

Where There's Smoke There's Fire: Examining Associated Press Coverage of Wildfires in the US

Undergraduate Research Project

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By

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Dedication

I dedicate this study to the many cattle producers and ranchers that lost their livelihoods and herds in the tragic wildfire events in 2017. In particular, I want to dedicate this to my cousin Jacob Miller, a Kansas ranch hand, who inspired me to do this research without even knowing he did. His passion for cowboy-ing and the cattle industry is quite evident. Jacob is who I imagined when I saw the news reports of the young cowboys that lost their lives protecting the animals they cared for daily. It just broke my heart, and fueled a passion for this topic. I also dedicate this study to my parents, who always supported my dreams, even if they didn't quite understand them. Without them, I would not have found a passion for the livestock or agricultural industry.

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Abstract

This research project examined newspaper articles surrounding United States wildfires that were published by the Associated Press. Following the Starbuck Fires in the western United States, which devastated many farms and ranches in 2017, the researcher wanted to investigate if and how print media focused on agricultural and environmental issues related to wildfire tragedies. Using the framing theory, this study examined how news surrounding wildfires is framed and whether or not agricultural and environmental topics are discussed. Using Lexis Nexis, I searched for articles published by the Associated Press between November 1, 2012, and November 1, 2017. I then examined a sample set of 5 percent of the 2,990 articles (n=150), some of which contained several newswire stories. In articles that classified as newswires, I assigned a frame and actor to each timestamp. In total, there were 243 stories within the 150 articles and then assigned actors to each story. I created 35 different options of frames based on the work by Terracina-Hartman (2017). Nearly a quarter (22%) of the stories were unrelated to wildfires upon reading, and 10 percent of the stories were not related to American wildfires. These stories were disregarded from the study, which resulted in 195 frames. The most common frame was a fire update, which included a status report on the fire and fire damage (37.9%) Only one story had a primary frame related to agriculture (.51%) Two stories discussed threats to wildlife (1.0%). There were

This research is important because it shows that agricultural and environmental factors are often not covered by mainstream press during periods of tragedy, such as a wildfire, despite large losses of farmland, forests, and other natural resources (USDA, 2018).

Keywords: wildfires, framing, media, content analysis, newspapers, agricultural issues

Introduction

In March 2017, three large wildfires, called the Starbuck Fire, the 283 Fire, and the Selman Fire, swept their way through the panhandle of Texas, Oklahoma, and into western Kansas. In total, 833,941 acres of grasslands were burnt, most of which were pasture grounds for cattle ranchers (Gabbert, 2017). The blaze in Kansas set the state record for the most widespread single fire. According to the Department of Agriculture and Forest Service in Kansas, the blaze cost the state nearly 80 million dollars in damage, accounting for 3,700 miles of burnt fence and an estimate of nearly 4,000 to 8,000 dead cattle (Morrison, 2017). Other numbers that were reported included a loss of several thousand hogs in Texas and Oklahoma, 3,000 head of cattle in Oklahoma, and an estimated 9,000 head of cattle in Texas (“USDA Authorizes Emergency Grazing in Response to President Trump's Directive,” 2017). Texas AgriLife Extension reported \$21.1 million in agricultural damages due to wildfires in the state of Texas in 2017. This study aimed to discover how the Associated Press frames wildfire crises. Specifically, this study hoped to discover the agricultural and environmental implications these media frames have in regards to public opinion and knowledge on the industry as a whole.

Wildfire Background

Wildfires devastate areas of the United States every year and appear to be getting worse over time. According to the U.S. Forest Service, an average of more than 73,000 wildfires burn approximately 7 million acres of federal, state, tribal, and private land annually. The U.S. Forest Service also estimates 2,600 structures are burned every year. In 2017 alone, there were 71,499 documented wildfires that burned 10,026,086 acres (NIFC). These fires cause economic damage to the country and regions they affect. The U.S. Forest Service spent \$2,410,165,000 on fire suppression alone in 2017, the most expensive year on record. Other Department of Interior

agencies, such as the Bureau of Indian Affairs, Bureau of Land Management, National Park Service, and U.S. Fish and Wildlife Services also contributed \$508,000,000 in additional funds to aid in the battle against wildfires. It is important to note that the U.S. Forest Service is a division of the USDA (NIFC).

Although the U.S. Forest Service is overseen by the USDA, a quick review of news releases and newspaper articles show a lack of attention to agricultural and environmental impacts from wildfires. Losses to the agricultural industry can be damaging to local economies. Farmers and ranchers invest in their farms, which in turn support local manufacturing and other industries where farmers purchase goods and services. Any sort of business that belongs on the supply chain in agriculture benefits from a strong agricultural economy (United States Congress Joint Economic Committee, 2013). In 2018, U.S. Secretary of Agriculture Sonny Perdue announced the USDA will award \$2.36 billion in aid through the Farm Service Agency to help farmers who suffered from wildfires in 2017. This aid is coming from a new government program called WHIP 2017- Wildfires and Hurricanes Indemnity Program. These payments are aimed to aid recovery in rural America from tragedies like wildfires or hurricanes (USDA, 2018).

News Media and Wildfire

The general public needs and wants breaking news. Communication has proven to be an effective tool in creating disaster-resilient communities (Steelman & McCaffrey, 2013). Mass media are responsible for delivering news and messages to the general public. In fact, the media may be the most important source of warning and informing the public before, during and after incidents (Scanlon, 2011). Previous studies have found that newspapers and magazines are rated as the most useful to the public in securing news during incidents of wildfires and are how the

majority of people learned about fire information (Johnson, Bengston, Fan, & Nelson, 2006; McCaffrey, 2004).

During periods of weather-related tragedy, such as a wildfire, the news media quickly convert to crisis coverage. The information the public wants from media can be viewed in a cycle. In the early stages of a wildfire incident, residents want to know the risks, possibility and routes for evacuation, safety shelters, details for pet and livestock safety and any other additional information. During the crisis, the public want to know if their properties are alright and when they can return home. After the crisis, the public wants to know about recovery plans, if any health risks still remain, and availability for resources (Toman, Stidham, McCaffrey, & Schindler, 2013). This cycle of news media can cause discourse between the public, who want a constant stream of information, and the news media, who want to publish accurate information. For this reason, social media and websites have quickly become a new source of information for the public during wildfires (Sutton et. al, 2008).

Other studies have shown that the media coverage during wildfires plays an influential role in the lives of community members and on community policy regarding wildfires (Carrol, Higgins, Cohn & Burchfield, 2006). News media have been attributed as a way to bring communities together and to create a public speaking board, i.e. opinion columns, to work to make policy changes or changes to suppression protocol regarding wildfires (Carrol et. al, 2006).

A study by Donovan, Presteman, and Gebert (2010) noted that newspaper coverage is extremely influential in policy regarding wildfire suppression budgets and costs. Donovan et. al discovered that newspaper coverage leads to higher wildfire suppression costs, mainly due to the fact that newspapers write about personal costs of wildfire-suppression decisions. The article noted an example of personal cost: “However, how many people would find it palatable to let

someone's house burn down for economic reasons?" (Donovon et al., 2010, p. 796). Reporting on wildfires tends to focus on the losses and tragic impacts of wildfires, such as human loss and structural loss, with a focus on fate of individuals (Doerr & Santin, 2016).

With regard to risk management, many early works of literature regarding wildfires call for improved education about wildfire risks. These articles also mentioned how stakeholders could become more involved in risk management decisions (Steelman & McCaffrey, 2013). Seeger (2007) found that one of the best practices of crisis communication is to work with the media. Media are obligated to report accurately and can be viewed as a strategic resource during a period of crisis. However, it was also noted that crisis communicators sometimes view the media as a hassle and as counter-productive (Seeger, 2007).

An article by Andrew Graham published by the *Montana Journalism Review* features an interview with Stephen Pyne, a professor at Arizona State who is an expert on wildfires. Pyne notes that media typically take two approaches to wildfire reporting. The first is to report about wildfires as a natural disaster. Tones in these articles appear similar to tones used in coverage of floods, tornadoes, and hurricanes. The second approach is a narrative approach, where wildfires become the antagonist and firefighting efforts and firefighters become the protagonist. Graham also points out that many smaller fires are not written about, only large fires, therefore the public receives a distorted view of wildfires.

Other literature echoes similar discoveries, noting that fire is often viewed as an enemy in the media, especially in areas where risks of wildfires are high, such as the western United States. Other studies, particularly studies during prescribed fire burns in Yellowstone National Park, followed national news media and their framing of wildfire. Media coverage was negative,

which in turn led to a negative public opinion and doubt in fire agencies decisions for controlled burns as fire management (Toman et. al, 2013).

News Media and Agriculture

According to the American Farm Bureau, farmers and ranchers comprise only 2 percent of the United States population. Consumers are disconnected from where they get their food and fiber. Studies have shown that the public is becoming less agriculturally literate, meaning the public has less understanding of the industry. The Committee on Agricultural Education in Secondary Schools describes an agriculturally literate person as one who understands the industry's "current economic, social, and environmental significance to all Americans" (National Research Council, p. 8). There are farm journalists who produce specific magazines and newspapers that report exclusively on policy, issues, trends, markets, and technological developments in the agricultural industry. However, if a journalist is not agriculturally literate, the news media produced by these journalists do not give an accurate picture of farming to the public (Water & Resiner, 1994).

A study conducted by Specht, McKim and Rutherford (2014) gave college students photos of scenes aired during a broadcasted news story on antibiotic use in the livestock industry. The participants were surveyed and asked to rate their affective response to the photos on a scale of 1-5, 1 being "very negative" while 5 indicated "very positive." The respondents also had to rate themselves on a 1-5 scale for their agricultural knowledge, experience, and beliefs related to agriculture. The results showed that the participants who had a higher level of agricultural literacy from their peers reacted more positively towards the photos from the broadcast. Those who did not have as much agricultural literacy had more negative feelings toward the photos. Similar studies aimed to learn about agricultural literacy rates compared levels of literacy

between rural and urban adults (Frick, Birkenholz & Machtmes, 1995). Those adults who had a farming background were more literate than non-farming rural neighbors, who were more literate than urban residents. Urban residents who lived in smaller towns were more literate than residents of large cities. Overall, the respondents had somewhat positive perceptions of agriculture, and it can be inferred that higher agricultural literacy would lead to higher levels of positive perceptions.

News reporting on agriculture falls under the science communication category. Science communication, as defined by Burns, O'Connor and Stocklmayer (2003), aims to enhance the public's awareness, understanding, literacy, and culture by triggering responses from its participants. These responses fall under the acronym AEIOU, meaning Awareness, Enjoyment, Interest, Opinion Forming and Understanding of Science (Burns et. al, 2003). Support for science and science communication from the public has decreased over the years. Some researchers have chosen to blame journalists who do not understand or value the basis of science for the declining trend (Lundy, Ruth, Telg, Irani, 2006). Providing agricultural scientists media training has been viewed as an effective tool to increase communication about agriculture and science. Agricultural scientists prefer working with media in order to increase understanding of his/her own field of discipline rather than helping the public understand science in general (Lundy et.al, 2006).

Literature Review

Prior to this study, a literature review was conducted to learn background information to conduct this study. Areas that were reviewed including the framing theory of mass communication, common media frames within disaster and crisis communication, and media

frames about agricultural issues and topics. These topics give an understanding of how news media works to provide information to the public about crisis and agricultural topics.

Framing Theory

There is no question that the media can be incredibly influential in producing and swaying opinions about hot topics and issues. Mass communication is studied because media is able to have large effects on the public (Gitlin, 1980). Media is able to accomplish these public effect by using frames in their writing. Framing theory is widely used in disciplines such as social, behavioral, and cognitive studies, as well as in use for marketing (such as advertisements). The framing theory has been described as a “scattered conceptualization” (Entman, 1993, p. 51). Some researchers consider framing to be an extension of media agenda setting. Weaver claims that “focusing on framing does not necessarily mean discarding the findings of much agenda-setting research that is more concerned with which issues are emphasized (or what is covered) than how such issues are reported and discussed” (Weaver, 1997-1998, p. 3). Weaver argues that media framing is second-level agenda setting, where media repeats details and attributes of issues, and by doing so, draws attention to the issue itself (Weaver, 2007).

Framing in media focuses on inclusion, exclusion, and emphasis of key words, phrases, facts, figures and imagery. Entman (1993) provides one of the most useful definitions of the term framing:

Framing essentially involves selection and salience. To frame is to *select some aspects of perceived reality and make them more salient in the communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation* for the item described. Frames, then, *define* problems—determine what a causal agent is doing and costs and benefits, usually measured in terms of cultural values; *diagnose* causes—identify the forces creating the

problem; *make moral judgments*—evaluate causal agents and their effects; and *suggest remedies*—offer and justify treatments for the problem and predict their likely effects. (p. 55)

Chong & Druckman (2007) summarize this statement: “Framing refers to the process by which people develop a particular conceptualization of an issue or reorient their thinking about an issue” (p. 104).

Framing in media is also recognized in two ways- by the way the message is written and also by how it is comprehended. Gitlin (1980) has described journalists and news reporters’ roles as handling and assigning symbols to stories that use selective frames in order to shape news. Entman (1993) also describes framing as a way to describe the power of communicating text, stating that text and the way the text is perceived has an effect on the human consciousness (Entman, 1993). This is done by frame-setting, or the interaction between the reader, the news, and the prior knowledge the reader may have. This also includes any previous bias the reader may have. Creation of frames is very incident based, meaning that a frame is going to be relative only to the issue it is framing. De Vreese (2005) describes this best by using the example: “the frames for social security reform differ from the frames for immigration reform” (p. 106). Frames are extremely influential on the public, who use them as a way to learn, interpret issues, and form opinions (de Vreese, 2005).

Framing of Crises in the News

During a period of crisis, whether a natural disaster, health crisis, business crisis, human crisis or even something like a public relations crisis, the media plays a big role in framing the story. By using saliency and also excluding information, the media creates a limited view of the situation (Hallahan, 1999; An & Gower, 2009). Neuman, Just, and Crigler (1992) analyzed news stories and summarized a few main frames that occurred frequently in U.S. news coverage.

These frames included attribution of responsibility, conflict, economic consequences, human impact and morality (Neuman, Just, & Crigler, 1992; An & Gower, 2009).

In a comprehensive analysis of news coverage of crises that occurred in the United States in 2006, An and Gower (2009) discovered that the most frequently used frame in their sample of 247 articles from the *New York Times*, *Washington Post*, and *USA Today* was attribution of responsibility. They found that news media seemed to want to place blame on an individual or organization for the cause of a crisis, "in particular, in coverage of preventable crises such as organizational misdeed/mismanagement and misdeed with injuries" (p. 111). The second most common frame used was economic frame. The study did note that the human-interest frame was used when there was a victim cluster, such as an instance of a natural disaster.

A study that focused on content analysis of news coverage of the human crisis that is human trafficking had very different frames. Sobel (2014) looked at an issue that encompasses the human impact frame. She examined Indian, Thai, and U.S. newspaper coverage of human trafficking between 2006-2009. During this time period, the United Nations launched the UNGIFT treaty, or the United Nations Global Initiative to Fight Human Trafficking (ungift.org). The most common frame was crime and policy, with a focus on a crime story or legislation discussions related to human trafficking. Other frames included human-rights and public health.

Studies about natural disasters, such as floods and wildfires, also take a human impact approach. A study of Irish newspaper coverage of floods by Devitt and O'Neill (2016) revealed that the main frame during these natural disasters was about flood resistance and structural defenses against floods. In contrast, articles about wildfires in the United States often focus on how news coverage frames wildfires' effects on private property, response and recovery from wildfires, and policy issues (Crow et.al, 2016; Paveglio et. al, 2011). Terracina-Hartman (2017)

found similar results in her study, which showed that the predominant frames included updates on the fire and also on the personal impact wildfires made, i.e., loss of life, profiles on victims, and threat of homes lost.

Framing in Agriculture

Communication in the agricultural industry is viewed as a challenge. In addition to having a basic understanding of science communication, the reporter must also have knowledge on many different areas of agriculture and food production. As mentioned earlier in this study, the United States is faced with a growing number of people who are illiterate in agriculture, therefore numerous studies have been completed to analyze the messages media is conveying to the public about agriculture.

Studies by Ruth, Eubanks, and Telg (2005) and also by Ashlock, Cartmell, and Kelemen (2006) analyzed newspaper coverage of the Bovine Spongiform Encephalopathy (BSE) diagnosis of a cow in 200. Both studies used content analysis and looked at frames used in stories published by major newspapers in the United States, although the studies chose to review different newspapers. Ruth and Eubanks also analyzed Canadian newspaper reports. Ruth and Eubanks (2004) found that the most common frame used within the articles was health risk. Ruth and Eubanks noted that multiple news report gave inaccurate information on the health risks of eating beef from a cow that had BSE. Ashlock, Cartmell, and Klemen (2006) found that the industry crisis frame was the most common. The United States beef industry was being scrutinized in the majority of the reports they read. Both studies found that newspapers reported in a very negative tone about the agricultural industry.

A similar study was conducted by Cannon and Irani (2017) on the newspaper coverage of foot and mouth disease in Britain in 2001 and 2007. Cannon and Irani compared news coverage

in the *New York Times* and in *The Guardian* in Great Britain to see how the news was framed.

The most common primary frame the authors used was fear. Cannon and Irani stated: “Articles in both papers predominantly depicted dread and doom in relation to the outbreaks, incorporating fear-inspiring words such as ‘danger,’ ‘horror’ ‘panic,’ and ‘dread,’ describing the impact of the outbreaks as ‘nightmarish’ and ‘medieval’ during 2001” (p. 12). Again, during an agricultural crisis, the industry as a whole is painted in a negative way.

A content analysis unrelated to an agricultural crisis was conducted by Meyers and Abrams (2010). This study focused on media framing of organic food. The results of this study portrayed the organic food industry as being the ethical choice. News articles described organic foods as being environmentally friendly and for being a more ethical choice than conventionally produced crops. Many of the actors in the stories were organic consumers or organic farmers. There were also very few facts and scientific evidence provided. This study implies that agricultural communicators should strive to provide hard data and facts on the differences between organic and conventional crops (Meyers & Abrams, 2010).

Purpose and Objectives of Study

The news media are extremely important in informing the public about crises and periods of tragedy. Media coverage of crises in the agricultural industry has been studied before, but the purpose of this study was to examine how media cover agricultural topics during a period of tragedy that is outside of the industry. The main objectives of this study were:

1. To discover if/how the media frames the agricultural and environmental impacts of wildfires;
2. To identify who the key actors and source of news are during periods of tragedy and to see if agricultural or environmental groups, organizations, or industry members are quoted in news media.
3. To identify what information and key frames are actually relevant to news media coverage during a wildfire tragedy;
4. To determine the connotation and tone surrounding agricultural topics during wildfires.

Methods

This study used qualitative research theories and content analysis to answer the research objectives. The main theory put to use in this research was the framing theory of mass communication. This study used a content analysis of newspaper articles written by the Associated Press between November 1, 2012 and November 1, 2017.

Data Collection

Using the online database Lexis Nexis, data was collected from a pool of stories that were written by the Associated Press. The keyword that was used was very simple; “wildfire”. The

search was narrowed down to include only articles written by the AP on wildfires that were published between November 1, 2012 and November 1, 2017. This timeline was chosen because it encompassed dates of notable fires that had occurred in more rural areas (i.e. Gatlinburg wildfires and the Starbuck wildfire) that greatly affected the environmental and agricultural industries in their communities, respectively.

The Associated Press was chosen because of its existence across the entire United States. Writers for the Associated Press are in all 50 states. Over 15,000 news outlets connect with their audiences through the Associated Press. The Associated Press is also well regarded for covering crises and natural disasters across the globe.

The search yielded 2,990 results on Lexis Nexis. To obtain a sample set of 5%, meaning $n=150$, a random number generator was used to choose 150 random numbers from 1-2,990. From the numbers on the list, the corresponding article was pulled from the database regardless of the style or type of written story. The stories were then printed and prepared for content analysis. The coding instrument consisted of the title of the article, the dateline, the number of words, the byline, date published, primary frames, actors and then any secondary frames. If the news article happened to be a newswire, i.e. an article with breaking news assigned to timestamps, each timestamp received its own code for a frame and actor assessment. In total, there were 243 frames assigned to the 150 stories.

Data Analysis

There were 35 different options for frames which fell under seven broad categories: fire update, environment, threat to community, recovery, resources, conflict and loss. The 35 subcategories for the frames were based off of Terracina-Hartman's previous work on framing related to wildfire news coverage (2017). There were also many options for actors. There were

five broad categories for actors including firefighting/law enforcement, citizens, government officials, scientists or other. The options for frames and actors are as follows:

Table 1. Coding options for frames. Bold, Underlined words are main categories, while numbered lists are options that fall under that category.

<i>Fire Update or Threat</i>	
1	<i>Fire update, risk, hazard</i>
2	<i>Severe Weather</i>
3	<i>Early report of wildfire</i>
4	<i>Acres threatened</i>
5	<i>Homes Threatened</i>
6	<i>Homes Burned</i>
<u>Environment</u>	
7	<i>Threat ecosystem- water, air, plant life, timber loss</i>
8	<i>Threat to wildlife</i>
9	<i>Scientific- climate change, weather report</i>
<u>Threat to Community</u>	
11	<i>Health and medical threat-air quality alerts, smoke inhalation, ash</i>
12	<i>physical threat- road block, gas shortage</i>
13	<i>population evacuation</i>
14	<i>threat to community- tourism, loss of revenue, guest in danger</i>
<u>Resources</u>	
15	<i>Personnel en route</i>
16	<i>Personnel deployed</i>
17	<i>personnel leaving</i>
18	<i>cost/tools for suppression</i>
19	<i>costs of losses/damage</i>
20	<i>little or diminished resources</i>
35	<i>technology resources</i>
<u>Conflict</u>	
21	<i>political statement</i>
22	<i>political conflict</i>
23	<i>agency conflict</i>
24	<i>insurance conflict</i>
25	<i>legal matters</i>
26	<i>population won't evacuate</i>
<u>Recovery</u>	

27	<i>donations received or needed</i>
28	<i>recovery plans</i>
29	<i>safety and evacuation over</i>
34	<i>fire containment</i>
<u>Loss</u>	
30	<i>loss of life citizen</i>
31	<i>loss of life fire personnel</i>
32	<i>loss of life farm or companion animal</i>
33	<i>loss of life wildlife.</i>

Table 2. Coding for actors. Bold, underlined words are main categories, while numbered lists are options that fall under that category.

Firefighting/Law Enforcement

- 1 *firefighters: fed, state, local, volunteer*
- 2 *officials of firefighting agencies*
- 3 *Police; sheriff; marshals; highway patrol; judges*
- 4 *government agencies; national park spokespeople; National Interagency Fire Center*

Citizen

- 5 *unaffiliated citizens*
- 6 *neighborhood associations*
- 7 *nonprofit environmental groups*
- 8 *protestors*
- 9 *bloggers/journalist*

Scientists, researchers

- 10 *government scientists*
- 11 *university scientists*
- 12 *industry researchers or scientists*
- 13 *think tanks*
- 14 *other scientists*

Other Actors

- 15 *timber industry representatives*
- 16 *business and industry representatives*
- 17 *tourism industry representatives*
- 18 *farmers, rancher*
- 19 *consultants*

20 *unidentified spokesperson*

Government Officials

21 *elected official*

22 *appointed official*

23 *officials of other nations*

Limitations

There are some limitations within this study. The first limitation is that this study only looked at newspaper articles that were published by the Associated Press. This means that small newspapers that may not belong to the Associated Press cooperative would have been excluded by this study, which could lead to the assumption that some rural news would have been excluded.

Another limitation of this study is that only the body copy was analyzed to assign frames and codes to the news coverage. Due to the design of this study, using the Lexis Nexis database limited any other accompanying visuals or graphics that could have contributed to this study. Only the body content of the articles were examined and used to identify frames and codes.

Due to the restrained time period with which this study was conducted, another limitation would be the lack of additional coders. The frames were assigned by only one content analysis instead of multiple conducted by different people.

Findings

The findings of the research study, which investigated media framing and agricultural and environmental news coverage by the Associated Press during United States wildfires between November 1, 2012, and November 1, 2017, are presented in this section. Utilizing a content analysis of 150 articles, the study identified major frames and key actors and worked to answer the research objectives. Those objectives are to discover if/how the media frames the

agricultural and environmental impacts of wildfires; to identify who the key actors and source of news are during periods of tragedy and to see if agricultural or environmental groups, organizations, or industry members are quoted in news media; to identify what information and key frames are actually relevant to news media coverage during a wildfire tragedy; to determine the connotation and tone surrounding agricultural topics during wildfires.

Objective 1: To discover if/how the media frames the agricultural and environmental impacts of wildfires.

The search for articles yielded 150 news articles published by the Associated Press. Of these 150 articles, 10% of the articles were about wildfires in countries outside of the United States. Upon reading the articles for content analysis, nearly a quarter, 23.3% of the articles were unrelated to wildfires. These articles may have mentioned the word wildfire somewhere within the body of the news, but the overall theme and message of the news was about a different topic. These articles did not receive a frame or an actor and were removed from the study. However, each newswire article that had multiple timestamps that were related to United States wildfires received a frame and an actor assignment. Therefore, there were a total of 50 stories that were removed, but the total number of assigned frames was 195.

Of those 195 stories that were assigned frames, only one (.51% of sample) was related to agricultural impacts from wildfire. This article's main frame fell under the loss category, with loss of livestock. This article was an interview at Gardiner Ranch in Kansas, which suffered traumatic losses of livestock in 2017.

As far as environmental impacts, two articles (1.03% of sample) that addressed threats to wildlife. Both of these frames came from newswire timestamps. The first timestamp talked about a wildfire in Idaho that charred land that is critical to the sage grouse, a bird that is federally

protected. The other timestamp came from Oregon, where “fisheries managers have released thousands of hatchery salmon months early in response to a large wildfire raging in the Columbia River Gorge” (“The Latest: Coast Guard Closes Columbia River due to fire,” para. 2). Both of these examples fell under the environment category.

However, there were some stories that included mention of important agricultural topics, environmental issues, and habitats. A few even had secondary frames related to agriculture. For example, although the primary frame of one article was about recovery plans for the community, there was a portion of the article devoted to recovery of grazing lands and of sage grouse habitat. Although a primary frame of another article was threat to the community, there was a threat to the economy of the community because a warehouse full of apples was burned in a fire. Another article had a similar secondary frame; however, it was devastation to the vineyards and wine industry that threatened the economy. In total, three articles mentioned wine, three articles mentioned Giant Sequoia trees, three articles (in addition to the story on loss of livestock) mentioned animal safety (horses, aquarium animals, and exotic animals from a sanctuary), and three articles mentioned fish and fish habitats.

Objective 2: To identify who the key actors and source of news are during periods of tragedy and to see if agricultural or environmental groups, organizations, or industry members are quoted in news media.

Actors are the sources of the news within the story, meaning they provided information and/or quotes. As mentioned previously, actors were not assigned to 50 articles because they did not fall within the parameters of this study. However, of the 195 framed stories, there were 316 actors assigned in the stories. The most common actors were government agencies and government agency spokespeople. 24.4% of the actors were these government agency

spokespeople, which fell under the firefighting/law enforcement category. Examples of these agencies included U.S. Forestry Service spokespeople, spokespeople for national parks such as Yosemite National Park and more. The second most common actor were firefighting agency spokespeople. These spokespeople mainly gave information on the fire containment progress and information on the fire itself. There were also a large number of citizens who served as actors. These citizens provided narrative of tragic or scary events they had encountered and shared their thoughts and emotions during the tragedy. A lot of these citizens were quoted after they had lost homes or had been evacuated from the area.

Table 3. Analysis of actors- Condensed list.

Actor Category:	N	% Frequency
Firefighting/Law Enforcement	197	62.3
Citizens	45	14.2
Scientists/Researchers	13	4.1
Other Actors	18	5.7
Government Officials	33	10.4
No Actor Identified	10	3.2
Totals:	316	99.9

In the agricultural and environmental realm, there was one instance where a farmer/rancher was used as a primary source of information. Again, this is the same article from Gardiner Angus Ranch in Kansas where the reporter spoke to the owner and operator of the ranch. Of all the actors, there was only one article that spoke with a non-profit environmental group. This article was a political conflict over wildfire prevention measures.

Table 4. Analysis of Actors- Comprehensive List

Actor:	N	% Frequency
Firefighters	27	8.5
Officials of Firefighting Agencies	55	17.4
Law enforcement	38	12.0
Government Agency Spokespeople	77	24.4

Unaffiliated Citizens	42	13.3
Neighborhood association	0	0
Nonprofit environmental groups	1	.32
Protestors	0	0
Bloggers/Journalists	2	.63
Government Scientists	5	1.6
University Scientists/Professors	5	1.6
Industry Researchers or Scientists	1	.32
Think Tanks	0	0
Other Scientists	2	.63
Timber Industry reps	1	.32
Business and industry reps	9	2.8
Tourism industry reps	1	.32
Farmer/Rancher	1	.32
Consultants	0	0
Unidentified spokesperson	6	1.9
Elected official	32	10.1
Appointed official	0	0
Officials of other nations	1	.32
No Actor was Identified	10	3.2
Totals:	316	99.98

Objective 3: To identify what information and key frames are actually relevant to news media coverage during a wildfire tragedy.

As mentioned in the results of Objective 1, it is apparent that agricultural and environmental issues are not the primary frames that are relevant to news media coverage during a wildfire tragedy. So what frames actually matter to the media during a wildfire?

Table 5. Analysis of frames- Comprehensive List

Frame:	N	% Frequency
Fire Threat or Update	74	37.9
Severe Weather	2	1.0
Early Report of Wildfire	1	.51
Acreage threatened	2	1.0
Homes threatened	0	0
Homes Burned	8	4.1
Threats to ecosystem	0	0
Threats to wildlife	2	1.0
Scientific	3	1.5
Health and medical threat	3	1.5
Physical Threat	1	.51

Population Evacuation	17	8.7
Threat to community	6	3.1
Personnel en route	1	.51
Personnel deployed	3	1.5
Personnel leaving	1	.51
Costs/Tools	1	.51
Costs of losses/damage	5	2.6
Diminished resources	0	0
Technology resources	4	2.1
Political statement	9	4.6
Political conflict	4	2.1
Agency conflict	0	0
Insurance conflict	0	0
Legal Matters	11	5.6
Pop. Won't evacuate	0	0
Donations needed/received	1	.51
Recovery plans/Discussion	4	2.1
Safety/No Evacuation	6	3.1
Loss of citizens	11	5.6
Loss of agency personnel	7	3.6
Loss of farm/companion animal	1	.51
Loss of wildlife	0	0
Fire containment	7	3.6
Totals:	195	99.9

The most common frame was the fire update and hazard frame. This frame was a very broad and generalized frame. A piece of news that fell under this frame typically included short sentences that gave updates on the fire's progression, usually a sentence on any sort of known damages, and then usually a sentence on what's next to contain the fire. This frame comprised elements of the other frames, but fire updates were usually short and concise. This frame accounted for 37.9% of all the frames.

It is no surprise that the fire update or threat category was the most common. Similar studies on natural disasters have shown that media typically tends to focus on current impacts of the disaster on people as well as structures, meaning they focus on providing news about the fire

progression, who will be impacted, what structures are burned, etc. which all fall under this category of fire update and threat (Houston, Pfefferbaum & Rosenholtz, 2012).

Table 6. Analysis of frames- Condensed List

Frame Category	N	% Frequency
Fire Update or Threat	87	44.6
Environment	5	2.6
Threat to Community	27	13.8
Resources	15	7.7
Conflict	24	12.3
Recovery	18	9.2
Loss	19	9.7
Totals:	195	99.9

Objective 4: To determine the connotation and tone surrounding agricultural topics during wildfires.

In previous studies, literature on agriculture in the news typically had negative connotation or painted agriculture in a bad light. This article, upon reading, did not have a negative or positive angle associated with the story. It was fairly unbiased and gave the facts about the situation without demonizing or praising the agricultural industry as a whole. This story was almost approached as a human interest story but included many facts and figures about the death of livestock. Some quotes to demonstrate the human interest angle include:

- “Gardiner cries when he talks about how thankful he is that none of his family members were lost in wildfires that that have led to the deaths of six people.”
- “Gardiner figures he lost 500 cattle. Any badly burned animals found still alive are mercifully shot.”
- “It's pretty much a catastrophe," Gardiner said as he looked out on his ranch near Ashland, charred by wildfires that have burned through hundreds of acres in four states. "It's as bad as a mind can make it."

Discussion and Implications

After the completion of this study, it is evident that agricultural and environmental issues are neglected by the national news media during a wildfire crisis. Despite the agricultural industry and environment being areas that affect every single human across the globe, there appears to be a lack of focus on the effects of a wildfire crisis on these specific industries.

This has wide implications for agricultural communicators. This finding means that specific agricultural news regarding these crises will have to continue to be produced in order to keep the farmers and ranchers in the United States in the loop of what's going on across the country in their respective industries. Similar stories to the primary frame of livestock loss and secondary frames of community threats to economies from agricultural product loss should be covered by local and state news at least, if not by national reporters.

It was surprising that so few articles discussed environmental issues in frames. Very few (1.5%) of the articles discussed health and medical threats due to fires. Examples of these threats were smoke inhalation, air quality threats, and dangers from ash. These effect the environment but also, as a consequence, all living things in that specific environment.

This study also found that most of the content was written in a present state, which would explain why the fire update and threat frame was so widely used. During periods where wildfires were not occurring, there appeared to be more discussion on legislation on wildfires. However, a great deal of the political statement framed stories were about governments declaring a state of emergency for specific areas or having official visits to the affected areas.

The USDA claims there are millions of dollars in damage to the agricultural industry from wildfires each year, yet this study proves that the national news media does not pay attention to these losses (USDA, 2018). Future potential research could look into how

agricultural communicators and farm journals report on the issues surrounding wildfires. A comparison could be done to see if similar frames emerged and to see what specific issues emerge within the agricultural industry. There could also be a similar study to this one, comparing more specific newspapers from across the country (i.e. *New York Times*, *Los Angeles Times*, *Washington Post*, etc.) to see if their coverage is any different or if similar results persist.

REFERENCES

- American Farm Bureau. (2017). *Fast Facts About Agriculture* [Press release]. Retrieved from <https://www.fb.org/newsroom/fast-facts>
- An, S., & Gower, K. K. (2009). [Http://journal.ru/wp-content/uploads/2017/03/a-2017-023.pdf](http://journal.ru/wp-content/uploads/2017/03/a-2017-023.pdf). *Public Relations Review*, 35, 107-112. doi:10.18411/a-2017-023
- Ashlock, Marcus A.; Cartmell, D. Dwayne II; and Kelemen, Danna B. (2006) " e Cow at Stole Christmas: Framing the First U.S. Mad Cow Crisis," *Journal of Applied Communications: Vol. 90: Iss. 2.* [h ps://doi.org/10.4148/1051-0834.1282](https://doi.org/10.4148/1051-0834.1282)
- Burns, T. W., Oconnor, D. J., & Stocklmayer, S. M. (2003). Science Communication: A Contemporary Definition. *Public Understanding of Science*, 12(2), 183-202. doi:10.1177/09636625030122004
- Cannon, Karen J. and Irani, Tracy A. (2011) "Fear and Loathing in Britain: A Framing Analysis of News Coverage during the Foot and Mouth Disease Outbreaks in the United States," *Journal of Applied Communications: Vol. 95: Iss. 1.* [h ps://doi.org/10.4148/1051-0834.1171](https://doi.org/10.4148/1051-0834.1171)
- Carroll, M. S., Higgins, L. L., Cohn, P. J., & Burchfield, J. (2006). Community Wildfire Events as a Source of Social Conflict. *Rural Sociology*, 71(2), 261-280. doi:10.1526/003601106777789701
- Chong, D., & Druckman, J. N. (2007). Framing Theory. *Annual Review of Political Science*, 10(1), 103-126. doi:10.1146/annurev.polisci.10.072805.103054
- Crow, D. A., Berggren, J., Lawhon, L. A., Koebele, E. A., Kroepsch, A., & Huda, J. (2016). Local media coverage of wildfire disasters: An analysis of problems and solutions in policy narratives. *Environment and Planning C: Politics and Space*, 35(5), 849-871. doi:10.1177/0263774x16667302
- Devitt, Catherine, and Eoin O'Neill. "The Framing of Two Major Flood Episodes in the Irish Print News Media: Implications for Societal Adaptation to Living with Flood Risk." *Public Understanding of Science*, vol. 26, no. 7, Mar. 2016, pp. 872–888., doi:10.1177/0963662516636041.
- De Vreese, C. (2005). News framing: Theory and typology. *Information Design Journal*, 13(1), 51-62. doi:10.1075/idjdd.13.1.06vre
- Doerr, S. H., & Santín, C. (January 01, 2016). Global trends in wildfire and its impacts: perceptions versus realities in a changing world. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 371, 1696.)

Donovan, G., Prestemon, J. and Gebert, K. (2011). The Effect of Newspaper Coverage and Political Pressure on Wildfire Suppression Costs. *Society & Natural Resources*, 24(8), pp.785-798.

Entman, R. M. (1993). Framing: Toward Clarification of a Fractured Paradigm. *Journal of Communication*, 43(4), 51-58. doi:10.1111/j.1460-2466.1993.tb01304.x

Frick, M. J., Birkenholz, R. J., & Machtmes, K. (1995). Rural And Adult Knowledge And Perceptions Of Agriculture. *Journal of Agricultural Education*, 36(2), 44-53. doi:10.5032/jae.1995.02044

Gabbert, B. (2017, March 07). Fires in Kansas, Oklahoma, and Texas burn hundreds of thousands of acres. Retrieved April 14, 2018, from <http://wildfiretoday.com/2017/03/07/fires-in-kansas-oklahoma-and-texas-burn-hundreds-of-thousands-of-acres/>

Gitlin, T. (1980). *The whole world is watching: Mass media in the making & unmaking of the New Left*. Berkeley, California: University of California Press.

Graham, A. (2016, October 16). How Journalists Fan the Flames of Wildfire in the West. Retrieved April 14, 2018, from <http://mjr.jour.umt.edu/how-journalists-fan-the-flames-of-wildfire-in-the-west/>

Hallahan, Kirk. "Seven Models of Framing: Implications for Public Relations." *Journal of Public Relations Research*, vol. 11, no. 3, 1999, pp. 205–242., doi:10.1207/s1532754xjpr1103_02.

Houston, J. B., Pfefferbaum, B., & Rosenholtz, C. E. (2012). Disaster News. *Journalism & Mass Communication Quarterly*, 89(4), 606-623. doi:10.1177/1077699012456022

Johnson, J., Bengston, D. and Fan, D. (2009). US Policy Response to the Wildfire Fuels Management Problem: An Analysis of the News Media Debate about the Healthy Forests Initiative and the Healthy Forests Restoration Act. *Journal of Environmental Policy & Planning*, 11(2), pp.129-142.

Lundy, Lisa; Ruth, Amanda; Telg, Ricky; and Irani, Tracy (2006) "It Takes Two: Public Understanding of Agricultural Science and Agricultural Scientists' Understanding of the Public," *Journal of Applied Communications*: Vol. 90: Iss. 1. h ps://doi.org/10.4148/1051-0834.1290

McCaffrey SM. 2004. Thinking of wildfire as a natural hazard. *Soc Natur Resour* 6: 509–16.

Meyers, Courtney and Abrams, Katie (2010) "Feeding the Debate: A Qualitative Framing Analysis of Organic Food News Media Coverage," *Journal of Applied Communications*: Vol. 94: Iss. 3. h ps://doi.org/10.4148/1051-0834.1190

Morrison, O. (2017, June 16). Damage from historic wildfires more than \$80 million. *Wichita Eagle*. Retrieved from <http://www.kansas.com/news/state/article156506309.html>

National Interagency Fire Center (NIFC)- Statistics. (n.d.). Retrieved April 14, 2018, from <https://www.nifc.gov/index.html>

National Research Council (US). Board on Agriculture. Committee on Agricultural Education in Secondary Schools. (1988). *Understanding agriculture: New directions for education*. National Academy Press.

Neuman, W. R., Just, M. R., & Crigler, A. N. (1992). *Common knowledge*. Chicago: University of Chicago Press.

Paveglio, Travis & Norton, Todd & Carroll, Matthew. (2011). Fanning the Flames? Media Coverage during Wildfire Events and its Relation to Broader Societal Understandings of the Hazard. *Human Ecology Review*. 18. 41-52.

Ruth, Amanda M.; Eubanks, Emily E.; and Telg, Ricky (2005) "Framing of Mad Cow Media Coverage," *Journal of Applied Communications*: Vol. 89: Iss. 4. <https://doi.org/10.4148/1051-0834.1312>

Scanlon, J. (2011). Research about the Mass Media and Disaster. *Journalism*, 233-269. doi:10.1201/b13161-12

Seeger, M. W. (2007). Best Practices in Crisis Communication: An Expert Panel Process. *Journal of Applied Communication Research*, 34(3), 232-244. doi:10.1080/00909880600769944

Specht, Annie R.; McKim, Billy R.; and Rutherford, Tracy (2014) "A Little Learning in Dangerous: The Influence of Agricultural Literacy and Experience on Young People's Perceptions of Agricultural Imagery," *Journal of Applied Communications*: Vol. 98: Iss. 3.

Steelman, T.A. & McCaffrey, S. *Nat Hazards* (2013) 65: 683. <https://doi-org.proxy.lib.ohio-state.edu/10.1007/s11069-012-0386-z>

Sutton, Jeannette & Palen, Leysia & Shklovski, Irina. (2008). Backchannels on the Front Lines: Emergent Uses of Social Media in the 2007 Southern California Wildfires. *Proceedings of the 5th International ISCRAM Conference*.

Terracina-Hartman, C. M. (2017). *Fanning the Flames : How U.S. Newspapers Have Framed Ten Historically Significant Wildfires 2003-2013* (Unpublished doctoral dissertation). Michigan State University.

Texas AgriLife Extension. (2017, March 15). *Agriculture damages from wildfire estimated at about \$21 million* [Press release]. Retrieved from <https://today.agrilife.org/2017/03/15/agriculture-damages-wildfire-estimated-21-million/>

The Latest: Coast Guard Closes Columbia River Due to Fire. (2017, September 5). Retrieved April 14, 2018, from <https://www.usnews.com/news/best-states/oregon/articles/2017-09-05/the-latest-western-wildfires-close-roads-smoke-lingers>

Toman, Eric; Stidham, Melanie; McCaffrey, Sarah; Shindler, Bruce. 2013. Social science at the wildland-urban interface: a compendium of research results to create fire-adapted communities. Gen. Tech. Rep. NRS-111. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 75 p. <https://doi.org/10.2737/NRS-GTR-111>.

United States, Congress, Joint Economic Committee. (2013, September 26). *DEMOCRATIC WEBSITE Ranking Member - Senator Martin Heinrich (D-NM)*. Retrieved from <https://www.jec.senate.gov/public/index.cfm/democrats/2013/9/the-economic-contribution-of-america-s-farmers-and-the-importance-of-agricultural-exports>

USDA. (2018, April 6). *USDA Implements up to \$2.36 Billion to Help Agricultural Producers Recover after 2017 Hurricanes and Wildfires* [Press release]. Retrieved from <https://www.usda.gov/media/press-releases/2018/04/06/usda-implements-236-billion-help-agricultural-producers-recover>

USDA, Farm Service Agency. (2017, April 4). *USDA Authorizes Emergency Grazing in Response to President Trump's Directive* [Press release]. Retrieved from https://www.fsa.usda.gov/news-room/news-releases/2017/nr_20170404_rel_0028

U.S. Forest Service Wildland Fire. (n.d.). Retrieved April 14, 2018, from <https://www.fs.fed.us/managing-land/fire>

Walter, G., & Reisner, A. (1994). Student opinion formation on animal agriculture issues. *Journal of animal science*, 72(6), 1654-1658.

Weaver, D. (1997–1998, Winter). Framing should not supplant agenda-setting. *Communication Theory & Methodology (CT&M) Concepts*, 27(2), 3.

Weaver, D. H. (2007). Thoughts on Agenda Setting, Framing, and Priming. *Journal of Communication*, 57, 142-147. doi:doi:10.1111/j.1460-2466.2006.00333.x

