

Anthropogenic

FALL 2022



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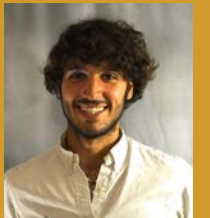
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GREATER SAGE-GROUSE is pictured lekking, coupled with a signature-popping call produced by puffing up and quickly deflating their bright yellow air sacs (pictured). Photo by Matthew Nesselrodt '23 in Kremmling, Colorado.

ON THE COVER: SENSE OF RESPONSIBILITY photo taken by Jamilah Maronde '22 Moab in Utah as part of the 2022 Student Photo Contest.

State of the Rockies Project Colorado College's Think Tank for Navigating Change

For a complete version of the magazine, visit:
<https://www.stateoftherockies.com>



Greetings

It's been a fun and fulfilling year at the State of the Rockies. Our Program Specialist, Cyndy Hines, and I have worked with many terrific students on projects that further their interests in the social, environmental, and political challenges of living in the Rocky Mountain West. In this edition of *Anthropogenic*, we share the exciting work of our students, ranging from photography exhibits of fires in the Rocky Mountain West - to mapping the dark skies of this region - to conference presentations on our research on the oil and gas industry in Colorado. I think you'll be amazed at what we've accomplished and the impact and reach we've had in our community and nationwide!

Last fall (2021), we received a \$385,000 grant from the William and Flora Hewlett Foundation to host the Conservation in the West poll and related projects. For example, over the summer CC students traveled to national parks to interview park visitors and learn whether their opinions on conservation and sustainability reflect the results of data collected in the Conservation in the West poll.

Last spring (2022), the 50th Reunion Class chose the State of the Rockies for its fundraising campaign for an Endowed Fund for State of the Rockies Student Fellowships. The 50th Reunion Class will showcase our fellows' research and other projects including our student-created vintage posters during their celebration this fall.

Looking ahead to the 2022-23 academic year, we will start many new projects that focus on the environmental, social, and political challenges of the Rocky Mountain West. Keep an eye on our social media pages and the CC Handshake website for new opportunities. We are always looking for motivated students to work with us on our research projects, especially students who want to preserve the beautiful landscape of our region.

Thank you for all of your support, and enjoy this edition of *Anthropogenic*!

Dr. Kat Miller Stevens

Director of the State of the Rockies Project






WHO WE ARE

The Colorado College's State of the Rockies Project encourages students to further their academic interests in the ecological, social, and political challenges of living in the Rocky Mountain West. Students embark on interdisciplinary investigations around the region to discover the possibilities for balancing human activity without spoiling the natural environment.

OUR MISSION

The State of the Rockies Project enhances understanding of and action to address socio-environmental challenges in the Rocky Mountain West through collaborative student-faculty research, education, and stakeholder engagement.

WHERE TO FIND US

-  State of the Rockies
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Delia Freliech revisits her experience with the Conservation in the West Poll Interns.

By Cyndy Hines

Resting in the Pecos Wilderness of Northern New Mexico, the Montezuma Castle serves as a school for 230 international students from over 100 different countries. A truly unique microcosm of the world, the Montezuma Castle has already burnt down three times due to forest fires. Currently another fire rages in the Pecos, putting the castle and its diverse occupants at risk again. Photo by Ben Curry'25.

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Learn the importance of Dark Skies while reading how four CC students spent their summer developing unique projects to understand and increase public concern about dark skies and develop ways to preserve our Dark Skies.

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2022 Fellows- Faculty Research

FELLOWS -FACULTY RESEARCH

Understanding Policy Debates on the Future of Hydraulic Fracturing and Abandoned Wells in the Rocky Mountain West

Description

This is a faculty-organized summer research group. The overall goal is for the group to design and conduct research on the relationships among the oil and gas industry, advocacy coalitions, and policymakers in Colorado with 6 student fellows broken into 4 main research topics. This is the second year of State of the Rockies running this project.

Meet the Faculty

Kat-Miller Stevens, PhD

Kat-Miller Stevens is the State of the Rockies Director and an associate professor of business at Colorado College, Katrina's interdisciplinary research bridges the areas of public policy, social impact, and nonprofit studies. This research explores the ways in which social movements and collaborations create social change to influence policymakers, powerful industries, and institutions. Her work addresses environmental-focused social movements and their intersection with social justice and environmental justice issues. She is especially interested in researching the sharing of knowledge and resources, leadership and governance issues, and community and environmental impacts of social movements and collaborations.



Jonathan Pierce, PhD, Visiting Professor

Jonathan Pierce is the Vice-President of Safeguard Marine, LLC. He is the lead scientist and project manager on research projects seeking to mitigate risks posed by shipping on the marine environment. Dr. Pierce received a Ph.D. in Public Affairs from the School of Public Affairs, University of Colorado, Denver (CU Denver) in 2012. He has taught undergraduate and graduate courses in public policy and administration at CU Denver, the University of Denver, and Seattle University. His research interests examine the motivations and advocacy efforts of actors in the policy process applied to natural resource development with a post-doctorate focusing on fracking in Colorado. Jonathan is also an adjunct professor at Colorado College.



PROJECT ONE

An Exploration of Individual Perceptions of, and Feelings Towards, the Use of Hydraulic Fracturing

Micah Arrison '23, Research Fellow
Charlotte Toogood '24, Research Fellow

Background

This team is coding and analyzing qualitative data from a 2019 survey testing the narrative strategy of loss frames around fracking with a control frame. This was used to receive how that impacts individual perceptions, beliefs, and emotions towards, the use of hydraulic fracturing. Control frames give the subject basic detail on how fracking is conducted by oil and gas companies. On the other hand, a loss frame focuses on the environmental and public health, and safety risks associated with fracking. The main responses to the survey found the use of loss frames as the most influential way to persuade beliefs and emotions.

With these survey results, the fellows team coded 409 entries to document different responses coming from subjects who read the control vs the loss frame entries. The team made adjustments to the codebook as the process continued to reflect what they were finding and ensure responses would be lined up with the codebook. With this, they were able to have a 92% agreement with each of the codes. This is a very useful study as it shows that advocacy groups against fracking are more likely to influence the emotions of the general public if they use a loss-frame narrative with their messaging. Charlotte and Micah will be working with Dr. Jonathan Pierce this fall to complete a paper on the findings of this project

Code	Loss (n=203)	Control (n=207)	Difference
Risk Public Health/Safety	47% (95)	29% (61)	18%
Moral Values	38% (77)	24% (49)	14%
Anger	14% (29)	4% (8)	10%
Harm Local Enviro	58% (118)	49% (101)	9%
Harm Global Enviro	20% (40)	27% (55)	7%
Doesn't Harm Local Enviro	2% (4)	7% (14)	5%
Tech / Scientific	33% (67)	29% (60)	4%
Enviro Justice	4% (9)	1% (2)	3%
No Risk to Public Health / Safety	1% (3)	4% (9)	3%
Helps Economy	28% (56)	31% (65)	3%
Fear	7% (15)	5% (10)	2%



Photo by Daniel Brenner for The New York Times

This table shows the results of the project with the difference between groups presented loss or control groups and what percent was concerned with specific risk codes.

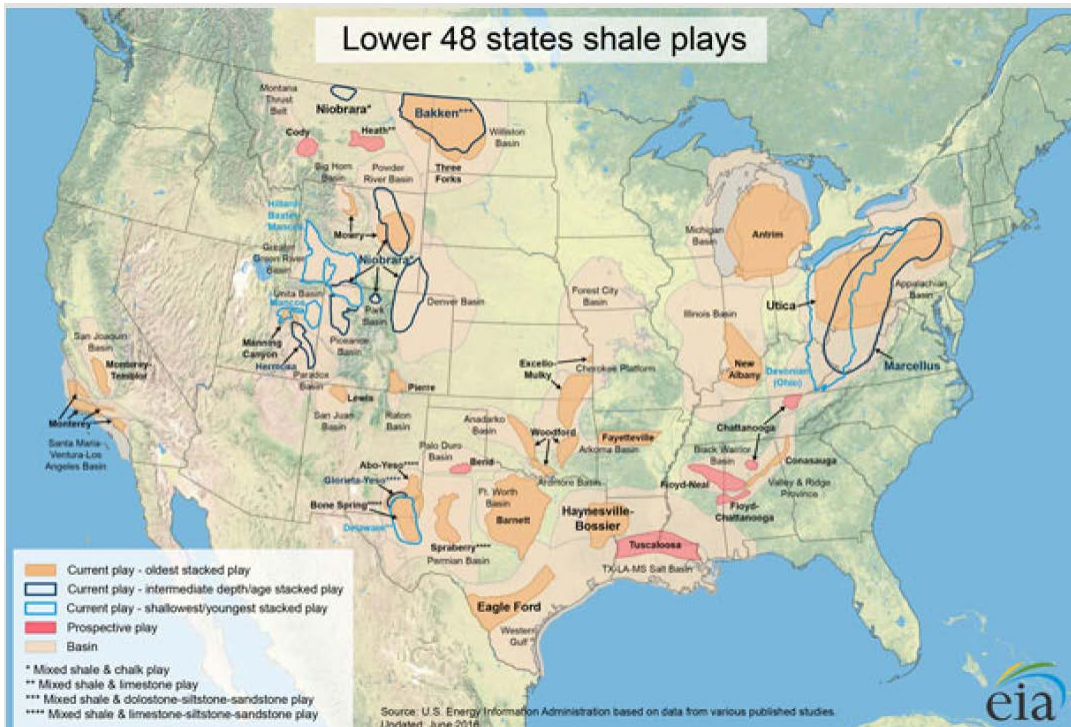


Image from U.S. Energy Information Administration based on data from various Published studies.

Fellows' Profiles

MICAH ARRISON '23 is from Freeport, Maine, and just transferred from Drexel University. He is an International Political economy major interested in understanding effective policies for environmental protection and climate justice. He is inspired to work with the 2022 team of research fellows to investigate the institutions and coalitions involved in fracking policies in the Rockies.



CHARLOTTE TOOGOOD '24 from Paget, Bermuda, and is pursuing an environmental studies major and a political science minor. She is interested in environmental policy, justice, and sustainability. Charlotte wants to gain a deeper understanding of the local oil and gas industry and its impacts on the surrounding communities and environments.



PROJECT TWO

Public opinion of climate change and the oil and gas industry before and after the Trump Administration

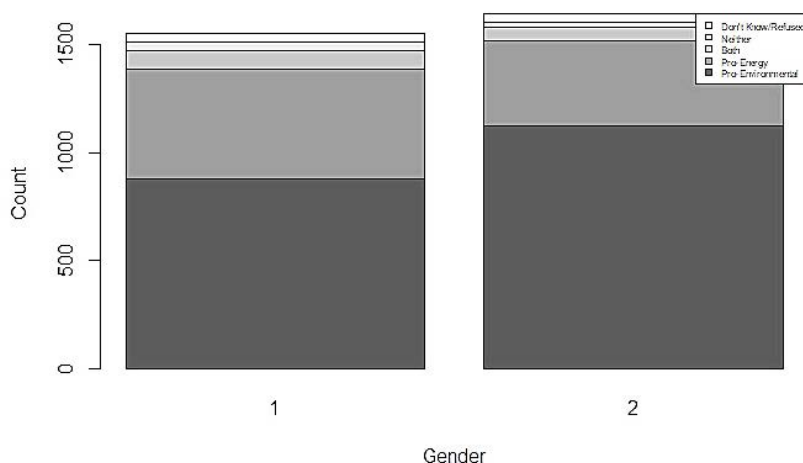
Zoey Roueche, '24, Research Fellow
Zoraiz Zafar, '25, Research Fellow

Background

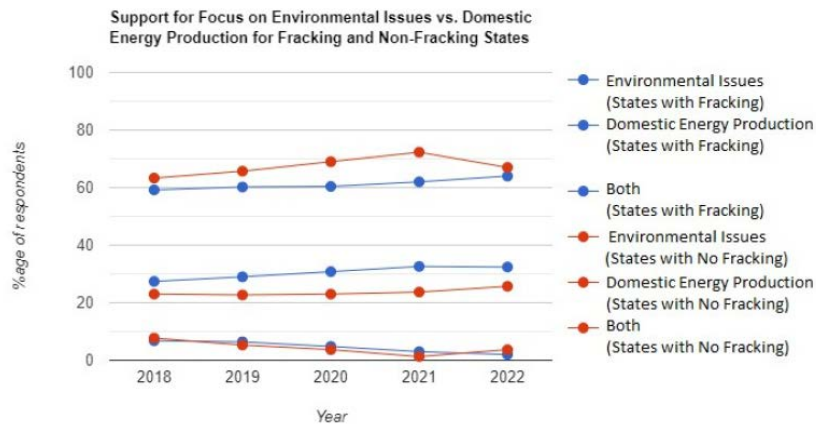
Zoey and Zoraiz are analyzing longitudinal data from the 2018-2022 Conservation in the West Poll to explore public opinion over time on issues related to climate change and the oil and gas industry such as air and water pollution, economic impacts of oil and gas companies, and environmental and social injustices of the industry.

This team has been analyzing the data to gain an understanding of trends related to environmental policy. This poll reflects public opinion over time on issues related to climate change and the oil and gas industry such as air and water pollution, economic impacts of oil and gas companies, and environmental and social injustices of the industry. Specific questions they have been studying involve whether people feel congress and the administration should focus on domestic energy production and gas or environmental issues.

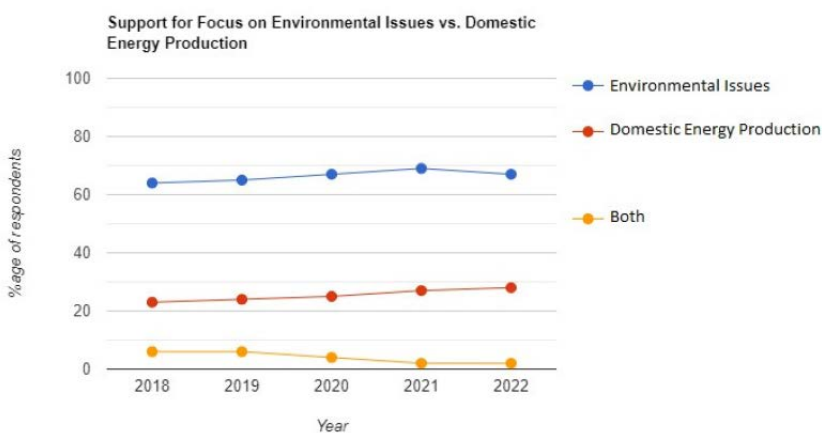
Outstanding trends depend on whether a voter comes from a fracking or non-fracking state (middle image) and the voters' gender (top image). There is more support for environmental issues over domestic energy production (bottom left image) in all Rocky Mountain West states except for Wyoming and female-identifying respondents are seen to support environmental issues over domestic production more than males (top image). Zoey and Zoraiz recently finished a paper analyzing policy changes on fracking and oil and gas between presidential administrations, finding that the party in power affects what fracking-related rulings can be passed as well as the persistence of inconsistencies in executive orders from the different administrations.



This graph shows disparity in 2020 Conservation in the West Poll with female-identifying respondents more in favor of focusing on environmental issues.



These graphs compare the percentage of correspondents supporting a focus on environmental issues vs. domestic issues from 2018 to 2022. The middle graph includes whether the respondent came from a state with or without fracking and the lower graph pools all respondents together.



Fellows' Profiles

ZOEY ROUECHE '24 from Littleton, Colorado is an Environmental Studies and Political Science double major and a French minor. Zoey is passionate about environmental policy and issues of environmental justice. This project is a mix of Zoey's two fields of study and allows her to focus on environmental policy something that she plans to pursue in law school after graduating from Colorado College. With this study, Zoey is completing most of the policy work.



ZORAIZ ZAFAR '25 from Linköping, Sweden, and Islamabad, Pakistan is pursuing a major in Mathematical Economics and aspires to attend law school one day. He is very enthusiastic about studying the quantitative aspects of the oil and gas industry by analyzing its socioeconomic and environmental effects. Zoraiz is focusing mostly on statistics and analysis of data from the SOTR poll for this project.



PROJECT THREE

A GIS perspective of fracking in Colorado

Ben Gibson, '23, Research Fellow

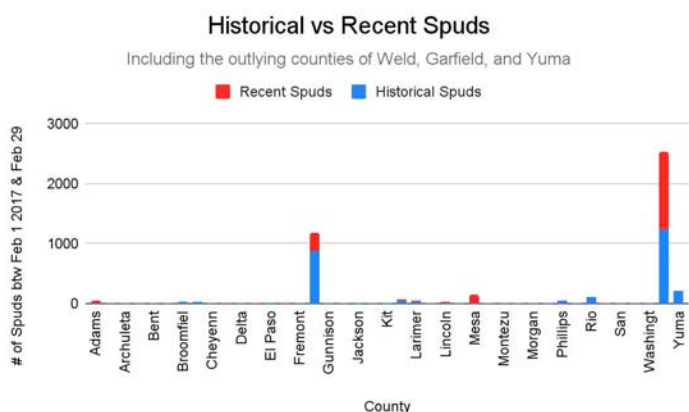
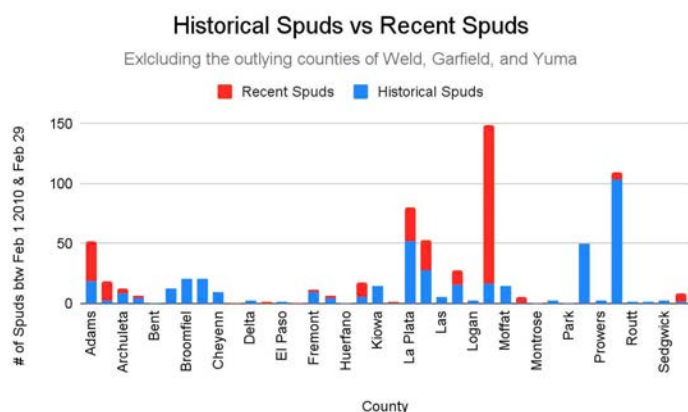
Dova Castaneda Zilly, '23, Research Fellow

Background

This team is investigating the geospatial distribution of policy actors', their political behavior, and their proximity to fracking as a result of the 2019 SB19-181 (see project 4 for more information) throughout the state of Colorado. This team is using policy actors to observe trends on fracking, they are looking at which way people voted on questions related to fracking alongside where they are located in proximity to the fracking site. They are also looking to find trends relating fracking opinions with partisanship, development, and density of the sites.

So far, they are still waiting to receive hard data, based on the literature read they hypothesize that proximity will be a big factor, and the people living closer to the fracking sites will be more opposed to the bill. They also expect that partisanship will have less of an influence on voters located near the fracking sites, meaning that all residents closer to the sites will be more opposed, and through further analysis, they believe that votes placed by people located farther from the sites, will be more partisan with democrats being less supportive and republicans being more supportive of fracking. This is because policy actors living farther away are more likely to have formed opinions along the lines of their partisan affiliation.

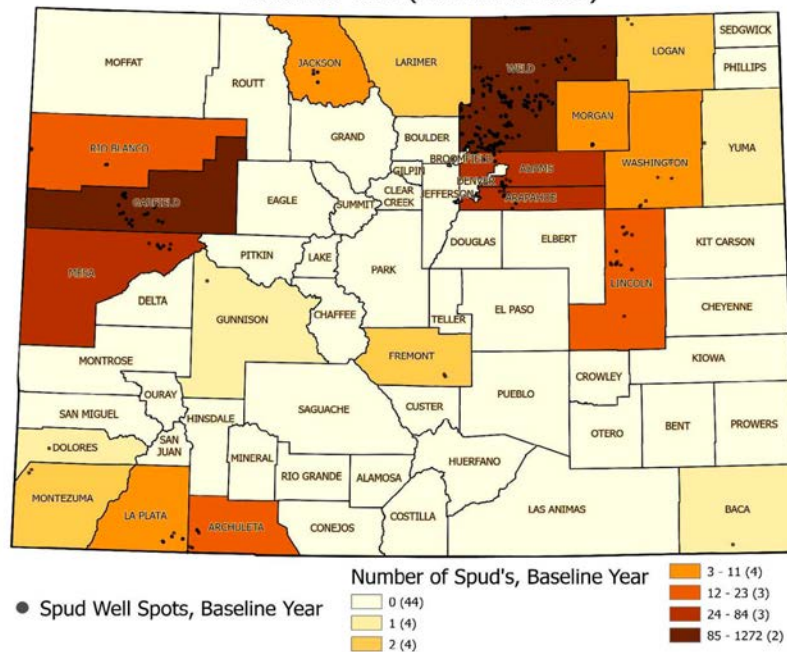
Recency is a final actor that the team has been tracking, although they noted that much of the literature thus far gives contradicting reactions out of locations with familiarity with fracking development. The pair hypothesized that Policy actors in places with a large amount of recent growth are more likely to have supported SB 19-181 while policy actors in places with historical growth are more likely to have opposed SB 19-181. Some literature states that areas with more recent rapid fracking development would have more objections due to their existing exposure, and some state that familiarity with more fracking would make the voters more supportive. This team plans to continue their work on this project into the fall.



The number of fracking Spuds are the number of fracking wells started within a given year.

Colorado Counties Spud's in Baseline Year

Baseline Year (Feb 2018-2019)



Ben and Dova used ArcGIS to create this map depicting how Spud's are concentrated in the different Colorado Counties.

Fellows' Profiles

BEN GIBSON '23 from Essex, Massachusetts is an environmental study major with a specific interest in environmental law and policy. He was interested in the work that was already started for this project and is excited to help it move forward. Ben is interested in working alongside the other State of the Rockies fellows to develop a better understanding of the tools utilized by advocacy coalitions to affect the policy process. He has enjoyed the freedom as well as guidance they have received from Kat and Jonathan as the project has taken them on many unexpected turns.



DOVA CASTANEDA ZILLY '23 from Seattle, Washington, is returning for her second summer as a State of the Rockies Fellow. She is an Environmental Studies & Economics double major and is interested in studying the interconnections of those two disciplines to help preserve and conserve the environment. Her work from last summer and a class project using the data sets previously created inspired this project. Dova is excited to work with the new fellows and study the oil and gas industry's relationship with the communities they are in the Rocky Mountain West.



PROJECT FOUR

Research Topic: *An exploration of nonprofit advocacy tactics used to influence oil and gas policy*

Coming this Fall

Background

While some of the teams will be finishing up their projects from the summer, other fellows will begin the school year with a new project that analyzes qualitative coding from transcripts of individuals representing nonprofit organizations at legislative hearings on Colorado Senate Bill 19-181.

In the Summer of 2021, the fellows team analyzed all of the public testimonies on Colorado Senate's 2019 Bill 19-181. This bill changed how the state of Colorado governs the operation and development of oil and gas, becoming one of the most innovative bills of this nature in the nation. It ensures that the industry is regulated to protect "public health, safety, welfare, the environment and wildlife resources."

The testimonies were coded into separate keywords and phrases used now to establish numerical data. This data can then be compared alongside voter data from the State of the Rockies Conservation in the West Poll and used to determine key terms relevant to this summer's projects.

This part of the project will add to last summer's work on public testimony with coded reports of tactics used in hearings of a different target group: representatives from the non-profit sector.

RESEARCH PRESENTATION

Rockies Fellows Present at National Conference

At the end of Block Seven State of the Rockies Fellows Izzie Hicks, '22 and Dova Castaneda-Zilly, '23 traveled with Dr. Kat Miller-Stevens, director of the State of the Rockies Project, to the Midwest Political Science Association's annual conference in Chicago, Illinois. Hicks and Castaneda-Zilly presented a paper from the State of the Rockies Project's 2021 summer fellowship titled "How Anger and Fear Influence Policy Narratives: Advocacy and Regulation of Oil and Gas Drilling in Colorado".

The paper was coauthored with Dr. Kat Miller-Stevens and Dr. Jonathan Pierce and two other State of the Rockies fellows, Evan Rao, '23 and Saigopal Rangaraj, '23. Rockies fellow Greta Forseth, '23 also helped gather data for the paper. Hicks and Castaneda-Zilly presented the paper on a panel with three other academic papers applying the Narrative Policy Framework to a variety of policy arenas.

Feedback from the conference will be used to revise the paper for submission to an academic journal. The 2022 State of the Rockies summer fellows are continuing the project and will be used to revise the paper for submission to an academic journal.

The 2022 State of the Rockies summer fellows are continuing the project and will produce a second paper to be presented at the annual conference of the Association for Research on Nonprofit Organization and Voluntary Action in Fall 2022. We are very proud to our fellows.





Student-Led Resesarch

The "Think Tank" Approach

State of the Rockies' social and natural science-based research and projects are aimed at finding ways to balance how we live with the responsibility of caring for our natural world. We provide students opportunities to build skills and apply classroom knowledge to practical social- and science-based projects to help prepare them for life after Colorado College.

Our climate-focused research takes us deep into the social and ecological dilemmas that shape our lives here in the West. We contemplate ways we can attenuate human environmental impact while addressing equity and inclusion issues. Our goal is for students to pursue their academic interests, or perhaps discover new ones, as they engage in inter-disciplinary research and projects. Working on a Rockies project enables students to take learning beyond the 3-1/2-week block plan. In the field, in the lab, and when interviewing and reporting, students apply their coursework knowledge, gain skills and practical experience, and consider how their work contributes to finding an equilibrium between human activity and ecosystem integrity.

This summer, a team of Rockies students investigated the impact of light pollution on local environments and communities. Another project team surveyed visitors to national parks to see if their opinions matched those captured by the Conservation in the West Poll. Other recent projects include how Colorado Front Range city officials plan to supply water to a booming population as resources dwindle (Summer 2021); exploring the far-reaching effects of the 2020 wildfires (Spring 2020), and investigating how a changing climate is changing lives in Colorado (Fall 2020).

Because art and science are inextricably intertwined, many of the projects we design require students to present research and use some form of creative expression disseminated across a variety of platforms, (e.g., GIS; radio, print, and electronic journalism; art and design, social media, photography). This approach to applied integrated design and research appeals to students from diverse backgrounds across many academic departments.

We recognize the importance of sharing research findings through academic and creative vehicles to increase the size of our audience and the diversity of our participants with the goal of motivating others to take interest and action.



Cyndy Hines

State of the Rockies Project Specialist + Research Director

WHAT OUR **STUDENT WORKERS** SAY ABOUT WORKING FOR THE **ROCKIES!**



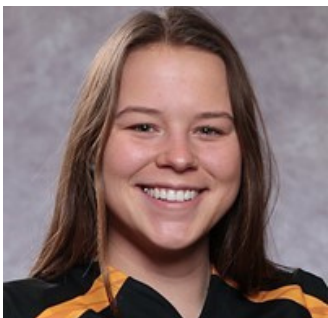
Eric Ingram

"Working with a professor in the Fellows-Faculty Research program isn't the only way to do research with the State of the Rockies Project. We employ interns to do student-led research in areas related to life and sustainability in the Rockies, but that is beyond the scope of our faculty's work. Cyndy Hines conducts this work as a project specialist and research director, but students are employed for their ability to take the lead on this research"



Marco Barrachia

"My work at the State of the Rockies includes increasing community participation in events and opportunities on and off-campus via social media platforms by developing, leading, and promoting socio-environmental projects for the student/faculty body. Relevant projects my team helped promote, develop and execute include the Orange Skies and Dark Skies. We are committed to raising awareness of regional socio-environmental issues on campus through different digital platforms. As a team, we found different ways to engage the student body with the variety of opportunities we offer, including internships, volunteering, faculty-student research, and much more. We often documented students' work and found nuanced ways to reach to engage first- and second-year students. As creative producers, we helped with the production of posters, stickers, hats, water bottles, environmental guides and beyond. As promoters of change and active believers of a more sustainable future, we approach issues multi-disciplinarily and holistically and commit to environmental justice, using our unique digital, creative, graphic, video-producing, and ethnographic skills. The future is now; impossible is nothing at the State of the Rockies"



Delia Freliche

"I started with State of the Rockies after using data from the Castle Rock Then & Now project in my GIS half-block. From there, I expressed interest in working for State of the Rockies in the summer of 2022 but missed the application deadlines for all the positions. I was then able to develop my own position with SOTR eventually ending where I am today as a Rockies Assistant. I have been able to start research projects of my own interest, finish and edit previous research projects, follow different project groups to learn what they do, and develop this magazine! SOTR has allowed me to gain a massive amount of knowledge on different projects while also expanding on my own interests."



Samwel Makyao

"I started working with the State of the Rockies this summer as a research assistant for Professor Kat-Miller Stevens, Visiting Professor Mark Eiswerth and designing the digital magazine—Anthropogenic. What I love about the SOTR is teamwork and a collaborative approach to many things. I'm a huge fan of brainstorming ideas and coming to a conclusion as a team. So working at a place that has the same work philosophy and having fun at the same time, it's something that I would do over and over again."

AN EXPERIENCE

Going Public with the Conservation in the West Poll

Together with Colorado College Outdoor Education Department and Journalism Institute, our interns visited parks and interviewed other visitors in the parks' surrounding areas to explore the diversity, equity, and inclusion in the outdoors. Delia Freljech shares her experience with the interns.

Image taken at Yellowstone National Park. Anil Jergens '23 (right) and Henry Hodde '24 (left) by Cecilia Timberg '24.



On the Road

With the Rockies Public Lands Visitors Survey Team

By Delia Freliech

My experience with the Public Lands Survey team all began with an email from my boss. I was asked if I wanted to go on a 4-day trip to Colorado College's Baca Campus and follow along with the team. The trip started with a lost wallet left miles behind at a gas station, then dinner in downtown Crestone (the closest town near the Baca Campus). This was where I first got to know the field crew and hear about what they had been up to. They had recently returned from Moab, their first trip out in the field, and everyone seemed excited to start up this next round of field work. But what did the work they were doing entail? The answer to this seemed to be developing and changing throughout my 4 days alongside them and was still evolving with each trip that the team went on.

The job description they had received was to go to public lands and conduct journalistic style interviews to find out who was visiting those parks. This idea was all based off inspiration from Cyndy Hines, SOTR's project specialist. About a year prior she had been looking through High Country News and came across an article about all the people that had beelined to the National Parks the summer following Covid19 lockdown. From this article, and many others on the same topic, there were images of massive lines of park visitors, many of those visitors appearing to be white. This realization conflicted with the results compiled from 12 years of SOTR Conservation in the West poll data which reflects a much more diverse population of park goers. Questions arose regarding... Who is visiting the parks? If we went out into the field and surveyed park-goers, would we get the same results as the poll?

All these questions created an initial project goal: can we go into the field and ground truth to see who we find using public lands. So, at the ground level, following Cyndy's inspiration, a team of passionate and driven students was assembled to perform a reconnaissance-style verification on if the poll results are represented by who was found in the field. In this summer's work, the initial phase, the team was given the assignment to figure out who is using our National Parks, their relationship to the Parks,



The sun setting at CC's Baca Campus of Anil Jergens '23 (left) and Cecilia Timberg '24 (right) taken by Delia Frelichech '23.

and why they are there. They were tasked with executing this summer pilot study to further define and develop this research project while learning the methods of a field journalist.

The team was built of 5 CC students. On our first night together, Henry and Anil, two of the team members carried a table outside to the roof deck of Baca and attempted to teach me the ways of cribbage as we watched the incredible sunset. All the while we listened to Cecilia strum her guitar and sing self-written songs. Sam, the last of the team members on this trip, was out in the mountains biking until the only light left in the sky was from the stars starting to emerge in the clear skies above us. That night, we took pictures of the astonishing beauty that is the San Luis Valley and watched as the moon rose from behind the striking Sangre De Cristo mountains which the Baca Campus rests at the base of. The fifth member, Sama, worked from home contributing planning and research.

When I first asked the team what they were up to, they had explained a focus on uncovering the nuances of the poll questions respondents are asked each year. In doing this, they would hopefully find if changes should be made to the questions and give insight on what those changes should be. The approach shifted from the initial project as they continued their work. Curves and challenges were thrown at the team, and they were able to adapt the project to be

able to continue in the best way possible. In doing so, this changed what the overall answers they might get from this summer would be.

A big hit was that they were not allowed in national parks. My first morning with them was spent at the Great Sand Dunes National Park and, notably, all the interviews were conducted just off the National Parks land. After attempting to gain permits, the Parks Service had not permitted the team to conduct surveys on park property. This led to a greater emphasis on the questions to be more about public lands than just national parks.

The questions that were asked every person in the survey were: name, age, where they are from, what they are doing there or what brought them there, had they been there before, and if so, what changes had they noticed, what would they choose to change, and if there was anything else they want to add or ask? Those questions had little variation in wording between each interviewer, but each of the team-members had different comfort levels, experience in surveying, and personal interests, so the following questions to the park goers differed slightly in response to what was said. Each team member brought their own personal interests to those latter questions, framing the questions to focus on peoples relationships with the public lands. They had each mentioned some other, deeper perspective questions that they had enjoyed asking thus far: Henry made a comment on the freedom that public lands offer, Sam on people's spiritual connection and how they engage with the land, Anil on what drew people to each location, and Cecilia on how one's relationship with public lands has changed over time. All of them had an overall objective to develop questions in the moment feeding from their interviewees.

Little did I realize before this trip: interviewing is draining. All day you are pushing yourself to find the right people, ask the right questions and adapt based on each person's unique perspectives, and that's hard. I noticed that the determination level, and overall mood fluctuations as a response to interviewing, affected the way that the team members approached each survey.

At the Sand Dunes, we surveyed areas outside of the park that seemed the most populated eventually landing at the “Oasis” a general store adjacent to the entrance sign of the park. Anil and Cecilia sat outside the general store for an hour receiving about 2 interviews each, then Henry and Sam sent an SOS text from down at the entry sign, stating “this is pretty tough.”

The day was not going as the team had expected, but upon review, it was a good learning experience as the team observed and noted times to approach people for interviews that may be more successful, specifically not around lunch and when it is scorching hot, and people are preoccupied. They also were more aware of trying to recognize the intentions of each visitor prior to stepping up to them.

The next morning there was a team meeting, they were asked to refine the way that they conducted the interviews. They were not getting enough. From here on out, an important distinction arose within the conversations that the team members had with interviewees. They alternated between acting as surveyors gaining information for comparison with the poll results to acting as interviewers having deeper conversations and compiling information relative to their own personal interests.

In a reflection on their work, the group was changing from longer, more in-depth interviews, to shorter chats so they could increase the volume of interviews each day and hopefully gain more perspectives. It was still highly encouraged that the students test their journalistic skills by adapting throughout an interview and follow up when interesting threads arose -- this allowing for the team to understand the need for more quantity while retaining quality, depth, and interest of their interviews.

Because the team couldn’t obtain data while they were on park land, they began to stop in towns where they could chat with people to understand their relationship and use of public lands. So, we spent the next morning in Crestone. I spent a lot of the morning with Henry and after going up to different town members and explaining what he was interviewing for, people responded with discomfort and statements believing they wouldn’t have much to say about



Upper image of the Public Lands Survey Team (from left to right: Henry Hodde, '24, Cyndy Hines, Sam Nystrom-Costales, '25 Anil Jergens, '23 and Cecilia Timberg, '24 hiking at Zapata Falls, CO by Delia Freliche, '23. Lower image in Moab, UT of Cecilia Timberg, Anil Jergens, and Henry Hodde (ordered from right to left) taken by Sam Nystrom-Costales '25.

Public Lands. So, Henry adjusted what he was asking to be about mountains of which we were standing at the base. This brought out conversations on how the residents use that space -- a space that is public land. The town members may not have considered the vast amount of time that they had spent in the mountains towering over their community as visiting public land, although the trails are managed by the BLM and the Forest Service. However, once he had changed his questioning to be more about those specific

Sam Nystrom-Costales, '25, Henry Hodde '24, Anil Jergens, '23, and Cecilia Timberg, '24 (from left to right) at Cottonwood Pass Peak, 12,126 ft. Photo taken by Delia Frelicheh '23.



areas, he was able to get more feedback relating to the resident's relationships as public lands users. Another adaptation that I witnessed Henry make in his interviewing was on our last day in Buena Vista, many people had talked about the impacts of Covid on their perceptions of Public Lands. After that, he began including questions about Covid in his following interviews.

Both Henry and Sam expressed the value obtained when interviews would stray from the initial questions they brought up. Although in the shift to surveying for quantity, the project moved from what Henry called "human to researcher," they proved that a balance can be found in collecting necessary volume of data and personal stories. The team was to obtain a high quantity of interviews to fulfill a review of the existing poll, while at the same time immerse themselves as journalists. Henry later expanded on this by saying Henry later told me that "Colorful stories are created through details." As the only team member with journalism currently a part of their path of studies, this summer position has helped to have hands on experience in understanding the importance of how to interview with a goal of getting necessary data and pushing for a bit more as well. In doing so they all selected times to jump at the opportunity to hear a cool story or interesting opinion.

In Crestone, Anil, Henry and I ended up sitting with the owner of a Café and his mother for over an hour, as they told us about the history and community of the town. It was experiences like this, sitting chatting with community members in a small-town cafe, where I felt this project was doing its main purpose as a survey to see if the previous polling questions were reflective of Public Lands visitors, but also an opportunity to connect with the communities around us. Sam spoke with me about how this project has helped for him to build a sense of community and a sense of place beyond just Colorado College, and I could not agree more. Later that day we hopped in the car and headed to Salida. A few people had told us about a rafting festival occurring and said it would be the perfect place to stop, not only because it is super fun, but there would also be a lot of public lands users in attendance.

Salida and the FIBArk (First in Boating the Arkansas) Festival did not disappoint, so we ended up returning the next day as well. The team split up with a mission to get valuable interviews and explore the town and its festival. Even once they had hit their interview quota for the day, we stayed to experience the stand-up paddleboard slalom, boxing competitions, and everything else FIBArk had to offer.

Throughout this the team would see someone who caught their eye and approach them for another interview. The first night, we were headed towards the festivals main stage to listen to some music and there was a booth advertising public lands. So, Cecilia went over and started talking, telling them about what we were doing, and got an interview. At that same venue, a woman running a coffee cart had been too busy to talk with Sam earlier in the day, but she recognized him, waved him over, gave us all coffees, and said that she had time for an interview now.

We spent the final morning in Buena Vista where each of the team members went off on their own and I got to explore around the town. The town center does not span a large area, so I kept running into them. While they were all solo surveying, the different types of people that each team member might be drawn to, or more likely to get an interview with became more obvious and also made me question: when they can each pick the people, they are surveying, does that add bias to the study? When I asked them, all of them admitted there is bias. Sam tends to go up to people that are seemingly more unique at the first glance. He said they are usually nice and more open to sharing stories and talking. It was also interesting to see what types of people each member of the team said that the others were more drawn to. Cecilia said Henry has something with the ladies; Henry said Anil is more into academics who can give good depth, reasoning, and some insight on history; and Sam said Cecilia comfortably walks up to people confident in a way most people find easy to talk to.

While ground-truthing and gaining a vast quantity of interviews, the group followed up on interesting threads for deeper perspectives. With an objective to refine the poll as

well as gain insight on what questions could be added there was both a research and journalism aspect to this position. At the end of the trip, we sat down with Journalist, Bruce Finlay, to reflect. He was able to discuss and emphasize the feats the team had accomplished while trying to learn and balance the challenges of field work.

The skills and approaches that the team members had developed allowed for them to gain insight as to what the public lands mean to its users as well as their attitudes and opinions towards the land. From the most in depth to the simplest of interviews, the the most in depth to the simplest of interviews, the team was able to learn about the people on our public lands and the different motivations bringing them there, their concerns for the parks, the aspects they love, and the things that they have seen change or want to change.

In connecting the results found by the grounds truthers to if people of color are present on our public lands, they were seemingly not represented in the numbers that the poll had reported. The questions asked by the team did not include racial identity, but rather asked about other personal information on the public land users such as name, age, and where they were from. The racial data obtained this year is based off of how western society categorizes a person of color through appearances and judgements. The data did not blatantly ask about identity but rather was recorded observations based on societal categorizations of race through appearance.

Photo by Sam Nystrom-Costales, '25 of Cecilia Timberg, '24 above a large formation in Needles District Moab, Utah.



A REFLECTION : THE FIRST SUMMER OF THE PLS PROJECT



Henry Hodde'24

"The most poignant thing for me this summer was to see how public lands can be a unifying experience for all, regardless of political affiliation, prior beliefs, or preconceived notions."



Cecilia Timberg'24

"My biggest takeaway was that public lands are a space people go to escape everyday life in an apolitical space, but recently it feels like there is polarization even in the conversations around protecting the landscapes we all love."



Sam Nystrom-Costales '25

"One person I interviewed in Estes Park echoed Wallace Stegner's famous quote: "national parks are the best idea we ever had." I'm not sure if the person knowingly quoted Stegner, but her sentiment has stuck with me... We didn't speak to a single person who hadn't enjoyed their experience on public lands, nor did we meet a single person who was opposed to expanding them. While there are certainly issues with public lands from both an accessibility and historical perspective, it was powerful to see how people from all different backgrounds can agree on how much they love our lands."



Sama Zaman '25

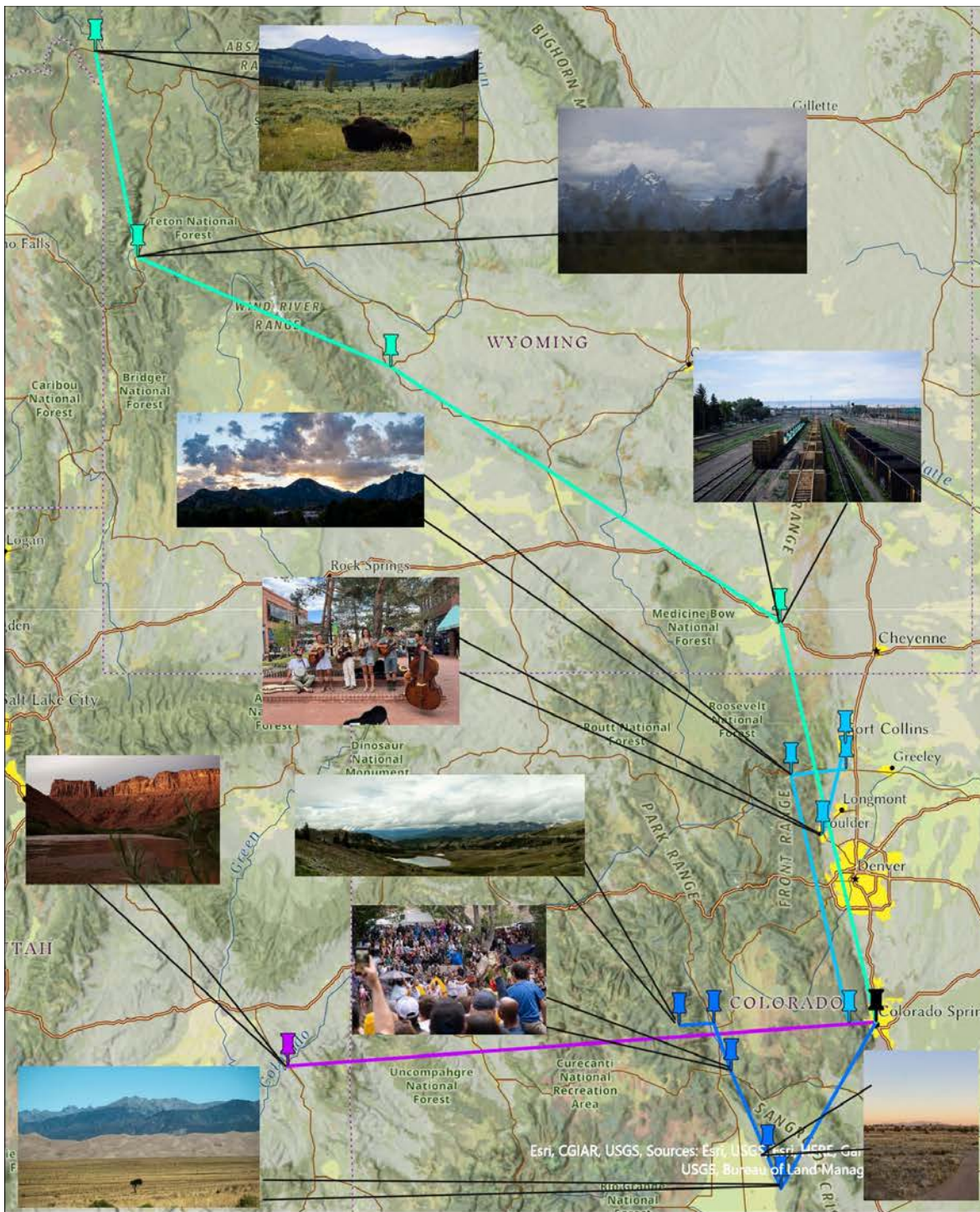
"Though I am quite upset I was not available over the summer to survey, I have learned a lot about people's perspectives regarding public lands, particularly how people recognize the importance of being educated, and treating the lands with respect. It fascinated me to read about the different connections people have with public lands and helped me realize how this shared care of nature brings people together. "



Anil Jergens '23

"The most poignant thing I learned is that people more or less want their public lands to stay the same. They have complaints and they have things they would change, but they are happy with [the public lands] and enjoy them as they are. In response to the question 'Overall, how would you describe your experience with public lands,' I didn't receive one negative response and the vast majority were overwhelmingly positive."

THE TRIPS TAKEN BY THE PLS TEAM



Photos
by Sam Nystrom-
Costales '25 and
Cecilia Timberg '24

Trip 1: Moab

Trip 2: Great Sand Dunes, Crestone, Salida, Buena Vista, Cottonwood pass

Trip 3: Pikes Peak, Estes Park, Loveland, Ft. Collins, Boulder

Trip 4: Laramie, Lander, Jackson, West Yellowstone



Image taken by Sam Nystrom-Costales '25 in Pagosa Springs, CO

The Dark Skies Project: CC After Dark

By Cyndy Hines

The significance of the cosmos to humans can be traced across our history. We evolved into diurnal beings; our brain development and function shaped by the rhythm of daytime and nighttime patterns and processes. Our perception of ourselves as Earthlings in relation to the universe helped mold our religious beliefs, life ways, and the location, re-location, and planning of societies, among other important aspects of human life throughout the ages.

“Why do dark skies matter? Should this topic be one of conservation concern? What can be done?” are central questions of the 2022 State of the Rockies Dark Skies/CC After Dark project which launched last spring. Students’ preliminary findings show strong community and individual support for dark skies conservation. Voices missing from the conversation are those of Indigenous residents of the region. Rockies’ student interns will head back into the field in the summer of 2023 to record the attitudes of Indigenous people, whom we recognize and value as the source of original knowledge, toward public lands. Our intent is to share our research findings with conservation and policy decision-makers.

Rockies also has plans to further investigate spatial patterns of darkness across the region in relation to urban and rural communities. Where and what are the primary contributors to light pollution in Front Range urban and rural environments? Who is most affected by light pollution in these communities? In other words, are people of all socio-economic strata equally impacted by too much light at night? How will this compare to communities in designated dark sky communities? We aim to answer these and other questions addressing equity and light pollution.



Image taken by Michael Braithwaite '24

Meet the Interns and Their Projects!



NIKO ROCHE '24 is studying museum science at CC. During her studies, she has been able to experience much of the unique landscape that Colorado has to offer. Including experiences from this summer on the various trips throughout Colorado that the Dark Skies team undertook. She has always been interested in astronomy and the night sky, looking up through her telescope in her home city of Chicago whenever she had the chance. Growing up in a city, light pollution has always been a concern. Her aim for this project is to leave a lasting impact on communities. In order to achieve this, a focus for this summer was to establish a website dedicated to sharing Dark Sky education and information. Specific projects for the website have included creating a light pollution 101 page, a personal responsibility guide, a dark sky reserve directory, an online dark sky museum, and a light pollution survey.

The bulk of her research this summer was to create a survey in which she can collect data from the Colorado populace on their emotions towards light pollution in the night sky. To conclude her work, Niko would like to use the survey to determine whether or not light pollution is a shared concern that public representatives should focus on.

The night sky has guided and inspired humanity for hundreds of thousands of years yet, in the past century artificial light has contributed to the global dimming of the sky. With the night sky as part of humanity's shared history, Niko was inspired to do this work to preserve that history for everyone.



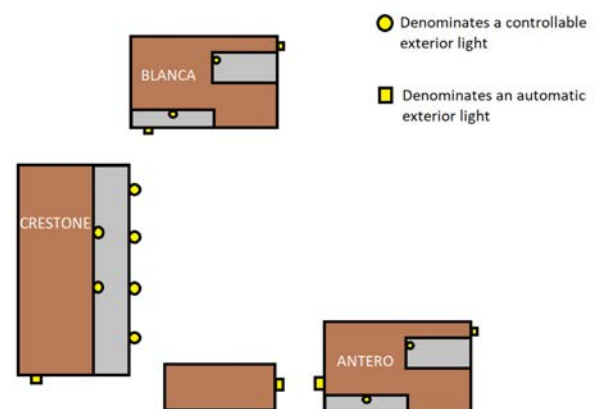
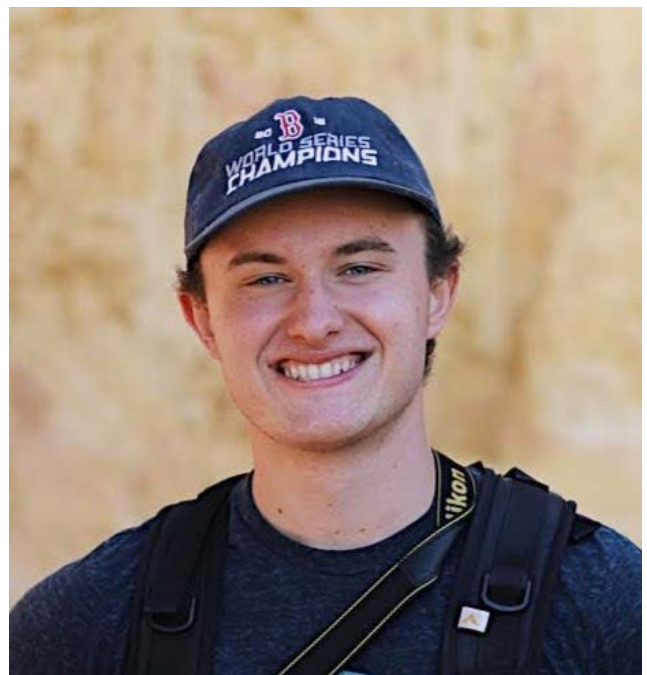
Art titled "Kindergarten Rock - Fall Day" by Stephen Jefferson Wood. This is one of the many pieces featured in Niko's dark skies e-museum (coming soon in 2023!).

MICHAEL BRAITHWAITE '24 loves interning with SOTR because he feels that the work he is doing will make a tangible change. Michael was inspired to work on the project after moving to Colorado from Boston, Massachusetts and seeing the Milky Way for the first time. He wants other people to be able to share the awe that he experienced at that moment.

In grappling with the challenge of making dark skies conservation more accessible and increasing people's interest in the topic, Michael decided to focus on CC's Baca Campus, which resides just outside the border of Crestone, a designated International Dark Sky Community. This means that the town of Crestone voted on self-imposed restrictions on the amount of artificial light that can be emitted into the night sky. The Baca campus is not technically within the town lines of Crestone, so does not have to follow the restrictions of a dark sky community. Michael noticed as a result of this, the Baca Campus appears very lit up at night compared to its neighboring properties. This project focuses on converting the exterior lighting fixtures at Baca Campus to LED lights. These lights will contain a wireless component, similar to Bluetooth, for home automation so that the lights can be controlled from a small computer. This computer can send signals programmed on the "home assistant" software so that the light will shine or dim at certain points throughout the night. Michael believes that this modification can be used as an example of how to take steps toward preserving the sanctity of dark skies.

Figure on the right is a layout of the three apartments at Colorado College's Baca Campus, highlighting the number and placement of all the exterior lights involved with the project. Antero is apartment A, Blanca is apartment B, and Crestone is Apartment C (also known as the faculty apartment, located above the library). Not to scale.

Bottom right is the Colorado College Baca Campus by night, with only the **automatic** external nighttime lights turned on. The bottom left is by night, with many of its **controllable** external lights turned on in addition to the automatic external nighttime lights.



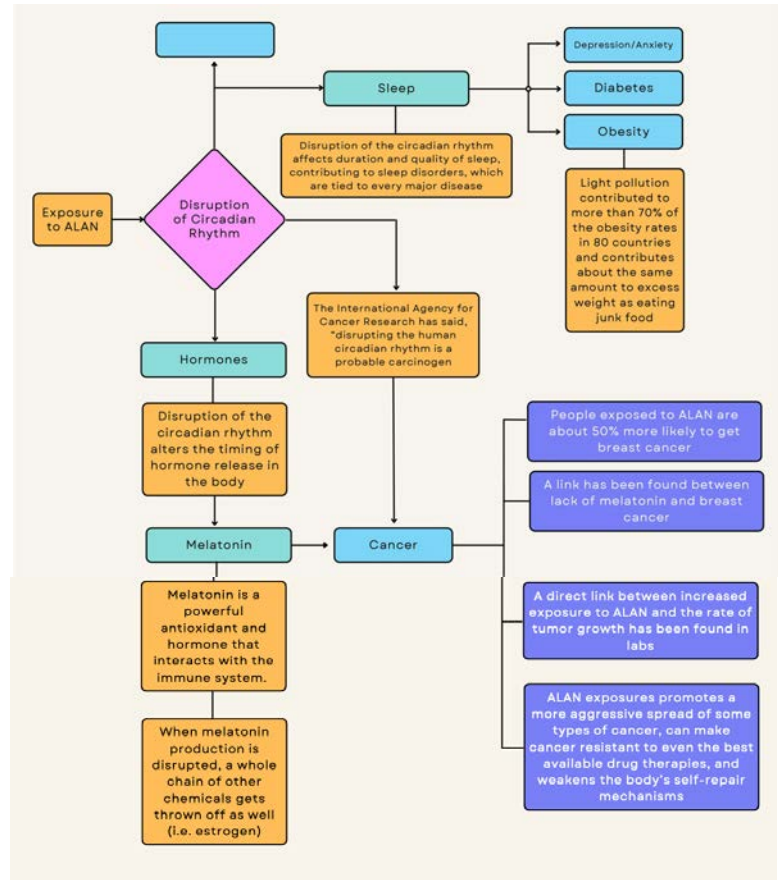


KATIE JOSLYN '24 grew up surrounded by the Dark skies above corn fields in Wisconsin. She credits her aspirations in pursuing astrophysics, to the access that she had to those skies and a want for future generations to have the same opportunity to look up, be curious, ask questions, and feel inspired.

A goal of this research was to gain an understanding of why people care about the night sky. Once she collected broader opinions, she used them to shape how awareness could be raised on the rapid disappearance of the night sky. With this targeted form of message framing to build a connection with the public, she hoped to provoke action and change.

Alongside this, Katie was able to interview associates of the International Dark Sky Association (IDA) to gain insight into why preserving dark skies is important and what steps can be taken to do so. She also interviewed members of Tribal Nations throughout the Southwest to gain a greater understanding of the cultural and historical significance of the night sky.

After combing through her interviews and research, she found that many people are not aware of the consequences light pollution poses. Katie is now researching the effects of light pollution on human health, wildlife, and heritage, in hopes of being able to educate others as a first step toward the positive development of this topic. Most importantly, this project has aided in giving Katie the information and inspiration to continue advocating for dark skies in the future.

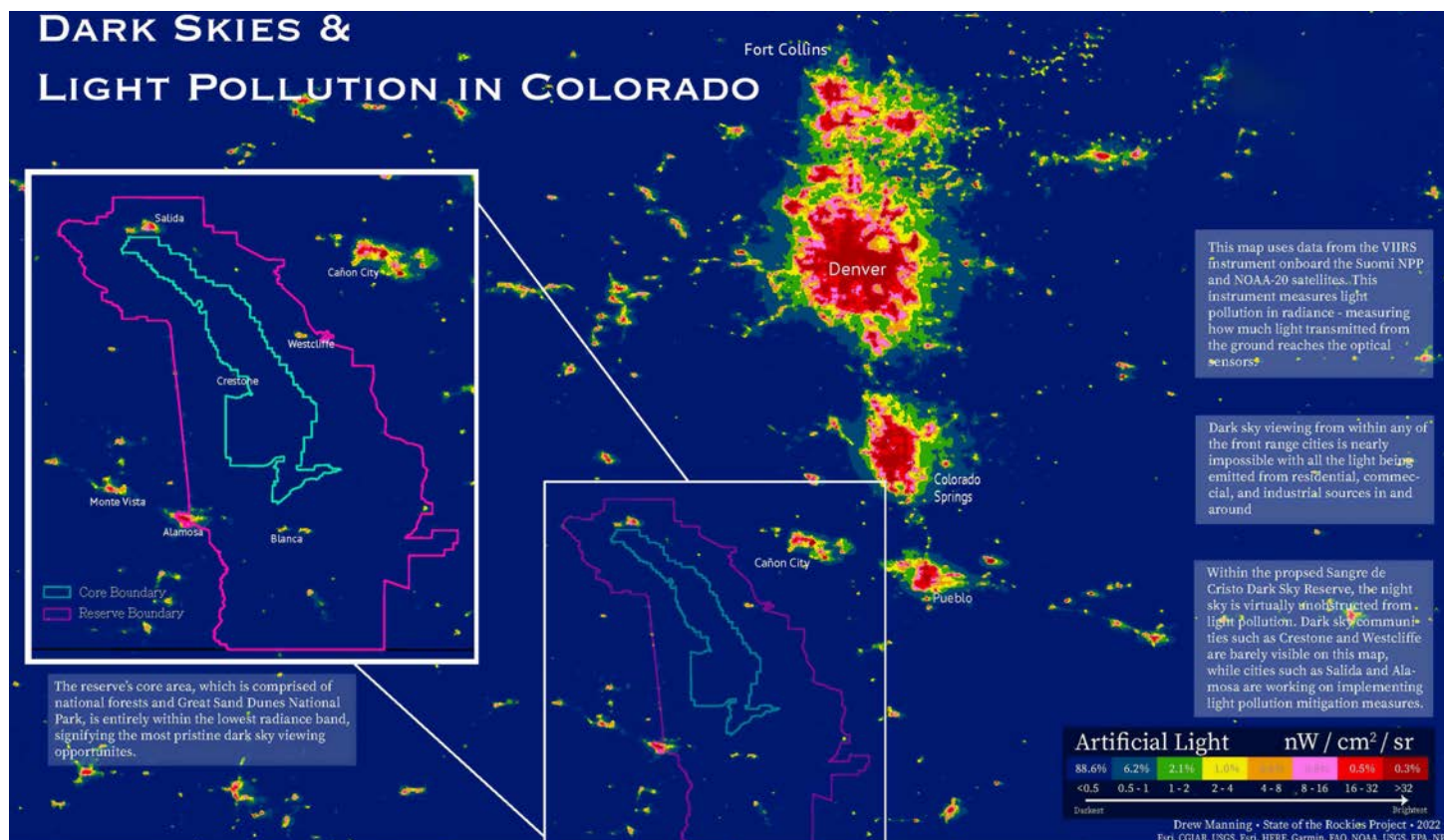


IN THE UNITED STATES,
\$3 BILLION
 IS SPENT PER YEAR ON
 LIGHT SENT INTO SPACE

EACH YEAR,
\$100 BILLION
 IS WASTED ON OUTDOOR
 LIGHT WORLDWIDE

DREW MANNING '22 graduated last spring after completing both both a physics and environmental studies major. Inspired by his childhood spent stargazing with his dad, Drew was inspired to take classes such as astrophysics and extragalactic cosmology, ultimately leading to him becoming a physics major. As his childhood neighborhood and town in the suburbs of Boston brightened, he could see light pollution impacting his stargazing experiences.

Drew was drawn to this internship to better understand the spread of light pollution and how to protect dark skies. He has taken the freedom this project offers as an opportunity to incorporate areas he is interested in exploring while learning skills that he has an interest in developing. From the start of this project, he wanted to create some iteration of a map that engages people with dark skies. Drew landed on using GIS and other design software such as Adobe Illustrator to create maps representing light pollution in Colorado and its greatest contributors and detailing a proposed Dark Sky Reserve in the San Luis Valley (see map below). He hopes for these maps to be an asset in the effort to establish a dark sky reserve by a means of communicating what type of land is in the reserve, how dark it is inside the reserve, etc.





A full-page photograph of two young women standing outdoors. The woman on the left has long, light brown hair and is wearing a blue denim jacket over a black turtleneck. The woman on the right has long, dark hair and is wearing a white long-sleeved shirt and dark jeans. Both are smiling and have their arms crossed. In the background, there is a building with a stone facade and a pointed roof, and some bare trees under a clear blue sky.

Intern Reflection

'CASTLE ROCK'

'A Closer Look'

Anna Sofia Vera '22 and Diellza Muriqi '22 interned at the State of the Rockies. They conducted a project titled "Water management in Castle Rock, Colorado: How a front range city is responding to groundwater uncertainty". The Environmental Science and Economics major interns sit with the Anthropogenic to reflect on their research journey. Interview transcription and photos by Marco Barracchia.



Our primary task was to research Castle Rock's past and present water management and plans to supply the city with water. We started this research by looking at the history of the town's establishment, as well as the history of Native Americans on that land. We looked at the more scientific side of water management—how much groundwater is available in the Denver Basin, its structure, and composition—the pros and cons of Aquifer Storage and Recovery as a potential future water management strategy for Castle Rock, tactics to communicate increasing water rates, and how to make them more equitable across the town.

Together, we digitized the aerial pictures of Castle Rock using Geographic Information System (GIS) software. After that, we manually digitized the images by selecting the pieces of land that were rivers, vegetation, agriculture, and built environment. The digitized images were used to calculate changes in land use in Castle Rock from 1937 to 2021—when Castle Rock experienced a lot of growth and change. Our research methods were visiting Castle Rock's



public library to review its archives, reading journal papers produced by experts and the city, and interviewing several people from Castle Rock Utilities, including their director and water management specialist. We also interviewed experts in different research organizations, some consultants on water management, and people from Centennial Water and Sanitation District.

Do we see ourselves doing something like this in the future? Probably. We do enjoy investigative work and having to find answers or put a puzzle piece together for a big question.

We appreciate being able to address our research question from a multidisciplinary approach. However, at times it felt like we were doing a lot of different things, which were hard to connect and condense onto one paper. It's like we had multiple trains of thought going on simultaneously. We think research helped us understand how long and



complex the process can be to establish a research question and how it feels to do something useful that would benefit the population. We would have loved to do much more than we have achieved, but we only had one summer to complete everything. Digitizing was time-consuming; however, we are delighted to have made student-faculty and student-professional connections along the way.

In the end, we managed to digitize images, prepare one score poster, and write three papers; one on the history of Castle Rock, its historic water management, and current water management strategies, another on analyzing the feasibility of Aquifer Storage and Recovery in Castle Rock, and another on strategies to communicate increasing water rates and ways to make them more equitable.

Castle Rock

Then and Now

By Diellza Muriqui and Anna Vera

Edited by Delia Freliech



Left is a woman sitting on Castle Rock summit from a SW perspective; in 1889. Courtesy of Douglas County Archives. Right is looking SW from approximately the same perspective from Castle Rock summit: 2020. Photo by Josie McCauley. CC Class of '21.

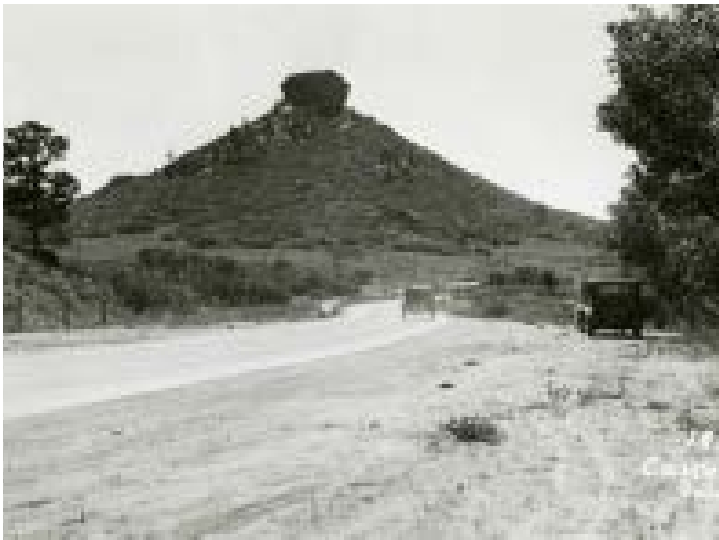
Starting in the summer of 2021 and into this past school year, Diellza Muriqi '22 and Anna Sofia Vera '22 completed an extensive study on water management in Castle Rock, Colorado. The rapidly increasing population in Castle Rock, exposes the mounting water concerns facing Western US residents. Water scarcity is an issue in many cities and in seeing what has and can be done in Castle Rock, can serve as an example elsewhere.

This study investigates the “then & now” of water supply in Castle Rock to put forth recommendations for the town’s future. A review of Castle Rock’s history was completed to fully understand how Castle Rock’s water issues originated and are being exacerbated. Anna and Diellza found that the surface and groundwater levels that have sustained the town for decades, are declining and can no longer support the future of the municipality, so other forms of water management were necessary to be considered. They then conducted literature reviews and interview processes to put forward multiple recommendations for future water management:

- The best method for informing the public about rising water rates are feature-based messages that highlight shared values and share stories so that people are driven beyond self-interest.
- The town of Castle Rock can initiate equity programs to mitigate water utility cost increases for lower-income households through a variety of programs, ranging from toilet replacements to monetary aid.
- Aquifer Storage and Recovery (ASR) programs should be considered to mitigate the effects of increased temperatures and droughts on surface water systems and surface storage (reservoirs).



To read their research paper, scan the QR code on the left or read the paper [here](#)



Above images: Left is a view of Castle Rock: 1925. Courtesy of Douglas County Archives. right is a view of Castle Rock: 2020. Photo by by Josie McCauley. CC Class of '21.

Digitized Aerials of Castle Rock 1937 to 2021



Road
 Stream Length
 Agriculture
 Built Environment

Stream Width
 Vegetation
 Water Body

The image to the top left is 1937 and to the top right is 2021. Water bodies represent both reservoirs and pools.

With the help of Cyndy Hines and Matt Cooney, GIS Technical Director at Colorado College, Diellza and Anna identified and quantified land-use changes between the years 1937 and 2021. They quantified an area of 6.5 mi² area - about 19% of the total Castle Rock Township, which captures much of the urban area in the municipality.

In these images, aerial photographs of the landscape taken in 1937 and in 2021 were digitized to then summarize both the land cover change and road and stream length change. This data astoundingly presented the massive changes that have happened alongside such rapid population growth. It is important to include land use in this study as it inextricably tied to water use. It was expected that during a time of rapid population growth, town officials would result to altering the environment to accommodate the town residents.

The land cover change is summarized on the right. The most significant changes were a 3080.61% increase in the built environment and a 150.41% increase in the water bodies present on this land that consists of 1/5th the size of Castle Rock’s total size.

Land Cover Length	Length in 1937 (mi)	Length in 2021 (mi)	Percent change (%)
Stream Length	53.39	12.54	-76.52
Road Length	71.94	242.46	+237.03

Land Cover Type	Area in 1937 (mi ²)	Area in 2021 (mi ²)	Percent change (%)
Vegetation	14.67	12.72	-13.33
Built Environment	0.20	6.37	+3080.61
Stream Pools	0.26	0.02	-91.13
Agriculture	3.98	0.01	-99.70
Water Body	0.01	0.02	+150.41

The road and stream length change is summarized on the left. Notably, when compared to the land cover change, while the water bodies in the area increased, stream length decreased by 76.52%.

Researchers



Anna Sofia Vera ‘22 is an Environmental Science major from Santiago, Chile. She joined this project because of her interest in using scientific tools to engage with a socio-ecological issue, namely, what is the future of water supply in Front Range cities where currently, demand exceeds available water supply?



Diellza Muriqi ‘22 is an Economics Major from Kosovo. She is interested in the economics and management of water. In her work with SOTR, she looked at what Castle Rock has done to manage water scarcity and the behavioral economics of communicating water rates. She used knowledge from this project for her senior thesis, where she shifted the focus to learn more about what challenges Kosovo faces in the same area.



Photo Taken by Cecilia Timberg '24 while working on the PLS Project in Laramie, Wyoming

'SOTR's Fresh Projects'

Watershed-based Ecosystems Services Project



Ewan Henderson '23 (photographed left) and Samwel Makyao '25 (photographed above) worked alongside Visiting Professor Mark Eiswerth to start the initial phase of this study in the summer of 2022.

This summer the team was able to start the development of a database that will compile all of the payments for water-based ecosystem services in the nation. Along with the database they have created a survey to send out to all of the organizations running these programs. The survey will collect a variety of information that can then be utilized to compare the different PWES programs. The survey includes questions on obstacles faced, opportunities for improvement, collaborative governance, scale, payments, and program effectiveness.



“ We are working hard to collect information directly from the people who manage and run such innovative programs. ” — Visiting Professor Mark Eiswerth

A note from Professor Mark Eiswerth

The universe of “payments for water-based ecosystem services” (or watershed investment/conservation) programs is growing rapidly worldwide. These programs generally represent alternative institutions and employ innovative approaches for protecting a suite of environmental attributes and functions including water quality and quantity, natural habitat, biodiversity, and watershed resilience. At the same time, the programs themselves are incredibly diverse in terms of how they go about pursuing their objectives, with approaches ranging from water funds to instream buybacks, mitigation of groundwater depletion, and the trading of credits for water quality improvement.

In this project, we are working hard to collect information directly from the people who manage and run such innovative programs. We want to gather expert practitioner insights on several questions, such as “What are the challenges faced in creating successful watershed conservation programs?” “What improvements can be made?” “In what types of collaborative governance do these organizations engage?” “What are some of the lessons learned from their experiences to date?” We hope that the insights we garner will provide useful knowledge for the expanding community of alternative, innovative programs and the researchers who study them.

Class of 1972 State of the Rockies Research Fellowship Gift + 2-year Hewlett Grant Award

Each year, the graduating class from 50 years prior, returns to CC for a reunion. These reunions are a time to come together, catch up and celebrate, as well as to present the 50th reunion project. This year, the committee for the Colorado College Class of 1972 selected their 50th reunion Class Gift Project to fund an endowment for future summer research fellowships as part of SOTR. This grant will support a number of student-focused projects and research opportunities. In October 2023, we received a 2-year \$800,000 grant from the William and Flora Hewlett Foundation to support new and on-going student-directed research and projects:

The Survey of Public Lands Visitors that addresses the primary conservation issues of concern of visitors of national and state parks.

Dark Skies/CC After Dark which asks the question “Why do dark skies matter and should this topic be one of conservation concern?”

A 20-year Retrospect of The Waldo Canyon Fire where a team of students will explore the questions such as Will Ponderosa pines become “extinct” in some of the most severely burned forests and what species are returning? What does their presence or absence mean from a socio-ecological perspective?

Student Artist in Residence who will follow the team into Waldo Canyon field sites in the summer of 2023 to document scenes of forest regeneration and riparian regeneration.

Adventurous Spirit Films where students will produce a mini-series or film based on themes addressed by the 2023 Conservation in the West Poll that influences our lives here in the West.

Anthropogenic Digital and Print Magazine which is this publication! It is a student-faculty and student-led collaborative research publication building on topics in the Conservation in the West Poll.

Colorado College Courses teaching Students about the Conservation in the West Poll and Conservation Issues. One course is offered that allows students to take a deep dive into conservation issues addressed in the Conservation in the West Poll (See page 64).



Above: The 2022 State of the Rockies team. Starting in back row from left to right Eric Ingram '23, Samwel Makyao '25, Ewan Henderson '23, Katie Joslyn '24, Sam Nystrom-Costales '25, Delia Freliche '23, Drew Manning '22, Cecilia Timberg '24, Anil Jergins '23. Not pictured: Henry Hodde '24, Sama Zaman '24, Niko Roche '24, Michael Braithwaite '24.

Photo by Cyndy Hines

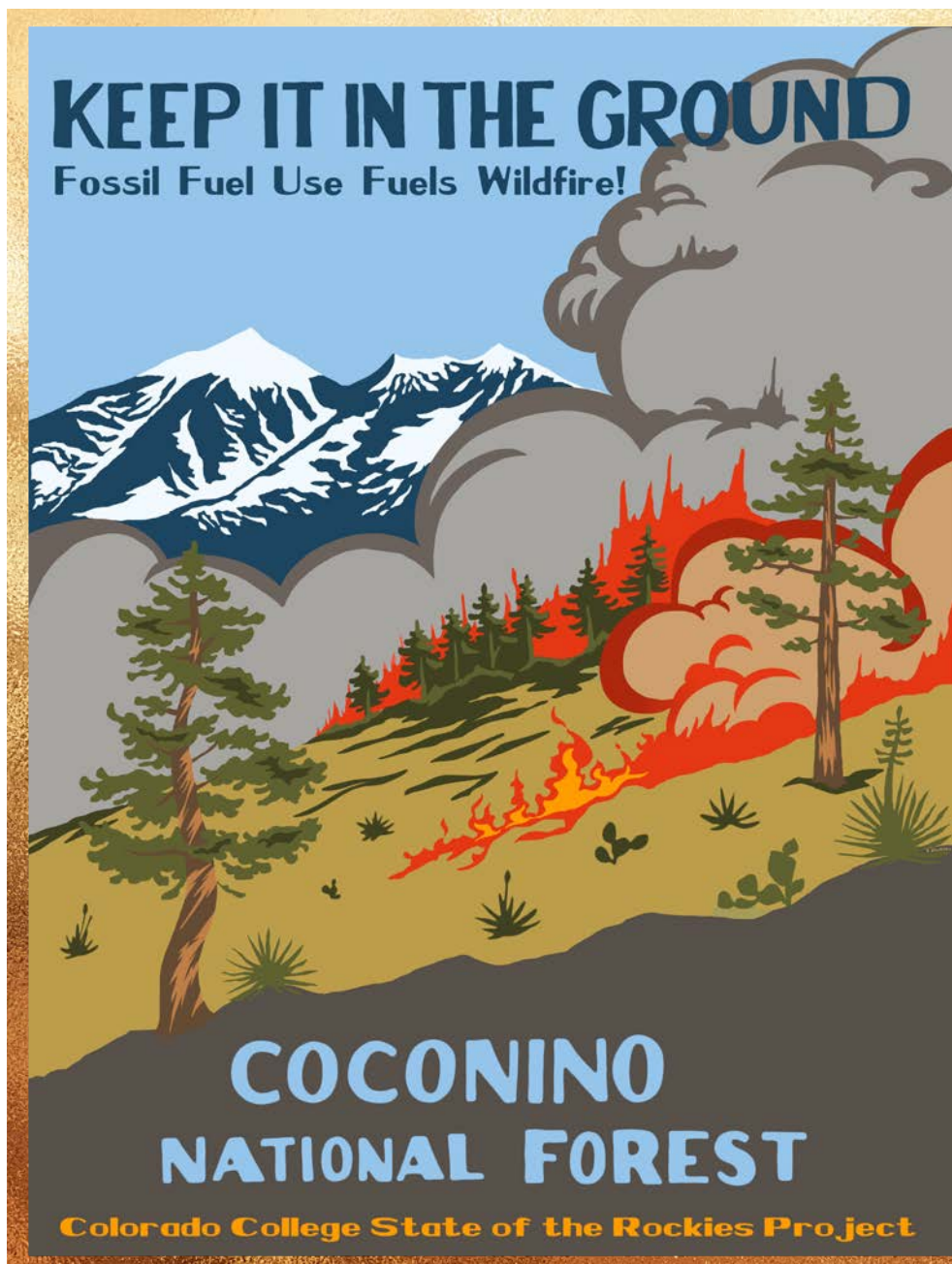
Keep an eye out for these projects and other student opportunities!

Check us out at
www.stateoftherockies.com

Vintage Poster Competition

By Samwel Makyao

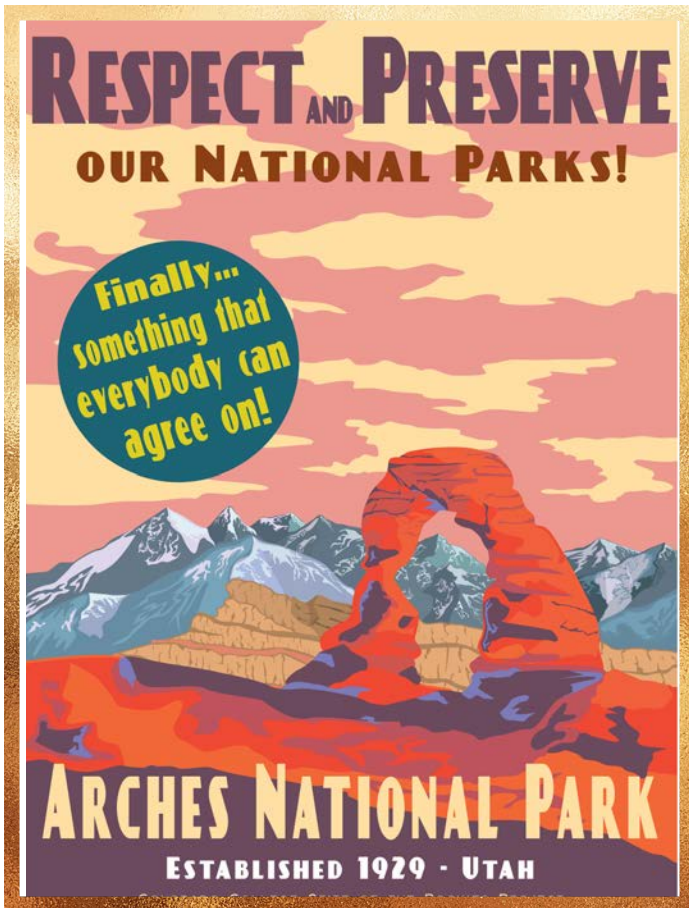
In January 2022, the State of the Rockies launched the first Conservation in the West student vintage poster contest in which students were invited to submit a digital image of a vintage-style poster of a national park, monument, or forest in the 8-State Rocky Mountain region that includes a contemporary message. Students' posters were to include an explanation of how their contemporary conservation motto is relevant to the current conservation attitudes of the residents in the 8-state Rocky Mountains, to the national parks, monuments, or forests they choose.



KEEP IT IN THE GROUND

DESCRIPTION: I interned for the National Park Service near Flagstaff in 2021 and spent weekends hiking and camping in the Coconino National Forest. I chose this view of ponderosa pine forest below the San Francisco Peaks to illustrate wildfires, perhaps the most serious impact of climate change on public lands in the Rocky Mountain West. Coconino and many forests are experiencing prolonged drought and a higher incidence of severe wildfires. These impacts threaten not only biodiversity and protected species but millions of visitors' ability to recreate. The public supports transitioning away from fossil fuels and making our public lands a net-zero source of carbon emissions. The State of the Rockies survey found that 72% of Arizonans support prioritizing recreation and conservation over fossil fuel extraction. "Keep It In the Ground" is a national campaign by NGOs to advocate for the cessation of all new oil, gas, and coal development on public lands.

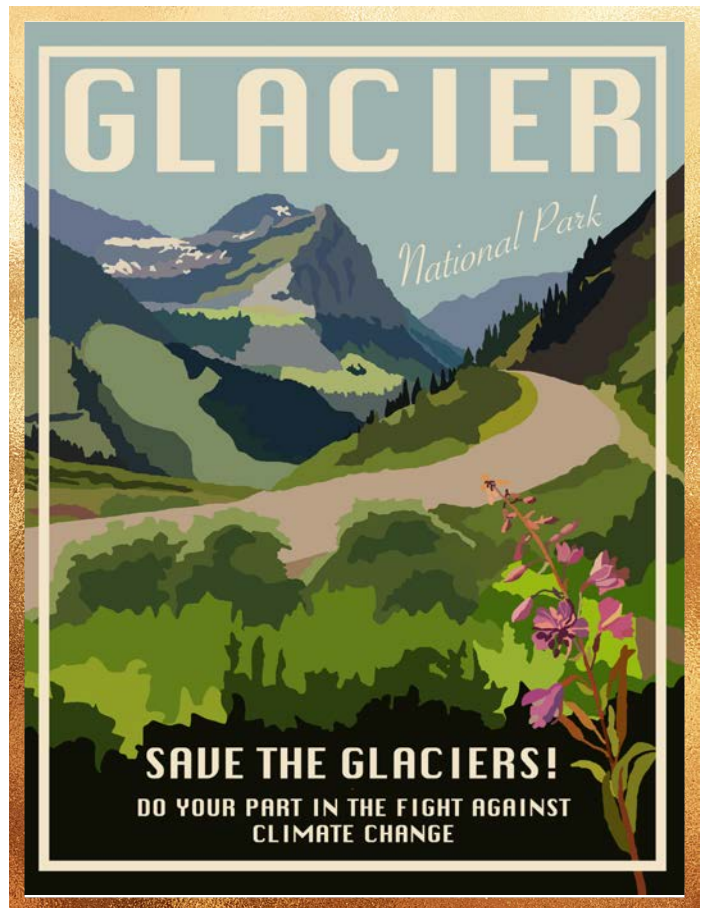
POSTER BY: ISABEL DEVITO



RESPECT AND PRESERVE

DESCRIPTION: I chose Arches National Park as my subject. I've visited several times and am awed by both the beauty and complexity of the area. It's an important site because it's so well-known and easily accessible, and therefore busier and more prone to destruction. By suggesting respect and preservation of the land, I hope to remind and enforce the idea of leaving no trace. Since climate change has become a politicized issue, it is important to stress that preservation and conservation are supported by "everybody". Furthermore, by presenting this as common knowledge, people should feel more obliged to partake in the effort. While issues like drought, use of public land, and indigenous rights are in the Utah climate change conversation, a simple reminder to respect the land and leave no trace can go a long way for the over one million annual visitors of the park, especially the new ones.

POSTER BY: CHARLIE BRAGG

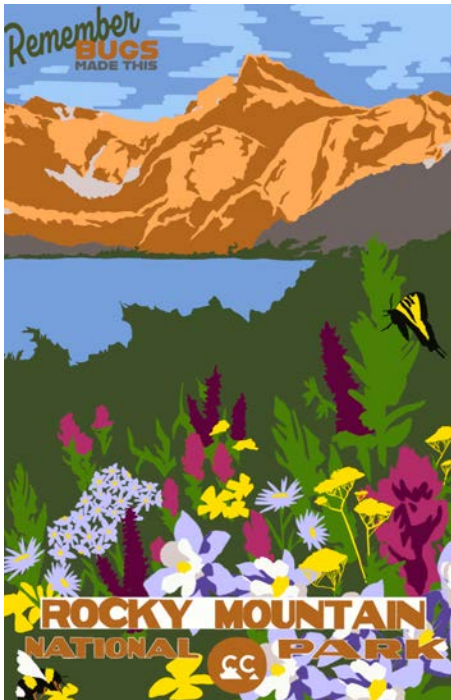


SAVE THE GLACIERS

DESCRIPTION: As highlighted in the Conservation in the West 2021 Survey, climate change is seen as one of the most serious problems facing the rocky mountain region, and support to reduce human contributions to climate change is high. Because of these attitudes, I chose to center the message of this poster around bringing awareness to some of the ramifications of a warming climate, as well as encouraging a feeling of responsibility to join the fight against climate change. What better way to present this than through Glacier National Park? Glacier has not only seen a dramatic increase in tourism since the pandemic but also has one of the most tangible examples of the impact of climate change: rapidly melting glaciers. The future of Glacier is ever so tied to the future of climate change, and how we might all take steps to minimize its consequences.

POSTER BY: SOPHIE DUA

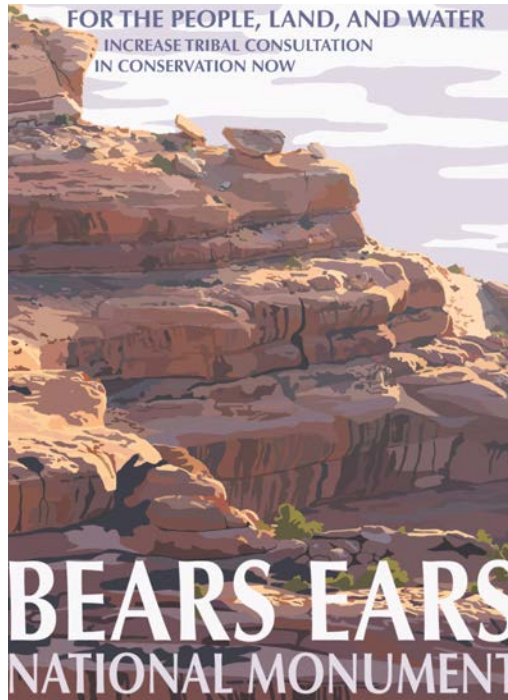
Honorable Mentions



ROCKY MOUNTAIN REMEMBER BUGS MADE THIS

DESCRIPTION: The purpose of the original national Parks Posters was to motivate people to travel and visit national parks. The art showed these places as idyllic and pristine with incredible landscapes and wildlife - and no bugs. The survey revealed that “63 percent of voters in the West believe the loss of pollinators is an extremely or very serious problem” which proves a greater understanding of pollinators as architects of our greenspace. This poll serves to reveal a social understanding of our climate crisis and establishes our priorities of preserving the natural world. Protecting pollinators is an act in curbing atmospheric carbon emissions which is a potential resultative effort to carbon emissions. I chose a national park I am familiar with and specifically displayed Bluebird Lake as it is a great place to see the beautiful product of pollinators, and wildflowers. I included bugs in my motto and image to be explicit about what is at stake with their disappearance

POSTER BY: CASEY MILLHON



BEARS EARS FOR THE PEOPLE, LAND AND WATER

DESCRIPTION: Bears Ears National Monument is the first monument to be designated due to an intertribal committee proposing its designation to the president. Overgrazing and extractive industries put the land that is now Bears Ears at risk and in need of federal protections. As of right now, the five sovereign nations that have connections to the Bears Ears landscape— Hopi, Zuni, Ute, Ute Mountain Ute, and Dine Peoples— are working with executive agencies to draft a management plan that takes into account the ecological and cultural significance of the area. The Rocky Mountain West has made it clear that we need bold action on conservation efforts. Increasing consultation of Sovereign Nations in conservation plans could be the bold action that people say they want and need. These Nations have a historical, cultural, and spiritual connection to this land and have important insights into the best ways in which to conserve it

POSTER BY: NATASHA YSKAMP LONG



GRAND CANYON, MAGNUM

DESCRIPTION: chose to do a vintage comic format because it gave an urgency and loudness to the composition that I really liked. It's definitely not like the streamline vintage posters, but I think it works well to get the point across. I chose the Grand Canyon in Arizona because of the large fire that happened there in 2020. According to the polls, Arizona was one of the lowest states that didn't think wildfires were an issue. I think that highlighting this catastrophe, in conjunction with the beauty and amazing colors the canyon exudes is a great way to draw attention to this. The bluntness of the title (motto) with the playful comic book layout is meant to draw you in to learn more of the story.

POSTER BY: SOFIE MILLER

Meet the Judges

AARON COHICK

Is a book artist and publisher based in Colorado Springs, CO, where he runs the NewLights Press and The Press at Colorado College. Aaron's work, under both imprints, is held in public and private collections all over the world, including the Library of Congress, the New York Public Library, the Thomas J. Watson Library at the Metropolitan Museum of Art, Yale University, SFMOMA Library, the Letterform Archive, and the Tate Britain Library. He has taught workshops at Arrowmont School of Arts and Crafts, the Bemis School of Art, the San Francisco Center for the Book, Naropa University, and Penland School of Crafts.

KATJA RIVERA

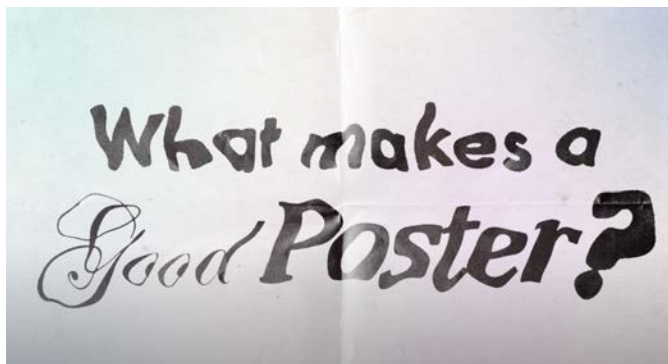
Is the Curator of Contemporary Art at the Fine Arts Center at Colorado College. Recent curatorial projects include Ronny Quevedo: at the line (FAC), Harold Mendez: the years now (Logan Center, University of Chicago), and Traduttore, Traditore (Gallery 400, the University of Illinois at Chicago). Prior to joining the FAC, Katja worked at the Reva and David Logan Center for the Arts at the University of Chicago and in the Department of Modern and Contemporary Art at the Art Institute of Chicago. Her projects have been supported by the David C. and Sarajeane Ruttenberg Foundation and the Elizabeth Firestone Graham Foundation, among others. Katja holds an MA in Art History from the University of Texas at Austin and a Ph.D. Candidate at the University of Illinois at Chicago, where she specializes in modern and contemporary art with a focus on experimental practices in Mexico.

JEAN GUMPPER

Is an Artist in Residence and Senior Lecturer in the art department at Colorado College in Colorado Springs, Colorado. Her color woodcut prints are represented by William Havu Gallery in Denver, Davidson Gallery in Seattle; Ebo Gallery in New York; Groveland Gallery in Minneapolis; Olson Larson in Des Moines; and Open Studio in Toronto, Canada. Jean's prints are in collections of The Art Bank at the Department of State, Washington D.C; in museums, universities, and art centers as well as in collections across the United States, Canada, Finland, Germany, Japan, Nepal, and Sweden. Jean received an Individual Visual Artist Fellowship award from the Colorado Council on the Arts.

What makes a good poster?

Colorado College Vintage press printmakers share their ideas on what a winning poster should include. Learn what to include in your next poster design.



Videos by Eric Ingram '23

Students Help Launch Vintage West Poster Contest

Colorado College students run campus letterpress producing vintage-style posters to help promote the college's State of the Rockies Conservation in the West student vintage poster contest.



Conservation In the West

Photo Contest

Student Photo Contest

By Samwel Makyao

Earlier this year, the State of the Rockies project invited students to submit up to three photos and a description of each photo(s) taken from the Rocky Mountain West. These photos aimed to remind us why, how, and what conservation efforts are necessary to preserve and protect nature.

Students were required to submit photos that addressed areas of concern for wildlife and habitat, outdoor recreation and diversity and inclusion in the outdoors, shifting climate patterns and processes, public lands, wildfires, water, and other conservation issues highlighted in the 2022 Conservation in the West Poll. A jury of staff expert photographers determined finalists, while the people's choice by popular vote was determined via vote-by-text.

Photo Contest Background

By Samwel Makyao

Colorado College's 12th annual State of the Rockies Project Conservation in the West Poll showed a spike in concern over issues like drought, inadequate water supplies, wildfires, the loss of wildlife habitats and natural spaces, and climate change among voters in the Mountain West.

The poll surveyed the views of voters in eight Mountain West states (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming) and found that 69% of voters were concerned about the future of nature: land, water, air, and wildlife. Against that backdrop, 86% of Western voters said issues involving clean water, clean air, wildlife, and public lands are important in their decision to support an elected official. Voters in the Mountain West felt deeply connected to the outdoor landscapes that surrounded them. 88% of voters surveyed visited national public lands like national parks, national forests, national monuments, and national wildlife refuges in 2021.

Similarly, 93% participated regularly in outdoor recreation activities such as hiking, camping, picnicking, bird and wildlife watching, biking, water sports, snow sports, hunting, and fishing. 74% said the presence of public lands in their state helped the local economy. At the same time, 48% of voters reported making changes to where or when they recreated outdoors because of crowding, and 26% adjusted plans because of changes in climate like fires, less snow, or less water. 53% of voters viewed the loss of natural areas as a very or extremely serious problem. You can learn more about the Conservation in the West Poll [here](#).





FRASER FIRE | FIRST PLACE

Photo by Will Burdette, '22

DESCRIPTION: A photo from the 2020 William's Fork fire near Fraser Colorado. The beautiful clouds are actually a huge bank of smoke. The photo captures the massive scale of more recent wildfires and reminds us we need to do more to preserve the environment.

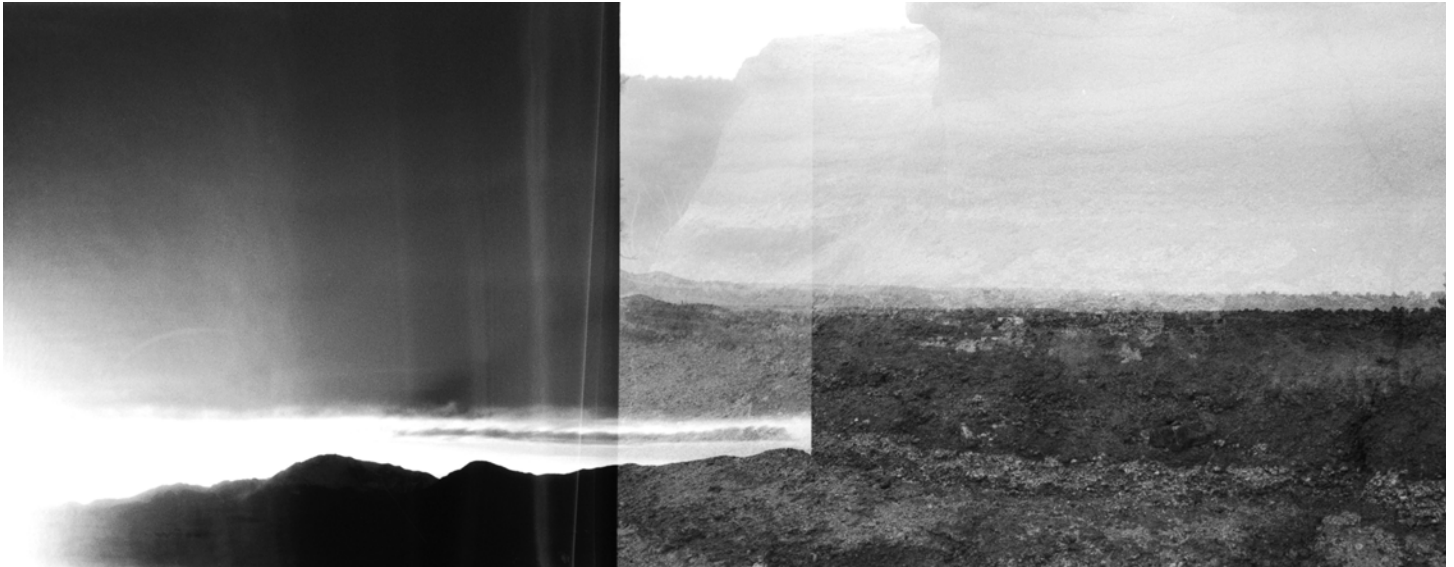
RED ROCK RAINBOW | SECOND PLACE

Photo by Galileo Defandi Chi, '22

DESCRIPTION: A rainbow splits the sky above Sedona, Arizona as a much-needed rain shower wets the red rock and earth below. Sedona is a prime example of a populous desert town with water usage that exceeds what can sustainably be provided. As the Southwest becomes drier due to climate change, towns like Sedona will have even less access to water than they currently do, forcing residents to either move, or let their water usage cause exponentially more harm to the desert environment. Water is quickly becoming among the most valuable resources worldwide, and the Southwest United States, including Sedona, will be one of the first places to suffer.







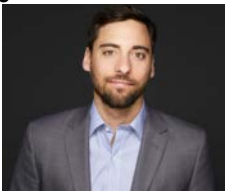
ROCKS ARE MOUNTAINS, MOUNTAINS ARE ROCKS | THIRD PLACE

Photo by Sidney Derzon, '23

DESCRIPTION: Double exposure film creates intentional imagery, combining different views. It slows down the image, showing a passing of time. This image was developed to show the contrast of mountains and rocks, juxtaposing the differences, but reminding me how they are so intertwined. Pikes Peak becomes the rock from Garden of the Gods. They were all created and are slowly chipping away.

Meet the Judges

JOSH RAAB



Josh Raab is the Director of Instagram at National Geographic. Previously, Josh worked at TIME as a Photo and Multimedia Editor. He has also been an adjunct professor at the International Center of Photography. Josh started out as a photographer covering the aftermath of the Boston Marathon bombings and Hurricane Sandy, then transitioned into editing by founding Jay Peg's Photo Pub., an online and print publication for emerging photographers.

STEPHEN WEAVER



Stephen Weaver is an award-winning photographer with over 40 years of experience making images of the natural world. Formally educated as a geologist, Steve combines his scientific knowledge with his photographic abilities to produce stunning images that illustrate the beauty of the structure and composition of the earth and its natural systems. Stephen is the creator of Colorado College's State of the Rockies landscape images exhibited across campus over the years. He has been a member of the judges' panel for the past four years.

ANDREA JENKINS



Andrea Jenkins Wallace is the Vice President of Artistic Affairs and Artistic Director of Photography and New Media at Anderson Ranch Arts Center in Aspen, Colorado. She is often an invited speaker to colleges and universities including Pratt Institute, the University of Denver, and the University of South Florida. In 2021, she co-taught a class entitled Photography, Race, and Gender at Colorado College. Her film, Rochell and Brian, a documentary about teenage pregnancy, premiered at the New York International Independent Film Festival.





PIKA| PEOPLE'S CHOICE POPULAR VOTE WINNER

Photo by Isabel DeVito, '24

DESCRIPTION: The American Pika is a small mammal found at high elevations throughout the Rocky Mountain West, and although they can be difficult to spot, many people will have heard their high-pitched calls reverberating through talus slopes and alpine meadows in the mountains of Colorado, Utah, Idaho, Montana and Wyoming. Pikas are well adapted to the cold climate at these elevations but are extremely sensitive to climate change. They depend on heavy snowpack for insulation in the winter and the alpine plants they eat, and as climate change continues to impact precipitation patterns and alter plant distributions in alpine meadows, this iconic species will face increasing threats.



THIS LAND SECOND RUNNER UP

Photo by Laura Hoy

DESCRIPTION: Laura took a picture of these beautiful houses somewhere in Southwest Colorado. One of five homes she saw along the road in a 40-mile stretch of land. The land is everything for people in these rural communities' livelihood, lifestyle, and pride.



BROTHERS THIRD RUNNER UP

Photo by Anil Jergens, '23

DESCRIPTION: Anil found this pair on his grandparents' farm. He loved the way the robin is looking at the quail, like he's the little brother looking up to his big brother. The unbothered, happy interspecies interaction is a wonderful metaphor for how humans might live with all the other inhabitants of the Rockies.



STARRY NIGHT | Moab, Utah | Image taken by Michael Braithwaite '24

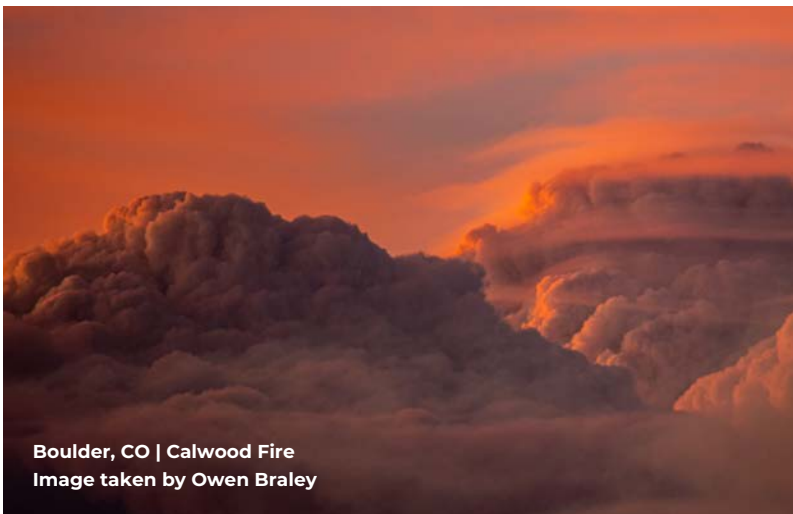


THE OR

By Samwel Makyao

In 2020, record-breaking wildfires burned over two million acres of Colorado and Rocky Mountain West. This was again another impact of climate change, and it is expected that there will be more and more enormous wildfires in the future. As climate change activists at heart, last year, Colorado College students began a project called Orange Skies to visually explore the far-reaching effects of the smoke and flames of the 2020 fire season.

In collaboration with the State of the Rockies project, Orange Skies looks at how we are drawn to the glowing smoky skies and billowing plumes rising from megafires into the atmosphere. The Orange Skies exhibit is an amassing of images of the 2020 wildfires as seen by residents around the region, including firefighters and professional photographers. Earlier that year, in partnership with Colorado Springs Pioneer Museum, the Orange Skies photographs of the 2020 wildfire season were displayed at the museum, calling attention to the impact of climate change. The student curators were Josie McCauley '21, Ada Evans '21, Nate Blower '21, and Calaya Hudnut '22. Watch the narrated virtual tour of the exhibit [here](#).



ANGE SKIES EXHIBIT



Fruita, CO | Pine Gulch Fire
Image taken by Kris Sanders

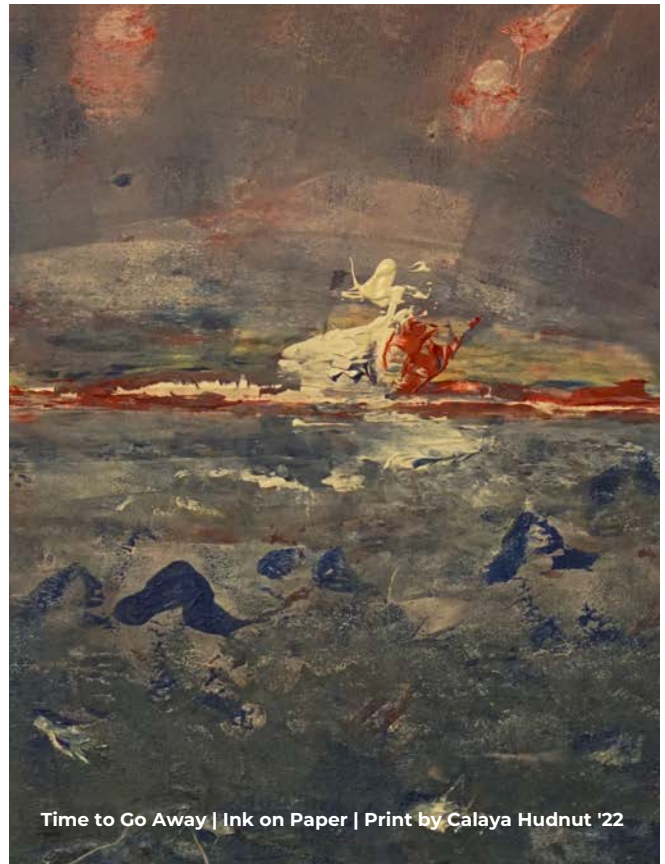
INTERVIEW | ORANGE SKIES STUDENT CURATOR

By Cyndy Hines

In spring of 2020, Calaya Hudnut '22 worked as a student curator for the State of the Rockies Orange Skies project. As a California resident, Calaya has experience living in a fire-prone ecosystem, but it was working on the project that helped her gain an understanding of the important role of fire in shaping western landscapes.

After working on Orange Skies, Calaya appreciates the natural beauty and understands the function of fire in western US semi-arid ecosystems. She also gained insight into how the influence of hotter and drier climate conditions drives bigger and more frequent western fires. "While creating the Orange Skies exhibit, I was in awe of how wildfire holds a multitude of dichotomies; the images of fire evoke beauty, destruction, loss, anger, rebirth, and hope. What angered me the most was how these recent megafires are yet another, impossible to ignore symptom of climate change and settler colonialism." says, Calaya.

Watch Calaya's interview on YouTube [here](#). For more information on the Orange Skies visit our website [here](#).



INTERVIEW | PIONEER MUSEUM CURATOR

By Samwel Makyao



Leah Witherow

Curator of History of the
Colorado Springs Pioneer
Museum

How do you come up with such beautiful exhibits?

I work with a great team here at the museum, including a very talented exhibit designer and great collections folks to be creative. We have history, artifacts, and stories. However, the most challenging question is how do we create an engaging experience for our visitors? So, in every new exhibit, we always think about what's the best message and method to convey this history. How can we be creative, imaginative and use digital technology to improve the visitor experience? Furthermore, how do we make an impact and ultimately help people connect to history? Some of our visitors have lived here all their lives, and some are Colorado College students who come from somewhere else, and our challenge is to create exhibits that are interesting to you as they are to someone who's lived here for 50 years because we're all part of Colorado Springs history and always look for stories. And then it's my job to collect them, share them with the public, and exhibit them.

What was your first impression of the Orange Skies Exhibit?

When we got the call about the Orange Skies exhibit, it intrigued me immediately because students have a fresh new perspective; they are creative and talented. We work with students a lot. We have work studies, and we currently have a Colorado College intern—Quinn Jones from the History department—spending the summer with us researching and working on collections. So, right off the bat, when I heard it was a student-curated exhibit, I thought this would be exciting. I was looking forward to seeing what students have put together. There's not just one way to look at history and events, there are multiple ways to engage people, so I was very excited about the potential. When I saw the photographs, I was moved because they're so beautiful even though they depict horrific events. However, the fact that they were taken on by people's iPhones who are not professional photographers but incredibly moving and powerful. We knew immediately that we wanted to share that with our audiences here. Climate change is an important topic. It is real and transformational. We wanted to create a space for difficult conversations, and if you can't have them here, where can you have them? So we were thrilled with the opportunity to bring in such an exhibit.

What do you hope for the partnership between the museum, and the State of the Rockies Project in the next few years?

I hope we can continue to be a place where the great work that the State of the Rockies project produces can be exhibited. It adds another dimension to your work and our work as well. I love the fact that we can provide our visitors, some of whom are tourists, residents, and school children, with these really unique, well-researched, and thoughtful student-curated exhibits that are timely and are about important issues that we're all facing together.



GS 233 – A Writer's Field Guide to Colorado Springs

By Delia Freliech

In Block 7 of the 2021-22 school year, Visiting Assistant Professor Dot DeVising Devita taught GS 233 – A Writer's Field Guide to Colorado Springs. The course was designed with the outcome of using SOTR poll data to further feature pieces on topics of the students' own inspiration.

Course Description:

Colorado Springs is our subject for this class, where we will explore, share, discuss, and write our many versions of the city. We will each choose our own writing topics, for which the possibilities are endless: examples could include human behavior/interactions, pandemic reorganization of social life, local news stories, backyard culture, urban sprawl/renewal, accessibility, whitewashed histories, borders/boundaries, murals, city myths, backyard climate change, etc. CC's State of The Rockies Project will also help to inform us on challenges facing our region, encouraging us "to explore critical environmental and social challenges in the Rocky Mountain West."

During this course: 14 of the 15 students were introduced to SOTR for the first time 2 weeks into the course, the students were to analyze the SOTR webpage in order to gain a greater idea of what the project is about, and they viewed the 68-slide presentation that



VISITING ASSISTANT PROFESSOR DOT DEVITA

had been put together by the surveyors. This presentation starts with the survey methodology, data on how the survey has grown in the past 12 years, and then the key findings from the 2022 survey data including comparisons to past years results.

This was then followed by a discussion on how SOTR's opinion poll might inspire ideas/prompts for our feature writing in this course, and/or based on what you are already interested in writing about and looking into? List possible subjects, topics, and writing forms. Then with this inspiration in mind project groups were asked to create a proposal for field research or site-specific writing for a Student-Designed and Student-Led Class later in the week. Thus, culminating in the final for this course: A Collaborative

Field Guide Many of the students' articles were inspired by or stemmed from SOTR's poll data. The articles explored, reflected, commented on, confirmed, and contributed to SOTR findings with themes such as: Increasingly dim view of the future of nature, poorly planned growth and development, Pollution of rivers, lakes, and streams, climate change, rising costs of living support for national public lands (and Open Spaces) enthusiasm for hiking and camping.

The Future of SOTR in CC Classrooms for possible reiterations of this course, feature journalism courses, and place-based creative writing courses were: A social 'Meet & Greet' that introduces students to professors, staff, and students with prior experience with SOTR's program. Showing examples of past student engagement with SOTR or inviting a student to discuss their experience and project stemming from SOTR:

- A point person in SOTR to answer student questions.
- Follow-up with our point person in a whole class setting.
- Possible convergence class with another course using SOTR poll data.
- Possible field research or field trip planned around a concern that SOTR poll data has identified.
- Mock poll with students using the SOTR methods/survey, etc.
- Reflection on what students feel is left out of poll data findings



