

Response to Recent Major Fires in the Intermountain Western US
Proper Reseeding is Critical
 July 2007

Recent news reports have highlighted fires throughout the intermountain region of the Western US, including the largest wildfire ever recorded in Utah history (over 350,000 acres). From a short-term perspective, we realize the extreme loss in life, personal property, and livestock and wildlife habitat. However, perhaps more important is the possible long-term implications with a possible environmental disaster in the making that can only be stopped by immediate action using the best management and seed technology available.

Every effort should be made to use the best technology, species, and varieties to minimize the potential of soil erosion, air pollution, and weed infestation and to quickly provide a renewed source of forage and habitat for wildlife and livestock. It is important to understand that even one inch of lost soil can take thousands of years to replace, however, if the basic soil resource is retained it may be possible to restore these rangelands. In addition, many of these areas were in climax stands of decadent vegetation where historical natural burns provided opportunities to revitalize these grass-shrub rangelands. **It is critical that rapid planning occur** so that seeding and management technology can happen **this year** before weedy species have opportunity to dominate burned areas. Next year may be too late. It is our hope to provide viable recommendations to enable recovery from the current fire disasters and that will avoid the same problems in the future.

An historical example occurred in the mid 1980's, 10 miles west of Kanosh Utah in an area designated as Clearspot or Twin Peaks, after a lightning strike



1988 4 years after Twin Peaks fire – blowout site.

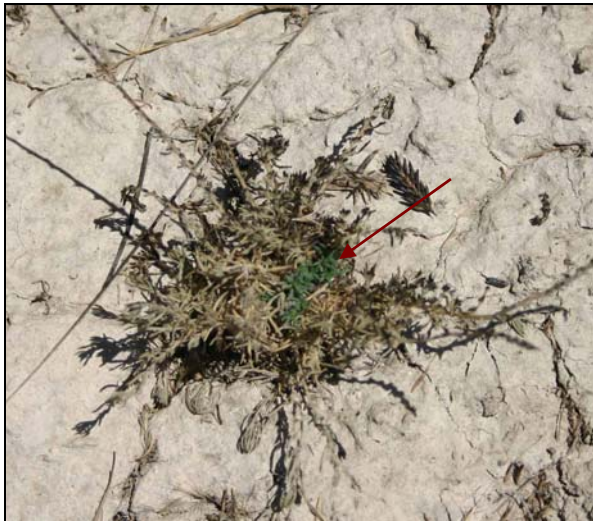


2007-blowout site-fire stopped by forage kochia.

resulted in an 18,000 acre wildfire. Approximately 10,000 acres were immediately reseeded with marginal success. Two years after the fire, the Millard County Chronicle Progress newspaper (Vol. 78 No. 48, June 2, 1988) reported clouds of dust and permeating sand being carried by prevailing winds from 5400 acres that had not been seeded. At that time, the outlook was bleak with already the loss of one to three inches of soil, and land managers reporting that “the sand is duning and it’s difficult to say when, if ever, the land will be restored”. For the next 6 years huge dust clouds moved tons of airborne soil particles over the populated areas of Utah and Salt Lake Counties wreaking havoc on air quality. Agriculture was also affected, for instance alfalfa hay miles from the blowing site was so badly covered with dust that it had to be sold at reduced prices.

Several years after the fire, the USDA Agriculture Research Service, Forage and Range Research Laboratory (FRRL) in Logan, Utah led a cooperative effort with Utah State University, Bureau of Land Management, and NRCS to determine procedures and plant materials that could stabilize the soils in the harshest epicenter of the dust bowl. Several newly developed grasses from the FRRL achieved good establishment, as did forage kochia - a fire resistant semi-shrub. These plants were successful in stabilizing the immediate area and continue to do so at present. Many native plants were evaluated, but none except

winterfat were able to establish in the degraded dust bowl area. (See Newhall, Monaco, Horton, Harrison, and Page. 2004. *Rehabilitating Salt-Desert Ecosystems Following Wildfire and Wind Erosion. Rangelands Vol. 26, No. 1, February 2004, pages 3-7.*)



2007 blowout site - forage kochia plant showing regrowth five days after fire.

In July 2007, the large 350,000 acre Milford Flat Utah wildfire burned right over the previous Clearspot fire. The wildfire burned right up to, but could not burn through the forage kochia-crested wheatgrass plots established in the 1980's showing once again forage kochia's usefulness as greenstrips to control wildfires. Within forage kochia's protection, naturally occurring native shrubs such as shadscale survived, while other plants outside were literally destroyed by the fire (see pictures).

The ARS Forage and Range Research Laboratory has conducted many years of cooperative research on reseeding critical rangelands after wildfire and other disturbances. Experience (including the 1984 Clearspot fire) has shown that many native species generally have low seedling vigor and poor establishment capabilities, and should not be relied upon **alone** to stabilize these burn sites. The following abbreviated lists of species are recommended for general consideration when reseeding after a fire where rapid plant recovery, forage production and soil retention is the primary objective. A mix of the best species is usually encouraged, and when feasible, additional forb species should be included to increase the diversity.

Reseeding harsh dry desert shrub ranges should include: Immigrant perennial forage kochia, crested and/or Siberian wheatgrass, Russian wildrye (grass). These should make up a minimum of 75% of a mix. Species such as; four-wing saltbush (shrub), sagebrush (shrub), winterfat (semi- shrub), Indian ricegrass, sand

dropseed (grass), shadscale (shrub) can be used, but should not makeup more than 25% of a mix.

For reseeding upland Sagebrush and Juniper ranges include: Intermediate wheatgrass, crested and/or Siberian wheatgrass, and Russian wildrye (grass) (75% of a total mix). Species such as; thickspike, western, and bluebunch wheatgrasses, needle and thread grass, four-wing saltbush and sagebrush can be used, but should not makeup more than 25% of a mix. Drought tolerant legumes, such as; alfalfa and sainfoin should also be considered when there is sufficient moisture.

Those seeking detailed information can find it in the following published scientific documents:

Asay, Horton, Jensen, and Palazzo. 2001. Merits of Native and Introduced Triticeae Grasses on Semiarid Rangelands. *Canadian Journal of Plant Science* Vol. 81, pages 45-52.

Monaco, Waldron, Newhall, and Horton. 2003. Re-establishing Perennial Vegetation in Cheatgrass Monocultures. *Rangelands* Vol. 25 No. 2, April 2003, pages 26-29.

Harrison, Waldron, Jensen, Page, Monaco, Horton, and Palazzo. 2002. Forage Kochia Helps Fight Range Fires. *Rangelands* Vol. 24 No. 5, October 2002, pages 3-7.

Newhall, Monaco, Horton, Harrison, and Page. 2004. *Rehabilitating Salt-Desert Ecosystems Following Wildfire and Wind Erosion. Rangelands* Vol. 26, No. 1, February 2004, pages 3-7.

Waldron, Monaco, Jensen, Harrison, Palazzo, and Kulbeth. 2005. Coexistence of Native and Introduced Perennial Grasses following Simultaneous Seeding. *Agronomy Journal* Vol. 97, pages 990-996.

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