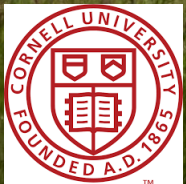


Human Subjects Research in a Cyclical Industry: Research Fatigue in Rural Communities

HEI Energy Webinar
July 19, 2022



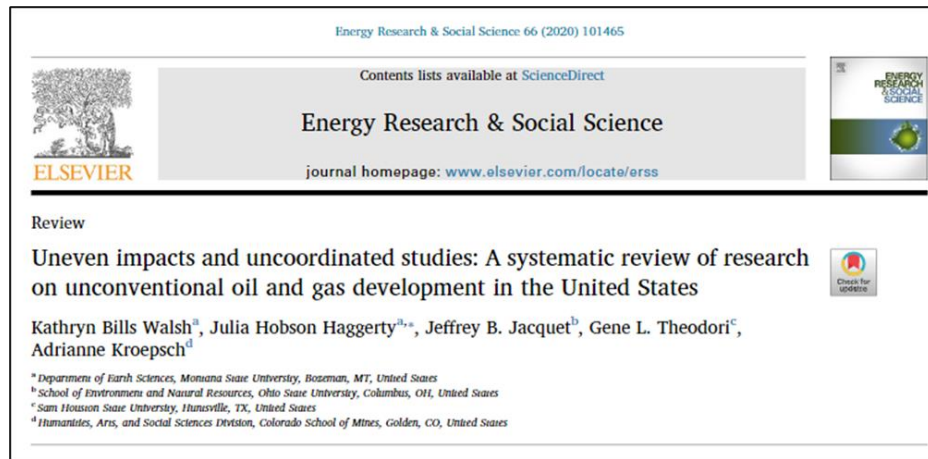
Dr. Kathryn Bills Walsh
Research Associate
Cornell University

Dr. Julia Haggerty
Associate Professor
Montana State University



Photo courtesy of Kristin K. Smith

Part I

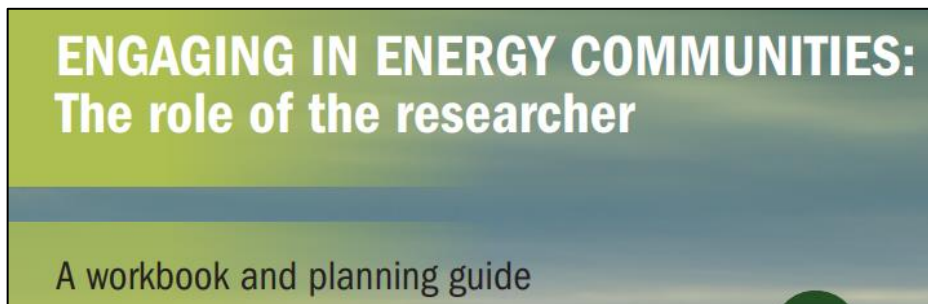


Energy Research & Social Science, volume 66

Part II



[Montana.edu/energycommunities](https://montana.edu/energycommunities)



Overview

- Research origins
- About the project & research purpose
- Research methodology
- Findings
- Best practices for engaging communities - up next!

Research Origins

- Encountering descriptions of research fatigue amongst community members in the energy boomtowns where we work



- Research fatigue defined: “when individuals and groups **become tired of engaging with research**,” and is observable in “a demonstration of **reluctance toward continuing engagement** with an existing project, or a **refusal to engage** with any further research” (Clark, 2008, 962).

What we know about research fatigue

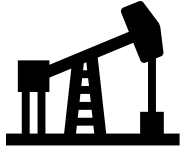


- Declining and uneven survey response rates have been observed in rural and urban communities (National Academies, 2013)
 - Increases research costs
 - Threatens validity of research findings



- Practical challenges such as time are often raised by researchers (Clark 2008), but **skepticism about research outcomes and apathy** are far less frequently discussed in the literature

Energy communities often experience two simultaneous booms



Boom in **industrial activities** associated with UOG extraction



Boom in **attention from outsiders** such as academics, journalists, consultants, and policymakers all eager to understand the local impacts of UOG development



Facilities outside of Watford City, North Dakota help support oil production in the Bakken. (Photo credit: Kristin K. Smith)

Risks & Opportunities

- Social scientists could unwittingly contribute an additional set of burdens on and risks to already impacted communities
 - Another newcomer
 - Compounding psychological and physical stress on already strained community members
- The overarching aim of this survey is to inform an ongoing conversation in the energy impact research community about future research priorities and potential **benefits of coordinating** UOG impacts work

About the Project

Purpose: To conduct a systematic survey of research on social and community impacts of shale development



Katie Bills Walsh
Montana State
University



**Dr. Adrienne
Kroepsch**
CO School of Mines

- (1) What is the size, composition, and character of U.S. human subjects research on UOG development?
- (2) What is the temporal and geographical distribution of this research?
- (3) How did authors interact with community members and what is the character of community engagement in this research?



Dr. Julia Haggerty
Montana State
University



Dr. Jeffrey Jacquet
The Ohio State
University



Dr. Gene Theodori
Sam Houston
State University



Dr. Kathryn Brasier
The Penn State
University



Dr. Timothy Kelsey
The Penn State
University

Building the Literature Database

- Built through a multi-modal search, the literature database contains **198 publications** (2000- April 2018) that report on **167 isolated data collection events** in shale communities across the U.S.
- Literature database entries:

32 theses

41
dissertations

125 scholarly
journal articles
from 70 journals

Book chapters and review articles were excluded

Systematic Coding of the Literature



Study location



Study methodology



Types of study participants



Approaches to community engagement

Systematic Coding of the Literature



Study location



Study methodology



Types of study participants



Approaches to community engagement

Systematic Coding of the Literature



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Study methodology



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Approaches to community engagement

Systematic Coding of the Literature



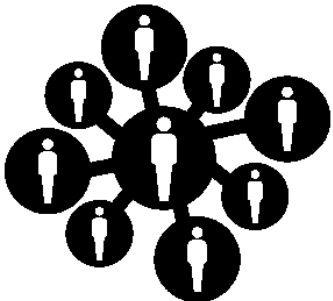
Study location



Study methodology



Types of study participants



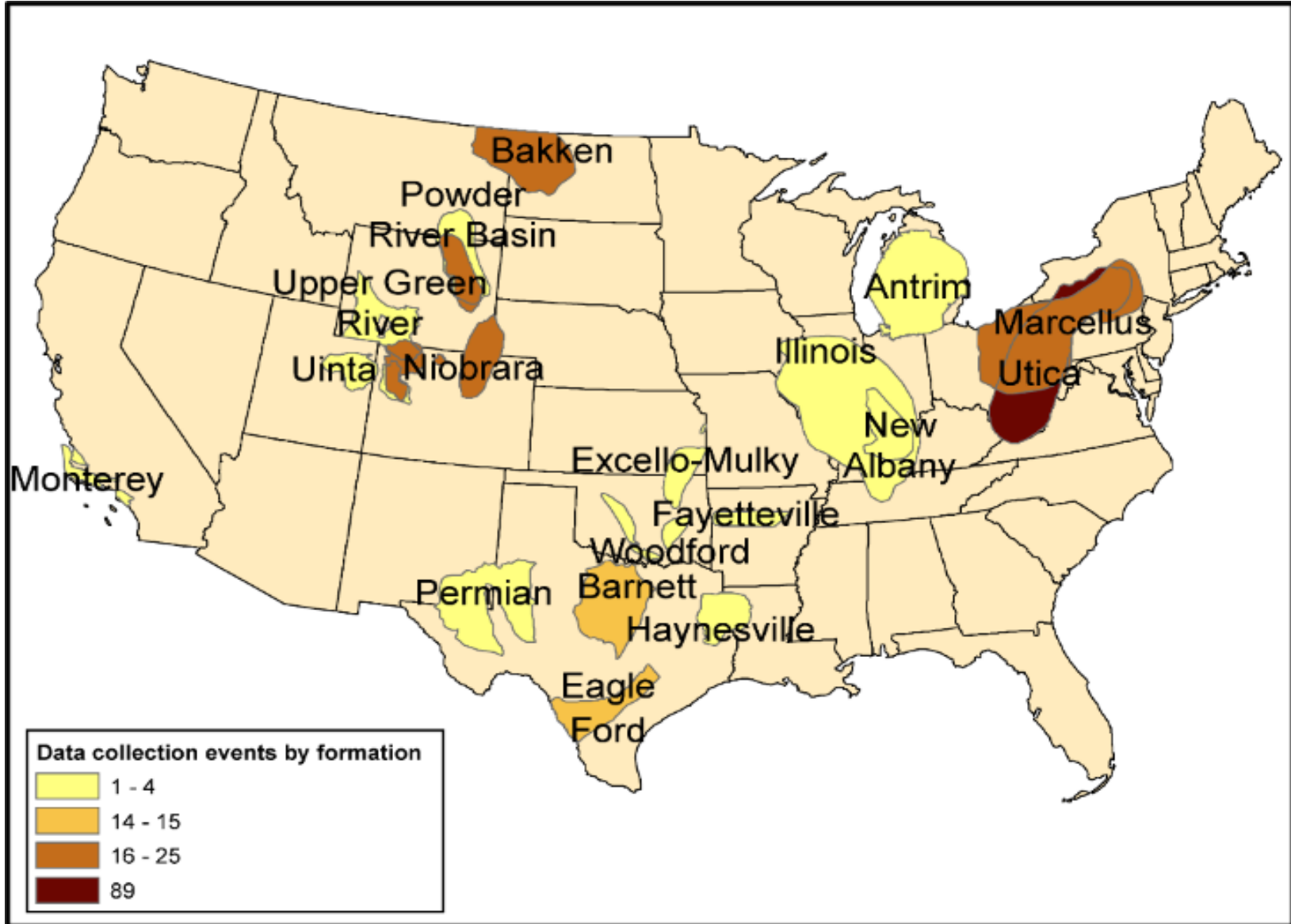
Approaches to community engagement

Some locations and individuals
associated with UOG
development may be at risk of
and/or may have experienced
research fatigue

In the 167 isolated data collection events reported in the publications database, a total of **25,327** individuals participated in shale impacts research



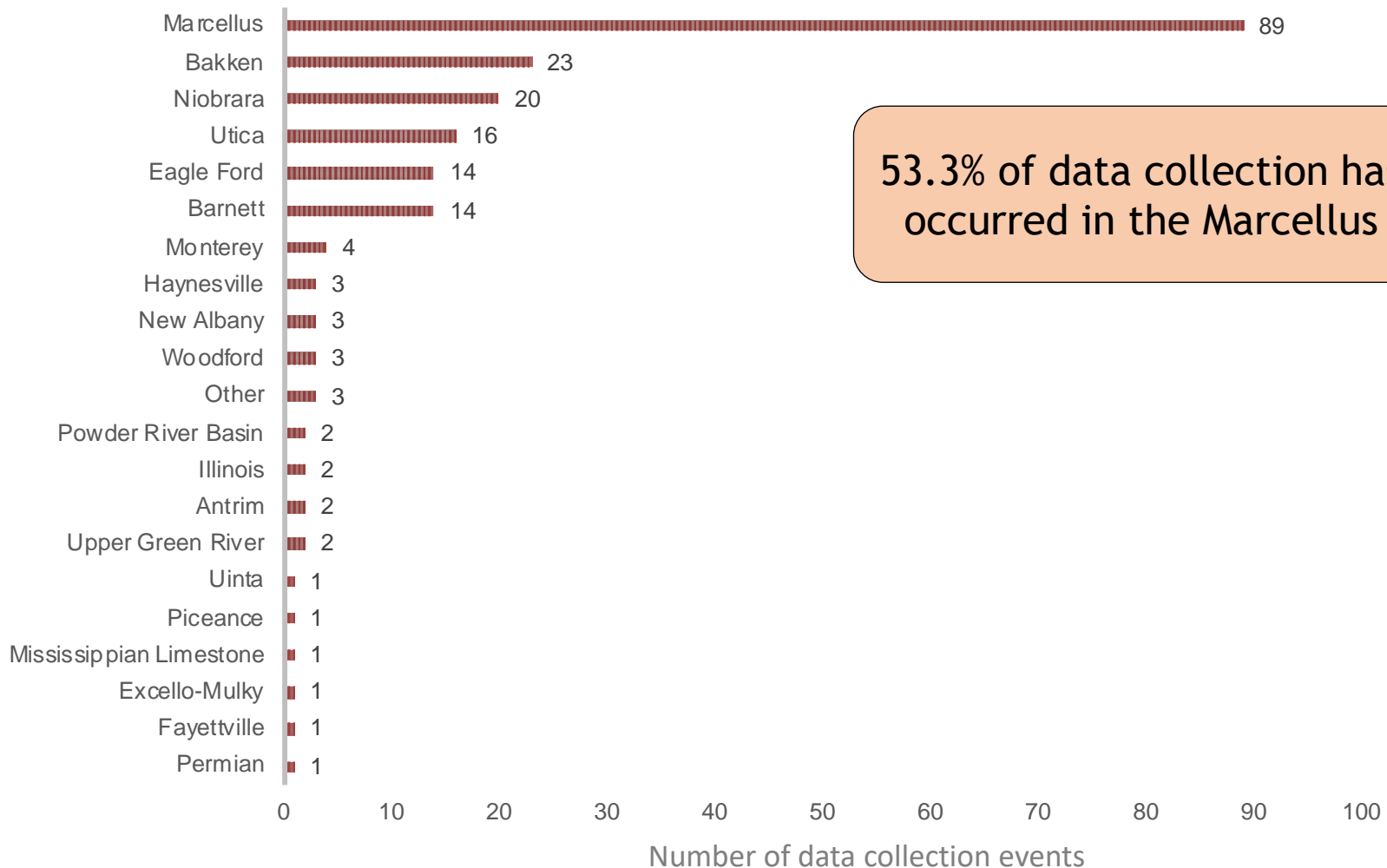
Uneven Geographical Distribution of Research



Sources: Authors, USGS and U.S. EIA. Map by Jackson Rose.

Uneven Geographical Distribution of Research

HUMAN SUBJECTS DATA COLLECTION EVENTS BY SHALE PLAY

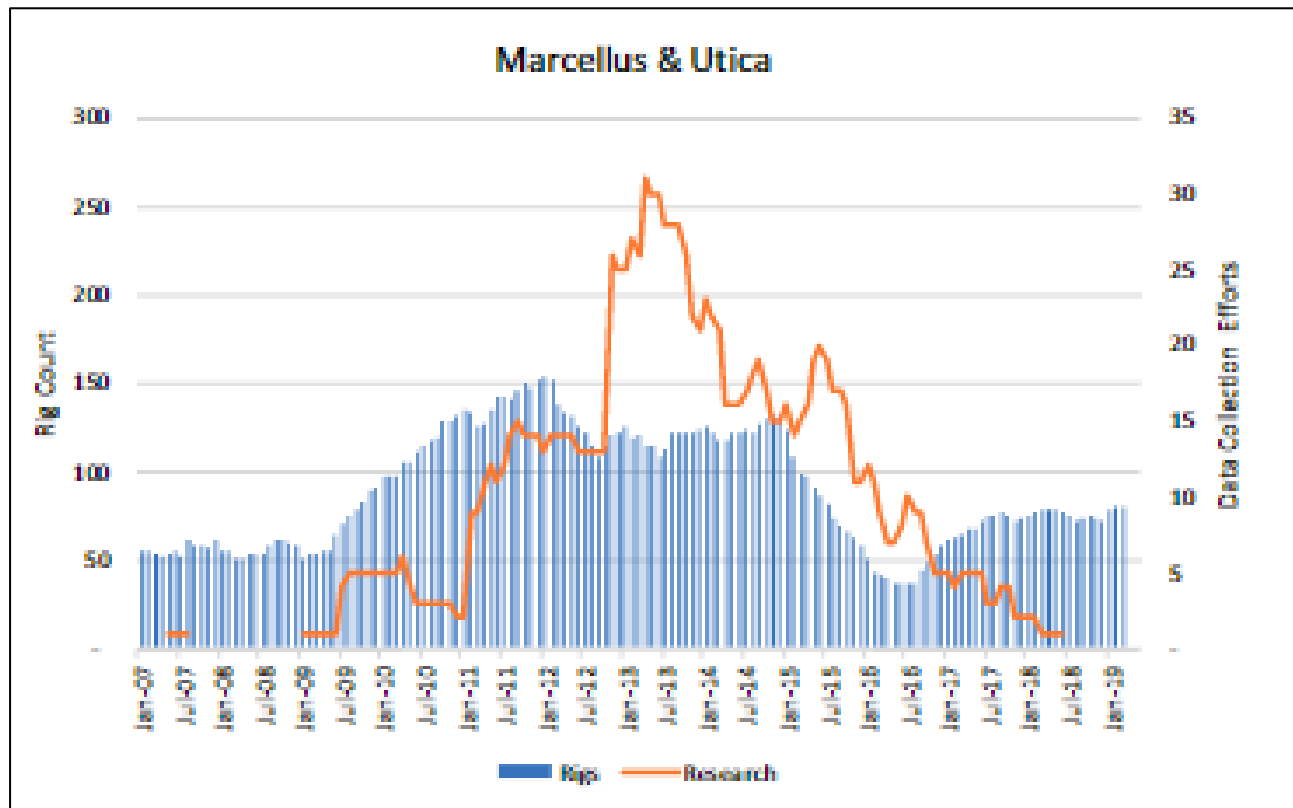


Counties with the Highest Research Activity

Rank	County	# of data collection events	Population in 2010
1	Bradford County, PA	20	62,622
2	Washington County, PA	13	207,820
3	Tioga County, PA	10	41,981
4	Lycoming County, PA	9	116,111
5	Weld County, CO	8	252,825
	Williams County, ND	8	22,398
6	Greene County, PA	7	38,686
	Susquehanna County, PA	7	43,356
	Karnes County, TX	7	14,824
7	Tarrant County, TX	6	1,809,034
	Larimer County, CO	6	299,630
8	Denton County, TX	5	662,614
	Atascosa County, TX	5	44,911
	Boulder County, CO	5	294,567
	Ward County, ND	5	61,675
	McKenzie County, ND	5	6,360

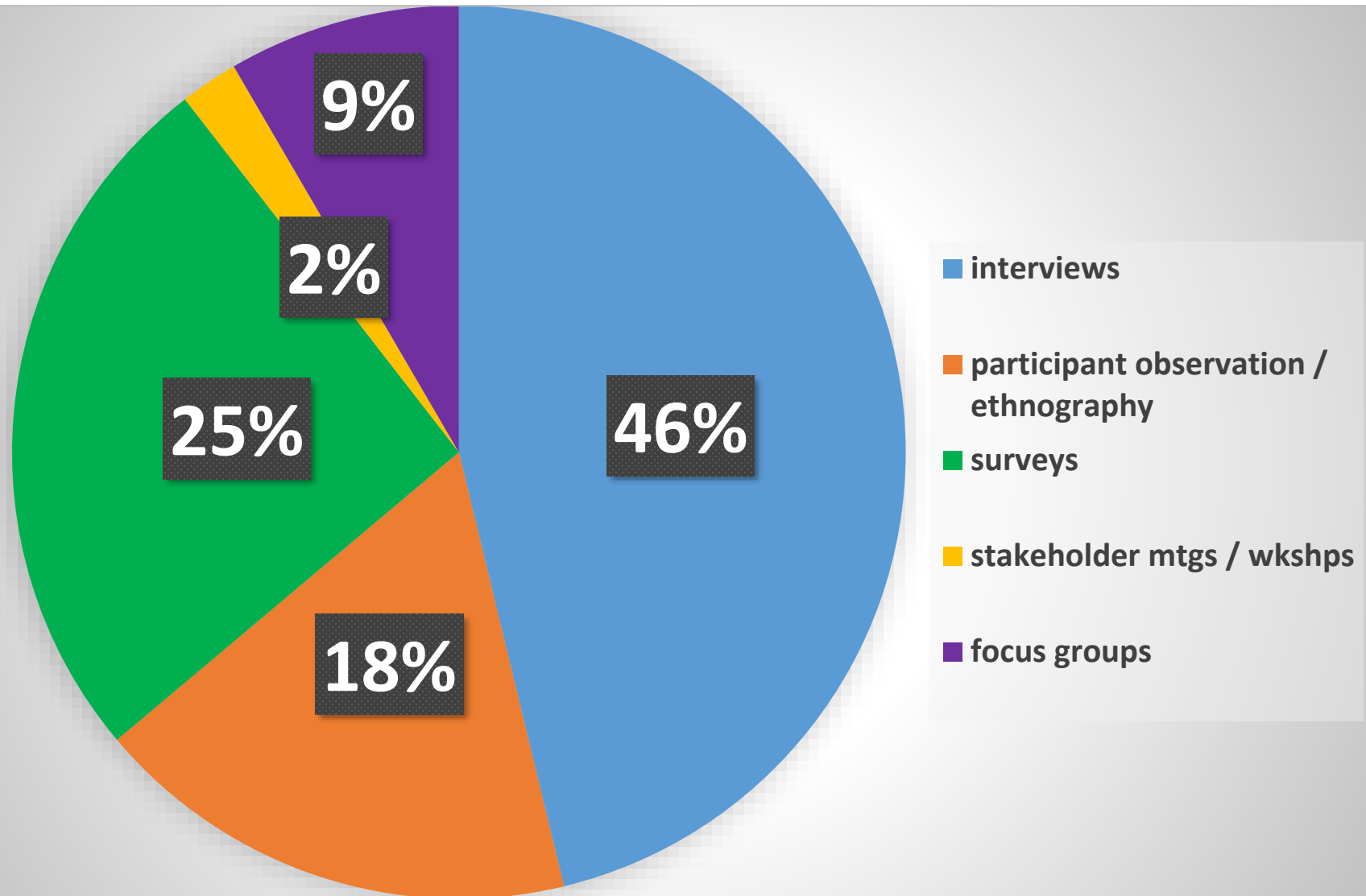
Research disproportionately concentrated in the Marcellus region

When drilling was busy, so too was research, to the point that a given community might have hosted multiple social scientists simultaneously in search of research participants



Drilling activity and
data collection events,
2011-2018

Research Methods



Research Methods: Interviews by Geography

Formation(s) under study	State(s)	# of data collection events	# of interviews conducted
Marcellus	PA, NY, WV	45 (3 with no data)	1,257
Bakken	ND, MT	10	722
3+ formations	Various	6 (2 with no data)	369
Niobrara	CO	9	198
Barnett	TX	8	173
Marcellus & Utica*	PA, NY, WV, OH	8 (3 with no data)	152
Eagle Ford	TX	6	100
New Albany	IL, KY	2	61
Haynesville	TX, LA	2	47
Illinois	IL	1	40
Antrim	MI	1	31
Upper Green River	WY	2	28
Woodford	OK	1	27
Powder River Basin	WY	2	20
Woodford & Excello-Mulky*	OK	1	17
Utica	OH	1	14
Uinta	UT	1	4
Monterey	CA	2 (1 with no data)	1
Fayetteville	AR	1	No data
TOTAL		109	3,261

(Note: * indicates formations studied together due to geographic proximity)

Research Methods: Number of **survey efforts**, responses & average response rates by geography

Formation(s) under study	State(s)	# of data collection efforts	# of surveys returned	average response rate (efforts included*)
Marcellus	PA, NY, WV	26	12,604	39.0% (n=19)
Bakken	ND, MT	7	2,430	41.3% (n=7)
3+ formations	Various	5	2,384	39.2% (n=5)
Niobrara	CO	5	1,216	31.7% (n=5)
Barnett	TX	2	746	36.5% (n=2)
Other*	Various	2	630	No data
Marcellus & Utica	PA, NY, WV, OH	4 (1=no data)	531	34.1%
New Albany	IL, KY	1	403	35.5%
Eagle Ford	TX	4	320	23.3% (n=3)
Utica	OH	1	94	10.0%
Monterey	CA	1	18	31.0%
Upper Green River	WY	1	No data	No data
TOTAL		59	21,376	32.16%

*Total may not include all surveys due to incomplete reporting in some studies on methods.

Stakeholders Targeted for Participation in Research



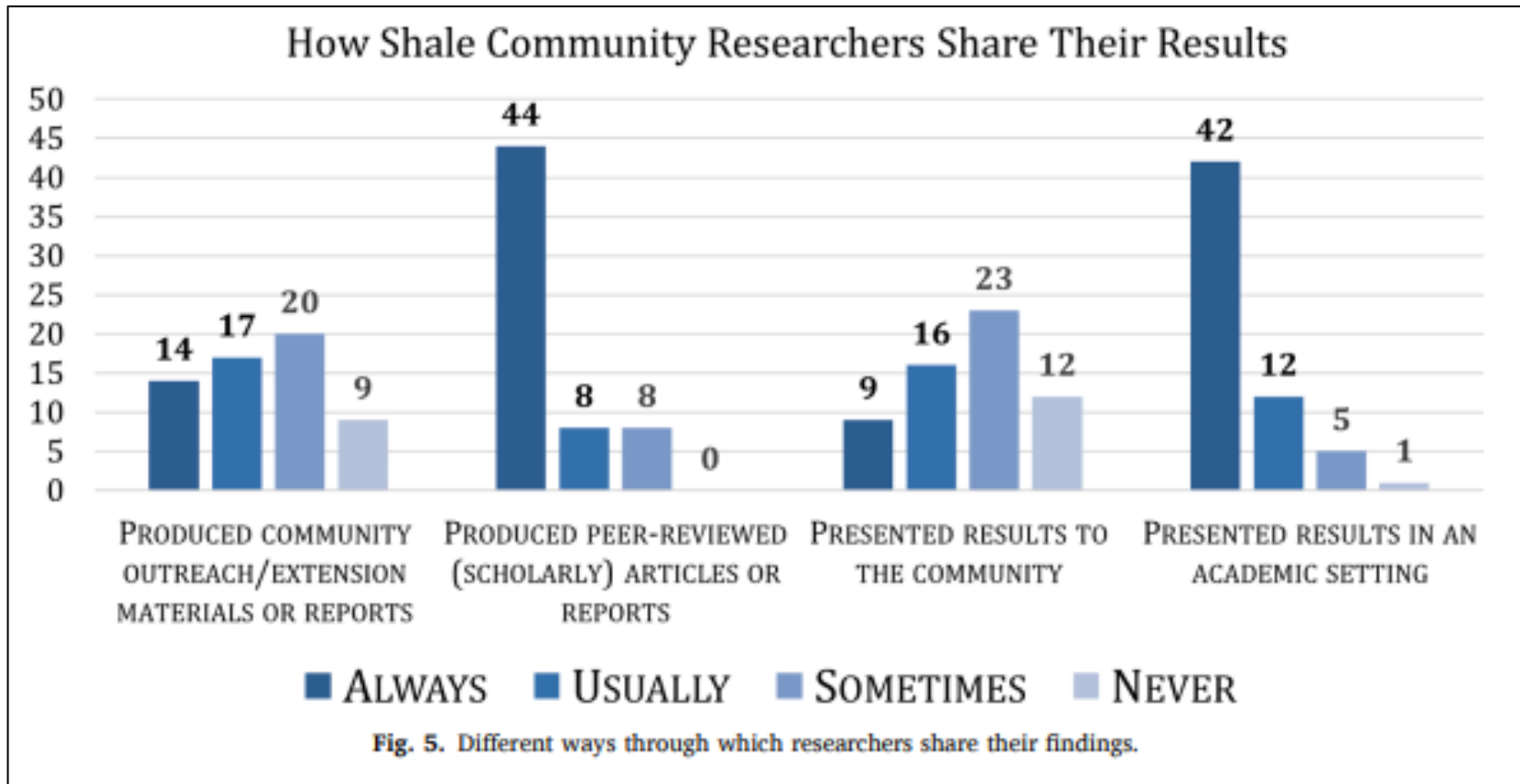
Recruitment challenges

- Difficulty in obtaining industry participation
- Lack of trust and the divisive nature of UOG development in study locations
- Busy schedules and turnover in employment that are characteristic of energy boomtowns

Roughly 50% of the individuals approached declined to participate in the study for various reasons, including wanting to fiercely protect their identities despite ensured confidentiality, distrust of individuals (myself) from different social contexts, and residual feelings of resentment and exploitation by outside individuals who merely report the events disrupting the community without actually contributing in a socially viable way (McCann 2017, p. 30)

Community Engagement

Reports of community engagement practices are largely absent in the shale impacts literature, with **only 11% of studies indicating any community engagement was carried out.**



Acknowledgments



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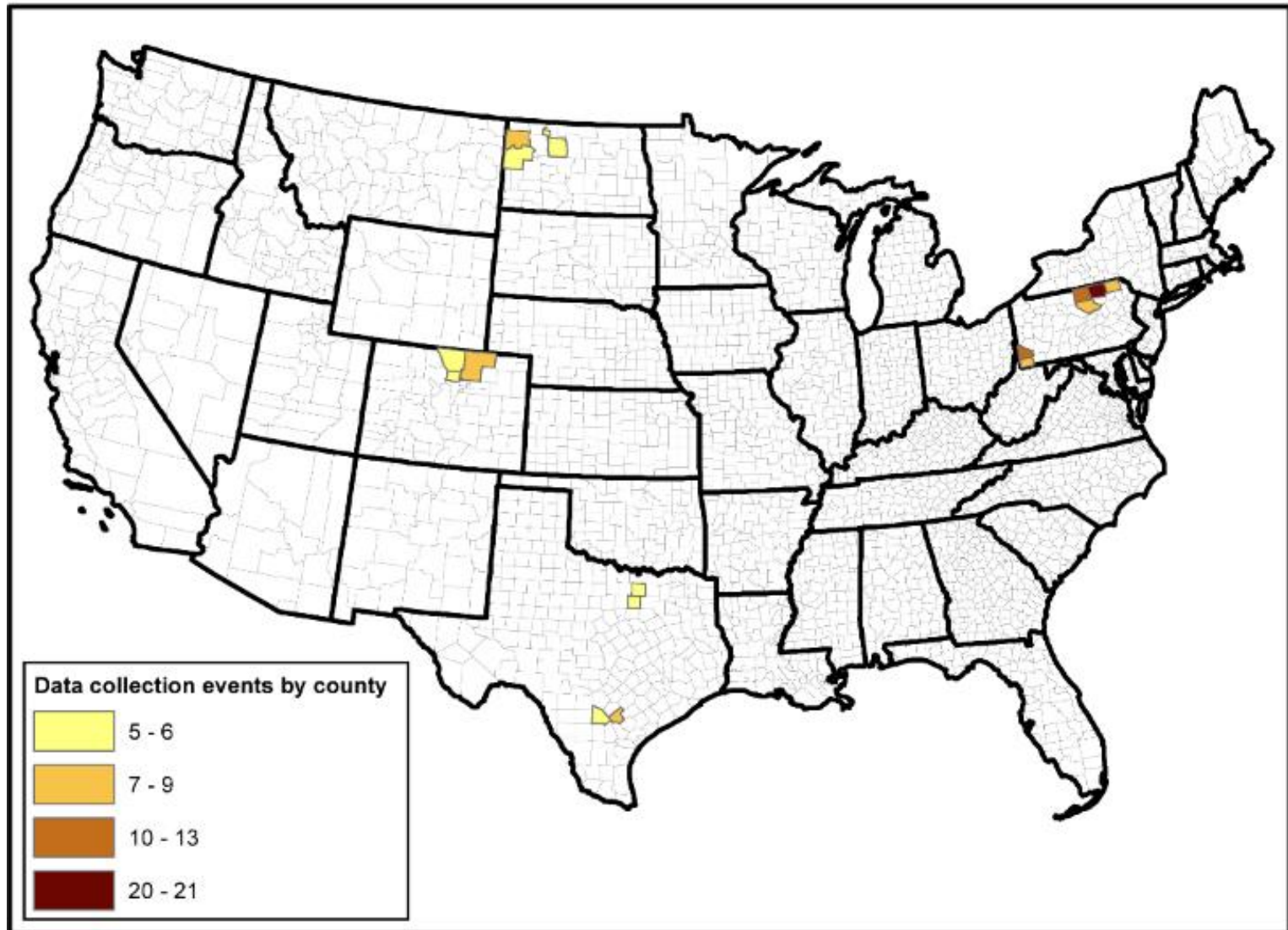
@Bills_Walsh

Up Next: Best Practices for Engaging Communities

‘Unconventional oil and gas OR fracking OR hydraulic fracturing OR shale gas OR unconventional fossil fuels’ was used in search field one for each database search, together with the combinations below.

Database	Combo 1	Combo 2	Combo 3	Combo 4	Combo 5
ProQuest Central	Impacts, social, boomtown	Perception, impacts, local	Risk, perception	Qualitative OR surveys OR interviews OR ethnography	Eagle Ford OR Barnett OR Haynesville OR Permian OR Woodford
ProQuest Central	Perception, identity, community	Governance <u>OR</u> place	Social disruption, rural	Bakken OR Powder River Basin OR Niobrara OR Piceance OR San Juan OR Raton OR Green River	Marcellus OR Utica OR Black Warrior OR Fayetteville
Academic Search Complete	Impacts, social, boomtown	Perception, impacts, local	Risk, perception	Qualitative OR surveys OR interviews OR ethnography	Eagle Ford OR Barnett OR Haynesville OR Permian OR Woodford
Academic Search Complete	Perception, identity, community	Governance <u>OR</u> place	Social disruption, rural	Bakken OR Powder River Basin OR Niobrara OR Piceance OR San Juan OR Raton OR Green River	Marcellus OR Utica OR Black Warrior OR Fayetteville
Science Direct	Social impacts	Risk perception	Community	Governance	
Science Direct	Rural	Identity	Social disruption	Qualitative OR surveys OR interviews OR ethnography	
ProQuest Dissertation & Theses Global	Impacts, social, boomtown	Perception, impacts, local	Risk, perception	Qualitative OR surveys OR interviews OR ethnography	Eagle Ford OR Barnett OR Haynesville OR Permian OR Woodford
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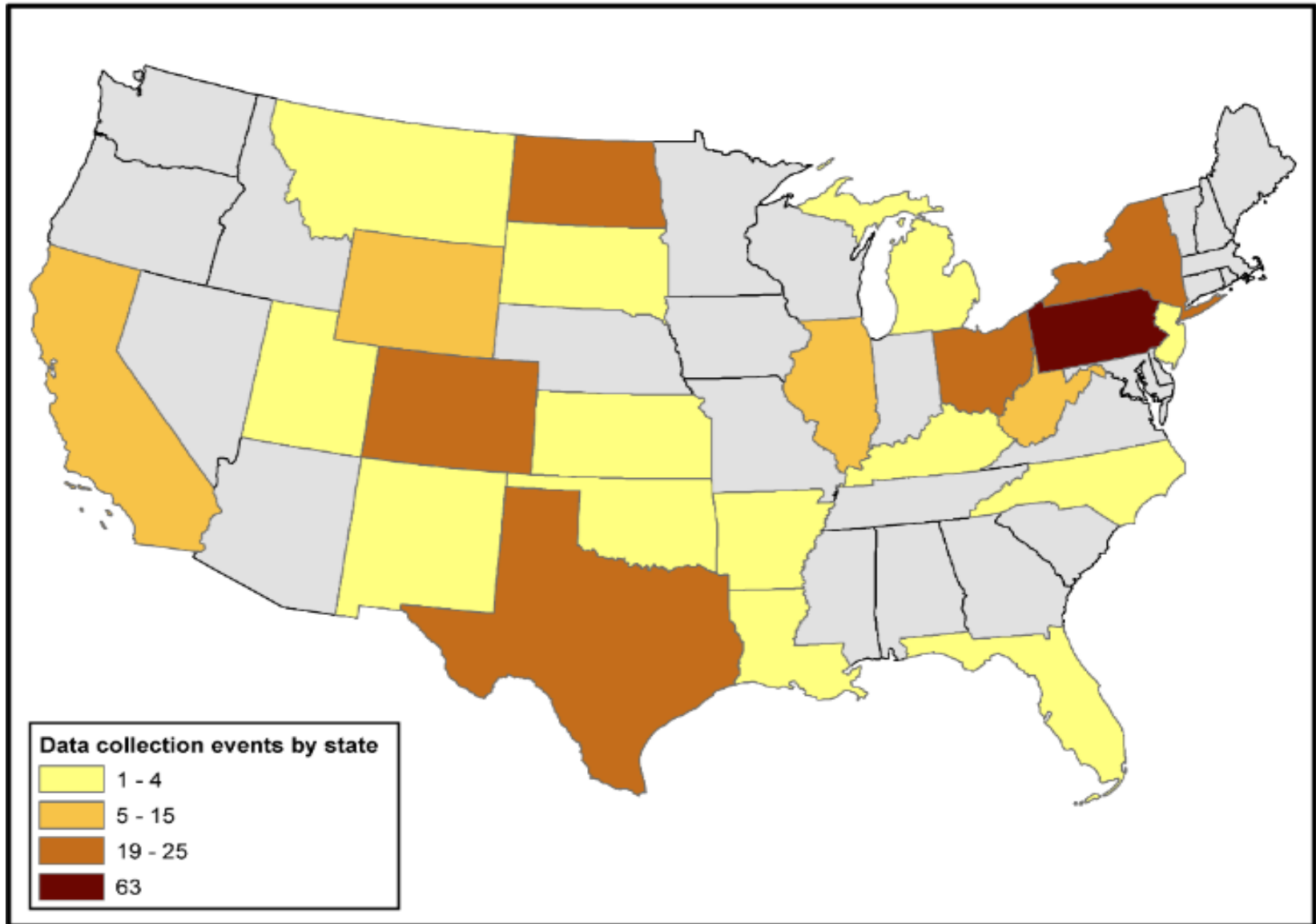
Counties with the Highest Research Activity



Sources: Authors, USGS, U.S. EIA. U.S. Dept of Commerce, Bureau of the Census. Map by Jackson Rose.

This paper presents findings from a systematic survey of research on social and community impacts of shale development, the first ever study to assess the geographic distribution of studies and methods of data collection and engagement with the human subjects of shale impacts research. Built through a multi-modal search, the literature database contains 198 publications (2000-2018) that report on 167 isolated data collection events in shale communities across the United States. This paper describes results of a systematic coding effort targeting the study location; study methodology; types of study participants; and approaches to community engagement. In the 167 isolated data collection events reported in the publications database, a total of 25,244 individuals participated in shale impacts research. Results indicate uneven geographical distribution of research, with over half (53.3%) of data collection events taking place in the Marcellus Shale, followed by the Bakken (13.8%), Niobrara (12%) and Utica (9.6%) formations. Moreover, four of the five top researched counties are located in Pennsylvania. Researchers most often utilized interviews (46%) and surveys (25%) in their work. Studies featured participants from an array of stakeholder groups (n=26) but most often included community residents, community leaders (e.g., elected officials and local government employees), and industry personnel as participants. Reports of community engagement practices (e.g., research products for the community, public presentations, etc.) are largely absent in the shale impacts literature, with only 11% of studies indicating any community engagement was carried out. In analyzing the geographic distribution of shale impacts research and the range (and outcomes of) data collection strategies, this paper provides a critical review of “how we know what we know” about shale impacts in the United States with implications for shale impacts research worldwide.

Uneven Geographical Distribution of Research



Sources: Authors, USGS and U.S. EIA. Map by Jackson Rose.

Counties with the Highest Research Activity

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	Susquehanna County, PA	7	43,356
	Karnes County, TX	7	14,824

623 people participated in interviews, focus groups, or responded to a survey – about **10% of the County population**

McKenzie County, ND

5

6,360

Survey Distribution Strategies & Response Rates

Distribution	# of data collection efforts	Average response rate (efforts included*)
Web	18	43.88% (n=14)
Mail	17	29.33% (n=17)
Phone	7	32.27% (n=6)
In person	7	46.10% (n=3)
Mixed	6	31.22% (n=4)
No data	4	No data

*Total may not include all surveys due to incomplete reporting in some studies on methods.

Energy communities often experience two simultaneous booms

This review aims to provide a descriptive picture of where and how researchers have interacted with people associated with UOG development as a first step in understanding whether the “boom” in energy research had the potential to generate research fatigue and/or other barriers to participation for research participants.