

Overview

The Science Source Pathways Project was designed to test the efficacy of a science news service that specifically targeted rural and Native American communities in Montana. Montana's Indian reservations have few revenue sources, and unemployment rates are high, resulting in extreme poverty. Not only are these communities underrepresented in participation and engagement with STEM, they are facing perplexing decisions about exploitation of their environmental resources in light of their economic situations. News reports and other reliable sources of informal STEM content that address these and other topics of concern to Native American communities in Montana are rare. Science Source was designed to produce scientific news reports in a variety of media formats on a range of topics of keen interest to these underrepresented audiences as a tool to broaden participation.

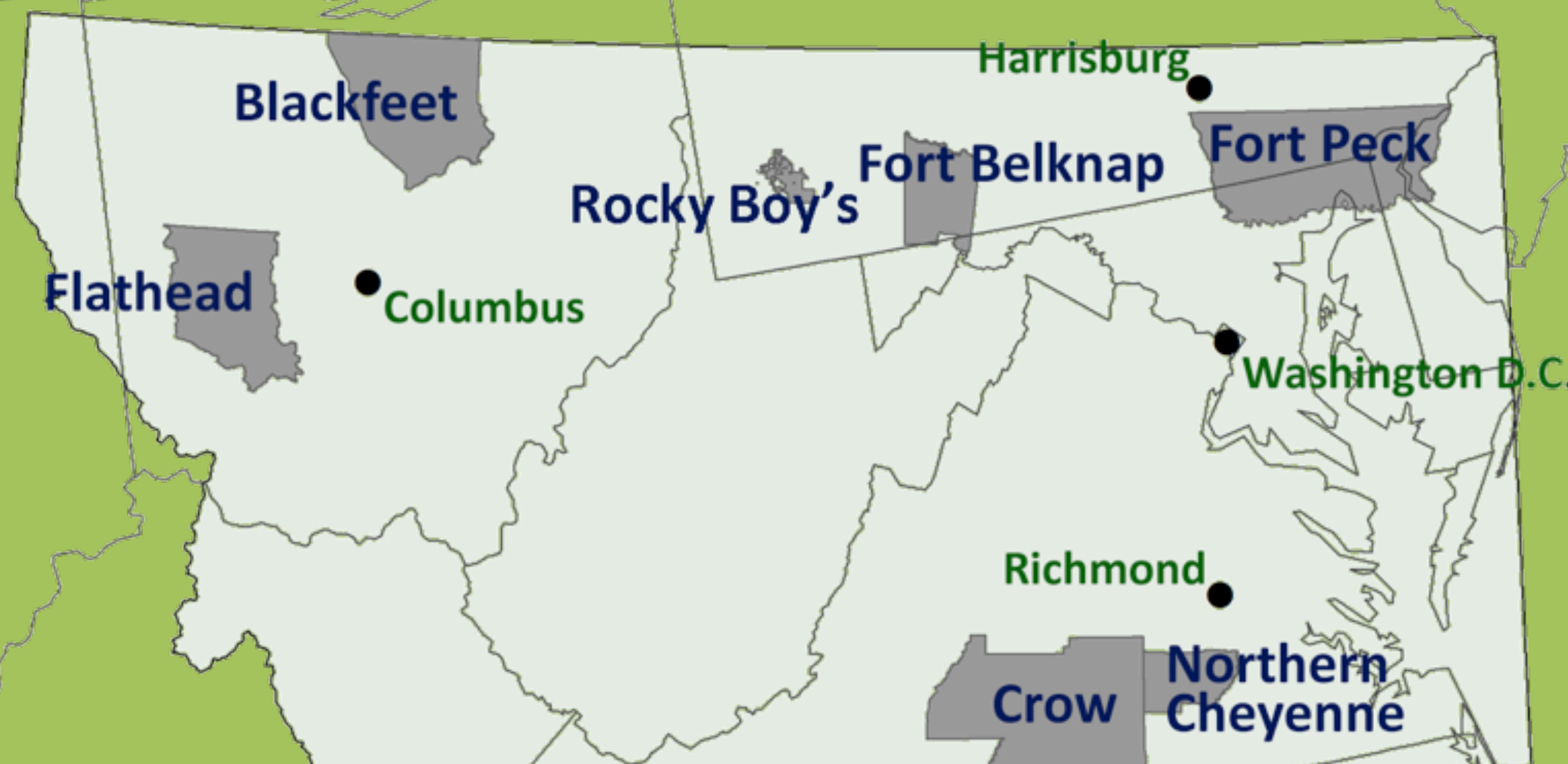
Goals of the Science Source Pathways Project

- Enhance communication of science research to underserved and underrepresented audiences;
- Enhance opportunities for underrepresented audiences to engage in STEM content;
- Enhance our understanding of the role of the media in the dissemination of news related to environmental science;
- Build capacity in science journalism by providing contextual on-the-ground training for graduates and undergraduates entering the field;
- Engage students in rural K-12 and tribal colleges in science communication.

Audience

Montana's Underrepresented Populations

- The **Flathead Indian Reservation** (1,938 mi² [5,020 km²]) is home to approximately 14,000 Native Americans belonging to the Bitterroot Salish, the Pend d'Oreille and the Kootenai tribes.
- The **Blackfeet Indian Reservation** (3,000 mi² [7,800 km²]) has a population of 10,405 living on the reservation lands with 16,500 registered members of the Blackfeet Nation.
- The smallest reservation in terms of land area in Montana is the **Rocky Boy Indian Reservation** (171.4 mi² [443.9 km²]), but it includes extensive off-reservation trust lands. Home to the Chippewa Cree Tribe, the population on the reservation is 3,323.
- The **Fort Belknap Indian Reservation**, including homeland and off-reservation trust land, is 1,014 mi² (2,626 km²). The reservation is home to two Native American tribes, the A'aninin (Gros Ventre) and the Nakota (Assiniboine). The number of enrolled tribal members is 2,851. The **Crow Indian Reservation** has a land area of 3,593.56 mi² (9,307.27 km²) and a total area of 3,606.54 mi² (9,340.89 km²), making it either the fifth or sixth largest reservation in the country. The enrolled tribal membership is approximately 11,000, of whom 7,900 reside on the reservation. Eighty-five percent speak Crow as their first language.
- The **Fort Peck Indian Reservation**, home of the Assiniboine and Sioux tribes, has a population of 10,321. It is the ninth-largest Indian reservation in the United States and comprises a total land area of 3,289 mi² (8,519 km²).
- The **Northern Cheyenne Indian Reservation** in southeast Montana is an area approximately 694 mi² (1,797 km²) in size with 99% tribal ownership. Approximately 9,882 individuals are enrolled members, just under half of whom reside on the reservation.



Piyamida!

("Thank you" in Assiniboine.)

STEM and the News

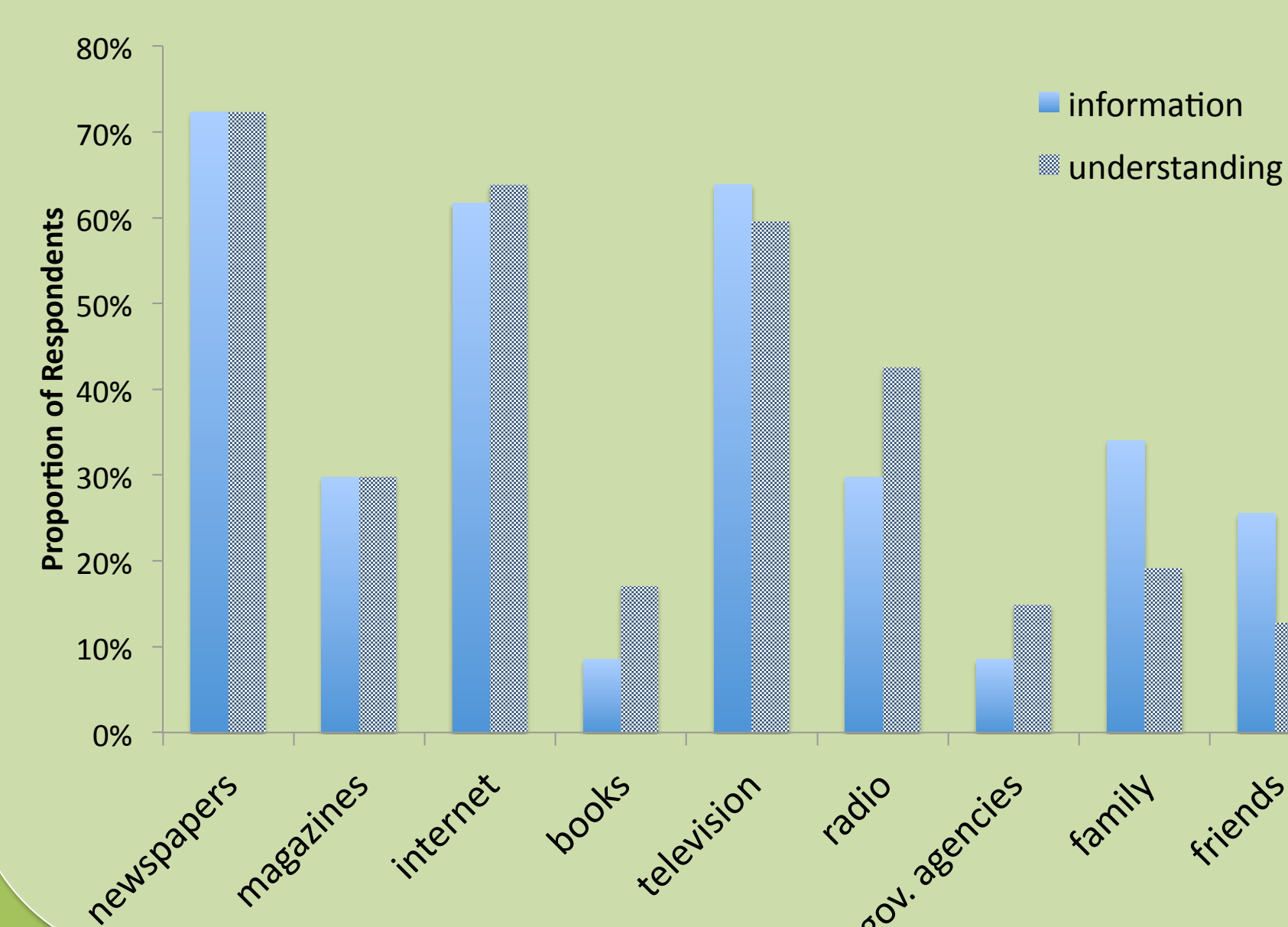
- Residents of Montana Indian reservations believe *news is important to their understanding of issues* related to the environment and natural resources (mean = 1.9, SD = 1.18; 1 = important, 5 = not important).
- Respondents also believe that *covering these issues in the local news is important* (mean = 1.8, SD = 0.92).
- Respondents did not necessarily trust information about issues related to the environment and natural resources that comes from news organizations, however (mean = 2.8, SD = 1.11; 1 = a lot, 5 = not at all).
- Respondents believe a *good understanding of science is important* to dealing with issues related to the environment and natural resources (mean = 2.0, SD = 1.00).
- Respondents did not believe *environmental scientists really understood the causes of global warming*, nor did elected officials or business leaders (scientists: mean = 2.6, SD = 1.11 [1 = very well, 5 = not at all]; elected officials: mean = 3.2, SD = 1.08; business leaders: mean = 3.3, SD = 1.09).

STEM Content and Audience

STEM Field	Topic	Publication	Medium	Scope
Natural Resources	Bakken oil boom	Indian Country Today ¹ Fort Peck Journal Missoula Independent ² Buffalo's Fire KGVA	Print Web Radio	Local Regional National
	Otter Creek coal	A Cheyenne Voice	Print	Local
	Renewable energy standards	Great Falls Tribune	Print Web	Regional
Ecology	Idle No More movement	KGVA	Radio	Local Regional National
	Wetland restoration	Missoulian Char-Koosta News	Print Web	Local Regional
	Threatened bats	Montana Public Radio Northern Ag Network	Radio	Regional
	Moose population declines	Ravalli Republic Char-Koosta News	Print	Local
	New sculpin species	High Country News National Geographic's Water Currents Missoula Independent	Print Web	Regional National
Climate Change	Glacial retreat	Flathead Beacon Char-Koosta News Missoula Independent Montana Public Radio	Print Web Radio	Local Regional National Global
	GLORIA alpine ecosystem research	Montana Standard	Print Web	Regional Global
	Early snowmelt	Science Source website	Web Video	Regional
Invasive Species	Knapweed and birdsong	Montana Public Radio	Radio	Regional
	Exotic plants in the West	Idaho Statesman Missoula Independent	Print Web	Regional
Agriculture	Coexistence between GMOs and organics	Great Falls Tribune Lewistown News-Argus Montana Public Radio Northern Ag Network AERO Sun Times	Print Web Radio	Regional National
Pollution	Global transport of air pollution	Missoulian Char-Koosta News	Print Web	Local Regional National Global
	Heavy metals in rivers	Great Falls Tribune	Print Web Video	Local Regional
	Air Toxics Under the Big Sky program	Science Source website	Web	Local Regional
	Oil pollution in Montana's aquifers	Fort Peck Journal ³	Print	Local
	Complexities of wildfire	Billings Gazette	Print Web	Local Regional
Resource Management	Return of wild bison	National Native News KGVA Fort Peck Journal Char-Koosta News	Radio Print	Local Regional National
	Lake trout management	Char-Koosta News	Print Web	Local

¹ Serves underrepresented audiences specifically.
² National Association of Alternative Newsweeklies Award.
³ Society of Environmental Journalists Award.

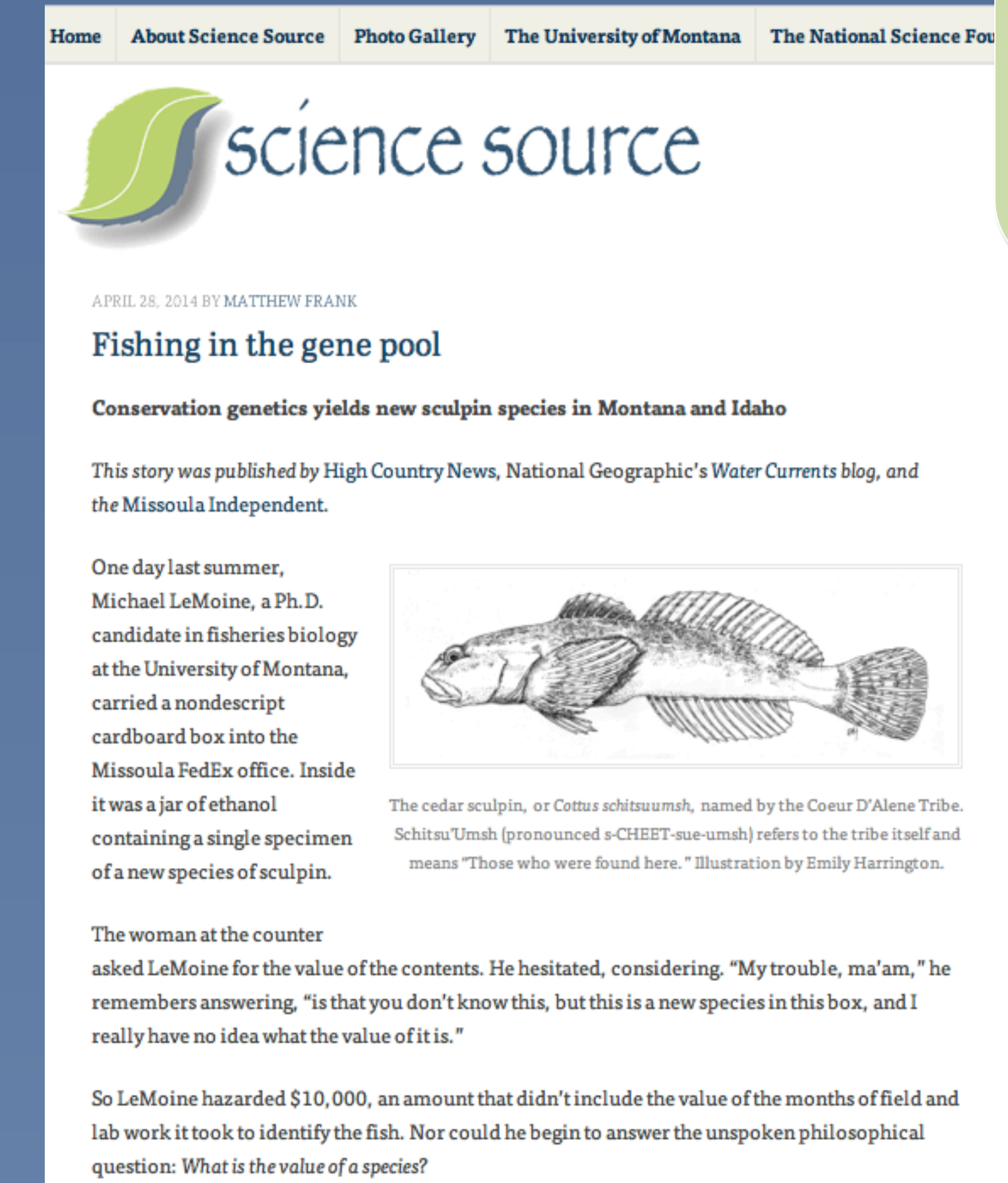
Sources of information and understanding for issues related to the environment and natural resources



Lessons Learned

- Local and regional news organizations are very interested in environmental science news related to their audiences.
- Establishing relationships with diverse news organizations requires quality content, first and foremost, especially on underreported issues, and broader context that can carry hyper-local stories beyond rural areas.
- Relationship development with Native American sources happens over time as one must demonstrate that s/he is trustworthy and will use the information shared wisely.
- Relationships with Native American sources are most easily developed when they are face-to-face, and appear to be the preferred mode of communication.
- Native Americans are keenly interested in local STEM news stories relevant to tribal issues.

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Partners



MONTANA Journalism

Outcomes

As a model, Science Source was extremely successful at developing the collaborative partnerships with local, regional and national news media necessary to serve rural areas and Indian reservations. The extent of these partnerships far exceeded our expectations, and several local news editors/directors see Science Source as a resource for the production of environmental news stories. In addition, we produced stories on a single topic in a diversity of media formats – most importantly radio formats. We developed good working relationships with two radio stations whose broadcast extended to four reservations, one a tribally owned station that programs specifically for Indian country. This media diversity enhanced the likelihood that the local audiences being affected by these important STEM issues will be able to engage with the news reports.

Both graduates and undergraduates at The University of Montana School of Journalism were able to apply their journalism education to reporting real-world environmental science news, learning to write to engage specific audiences. Indeed, these experiences were extremely important in shaping students' future career trajectories. We also were able to talk with students enrolled in a tribal college on the Fort Peck Reservation and engage them in the importance of environmental science news.

Montana is an extremely large state, and reporting on local environmental science issues can be difficult simply because of the vast distances that need to be covered to find and develop sources. These distances tax news organizations willing to cover these important stories, especially in this era of downsizing. These distances also make establishing relationships with communities that have a long history of poor relationships with non-natives a difficult task. More importantly, Native American social norms require significant cultivation of relationships, and developing these relationships is only complicated by the long distances between communities in Montana. The time and effort we've devoted to developing working relationships with Native American communities and news services on and near reservations has led to the successful development of long-term partnerships.