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Perspectives on New Wilderness Area Designations in Michigan's Upper Peninsula

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PERSPECTIVES ON NEW WILDERNESS AREA DESIGNATIONS IN MICHIGAN'S
UPPER PENINSULA

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Olivia Ghormley

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List of abbreviations

ATV All-terrain vehicle

DNR Department of Natural Resources

ELPC Environmental Law and Policy Center

HSR Human Subjects Research

IRB Institutional Review Board

NWPS National Wilderness Preservation System

USFS United States Forest Service

Acknowledgements

Abstract

The Wilderness Act of 1964 designated certain areas denoted as wilderness in the United States of America for the sake of preservation and conservation. In the state of Michigan, 16 designated wilderness areas currently exist, and the Environmental Law and Policy Center (ELPC) is advocating for the addition of four new wilderness designations. The addition of these areas would add about 51,000 acres of federally recognized wilderness areas to the Upper Peninsula of Michigan. This paper aims to understand public attitudes and political support or opposition to these new wilderness designations among residents and visitors of the Upper Peninsula of Michigan (U.P.). Using social media posts from Google Maps, Facebook, Instagram, and Twitter, I qualitatively analyzed social media data to understand the reasonings behind support or opposition to wilderness in the U.P. I also conducted a social network analysis of Twitter users discussing wilderness in the Upper Peninsula to reveal how they interact with one another, diffuse ideas about wilderness designation, and organize support or opposition of wilderness designations. Findings show that public social media posts were generally supportive of wilderness designation with very little explicit opposition posted on public sites. Supportive social media posts generally noted the importance of protection and preservation of wilderness and discussed behaviors of respecting wilderness. Opposition social media posts generally discussed concerns of "conservation police officers" and hypocritical actions taken by wilderness advocates. The social network analysis revealed that more people expressed support for U.P. wilderness and wilderness designation than opposition on Twitter. This report offers insight as to how the ELPC and decision makers should promote the four wilderness designations in the Upper Peninsula of Michigan, which can impact the final legislative decision on whether to designate the new areas.

1 Introduction

With the passage of the Wilderness Act of 1964, certain areas in the United States of America were to be designated to ensure that these lands remain in their natural state and are free from large-scale human disruption (Kammer, 2013; 16 U.S. Code § 1131. National Wilderness Preservation System [from Legal Information Institute]). Wilderness areas are designated in order to protect the ecological environment and are important for climate regulation, carbon storage, and carbon sequestration (Watson et al., 2016). Moreover, wilderness areas are critical for the conservation of biodiversity (Allan et al., 2017). Wilderness designations support the conglomeration of large mammalian populations, migratory species, and species that are especially sensitive to human disturbance (Allan et al., 2017). Further, wilderness areas are important to groups of people, particularly Indigenous communities who have inhabited these lands long before the time of American colonization (Watson et al., 2016; Allan et al., 2017).

In the state of Michigan, there are 16 designated wilderness areas across the state, and there are four additional wilderness designations proposed in the Upper Peninsula of Michigan by the Environmental Law and Policy Center. The four proposed wilderness designations are the Ehlco Area, Trap Hills, Norwich Plains and the Sturgeon River Gorge Wilderness Addition. The addition of Trap Hills, the Ehlco Area, and Norwich Plains would add about 49,000 acres of wilderness area and the Sturgeon River Gorge Wilderness Addition would add roughly 2,000 acres to the Sturgeon River Gorge Wilderness (Environmental Law and Policy Center, n.d.). All

four of these areas are currently managed by the United States Forest Service (USFS)

(Environmental Law and Policy Center, n.d.).
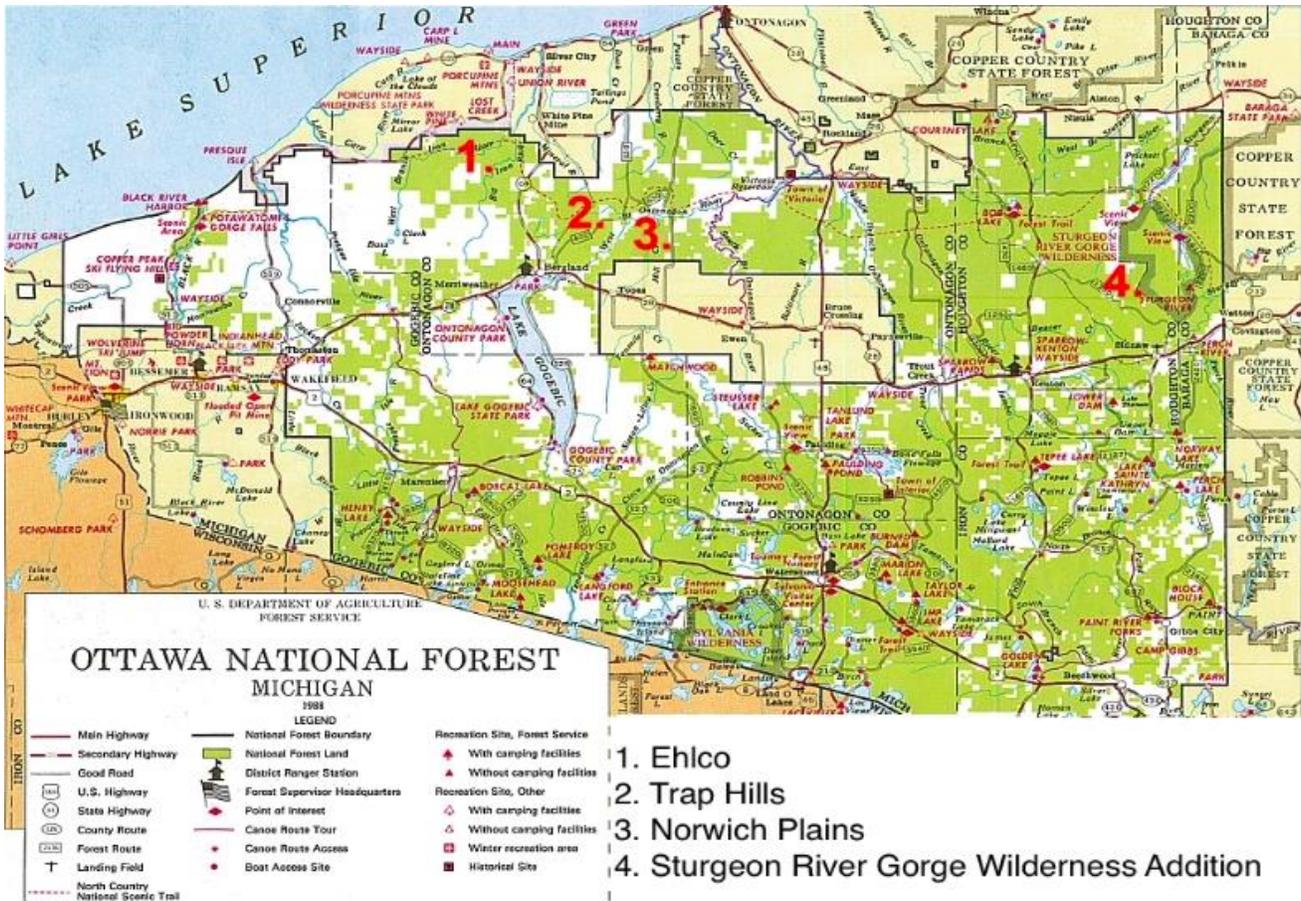
Figure 1.1 Map of four proposed wilderness area designations in Michigan's Upper Peninsula (image used with permission from the Environmental Law and Policy Center [see Appendix B]).

Areas proposed for wilderness become legally recognized as wilderness designations

through a policy process that broadly consists of a recommendation to policy makers,

congressional sponsorship, and eventually Presidential approval (more detail into the intricacies

of the policy process of wilderness designation will be discussed in Section 2.4). Throughout the

policy process, it is important that Tribal nations partake in the discussions of wilderness

designations. This is especially crucial considering the four proposed wilderness designations

reside in ceded territories. The Lake Superior Ojibwe Tribe, composed of the L'Anse and Ontonagon bands, ceded this area of land to the United States federal government through the La Pointe Treaty of 1842 (Redix, 2017). The motivation of the federal government to obtain this land stemmed from the desire to obtain the title to the abundant copper found in the western Upper Peninsula (Redix, 2017). Today, the tribal nations who are still stewards and neighbors in this territory include the Keweenaw Bay Indian Community and the Lac Vieux Desert Band of Lake Superior Chippewa Indians (State of Michigan Tribal Government, n.d.).

The ELPC is advocating for the designation of these four new wilderness areas and has been a partner on this report. The ELPC is interested in understanding how residents in the Upper Peninsula perceive the addition of the proposed wilderness areas. In the attempt to influence wilderness policy, it is important to recognize the presence of public support (Lester, 64). The amount and reasoning behind public support is crucial to the success of an initiative such as the advocation of the four wilderness designations in the Upper Peninsula. As Lester (63) writes, "the success of efforts to protect or improve public welfare is significantly dependent upon supportive public opinion."

This report addresses three research questions: (1) how do Upper Peninsula residents and visitors interact with and experience the four proposed wilderness areas, (2) what are the general arguments for support and opposition to wilderness designation in the Upper Peninsula, and (3) what is the social network of Twitter users discussing wilderness in the Upper Peninsula. I analyze social media posts from Google Maps, Facebook, Instagram, and Twitter to address these research questions. I also conduct a social network analysis using NodeXL to understand the social network of Twitter users discussing wilderness and wilderness designation in Michigan's Upper Peninsula. The social media data suggesting support of wilderness can

leverage the ELPC's political standing when lobbying for the proposed wilderness designations. Understanding the reasoning for support or opposition along with the social networking between individuals and organizations helps policymakers make the decision as to whether or not they should support the efforts for wilderness designation. In addition, a social network analysis will be useful for the ELPC because of its importance in determining structural relationships between individual community members and groups who either support or oppose designation.

2 Literature Review

2.1 A brief history of wilderness and the Wilderness Act of 1964

The idea of wilderness in the United States of America rose to prominence as a product of the philosophical contributions of Henry David Thoreau, John Muir, Gifford Pinchot, and Aldo Leopold. Thoreau described wilderness in a romantic aspect, noting, "Nature is a personality so vast and universal that we have never seen one of her features" (Thoreau, 1862 *from The Atlantic*). Thoreau claimed that nature has deeper-rooted meanings and values than just a resource to be used by humans (Henderson, n.d.). Building on Thoreau's view of wilderness, Muir focused more on the religious basis of nature and viewed nature as a means for spiritual growth (Henderson, n.d.). Muir argued that the only way wilderness could be protected was through federal protection (Henderson, n.d.). Comparatively, Pinchot argued that the resources available by nature could be used for public good and should be protected from human exploitation (Henderson, n.d.). Finally, Leopold was the most politically active of the American wilderness philosophers who advocated for the recreational use of nature and provided immense support for hunting in wilderness, recognizing the two as mutually supportive (Henderson, n.d.). Leopold further advocated for different categorizations of wilderness within national forests that were "roadless wilderness" (Henderson, n.d.).

The concept of wilderness as an ideology presented by Thoreau, Muir, Pinchot, and Leopold led to the legal standing of wilderness as defined by the Wilderness Act of 1964. The path to the enactment of the Wilderness Act of 1964 was not linear, however. Many actors played a crucial role in ensuring the legal status of wilderness in the United States. After World War II, the United States economy grew which involved the exploitation of natural resources for mining, oil drilling, and timber industries (Massip, 2020). Wilderness advocate groups such as

the Sierra Club and the Wilderness Society petitioned for federal wilderness legislation and in 1956, a national wilderness system bill was introduced in Congress, which sparked public interest in the creation of federal wilderness policy (Massip, 2020). After eight years of conservationist activism and public discourse from both supporting and opposing parties, the Wilderness Act of 1964 was officially established (Massip, 2020).

The Wilderness Act of 1964 officially established the definition of wilderness, the National Wilderness Preservation System (NWPS) and the extent of the system, and allowable and nonallowable uses of wilderness areas in the United States of America (Henderson, n.d.; Wilderness Act of 1964). To date, the United States National Wilderness Preservation System contains 803 wilderness designations, encompassing 111 million acres of land (Holeton and Takacs, 2022). At the national level, the four federal agencies in charge of managing wilderness designations are the Bureau of Land Management, the Fish and Wildlife Service, the National Park Service, and the Forest Service (Landres et al., 2020). The act established the legal definition of wilderness as:

A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding

opportunities for solitude or a primitive and unconfined type of recreation; (3) has at

least five thousand acres of land or is of sufficient size as to make practicable its

preservation and use in an unimpaired condition; and (4) may also contain ecological,

geological, or other features of scientific, educational, scenic, or historical value.

This definition of wilderness has generated controversy, for the legal definition itself leads to misconceptions about wilderness. Specifically, this definition has led to the view of wilderness as "pristine" and untouched by anthropogenic impacts and has invoked dissension over the rights and usage of wilderness by certain groups of people (Landres et al., 2020). In reality, wilderness is not "untrammeled by man," for all land has been touched by people in some way or another, either by direct use of the land or through indirect consequences of climate change (Landres et al., 2020). To this point, stating that wilderness is recognized as a landscape "untrammeled by man" completely disregards the living histories of Indigenous people that inhabited what is now known as the United States of America long before colonialism violently interrupted their way of life. As Cronon (1995) writes, "European immigrants, in moving to the wild unsettled lands of the frontier, shed the trappings of civilization, rediscovered their primitive racial energies." As settlers began to expand their mark on the land of the United States of America, indigenous groups were forcibly removed from these areas so that white settlers "could safely enjoy the illusion that they were seeing their nation in its pristine, original state" (Cronon, 1995).

As the conservation movement gained traction in the United States, the consequences of wilderness expansion on indigenous populations accumulated. Wilderness designation has historically displaced Indigenous people in the United States and projected the narrative of

wilderness as "pristine." It is of significant importance for policy makers to recognize that the four proposed wilderness designations reside on ceded territories from The Lake Superior Ojibwe Tribe (Redix, 2017). As wilderness areas become proposed designations, Tribal governments need to be involved throughout the policy process.

2.2 Allowed uses in wilderness areas

In the United States, environmental regulation is conducted on both the federal and state levels. The most predominant environmental law governing wilderness areas in the United States is the Wilderness Act of 1964. This landmark act states that in federally protected wilderness areas, there are certain activities that are allowed, such as fishing and hunting, while there are other activities that are strictly prohibited, such as permanent and temporary roads, use of motorized vehicles and equipment, aircraft landing, and construction of structures (Steinhoff, 2011). As stated in the Wilderness Act of 1964, there are some exceptions to these exclusions that include the use of some prohibited activities in order to maintain the ecological elements of the wilderness area (Steinhoff, 2011). Such exceptions would include the construction of trails for hiking but would not include the use of motorized vehicles such as snowmobiles or all-terrain vehicles (ATVs) for recreational use.

In the United States Forest Service (USFS) Wilderness Evaluation of the Ehlco Area, the USFS noted the current use of the area for hunting, hiking, mountain biking, and access to private hunting camps (United States Forest Service, n.d.). As for Trap Hills, activities such as camping, hiking, and backpacking are popular in this area. The USFS lists the Trap Hills as an "area of the Ottawa National Forest" (United States Forest Service, n.d.). Trap Hills is located in an area that prohibits the use of motorized vehicles and motorcycles (United States Forest Service, n.d.). Similarly, the Sturgeon River Gorge Wilderness is located in the Ottawa National

Forest and permitted activities include tent camping, hiking, fishing, and fires (United States Forest Service, n.d.). Again, motorized vehicles are strictly prohibited in the Sturgeon River Gorge Wilderness boundaries (United States Forest Service, n.d.).

While certain recreational activities, such as mountain biking, are currently allowed and experienced in the proposed wilderness designations, legally recognized federal wilderness areas prohibit the use of bicycles (USFS, n.d.). In prohibiting certain recreational activities (such as bicycling) in wilderness areas, the potential for public dissent becomes greater. Residents and visitors of the Upper Peninsula have clearly used these areas for what could be prohibited uses should they be designated as federal wilderness designations.

It was not always the case the bicycles were prohibited in wilderness areas, for the Forest Service had not taken a consistent stance on bicycle permittance until 1984. Two years after the Wilderness Act was written into law, the Forest Service revised the definition of "mechanical transport" (a restricted use) to refer to wheeled vehicles that were "powered by a non-living power source" (Ruckriegle, 2017). Hence, biking was an allowable use in wilderness from this time until 1977 when the Forest Service explicitly stated that biking was prohibited in wilderness areas (Ruckriegle, 2017). Again, however, this decision was reversed from the years 1981-1984 when the Forest Service stated that an individual National Forest officer could "use discretion to permit or deny bicycle use on a case by case basis" (Ruckriegle, 2017). A final decision on the status of bicycle use in wilderness was made in 1984 when the Forest Service felt the pressure from environmental conservation groups to officially eliminate biking in all National Forest Wilderness (Ruckriegle, 2017). Since 1984, the use of bicycles in wilderness areas has been prohibited. On May 23, 2019, Senator Mike Lee introduced the "Human-Powered Travel in Wilderness Areas Act" as a means "to allow local Federal Officials to determine the manner in

which nonmotorized uses may be permitted" (S.1695, 2019). However, the bill currently remains in the Senate and has not yet been voted on by the Senate Committee on Energy and Natural Resources (S.1695, 2019).

2.3 Attitudes toward wilderness

While wilderness designation has ecological benefit, it remains a contentious political issue among the public. Differences arise in the reasonings behind wilderness support and varying degrees of support persist for those who are impacted by wilderness area designation. Several factors such as vicinity to wilderness areas and urban versus rural populations have been identified to explain these differences. The most significant differences arise between local residents and visitors, as "those living further away from protected areas were impacted less by restrictions" and were more likely to support wilderness areas (Durrant and Shumway, 2004). Additionally, people who live closer to a proposed wilderness area often express concerns over a potential change to the landscape and the potential for new restrictions to be put into place (Bauer and Von Atzigen, 155). Durrant and Shumway (2004) suggest that local communities often view wilderness areas as more beneficial to visitors than they are to their respective local community. The difference in wilderness designation opinions are also evident when comparing rural and urban residents. Those who reside in urban areas are more likely to favor wilderness compared to rural residents, most likely due to the fact that urbanites "are less affected by these developments…and therefore less dependent on the use of nature for a living" (Bauer and Von Atzigen, 155).

Moreover, a discussion on the economic value of wilderness and wilderness designation plays a crucial role as to how the public perceives wilderness. Power (1996) determined that wilderness areas are a source of great economic benefit, as wilderness designations offer

immense opportunities for recreation. Hence, the towns near wilderness areas draw people to live and recreate in the area (Power, 1996). The influx of people to towns surrounding wilderness designations draws businesses to these areas, which increases these areas' economies (Power, 1996). Conversely, Yonk and Simmons (2016) argue that wilderness areas are quite frequently associated with a lower economic well-being. This is because wilderness designation can reduce the potential for economic development which, in turn, can harm local economies and reduce household incomes, particularly in communities adjacent to wilderness (Yonk and Simmons, 2016).

2.4 The policy process of wilderness designation

To date, the United States National Wilderness Preservation System (NWPS) contains 803 wilderness designations, encompassing 111 million acres of land (Holeton and Takacs, 2022). At the national level, the four federal agencies in charge of managing wilderness designations are the Bureau of Land Management, the Fish and Wildlife Service, the National Park Service, and the Forest Service (Landres et al., 2020).

Before a wilderness area can be legally designated, the process of identification, evaluation, analysis, and recommendation must be ensured (United States Forest Service, 2015). First, a wilderness management agency identifies potential wilderness areas to understand their suitability for wilderness and information is collected based on the size and status of what is contained in the area (United States Forest Service, 2015). Then, a wilderness management agency evaluates the area for recreational opportunities and its ecological and historical value ensues (United States Forest Service, 2015). This then leads to the agency's analysis of how much land in the proposed wilderness area will be used for designation and a final analysis of the ecological characteristics of the area (United States Forest Service, 2015). Finally, the

management agency in charge of a potential wilderness area sets forth a recommendation for wilderness designation to policy makers based on the analysis of the wilderness area and the public discussions held regarding wilderness designation for this area (United States Forest Service, 2015). In relationship to the four proposed wilderness designations in the Upper Peninsula, each area has been identified, evaluated, and analyzed by the ELPC in order to provide a solid recommendation for designation to policy makers.

If one or more policy makers in the U.S. Congress agrees to sponsor a bill for the designation of the wilderness area, then the bill is introduced to the Senate and the House of Representatives and a committee is assigned to review the bill. In the case of the four proposed wilderness designations in Michigan's Upper Peninsula, which are currently under the discretion of the United States Forest Service, the Senate committee assigned to this issue would be the United States Senate Committee on Agriculture, Nutrition, and Forestry (United States Senate Committee on Agriculture, Nutrition, and Forestry, n.d.). Additionally, Senator Debbie Stabenow (MI) and Senator Gary Peters (MI) could be potential sponsors of a bill concerning these four areas considering their vast legislative histories in supporting wilderness designations in the United States (United States Senator Stabenow, n.d.; United States Senator Peters, n.d.). Because Senator Stabenow is the Chairwoman of the Senate Agricultural, Nutrition, and Forestry Committee, she could greatly influence the success of a bill for the four proposed wilderness designations in the Upper Peninsula (United States Senator Stabenow, n.d.). If the committee votes in favor of the bill, then it is sent to the Senate floor for a full Senate vote. At the same time, the House of Representatives is working on a companion bill of its own and the bill is assigned to the appropriate House committee. If both the House and the Senate agree on the same bill, then it is sent to the President who then officially signs the bill into law.

A crucial aspect of policy making is the consideration and acknowledgement of treaty rights throughout the process. The Memorandum of Understanding of 1999 concerns the relationship between the tribes of the Lake Superior Chippewa Indians and the United States Forest Service (Lake Superior Chippewa Indians and USDA Forest Service, 1999). The 1999 Memorandum of Understanding "establish[ed] standards by which the Forest Service and the Tribes will act consistently across national forest lands within areas ceded in the Treaties of 1836, 1837, and 1842" (Lake Superior Chippewa Indians and USDA Forest Service, 1999). Through the Memorandum of Understanding of 1999, it was agreed upon that the Forest Service will consult with the Tribes throughout the forest planning and decision-making processes, will consider the impacts of decisions on treaty resources, will delay a final decision if an unresolved matter exists between the two parties, and that the Tribe reserves the right to "challenge or appeal any Forest Service decision or action in accordance with applicable law" (Lake Superior Chippewa Indians and USDA Forest Service, 1999). The ELPC has prioritized Tribal considerations and feedback regarding the ELPC's initiative to designate the four proposed areas in Michigan's Upper Peninsula for wilderness. Throughout the ELPC's work with these areas, Tribal input has always been and will continue to be taken into consideration.

2.5 Social media analysis

Social media has gained traction as a vital tool in understanding community attitudes and perspectives on contentious issues such as wilderness designation. Social media platforms offer a large array of data for there is no limit to the amount of social media posts a user can post (Andreotta et al., 2019). Other than age limits set for certain social media platforms, any one person has the ability to create content on social media. Thus, researchers analyzing social media data gain the opportunity to access large and diverse data sets from many different social media

users globally (Andreotta et al., 2019). Social media analysis can be viewed as more practical than traditional means of data collection due in large part to the constraints often associated with traditional methods (Andreotta et al., 2019). Specifically, social media users may feel more comfortable expressing their true beliefs and opinions on social media than in traditional research methods where the behavior of researchers can coerce participants' responses (Andreotta et al., 2019).

In discussion of social media analysis as a tool for qualitative research, the demographics of social media users cannot be overlooked, as they do present the possibility for greater amounts of social media data representing some demographics over others. The Pew Research Center collected demographic data of social media users in 2012 and in 2021 via interviews with a total of 3,304 people across the United States interviewed. On average, the percentage of people using the social media platforms Facebook, Instagram, and Twitter increased from 2012 to 2021, with Instagram experiencing the largest growth in percentage of people (Duggen and Brenner, 2013; Auxier and Anderson, 2021). Gambo and Özad (2020) noted that social media usage has increased from one billion users in the year 2010 to 2.82 billion users in the year 2019, an increase of 1.82 billion users over the course of nine years.

Delving into the general demographics of social media users reveals that the majority of social media users tend to be women and social media usage also tends to be more popular among younger populations (Gambo and Özad, 2020). In relationship to Twitter users, 28 percent of women suggested that they use Twitter whereas only 22 percent of men said that they use Twitter (Auxier and Anderson, 2021). The predominant age group of Twitter users is those ages 18-19, with 42 percent of people within this age range stating that they use Twitter (Auxier and Anderson, 2021). Comparatively, only seven percent of people 65 and older indicated that

they use Twitter (Auxier and Anderson, 2021). Instagram users follow a similar demographic pattern as Twitter, with more women indicating that they use Instagram than men (Auxier and Anderson, 2021). Further, 71 percent of people ranging from the ages of 18-29 indicated that they use Instagram. Facebook experiences the greatest number of social media users with more than 2.3 billion active users and is more popular with those ages 30-49 compared to those ages 18-29 (Auxier and Anderson, 2021; Gambo and Özad, 2020). Seventy-seven percent of people ages 30-49 suggested that they use Facebook compared to the 70 percent of people ages 18-29 who suggested they use Facebook (Auxier and Anderson, 2021). To explain age demographics in social media users, Kezer et al. (2016) found that older social media users are more concerned with privacy issues and are "more likely to be conscious about the codependency of privacy."

Finally, a discussion on the rural versus urban usage of social media is important especially in the context of my research, considering that the four proposed wilderness designations are located in rural areas of Michigan. Facebook appears to be the dominant social media site amongst rural social media users when compared to Twitter and Instagram with 63 and 67 percent of rural residents suggesting they use Facebook in the years 2012 and 2021, respectively (Duggen and Brenner, 2013; Auxier and Anderson, 2021). In 2012, 11 percent of rural residents indicated that they use Instagram and in 2021, 25 percent of rural residents stated they use Instagram (Duggen and Brenner, 2013; Auxier and Anderson, 2021). Lastly, the percentage of rural residents who use Twitter increased by six percent (12% in 2012 to 18% in 2021) from the years 2012 to 2021 (Duggen and Brenner, 2013; Auxier and Anderson, 2021). Warren (2007) suggests that rural residents may be restricted to social media use due to limited access of internet, which is exacerbated by "high service costs and poor service provision" of information and communications technology. This is a likely limitation for this study.

2.6 Social network analysis

The collection of social media communications contains networks of and between social media users (Pew Research Center, n.d.). These networks are useful in analyzing the "patterns of interaction between social actors in social networks" (Tabassum et al., 2018). The ultimate goal of a social network analysis is to understand the relationships between people, not of people as individuals (Hansen et al., 32). A social network analysis of social media data, specifically Twitter data, explores the relationships among Twitter users to determine individual and network behavior as a whole (Tabassum et al., 2018). Social network analysis can lead into an examination of the structure, size, and key actors in social networks (Pew Research Center, n.d.).

A common program used to conduct social network analyses is NodeXL. In NodeXL, the analysis of a social network guides researchers to a better understanding of such social networks. Specifically, vertices and edges in NodeXL display the nodes and connections to these nodes (Hansen et al., 33). Vertices represent social media user profiles and are typically represented by dots on the social network graph (Hansen et al., 33). Edges represent the connections between vertices and are represented via lines (with or without arrows) on the graph. Edges represent one user mentioning or replying to another user. Edges in my social network analysis will be directed, meaning that there will be a line with an arrow beginning at the user who Retweeted or replied to an original Tweet and ending at the original Twitter user (Hansen et al., 34).

A social network analysis can benefit the ELPC because identifying key actors in the discussions of wilderness designations in the Upper Peninsula on social media may help the ELPC to gain widespread traction on social media. The identification of key actors in a social network analysis will identify those individuals and organizations who are offering support or resistance to wilderness designations. Identifying these individuals and organizations is crucial

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for the ELPC's networking strategy, as the organization can connect with these actors on social media as a means to rally support. In contrast, connecting with opposing organizations may provide insightful discussions of the reasonings behind opposition to wilderness designations in Michigan's Upper Peninsula.

3 Methods
3.1 Data

Before beginning my research, I submitted an exemption form to Michigan

Technological University's Institutional Review Board (IRB). In the exemption form, I noted

that my research would not use any data that requires a group administrator to provide access to

the group, all data will be recorded without direct identifiers except in the case of organizations,

all research results will be presented in aggregate form except in the case of organizations, and

none of the social media sites have restrictions in their privacy policies that prohibit data mining

for research purposes. Based on the information provided, the Michigan Technological

University IRB determined that my research was classified as "Not HSR," meaning that my

research project was not human subjects research. Hence, my research was exempt from review

from the IRB.

This project relies on analysis of posts made on social media (Google Maps, Facebook,

Instagram, and Twitter) about wilderness in Michigan's Upper Peninsula. All of the data

collected across all social media sites were publicly accessible information. No data were

collected from private social media users nor private groups on social media sites. The Google

Maps, Facebook, and Instagram data had no date limitations because the number of posts was

limited on each of these sites. Posts from these sites ranged from 2013 through January 2022. As

for the Twitter data, the date parameters I set ranged from May 1, 2011 through December 31,

2021 as a means to simplify the number of Tweets I anticipated receiving. The data were

collected by entering specific search words in each social media site's respective search area. To

obtain Google Maps data, I visited google.com/maps and entered the search words into the

"Search Google Maps" bar. To obtain Facebook data, I visited facebook.com and signed into my

personal Facebook account. I used the "Search Facebook" feature in Facebook, which prompted

me to view "Posts," "People," "Photos," "Videos," "Marketplace," "Pages," "Places," "Groups," "Events," and "All" in Facebook. For each search word used in Facebook, I viewed all, which contained "Posts," "People," "Photos," "Videos," "Marketplace," "Pages," "Places," "Groups," and "Events" that contained the search word. I primarily sifted through posts, comments, and photos for Facebook data collection. For Instagram data, I used my personal Instagram account and used the "Search" feature to input search words, which prompted me to view "Top," "Accounts," "Audio," "Tags," and "Places." For each search word, I searched for posts under "Top," "Tags," and "Places." To obtain Twitter data, I used the advanced search feature in Twitter, which prompted me to search terms containing or omitting specific words and phrases, to search specific accounts, to filter which Tweets are received (replies and original Tweets), to search engagement with each Tweet (minimum replies, likes, and retweets), and to search dates of Tweets.

In total, there were six geographic areas where specific search words were used to extract data. Those geographic areas were Ehlco, Trap Hills, Norwich Bluff, Sturgeon River Gorge, Porcupine Mountains, and wilderness Upper Peninsula. Table 3.1 shows the search terms used for each geographic area in Google Maps, Facebook, and Instagram (Twitter search terms will be explained in the following paragraph as the advanced search feature is more intricate than the search tools used in Google Maps, Facebook, and Instagram). For the "wilderness Upper Peninsula" geographic area search, social media posts containing all of these words, regardless of the order of the words, were obtained.

Ehlco	Trap Hills	Norwich Bluff	Sturgeon River Gorge	Porcupine Mountains	Wilderness Upper Peninsula
Ehlco	Trap Hills	Norwich Plains	Sturgeon River Gorge Wilderness	Porcupine Mountains	Wilderness Upper Peninsula
Ehlco area	#traphills	Norwich Bluff	Sturgeon River Gorge		#keeptheupwild
Ehlco Michigan	Trap Hills Ottawa National Forest	#norwichplains	#sturgeonrivergorge		Wilderness U.P.
#ehlcomichigan		#norwichbluff			
#ehlcoarea					

Table 3.1 Search words used in Google Maps, Facebook, and Instagram

Obtaining Twitter data was more sophisticated than searching for data on Google Maps,

Facebook, and Instagram due to the "Advanced Search." The following information explains

how Twitter data was extracted for each geographic area using the "Advanced Search" feature:

Ehlco Advanced Search:

All of these words: "ehlco"

Any of these words: "wilderness"

Date: May 1, 2010- December 31, 2021

Trap Hills Advanced Search:

Search #1:

This exact phrase: "trap hills"

Any of these words: "michigan"

Date: May 1, 2010- December 31, 2021

Search #2:

This exact phrase: "trap hills"

Date: May 1, 2010- December 31, 2021

Norwich Bluff Advanced Search:

Search #1:

This exact phrase: "norwich plains"

Date: May 1, 2010- December 31, 2021

Search #2:

This exact phrase: "norwich bluff"

Date: May 1, 2010- December 31, 2021

Sturgeon River Gorge Advanced Search:

This exact phrase: "sturgeon river gorge"

Date: May 1, 2010- December 31, 2021

Wilderness Upper Peninsula Advanced Search:

Search #1:

All of these words: "wilderness"

This exact phrase: "upper peninsula"

Date: May 1, 2010- December 31, 2021

Search #2:

These hashtags: #keeptheupwild

Date: May 1, 2010- December 31, 2021

Search #3:

These hashtags: #michiganwilderness

Date: May 1, 2010- December 31, 2021

I used the #keeptheupwild after conducting an initial search on wilderness Upper Peninsula of which I found more posts pertaining to wilderness designation. The #keeptheupwild is promoted by the wilderness coalition "Keep the U.P Wild," which is headed by the ELPC. I believed that using this hashtag would provide more available data. This search most likely skewed my results more in favor of supportive posts. I also searched "wilderness UP" in my searches across Facebook, Instagram, and Twitter. In this search, either many posts I had already collected appeared or many posts were irrelevant to wilderness in the Upper Peninsula. Therefore, I did not include the data from the "wilderness UP" search.

To store the data collected from each social media site, I compiled a Word document for each social media site and separated the data based on the search words used for each geographic area by creating sections on the Word document. The data were copied from each social media site and pasted into the respective Word document. The data collected from each social media post included the username, the date, the text of the social media post (whether it be an original post or a comment to the original post), and, if applicable, information regarding the pictures used in the social media post.

3.2 Coding data

The general methodological approach I employed followed inductive reasoning, which is "aimed at detecting generalizations, rules, or regularities" in data patterns (Klauer and Phye, 2008). Through inductive reasoning, irregularities and diversities in a qualitative dataset are also identified (Klauer and Phye, 2008). Inductive reasoning guides the process of coding from producing codes and categories towards a clear interpretation of the data (Williams, 2019). More specifically, I used framework analysis to assign qualitative codes to social media posts and

grouped these codes into broader categories. Framework analysis involves creating an analytical

framework and then applying it through a process of "identify[ing], describ[ing], and

interpret[ing] key patterns within and across cases of and themes" of the social media data

(Goldsmith, 2021). As outlined by Goldsmith (2021), framework analysis has five primary steps:

data familiarization, identification of a thematic framework, indexing the data, charting the

indexed data, and mapping/ interpreting the patterns identified within the charts. I implemented a

modified framework analysis process in my research. I first began with immersing myself in the

data and noted key ideas I identified, coding data based on the key ideas I found (data

familiarization) (Goldsmith, 2021). I then proceeded to framework identification where I

determined major groups of codes to narrow the focus of the research to categories related to the

level of support or opposition of new wilderness designation (identified as supportive,

compatible, opposition, noncompatible, and unspecified). I indexed the data to these categories.

I charted the data by copying each social media post into an Excel spreadsheet, with a row for

each post, where I organized codes and categories for interpretation (see Appendix A).

Similar to how the data were organized in a Word document, each Excel workbook

correlated to a social media site, so one workbook existed for Google Maps, one for Facebook,

one for Instagram, and one for Twitter. Each Excel workbook contained sheets that correlated

with each geographical area's search terms. One Excel workbook was used for each geographic

area search due to the vast amount of data I collected. In general, the data were organized in

Excel into three columns. Column A contained the username, column B contained the type of

text data collected (original post, comment, retweet, or quote Tweet), and column C contained

the text of the social media post. For social media platforms that contained pictures (Instagram,

Facebook, and Twitter), I added an additional column (Column D) in these respective Excel

workbooks labeled "Picture Code" where I analyzed the picture into text.

Social media posts that contained an exact code word from the codebook were coded as

such. For posts that contained only pictures, I analyzed the picture according to what was

physically shown in the picture and coded the picture accordingly. For example, if an Instagram

post contained no caption, but the picture posted was that of a tree, then the code for the post was

"vegetation." All pictures were coded, even if there was text data accompanying the picture.

Once every social media post had been coded, I aggregated the data for each geographic

area from every social media site into an individual Excel sheet for each geographic area. All of

the data pertaining to each geographic area from every social media platform were loaded into a

large Excel workbook that contained separate sheets for each geographic area. I then copied and

pasted the data and their codes from each geographic area's Excel sheet into one Excel sheet

labeled "Aggregate Data." The data were organized based on the geographic area to ensure that

no posts were intermixed with the other geographic area's posts. I then highlighted the data in

different colors based on the geographic area to ensure the posts for each geographic area were

distinguishable from one another. The data contained in the Ehlco search was highlighted in red,

the data contained in the Trap Hills search was highlighted in orange, the data contained in the

Norwich Bluff search was highlighted in yellow, the data contained in the Sturgeon River Gorge

search was highlighted in green, the data contained in the Wilderness Upper Peninsula search

was highlighted in blue, and the data contained in the Porcupine Mountains search was

highlighted in purple. I then sorted the data alphabetically according to the code used for the

post. I went through each social media post and ensured that the same code word used for

different posts was consistent according to what the data explained. This step in the coding

process is important for coding consistency and researcher transparency. It is a chance for the researcher to rethink and reflect on the coding process to ensure consistency (Gale et al., 2013).

3.3 Categorizing (indexing) data

Once I sifted through the data to ensure code consistency, I then separated the data back into its respective Excel sheet to easily go through the data for each geographic area search. I began to group the codes into five different categories in the framework (support, compatible, oppose, noncompatible, and unspecified) based on the support or opposition to and use of wilderness areas. This categorizing is the process of indexing to the support/opposition framework. For social media posts containing more than one code, I reanalyzed each post individually to place it in a precise category. In general, social media posts containing more than one code contained codes that were in the same category. For the posts that contained codes in differing categories, I analyzed the social media post further and produced an overall theme to the post that could be best suited in one category specifically. For example, one social media post contained the codes "advocative" and "trail" which fit under the support and compatible categories, respectively. In interpreting the post further, I deemed the post as compatible because the user did not specifically mention support for wilderness in the post. The preceding paragraphs describe how codes were organized into their respective category.

Support Category

The code used in the support category was the code word advocative. Social media posts coded as advocative contained information pertaining to the protection of wilderness, the preservation of wilderness, respecting wilderness, and posts that praised the posts relating to these topics. Social media posts coded as "advocative" either explicitly used verbiage pertaining to protection/preservation/respect of wildlife, expressed gratitude to another user's post about the

protection/preservation/respect of wildlife (whether by text or emoticons), or exclaimed their support in joining a wilderness coalition.

Compatible Category

The codes used in the compatible category included backpack, camping, cliff jumping, fishing, fire, good trail conditions, hammock, hiking, hunting, recommendation, recreation, ski, snowshoeing, tent, and trail. I defined the compatible category as generally allowable uses in federal wilderness designations. Most of the codes in the compatible category contained posts that had either explicitly mentioned the specific use or had included a photograph of the given use in a post. I included the code "recommendation" in the compatible category because social media posts coded as such explained a positive aspect of the area they visited and/or contained a photograph of the area they visited that aligned with allowable uses in wilderness designations.

Oppose Category

The codes used in the oppose category included poor experience, rebuttal, regulating officials, and rules. This category included social media posts from users who expressed their concern over too strict of rules in wilderness designations, their problems with regulating officials, and poor experiences in wilderness designations in general. Further, this category also included social media posts from users that had expressed a difference in opinion over wilderness designation with another social media user.

Noncompatible Category

The codes used in the noncompatible category included ATV, bike, car, dirt bike, equipment, motorcycle, poor trail conditions, and snowmobile. Codes in this category were generally nonallowable uses in federal wilderness designations. Social media posts in this category were from users who explicitly stated that they were participating in a generally

nonallowable use of wilderness designation or had posted a picture of an activity that is generally

not allowed in wilderness designations.

Unspecified Category

The codes used in the unspecified category were animal, educational, fall, family, good

experience, location, pet, photography, programs, promotion, river, scenery, sunrise/sunset,

unique feature, vegetation, visit, water, waterfall, and writing. This category had the largest

range of posts, for the social media posts from social media users grouped in this category did

not explicitly state their support nor opposition to wilderness designation. These posts also did

not explicitly state an activity in which the users participated in within wilderness.

3.4 Social network analysis

To conduct the social network analysis, I used NodeXL, an extension of Microsoft Excel,

to import Twitter data pertaining to the search "wilderness Upper Peninsula." To import the

Twitter data, I used the Tweets I had extracted from the "wilderness Upper Peninsula" Advanced

Search feature on Twitter. The date of the Tweets ranged from May 1, 2010 through December

31, 2022. The information used for the social network analysis included the username of the

original Tweeter, the usernames of those who Retweeted or replied to the original Tweet, the text

of the original Tweet, and any links used in the original Tweet. After I imported the information

into NodeXL, I highlighted the Tweets expressing support for wilderness designations in the

Upper Peninsula with the color green. All of the other Tweets used for the social network

analysis were unspecified, so I did not highlight these Tweets. There were no Tweets expressing

opposition to wilderness designation. As for the structure of the graphical representation of the

data, I used the Fructeman-Reingold layout and clustered the groups using the Clauset-Newman-

Moore method (O'Malley Library, n.d.). The Fructeman-Reingold layout "attempt[s] to find an

equilibrium that minimizes the energy of the system," meaning that all edges are similar in length (Hansen et al., 96). The Clauset-Newman-Moore clustering method "associates each node of the network with a community" and was chosen because of its extensive use in the literature (Vieira, 2014). These methods were chosen after sifting through the various options of methodology and layout. The Fructeman-Reingold layout and the Clauset-Newman-Moore clustering method displayed the Tweets in a meaningful manner in comparison to the other layouts and methods.

4 Results

Table 4.1 shows the total number of posts for each category per geographic area search. Table 4.2 shows the total number of posts for each social media site per geographic area search. In total, I analyzed 525 social media posts from Google Maps, Facebook, Instagram, and Twitter from the years 2011-2022. There were 78 total posts categorized as supportive (14.86%), 193 posts categorized as compatible (36.76%), 3 posts categorized as opposed (0.57%), 30 posts categorized as noncompatible (5.71%), and 221 posts categorized as unspecified (42.10%), which was the most prevalent category. The geographic area search with the greatest number of posts came from the Sturgeon River Gorge search (245 posts), so this geographic area search also had the greatest number of compatible and noncompatible posts with 86 and 25 posts, respectively. The geographic area search with the greatest number of supportive posts came from the Wilderness Upper Peninsula search.

Table 4.1 Total posts for each category per geographic area search

Geographic Area	Total Posts	Total Support	Total Compatible	Total Oppose	Total Noncompatible	Total Unspecified
Ehlco	10	7	0	0	0	3
Trap Hills	79	2	48	0	2	27
Norwich Bluff	37	0	15	0	1	21
Sturgeon River Gorge	245	3	86	0	25	131
Wilderness Upper Peninsula	104	66	14	1	0	23
Porcupine Mountains	50	0	30	2	2	16
TOTAL	**525**	**78**	**193**	**3**	**30**	**221**

Table 4.2 shows the total number of posts for each social media site (Google Maps, Facebook, Instagram, and Twitter) for each geographic area search. The social media site with

the greatest number of posts is Instagram. The geographic area with the greatest number of Instagram posts is the Sturgeon River Gorge search and the geographic area with the greatest number of Twitter posts is the wilderness Upper Peninsula search. It is important to note that Google Maps posts were only collected for the Porcupine Mountains geographic area search due to the lack of qualitative data pertaining to the other five geographic areas in Google Maps. Also of note is that the Porcupine Mountains geographic area search was only conducted on Google Maps and not on the other social media sites. This is due to the lack of relevancy of the Porcupine Mountains search for the purposes of my research. I used the social media data from Google Maps for the Porcupine Mountains search to provide some insight as to how people view a popular wilderness state park. I believe the information I collected from the Porcupine Mountains search provided understanding of how people view "wilderness" in general.

Table 4.2 Total posts for each social media site per geographic area search

Geographic Area	Total Google Maps Posts	Total Facebook Posts	Total Instagram Posts	Total Twitter Posts
Ehlco	-	7	0	3
Trap Hills	-	12	57	10
Norwich Bluff	-	4	22	11
Sturgeon River Gorge	-	8	176	61
Wilderness Upper Peninsula	-	12	30	62
Porcupine Mountains	50	-	-	-
TOTAL	50	43	285	147

Supportive Posts

The social media posts expressing support for wilderness designations in the Upper Peninsula of Michigan indicated advocation for wilderness designations, mentioned involvement in joining coalitions that advocate for wilderness designations, and expressed concerns for

"protecting wilderness." Specifically, social media posts categorized in the support category

noted the importance of preserving wilderness, protecting wilderness from industrial activities

such as mining, and protecting wildlife. A few social media posts labeled under this category

gave praise to social media users advocating for wilderness designation via text and emoticons.

Moreover, a few social media posts emphasized the importance of "tagging locations

responsibly" so as to combat excessive tourism in the area.

Social media posts categorized as support gave varying reasons as to why supporting

wilderness designations is important. The Franciscan Action Network (@franciscannet), an

organization recognized as a supporter of the ELPC's efforts for wilderness designation in the

Upper Peninsula, noted the economic value of wilderness in the Upper Peninsula writing in a

Tweet, "Nearly $8.5 billion of Michigan's GDP comes from outdoor recreation value. Let's help

our economy and protect our special places. #KeeptheUPWild." Another user wrote,

"Nationally, about half a billion dollars a year spent by tourists in communities near Wilderness

areas. Help Michigan's economy AND environment!". In addition to the economic value of

wilderness in Michigan's Upper Peninsula, other users expressed their support of wilderness "to

preserve and for people to enjoy hiking, other recreation."

Compatible Posts

Similarly, social media posts that were categorized as compatible contained text and

pictures referencing how people were using wilderness. Such users showcased text and pictures

of hiking, hunting, camping, backpacking, and snowshoeing amongst other activities. Many of

the social media posts in this category also provided recommendations of their favorite

wilderness areas. One social media user at the Sturgeon River Gorge wrote, "Basically the best,

most wild region of the already awesome Ottawa National Forest. Waterfalls, rapids, old growth, and miles of forest to explore. Definitely a favorite spot to go for an off-the-grid adventure!".

Other social media posts categorized as compatible frequently discussed the opportunities for group activities such as hiking and restoration in the wilderness of the Upper Peninsula. One user recalled a memory of a student service opportunity in the Trap Hills noting that they, "left our segment of trail in fantastic shape for hikers to enjoy while the students got a taste of giving back to our public lands." Further, the advocation of group hikes was a popular topic throughout the social media posts I came across. Two organizations in particular advertised the opportunities for group hiking, specifically in the Trap Hills. Michigan Tech's Summer Youth Programs and the Peter Wolfe Chapter of the North Country Trail invited other social media users to join them on hikes in Trap Hills and both organizations made note of the "awesome views" that hikers could experience.

Opposition Posts

Of the three social media posts expressing opposition to wilderness designation, the main arguments centered upon "conservation police officer" concerns and hypocritical actions regarding wilderness activism. Two social media users expressed their concerns over the "conservation police officers" of the Porcupine Mountains Wilderness. Specifically, one such social media user wrote, "Nice place. But the conservation police officers are corrupt or incompetent." The other social media post categorized under the oppose category states, "Porkies are awesome (5 stars no doubt), but the DNR has made it suck to try and camp there in the past year." Together, these posts indirectly express concerns of regulating officials that hinder their experiences in wilderness designations. One social media user who suggested opposition to wilderness designation expressed concern over hypocritical actions taken by another social

media user in reference to responsible posts about wilderness areas. The original Instagram post wrote, "Friendly reminder to tag locations responsibly as we head into this colorful UP fall. Using specific locations can negatively impact sensitive wildlife habitats, ecological diversity and the conservation of wilderness areas throughout the UP…" In response to this Instagram post, one user commented, "Always like how someone admonishes others to not go or do what they have just done. Me-ism at all?". This specific social media post was included in the oppose category because it was interpreted that this user wished for wilderness to be an inclusive activity for people and the user implied that wilderness is currently not an inclusive activity for all.

Noncompatible Posts

The noncompatible category of social media posts either explicitly stated the participation in restricted activities or showcased photographs of prohibited activities in wilderness designated areas. Such activities included ATV riding (one post), snowmobiling, dirt biking, and biking. One social media user's post categorized as noncompatible wrote, "Beautiful day for a ride! #snowmobiling #bearsden #sturgeonrivergorge." In this example, the social media post contained the hashtag "snowmobiling" and included a picture of a snowmobile in the post, thus I deemed the post as noncompatible. Another example of a noncompatible post was from a user who detailed their biking activities in the Sturgeon River Gorge Wilderness. This social media user captioned their post, "Salsa Fargo, Sturgeon River Gorge, Upper Peninsula of Michigan. Last August I rode my Fargo across the Ottawa National Forest on a short bikepacking trip…" This social media post was categorized as noncompatible because the post explicitly used the word "bike" and contained the #sturgeonrivergorge, indicating that the social media user was participating in a noncompatible activity within a wilderness area. In total, it was difficult as a researcher to determine if users who posted about prohibited activities in wilderness

designations were actually in the designated wilderness area or if they had simply tagged the location out of ease since social media users on sites such as Instagram and Twitter cannot tag the precise geographical location of a post.

Unspecified Posts

The category that contained the greatest number of social media posts was the unspecified category. Social media posts under this category contained posts about educational programs that use wilderness for activities, pictures of animals, vegetation, and unique features found in wilderness, users promoting their photography, and histories of specific locations in wilderness. One social media user promoted their photography business in stating on social media, "As always the UP never disappoints. Im sitting home now reflecting through some photos…Watch my feed today and this week for more photos from this trip, new prints available as well..." An additional social media user posted a photograph of a cabin to their Instagram and captioned the photo "#abandonedplaces #cabionintheweeods #norwichbluff #abandonedmichigan #yooper." Both of these posts did not specifically mention support or opposition to wilderness nor did these posts specifically address a use of wilderness which is why these posts were categorized as unspecified.

Created with NodeXL (http://nodexl.codeplex.com)
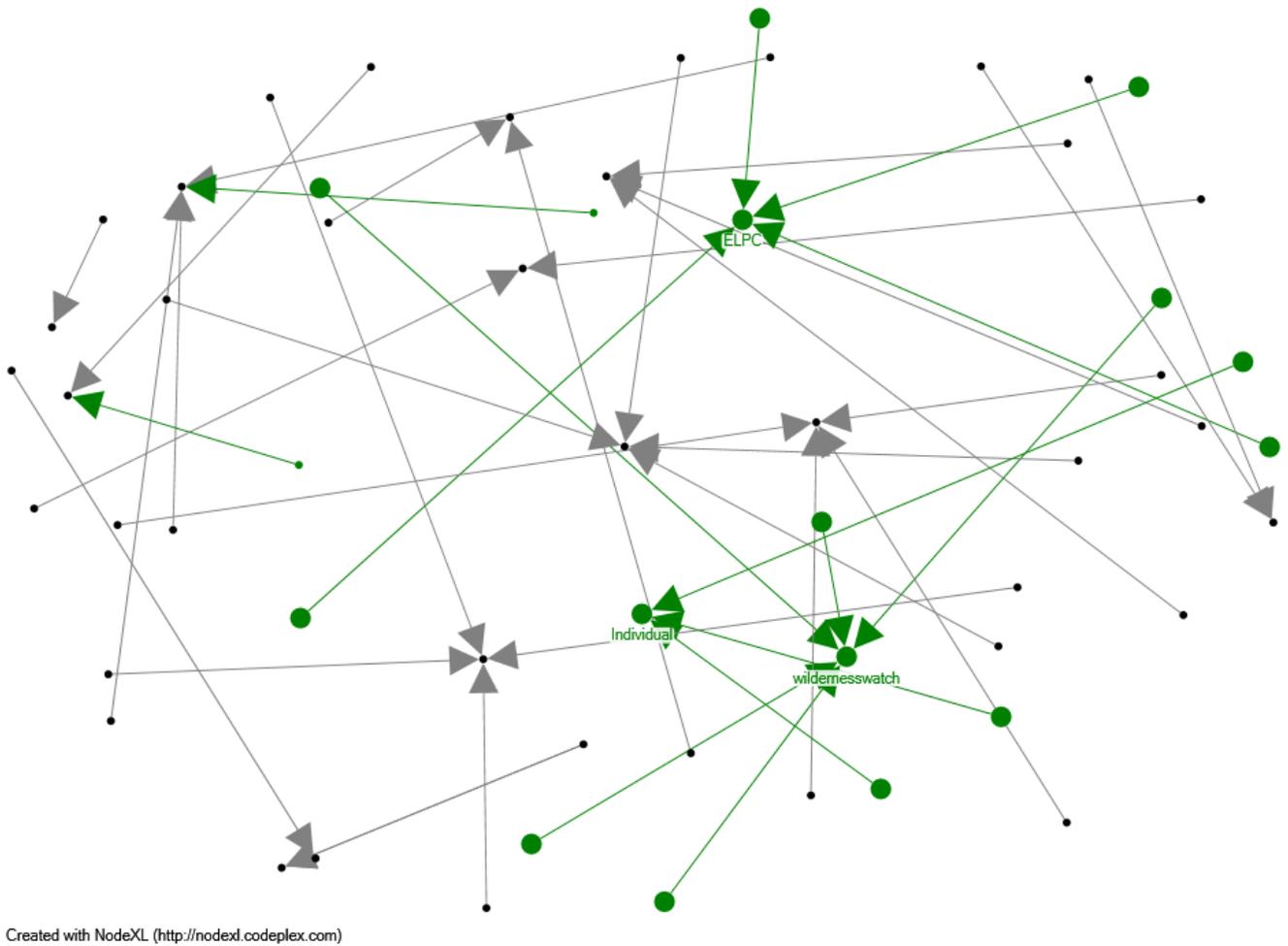
Figure 4. 1 Social network analysis of Twitter users under the search "wilderness Upper Peninsula"

Figure 4.1 displays the social network analysis of Twitter users observed under the search "wilderness Upper Peninsula" using the Advanced Search feature on Twitter. Each dot in Figure 4.1 represents a vertex, meaning that each dot represents a Twitter user. Each line in Figure 4.1 represents an edge, or the connectivity, between Tweets. These edges represent either a Retweet or a reply to an original Tweet. The vertices and edges highlighted in green represent Tweets expressing support for wilderness designation in the Upper Peninsula of Michigan. All other Tweets used in the social network analysis above are unspecified Tweets that did not state either

support or opposition to wilderness designation. In this search, there were no Tweets expressing opposition to wilderness designation.

The three major areas of connectivity correspond with three Twitter users. Figure 4.1 shows that these users Tweeted a Tweet that received the most interaction from other Twitter users which is exemplified through the direction of the arrows. As a directed graph, the arrows follow the direction from a Retweet or reply Tweet to the original Tweet. One of the connected Twitter users is an organization (@wildernesswatch), one user is affiliated with the ELPC, and the other Twitter user is an individual (the username has been changed for privacy purposes).

Social media network connections

Created with NodeXL Basic (http://nodexl.codeplex.com) from the Social Media Research Foundation (http://www.smrfoundation.org)
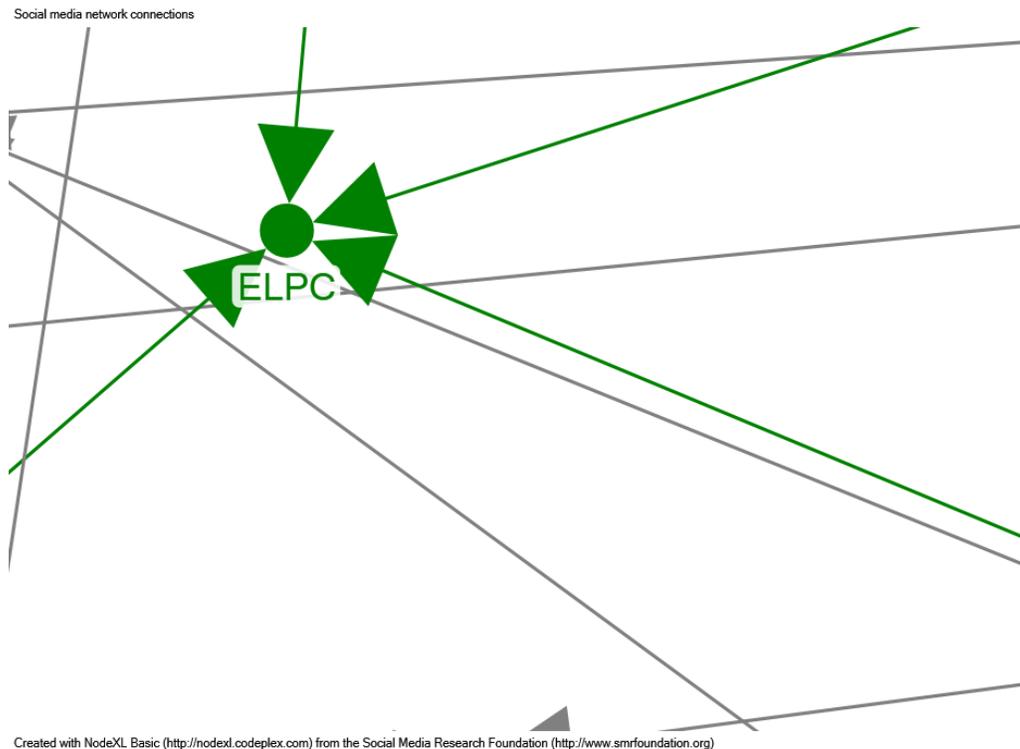
Figure 4. 2 Social network of Twitter user affiliated with the ELPC

The original Tweet from the ELPC network writes, "Let's keep Michigan's UP wild. Check out my new blog about seizing the opportunity to create four new National Wilderness areas in the Upper Peninsula. Great natural places that are important to preserve and for people

to enjoy hiking, other recreation" and included a link to elpc.org. Four individuals Retweeted this original Tweet. In exploring the individuals' Twitter information, three noted their affiliation with organizations such as the Michigan Mosaic Energy Cooperative, Cimbira Captial, and The Nature Conservancy. The Michigan Mosaic Energy Cooperative's objective is to "bring cooperative economic life to communities in a sustainable way" (Michigan Mosaic Energy Cooperative, n.d.). Cimbira Captial is an investment firm based in the United States and Denmark and is conducting growth and expansion capital investments in water economy in North America (Cimbria Capital, n.d.). The Nature Conservancy's "mission is to conserve lands and waters on which all life depends" (The Nature Conservancy, n.d.). The Nature Conservancy has initiatives in Michigan regarding forest conservation and one of their major projects includes the Big UP Deal which is the largest conservation project in Michigan state history (The Nature Conservancy, n.d.).
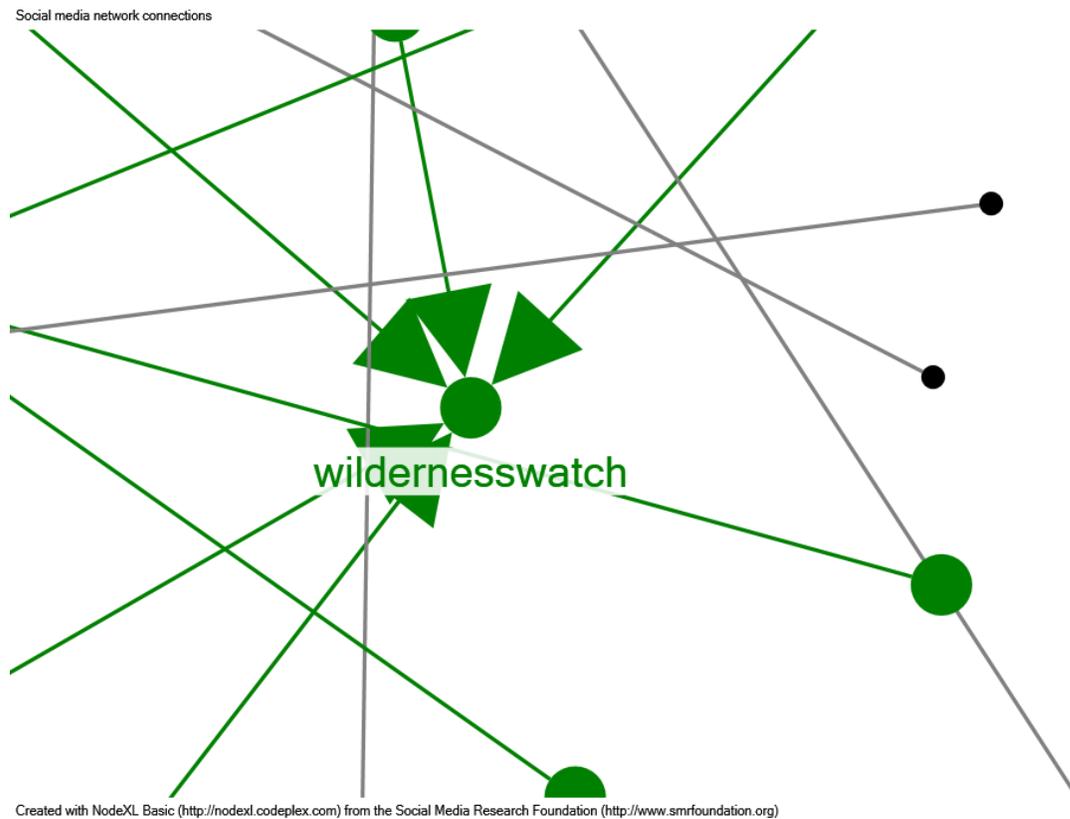
wildernesswatch

Figure 4. 3 Social network of Twitter user @wildernesswatch

The original Tweet by @wildernesswatch explains, "Keep the U.P. Wild is working to save the Upper Peninsula's vast #wilderness #KeepItWild" with a link to mynorth.com. This network was composed of five individuals who Retweeted the individual's original Tweet. In exploring the individuals' Twitter information, some of the individuals described themselves as wilderness advocates and recreationalists.

Social media network connections

Created with NodeXL Basic (http://nodexl.codeplex.com) from the Social Media Research Foundation (http://www.smrfoundation.org)
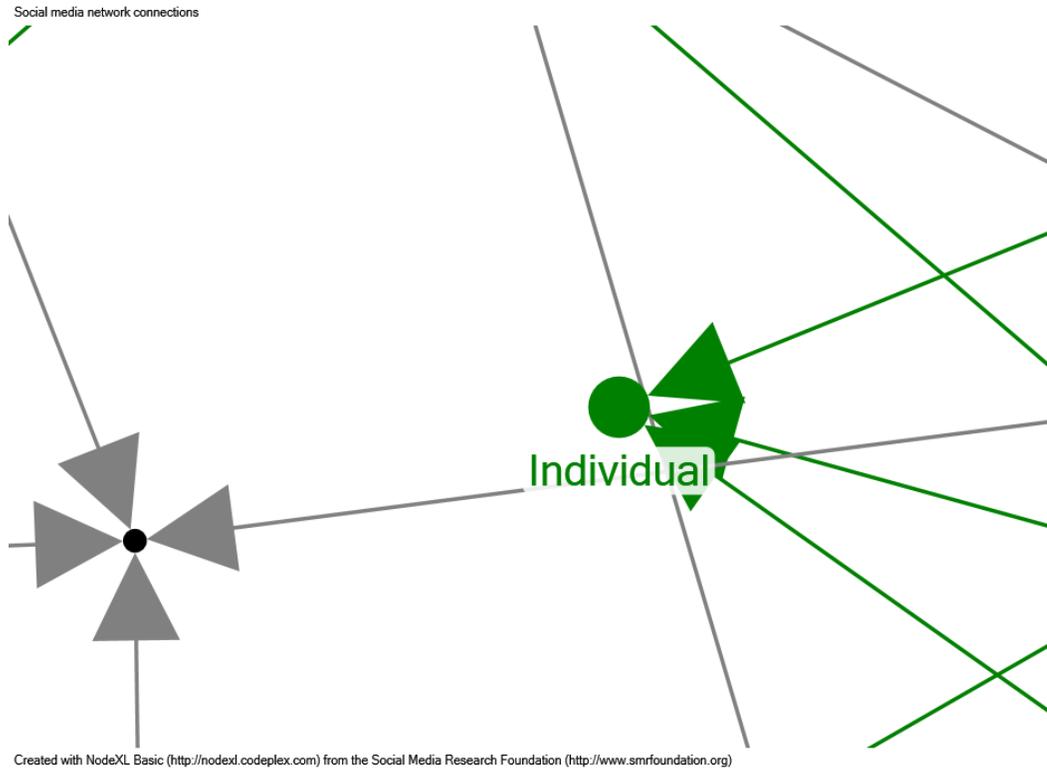
Figure 4. 4 Social network of Twitter user identified as "individual"

The original Tweet by this individual explains, "Michigan Upper Peninsula's Wilderness designation sought for four tracts of land. 'Wilderness' designation is reserved for areas that are 'untrammeled by man, where man himself is a visitor who does not remain'" with a link to mynorth.com (the webpage of *Traverse, Northern Michigan's Magazine*). There were three individuals who had Retweeted the individual's original Tweet. In looking into the Twitter profile of the original Twitter user, there were no recent Tweets of wilderness.
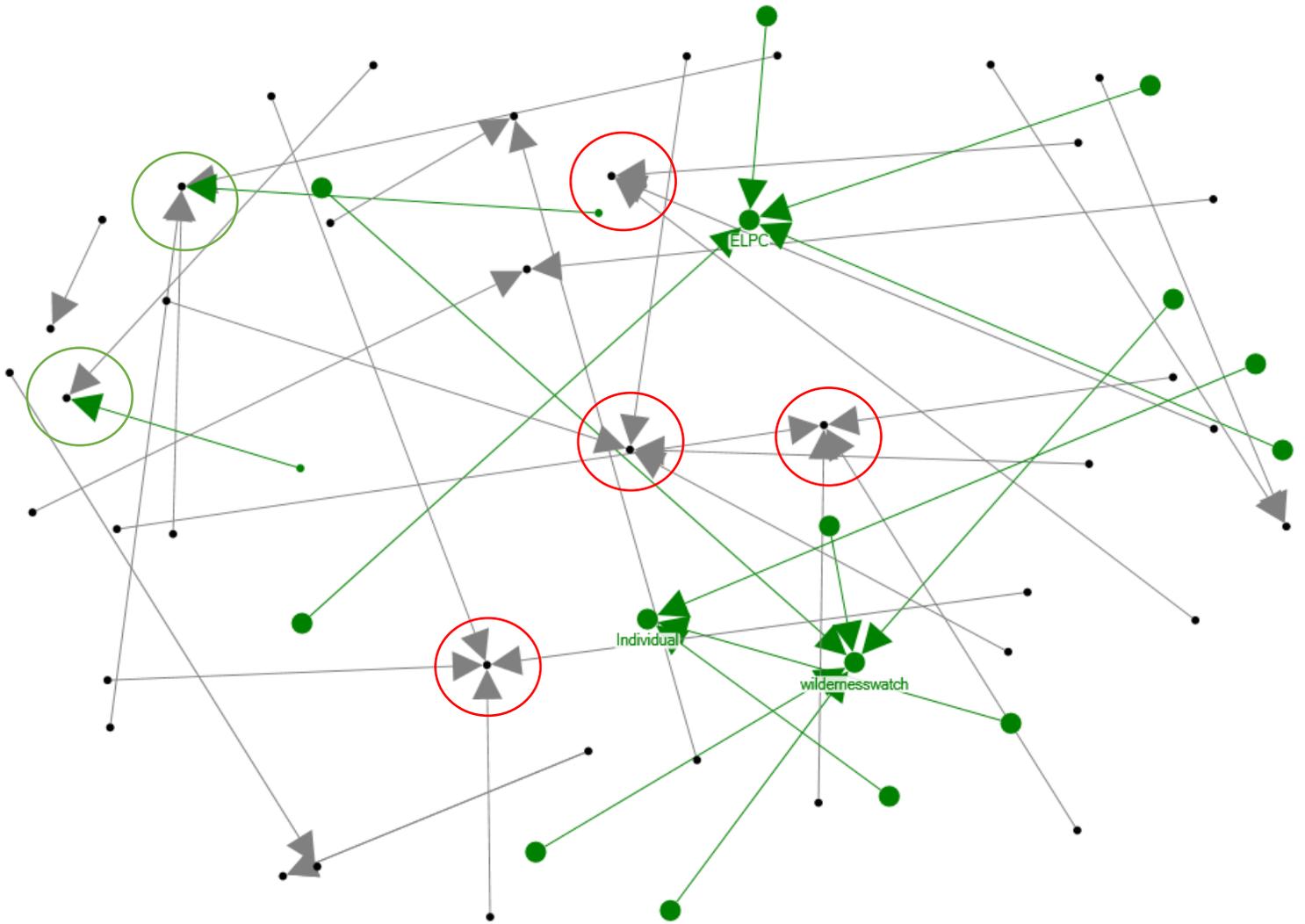
Figure 4. 5 Social network of Twitter users whose Tweets were deemed unspecified

Other connected Twitter users that appeared in the search existed, but these posts were categorized as unspecified. These users are interesting to consider because they offer insight as to how Twitter users discuss wilderness designation in the U.P. without explicitly stating support or opposition to wilderness. The two circles shown in green in Figure 4.5 encompass a network of Twitter users where there is a presence of supportive posts. Both of these networks contained an original Tweet describing a news article regarding two brothers who were caught poaching swans in an Upper Peninsula wilderness. The Tweets highlighted in green refer to two Twitter users who replied directly to the original Tweet condemning the actions of the poachers, which suggests support for wildlife, which is why they were categorized as supportive posts. The

network of Twitter users encompassed in the four red circles were categorized as unspecified

Tweets because they did not discuss either support or opposition to wilderness designation in the

Upper Peninsula. These original Tweets (represented by the black dot at the center of each of

these red circles) discussed news pertaining to the death of a hiker in an Upper Peninsula

wilderness, the brothers caught poaching swans in an Upper Peninsula wilderness, flyfishing in

the Upper Peninsula, and border patrol in the Upper Peninsula.

5 Limitations

Several limitations restricted the ability to ethically access all possible data across all social media platforms. Facebook, Instagram, and Twitter have privatizing features that enable users to restrict their posts to only other users who "follow" them or are "friends" with them on each social media site. For Facebook data, the privatizing features restrict not only certain users' profiles, but also certain Facebook groups. Several Facebook groups that I came across in my search were private groups that would only allow me to access their information if I requested to become a member of that group. These groups included "SNOWMOBILE RIDERS OF MICHIGAN," "Snowmobiling in the UP," "Snowmobiling the U.P.," and "Just Snowmobiling U.P." According to the IRB exemption for this research, joining private Facebook groups is prohibited, for all data collected for the intentions of this research must be public information.

On Instagram, users can make their profile private, which would restrict the general public from accessing their profile, and thus, from accessing their posts. This could be a limiting factor for my research because I may not have been "following" those who were posting about the specific search words I used in Instagram. Thus, private users' posts would not have shown anywhere on my Instagram searches.

Similarly, Twitter users can make their profile private from the general public, which would restrict the public from viewing these users' Tweets, Retweets, and likes on Twitter. Once more, many of the Quoted Tweets I found in my search using the search terms had since been deleted from the time they were posted. In this case, I was not able to view any Tweets that had been deleted from Twitter users. Had I been able to view deleted Tweets, I could have included these Tweets in the data set. Because I only had access to public data, the results of this research could be skewed in support of wilderness designation. Perhaps those who oppose wilderness

designation chose to make their social media posts private as a means to protect themselves from facing public backlash on their opinion of wildlife designation.

An additional limiting factor in this research is the lack of data pertaining to opposition to wilderness designations. Perhaps, this data could be shared on private Facebook groups, private Facebook profiles, private Instagram profiles, and private Twitter profiles. Furthermore, in searching the #keeptheupwild, all of the posts using this hashtag expressed support for wilderness designations in the Upper Peninsula. Using this search could have therefore skewed the data in favor of supportive posts. During my search, I did not find any comparative hashtags or phrases that promoted opposition to wilderness designations. As a means to find social media posts regarding opposition to wilderness designation in the Upper Peninsula of Michigan, the following search terms were used in the Facebook, Instagram, and Twitter search platforms:

- "wilderness rules Upper Peninsula"

- "wilderness regulations Upper Peninsula"

- "wilderness bad Upper Peninsula"

- "wilderness limit Upper Peninsula"

- "wilderness restraint Upper Peninsula"

- "wilderness control Upper Peninsula"

- "wilderness strict Upper Peninsula"

I used the entire phrases above in my search but did not use quotations in my search. Thus, any social media posts that contained all of these words would appear in my search but would not necessarily contain these exact phrases in their post.

In the "wilderness strict Upper Peninsula" Facebook search, there were no posts relating to the four proposed wilderness designations specifically. However, one post from April of 2017

from the Upper Peninsula Environmental Coalition linked to photos of "Muddy Drill Rigs in Porcupine Mountains Wilderness." Most of the comments suggested support for wilderness and wilderness conservation, but two users specifically opposed wilderness conservation in order to "foster positive economic activity" (in reference to mining in wilderness areas). One user went on to write, "As long as they clean up their mess there is no reason to cry," suggesting that mining operations should continue in wilderness designations so long as there is no permanent damage. This post was not included in the data, as this search was conducted after analyzing the initial data. In my Facebook search, this was the only post that I came across expressing opposition to wilderness designation.

Once more, I also searched posts throughout public Facebook groups, particularly around the time that the Environmental Law and Policy Center posted public information about the four proposed wilderness designations (July and September 2021). I searched for posts suggesting opposition in public Facebook groups where I believed discussions concerning opposition to wilderness may be more frequent due to the recreational activities these groups engage in. However, I did not find any posts in these Facebook groups that indicated opposition to wilderness or wilderness designation. The following were the public Facebook groups where I searched for posts suggesting opposition:

- Upper Peninsula of Michigan

- Snowmobiling the western up

- UPROAR Trail Talk

- UPROAR Upper Peninsula Recreational Off-Road ATV Riders

- Sustainable Trails Coalition (Facebook Page)

In looking into the Sustainable Trails Coalition's Facebook Page, I did not see any posts directly opposing wilderness designation in the Upper Peninsula. However, there was a post by the Sustainable Trails Coalition on March 11, 2021 inquiring about the four proposed wilderness designations and their impact on mountain biking in these areas. Further, the Sustainable Trails Coalition posted to their Facebook page on June 9, 2021 expressing their gratitude for Senator Lee's bill advocating for the use of bicycles in wilderness designations.

I did not include the search "#upperpeninsula wilderness" in my research. In conducting an additional search using this phrase, I found a significant amount of posts that were not captured with my initial search across Facebook, Instagram, and Twitter. In future research, I recommend utilizing variations of hashtags (such as #upperpeninsula and #wilderness) with phrases (such as wilderness and Upper Peninsula) to ensure that all possible social media posts are analyzed.

The search words used in this research could have limited the amount of data collected through social media platforms. This could come to play if additional names for places or unknown hashtags exist for these places. In this way, data could have been subjected only to the terms that I know and recognize for these areas. Other groups of people may refer to these places with other names that I may not have included in the search terms.

Finally, the demographics of the users of the social media sites used in this study could have limited the results of this research, as there may not have been an equal distribution of people from different age groups and different residencies. I was unable to determine the age of social media users in this study, but as The Pew Research Center (2012 & 2021) notes, a higher percentage of people ages 18-29 use social media sites than those of older age. Younger social media users are likely overrepresented in my sample, and they are also more likely to support wilderness designation than older social media users (Kezer et al., 2016). Further, the Upper

Peninsula is a rural area, so the barriers to internet access for local residents could have limited the amount of social media posts from Upper Peninsula residents (Warren, 2007). Moreover, there were 20 posts coded as "visit," meaning that the social media users' posts coded as such specifically mentioned that they had visited a wilderness area in the Upper Peninsula. However, this does not mean that there were only 20 posts from social media users who were visitors to the Upper Peninsula. In future research, I suggest using information regarding the area of residency of social media users to understand the difference in social media posts between residents and visitors of Upper Peninsula wilderness areas.

6 Discussion & Conclusion

The purpose of my research was to (1) understand how Upper Peninsula residents and visitors interact with and experience the four proposed wilderness areas, (2) recognize what the general arguments are for support and opposition to wilderness designation in the Upper Peninsula, and (3) analyze the social network of Twitter users discussing wilderness in the Upper Peninsula. In understanding how Upper Peninsula residents and visitors interact with and experience the four proposed wilderness areas, I found that, among public social media posts, there is a general overall appreciation for the vast opportunities that wilderness offers. The data categorized as compatible, noncompatible, and unspecified reflect these values. From hiking to cliff jumping, social media users commented on their enjoyment of such activities throughout the four proposed wilderness designations in the Upper Peninsula of Michigan. The results suggest that the public social media presence toward new wilderness designations in the Upper Peninsula of Michigan is primarily positive. Although the number of social media posts expressing opinions (whether they be supportive or oppositional) was limited, the comparison between the two categories reflects much more supportive posts than opposition posts.

It was difficult to determine the reasoning behind the support or opposition to wilderness designations in the Upper Peninsula due to the lack in number of posts specifically addressing support and/or opposition. Rather, a vast majority of the social media posts from social media users expressed the ways in which they use wilderness, whether it be compatible or noncompatible to wilderness designation regulations. To answer my second research question inquiring about the general arguments for support of wilderness designation, social media posts in support of wilderness designations noted the importance of preserving wilderness, protecting wilderness from industrial activities such as mining, and protecting wildlife. Social media users

indicating their support for wilderness also made note of the economic and recreational value that wilderness offers residents and visitors of Michigan's Upper Peninsula. The general arguments for opposition to wilderness designation often vocalized concerns over too strict of rules in wilderness designations, the problems with regulating officials, and poor individual experiences in wilderness designations.

In discussing the results that pertain to my third research question regarding the social network of Twitter users discussing support for wilderness in the Upper Peninsula, there were three major networks of supportive Tweets. Of the three major networks, two Twitter users who were identified as the center of these networks had a direct and indirect relationship to the ELPC. One of these networks centered upon an individual's Twitter account who works for the ELPC and the other network is centered upon an organization (@wildernesswatch) who is recognized as a supporter of the ELPC's efforts for wilderness designation in the Upper Peninsula. The final major network concerning wilderness support in the Upper Peninsula stems from an original Tweet from an individual who is not connected to the ELPC.

Understanding support for or opposition to wilderness designation in Michigan's Upper Peninsula is important for policy makers to understand whether they should push for the approval of additional wilderness designation in Congress. Public support of policy often impacts the outcome of the particular policy (Koval and Mertig, 2004). Without the support of the community, policy makers may not want to support the designation of wilderness areas, even if there is ecological importance in adding such areas. Through the social network analysis, I identified individuals and organizations not directly connected to the ELPC that are expressing their support of wilderness designations in Michigan's Upper Peninsula. Moreover, the individual connected to

the ELPC who was identified as the center of a large network of supportive Tweets exemplifies the prominence of the ELPC in Upper Peninsula wilderness designation discussions on Twitter.

The ELPC should take the results of this research into consideration as the organization continues to advocate for the designation of the four proposed wilderness areas in Michigan's Upper Peninsula. While the number of social media posts pertaining to opinions of wilderness designations is limited, the results of the research still offer insight as to how residents and visitors of these areas use them. I recommend that the ELPC:

1. Continue to move forward in their efforts to designate the four proposed areas for wilderness. The results of this study show general support for wilderness designation and little public opposition on social media.

2. Recognize that people have used these wilderness designations for recreational activities for many years. Although there will be most likely be a small number of prohibited recreational activities, it is critical for the ELPC to recognize and respect the ways in which people have historically used these areas (given they have done so with wilderness conservation in mind). The ELPC should consider the noncompatible uses of wilderness designation (especially in the Sturgeon River Gorge Wilderness) when designing a recommendation to policy makers.

3. Connect with the individuals and organizations identified in the social network analysis. In evaluating the social networks of Twitter users discussing wilderness in Michigan's Upper Peninsula, there are several key individuals who express support for wilderness designation. Also, these individuals mention their affiliation with organizations that the ELPC has yet to form a relationship with. I recommend that the ELPC reaches out to

these affiliate organizations as a means to rally congressional support for the four

proposed wilderness designations.

4. Take cautious note of the limitations of the research. Because there were few posts

   related to the opposition of wilderness designation in the Upper Peninsula, I suggest that

   further research be done to understand the opposition to wilderness designation. Some

   residents and visitors of the Upper Peninsula of Michigan may not express their opinions

   publicly through social media. Perhaps a better method of understanding opposition to

   wilderness designation could take the form of in-person interviews or focus groups.

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Appendix A. Codebook of Codes Used During Coding Process

#	Code	Definition
1	advocative	advocating for wilderness, cleaning up wilderness, #keeptheupwild, not tagging locations (pristine), protecting/deserve protection, joined coalition, gratitude for joining, respect wilderness, emphasizing point made
2	animal	picture of wild animal, mention of wild animals, wild animal signs, wildlife, critters
3	atv	picture of atv, hashtag
4	backpack	picture of backpack, person with backpack, explicitly state backpacking, #backpacking
5	bike	biking (also snow biking)
6	camping	picture of campsite, mention of camping
7	car	picture of car, mention of bringing car into wilderness
8	cliff jumping	explicitly stated or on top of cliff, looking wet
9	dirt bike	picture of dirt bike, mention of going dirt biking
10	educational	sharing information, history, news, information about wilderness areas, stated facts, joining discussions about/in wilderness, directions
11	equipment	tractor, farming equipment, saw
12	fall	mentions fall, fall colors, fall time
13	family	pictures of families and children, mentions going to place with family
14	fire	picture of fire, mention of having a fire, smoke
15	fishing	mentions fishing, picture of fish
16	good experience	description of good experience, memory of place, use of words such as awesome, amazing, great place, beautiful, paradise, amazing place, favorite place, in awe
17	good trail conditions	discussion of good trails, marked well
18	hammock	picture of hammock
19	hiking	Explicitly stated "hike" or "hiking", pictures of people hiking/with hiking gear
20	hunting	picture of gun, dead animal, or mention of going hunting
21	location	just a name of location, no other text, just wanting to go, mention of wilderness in general
22	motorcycle	contains pic of motorcycle
23	pet	people with pets, pets in pictures (domesticated animals)
24	photography	using hashtags pertaining to photography (i.e. Nikon, Cannon), describing photography, prints, promoting photography
25	poor experience	description of bad experience, discussion about locals from outsider's perspective
26	poor trail conditions	discussion on bad trails, trees down, unmarked

27	programs	educational programs, large groups of people going out into wilderness, working in Keweenaw, musical performance, organizations doing activities together
28	promotion	advertisements, promotion of place, joining organization/coalition, promotion of property
29	rebuttal	refutes another user
30	recommendation	must go, need to go, better than, check out ___, best place in MI, worth it
31	recreation	canoes, kayaks, paddleboards, rolling down snow, floating
32	regulating officials	mention of conservation officers, DNR, etc
33	river	picture of river, mention of river
34	rules	too strict of rules
35	scenery	mentions the views, what they are looking at, what they enjoy, what they don't enjoy about the physical area
36	ski	XC skiing, skiing
37	snowmobile	picture of snowmobile, mention of snowmobile
38	snowshoeing	picture of snowshoe, mention of snowshoeing
39	sunrise/sunset	picture of sunrise or sunset at place, sky
40	tent	picture of tent, mention of tent
41	trail	signage of trail, trail markers, TNC, on trail (but not explicitly hiking)
42	unique feature	something unique about area (mine, stairs, cave, rocks, bluffs, cliff, dam, cabin, outlook, road
43	vegetation	mushrooms, trees, raspberries, chaga
44	visit	mention of traveling up to the UP to visit, place to visit, vacation, how to access location, "been there", road trip
45	water	SR or clean water, pure water, picture of river/water that is not waterfall
46	waterfall	picture of waterfall, mention of waterfall
47	writing	promoting book, maps, quotes

Appendix B. Written Approval for Image Use

Olivia Ghormley <odghorml@mtu.edu>   Fri, Apr 15, 3:11 PM (3 days ago)   ☆   ↩   ⋮
to Tyler ▾

Hi Tyler,

I just wanted to follow up on this email. I want to ensure that I have your permission to use the map of the four proposed wilderness designations in my Report. Is it okay for me to use the map in my Report?

Thank you!
Olivia

•••

Tyler Barron   Fri, Apr 15, 3:14 PM (3 days ago)   ☆   ↩   ⋮
to me ▾

Yes!

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