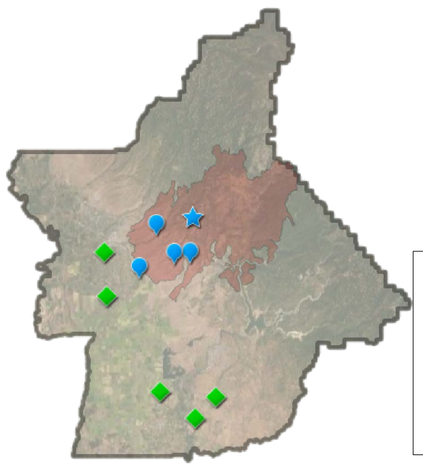
Camp Fire Implication on Livestock Grazing

Tracy Schohr, Larry Forero, Josh Davy, David Lile, Jeff Stackhouse, Dan Macon, John Harper and Betsy Karle
University of California Cooperative Extension

Overview

Commonly, wildfires have burned forest and range landscapes. The Camp Fire and other recent fires across the state (e.g., Carr Fire in Redding; Tubbs Fire in Sonoma, Lake, and Napa Counties) have also burned vehicles, homes, municipal infrastructures and businesses. As a result, the surrounding communities have been blanketed in thick smoke and falling ash, prompting local warnings to residents of unhealthy air quality. Locally based Cooperative Extension Advisors were alerted by clientele of concern about the potential impacts of the ash load on the feed their livestock were consuming, especially relative to the numbers of burned structures containing unknown levels of contaminants. Additionally, water quality concerns have arisen due to the nature of the urban fires at the top of the watershed and potential water contaminants released from an array of burned materials. UC Cooperative Extension investigated forage and water quality impacts to address the immediate and near-term concerns of agricultural producers in the watershed below the Camp Fire.

Data Collection

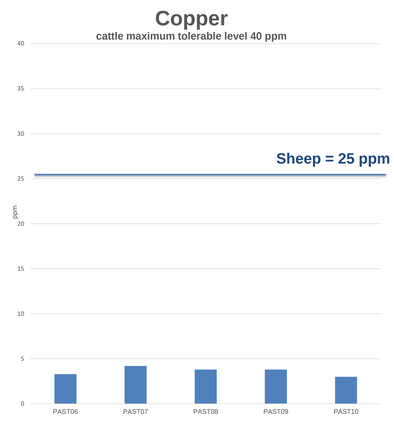


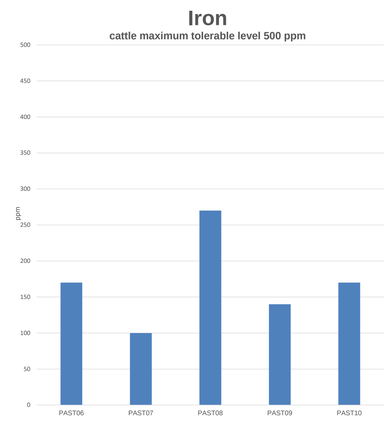
- Forage samples were collected on November 16, 2018 on irrigated pasture at 5 sites throughout Butte County.
- Baseline water samples were collected throughout the county on November 21, 2018, prior to the first rains that extinguished the camp fire.
- Water samples were collected weekly from November 23, 2018 – March 8, 2019.
- Indicator water samples were collected in Paradise on December 3, 2018.

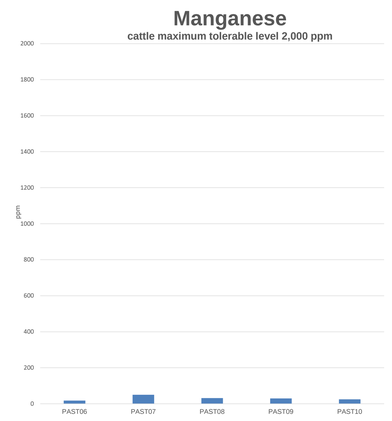
L: Betsy Karle collecting forage samples in November 2018.

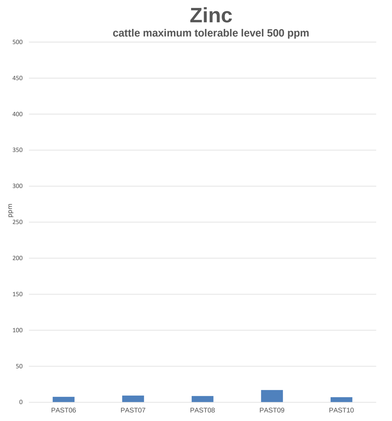
R: Tracy Schohr collecting waters samples in November 2018.

Forage Results





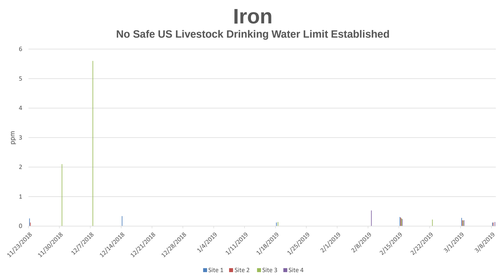


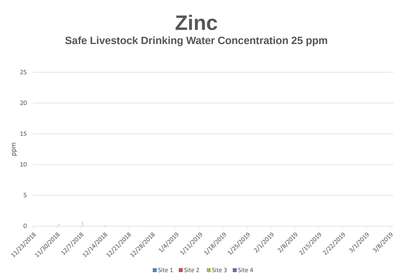


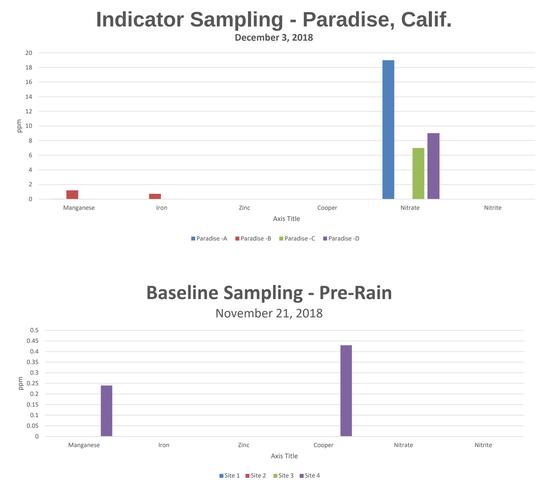
Key Findings:

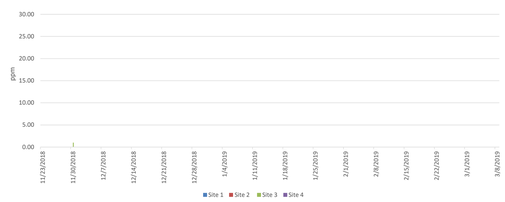
- All detectable minerals were well below maximum tolerable levels established for cattle by NRC (2005).
- No detection of Lead, Mercury, Arsenic, Molybdenum or Cadmium.
- No detection of organic compounds belonging to diverse chemical classes (e.g. Pesticides, Environmental contaminants, Drugs and Other natural products).
- Similar findings for forage and hay samples from Lake, Mendocino, Tehama, Humboldt, Modoc, Placer, Nevada and Shasta counties.

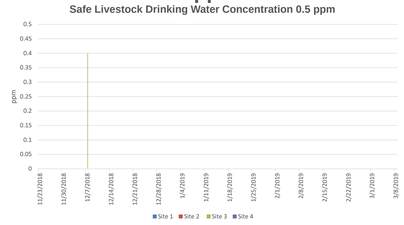
Water Results

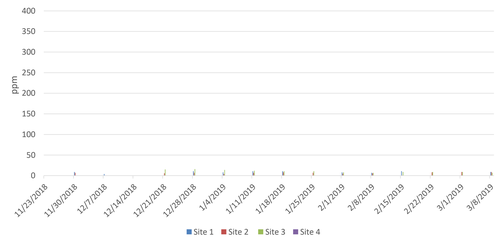


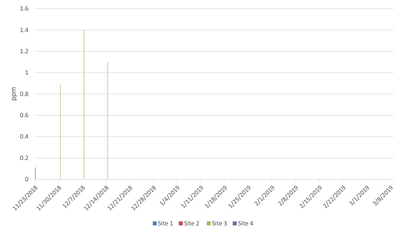












Key Findings:

- All detectable minerals were below safe livestock drinking water concentration limits as established by US EPA (Morgan).
- No detection of Lead, Mercury, Arsenic, Molybdenum or Cadmium.
- No detection of Volatile Organic Compounds (VOC's) in open waterways tested, VOC's are a concern in urban water systems post fire.

Conclusion

Toxicology analysis showed that concentrations were unremarkable for livestock forage and water samples taken in the Camp Fire region.

Special Thanks

Special thanks to project advisors **Gaby Maier**, DVM, PhD, DACVPM, Beef Cattle Herd Health & Production CE Specialist, UC Davis; **Robert Poppenga**, DVM, PhD, DABVT, California Animal Health and Food Safety Lab; **Kenneth Tate**, PhD, CRM, Professor and Rangeland Watershed CE Specialist, UC Davis; and **John Maas**, DVM, MS, DACVN, DACVIM Beef Veterinary Medicine CE Specialist (emeritus), UC Davis.

Funders

University of California Agriculture and Natural Resources
UC DAVIS UNIVERSITY OF CALIFORNIA
cdfa CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE
BUTTE COUNTY CATTLEMEN'S ASSOCIATION

Samples processed at UC Davis CAHFS Lab, with exception of VOC testing at Fruit Growers Lab, Chico, Calif.