WHAT HAPPENED IN 2002?

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INTRODUCTION

Drought was a major event in 2002. During the summer months, more than 50% of the United States was experiencing drought. This was the greatest spatial extent of drought across the country since the mid 1950s. According to the July 23rd Drought Monitor map, drought or abnormal dryness was occurring in all 50 states of the United States.

The 2002 drought was actually a continuation of a series of drought years for the U.S. that began during the La Niña event of 1998. That year was the first of five consecutive drought years for Georgia and South Carolina, and major fires burned across northern Florida that year. The following year, 1999, saw a major drought develop in the eastern U.S. During 2000, drought spread across large sections of the South, Great Plains, and western U.S. More acres were burned by wildfires during 2000 than in any year in the previous 50 years. The Pacific Northwest saw a major drought during 2001, with drought also redeveloping along the East Coast.

As 2002 progressed, drought receded in the Pacific Northwest. However, major droughts developed across the eastern U.S., the Great Plains, and the Inter-mountain West from Montana to Arizona and New Mexico. The drought reached its peak intensity and spatial extent during the summer months. The acres burned from wildfires nearly reached the 2000 level, with the largest wildfires in state history occurring in Colorado, Arizona, and Oregon. During the fall of 2002, a series of storms hit the eastern United States, improving drought conditions there. The year ended with 2002 being the driest year on record (108 years) for Colorado; the 3rd driest for Nebraska, Wyoming, and Nevada; 4th driest for Arizona; 7th driest for Utah; 13th driest for South Dakota; and 19th driest for Kansas.

At the beginning of 2003, very little drought remains in the East. However, major drought problems continue across the Great Plains and the Rocky Mountain states, with additional dryness occurring in parts of the Great Lakes.

2002 DROUGHT IMPACTS

Because of the complex characteristics of drought, it has always been difficult in the past to quantify drought impacts, especially the economic losses. During 2002, drought impacts were felt across the following sectors: agriculture (crops, livestock, timber), environment (endangered species, water quality, soil erosion/degradation, wildlife intrusion), recreation, tourism, wildfire, water supply, public health, and energy. Some of the specific drought impacts from the 2002 drought include:

- low water supply issues from east to west led many localities to request voluntary or issue mandatory water restrictions; for example, in Colorado, 5 communities experienced water supply emergencies and 19 reached "critical" designations;
- low well levels or dried up wells; 18,000 families in Maine had their wells go dry at some time between August 2001 and June 2002;
- widespread record or near-record low streamflows in many areas of the U.S.;
- dismal snowpack in the Rockies, Southwest, and parts of the Great Basin;
- barge traffic threatened on the Missouri River as well as recreation and environmental interests in the basin; the river fell 9-15 feet below normal in average depth according to the U.S. Army Corps of Engineers;
- very active fire season, with 7.1 million acres burned for the year, nearly twice as much as the 10-year average to date and the second highest total in 50 years (according to the National Interagency Fire Center); costs to fight fires estimated at $1.25 billion;
- Denver Water estimated that it would lose $14 million in revenue in 2002 because of drought in Colorado;
- more than 7,000 stock ponds went dry across the 17 million acres of the Navajo Indian Reservation;
- a mild winter followed by hot and dry weather was ideal for grasshopper infestations in Nebraska, South Dakota, Colorado, New Mexico, Idaho and Oregon; although these states have been hit the worst, outbreaks have been seen in parts of most states west of the Mississippi River;
- elk populations in New Mexico were expected to fall by 10,000 from 2001 levels; additional wildlife impacts widespread across the U.S.;
- the U.S. saw its lowest winter wheat crop since 1971 with the smallest harvested acreage seen since 1917;
- national pasture/rangeland conditions in 2002 were the worst since record-keeping began in 1995;
- farmers and ranchers have been facing a shortage of forage for livestock; a lot of culling has taken place in many states in the Plains and West; the Colorado cattle breeding stock was reduced by 50% in 2002;
- USDA Secretary Ann Veneman announced the opening of all CRP land in all states, as well as a variety of additional USDA programs;
- according to USDA/NRCS, a record low water supply forecast was issued for the Rio Grande Basin. For the forecast point of Del Norte, CO, the April-Sept. runoff estimate was 90,000 acre-feet; since the USGS started collecting

streamflow data at this gage in 1890, the record low runoff for this period was 155,700 acre-feet in 1977.

Economic loss estimates from previous droughts are almost non-existent. Riebsame et al. (1991) made a rough estimate that the 1988 drought totaled $39.2 billion in losses. Some states, however, have done a better job estimating losses during 2002 and the estimates that do exist are included in Table 1. The estimates are derived in a variety of ways, highlighting the need for a consistent approach that can be applied nationally. The approximate total from the table is $11.22 billion, although it is certainly not complete with many states and sectors still absent in that total. As a result of drought in parts of Missouri during 2002, for example, the state formed an Economic Impact Committee to look at establishing a comprehensive process for accurately estimating the economic losses due to drought.

Table 1. Economic Loss Estimates Caused by Drought During 2002.

State	Estimate	Sector	Comments
Colorado	$1.1 billion $460 million	Agriculture Livestock	
	$1.7 billion $200 million $800,000	Tourism Outfitters Fishing licenses	Summer only
Kansas	$1.4 billion $300 million	Agriculture Livestock	
Montana	$2.0 billion	Agriculture	
Nebraska	$1.2 billion	Agriculture	
North Carolina	$398 million	Agriculture	Crop losses
	$15-20 million	Municipalities	Water revenues
Oklahoma	$1.0 billion	Agriculture	Includes 2001
South Carolina	$84 million	Agriculture	Crop losses
	$250 million	Timber	Southern pine beetle
South Dakota	$1.8 billion	Agriculture	
	$23 million	Environmental	Missouri River
Utah	$250 million	Agriculture	
Wyoming	$1.8 million $161,538	Wildfire suppression Value loss	

Several other drought loss estimates have been made for 2002. An initial figure from USDA estimates approximately $4.4 billion in crop insurance payments around the country. Officials around Lake Mead above Hoover Dam estimated $970,000 in losses due to drought though October 2002. Because of the costs to reconfigure the recreational facilities around the lake, an additional $400,000-800,000 will be lost with each 20-foot drop in the lake levels.

NATIONAL DROUGHT POLICY RESPONSES IN 2002

Assisted by drought conditions across large parts of the country, the United States Congress looked at three major pieces of drought-related legislation during 2002. The first bill was introduced by Senator Pete Domenici (New Mexico) in the Senate and Representatives Alcee Hastings (Florida) and Denny Rehberg (Montana) in the House during May and was called the National Drought Preparedness Act. The bill encouraged drought planning and mitigation activities, and would have formed a National Drought Council to oversee some of these activities and to coordinate the federal responses to drought, which have historically been poorly timed and ineffective. The seriousness of the drought (diverting attention to drought relief and away from drought mitigation and preparedness) and the lack of federal leadership caused this bill to lose momentum and stall as the year ended. It may be reintroduced in 2003.

The need for drought relief for large areas of the country helped the Senate pass the $5.9 billion Drought Relief Act. Opposition from the White House helped keep the bill from passing in the House, however. Finally, the Small Business Administration Drought Relief Act would have allowed SBA to assist tourism- and recreation-related businesses hurt by drought. At this time, SBA does not recognize drought as a natural disaster, and therefore cannot provide assistance to these businesses, which have been especially hurt during the past several years of drought.

USDA did provide programs for drought relief during 2002. USDA Secretary Veneman took the unusual step in August of releasing all CRP land across the country for emergency haying and pasture. USDA also provided a livestock assistance program in September for suffering ranchers in Wyoming, Colorado, Kansas, and Nebraska. By the time 2002 had ended, 1,837 counties across the country had been declared as primary agricultural disaster areas, with an additional 484 counties also eligible for relief by being contiguous to the declared counties. All counties in both Kansas and Nebraska were declared as primary agricultural disaster areas.

LOCAL DROUGHT RESPONSE IN 2002

Nebraska responded aggressively to the drought in 2002 as it began to intensify in the spring. The state had recently revised its drought plan to include mitigation actions in 2000. These mitigation actions had successful outcomes

during 2002. One of the actions was to establish hay and farmer stress hotlines as conditions developed. Both of these hotlines were quickly implemented and provided important resources to the producers around the state. The state also targeted "vulnerable" communities with potential water supply problems in 2000. Working with the communities, and offering workshops and various forms of assistance, fewer communities suffered water supply problems during 2002 than during 2000 across the state despite the fact the drought was more severe. The state had also improved its drought monitoring capabilities in recent years, which helped during the 2002 drought. Lessons learned from 2000 also helped improve the coordination and communication between county, state, and federal officials in 2002. Finally, the University of Nebraska Cooperative Extension had established the backbone of a drought-related website during 2000 that became very easy to re-activate and improve during 2002.

Colorado also recently updated their state drought plan to incorporate mitigation activities. The drought plan was activated completely during 2002 for the first time since it was originally adopted in 1981. Lessons learned during 2002, and 2003 if the drought continues, will help encourage the state to implement the mitigation strategies it has recently included within its drought plan. During the year, Colorado State University and the University of Colorado combined resources and expertise to form a Drought Research Center with the objective of investigating the impacts of drought on Colorado, particularly the potential impacts from multiple-year droughts.

Kansas is one of a handful of states that does not have a drought plan document. Officials have generally been confident and satisfied with their drought response capabilities during droughts in the past. With the trend across the country to begin to adopt mitigation strategies to reduce natural disaster losses, a trend that has recently gained momentum with drought as well, developing a drought mitigation plan for the state could be an important next step in dealing with droughts across the state. It is certainly a suggestion that is encouraged by the National Drought Mitigation Center.

CONCLUSION

Drought in 2002 definitely illustrated that the country remains highly vulnerable to drought impacts, and that mitigation strategies are needed to help begin to address, and hopefully reduce, these impacts in the future. The need for drought mitigation and preparedness exists at all levels: federal, state, local, regional, and tribal. It remains to be seen whether or not the lessons learned from the 2002 drought will move officials across the United States in this direction toward drought mitigation and preparedness.

REFERENCES

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LONG-TERM EFFECTS OF THE DROUGHT ON THE CENTRAL GREAT PLAINS

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INTRODUCTION

Much of the US Central Great Plains is in the midst of a drought that started in 2000 and has persisted through today, 2003. Although the drought areas shift about and there is sometimes some temporary relief, the persistence and severity of the drought has made successful dryland crop production nearly impossible and even strained many of the irrigated production systems. Questions have arisen about the long term effects of the drought. My remarks will be confined to drought effects on crop production and on the Ogallala. Therefore, my remarks will not specifically address the very real problems of wind erosion hazards and of individual financial strains and bankruptcies. These indeed can have long term effects.

WHAT EFFECTS ARE BEING OBSERVED?

In my opinion, we are in a historical drought situation. By that I mean, this extreme drought has not been seen by most of us still actively engaged in farming and ranching and that it will be a story we are likely to refer back to by, "We—ll, I remember back in 02, it was so dry.....". Now, having implied that these are rare conditions, let me point out that with our present situtaion, 2003 could be just as bad or worse.

The drought of 2002 was an *Equal Opportunity Drought* in that it had broad conditions:

- Widespread across Central Great Plains
- Affected both dryland and irrigated areas
- Affected all irrigation system types
- Affected winter and summer crops
- Affected all crop types