

Chapter 9—Recommendations

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9.1 General Recommendations

The use of herbicides in the MMWD watershed has the potential to have unintended impacts on humans and terrestrial and aquatic wildlife. This risk assessment provides information on the types of impacts that can be anticipated for the selected herbicides under the anticipated conditions of use, as well as a summary of the data gaps that make it difficult to have full knowledge of the potential impacts.

It is important to recognize the uncertainties and limitations of the hazard assessment process through which the RfDs are set, particularly for herbicides or adjuvants with minimal data. Because of these uncertainties, if the MMWD Board does decide to allow the use of herbicides, we recommend that limitations on their use be institutionalized into MMWD policy. Buffer zones around water bodies in which only non-chemical weed-removal techniques are used should be implemented. Triclopyr use should be limited to spot treatments only, and the more readily degradable herbicides like Scythe (pelargonic acid) and Matran (clove oil) should be used in areas closest to water bodies that are upslope of the water body. Limits should be set on the maximum number of acres that can be treated with glyphosate and clopyralid in a single year, and MMWD Board approval should be required for any requests to change these limits.

The following sections highlight specific recommendations for protection of drinking water supplies, workers, the general public and terrestrial and aquatic wildlife that should be implemented if the MMWD Board determines that herbicide use will be permitted on MMWD lands.

9.2 Recommendations for Protection of Water Supplies and Aquatic Life

9.2.1 Spills and Spray Drift

Avoidance of herbicide spills to water bodies is essential for protection of drinking water quality and aquatic life. The probability of spills can be minimized through use of the following application guidelines:

1. Do not transport more than 20 gallons of concentrated Aquamaster, Garlon 4 Ultra, Transline, Scythe or Matran, 200 gallons of diluted Matran or Scythe, in a vehicle on MMWD lands.
2. Transport concentrated pesticide products in a spillproof, sealed container above and beyond the product container.
3. Do not permit vehicles carrying more than 2.5 gallons of concentrated product in an opened container or backpack sprayer to cross any reservoir dam.
4. Set up designated dry stream crossings for workers in areas where treatments might occur on both sides of a wet stream to avoid washoff of herbicide from applicators' shoes.
5. Do not apply herbicides within 100 feet of a stream or 500 feet of a currently utilized reservoir, or within 250 feet of an unutilized reservoir during years when reservoirs are at or near maximum capacity. Treat dry streambeds with the organic herbicides Scythe and Matran only.

6. Avoid spray drift to water bodies by not applying herbicides within 100 feet of a stream or 500 feet of a currently utilized reservoir, or within 250 feet of an unutilized reservoir during years when reservoirs are at or near maximum capacity.
7. Develop a spill response plan including a notification system for water treatment plants for possible spill scenarios.

9.2.2 Long-term Runoff

1. Avoid using glyphosate, triclopyr and clopyralid in areas with gravelly soils on steep slopes.
2. Limit applications to each site to once per year or less.
3. Limit the number of acres treated in the watershed in a given year.
4. Use the minimum application rate that can still accomplish the job, rather than the maximum application rate.
5. Use the readily biodegradable herbicides Matran and Scythe in areas closest to water bodies.
6. Use application rates no more than the Central estimates stated in the Chemical-Specific exposure parameter tables in Sections 3.4, 4.4, and 5.4.
7. Do not apply herbicides within 100 feet of a stream or 500 feet of a currently utilized reservoir, or within 250 feet of an unutilized reservoir during years when reservoirs are at or near maximum capacity. Treat dry streambeds with the organic herbicides Scythe and Matran only.
8. Conduct herbicide applications during the dry season only, no earlier than June 1 and no later than September 15. Areas in closer proximity to reservoirs should be treated early in the season to allow maximum time for degradation of herbicides before the rainy season begins. Upper parts of the watersheds, and areas that do not drain into any reservoirs may be treated later in the season.

9.3 Recommendations for Protection of Workers

1. Applicators should wear gloves, protective footwear, goggles, and coveralls. An eyewash bottle and extra pairs of clean gloves, coveralls, soap, and water should be available in each vehicle for washing if workers are exposed.
2. Mixer-loaders should wear gloves, rubber boots, goggles, coveralls, and a protective apron.
3. All mixing and loading should be done in a manner to contain any spills that might occur during transfers and should not be done near a water body.
4. Spill cleanup materials should be available in all vehicles used for herbicide applications.
5. If workers accidentally spill herbicide on themselves, they should be required to wash the affected area as soon as possible.
6. Applicators should spray in a downward direction to prevent spray drift from above.

9.4 Recommendations for Protection of the General Public

1. Areas to be treated that are within 30 feet of all roads and trails should be mowed or pruned to less than 20 cm prior to treatment to minimize the probability of contacting treated vegetation or eating contaminated berries.
2. All trailheads and other access points leading to the treatment area should be closed and posted prior to treatment in order to minimize the probability of contacting treated vegetation.
3. Treated areas should be posted for two weeks after the application.

4. No applications should be conducted on weekends to reduce the probability of exposures to the general public from application activities.
5. No applications should be conducted when wind speeds exceed five miles per hour or in locations where prevailing winds might carry spray drift onto private property.

9.5 Recommendations for Protection of Terrestrial Wildlife

1. Avoid spills and spray drift to water bodies (see Section 9.2.2 above).
2. Areas to be treated that are within 30 feet of all roads and trails should be mowed or pruned to less than 20 cm prior to treatment to minimize the probability of spraying honeybees and small mammals.
3. Treatment of a large area of vegetation that may be used as food by wildlife should be conducted in several smaller treatments spread out over time to avoid contamination of a significant portion of the food supply for herbivores.
4. To avoid potential impacts to terrestrial plants due to off-site drift, buffer zones of 150–300 feet are recommended near sensitive plants. Alternate protection measures may include using a spray drift barriers during applications.

9.6 Recommendations Specific to Triclopyr and Clopyralid

9.6.1 Triclopyr

The following triclopyr-specific guidelines should also be employed. Generally speaking, triclopyr application leads to higher human and wildlife exposures due to its high dermal permeability. The following mitigations are designed to minimize hazardous dermal exposures to triclopyr:

1. Additional training should be required for workers handling triclopyr.
2. Two layers of gloves should be used by workers handling triclopyr.
3. Backpack sprayers that incorporate some form of physical separation between the backpack sprayer and the applicator are strongly recommended to prevent spills on the applicator from a leaking backpack sprayer.
4. Triclopyr should only be used for cut-stump and basal bark/thin line spot treatments. Both of these methods target the trunk of the plant and do not contaminate foliar vegetation. Although wildlife rarely feeds on invasive vegetation, the additional precaution of not spraying foliar crowns will help prevent exposures from brushing against contaminated vegetation.
5. The maximum application rate of triclopyr should be limited to 2 lb/acre.
6. No triclopyr applications should be made within five feet of trails. All application sites should be posted for two weeks.

9.6.2 Clopyralid

One clopyralid-specific guideline is included:

No harvesting and transport of herbaceous plant matter from any clopyralid treatment zone should be permitted for 2-3 years after the treatment to account for clopyralid's persistence in compost.