



Investigating Aerial Application of Herbicides for Buffelgrass



Background

Over the past five years, the buffelgrass invasion in the Southwest has been the subject of considerable outreach, extensive media coverage and nearly-unanimous consensus over the need to aggressively control this invasive grass. Despite the best efforts of a growing group of



volunteers, and an expanding public investment in buffelgrass management on public and private lands, control activities have not kept pace with buffelgrass spread. Research suggests that patches are doubling in size every 2-4 years. Thus, time is of the essence in working collaboratively and decisively to implement effective control programs, and for investigating alternative control strategies and application technologies.

The US Forest Service Region 3 Office initiated the process by hosting the Interagency Workshop on Controlling Buffelgrass with Aerial Herbicide Applications in February 2009. Following the workshop, two interagency projects were designed and implemented in the summer of 2010 to evaluate the use of rotary wing aircraft and specialized equipment for treating large and remote infestations of buffelgrass. The partners included Pima County, National Park Service, US Forest Service, Bureau of Land Management, City of Tucson, the University of Arizona, and the Southern Arizona Buffelgrass Coordination Center. The US Forest Service and their Missoula Technology Development Center (MTDC) provided financial assistance and expertise to both projects.

Project Efforts

The first project "Evaluation for glyphosate spraying from a rotary wing aircraft to control buffelgrass" took place in Pima County's Tucson Mountain Park. The objectives were to:

- Determine if a helicopter equipped with a spray boom can safely navigate saguaro studded steep terrain and



Helicopter aerial spray of herbicide using a spray boom

- spray one acre plots.
- Evaluate the efficacy of two different concentrations of glyphosate herbicide and two application volumes (amount of herbicide mixture applied on a per acre basis) on buffelgrass mortality.
- Determine the effects of glyphosate on native vegetation.
- Measure the amount of drift outside the target location.

Treatment combinations were randomly assigned to twelve

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Spot spray application for precision

1-acre plots. Monitoring transects were established in each plot along with an adjacent untreated monitoring transect. Prior to the treatments permanent photo points were established and over 1200 individual native plants were tagged and will be monitored for several years.

The first post-treatment monitoring of buffelgrass and native plants took place in September 2010. Khromokote cards (drift cards) were systematically set up:

- Inside the plots to measure area of deposition and volume of herbicide reaching the target and
- Outside the plot to measure drift. MTDC is currently conducting the card analyses.

To view the project plan go to www.buffelgrass.org and click on the research tab.

The second project took place at Ironwood Forest National Monument and studied the use of a spray ball suspended from a helicopter on a cable. This technology is capable of administering herbicide to small targets. The objectives of the second project were to:

- Determine if the spray ball apparatus can be flown safely through dense saguaro stands that are highly susceptible to buffelgrass invasion.
- Evaluate the equipments capabilities of treating small patches of buffelgrass.
- Measure the amount of drift outside the target locations.

Target sites were selected to represent different degrees of topography difficulty, varying density of saguaros and large trees, and different size infestations.



Helicopter pilot negotiating difficult terrain

Status

Initial observations suggest both technologies of aerial herbicide application look promising for controlling buffelgrass patches that are inaccessible, large and dense, and small and remote. The spray ball is able to apply herbicide within two meters above the target and the minimum size target is four meters in diameter. Drift cards are being analyzed by MTDC. Data collection and analysis is ongoing. A final report will be disseminated through www.buffelgrass.org.

More Information

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