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Wildfire Science

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WILDFIRESCIENCE

Wildfire Science *covers research and development topics on wildland fire. Our mission is to present engaging stories without sacrificing the technical details. While reporting on one of the world's most explosive environmental subject, we aim for the rational over the sensational.*

An original project by Neil LaRubbio
for the completion of a master's degree
from The University of Montana and the School of Journalism.

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firenews.firecenter.umt.edu

In the spring of 2010, I started work on *Wildfire Science*. What began as a discussion in Professor Lee Banville's office about the lack of contextual reporting on wildfires, evolved into an idea for a vanguard wildfire news website. Nothing seemed to validate our discussion more than the Kootenai Creek fire in September of 2009. The fire had burned for weeks in a remote canyon in the Bitterroots and in September it burst out into the valley and threatened homes in the area. The fire was a public relations disaster for the Forest Service. Homeowners met at a town hall meeting to complain that the Forest Service endangered their property by not squashing the fire earlier in the summer. The Forest Service said they wouldn't send firefighters into a dead end canyon. Local newspapers reported the claims and counter-claims, but did more to fan the flames than to explain the policy behind the Forest Service's decisions. They covered the controversy foremost and left the answers hidden.

Wildfire Science would have approached the event with greater information. A system of updates would remotely feed a stream of warnings and evacuation measures. Residents of the Bitterroot would find visual displays of fire spread and suppression strategies more convenient and more frequently on my site.

Then, journalists for *Wildfire Science* would facilitate a more comprehensive discussion. The Forest Service used the fire throughout that summer as an ecological stimulus to the landscape, and we would have explained that science. The more honest civil debate asks where the responsibility lies for homeowner protection against wildfire. Should homes in the Tornado Belt receive government protection? Rather than finger pointing, all parties need a better understanding of our nation's wildfire resources: our knowledge, our tactics and our limitations.

Naturally, as a wildland firefighter and a graduate student pursuing a career in journalism, creating a forum focused on wildfire news appeared as a perfect fit for my professional project.

At first, our mission was simple. Aggregate the plethora of existing information across various government and science-based websites into a centralized location. Second, report stories with a more informed perspective on fire behavior and fire management. Professor Banville and I discussed that I would build a test site that could be incorporated into an enhanced site once we found partners and funding to make it happen. The larger website could function as a feature of the evolving environmental journalism program in the School of Journalism. An alluring suggestion for me was that my project could set me on the precipice of full-time work as managing editor of the larger site.

The potential business opportunity and the experience of learning the backend of online news made committing to this project rather easy.

In short order, I nailed down my committee. Professor Banville would steer the project as chair. Professor Henriette Lowisch and Dr. Ronald Wakimoto from the College of Forestry would serve as advisory committee members.

My agenda was experimental as a master's project. Generating work from the outset was difficult. Many questions had to be answered: Who would build this website? How would it function? What is possible to accomplish, and what is impossible? What does a finished product look like?

Over the summer of 2010, I returned to the Yellowstone Ranger District and the small town of Livingston, Montana to work a third season as a wildland firefighter. With my wife back in Missoula, I camped out of my truck at Forest Service campgrounds throughout Paradise Valley. During my training courses and fire assignments, I carried a notepad and a camera. I jotted story ideas and contact information. I snapped photographs when I could spare the time. And I experimented with a WordPress site, tweeting my daily work assignments and visualizing potential stories for the project.

When I returned to UM for the fall semester, I sat down with Professor Banville and Professor Lowisch to discuss the trajectory of my project and to focus my work. The committee advised me to narrow the scope of my project by building one section of the website. The thought of engineering every function of a proper news website seemed out of reach. But building, for instance, the politics or finance section would be more feasible.

We decided that I would focus my efforts on developing the science section of what would eventually become a larger wildfire news website. With scientific reporting, I could fill a hole with readily available sources. The evergreen nature of science news assured the foundation for a respectable publication.

I registered for Dr. Wakimoto's graduate-level fire management course that fall. His lectures established a base of knowledge for an array of wildfire topics, and they honed my ear for scientific language, which can feel completely foreign and desperate for translation for the average public. Dr. Wakimoto also gave me a broad sense of the power players within the fire world so that I could quickly identify the right sources for stories.

For an editor working with no budget, the largest obstacle was finding content. Professor Banville dedicated a portion of his online media course syllabus to my professional project. I registered for his class and led six teams of students through multimedia assignments. I gave the students story ideas and contact information. Some of the teams received footage I had captured during the summer. We discussed their projects during class and kept in contact throughout their reporting.

I sent each project my editing notes after receiving their first drafts. Some videos took extensive editing. I usually referenced a point in the timeline and made comments about what they should add, take out or revise. Other projects needed help with word choices. I tried to steer all of the projects toward a scientific focus.

During the course of this session, I had the opportunity to build a narrative of my own. I tracked down the forest districts around Missoula that had fire crews out on fall prescription burns. Fire Management Officer, Dewey Arnold, from the Ninemile Ranger District said he could accommodate my request for a story. They were burning that day, and he wasn't sure if they'd be approved to burn again. I hauled down to Ninemile, armed with a little Cannon Powershot, an audio recorder and a notepad. What came out of my one-man show was a story about managing airshed quality with prescription burns.

Of the six assignments from the online media class, I chose three for publication. They achieved high reporting standards, and did a solid job covering the science angle of the story. But in addition to these three reports, I took away a few lessons from this work. I changed the way I conceived of the story itself. It's helpful to think of stories for

the web as small packages that the viewer opens when they click on the page. The most important component appears first on the page whether that's a video, a slideshow or a paragraph of text. Then, we have supporting text or images. Give the journalist that page image, and he or she knows what they need to capture. Envisioning a story idea like a writer can lead you to miss valuable elements of production. If a multimedia project is going to have success, the logistics of accomplishing that with the correct equipment and personnel need proper assessment in advance.

The project also highlighted one of the challenges I would face in putting this together, a lack of scientific depth among the student reporters. The students all made strong efforts to complete their assignments, but it's difficult to provide incentives for high-quality work to students. Some of the teams lacked the skill they were asked to perform. For a site to keep a steady readership and stand up to criticism, however, it would need qualified and reliable journalists creating its stories.

Aside from working these student stories, I set out to gather sources from every available organization in Missoula. Sometimes, I scheduled interviews simply to hear new perspectives. The town is headquarters for Region 1 of the Forest Service. It's a historical site for fire management, and various agencies and wildfire facilities operate within its borders. One of the key contacts I made was Kris Lee, program director at Missoula's Fire Sciences Lab, a unique Forest Service laboratory that has studied the subject for over 50 years. Lee was the first person outside the university to see the benefits of my website, and she opened full access to the lab for every student that asked.

At the Society for Environmental Journalists Conference, I made good contacts with people from the International Association of Wildland Fire and High Country News. I started talking about my project to members of the National Interagency Fire Center, the Northern Rockies Coordination Center, Missoula Technology and Development Center, Neptune Aviation, UM's Health and Human Performance Lab and various fire science academics from universities in Montana, Colorado, Idaho, Wyoming and Wisconsin.

Discussions with these experts in the field gave me confidence that I my project was meaningful. Wildfire and public communications was on everybody's mind.

Toward the end of the fall semester, my final paper for Dr. Wakimoto researched the validity of science in local and national news articles on mountain pine beetle and the wildfire threat. In a 15-page paper, I detailed five years of news coverage and found that the local newspaper based their reporting on vague or erroneous science. At the heart of the beetle-kill/wildfire issue stands a scientific conundrum, yet the newspaper never sourced a wildfire scientist for its stories. Most people assume that millions of dead trees indicate catastrophic wildfire, but science has shown that when needles fall out of dead trees, the threat of a crown fire diminishes. Once the trees fall to the ground decades later, the fire threat may rise and present fire managers with a separate set of circumstances. Science does not have all the answers for each equation. Current research aims to fill those gaps of knowledge. *Wildfire Science* would have the sources and the forum to follow this story with sensibility throughout its evolution. I eventually turned this research into a feature story for the website.

As I wrote this paper, Dr. Wakimoto informed me that he would be on sabbatical in the spring, so he wouldn't be able to offer much time to my project. He introduced me to Professor Carl Seielstad from the College of Forestry, who liked the idea and signed on as a committee member. Professor Seielstad was a smokejumper for eleven years. He's the director for the National Center for Landscape Fire Analysis, operating out of the College of Forestry. Immediately, I felt that Professor Seielstad's opinions would guide my project effectively. He had an ear for important news, and his thoughts bloomed from both historical and contemporary fire issues.

Professor Seielstad introduced me to Professor Jim Riddering, and the three of us began brainstorming ways to communicate to the public. I told them I thought it would be great to have wildland firefighters using mobile devices to tweet information from the fire line, as I had done the previous summer. Fire agencies often sensor information to the public, or they don't disseminate it quick enough, but technology could present that information faster and freer. Professor Riddering introduced me to the Ushahidi software that could actually aggregate firefighters' texts and place them on a map according to GPS location.

I felt like something unique like the Ushahidi-driven frontline view of the fire season would be the kind of content that would draw readers to the page repeatedly throughout the wildfire season. Since we had no way of accomplishing this before May,

I put it to the side and discussed with Professor Riddering the possibility of collaborating with him on the construction of my website.

By the end of January, after seeing the potential benefits of my project to their interests, the College of Forestry committed to providing server space and IT support for my project. I needed to construct the site, but I had little prior experience. I wanted a Content Management System that afforded versatility, but I did not know HTML. Thankfully, Professor Riddering introduced me to Niels Maumenee, systems administrator for the College of Forestry. Maumenee worked with me to install and run Drupal to power the site. I purchased a template, and we began working together to hammer out page layouts, story archives and import tools - - building a website's back- and front-end from the ground up.

From a technical perspective, Maumenee could engineer anything. He guided me through the construction of every story format I wanted. Maumenee especially helped organize the presentation of the Wildfire Trakker page from the ideas we brainstormed with Professor Riddering and Professor Seielstad. The Wildfire Trakker is a way for the site to attract continuous viewership by aggregating the critical elements that can determine the wildfire situation nationwide. Currently those pieces of information are available, but not in one location or in an easily accessed way. This Trakker is intended to give people a better understanding of the key factors – weather, forest conditions and resource status – driving the current wildfire season as it unfolds.

I've presented the Wildfire Trakker as a demo for the future. With more time and expertise, the presentation of this information would be invaluable to the public as well as fire managers. For marketing purposes, I spelled "trakker" as it is because I thought it would appeal to the outdoor adventurer, an excellent target audience.

By the time I had entered the final spring semester running up to my project defense, I had built a regimented work schedule. I had much more on my plate than this professional project. My wife gave birth to our son on January 29th. On February 7th, I began a 15-hour-a-week internship with *Bugle* magazine. I washed dishes and prepped food for the Good Food Store for 35 hours/week, and to maintain my status as a full-time student, I began work as a producer for a documentary film for an independent study credit. If nothing else, I finally learned how to organize my

priorities. This was essential as I entered the spring semester with a new series of stories I hoped to work with students to produce for the site.

At the beginning of the spring semester, I assigned a list of story ideas and contact information for Professor Lowisch's feature writing class to choose from. The students showed interest in the stories. The one problem was that they did not have a due date for the class. This proved difficult toward the end of the semester. I was still asking for additions and making edits to these print stories the week leading up to my own project deadline. One small stipulation for writers to make things easier should be that they submit a photograph and headline with their stories.

I had a harder timer receiving projects from Professor Banville's students during the spring than in the fall. We had scheduled the drafts to come in by the last week in March and to have final drafts by the second week in April. These missed deadlines put a lot of pressure on my work as I was trying to construct the website and wrap-up stories of my own. The deadlines I set did not add room for error, so it was a mistake to post them so close to the end. As quickly as stories upload to the Internet, I let that fact fool my judgment. The Internet does not subtract from editing time.

The final stories published on *Wildfire Science* exemplify areas for journalists to focus their efforts in the future. A fully operating website would make the stories more timely, but all of these stories are on the forefront of wildfire debate, and I chose them for that reason.

The subheadings (Fire Behavior, Wildlands, Urban Interface, Climate & Weather, Technology and Health) are the most important categories of stories in wildfire science. At the end of this experiment, we have the foundation for a powerful media tool. *Wildfire Science* has been engineered to find the best wildfire information very quickly using the region's best resources.

Wildfire professionals will visit *Wildfire Science* for the ease of finding information that enhances their work. The larger Wildfire News website will attract a larger public following because it will have minute-by-minute information on wildfires affecting their area. The larger site will gain respect for its reporting and attention to the nuances of wildfire suppression, and *Wildfire Science* will back that reporting with contemporary study, debate and solutions.

At the end of my graduate work, I believe I invested my time into a valuable project. It sustained my interest for an entire year and it afforded me lessons that I would have never earned from a single publishable print piece. Managing content using spreadsheets as I observed at *Bugle* was a great organizational lesson. I have a new respect for the editor's chair.

Above all, I no longer disparage the mantra of positive thought. Cynicism is great for reporting, but has no role for project locomotion. Through all the voices of demand that peppered my progress, I never doubted that I could produce something worthy.

List of Labors

Developed 15 story ideas for undergraduate students in Professor Banville's online media class and Professor Lowisch's feature writing class.

Edited all 15 of these stories. Published 9 of these stories for the final website:

"Wildfire Airtanker Fleet Revamped"

"Incident Managers Need Sleep"

"ADHD Spike Found Among Wildland Firefighters"

"Forecasting the Path of Wildland Smoke"

"Rethinking Wildfire Defense"

"New Fire Shirt Design Set for 2012"

"Prescribed Fire and Landscape Analysis"

"Air Quality Assurances Complicate Prescribed Burns"

"Designing Fire Whirls"

Reported, wrote and published 2 print stories for the final website:

"Prediction 2011"

"Press Fire Blanks at Beetle Kill Science"

Reported, wrote, shot video and edited with Final Cut Pro:

"Air Quality Assurances Complicate Prescribed Burns"

Wrote all headlines (11) and subheads (9).

Designed and built *Wildfire Science* using Drupal and an EndlessPublish template with guidance from Niels Maumenee.

Worked with Niels Maumenee to design the *Wildfire Trakker* section.

Recruited, edited and published 3 columns in *The Expert Opinion* section.

Recruited Dave McGorden's photography and resized images for the website.

Worked with a Matthew LaRubbio for the look of the *Wildfire Science* banner.