



Evidence and Assertions in Assessing Human Factors

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Centuries ago, “environmental” problems were created by nature. Today, almost all problems we call environmental are created by humans. Solving them requires that we deal with human and societal factors rigorously—which in turn requires building systematically on published, peer-reviewed research and doing so with specificity and clarity.

Berger and Beckmann (2010) claim to demonstrate that, when compared with agrarian and ski-dependent communities, energy-extracting communities of the Greater Yellowstone region attract high numbers of sexual predators. Having studied such communities for 35 years, I find their evidence and logic too weak to support their conclusions.

All results are affected by sampling, and regression results are often skewed by extreme values. Berger and Beckmann do not explain why they decided to analyze the specific counties they chose, rather than drawing on more systematic assessments of county types, and neither do they account adequately for missing data. They examined data from a 12-year period, but their article offers only 7 data points on ski-dependent communities and no data from years 9 to 11, meaning their regression slope is strongly affected by data from the final year. Their data on agricultural and energy-extracting counties are not much more convincing. Further research might produce somewhat stronger evidence, at least within the well-known limitations of publicly available data on registered sexual offenders, but at present, their results do not support their conclusions.

Probably 100 or more peer-reviewed journal articles, meanwhile, present more systematic findings on resource-dependent communities. Although Berger and Beckmann cite many popular publications (e.g., *The New Yorker*, *Calgary Herald*), they include only two citations of relevant peer-reviewed articles. Both of these articles are over 25 years old, and the findings presented in these articles are not consistent with the Berger and

Beckmann claims. One (Summers & Branch 1984) emphasizes “weaknesses and limitations” of earlier research on energy-extracting communities, and the other is a particularly well-known attack on the same research. Its main conclusion is, “The assumption that energy development causes social disruption in western communities is based on undocumented assertions, questionable interpretations of evidence, and superficial analyses” (Wilkinson et al. 1982).

An additional problem is that, although Berger and Beckmann make three claims that are more specific, two have been rejected in the empirical literature, and the third is unclear and untestable. The first claim is that “boomtowns associated with energy extraction (but not recreation) . . . experience social upheaval . . . because of differences between traditional residents and the incoming workforce.” This claim has been examined and rejected repeatedly (Massey 1977; Christenson 1979; Finsterbusch 1982). Young, single males drink more than older, married females, but that generalization is equally true of the in-migrant worker and of the ranch hand on the bar stool next to him. By contrast, the western communities experiencing significant differences between new and long-time residents have tended to be those exempted by Berger and Beckmann—those experiencing growth from recreation—where new residents are often more educated and affluent than long-time inhabitants.

The second claim is that social ills are “not necessarily a product of demographic growth . . . but rather a product of [a] type of in-migrant worker.” Unfortunately, Berger and Beckmann do not actually provide any data on “types” of in-migrant workers, and this assertion has already been rejected by a large body of peer-reviewed findings. As would be the case in any science, the key need is for specificity of evidence. Just as it is not sensible to argue that cattle feedlots are good for trout, for example, because a former trout lake near a feedlot shows an increase in total biomass, it makes no sense to draw

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conclusions on specific kinds of humans by looking at “overall” or county-level data. To draw conclusions about trout, one needs data on trout, and to draw conclusions about in-migrant workers, one needs data on in-migrant workers.

The third claim is that resource boomtowns are problematic because “imprudent alterations of landscapes conflate the biological-social milieu that belies the quality of life for local residents.” *Conflate* means to bring together or to combine, although the connotations of this word are generally negative, while *to belie* means to give a false impression or to show something to be false. In fact, I hope we can begin to do a better job of understanding the ways in which a given “biological-social milieu” does bring together or combine the elements traditionally seen as natural and those traditionally seen as human. Even as someone who has spent decades studying quality-of-life issues, meanwhile, I am not able to decipher the claim that it is possible for alterations of landscapes to “believe” the quality of life for local residents.

Instead, changes in social ills in energy-extraction communities tend to be linked to precisely the variable that Berger and Beckmann reject—demographic growth—but not because new people are somehow different. Rapid growth changes a community’s social structure. Particularly in rural communities, many services (e.g., controlling crime and deviant behavior and raising a community’s youths) are made possible by a high “density of acquaintanceship,” meaning residents are acquainted with most of the other people in town. When more of the faces in town are unfamiliar, residents may or may not feel isolated, but lawbreakers may find it easier to escape detection and capture. A suspect becomes a teen-aged white male, instead of “Ruth Johnson’s nephew, Frank” (Freudenburg 1986). Criminal activities have risen three times as fast as the populations in U.S. energy-extraction communities, but just as this logic would predict, no such clear patterns have been demonstrated for other presumed social ills, such as divorce rates (Freudenburg & Jones 1992). Demographic growth, however, has proved disruptive to one group often expected to benefit from growth, namely local adolescents. Long-term adult residents might rarely need to interact with newcomers, but their offspring tend to be surrounded by newcomers every day they attend class, and they are at a more vulnerable stage of life. Disruptions related to demographic change appear to be more threatening to en-

ergy communities’ youths, however, than fears about registered sexual offenders (Freudenburg 1984; Seyfrit 1986).

So, is it plausible that rapid, energy-related community growth leads to some social disruptions? With qualifications, yes. Is it plausible that “sexual predators” create what Berger and Beckmann call “community dishevel” or “progressively corrupting events” that “conflate the biological-social milieu” of energy boomtowns? No. This is no more plausible than if nonscientists were to read popular stories about declining U.S. bat populations and then assert the bats are dying to protest the presence of what Berger and Beckmann call “elements of a seedier nature” in human populations near bat caves. Trying to understand conservation biology without considering human influences is hard, but understanding it in a way that intelligently includes humans is even harder. The key point applies well beyond this discussion. When humans are part of the picture, it becomes even more important—not less—for the hard work of conservation biology to be done with rigor and a solid commitment to the scientific method.

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