APPENDIX C. CONSERVATION MEASURES TO BE IMPLEMENTED IN EMERGENCY SITUATIONS

The following guidelines were developed by Colorado's Science Advisory Team in 1998. These guidelines were originally intended as recommendations for minimizing disturbance in PMJM habitat during emergency situations. The following measures would not constitute complete Best Management Practices (BMPs) for *Gaura* and PMJM habitat, but they do provide a starting point for identifying the types of responses that should be incorporated into a comprehensive BMP program. They may serve as general direction while BMPs for Warren AFB are being developed.

1. Access the site via an alternate route or designate a single route through the habitat. The route should be of minimal width (i.e., one narrow lane).
2. Stage heavy equipment outside of the habitat (preferably >150 feet), whenever possible.
3. Excavate, fill, or clear only those areas absolutely necessary.
4. Avoid burying additional habitat with excavation spoils. Remove excess fill from site or to an area at least 150 feet from PMJM habitat.
5. Direct dewatering activities away from habitat and into an area that will not drain directly into PMJM habitat. Minimize dewatering activity to that which is absolutely necessary for safe and efficient emergency response.
6. Minimize local and downstream siltation by placing erosion barrier fences around excavated materials, if they are to remain for more than one day.
7. Revegetate disturbed areas as soon as equipment is moved and the response action is completed. Whenever possible, seed mixtures or planting stock should match the vegetation existing at the site prior to disturbance. Additionally, as a temporary measure, stems from removed shrubby vegetation can be used to cover freshly reseeded ground, and to provide cover for PMJM and for protecting seedlings. Finally, where willows are removed, willow stems should be planted for efficient revegetation.
8. Any residue of chemicals should be cleaned and/or removed from site to a safe disposal area.
9. To the extent possible, leave no structures, residues, trash, tracks, holes, or other fill materials that will impair the natural hydrological flow of the streams, wetlands, or ground water.

chlorsulfuron (Telar) and dicamba (Banvel) applied in either spring or fall can provide excellent control of this species (Butterfield et al. 1996). However, picloram is not recommended in natural areas, and is restricted from use amongst trees. It may persist in soil for up to three years, is relatively soluble and may percolate into the water table (Beck 2003). Dicamba is effective in dry western states (including Wyoming) where it does not leach or break down as rapidly, but is restricted from use among trees (Biesboer 1998).

There are no well-established biological controls in the United States, but Canada has had some success with the root weevil *Mogulones cruciger* and the root-feeding flea-beetle *Longitarsus quadriguttatus*. The indigenous diseases *Erysiphe cynoglossi* (a mildew) and *Phoma pomorum* found in Canada, have been observed to reduce seed production and reduce roots, respectively (Harris and DeClerck-Floate 2003).

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