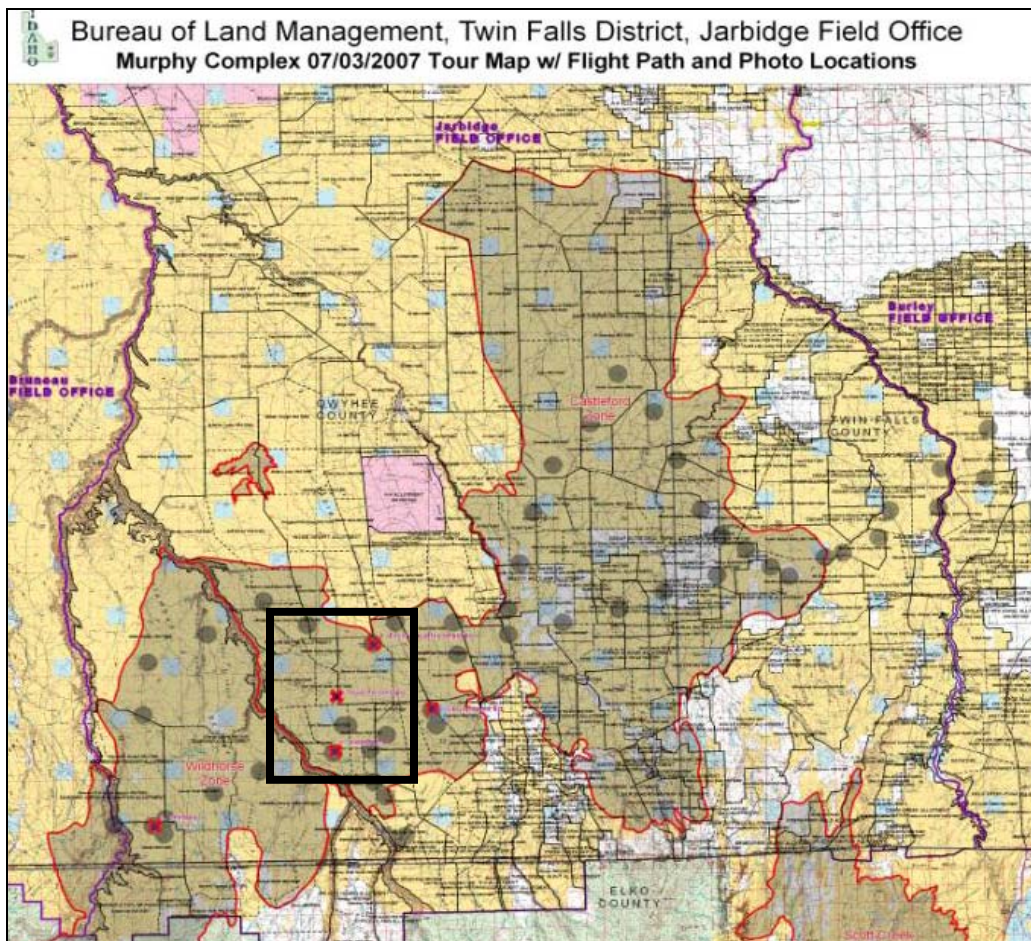


## Photographs/Fire Behavior Case Study

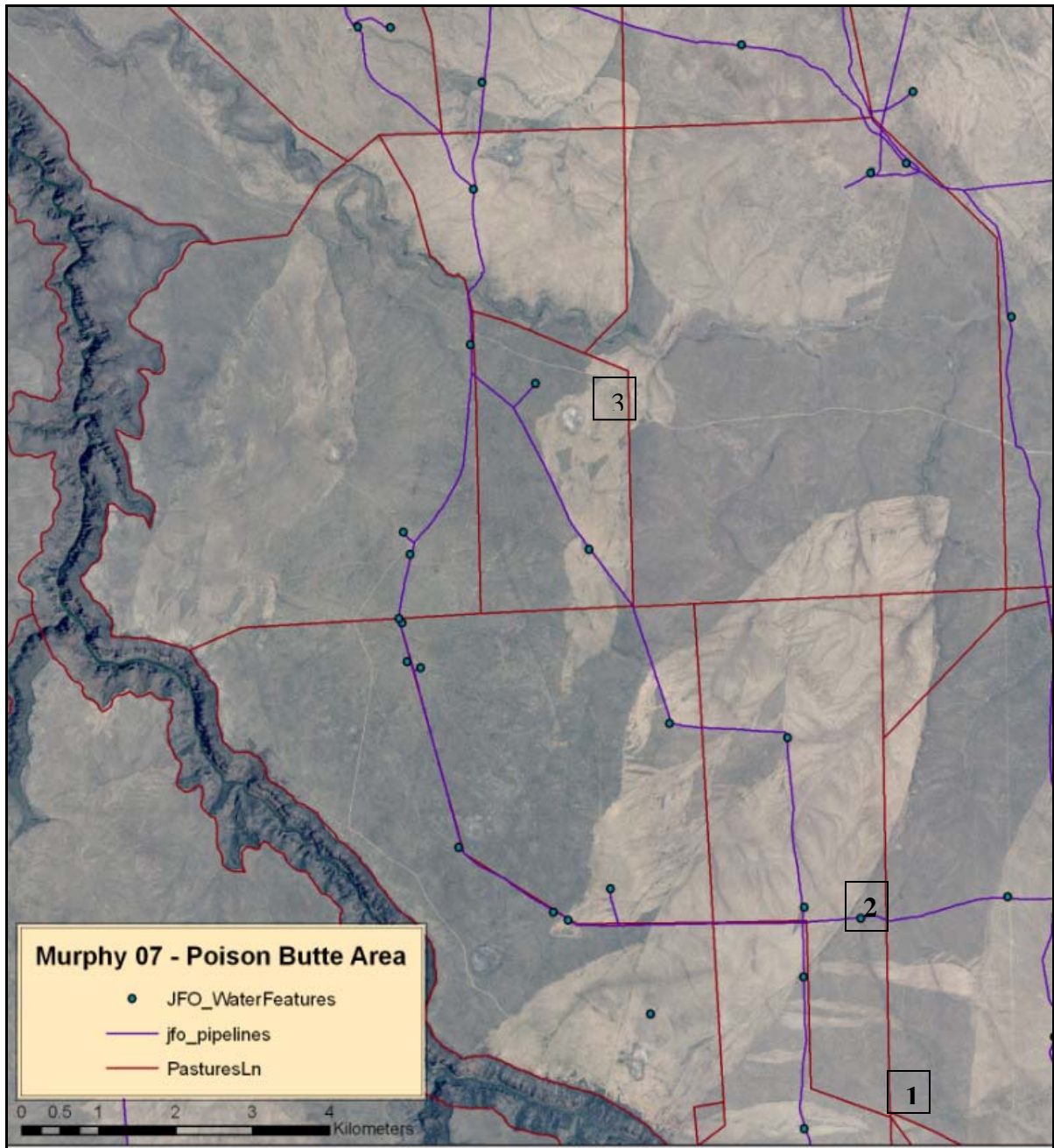
On August 3, 2007 a helicopter tour of the burned area within the Murphy Complex fire was taken to evaluate patterns of fire severity and its relation to vegetation and livestock use patterns in the burn area. Mike Pellant, Great Basin Restoration Initiative Coordinator, and Jerry Taylor, Boise District Manager were the team looking at these relationships. Mike is a rangeland ecologist with extensive fire and vegetation monitoring experience and Jerry Taylor was the team leader for a soil-vegetation inventory that was conducted in the Jarbidge Resource Area in the early 1980's. The route of the flight is shown in Figure 1.



**Figure 1. Green dots indicate route of helicopter while red dots represent GPS points of special interest. The black box is the focus area in this report.**

General observations derived from this flight supported previous observations that there was tremendous variation in fire severity across the burn. Factors that probably contributed to this variation included, but were not limited to, weather conditions, night versus day burning conditions, fuel loads, type of fuel (herbaceous versus shrub dominated), level of livestock utilization of herbaceous fuels, and fire suppression efforts. We focused on unburned or lightly burned areas within the more severely burn areas.

Aerial photographs (National Agricultural Imagery Program) were taken of Murphy Complex fire area in 2006 (shown here is the general focus area from Figure 1). This imagery has a 1 meter resolution and is very useful in discerning past wildfires (light gray area) and unburned sagebrush steppe areas (dark gray). Pasture boundaries (in red) and livestock watering pipelines (purple) with water trough locations (green circles on pipelines). The three numbered boxes in Figure 2 represent the areas discussed in the following examples.



**Figure 2.** Aerial photograph of the focus area from Figure 1 showing pasture boundaries, water locations, and three areas where the remainder of this report focuses on.



**Case Study 1.** This is a confluence of five pastures all of which were dominated by big sagebrush in the immediate area (except for previously burned area in upper left of the picture). Use in these 5 pastures ranged from slight (greater than 30 acres/Animal Unit Month) to relatively heavy (5 acres/Animal Unit Month). The result was the same in all five pastures with nearly full consumption of the sagebrush by the fire.







**Figure 3. Sagebrush dominated pastures with high fire severity.**

**Case Study 2.** Interface between partially burned seedings and severely burned sagebrush southeast of Poison Butte looking towards the Jarbidge Mountains (See block 2 in Figure 2). Black area on right side of photo was a Wyoming big sagebrush stand that had a high severity burn. The white arrow points to the bladed fireline that stopped the 199? Poison Butte Fire from spreading into the sagebrush stand. The orange star is a small sagebrush stand not burned due primarily to the surrounding seeding. This same stand is seen in the Figure 5 as a point of reference between these two photos. The previously burned area on the left side of the fire break was subsequently reseeded to a predominantly crested wheatgrass mix. Note the patchy burn in parts of this crested wheatgrass



**4. Seeding and sagebrush interface in the Poison Butte area.**



Looking back to northwest from previous photo (identified by ). The yellow lines separate seedings (below the lines) and big sagebrush (above the lines). The black arrow  indicates an intersection of four fences with different burn patterns based in part upon differences in livestock use. The following four pictures are taken from the four directions at this intersection. The red symbol  identifies a livestock watering trough. Note the unburned sagebrush island within the crested wheatgrass matrix near this water trough. The yellow star  identifies the start of another sagebrush plant community that was burned at a severe level.

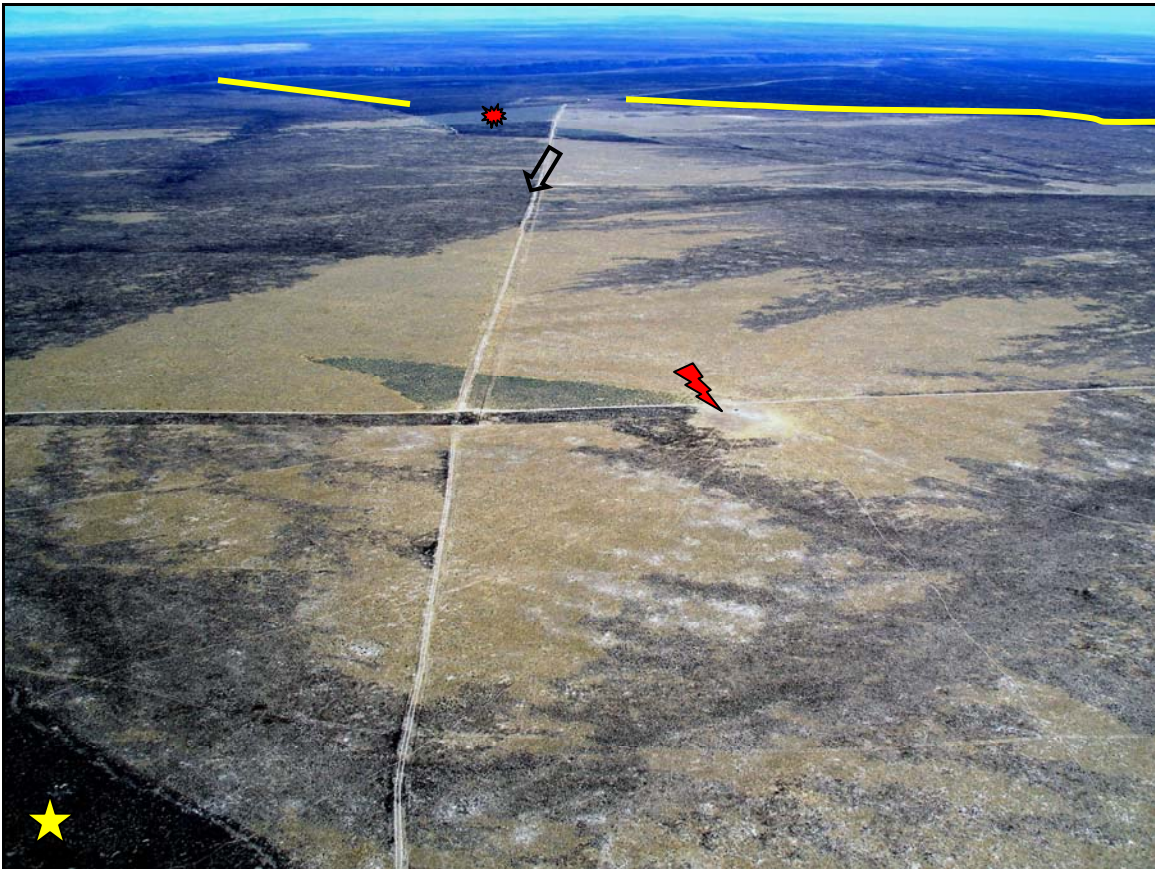


Figure 5. Looking west in the direction from which the picture in Figure 4 was taken.

Photos were taken on August 28, 2007 during team tour of burn area. This area where four pastures met is identified in Figure 5 with a black arrow. The on-the-ground inspection was valuable in discussing fire behavior with Field Office personnel involved in suppression efforts as well as with livestock permittees who were in the area when the fire moved through these pastures.



**Figure 6. Looking West from fence intersection. Pasture on the right was grazed in the spring while the pasture on the left was ungrazed in 2007.**



**Figure 7. Looking south from fence intersections. Pasture on right was ungrazed and pasture on the left was very slightly grazed.**



**Figure 8. Looking East from Fence intersection. Pasture on the left was grazed more than pasture on the right.**



**Figure 9. Looking North from fence intersection. Pasture on the left was grazed more heavily than pasture on right.**

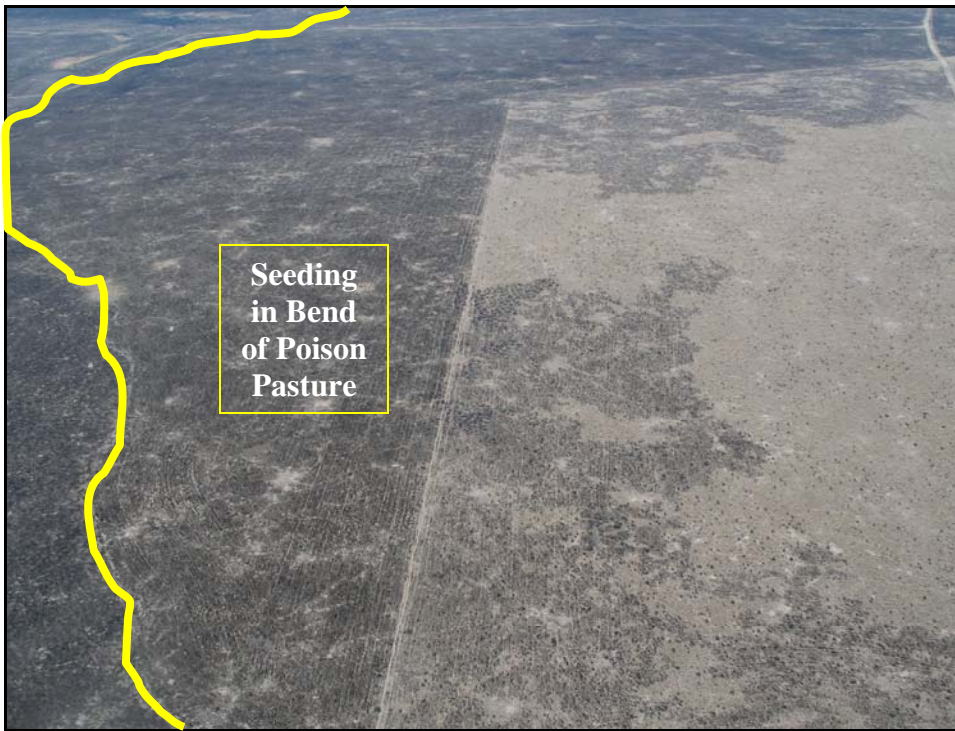


The seeding in Figure 10 received moderate to heavy utilization prior to the Murphy Complex wildfire. Stocking rate for the pasture averaged 4 acres/Animal Unit Month with the majority of the use probably occurring in the seeded portion of this pasture. Note the two sagebrush islands (arrow) in this seeding that did not burn in the wildfire.

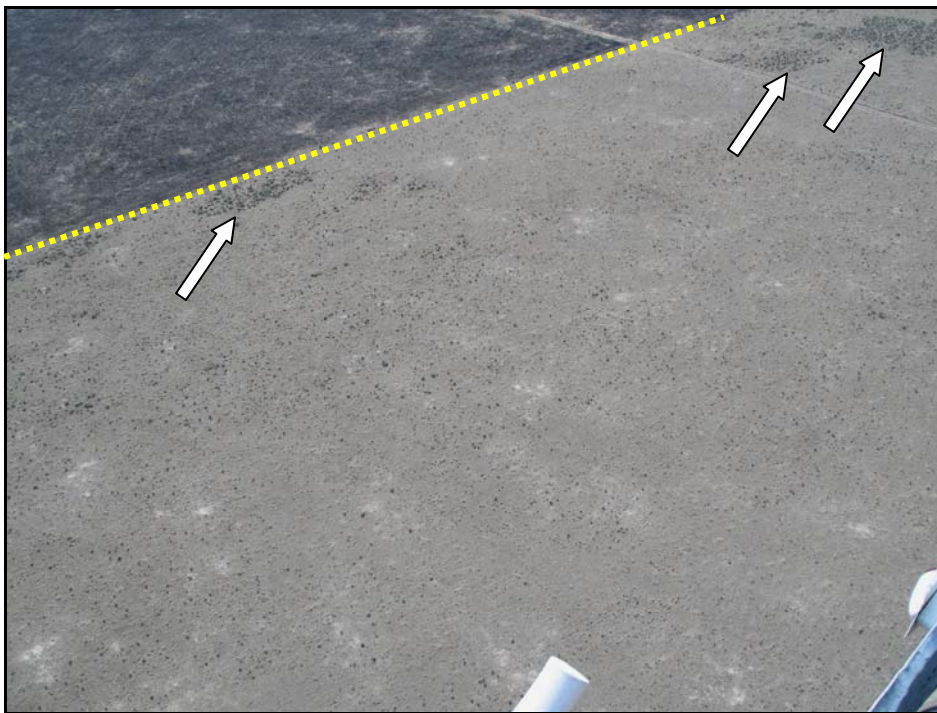


**Figure 10. East Poison Butte Seeding is in the center of the photo within the yellow lines. Note the fenceline contrast between this pasture and the prefire sagebrush dominated Bend of Poison Pasture. In the immediate foreground is the seeded North Sheep Pasture.**





**Figure 11. Northeast corner of the East Poison Butte pasture showing spotty burn inside this pasture and more severe burn in the very lightly used Bend of Poison pasture.**



**Figure 12. East Poison Butte Seeding near water source in foreground. Burned area (above yellow dashed lines is unseeded land dominated by sagebrush. White arrows point out unburned sagebrush islands.**