15 April 2020

SOCIAL CARRYING CAPACITY FOR GRIZZLY BEARS?

David Mattson

As a scholar and social scientist I become concerned when concepts are deployed by public officials for reasons that could be construed as political. The reason is straight-forward. Those who work for government bureaus have Public Trust responsibilities, which means they carry a burden to implement legislated policy as honestly and faithfully as possible, and, through that, maximize benefits for the broader public. Correspondingly, policy-relevant information needs to be obtained, used, and communicated openly, with as little prejudice as possible.

LETHAL INVOCATIONS

These considerations bring me to public statements made during recent years by spokespeople for the federal and state agencies that manage our wildlife, including FWP—more specifically, use of the term "social carrying capacity" by grizzly bear managers. For good or bad, this usage is nested within a broader movement among wildlife managers who invoke "social carrying capacity" typically as justification for increasing levels of culling, hunting, or other lethal management of wildlife.

This relationship between lethal management and the invocation of social carrying capacity is important; "social carrying capacity" is invariably used to justify killing more animals. Here is a sampler: by the Florida Wildlife Commission to institute a sport hunt on the threatened Florida black bear and increase lethal control of the endangered Florida panther; by the Maine Department of Inland Fisheries & Wildlife to increase levels of sport hunt on black bears in Maine; by FWP to increase the harvest of mountain lions; by David Mech, a USGS wildlife scientist, to justify hunting wolves in Oregon and Wisconsin; and by the US Fish & Wildlife Service and state wildlife management bureaus of Montana and Wyoming to remove Endangered Species Act (ESA) protections and institute a sport hunt on grizzly bears in the Yellowstone Ecosystem, which I cover in another piece.

THE AMORPHOUS "WE"

This begs the question of what wildlife managers seem to be saying when they invoke "social carrying capacity" as justification for increases in levels of lethal management. Basically, it comes down to this: that "the public" will not tolerate any more of these large carnivores—grizzly bears in this case—which means that "we've" reached the limits of how many can be supported in a given area, which means that "we" need to start reducing numbers and distributions by killing more animals. In the case of grizzlies in the Greater Yellowstone (GYE) and Northern Continental Divide (NCDE) ecosystems, the preferred method for killing these bears is clearly through a sport hunt. "People" are at least tacitly represented as being monolithic, and socially-defined "carrying capacity" as some kind of sort of reality than can be given definitional closure and specificity in application.

CONCEPTUAL PEDIGREE

It is worth noting that very few of the wildlife managers I've observed deploying the concept of "social carrying capacity" have any obvious expertise in conceptualizing, assessing, or otherwise measuring social phenomena. They are very rarely social scientists. And they are apparently not well acquainted with the pedigree of this concept they invoke.

"Social carrying capacity" was first developed by social scientists thinking about the numbers of people that could recreate in an area before their collective enjoyment was critically impaired. Alan Graefe, currently at Penn State, and Jerry Vaske, of Colorado State University, wrote an article in 1984 (Graefe et al. 1984) that reviewed "social carrying capacity" applied to recreation and concluded that it was "…not an absolute value waiting to be discovered, but rather a range of values which must be related to specific management objectives for a given area." Bill Burch, of the Yale School of Forestry & Environmental Studies (as well as a friend of mine), wrote the concept off as being essentially useless in papers that he published during 1981 and 1984 in the journal Leisure Sciences (Burch 1981, 1984). One of his articles was aptly titled "Much Ado About Nothing."

Nonetheless, Dan Decker and Ken Purdy, both at Cornell, wrote a paper in 1988 that extended the concept to wildlife management, modifying the term to read "wildlife acceptance capacity" (Decker & Purdy 1988). Various academics have since tried to apply this wildlife-specific concept, resurrecting the moniker of "social carrying capacity." Ben Peyton of Michigan State University recently related the concept to wolves in the Upper Peninsula of Michigan (Peyton et al. 2007). Not surprisingly, he concluded that there were four sub-populations of people typified by differing degrees of tolerance for wolves (from highly tolerant to highly intolerant), and that these levels of tolerance were rooted in basic beliefs about the benefits of wolves as well as concerns about negative impacts. He was not brash enough to construe from this how many wolves might be able to live in the Upper Peninsula. Rather, he noted that there was a wide range of highly fungible ideas about what that number might be.

AN AMORPHOUS CONCEPT

To be sure, the concept of "social carrying capacity" gets at something fundamentally important, which is that people hold different perspectives about animals such as grizzly bears, which might translate into different ideas about how many of these animals they want, as well as willingness to encounter them or sustain material harm.

But there are big problems with trying to package all of this in a concept such as "social carrying capacity," which implies an ability on the part of wildlife managers to derive a comparatively unambiguous estimate of how many animals—say, grizzly bears—can live in an area, and from that arrive at some justification for deciding how many of these animals to kill, or even where they should or should not live. But such has been the presumption in virtually every instance I've encountered where a wildlife manager has deployed the concept of "social carrying capacity."

MORPHOUS DIFFERENCES

People obviously have perspectives that engender different attitudes and expectations, with implications for how wildlife are managed (the scientific literature pertaining to this basic truth is so

enormous I can't even begin to summarize it here). And these perspectives vary widely in reflection of different world views, different life experiences, and different external circumstances, all of which can be crudely related to demographic proxies such as gender, age, race, place of residence, level of education, type of employment, and so on.

More explicitly, social science research has shown over and over again that a specific demographic (white males with less education, living in rural areas, and employed in agriculture) tends to be less tolerant than any other of large carnivores such as grizzly bears (again, the body of relevant research is so large as to preclude presenting it here). Interestingly, most are hunters. And, of direct relevance to management of Montana's grizzly bears, hunters dominate wildlife management by holding the purse strings and controlling wildlife commissions (see my comments on relations between sport hunting and social acceptance of grizzly bears; also Mattson [2016]). Moreover, hunters tend to be politically well-connected in the states of Wyoming, Idaho, and Montana where we are trying to sustain the comparatively few grizzly bears left in the contiguous United States (for more on the magnitude of our losses of grizzly bears in the United States, see this web page: https://www.allgrizzly.org/extirpations).

People are obviously not homogeneous when it comes to political power or perspectives about grizzly bears. Nor are there an unambiguous number of grizzlies (or any other wildlife species) that can be sustained within a specific area given the diversity of human perspectives. In reality, peoples' perspectives are too varied and fungible to be translated into anything like an estimate of "carrying capacity" with fixed geographic boundaries, including for grizzlies in the GYE and NCDE. Different people want different things, with only inexact notions of how that might translate into the size and distribution of a wildlife population—or levels of conflict and rates of encounter.

Perhaps even more importantly, people can have huge effects on these more concrete outcomes by whether they chose to modify their behaviors. At one comparative extreme is the Blackfoot Challenge, where conflicts with grizzlies have been dramatically reduced by changes in livestock husbandry and management of attractants (see Wilson & Clark [2007] and Wilson et al. [2014]: also page 35 in Mattson [2019]). At the other extreme is management of livestock on public lands in the Upper Green River Basin of Wyoming, where livestock producers and the U.S. Forest Service have resisted efforts to employ husbandry practices known to substantially reduce conflicts with grizzly bears. As a consequence, conflicts have steadily mounted.

MOTIVATIONS?

The current invocations and implied meanings of "social carrying capacity" as deployed by wildlife managers beg the question of motives, especially when some invocations are at such odds with common sense and current research. It is always risky to speculate on motivations, but sometimes worth doing because of the insight afforded into hidden meanings.

With that proviso, "social carrying capacity" often seems to be used to indirectly promote the institution of a grizzly bear sport hunt and maintenance of key aspects of the status quo. Importantly, as I have noted before, much of the status quo is configured directly or indirectly by a minority who dominate

wildlife commissions and have direct access to congressional delegations, state legislatures, and governor's offices (Mattson 2016).

Rather than talking about social carrying capacity, wildlife managers seem to be talking about **political carrying capacity** configured by assessments of risks to budgets and other interests of the agencies they work for—either through indirect political influences or influences on revenue streams. And agency culture is also clearly a major factor, including a tendency to see predators that kill large herbivores such as elk, moose, and deer as competitors for opportunities to sell hunting licenses that would otherwise generate agency revenues.

LETHAL CONSEQUENCES

In the GYE, as well as prospectively in the NCDE, consequences for grizzlies have been and will be substantial. The invocation of "social carrying capacity" by wildlife managers in the US Fish & Wildlife Service and state agencies has served as justification for drawing lines on maps with profound consequences for the life expectancies of grizzly bear. The current Primary Conservation Areas and Demographic Monitoring Areas for managing grizzly bears delimit the bounds beyond which these bears are relegated to institutionalized intolerance. Importantly, these existential lines do not denote much that is explicitly social, but rather much that is regionally political.

Interestingly, the notion of "social carrying capacity" was embraced by agency managers during 2004-2007 to capitalize on related recommendations produced by Advisory Councils constituted by the governors of Montana and Wyoming during 2002-2003. In retrospect, these Councils and their invocations of "social carrying capacity" were used primarily to help set the stage for removal of ESA protections for Yellowstone grizzly bears during 2007—a move later over-turned by federal courts.

This recent history uncannily foreshadows likely future outcomes from Montana's current Grizzly Bear Advisory Council, especially given the extent to which sport hunting and social carrying capacity have again been featured by the conveners. In other words, there is good reason to expect that the Council will be used yet again to set the stage for removing ESA protections for grizzly bears in the GYE and NCDE and moving towards institution of a sport hunt (see comments in the media by both the Governor and FWP). More concretely, the stage will have been set for increasingly lethal management of grizzly bears, despite the best intentions of those trying to promote coexistence. State budgets are already inadequate for sustaining widespread coexistence efforts (see my earlier comments), with predictably greater short-falls should ESA protections be removed and related federal funds withdrawn—leaving lethal management of bears as the default option.

REFERENCED LITERATURE

Burch Jr, W. R. (1981). The ecology of metaphor—spacing regularities for humans and other primates in urban and wildland habitats. Leisure Sciences, 4(3), 213-230.

Burch Jr, W. R. (1984). Much ado about nothing—some reflections on the wider and wilder implications of social carrying capacity. Leisure Sciences, 6(4), 487-496.

Decker, D. J., & Purdy, K. G. (1988). Toward a concept of wildlife acceptance capacity in wildlife management. Wildlife Society Bulletin (1973-2006), 16(1), 53-57.

Graefe, A. R., Vaske, J. J., & Kuss, F. R. (1984). Social carrying capacity: An integration and synthesis of twenty years of research. Leisure Sciences, 6(4), 395-431.

Mattson, D. (2016). Disserving the public trust: the despotic future of grizzly bear management. https://www.grizzlytimes.org/single-post/2016/05/19/Disserving-the-Public-Trust-The-despotic-future-of-grizzly-bear-management

Mattson, D. J. (2019). Heart of the Grizzly Bear Nation: an evaluation of the status of Northern Continental Divide Grizzly Bears. Grizzly Bear Recovery Project Report, GBRP-2019-2.

Peyton, R. B., Bull, P. A., & Holsman, R. H. (2007). Measuring social carrying capacity for gray wolves in Michigan. Unpublished manuscript, Department of Fisheries & Wildlife, Michigan State University, Lansing, Michigan.

Wilson, S. M., & Clark, S. G. (2007). Resolving human-grizzly bear conflict: An integrated approach in the common interest. Pages 137-163 in Slocombe, D. S., & Hanna, K. S. (eds). Integrated resource and environmental management: Concepts and practice. Oxford University Press, Oxford, United Kingdom.

Wilson, S. M., Neudecker, G. A., & Jonkel, J. J. (2014). Human-grizzly bear coexistence in the Blackfoot River watershed, Montana: getting ahead of the conflict curve. Pages 177-214 in S. G. Clark & M. B. Rutherford (eds). Large carnivore conservation: Integrating science and policy in the North American West. University of Chicago Press, Chicago, Illinois.