Reply to Ellis’ “Clovis points more than simply weapon tips?”

Briggs Buchanan\textsuperscript{a,b}, J. David Kilby\textsuperscript{c}, Bruce B. Huckell\textsuperscript{d}, Michael J. O’Brien\textsuperscript{b}, and Mark Collard\textsuperscript{a,*}

\textsuperscript{a}Human Evolutionary Studies Program and Department of Archaeology, Simon Fraser University, Burnaby, BC, Canada.  
\textsuperscript{b}Department of Anthropology, University of Missouri, Columbia, MO, USA.  
\textsuperscript{c}Department of Anthropology and Applied Archaeology, Eastern New Mexico University, Portales, NM, USA.  
\textsuperscript{d}Maxwell Museum of Anthropology and Department of Anthropology, University of New Mexico, Albuquerque, NM, USA.  
\textsuperscript{*}Author for correspondence: mcollard@sfu.ca.

We are grateful that Christopher Ellis has taken the time to respond to our paper. We reply to his comments on a paragraph-by-paragraph basis.

**Paragraph 2 (“First, I have never argued…(which is a questionable assumption [see 4]).”)**

In this paragraph, Ellis argues that his ritual hypothesis focused solely on the large points from the site of East Wenatchee and therefore we did not disprove it in our study. He then suggests that our measurements of some of the large points from East Wenatchee are wrong. Lastly, Ellis contends that the placement of the largest points away from the main cache at East Wenatchee supports his contention that they were deposited ritually.

It is certainly the case that the some of the East Wenatchee points are the largest points in our sample. However, our analyses show that they do not differ in allometric trajectory from other cached points or from points recovered from Clovis kill and camp sites. Thus, our study does in fact cast doubt on Ellis’ hypothesis. Based on the results of our morphometric analyses, there is no reason to believe that the large points from East Wenatchee were intended to be used for a different function than the rest of the East Wenatchee Clovis points, or Clovis points from caches elsewhere in North America, or Clovis points recovered from kill and camp sites. Given that we know some of the kill/camp site points were definitely used for hunting, we contend it is most parsimonious to assume that that function was hunting.

The claim that our measurements of some of the large points from East Wenatchee are wrong is incorrect. The measurements in question are accurate. We suspect the source of the confusion is the fact that the measurements are presented in logarithmic form in the relevant histogram. The rationale for transforming the measurements in this manner is outlined in the Materials and Methods section of our paper.

Regarding the placement of the largest points away from the rest of the cache, we agree that this is potentially meaningful. However, even if it is, it does not contradict our conclusions. The distinction between intended function and actual use is critical here. Our study focused on the intended function of cached Clovis points (i.e. what the knappers had in mind as the points’
function when they made them) not on the way the points were used. As we pointed out, our results are consistent with the predictions of the hypothesis that cached Clovis points were intended to arm hunting weapons but not with the predictions of the other hypotheses of intended function that have been put forward, including the hypothesis that cached Clovis points were produced for use in rituals. We did not claim that our results are inconsistent with the idea that some of the points were deposited in the context of ritual behavior. Indeed, we explicitly stated that we could not discount the possibility put forward by Wilke et al. [1] and Kilby [2] that certain cached Clovis points were created for use in hunting but were deposited ritually instead.

**Paragraph 3 (“Second, even if my musings…other meanings in Paleoindian society.”)***

In this paragraph, Ellis argues that our conclusions are flawed because we assumed that tools were made with discrete functional roles in mind. Ellis contends that the makers of Clovis points would not have placed tools into discrete technological, social, or ideological categories. Instead, they would have conceptualized tools as serving different roles in multiple spheres of life.

Obviously, we do not deny that Clovis points could have been designed for multiple purposes. However, we do not agree that researchers should assume that such was the case. A multiple-intended-functions hypothesis is less parsimonious than a single-intended-function hypothesis. Thus, we suggest the way to proceed is to test the single-intended-function hypotheses that have been put forward for cached Clovis points, and only entertain the multiple-intended-functions hypothesis if the data do not support any of the single-intended-function hypotheses. At the moment, the available data are consistent with the hypothesis that cached Clovis points were intended to arm hunting weapons. Consequently, there is no reason to accept the hypothesis that they were intended to have multiple functions.

**Paragraph 4 (“For example, I was involved in…a weapon tip or other function.”)***

In this paragraph, Ellis outlines a putative example of the ritual caching of stone tools. The cache in question comes from Ontario and dates to the late Paleoindian period. Ellis argues that the stone tools in the cache “served in some social and ideational context and had symbolic meanings that went beyond their mere utilitarian functional role.” Ellis ascribes symbolic meaning to the artifacts based on the evidence of burning and the disuse of the particular type of tool for thousands of years in the same region.

We are not convinced that burning of artifacts and the changing of types over time is an adequate basis to infer ritual use, but that is neither here nor there. The discovery of a cache of stone tools in Ontario that was deposited ritually would not undermine our conclusions. The reason for this is that, as we pointed out earlier, our study focused on intended function and not on actual use. Ellis’ example actually illustrates this distinction. Ellis describes the stone tools in the Ontario cache as “everyday items” that were subsequently used in a ritual. This is exactly the scenario that Wilke et al. [1] and Kilby [2] propose for some of the Clovis caches in our sample, and that we explained we could not discount on the basis of our results.
Paragraph 5 (“With these ideas in mind…used very few times in human history [9].)

In this paragraph, Ellis again questions the idea that the large points from East Wenatchee were intended to arm hunting weapons. He argues that they are too large to be useful for this purpose. He then suggests that because the points in question are made of raw materials transported from hundreds of kilometers away they are more likely to have been designed for ritual purposes. Lastly, Ellis argues that if such large bifaces were useful for hunting they would have been repeatedly reinvented throughout prehistory. That this did not happen is evidence that the large bifaces from East Wenatchee were produced for ritual purposes, according to Ellis.

To begin with, the large East Wenatchee points are big but they are not as big as Ellis suggests. The largest points at the site are 20 cm in maximum length, not 23 cm as Ellis claims.

The claim that the large East Wenatchee points are not useful for hunting because they are too big is undercut by the fact that the size of the points in question is within the range of variation of historically and ethnographically documented spear points [3].

The assertion that the East Wenatchee points are likely to have been produced for ritual purposes because they made from stone brought from hundreds of kilometers away does not hold water either. One reason for this is that the source of the raw materials used to make the East Wenatchee points is unknown [2]. More problematically still for Ellis’ argument, Clovis points from habitation and kill sites as well as caches are often made from raw materials whose geologic sources are hundreds of kilometers from the sites where they are recovered [4,5,6,7]. So, even if the East Wenatchee points had been successfully sourced, and the source was a long distance from the site, the East Wenatchee points would still not be different from many Clovis points found at kill and camp sites across North America. Accordingly, exoticness is not a criterion that can be used to distinguish Clovis points that were intended to be used to arm hunting weapons from Clovis points that were intended to be used in rituals.

Regarding the last point in the paragraph, there are a number of other reasons why large points might not show up in other time periods. Perhaps the most obvious of these is the adoption of technologies that do not require large points, namely the atlatl and dart and the bow and arrow. Thus, absence of reinvention is also not a criterion that can be used to distinguish Clovis points that were intended to be used to arm hunting weapons from Clovis points that were intended to be used in rituals.

Paragraph 6 (“As with the Great Lakes assemblages…meaning beyond a utilitarian one.”)

In this paragraph, Ellis again argues that we should have used contextual data to shed light on the function of the cached Clovis points in our sample. Ellis also asserts that the occurrence of red ochre on the bifaces found at Simon and Anzick, and on the largest bifaces at East Wenatchee constitutes evidence for ritual use.

We agree that context can be important, and we did not suggest otherwise in our paper. However, contextual information associated with Clovis caches is rare. In fact, only one of the
caches (East Wenatchee) included in our sample was excavated by professional archaeologists, and even that site was not excavated completely. This is why we focused on the points themselves.

With regard to the use of red ochre, this substance appears in a variety of early Paleoindian contexts, including on tools in kill and camp sites [8]. In addition, ochre has been hypothesized to have been used in the process of hafting points in other parts of the world [9]. Thus, the presence of red ochre cannot be regarded as an unambiguous indicator of ritual behavior.

**Paragraph 7 (“Of course, as noted above…was an appropriate place to inter the child”)**

In this paragraph, Ellis suggests that by raising doubts about the association of the skeletal remains and artifacts at Anzick we were trying to provide stronger support for the hunting-equipment hypothesis.

This is not the case. The context or function ascribed to a cache had no bearing on the outcome of our analyses. This is because, as we have explained several times already, our study focused on the intended function of cached Clovis points not on the way in which they were used. If subsequent research shows that the Anzick cache was part of a burial, it would not affect our conclusions. It would simply mean that the points in the cache were designed to be attached to hunting weapons but were ultimately used in a burial ritual.

**Paragraph 8 (“To sum up…why people did things as they did [1].”)**

In the final paragraph of his piece, Ellis argues that determining the intended function of cached Clovis points does not shed light on the broader role points played in Clovis life. He argues that Clovis points must have been used in multiple roles in Clovis life.

We agree with Ellis’ first statement. As we have pointed out repeatedly in this reply, intended function and actual use are not necessarily the same thing. We are less convinced by the idea that Clovis points must have played multiple roles in Clovis life. It is certainly possible that Clovis points played multiple roles in Clovis life, but it is also possible that they had a single role in Clovis life. We prefer to approach this issue in the manner we suggested approaching the issue of multiple intended functions versus single intended function—with reference to the principle of parsimony. A multiple roles hypothesis is less parsimonious than a single role hypothesis. Thus, the starting hypothesis should be that Clovis points had a single role in Clovis life, and that should only be abandoned once we have data in hand that are unambiguously inconsistent with it. At the moment, we are not aware of any evidence that qualifies as unambiguously inconsistent with the single role hypothesis, so we are not willing to adopt the multiple role hypothesis.

**Concluding remarks**

It should be obvious from the foregoing that the main thing we and Ellis disagree about is the intended function of the largest points from the East Wentachee Clovis cache. He accepts that the majority of cached Clovis points were intended to be parts of hunting weapons but thinks that the large points from East Wentachee were specifically created for use in rituals, whereas we think
the most parsimonious interpretation of the available evidence is that all cached Clovis points, including the large points from East Wenatchee, were intended to be parts of hunting weapons, even if some of them ended up being used in rituals. Given the results of our study and the rarity of contextual information for Clovis caches, the next step has to be to try to identify some qualitative morphological traits that distinguish the large East Wenatchee points from other Clovis points. If a systematic review of the presence/absence of such traits on Clovis points were to reveal that they occur on the large points from East Wenatchee significantly more frequently than on other Clovis points, there would be grounds for thinking the large points from East Wenatchee were not intended to arm hunting weapons. Ritual would not necessarily be the only alternative explanation [2,10,11]. But establishing that the large East Wenatchee points differ from other Clovis points in relation to a set of qualitative morphological traits would certainly strengthen the case for the hypothesis that the large East Wenatchee points were produced for use in rituals.

References


