Drought brings grasshopper swarms
Learn 5 ways you can show how drought is affecting you

Maps and stats for tribes
U.S. Drought Monitor searchable by tribal area

Harvesting drought lessons in Southwest
Drought Learning Network group produces case studies and podcasts

Dashboard focuses on ranchers’ questions
Drought Center provides online hub for ranchers
About the cover
In Stillwater County, Montana, and other areas of the state, triple-digit temperatures and dry conditions have led grasshoppers in search of food and water to infest areas like the irrigated ranchland on the cover. Photo submitted to Condition Monitoring Observer Reports (go.unl.edu/cmor_drought).

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About the cover
In Stillwater County, Montana, and other areas of the state, triple-digit temperatures and dry conditions have led grasshoppers in search of food and water to infest areas like the irrigated ranchland on the cover. Photo submitted to Condition Monitoring Observer Reports (go.unl.edu/cmor_drought).

From the Director

Mark Svoboda
Specialist, Denise Gutzmer, to join Twitter. Be sure to read her quarterly impacts summary on page five, and follow her on Twitter, @DroughtDenise, where she is sharing the latest impact-related news and providing key context as well.

The numerous drought impacts recently led our Drought Impacts Specialist, Denise Gutzmer, to join Twitter. Be sure to read her quarterly impacts summary on page five, and follow her on Twitter, @DroughtDenise, where she is sharing the latest impact-related news and providing key context as well.

This issue of DroughtScape highlights a number of ways that we and our partners are making drought monitoring and mitigation information more accessible. The Southwest Drought Learning Network, created in collaboration with the USDA, NIDIS and the NDMC, has gone all-in on sharing lessons learned from drought. We spotlight a DLN-produced podcast and a valuable collection of case studies (page 11). And recently, the U.S. Drought Monitor’s maps and data became searchable by tribal area (page nine). The USDM and many other tools are now part of the Ranch Drought Monitoring Dashboard (page 13), which was developed with input from ranchers.

The cover image, like many of our recent DroughtScape covers, was taken from our ever-growing database of user-submitted images that came in through the NDMC’s Condition Monitoring Observation Reports survey. Please keep sending them. As you’ll see on page 8, sending photos and survey responses to CMOR (go.unl.edu/cmor_drought) is one of five ways you can contribute to the conversation about drought conditions across the country, which informs state climatologists, resource managers, decision makers and other on-the-ground observers who then relay information to USDM authors.

Speaking of those observers, I want to thank the Drought Monitor’s on-the-ground network for going above and beyond in your efforts to relay drought conditions to USDM authors and to work with front-line drought responders during what has been, for many areas, a trying year already. I recently read an email to the USDM listserv from North Dakota State Climatologist Adnan Akyüz. He was relaying his drought coverage recommendations to USDM author Brad Rippey shortly after touring much of the state to see the conditions for himself and confer with county representatives. They are assisting farmers with water testing, cutting row crops for feed, making economic decisions and so much more. Efforts like these are remarkable, but not out of the ordinary, among people we are fortunate to have in the USDM network.

Endnote:
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Mark Svoboda

Mark Svoboda

Mark Svoboda
Drought intensified in West, Northern Plains, Northeast; eased in Southern Plains

By Denise Gutzmer
NDMC Drought Impacts Specialist

Drought classifications are based on the U.S. Drought Monitor. Details on the extent and severity of drought are online: droughtmonitor.unl.edu.

The outlook integrates existing conditions with forecasts from the National Oceanic and Atmospheric Administration's Climate Prediction Center: www.cpc.ncep.noaa.gov.

National Summary

The second quarter of 2021 was warm and dry for the West, Northern Plains and across to the Northeast. Parts of the Southern and Southeastern U.S. were cool and unusually wet for the same time frame. Alaska was slightly cool during the quarter, and precipitation varied across Alaska and Puerto Rico.

Drought intensified and shifted to nearly solidly cover the West, the Dakotas, and parts of the upper Midwest and Northeast, as well as Hawaii. Drought decreased dramatically from Texas to eastern Colorado, while easing in parts of the High Plains, Upper Midwest and Northeast.

Drought

The area of abnormal dryness decreased by about 7.2% to nearly 51.4% in the U.S. and Puerto Rico, while all levels of drought increased slightly during the April-June quarter until just over 39.5% of the country was experiencing drought (D1–D4), according to the June 29 U.S. Drought Monitor.

The areas of greatest drought intensification were in the Northwest on the border between Washington and Idaho; in Montana; in California, which had its second consecutive dry winter; the northern and central Plains; parts of the Midwest; Maine and Hawaii.

Meanwhile, ample rains took parts of the Deep South and West Texas from exceptional drought to vastly improved or even drought-free conditions. Beneficial rainfall varied from 5% or less of normal in parts of the Southwest to more than 200% of normal in the South over the second quarter of 2021.

Precipitation was 25% or less of normal in most of California. In the Northern and Central Plains, parts of the Midwest and Northeast, precipitation was about 70% or less of normal.
rains also improved drought conditions in eastern Colorado and eastern New Mexico, as well as parts of the High Plains, Midwest, Northeast and Florida.

Precipitation

Rainfall varied from 5% of normal or less in parts of the Southwest to more than 200% of normal in the South. Rainfall was less than 50% of normal west of the Rocky Mountains, where California, Oregon, Washington, Idaho, Utah and South Dakota experienced the top five driest April-June time frames on record. Precipitation was 25% of normal or less in most of California. In the Northern and Central Plains, parts of the Midwest and Northeast, precipitation was about 70% or less of normal.

Precipitation was up to 200% of normal in parts of the South from New Mexico east to parts of Alabama and Florida. Tropical Storm Claudette brought excessive precipitation to parts of the Southeast as it came ashore in Louisiana on June 19 and moved off the East Coast into the Atlantic in the latter part of June. Louisiana had its second wettest April-June, while Mississippi, Texas and Alabama also had well above average precipitation.

Temperature

Temperatures followed a similar pattern of delineation as precipitation, with above-normal temperatures in the West, northern U.S. and Northeast, and normal to below-normal temperatures in the South and Southeast. Temperatures were largely two or more degrees above normal in the West, with localized areas experiencing four or even five degrees above normal. From Montana and Wyoming eastward, temperatures were roughly one degree above normal, except for the Northeast, where some areas were two degrees above normal. California and Maine each had their warmest April-June stretch, while Nevada, Utah, Arizona and New Hampshire had their second-warmest, and Oregon, Massachusetts and Rhode Island, their third-warmest.
Massachusetts and Rhode Island, their third-warmest. From eastern Colorado, eastern New Mexico and Texas eastward, temperatures were roughly normal to one or more degrees below normal. Cooler pockets of two to three degrees below normal could be found from Texas to parts of Tennessee.

Outlook

The Climate Prediction Center’s Seasonal Drought Outlook indicates that drought is expected to persist through October in much of the West, Dakotas, upper Midwest and Hawaii. Drought should remain but improve in southern Arizona and southern New Mexico, as well as in parts of the Midwest and Maine. Drought removal is likely in parts of West Texas, southern New Mexico, the Northeast, the Midwest and Puerto Rico. Drought development is likely to occur in western Washington and patches of western Montana to northwestern Nebraska, and also across the Hawaiian Islands.

The Climate Prediction Center’s Seasonal Drought Outlook indicates that drought is expected to persist through October in much of the West, Dakotas, upper Midwest and Hawaii. Drought removal is likely in parts of West Texas, southern New Mexico, the Northeast, the Midwest and Puerto Rico.

MONTHLY DROUGHT AND IMPACT SUMMARIES

For a more detailed review of conditions, please visit: drought.unl.edu/Publications/MonthlySummary.aspx

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Drought expanded and intensified significantly in the West, in parts of the northern U.S. and the Mid-Atlantic, while rain allowed drought to ease dramatically in the central and southern Great Plains, from April through June. The National Drought Mitigation Center added 498 impacts to the Drought Impact Reporter, with 128 of those for California, documenting water restrictions and agricultural issues after a second consecutive dry winter. Utah, Texas and Colorado had 56, 49 and 46 reports, respectively. Utah had many water and fire restrictions as the governor strove to prepare Utahns for a water-short year. Texas and Colorado had many agricultural impacts as portions of those states emerged from a dry spell.

California snowpack melted, but reservoirs did not fill as expected

Snowpack in the Sierra Nevada amounted to 59% of historical average on April 1, but melted away early. The volume of water that was expected to refill reservoirs was dramatically reduced by evaporation and parched soil that absorbed the water and allowed 685,000 acre-feet of water to just vanish, per the East Bay Times. Water districts and communities ratcheted up conservation requests and mandates as it became clearer that more conservation was needed to extend water supplies, in case next winter was also dry. Statewide, more than 1,500 reservoirs were 50% lower than normal for mid-June, as reported by Associated Press.

California drought emergency declarations

California Gov. Gavin Newsom declared drought emergencies for Mendocino and Sonoma counties on April 21 and added another 39 counties in northern California and the San Joaquin Valley on May 10, according to The Mercury News. No mandatory water restrictions were ordered, as was done during the previous drought. Following efforts to encourage resource conservation, Californians have been using 16% less water than they did in 2013. The state Department of Water Resources and the State Water Resources Control Board were ordered to simplify rules for water transfers, among other actions. These are consequences of having less stored, including:

- Low river flow means rock barrier is needed to keep saltwater away from pumps in Sacramento-San Joaquin Delta
- More water restrictions as communities receive less water for municipal use
- California hydropower production down 40% in June
- Less water for agriculture, fallowed fields
- Young salmon trucked from Central Valley hatcheries to Pacific Ocean

California officials were bracing for another extremely active fire season.

A rancher submitted a photo along with a Condition Monitoring Observer Report on July 6, showing livestock drinking water that had to be hauled onto a ranch in Lassen County, California. Photo by Brad Hanson.
season like 2020. Gov. Newsom approved $536 million to be spent on wildfire prevention “through forest and vegetation management, clearing fuel around rural homes and retrofitting buildings in high-risk areas” to harden them against wildfires, as reported by The Modesto Bee. The California Senate and Assembly passed the bill, which the governor signed the next day, allowing the funds to be spent ahead of the July 1 start to the fiscal year.

Utah state of emergency, gov’s actions

Utah’s Gov. Spencer Cox declared a state of emergency in March due to the drought, recognizing that 2021 would be a challenging year for the state. The governor also took an active role in leading his state through numerous executive orders, mandating water conservation for state facilities, declaring another state of emergency for communities and ag producers to access to federal emergency resources, urging caution with fire to limit the number of human-caused fires, urging prayer for rain, promoting water conservation and imploring Utahns to leave fireworks alone this year.

As in California, low water supplies meant communities and farmers had to make painful adjustments to cope with the shortage. Numerous communities adopted restrictions on water use, including the state capital. In Salt Lake City and County, a Stage 2 water shortage response took effect on May 27, according to ABC4 in Salt Lake City.

For Utah farmers, less water meant crop loss as extreme drought gripped the state. Water allotments in Weber and Davis counties were 40% to 50% of normal allotments, as reported in The Salt Lake Tribune. Some planted crops were abandoned as there was not enough water to irrigate. Utah farmers were also worried about being able to survive this drought as cattle producers had no grass and opted to sell livestock, per KUTV.com in Salt Lake City.

Wheat in West, Northern Plains

Drought was challenging wheat growers across the West and Northern Plains. In eastern Washington, dryland wheat farmers were suffering amid the second driest spring on record and intense heat, according to Capital Press. Wheat was a complete loss in Benton, Yakima and Klickitat counties. In Idaho, wheat west of Moscow was green, but was only a few inches tall, far below normal, per Ag Info. In North Dakota, McLean County wheat was just 3 inches high, according to The Bismarck Tribune. Crops were stunted, hay land was depleted and soil had eroded.

Poor pasture, hay growth in West, Northern Great Plains; livestock sales ticking up

The dry conditions in much of the Western U.S. also meant that pastures and rangeland were not

The National Drought Mitigation Center’s Drought Impact Reporter recorded 498 impacts in the second quarter of 2021. The most reports were linked to drought-related relief, response and restrictions (27.1%), followed by water supply and quality (23.9%).

More than 1,500 California reservoirs were 50% lower than normal for mid-June, according to The Associated Press. California tallied 128 drought impact reports during the second quarter of 2021.
growing much, leaving livestock producers struggling to feed their herds and very concerned about what they will feed the animals through the winter. Most North Dakota livestock producers were short on forage, per NewsDakota. Lack of grass or hay led to cattle sales in South Dakota and Wyoming.

The alternatives for livestock owners during drought are often buy feed or sell cattle. Given the high cost of hay, many livestock producers just opted to sell. In Southwest Colorado, livestock producers continued to reduce their herds or ship stock to out of state pasture, due to worsening drought, according to The Prowers Journal. California’s Marin County ranchers were selling their cattle, having little grass or water for the livestock, per CBS San Francisco. Livestock producers were looking further away for livestock feed. Whereas they normally buy hay from the Central Valley, the Klamath River Basin and Nevada, some were looking to Utah and Idaho or further for hay, according to The Santa Rosa Press Democrat. In Arizona, Santa Cruz County cattle ranchers lacked grass and water for their livestock, leaving ranchers selling cattle, per Nogales International.

Lake Mead’s decline

Lake Mead has fallen about 140 feet since 2000, per USA Today and was 37% full. The last 12 months were some of the driest on record across the Colorado River Basin. Inflows into Lake Powell from April through July were estimated to be just 26% of the long-term average, leading to steep drops in both Powell and Mead, the two largest reservoirs in the Colorado River Basin.

Hydropower production was reduced as a result. While Hoover Dam normally produces 2,074 megawatts, according to the Western Area Power Administration, recent capacity was down about 25% to 1,567 megawatts.

Lake Mead is expected to end 2021 at 1,066 feet above sea level, significantly below the threshold of 1,075 feet, the level which will likely trigger a shortage declaration in August. Starting in 2022, Arizona, Nevada and Mexico would then face large cuts in water supplies from the Colorado River.
5 ways you can contribute to drought-monitoring

Every week, the U.S. Drought Monitor is authored by a climatologist or meteorologist employed by the U.S. Department of Agriculture (USDA) National Oceanic Atmospheric Association (NOAA) or National Drought Mitigation Center. The U.S. Drought Monitor serves as a trigger for multiple forms of federal disaster relief for agricultural producers, and sometimes producers contact the author to suggest that drought conditions are worse than what the latest Drought Monitor shows. Whether the author receives one or a hundred reports advocating for different drought status based on conditions being observed, the next step is to examine data to see if drought indicators align with the reports on the ground as the reports by themselves will not change the map.

The author analyzes data that pertains to precipitation, vegetation, soil moisture, snowpack, hydrology and much more using several dozen inputs each week. Throughout the Drought Monitor production process, the author consults with regional experts including state climatologists and NWS staff and assesses on-the-ground reports from across the country to produce the final map that is released each week. To be part of the conversation, here are some ways to submit information to help inform the process:

1. **Complete a brief Condition Monitoring Observer Report on Drought (CMOR Drought) survey and submit photos of current conditions where you live.** The CMOR Drought survey is designed to let users quickly provide details about current conditions where they live on a dry-to-wet scale to capture what they see at a specific place and time. Users who submit the survey routinely (every first of the month, every new season, etc.) help Drought Monitor authors and their state and local partners by providing baseline information about conditions when there is, and when there isn’t, drought. Visit go.unl.edu/cmor_drought to learn more.

2. **Contact local experts who work with U.S. Drought Monitor authors.** Every week, the USDM author gets recommendations from state climatologists and other state and regional experts across the country, and compares those recommendations with drought indices and indicators. Those state-level recommendations are driven in part by what the climatologists have learned from local producers. Find the current list of state climatologists at the American Association of State Climatologists website: www.stateclimate.org. Contacting your state department of agriculture, county Extension Service or Farm Service Agency office can also inform the process.

3. **Share your #drought stories on social media.** Each week, the NDMC compiles tweets that feature relevant hashtags (#drought21) and maps out where the conversations are occurring across the country. On the tweet map that is emailed to drought monitoring experts each Monday morning, the tweets are color coded to indicate different impacts (dust, fire, crops and more) that were mentioned in the same posts. Tag your tweets about the 2021 drought with the #drought21 hashtag and be sure you have provided a city in the “user location” field, and they will be part of the larger conversation.

4. **Become a CoCoRaHS observer.** CoCoRaHS stands for the Community Collaborative Rain, Hail and Snow Network. The community-based volunteer network measures and maps daily precipitation — and lack of precipitation — by using a standard rain gage and submitting reports that help fill in pieces of the broader weather puzzle across all 50 states. Volunteers can also submit more detailed drought-related “condition monitoring” reports. To join the network, sign up at cocorahs.org/Application.aspx.

5. **Submit photos to the Visual Drought Atlas.** Citizen scientists help drought monitoring experts collect a lot more data than they can collect on their own. The Visual Drought Atlas at the National Drought Mitigation Center uses user-submitted photos to build a better shared understanding of how different landscapes and places do and don’t change over time in wet, dry or normal years. Although photos can be submitted any time, collecting photos over key holiday weekends — Presidents Day, Memorial Day, July 4 and Labor Day — provides some consistency to the atlas. Submit photos at droughtimpacts.unl.edu/VisualDroughtAtlas.aspx.

Drought affects more than crops. How are you doing?

- Air quality, dust, pollen
- People relocating
- Less food for subsistence

Let others know by submitting a Condition Monitoring Observation Report at

go.unl.edu/cmor_drought

One way people can contribute to the U.S. Drought Monitor information-gathering process is by periodically completing the brief Condition Monitoring Observer Report on Drought (CMOR Drought) survey and submitting photos of current conditions where you live.
By Cory Matteson
NDMC Communications Specialist

In mid-June, about 42% of the 3,572-square-mile Standing Rock Sioux Reservation was experiencing extreme drought. Home to the Sisahapa and Hunkpapa bands of the Lakota Nation, the reservation straddles the North Dakota-South Dakota border, and the Great Plains tribal area measures about twice the size of Delaware. In an area of that size and scope, drought affects life in many ways, said Doug Crow Ghost, president of the Great Plains Tribal Water Alliance. The current drought, he said, is affecting annual tribal ceremonies.

“Right now sage is usually coming up pretty healthy,” Crow Ghost said. “And it’s really dry right now, so a lot of the places where we usually go and pick sage, they’re dry. They’re gone because of the lack of rain of course, because of the drought.”

Visitors to the U.S. Drought Monitor (USDM) website can now search for drought conditions specific to tribal areas like the Standing Rock Sioux Reservation. The National Drought Mitigation Center, in partnership with the U.S. Department of Agriculture, recently introduced search features that provide maps and data specific to 323 tribal areas. While water management experts like Crow Ghost have previously used Drought Monitor data to call attention to water rights and other water-related issues, he said that the new searchable features can help tribal communities see how drought is affecting them specifically. They will help producers better prepare plans for harvesting and help everyone better coexist “with our relatives that are four-legged animals, winged animals and also with Mother Earth and what it produces.”

Cattle ranching and farming are key industries where he lives, and Crow Ghost said knowing how drought has developed and what likely lies ahead can influence agricultural and water management decisions that are meant to not only help people who live on the reservation, but also neighboring communities and downstream communities as well as animals and the earth.

When you visit droughtmonitor.unl.edu and search the USDM’s numerous data and mapping products, “Tribal Areas” now appears in the dropdown menu of area types. Users can then view drought data or maps for 323 tribal areas. As with other defined territories, information and maps of the tribal areas can be cross-referenced with data from more than 20 years of USDM maps. For example, the searchable tools allow you to quickly find the highest percentage of exceptional drought that’s been recorded on the Wind River Reservation during the USDM’s history (28.3%, in January of 2003), graphs that show what percentage of the Navajo Nation is currently experiencing exceptional (D4) to extreme (D3) drought (96%, with 64% in D4) and where extreme drought has settled on the Standing Rock Sioux Reservation (the eastern half, including along the border of the area’s water source, the Missouri River).

“We know that drought is a condition of Mother Earth that is saying that she is sick,” Crow Ghost said. “Knowing where she’s sick, knowing where these conditions are, can help us figure out where and why we should be planting or harvesting or not planting or not harvesting, or using more water, or using too much water. There’s a lot of good information when you know what these areas look like specifically for the reservation, specifically for the communities, and then the states in the area of the Great Plains – we call it the Great Plains Lakota Nation.”

“...Her name is Mother Earth and she is sick. We have been careless with her and we are facing the consequences today.”

– Drought Crow Ghost, President, Great Plains Tribal Water Alliance

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U.S. Drought Monitor now searchable by tribal area
The Brown Otter Buffalo Ranch on the Standing Rock Sioux Reservation encompasses over 20,000 acres. The tribal area is one of over 300 that users of the U.S. Drought Monitor can now search for by name to explore current and past drought conditions. Photo by USDA NRCS South Dakota.

“While the Drought Monitor has been releasing information about the regions where these tribal communities are located, providing drought conditions and computing statistics for the areas within the specific boundaries of these tribal areas allows users to shine a spotlight on how drought affects these communities.”

– Brian Fuchs, Climatologist, NDMC Monitoring Coordinator

University of Nebraska-Lincoln School of Natural Resources, in collaboration with the U.S. Department of Agriculture. Fuchs said it’s a goal of the USDA and NDMC to make the Drought Monitor more accessible. The USDA Office of the Chief Economist provided funding for the project.

“One of the key purposes of the U.S. Drought Monitor is to provide people with the latest information about drought conditions where they live, so that they can best respond and react to drought as it develops or lingers,” said Fuchs, who is also a Drought Monitor author. “While the Drought Monitor has been releasing information about the regions where these tribal communities are located, providing drought conditions and computing statistics for the areas within the specific boundaries of these tribal areas allows users to shine a spotlight on how drought affects these communities.”
Southwest Drought Learning Network Sharing Management Practices team shares lessons learned about Southwest drought through case studies, podcasts

By Cory Matteson
NDMC Communications Specialist

In early 2020, several dozen Southwest U.S.-based climate service providers and resource managers gathered in New Mexico to begin the process of creating a regional Drought Learning Network (DLN). The DLN concept was first explored through discussions among staff with the USDA Southwest Climate Hub, National Integrated Drought Information System and National Drought Mitigation Center, who had documented a need to better share experiences, lessons learned and best practices from previous droughts. The DLN prototype developed during that pre-pandemic meeting includes the creation of a set of evolving teams that can refocus as needed going forward. The five 2021 teams are Drought in Agriculture, Drought Impact Reporting and Response, Indigenous Collaboration, Projections to People and Sharing Management Practices.

"The efforts being made across the Drought Learning Network are helping people in the Southwest navigate one of the worst droughts they've experienced," NDMC education and outreach specialist Tonya Bernadt said. "The case studies and podcasts are real-world experiences that can help others with similar situations. It's encouraging to work with people who understand drought impacts in the Southwest, and who want to help people improve their responses to it."

In this issue and in future issues of DroughtScape, the NDMC is seeking to highlight ways that drought concerns are being addressed by groups like these. This story spotlights the work of the Sharing Management Practices DLN team, which is providing best practices information to interested parties in the Southwest and beyond in several forms, like a trove of user-friendly case studies available online as well as a brand new podcast.

Showing others how drought management (and much more) gets done in the Southwest through case studies

The Collaborative Conservation and Adaptation Strategy Toolbox (CCAST) is a multi-organizational partnership directed by the U.S. Fish and Wildlife Service and Bureau of Reclamation that is staffed by a network of coordinators and case study authors. Through CCAST, over 150 people affiliated with dozens of organizations are sharing information about conservation and management of natural resources.

CCAST case studies are categorized in several communities of practice, said CCAST co-director Genevieve Johnson with the Bureau of Reclamation. Those specific areas include projects designed to address issues like invasive species, grassland and pollinators.

"And the one we're working on mostly this year is the drought community of practice, which is why we're involved in the Drought Learning Network," Johnson said.

The CCAST case study site had been developed initially with the U.S. Fish and Wildlife Services. When, during a DLN meeting, case studies were suggested as a way to share best practices about navigating drought's many impacts in the Southwest, Johnson said that utilizing the existing CCAST system allowed the idea to get off the ground quickly.

Now, when you visit the CCAST Case Study Dashboard (tinyurl.com/jbemv6b4), you find over 100 case studies that can be organized by topic, ecosystem, stressor and more. Johnson said that the collection of searchable subjects was created over many years during conversations with multiple partners, with the idea being that the subjects should be thematic issues that cross jurisdictional boundaries, so that there would be widespread interest in the offerings.

The studies collectively show the scope of how drought influences life in the West and Southwest. One case study looks at a southern California rancher who is experimenting with cattle biotypes to breed a more drought-resistant herd. Another focuses on expanding a project started by a nonprofit that purchased water tanks with GoFundMe donations. With Bureau of Land Management permission, the organization hauled over 3,000 gallons of water per day across five different Sand Wash Basin locations in Northwest Colorado where ponds used by hundreds of wild horses had dried up during the drought of 2018.

"We're talking to folks who are doing on-the-ground work, who don't have as many platforms to share the work that they're doing," said Maude Dinan, CCAST coordinator and program specialist for the Jornada Experimental Range with the USDA Southwest Climate Hub. "They're looking for opportunities to develop outreach materials to help showcase what they're doing. There's a particular case study that we're working on where they're applying for grant funding, and having the outreach material that we develop, that two-page handout, is going to be really key for them in communicating their project goals."

If you would like to have your work highlighted through a CCAST case study, join one of their Communities of Practice (CoPs) or use CCAST to support your CoP, contact Matt Grabau (matthew_grabau@fws.gov) or Genevieve Johnson (gjohnson@usbr.gov).
Spreading the word about drought-related issues through a podcast

When members of the DLN Sharing Management Practices team first envisioned who they could reach via podcast, they thought about people who aren’t at a desk all day, like ranchers. As the conversations grew, the potential audience did too, said Skye Aney with the USDA Southwest Climate Hub. Podcast episodes with a drought focus could help highlight vital information that people might not find if they aren’t routinely reading scientific journals for the latest information on drought research. And it turned out a few people were thinking about the same idea at the same time.

Aney said that both USDA Southwest Climate Hub director Emile Elias and Sarah LeRoy, assistant staff scientist with the Institute of the Environment at the University of Arizona, were interested in creating a climate-centric podcast at the same time. Now, Aney is one of the producers of the Come Rain or Shine podcast, which Elias and LeRoy co-host and which serves to share drought and climate related stories.

“We’ve sort of evolved into doing thematic things like this drought miniseries where we’re trying to come at the same topic from a few different angles,” Aney said. “And we’re finding that that is working well for us.”

One of the recent episodes that focused on drought highlighted the mental health toll that people can experience when forced to make difficult financial, career and other decisions in times of drought. Aney said that subject matter like that can hit an audience in a different way when they listen to it. It might not fit into the case study template the same way a research project does, but it’s still important to share.

“With the podcast, the main goal at the end of the day is all about getting the science out there to people in a form that is user-friendly,” he said. “We looked at the podcast episodes as a way of kind of showcasing these things that didn’t quite fit into the case study templates.”

The podcasts can be found on the University of Arizona’s Southwest Climate Adaptation Science Center’s website (www.swcasc.arizona.edu/podcasts) and at rainorshine.buzzsprout.com.

To find out more about the Drought Learning Network, visit dln.swclimatehub.info. If you know of a drought mitigation effort that should be highlighted in future editions of DroughtScape, send your suggestion to rmatteson2@unl.edu.
When faced with developing drought, ranchers often have questions. How severe is this drought? How long could it last? Is this as bad as the last drought we experienced, or is it the worst one? What are the chances it rains enough to produce normal forage over the coming weeks or months, and how much rain would be needed for a "normal" grazing year?

These are questions frequently asked by ranchers who have taken part in drought management workshops with the National Drought Mitigation Center and partner agencies, said NDMC rural sociologist Tonya Haigh. While many resources can help answer those questions, Haigh said they could be challenging to track down and sift through. Now, ranchers have a resource on the NDMC website that addresses a number of common drought condition questions on one map, in one place, including some map layers and management information specific to the Great Plains and Southwest U.S.

The Ranch Drought Monitoring Dashboard aims to provide information that will help ranchers reduce risk ahead of time, Haigh said. The dashboard features the latest data on drought and precipitation conditions, outlooks, on-the-ground reports, vegetative stress, forage productivity and more, organized around the key questions. A user who clicks on the question about drought severity, and how it compares to past droughts, is led to an interactive display that presents current U.S. Drought Monitor conditions and allows for historical comparisons. Other common questions lead users to other vital resources that can be displayed on a U.S. map, and used together, the map’s layers provide a clear picture of current drought conditions and expectations.

“There’s a lot of information out there, and sometimes it’s challenging to figure out what you are supposed to do with all of it,” Haigh said. “So that’s why we organized this the way we did, to see if we can make the process easier by trying to tailor information that addresses specific drought monitoring questions that ranchers often ask. We worked with extension offices, USDA Climate Hubs and other advisors in the field to select a set of key questions that specifically speak to range management issues that a rancher would use the U.S. Drought Monitor, Grass-Cast, VegDRI or another resource to answer.”

Grass-Cast forecasts forage productivity in the upcoming growing season under below-normal, near-normal, and above-normal precipitation scenarios, based on nearly 40 years of data. The Vegetation Drought Response Index, or VegDRI, offers a weekly depiction of drought-related vegetation stress across the contiguous U.S. Along with those resources, the dashboard also incorporates monthly and seasonal precipitation outlooks, citizen science observations, and a collection of case studies for ranchers looking for drought management plan options.

Haigh said that, while many ranchers now have developed drought plans for their land, one of the biggest challenges is determining when to put the plan in action. With these tools in one place, ranchers will have key information readily available for decision-making.

The Ranch Drought Monitoring Dashboard was developed by the National Drought Mitigation Center (NDMC) in collaboration with the USDA Northern Plains and Southwest Climate Hubs, with input by Extension and NRCS range experts in the regions, and funding support by the USDA Office of the Chief Economist. It was released to the public in April, at drought.unl.edu/ranchplan/monitor.aspx.