



On Evidence and Faulty Assertions about Energy Boomtowns

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The process of publishing papers in professional journals and the response that follows is always intriguing. Some papers receive little to no response, whereas others garner commentary. Responses arrive from unanticipated sectors. Whether people agree or disagree with the results and inferences provides an opportunity to gauge the quality and relevance of the work. Freudenberg (2011) questions the conclusions of our paper (Berger & Beckmann 2010) on energy boomtowns and registered sexual offenders in the Greater Yellowstone Ecosystem. He notes his 35 years of experience studying such communities and argues that our citation of older literature, use of statistics, and interpretations are flawed. The intensity and tone of these comments is both surprising and, we believe, misguided.

Truth and accuracy arise neither by citation of the most recent literature nor by the latest theoretical constructs, although the framing of issues indubitably adds context. Freudenberg points out that 100 peer-reviewed papers exist on resource-dependent communities. Nevertheless, the existence of published papers on any broad topic does not mean those papers are relevant to a specific context or application. Thousands of peer-reviewed papers have been published on evolutionary genetics, but not all are relevant to studies of adaptation of a given species. Relevance lies in the eyes of the beholder. If only recently cited work is germane, as Freudenberg suggests, then he contradicts himself because the mean date of publications he cites is 27.5 years old (with reference to his own 1992 paper discounted).

Credibility does not depend on the latest citations, but derives instead from appropriate study design and appropriate interpretation of results, which we have elaborated on elsewhere (Berger & Beckmann 2011). The Comment by Freudenberg asserts, “at present, their results do not support their conclusions,” which suggests he believes

our analyses are flawed because of our use of data points with extreme values. When one questions the validity of results, a reanalysis is called for. Had Freudenberg conducted a reanalysis by removing the data from the final year with the highest per capita frequency of registered sex offenders (e.g., 2008) for energy-extraction counties, he would have found a trivial shift in the coefficient of determination from 0.953 (Fig. 3 in Berger & Beckmann 2010) to 0.943 ($p < 0.001$). In other words, if data are restricted to values from 1997 through 2004, our findings remain unchanged: the number of registered sex offenders increased more rapidly in energy boomtown counties than in counties dominated by agriculture or recreation. Data for 2005, 2006, and 2007 were not included in our 2010 paper because they were unavailable.

Freudenberg quotes our statement that social ills are “not necessarily a product of demographic growth... but rather a product of [a] type of in-migrant worker” and correctly notes we do not offer data on “types” of in-migrant workers. What we show instead is that in recreation-based communities there was no change in the per capita number of registered sex offenders between 1997 and 2008. What Freudenberg omits to say, however, is that although human populations do change (through either positive or negative growth), increases do not automatically necessitate alterations in the quality of life due to growth per se. Are we to assume, as Freudenberg suggests, that small communities do not change for the better or worse as new people move into those communities? Many communities experience population growth without a disproportionate increase in crime, violence, or substance abuse, traits that characterize energy boomtowns more than those dominated by other economies (England & Albrecht 1984; Berger & Beckmann 2010). If social ills do not result

purely from demographic growth, an alternative—that changes result from other factors—must be true. Determining whether in-migrants differ from long-time residents, whether small communities change as a consequence of the type of migrants, and how change affects the spectrum of biological diversity are relevant pursuits.

Because humans affect and are affected by the biological diversity around them, the social sciences have a great deal to offer conservation biology. The social sciences can help convert biological insights into solutions to conservation problems more than the biological data themselves.

Literature Cited

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