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## Response of the western prairie fringed orchid to herbicides for leafy spurge

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### Abstract:

Approximately 15 to 20% of the Sheyenne National Grassland in southeastern North Dakota is infested with leafy spurge (*Euphorbia esula* L.). These infestations threaten the western prairie fringed orchid (*Platanthera praeclara* Sheviak and Bowles), which is on the federal threatened and endangered species list. The purpose of this research was to develop a herbicide treatment that controls leafy spurge while sustaining western prairie fringed orchid populations. Herbicide screening trials were established on the Sheyenne National Grassland. Treatments included glyphosate plus 2,4-D at 220 plus 330 and 440 plus 670 g/ha, imazapic plus MSO plus 28% N at 70 and 140 g/ha plus 1 plus 1 L/ha and quinclorac plus MSO at 880 and 1100 g/ha plus 1 L/ha. Herbicides were applied using a hand-held sprayer delivering 8.5 gpa at 35 psi. Imazapic and quinclorac provided 95 and 98% leafy spurge control, respectively, at the highest application rates evaluated. Glyphosate plus 2,4-D did not provide satisfactory leafy spurge control. In July 1998, a population of western prairie fringed orchid was identified for herbicide efficacy evaluation. Orchids reappeared in 83, 58 and 58% of the plots treated with quinclorac, imazapic and glyphosate plus 2,4-D, respectively, compared to 50% in the untreated control. One or more orchids were present in plots where they reappeared. Imazapic and or quinclorac could be used to control leafy spurge in western prairie fringed orchid habitat without injuring the orchid.