Mt. Baker-Snoqualmie National Forest

AQUATIC MITIGATION MEASURES
HERBICIDE USE BUFFERS RESTRICTING USE OF SOME HERBICIDES/METHODS NEAR STREAMS, AND SPILL AVOIDANCE/CONTINGENCY PLANNING ARE ALSO INCLUDED.

MR/MM ID	Management Requirements and Mitigation Measures	Objective
16	The following treatment methods are shown in order of preference (if effective and practical), within roads that have higher risk of herbicide delivery to fish habitat and adjacent alluvial floodplains: (1) Non-herbicide (e.g., hand pulling, grazing). (2) Application of aminopyralid, clopyralid, imazapic, and metsulfuron methyl, aquatic glyphosate, aquatic triclopyr, aquatic imazapyr. (3) Application of chlorsulfuron, imazapyr, sulfometuron methyl. (4) Application of non-aquatic glyphosate. No picloram or non-aquatic triclopyr BEE would be used on roads that have a higher risk of herbicide delivery to fish habitat.	To protect aquatic organisms by favoring lower risk methods where effective on roads that have a higher risk of herbicide delivery to fish habitat. Roads are considered higher risk for herbicide delivery to fish bearing streams if any portion of the road segment comes within 200 feet of a fish bearing stream.
17	Only aquatic glyphosate, aquatic imazapyr, aminopyralid, clopyralid, imazapic, and metsulfuron methyl may be applied with a broadcast method on roads that have a higher risk of herbicide delivery to fish bearing streams. Portions of high risk roads may be cleared for use of picloram or non-aquatic triclopyr or broadcast spraying of chlorsulfuron, imazapyr, sulfometuron methyl based on a site review by an aquatics specialist to ensure the roadside ditches are not hydrologically connected to streams.	To ensure herbicide is not delivered to streams in concentrations that exceed levels of concern.
18	The following herbicides may be spot or hand/selectively applied within 15 feet of any wet roadside ditch: Aquatic labeled glyphosate, aquatic labeled imazapyr, aquatic labeled triclopyr, aminopyralid, imazapic, clopyralid and metsulfuron methyl. No use of chlorsulfuron, picloram or sulfometuron methyl would occur within 15 feet of a wet roadside ditch.	To ensure herbicide is not delivered to streams in concentrations that exceed levels of concern.
19	Total treatment area would not exceed 10% of Riparian Reserves within a 6th field sub-watershed in any given year.	Limits the extent of treatment near water so that effects are within the scope of analysis.
20	Lakes and Ponds – No more than half the perimeter or 50 percent of the vegetative cover or 10 contiguous acres around a lake or pond would be treated with herbicides in any 30-day period.	To reduce exposure to herbicides and uncertainty regarding effects to reptiles and amphibians by providing some untreated areas for some organisms to use.
21	Equipment fueling sites would be at least 150 feet from lakes, wetlands, or stream channels.	To minimize risk of fuel entering water. Width incorporates aquatic influence zone.

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22	All herbicide storage, chemical mixing, refilling and post-application equipment cleaning would be performed at least 300 feet from live water, domestic wells, or domestic spring boxes, and in such a manner as to prevent the potential contamination of any riparian area, perennial or intermittent waterway, ephemeral waterway, wetland, or drinking water.	Reduce potential for adverse effects from accidental spills. 300 feet includes largest Riparian Reserve. Incorporates Washington State wellhead protection protocol.
23	POEA would not be used in applications within 150 feet of surface water, wetlands or along roads with ditches that feed into streams. Select from the list of surfactants approved by the Dept. of Ecology for use in aquatic environments for treatments within 100 feet of streams (see Appendix E).	Protects aquatic organisms. Width is more conservative than the effective buffer (45 feet) identified by Berg (2004).
24	Avoid using picloram, imazapyr and/or metsulfuron methyl sulfometuron methyl on bare or compact soils that are highly disturbed.	To preserve site recovery after disturbance, lessen offsite runoff and leaching. Poor soils will have longer residence times with these persistent herbicides.
25	For soils with seasonally high water tables, do not use picloram or triclopyr BEE and limit glyphosate use to aquatic label only.	Reduce the risk for contamination of groundwater and offsite runoff to aquatic habitat and fish.
26	Do not use more than one application of imazapyr, metsulfuron methyl, or picloram on a given area in any two calendar years, except to treat areas missed during the initial application. Aminopyralid would not be broadcast in any area more than once per year.	Reduce potential for accumulation in soil.
27	Limit herbicide offsite transport on sites with high runoff potential including sites with: • shallow seasonal water tables, • saturated soils (wet muck and peat soils), • steep erosive slopes with shallow soils and rock outcrop, or • bare compacted and disturbed soils. Limit runoff by applying herbicide: • during the dry season with the lowest soil moisture conditions • where > 50% groundcover exists on shallow slope sites and > 70% on steep slope sites, and/or • at reduced rates.	Reduce potential offsite runoff transport of herbicides.
28	Areas of gouging or soil displacement resulting from manual treatment methods (digging or pulling) within 35 feet of water courses with surface water present will be treated to prevent rill and gully erosion and possible sediment delivery to steam courses. Erosion control treatment will include scattering seed and mulch (straw) to create flow disruption and surface soil stability.	Minimize short- and long-term soil, hydrologic and water quality impacts.
29	Herbicide use buffers have been established for perennial and wet intermittent steams; dry streams; and lakes and wetlands. Buffers vary	To reduce likelihood that herbicides would enter surface waters in concentrations of

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	by herbicide ingredient and application method. Tank mixtures would apply the largest buffer as indicated for any of the herbicides in the mixture	concern. Comply with R6 2005 ROD Standards 19 and 20.
30	Apply erosion control measures (e.g. silt fences or shut down periods) and native re-vegetation (e.g., mulching, native grass seeding, planting) for manual treatment where soil disturbance or de-vegetation may result in the delivery of measurable levels of fine sediment to federally listed fish species' critical habitat.	Minimize short- and long-term soil, hydrologic and water quality impacts.