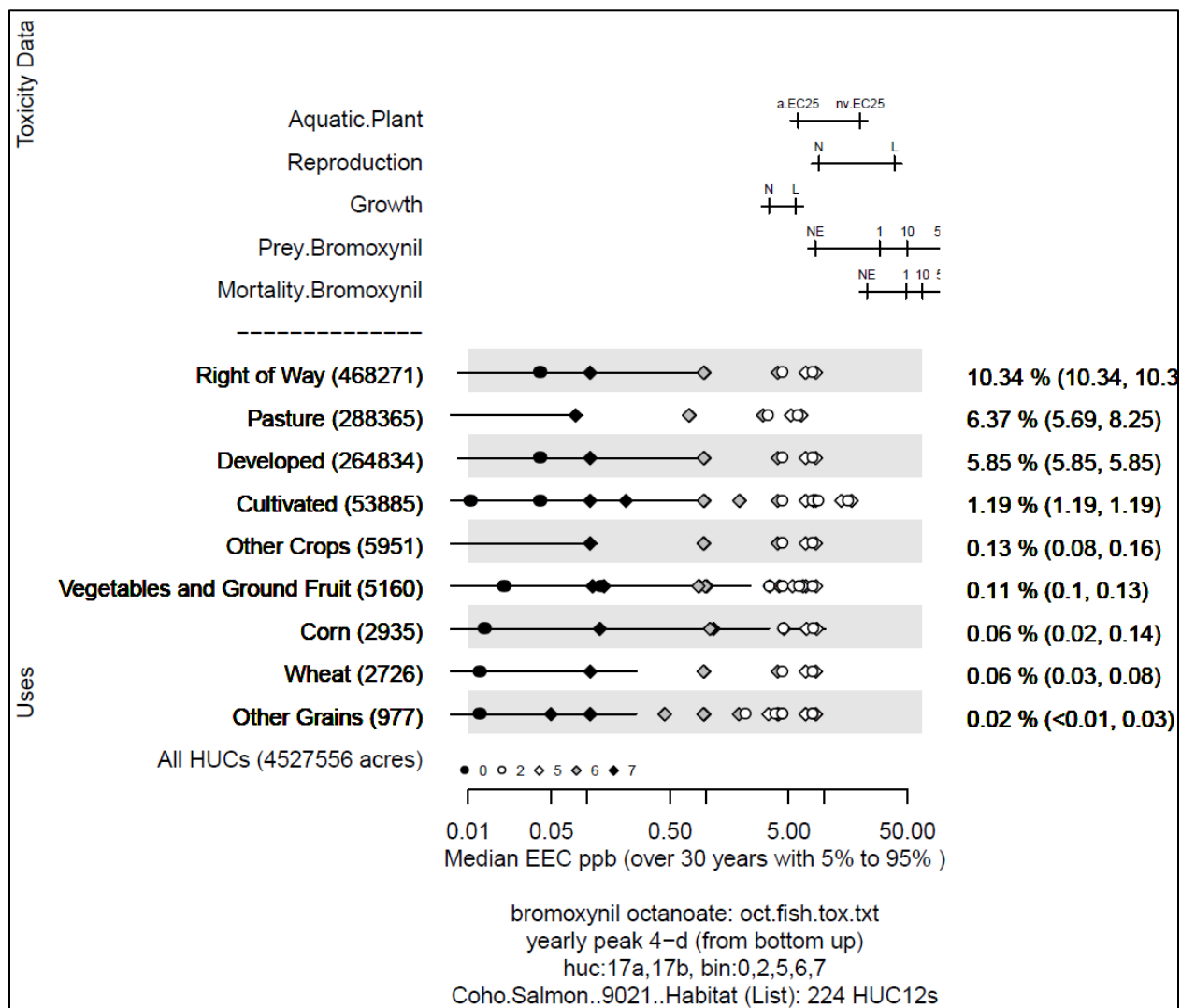


Figure 26. Effects analysis R-plot; Coho, Lower Columbia River ESU designated critical habitat; aquatic plants.

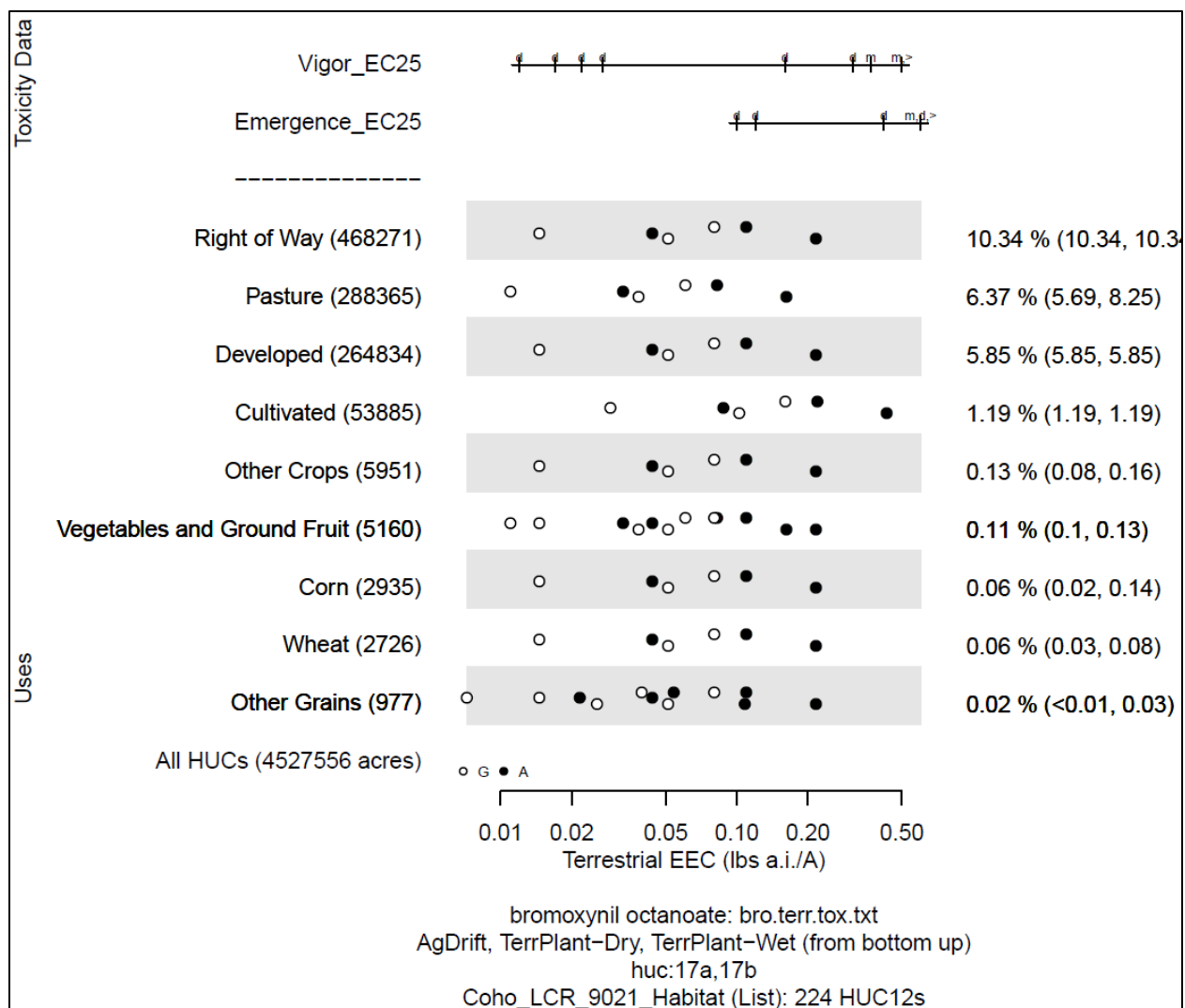


Figure 27. Effects analysis R-plot; Coho, Lower Columbia River ESU designated critical habitat; terrestrial plants riparian habitat.

Table 61. Likelihood of exposure determination for Coho, Lower Columbia River ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low	
Right of Way	3	no	no	NA	Medium	
Developed	3	no	no	NA	Medium	
Cultivated	1	no	no	NA	Low	
Other Crops	1	no	no	yes	Medium	
Corn	1	no	no	yes	Medium	
Wheat	1	no	no	yes	Medium	
Veg. & Ground Fruit	1	no	no	yes	Medium	
Other Grains	1	no	no	no	Low	

Table 62. Prey risk hypothesis; Coho, Lower Columbia River ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	<0.1 (6.4)	Low	Low
Right of Way	10.3	Low	Medium
Developed	5.9	Low	Medium
Fallow; CRP (cultivated)	<0.1; 0.8 (1.2)	Medium	Low
Other Crops	0.1	Low	Medium
Corn	0.1	Low	Medium
Wheat	0.1	Low	Medium
Vegetables and Ground Fruit	0.1	Low	Medium
Other Grains	<0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 63. Vegetative cover risk hypothesis; Chinook salmon, Snake River fall-run ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)
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Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	<0.1 (6.4)	Medium	Low
Right of Way	10.3	Medium	Medium
Developed	5.9	Medium	Medium
Fallow; CRP (cultivated)	<0.1; 0.8 (1.2)	Medium	Low
Other Crops	0.1	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	0.1	Medium	Medium
Vegetables and Ground Fruit	0.1	Medium	Medium
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	<0.1 (6.4)	Medium	Low
Right of Way	10.3	Medium	Medium
Developed	5.9	Medium	Medium
Fallow; CRP (cultivated)	<0.1; 0.8 (1.2)	High	Low
Other Crops	0.1	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	0.1	Medium	Medium
Vegetables and Ground Fruit	0.1	Medium	Medium
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 64. Water quality risk hypothesis; Coho, Lower Columbia River ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As

such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 65. Effects analysis summary table; Coho, Lower Columbia River ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Lower Columbia River Coho designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk

is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.14 Oregon Coast Coho Salmon Designated Critical Habitat; Bromoxynil

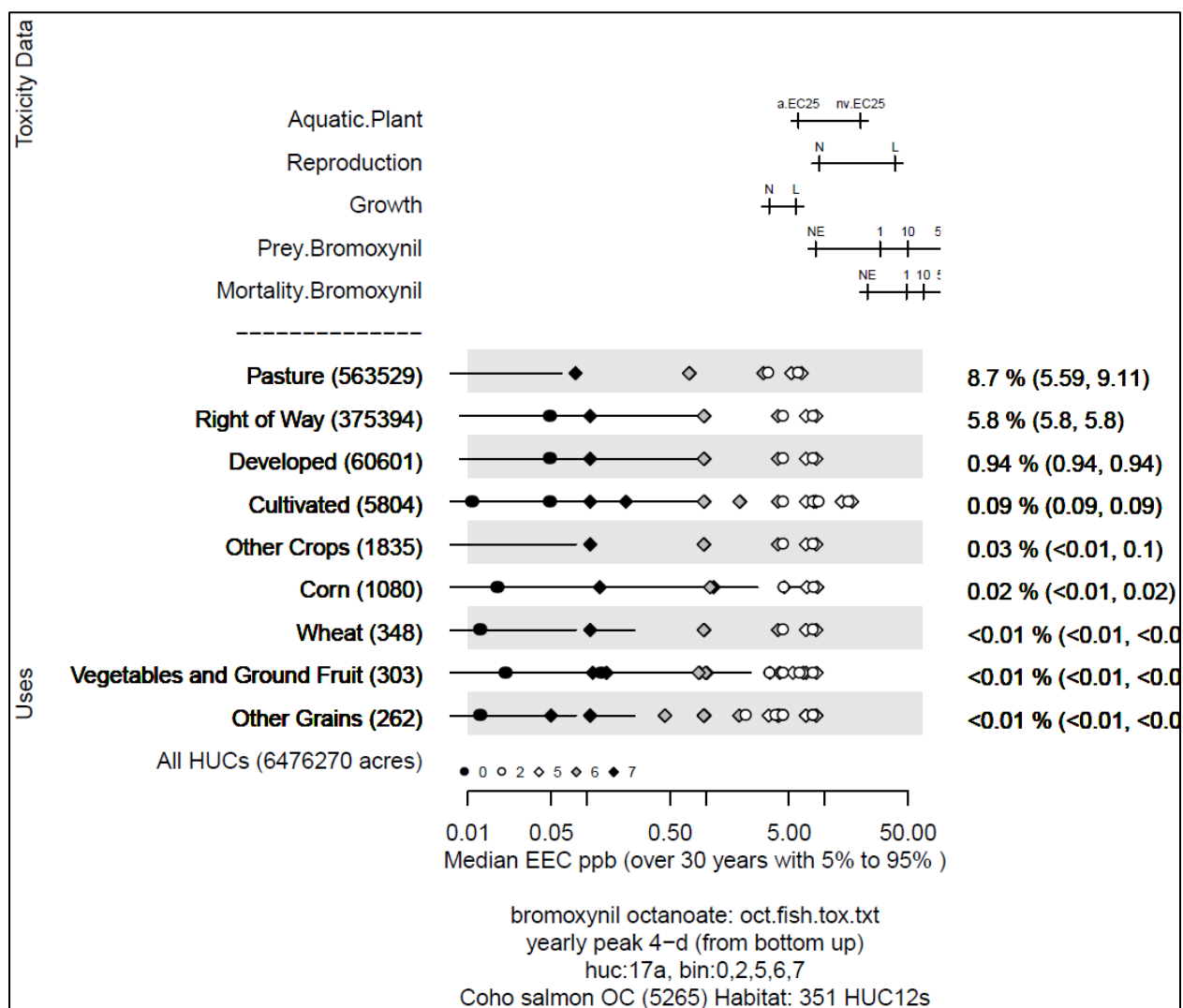


Figure 28. Effects analysis R-plot; Coho salmon, Oregon Coast ESU designated critical habitat; aquatic plants.

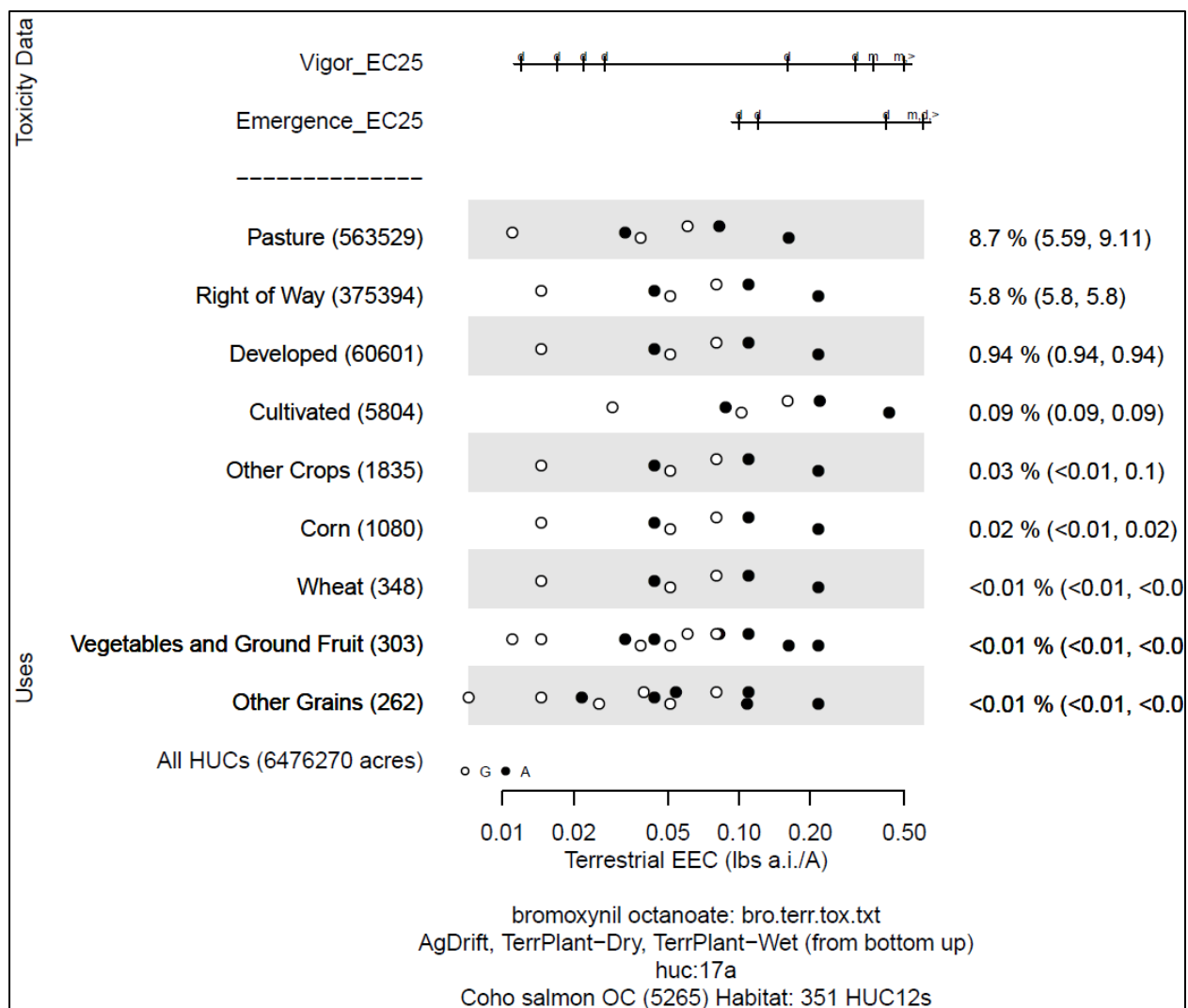


Figure 29. Effects analysis R-plot; Coho salmon, Oregon Coast ESU designated critical habitat; terrestrial plants riparian habitat.

Table 66. Likelihood of exposure determination for Coho salmon, Oregon Coast ESU designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low
Right of Way	3	no	no	NA	Medium
Developed	1	no	no	NA	Low
Cultivated	1	no	no	NA	Low
Other Crops	1	no	no	yes	Low
Corn	1	no	no	yes	Low
Wheat	1	no	no	yes	Low
Veg. & Ground Fruit	1	no	no	yes	Low
Other Grains	1	no	no	no	Low

Table 67. Prey risk hypothesis; Coho, Oregon coast ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	<0.1 (8.7)	Low	Low
Right of Way	5.8	Low	Medium
Developed	0.9	Low	Low
Fallow; CRP (cultivated)	<0.1; 0.8 (0.1)	Medium	Low
Other Crops	<0.1	Low	Low
Corn	<0.1	Low	Low
Wheat	<0.1	Low	Low
Vegetables and Ground Fruit	<0.1	Low	Low
Other Grains	<0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 68. Vegetative cover risk hypothesis; Coho, Oregon coast ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	<0.1 (8.7)	Low	Low
Right of Way	5.8	Medium	Medium
Developed	0.9	Medium	Low
Fallow; CRP (cultivated)	<0.1; 0.8 (0.1)	Medium	Low
Other Crops	<0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	<0.1 (8.7)	Low	Low
Right of Way	5.8	Medium	Medium
Developed	0.9	Medium	Low
Fallow; CRP (cultivated)	<0.1; 0.8 (0.1)	Medium	Low
Other Crops	<0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 69. Water quality risk hypothesis; Coho, Oregon coast ESU; designated critical habitat.

Endpoint: Water Quality

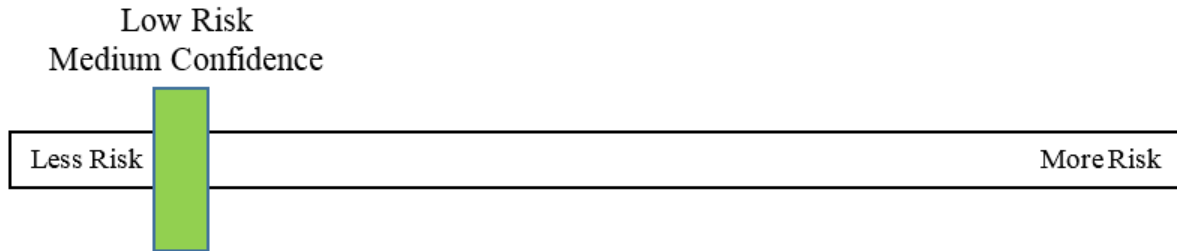
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 70. Effects analysis summary table; Coho, Oregon coast ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Oregon coast Coho designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is low and the confidence associated with that risk is medium due to the minimal extent of authorized use sites and resulting exposures predicted in critical habitats over the 15-year duration of the action.



15.2.15 Southern Oregon Northern California (SONC) Coho Salmon Designated Critical Habitat; Bromoxynil

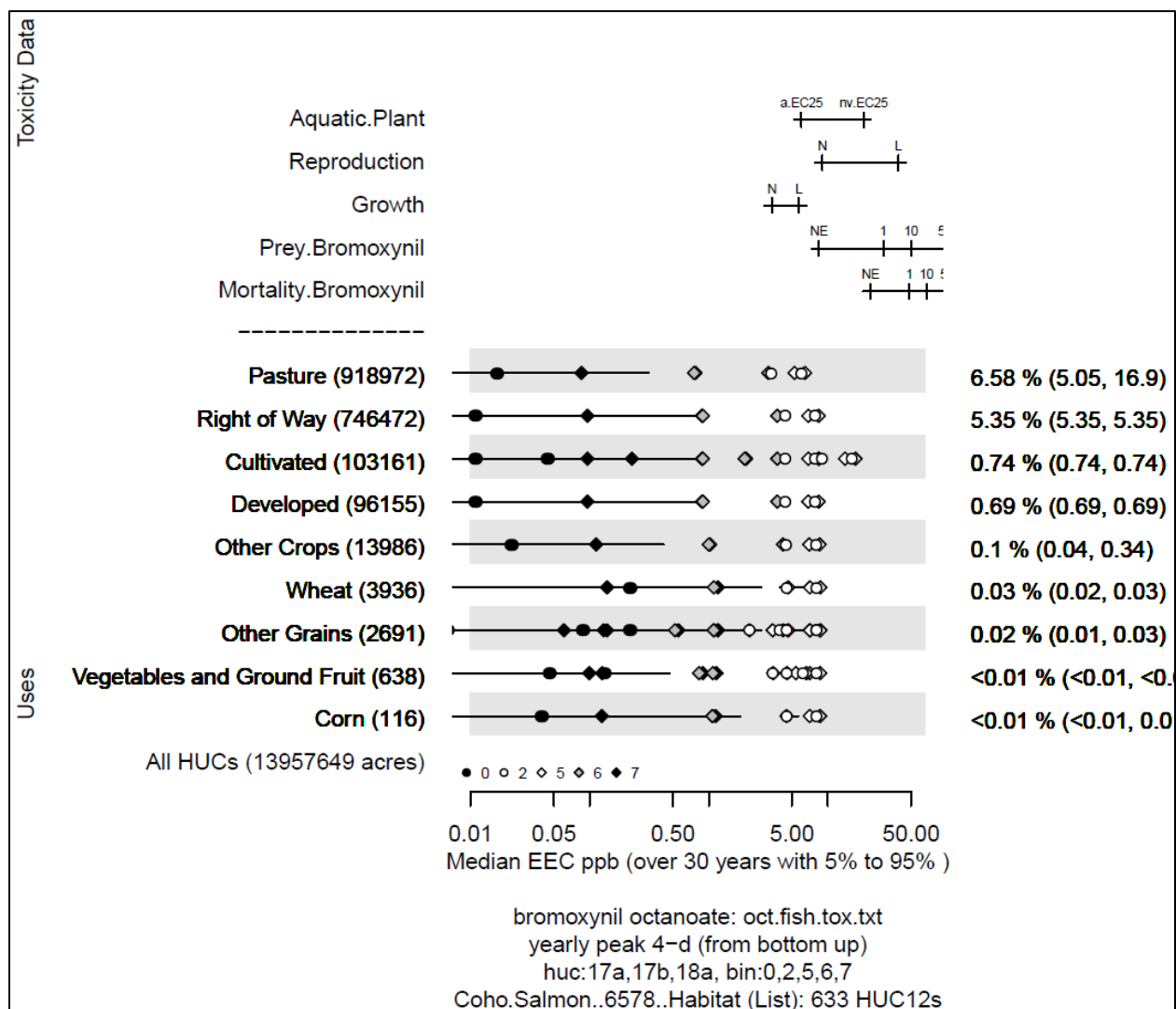


Figure 30. Effects analysis R-plot; Coho salmon, SONCC ESU designated critical habitat; aquatic plants.

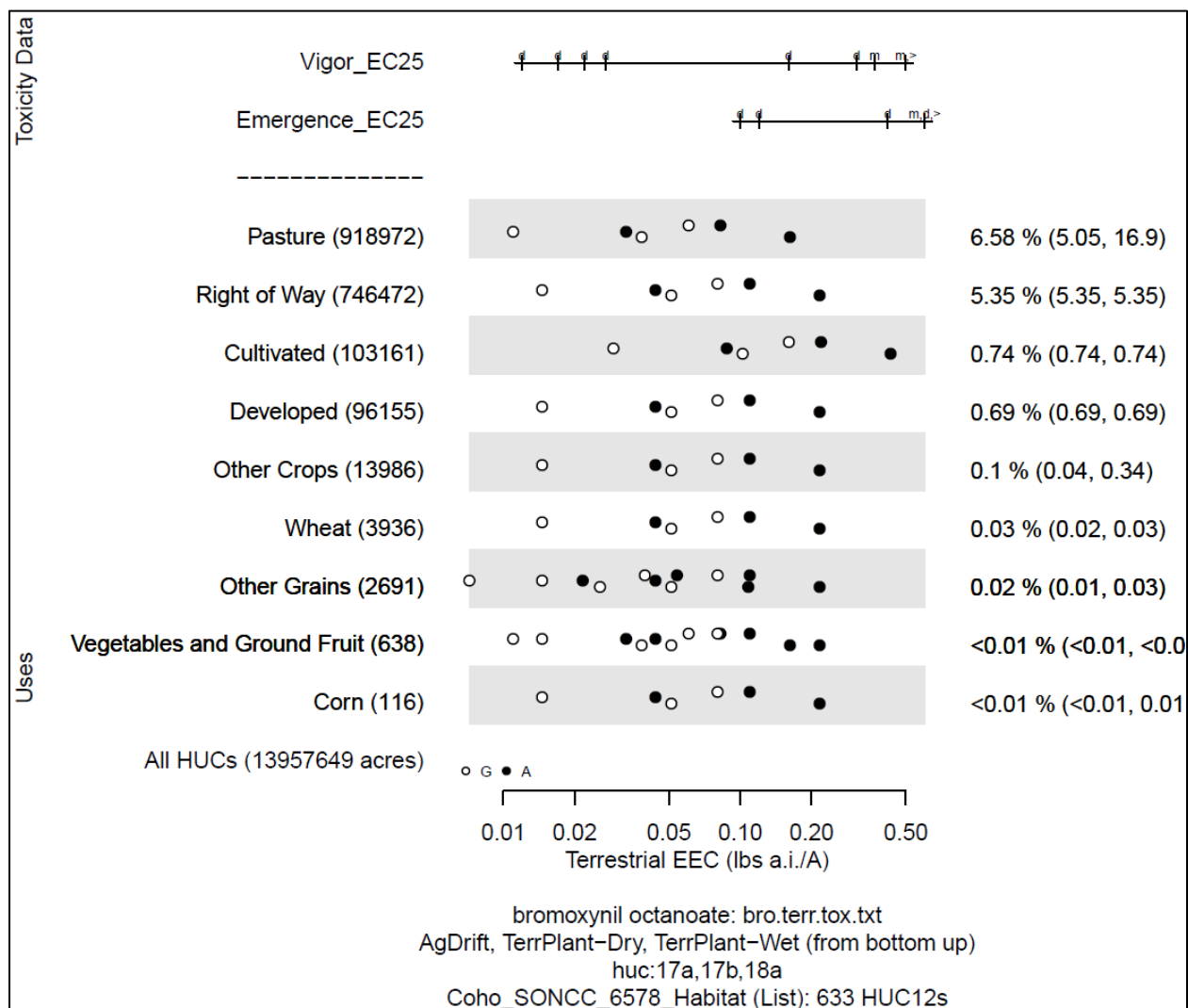


Figure 31. Effects analysis R-plot; Coho salmon, SONC ESU designated critical habitat; terrestrial plants riparian habitat.

Table 71. Likelihood of exposure determination for Coho salmon, SONC ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low	
Right of Way	3	no	no	NA	Medium	
Developed	1	no	no	no	Low	
Cultivated	1	no	no	NA	Low	
Other Crops	1	no	no	yes	Low	
Corn	1	no	no	no	Low	
Wheat	1	no	no	no	Low	
Veg. & Ground Fruit	1	no	no	no	Low	
Other Grains	1	no	no	no	Low	

Table 72. Prey risk hypothesis; Coho, SONC ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	0.3 (6.6)	Low	Low
Right of Way	5.4	Low	Medium
Developed	0.7	Low	Low
Fallow; CRP (cultivated)	<0.1; 0.1 (0.7)	Medium	Low
Other Crops	0.1	Low	Low
Corn	<0.1	Low	Low
Wheat	<0.1	Low	Low
Vegetables and Ground Fruit	<0.1	Low	Low
Other Grains	<0.1	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence	Use is not authorized in California for right of way, CRP, or fallow land; likelihood of exposure rankings only reflect the likelihood of exposure to these uses in the Oregon portion of the species range.	
Low	Medium		

Table 73. Vegetative cover risk hypothesis; Coho, SONC ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)
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Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.3 (6.6)	Medium	Low
Right of Way	5.4	Medium	Medium
Developed	0.7	Medium	Low
Fallow; CRP (cultivated)	<0.1; 0.1 (0.7)	Medium	Low
Other Crops	0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.3 (6.6)	Medium	Low
Right of Way	5.4	Medium	Medium
Developed	0.7	Medium	Low
Fallow; CRP (cultivated)	<0.1; 0.1 (0.7)	High	Low
Other Crops	0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence	Use is not authorized in California for right of way, CRP, or fallow land; likelihood of exposure rankings only reflect the likelihood of exposure to these uses in the Oregon portion of the species range.	
Low	Medium		

Table 74. Water quality risk hypothesis; Coho, SONC ESU; designated critical habitat.

Endpoint: Water Quality

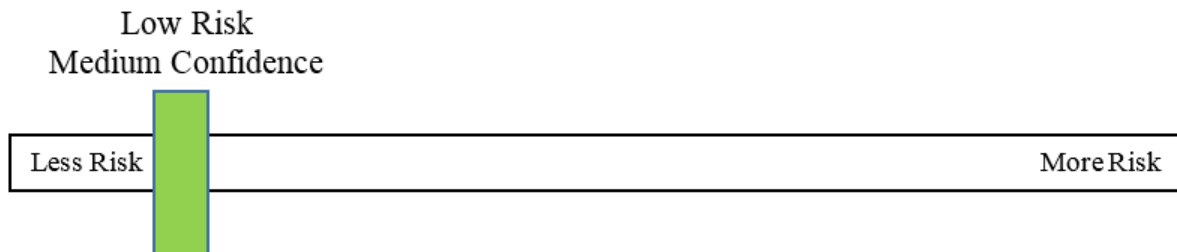
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	Use is not authorized in California for right of way, CRP, or fallow land; likelihood of exposure rankings only reflect the likelihood of exposure to these uses in the Oregon portion of the species range.
Low	Medium	

Table 75. Effects analysis summary table; Coho, SONC ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Southern Oregon Northern California Coho designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is low and the confidence associated with that risk is medium due to the minimal extent of authorized use sites and resulting exposures predicted in critical habitats over the 15-year duration of the action.



15.2.16 Ozette Lake Sockeye Designated Critical Habitat; Bromoxynil

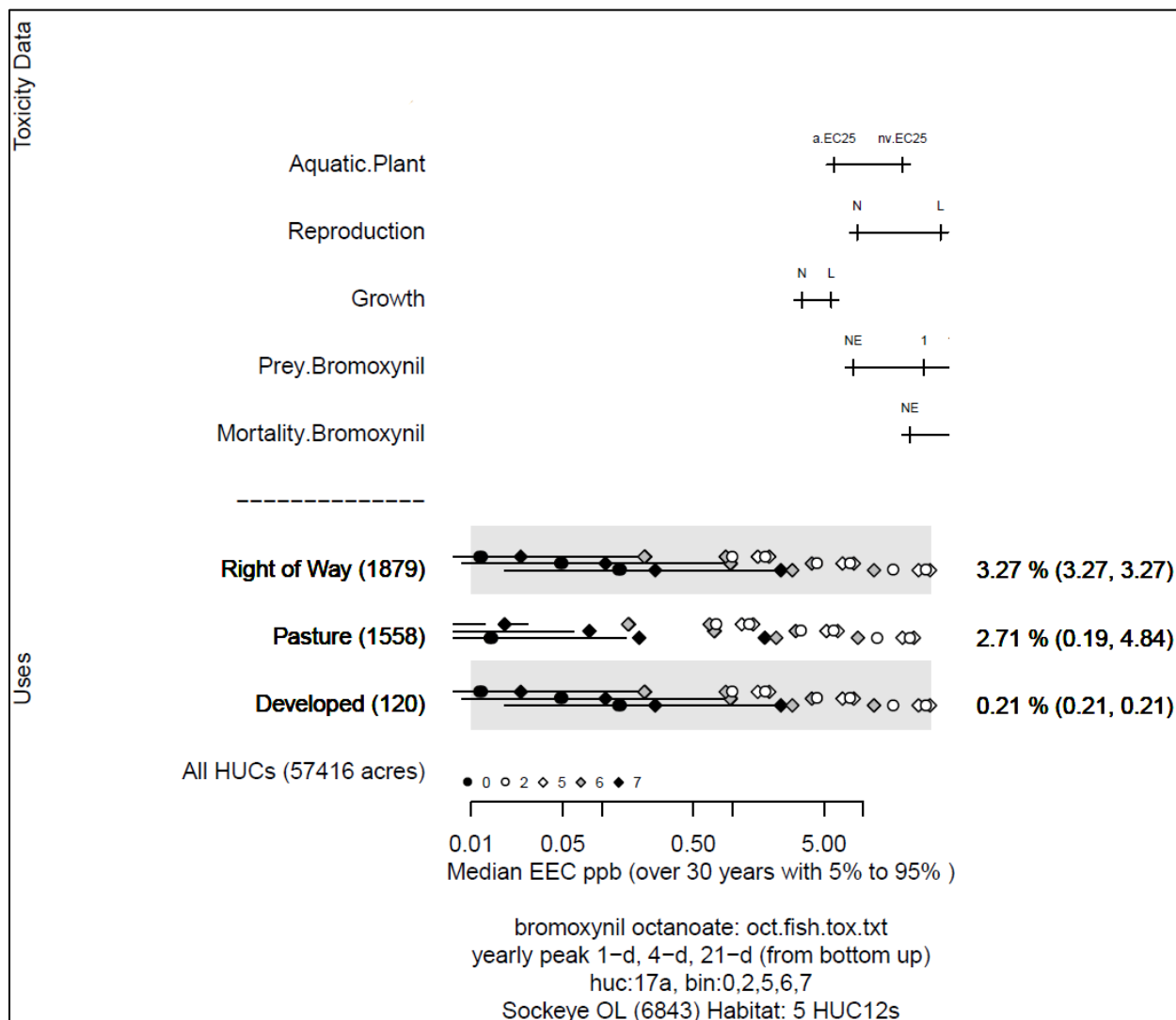


Figure 32. Effects analysis R-plot; Ozette Lake Sockeye designated critical habitat; aquatic plants.

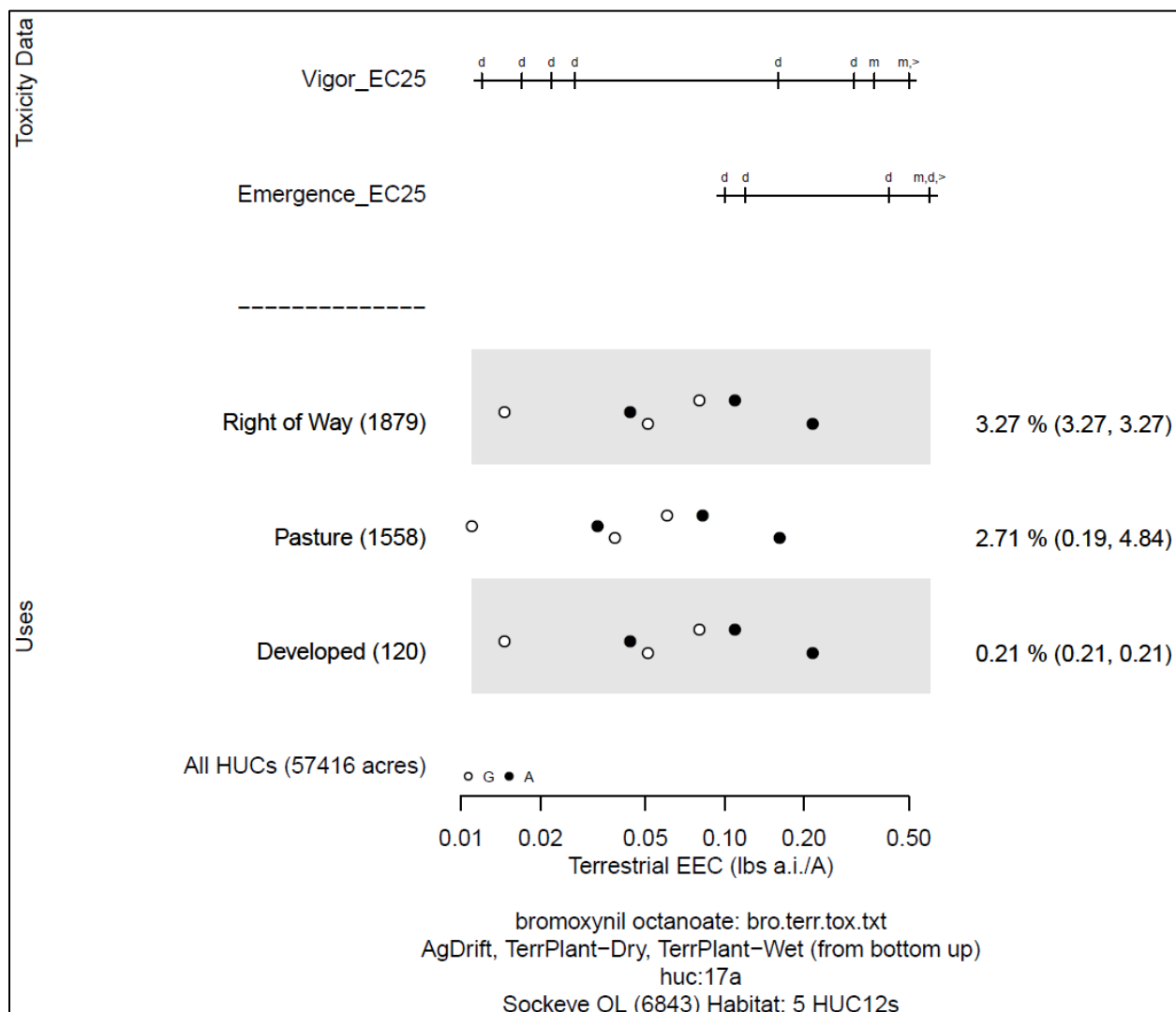


Figure 33. Effects analysis R-plot; Ozette Lake Sockeye designated critical habitat; terrestrial plants riparian habitat.

Table 76. Likelihood of exposure determination for Ozette Lake Sockeye designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	no	Low	
Right of Way	2	no	no	no	Medium	
Developed	1	no	no	no	Low	

Table 77. Prey risk hypothesis; Ozette Lake Sockeye; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	0.1 (2.7)	Low	Low
Right of Way	3.3	Low	Medium
Developed	0.2	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 78. Vegetative cover risk hypothesis; Ozette Lake Sockeye designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.1 (2.7)	Medium	Low
Right of Way	3.3	Medium	Medium
Developed	0.2	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.1 (2.7)	Medium	Low
Right of Way	3.3	Medium	Medium
Developed	0.2	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 79. Water quality risk hypothesis; Ozette Lake Sockeye; designated critical habitat.

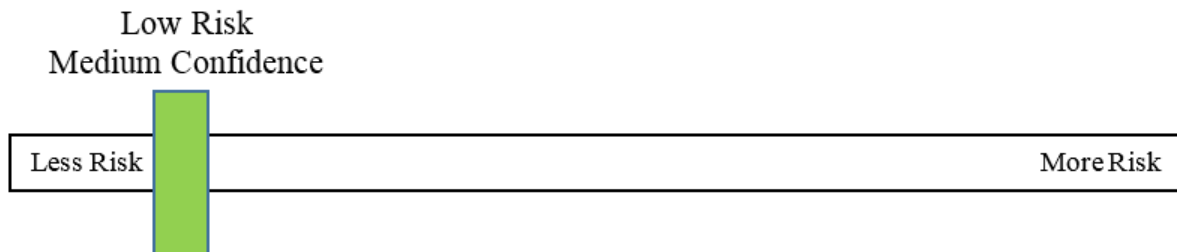
Endpoint: Water Quality		
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 80. Effects analysis summary table; Ozette Lake Sockeye; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Ozette Lake Sockeye designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is low and the confidence associated with that risk is medium due to the minimal extent of authorized use sites and resulting exposures predicted in critical habitats over the 15-year duration of the action.



15.2.17 Snake River Sockeye Salmon Designated Critical Habitat; Bromoxynil

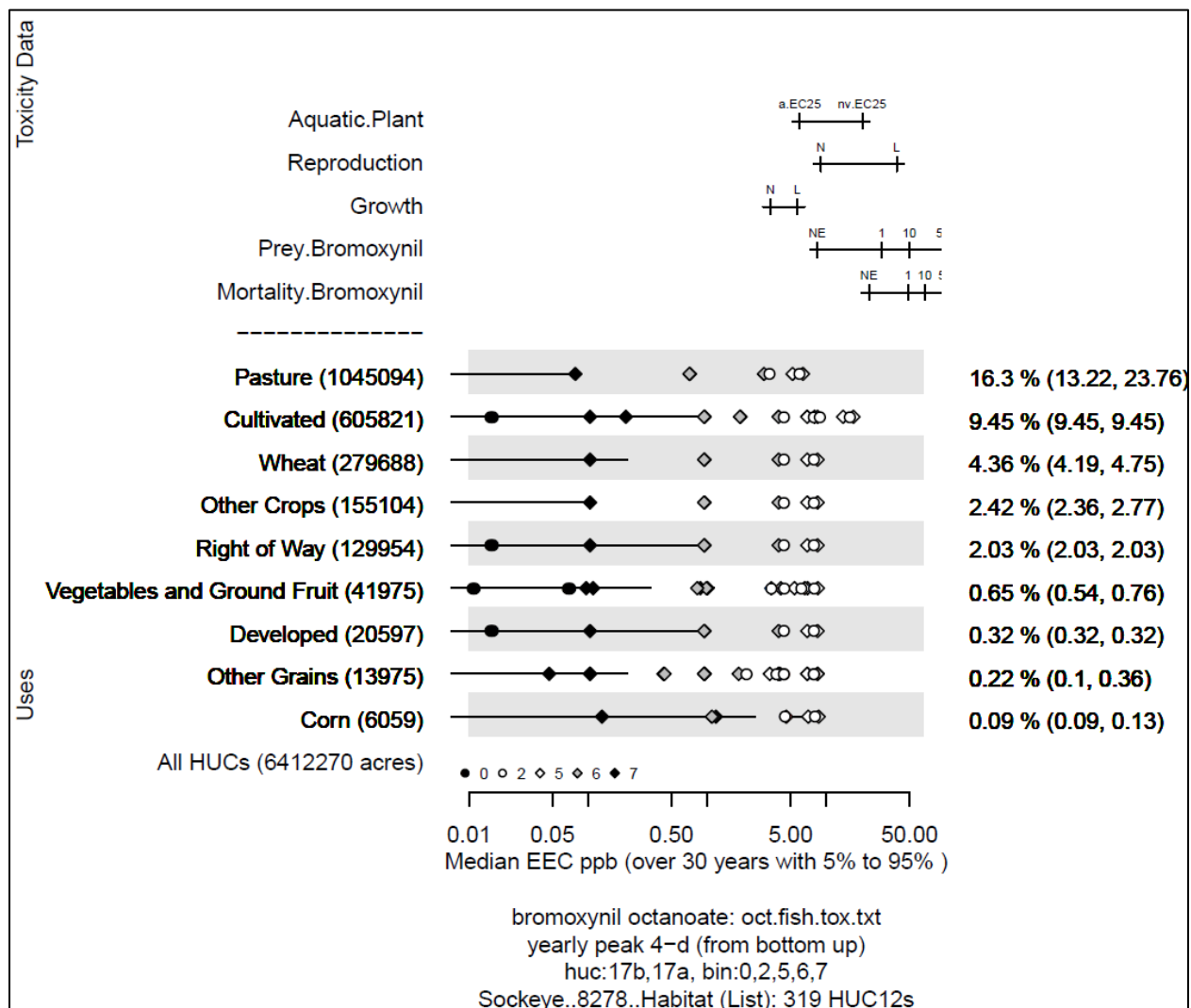


Figure 34. Effects analysis R-plot; Snake River Sockeye designated critical habitat; aquatic plants.

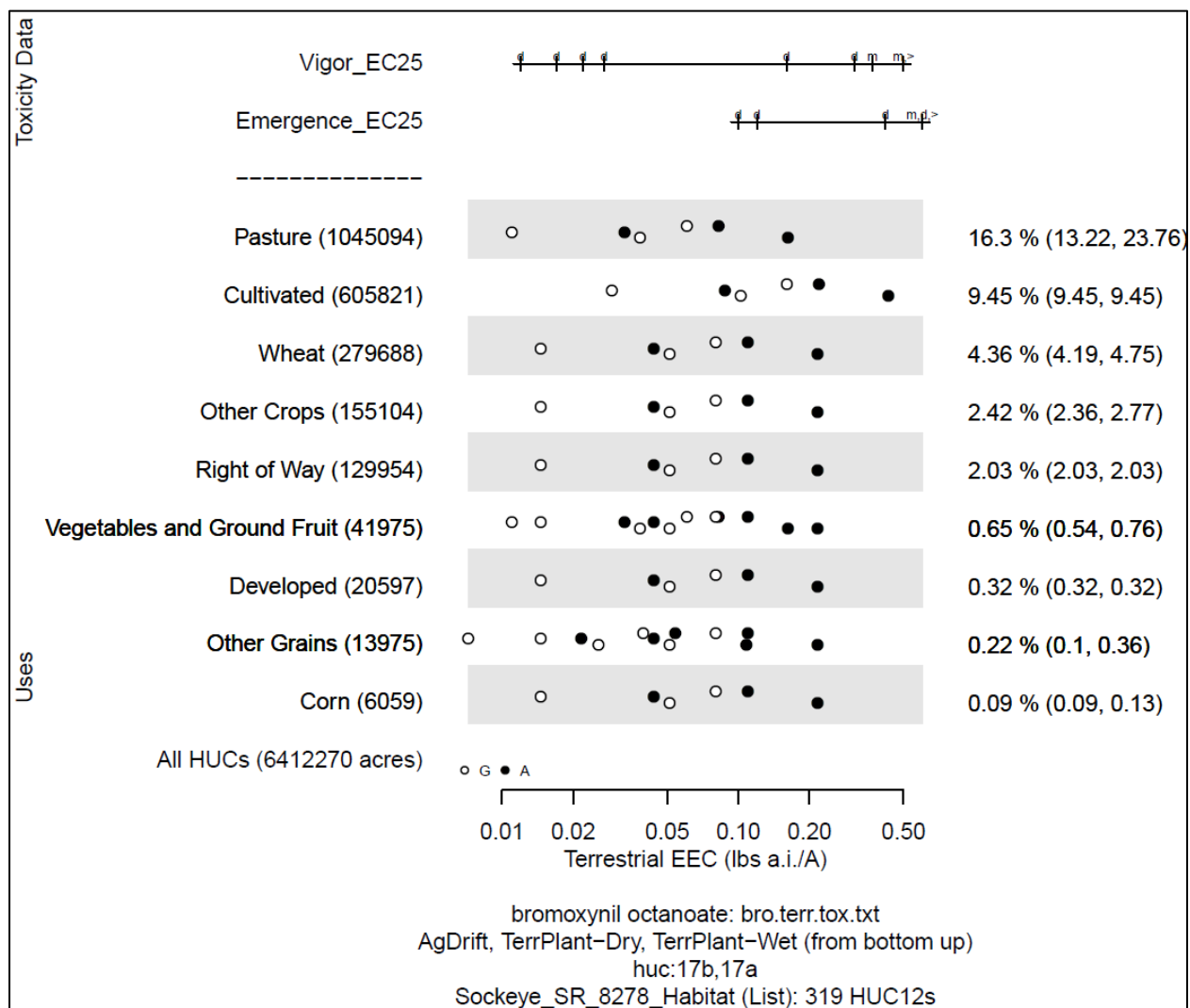


Figure 35. Effects analysis R-plot; Snake River Sockeye designated critical habitat; terrestrial plants riparian habitat.

Table 81. Likelihood of exposure determination for Snake River Sockeye designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low	
Right of Way	2	no	no	NA	Medium	
Developed	1	no	no	no	Low	
Cultivated	2	no	no	NA	Medium	
Other Crops	2	no	no	NA	Medium	
Corn	1	no	no	no	Low	
Wheat	2	no	no	NA	Medium	
Veg. & Ground Fruit	1	no	no	no	Low	
Other Grains	1	no	no	no	Low	

Table 82. Prey risk hypothesis; Snake River Sockeye; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Alfalfa (pasture)	0.9 (16.3)	Low	Low
Right of Way	2.0	Low	Medium
Developed	0.3	Low	Low
Fallow; CRP (cultivated)	1.4; 11.7 (9.5)	Medium	Medium
Other Crops	2.4	Low	Medium
Corn	0.1	Low	Low
Wheat	4.4	Low	Medium
Vegetables and Ground Fruit	0.7	Low	Low
Other Grains	0.2	Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 83. Vegetative cover risk hypothesis; Snake River Sockeye designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure

Aquatic			
Alfalfa (pasture)	0.9 (16.3)	Medium	Low
Right of Way	2.0	Medium	Medium
Developed	0.3	Medium	Low
Fallow; CRP (cultivated)	1.4; 11.7 (9.5)	Medium	Medium
Other Crops	2.4	Medium	Medium
Corn	0.1	Medium	Low
Wheat	4.4	Medium	Medium
Vegetables and Ground Fruit	0.7	Medium	Low
Other Grains	0.2	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.9 (16.3)	Medium	Low
Right of Way	2.0	Medium	Medium
Developed	0.3	Medium	Low
Fallow; CRP (cultivated)	1.4; 11.7 (9.5)	High	Medium
Other Crops	2.4	Medium	Medium
Corn	0.1	Medium	Low
Wheat	4.4	Medium	Medium
Vegetables and Ground Fruit	0.7	Medium	Low
Other Grains	0.2	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 84. Water quality risk hypothesis; Snake River Sockeye; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated

critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 85. Effects analysis summary table; Snake River Sockeye; designated critical habitat.

	R-plot Derived		Risk Hypothesis Supported? Yes/No
Designated Critical Habitat; Risk Hypotheses	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Snake River Sockeye designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.18 California Central Valley Steelhead Designated Critical Habitat; Bromoxynil

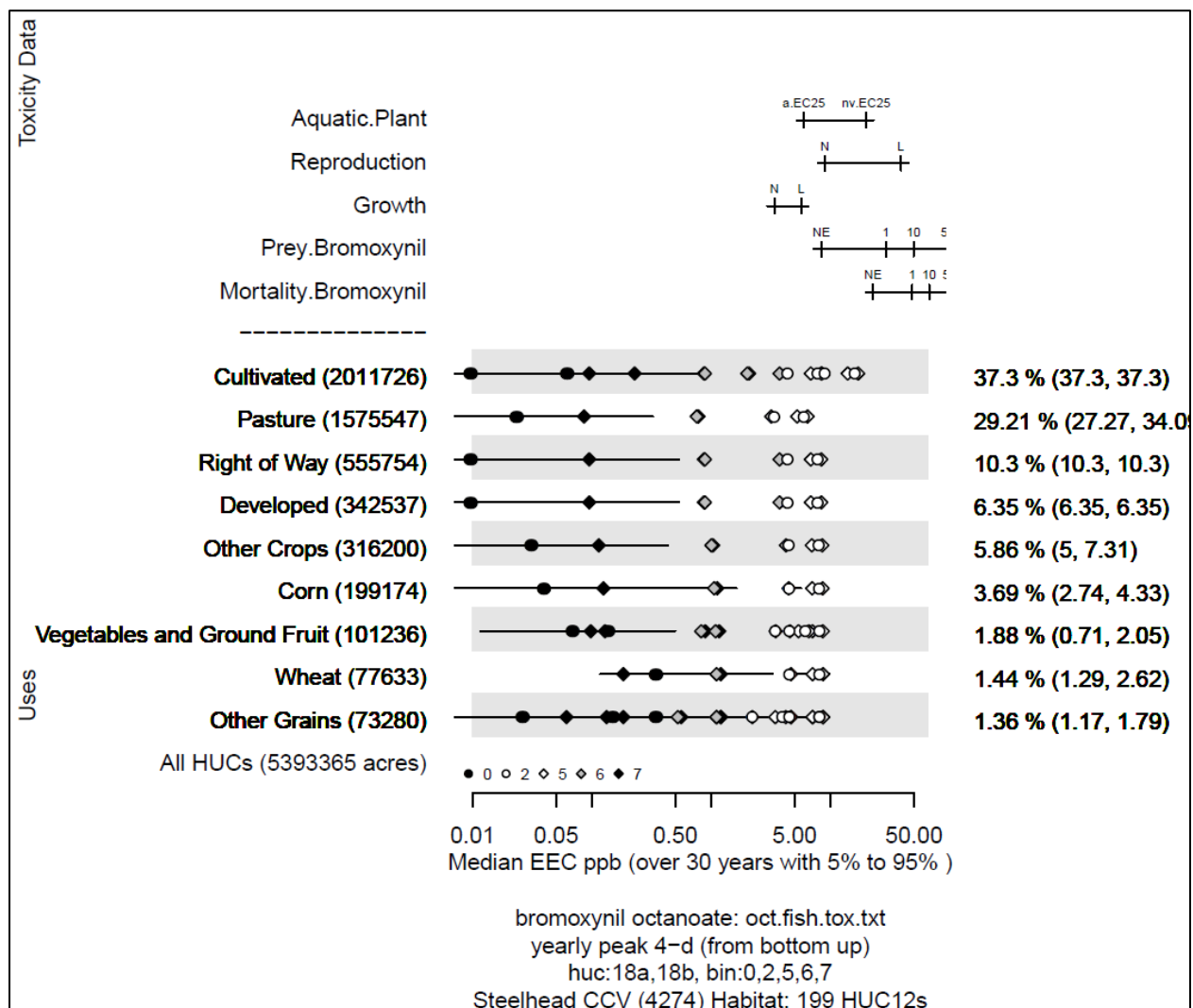


Figure 36. Effects analysis R-plot; California Central Valley Steelhead designated critical habitat; aquatic plants.

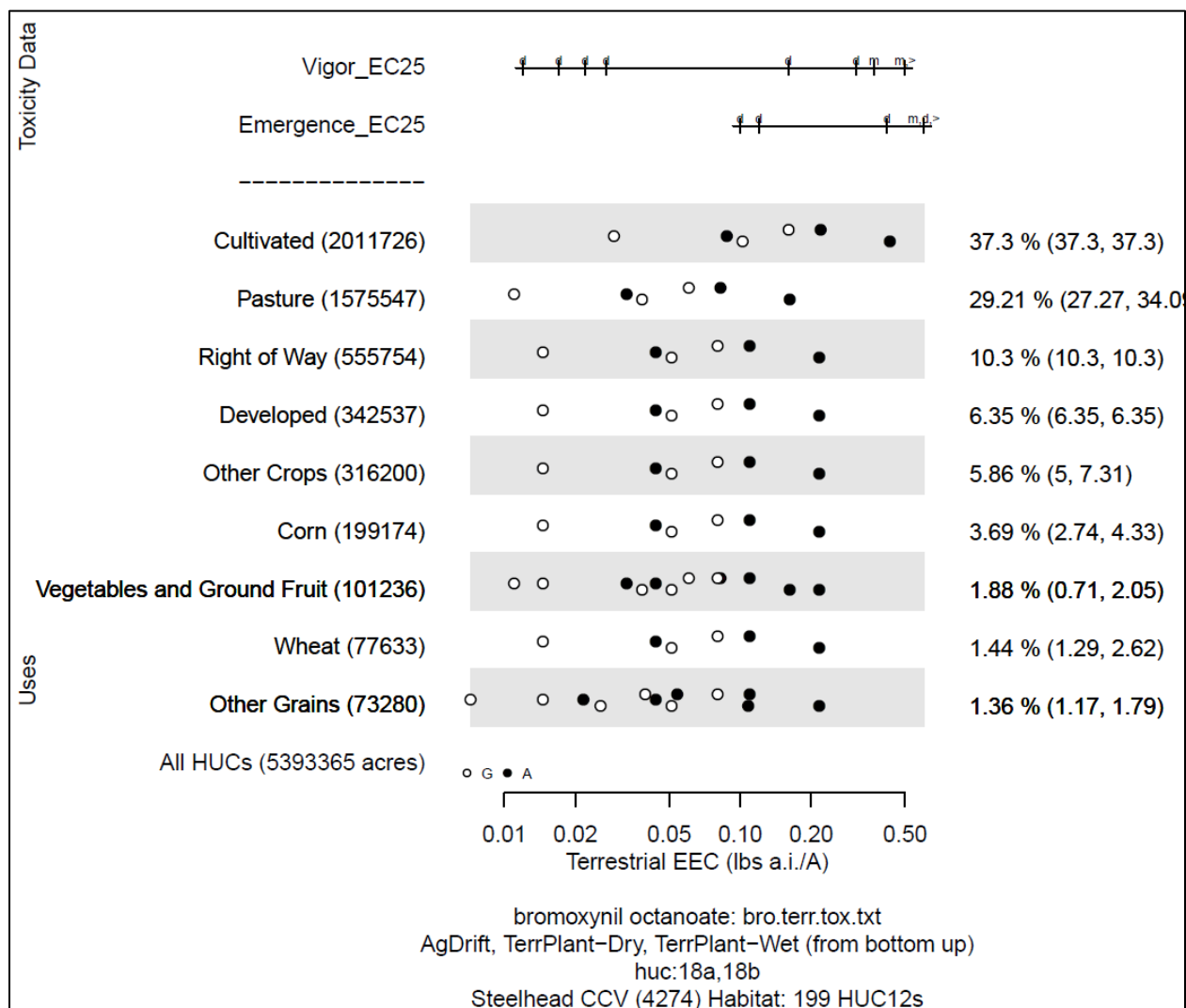


Figure 37. Effects analysis R-plot; California Central Valley Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 86. Likelihood of exposure determination for California Central Valley Steelhead designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Medium
Right of Way	NA	NA	NA	NA	NA
Developed	3	no	no	NA	Medium
Cultivated	NA	NA	NA	NA	NA
Other Crops	3	no	no	NA	Medium
Corn	2	no	no	NA	Medium
Wheat	2	no	no	NA	Medium
Veg. & Ground Fruit	2	no	no	NA	Medium
Other Grains	2	no	no	NA	Medium

Table 87. Prey risk hypothesis; California Central Valley Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	1.6 (29.2)	Low / Low	Medium
Right of Way	NA	NA	NA
Developed	6.4	Low / Low	Medium
Cultivated	NA	NA	NA
Other Crops	5.9	Low / Low	Medium
Corn	3.7	Low / Low	Medium
Wheat	1.4	Low / Low	Medium
Vegetables and Ground Fruit	1.9	Low / Low	Medium
Other Grains	1.4	Low / Low	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 88. Vegetative cover risk hypothesis; California Central Valley Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure

Aquatic			
Alfalfa (pasture)	1.6 (29.2)	Medium	Medium
Right of Way	NA	NA	NA
Developed	6.4	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	5.9	Medium	Medium
Corn	3.7	Medium	Medium
Wheat	1.4	Medium	Medium
Vegetables and Ground Fruit	1.9	Medium	Medium
Other Grains	1.4	Medium	Medium
Terrestrial			
Alfalfa (pasture)	1.6 (29.2)	Medium	Medium
Right of Way	NA	NA	NA
Developed	6.4	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	5.9	Medium	Medium
Corn	3.7	Medium	Medium
Wheat	1.4	Medium	Medium
Vegetables and Ground Fruit	1.9	Medium	Medium
Other Grains	1.4	Medium	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 89. Water quality risk hypothesis; California Central Valley Steelhead; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated

critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 90. Effects analysis summary table; California Central Valley Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of California Central Valley Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity

endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.19 Central California Coast Steelhead Designated Critical Habitat; Bromoxynil

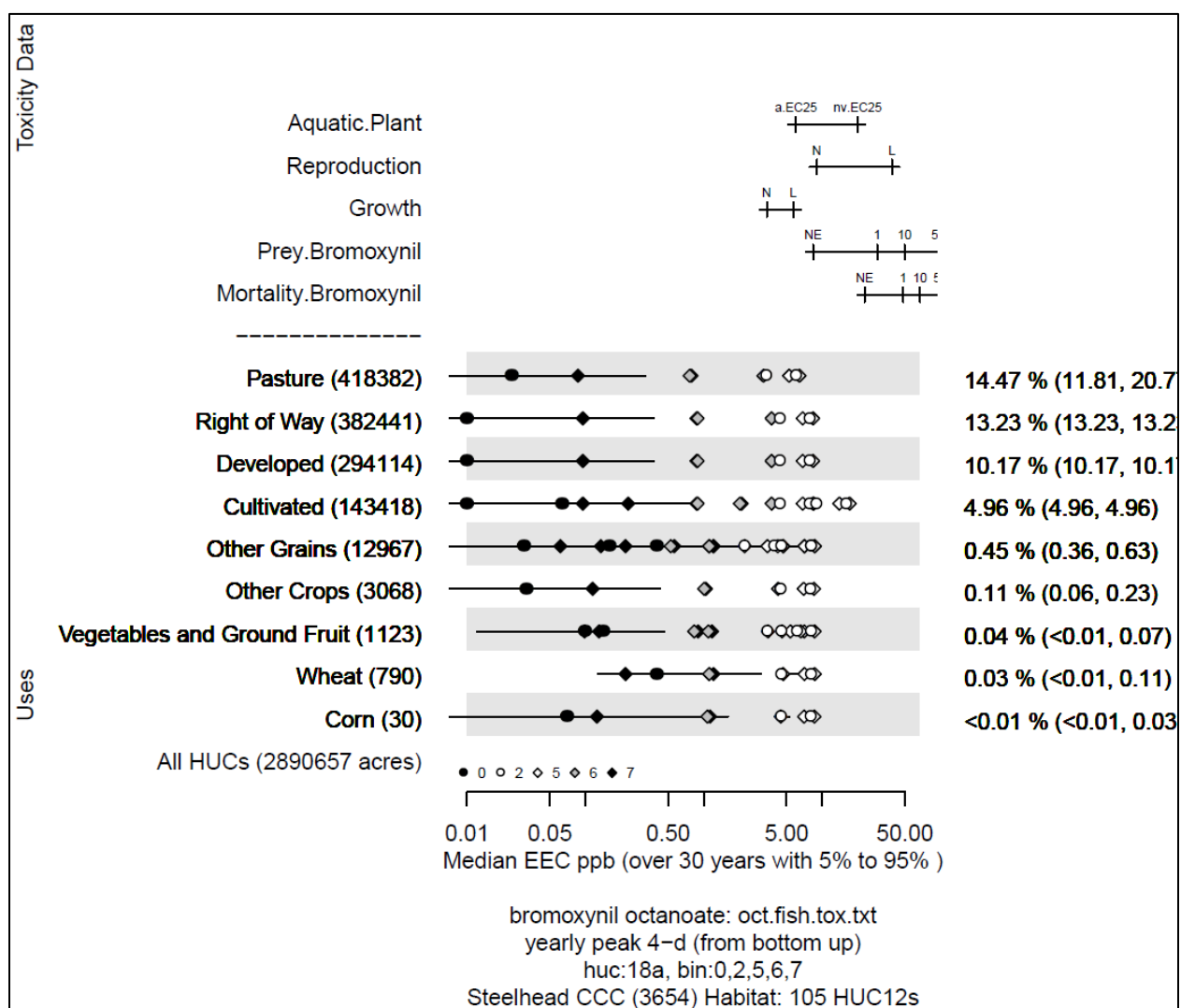


Figure 38. Effects analysis R-plot; Central California Coast Steelhead designated critical habitat; aquatic plants.

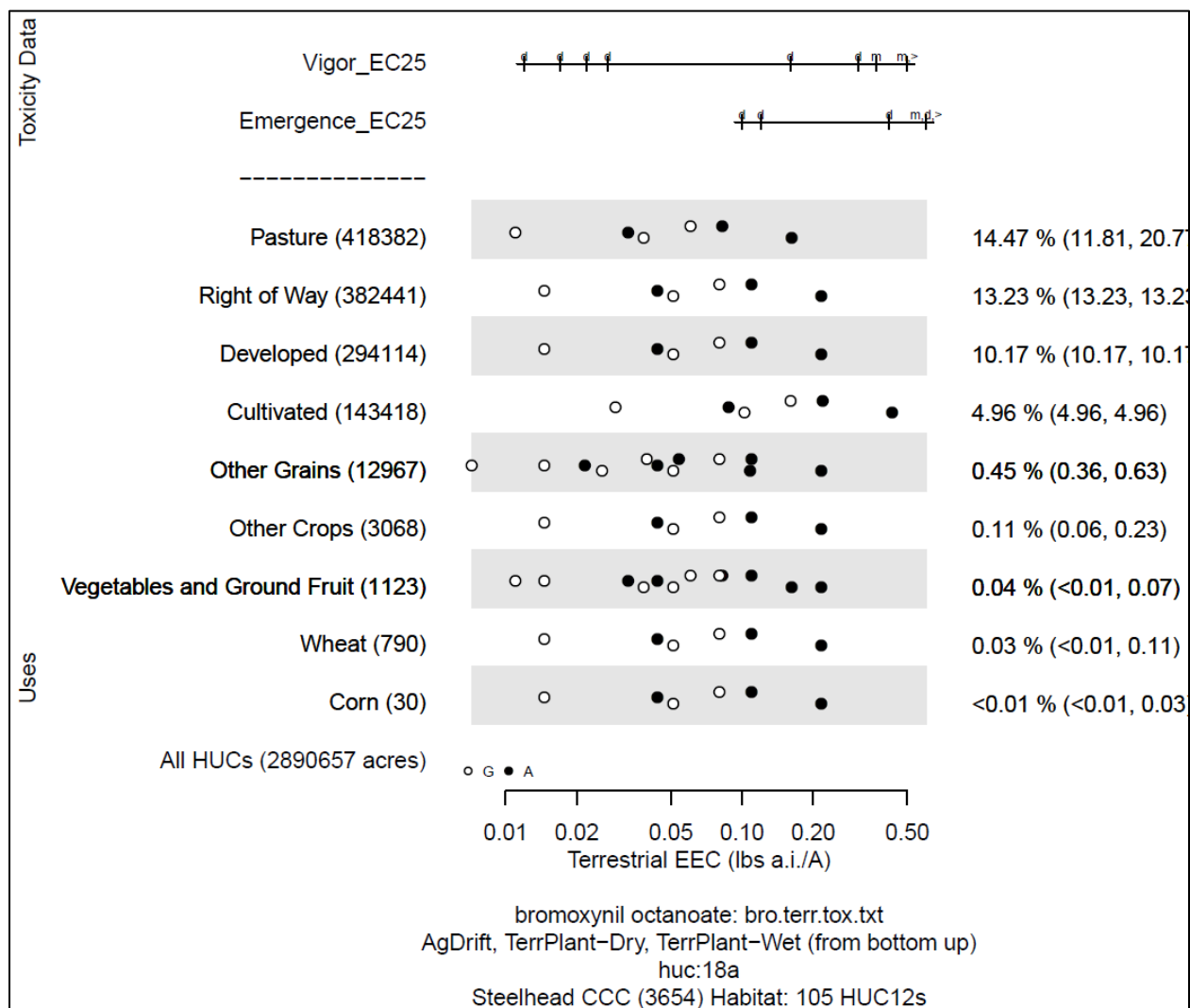


Figure 39. Effects analysis R-plot; Central California Coast Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 91. Likelihood of exposure determination for Central California Coast Steelhead designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low
Right of Way	NA	NA	NA	NA	NA
Developed	3	no	no	NA	Medium
Cultivated	NA	NA	NA	NA	NA
Other Crops	1	no	no	NA	Low
Corn	1	no	no	NA	Low
Wheat	1	no	no	NA	Low
Veg. & Ground Fruit	1	no	no	NA	Low
Other Grains	1	no	no	NA	Low

Table 92. Prey risk hypothesis; Central California Coast Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	0.3 (14.5)	Low / Low	Low
Right of Way	NA	NA	NA
Developed	10.2	Low / Low	Medium
Cultivated	NA	NA	NA
Other Crops	0.1	Low / Low	Low
Corn	<0.1	Low / Low	Low
Wheat	<0.1	Low / Low	Low
Vegetables and Ground Fruit	<0.1	Low / Low	Low
Other Grains	0.5	Low / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 93. Vegetative cover risk hypothesis; Central California Coast Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)
--

Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.3 (14.5)	Medium	Low
Right of Way	NA	NA	NA
Developed	10.2	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	0.1	Medium	Medium
Corn	<0.1	Medium	Medium
Wheat	<0.1	Medium	Medium
Vegetables and Ground Fruit	<0.1	Medium	Medium
Other Grains	0.5	Medium	Medium
Terrestrial			
Alfalfa (pasture)	0.3 (14.5)	Medium	Low
Right of Way	NA	NA	NA
Developed	10.2	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	0.1	Medium	Medium
Corn	<0.1	Medium	Medium
Wheat	<0.1	Medium	Medium
Vegetables and Ground Fruit	<0.1	Medium	Medium
Other Grains	0.5	Medium	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 94. Water quality risk hypothesis; Central California Coast Steelhead; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases

with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 95. Effects analysis summary table; Central California Coast Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Central California Coast Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity

endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.20 Lower Columbia River Steelhead Designated Critical Habitat; Bromoxynil

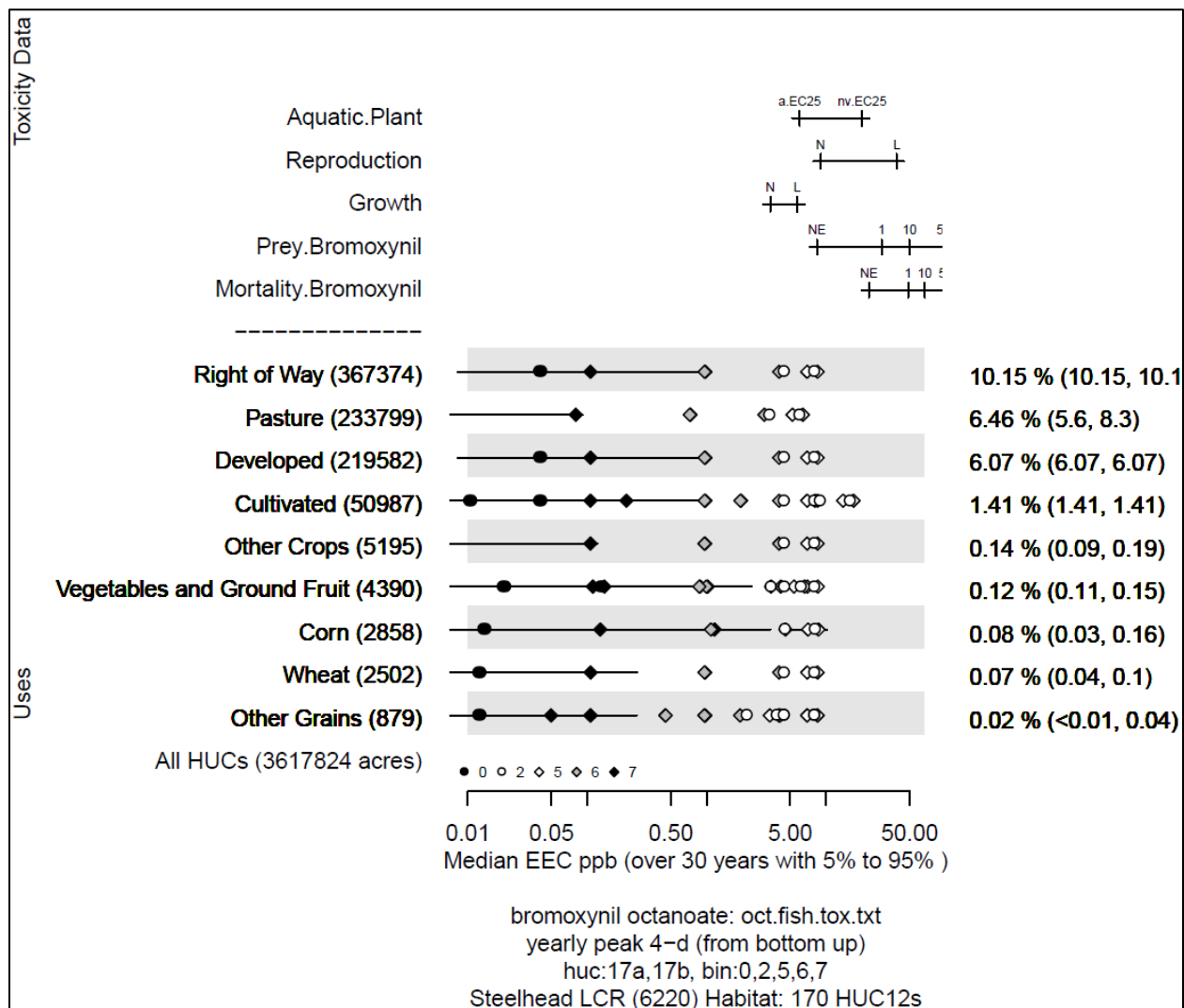


Figure 40. Effects analysis R-plot; Lower Columbia River Steelhead designated critical habitat; aquatic plants.

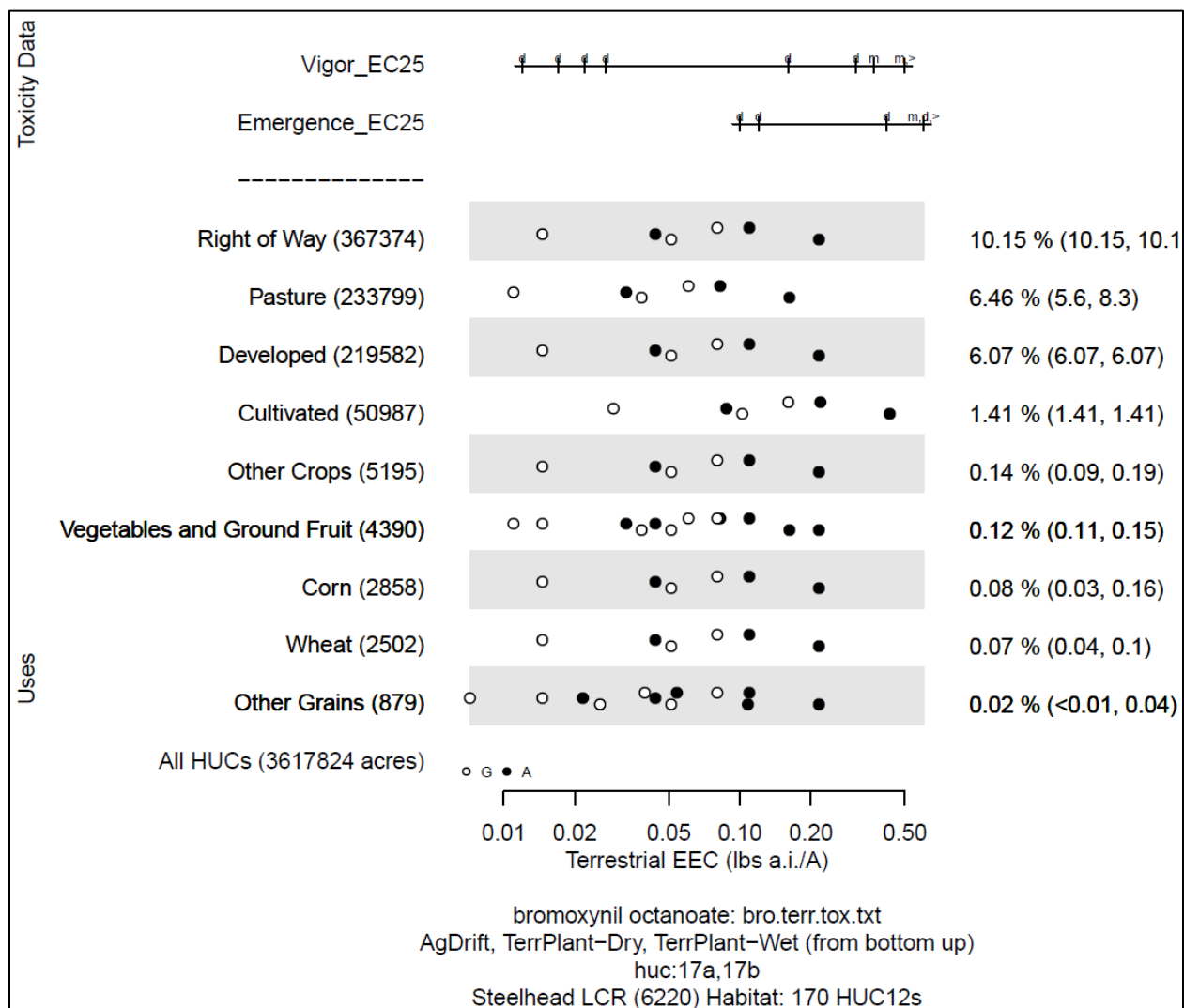


Figure 41. Effects analysis R-plot; Lower Columbia River Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 96. Likelihood of exposure determination for Lower Columbia River Steelhead designated critical habitat.

		<div>Percent Overlap Category</div> <div>Persistence</div> <div>Multiple Applications</div> <div>Proximity Analysis</div> <div>Likelihood of Exposure</div>				
Pasture	1	no	no	NA	Low	
Right of Way	3	no	no	NA	Medium	
Developed	3	no	no	NA	Medium	
Cultivated	1	no	no	NA	Low	
Other Crops	1	no	no	yes	Medium	
Corn	1	no	no	yes	Medium	
Wheat	1	no	no	yes	Medium	
Veg. & Ground Fruit	1	no	no	yes	Medium	
Other Grains	1	no	no	NA	Low	

Table 97. Prey risk hypothesis; Lower Columbia River Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	0.1 (6.5)	Low / Low	Low
Right of Way	10.2	Low / Low	Medium
Developed	6.1	Low / Low	Medium
Fallow; CRP (cultivated)	0.1; 0.8 (1.4)	Medium / Medium	Low
Other Crops	0.1	Low / Low	Medium
Corn	0.1	Low / Low	Medium
Wheat	0.1	Low / Low	Medium
Vegetables and Ground Fruit	0.1	Low / Low	Medium
Other Grains	<0.1	Low / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 98. Vegetative cover risk hypothesis; Lower Columbia River Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)
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Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.1 (6.5)	Medium	Low
Right of Way	10.2	Medium	Medium
Developed	6.1	Medium	Medium
Fallow; CRP (cultivated)	0.1; 0.8 (1.4)	Medium	Low
Other Crops	0.1	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	0.1	Medium	Medium
Vegetables and Ground Fruit	0.1	Medium	Medium
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.1 (6.5)	Medium	Low
Right of Way	10.2	Medium	Medium
Developed	6.1	Medium	Medium
Fallow; CRP (cultivated)	0.1; 0.8 (1.4)	High	Low
Other Crops	0.1	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	0.1	Medium	Medium
Vegetables and Ground Fruit	0.1	Medium	Medium
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 99. Water quality risk hypothesis; Lower Columbia River Steelhead; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 100. Effects analysis summary table; Lower Columbia River Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Lower Columbia River Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.21 Middle Columbia River Steelhead Designated Critical Habitat; Bromoxynil

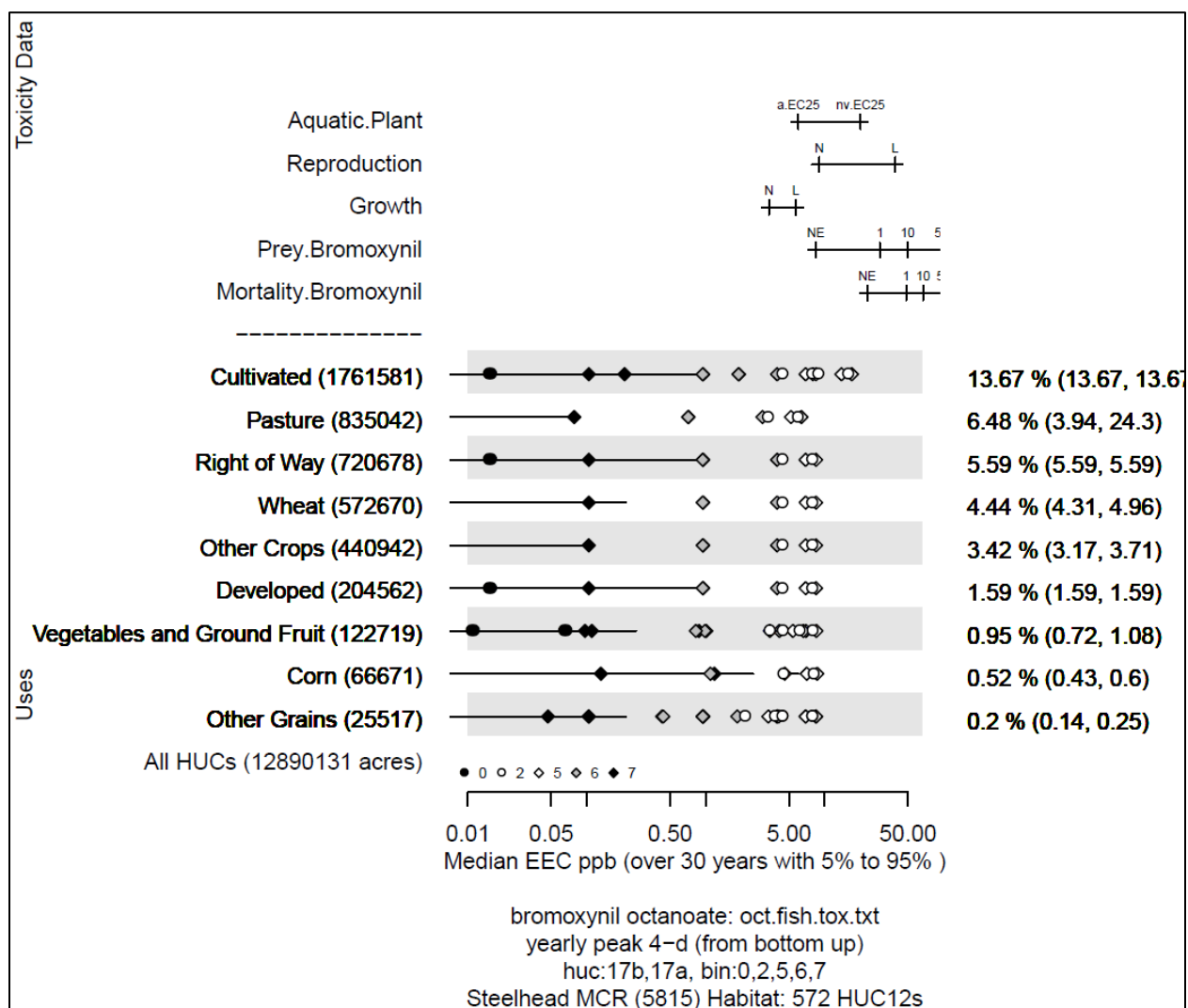


Figure 42. Effects analysis R-plot; Middle Columbia River Steelhead designated critical habitat; aquatic plants.

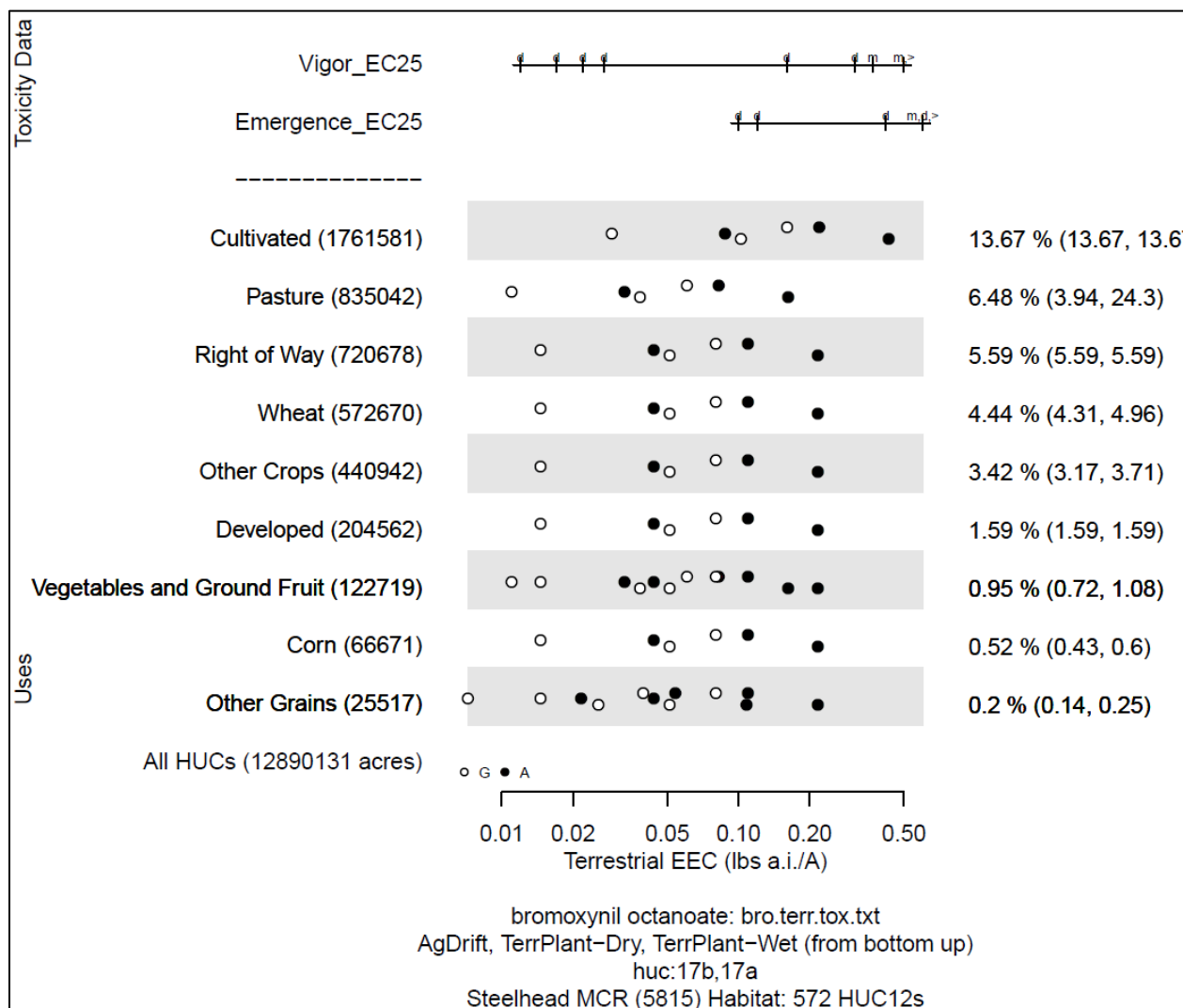


Figure 43. Effects analysis R-plot; Middle Columbia River Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 101. Likelihood of exposure determination for Middle Columbia River Steelhead designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low	
Right of Way	3	no	no	NA	Medium	
Developed	2	no	no	NA	Medium	
Cultivated	2	no	no	NA	Medium	
Other Crops	2	no	no	NA	Medium	
Corn	1	no	no	yes	Medium	
Wheat	2	no	no	NA	Medium	
Veg. & Ground Fruit	1	no	no	yes	Medium	
Other Grains	1	no	no	no	Low	

Table 102. Prey risk hypothesis; Middle Columbia River Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	0.6 (6.5)	Low / Low	Low
Right of Way	5.6	Low / Low	Medium
Developed	1.6	Low / Low	Medium
Fallow; CRP (cultivated)	2.9; 7.4 (13.7)	Medium / Medium	Medium
Other Crops	3.4	Low / Low	Medium
Corn	0.5	Low / Low	Medium
Wheat	4.4	Low / Low	Medium
Vegetables and Ground Fruit	1.0	Low / Low	Medium
Other Grains	0.2	Low / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 103. Vegetative cover risk hypothesis; Middle Columbia River Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)
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Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.6 (6.5)	Medium	Low
Right of Way	5.6	Medium	Medium
Developed	1.6	Medium	Medium
Fallow; CRP (cultivated)	2.9; 7.4 (13.7)	Medium	Medium
Other Crops	3.4	Medium	Medium
Corn	0.5	Medium	Medium
Wheat	4.4	Medium	Medium
Vegetables and Ground Fruit	1.0	Medium	Medium
Other Grains	0.2	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.6 (6.5)	Medium	Low
Right of Way	5.6	Medium	Medium
Developed	1.6	Medium	Medium
Fallow; CRP (cultivated)	2.9; 7.4 (13.7)	High	Medium
Other Crops	3.4	Medium	Medium
Corn	0.5	Medium	Medium
Wheat	4.4	Medium	Medium
Vegetables and Ground Fruit	1.0	Medium	Medium
Other Grains	0.2	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 104. Water quality risk hypothesis; Middle Columbia River Steelhead; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 105. Effects analysis summary table; Middle Columbia River Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Middle Columbia River Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.22 Northern California Steelhead Designated Critical Habitat ; Bromoxynil

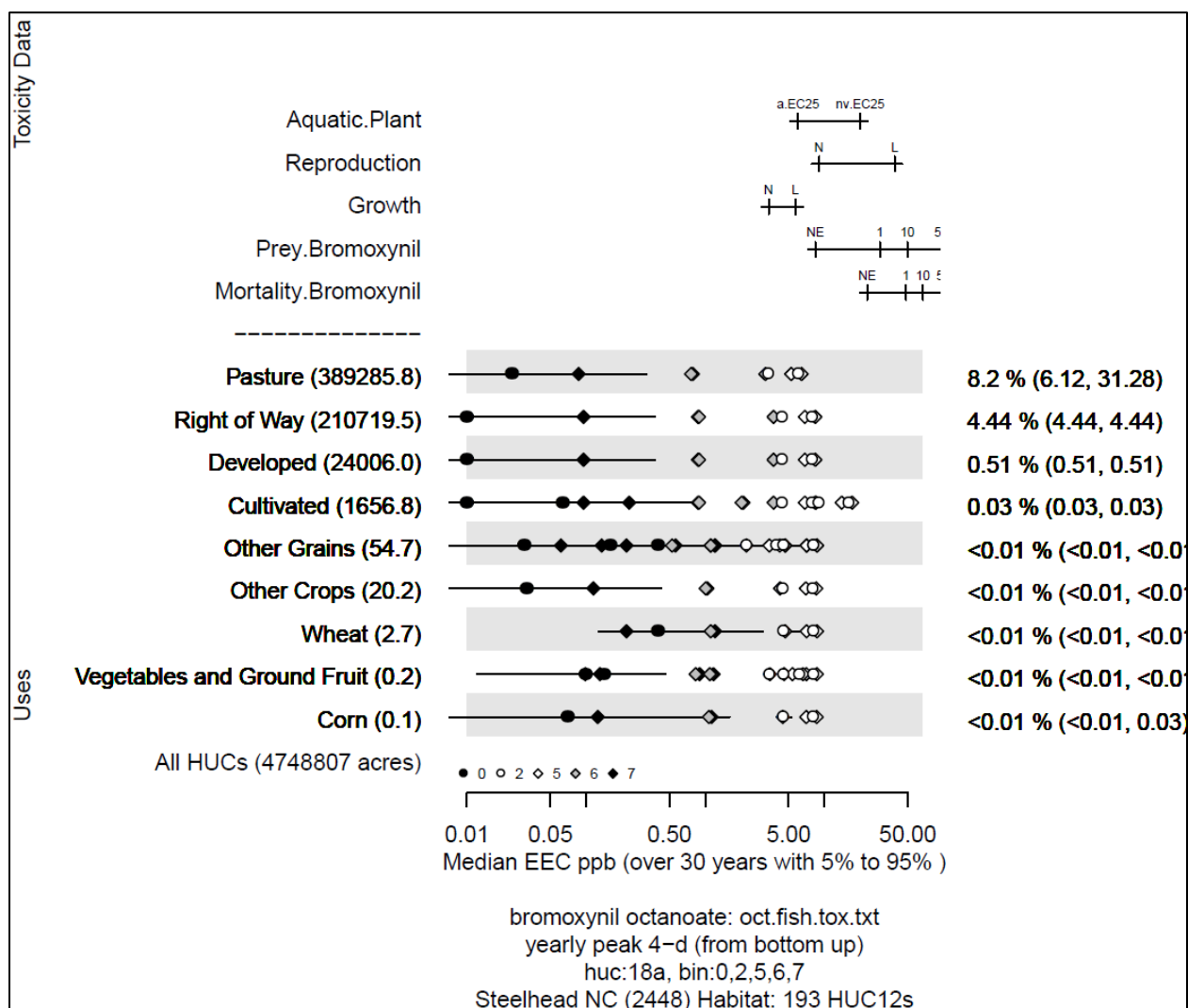


Figure 44. Effects analysis R-plot; Northern California Steelhead designated critical habitat; aquatic plants.

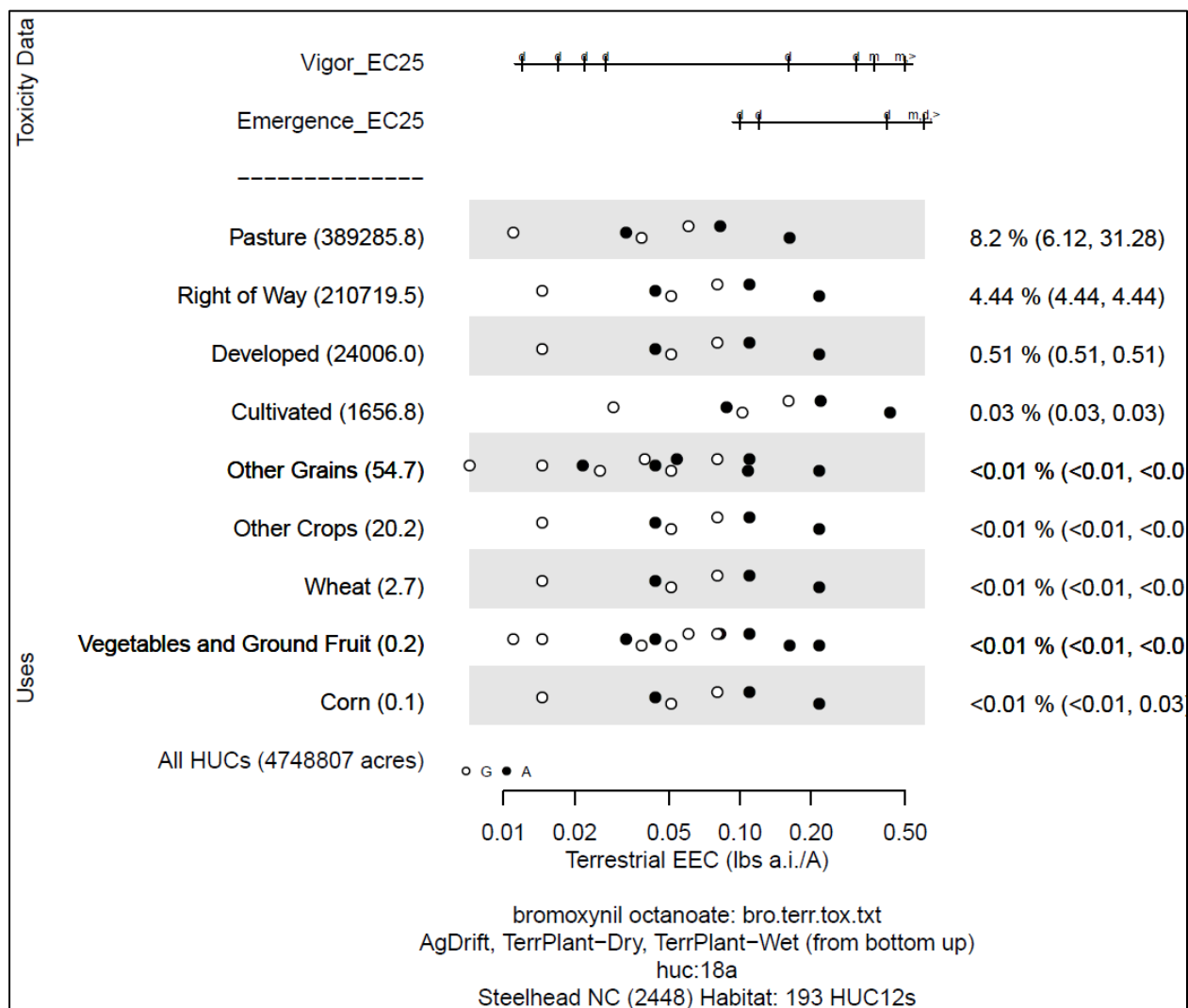


Figure 45. Effects analysis R-plot; Northern California Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 106. Likelihood of exposure determination for Northern California Steelhead designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low
Right of Way	NA	NA	NA	NA	NA
Developed	1	no	no	no	Low
Cultivated	NA	NA	NA	NA	NA
Other Crops	1	no	no	no	Low
Corn	1	no	no	no	Low
Wheat	1	no	no	no	Low
Veg. & Ground Fruit	1	no	no	no	Low
Other Grains	1	no	no	no	Low

Table 107. Prey risk hypothesis; Northern California Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	0.1 (8.2)	Low / Low	Low
Right of Way	NA	NA	NA
Developed	0.5	Low / Low	Low
Cultivated	NA	NA	NA
Other Crops	<0.1	Low / Low	Low
Corn	<0.1	Low / Low	Low
Wheat	<0.1	Low / Low	Low
Vegetables and Ground Fruit	<0.1	Low / Low	Low
Other Grains	<0.1	Low / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 108. Vegetative cover risk hypothesis; Northern California Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			

Alfalfa (pasture)	0.1 (8.2)	Medium	Low
Right of Way	NA	NA	NA
Developed	0.5	Medium	Low
Cultivated	NA	NA	NA
Other Crops	<0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.1 (8.2)	Medium	Low
Right of Way	NA	NA	NA
Developed	0.5	Medium	Low
Cultivated	NA	NA	NA
Other Crops	<0.1	Medium	Low
Corn	<0.1	Medium	Low
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	<0.1	Medium	Low
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 109. Water quality risk hypothesis; Northern California Steelhead; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.

Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

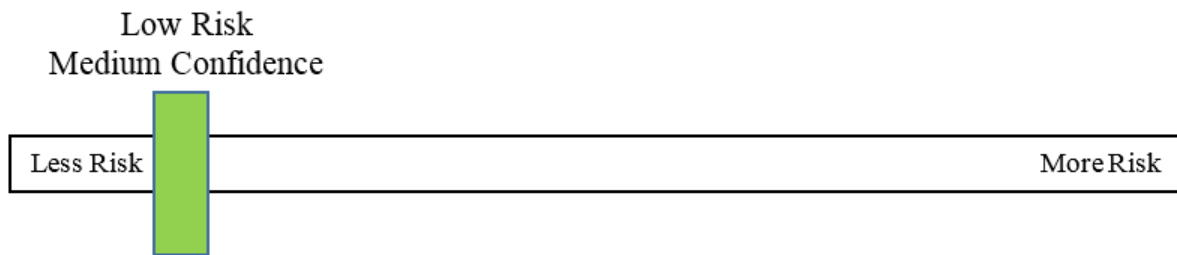
Table 110. Effects analysis summary table; Northern California Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Northern California Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk

is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.23 Puget Sound Steelhead Designated Critical Habitat; Bromoxynil

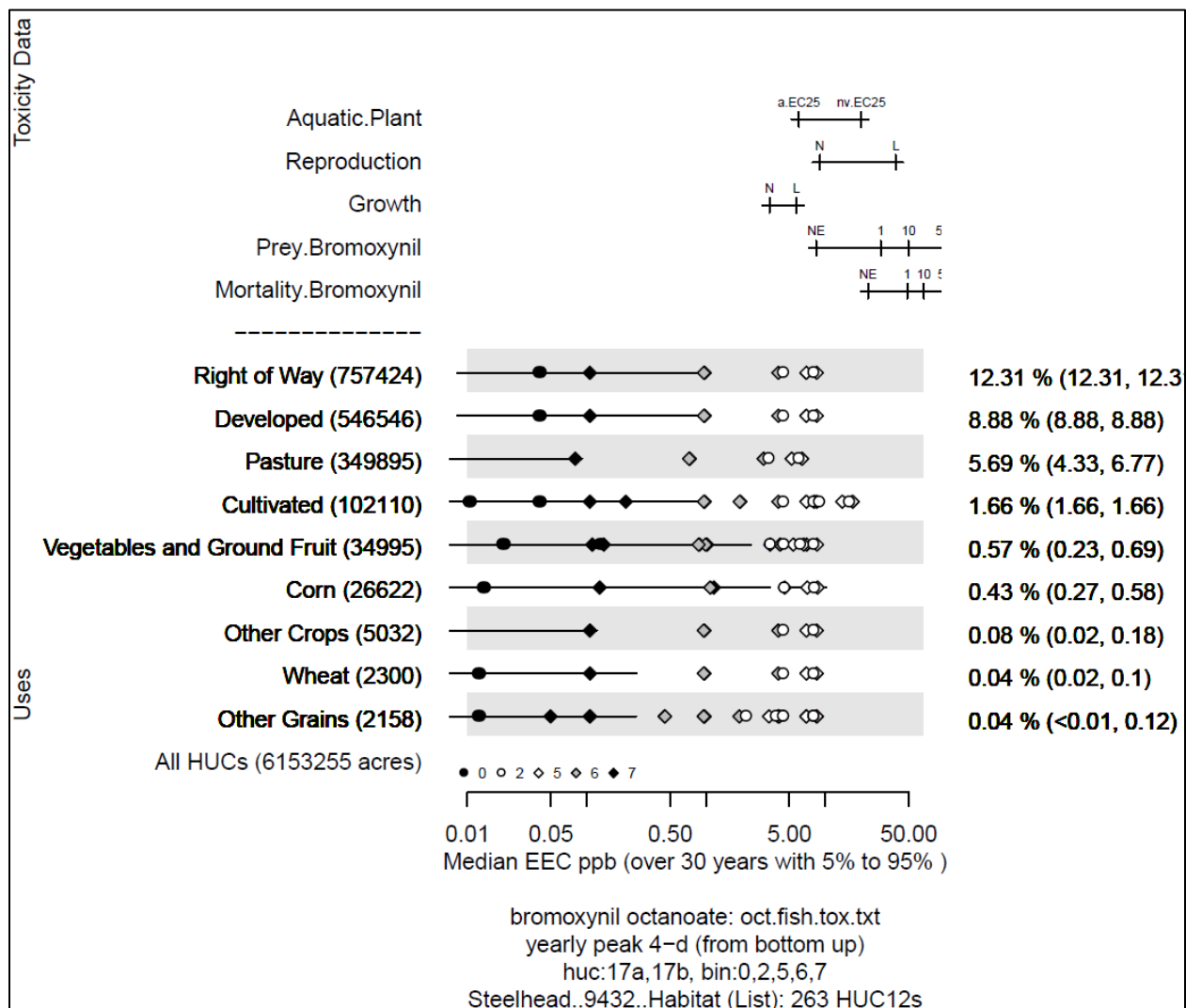


Figure 46. Effects analysis R-plot; Puget Sound Steelhead designated critical habitat; aquatic plants.

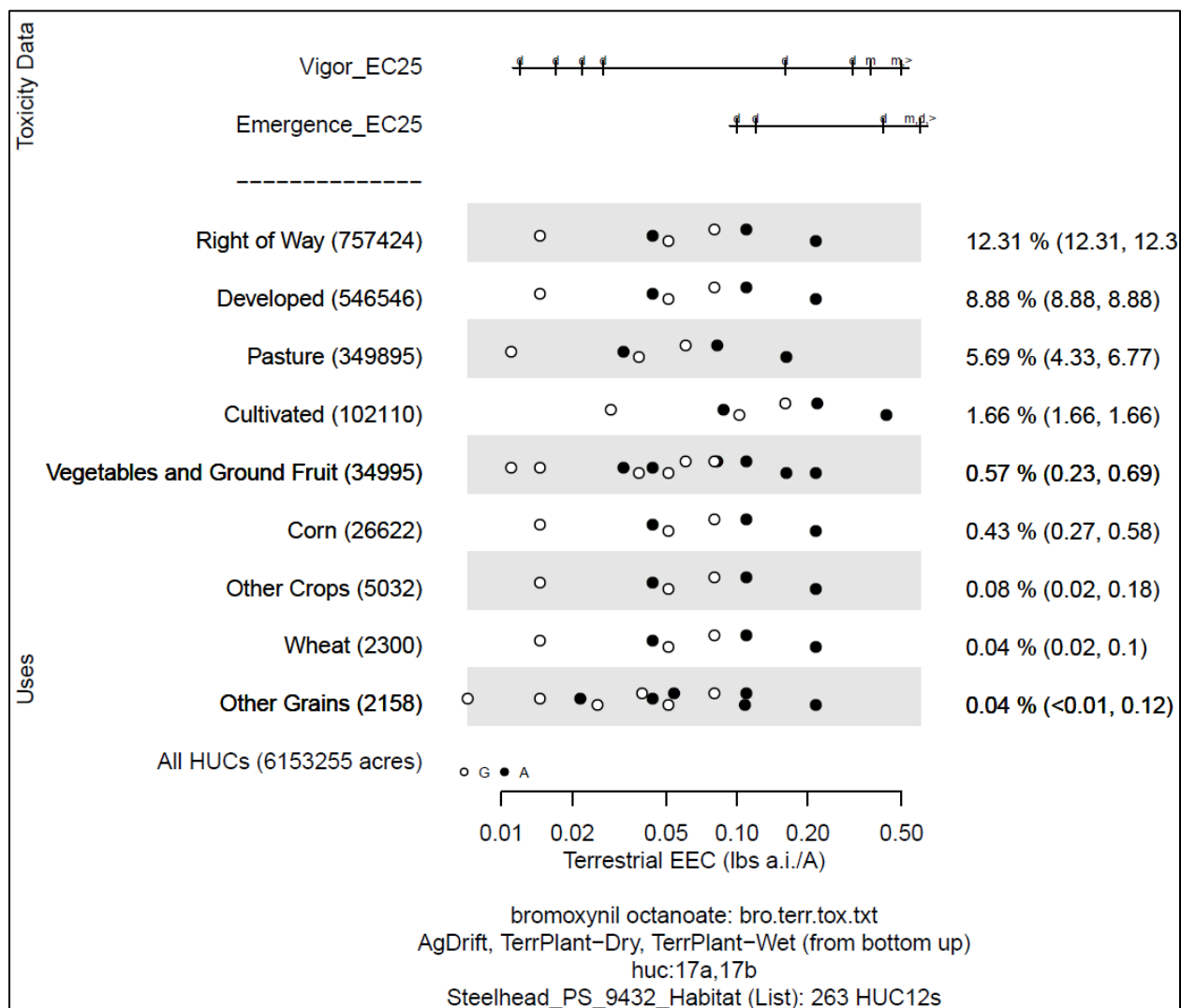


Figure 47. Effects analysis R-plot; Puget Sound Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 111. Likelihood of exposure determination for Puget Sound Steelhead designated critical habitat.

		<div>Percent Overlap Category</div> <div>Persistence</div> <div>Multiple Applications</div> <div>Proximity Analysis</div> <div>Likelihood of Exposure</div>				
Land Use	Pasture	1	no	no	NA	Low
	Right of Way	3	no	no	NA	Medium
	Developed	3	no	no	NA	Medium
	Cultivated	1	no	no	NA	Low
	Other Crops	1	no	no	no	Low
	Corn	1	no	no	yes	Medium
	Wheat	1	no	no	no	Low
	Veg. & Ground Fruit	1	no	no	yes	Medium
	Other Grains	1	no	no	no	Low

Table 112. Prey risk hypothesis; Puget Sound Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	<0.1 (5.7)	Low / Low	Low
Right of Way	12.3	Low / Low	Medium
Developed	8.9	Low / Low	Medium
Fallow; CRP (cultivated)	<0.1; 1.4 (1.7)	Medium / Medium	Low
Other Crops	0.1	Low / Low	Low
Corn	0.4	Low / Low	Medium
Wheat	<0.1	Low / Low	Low
Vegetables and Ground Fruit	0.6	Low / Low	Medium
Other Grains	<0.1	Low / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 113. Vegetative cover risk hypothesis; Puget Sound Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure

Aquatic			
Alfalfa (pasture)	<0.1 (5.7)	Medium	Low
Right of Way	12.3	Medium	Medium
Developed	8.9	Medium	Medium
Fallow; CRP (cultivated)	<0.1; 1.4 (1.7)	Medium	Low
Other Crops	0.1	Medium	Low
Corn	0.4	Medium	Medium
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	0.6	Medium	Medium
Other Grains	<0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	<0.1 (5.7)	Medium	Low
Right of Way	12.3	Medium	Medium
Developed	8.9	Medium	Medium
Fallow; CRP (cultivated)	<0.1; 1.4 (1.7)	High	Low
Other Crops	0.1	Medium	Low
Corn	0.4	Medium	Medium
Wheat	<0.1	Medium	Low
Vegetables and Ground Fruit	0.6	Medium	Medium
Other Grains	<0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 114. Water quality risk hypothesis; Puget Sound Steelhead; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases

with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 115. Effects analysis summary table; Puget Sound Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Puget Sound Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is

medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.24 Snake River Basin Steelhead Designated Critical Habitat; Bromoxynil

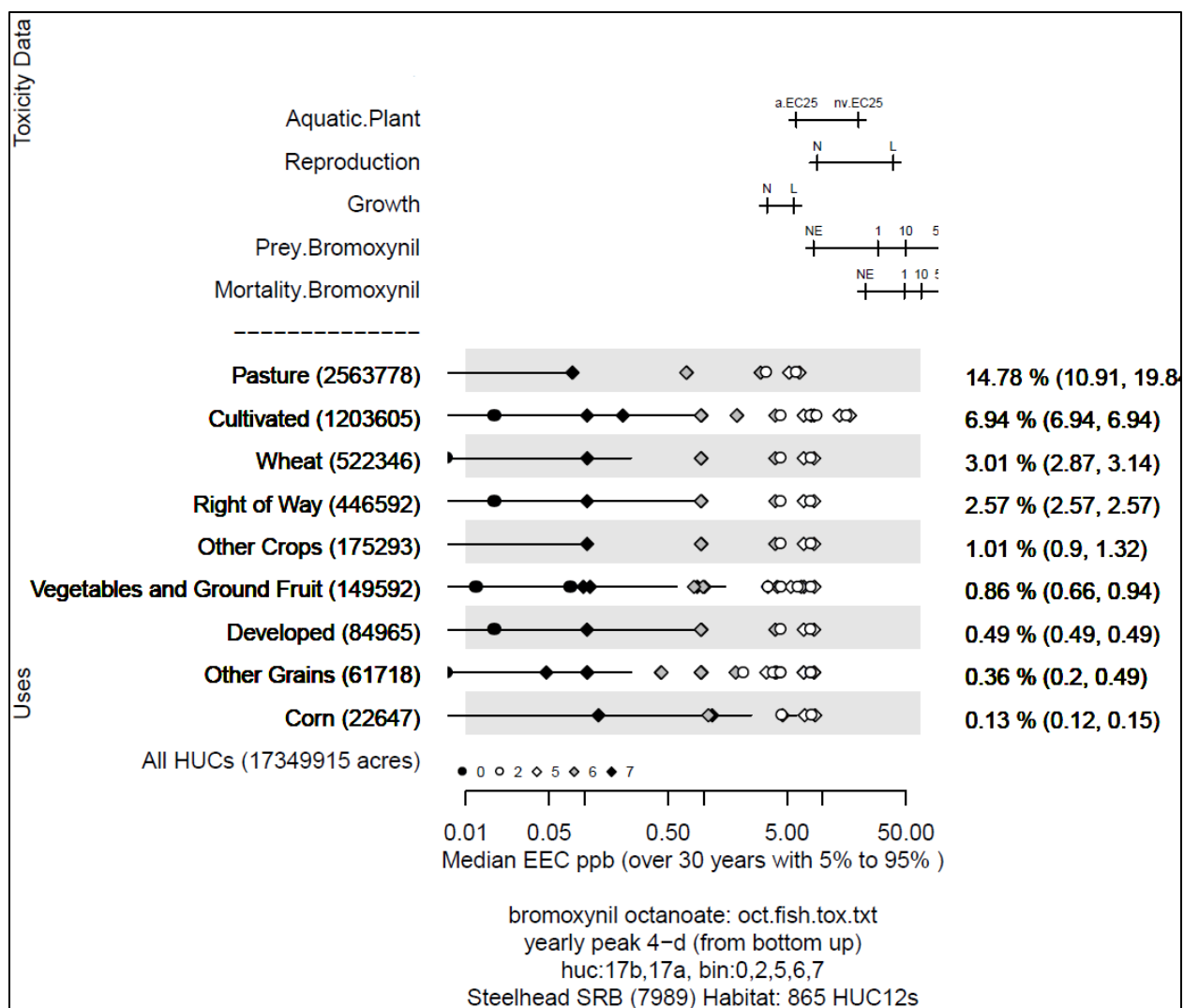


Figure 48. Effects analysis R-plot; Snake River Basin Steelhead designated critical habitat; aquatic plants.

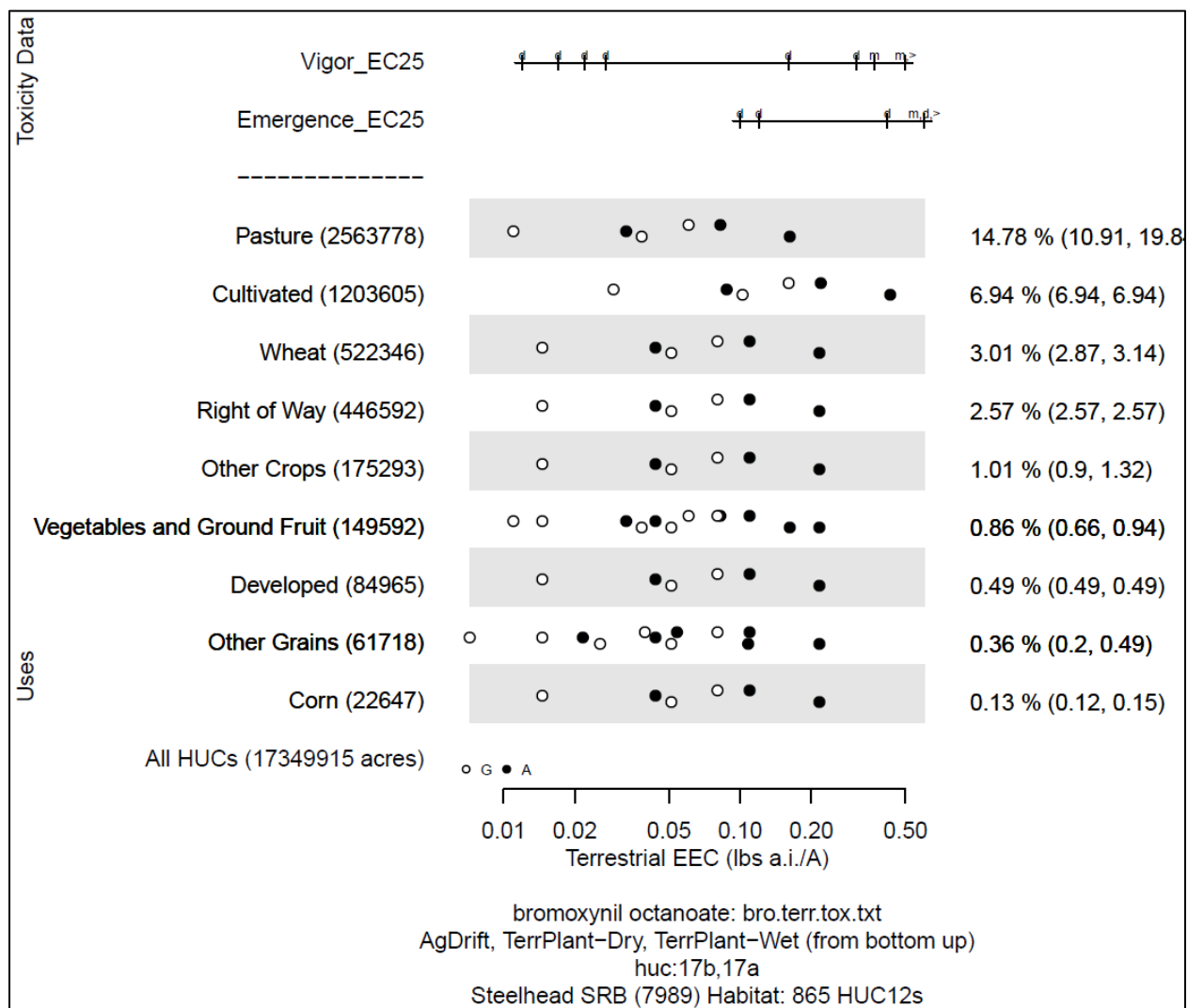


Figure 49. Effects analysis R-plot; Snake River Basin Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 116. Likelihood of exposure determination for Snake River Basin Steelhead designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	2	no	no	NA	Medium	
Right of Way	2	no	no	NA	Medium	
Developed	1	no	no	no	Low	
Cultivated	2	no	no	NA	Medium	
Other Crops	2	no	no	NA	Medium	
Corn	1	no	no	yes	Medium	
Wheat	2	no	no	NA	Medium	
Veg. & Ground Fruit	1	no	no	yes	Medium	
Other Grains	1	no	no	no	Low	

Table 117. Prey risk hypothesis; Snake River Basin Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	1.0 (14.8)	Low / Low	Medium
Right of Way	2.6	Low / Low	Medium
Developed	0.5	Low / Low	Low
Fallow; CRP (cultivated)	1.3; 9.8 (6.9)	Medium / Medium	Medium
Other Crops	1.0	Low / Low	Medium
Corn	0.1	Low / Low	Medium
Wheat	3.0	Low / Low	Medium
Vegetables and Ground Fruit	0.9	Low / Low	Medium
Other Grains	0.4	Low / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 118. Vegetative cover risk hypothesis; Snake River Basin Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure

Aquatic			
Alfalfa (pasture)	1.0 (14.8)	Medium	Medium
Right of Way	2.6	Medium	Medium
Developed	0.5	Medium	Low
Fallow; CRP (cultivated)	1.3; 9.8 (6.9)	Medium	Medium
Other Crops	1.0	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	3.0	Medium	Medium
Vegetables and Ground Fruit	0.9	Medium	Medium
Other Grains	0.4	Medium	Low
Terrestrial			
Alfalfa (pasture)	1.0 (14.8)	Medium	Medium
Right of Way	2.6	Medium	Medium
Developed	0.5	Medium	Low
Fallow; CRP (cultivated)	1.3; 9.8 (6.9)	High	Medium
Other Crops	1.0	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	3.0	Medium	Medium
Vegetables and Ground Fruit	0.9	Medium	Medium
Other Grains	0.4	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 119. Water quality risk hypothesis; Snake River Basin Steelhead; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases

with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 120. Effects analysis summary table; Snake River Basin Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Snake River Basin Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk

is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.25 South Central California Coast Steelhead Designated Critical Habitat; Bromoxynil

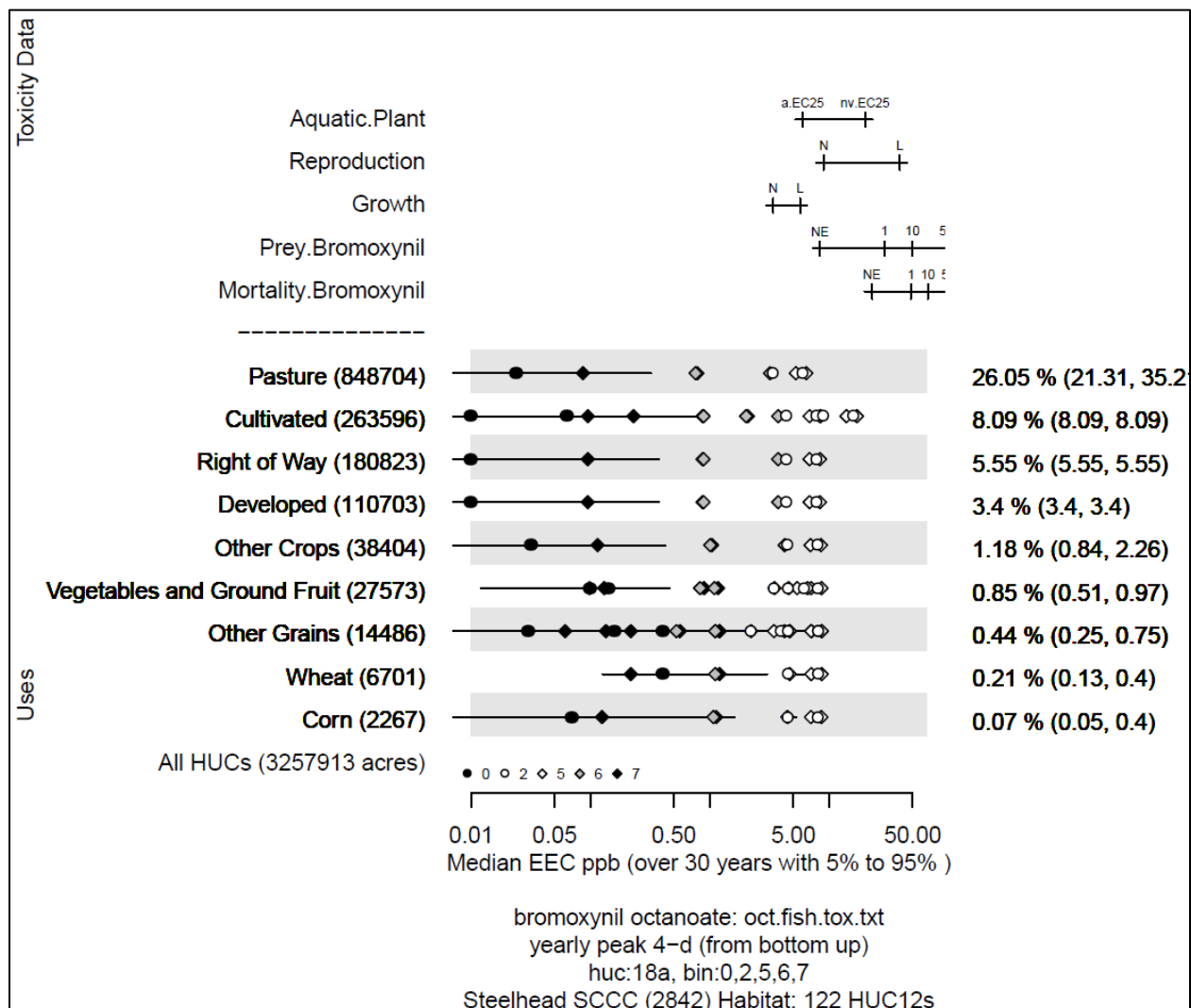


Figure 50. Effects analysis R-plot; South Central California Coast Steelhead designated critical habitat; aquatic plants.

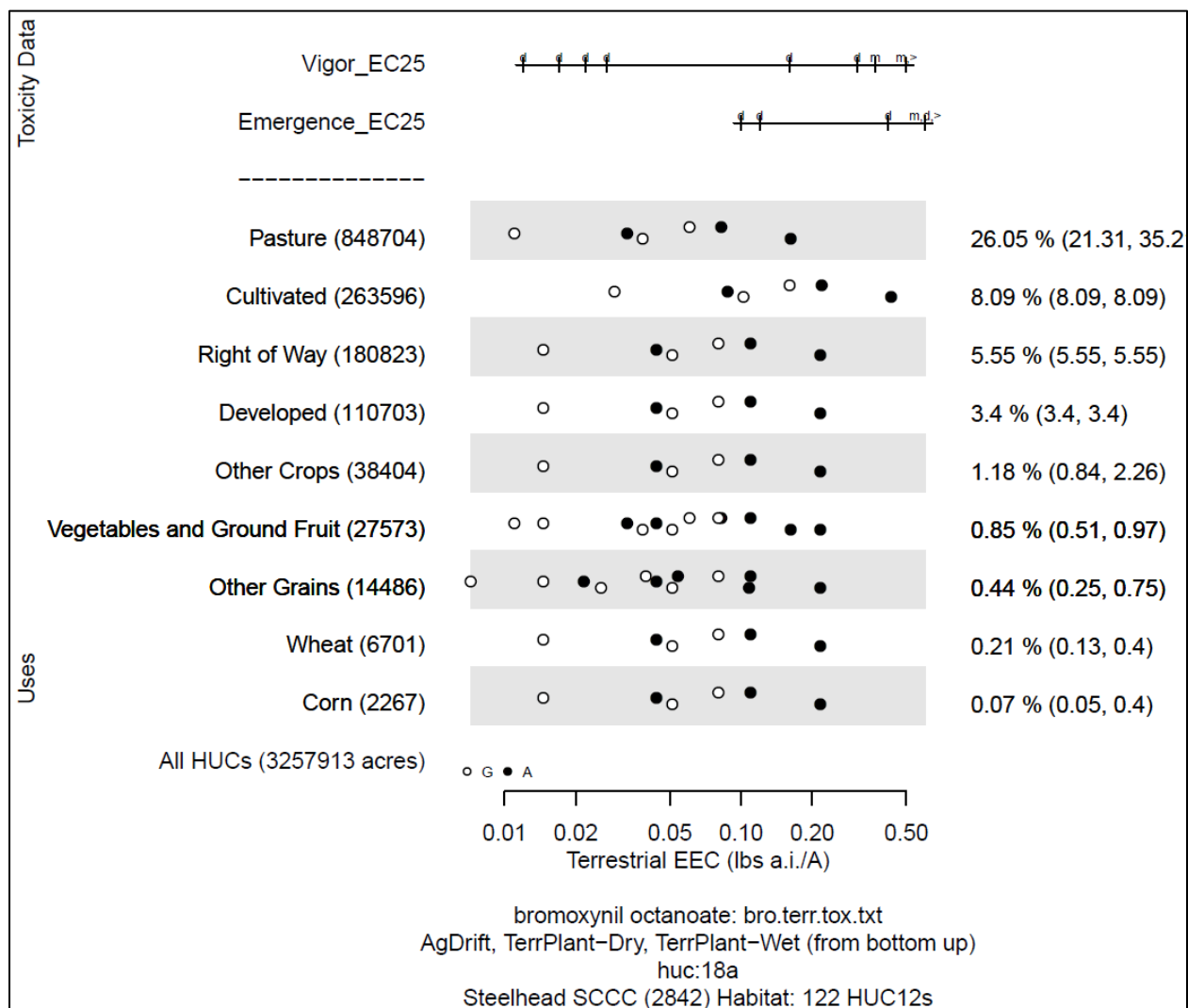


Figure 51. Effects analysis R-plot; South Central California Coast Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 121. Likelihood of exposure determination for South Central California Coast Steelhead designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low
Right of Way	NA	NA	NA	NA	NA
Developed	2	no	no	NA	Medium
Cultivated	NA	NA	NA	NA	NA
Other Crops	2	no	no	NA	Medium
Corn	1	no	no	yes	Medium
Wheat	1	no	no	yes	Medium
Veg. & Ground Fruit	1	no	no	yes	Medium
Other Grains	1	no	no	yes	Medium

Table 122. Prey risk hypothesis; South Central California Coast Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	<0.1 (26.1)	Low / Low	Low
Right of Way	NA	NA	NA
Developed	3.4	Low / Low	Medium
Cultivated	NA	NA	NA
Other Crops	1.2	Low / Low	Medium
Corn	0.1	Low / Low	Medium
Wheat	0.2	Low / Low	Medium
Vegetables and Ground Fruit	0.9	Low / Low	Medium
Other Grains	0.4	Low / Low	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 123. Vegetative cover risk hypothesis; South Central California Coast Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure

Aquatic			
Alfalfa (pasture)	<0.1 (26.1)	Medium	Low
Right of Way	NA	NA	NA
Developed	3.4	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	1.2	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	0.2	Medium	Medium
Vegetables and Ground Fruit	0.9	Medium	Medium
Other Grains	0.4	Medium	Medium
Terrestrial			
Alfalfa (pasture)	<0.1 (26.1)	Medium	Low
Right of Way	NA	NA	NA
Developed	3.4	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	1.2	Medium	Medium
Corn	0.1	Medium	Medium
Wheat	0.2	Medium	Medium
Vegetables and Ground Fruit	0.9	Medium	Medium
Other Grains	0.4	Medium	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 124. Water quality risk hypothesis; South Central California Coast Steelhead; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated

critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 125. Effects analysis summary table; South Central California Coast Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of South Central California Coast Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity

endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.26 Southern California Steelhead Designated Critical Habitat; Bromoxynil

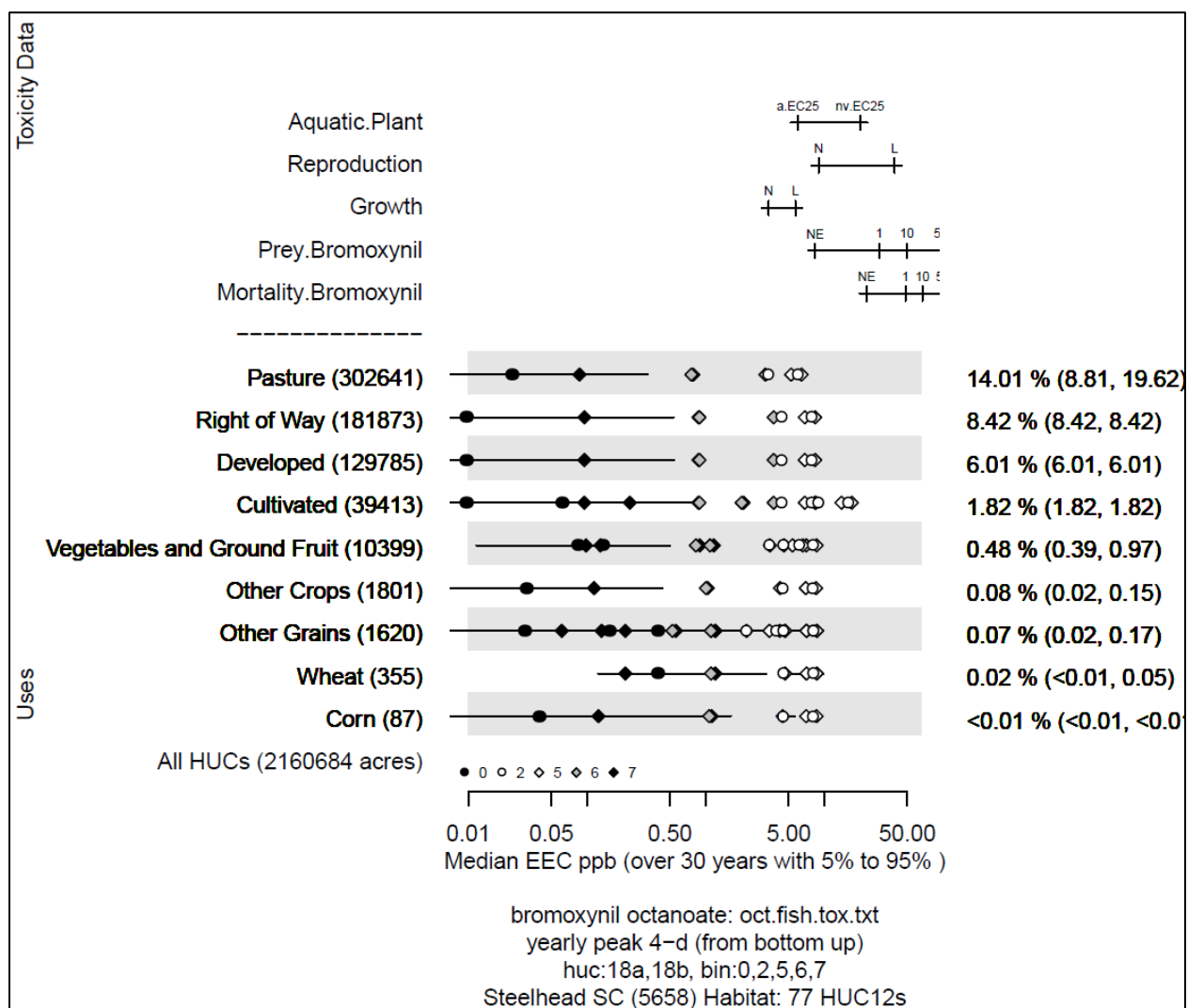


Figure 52. Effects analysis R-plot; Southern California Steelhead designated critical habitat; aquatic plants.

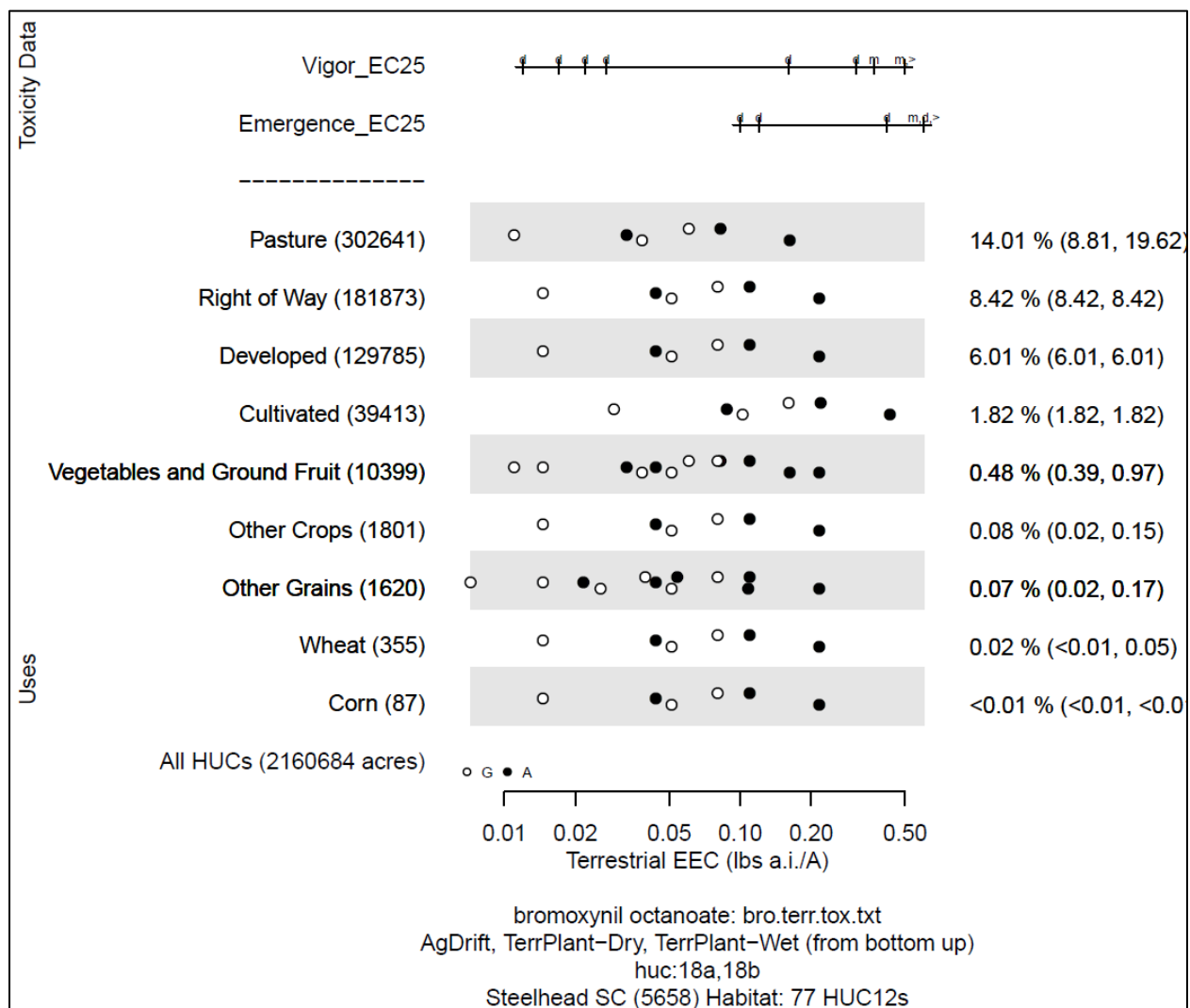


Figure 53. Effects analysis R-plot; Southern California Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 126. Likelihood of exposure determination for Southern California Steelhead designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Pasture	1	no	no	NA	Low
Right of Way	NA	NA	NA	NA	NA
Developed	3	no	no	NA	Medium
Cultivated	NA	NA	NA	NA	NA
Other Crops	1	no	no	no	Low
Corn	1	no	no	no	Low
Wheat	1	no	no	no	Low
Veg. & Ground Fruit	1	no	no	yes	Medium
Other Grains	1	no	no	yes	Medium

Table 127. Prey risk hypothesis; Southern California Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	<0.1 (14.0)	Low / Low	Low
Right of Way	NA	NA	NA
Developed	6.0	Low / Low	Medium
Cultivated	NA	NA	NA
Other Crops	0.1	Low / Low	Low
Corn	<0.01	Low / Low	Low
Wheat	0.02	Low / Low	Low
Vegetables and Ground Fruit	0.5	Low / Low	Medium
Other Grains	0.1	Low / Low	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 128. Vegetative cover risk hypothesis; Southern California Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			

Alfalfa (pasture)	<0.1 (14.0)	Medium	Low
Right of Way	NA	NA	NA
Developed	6.0	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	0.1	Medium	Low
Corn	<0.01	Medium	Low
Wheat	0.02	Medium	Low
Vegetables and Ground Fruit	0.5	Medium	Medium
Other Grains	0.1	Medium	Medium
Terrestrial			
Alfalfa (pasture)	<0.1 (14.0)	Medium	Low
Right of Way	NA	NA	NA
Developed	6.0	Medium	Medium
Cultivated	NA	NA	NA
Other Crops	0.1	Medium	Low
Corn	<0.01	Medium	Low
Wheat	0.02	Medium	Low
Vegetables and Ground Fruit	0.5	Medium	Medium
Other Grains	0.1	Medium	Medium
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 129. Water quality risk hypothesis; Southern California Steelhead; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.

Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 130. Effects analysis summary table; Southern California Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Southern California Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk

is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.27 Upper Columbia River Steelhead Designated Critical Habitat; Bromoxynil

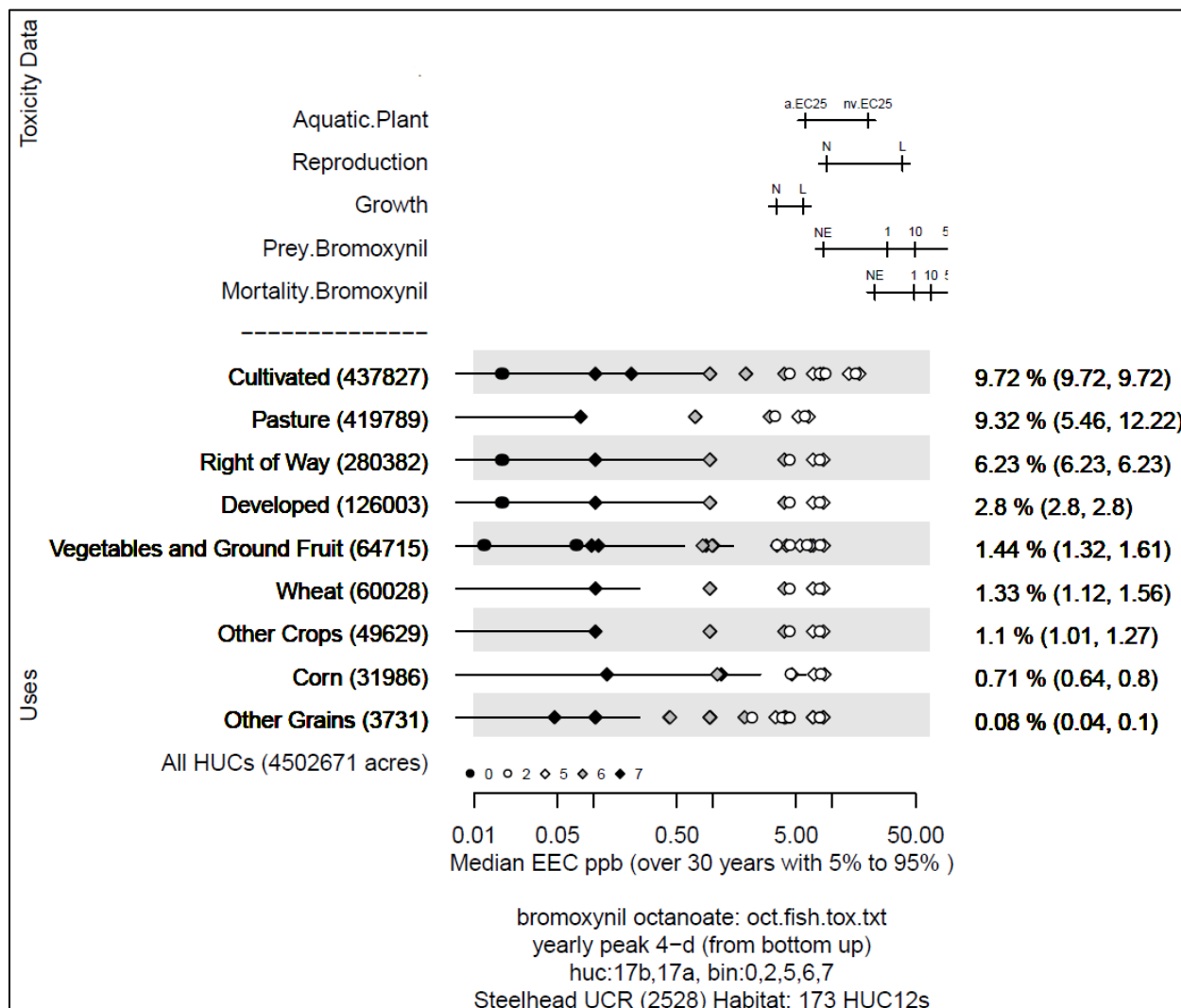


Figure 54. Effects analysis R-plot; Upper Columbia River Steelhead designated critical habitat; aquatic plants.

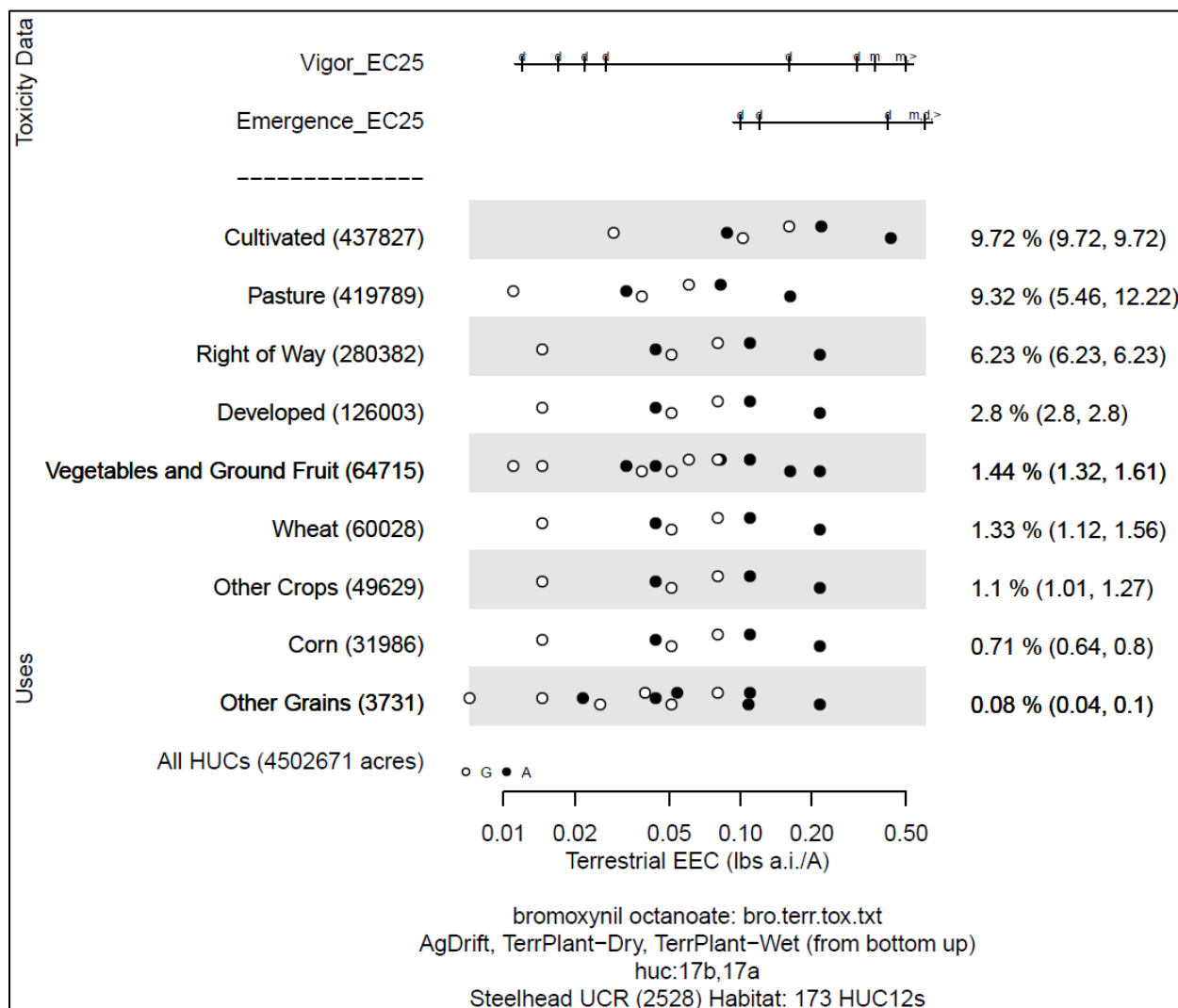


Figure 55. Effects analysis R-plot; Upper Columbia River Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 131. Likelihood of exposure determination for Upper Columbia River Steelhead designated critical habitat.

		<div>Percent Overlap Category</div> <div>Persistence</div> <div>Multiple Applications</div> <div>Proximity Analysis</div> <div>Likelihood of Exposure</div>				
Pasture	2	no	no	NA	Medium	
Right of Way	3	no	no	NA	Medium	
Developed	2	no	no	NA	Medium	
Cultivated	2	no	no	NA	Medium	
Other Crops	2	no	no	NA	Medium	
Corn	1	no	no	yes	Medium	
Wheat	2	no	no	NA	Medium	
Veg. & Ground Fruit	2	no	no	NA	Medium	
Other Grains	1	no	no	no	Low	

Table 132. Prey risk hypothesis; Upper Columbia River Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	1.1 (9.3)	Low / Low	Medium
Right of Way	6.2	Low / Low	Medium
Developed	2.8	Low / Low	Medium
Fallow; CRP (cultivated)	2.2; 10.8 (9.7)	Medium / Medium	Medium
Other Crops	1.1	Low / Low	Medium
Corn	0.7	Low / Low	Medium
Wheat	1.3	Low / Low	Medium
Vegetables and Ground Fruit	1.4	Low / Low	Medium
Other Grains	0.1	Low / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 133. Vegetative cover risk hypothesis; Upper Columbia River Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)
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Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	1.1 (9.3)	Medium	Medium
Right of Way	6.2	Medium	Medium
Developed	2.8	Medium	Medium
Fallow; CRP (cultivated)	2.2; 10.8 (9.7)	Medium	Medium
Other Crops	1.1	Medium	Medium
Corn	0.7	Medium	Medium
Wheat	1.3	Medium	Medium
Vegetables and Ground Fruit	1.4	Medium	Medium
Other Grains	0.1	Medium	Low
Terrestrial			
Alfalfa (pasture)	1.1 (9.3)	Medium	Medium
Right of Way	6.2	Medium	Medium
Developed	2.8	Medium	Medium
Fallow; CRP (cultivated)	2.2; 10.8 (9.7)	High	Medium
Other Crops	1.1	Medium	Medium
Corn	0.7	Medium	Medium
Wheat	1.3	Medium	Medium
Vegetables and Ground Fruit	1.4	Medium	Medium
Other Grains	0.1	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 134. Water quality risk hypothesis; Upper Columbia River Steelhead; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 135. Effects analysis summary table; Upper Columbia River Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Upper Columbia River Steelhead designated critical habitat. The anticipated bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.2.28 Upper Willamette River Steelhead Designated Critical Habitat; Bromoxynil

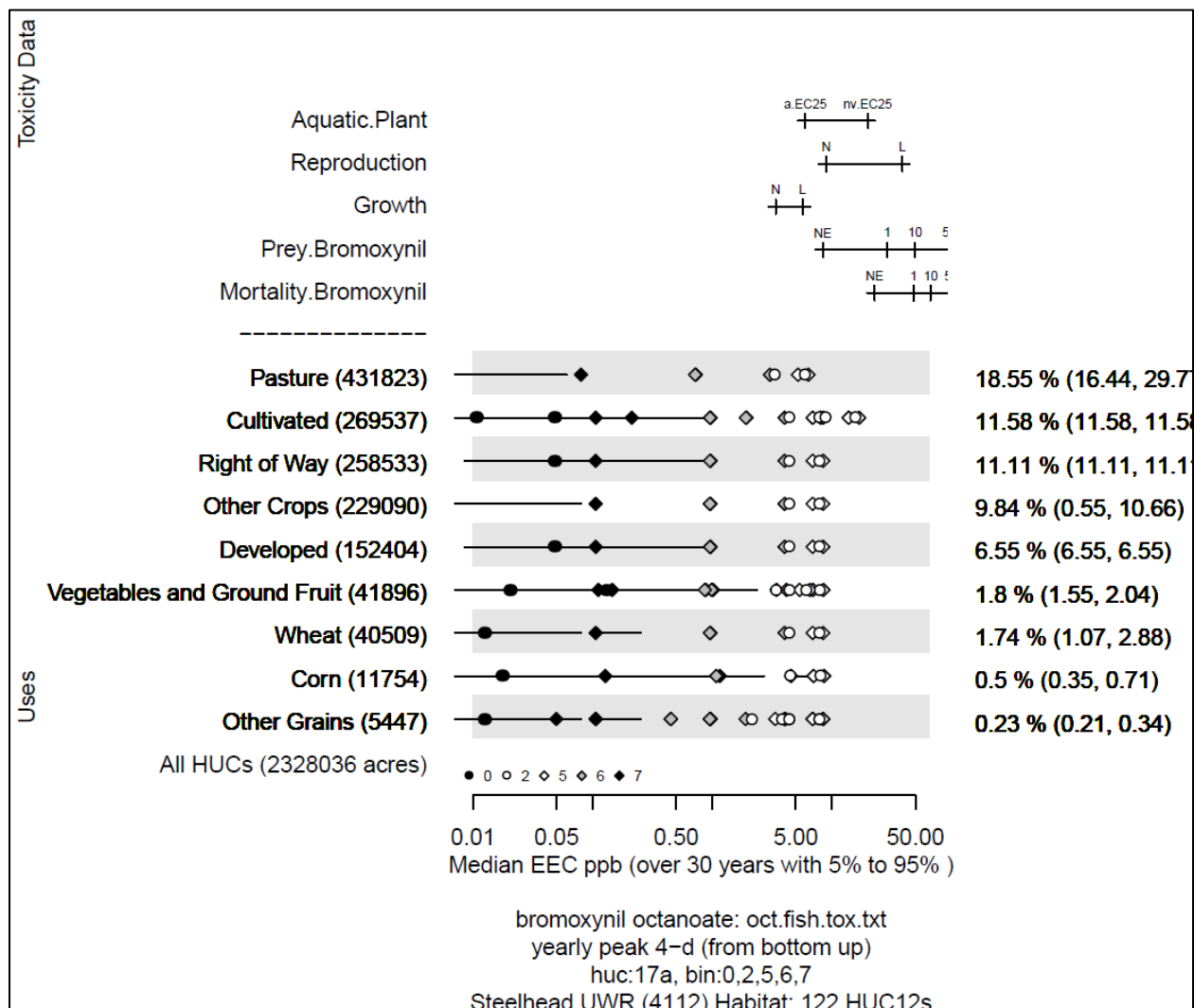


Figure 56. Effects analysis R-plot; Upper Willamette River Steelhead designated critical habitat; aquatic plants.

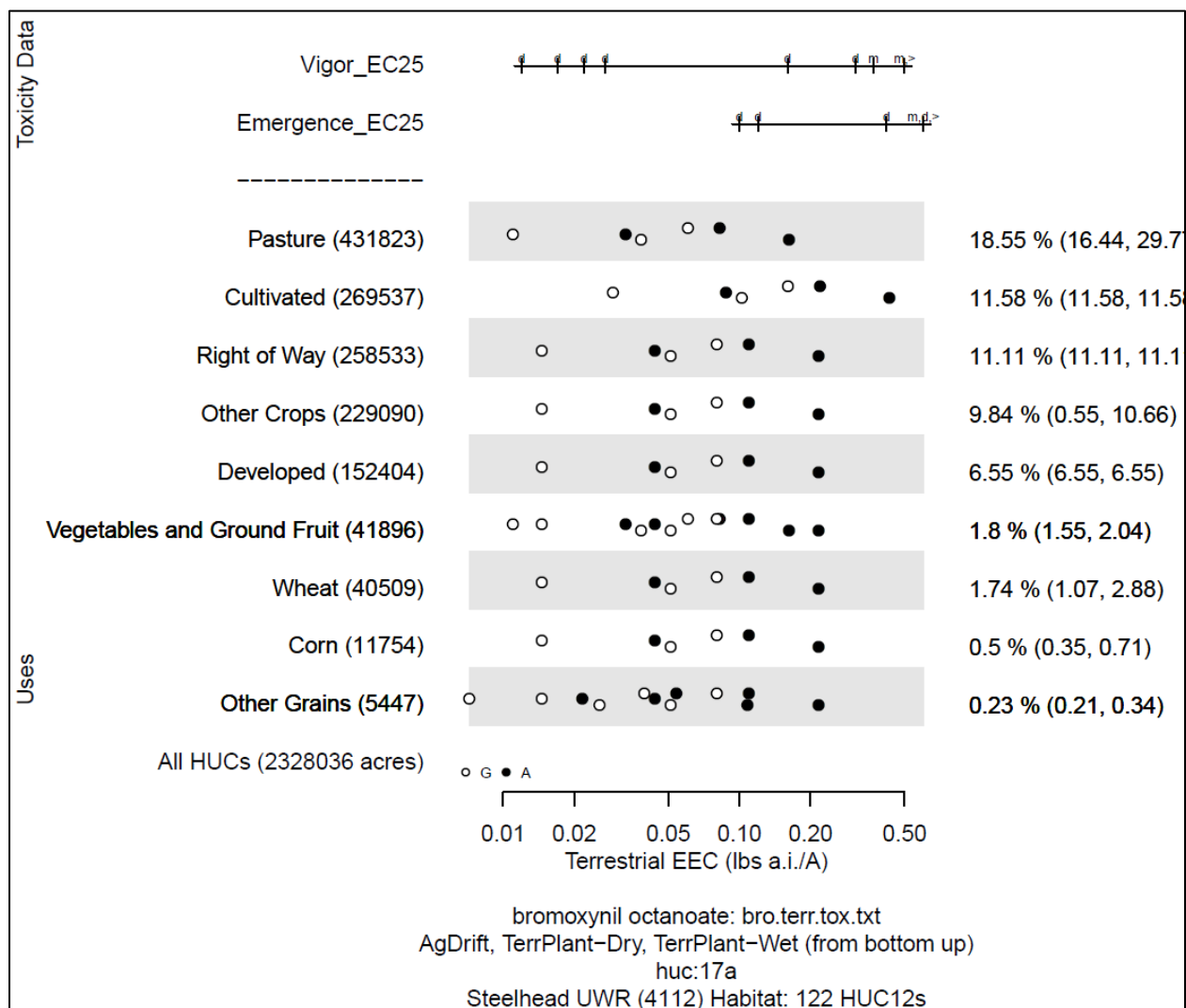


Figure 57. Effects analysis R-plot; Upper Willamette River Steelhead designated critical habitat; terrestrial plants riparian habitat.

Table 136. Likelihood of exposure determination for Upper Willamette River Steelhead designated critical habitat.

		<div>Percent Overlap Category</div> <div>Persistence</div> <div>Multiple Applications</div> <div>Proximity Analysis</div> <div>Likelihood of Exposure</div>				
Pasture	1	no	no	NA	Low	
Right of Way	3	no	no	NA	Medium	
Developed	3	no	no	NA	Medium	
Cultivated	1	no	no	NA	Low	
Other Crops	3	no	no	NA	Medium	
Corn	1	no	no	no	Low	
Wheat	2	no	no	NA	Medium	
Veg. & Ground Fruit	2	no	no	NA	Medium	
Other Grains	1	no	no	no	Low	

Table 137. Prey risk hypothesis; Upper Willamette River Steelhead; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Alfalfa (pasture)	0.7 (18.6)	Low / Low	Low
Right of Way	11.1	Low / Low	Medium
Developed	6.6	Low / Low	Medium
Fallow; CRP (cultivated)	0.4; 0.6 (11.6)	Medium / Medium	Low
Other Crops	9.8	Low / Low	Medium
Corn	0.5	Low / Low	Low
Wheat	1.7	Low / Low	Medium
Vegetables and Ground Fruit	1.8	Low / Low	Medium
Other Grains	0.2	Low / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 138. Vegetative cover risk hypothesis; Upper Willamette River Steelhead designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)
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Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Alfalfa (pasture)	0.7 (18.6)	Medium	Low
Right of Way	11.1	Medium	Medium
Developed	6.6	Medium	Medium
Fallow; CRP (cultivated)	0.4; 0.6 (11.6)	Medium	Low
Other Crops	9.8	Medium	Medium
Corn	0.5	Medium	Low
Wheat	1.7	Medium	Medium
Vegetables and Ground Fruit	1.8	Medium	Medium
Other Grains	0.2	Medium	Low
Terrestrial			
Alfalfa (pasture)	0.7 (18.6)	Medium	Low
Right of Way	11.1	Medium	Medium
Developed	6.6	Medium	Medium
Fallow; CRP (cultivated)	0.4; 0.6 (11.6)	High	Low
Other Crops	9.8	Medium	Medium
Corn	0.5	Medium	Low
Wheat	1.7	Medium	Medium
Vegetables and Ground Fruit	1.8	Medium	Medium
Other Grains	0.2	Medium	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 139. Water quality risk hypothesis; Upper Willamette River Steelhead; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated bromoxynil levels in designated critical habitat may be sufficient to impact some aquatic invertebrates. Some adverse effects to aquatic vegetation may occur, however, they will be limited in both the extent of exposure and the magnitude of effect. Although authorized uses sites occur within the species designated critical habitat, there are only marginal exceedances of maximum exposure values with the lower end of the plant and invertebrate toxicity distributions. As such, degradation to water quality affecting aquatic plants and invertebrates is anticipated to occur only minimally in some areas. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Medium	Low	

Table 140. Effects analysis summary table; Upper Willamette River Steelhead; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of Upper Willamette River Steelhead designated critical habitat. The anticipated

bromoxynil levels in this designated critical habitat may be sufficient to impact aquatic invertebrates and may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal exceedances of toxicity endpoints. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3 Prometryn Effects Analysis

15.3.1 Columbia River Chum Salmon (*O. keta*) Designated Critical Habitat; Prometryn

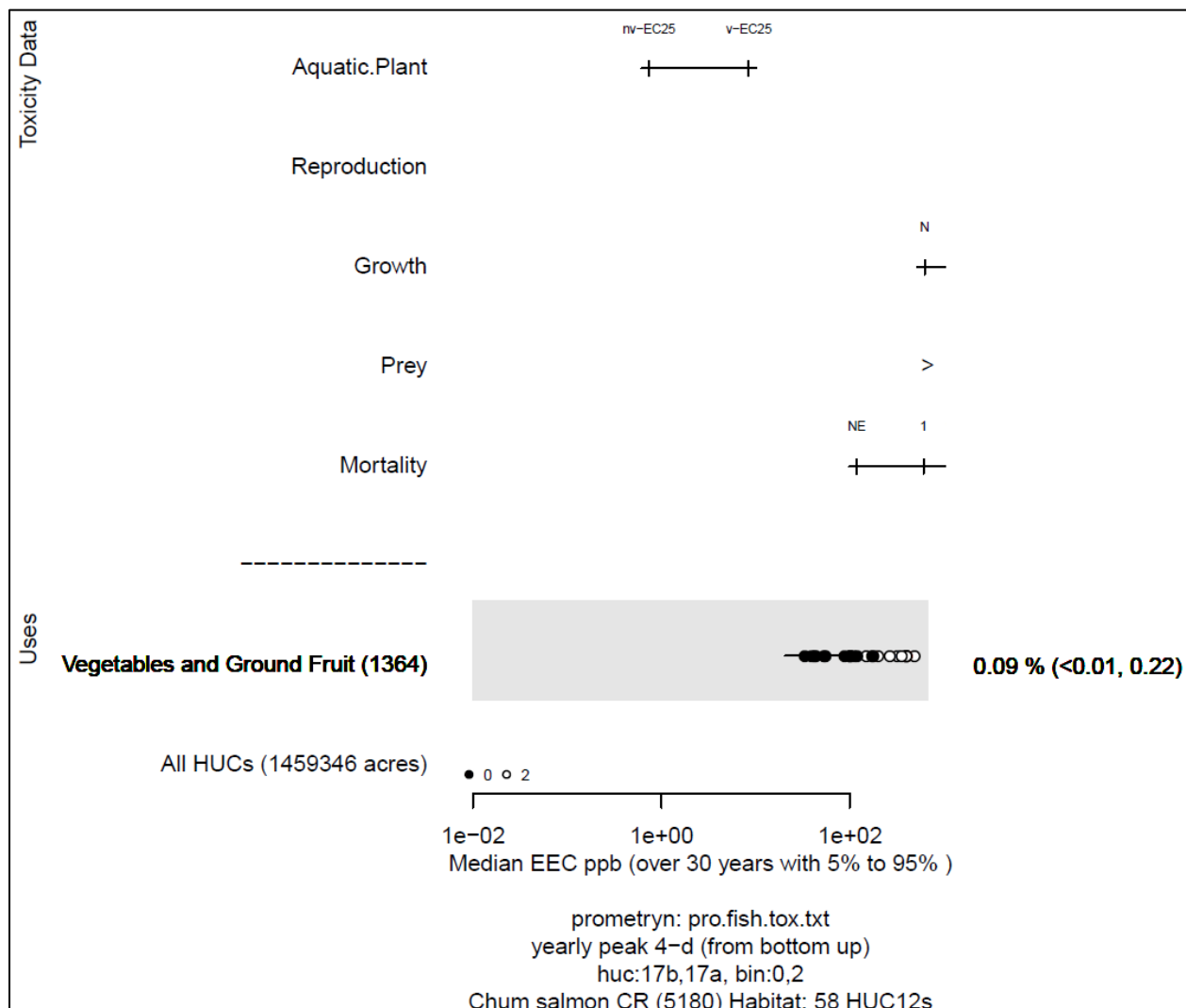


Figure 58. Effects analysis R-plot; chum salmon, Columbia River ESU designated critical habitat; aquatic plants.

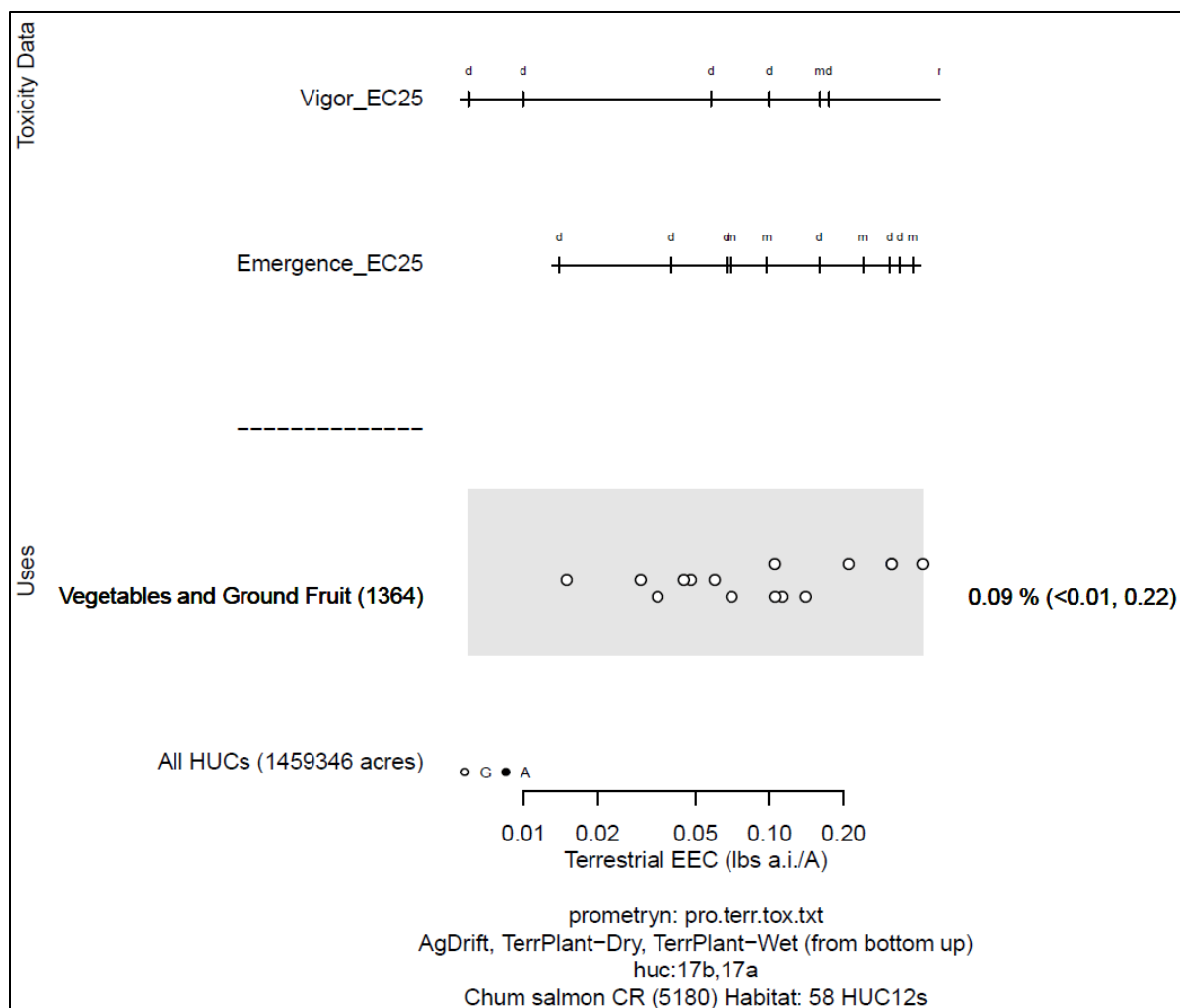


Figure 59. Effects analysis R-plot; chum salmon, Columbia River ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 141. Likelihood of exposure determination for chum salmon, Columbia River ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	NA	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	High	High

Table 142. Prey risk hypothesis; chum salmon, Columbia River ESU designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.09	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 143. Vegetative cover risk hypothesis; chum salmon, Columbia River ESU designated critical habitat.

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.09	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0.09	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 144. Water quality risk hypothesis; chum salmon, Columbia River ESU designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat (e.g. Suavie Island, OR); authorized use sites total approximately 1,364 acres (less than 0.1 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 145. Effects analysis summary table; chum salmon, Columbia River ESU designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Columbia River Chum designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.2 Hood Canal summer-run Chum (*O. keta*) Designated Critical Habitat; Prometryn

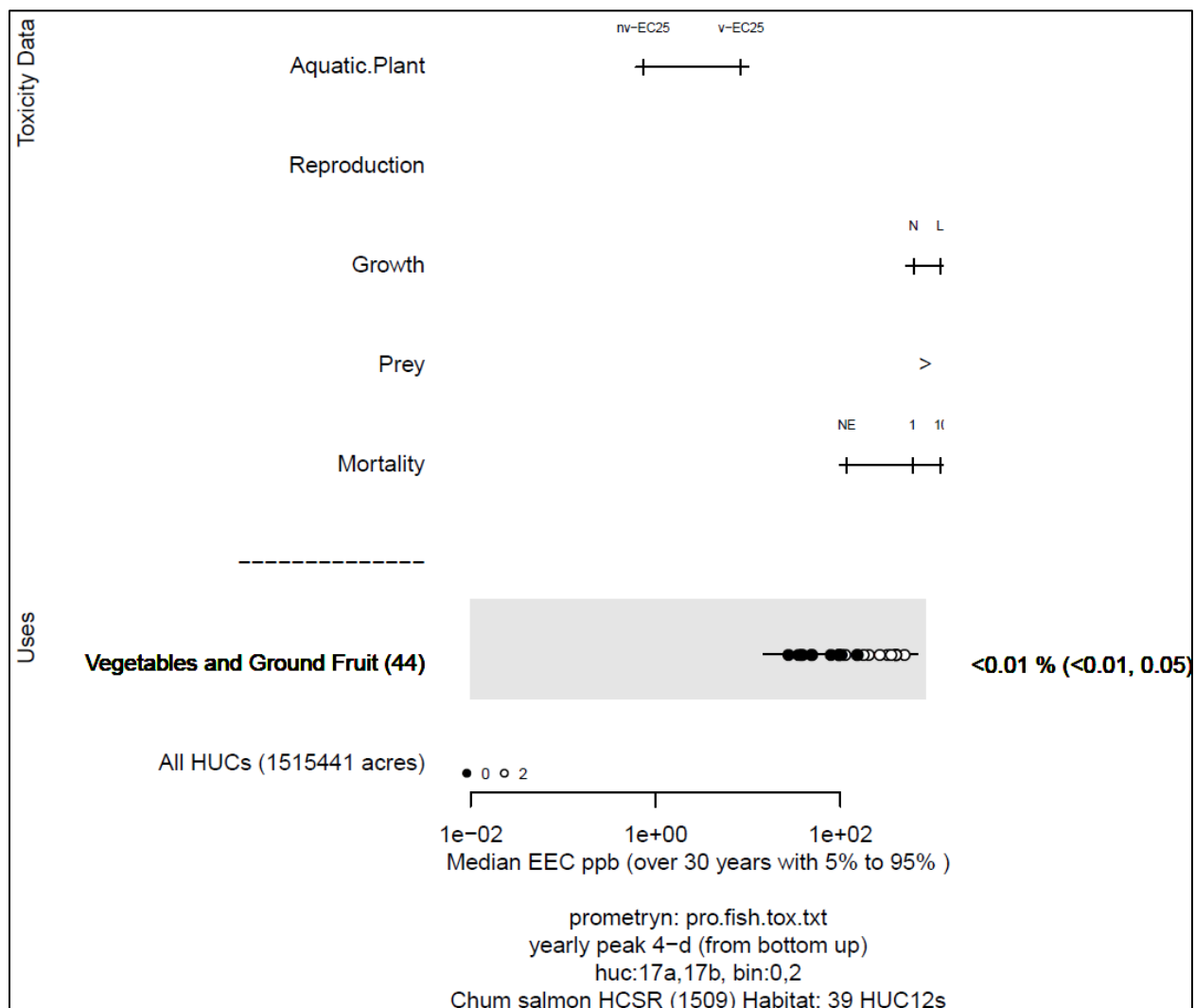


Figure 60. Effects analysis R-plot; chum salmon, Hood-Canal summer-run ESU designated critical habitat; aquatic plants.

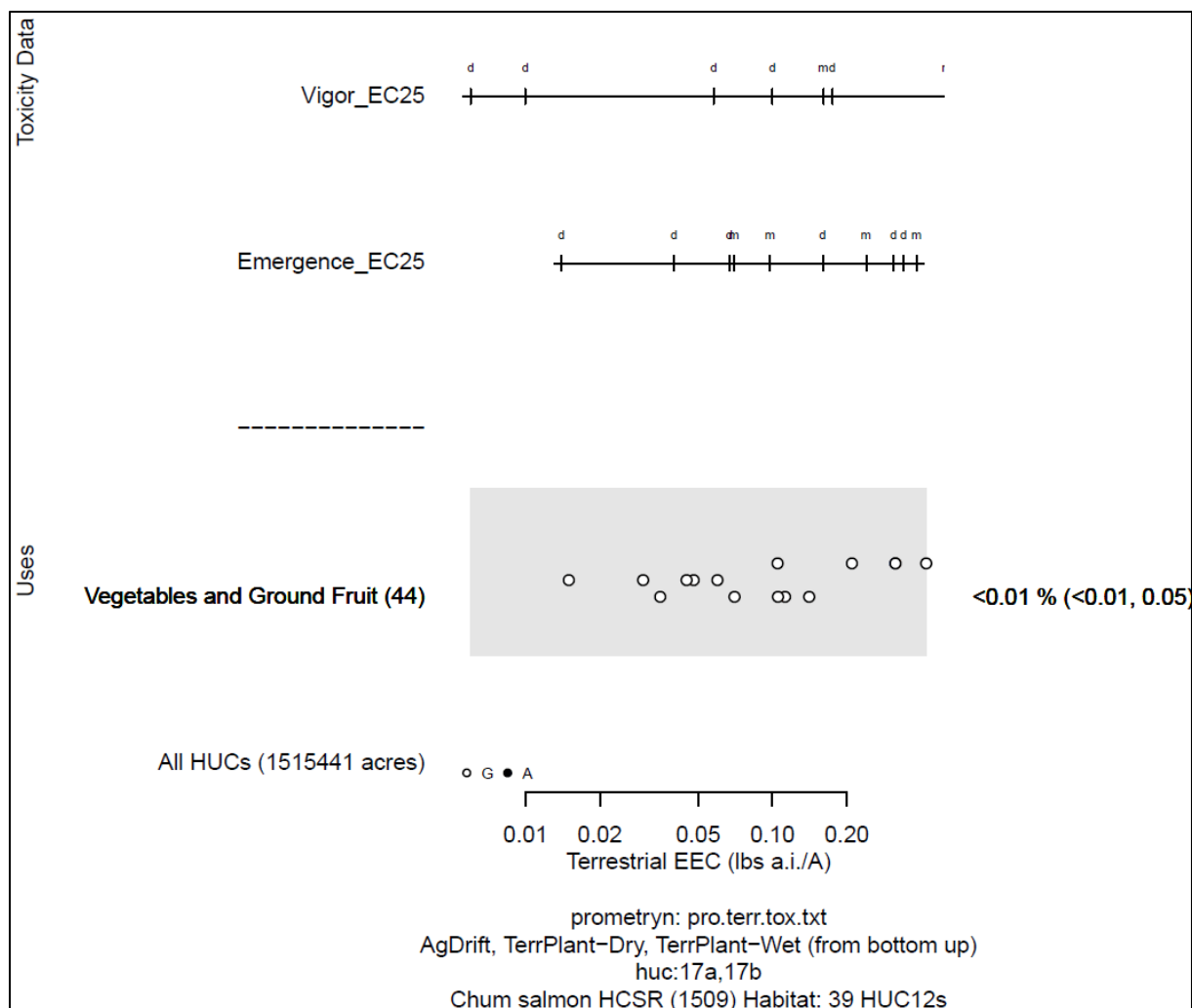


Figure 61. Effects analysis R-plot; chum salmon, Hood-Canal summer-run ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 146. Likelihood of exposure determination for chum salmon, Hood-Canal summer-run ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	NA	NA	NA	NA	NA	
Veg. & Ground Fruit	1	yes	yes	no	Low	

Table 147. Prey Risk Hypothesis; Chum salmon, Hood Canal summer-run ESU designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	< 0.01	None Expected	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	< 0.01	High	Low
Terrestrial			
Cotton	0		
Vegetables and Ground Fruit	< 0.01	High	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 148. Water quality risk hypothesis; Chum salmon, Hood Canal summer-run ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are not expected to adversely affect aquatic or terrestrial vegetation. The likelihood of attaining toxic concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of

prometryn-containing products occur only minimally within the species' designated critical habitat and are not proximal to sensitive areas; authorized use sites total approximately 44 acres (less than 0.01 percent of acres); as such, water quality is not anticipated to be impacted measurably throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

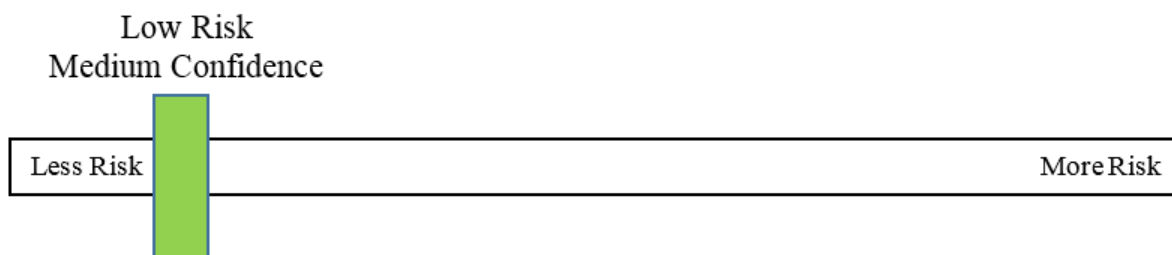
Table 149. Effects analysis summary table; chum salmon, Hood Canal summer-run ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Hood Canal summer-run Chum designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish locally, but are not anticipated to impact aquatic invertebrates or vegetative cover. Overall the

risk is low and the confidence associated with that risk is medium due to the exposures predicted in critical habitats over the 15-year duration of the action.



**15.3.3 California Coastal Chinook (*O. tshawytscha*) Designated Critical Habitat;
Prometryn**

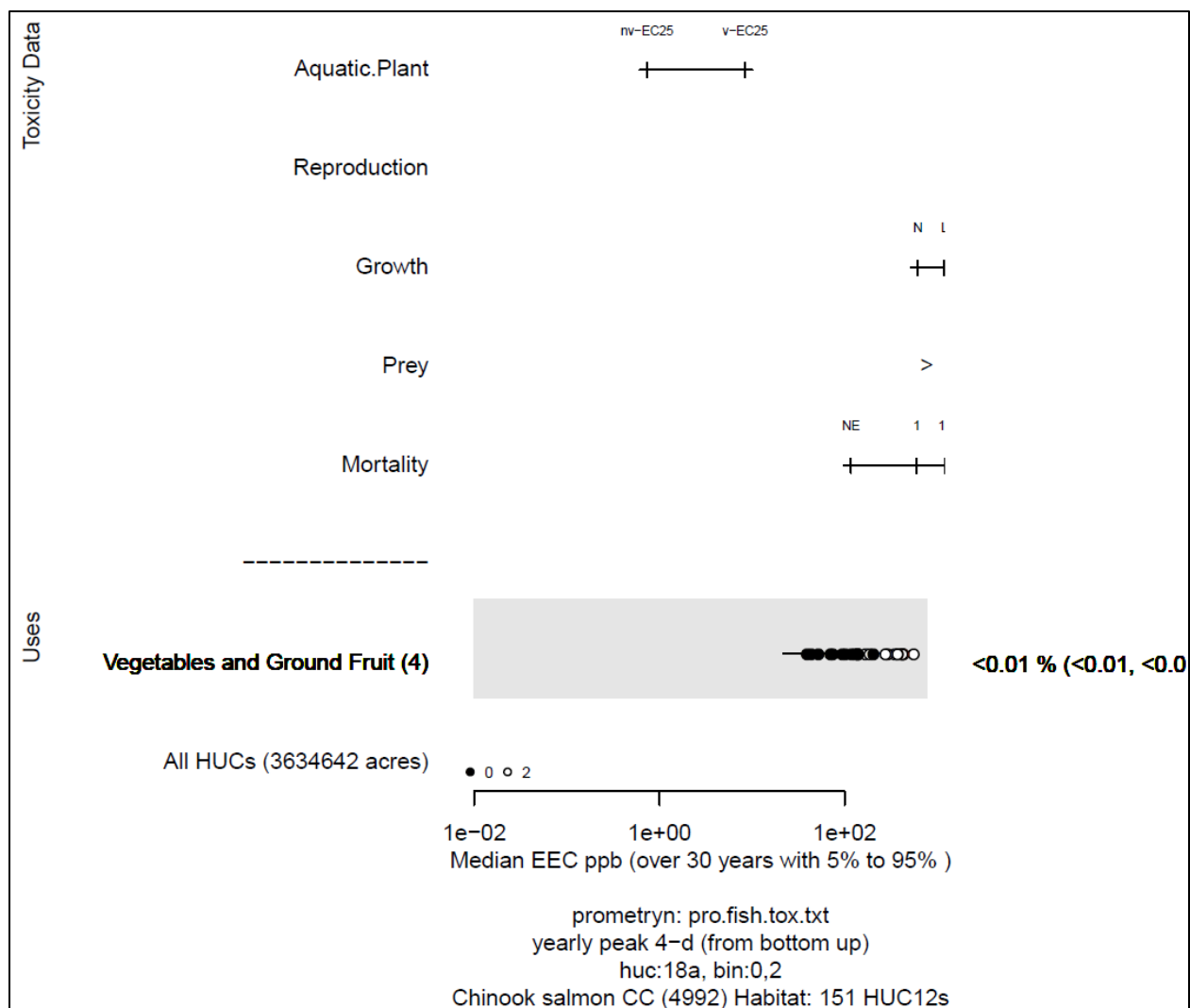


Figure 62. Effects analysis R-plot; Chinook salmon, California Coastal ESU designated critical habitat; aquatic plants.

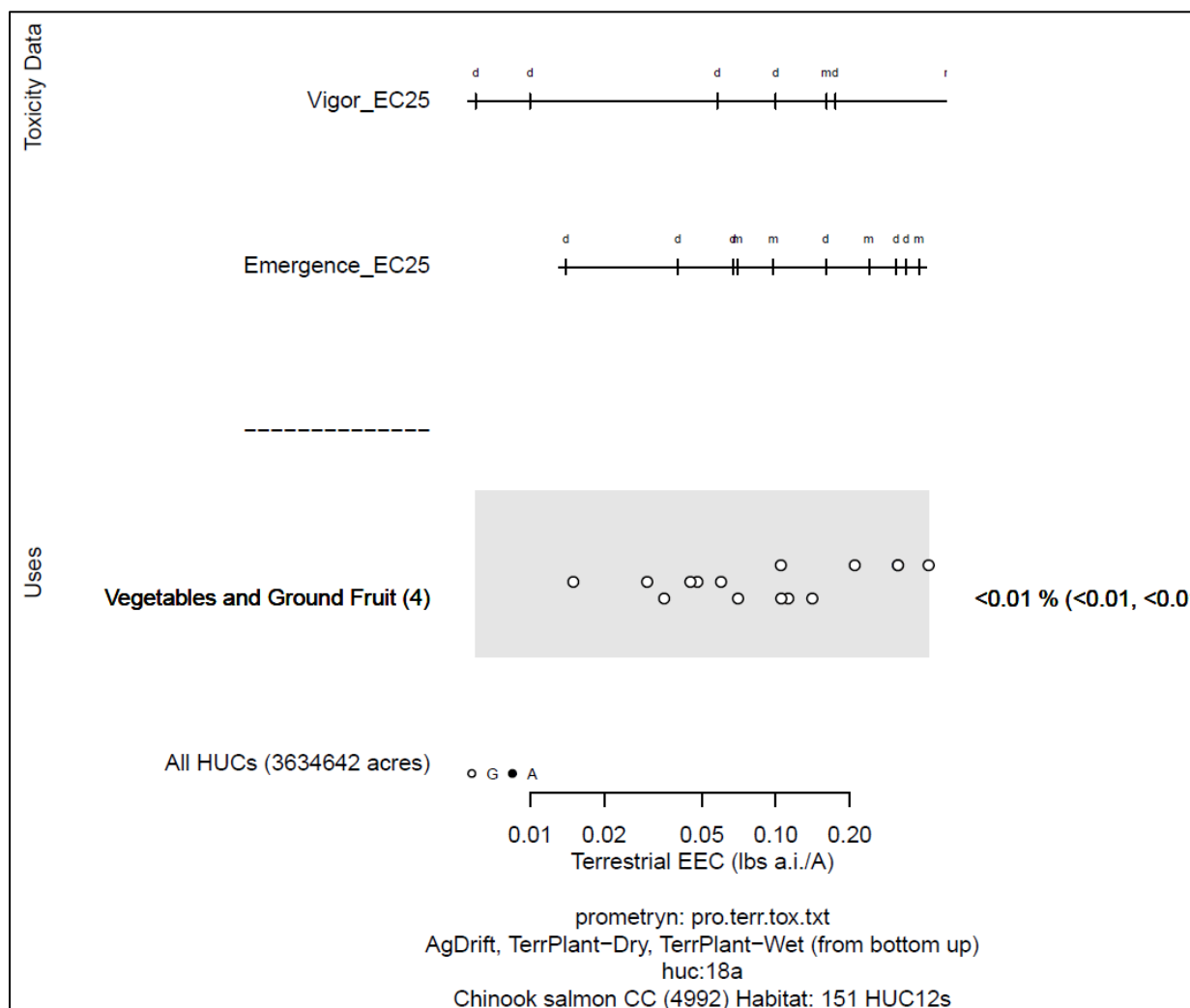


Figure 63. Effects analysis R-plot; Chinook salmon, California Coastal ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 150. Likelihood of exposure determination for Chinook salmon, California Coastal ESU designated critical habitat.

		Percent Overlap Category					Persistence		Multiple Applications		Proximity Analysis		Likelihood of Exposure	
Cotton	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	Low

Table 151. Prey Risk Hypothesis; Chinook salmon, California Coastal ESU designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	< 0.01	None Expected	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	< 0.01	High	Low
Terrestrial			
Cotton	0		
Vegetables and Ground Fruit	< 0.01	High	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 152. Water quality risk hypothesis; Chinook, California coastal ESU; designated critical habitat.

Endpoint: Water Quality

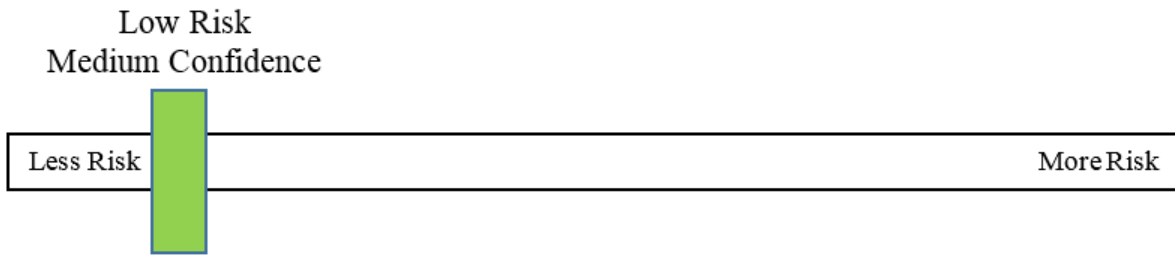
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are not expected to adversely affect aquatic or terrestrial vegetation. The likelihood of attaining toxic concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat and are not proximal to sensitive areas; authorized use sites total approximately 4 acres (less than 0.01 percent of acres); as such, water quality is not anticipated to be impacted measurably throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 153. Effects analysis summary table; Chinook, California coastal ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the California Coastal Chinook designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish locally, but are not anticipated to impact aquatic invertebrates or vegetative cover. Overall the risk is low and the confidence associated with that risk is medium due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.4 Central Valley Spring-run Chinook Designated Critical Habitat; Prometryn

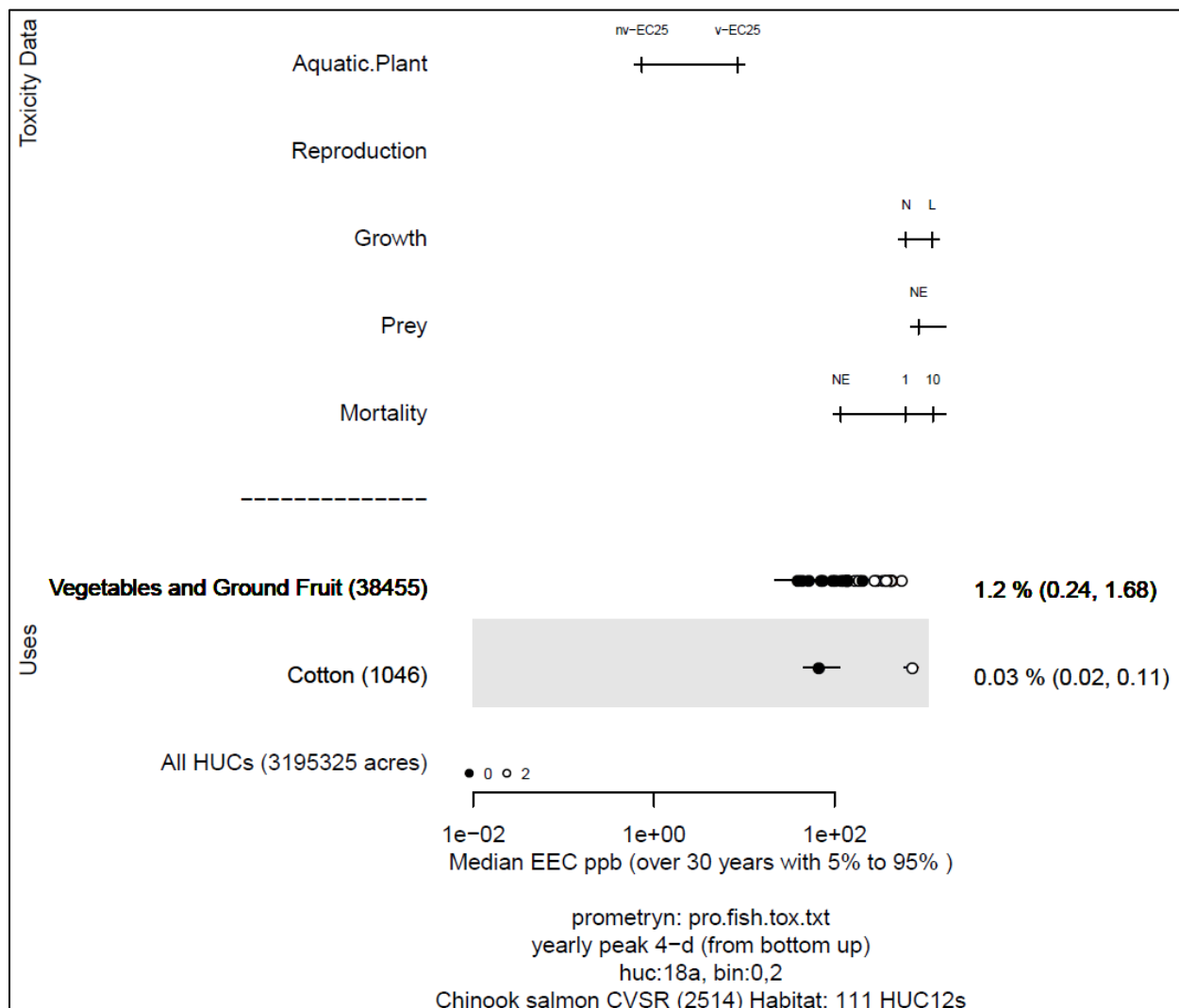


Figure 64. Effects analysis R-plot; Chinook salmon, Central Valley spring-run ESU designated critical habitat; aquatic plants.

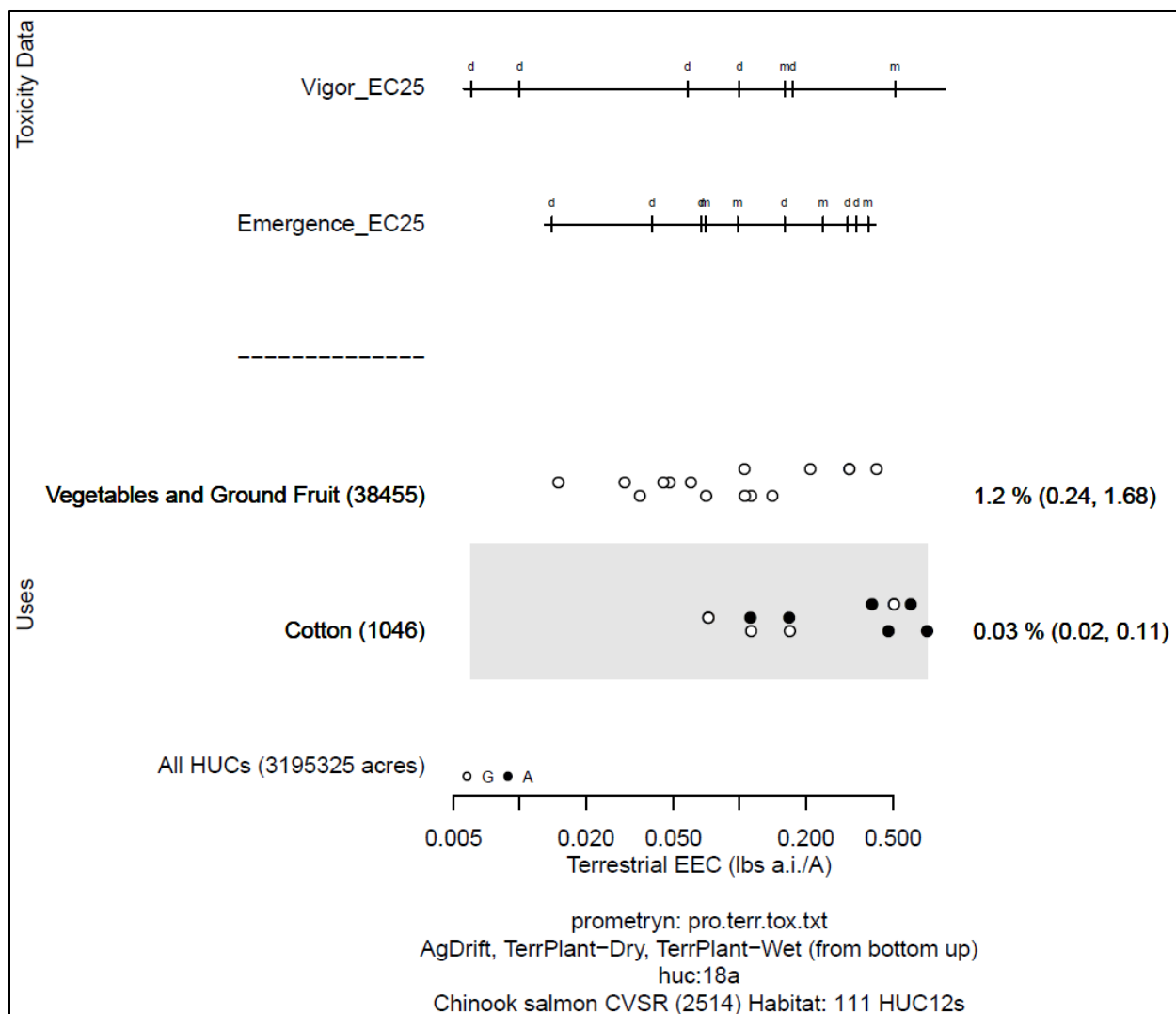


Figure 65. Effects analysis R-plot; Chinook salmon, Central Valley spring-run ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 154. Likelihood of exposure determination for Chinook salmon, Central Valley spring-run ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	1	yes	yes	no	Low	
Veg. & Ground Fruit	2	yes	yes	NA	High	

Table 155. Prey risk hypothesis; Chinook, Central Valley spring-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0.03	Low	Low
Vegetables and Ground Fruit	1.2	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0.03	High	Low
Vegetables and Ground Fruit	1.2	High	High
Terrestrial			
Cotton	0.03	High	Low
Vegetables and Ground Fruit	1.2	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 156. Water quality risk hypothesis; Chinook, Central Valley spring-run ESU; designated critical habitat.

Endpoint: Water Quality		
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Most authorized uses of prometryn-containing products occur within the southern terminus of the species' designated critical habitat. Use sites total approximately 38,455 acres (about 1.2 percent of acres). As such, water quality may be impacted in this region, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 157. Effects analysis summary table; Chinook, Central Valley spring-run ESU; designated critical habitat.

	R-plot Derived		Risk Hypothesis Supported? Yes/No
Designated Critical Habitat; Risk Hypotheses	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to	Medium	Low	No

vegetative cover in migration, spawning, and rearing sites.			

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the California Central Valley spring-run Chinook designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited due to the minimal extent of prometryn-containing uses (limited to southern migratory portion of designated critical habitat). Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.5 Lower Columbia River Chinook Designated Critical Habitat; Prometryn

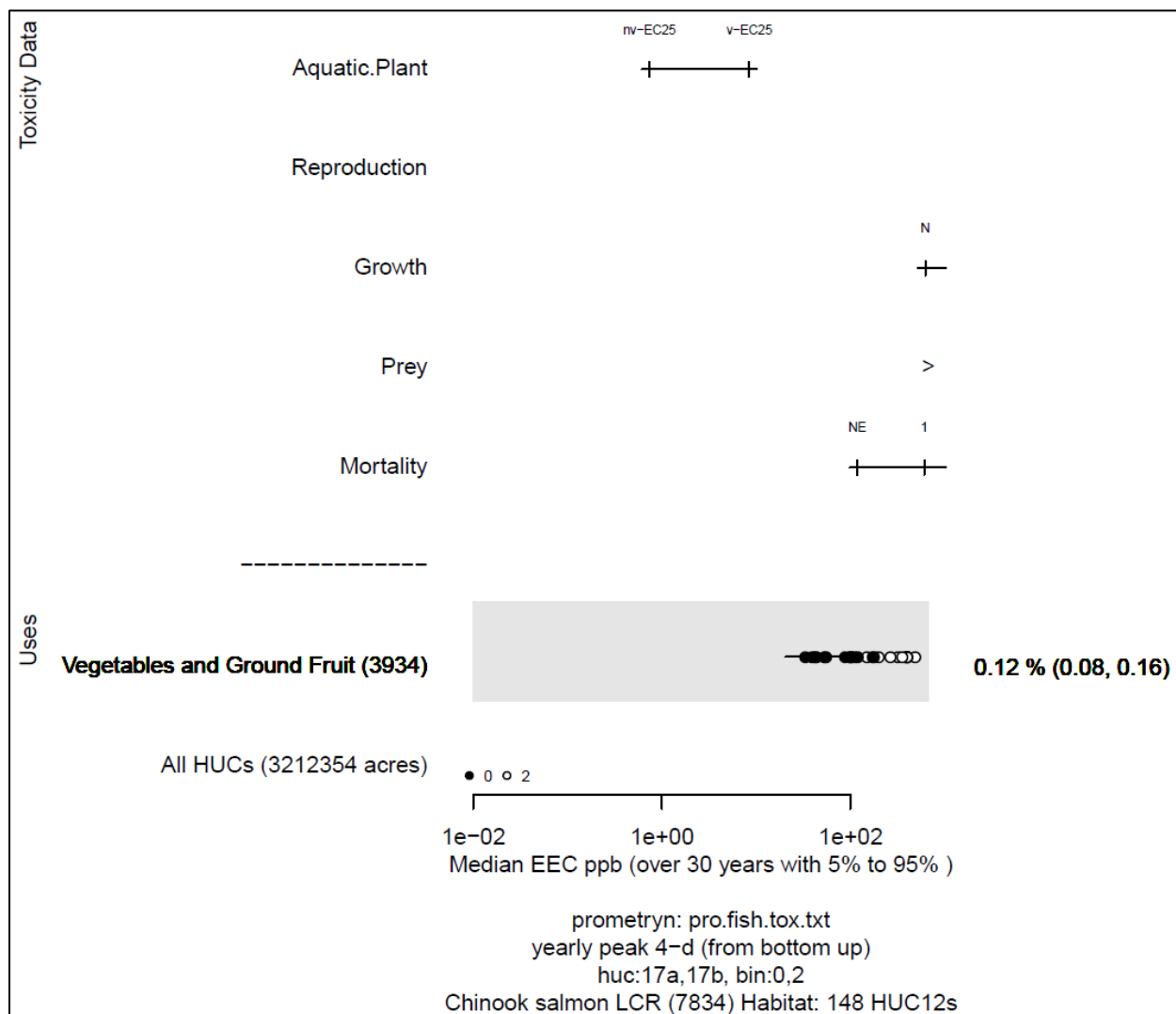


Figure 66. Effects analysis R-plot; Chinook salmon, Lower Columbia River ESU designated critical habitat; aquatic plants.

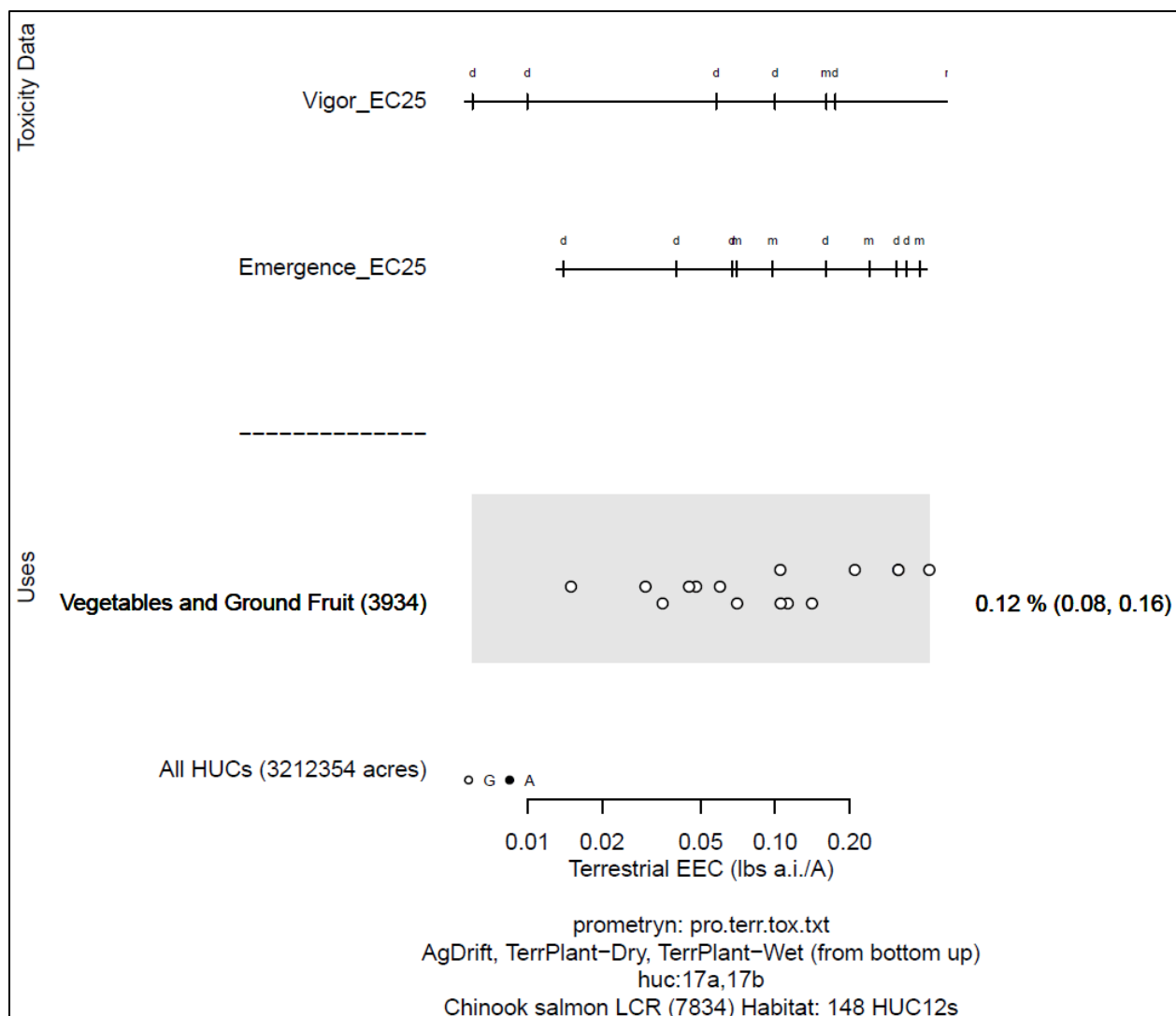


Figure 67. Effects analysis R-plot; Chinook salmon, Lower Columbia River ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 158. Likelihood of exposure determination for Chinook salmon, Lower Columbia River ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	NA	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	NA	High

Table 159. Prey risk hypothesis; Chinook, Lower Columbia River ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.12	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.12	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0.12	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 160. Water quality risk hypothesis; Chinook, Lower Columbia River ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality

degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat (e.g. Suavie Island, OR); authorized use sites total approximately 3,934 acres (less than 1 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 161. Effects analysis summary table; Chinook, Lower Columbia River ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Lower Columbia River Chinook designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these

effects to be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.6 Puget Sound Chinook Designated Critical Habitat; Prometryn

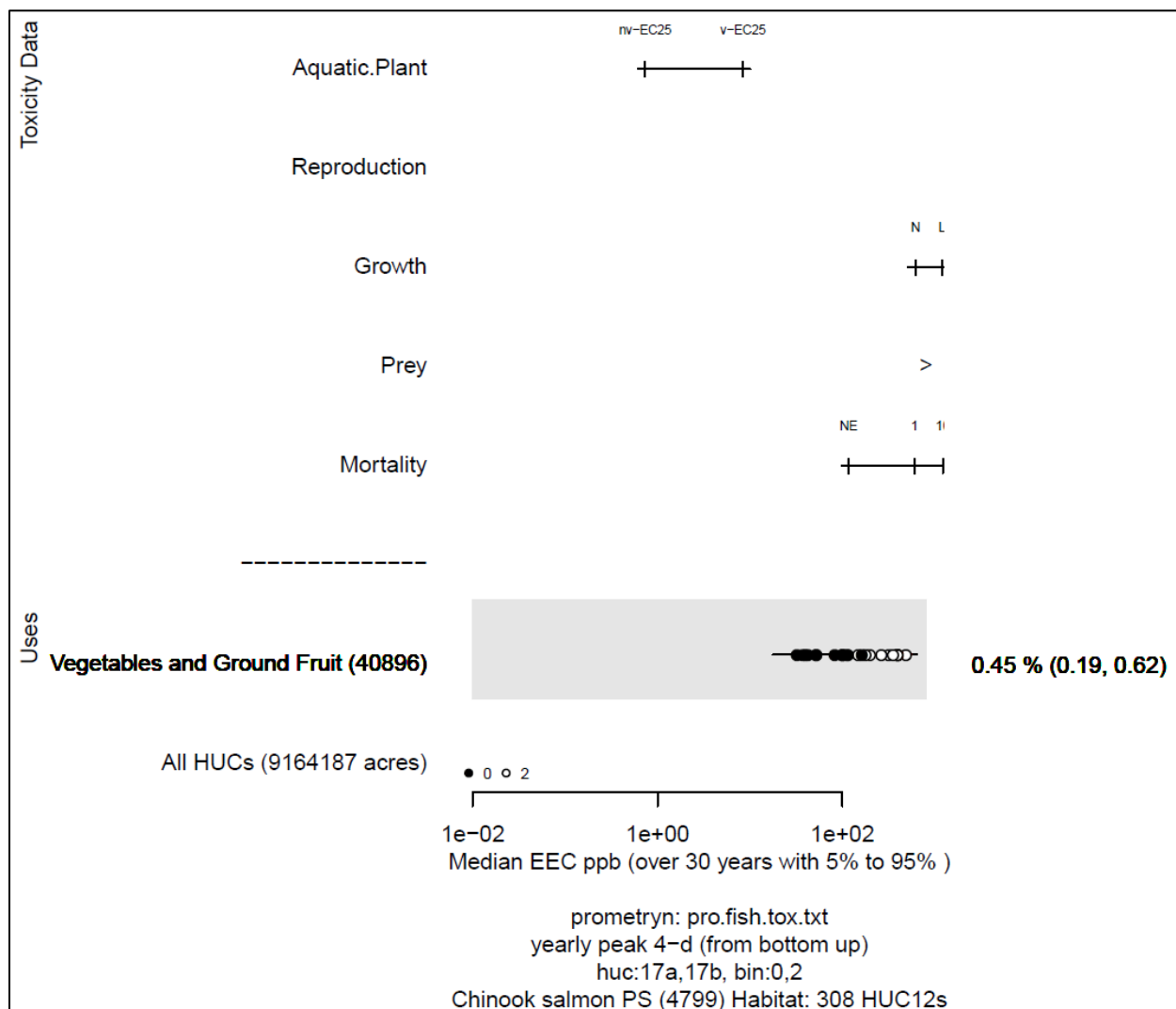


Figure 68. Effects analysis R-plot; Chinook salmon, Puget Sound ESU designated critical habitat; aquatic plants.

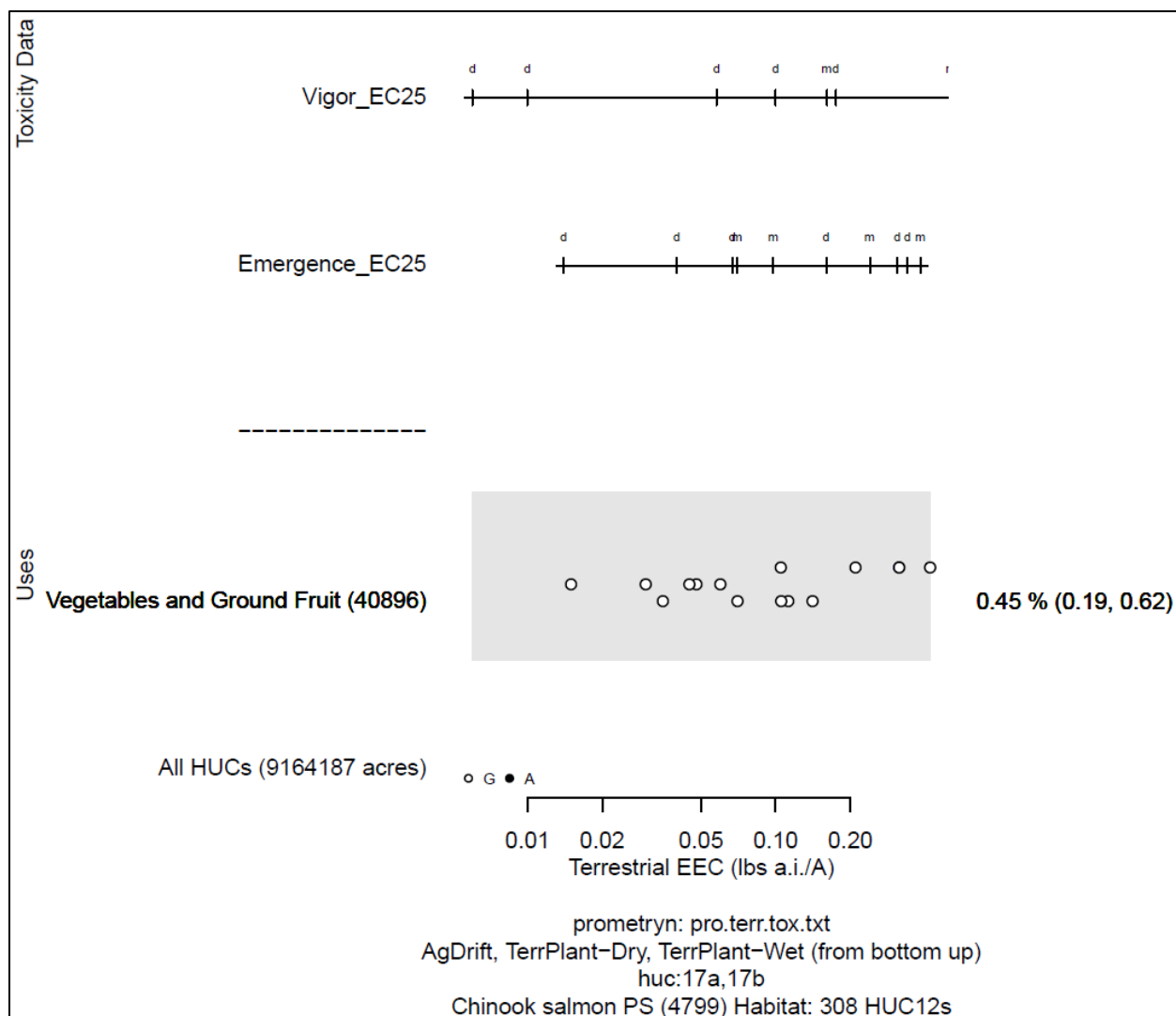


Figure 69. Effects analysis R-plot; Chinook salmon, Puget Sound ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 162. Likelihood of exposure determination for Chinook salmon, Puget Sound ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	NA	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	High	High

Table 163. Prey risk hypothesis; Chinook, Puget Sound ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.45	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.45	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0.45	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 164. Water quality risk hypothesis; Chinook, Puget Sound ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. In smaller water bodies, toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated

critical habitat (e.g. Skagit and Nooksack Rivers). Authorized use sites total approximately 40,896 acres (about 0.45 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 165. Effects analysis summary table; Chinook, Puget Sound ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Puget Sound Chinook designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to

be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.7 Sacramento River Winter-run Chinook Salmon Designated Critical Habitat; Prometryn

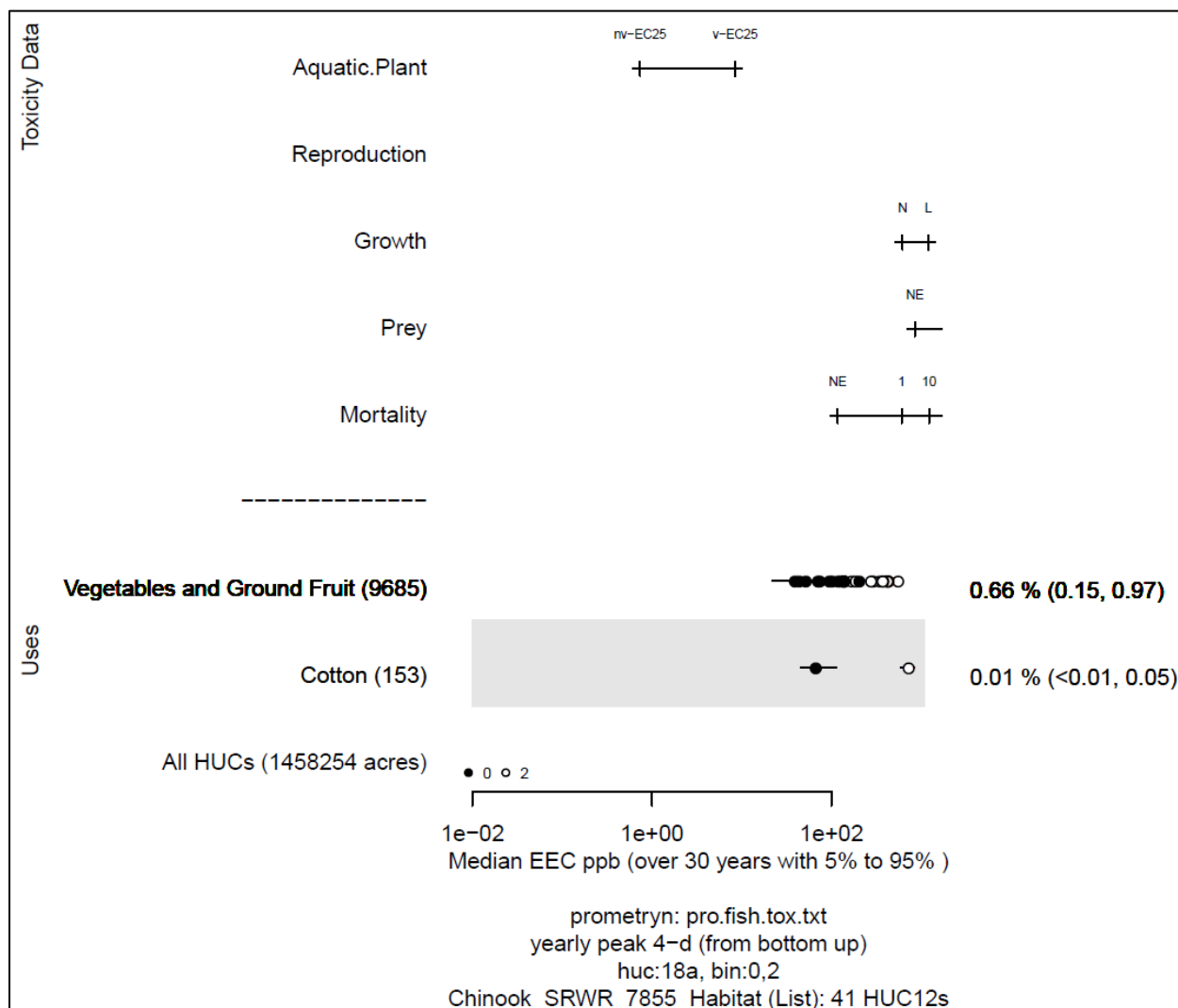


Figure 70. Effects analysis R-plot; Chinook salmon, Sacramento River winter-run ESU designated critical habitat; aquatic plants.

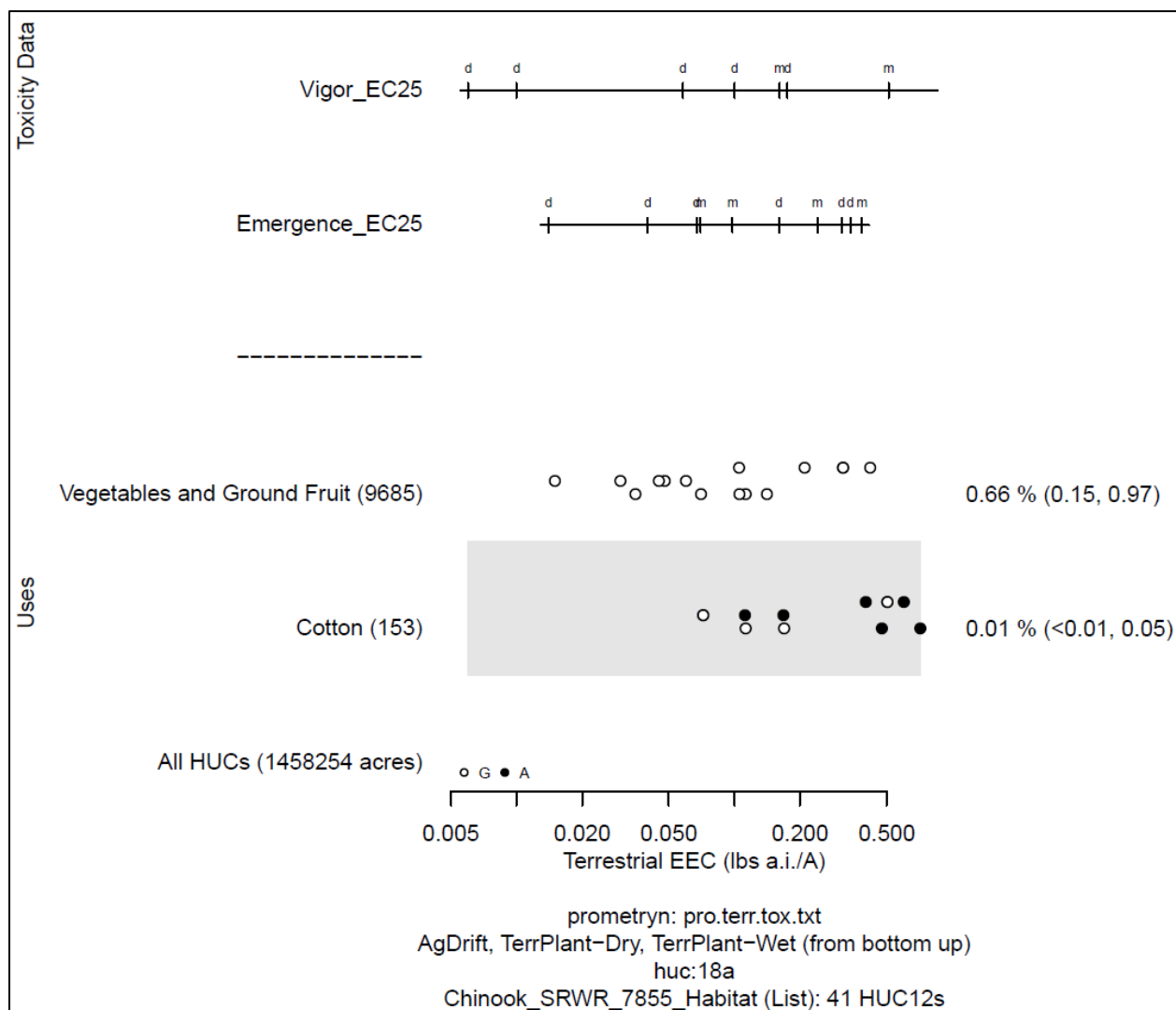


Figure 71. Effects analysis R-plot; Chinook salmon, Sacramento River winter-run ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 166. Likelihood of exposure determination for Chinook salmon, Sacramento River winter-run ESU designated critical habitat.

		Percent Overlap Category				
		Persistence		Multiple Applications		Proximity Analysis
						Likelihood of Exposure
Cotton	1	yes	yes	no	Low	
Veg. & Ground Fruit	1	yes	yes	yes	High	

Table 167. Prey risk hypothesis; Chinook, Sacramento River winter-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0.01	Low	Low
Vegetables and Ground Fruit	0.66	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0.01	High	Low
Vegetables and Ground Fruit	0.66	High	High
Terrestrial			
Cotton	0.01	High	Low
Vegetables and Ground Fruit	0.66	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 168. Water quality risk hypothesis; Chinook, Sacramento River winter-run ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Most authorized uses of prometryn-containing products occur within the southern

portion of the migratory corridor of designated critical habitat. Use sites total approximately 9,838 acres (less than 1 percent of acres). As such, water quality may be impacted in this region, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 169. Effects analysis summary table; Chinook, Sacramento River winter-run ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Sacramento River winter-run Chinook designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these

effects to be limited due to the minimal extent of prometryn-containing uses (limited to southern migratory portion of designated critical habitat). Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.8 Snake River Fall-run Chinook Salmon Designated Critical Habitat; Prometryn

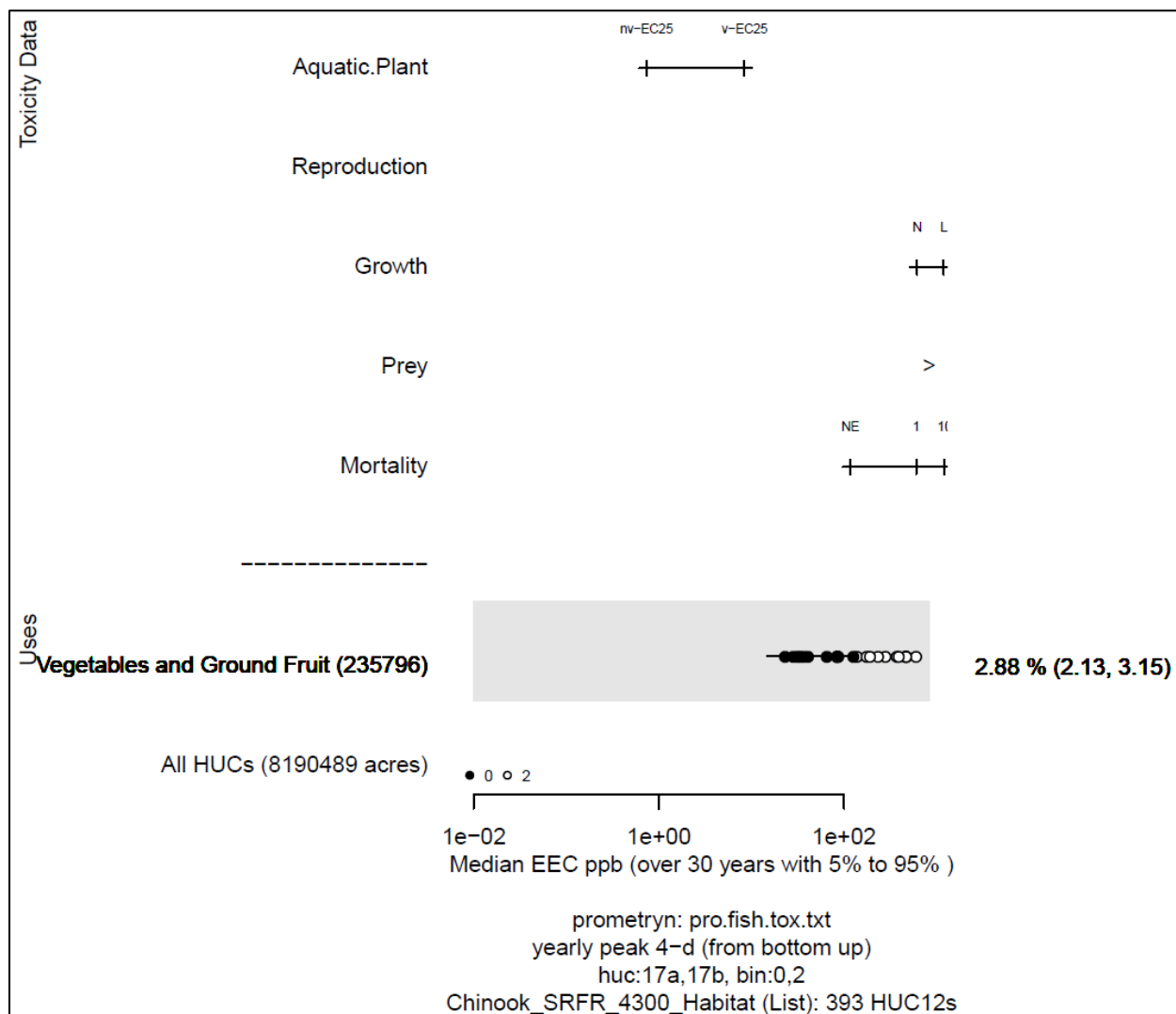


Figure 72. Effects analysis R-plot; Chinook salmon, Snake River Fall-run ESU designated critical habitat; aquatic plants.

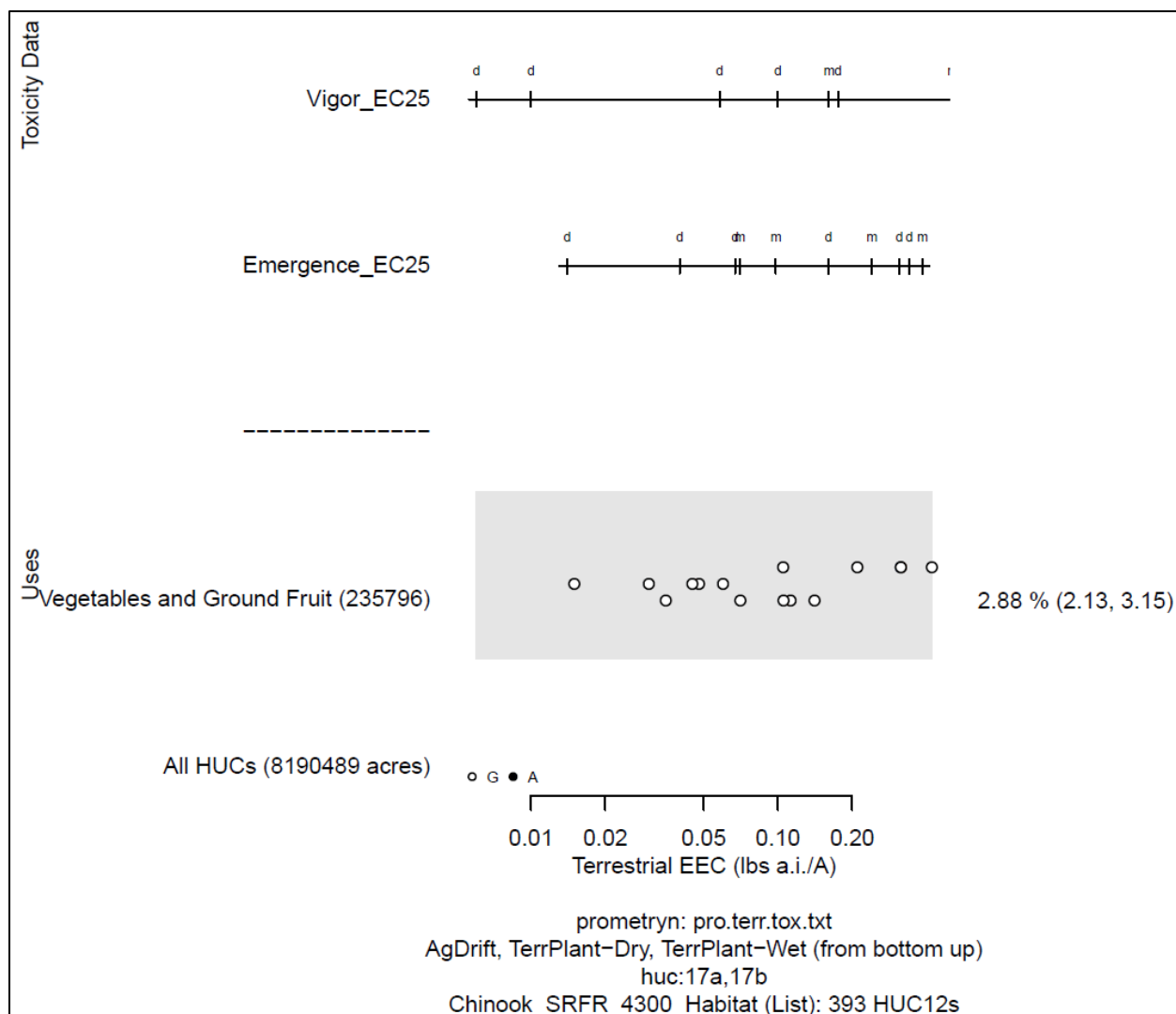


Figure 73. Effects analysis R-plot; Chinook salmon, Snake River Fall-run ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 170. Likelihood of exposure determination for Chinook salmon, Snake River Fall-run ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	NA
Veg. & Ground Fruit	2	yes	yes	NA	High	High

Table 171. Prey risk hypothesis; Chinook salmon, Snake River fall-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	2.88	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	2.88	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	2.88	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 172. Water quality risk hypothesis; Chinook salmon, Snake River fall-run ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Most authorized uses of prometryn-containing products occur within the Palouse

region of the species' designated critical habitat. Use sites total approximately 235,796 acres (about 2.9 percent of acres). As such, water quality may be impacted in this region, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 173. Effects analysis summary table; Chinook salmon, Snake River fall-run ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Snake River fall-run Chinook designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate the effects to

be limited due to the minimal extent of prometryn-containing uses (limited mostly to the Palouse region of designated critical habitat). Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.9 Snake River Spring/Summer-run Chinook Salmon Designated Critical Habitat; Prometryn

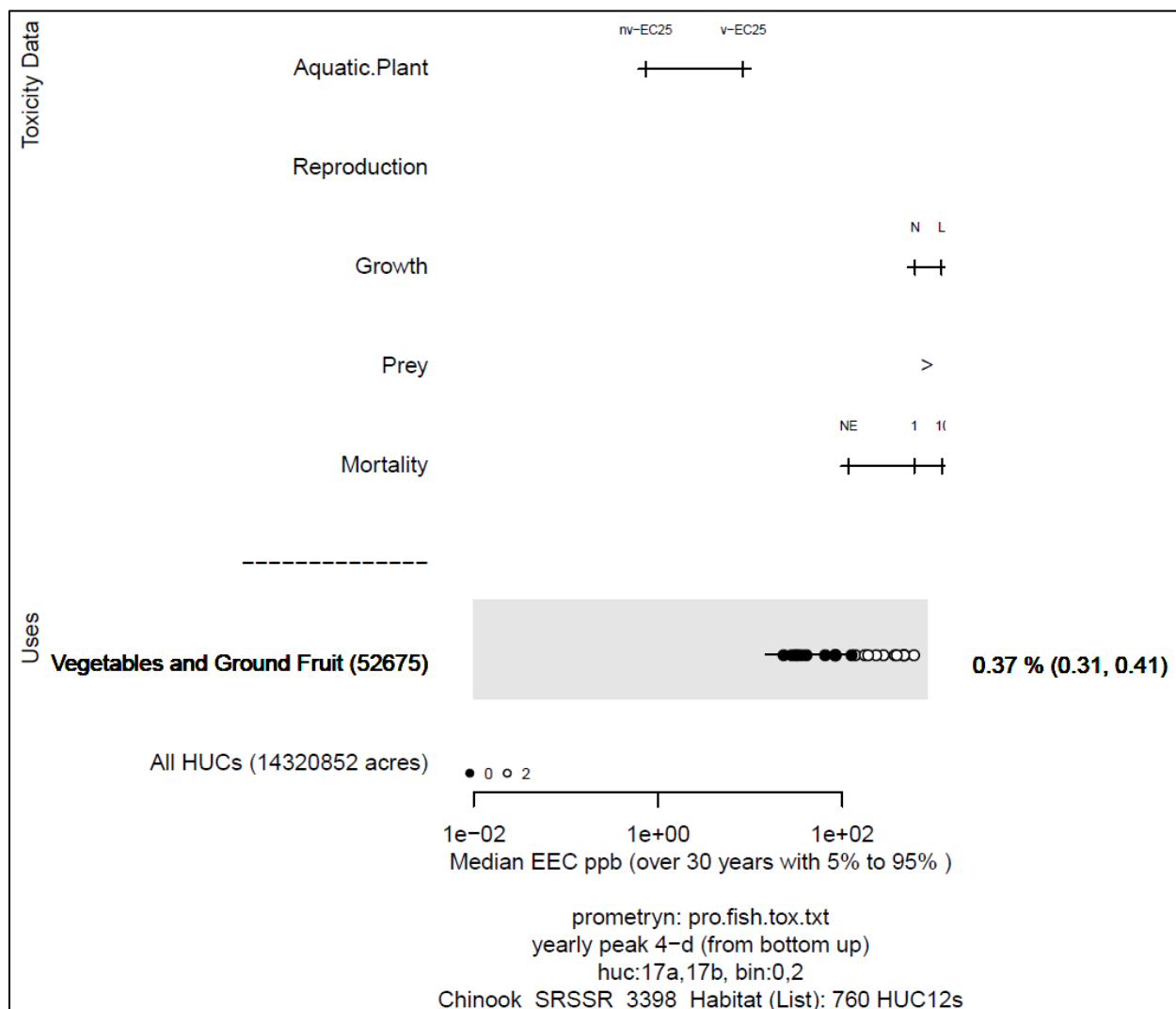


Figure 74. Effects analysis R-plot; Chinook salmon, Snake River Spring/Summer-run ESU designated critical habitat; aquatic plants.

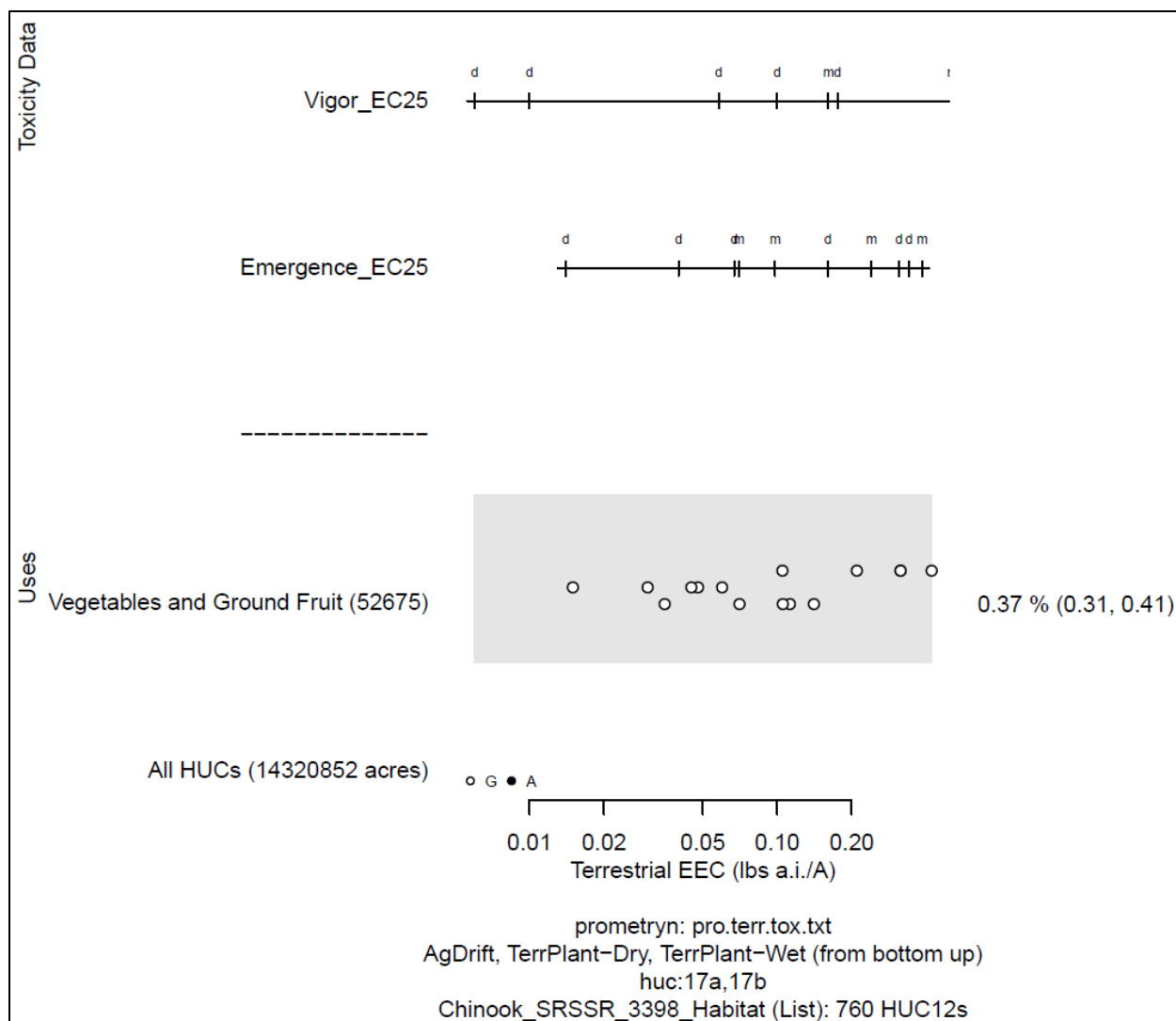


Figure 75. Effects analysis R-plot; Chinook salmon, Snake River Spring/Summer-run ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 174. Likelihood of exposure determination for Chinook salmon, Snake River Spring/Summer-run ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	High	High

Table 175. Prey risk hypothesis; Chinook salmon, Snake River spring/summer-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.37	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.37	High	High
Terrestrial			
Cotton	0	-	
Vegetables and Ground Fruit	0.37	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 176. Water quality risk hypothesis; Chinook, Snake River spring/summer-run ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Most authorized uses of prometryn-containing products occur within the southern terminus of the species' designated critical habitat. Use sites total approximately 52,675 acres (about 0.37 percent of acres). As such, water quality may be impacted in this region, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	High	

Table 177. Effects analysis summary table; Chinook, Snake River spring/summer-run ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Snake River spring/summer-run Chinook designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate the effects to be limited due to the minimal extent of prometryn-containing uses (limited to southern migratory portion of designated critical habitat). Overall the risk is medium and the confidence associated with that risk is medium due to the exposures predicted in critical habitats over the 15-year duration of the action.



**15.3.10 Upper Columbia River Spring-run Chinook Salmon Designated Critical Habitat;
Prometryn**

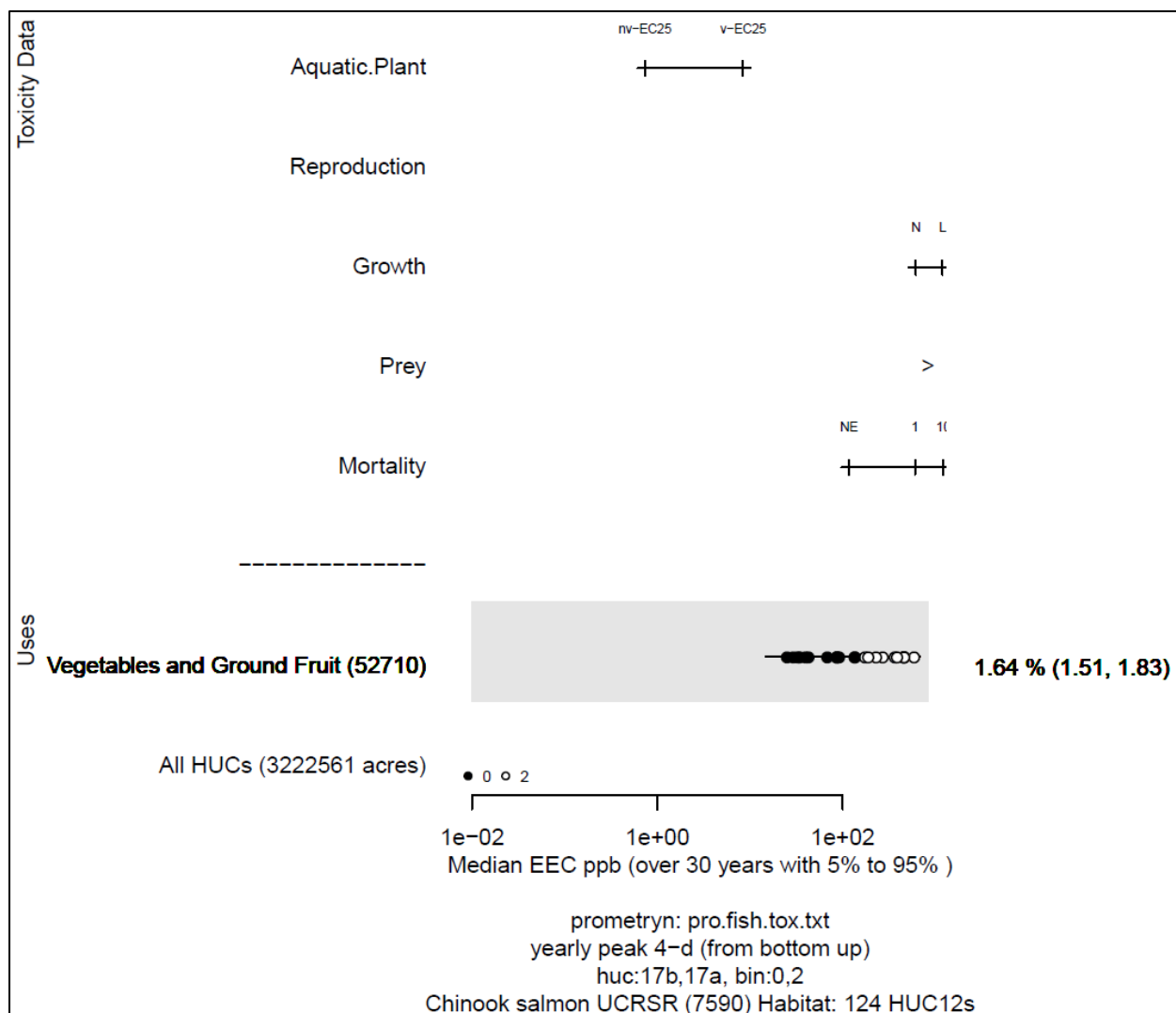


Figure 76. Effects analysis R-plot; Chinook salmon, Upper Columbia River Spring-run ESU designated critical habitat; aquatic plants.

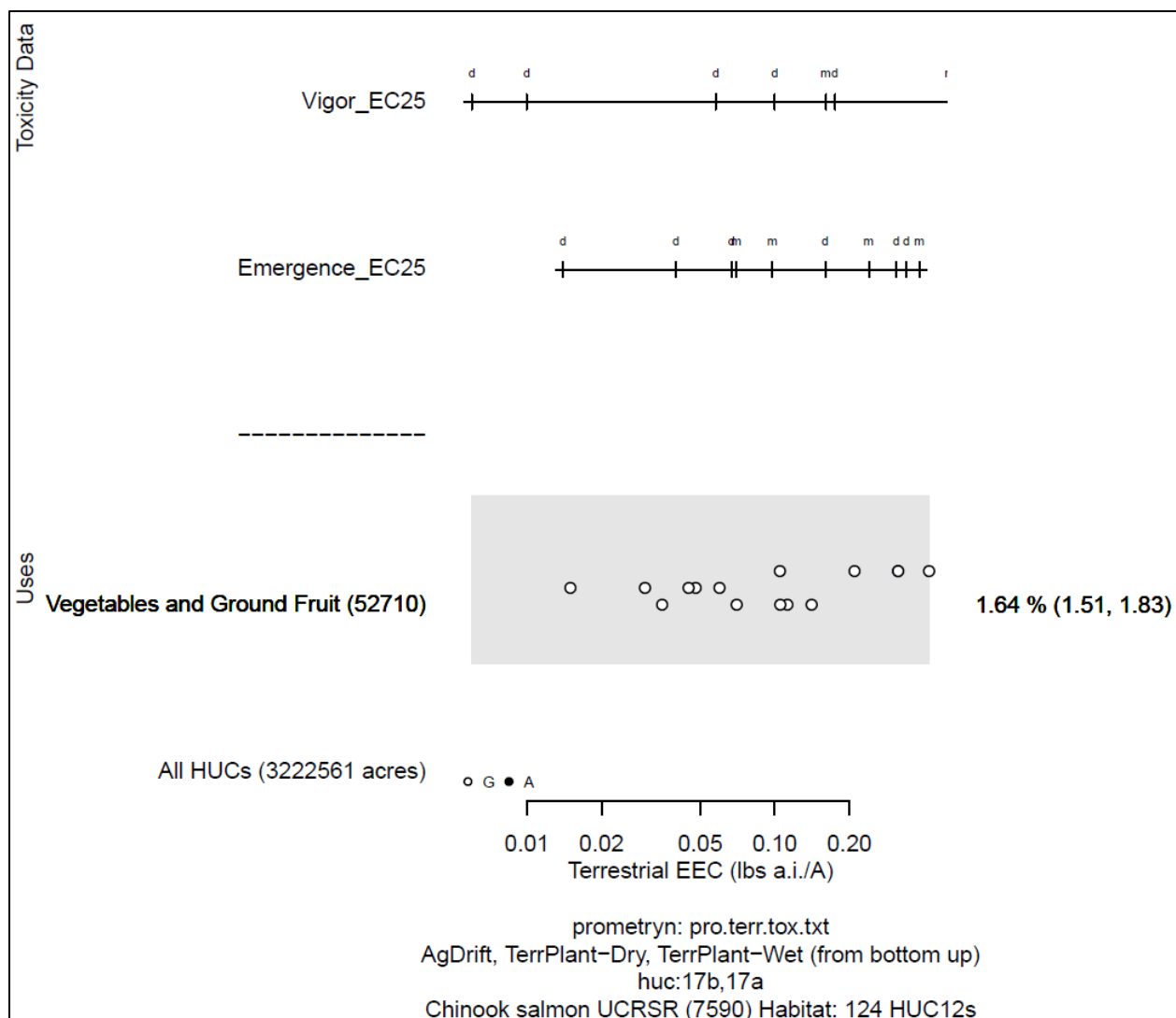


Figure 77. Effects analysis R-plot; Chinook salmon, Upper Columbia River Spring-run ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 178. Likelihood of exposure determination for Chinook salmon, Upper Columbia River Spring-run ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	NA
Veg. & Ground Fruit	2	yes	yes	NA	High	High

Table 179. Prey risk hypothesis; Chinook salmon, upper Columbia River spring-run ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	1.64	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	1.64	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	1.64	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 180. Water quality risk hypothesis; Chinook salmon, upper Columbia River spring-run ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. In smaller water bodies, toxic concentrations may occur, however, authorized

uses of prometryn-containing products occur only minimally within the species' designated critical habitat (e.g. Suavie Island and the confluence of Columbia and Snake Rivers). Authorized use sites total approximately 52,710 acres (about 1.64 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 181. Effects analysis summary table; Chinook salmon, upper Columbia River spring-run ESU; designated critical habitat

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Upper Columbia River spring-run Chinook designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these

effects to be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.11 Upper Willamette River Chinook Salmon Designated Critical Habitat; Prometryn

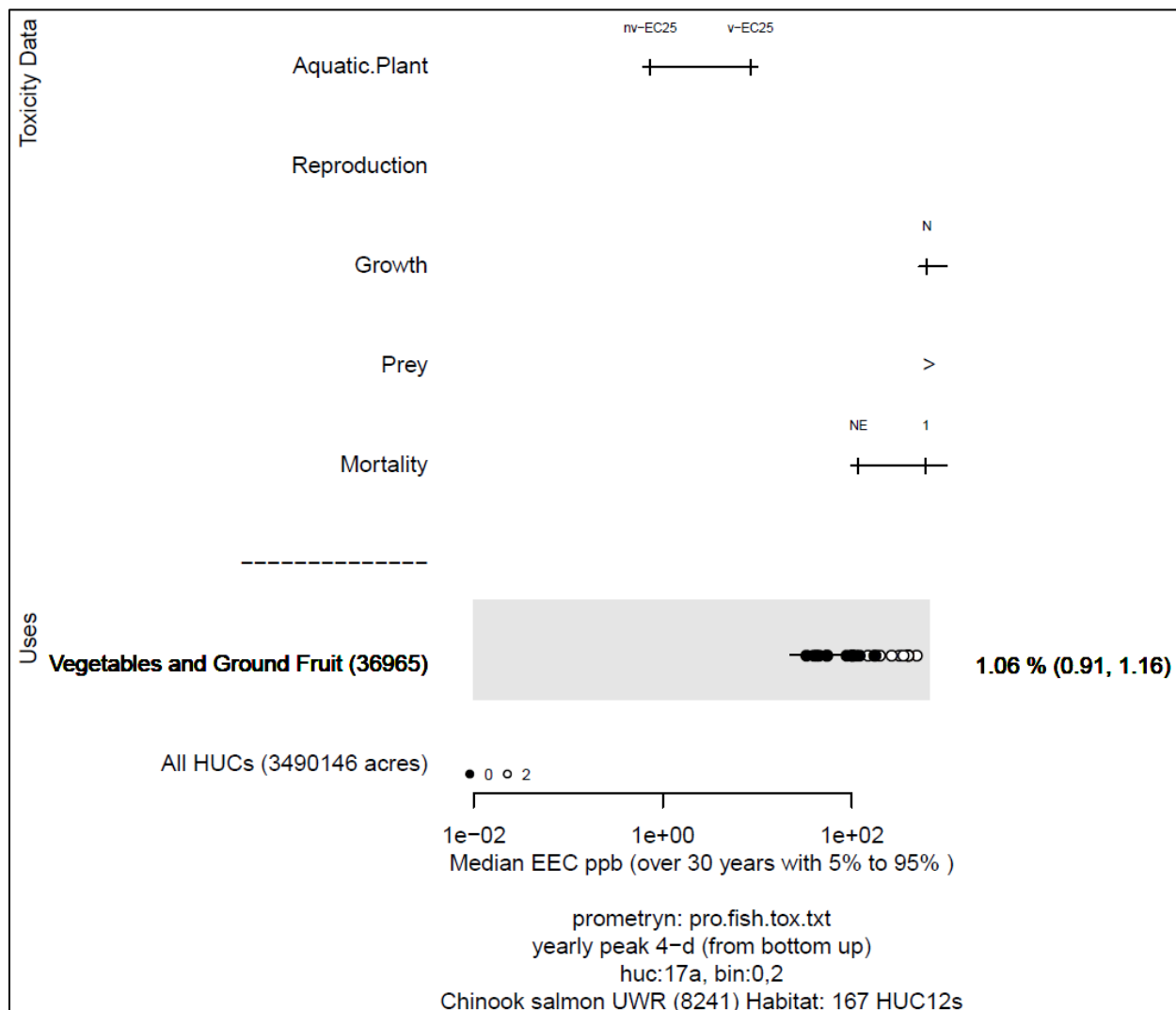


Figure 78. Effects analysis R-plot; Chinook salmon, Upper Willamette River ESU designated critical habitat; aquatic plants.

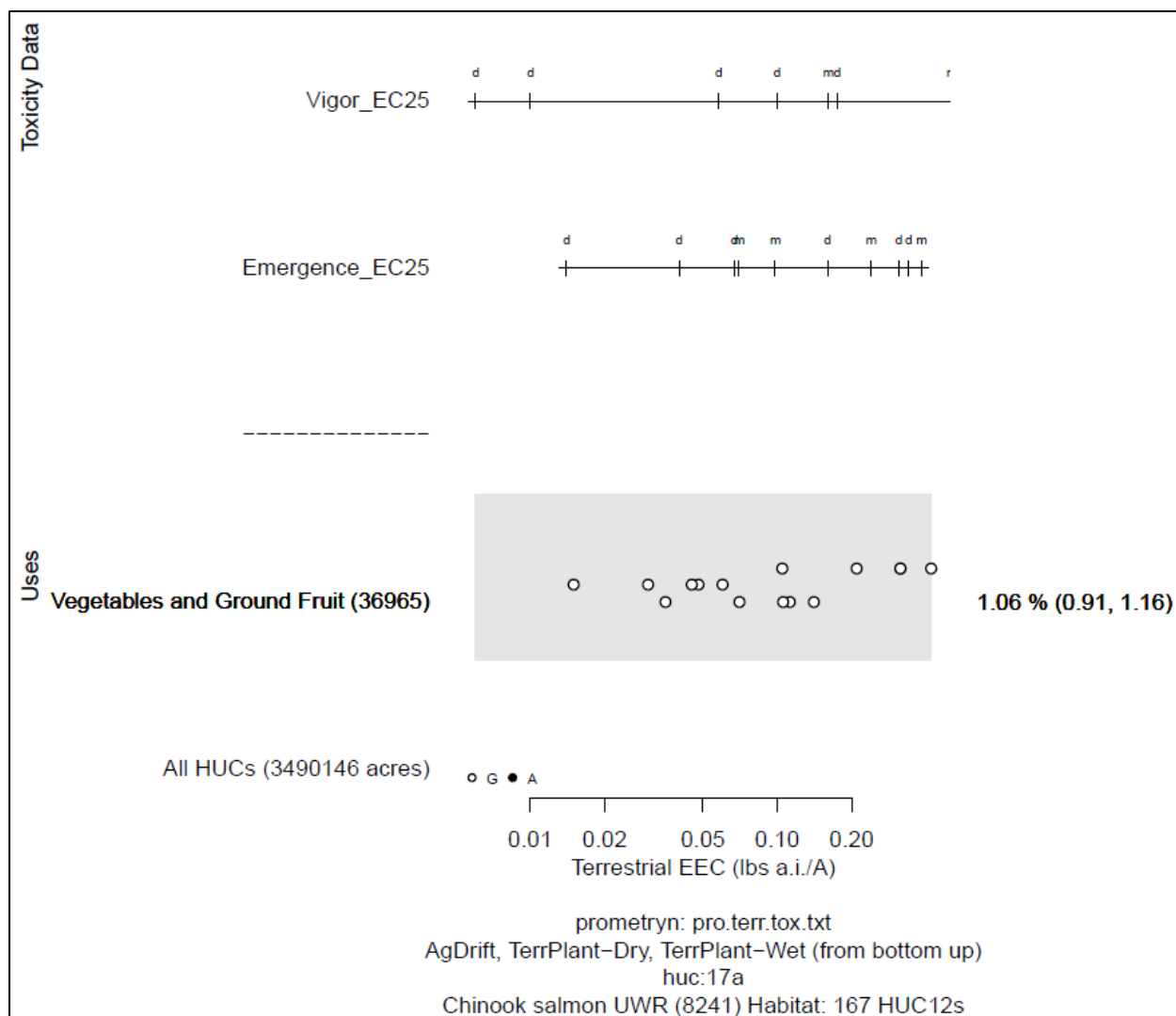


Figure 79. Effects analysis R-plot; Chinook salmon, Upper Willamette River ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 182. Likelihood of exposure determination for Chinook salmon, Upper Willamette River ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	
Veg. & Ground Fruit	2	yes	yes	NA	High	

Table 183. Prey risk hypothesis; Chinook, upper Willamette River ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	1.06	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	1.06	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	1.06	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 184. Water quality risk hypothesis; Chinook, upper Willamette River ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. In smaller water bodies, toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat. Authorized use sites total approximately 36,965 acres (about 1.06 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 185. Effects analysis summary table; Chinook, upper Willamette River ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Upper Willamette River Chinook designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate the effects to be limited due to the minimal extent of prometryn-containing uses (limited to southern migratory portion of designated critical habitat). Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.12 Central California Coast Coho Salmon Designated Critical Habitat; Prometryn

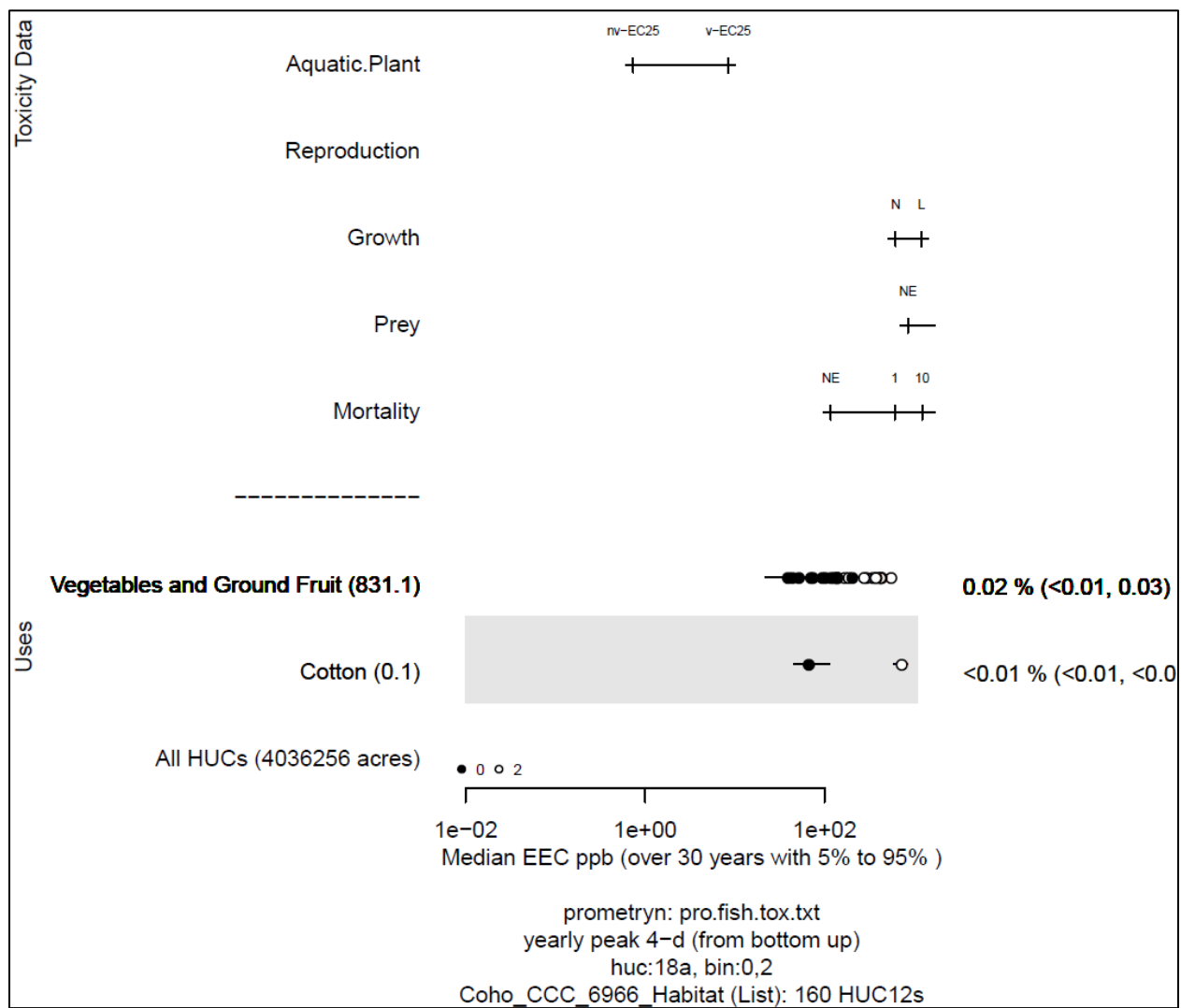


Figure 80. Effects analysis R-plot; Coho salmon Central California Coast ESU designated critical habitat; aquatic plants.

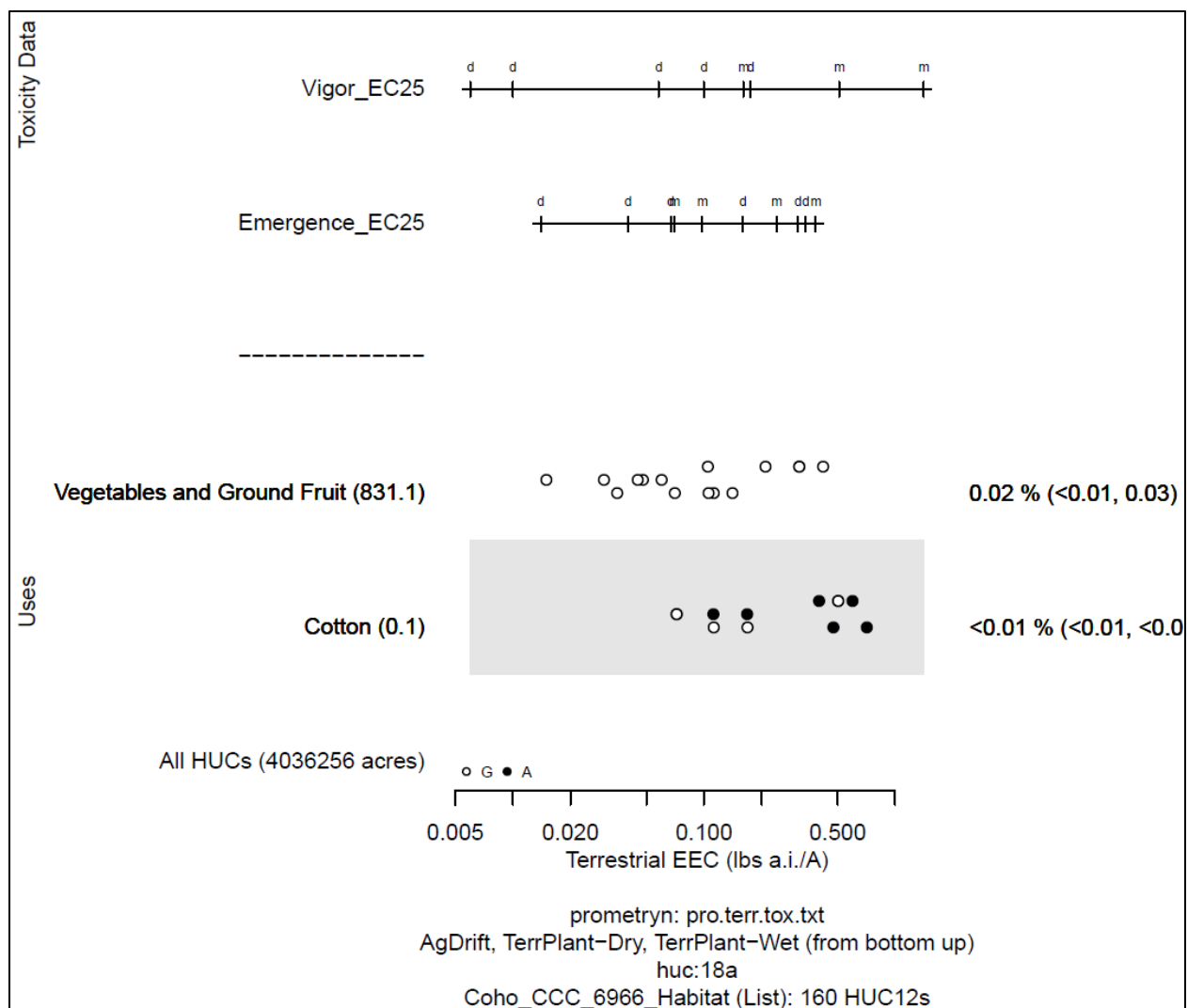


Figure 81. Effects analysis R-plot; Coho salmon Central California Coast ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 186. Likelihood of exposure determination for Coho salmon Central California Coast ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	1	yes	yes	no	Low	Low
Veg. & Ground Fruit	1	yes	yes	no	Low	Low

Table 187. Prey risk hypothesis; Coho, Central California Coast ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	< 0.01	Low	Low
Vegetables and Ground Fruit	0.04	None Expected	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	< 0.01	High	Low
Vegetables and Ground Fruit	0.04	High	Low
Terrestrial			
Cotton	< 0.01	High	Low
Vegetables and Ground Fruit	0.04	High	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 188. Water quality risk hypothesis; Coho, Central California Coast ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are not expected to adversely affect aquatic or terrestrial vegetation. The likelihood of attaining toxic concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of

prometryn-containing products occur only minimally within the species' designated critical habitat and are not proximal to sensitive areas; authorized use sites total approximately 1,124 acres (less than 0.1 percent of acres); as such, water quality is not anticipated to be impacted measurably throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

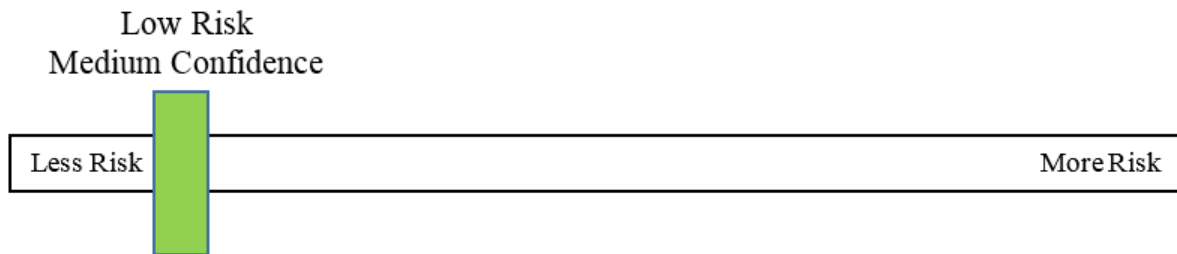
Table 189. Effects analysis summary table; Coho, Central California Coast ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Central California Coast Coho designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish locally, but are not anticipated to impact aquatic invertebrates or vegetative cover. Overall the risk is low and the

confidence associated with that risk is medium due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.13 Lower Columbia River Coho Salmon Designated Critical Habitat; Prometryn

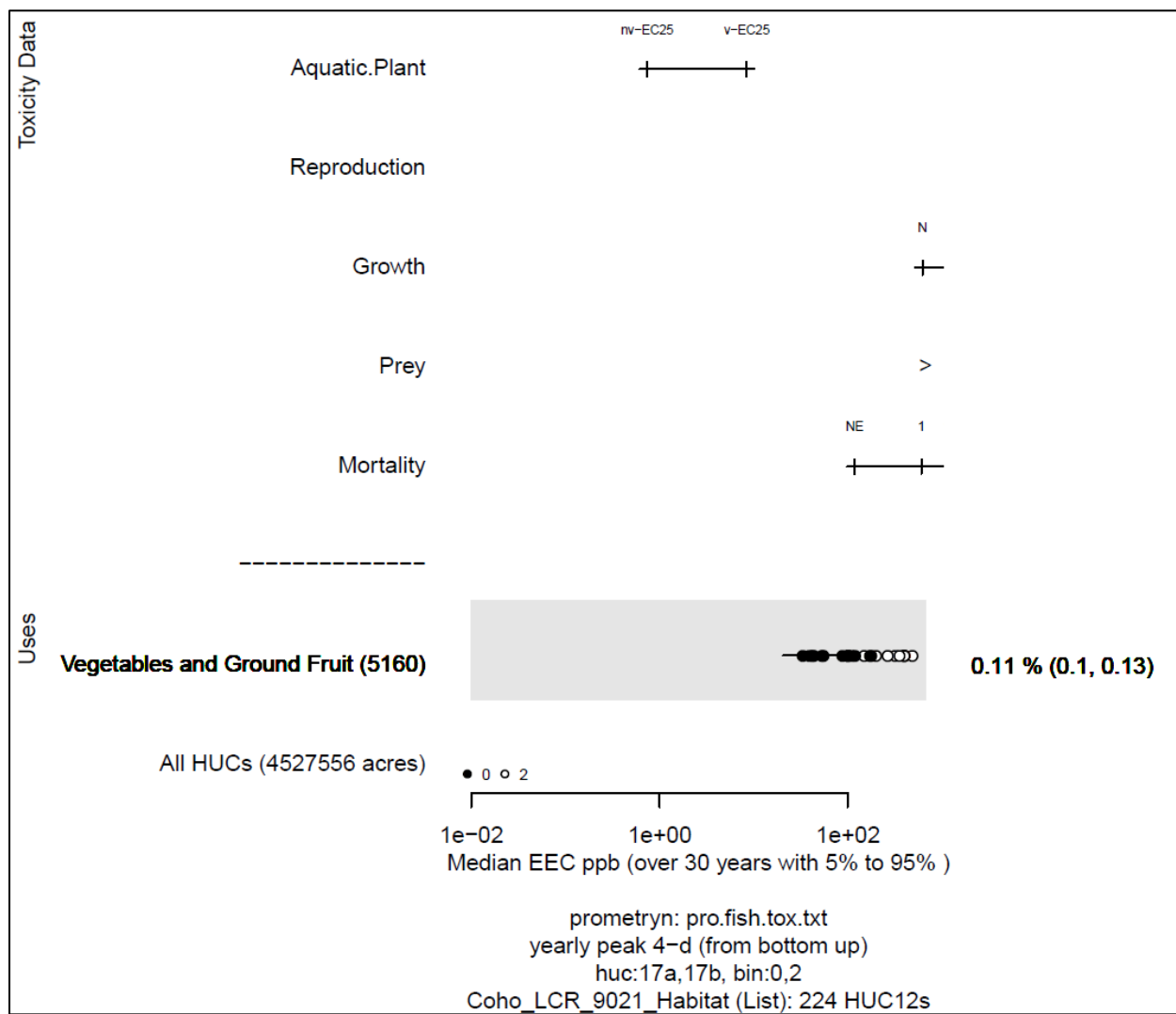


Figure 82. Effects analysis R-plot; Coho salmon Lower Columbia River ESU designated critical habitat; aquatic plants.

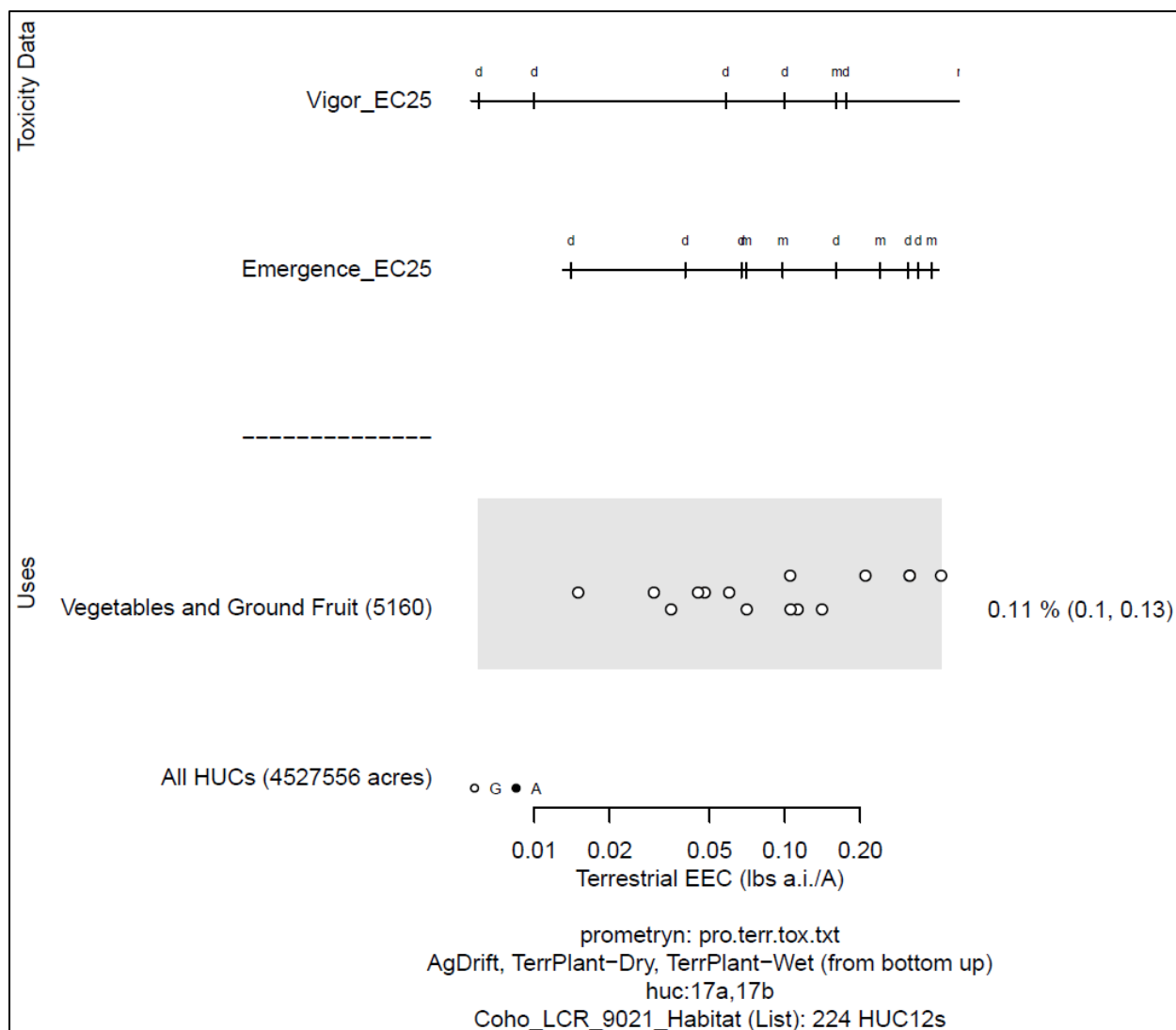


Figure 83. Effects analysis R-plot; Coho salmon Lower Columbia River ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 190. Likelihood of exposure determination for Coho salmon Lower Columbia River ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	NA	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	High	High

Table 191. Prey risk hypothesis; Coho, Lower Columbia River ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.11	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.11	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0.11	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 192. Water quality risk hypothesis; Coho, Lower Columbia River ESU; designated critical habitat.

Endpoint: Water Quality

Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat (e.g. Suavie Island, OR); authorized use sites total approximately 5,160 acres (less than 1 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 193. Effects analysis summary table; Coho, Lower Columbia River ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Lower Columbia River Coho designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.14 Oregon Coast Coho Salmon Designated Critical Habitat; Prometryn

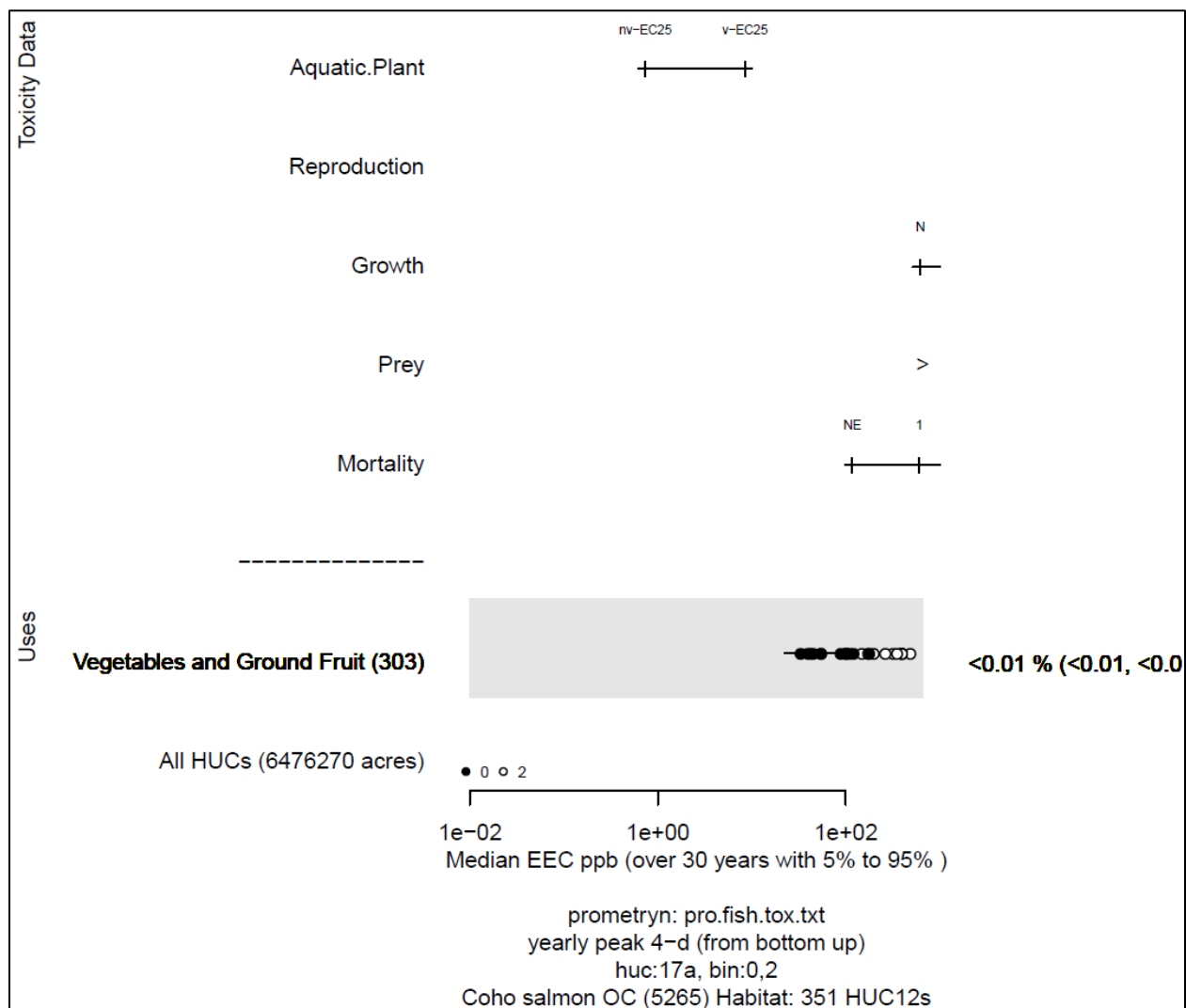


Figure 84. Effects analysis R-plot; Coho salmon Oregon Coast ESU designated critical habitat; aquatic plants.

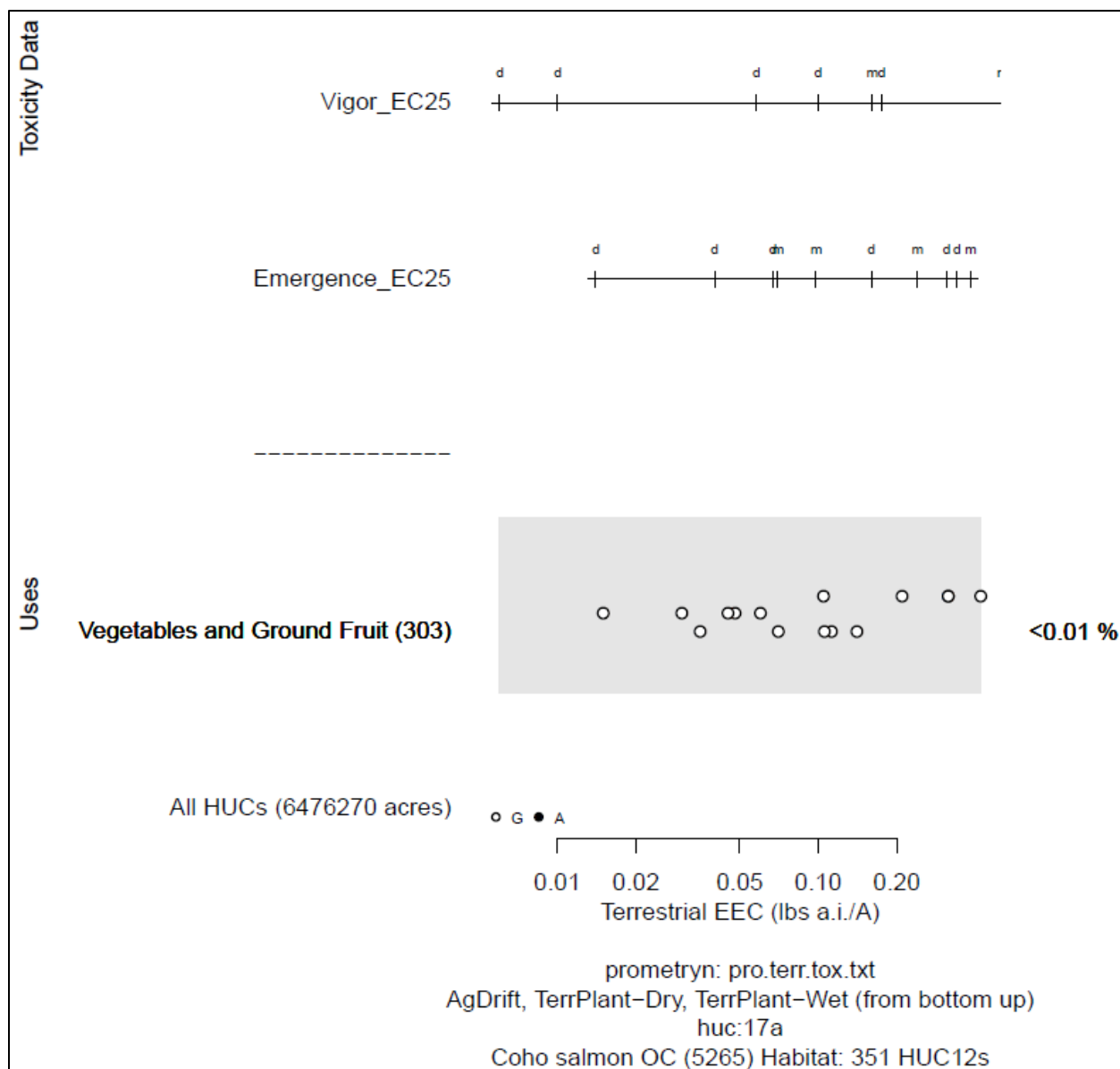


Figure 85. Effects analysis R-plot; Coho salmon Oregon Coast ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 194. Likelihood of exposure determination for Coho salmon Oregon Coast ESU designated critical habitat.

	Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	no	Low

Table 195. Prey risk hypothesis; Coho, Oregon coast ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	< 0.01	None Expected	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	< 0.01	High	Low
Terrestrial			
Cotton	0		
Vegetables and Ground Fruit	< 0.01	High	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 196. Water quality risk hypothesis; Coho, Oregon coast ESU; designated critical habitat.

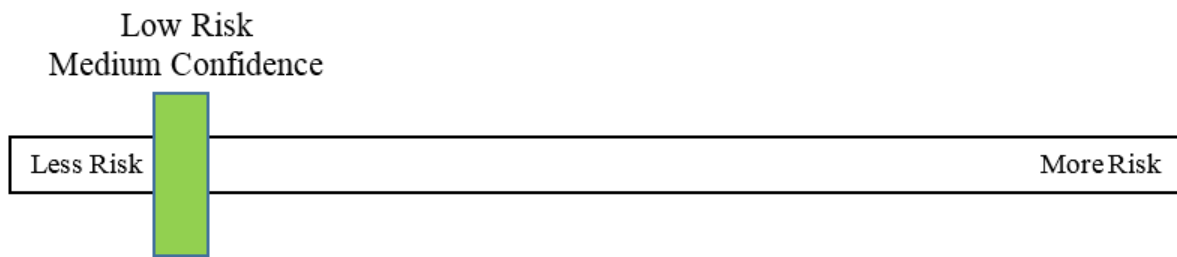
Endpoint: Water Quality		
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are not expected to adversely affect aquatic or terrestrial vegetation. The likelihood of attaining toxic concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat and are not proximal to sensitive areas; authorized use sites total approximately 303 acres (less than 0.01 percent of acres); as such, water quality is not anticipated to be impacted measurably throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 197. Effects analysis summary table; Coho, Oregon coast ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Oregon Coast Coho designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish locally, but are not anticipated to impact aquatic invertebrates or vegetative cover. Overall the risk is low and the confidence associated with that risk is medium due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.15 Southern Oregon Northern California (SONC) Coho Salmon Designated Critical Habitat; Prometryn

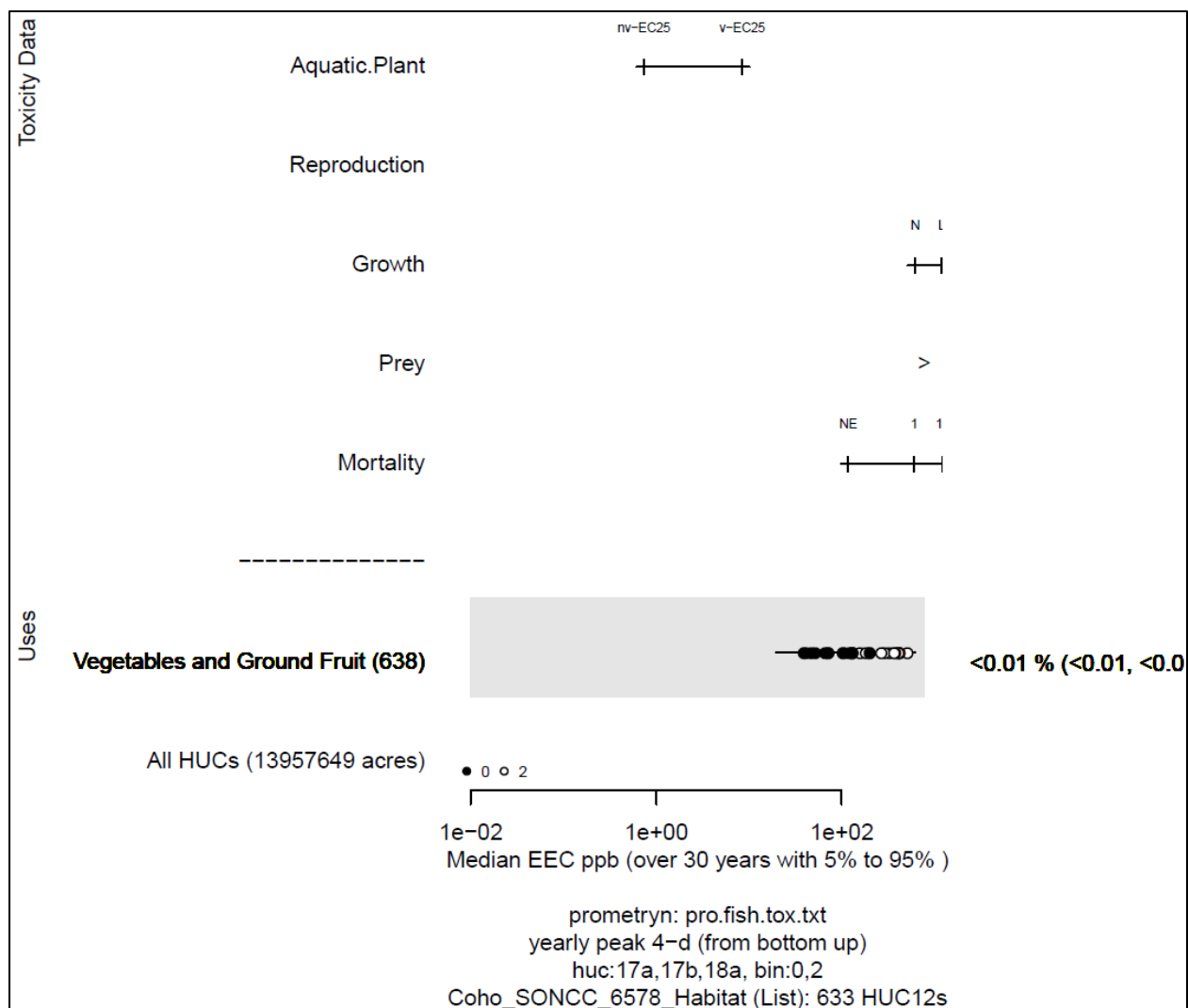


Figure 86. Effects analysis R-plot; Coho salmon, Southern Oregon Northern California ESU designated critical habitat; aquatic plants.

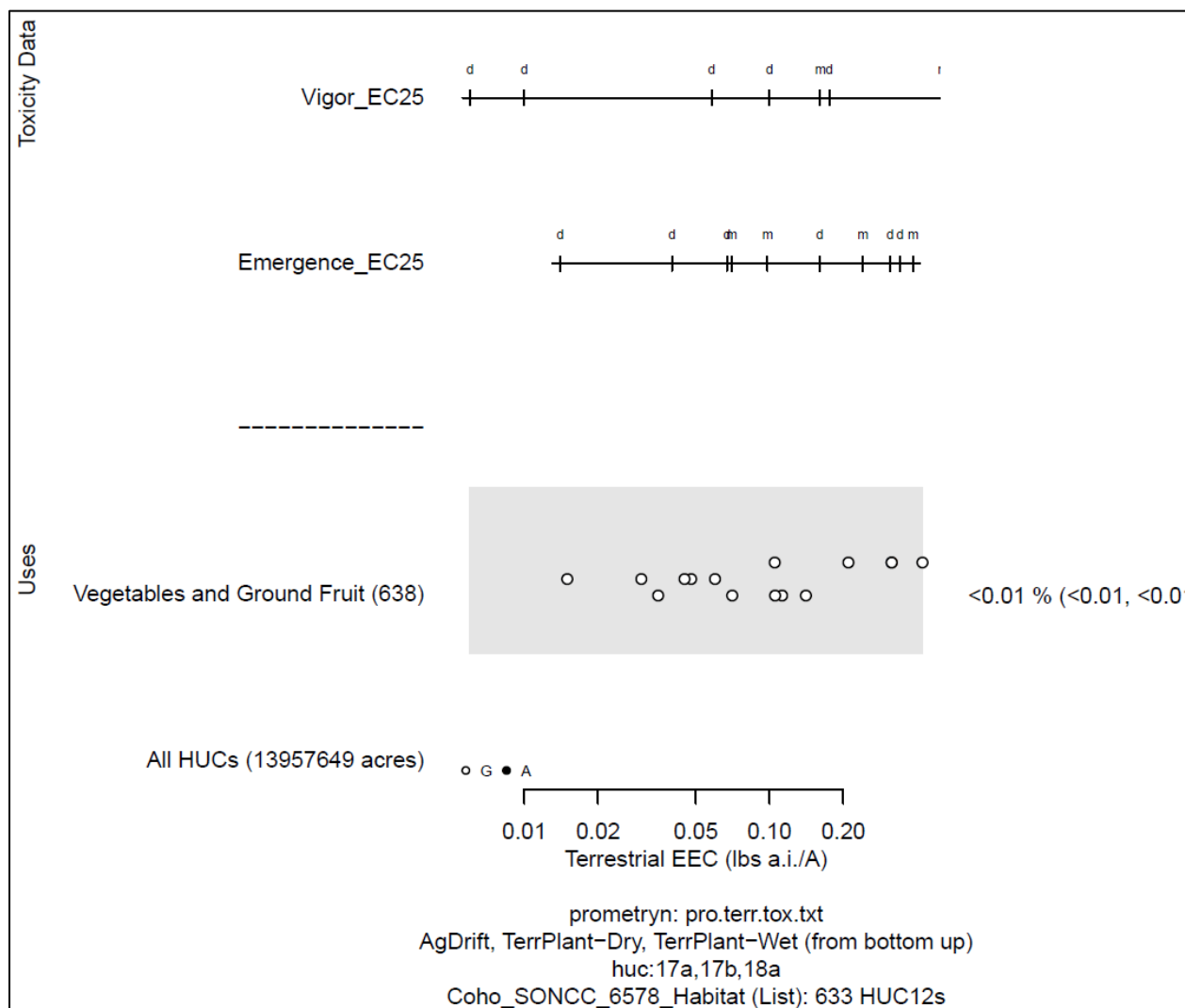


Figure 87. Effects analysis R-plot; Coho salmon, Southern Oregon Northern California ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 198. Likelihood of exposure determination for Coho salmon, Southern Oregon Northern California ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	no	Low	Low

Table 199. Prey risk hypothesis; Coho, SONC ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	< 0.01	None Expected	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	< 0.01	High	Low
Terrestrial			
Cotton	0		
Vegetables and Ground Fruit	< 0.01	High	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 200. Water quality risk hypothesis; Coho, SONC ESU; designated critical habitat.

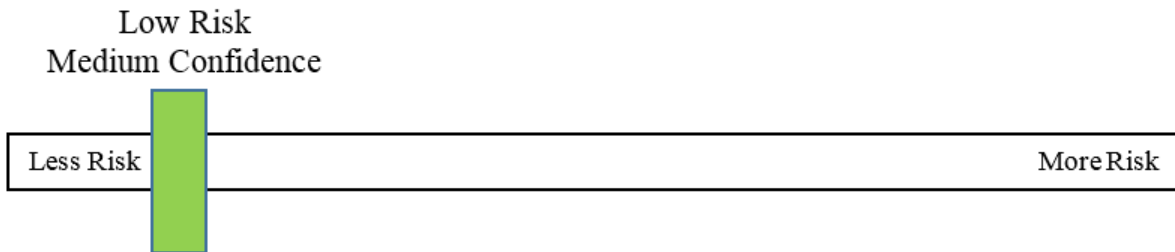
Endpoint: Water Quality		
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are not expected to adversely affect aquatic or terrestrial vegetation. The likelihood of attaining toxic concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat and are not proximal to sensitive areas; authorized use sites total approximately 638 acres (less than 0.01 percent of acres); as such, water quality is not anticipated to be impacted measurably throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 201. Effects analysis summary table; Coho, SONC ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Southern Oregon Northern California Coho designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish locally, but are not anticipated to impact aquatic invertebrates or vegetative cover. Overall the risk is low and the confidence associated with that risk is medium due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.16 Ozette Lake Sockeye Designated Critical Habitat; Prometryn

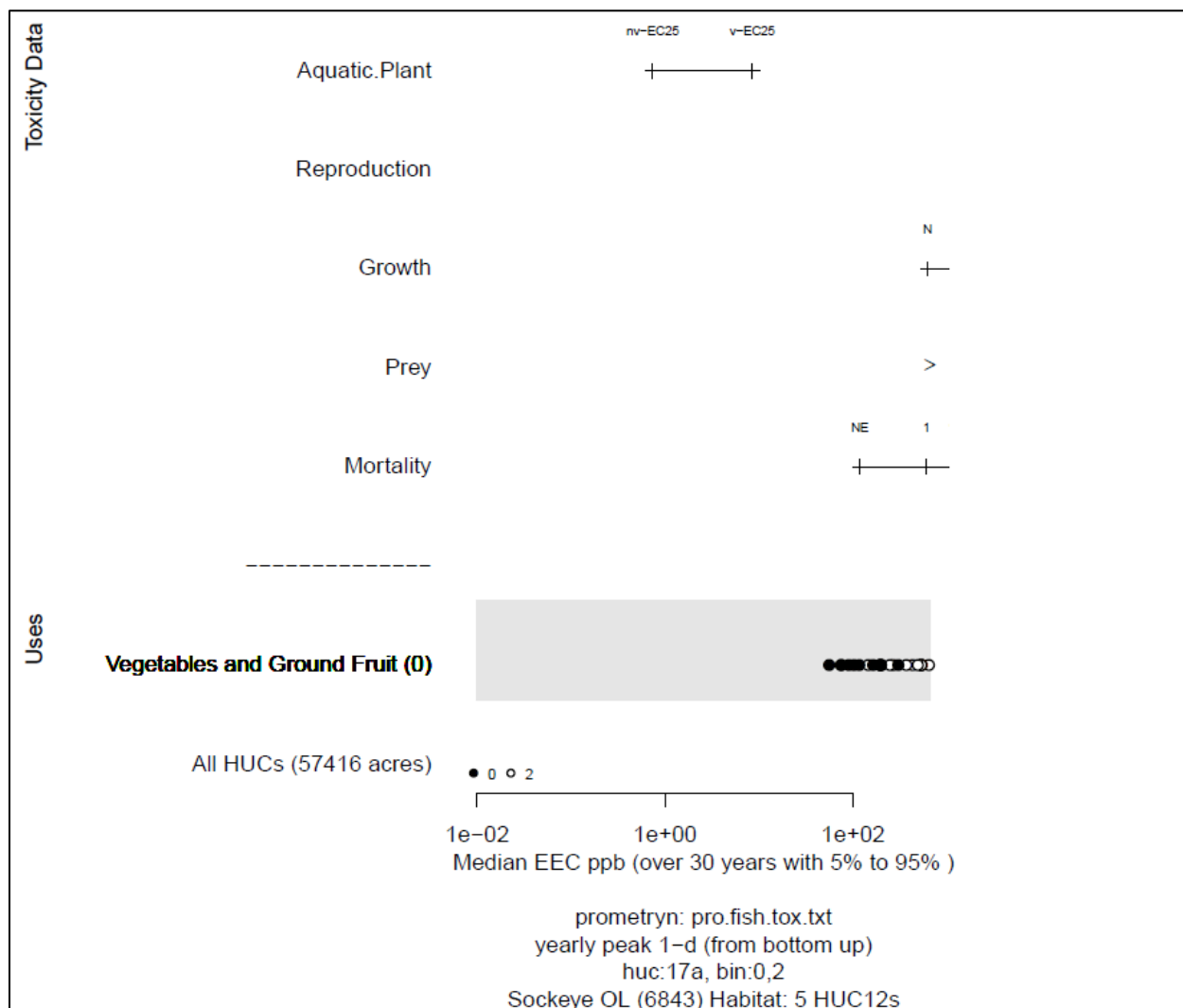


Figure 88. Effects analysis R-plot; Sockeye, Ozette Lake ESU designated critical habitat; aquatic plants.

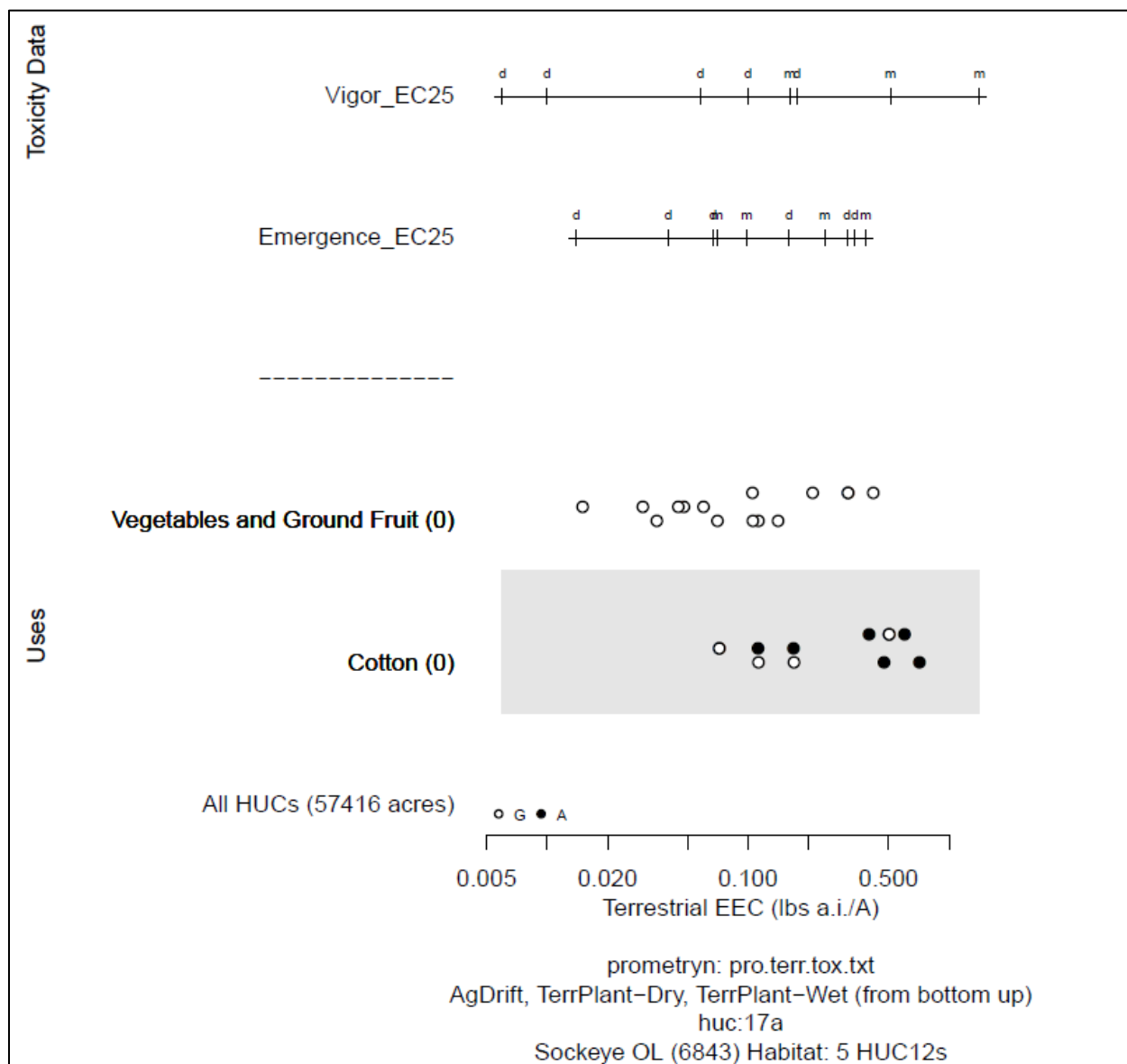


Figure 89. Effects analysis R-plot; Sockeye, Ozette Lake ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 202. Likelihood of exposure determination for Sockeye, Ozette Lake ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	NA	NA	NA	NA	NA	NA
Veg. & Ground Fruit	NA	NA	NA	NA	NA	NA

Table 203. Prey risk hypothesis; Sockeye, Ozette Lake ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0	-	-
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	High		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0	-	-
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0	-	-
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	High		

Table 204. Water quality risk hypothesis; Sockeye, Ozette Lake ESU; designated critical habitat.

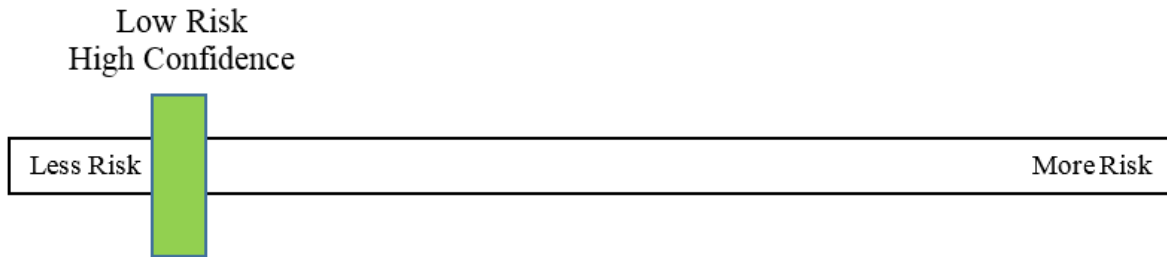
Endpoint: Water Quality		
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. However, authorized uses of prometryn-containing products do not occur within the species' designated critical habitat; as such, water quality is not anticipated to be impacted measurably throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	High	

Table 205. Effects analysis summary table; Sockeye, Ozette Lake ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	High	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	High	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	High	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features. Reductions in prey, nor neither degradation of water quality or loss of vegetative cover are likely throughout designated critical habitat of Ozette Lake Sockeye. Overall the risk is low and the confidence associated with that risk is high due to the lack of authorized use sites within the designated critical habitat.



15.3.17 Snake River Sockeye Salmon Designated Critical Habitat; Prometryn

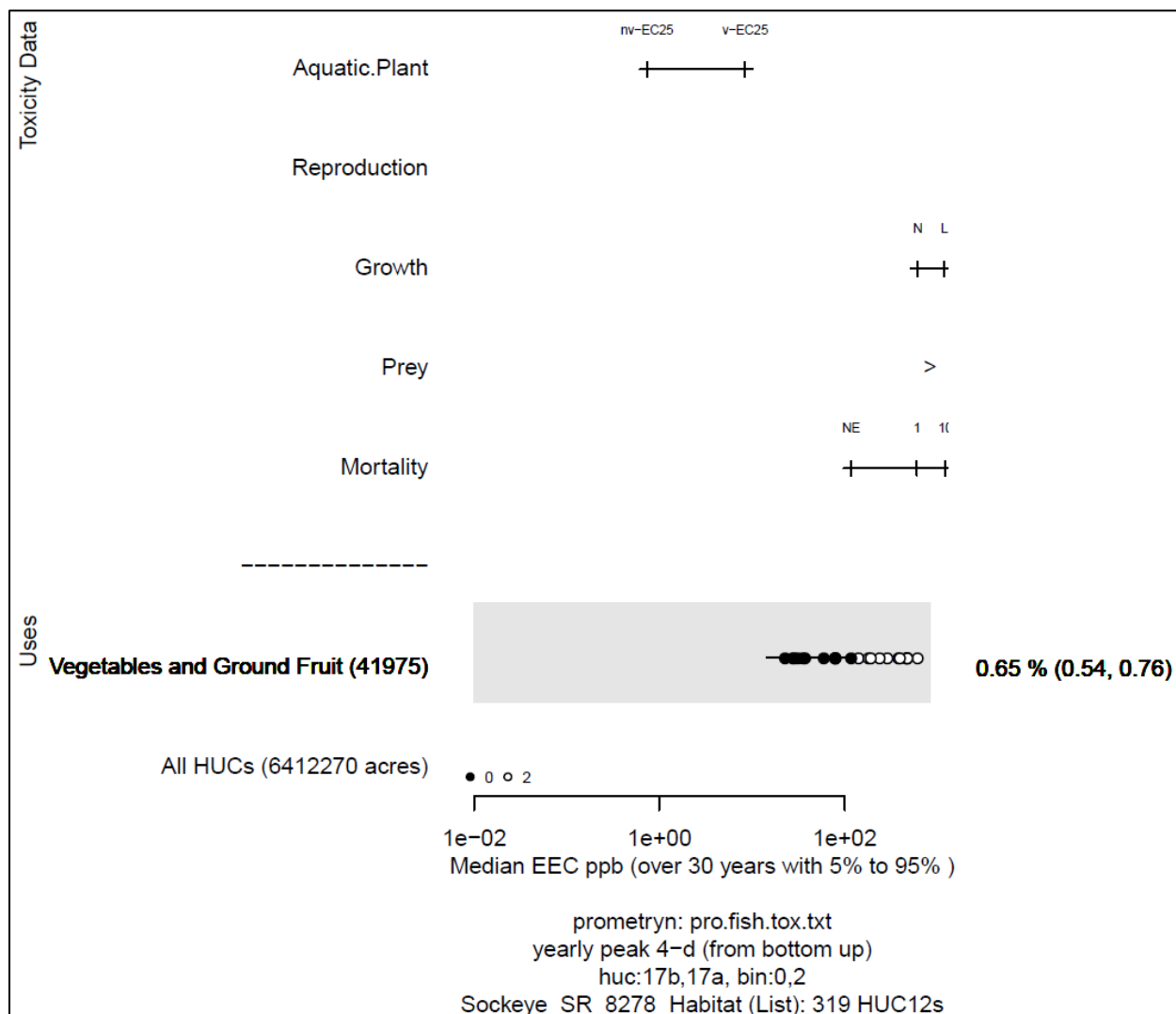


Figure 90. Effects analysis R-plot; Sockeye salmon, Snake River ESU designated critical habitat; aquatic plants.

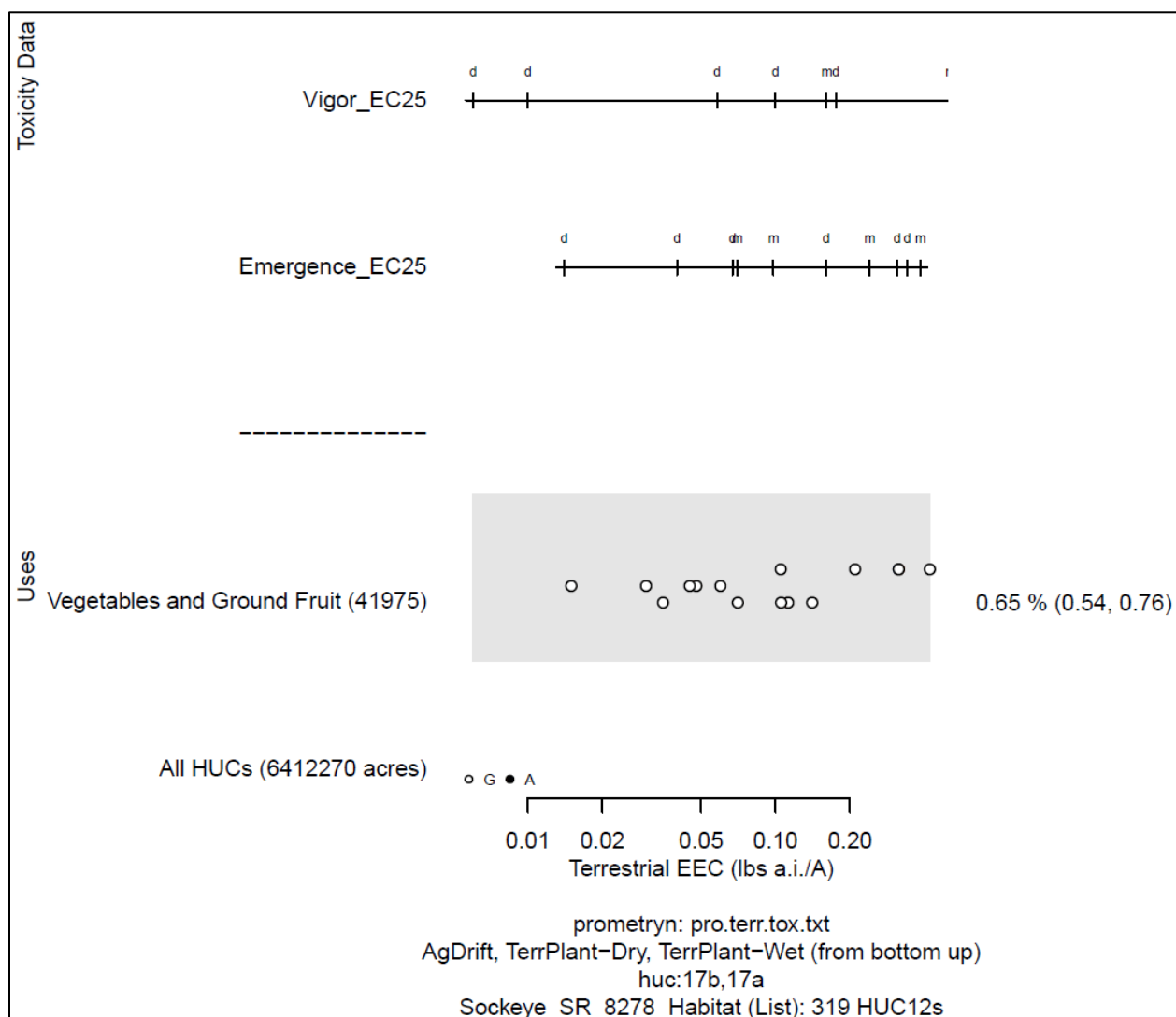


Figure 91. Effects analysis R-plot; Sockeye salmon, Snake River ESU designated critical habitat; terrestrial plants, riparian habitat.

Table 206. Likelihood of exposure determination for Sockeye salmon, Snake River ESU designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	High	High

Table 207. Prey risk hypothesis; Sockeye, Snake River ESU; designated critical habitat.

Endpoint: Prey (invertebrates)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.65	None Expected	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.65	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0.65	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 208. Water quality risk hypothesis; Sockeye, Snake River ESU; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat (e.g.,

along the migratory corridor at confluence of the Columbia and Snake Rivers); authorized use sites total approximately 41,975 acres (less than 1 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 209. Effects analysis summary table; Sockeye, Snake River ESU; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Snake River Sockeye designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to

be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.18 California Central Valley Steelhead Designated Critical Habitat; Prometryn

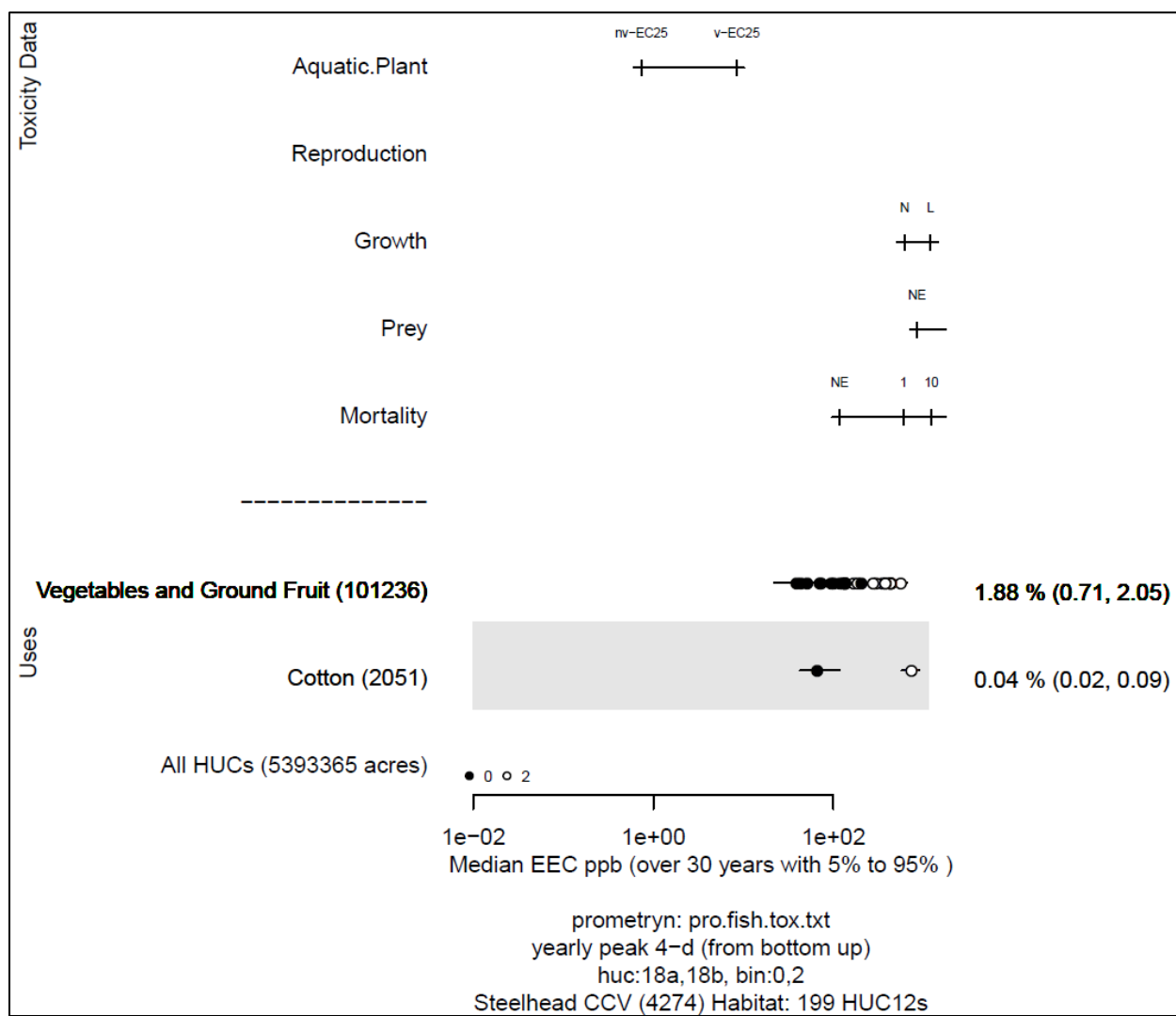


Figure 92. Effects analysis R-plot; Steelhead, California Central-Valley DPS designated critical habitat; aquatic plants.

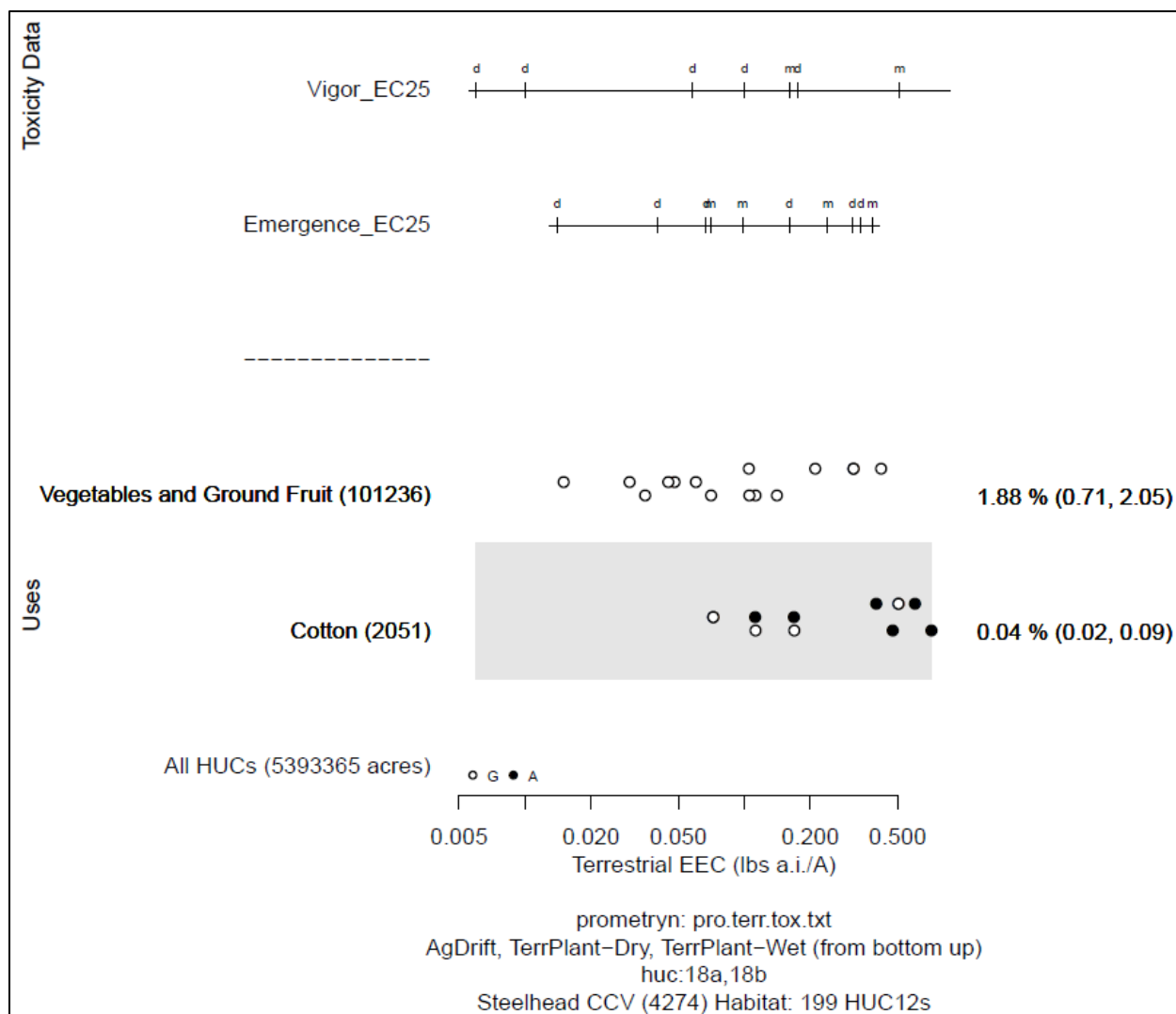


Figure 93. Effects analysis R-plot; Steelhead, California Central-Valley DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 210. Likelihood of exposure determination for Steelhead, California Central-Valley DPS designated critical habitat.

		Percent Overlap Category				
		Persistence			Multiple Applications	
					Proximity Analysis	
					Likelihood of Exposure	
Cotton	1	yes	yes	no	Low	
Veg. & Ground Fruit	2	yes	yes	NA	High	

Table 211. Prey risk hypothesis; Steelhead, California Central Valley DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	0.04	Low / Low	Low
Vegetables and Ground Fruit	1.88	None Expected / Low	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0.04	High	Low
Vegetables and Ground Fruit	1.88	High	High
Terrestrial			
Cotton	0.04	High	Low
Vegetables and Ground Fruit	1.88	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 212. Water quality risk hypothesis; Steelhead, California Central Valley DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Most authorized uses of prometryn-containing products occur within the southern

terminus of the species' designated critical habitat (i.e., migratory corridor). Use sites total approximately 101,236 acres (about 1.9 percent of acres). As such, water quality may be impacted in this region, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 213. Effects analysis summary table; Steelhead, California Central Valley DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the California Central Valley Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate the

effects to be limited due to the minimal extent of prometryn-containing uses (limited to southern migratory portion of designated critical habitat). Overall the risk is medium and the confidence associated with that risk is medium due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.19 Central California Coast Steelhead Designated Critical Habitat; Prometryn

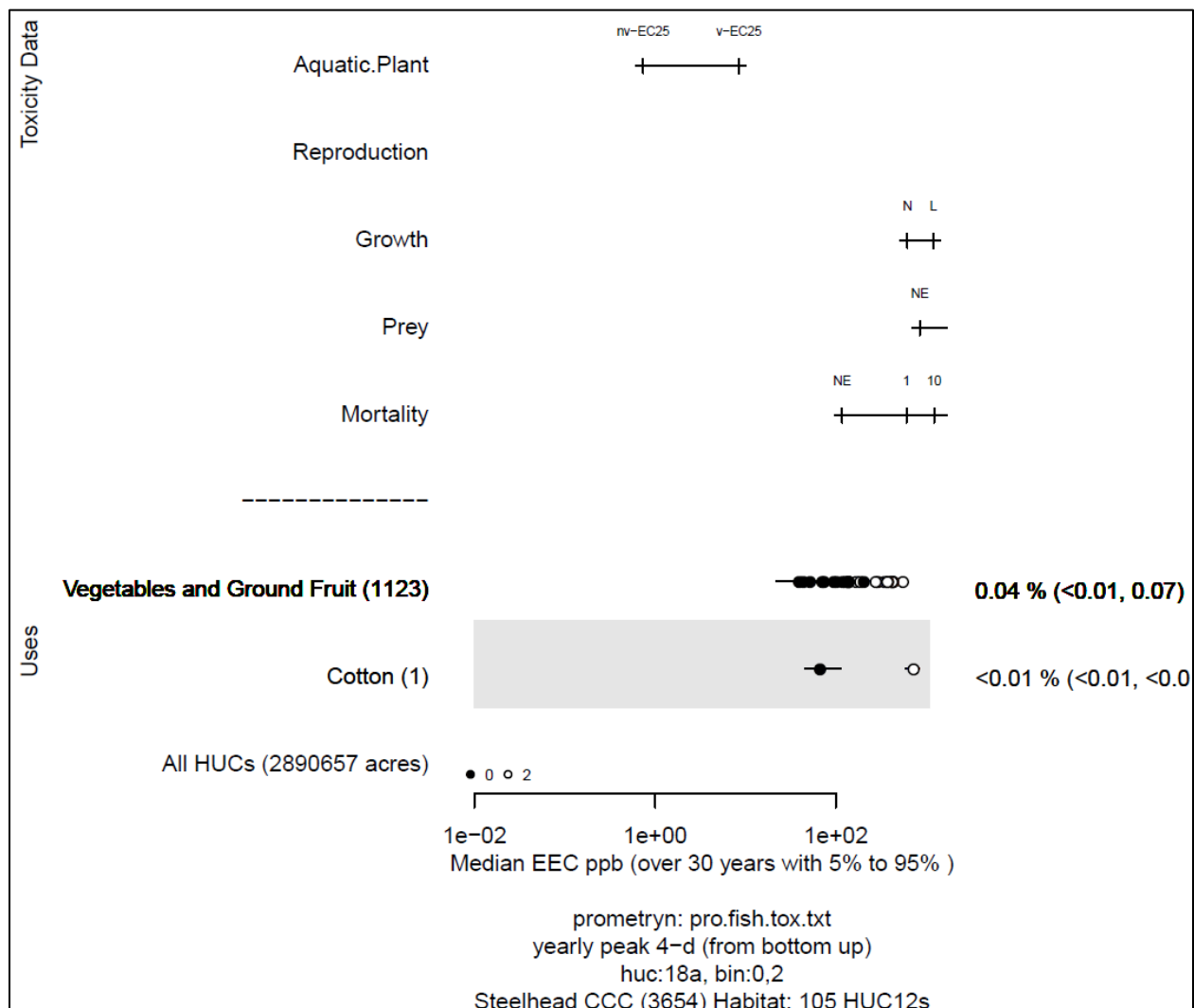


Figure 94. Effects analysis R-plot; Steelhead, Central California Coast DPS designated critical habitat; aquatic plants.

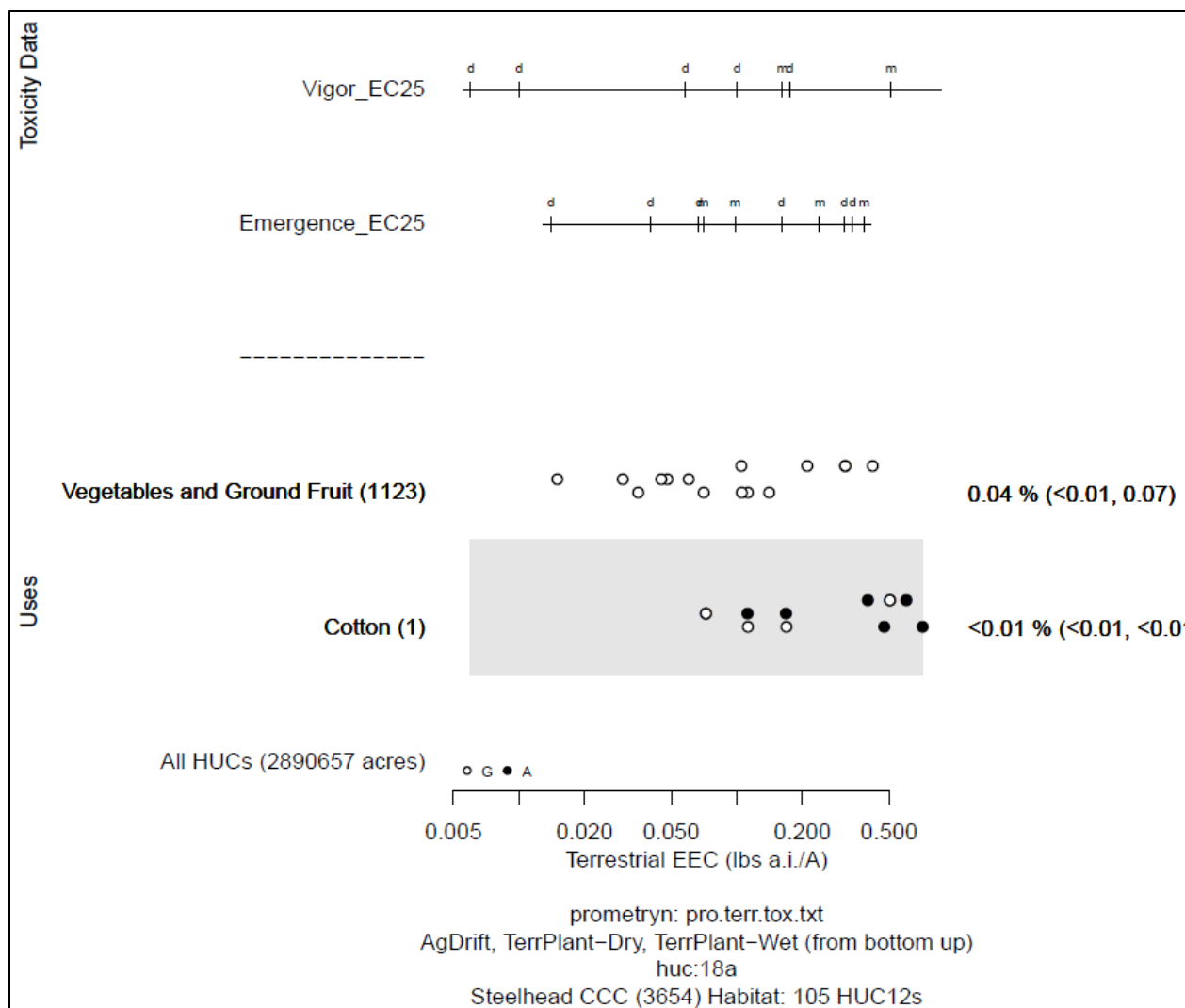


Figure 95. Effects analysis R-plot; Steelhead, Central California Coast DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 214. Likelihood of exposure determination for Steelhead, Central California Coast DPS designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	1	yes	yes	no	Low	Low
Veg. & Ground Fruit	1	yes	yes	no	Low	Low

Table 215. Prey risk hypothesis; Steelhead, Central California coast DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	< 0.01	Low / Low	Low
Vegetables and Ground Fruit	0.04	None Expected / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	< 0.01	-	-
Vegetables and Ground Fruit	0.04	High	Low
Terrestrial			
Cotton	< 0.01	-	-
Vegetables and Ground Fruit	0.04	High	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	Medium		

Table 216. Water quality risk hypothesis; Steelhead, Central California coast DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are not expected to adversely affect aquatic or terrestrial vegetation. The likelihood of attaining toxic concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of

water quality degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat and are not proximal to sensitive areas; authorized use sites total approximately 1,124 acres (less than 1 percent of acres); as such, water quality is not anticipated to be impacted measurably throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

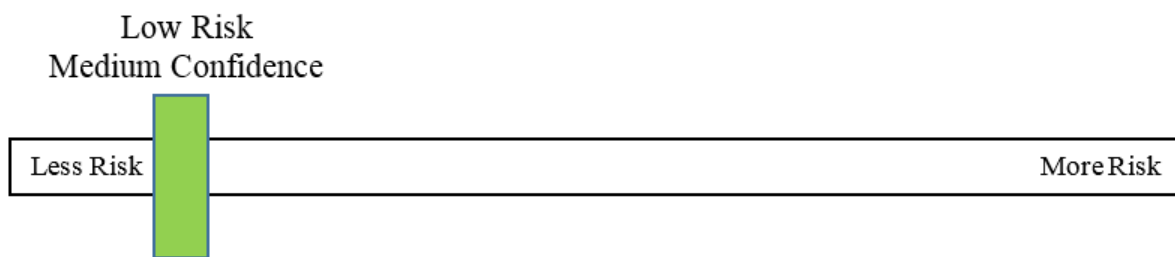
Table 217. Effects analysis summary table; Steelhead, Central California coast DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	Medium	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of the Central California Coast Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish locally, but are not anticipated to impact aquatic invertebrates or vegetative cover. Overall the risk is low and the

confidence associated with that risk is medium due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.20 Lower Columbia River Steelhead Designated Critical Habitat; Prometryn

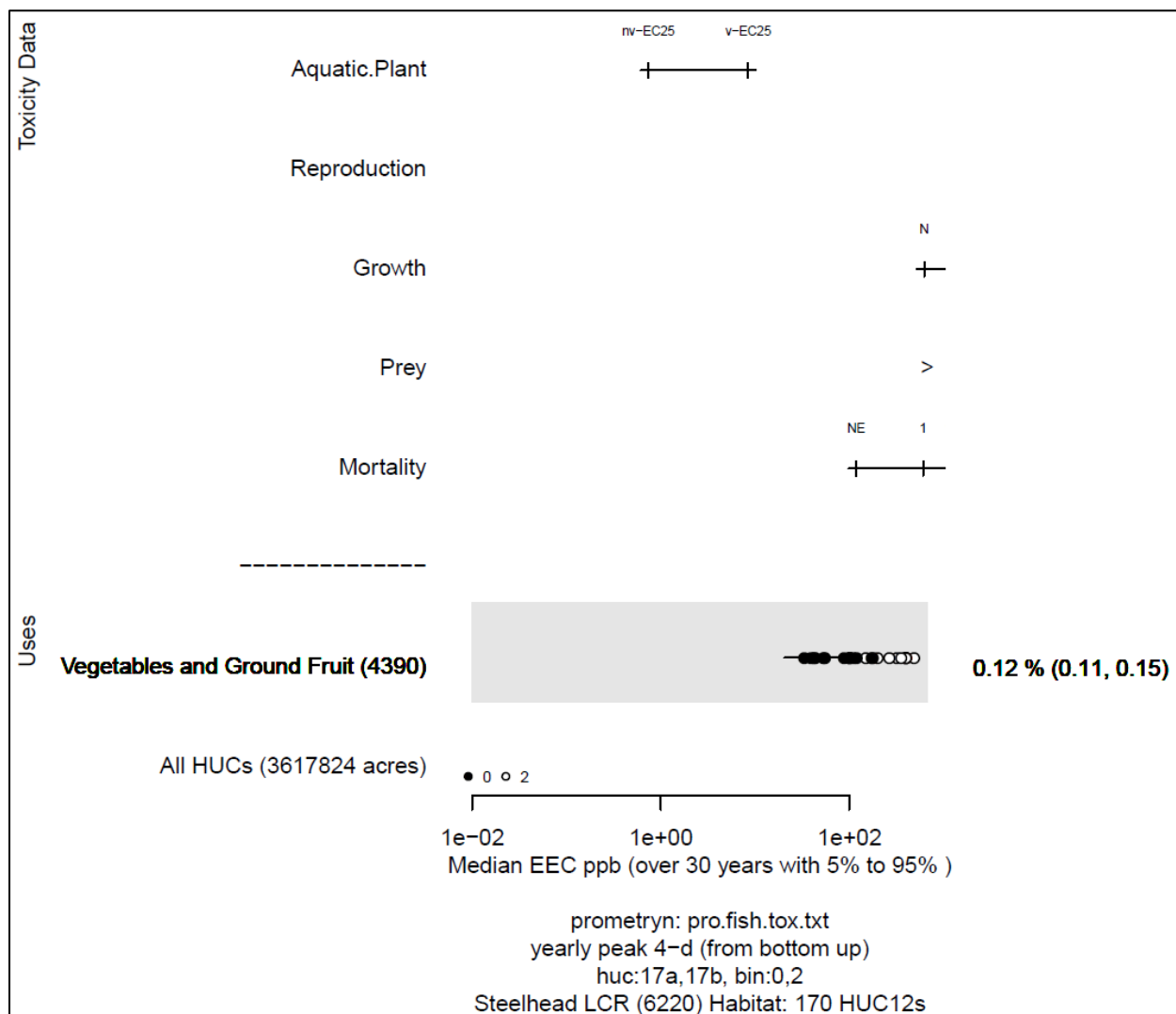


Figure 96. Effects analysis R-plot; Steelhead, Lower Columbia River DPS designated critical habitat; aquatic plants.

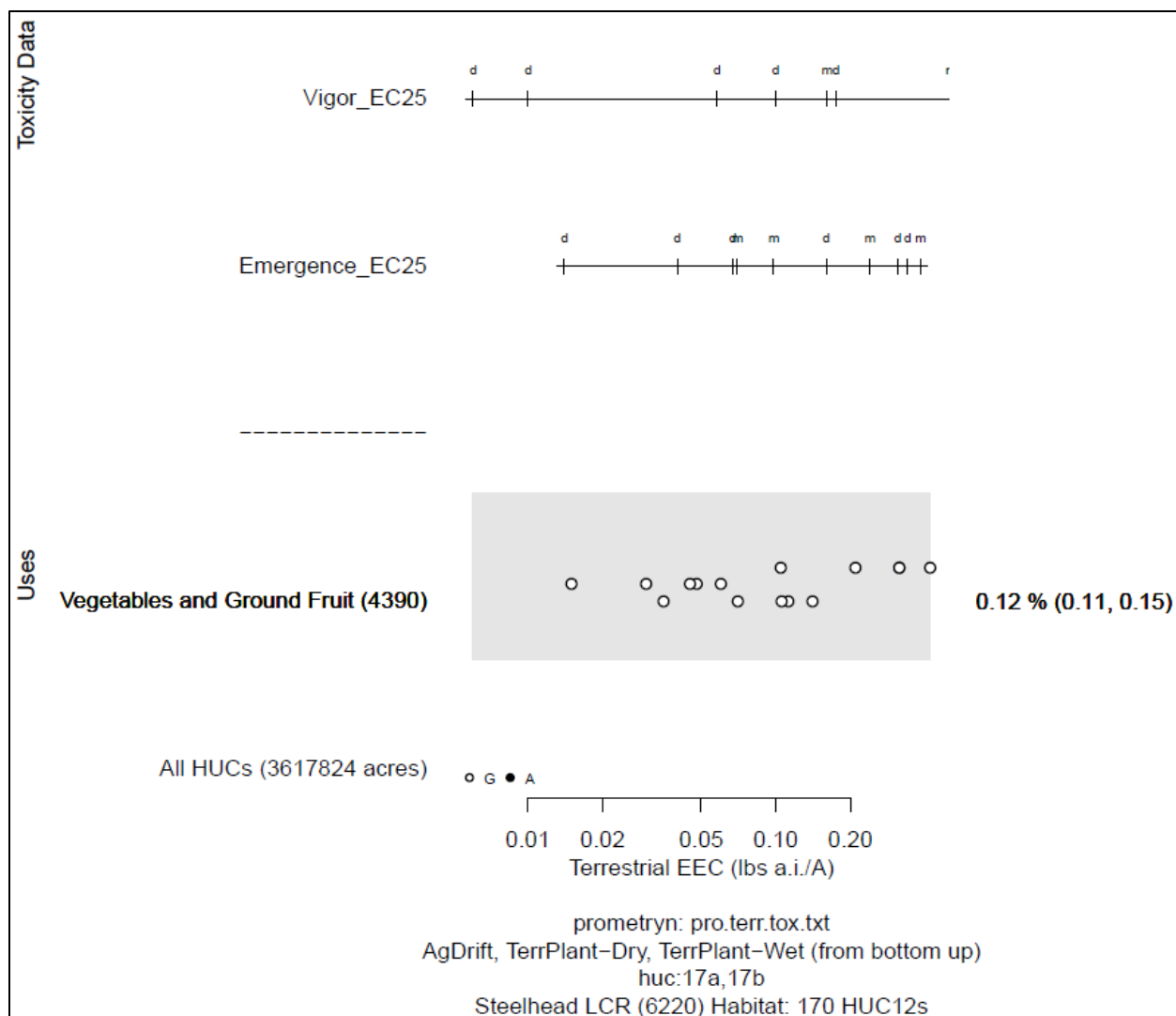


Figure 97. Effects analysis R-plot; Steelhead, Lower Columbia River DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 218. Likelihood of exposure determination for Steelhead, Lower Columbia River DPS designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	NA	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	NA	High

Table 219. Prey risk hypothesis; Steelhead, lower Columbia River DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.12	None Expected / Low	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.12	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0.12	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 220. Water quality risk hypothesis; Steelhead, lower Columbia River DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of prometryn-

containing products occur only minimally within the species' designated critical habitat (e.g. Suavie Island, OR); authorized use sites total approximately 1,364 acres (less than 0.1 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 221. Effects analysis summary table; Steelhead, lower Columbia River DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of the Lower Columbia River Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to

be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.21 Middle Columbia River Steelhead Designated Critical Habitat; Prometryn

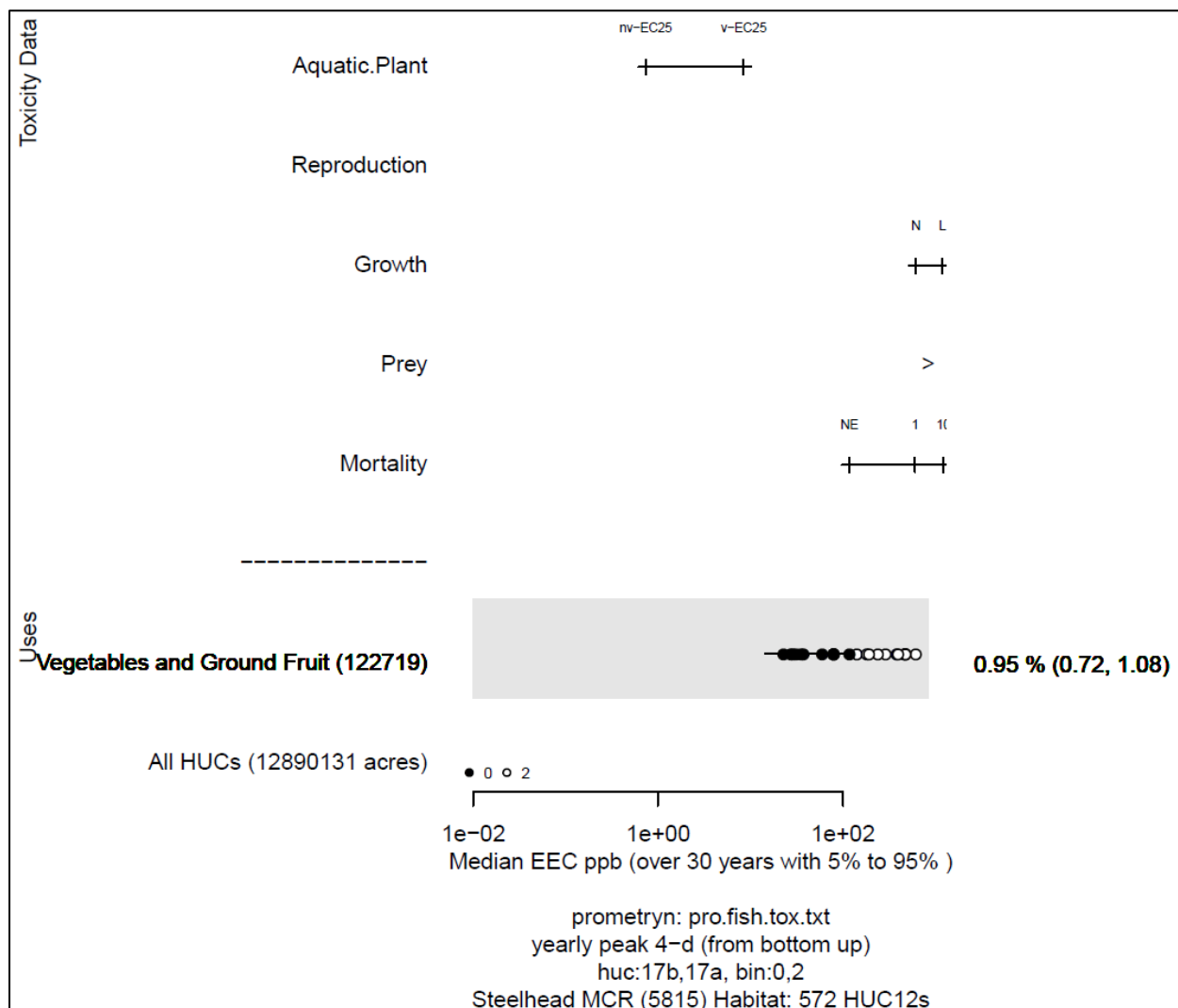


Figure 98. Effects analysis R-plot; Steelhead, Middle Columbia River DPS designated critical habitat; aquatic plants.

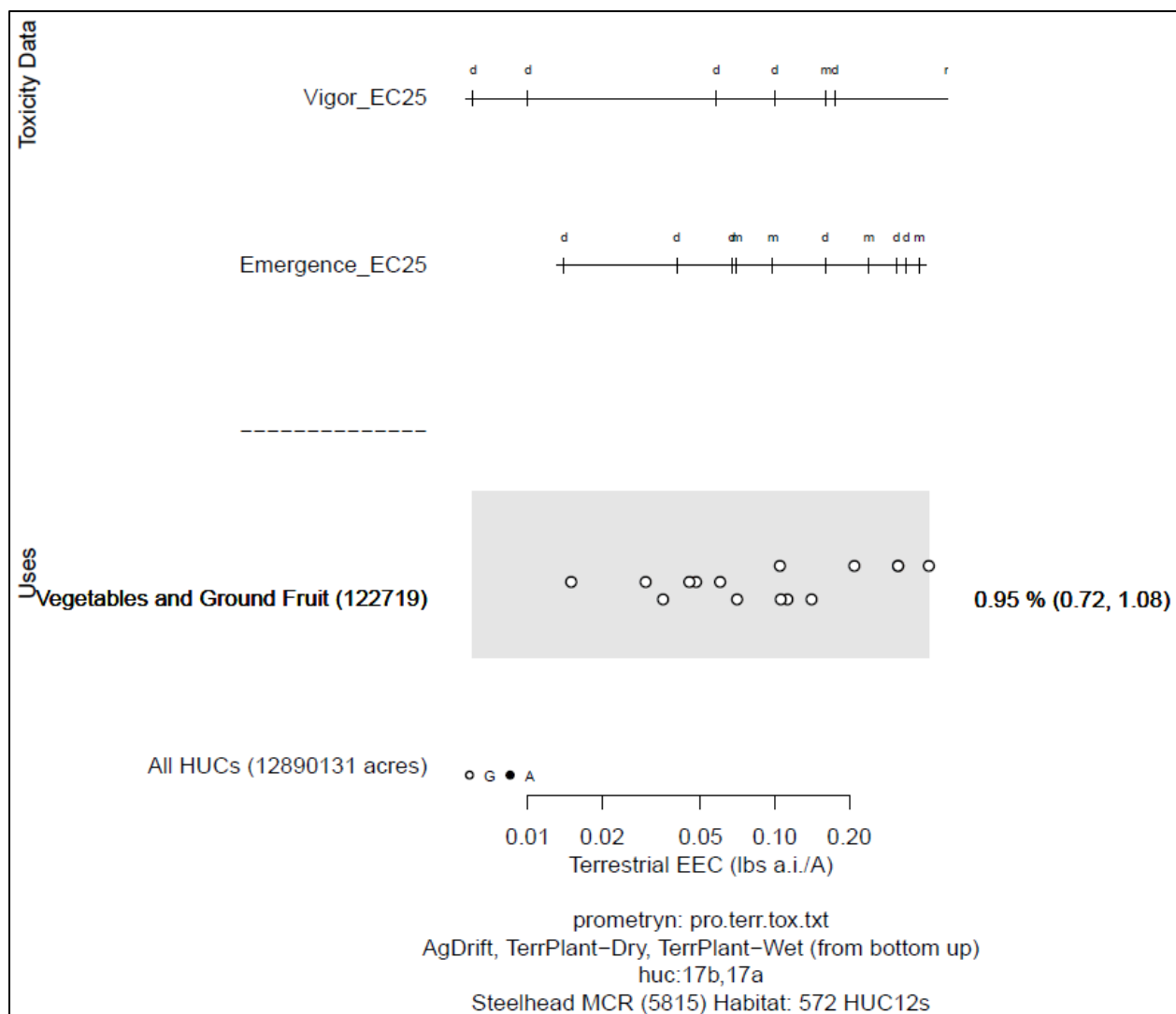


Figure 99. Effects analysis R-plot; Steelhead, Middle Columbia River DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 222. Likelihood of exposure determination for Steelhead, Middle Columbia River DPS designated critical habitat.

		Percent Overlap Category				
		Persistence				
		Multiple Applications				
		Proximity Analysis				
		Likelihood of Exposure				
Cotton	NA	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	yes	High

Table 223. Prey risk hypothesis; Steelhead, middle Columbia River DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.95	None Expected / Low	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.95	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0.95	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 224. Water quality risk hypothesis; Steelhead, middle Columbia River DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality

degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat (e.g., Columbia River migratory corridor); authorized use sites total approximately 122,719 acres (less than 1 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 225. Effects analysis summary table; Steelhead, middle Columbia River DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Middle Columbia River Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these

effects to be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.22 Northern California Steelhead Designated Critical Habitat; Prometryn

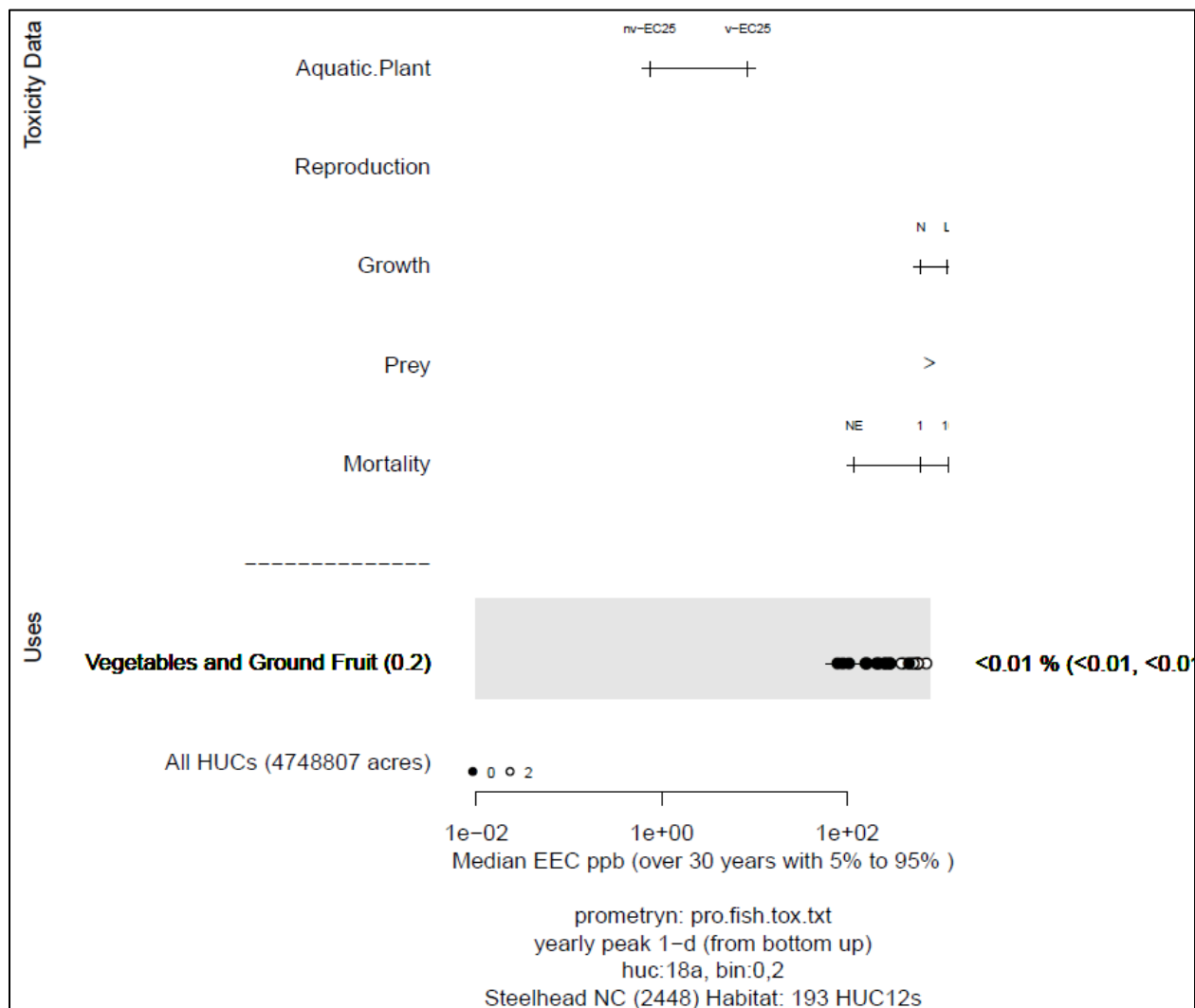


Figure 100. Effects analysis R-plot; Steelhead, Northern California DPS designated critical habitat; aquatic plants.

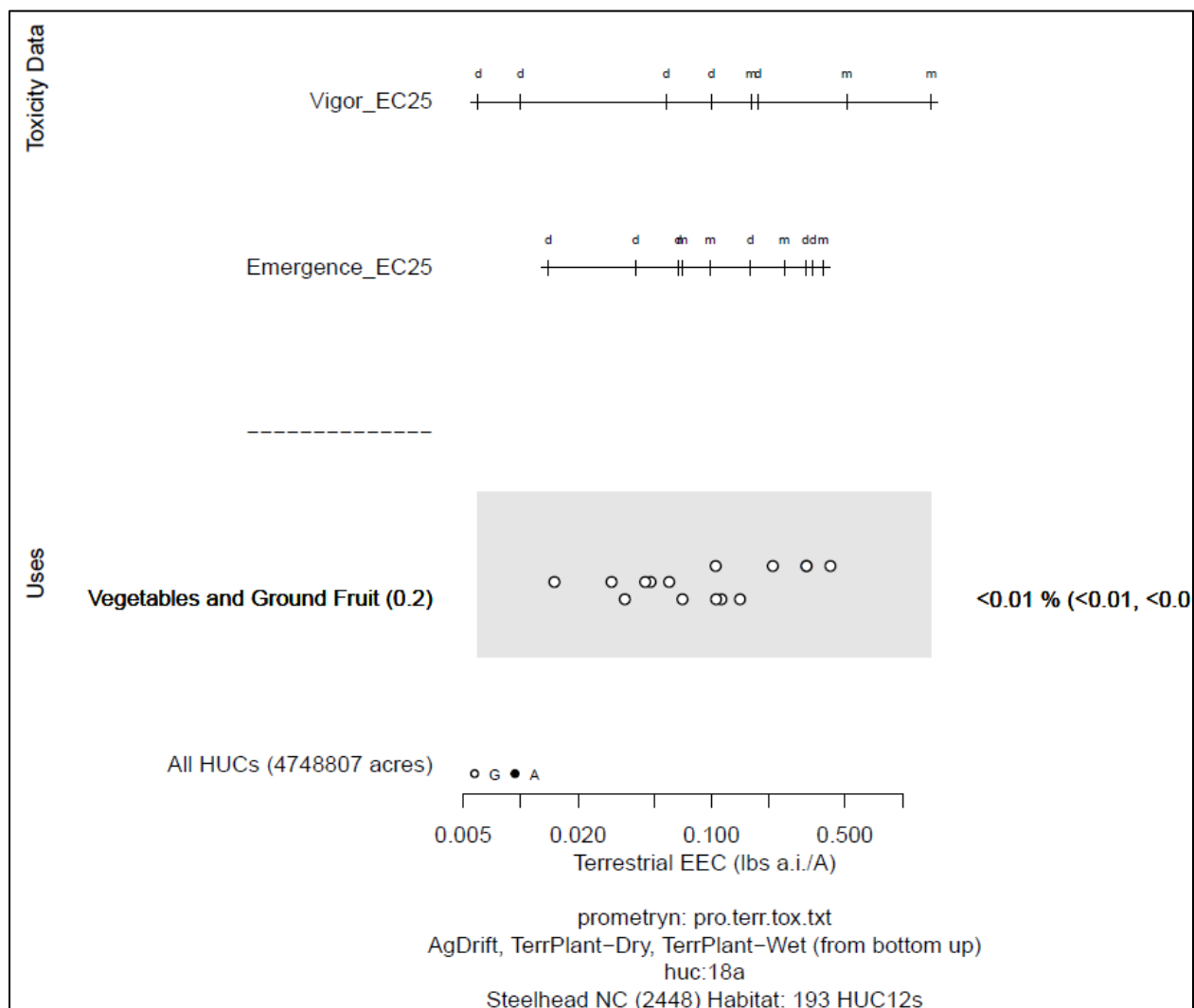


Figure 101. Effects analysis R-plot; Steelhead, Northern California DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 226. Likelihood of exposure determination for Steelhead, Northern California DPS designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	
Veg. & Ground Fruit	1	yes	yes	no	Low	

Table 227. Prey risk hypothesis; Steelhead, Northern California DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	<0.01	None Expected / Low	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	High		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	<0.01	High	Low
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	<0.01	High	Low
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Low	High		

Table 228. Water quality risk hypothesis; Steelhead, Northern California DPS; designated critical habitat.

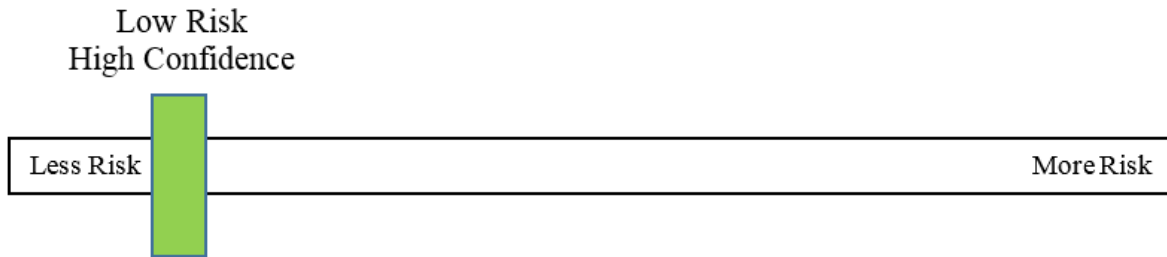
Endpoint: Water Quality		
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. However, authorized uses of prometryn-containing products do not occur within the species' designated critical habitat; as such, water quality is not anticipated to be impacted measurably throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	High	

Table 229. Effects analysis summary table; Steelhead, Northern California DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	High	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	High	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Low	High	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features. Reductions in prey, nor neither degradation of water quality or loss of vegetative cover are likely throughout designated critical habitat of Northern California Steelhead. Overall, the risk is low and the confidence associated with that risk is high due to the lack of authorized use sites within the designated critical habitat.



15.3.23 Puget Sound Steelhead Designated Critical Habitat; Prometryn

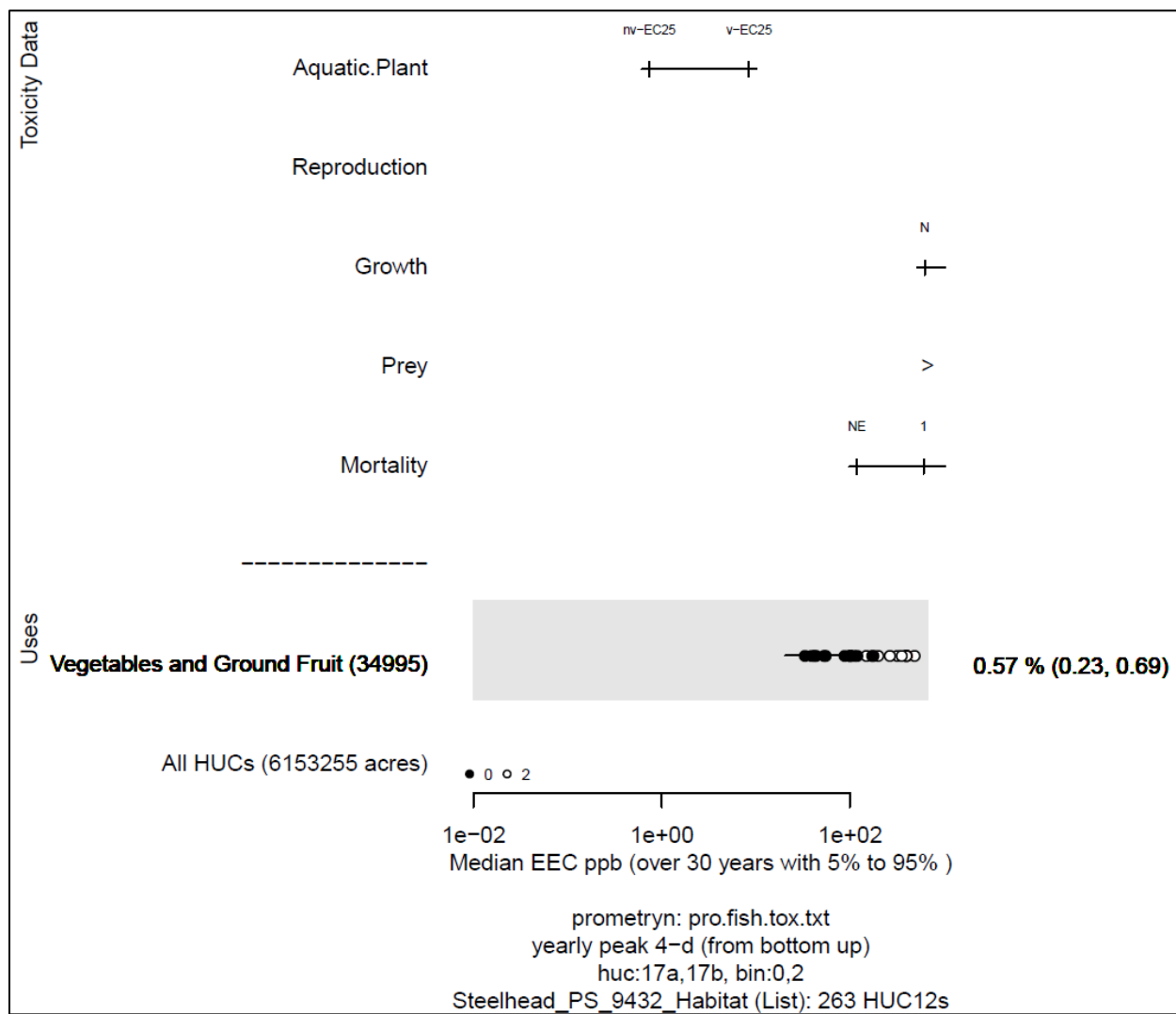


Figure 102. Effects analysis R-plot; Steelhead, Puget Sound DPS designated critical habitat; aquatic plants.

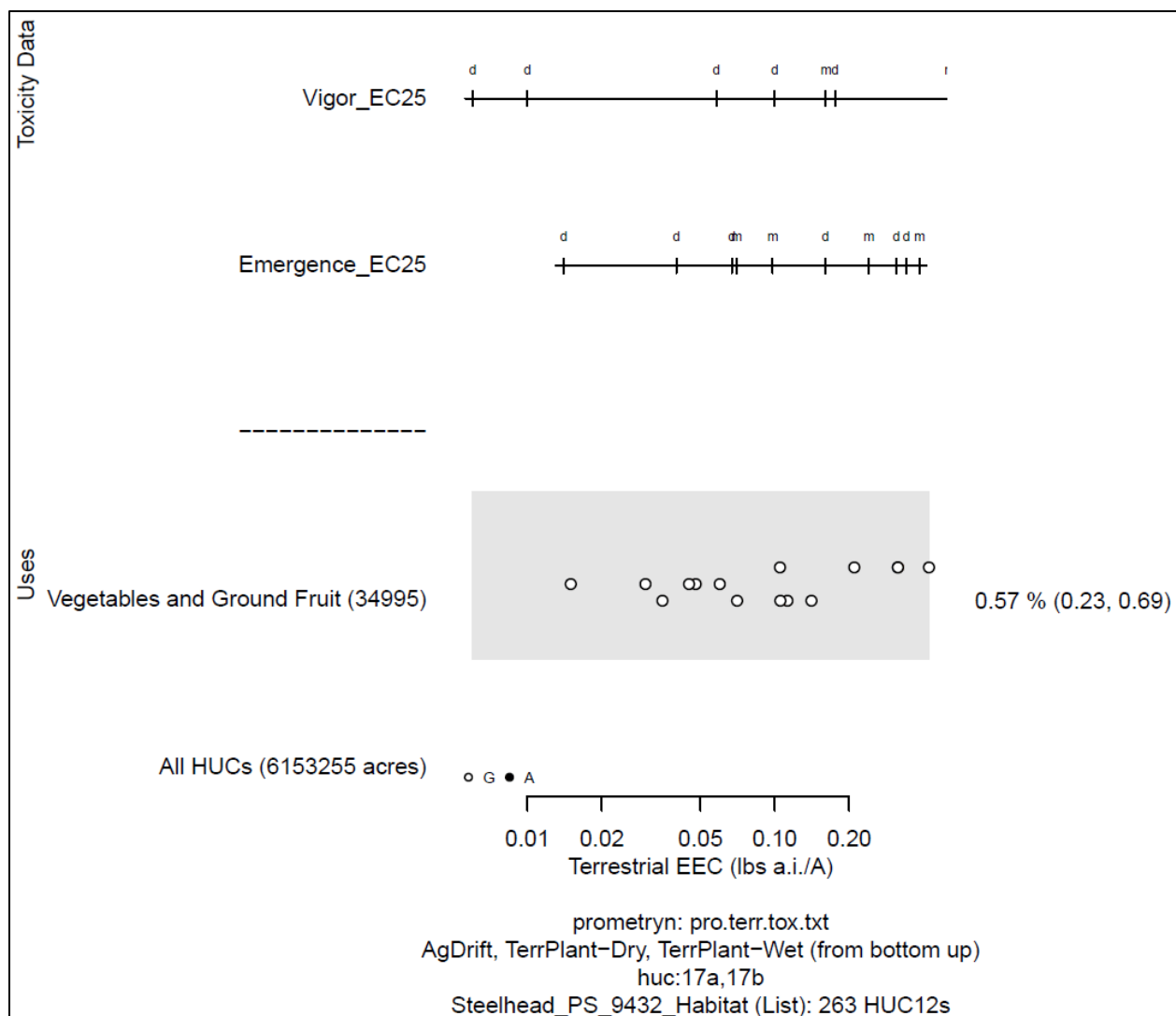


Figure 103. Effects analysis R-plot; Steelhead, Puget Sound DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 230. Likelihood of exposure determination for Steelhead, Puget Sound DPS designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	NA	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	High	High

Table 231. Prey risk hypothesis; Steelhead, Puget Sound DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.57	None Expected / Low	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.57	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0.57	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 232. Water quality risk hypothesis; Steelhead, Puget Sound DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. In smaller water bodies, toxic concentrations may occur, however, authorized

uses of prometryn-containing products occur only minimally within the species' designated critical habitat (e.g. Skagit and Nooksack Rivers). Authorized use sites total approximately 34,995 acres (about 0.57 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species' designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 233. Effects analysis summary table; Steelhead, Puget Sound DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of the Puget Sound Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to be limited in

scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.24 Snake River Basin Steelhead Designated Critical Habitat; Prometryn

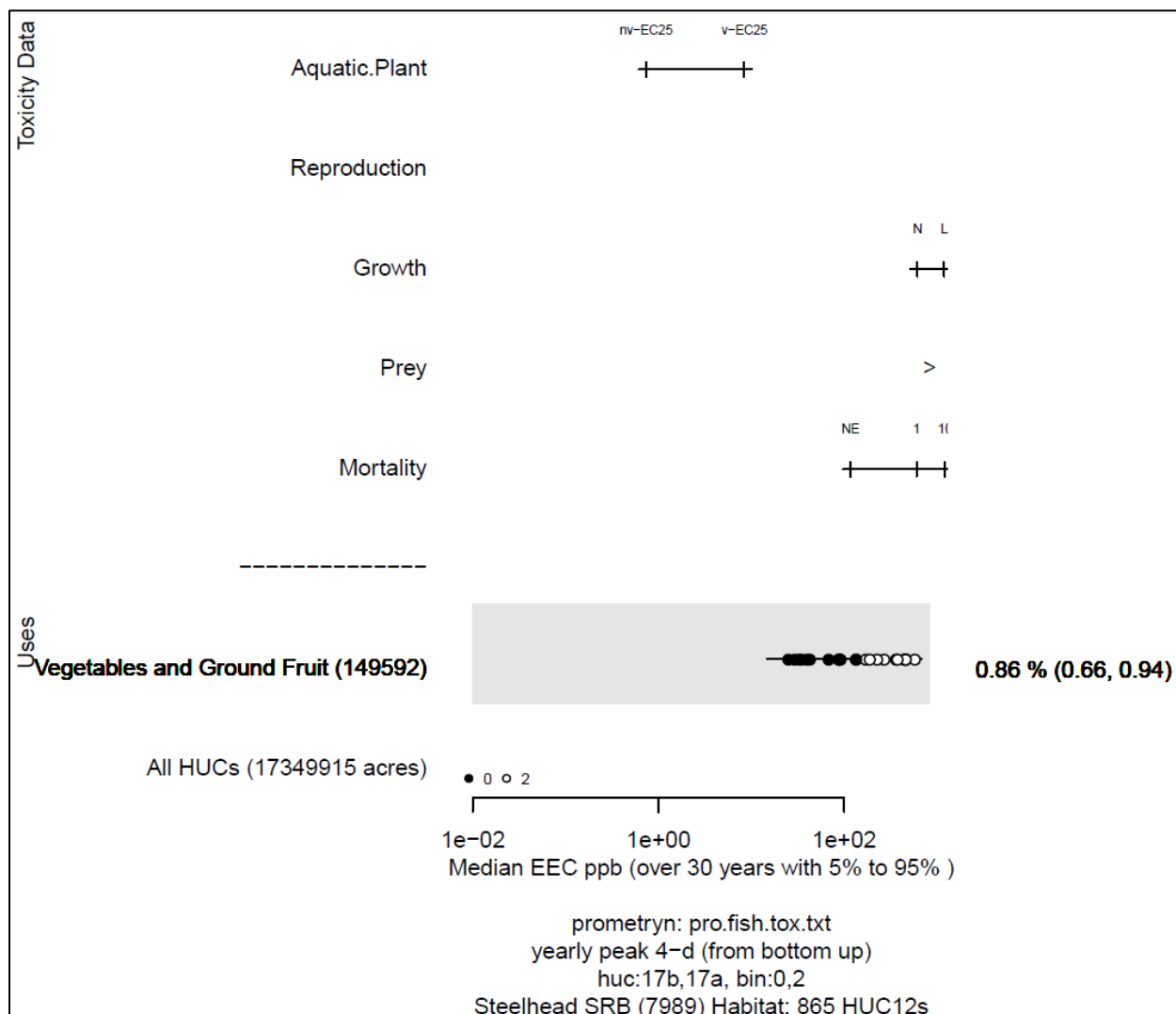


Figure 104. Effects analysis R-plot; Steelhead, Snake River Basin DPS designated critical habitat; aquatic plants.

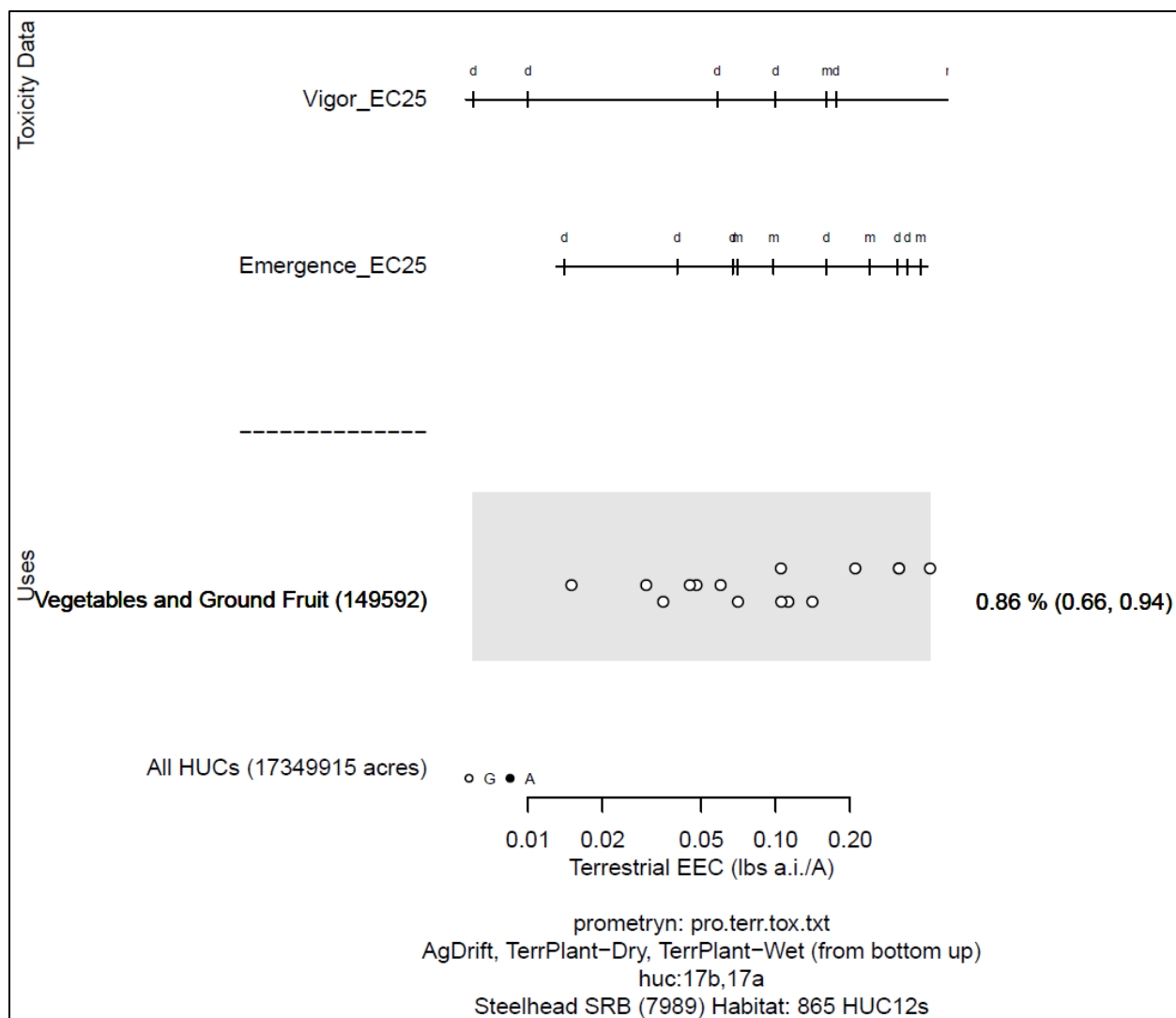


Figure 105. Effects analysis R-plot; Steelhead, Snake River Basin DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 234. Likelihood of exposure determination for Steelhead, Snake River Basin DPS designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	NA
Veg. & Ground Fruit	1	yes	yes	yes	High	High

Table 235. Prey risk hypothesis; Steelhead, Snake River basin DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	0.86	None Expected / Low	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	0.86	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	0.86	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 236. Water quality risk hypothesis; Steelhead, Snake River basin DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality

degradation. Toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat (e.g. along the migratory corridor at confluence of the Columbia and Snake Rivers); authorized use sites total approximately 41,975 acres (less than 1 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 237. Effects analysis summary table; Steelhead, Snake River basin DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Snake River Basin Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to

be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.25 South Central California Coast Steelhead Designated Critical Habitat; Prometryn

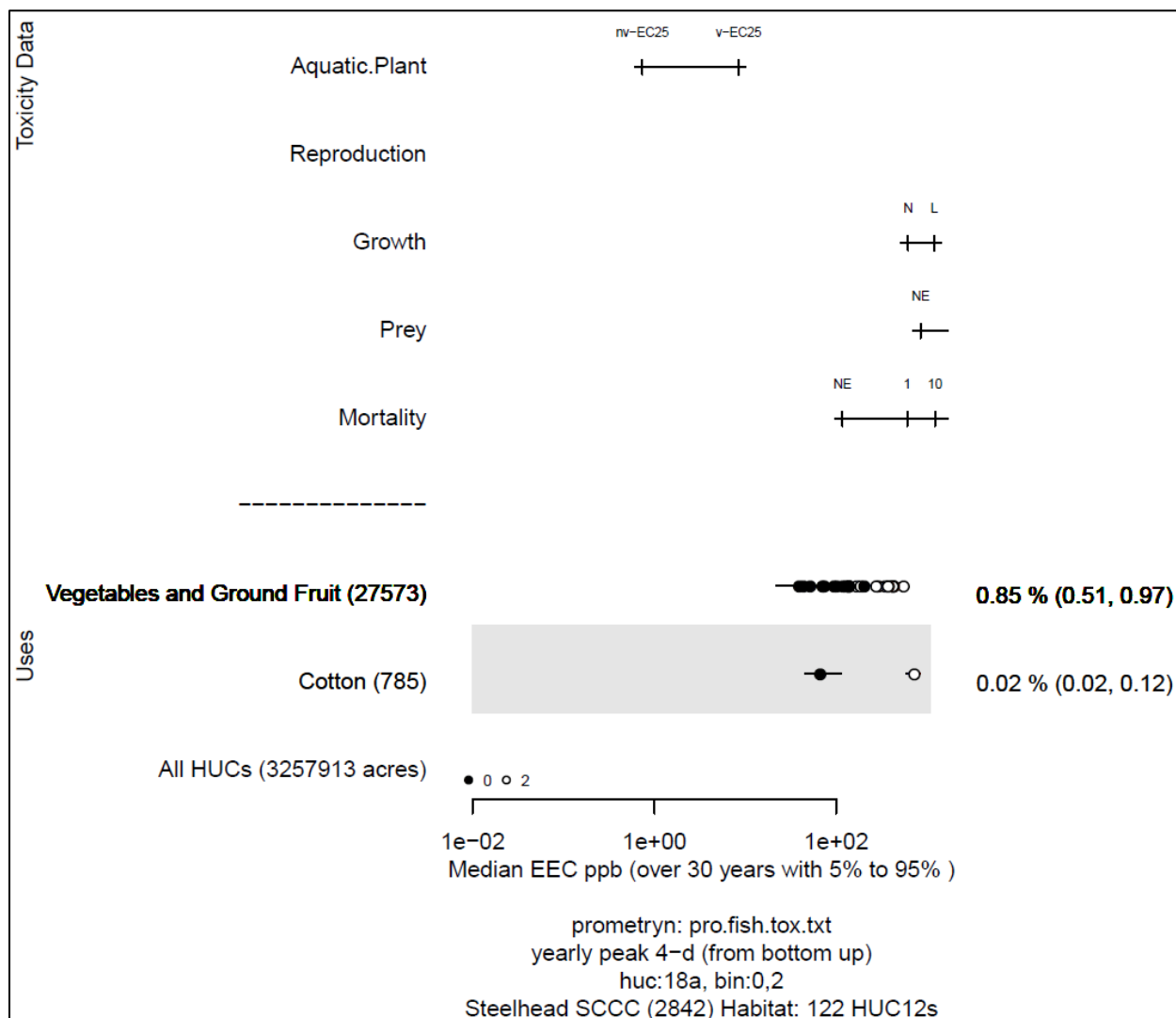


Figure 106. Effects analysis R-plot; Steelhead, South Central California Coast DPS designated critical habitat; aquatic plants.

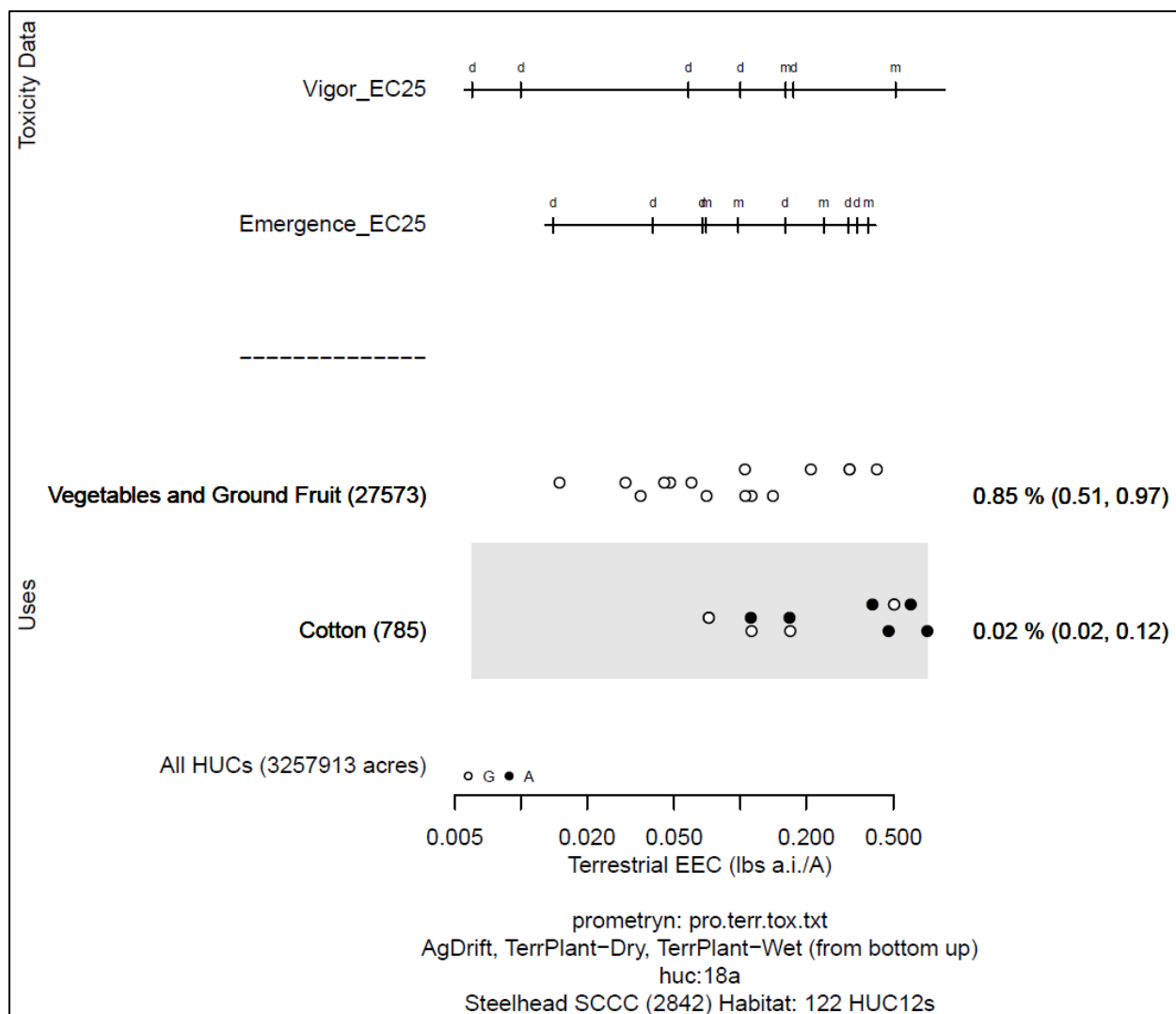


Figure 107. Effects analysis R-plot; Steelhead, South Central California Coast DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 238. Likelihood of exposure determination for Steelhead, South Central California Coast DPS designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	1	yes	yes	no	Low	
Veg. & Ground Fruit	1	yes	yes	yes	High	

Table 239. Prey risk hypothesis; Steelhead, South-central California coast DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	0.02	Low / Low	Low
Vegetables and Ground Fruit	0.85	None Expected / Low	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0.02	High	Low
Vegetables and Ground Fruit	0.85	High	High
Terrestrial			
Cotton	0.02	High	Low
Vegetables and Ground Fruit	0.85	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 240. Water quality risk hypothesis; Steelhead, South-central California coast DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality

degradation. Most authorized uses of prometryn-containing products occur within the Salinas River valley. Use sites total approximately 28,358 acres (less than 1 percent of acres). As such, water quality may be impacted in this region, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 241. Effects analysis summary table; Steelhead, South-central California coast DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the South-central California Coast Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these

effects to be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.26 Southern California Steelhead Designated Critical Habitat; Prometryn

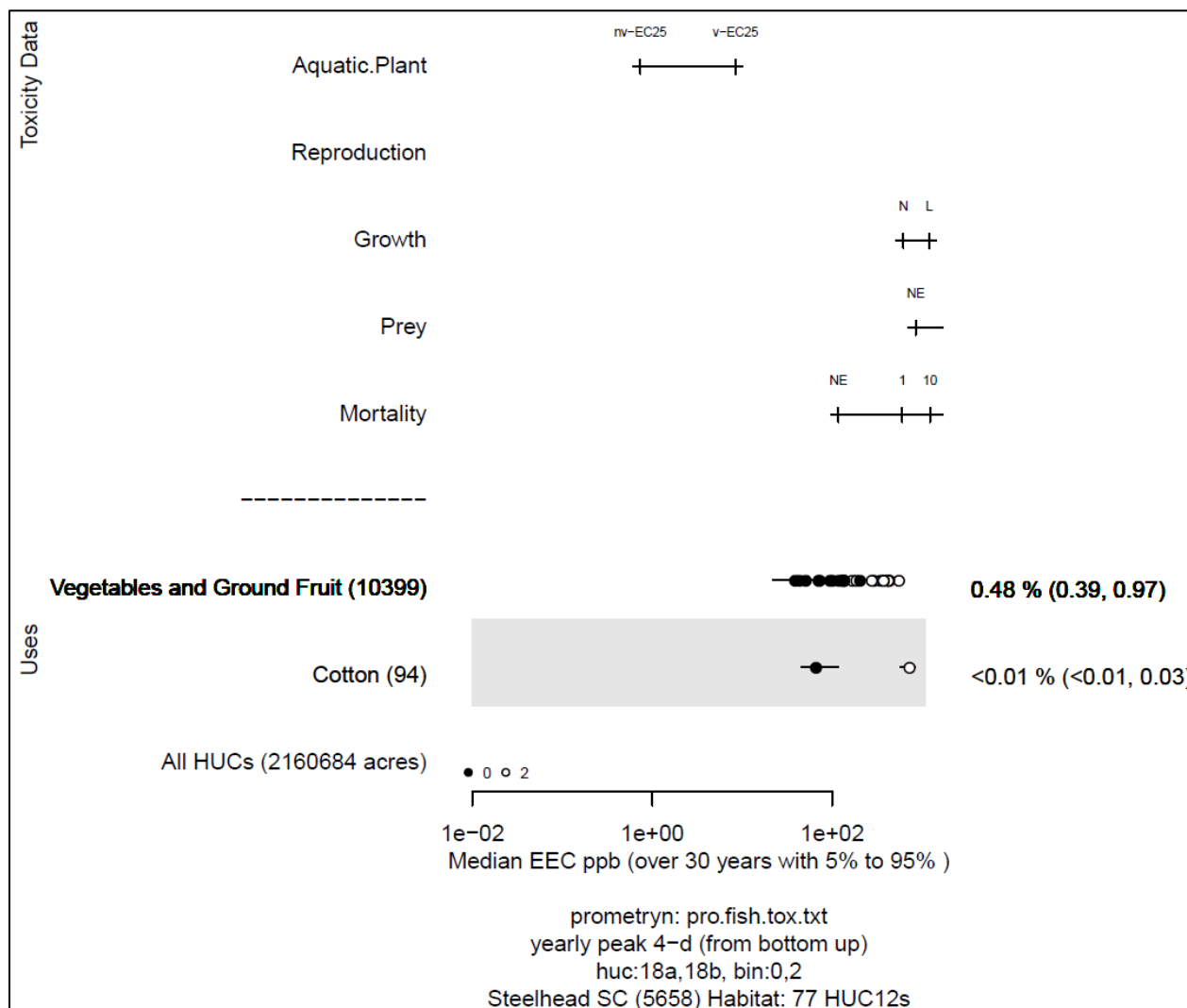


Figure 108. Effects analysis R-plot; Steelhead, Southern California DPS designated critical habitat; aquatic plants.

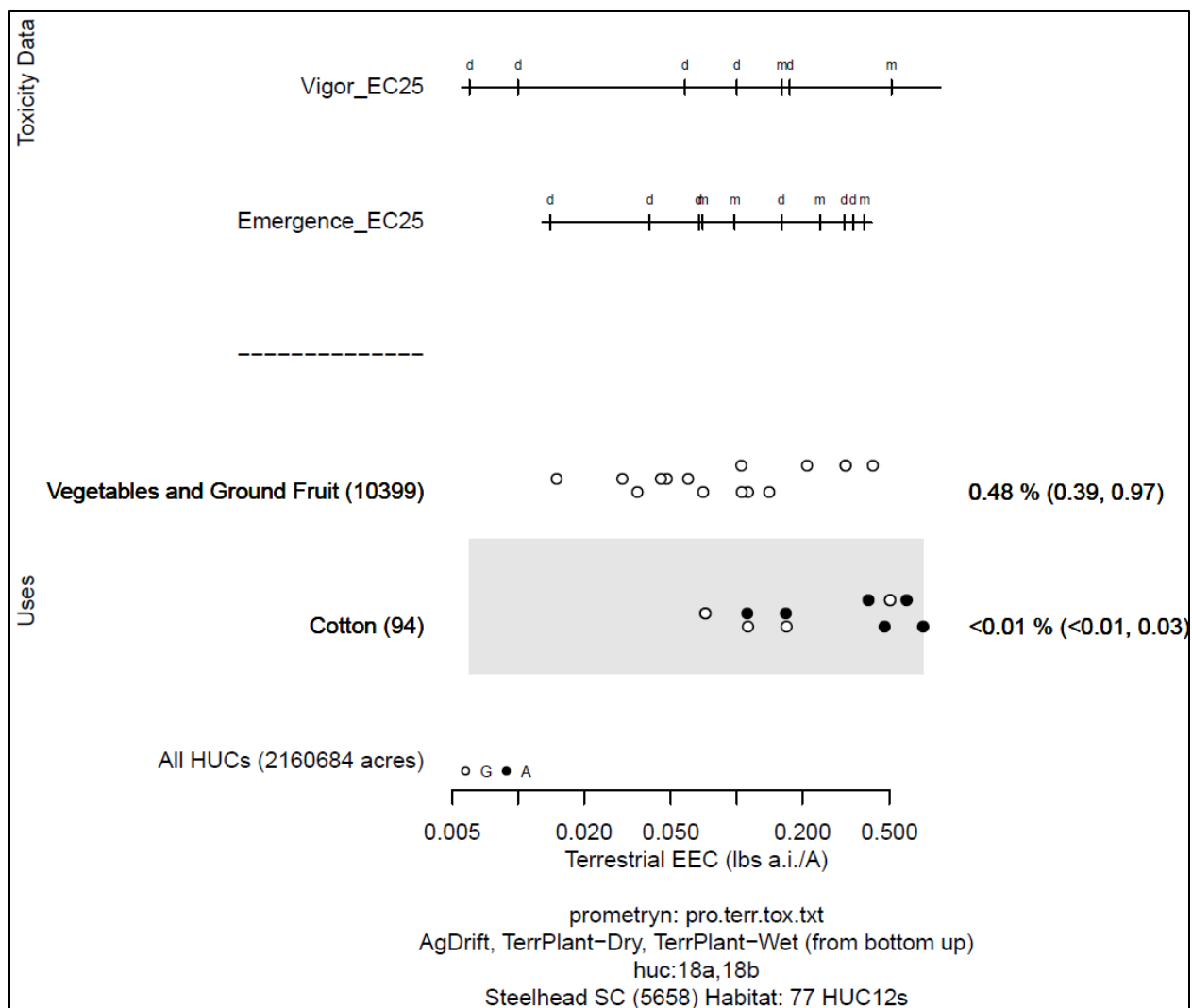


Figure 109. Effects analysis R-plot; Steelhead, Southern California DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 242. Likelihood of exposure determination for Steelhead, Southern California DPS designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	1	yes	yes	no	Low	
Veg. & Ground Fruit	1	yes	yes	yes	High	

Table 243. Prey risk hypothesis; Steelhead, Southern California DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	< 0.01	Low / Low	Low
Vegetables and Ground Fruit	0.48	None Expected / Low	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	< 0.01	High	Low
Vegetables and Ground Fruit	0.48	High	High
Terrestrial			
Cotton	< 0.01	High	Low
Vegetables and Ground Fruit	0.48	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 244. Water quality risk hypothesis; Steelhead, Southern California DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality degradation. Toxic concentrations may occur, however, authorized uses of prometryn-

containing products occur only minimally within the species' designated critical habitat (e.g. Monte Arido region); authorized use sites total approximately 10,493 acres (less than 1 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 245. Effects analysis summary table; Steelhead, Southern California DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout the Southern California Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to

be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.27 Upper Columbia River Steelhead Designated Critical Habitat; Prometryn

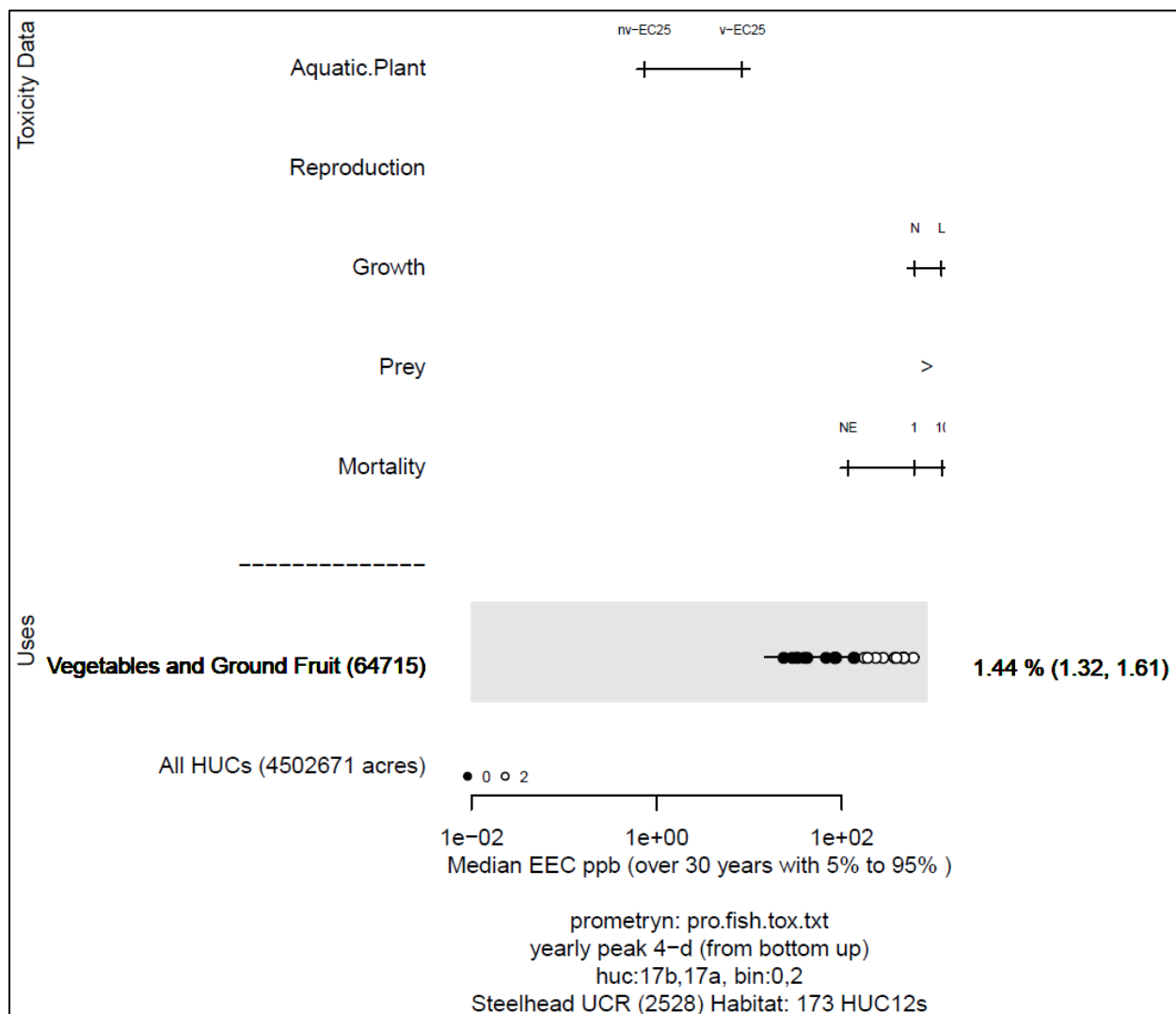


Figure 110. Effects analysis R-plot; Steelhead, Upper Columbia River DPS designated critical habitat; aquatic plants.

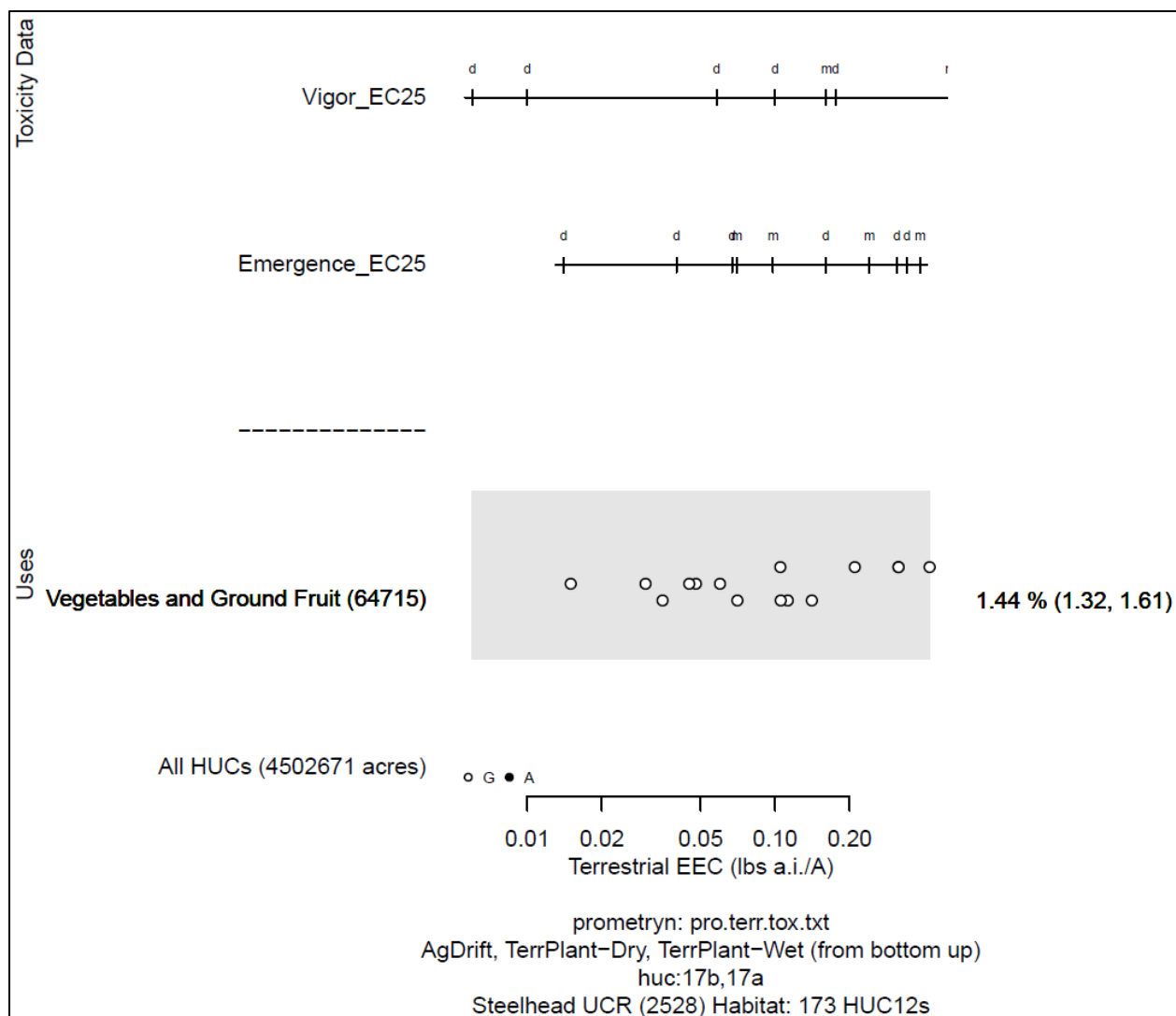


Figure 111. Effects analysis R-plot; Steelhead, Upper Columbia River DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 246. Likelihood of exposure determination for Steelhead, Upper Columbia River DPS designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	NA
Veg. & Ground Fruit	2	yes	yes	NA	NA	High

Table 247. Prey risk hypothesis; Steelhead, upper Columbia River DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	1.44	None Expected / Low	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	1.44	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	1.44	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 248. Water quality risk hypothesis; Steelhead, upper Columbia River DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality

degradation. In smaller water bodies, toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat (e.g. Suavie Island and the confluence of Columbia and Snake Rivers). Authorized use sites total approximately 64,715 acres (about 1.44 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 249. Effects analysis summary table; Steelhead, upper Columbia River DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features of upper Columbia River Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate these effects to

be limited in scope. Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



15.3.28 Upper Willamette River Steelhead Designated Critical Habitat; Prometryn

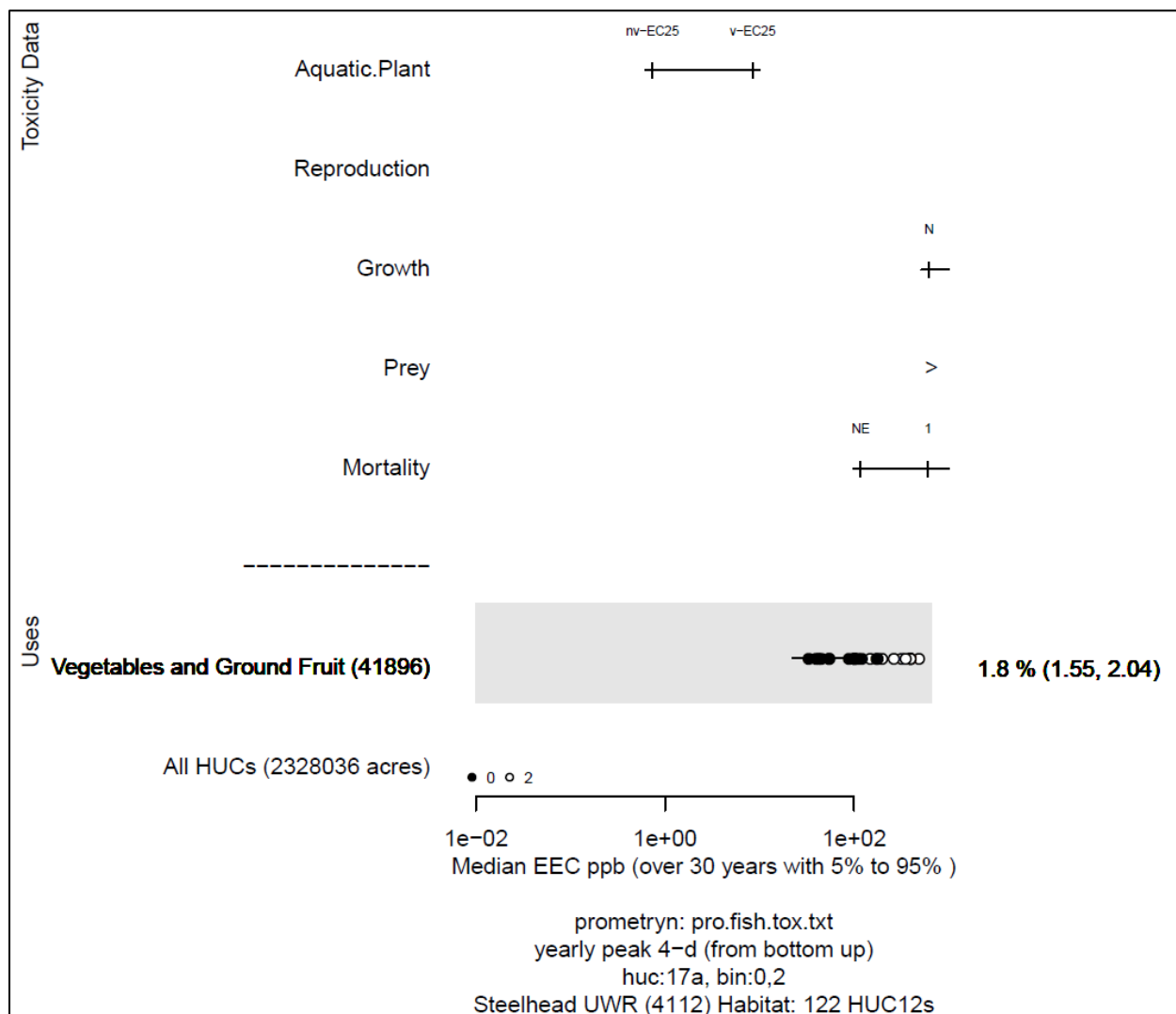


Figure 112. Effects analysis R-plot; Steelhead, Upper Willamette River DPS designated critical habitat; aquatic plants.

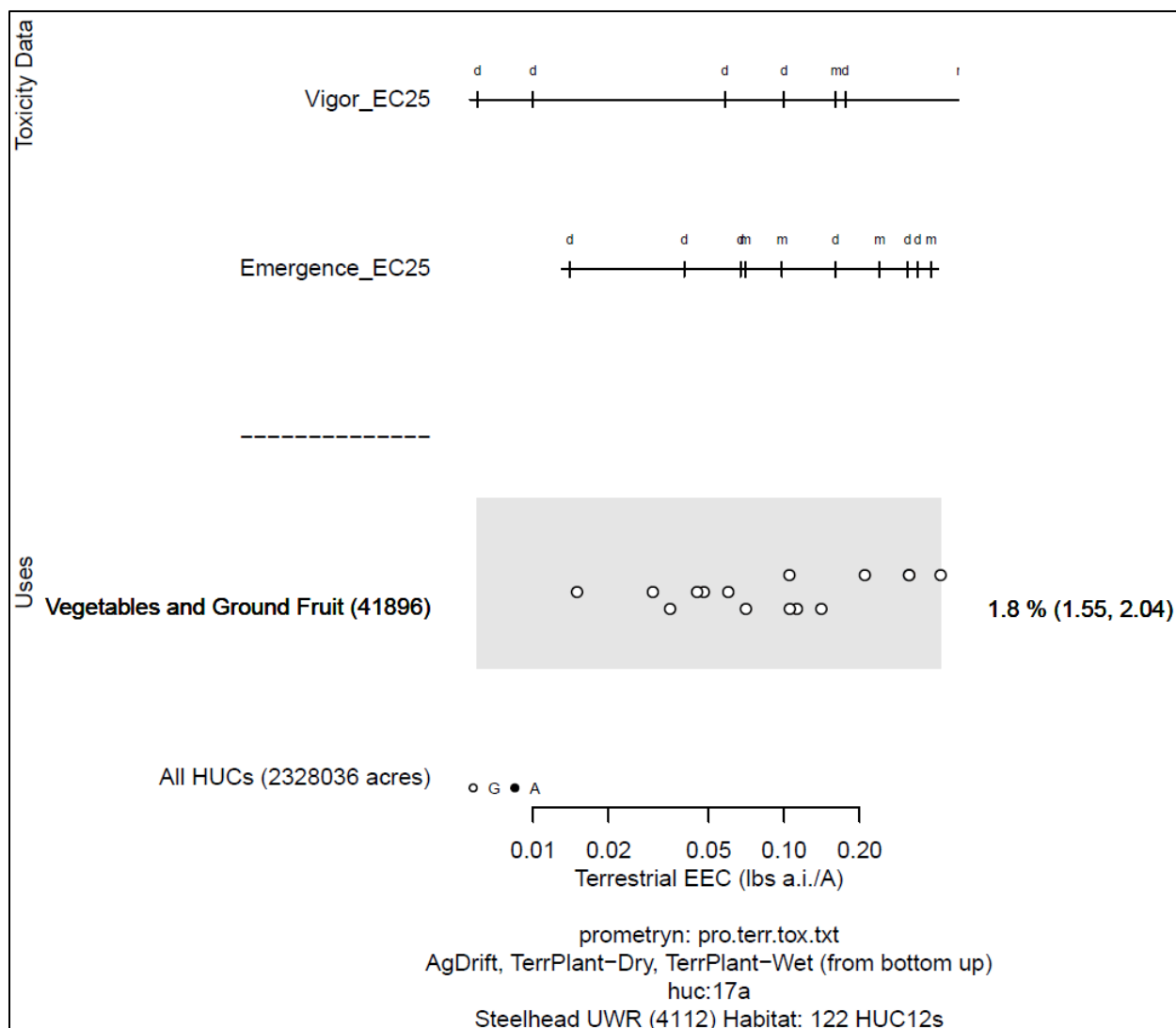


Figure 113. Effects analysis R-plot; Steelhead, Upper Willamette River DPS designated critical habitat; terrestrial plants, riparian habitat.

Table 250. Likelihood of exposure determination for Steelhead, Upper Willamette River DPS designated critical habitat.

		Percent Overlap Category	Persistence	Multiple Applications	Proximity Analysis	Likelihood of Exposure
Cotton	0	NA	NA	NA	NA	NA
Veg. & Ground Fruit	2	yes	yes	NA	High	High

Table 251. Prey risk hypothesis; Steelhead, upper Willamette River DPS; designated critical habitat.

Endpoint: Prey			
Use Category	% Overlap	Effect of Exposure (Invertebrates/Fish)	Likelihood of Exposure
Cotton	0	-	-
Vegetables and Ground Fruit	1.8	None Expected / Low	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.			
Risk	Confidence		
Low	Medium		

Endpoint: Vegetative Cover (aquatic and terrestrial plants)			
Use Category	% Overlap	Effect of Exposure	Likelihood of Exposure
Aquatic			
Cotton	0	-	-
Vegetables and Ground Fruit	1.8	High	High
Terrestrial			
Cotton	0	-	-
Vegetables and Ground Fruit	1.8	High	High
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.			
Risk	Confidence		
Medium	Low		

Table 252. Water quality risk hypothesis; Steelhead, upper Willamette River DPS; designated critical habitat.

Endpoint: Water Quality
Compromised water quality occurs when anticipated concentrations of the stressors of the action achieve toxic levels in designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. Anticipated levels of prometryn are expected to adversely affect aquatic vegetation. The likelihood of attaining these concentrations increases with frequency of application, use of the maximum rates, and the proximity to designated critical habitats. Other chemicals within formulations or added to tank mixes increases the extent of water quality

degradation. In smaller water bodies, toxic concentrations may occur, however, authorized uses of prometryn-containing products occur only minimally within the species' designated critical habitat. Authorized use sites total approximately 41,896 acres (about 1.8 percent of acres); as such, water quality may be impacted locally, but is not anticipated to be impacted throughout the species designated critical habitat.		
Risk Hypothesis: Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.		
Risk	Confidence	
Low	Medium	

Table 253. Effects analysis summary table; Steelhead, upper Willamette River DPS; designated critical habitat.

Designated Critical Habitat; Risk Hypotheses	R-plot Derived		Risk Hypothesis Supported? Yes/No
	Risk	Confidence	
Exposure to the stressors of the action is sufficient to reduce the conservation value via reductions in prey in migration, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via degradation of water quality in migration, spawning, and rearing sites.	Low	Medium	No
Exposure to the stressors of the action is sufficient to reduce the conservation value via impacts to vegetative cover in migration, spawning, and rearing sites.	Medium	Low	No

Designated Critical Habitat Effects Analysis Summary

We do not anticipate that the stressors of the action will negatively affect physical and biological features throughout Willamette River Steelhead designated critical habitat. The anticipated prometryn levels in designated critical habitat may be sufficient to impact fish, but are not anticipated to impact aquatic invertebrates. The magnitude of toxic effects may result in some adverse effects to aquatic plants and terrestrial vegetation, however we anticipate the effects to

be limited due to the minimal extent of prometryn-containing uses (limited to southern migratory portion of designated critical habitat). Overall the risk is medium and the confidence associated with that risk is low due to the exposures predicted in critical habitats over the 15-year duration of the action.



Table 254. Summary of risk and confidence determinations for bromoxynil and designated critical habitats of Pacific Salmonids.

Salmon Type	ESU/DPS	Risk	Confidence
Chum	Columbia River	Medium	Low
Chum	Hood Canal summer-run	Medium	Low
Chinook	California Coastal	Low	Medium
Chinook	CA Central Valley spring-run	Medium	Low
Chinook	Lower Columbia River	Medium	Low
Chinook	Puget Sound	Medium	Low
Chinook	Sacramento River winter-run	Medium	Low
Chinook	Snake River fall-run	Medium	Low
Chinook	Snake River spring/summer-run	Medium	Low
Chinook	Upper Columbia River spring-run	Medium	Low
Chinook	Upper Willamette River	Medium	Low
Coho	Central California Coast	Low	Medium
Coho	Lower Columbia River	Medium	Low
Coho	Oregon Coast	Low	Medium
Coho	S. Oregon N. California Coast	Low	Medium
Sockeye	Ozette Lake	Low	Medium
Sockeye	Snake River	Medium	Low
Steelhead	CA Central Valley	Medium	Low
Steelhead	Central California Coast	Medium	Low
Steelhead	Lower Columbia River	Medium	Low
Steelhead	Middle Columbia River	Medium	Low
Steelhead	Northern California	Low	Medium
Steelhead	Puget Sound	Medium	Low
Steelhead	Snake River Basin	Medium	Low
Steelhead	South-Central California Coast	Medium	Low
Steelhead	Southern California	Medium	Low

Steelhead	Upper Columbia River	Medium	Low
Steelhead	Upper Willamette River	Medium	Low

Table 255. Summary of risk and confidence determinations for prometryn and desingated critical habitats of Pacific Salmonids.

Salmon Type	ESU/DPS	Risk	Confidence
Chum	Columbia River	Medium	Low
Chum	Hood Canal summer-run	Low	Medium
Chinook	California Coastal	Low	Medium
Chinook	CA Central Valley spring-run	Medium	Low
Chinook	Lower Columbia River	Medium	Low
Chinook	Puget Sound	Medium	Low
Chinook	Sacramento River winter-run	Medium	Low
Chinook	Snake River fall-run	Medium	Low
Chinook	Snake River spring/summer-run	Medium	Low
Chinook	Upper Columbia River spring-run	Medium	Low
Chinook	Upper Willamette River	Medium	Low
Coho	Central California Coast	Low	Medium
Coho	Lower Columbia River	Medium	Low
Coho	Oregon Coast	Low	Medium
Coho	S. Oregon N. California Coast	Low	Medium
Sockeye	Ozette Lake	Low	High
Sockeye	Snake River	Medium	Low
Steelhead	CA Central Valley	Medium	Low
Steelhead	Central California Coast	Low	Medium
Steelhead	Lower Columbia River	Medium	Low
Steelhead	Middle Columbia River	Medium	Low
Steelhead	Northern California	Low	High

Steelhead	Puget Sound	Medium	Low
Steelhead	Snake River Basin	Medium	Low
Steelhead	South-Central California Coast	Medium	Low
Steelhead	Southern California	Medium	Low
Steelhead	Upper Columbia River	Medium	Low
Steelhead	Upper Willamette River	Medium	Low