

LETTER TO THE EDITOR

Re: Stirling et al. 2021 Article

Dear Editor:

We would like to call your attention to omission of precedent publications and an invalid conclusion in Stirling, Laidre, and Born's recent publication in *Arctic* concerning tool use by polar bears (Stirling et al., 2021). Stirling et al. do not refer to or include the content of our earlier reviews of the same topic in Beck (1980) and in Shumaker et al. (2011). Our reviews summarized and synthesized all of the scientific information on polar bear tool use that was available at the times of publication. Our accounts were more succinct because polar bear tool use was but one section of books that addressed tool use and tool manufacture by all animals. Stirling et al. contains some narrative accounts, published papers, and zoo observations that our accounts did not, and we included some relevant publications and zoo accounts that Stirling et al. did not (e.g., Dathe, 1961; Harington, 1962; Lang, 1974). We had used the same logical framework as Stirling et al., demonstrating that captive bears have the manipulative and cognitive ability to use tools. We included confirming photographs of a captive polar bear carrying and throwing a heavy object in a way similar to that shown in an engraving of a wild polar bear throwing down a chunk of ice on a walrus. A reproduction of that engraving appears in Shumaker et al. and reappears in Stirling et al.

Stirling et al. state that "While reports of polar bears using ice blocks or rocks to kill walruses have been known for some time, there has not been any previous attempt to collate and assess these observations over the past 200+ years." (p. 181). As we have shown, this is factually incorrect and contrary to scientific norms of incremental acknowledgement and inclusion of all relevant previous work. Our books are widely available – thousands of copies are in circulation. Stirling et al. even refer to Shumaker et al., but only in the general context of animal tool use, unexplainably ignoring the section on polar bears on pages 61–62.

Stirling et al. conclude that their review "suggests [polar bears] may...have the ability to conceptualize the possible use of tools in the wild." (p. 184). Forty years earlier, Beck concluded that "...future observations on wild polar bears may reveal that they do indeed use tools in predation..." (p. 40–41). None of us has shown conclusively that wild polar bears use tools in predation, but all of us have made strong circumstantial arguments and arrived at the same general conclusion, in our case decades earlier. Stirling et al.'s case would have been stronger and more informative to readers had they included our reviews.

Sincerely,

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<https://doi.org/10.14430/arctic72532>

RESPONSE

Dear Editor:

I acknowledge that citations of the books referred to by Beck in his letter to the editor (Beck, 1980; Shumaker et al., 2011) were accidentally overlooked in the Stirling et al. (2021) paper on tool use by polar bears. It may be useful to understand how the mistake came about. Initially, I had both books cited by Beck on my list to check. However, when I went through the detailed literature review in the two most recent papers on tool use by brown bears (Deeke, 2012; Waroff et al., 2017), both cited Beck (1980) but neither mentioned information from the book about either polar bears or brown bears using tools. Similarly, in their extensive summary of species that use tools, *Animal tool use: Current definitions and an updated comprehensive catalog*, Bentley-Condit and Smith (2010) also cited Beck's book several times but, again, reported nothing about possible tool use by polar or brown bears from it. In our own extensive surveys of the literature and consultations with colleagues knowledgeable about both polar bears and walruses, again, no one mentioned either book. Lastly, none of the three anonymous reviewers flagged our oversight, even though all appeared from their comments to be knowledgeable about polar bears, other species of bears, and Indigenous knowledge. Thus, because of the complete

lack of citations from recent relevant current literature, or our other contacts, I concluded, incorrectly, that Beck's publications did not discuss tool use by polar bears. That was an error on my part.

Sincerely,

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