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## Timber and Tornadoes: A Journalistic View of Mississippi's Escalating Climate Challenge

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TIMBER AND TORNADOES: A JOURNALISTIC VIEW OF MISSISSIPPI'S ESCALATING  
CLIMATE CHALLENGE

By  
Alice Ann Hollingsworth

A thesis project submitted to the faculty of the University of Mississippi in partial fulfillment of  
the requirements of the Sally McDonnell Barksdale Honors College.

Oxford, MS  
May 2024

Approved By

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Advisor:

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Reader:

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Reader:

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## DEDICATION

This thesis project is dedicated to all those who made it a possibility: to the journalists, researchers, and climate activists who came before me, to my advisor Dr. Debora Wenger, my professors in the Sally McDonnell Barksdale Honors College, and lastly, to my parents for their unwavering support and encouragement throughout my undergraduate career.

## ACKNOWLEDGEMENTS

I would like to express immense gratitude to my thesis advisor, Dr. Debora Wenger, for her patience with me throughout this process as well as her willingness to share the wealth of her incredible knowledge. I was largely unexperienced in the realm of journalistic writing as well as the process of interviewing prior to embarking on this journey. Without Dr. Wenger's guidance I would have been lacking in much direction and effectiveness. Her encouragement and expertise have been of immense value to me over the course of this project, and I am thankful to have found an exceptional mentor in her. Secondly, I extend additional gratitude to my second and third readers, Charlie Mitchell, JD and Professor Dennis Moore, for their willingness to offer me their direction. I would also like to acknowledge my peers who were involved in and contributed to this project. Specifically, I would like to thank Celeste Lay for her contribution in the form of an interview to the first article, Kala Nance for her peer guidance and photographic contributions, and Cody Farris for his thoughtful questions which contributed to the second interview. Finally, I would like to express my sincere gratitude to everyone who encouraged me throughout my undergraduate career. In particular, I wish to thank my professors whose insights and instruction have altered my life for the better as well as my parents who enabled me to receive such a well-rounded and enriching education.

## ABSTRACT

### TIMBER AND TORNADOES: A JOURNALISTIC VIEW OF MISSISSIPPI'S ESCALATING CLIMATE CHALLENGES

(under the direction of Dr. Debora Wenger)

*Timber and Tornadoes: A Journalistic View of Mississippi's Escalating Climate Challenges* is a project which explores the impact of climate change on the state of Mississippi and its industries. Specific areas of interest were the recent onslaught of wind disasters including tornadic activity and hurricanes as well as the impact of weather events on the timber and forestry industries in the state. This project involved interviews of industry professionals as well as academic experts. In addition, interview questions and necessary supplemental context were developed using significant background research. Emphasizing the potential challenges that climate change will present for the state of Mississippi, this project allowed for identification of areas which call for improvement, increased preparation, and further research.

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## INTRODUCTION

The urgent need to address climate change has intensified in recent years as the gap to mitigate adverse climate effects becomes increasingly narrow. Climate change and its repercussions present to the world one of the most significant challenges of the 21<sup>st</sup> century. These adverse effects have undoubtedly been felt and will continue to make their presence known across the globe with implications for ecosystems, economies, and communities. The state of Mississippi is no stranger to the repercussions of this global phenomenon. Matched only by Louisiana in its percentage of residents living below the poverty line, the effects of climate change have already devastated and will continue to wreak havoc on communities across Mississippi. This thesis explores the impact of climate change on Mississippi, examining its interaction with severe weather events as well as the implications for one of the state's predominant industries: timber and forestry. Through a series of journalistic articles, this research illustrates and seeks to communicate the current climate reality in Mississippi, the resilience of its people, and the pressing need for adaptive and mitigative strategies.

I conducted general research as well as a brief review of current data and scientific research to educate myself on topics pertaining to the project, including, but not limited to, climate change and environmental activism, as well as climate policy in the state of Mississippi, carbon emissions, severe weather events, and economic activity in the state pertaining to the forestry industry. This research was a necessary and helpful aid to the processes of formulating relevant interview questions as well as composing articles. Findings from the U.S. Energy



Information Administration, the U.S. Environmental Protection Agency (EPA), and the Mississippi Forestry Commission, as well as input from researchers in the Departments of Forestry and Climatology at Mississippi State University, were exceedingly valuable sources of information.

While rising temperatures have not taken a massive toll on the state over the last fifty years (in comparison to the rest of the world), Mississippi's geographical location makes it particularly vulnerable to a variety of severe weather events, a susceptibility that has only intensified in the face of climate change. Mississippi communities have been severely affected by these events in recent years, bearing the brunt of tornadoes, hurricanes, and droughts. In particular, the tornado that ravaged the town of Rolling Fork, Mississippi, in 2023 serves as a cautionary tale, emphasizing the increasing volatility of Mississippi's weather patterns. It is crucial that Mississippians understand and begin to address the impact of climate change in order to safeguard human life as well as to protect the natural and economic resources that provide sustenance to the state.

The economic implications of climate change in Mississippi are profound, particularly for the state's leading industries. This project narrowly examines the impact of climate change upon Mississippi's third largest industry: timber and forestry. Emblematic of the state's identity and heritage, the timber industry has navigated both highs and lows, demonstrating resilience in the face of natural disaster as well as economic turmoil. In keeping with its history, the timber industry faces yet another crisis as severe weather events, exacerbated by climate change, pose an existential threat to this vital sector. Already, severe wind damage caused by hurricanes and tornadoes has wrought havoc on the industry. Sawmills in the state have been destroyed, timber

stands decimated, and family-owned businesses left in disarray as a result of these extreme weather events. Nevertheless, these events illustrate the resilience of the state's citizens and emphasize remarkable communal support amidst the struggle to adapt and rebuild.

This body of work employs a journalistic approach to explore the effects of climate change on the state and its people and seeks to educate its audience, offering a window into the human experiences often obfuscated by statistics and political discourse. The research and subsequent interviews resulted in two news articles. The first, entitled "Climate Change: A Growing Concern for All," centers on the tornadoes which took place on March 24, 2023, in the town and surrounding areas of Rolling Fork, Mississippi. The second, entitled "Timber and Tradition: Balancing Economic Growth and the Environment in Mississippi's Logging Industry," highlights the challenges posed by climate change for one of Mississippi's leading economic forces and the families behind it. By interweaving personal stories, expert analyses, and empirical data, the articles aim to effectively communicate with audiences, illustrating the complexities associated with the impact of a changing climate on the state of Mississippi. Highlighting the resilience and adaptability of Mississippi residents, this body of work emphasizes statistical research and data as well as the human experience. These stories of perseverance, supplemented by scientific research, emphasize community solidarity and may serve as catalysts for action.

Journalism presents itself as an effective means by which to educate the general public about climate change and its inevitable impact. Whilst fearmongering, misinformation, and misinterpretation of scientific research abound, there is no greater time than now for journalists to approach the subject of climate change carefully and effectively. This issue, which has

become increasingly politicized, calls for attentiveness on the part of journalists and readers alike as they seek to critically sift through a multitude of sources ranging from amateur blog posts to scientific studies. This thesis project aims to provide readers with an accurate, humanized, personal connection to the articles through interviews and extensive research from academic and scientific sources. At the very least, its minimal objective is to spark curiosity and promote awareness pertaining to climate change among readers. More than that, it proceeds with the ambition to emphasize the urgent need for collective efforts in order to secure a successful, sustainable, and adaptive future for Mississippi.

## PREPUBLICATION RESEARCH

Prior to creating interview questions, conducting interviews, and composing articles, I engaged in extensive prepublication research in order to formulate relevant content and to better understand the concepts associated with my area of chosen study: climate change as particular to the state Mississippi. The research primarily consisted of government resources, traditional research studies, and partnerships between academic and state institutions as depicted by the Mississippi Forestry Commission. I conducted this research with the additional goals of determining the foreseeable impacts of climate change upon the state as well as building a basic understanding of the ever-evolving landscape of policy pertaining to environmental issues, economics, and climate change in Mississippi. The findings of this research are presented below.

### **What is Climate Change?**

The term “climate change” broadly encompasses enduring alterations in Earth’s climate systems, including changes in temperature, precipitation patterns, and extreme weather events. A global issue that carries a wide array of consequences, ‘climate change’ is often used interchangeably with ‘global warming,’ though the two concepts have distinct definitions. While global warming focuses on the Earth’s rising surface temperature due to increased greenhouse gas emissions, climate change encompasses global warming and its various impacts, including changes in precipitation patterns, extreme weather events, and sea levels.

The body of the United Nations which assesses existing scientific research pertaining to climate change, known as the Intergovernmental Panel on Climate Change, or

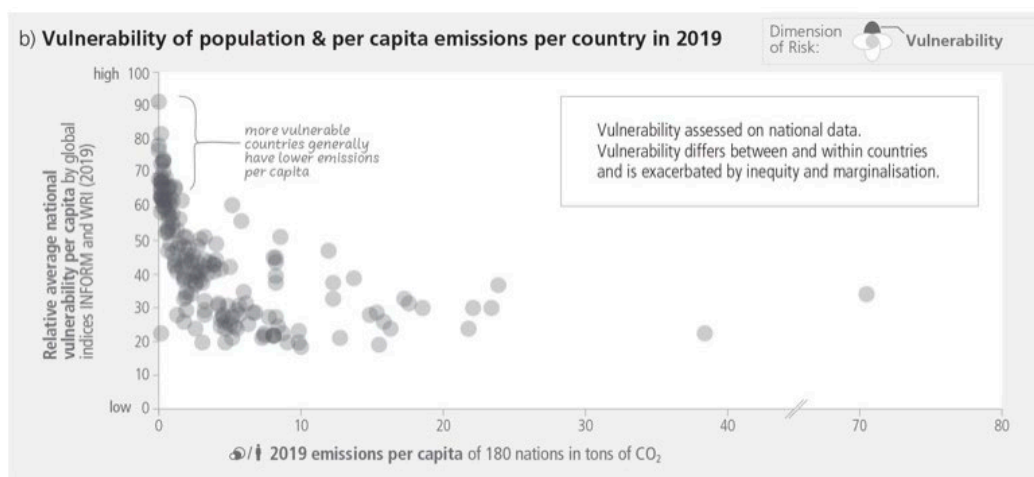
IPCC, publishes an extensive “synthesis report” (SYR) every five to seven years in order to communicate a comprehensive overview of existing scientific findings pertaining to climate change with the goal to aid policy makers and global powers as these entities make crucial decisions pertaining to Earth’s climate. The most recent assessment, AR6 Synthesis Report, finalized in March 2023, asserts with high confidence that human activity has largely contributed to global warming in addition to changes in Earth’s atmosphere, ocean, cryosphere, and biosphere. A direct quotation from the AR6 Synthesis Report reads, “It is virtually certain that hot extremes (including heatwaves) have become more frequent and more intense across most land regions since the 1950s (Figure 2.3), while cold extremes (including cold waves) have become less frequent and less severe, with high confidence that human-caused climate change is the main driver of these changes,” (section 2, p. 46). The combustion of fossil fuels for energy as well as deforestation are primary contributors to this rapid change, significantly increasing the concentration of greenhouse gases in the atmosphere, such as carbon dioxide, methane, and nitrous oxide. While natural phenomena such as volcanic eruptions and solar irradiance variations also play a role, the overwhelming scientific consensus indicates human action is primarily responsible for the current warming trend. Furthermore, the report states that climate change caused by human activity has already exacerbated extreme weather events, harming the natural environment as well as the lives of people across the globe (*Ar6 synthesis report: Summary for policymakers headline statements*, 2023).

Climate change and its effects pervade the globe. Rising temperatures associated with melting ice caps and subsequently rising sea levels are among the most conspicuous indicators of our changing global climate. Additional indicators of an altering global climate include more frequent and severe weather events such as hurricanes, tornadoes, thunderstorms, and droughts.

Impacting ecosystems, biodiversity, and human populations in a variety of ways, these changes contribute to water and food scarcity, affect health outcomes, and threaten livelihoods, in particular those of the world’s most vulnerable communities (*IPCC Ar6 synthesis report, 2023*). The results in Figure 1 (*Ar6 synthesis report, 2019, p. 49*) demonstrate this relationship, illustrating the average level of vulnerability in a country’s population against emissions in 2019 per-capita per-country (see Figure 1).

Figure 1 displays a comparison of 180 countries, examining the correlation between the vulnerability of citizens with pollution from burning fossil fuels in 2019. Vulnerability was assessed based on factors including the amount of citizens living in poverty, inequity, and access to healthcare. Generally, the higher the vulnerability of the country, the lower their emissions per capita. Thus, populations of vulnerable countries are likely to experience the ramifications of the actions accorded to less vulnerable countries.

**Figure 1. Vulnerability of population & per capita emissions per country in 2019**



*Note.* Reprinted from IPCC, 2023: Sections. In: *Climate Change 2023: Synthesis Report.*

Contribution of Working Groups I, II and III to the Sixth Assessment Report of the

Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero

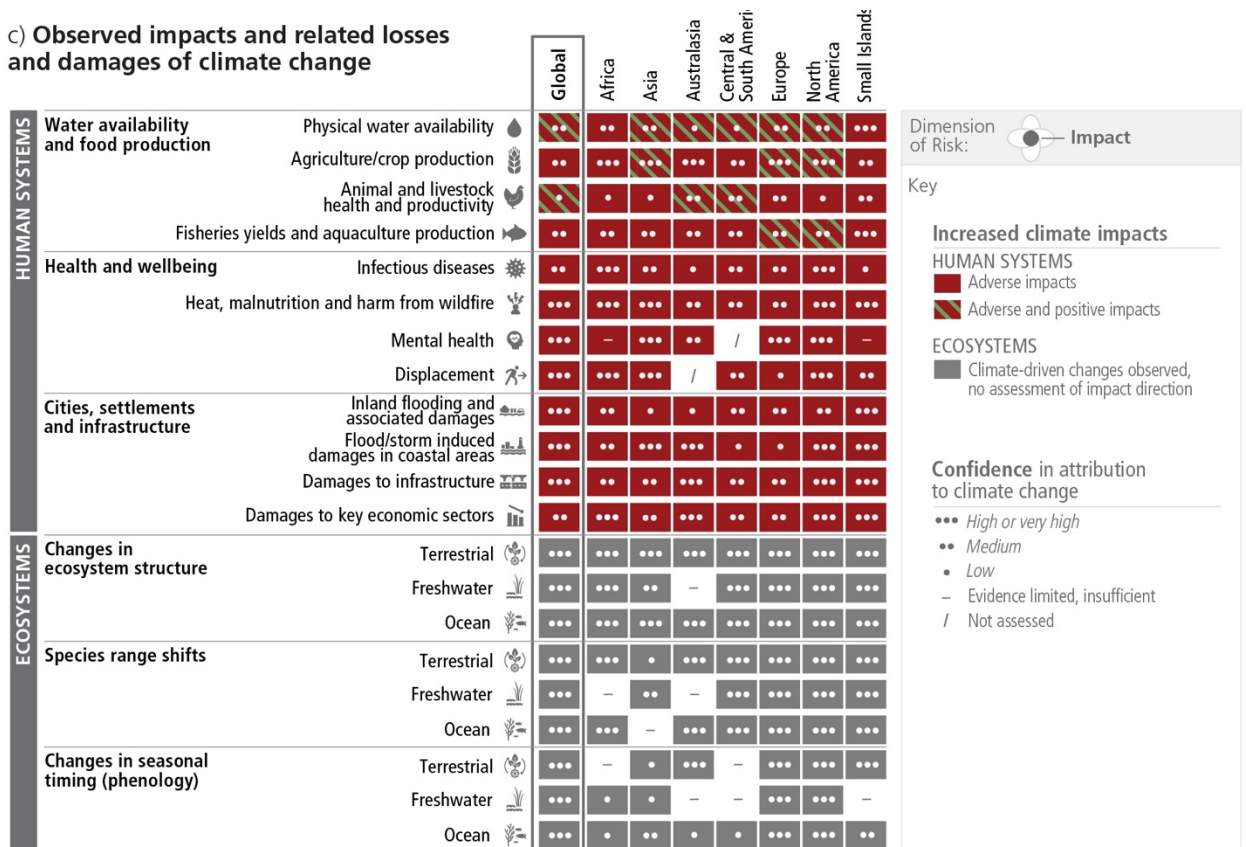
(eds.)). IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647

Results accumulated in Figure 2 (*IPCC Ar6 synthesis report*, 2019, p. 49) further highlight the already observable impacts of climate change upon a variety of stakeholders, economic sectors, infrastructure, and natural elements (see Figure 2).

Figure 2 cites a high or very confidence of adverse as well as positive impacts upon agriculture and crop production in North America, Europe, and Asia as a result of climate change. Additionally, it asserts high or very high confidence that climate change has globally contributed to adverse effects upon inland flooding and associated damages, flood and storm induced damages in coastal areas, as well as damages to infrastructure.

**Figure 2. Observed impacts and related losses and damages of climate change**

c) Observed impacts and related losses and damages of climate change



*Note.* Reprinted from IPCC, 2023: Sections. In: Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647

Addressing climate change requires concerted global efforts to reduce greenhouse gas emissions. Transitioning to renewable energy sources as well as implementing additional adaptive measures to mitigate impacts are crucial. Covenants between global nation-states such as the Paris Agreement, which aims to limit global warming to well below 2 degrees Celsius above pre-industrial levels (Connors et al., 2021), are vital to ensure the alleviation, at least in



part, of the adverse impacts associated with climate change. Nevertheless, achieving these goals demands significant adaptation by corporations and individuals in addition to governmental action.

Climate change is a defining challenge of our time with far reaching implications for the planet and humanity. The scientific community has established an irrefutable link between human activity and climate change, emphasizing the urgency for the implementation of global efforts to mitigate greenhouse gas emissions and adapt to the inevitable consequences associated with a changing planet. Understanding its causes and effects is the first step toward mitigating its impacts and securing a sustainable future for subsequent generations (Connors et al., 2021).

### **How is Climate Change Predicted to Affect Mississippi?**

Existing research pertaining to the foreseeable effects of climate change on the state of Mississippi highlights drought, rising sea-levels, and increased extreme wind events such as hurricanes and tornadoes as high risks for the state. A report published by the United States Environmental Protection Agency in August 2016 “What Climate Change Means for Mississippi,” asserts that climate change is likely to affect the state as the sea level rises, hurricanes and tropical storms become more frequent, and temperatures increase. These developments will inevitably create challenges for communities as well as infrastructure across the state. Residents who live along the Mississippi Gulf Coast will potentially face eroding beaches and coastal flooding as well as the impact of increasingly common hurricanes upon personal property and infrastructure. In addition to flooding along the coastline, climate change

has the potential to cause an uptick in inland flooding from the Mississippi River as well as severe droughts, the latter of which will likely affect the state's prominent agricultural activities as well as its third-largest industry, timber and forestry (Runkle et al., 2022) (United States EPA, 2016).

### **Mississippi's Timber and Forestry Industry**

The practice of forestry maintains an extensive historical legacy and present impact over the state of Mississippi. Reforestation experienced a boom in Mississippi during the 1920s and 1930s as these efforts received backing from the state government. During these years, the State Forestry Commission was established, and a ten-year tax exemption was offered on land reserved for reforestation efforts. In 1938 the Mississippi Forestry Association was organized, and in 1954 Mississippi State University established its own School of Forestry. The timber industry continued to thrive in Mississippi, which became the fourth-largest producer of lumber among the southern states (Fickle, 2018). The Mississippi Encyclopedia states that "By the turn of the twenty-first century, Mississippi's roughly 18.5 million acres of forestland covered approximately 62 percent of the state. One in four of the state's manufacturing jobs was in the forest products industry, and nonindustrial private landowners controlled the majority of the forestlands," (Fickle, 2018). As the public has become increasingly aware of climate change and environmental issues, the industry has begun to adapt, increasingly implementing responsible practices and adhering to management guidelines. In recent years, however, the industry has experienced a variety of major challenges. Large corporations began to pull out of the state, selling lands and closing mills as a result of multiple factors pertaining to finances as well as depreciating demand for timber products sourced from the United States. Finally, in 2005 Hurricane Katrina and its counterpart Hurricane Rita caused significant destruction to timber

stands across Mississippi (Fickle, 2018). Nonetheless, Mississippi's timber farmers have exhibited resilience in the face of these setbacks, adapting to instability in the industry and evolving as necessary for their survival. Interestingly, during the COVID-19 pandemic, Mississippi's forest landowners were designated as an essential workforce, a testament to their economic indispensability (Mississippi Forestry Commission, 2020). In 2021, almost 70,000 jobs were provided to Mississippians through the timber industry and the industry's products contributed to a \$12.9 billion economic impact (Mississippi Forestry Commission, Annual Report 2021).

Climate change and forestry are inextricably intertwined. As global temperatures reach new heights and severe weather events become increasingly common, foresters will be forced into flexibility and adaptation. Researchers from Mississippi State University, including Dr. Christine Fortuin and Dr. Andrew Himes, are focusing their efforts on the mitigation of these impacts. Attempting to better understand the predicted effects of numerous, successive extreme weather events upon timber stands, current research seeks to assist foresters in making informed decisions about harvest rotations, tree species, thinning, and controlled burning, among other components of the business.

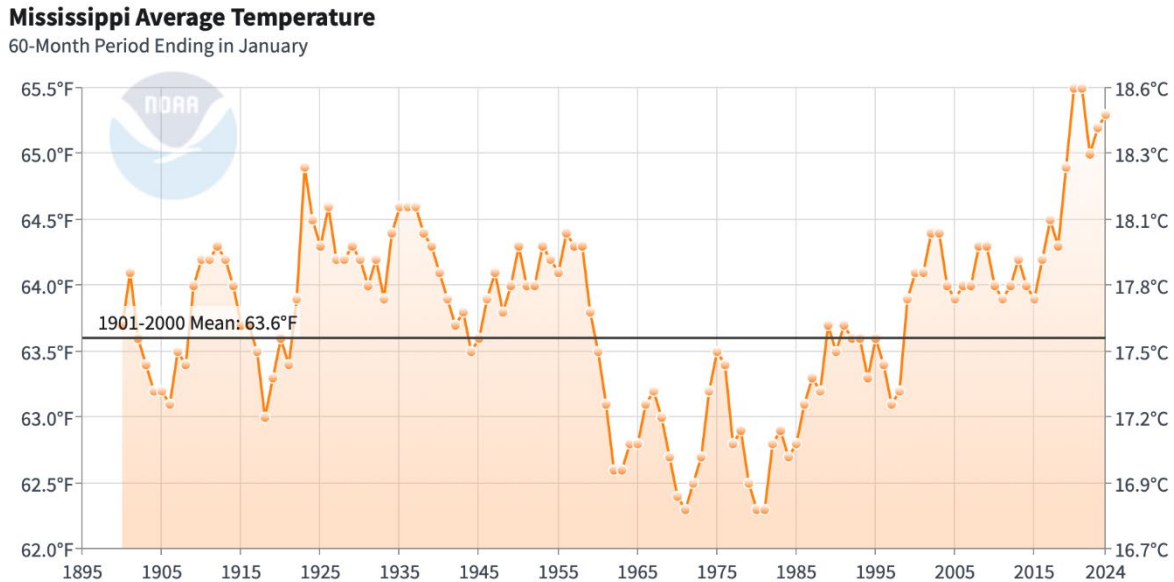
Although climate change is likely to negatively impact the industry, forests are highly functional tools for the mitigation of adverse climate effects. Because timber is a renewable resource, it can be used as a form of biomass energy to create heat, electricity, or fuel. If utilized in conjunction with sustainable forestry practices, this form of renewable energy can be beneficial to Earth's atmosphere and the overall carbon cycle (Morse & Turgeon, 2023). Many European countries have already begun to take advantage of this energy source, with almost 60 percent of EU member countries' energy in 2018 derived from biomass fuel, or organic matter

that can be converted to fuel. Of the biomass material utilized for energy, forestry and wood products accounted for over 60 percent (Joint Research Centre, 2019). It is important to note that forests function as a crucial element of the carbon cycle, sequestering carbon dioxide from the atmosphere and assisting in the mitigation of rising global temperatures. Rotations between harvests, or the number of years timber stands are allowed to grow before harvesting, are important considerations to be made by foresters as reducing the amount of carbon dioxide in the atmosphere becomes increasingly necessary. There is some discrepancy among researchers about what time intervals between harvests are the most environmentally beneficial. Although younger forests remove carbon dioxide more quickly than older forests, older forests have much higher levels of previously stored carbon dioxide. Thus, in-depth research coupled with responsible, careful, and sustainable forestry practices are crucial components to provide the most effective environmental benefits through forestry.

### **How Has Climate Change Already Affected Mississippi?**

Mississippi differs from much of the world in its relatively minuscule increase in net warming, which scientists hypothesize may be attributed to a variety of factors including those related to forest regrowth, coal burning, and irrigation. Nevertheless, as climate change continues to develop and these factors slow down or reach a stasis of sorts, the state is likely to “catch up” to the rest of the planet in terms of rising temperatures. As depicted in Figure 3 from (*Climate at a glance: Statewide Time Series*, 2024), during the years ranging from 2016 to 2021, Mississippi experienced its warmest consecutive five-year interval with an average temperature of 65.5 degrees Fahrenheit. Average temperatures in more recent years, specifically ranging from 2019-2024, rank in a close second at 65.3 degrees Fahrenheit, with hotter summer days still looming on the horizon (*Climate at a glance: Statewide Time Series*, 2024).

**Figure 3. Average Mississippi Temperature over five year periods from 1895-2024**



*Note.* Reprinted from: NCEI.Monitoring.Info@noaa.gov. (2024, March). *Climate at a glance: Statewide Time Series.* Climate at a Glance | Statewide Time Series | National Centers for Environmental Information (NCEI).

[https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/statewide/time-series/22/tavg/60/1/1895-2024?base\\_prd=true&begbaseyear=1901&endbaseyear=2000](https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/statewide/time-series/22/tavg/60/1/1895-2024?base_prd=true&begbaseyear=1901&endbaseyear=2000)

Although rising temperatures have not caused as many problems for Mississippi in recent history when compared with the rest of the world, extreme weather events have held significant influence over the state and its residents. These events include thunderstorms, tornadoes, winter storms, and hurricanes as well as tropical storms. In 2005, Hurricane Katrina wrought severe devastation on much of the state, displacing populations, disrupting economic activity, and destroying infrastructure as well as personal property.

Hurricane Katrina significantly damaged the state's forests, with the Mississippi Forestry Commission valuing the economic loss at \$900 million. Additionally, the Mississippi Institute for Forest Inventory estimated that around 88 percent of timber in southeast Mississippi was damaged by the hurricane. These damages resulted in many landowners altering their forest management practices, opting to plant species of trees, such as longleaf pine, with greater resilience to wind events, to increase controlled burning, and to combat invasive species (Collins-Smith, 2015). Ultimately, the ability of Mississippi landowners and farmers to combat the damage incurred by Hurricane Katrina speaks to their resilience, serving as a reminder of the benefits of adaptation and encouragement as they face extreme weather events going forward.

Just over a year ago, in March of 2023, an EF-4 tornado touched down in the towns of Rolling Fork and Silver City, Mississippi, taking the lives of 25 Mississippians, injuring dozens, and destroying the livelihoods of those across the area. Traveling 59 miles across land, the tornado caused considerable damage which resulted in an outpouring of federal support and funding as well as reinforcement and service from communities across the state (Lynch et al., 2023).

A 2018 study entitled, "Spatial Trends in United States Tornado Frequency," conducted by Vittorio A. Gensini of Northern Illinois University and Harold E. Brooks of the National Severe Storms Laboratory, examined the idea that tornadic activity is shifting in certain areas of the United States. The results of the study found that there has been a decrease in tornadic activity associated with the Great Plains, or traditional "Tornado Alley," and an increase across the Southeastern United States from 1979 to 2017. However, it is important to note that these are the findings from a single study, though warmer conditions associated with climate change are, according to some experts, likely to generate favorable conditions for extreme weather events

such as tornadoes, thunderstorms, and hail. (*Ar6 synthesis report*, 2023). It's also possible that the data in Gensini's study may have been impacted by the development of better technologies, which are able to detect more of these kinds of weather events (NAOO, *Is tornado frequency increasing in parts of the U.S.? 2018*) (Gensini & Brooks, 2018). Nevertheless, the possibility that there is a new tornado alley in the United States has sparked public interest over the last year as the Rolling Fork-Silver City tornado garnered national news-media attention.

An additional factor which may contribute to a perceived increase in dangerous weather events lies in the rising levels of rural populations across the Southern United States. As areas become more populated, the likelihood of damage due to weather events is greater. Notably, these communities are often at higher risk due to their remote locations as well as the probability that a significant portion of their members live below the poverty line and, as such, occupy a more vulnerable position with a decreased ability to recover quickly (NAOO, *Is tornado frequency increasing in parts of the U.S.? 2018*) (Jacobo, 2023).

Another significant disaster in the state instigated by severe weather events in recent years came to a head in August 2022 with the onslaught of the Jackson Water Crisis. Flooding of the Pearl River initiated by severe storms across the state converged with crumbling infrastructure in the state's capital city to create a public health crisis, leaving 160,000 residents without access to clean water for a number of weeks. This crisis, too, garnered national attention and sparked conversations surrounding the high poverty rate in Jackson which, according to the US Census Bureau, soars above the national average (12.6 percent) at 25.9 percent. Over 80 percent of the city's residents are members of minority ethnic groups and less than 30 percent of residents at or over the age of 25 hold a college degree. The Jackson Water Crisis highlighted the ability of climate related disasters to disproportionately affect already vulnerable members of

society, and the importance of adapting infrastructure to meet the increasingly straining demands of climate impacts (*U.S. Census Bureau Quickfacts: Jackson City, Mississippi, 2023*).



## METHODS

Through the process of writing these articles, I relied on information about science, business, and advocacy. In accordance with the topic of this thesis and climate change itself, my approach to journalism landed in at the intersection of economics, advocacy, culture, geopolitics, and history. For this project, I conducted a series of interviews to glean information and to highlight personal as well as professional experiences pertaining to climate change in Mississippi. These interviews were conducted between October 19, 2023, and March 03, 2024, and were both formal and informal in nature. Interviews ranged from 30 minutes to an hour each and were conducted in a face-to-face or via phone or video format. In preparation for these interviews, questions were loosely outlined for added structure, but conversations were allowed to follow their natural course. A list of initial questions is provided in the appendices. A review of articles sourced from the popular press as well as academic research was also conducted. Interview subjects and formats are outlined below.

### **Interviews**

Not all interviews were included in the final drafts of the articles. The interviews were conducted in the following formats:

Anne Thomas Sulton, Ph.D. J.D. – Phone call & Email; Alice Ann Hollingsworth

Jacqueline Brown – In Person; Celeste Lay

Mike Brown, Ph.D. – Zoom Call; Multiple Contributors

Dillon McInnis – In Person; Alice Ann Hollingsworth

Danny Box – In Person; Kala Nance

Dwayne Williams – In Person; Cody Farris

Christine Fortuin, Ph.D – Zoom call; Alice Ann Hollingsworth

Andrew Himes, Ph.D. – Zoom Call; Alice Ann Hollingsworth

## GLOSSARY

**Biomass Fuel:** Organic matter, especially plant matter, that can be converted to fuel and is therefore regarded as a potential energy source.

**Carbon Dioxide Emissions:** Carbon dioxide released into the atmosphere as a result of burning oil, coal, natural gas and waste materials for energy use.

**Carbon Sequestration:** a natural or artificial process by which carbon dioxide is removed from the atmosphere and held in solid or liquid form.

**Climate:** The weather of a place averaged over several decades.

**Climate Change:** When averaged weather conditions start to change. Causes can be either natural or caused by human activities.

**Forestry:** The science or practice of planting, managing, and caring for forests.

**Forest (Timber) Stand:** An area of trees in close proximity that are manageable as a single unit and uniform in quality.

**Global Warming:** The rapid increase in Earth's average surface temperature over the past century primarily due to the greenhouse gases released as humans burn fossil fuels.

**Extreme Weather Events:** Occurrences of unusually severe weather or climate conditions that can cause devastating impacts on communities and agricultural and natural ecosystems.

**Weather:** The state of the atmosphere at a place and time as regards heat, dryness, sunshine, wind, rain, etc.

## ARTICLE 1

During initial research surrounding climate change and its relationship to the state of Mississippi, the recently occurring climate disaster in Rolling Fork, Mississippi, was of utmost relevance and significance. The purpose of this article was to provide a first-hand account of the tornado which uprooted lives, destroying homes and businesses in Rolling Fork and its surrounding areas. Additionally, this article sought to educate its readers pertaining to the relationship between climate change and severe weather events. Celeste Lay contributed greatly to the content of this article through her interview with Ms. Jacqueline Brown. The following article was published in the November 30, 2023, print edition of *The Daily Mississippian* as well as electronically on the DM website on November 27, 2023 (Hollingsworth, 2023).

### **Climate Change in Mississippi: A Growing Concern For All**

By: Alice Ann Hollingsworth

Jacqueline Brown can still hear the echoes of her granddaughter's terror on the night of March 24, 2023, when a tornado ripped through Rolling Fork, Miss.

“My grandbaby, she was screaming and hollering because when the roof came off, it also picked her up and she started screaming, ‘I don’t want to die, oh, Lord,’” Brown said.

Miraculously, everyone in the Brown family survived the event, but their home was destroyed. The Browns, like many others, found themselves struggling to find a place to call home in the immediate aftermath of the storm.

They now live in a trailer that the Federal Emergency Management Agency provided. However, the trailers are intended to be a short-term solution until those who were displaced by the tornado can find permanent housing. Brown said that it is not very realistic.

“The trailer was given to us at first, but now what y’all are telling us is that we have to pay for them in the end. How can we pay for a FEMA trailer and build a house, too?” Brown asked.

Even before the EF-4 tornado tore Rolling Fork apart, more than a fifth of its population lived below the poverty level, according to [U.S. Census Bureau](#) data. And while Mike Brown, Mississippi’s state climatologist, cannot say for sure that climate change is causing an increase in tornadic activity in the state, he does say it is possible. He also pointed out that some communities generally have a harder time recovering from any type of disaster.

“Obviously, poor communities don’t have the infrastructure that other communities have and so when something does happen or goes wrong, or there’s a strain on that system, it does have a disproportionate impact (on) these marginalized communities,” Brown said.

[According to the Environmental Protection Agency](#), racial minorities in Mississippi will feel the impact of climate change more than any other group. If the planet warms by 2 degrees Celsius, EPA analysis found that Black people in Mississippi would be 40% more likely than other groups to live in areas where extreme temperatures will cause more deaths. Additionally, American Indians in Mississippi are 48% more likely to live in areas that will be inundated by flooding from sea-level rise, according to the EPA.

But journalist and civil rights attorney Anne Sulton says the issue is more nuanced.

“I differ because most people will say, ‘Oh, you know, Black and brown people, they’re gonna have it harder. Oh, no, no, this is gonna get so bad everybody’s gonna feel it,” Sulton said. Sulton earned her Ph.D. in criminology and criminal justice from the University of Maryland-College Park and her Juris Doctorate from the University of Wisconsin-Madison. Currently, Sulton serves as senior international correspondent for the Jackson Advocate newspaper. In 2021, she published a series of weekly articles centered on educating readers about the multifaceted issue of climate change.

Sulton said that regardless of factors such as race, gender, age or socio-economic status, the effects of climate change are a little like playing the lottery.

“We all have the equal opportunity to experience a natural disaster,” Sulton said.

Yet, this does not negate the disproportionate effects seen in communities with limited resources, especially when it comes to recovery.

“The poor always suffer more because a loss [for those with limited resources] is actually a loss. For those with ample resources, a loss is a temporary inconvenience,” Sulton said.

Those with financial means often have the flexibility to relocate, rebuild or access alternative resources. In contrast, underprivileged communities may face prolonged displacement, economic hardships and emotional trauma.

“But,” Sulton said, “it doesn’t mean (those with the financial means to recover) won’t be impacted by the loss of life, right? Loss of productivity, the loss of safety and security — - everybody is at an equal risk.”

In essence, climate change stands as the great equalizer of the 21st century. Rising sea levels, intensifying hurricanes, prolonged droughts and record-breaking heatwaves are universal threats. Those with the financial means to do so may escape some of the immediate

repercussions, but they are not immune to the broader, long-term societal effects of an unstable climate.

“People of all ethnic and racial backgrounds end up standing in line together at the free food and temporary housing centers,” Brown said.

*School of Journalism and New Media reporter Celeste Lay contributed to this story.*

**Figure 4. Dr. Anne Sulton**



*Note.* Caption: Dr. Anne Sulton is a practicing civil rights attorney and an accomplished journalist with a Ph.D. in criminology and criminal justice. She currently serves as Senior International Correspondent for the Jackson Advocate Newspaper and is the author of over fifty articles pertaining to climate change. Photo provided by Dr. Anne Sulton.



## ARTICLE 2

The second article narrowly focused on Mississippi's third largest industry: timber and forestry. Interviews for this article were conducted during an overnight trip in late February 2024. A team of student journalists traveled to Leakesville, Mississippi, under the supervision of Dr. Debora Wenger to interview foresters Mr. Dillon McInnis and Mr. Dwayne Williams, as well as economic development agency head Mr. Danny Box. These conversations emphasized the deeply-rooted tradition of family-owned businesses and work relationships in rural Mississippi. Secondly, researchers from Mississippi State University, Dr. Andrew Himes and Dr. Christine Fortuin, were interviewed in order to gain the researcher's perspective on the relationship between forestry and climate change in the state. The following article was published in the *Greene County Herald* on April 4, 2024 (Hollingsworth, 2024).

### **Timber and Tradition: Balancing Economic Growth and the Environment in Mississippi's Logging Industry**

By: Alice Ann Hollingsworth

In Mississippi, logging is not just an industry; it is part of a legacy for many people in the state. The McInnis family in Greene County has been embedded in the timber tradition for generations. At the forefront now is Dillon McInnis, a man who not only oversees the family's timber operations but is also deeply passionate about the land on which he works.

“I love the woods. I spend every day in them, and yes, we cut trees down, but right here in Mississippi, we're just farmers,” McInnis said. “While we’re growing that crop of trees ... we try to help the wildlife, try to promote air and water quality.”

The McInnis family has owned and operated D&R Logging, Inc. as well as Timberline Trucking, Inc. since 1982. The company employs about a dozen workers and another 20 subcontractors.

Patriarch Randy McInnis was named the Mississippi Forestry Association Outstanding Logger of the Year in 2022, and his son Dillon said their company has always focused on acting as good custodians of the forest.

“Through the Mississippi State Extension Service, all of our loggers have received some training, and in that training they receive training on best management practices,” McInnis said.

The sustainable approach to logging includes practices such as controlled burns and selective planting. These methods not only support the timber industry, but also enhance the habitat for wildlife, including game and endangered species, and foster a balanced ecosystem.

But the timber industry faces significant challenges, including the threat of pine beetles, the impacts of drought and the aftermath of natural disasters, such as tornadoes.

Christine Fortuin, an assistant professor in the Mississippi State University School of Forest Resources, studies the toll that catastrophic weather events can take on Southern forests in particular.

“We are, as you know, seeing increases in the intensity of storms,” Fortuin said. “So, the intensity of windstorms, of tornadoes, of hurricanes, of all those things – those kinds of events can really have a severe impact on forests.”

She considers the winds generated in these situations to be the biggest climate-related threat to Mississippi’s forests, and she wants to help landowners do something about it.

“I started with developing some models of tornadoes and hurricanes in Southern forests to begin to predict what the effects are going to look like,” she said. From there she hopes study what variables within the forest environment give a forest more resilience to climate change.

“Hopefully, we can get a lot more specific about wind events and planting densities and timing and that sort of thing to help landowners make better plans to mitigate those kinds of potential catastrophic impacts,” Fortuin said.

McInnis said climate change is not a big worry for him right now.

“I'm not sold on climate change. I'm not denying it either by any means, but I think if there's something happening it is going to be long term. I think it's moving so slow that we haven't seen it here,” McInnis said.

What does worry him is the economic landscape with high insurance costs and market dynamics that often leave logging companies bearing the brunt of price fluctuations. Even when the price of lumber increases, McInnis said logging companies don't necessarily make more money.

McInnis said healthier markets would result in healthier forests. Although the demand for wood products exists and rose significantly over during the pandemic years, McInnis said it's the sawmills who reap the profits from this increase rather than landowners and logging companies.

With more than enough supply of lumber, the mills can set raw timber prices low. “We have tons of wood growing in south Mississippi in this area right now. We're outgrowing what the mills are using. So, we need a little bit more of a place to consume the products,” McInnis said.

One new development in the industry, the introduction of government-funded carbon credit programs, presents both opportunities and challenges for loggers. While aimed at promoting carbon sequestration, which is the process of capturing and storing carbon dioxide found in the atmosphere, these programs can impose restrictions that McInnis said may inadvertently hinder

sustainable forestry practices. For example, McInnis expressed concerns about the potential negative impact on forest health if these programs limit essential activities such as thinning, which is crucial for biodiversity as well as forest resilience.

Fortuin notes that Mississippi is already doing quite well when it comes to something called carbon uptake, or the amount of carbon dioxide produced versus that which is removed from the atmosphere. She said according to the [2023 National Climate Assessment](#), Mississippi is actually at the top of all 50 states in terms of carbon uptake, thanks primarily to the state's forests. "We should be proud of that," Fortuin said.

Mississippi's forestry industry continues to evolve with improvements in management practices that address soil erosion and enhance the overall health of the forests. It's a source of pride for many, including McInnis, who cherishes the opportunity to work alongside family and friends in a business that's more than just a livelihood — it's a legacy.

"I get to work with my dad, you know, my family," McInnis said.

The timber industry's story in Mississippi is one of balance between economic vitality and environmental stewardship, between tradition and innovation. As we delve into the complexities of climate change and conservation, the insights from those who live and breathe the forest life, such as Dillon, alongside the expertise of forestry and environmental professionals are invaluable in charting a sustainable path forward for Mississippi's timber industry.

**Figure 5. Dr. Christine Fortuin**



*Note.* Caption: Dr. Christine Fortuin is an Assistant Professor of Natural Resource Conservation in the College of Forest Resources at Mississippi State University. Photograph provided by Dr. Christine Fortuin.



**Figure 5. Dillon McInnis**



*Note.* Caption: Dillon McInnis smiles in one of the loblolly and longleaf pine forests his company helps to manage. Photograph by Kala Nance.

**Figure 6. “Logger of The Year” Awards**



*Note.* Caption: Randy McInnis’s Mississippi Loggers Association "Logger of The Year" awards hang in the Timberline Trucking, Inc. and D&R Logging office. Photograph by Kala Nance.

## CONCLUSIONS/DISCUSSION

Throughout this project, much has been learned about the state of Mississippi as it interacts with and is confronted by the escalating problems associated with climate change. This phenomenon intersects with all facets of human life including economics, geopolitics, history, health, and culture, necessitating our increased attentiveness and prompt action. Like climate change itself, the field of journalism, interestingly, lies at the intersection of these topics, making it an exceedingly relevant approach for communicating compelling information pertaining to this issue.

Prior to the completion of this project, I was largely uneducated on the topic of climate change and its implications for my home state of Mississippi. After discussing these issues with professionals, academics, and activists, the relevance of climate change to me and those around me became increasingly apparent. Based on current scientific research, the expansive nature of climate change and its subsequent effects will necessitate action on the part of humans to mitigate these effects. Preparation for and increasing adaptation to these impacts is also crucial. As researchers and advocates seek to anticipate and mitigate the issues associated with climate change, global citizens and corporations maintain a responsibility to acclimate and adjust their behaviors accordingly. Interestingly, climate change has been politicized, in part due to economics, but remains an increasingly polarizing topic.

Further research, advocacy, and awareness are desperately needed to make substantial progress in the realm of mitigating climate change and its effects. This project was limited in its



scope of research as well as its audience. Whilst it delves into the forestry industry in Mississippi and seeks to educate readers about the implication of climate change upon the state, further research and advocacy are needed surrounding other economic factors and industries in the state which may be impacted by future severe weather events as well as failing infrastructure. In addition, further research is needed to justify Dr. Christine Fortuin's claim that Mississippi is among the top carbon sequestering states in the nation. Journalists like Dr. Sulton are making significant strides towards raising awareness amongst a variety of readers. Reaching diverse and expansive audiences is crucial to creating an impact centered around change. Science writing and informative journalism are uniquely positioned to educate readers about the observable and predicted impacts of climate change on a global, national, and state level.

The state of Mississippi, itself, maintains a responsibility to its citizens to raise awareness of the adverse impacts of climate change, such as successive severe weather events and rising sea levels. As observed with the occurrence of the Jackson Water Crisis, infrastructure failure and public health issues are likely to arise as a result of extreme weather events. Furthermore, residents of the Mississippi Gulf Coast and its surrounding areas must remain informed about the future impact climate change is likely to have on their personal property and livelihoods. If public officials fail to effectively prepare citizens of the state for the repercussions of climate change, compounded disaster is likely to occur.

As a result of this project, I have come to conclude that the field of journalism is an extremely effective and appropriate avenue by which to raise awareness and promote advocacy for climate change prevention among individuals. Journalism is uniquely able to speak to the universal human experience in addition to current news issues. In this way, it maintains the ability to function as an effective tool for communicating the necessary messages pertaining to

climate change. Further studies and reporting will be extremely useful to propagate these messages as the gap to mitigate the adverse effects of climate change becomes increasingly narrow.

## APPENDIX A

### Dr. Anne Sulton Interview Questions for Article 1

- When did you first become interested in climate change as an issue?
- When you began thinking about writing your column for the Jackson Advocate were you particularly interested in getting the word out about climate change to Mississippians? You've also written in particular about your generation. Do you feel the responsibility for the situation we currently find ourselves in lies with this group?
- In your most recent article written for the Jackson Advocate you concluded your column entitled "WHEN" posing 7 when? Questions pertaining to climate change on the global scale. I would like to discuss these for a moment. Since your article was published, have any of these questions been answered?
- The fourth WHEN question you posed reads: "WHEN – by what date certain – will we realize that rich nations' century-long excesses are primarily responsible for climate change and not "uneducated" women living in poor nations having too many babies?" Do you think the general public has come to this realization yet? Do you think corporations have? Are there any additional misconceptions about climate change that frustrate you?
- Your fifth WHEN question poses an interesting issue for Mississippi farmers in particular.
- WHEN – by what date certain – will we adjust our diets to reduce agriculture's adverse effects on global warming?

- Do you feel as if there is a community in Jackson in particular of individuals who are passionate about this issue?
- What are some steps readers of the Jackson Advocate can take to join this movement?
- What would you say to someone who refuses to acknowledge that climate change has been/will be as devastating as your research and that of others demonstrates?
- Do you think people (specifically Mississippians) would be more likely to lay down their preconceived notions about climate change if they were able to establish a personal connection or realize that they have some “skin in the game?”

## APPENDIX B

### **Dillon McInnis Interview Questions for Article 2**

- Background Info: (name, who you are, where you work, “tell us a little bit about yourself”
- How many people do you employ?
- I know your safety record is outstanding, and it’s clear your company cares deeply about the well-being of its employees. How do you ensure operational success, efficiency, and safety all at once?
- In addition to water quality and erosion concerns, what other environmental issues have come to your attention in recent years?
- What do the state’s management practices look like and how do you attempt to adhere to them? Do you or have you participated in any voluntary carbon markets or carbon credit programs? Is your company impacted by Involuntary carbon markets at all? Have you ever deferred harvesting?
- How do you feel about the Natural Capital Exchange program ending? Has this affected your business, employees, or daily operations in any way?
- How have you had to adapt to logging in the modern era?
- What is your favorite memory from your time in the industry or what are you most proud of?

- Are there any environmentally beneficial practices that you feel outside pressure to adhere to that may also have negative effects on your livelihood as well as those of your employees? How will you/they be affected as society becomes increasingly environmentally conscious?
- What kinds of processes are going on right now?

## APPENDIX C

### **Dr. Christine Fortuin Interview Questions for Article 2**

- Do you mind if I record? I won't use the video just the audio! ask for background information (name, who you are, where you work, "tell us a little bit about yourself")
- Forest entomology and disturbance
- I know you've done some research on wild bee populations in Pine forests. I recently traveled to a pine forest in Leakesville, MS, and I did notice a hive (not a natural hive)- I didn't think much of it at the time but after looking into your publications I felt there may be some great significance there.
- How has your research led you to understand the effects of climate change on forest ecosystems?
- What kind of impact do you foresee severe weather effects such as windstorms, hurricanes, and excessive heat having on forests in the southern United States?
- How do you see these ecosystems changing over the next few years?
- What animal populations will be and have been heavily affected by these changes?
- What, if any, changes do you think Mississippi companies could implement to mitigate their negative environmental impact?
- Is there anything else I should have asked you about?

## APPENDIX D

### **Dr. Andrew Himes Interview Questions**

- Do you mind if I record? I won't use the video just the audio. Ask for background information (name, who you are, where you work, "tell us a little bit about yourself")
- I know you've done some research on the effects of moderate severity hurricanes on gap characteristics in longleaf Pine woodland. I recently traveled to a longleaf pine forest in Leakesville, MS, for this project and was wondering if you could speak a little bit about the results of your research and the implications it may have.
- How has your research led you to understand the effects of climate change on forestry and the timber industry?
- What kind of impact do you foresee severe weather effects such as windstorms, hurricanes, and excessive heat having on forests in the southern United States?
- What, if any, changes do you think Mississippi foresters could implement to mitigate their negative environmental impact?
- Is there anything else I should have asked you about?



## REFERENCES

- Collins-Smith, S. M. (2015, August 27). *Forestry industry rebounds in Katrina's aftermath*. Mississippi State University Extension. <https://extension.msstate.edu/news/feature-story/2015/forestry-industry-rebounds-katrina%E2%80%99s-aftermath>
- Connors, S., Berger, S., Péan, C., Bala, G., & Caud, N., etc. (2021). *Summary for all climate change 2021*.: IPCC.  
[https://www.ipcc.ch/report/ar6/wg1/downloads/outreach/IPCC\\_AR6\\_WGI\\_SummaryForAll.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/outreach/IPCC_AR6_WGI_SummaryForAll.pdf)
- European Commission, Joint Research Centre, (2019). *Brief on biomass for energy in the European Union*, Publications Office. <https://data.europa.eu/doi/10.2760/546943>
- Fickle, J. E. (2018, April 14). *Forests and forest products since 1930*. Mississippi Encyclopedia. <https://mississippiencyclopedia.org/entries/forests-and-forest-products-since-1930/>
- United States Environmental Protection Agency. (2016). What Climate Change Means for Mississippi. EPA 430-F-16-026.  
<https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-ms.pdf>

Gensini, V. A., & Brooks, H. E. (2018). Spatial Trends in United States tornado Frequency. *Npj Climate and Atmospheric Science*, 1, 1–5. <https://doi.org/10.1038/s41612-018-0048-2>

IPCC. (2023, March). *Ar6 synthesis report: Summary for policymakers headline statements*.

AR6 Synthesis Report: Summary for Policymakers.

<https://www.ipcc.ch/report/ar6/syr/resources/spm-headline-statements>

IPCC, 2023: Sections. In: *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647

IPCC, 2023: Summary for Policymakers. In: *Climate Change 2023: Synthesis Report*.

Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001

Jacobo, J. (2023a, April 4). *Is Tornado Alley shifting due to climate change? Scientists explain how warming climate affects tornado activity*. ABC News.

<https://abcnews.go.com/US/tornado-alley-shifting-due-climate-change-scientists-explain/story?id=98347077#:~:text=Tornado%20Alley%20is%20expanding%2C%20scientists%20say&text=One%20year%20the%20Southeast%20may,the%20southeast%2C%20the%20experts%20said>.

Jacobo, J. (2023b, April 4). *Is Tornado Alley shifting due to climate change? Scientists explain how warming climate affects tornado activity*. ABC News.

<https://abcnews.go.com/US/tornado-alley-shifting-due-climate-change-scientists-explain/story?id=98347077#:~:text=Tornado%20Alley%20is%20expanding%2C%20scientists%20say&text=One%20year%20the%20Southeast%20may,the%20southeast%2C%20the%20experts%20said>.

Lynch, A., Shamma, B., Brasch, B., McCarley, G. C., & Gurley, L. K. (2023, March 26). *A disaster in Mississippi: How severe EF-4 tornadoes wrecked rolling ...* Washington Post.

<https://www.washingtonpost.com/weather/2023/03/26/mississippi-rolling-fork-tornado-damage/>

Mississippi Forestry Commission. (2021). 2021 Annual Report. *Mississippi Forestry Commission*. Retrieved April 2, 2024, from <https://www.mfc.ms.gov/wp-content/uploads/2022/01/2021-MFC-Annual-Report-FINAL.pdf>

Mississippi Forestry Commission. (2020, October 22). Mississippi's Forest Landowners Essential to Nation's Wood Supply, Rural Economies, and Environmental Health.

*Mississippi Forestry Commission*. Retrieved April 2, 2024, from <https://www.mfc.ms.gov/2020/10/mississippis-forest-landowners-essential-to-nations-wood-supply-rural-economies-and-environmental-health/>.

Morse, E., & Turgeon, A. (2023, October 19). *Biomass Energy*. National Geographic Education.

<https://education.nationalgeographic.org/resource/biomass-energy/>

NCEI.Monitoring.Info@noaa.gov. (2024, March). *Climate at a glance: Statewide Time Series*.

Climate at a Glance | Statewide Time Series | National Centers for Environmental Information (NCEI). [https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/statewide/time-series/22/tavg/60/1/1895-2024?base\\_prd=true&begbaseyear=1901&endbaseyear=2000](https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/statewide/time-series/22/tavg/60/1/1895-2024?base_prd=true&begbaseyear=1901&endbaseyear=2000)

NOAA's National Weather Service. (2018, October 17). *Is tornado frequency increasing in parts of the U.S.?*. National Weather Service.

[https://www.weather.gov/lmk/niu\\_tornado\\_frequency\\_study](https://www.weather.gov/lmk/niu_tornado_frequency_study)

U.S. Census Bureau. (2023, July 1). *U.S. Census Bureau Quickfacts: Jackson City, Mississippi*.

U.S. Census Bureau.

<https://www.census.gov/quickfacts/fact/table/jacksoncitymississippi/PST045223>

Runkle, J., K.E. Kunkel, S.M. Champion, R. Frankson, B.C. Stewart, J. Nielsen-Gammon, 2022:

Mississippi State Climate Summary 2022. NOAA Technical Report NESDIS 150-MS.

NOAA/NESDIS, Silver Spring, MD, 5 pp.

