A Sentiment and Content Analysis of Facebook Posts Regarding Wild Horse Management

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Abstract

The purpose of this study was to better understand public sentiment and current conversations on Facebook regarding wild horse management practices, including adoption, roundups, and contraception, in the timeframe between the June 2021 BLM Wild Horse Advisory Board meeting and January 31, 2022. Social media monitoring and quantitative content analysis were used to examine the Facebook posts of four organizations communicating about the wild horse controversy. The research questions guiding this study included: (1) How many total mentions of “fertility control,” “contraception,” “roundup,” “gather,” “adoption,” and “management” as they pertained to wild horses occurred across Facebook from June 1, 2021 to January 31, 2022? (2) What were the organizations’ messages within each frame discussing wild horse management? (3) What was the social media engagement frequency by content frame? (4) What was the sentiment of posts regarding wild horse management practices, including adoption, roundups and contraception?

Our research found that terminology differs depending on how organizations want to frame the conversation about wild horse issues. This can be determined by the organization's purpose, goals, or mission statement, which drive how and what they communicate. The sentiment data showed that over 95% of the organizations’ messages were written in a neutral tone, despite what the public engagement and reaction was to the information. A recommendation for future research is to extend the analysis to other social media platforms, such as Twitter to analyze individual’s comments and identify key influencers of the wild horse and burro controversy.
For my parents who have encouraged me in everything I do

and for allowing a little red horse to follow me home.
Acknowledgements

I would first like to thank God for helping me through all of the highs and lows of life. Thank you to Kenna Kesler for her continued support, collaboration and encouragement throughout the many challenges and setbacks of this project. I would also like to thank Dr. Kelsey Hall for her willingness to join this project on short notice, her generosity in funding it, and for sharing her knowledge and expertise, without which this project would not have been possible. Thank you to Dr. Debra Monson and Steve Reiher of the Journalism and Communication department at Utah State University for joining my committee and their excellent teaching that has propelled me through my education and this project.
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Introduction

Controversy surrounding wild horse populations and public lands use has directly affected 10 western states and grasped the attention of thousands across the nation. The Bureau of Land Management (BLM) is responsible for maintaining a balance among wildlife, public land ecosystems, privately-owned livestock grazing, and the wild horse and burro population with a recorded growth rate of 20% annually if left unmanaged (Bureau of Land Management, 2019). With the BLM managing 177 herd management areas that include 26.9 million acres across 10 western states (Bureau of Land Management n.d. a, para. 1), there are still an estimated 86,189 wild horses roaming as of March 1, 2021 (Bureau of Land Management, n.d.d, para. 3). The appropriate management level population is 26,785 horses (Bureau of Land Management, 2021).

In response to the Wild Free-Roaming Horses and Burros Act, designed to “provide for the necessary management, protection and control of wild horses and burros on public lands” (Bureau of Land Management, n.d. d, para. 5), the BLM developed the Wild Horse and Burro Program to guide their maintenance of wild horses. The program spans 10 western U.S. states and includes fertility control, removal of horses from public land, and an adoption program (Frey, 2020). As of March 2021, 13,666 horses were removed from the wild and 8,637 were placed into private care (Bureau of Land Management, n.d. c).

Part of the BLM’s efforts to communicate with mustang and burro program participants is social networking and media sharing (Bureau of Land Management, 2012). The program’s largest following is on Facebook with just over 108,000 Facebook followers (Bureau of Land Management, 2022). BLM social media is used to “promote the BLM’s mission, advance a BLM priority, or address a tangible public need” (Bureau of Land Management, 2012, para. 14). In
addition to the BLM, there are a variety of mustang advocate associations and nonprofit mustang organizations that discuss the predicament of wild horses and allow people to comment and converse.

The management of wild horses has caused controversy between the BLM, mustang advocate organizations, and members of the public. Concerns about the various forms of management include round ups for horses to be disposed of or relocated to government holding facilities, adoption and sales, and use of birth control to decrease growth rates (Daly, 2022). Social media campaigns by wild horse advocacy groups against the BLM can develop into monthly protests across states by those who oppose the BLM’s management (Wild Horse Education, 2019). In a single event held in 2021, 70 animal advocacy groups developed a coalition against the BLM to revoke ranchers’ grazing licenses for locations native to horse herds (O’Donoghue, 2021). The variety of opinions, concerns, and levels of public knowledge justify the analysis of communication about wild horses in order to make recommendations for further studies and suggestions for how communication could be improved.

In a 2021 study, a content analysis examined the Facebook posts of “six organizations communicating about the wild horse and burro controversy and 8,295 comments made by individuals to the organizations’ posts” to “provide insight into how organizations and individuals are communicating about the wild horse and burro controversy using social media” (DeConcini & Rice, 2021, p. 16). Facebook is a relevant platform to research communication about wild horse news. In 2018, the Pew Research Center conducted a survey that found 43% of U.S. adults got their news from Facebook (Shearer & Matsa, 2018).

Social media posts about wild horses by the BLM and nonprofit organizations spark conversations that debate how wild horses should be managed. Scientists advising the BLM
suggest that the reduction of wild horses on public lands is urgent due to the ecological effects of climate change and the competition for food and water between the horses, wildlife and livestock (Daly, 2022, para. 12); however, some wild horse advocates argue that the BLM “unfairly targets horses and instead should look to reduce the number of livestock grazing public lands” (Daly, 2022, para. 12). These agricultural conversations are not immune to misinformation that “often drives the public perception,” which can impact consumer behavior (Roberts et al., 2016, p. 59).

While open conversation across platforms is a way to gauge public opinion and gain feedback, there is a need to ensure these stakeholders have reliable information to base their opinions and arguments on. The BLM’s social media commenting policy notes that they do not guarantee that information commented on their posts by members of the public is accurate, nor do those comments “reflect the official views of the BLM or the U.S. government” (U.S. Department of the Interior Bureau of Land Management, n.d., p. 1). It is also important for the organizations publishing the posts to respond to comments. In a study on how to manage negative comments on social media, Wagner (2015) stated that organizations should “search daily for reviews and respond immediately” (p. 57) and that they should create a positive online environment by advocating for open conversations and engaging their audiences. Our study aimed to identify how key organizations, such as nonprofits and government agencies, are framing their social media posts regarding the wild horse controversy, as well as the effect these methods have on the audience perception by analyzing the engagement and sentiment of the posts.
Literature Review

Effective Communication

Effective communication is “when the stimulus as initiated and intended by the sender, or source, corresponds closely to the stimulus as it is perceived and responded to by the receiver” (Tubbs & Moss, 2006, p. 24). This depends on finding the right balance of timing and messaging that fits the media platform to effectively deliver a message to the intended audience (Lamm et al., 2019, p. 1). With the various platforms, demographics, and content formats, organizations’ content creators need to understand their message, audience, and communication medium when disseminating information for audience comprehension (Lamm et al., 2019). By having a greater understanding of their audience and their messaging needs, these organizations and conversation influencers can “become a trusted source of information within their networks” (Lamm et al., 2019, p. 2).

While content creators can become trusted sources, they should remain aware that there is always the possibility of misinterpretation or miscommunication when a message is lost in translation between the sender and receiver, which can have a “negative effect in online education” (Betts, 2009, p. 3). Specifically, when scientific content, such as pharmaceutical, environmental, or health science, is posted online, public health professor Tim Caulfield warned that misinformation can occur when “media reporting takes a legitimate area of science and inaccurately simplifies it for the general public” (Groshek & Bronda, 2022, para. 7). Clickbait or misleading headlines can also cause a misinterpretation of facts and evidence (Groshek & Bronda, 2022). Uncivil comments and increased polarization on controversial topics can also cause a negative impact (Groshek & Bronda, 2022). The anonymity and speed with which people can comment online increases the frequency of discourse and can lead some to avoid partaking
in public conversations, potentially decreasing communication effectiveness (Groshek & Bronda, 2022).

Evaluating the effectiveness of media communication involves analyzing certain metrics, which can include views, reach or impressions, comments, likes, subscribers or followers, and shares or mentions (University, n.d.). After identifying which metrics to track, organizations can set goals to increase or improve the effectiveness of their content. One method of goal-setting includes SMART goals, which are specific, measurable, attainable, relevant, and time-bound (University, n.d.). After implementing these goals, analytics of the social media posts can be measured and evaluated to understand and further improve “social media content strategy” (University, n.d.). Identifying the keywords and conversations that receive the most engagement can help give a greater insight into how to improve communication strategies.

**Agricultural Literacy**

In a survey conducted by Utah State University Extension about the public’s knowledge of wild horses and their management, Frey (2020) found that lower than 10% of the survey participants “knew that there are currently more than 75,000 free roaming horses on public lands” (para. 15). Respondents also didn’t have great knowledge of where wild horses are located. In the survey, participants could select all the locations they thought wild horses were present. According to Frey, nearly 50% said Wyoming and over 40% said Montana, but fewer respondents were aware of mustangs in the other eight states listed, which all have significant wild horse populations. Frey inferred responses were heavily influenced by what respondents saw in movies or social media.

Having knowledge about the wild horse situation is part of agriculture literacy. Agricultural literacy is when a person has the “ability to think critically and make value
judgments about the impact of agriculture as an economic and environmental activity and the concurrent societal and political pressures that result from those judgments” (Agnew & Trexler, 2008, p. 86). A dilemma that hinders widespread agricultural literacy is that, today, only 10.3% of the population is directly involved in the agriculture business or a relevant industry (Kassel, 2021, para. 1). The public’s minimal involvement could potentially create a knowledge gap, suggesting it’s the responsibility of those who are in the industry to accurately inform the public about agricultural issues. If society has an “understanding of agriculture and current economic, social, and environmental impacts,” they can make informed decisions and support change that could “lessen current challenges facing agriculture” (Kovar & Ball, 2018, p. 168).

On the other hand, if a population is not agriculturally literate, they may be more likely to believe misinformation, potentially impacting the agricultural market (Kovar & Ball, 2018, p. 168). With the potential impacts of inaccurate agriculture information, strategic social media posts are important to educate followers on topics, such as wild horse management (Betts, 2009, p. 2).

**Social Media Influence**

Social media has become a common communication tool organizations and news media use to connect with, and direct information to, their audiences. Baruah (2012) defines social media as “the use of web-based and mobile technologies to turn communication into an interactive dialogue” (p. 1). The accessible and scalable communication techniques of social media has “substantially changed the way organizations, communities, and individuals communicate” (Baruah, 2012), and has changed what effective communication means. According to Baruah, social media can connect organizations to their supporters, reach new people, and build a community around their message or mission. As a result of social media
platforms’ accessibility, “content sharing and user interaction has become relatively easy and efficient” (Baruah, 2012, p. 2).

Although social media has allowed easier access to news and information, a Pew Research study suggested it doesn’t guarantee a positive effect. In a 2020 Pew Research survey, 64% of adult respondents said they thought social media had a “mostly negative effect on the way things are going in the country today” (Auxier, 2020). Of those who felt there was a negative impact, Auxier reported many of them cited misinformation, hate, and harassment as their reasoning.

Another concern about social media is censorship. In a 2020 study, 73% of respondents said it was very or somewhat likely that “social media sites intentionally censor political viewpoints that they find objectionable” (Vogels et al., 2020, para. 2). As a contended political issue, providing trustworthy information about wild horse controversy remains a concern. The BLM has created a resource to address “myths” about wild horse and burro management and supplied a list of facts “that should be considered when forming an opinion” (Bureau of Land Management, n.d. b, para. 1). For organizations, such as the BLM and nonprofits that post on social media about wild horse management, developing trust with their audience is a key element for them to be effective (Covey, 2021).

Forbes provided several suggestions for organizations to build trust through social media. One way is to use thought leadership content to “communicate their expertise in a given industry” that their viewers will share (Gleeson, 2012). Accepting accountability is another way companies can create trust. By engaging with their audience, they are accepting communication and feedback about their information and the services they provide (Gleeson, 2012). Another approach is through content portraying social responsibility. This illustrates that they “aren’t just
about profits,” but also care about their communities and their impact on the world (Gleeson, 2012). Other strategies to build trust and increase effective communication include transparency, responsive communication, and engagement through entertaining content (Gleeson, 2012).

The use of effective communication through social media can have an impact on political or societal movements. In a 2020 study that analyzed Americans’ thoughts of social media’s effectiveness as a tool for social movements and political change, researchers found that 80% of Americans thought social media was very or somewhat effective for creating awareness and 77% thought social media was “at least somewhat effective for creating sustained social movements” (Auxier & McClain, 2020, para. 2). When it came to implementing actual change and getting elected officials’ attention, 65% of respondents said social media was at least somewhat effective, 63% thought it influenced policy decisions, and 58% thought it contributed to changing opinions on political or social topics (Auxier & McClain, 2020).

The controversy surrounding wild horse and burro management has become both a political and social issue with a “multiplicity of opinions, varying levels of public knowledge, and the opportunity to educate” (DeConcini & Rice, 2020, p. 17). This makes social media a viable platform for organizations to communicate relevant information to their audiences.

**Conceptual Framework**

**Framing**

Framing exhibits how people construct social narratives, interactions, and meanings through “linguistic and paralinguistic means” (Gordon, 2018, p. 324). By using media frames, organizations can portray content to their audience from a certain point-of-view or angle, which “can have an impact on both the volume and character of news messages about a particular issue” (Scheufele & Tewksbury, 2007, p. 12). Framing must also consider the conscious and
implicit bias of the writer (“Understanding Bias,” 2017), which could impact how an audience interprets the message of the post. Another use of media frames is to efficiently present complex issues to audiences that may not know a lot about the subject (Scheufele & Tewksbury, 2007).

Different media frames can portray subjects in different ways to help organizations accomplish a certain objective, making it possible for people to interpret the same information differently (Carter, 2013, p. 4). In news media, frames are used to impact opinion by informing or emphasizing information for the public on a subject or event (Shazia et al., 2022). To influence public opinion on policy, some media frames may be created to exclude opposition information (Boydstun et al., 2013). As a result, framing analysis is beneficial because it can give additional context to quantitative analytics on how an audience perceived the information and aid in understanding why there are differences in people’s perceptions of reality (Leeper & Slothuus, 2019, p. 3).

**Framing of Agricultural Issues**

Framing has been analyzed in previous studies to understand how agricultural messages were meant to be interpreted by the audience and their impact. A study by Wagler and Cannon (2015) focusing on the framing of Twitter conversations about Nebraska’s drought crisis found that the prevalence of posts and comments about the crisis correlated with the severity of the drought at the time. The study also found that the posts contained information relevant to environmental and economic impacts of the drought, leading researchers to suggest that educational institutions utilize Twitter as a news source to be thought leaders on the subject.

In another study, Lundy et al. (2018) analyzed the media framing of Florida agricultural health and safety issues, noting the impacts each frame had on the agriculture message it focused on. Their analysis found that the human-interest frame was the most prominent above those that
were focused on conflict, responsibility or economic consequences. Identifying the frames used in media to discuss agriculture can help agricultural communicators understand how information is being portrayed to, and received by, the audience, which can help them prepare information accordingly to effectively disseminate it through social media and news outlets (Lundy & Irani, 2004).

**Sentiment**

Sentiment is defined as “a thought, opinion, or idea based on a feeling about a situation, or a way of thinking about something” (Cambridge, n.d.). A sentiment analysis is done to detect whether a piece of written content conveys a positive, negative, or neutral tone about a given subject (Kumar & Teeja, 2012). A sentiment analysis for social media can help to understand how people feel about a brand’s posts, conversations, services, or events by analyzing the engagement of their posts (Newberry, 2020). Conducting a sentiment analysis can help organizations understand their audience, improve customer service, spot potential crises, adjust brand messaging, and identify their influence within their niche (Newberry, 2020).

A qualitative sentiment analysis focuses on the underlying emotions of a user’s opinion of a brand or argument (Gasper et al., 2015), and can assist in detecting users’ attitudes, beliefs or emotions on a specific subject. However, criticism of qualitative analysis says objectivity is impossible, implying that qualitative approaches lack “scientific worth” (House, 2018, p. 7). On the contrary, quantitative sentiment analysis uses “statistical, mathematical and computational techniques” to analyze collected data and “generalize the findings for a larger population” (Cassone, 2020, p. 1).

**Purpose and Research Questions**
The purpose of this study was to better understand sentiment, framing of conversations, and engagement of wild horse management and issues on Facebook. By analyzing total mentions of keywords, prominent frames, engagement, and the sentiment of posts, we sought to identify how the BLM and non-profit mustang horse organizations were communicating with followers about the wild horse controversy. The following research questions guided the study:

1. How many total mentions of “fertility control,” “contraception,” “roundup,” “gather,” “adoption,” and “management” as they pertained to wild horses occurred across Facebook from June 1, 2021 to January 31, 2022?

2. What were the organizations’ messages within each frame discussing wild horse management?

3. What was the social media engagement frequency by content frame?

4. What was the sentiment of posts regarding wild horse management practices, including adoption, roundups, and contraception?

**Methods**

This study used social media monitoring and subsequent quantitative content analysis to address the research questions posed in this study. Social media monitoring is “the continuous systematic observation and analysis of social media networks and social communities” (Fensel et al., 2012, p. 3). This study used Meltwater, a social media analytics tool, to complete our social media monitoring. Meltwater has been used as an analytics tool to record and assess trends and themes of social media discussions, including those about the COVID-19 health measures and policies (Martin & Vanderslott, 2021). One study cited that a limitation of Meltwater was that posts exported were occasionally separated from the rest of the conversation, making post
interpretation difficult (Martin et al., 2020). Our study did not experience this since we analyzed each post’s keywords and engagement independently.

Meltwater provides a lot of information for users; however, the variables of interest for this study were total mentions (total number of mentions for the search terms), reach (the number of individuals potentially reached by the messages included in the social media content), engagement (shares, comments, reactions, and engagement rate), and sentiment (positive, negative, or neutral).

To collect our samples for our quantitative content analysis, we used Boolean searches that allowed us to code for keywords and engagement functions. Wagner and Cannon (2015) used Boolean searches to identify trends and correlations of Twitter conversations about Nebraska’s 2012-2013 drought crisis. Boolean searches use operators including “AND, OR, and NOT” (Wagner & Cannon, 2015, p. 6), to combine keywords in a search and identify posts that contain those keywords. Our four Boolean searches were as follows:

- (Contraception OR "birth control" OR "fertility control" OR "herd population") NEAR/10 "wild horse*"
- (roundup* OR gather*) NEAR/10 "wild horse*"
- ("Wild mustang*" OR "Wild Horse*") AND Adoption
- ("wild horse management") OR ("wild horse" NEAR/10 management)

These Boolean searches analyzed the posts of four highly followed organizations within the Facebook conversations about wild horse management, including three nonprofits: Return to Freedom, Wild Horse Conservation, American Wild Horse Campaign, and Wild Horse Education; and the government-based BLM Wild Horse and Burro Program. These Boolean searches resulted in 690 relevant posts for our analysis.
Identifying post sentiment was the second part of our analysis. Meltwater determines the sentiment of a post based on its overall tone by using their Natural Language Processing Algorithms. The algorithms support complete sentiment analysis of 28 languages and each post is analyzed and labeled “positive, negative, neutral, or not rated” (B., n.d., para. 3).

After our data was collected and sorted, we evaluated our results using IBM® SPSS Statistics version 28, a statistical software, to organize and interpret the data.

June 1, 2021 was selected as the starting date of this study because the BLM hosted a Wild Horse Advisory Board meeting in June to discuss management plans that could potentially impact online conversations and our data collection stopped January 31, 2022 because on that date the BLM released its annual plan for wild horse gathers based on the advisory board discussions.

**Findings and Conclusions**

**RQ1: How many total mentions of “fertility control,” “contraception,” “roundup,” “gather,” “adoption,” and “management” as they pertained to wild horses occurred across Facebook from June 1, 2021 to January 31, 2022?**

The first research question used Boolean searches to identify the number of mentions of our selected keywords within the set timeframe. The term “roundup” was mentioned in 364 posts, accounting for 52% of the posts analyzed. Mentions of “roundup” occurred the most for nonprofits (Table 1). The BLM posted about removing horses from public lands; however, they referred to it as a “gather” or “gathering operation” in all five of their posts about the topic, using different terminology than all of the nonprofits. The different terms used to address horse removal worked to frame the organizations’ messages about the issue from different angles in order for the organization to accomplish their post’s objective.
**Table 1**

*Total Mentions of Keywords in Facebook Posts from June 1, 2021, to January 31, 2022*

<table>
<thead>
<tr>
<th>Organization</th>
<th>Contraception</th>
<th>Fertility Control</th>
<th>Roundup</th>
<th>Gather</th>
<th>Adoption</th>
<th>Wild Horse Management</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Return To Freedom, Wild Horse Conservation</td>
<td>0</td>
<td>0.0</td>
<td>108</td>
<td>84.4</td>
<td>235</td>
<td>65.5</td>
</tr>
<tr>
<td>American Wild Horse Campaign</td>
<td>1</td>
<td>0.1</td>
<td>7</td>
<td>5.5</td>
<td>87</td>
<td>24.2</td>
</tr>
<tr>
<td>Wild Horse Education</td>
<td>0</td>
<td>0.0</td>
<td>6</td>
<td>4.7</td>
<td>37</td>
<td>10.3</td>
</tr>
<tr>
<td>BLM Wild Horse and Burro Program</td>
<td>0</td>
<td>0.0</td>
<td>7</td>
<td>5.5</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
Posts focused on “fertility control” had 128 mentions as the second most common keyword (18.6%). Return to Freedom, Wild Horse Conservation mentioned fertility control the most, with their posts mentioning the shortcomings of BLM fertility control: “The Bureau of Land Management has failed to scale up the use of safe, proven fertility control for wild horses and burros despite calls from the public and Congress” (Return To Freedom, Wild Horse Conservation, 2022). The BLM mentioned “fertility control” the least of the four groups and spoke about improvements they were planning to make: “The BLM has extended the deadline for new research proposals to develop safe, effective and longer-lasting fertility control methods…” (BLM Wild Horse & Burro Program, 2022). Although “contraception” can be affiliated with population control, only one post by Return to Freedom, Wild Horse Conservation used the term when mentioning their choice to use “proven, safe and humane contraception to stabilize population growth” in their American Wild Horse Sanctuaries (Return to Freedom, Wild Horse Conservation, 2022). Posts about fertility control discussed sterilization such as Porcine Zona Pellucida (PZP), including a post by Return to Freedom that communicated BLM plans to “treat and release with the fertility control vaccine PZP-22 up to 30 mares.”

The BLM Wild Horse & Burro Program focused their posts on adoption the most, attributing to 44.9% of the posts that contained the keyword. One BLM initiative is to place excess horses into private care through its adoption and sales programs—a reason for them to contribute to this conversation.

Of the posts mentioning “wild horse management,” 11.3% of total mentions were attributed to Return To Freedom and Wild Horse Conservation. Although BLM posts on herd management made up just 2.8% of the total mentions, they accounted for 26.8% of all of the BLM’s posts within the timeframe. As the organization that conducts the management of wild
horses, the BLM focused on mentioning their practices: #FunFactFriday: “The Bureau of Land Management uses aerial surveys to estimate wild horse and burro populations for each herd management area on public lands” (BLM Wild Horse & Burro Program, 2022).

This data identifying the mentions of keywords found that terminology regarding wild horses differs depending on how organizations want to frame the issue. This can be determined by the organization's purpose, goals, or mission statement, which drive how and what they communicate.

**RQ2: What were the organizations’ messages within each frame discussing wild horse management?**

For the second research question, we focused on the organizations’ overall focus within each frame. For posts that mentioned ‘roundup,’ which was the most mentioned keyword, nonprofits focused on giving timely roundup updates, including the number of horses captured or killed, and further reports (Table 2). The American Wild Horse Campaign advertised policy changes they were pursuing: “We challenge the Biden Administration to live up to its promise of science-based governance by using this latest scientific information to re-evaluate federal wild horse roundup,” and continued to update followers on the status of their pursuits. Contrarily, the BLM’s noticeable messages about ‘gathers’ included studies on how they were a safe management option.
Table 2

Examples of Facebook Posts about Wild Horse Roundups

<table>
<thead>
<tr>
<th>Organization</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return To Freedom, Wild Horse</td>
<td>The Bureau of Land Management on Friday captured 65 wild horses on the fourth day of a helicopter roundup on the Surprise Complex of Herd Management Areas in Washoe and Humboldt Counties in Nevada. One wild horse died: “Foal, 1-month-old orphan. Colt showing obvious signs of poor nutrition and dehydration, died,” BLM wrote in its gather report. A total of 372 wild horses have been captured, so far. Six other wild horses have been put down, all for poor body conditions. The BLM plans to capture 1,220 wild horses and permanently remove 1,050 from the Surprise Complex. For more information about this roundup, please click the image below. TAKE ACTION: Demand transparency and accountability for the humane handling of wild horses and burros: <a href="https://bit.ly/3D6gTQB">https://bit.ly/3D6gTQB</a></td>
</tr>
<tr>
<td>Wild Horse Conservation</td>
<td>Photo: A wild horse is shown on the Fox Hog Herd Management Area, part of the Surprise Complex, in this undated BLM photo.</td>
</tr>
<tr>
<td>American Wild Horse Campaign</td>
<td>It is extremely disappointing that the Biden Administration has chosen to pursue the unscientific policy of mass roundups for the management of our nation’s iconic, federally protected wild horse and burro populations. The mass removal of these cherished animals from our public lands won’t solve any of the pressing environmental problems facing our public lands today, but it will cost taxpayers billions of dollars—and the lives of far too many horses and burros. So far 188 wild horses have been captured in the Desatoya roundup. Three have lost their lives at the hands of the BLM.</td>
</tr>
<tr>
<td>Wild Horse Education</td>
<td>100 more wild horses captured at the ongoing Owyhee Complex roundup. Our team member is the only observer on-site &gt;&gt; <a href="https://bit.ly/3bQ12K8">https://bit.ly/3bQ12K8</a>. So far 842 have been captured, 260 released after PZP treatment and 19 have died. Background info, on-site reports, video and a word about the complaints we file at roundups, at the link.</td>
</tr>
<tr>
<td>BLM Wild Horse and Burro Program</td>
<td>Did you know? Injuries to wild horses and burros during gathers are rare. A recent study published in the Journal of Equine Veterinary Science found that BLM’s wild horse and burro gathers are considered much safer than similar gather operations (usually for scientific research projects) of elk, deer, and caribou. Nevertheless, the BLM always seeks to improve the safety of its gathers and takes any incident that results in an injury to an animal very seriously. Learn more about this fact and more in our latest Tales from the Trails blog: Top 5 things to know about wild horse and burro gathers.</td>
</tr>
</tbody>
</table>


In posts about fertility control, the American Wild Horse Campaign mentioned political actions taking place (Table 3). Part of their mission is to reform “federal and state legislation to improve the welfare of wild horses and burros on the range and in government holding facilities” (American Wild Horse Campaign, n.d., para. 1), making policy updates relevant to their objectives as an organization. Whereas the BLM mentioned the benefit of “gather” to prevent starvation of wild horses and habitat protection, as their intent behind removing wild horses is to “protect the health of the animals and health of our nation’s public rangelands” (“Wild Horse,” n.d., para. 1).
### Table 3

**Examples of Facebook Posts about Fertility Control**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return To Freedom, Wild Horse Conservation</td>
<td>The Bureau of Land Management captured 38 wild horses on Monday and 66 on Wednesday, the 14th and 16th days of a helicopter roundup on the Pancake Complex of Herd Management Areas, about 30 miles west of Ely, Nev. No roundup operations were conducted on Wednesday because of high winds. No wild horses were killed on Monday or Wednesday, according to BLM’s gather report. A total of 1,048 wild horses (442 stallions, 469 mares and 137 foals) have been captured, so far. A total of 11 wild horses have been killed, eight listed as chronic / pre-existing conditions, like swayback, and three for sudden / acute injuries, including a broken leg and an unspecified “acute condition (undiagnosed).” BLM plans to capture 2,060 wild horses and remove up to 2,030 from their home range. It plans to treat and release with the fertility control vaccine PZP-22 up to 30 mares but only if it captures any of a small number of mares treated with fertility control in 2012, an action too small to be effective in halting future roundups. BLM last removed wild horses from the complex during “emergency” bait-and-trap roundups in 2018 and 2016 during which a combined 228 wild horses were captured and five killed. During both of those roundups, BLM failed to treat and release additional mares with safe, proven and humane fertility control that could slow reproduction and halt future roundups. For more information about this roundup, please click the image below. TAKE ACTION: Support safe, proven and humane fertility control that can end wild horse roundups: <a href="https://bit.ly/3fjYRk4">https://bit.ly/3fjYRk4</a> Photo: Pancake Complex wild horses rounded up in 2012. BLM Nevada file photo.</td>
</tr>
</tbody>
</table>
| American Wild Horse Campaign | ¤ Action Alert ¤
| Wild Horse Education | Week 2 of Owyhee begins as budget buzz continues to cause confusion. >> [https://bit.ly/3B5e9kR](https://bit.ly/3B5e9kR). In 2018, 1,178 wild horses were captured, 280 wild horses were returned to the range with fertility control. In 2021 the plan is to capture 947 and return 332. All while keeping the herd near low AML. That is what the budget buzz is simply about. More at link, including capture updates. |
The Bureau of Land Management plans to increase wild horse and burro gather and fertility control operations in Fiscal Year 2022 to reduce the risk of starvation, thirst, and habitat destruction as climate change and extreme drought continues to impact the West. If achieved, the plan would nearly double fertility control treatments this year and help address herd overpopulation through gathers and adoptions.

Read the full news release: [https://go.usa.gov/xtCtq](https://go.usa.gov/xtCtq)

Learn more about wild horse and burro gathers:
[BLM.gov/whb/blog/Top5ThingsAboutGathers](https://www.blm.gov/whb/blog/Top5ThingsAboutGathers)

Learn more about fertility control for wild horses and burros:
[BLM.gov/whb/blog/Top5ThingsAboutFC](https://www.blm.gov/whb/blog/Top5ThingsAboutFC)

As a key management tactic, the BLM’s messages mentioning ‘adoption’ advertised information on upcoming events and additional resources for viewers to learn how to get involved (Table 4). The BLM even connected other practices, such as gathers, back to adoption:

“Check out this story of an Idaho adopter who finally was able to take home not just one, but three wild horses gathered from the Challis Herd Management Area, thanks in part to the Adoption Incentive Program.” The nonprofits voiced their concerns about the BLM’s adoption fees and incentive programs, including direct quotes and statements.
### Table 4

**Examples of Facebook Posts about Wild Horse Adoption**

<table>
<thead>
<tr>
<th>Organization</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return To Freedom, Wild Horse Conservation</td>
<td>Our full quote: &quot;We’re glad that BLM is listening to the public’s concerns, but we’re disappointed because this falls short of the outside investigation that we still want to see happen. We feel strongly that people should be able to show that they’re financially prepared to own a horse. The adoption fee should be higher to reflect that. If the agency wants to help adopters, it should provide vouchers — not cash — if adopters are able to show receipts for training or veterinary care.&quot;</td>
</tr>
<tr>
<td>American Wild Horse Campaign</td>
<td>AWHC intends to continue it's lawsuit against the BLM's implementation of the Adoption Incentive Program, which is sending hundreds of wild horses and burros into the slaughter pipeline.</td>
</tr>
</tbody>
</table>
| Wild Horse Education                               | (No real) Changes Proposed to stop wild horses from landing in the slaughter pipeline out of the Adoption Incentive Program >> [https://bit.ly/3rBcu3F](https://bit.ly/3rBcu3F)  
"If the agency were serious about protecting wild horses the immense cash layout for the AIP would end immediately and all that funding would be used to actually hire enough personnel to do compliance checks for a failing program that presented a risk of slaughter long before the AIP." stated Laura Leigh, President of Wild Horse Education. “It is laughable that an agency that does not have enough hands to do adequate compliance checks now, simply says they will add oversight."  
"If they were serious about protection they would simply stop funding the AIP."  |
| BLM Wild Horse and Burro Program                   | Head out to Hugo, Oklahoma for your next chance to adopt a wild horse or burro! [Bureau of Land Management - New Mexico](https://www.blm.gov/newmexico) will be at the Hugo Rodeo Arena (415 E Rena St.) August 27-28 with up to 120 wild horses and burros available to qualified homes.  
Learn about BLM's adoption requirements and find additional details on upcoming wild horse and burro adoption events: [blm.gov/whb/events](https://www.blm.gov/newmexico/whb/events)  
Learn about how you can earn up to $1,000 when you give an untrained wild horse or burro a good home. Learn more: [blm.gov/adoption-incentive](https://www.blm.gov/newmexico/adoption-incentive) |
Of the posts mentioning ‘wild horse management,’ 72.2% of them were from Return to Freedom, Wild Horse Conservation. Return to Freedom’s mission is conservation of wild horse freedom and habitats, thus posting about how the management of the horses is relevant to their goals (Return to Freedom, n.d.). These posts contained calls to action or links to petitions for their viewers (Table 5), providing resources for followers to engage and build a community around their mission. These messages portrayed information with frames intended to emphasize specific elements of wild horse management practices and exclude contrasting opinions in order to impact public opinion based on the organization’s goal.

Table 5

*Examples of Facebook Posts about Wild Horse Management*

<table>
<thead>
<tr>
<th>Organization</th>
<th>Post</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return To Freedom, Wild Horse</td>
<td>Congress should require that the Bureau of Land Management / U.S. Forest Service consider higher population goals for wild horses and burros, known as &quot;Appropriate Management Levels,&quot; on Herd Management Areas / Wild Horse Territories. Sign our petition: <a href="https://bit.ly/2Yne8XZ">https://bit.ly/2Yne8XZ</a></td>
</tr>
<tr>
<td>Wild Horse Conservation</td>
<td></td>
</tr>
<tr>
<td>American Wild Horse Campaign</td>
<td>The wild horses and burros of the Spring Mountain Complex need your help! The Bureau of Land Management and the U.S. Forest Service are planning on reducing the wild equine population to the low &quot;Appropriate&quot; Management Level, which would leave just one wild horse or burro per every 4,357 acres! Submit your comments now!!</td>
</tr>
<tr>
<td>BLM Wild Horse and Burro Program</td>
<td>For each wild horse and burro herd, the BLM works to achieve Appropriate Management Level – the point at which herd size is consistent with the land’s capacity to support it, and other mandated uses of those lands. Learn more: <a href="https://go.usa.gov/xPBVB">https://go.usa.gov/xPBVB</a> Many of Nevada's wild horse Herd Management Areas and Wild Horse Territories are in extreme drought right now. This further underscores the importance of BLM's mission to manage for healthy populations of wild horses and burros on healthy rangelands. We are closely monitoring the drought situation and the potential impacts to herds roaming in these areas.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
RQ3: What was the social media engagement frequency by content frame?

This research question asked what the social media engagement frequency was by content frame. Posts containing the term “fertility control” yielded an average frequency of about 674 reactions (Table 6). On average, roundup posts yielded 66 comments, with one receiving 1,100, the most comments of any of the posts analyzed. Roundups are one of the main BLM management tactics, and these numbers suggest organizations should continue to discuss this subject because they are effectively getting people to engage through commenting.

Posts with the keyword “adoption” generated the highest engagement frequency in terms of shares, yielding about 398 on average. Adoption posts also got the highest average frequency of reactions, yielding about 1,309. For posts mentioning “wild horse management,” reactions were the most common form of engagement with an average of about 644 per post. Depending on the organizations’ engagement goals, these engagement frequencies indicate how effective or ineffective their media strategy was in building support for their missions. Identifying the posts that received the most engagement illustrate what elements were the most effective communication strategies.
Table 6

*Engagement Statistics by Content Frame*

<table>
<thead>
<tr>
<th>Frame</th>
<th>Min</th>
<th>Max</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertility Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shares</td>
<td>6</td>
<td>9,238</td>
<td>207.38</td>
<td>816.69</td>
</tr>
<tr>
<td>Comments</td>
<td>3</td>
<td>620</td>
<td>45.99</td>
<td>73.36</td>
</tr>
<tr>
<td>Reactions</td>
<td>33</td>
<td>12,804</td>
<td>674.05</td>
<td>1,718.98</td>
</tr>
<tr>
<td>Roundup</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shares</td>
<td>1</td>
<td>9,147</td>
<td>225.09</td>
<td>538.73</td>
</tr>
<tr>
<td>Comments</td>
<td>0</td>
<td>1,100</td>
<td>65.51</td>
<td>108.45</td>
</tr>
<tr>
<td>Reactions</td>
<td>33</td>
<td>9,077</td>
<td>636.97</td>
<td>905.31</td>
</tr>
<tr>
<td>Adoption</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shares</td>
<td>1</td>
<td>3,158</td>
<td>397.67</td>
<td>646.76</td>
</tr>
<tr>
<td>Comments</td>
<td>0</td>
<td>592</td>
<td>93.25</td>
<td>129.79</td>
</tr>
<tr>
<td>Reactions</td>
<td>9</td>
<td>7,190</td>
<td>1308.56</td>
<td>1,928.93</td>
</tr>
<tr>
<td>Wild Horse</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shares</td>
<td>1</td>
<td>9,147</td>
<td>251.69</td>
<td>969.87</td>
</tr>
<tr>
<td>Comments</td>
<td>2</td>
<td>620</td>
<td>47.43</td>
<td>95.48</td>
</tr>
<tr>
<td>Reactions</td>
<td>37</td>
<td>12,804</td>
<td>643.97</td>
<td>1,710.9</td>
</tr>
</tbody>
</table>

**RQ4: What was the sentiment of posts regarding wild horse and burro management practices, including adoption, roundups, and contraception?**

Despite wild horse management having the reputation of being a controversial topic, the way in which these organizations communicated information resulted in 95.4% of all post sentiment to be “neutral” (Table 7). These neutral posts were written with a more matter-of-fact tone, stating facts in addition to, or instead of, expressing opinions on “fertility control,” “contraception,” “roundup,” “gather,” “adoption,” and “management.”

As a result, there could be two posts talking about the number of horses that died in a roundup, but one was rated as “neutral” because its tone was more matter-of-fact, while the other was rated “negative” because its tone showed more negative opinion. Negative sentiment accounted for 2.6% of posts and 2% of posts received positive sentiment. The result of overall
neutrality shows that, although wild horse management may be controversial, organizations are communicating with the public in a neutral tone. This suggests that the sentiment of organizations’ wild horse posts on Facebook can be a trustworthy source for policy makers because of the knowledge that they are written in a neutral tone; thus, their sentiment is an accurate depiction of feelings towards the wild horse management tactic discussed.

Table 7

*Sentiment of Facebook Posts by Meltwater (N = 690)*

<table>
<thead>
<tr>
<th>Sentiment</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>14</td>
<td>2.0%</td>
</tr>
<tr>
<td>Negative</td>
<td>18</td>
<td>2.6%</td>
</tr>
<tr>
<td>Neutral</td>
<td>658</td>
<td>95.4%</td>
</tr>
</tbody>
</table>

**Recommendations for Practice**

These analytics could have implications on policy regarding wild horse management. The BLM currently allows public comment, but if the BLM or government were to utilize social media monitored analytics, a broader, more accessible sampling of public sentiment could be considered when making policy decisions.

The contrasting messages about wild horse removal between the BLM and nonprofits could result in a gap between the BLM’s tactics and how the public is perceiving their management. This could be further analyzed to understand public sentiment about roundup management tactics and considered when the BLM is developing management plans and public viewing of gatherings.
Reactions include the use of different emojis, which could be analyzed to identify specific sentiment about the management tactics they mention. The BLM could analyze reactions to gain a deeper understanding of sentiment about wild horse management. The nonprofits could analyze the elements of posts receiving the most reactions to include in future posts to boost engagement.

With the amount of shared posts mentioning adoption, the BLM’s adoption program could benefit by strategizing messaging to increase post sharing to further spread their adoption event links. Posts by the nonprofits about the BLM adoption program could be used as focal points for the BLM to address public concerns about their program, as its success depends upon public engagement.

**Recommendations for Future Research**

One limitation of our study was that it focused on public Facebook pages; it did not include Instagram or Twitter. Our recommendation is to analyze conversations about wild horse management on additional platforms to increase the volume of data and identify new trends to gain deeper insights.

Another limitation was that we only analyzed the posts of organizations and did not include the comments on the organization’s public Facebook pages. Looking at comments of individuals would be a recommendation for future studies to gain further understanding about the sentiment of organizations’ media efforts and how wild horse management can be better communicated.

As a result of identifying what conversations and information are engaging people, further research on the public’s response to the content and use of the links to forms and websites
could be conducted to develop marketing strategies, as well as to assess and improve the public’s level of knowledge about these complicated and multi-faceted controversies.

Another recommendation is to conduct a content analysis of the social media posts by using human coders to assign sentiment and analyze how closely it aligns with the sentiment assigned by Natural Language Processing.

Coding each post for its communicative function is also a recommendation. The first function that Lovejoy and Saxon (2012) list is information, which consists of facts, current news, policies and ethical points. Another function is community, in which posts aim to facilitate and strengthen an online community through post engagement (2012). The final function is action, where a post has direct instructions, utilizes links, and seeks to mobilize their viewers to reach a goal (2012).

**Final Written Product word count: 5,374**
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Reflective Writing

Completing my Capstone project was one of the most challenging, yet rewarding, experiences of my undergraduate career. I faced many setbacks and challenges throughout the
two years of drafting and preparing for this project, but I’m really pleased I was able to complete it in a way that represents the efforts of myself and my committee. This project won the Outstanding Research Award for an undergraduate oral presentation by a CHaSS student at Utah State University’s Student Research Symposium.

For this project, I completed a sentiment and quantitative content analysis on Facebook posts regarding wild horses. As a journalism major, I’ve written lots of articles that have required interviews, critical thinking, and background information, but prior to this capstone my research experience had been limited. It was a great learning experience to understand how to collect and analyze data, especially media data. My future goals reside in journalism, communications, and marketing so to understand how to analyze perceptions about an issue is very valuable. I also have a passion for learning about wild horse management and the land issues that surround the topic and I hope to continue my learning about the conversations. By completing this project, I feel that I have a better understanding of how information is being communicated and the sentiment of the different issues wild horses face. As a result, I think I can approach the topic with a better idea of the different conversations and perceptions.

This project didn’t come without its challenges. Early in the Capstone preparation process, the project was going to be focused specifically on the Bureau of Land Management’s communication. We were in contact with them and developing a survey to disseminate to wild horse program participants, but unfortunately, the plans fell through. With the help of my committee, we worked to create a new project from scratch. After developing a new objective, there was the challenge of deciding which platforms to monitor and how to analyze such a large amount of data. In the face of these challenges, my committee really advocated for me and helped me persevere through these setbacks.
Kenna Kesler has been helping me with this project since 2020. After the challenge of developing a new project and deadlines looming, Kenna reached out to Dr. Kelsey Hall, whom she had completed her research with, and asked her to join the project. I really appreciated Kenna taking the initiative to bring people who are experts in their field to help with this project.

This project would not have been possible without Dr. Hall’s help. She helped me clarify my research questions and made it possible to work with Meltwater, the social media monitoring system we used for data collection and analysis. She has also helped with my project’s manuscript and ensured it included the necessary research information to be published.

I was also excited to have my other committee members, Debra Monson and Steve Reiher, on my committee. I learned a lot from them when I took their courses for my major and was excited to incorporate elements of what they taught about media into my approach to this project.

This project has deepened my research experience as a journalism major by analyzing how a controversial topic is being communicated by the different parties involved. As someone in the journalism field, I think it’s important to understand the public’s sentiment and reactions to social and political issues, rather than just writing polarizing information to generate energy around a topic. By having this research experience, I now have a better understanding of how to analyze online conversations and how to assess public sentiment.

Journalism and communications are dependent upon understanding the target audience in order to effectively communicate. This project made me think critically about who the target audience was for each of the four organizations and why they posted the content they did to get the audience to take the action they desired from them. I think knowing your audience is an important concept to understand because if communications, such as journalism or marketing,
don’t analyze how their content is being perceived, their message may not be as effective as it has the potential to be. Understanding what makes posts and articles gain traction and engagement is equally important so that organizations and journalists can capitalize on these elements.

My research broadened my experience across disciplines in multiple ways. I learned to have a better understanding of analyzing media, a beneficial skill to my knowledge of media, research, and wild horse issues. I also had to learn how to collect data, the different types of analysis I wanted to do, and what the results meant. These different elements of the research process taught me about the different ways to analyze information to effectively answer questions. Additionally, I got to learn about Meltwater, which is now an analytics tool I can use for future research or work.

This research was very interesting to me, but I also hope it can have a broader impact on future student research. Wild horse management and the BLM have a direct impact on Utah public lands and have ties to Utah State as an agricultural and research university. My hope is that this study will be a platform for future agricultural research to refer to when studying wild horse management practices or sentiment about the topic. I think it also has the potential to be a useful source when future research is interested in studying effective media communication or using Meltwater as an analytics tool.

My advice on Capstone projects for future students is to start early, stay consistent, and surround yourself with supportive and engaged committee members. Research can be unpredictable and it’s likely you’ll face challenges. Starting early allows you to have the freedom to make changes when needed and have the necessary time to do so. Staying consistent is also a key element of success. Completing a Capstone is a long process, so doing a little work everyday
versus large, short-term efforts can help you avoid burnout and stay motivated. Having the right committee members is also important. Find people who are excited about your research and utilize the experience they have to offer.

**Reflective Writing word count:** 1,035

**Author’s Biography**

Libbie Anderson will be graduating in Spring 2022 with honors from Utah State University, receiving a BS in journalism with an emphasis in public relations and a minor in political science. In 2021, Libbie’s news story titled, “How Producers Are Dealing With Hay Shortages In Utah” was published on *Utah Public Radio* and *The Herald Journal*. In 2020, her article, “Year of the Woman: The Women of Firsts” was featured in *Aggie Blueprint Magazine*. During her time at Utah State, Libbie has worked as a teaching assistant for Utah State’s JCOM 3050 course and as a marketing assistant for Campbell Scientific. After graduating, her hope is to continue her work in the communications field while pursuing her goals in the equestrian industry.