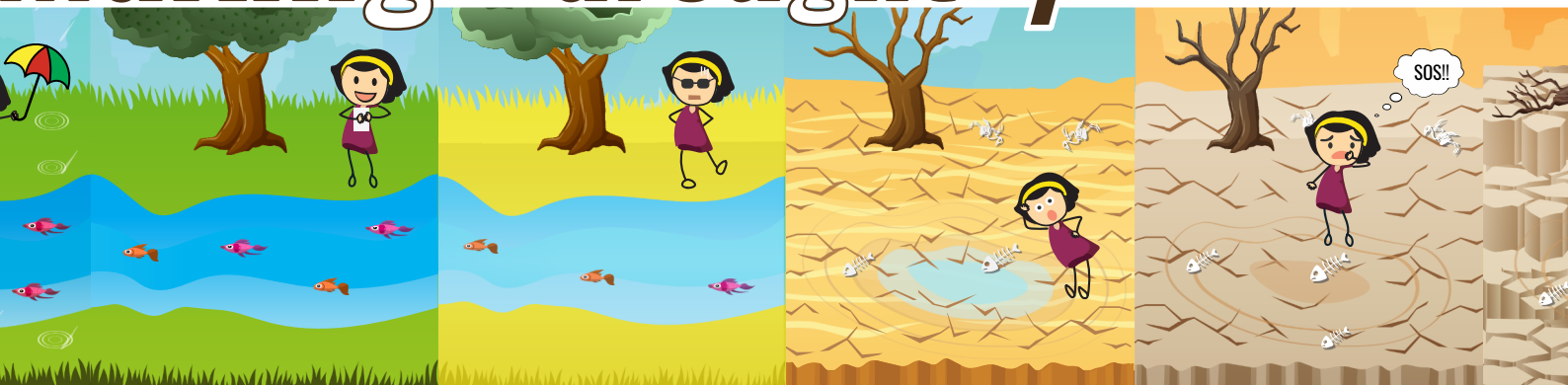


DROUGHT SCAPE

Fall | 2020

Quarterly Newsletter

Making drought *personal*



through *design*



National Drought Mitigation Center partners with University of Nebraska-Lincoln graphic design students to tell visual stories about drought's impacts



NATIONAL DROUGHT
MITIGATION CENTER
UNIVERSITY OF NEBRASKA

Drought Science. **Planning Sense.**

About the cover

The Fall 2020 edition of DroughtScape features art created by three University of Nebraska-Lincoln graphic design students who interned with the National Drought Mitigation Center. We're sharing their work on one of two projects they completed, and hope to share more at a rescheduled 25th anniversary celebration.



From the Director

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Mark Svoboda

Last year, when we added Impacts by State to the U.S. Drought Monitor, a project that involved months and months of analysis of drought events across the country, we said that this was the beginning of a project, not its conclusion. The National Drought Mitigation Center team works to expand on current drought knowledge and to make people aware of not only signs of drought, but how people can better prepare for them and share their experiences in the midst of them. The stories in this edition of DroughtScape showcase a number of different projects our team and our partners have spearheaded to do just that.

For starters, as promised, we've released an update to the Impacts by State tables on the USDM site (page 12). Now it includes events that happened during drought in Southeast Alaska. The update follows a major drought in the region, and involved members of the NDMC team working with dozens of stakeholders who met at a 2019 USDA Climate Hub Southeast Alaska drought workshop in Juneau. Thanks to that collaboration, residents can recognize telltale signs of drought sooner the next time it develops in that unique temperate rainforest ecosystem.

And when residents across the country start talking on social media about drought where they live, we're paying attention. Kelly Helm Smith, our assistant director, recently completed her doctoral program (congrats!) and published her research on the potential of Twitter to contribute to drought early warning systems (page 8). Drought-related tweets can point us in the direction of a drought event, and we are using our recently launched and growing collection of Social Media Resources to encourage people to help show us what drought looks like (page 13).

Speaking of what drought looks like, the NDMC recently concluded a collaboration with a team of University of Nebraska-Lincoln graphic design students who put their skills to work on several projects that show drought's impacts on people and the environment. The graphics are intended to encourage people to learn from each drought, and not to go through the same old motions when one develops. I want to thank professor Stacy Asher, her entire advanced design class and the three NDMC interns — Muskan Yadav, Lindsey Musil and Hannah Birdwell — we hired to further develop their design work from the class. We planned to display their work at the now-postponed NDMC 25th anniversary event, but we couldn't wait that long. Take a sneak peak at some of their work in this edition of DroughtScape.

And read the quarterly climate (page 3) and drought impact (page 6) reports to show why we must continue to expand our reach. Much of the country is experiencing a drought event that is bringing back memories of 2012–2013. Please take care and be well!



rmatteson2@unl.edu
Cory Matteson, Editor



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Drought expands in West, Northeast; improvement measured in Southern Plains, Puerto Rico

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:

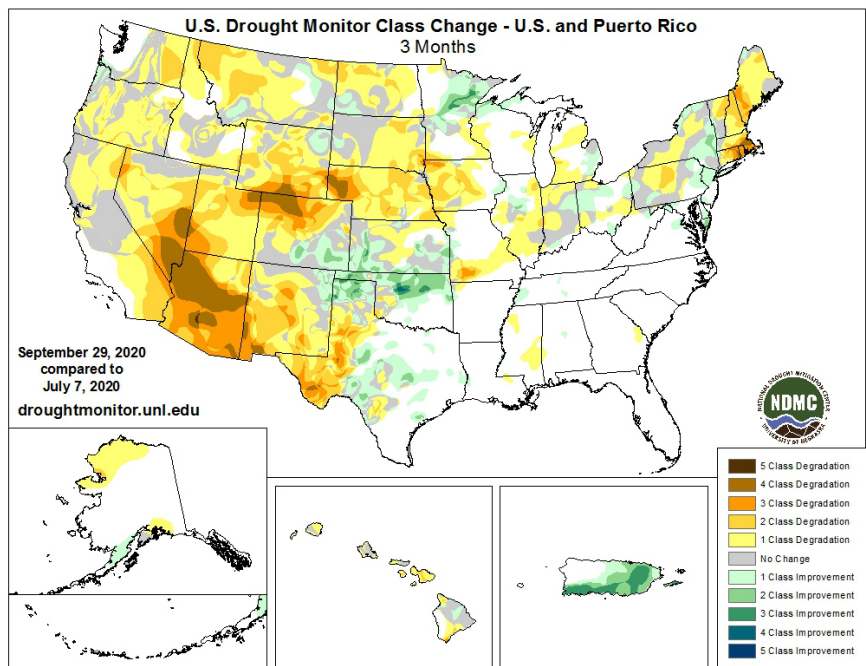
www.cpc.ncep.noaa.gov.

Drought developed and intensified in many parts of the U.S. from July through September, but eased in the Southern Plains and Puerto Rico. Temperatures were unusually hot in the West, the Northeast and Florida, while the central U.S. was roughly average, and Kansas and Oklahoma were cool. The West and Northeast were remarkably dry, setting records in some states for the driest July–September interval on record, while the Southeast was unseasonably wet as a number of hurricanes traversed the region.

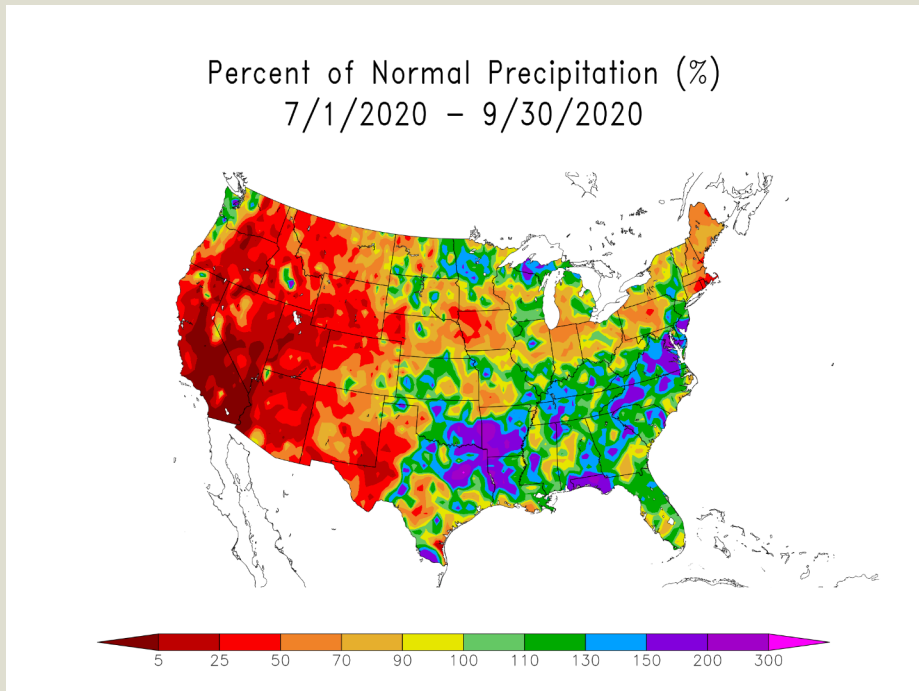
Drought

Overall, drought increased in the U.S. from July through September. At the start of July, moderate to exceptional drought (D1–D4) covered 21.62% of the U.S. and Puerto Rico, although no exceptional drought existed in the U.S. By the end of the third quarter, moderate to exceptional drought affected 35.78% of the U.S., an increase of 14.16% from the start of the quarter. Drought developed and intensified in much of the West, the northern Great Plains, the Northeast and Hawaii, but eased in parts of the Southern Plains and Puerto Rico.

A nearly absent monsoon season parched the Southwest, with the driest conditions existing in Arizona, Nevada, Utah, Wyoming, Colorado, New Mexico and western Texas, where extreme drought (D3) dominated the region with pockets of exceptional drought (D4) appearing. Extreme drought expanded in parts



National Drought Mitigation Center
By the end of the third quarter, moderate to exceptional drought affected 35.78% of the U.S., an increase of 14.16% from the start of the quarter.



High Plains Regional Climate Center
The western U.S. was largely very dry, with much of the region receiving 50% or far less of normal precipitation.

of the Pacific Northwest and northern California and also appeared in Iowa. Drought conditions continued to develop and intensify in the Northeast, which was mostly covered in severe drought (D2) with some areas of extreme drought developing by the end of the quarter. The Southeast remained drought-free. In Puerto Rico, Tropical Storm Isaias eased severe drought, leaving a small patch of abnormal dryness (Do).

Precipitation

The contiguous U.S. saw some distinct precipitation extremes from July through September. The western U.S. was largely very dry, with much of the region receiving 50% or far less of normal precipitation. The monsoon was a disappointment, leaving the Southwest alarmingly dry. Utah and Arizona endured their driest July–September on record, and California, Nevada, Montana, Wyoming and New Mexico also experienced near-record dryness. Hawaii was also dry across most of the islands, receiving 70% or less of normal precipitation for the quarter, allowing drought to worsen.

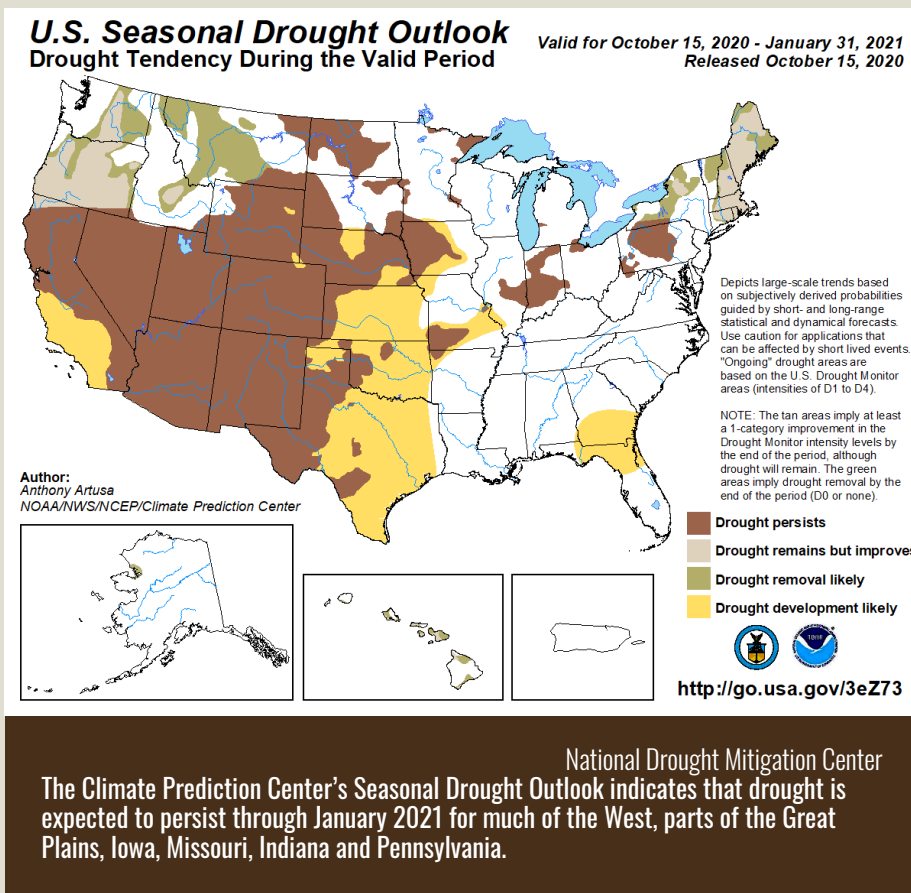
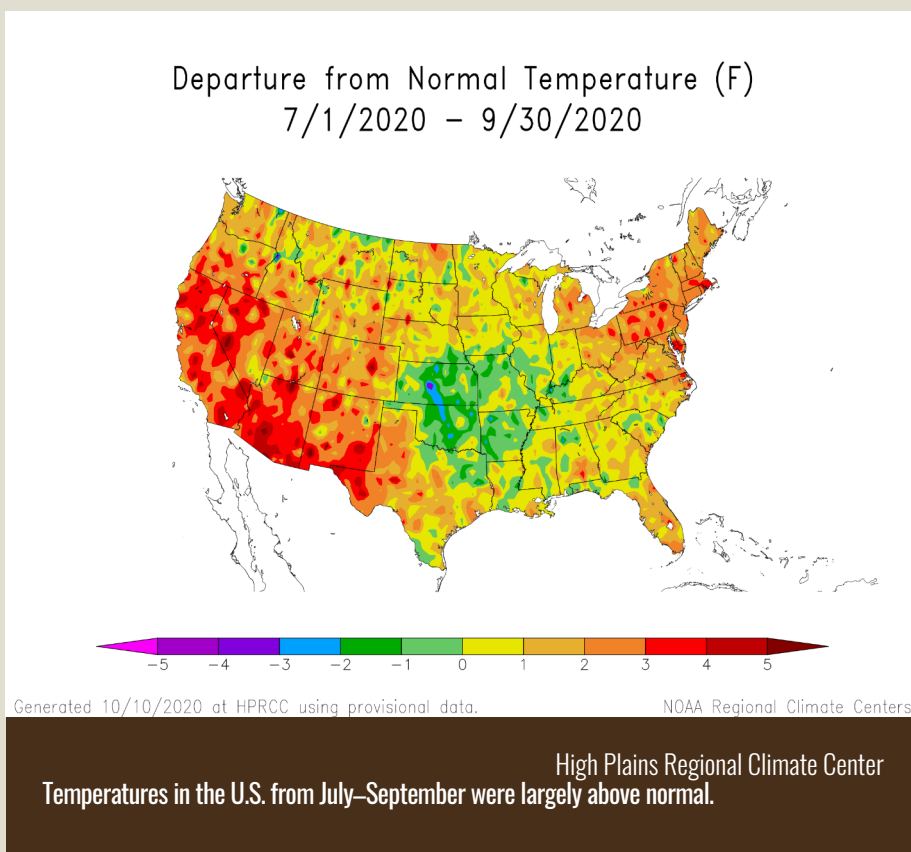
The northern Great Plains region was slightly dry as many areas received 70% of normal rainfall or less, with pockets of above-normal rainfall as well. Northwest Iowa was particularly dry, receiving less than half of normal rain, while parts of the Midwest received a mix of above- and below-normal precipitation.

The Northeast was notably dry as well, with Rhode Island seeing its driest July–September ever. Surrounding states were also remarkably dry, contributing to drought development. Parts of the region benefitted from tropical moisture, boosting rainfall from New Jersey northward.

An extremely active hurricane season brought bursts of moisture to the Southeast. From eastern Oklahoma and Texas eastward to Virginia and New Jersey, areas received in excess of 200% of normal rain, interspersed with pockets of slightly below normal precipitation.

Temperature

Temperatures in the U.S. from July–September were largely above



normal. The West, Southwest, Mid-Atlantic, Northeast and Hawaii were above normal, but temperatures were cool in Kansas and Oklahoma and roughly within a degree or two of normal elsewhere. California, Nevada

and Arizona endured their hottest July through September, recording temperatures of three degrees or more above normal, while neighboring states also experienced near-record heat, notably Utah,

Colorado and New Mexico. The Northeast also sweltered, enduring near-record heat from Pennsylvania and Maryland and northeastward. Florida was remarkably hot, too, seeing its sixth-hottest July–September interval.

Outlook

The Climate Prediction Center’s Seasonal Drought Outlook indicates that drought is expected to persist through January 2021 for much of the West, parts of the Great Plains, Iowa, Missouri, Indiana and Pennsylvania. Drought is anticipated to remain but

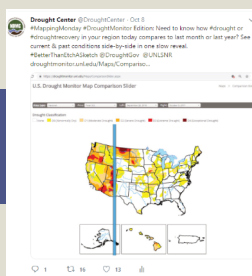
improve or be removed in Hawaii, Oregon, Washington, Idaho and the Northeast. Drought removal is likely in western Montana. Drought development is likely in southern California, the southern Great Plains into Iowa and also southern Georgia and northern Florida. ○



MONTHLY DROUGHT AND IMPACT SUMMARIES

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

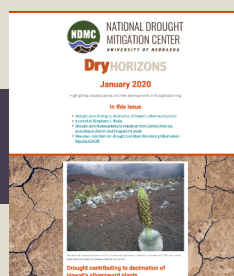
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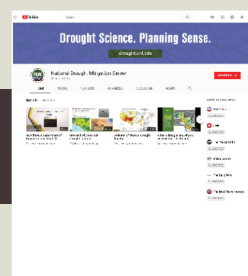
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Impacts number in hundreds as drought intensifies in western U.S., elsewhere

By Denise Gutzmer

NDMC Drought Impacts Specialist

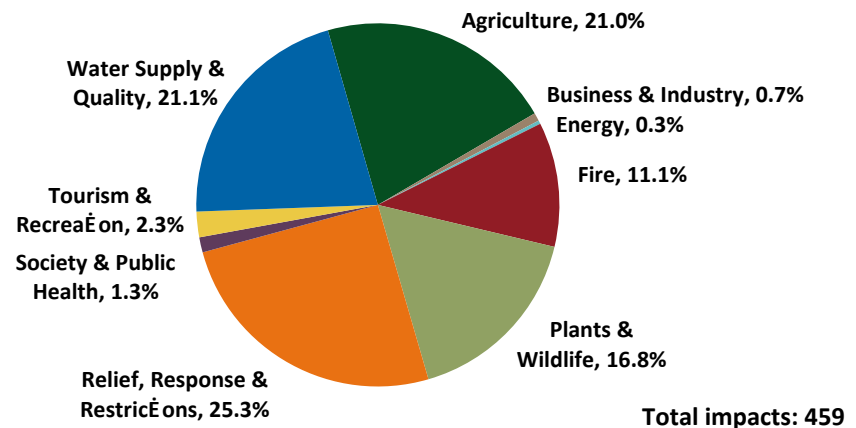
Drought intensified in the western U.S., Northern Great Plains and Northeast during the third quarter of 2020 as much of the West endured a record or near record hot, dry summer, as did the Northeast to a lesser degree. During the quarter, the National Drought Mitigation Center added 459 impacts to the Drought Impact Reporter. Texas had the most impacts, with 69, and Colorado followed with 68 impacts, as both states experienced numerous agricultural concerns and water supply shortages. The Northeastern states of Massachusetts, New Hampshire and Maine were also parched and recorded 41, 36 and 33 impacts, respectively. Water restrictions and crop damage were prevalent in the Northeast.

Texas disaster proclamation, ag challenges

Dry conditions in Texas led Gov. Greg Abbott to issue a drought disaster proclamation on July 13 for numerous counties in the South Plains as the fire danger rose, as reported in [EverythingLubbock.com](#). The fire danger posed a threat to public health, property and the economy in those counties. Many counties in the western two-thirds of the state enacted burn bans to minimize the likelihood of wildfires.

Crops struggled in the western part of the state also. Livestock and wildlife continued to receive supplemental feed as conditions were too dry to support the animals, per [AgriLife Today](#). In some areas, irrigation could not meet crop demand. With dry conditions, hay supplies were dwindling and prices were rising, according to [AgriLife Today](#).

Impacts in the Drought Impact Reporter, July – September 2020



The July–September 2020 Drought Impact Reporter recorded 459 total impacts last quarter, up from 239 during the April–June quarter.

National Drought Mitigation Center

Colorado crop damage, wildfires

Drought worsened in northern and western Colorado during the summer, causing crop damage and depleting water supplies, as several large wildfires burned in the state. Drought halved Colorado's winter wheat harvest, amounting to 46.5 million bushels, according to the USDA, per [The Denver Post](#). That amounted to the second smallest harvest in the past decade. Dryland crops and forages across the state suffered from the hot, dry summer.

Colorado Gov. Jared Polis announced a 30-day ban on open fires, fireworks and other open sources of ignition in August and extended the ban through September as drought intensified and fires continued to burn, per [The Lamar Ledger](#). Some of those fires included the Pine Gulch fire that charred more than 139,000 acres north of Grand Junction, according to [InciWeb](#). The Cameron Peak Fire in northern Colorado was another massive fire that blackened more than 127,000 acres as of Oct. 6, per [InciWeb](#), later becoming the state's largest wildfire.

As drought worsened in Colorado, Polis expanded the second phase of the state's drought response plan to all counties, [Colorado Public Radio reported](#). A drought task force will assess initial damages and drought impacts and make recommendations on mitigation measures. Polis also requested that the U.S. Department of Agriculture provide emergency relief for Colorado producers as they endured financial losses.

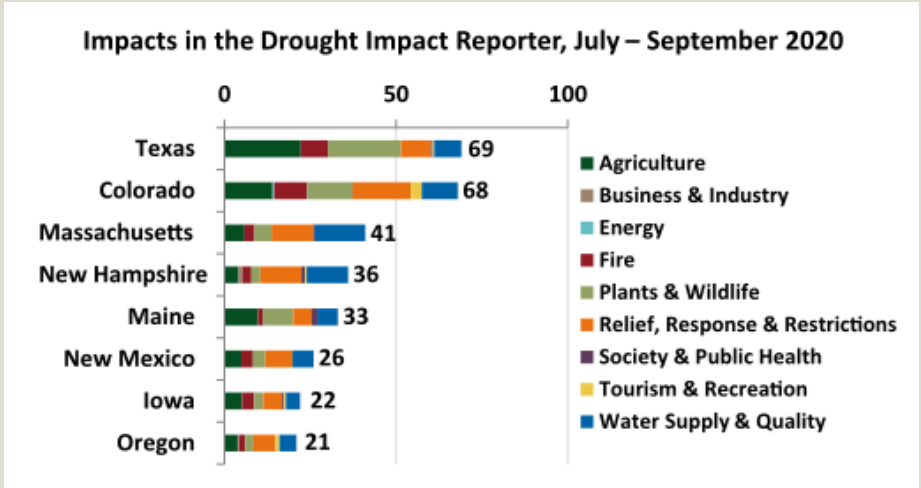
Northeast water shortages, fire danger, crop losses

Persistent drought and heat in the Northeast over the summer led to calls for water conservation as fire activity increased and crop damage continued. In Massachusetts, a state drought declaration and a request for water conservation affected the entire state through September, per [WBUR-FM Boston Public Radio](#). In New Hampshire, officials continued to warn people with wells to carefully watch their water use as more than 100 people each day reported problems with their wells, as reported by [WMUR-TV ABC 9 Manchester](#). Some southern New Hampshire fire departments had

trouble with water access for firefighting, according to [WMUR-TV](#).

Drought also led to an uptick in wildfires in the Northeast, and dry conditions made fires more difficult to extinguish. Massachusetts has had more than 1,000 wildfires in 2020, compared to 2019 when there were just over 250, or in 2018 when there were just over 1,000 fires for the entire year, according to [WesternMassNews.com](#). Maine also saw increased fire activity, too, with Maine Forest Rangers documenting 969 wildfires charring about 985 acres of forest since the start of the year, roughly three times the number of fires that occurred last year, per the [Portland Press Herald](#). The New Hampshire governor took the rare step of instituting fire restrictions in late September to reduce the likelihood of fires occurring, according to [New Hampshire Public Radio](#).

Agricultural concerns mounted with the drought and heat. Fruits, such as peaches and apples, were smaller in eastern Massachusetts, [The Harvard Press reported](#). In New Hampshire, hay production suffered, being down by 50%, leaving producers wondering where to find hay to sustain herds through the winter, as reported by [Monadnock Ledger-Transcript](#). In the southern part of the state, irrigation was not sufficient to save some crops, according to [WMUR-TV](#). The Maine wild blueberry crop was likely halved from the five-year average of 84 million pounds, due to the summer-long drought and other issues, per [Central Maine](#). Pasture growth stopped in Maine, leaving some livestock producers to purchase hay for the animals, as reported by [The Ellsworth American](#).



National Drought Mitigation Center
 Agricultural and plant/wildlife issues were the main impacts registered in Texas in the July–September 2020 Drought Impact Reporter.

One perk that Mainers and other New Englanders experienced was that there were fewer insects, as reported by [WMTW Portland](#), leading to fewer mosquito- and tick-borne diseases.

Another dry monsoon season in the Southwest

The Southwest’s monsoon season disappointed the region again with numerous cities experiencing their driest season, which extends from mid-June through September, as reported by the [Associated Press](#). Flagstaff, Las Vegas, Yuma, Farmington and Roswell were some of the cities seeing a remarkably hot,

dry monsoon season with either no rain, as happened in Yuma, or just a trace of precipitation, as occurred in Las Vegas.

The forecast for the winter does not sound promising for the dry Southwest, as the National Oceanic and Atmospheric Administration announced the formation of La Niña, which could bring continued dry conditions through the late fall, winter and early spring, per [USA Today](#).

For more details, please visit the [Drought Impact Reporter](#). ○



DROUGHT IMPACT REPORTER

To view all impacts and reports, please visit: droughtreporter.unl.edu



Pilot system monitors tweets for drought early warning

By Cory Matteson

NDMC Communications Specialist

Millions use Twitter to share their rapid-fire opinions, observations and connections to real-time events. And natural disasters are often major conversation starters. With that in mind, National Drought Mitigation Center assistant director Kelly Helm Smith wanted to see what tweets said about the impacts of drought, and whether tweets could contribute to a drought early warning system.

Smith embarked on a pilot study, the results of which were recently published in the *Bulletin of the American Meteorological Society*. She developed a method to monitor the rate of tweets about drought over time, state-by-state, allowing her to detect when #drought tweets unexpectedly surge. Tweets, as a measure of fluctuating attention, could contribute to a drought early warning system. In the process, Smith examined two years' worth of drought tweets, with conversations ranging from agricultural to cultural, in different parts of the country.

"Barely made it to stubble-high by the 4th of July" one Plains state farmer tweeted in the midst of a fast-moving flash drought in the summer of 2017.

"CA had a great winter but the drought has left an indelible mark on our water use psyche," a California agency tweeted even as the state emerged from a multi-year drought.

The National Drought Mitigation Center, housed at the University of Nebraska-Lincoln's School of Natural Resources, has monitored news stories

for drought impacts since 2005. Smith said that monitoring social media for evidence of drought impacts is in some ways an extension of that effort, and that her work came about in response to state climatologists and others asking about ways to search and archive drought tweets.

"A lot of hazard researchers are trying to figure out what we can learn from social media," Smith said. "Social media has a real role to play in both assessing the extent and impacts of disasters and in warning people about disasters. Seismologists, for example, report that social media sometimes provides faster earthquake notifications than seismographs."

Along with conducting research on drought impacts and planning, Smith is the drought center's communications coordinator. Each Thursday, the center tweets the latest U.S. Drought Monitor, a map that shows the latest drought conditions across the U.S. and its territories. It leads to a lot of chatter, and Smith's study confirmed that the number of drought tweets is highest on Thursdays.

The drought search term, Smith said, is a noisy one. Sports teams endure championship droughts. The lovelorn weather romantic droughts. Smith's system searched for tweets that featured hashtags like #drought, #NEdrought, or #drought17, to limit results to more relevant conversations. Many Twitter-savvy farmers used hashtags with the year included — #drought17, #drought2018 — to tell the world what they were experiencing. Those tweets often provided original information, like video shot from the

back of a tractor, or descriptions of field conditions.

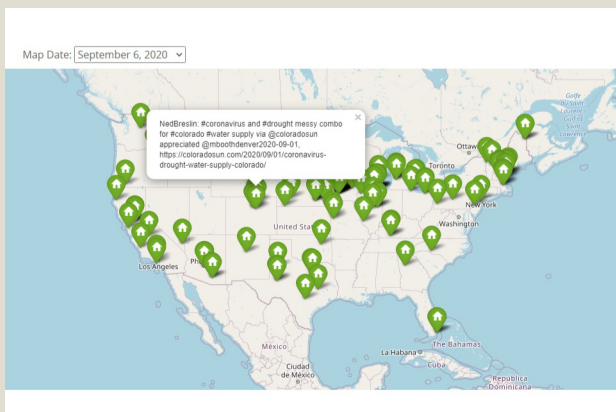
"Just as no single hydrometeorological indicator is considered sufficient to capture all aspects of drought, #drought tweets are one more metric to consider, and represent a real addition to quantifiable drought impact data," Smith wrote in the study. "Drought tweets reflect needs and interests identified by agencies and organizations involved in water and drought management, as well as on-the-ground experiences of agricultural producers and others whose lives and livelihoods are affected by drought. Tweets are a measurement of drought impact, even when the impact is primarily an awareness of a problem that may require attention."

One of the original employees when the National Drought Mitigation Center opened in 1995, Smith started her working life as a newspaper reporter and public relations professional. She later earned a degree in Community and Regional Planning, and recently completed a Ph.D. in human dimensions of Natural Resources.

Though the study is published, the work is ongoing, and will include exploration of larger Twitter searches. Meanwhile, on Mondays, Smith emails a map of the past week's #drought tweets to a listserv of drought experts and state climatologists.

Coauthors of the article are Drew Tyre, SNR quantitative ecologist; Zhenghong Tang, Community & Regional Planning; Mike Hayes, SNR climatologist; and Adnan Akyuz, North Dakota state climatologist. Tweet collection has been partially supported by the U.S. Department of Agriculture.

The study is [available online](#) at the *Bulletin of the American Meteorological Society* website. ○



Each Monday, National Drought Mitigation Center assistant director Kelly Helm Smith emails a map of the past week's #drought tweets to a listserv of drought experts and state climatologists.

National Drought Mitigation Center partners with University of Nebraska-Lincoln graphic design students to tell visual stories about drought's impacts

By Cory Matteson

NDMC Communications Specialist

Advanced graphic design students found themselves playing Ready for Drought in early 2020, the first step in a collaborative learning experience with the National Drought Mitigation Center.

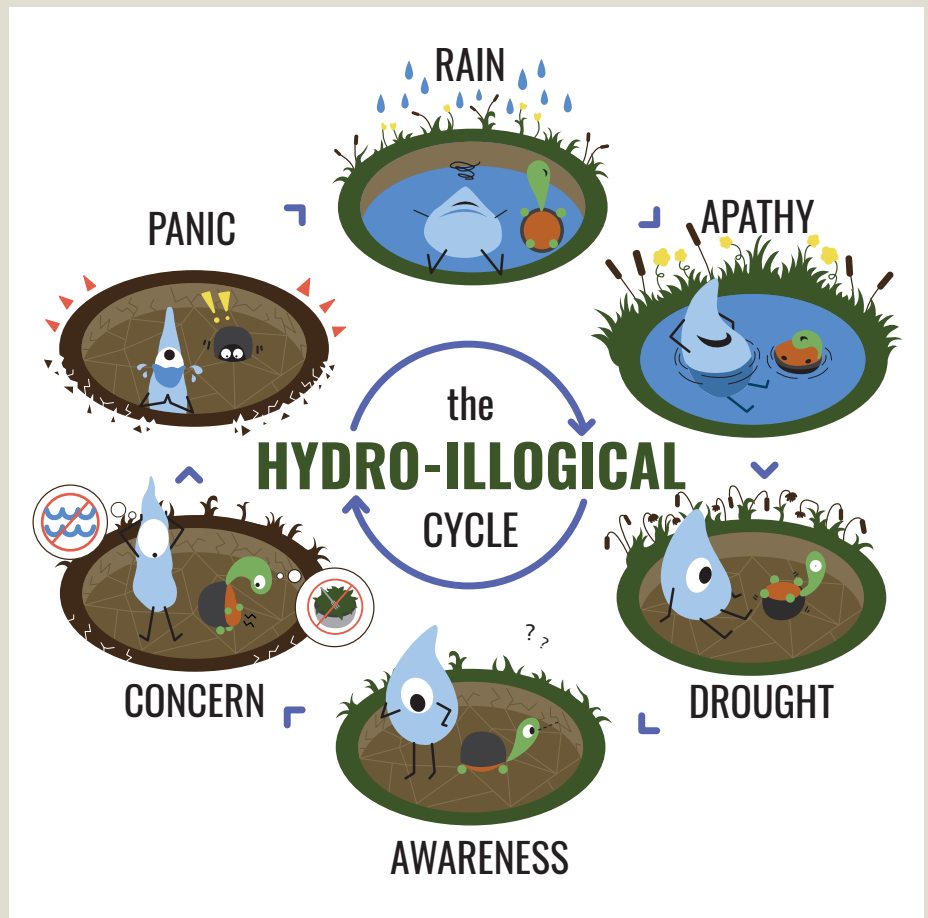
The game introduced them to thinking about drought as part of an interdisciplinary partnership between the NDMC, housed at UNL's School of Natural Resources, and the Graphic Design 421 class led by School of Art, Art History and Design associate professor Stacy Asher. The NDMC acted as a client for students, and, eventually, interns who created static and animated designs that conveyed drought's myriad impacts.

Last fall, Asher was part of a faculty group that submitted a grant to develop a transdisciplinary Environmental Futures Program, which would pair students of arts and sciences on projects that showcased both. Asher said she proposed the collaboration between GRPH 421 students and the NDMC team because it was an ideal case study to show how STEM and the arts could converge in a classroom setting.

"Why did I reach out?" Asher said. "I think it's because I have a sincere interest in the topic, but also the National Drought Mitigation Center is here and it's part of our university community and they're doing important global work. What a neat opportunity for students to collaborate and be part of a meaningful project."

"Having an organization on campus that has a worldwide scope makes a big difference compared to me saying to my students: 'Water is important. Let's design something.' There were clear objectives and specific messaging that needed to be communicated that the NDMC has researched and decided are key parts of the story. Now, how do we tell it visually?"

The NDMC team presented the design students with two projects. One was a re-imagining of the original



Three University of Nebraska-Lincoln advanced graphic design students interned with the National Drought Mitigation Center this summer. During the internship, they completed further work on two projects they began in class, including a reimagining of the Hydro-Illogical Cycle. This is Hannah Birdwell's version.

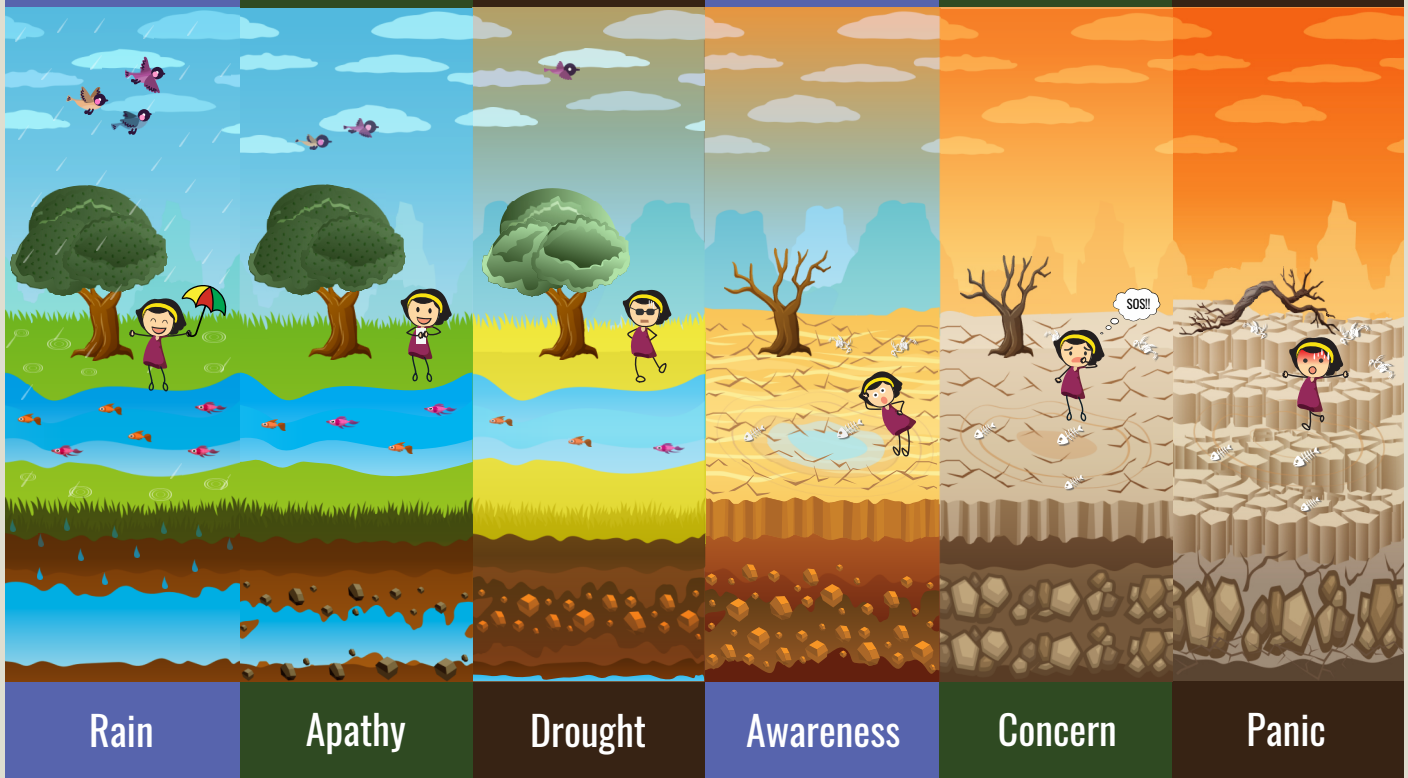
Hydro-Illogical Cycle illustration, which shows that people tend to lapse back into apathy after a drought ends. The NDMC's mission, to mitigate drought, means that rather than lapsing into apathy, communities,

states and countries should prepare for the inevitable emergence of the next drought. Though the stages remained the same, students were tasked with developing relatable characters who could convey that this cycle was one

"The National Drought Mitigation Center is here and it's part of our university community and they're doing important global work. What a neat opportunity for students to collaborate and be part of a meaningful project."

– Stacy Asher, School of Art, Art History and Design associate professor

Hydro-Illogical Cycle



This is NDMC intern Muskan Yadav's redesign of the Hydro-Illogical Cycle, which features a rich landscape transforming into a barren one.

that needed to be broken. The other project was titled *Faces of Drought*, and was based on an idea developed by NDMC director Mark Svoboda. The concept, Svoboda said, was to personify the effects that drought has across the U.S. and the world.

"Drought affects everyone, and everyone can benefit from better preparing for drought," said Deborah Bathke, NDMC Education Coordinator. "Our interns, and the entire graphic design class, did a great job in their project work of illustrating how drought's impact is a global concern, and how falling into the cycle of struggling through a drought and relaxing once it rains doesn't improve responses for future droughts."

On the February day that NDMC staff hosted the Ready for Drought game, students were told that their work would be displayed during the center's 25th anniversary event in the summer of 2020. Within weeks, though, UNL went to a remote learning format to help control the spreading coronavirus pandemic. The collaboration continued through it, with NDMC staff joining student design presentations and

critiques. There, drought's effects were presented in collages, graphs, animations and comic panels.

"It's a credit to Stacy, the students and NDMC staff for how seamless the switch was," says Brendon Orr, NDMC web graphics designer. "Even though we were limited to a virtual format, it was still very rewarding to see the creativity and talent in many of the students come through in their designs and to offer feedback to help the students improve their work and grow as potential design professionals."

Said Asher: "It was reassuring to go into remote learning knowing that the NDMC team was also there and that it wasn't just me and the students up against the project. It was all of us working together."

Though the coronavirus reshaped how the collaboration unfolded, Asher said that redesigning the Hydro-illogical Cycle aligned with the stated class objectives.

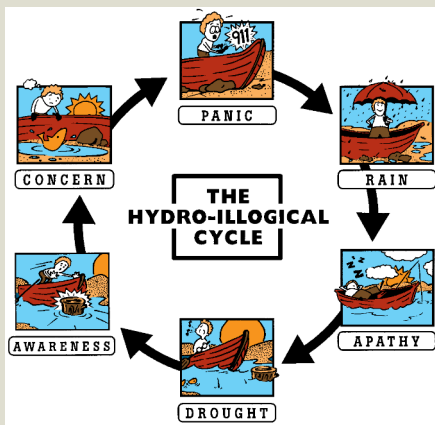
"One of the objectives is to work with symbols and signs and icons and be able to convey conceptual ideas with visual form," she said. "What does apathy look like? What does

concern look like? It's a great design challenge."

And it was a challenge that three GRPH 421 students continued exploring during summer internships with the NDMC. Hannah Birdwell, Lindsey Musil and Muskan Yadav were hired to continue developing their Hydro-illogical Cycle and *Faces of Drought* work for the NDMC. Their work could be used in future NDMC presentations and on the NDMC website.

"All three interns did a solid job of interpreting NDMC's provided specifications into visually interesting artwork that could potentially be used in a variety of media," Orr said. "They also displayed the ability to make iterative progress on their designs and be open to cultivating the valuable skill of taking constructive feedback and incorporating it."

When she first began working on the Hydro-illogical Cycle project during the class presentation, Birdwell said she tried to think of an elemental character that would be directly affected by drought. What she came up with was a personified water droplet, one that could shrink as the cycle's



The original Hydro-Illogical Cycle artwork has been shared by drought experts around the world as a warning that complacency during non-drought periods leads to panic-driven responses in the midst of drought. View online at go.unl.edu/hicycle.

stages progressed toward drought. The design continued to evolve during the internship — the droplet gained a friend to help deal with drought, a turtle — and Birdwell said she’s most proud of that work because of how much it developed.

“It started as a very abstract idea with mostly colors and a single eye as the ‘character’ and developed into an animation with the droplet and eventually turned into the final design with the droplet and the turtle telling this story of how they dealt with an instance of drought,” Birdwell said. “The most important part is that they encourage readers to learn how to break the cycle by visiting the NDMC website. It started as ‘this is the cycle of drought’ and ended as ‘go get informed on how to stop the cycle.’ The call to action makes a huge difference.”

Musil said that when she pictures drought, she envisions a warm and dry environment, with cracked earth and brown or tan colors. In her designs, she said, she wanted to reimagine the color palette of drought while still incorporating visual elements — like a wilting sunflower, for instance — that portray the urgency to respond to droughts.

“I think design helps convey these same messages by breaking the mold of what drought can look like,” Musil said. “I think by creating a new lens on these issues through color, subject matter, and composition, design can help bring more attention to the environmental issues communicated by the NDMC.”

“I think by creating a new lens on these issues through color, subject matter, and composition, design can help bring more attention to the environmental issues communicated by the NDMC.”

– Lindsey Musil, NDMC graphic design intern



NDMC intern Lindsey Musil said she wanted to convey the affects of drought, while also exploring uncommon color palettes to express it, in her version of the Hydro-Illogical Cycle.

“The fact that three students left the class project and moved into a real position — getting paid, working with professionals — is an opportunity,” Asher said. “The fact that the class experience evolved into an employable position is ideal for our students.”

The NDMC 25th anniversary event has been indefinitely postponed in an effort to contain the spread of the

coronavirus. With that gathering on hold, the NDMC wanted to provide a sneak preview of some of the professional-level work that the students created in this edition of DroughtScope. These illustrations that accompany this story were all designed during the class collaboration and student internships. ○

Southeast Alaska's unique drought impacts cataloged

By Cory Matteson

NDMC Communications Specialist

Drought looks different across the country, and in 2019 the National Drought Mitigation Center added tables to the U.S. Drought Monitor that provide specific examples of how different levels of drought look for each state. During extreme drought (D3) in Iowa, seasonal allergies are worse and farmers might develop stress about high feed prices. During moderate drought (D1) in May, honey production tends to decrease. In southeast Alaska, there wasn't that much specific information, because the research was based on a period of time when the region hadn't experienced many droughts.

Then the winter of 2017–2018 happened.

During that time, Southeast Alaska experienced its most significant wet season drought event in over 40 years. Less than half of normal winter precipitation fell across some Panhandle towns. Ketchikan, Wrangell, Petersburg and other communities in the region turned to diesel-generated power as hydropower reservoirs dropped to critically low levels. Fish hatcheries and aquatic life suffered as water levels plummeted to record lows.

Impacts like those are reflected in one of the first major updates to the USDM's Drought Impacts by State tables, which now include Southeast Alaska-specific impacts based upon a collaborative research effort to describe what drought looks like in Southeast Alaska's temperate rainforest ecosystem.

"Because the recent drought was the most significant drought in a generation, many were not aware what drought looked like or how bad it could get," NDMC climatologist Deborah Bathke said. "By linking impacts to drought severity, the new region-specific table provides a more complete characterization of drought, which in turn can help increase public awareness, inform management efforts and improve drought early warning."

The update follows a 2019 conference in Juneau, during which more than 80 participants



Eric Jackson, Pixabay

Southeast Alaska Panhandle towns like Ketchikan turned to diesel-generated power when hydropower reservoirs dropped to critically low levels during the 2017–2018 drought. Region-specific impacts have been added to the Drought Impacts by State tables available at droughtmonitor.unl.edu.

representing local government, Alaska Native communities, state and federal agencies, nongovernmental organizations, academia, businesses, utilities and media gathered to improve understanding of what constitutes a drought in Southeast Alaska, where 100 inches of annual rainfall is considered abnormally low. As part of a U.S. Department of Agriculture Cooperative Agreement, the workshop organizers — including members from the NDMC, USDA Northwest Climate Hub, National Weather Service Forecast Office in Juneau, Alaska Center for Climate Assessment and Policy and the National Centers for Environmental Information — began a research effort designed to improve the impact table.

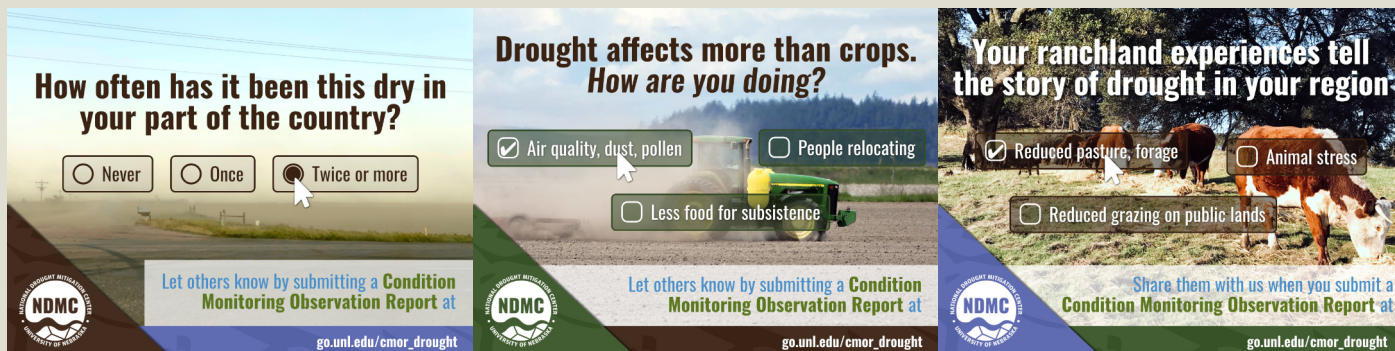
The research project expanded upon the work of former NDMC research assistant Mary Noel, who developed localized impact tables for the 50 states and Puerto Rico. The project was aimed at helping both users and authors of the USDM understand what levels of drought severity look like in specific areas, and it was built to evolve once more

ground level information became available.

The initial Southeast Alaska impact table was based on one drought event. The updated table was based upon all drought periods for which impact information could be found, said Bathke, who attended the Juneau conference with NDMC climatologist Curtis Riganti and intern Jenna McCoy and was a lead collaborator on the project with USDA Northwest Climate Hub Coordinator Holly Prendeville. The researchers scoured the Drought Impact Reporter, scientific journal articles, media reports, social media feeds and community records to find happened in the area during previous droughts.

The research project led to a set of 18 drought impacts that are likely to develop during periods of abnormal dryness (D0), moderate drought (D1), severe drought (D2), extreme drought (D3) and exceptional drought (D4). The two impacts listed in D4 are hypothetical, as the USDM has not yet designated a period of exceptional drought in the region. ○

Drought Center develops social media resources to help encourage drought monitoring



By Cory Matteson

NDMC Communications Specialist

Ready-to-post content in a new social media library can help you recruit more eyes on the ground to help build photo archives showing what dry, normal and wet conditions look like in different places.

The National Drought Mitigation Center developed the social media library to help National Weather Service, Extension, state climatologists and others across the country publicize opportunities for the public to submit photos. Landscape photos from the public help the drought center and its federal, state and regional partners assess drought conditions in different locations.

The drought center is currently promoting two different ways to collect photos: The Visual Drought Atlas (VDA) and Drought Impact Reporter Condition Monitoring Observer Reports (CMOR, pronounced “see more”).

Find social media content to promote VDA and CMOR submissions at go.unl.edu/drought_social.

“Denser information means there may be a photo from your county, rather than from a few counties over. That can help in a lot of ways, including when we are trying to understand what’s normal for a certain place, and when you want to show others what it looks like on your farm or ranch.”

– Kelly Helm Smith, NDMC assistant director and communications coordinator

The National Drought Mitigation Center has created a social media library section on its website with a collection of ready-to-post content that can help you recruit more eyes on the ground to help build photo archives showing what dry, normal and wet conditions look like in different places.

Asking the public to submit photos can produce more spatially dense information, which benefits U.S. Drought Monitor authors, policy makers and researchers looking for visual confirmation of what conditions at a specific place and time, said Kelly Helm Smith, who is spearheading the NDMC’s photo collection efforts. It’s also a chance for farmers, ranchers and others to show what they are seeing and experiencing.

“Denser information means there may be a photo from your county, rather than from a few counties over,” said Smith, the NDMC’s assistant director and communications coordinator. “That can help in a lot of ways, including when we are trying to understand what’s normal for a certain place, and when you want to show others what it looks like on your farm or ranch.”

The social media resources overlay examples of questions from the user-friendly VDA and CMOR with images that show drought and additional conditions that might spur people to submit photos or reports. A goal of the campaign, Smith said, is to help people understand that drought varies significantly across regions. Just because a yard doesn’t have cracked earth doesn’t mean it can’t help tell the story of drought conditions across the U.S.

Several of the promotional images feature photos submitted to the Visual Drought Atlas. Along with the downloadable images, there is also suggested text to post on social media. It’s all under 280 characters and ready to be tweeted.

Smith said that images can be submitted to the Visual Drought Atlas all year round, but NDMC staff promotes seasonal submissions that fall on four long weekends across the seasons — President’s Day, The Fourth of July, Labor Day and Thanksgiving. CMOR reports help the NDMC team understand how dry, wet and normal conditions affect different activities across the country. Anyone can submit a CMOR report at any time of the year.

The Social Media Resources page will be updated over time. When tweeting the images, don’t forget to tag @DroughtCenter too. ○