




HOW-TO SERIES

# Toward Legal, Ethical, and Culturally Informed Care of Animal Remains in American Museum Collections

Chance Ward<sup>1</sup>, Jimmy Arterberry<sup>2,3</sup> , Joseph Aguilar<sup>4</sup>, Natalie Patton<sup>5</sup>, Christina Cain<sup>5</sup>, Emily Lena Jones<sup>6</sup> , and William Timothy Treal Taylor<sup>5,7</sup> 

<sup>1</sup>History Colorado, Denver, and University of Colorado, Boulder, CO, USA; <sup>2</sup>Tribal Historian, Comanche Nation, OK, USA; <sup>3</sup>Galindo Environmental Consulting LLC, Austin, TX, USA; <sup>4</sup>Tribal Historic Preservation Office, Pueblo de San Ildefonso, USA; <sup>5</sup>Museum of Natural History, University of Colorado, Boulder, CO, USA; <sup>6</sup>Department of Anthropology, University of New Mexico, Albuquerque, NM, USA; and <sup>7</sup>Department of Anthropology, University of Colorado, Boulder, CO, USA  
**Corresponding authors:** Chance Ward; Email: [chance.ward@state.co.us](mailto:chance.ward@state.co.us); William Timothy Treal Taylor; Email: [william.taylor@colorado.edu](mailto:william.taylor@colorado.edu)

## Abstract

Repatriation of human remains and associated funerary objects under NAGPRA and the increased use of culturally informed curation practices for sacred, religious, and ceremonial objects are important steps toward restoring control over cultural patrimony to Native Nations in the United States. Many museums holding Indigenous belongings have begun a collaborative care approach involving Indigenous community voices and improving access to collections. However, this framework has not been applied to many animal remains curated in American archaeology museums, which remain broadly beyond the care or administrative purview of Native people. Because many Indigenous worldviews do not hold a clear separation between the human and animal spheres, common practices applied to animal remains are not congruent with the idea of respectful or culturally informed care. Here we outline steps to shift the treatment of animals through the application of Indigenous knowledge to museum collections.

## Resumen

La repatriación de restos humanos y objetos funerarios asociados bajo la NAGPRA y el aumento de prácticas de curaduría culturalmente informadas para ciertos objetos ceremoniales han ayudado a dar pasos importantes hacia la restauración del control sobre el patrimonio cultural de las naciones nativas en los Estados Unidos. Sin embargo, no se puede decir lo mismo de la extraordinaria cantidad de restos de animales conservados en las colecciones de los museos de arqueología e historia natural estadounidenses que permanecen fuera del cuidado o ámbito administrativo de los pueblos nativos. Debido a que muchas cosmovisiones indígenas no mantienen una separación clara entre las esferas humana y animal, las prácticas comunes aplicadas a los restos de animales no son congruentes con la idea de curaduría culturalmente informada. Aquí describimos los pasos para cambiar el tratamiento de los restos de animales, tanto modernos como antiguos, mediante la aplicación del conocimiento indígena a las colecciones de los museos.

**Keywords:** museum collections; animals; repatriation; NAGPRA; ethics

**Palabras clave:** colecciones de museos; animales; repatriación; NAGPRA; ética

Over recent decades, a growing movement in US museums has sought to restore a greater degree of Indigenous control over cultural patrimony through both the return of belongings held in museum collections and the increased use of culturally informed care and curation practices. Many museums have begun instituting practices such as traditional knowledge labeling, access restrictions, special storage and handling requirements, or the provision of special spaces for ceremony within the museum

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itself (Kreps 2008; Liggins et al. 2021). Culturally informed care practices have also been applied to contemporary cultural belongings, such as the storage of pipes (Ogden 2004; Shannon 2017).

Such culturally informed care practices have in some cases extended to animal remains. For example, Cheyenne and Arapaho people requested that a Sun Dance buffalo skull housed at the National Museum of Natural History be stored facing east and upside down to signal that it was not an active sacred object in use (Flynn and Hull-Walski 2001). However, in general, culturally informed care of animal remains held by museums has been rarely implemented. Given the large volume of zooarchaeological and other animal-related material held in North American museums, this is a significant challenge. Animal remains represent an important and largely unresolved issue in restoring and reconnecting museum collections with Native Nations. Here, we outline how to navigate existing obstacles, initiate key conversations, and restore Native stewardship over animals in museum collections through collaborative changes to museum practice.

## Background

From the outset, many animal remains in museum collections have been poorly documented or under-attended, a situation that has rarely improved in the post-NAGPRA era. Many assemblages of archaeological material in North American museums were formed during the twentieth century when large-scale research projects were conducted almost exclusively without the input or consent of Indigenous communities. With the passage of the Native American Graves Protection and Repatriation Act (NAGPRA), it became mandatory for museums to repatriate all Native American human remains in their collections, along with all associated funerary objects, a classification that often includes animal remains. However, determining such associations requires contextual data that can easily be missed, lost, or never considered in the first place by recording archaeologists (Bruchac 2010). Many museum collections of faunal remains older than a few decades also suffer from poor context or lost labeling or associated information (Jones and Gabe 2015), resources that are necessary to establish funerary status or cultural affiliation. Moreover, in the first half of the twentieth century, animal remains from archaeological contexts were frequently stored in museums' zoological collections rather than with the rest of the archaeological material, thus completely disassociating them from any archaeological context (e.g., Ainsworth et al. 2020). Even when contextual information is present, large faunal assemblages often come from contexts such as midden deposits that lack evidence for a funerary association. Although associated funerary animals and animal assemblages that are co-mingled with human remains may be repatriated under NAGPRA, other collections are largely unprotected under the act and often are not given special attention by museums.

The scientific and worldviews of many communities, especially Indigenous communities, do not hold the same separation between humans and animals encoded in contemporary US legal frameworks. In many Indigenous cosmological frameworks, animals are active members of a spiritual society and are considered nonhuman persons and relatives who require care (Harris 2005). Some scholars have argued that Indigenous concepts of animal personhood warrant legal recognition in contemporary North America (Deckha 2020). A few nonhuman ancestors have been voluntarily repatriated to Indigenous communities. Among the Stó: lo First Nation, tradition holds that an ancestor named T'xwelátse was turned to stone. T'xwelátse was repatriated to the Chilliwacks nation in 2006 (Campbell 2010). In 2022, the Montana Historical Society returned a sacred white buffalo, known as Big Medicine, to the Confederated Salish and Kootenai Tribes (Montana Historical Society 2022). Big Medicine is considered a family member by the Tribes, and the request for the bison was a voluntary return, not a repatriation request under NAGPRA.

These examples show that a legal mandate does not have to be the catalyst for returning animal relatives. An argument can be made that museums have an ethical obligation to engage with communities in caring for zooarchaeological collections from Native North American contexts. In our experience, Native communities are often not made aware of animal remains during considerations of museum collections, and many consultations, when they do happen, focus instead on NAGPRA compliance for cultural items such as pottery, textiles, stone tools, and other objects. Yet animal remains found in archaeological contexts—even those in middens—may still have been offerings, which gives them a

meaning and purpose today. We suggest that animal remains are a form of cultural heritage and should incur the same ethical obligation for stewardship in culturally appropriate ways through working with Native communities, even when there is no legal structure directly mandating these changes.

In this article, we identify some current challenges with caring for archaeofaunal collections, and we make recommendations to help museums move toward centering Indigenous histories and traditional knowledge systems by providing culturally aligned and informed care for animal remains in their collections.

### Obstacles and Challenges

We recognize that there are many obstacles to implementing ethically and culturally informed care of animal remains in US museum collections. These include bandwidth and existing NAGPRA compliance efforts, handling risks and unknown treatment histories, storage and classification issues, lack of relevant institutional procedures or guidelines, and the diversity of animal relationships across Native communities.

One of the most significant barriers to adjustments in curation practices for animal remains is an institution's existing bandwidth related to NAGPRA compliance. More than three decades after the legislation was passed, many institutions remain out of compliance with the repatriation of human remains (Jaffe et al. 2023), and new regulations requiring a tighter timeframe for compliance have introduced severe human resource pressures for collections staff. Many institutions will have a hard time envisioning undertaking new collections-based efforts that could be perceived as imperiling the priority of completing the return of human remains and funerary items under NAGPRA. However, there is a growing recognition of the importance of returning materials formerly excluded from the process, such as soil, during repatriation (Krupa et al. 2024). Many unidentified and uninventoried collections of archaeological fauna will also include unidentified human remains. Any institution hoping to reach compliance with NAGPRA will therefore need to embrace the inventory and identification of faunal remains to ensure the return of human Ancestors in its collections. These demands on museum and conservation infrastructure can sometimes prevent collaborative efforts that go beyond the bare minimum, stifling progress toward relationship building and change (Kimmel et al. 2023).

Some of the largest challenges for providing culturally informed care for animal remains in museum collections relate to the prior chemical treatment and physical safety of collections. For example, prioritization of concerns such as morphological conservation or pest management has sometimes resulted in significant impacts on their accessibility. Before the establishment of the EPA in 1970 and the incremental increase in oversight for pesticide applications, many museums implemented dangerous pesticides with few precautions (Ballard and Koestler 2014), including chemicals such as arsenic, cyanide, and DDT (Pereira and Hammond 2001). In the worst cases, these historical curation practices generated serious physical safety or handling concerns. Pesticides applied to animal materials like wool, skin, or feathers in the twentieth century to limit insect damage make many historical collections dangerous to handle even today (Ornstein 2010). Although fewer openly toxic chemicals were commonly applied to bone materials, many skeletal materials were treated with a wide range of chemical cleaners or consolidants, some of which are toxic, few of which are documented, and all of which can be very difficult to identify after the fact (Odegaard and Sadongei 2005).

Even in the case of well-inventoried collections that are safe to handle, many standard practices in the classification and storage of faunal remains act as barriers to engagement. Because of dwindling financial and human resources, limited storage and space, overload with existing collections, shifting technology, and other logistical concerns, most US museums suffer from a serious backlog or curation crisis (Kersel 2015; Nepstad-Thornberry et al. 2002). In many institutions, including the University of Colorado Museum of Natural History, large historical collections can include an enormous quantity of uncataloged or uninventoried material that requires staff, time, and resources to process. Even when faunal collections have not been separated from their archaeological context, they are frequently divided between those with obvious modifications and those without; that is, "artifacts" versus "eco-facts." This is a Eurocentric distinction that is not necessarily meaningful or accurate from an Indigenous perspective and that can cause practical difficulties for community members seeking access

to collections of animal remains. Archaeological animal remains are often stored in large plastic bags that make it difficult to recognize the individuality of specific animals. Such bulk storage choices serve as an inherent barrier to accessible curation.

A more conceptual challenge relates to the creation of relevant workflows and guiding documents for storing, caring for, providing access to, and engaging with Tribal Nations regarding collections of archaeological animal remains. Many US museums do not call out this category of collections in their formal policies and procedures, which distances them even more from community access. At the same time, designing culturally relevant guidelines that support continued access to, engagement with, and care of these collections is not a simple process. Different communities have different conceptualizations of the animal world, and appropriate access to animal remains in one community will differ from that in another. For example, in some communities, only specific individuals are supposed to have contact with particular types of animals. A well-intentioned but hastily constructed policy can create additional, unintended issues, rather than supporting the diversity of communities and beliefs around animals.

### Recommendations

The first step in making animal collections accessible to Native communities is communication. Museums should identify and connect with community members (through official channels such as the Tribal Historic Preservation Office and Tribal leadership, along with other channels like a museum advisory group) to share plans and identify priorities or concerns before the work begins and to identify and update relevant policies that may guide the process (Figure 1).

The next step is the most basic but perhaps is the most logistically difficult: inventorying and identification. Because uninventoried collections are essentially invisible to the general public, the path toward culturally informed care for these collections requires the thorough accounting and documentation of animal remains. Inventorying legacy collections can be a massive undertaking, with the bones of individual animals from a given collection often numbering in the thousands or tens of thousands. However, understanding the scope of animal remains that are housed in an institution is an essential first step toward accountability. Any archaeological collection of ancient animal remains is likely to have unique significance to a host of different Indigenous Nations in the United States, each with their own relationships to individual species. Therefore, engagement must start with an identification of which animals are present in the collection.

Even when the remains are inventoried in a general sense, it is nearly impossible to move forward without a basic zooarchaeological identification of collections. For larger collections that can hold bones numbering in the tens of thousands, such efforts are likely to involve a huge investment of time, money, and human resources. Many museums lack zooarchaeological resources, such as trained analysts and necessary reference collections needed to perform accurate identifications. To begin the cultural care of animal remains, museums can start by expanding their in-house capacity, ideally by hiring staff with zooarchaeological competency and locating existing identification resources, such as vertebrate zoology collections. When this is not possible in-house, museums can seek partnerships with locally available specialists, so that results of identification efforts are reliable. It will be especially important to recognize that identification efforts could generate new information that may be of interest to external parties (such as zooarchaeology researchers) and to work with Tribal communities through consultation to develop a plan for storing and controlling access to this information to prevent any later miscommunication or mistrust.

Identification efforts are a necessary step to implement basic improvements in the safe and respectful housing of faunal remains. It is particularly important to assess treatment history and characterize the chemical treatments and historical curation choices that have affected a given animal. In addition to ensuring basic safety during handling, other aspects of this history, such as consolidation, labeling, and housing, may be important or relevant to Native communities. Noninvasive technologies, such as near-infrared (NIR) spectroscopy and X-ray fluorescence (XRF), may prove particularly valuable for helping reconstruct treatment histories when associated documentation is lacking (Brock et al. 2018; D'Elia et al. 2007; Sponheimer et al. 2019).

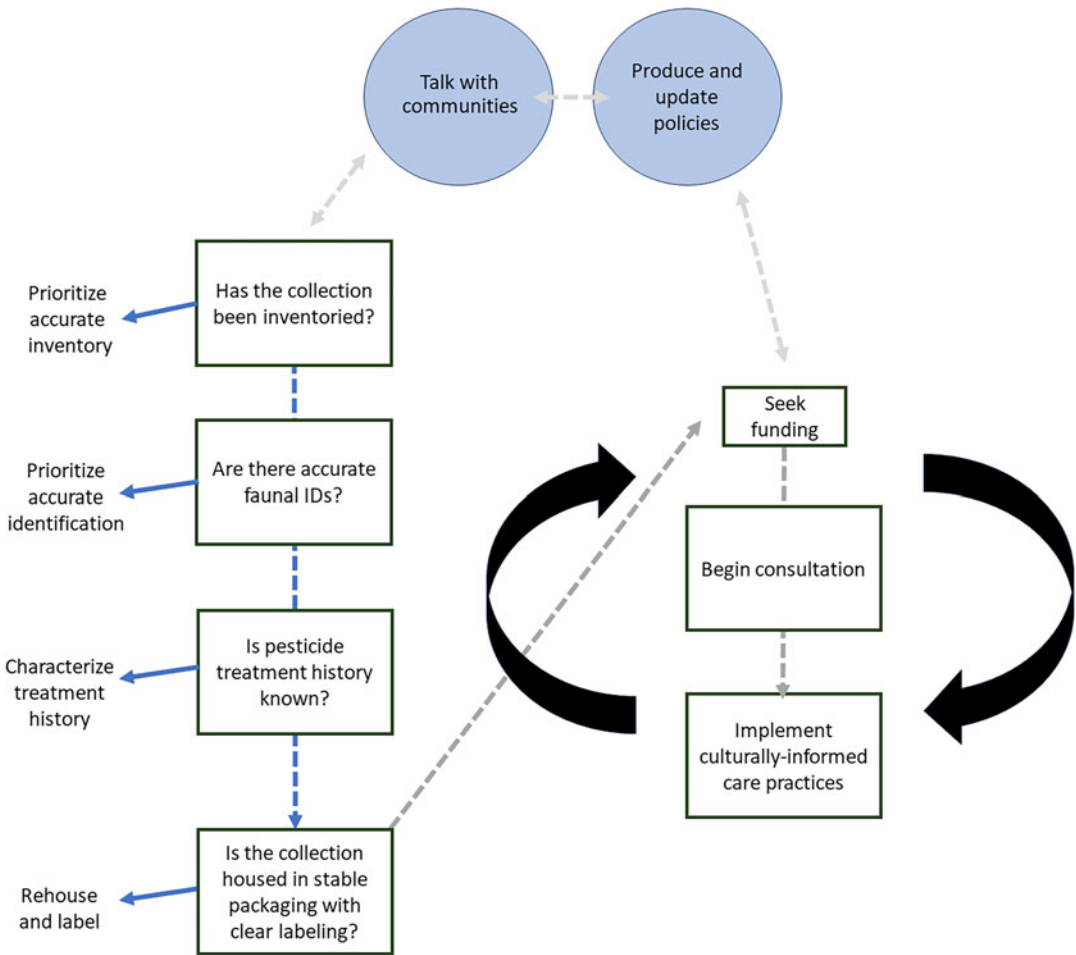


Figure 1. Recommended steps for initiating dialogue and institutional change for animal remains in US museum collections.

Once collections can be accounted for safely and transparently, the most important step for culturally informed curation of animal remains is sustaining a trusting dialogue with Indigenous communities in partnership with Tribal cultural heritage leadership. Tribal cultural professionals and offices are often overworked and undersupported, and visits to external museum collections can be both costly and time consuming. Therefore, generating meaningful conversations around animal collections may require institutions to secure funding to enable these visits. In cases where many different communities may recognize ancestral connections to a collection, museums should proceed thoughtfully and in an inclusive way. These conversations will be complex and need to be ongoing and sustained to generate trust and change. Some of the outcomes of such dialogue may take years or decades to manifest, whereas others may be more immediate. Starting these conversations, and finding areas where small-scale successes can be achieved, are more important than rapid solutions to this long-term issue.

One of the most tangible ways to advance the cause is to develop policies and procedures to guide the treatment of faunal remains. Here, a *cultural humility* approach can start to untangle the inherent complexity of this task. The cultural humility framework, increasingly applied in museum-allied institutions such as archives (Tai 2023) and libraries (Hurley et al. 2022), emphasizes combining awareness of the individual positionalities of those responsible for creating and implementing policy (in this case, the museum representatives) with an awareness of and commitment to redressing power imbalances. Policies informed by cultural humility stress the need to interact with and seek guidance from the



specific communities being served, which may have priorities that differ from each other, rather than relying on the generalizations that are sometimes prevalent in diversity policy (Tervalon and Murray-García 1988). A cultural humility framework may help museums and community members craft guidelines regarding access to and the care of archaeological animal remains that are culturally appropriate and effective while not being overly prescriptive.

Prioritization of animal collections to target for cultural care is a complex issue, and we suggest that, to the extent possible, museums ask Native partners to choose which collections and animals to identify initially. Depending on the context, some taxa with particularly deep cultural significance will be a promising place to start implementation. Ultimately, successful engagement in the curation and care of animal remains may involve specific curation practices, changes to the storage or handling of objects, their return to Native communities, or some mix of all the above. Despite the limitations of funding, human resources, and space that plague most museums, these recommendations can be practically implemented and should be discussed during internal policy reviews or strategic planning.

### Case Study: The Olsen-Chubbuck Bison Remains

To explore the process of implementing cultural care practices for animal remains at the University of Colorado Museum of Natural History, we offer a case study based on our own recent experience. In 2022, we began an effort to rehouse one of our museum's most significant faunal collections: the Paleoindian bison remains from the site of Olsen-Chubbuck (Figure 2; Wheat 1972). This site, excavated during the mid-twentieth century, represents a collection of almost 200 bison hunted and butchered by late Paleoindian hunters at an arroyo near Kit Carson, Colorado, around 11,000 years BP. Although the analysis of the site played an important role in archaeological understanding of Paleoindian lifeways and culture (Bamforth 2011), at or around the time of excavation the crania from this site were placed in rigid burlap and plaster casts, rendering their contents largely unknown and inaccessible to the public or to Native communities.

Like most museums, we lacked the internal funding to rehouse these bison. However, we received support from the Colorado State Historical Fund to hire a professional preparator to conduct conservation, replacing plaster casts with individually tailored fiberglass cradles that permit handling and viewing. Because these rehoused bison would require more space than they occupied before the initiative, we also requested and received support for space redesign and collections shuffling to facilitate the project. Information gathered during our identification and assessment proved important to developing a plan for cultural care. During the rehousing, we identified that several bison elements inside the jackets were limb elements rather than crania. We also identified several previously unknown individual bison, including juveniles. We did not, however, initiate conversations with Tribal representatives before the project began, leading to some key lessons learned about procedure.



**Figure 2.** A bison skull before project efforts (UCM10866; *left*) and the accessible bison (*right*) after rehousing. Photos: Christina Cain.

It was only after rehousing efforts were complete that we invited to the museum a delegation of Lakota elders, one of the many communities connected to this ancient bison site. After a blessing, elders made a series of preliminary recommendations for cultural care of these bison skulls. These recommendations influenced the housing choices and space considerations for the bison: initiating conversations with Native communities before conducting the initial rehousing efforts would have provided an opportunity for more comprehensive storage planning and for merging cultural and preservation concerns. Going forward, the important knowledge gained through these early suggestions for cultural care practices will be paired with communication with relevant Tribal Historic Preservation Office(s), and collections staff will work with community input to development a plan for implementation.

Although we recognize that many other communities have a stake in the storage and care of this important collection, these changes are a first step to continuing dialogue and cultural humility between museum personnel and Tribal leadership. By inviting Tribal stakeholders to collaborate in the curation of animal remains in our care, we can begin not only supporting ethical and culturally informed care but also redress power imbalances and build relationships that will guide future collaborations, both in archaeology museums and across disciplines such as paleontology and zoology that work with ancient animal remains.

## Conclusion

As conversations around the role of museums in Indigenous cultural stewardship begin to shift in North America and beyond, much remains to be done to create a space for culturally informed curation and stewardship of animal remains. Animal remains are not usually treated with the same care as human remains or funerary objects subject to NAGPRA, but Indigenous concepts of personhood do not always make distinctions between human and animal. A culturally informed approach to caring for animal remains requires the centering of Indigenous knowledge in reconsidering the role of animals in US museum collections. Doing so will require not only new conversations and consultations but also collections management work such as inventory, identification, and assessment of treatment history. Only then can the generation of policies and infrastructure to support ongoing dialogue begin. The approach offered here holds the promise of restoring trust and shared stewardship to animal collections and of generating a future for museums that is restorative and ethical.

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