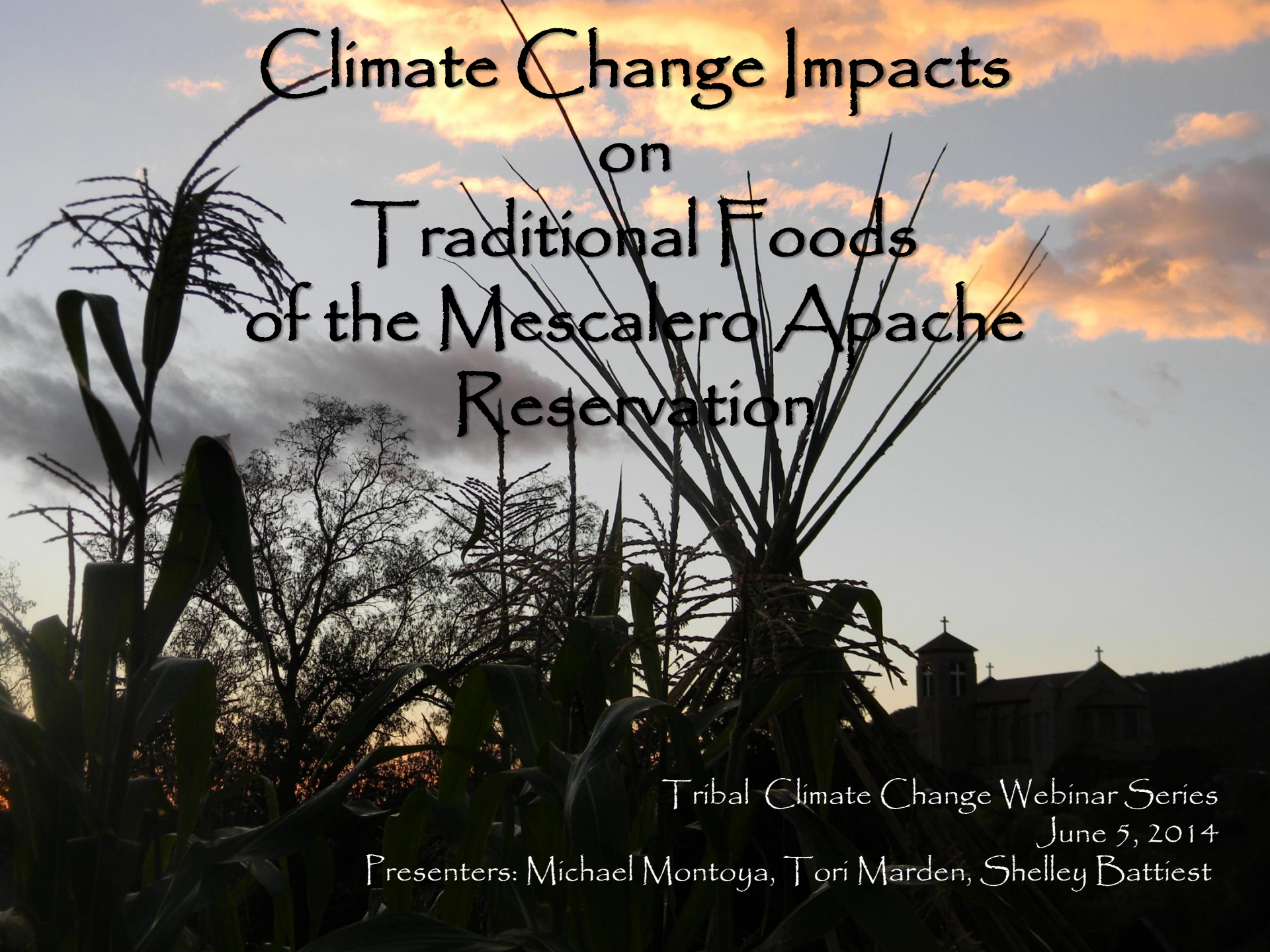


The background of the slide is a photograph of a sunset. In the foreground, there are silhouettes of corn stalks and other plants. In the background, there are silhouettes of trees and a church with a cross on its roof. The sky is filled with orange and yellow clouds.

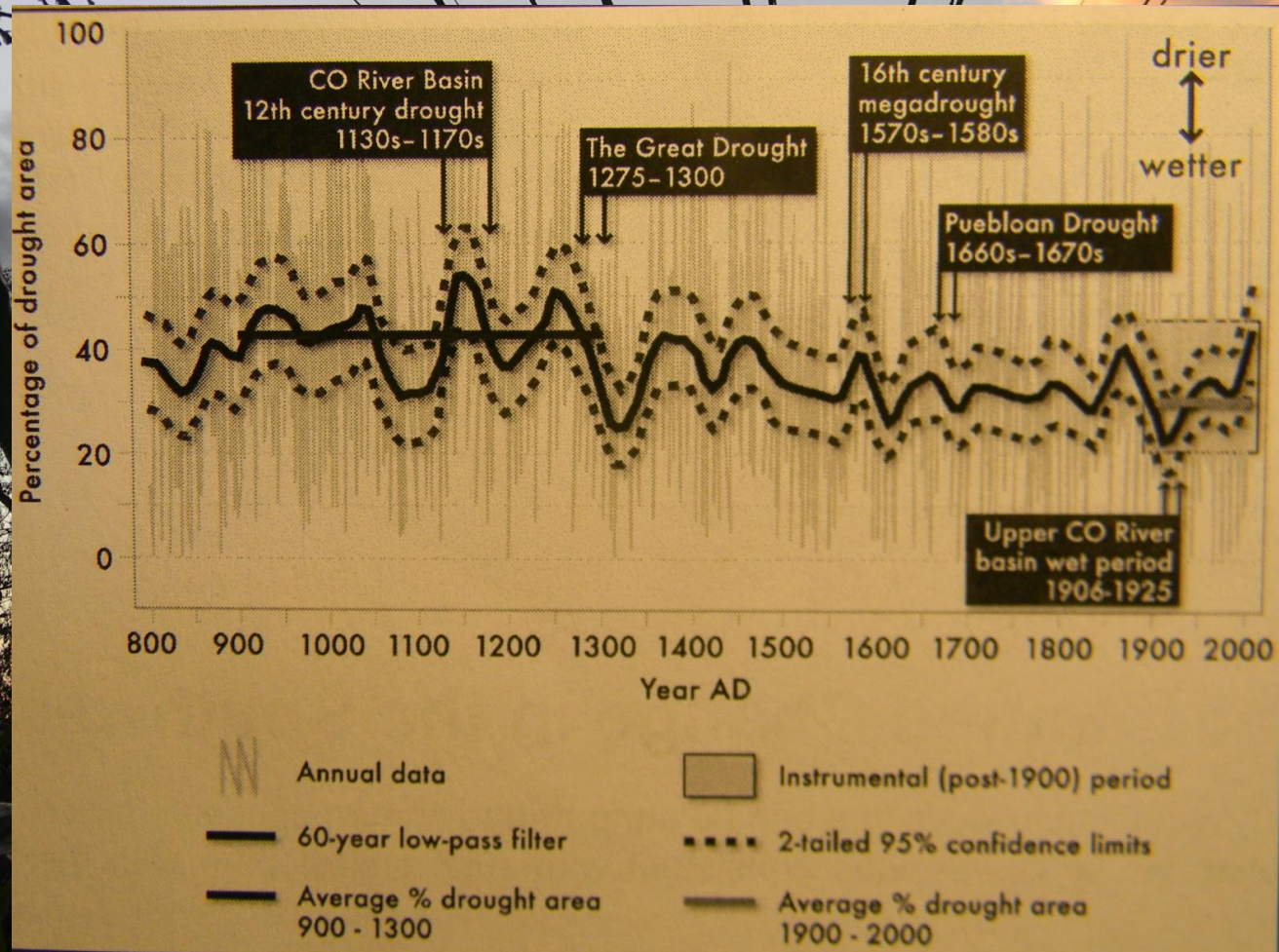
Climate Change Impacts on Traditional Foods of the Mescalero Apache Reservation

Tribal Climate Change Webinar Series

June 5, 2014

Presenters: Michael Montoya, Tori Marden, Shelley Battiest

Climate Change Impacts on Traditional Foods





Climate Change Impacts on Traditional Foods of the Mescalero Apache Reservation

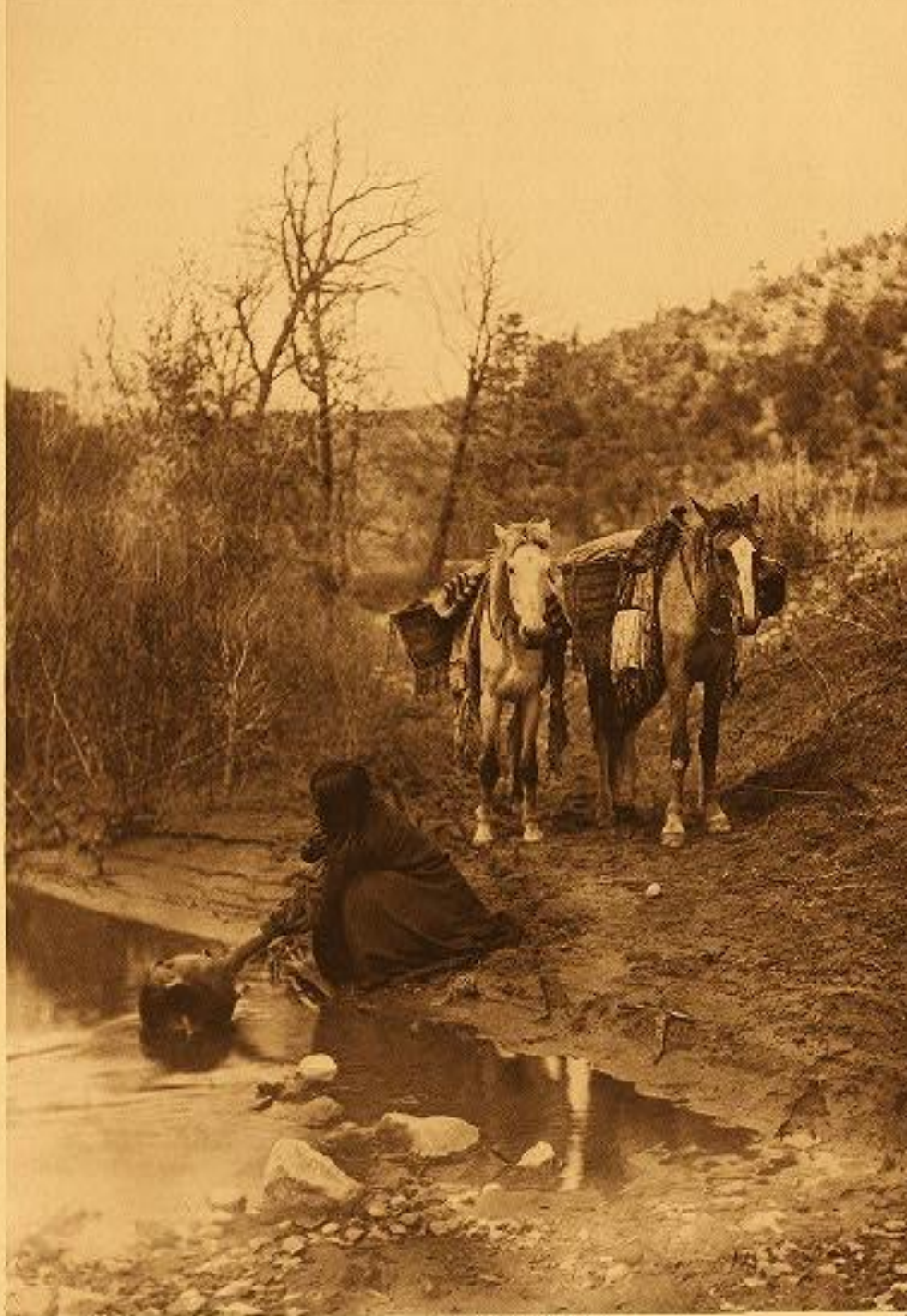
- Mescalero Apache: New Mexico / Mexico
- Chiricahua Apache: Arizona / Mexico
- Lipan Apache: Texas / Mexico



Hunter Gatherers

Gathering Mescal

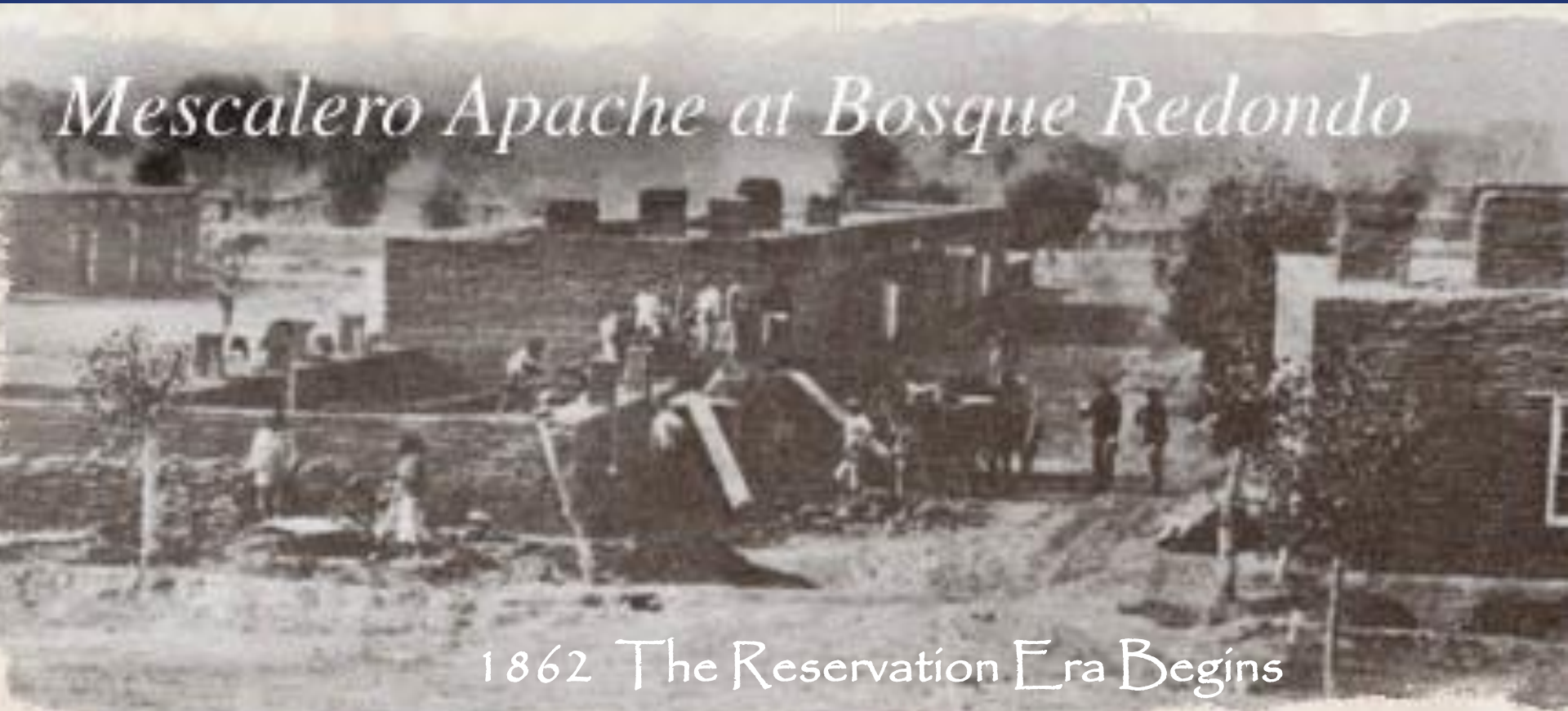




Bosque Redondo

“All Indian men of the Mescalero tribe are to be killed whenever and wherever you can find them. The women and children will not be harmed, but you will take them prisoners and feed them at Fort Stanton until you receive other instructions about them.”
—General Carleton to Colonel Carson

Mescalero Apache at Bosque Redondo



1862 The Reservation Era Begins

- Hunting Forbidden
 - Internment - Horses confiscated
- Harvesting Limited
 - Reservation boundaries limited plant species / abundance
- Traditional Foods not available
- Complete dependence on Military: rations and seed provided

“General Carleton promised them food and protection. But the Mescalero were not sowers of seed. They were wanderers, living by hunting and gathering”

The Mescalero Exodus



On November 3, 1865, 400 Mescalero Apache deserted Bosque Redondo, began their exodus back to their homelands. As the normal evening campfires burned, they slipped away into the night. Only nine people, who were either too old or sick to travel, remained to keep the campfires burning to fool the military that all was normal. A generation of Apaches remained renegades in their own homelands until a reservation was established in .



Some food gathering traditions were reestablished while others were adaptive strategies to the foods and food preparation tools available.

Building a nation: Finding and redefining a cultural identity, including traditional foods in a new paradigm





Redefining a culture
Taking the best of our past

While adapting to
current conditions



Impacts of Climate Change in the Southwest

Drought

- Temperature increases, precipitation decreases intensify frequency, severity of drought events
- Reduced rainfall, increased sunlight result in decreased soil moisture, increased vegetation stress, more intense wildfires
- Increased soil aridity and associated plant mortality make soil prone to wind erosion
- Large scale forest die-offs as result of drought create prime conditions for high intensity wildfires

U.S. Drought Monitor

April 30, 2013

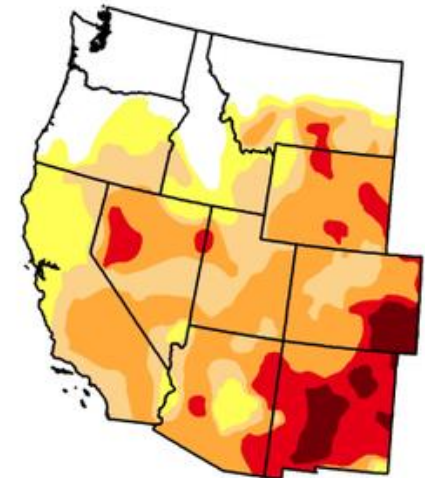
Valid 7 a.m. EST

West

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	19.56	80.44	66.68	45.32	15.09	4.09
Last Week (04/23/2013 map)	20.28	79.72	66.00	43.41	16.10	1.87
3 Months Ago (01/29/2013 map)	23.58	76.42	66.52	44.01	16.39	2.15
Start of Calendar Year (01/01/2013 map)	24.39	75.61	69.31	45.04	18.01	2.15
Start of Water Year (09/25/2012 map)	15.12	84.88	77.15	43.65	16.85	1.77
One Year Ago (04/24/2012 map)	32.83	67.17	47.61	25.91	4.36	0.91

Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

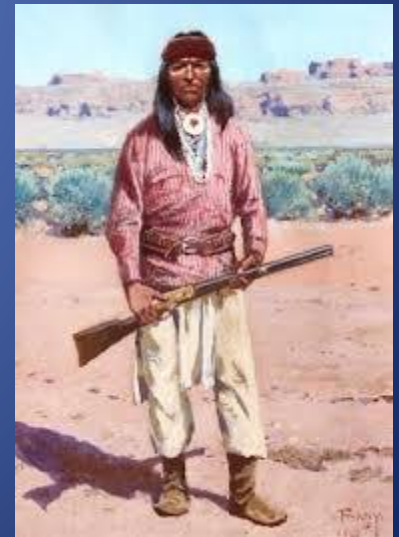
<http://droughtmonitor.unl.edu>



Released Thursday, May 2, 2013
Eric Luebehusen, U.S. Department of Agriculture



Mescalero Apache's hunted deer and elk for centuries. Now we are turning more towards beef.



Deer and their habitat: in Decline



Mesquite Beans



PIÑON



Prickly Pear





Traditional Food





YUCCA

- ❖ Still found throughout
- ❖ Medicinal purposes
- ❖ Native arts & crafts
- ❖ Shampoo
- ❖ Cabbage

Mescal: Does not grow in Mescalero



Mescal

Piñon Tree: Declining





Indian Banana



- ❖ Strong traditional food
- ❖ Harvested spring and summer
- ❖ A dish expected at ceremonies



Adapting to Climate Change

- Because of climate conditions, the Apaches at Mescalero do not have a strong agrarian culture
- Changing climate now allows for longer growing season



Benefits of Gardening

- Droughts in other parts of the country result in increased prices for produce
 - Gardening can help to offset the cost
- Convenient location
 - Encourages community members to make healthier eating choices
- Work done in the garden is also good exercise!
- Save gas used for trips to the grocery store
 - This saves money, and helps to reduce fuel emissions
- Control what comes into contact with your plants
 - No harmful pesticides, herbicides, or fertilizers
- Homegrown vegetables are fresher and often taste better

MTFH Adapts to Changing Climate



- 2011: Mescalero Tribal Fish Hatchery started an experimental garden
- MTFH experimented with different plants and soil treatment techniques
- Started plants in hoop house
- Incorporated chickens and compost bins

2011 – First Harvest

- Most successful crops:
 - Corn, yellow squash, zucchini, radishes,
- Failed crops:
 - Blueberries
 - Tomatoes grew well, but were eaten by small animals



2011 – First Harvest



2012 – The Second Harvest



2012 – Second Harvest



Raising Produce



Other Components to the Garden

- Chickens
 - Low-impact pest control
 - Waste can be composted to use as natural fertilizer
 - Fresh, organic eggs available daily at little cost
- Ducks and goats provide similar benefits
- Composting reduces waste in landfills
- Environmentally friendly way to increase nutrients in soil
- Compostable materials:
 - Vegetable and plant waste
 - Animal waste (chickens, goats, ducks, horses)
 - Egg shells
 - Other biodegradable materials (leaves, coffee grounds)

