NAGPRA: BEFORE AND AFTER

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The Native American Graves Protection and Repatriation Act (NAGPRA) was passed in 1990. NAGPRA is a Federal law that requires Federal agencies to provide opportunities for federally recognized tribes to obtain culturally affiliated human remains and artifacts. Most anthropologists are not opposed to repatriation of *affiliated remains*. For example, Rose and colleagues (1996) hypothesized that repatriation will eliminate gaps in knowledge of specific times and geographic areas, require osteological analyses to be more comprehensive, and increase use of new methodologies. Additionally, Buikstra and Ubelaker (1994) published a standardization book to provide uniform procedures for examining skeletons. The current study examines articles from the primary physical anthropology journal before and after 1990 to ascertain whether NAGPRA has resulted in the above-mentioned predictions. Statistically significant (Student's t-test, Ps < 0.05) results indicate that compared to pre-NAGPRA, osteological studies containing Native American remains have decreased, fewer sites are used, and fewer geographic locations are examined. Only one-third of osteological studies using Native American remains published after 1994 use Buikstra and Ubelaker's standards. Both before and after NAGPRA was enacted, over 70 percent of osteological studies come from sites in nine states. Thus, none of these predictions occurred and changes in osteological research on Native American after the enactment of NAGPRA seem to indicate that NAGPRA impedes research.

The Native American Graves Protection and Repatriation Act (NAGPRA) was passed in 1990. NAGPRA is a Federal law that requires Federal agencies and museums and universities receiving federal funding to provide opportunities for federally recognized tribes to obtain culturally affiliated Native American human remains and artifacts. By reburying skeletons, valuable scientific evidence is lost, as is the possibility to study them further as newer and better techniques come along, (e.g., DNA extraction).

Most anthropologists are not opposed to the repatriation and reburial of *affiliated remains*, that is, those that can be shown to have a cultural link to a modern Native population. For example, the American Association of Physical Anthropologists (AAPA) has taken an official position that is generally sympathetic to repatriation, which they posted on their website http://www.physanth.org:

> The AAPA supports the rights of Native Americans to claim human remains and funerary objects in cases where the modern group is culturally affiliated with the remains in question…Where cultural affiliation exists, repatriation claims must be honored; but where cultural affiliation is absent, repatriation claims have no moral foundation.

Other anthropologists' argue that repatriation is good for science. Rose and colleagues (1996), for example, put forth the theory that repatriation would eliminate gaps in knowledge of specific times and geographic areas, require osteological analyses to be more comprehensive than before, increase the use of new methodologies, improve curation facilities, and finally create a more ethical science. Klesert and Powell (1993) pointed out that NAGPRA would result in a more uniform set of standards for the study of human subjects. The 1994 book *Standards: For Data Collection from Human Skeletal Remains* was published in part as a reaction to the passing of NAGPRA and provides uniform procedures for examining skeletons (Buikstra and Ubelaker 1994).

Still other anthropologists point out that European American skeletons have been reburied and, thus, Native Americans have the right to rebury their ancestors (Ubelaker and Grant 1989). Ubelaker and Grant (1989), however, are also concerned about the claim some Native Americans make that they need only their oral histories to understand their past and, thus, skeletons should not be studied at all. Rose and co-workers (1996) optimistically state that Native Americans may change their minds about needing only their oral histories and, furthermore, anthropologists may learn from Native Americans.

Whereas the AAPA's mainstream judgment that repatriation is good for anthropology has some pragmatic merits, the case can also be made that repatriation of remains (especially when coupled with reburial) detracts from the ability of anthropologists to scientifically study humankind. In fact, the ideology surrounding repatriation and reburial can be perceived as a threat to freedom of scientific inquiry. Once bones have been returned, they can no longer be studied without the permission of the Amerindian tribes that hold the rights to the bones, which is rarely forthcoming, especially after they have been reburied. This means that when new technologies or questions arise, the material is no longer available. The current study examines articles from the AAPA flagship journal, which is also the primary physical anthropology journal (*American Journal of Physical Anthropology*) before and after 1990 to ascertain the affect NAGPRA has had on anthropological research, especially in regards to osteological studies.

MATERIALS and METHODS

Issues of the *American Journal of Physical Anthropology* dating from 1975 to 2005 were closely examined and information regarding research articles was entered onto data collection forms. The *American Journal of Physical Anthropology* was chosen for four reasons. First, it is the official journal of the largest physical anthropology association (AAPA) in the world. Second, the AAPA published a statement regarding their position on NAGPRA, which is a

position that is sympathetic to repatriation when cultural affiliation can be shown. Third, the journal has been in publication for 88 years and, thus, encompasses the pre-NAGPRA and post-NAGPRA eras. Finally, the *American Journal of Physical Anthropology* is highly regarded and ranks consistently in the top three of all anthropology journals by the Social Science Citation Index consistently. In 2003, *American Journal of Physical Anthropology* had an impact factor of 2.052 and was ranked second in impact from 53 anthropology journals; the *Yearbook of Physical Anthropology* was ranked first (Walker 2005). For all these reasons, the *American Journal of Physical Anthropology* is the best journal to examine research trends affected by NAGPRA.

The following information from the *American Journal of Physical Anthropology* was tabulated for each year:

1) Studies: Number of studies in the journal for each year (not including book reviews, errata, obituaries, film reviews, or special announcements). Also, not including the *Yearbook of Physical Anthropology* or the annual meeting supplements.

2) Native American osteological studies: Number of studies per year that use Native American remains from the United States of America (i.e., excluding Central America, South America, and Canada).

3) Sites: Number of different Native American US sites per year (e.g., if one article used 10 sites, but another used 5 of those 10 sites, then the number would be 10 sites not 15). A site was counted when the author of the paper mentioned either a site number (e.g., CA-ALA-329, CA-SJO-91, etc.) or a specific site name (e.g., Boulder Creek Site). When there were questions of overlapping site names and site numbers, the site numbers and names were cross-checked to make sure that different authors were not using different ways of referring to the same site.

4) Geographic locations: Number of different states examined per year, which is calculated in the same manner as in the number of sites.

5) Metric studies: Number of Native American osteological studies counted previously that use metric or observational methodologies.

6) X-ray studies: Number of Native American osteological studies counted that use X-ray methodologies.

7) CT-scan studies: Number of Native American osteological studies counted that use CT-scan methodologies.

8) MRI studies: Number of Native American osteological studies counted that use MRI methodologies.

9) Genetic studies: Number of Native American osteological studies counted that use genetic methodologies, such as DNA extraction. Any studies that tried to or obtained DNA from Native American remains were included in this variable.

10) Histology studies: Number of Native American osteological studies counted that use histology, thin sections, or other similar methodologies.

11) Standardized studies: Number of Native American osteological studies counted that use Buikstra and Ubelaker, 1994 *Standards for Data Collection From Human Skeletal Remains*.

12) Descriptive studies: Number of Native American osteological studies counted that are descriptive or are describing the site and remains.

13) Theoretical studies: Number of Native American osteological studies counted that are testing a hypothesis.

14) States: The states where the data originated from in the counted studies.

From these tallies, several percentage variables were calculated in the following manner:

1) Percentage of Native American osteological studies = Native American osteological studies/Studies.

2) Percentage of Methodology type (i.e., metric, CT-Scan, MRI, X-ray, histology, genetic) = Methodology type/ Native American osteological studies.

3) Percentage of Descriptive or Theoretical studies: Descriptive studies/ Native American osteological studies or Theoretical studies/ Native American osteological studies.

Other variables were based on the tally without conversion to a percentage (i.e., Sites, Geographic locations). The number of total states used was tallied and each state was examined separately for post- and pre-NAGPRA changes. Finally, from 1994 onward, the number osteological studies using the *Standards* was divided by the total number of osteological studies to obtain the percent of *Standards* usage.

All of the variables (with the exception of *Standards* usage) were then used to determine the changes from pre-NAGPRA to post-NAGPRA years. Data were analyzed using the statistical software program SPSS (Version 11.5). For each variable, averages and standard deviations were calculated for pre- and post-NAGPRA eras. Student's t-tests were used to analyze the data to identify significant differences between the pre- and post-NAGPRA years. Percentages are often converted to *z*-scores ensure that the data meet the assumptions to run parametric tests, such as normal distribution and homogeneties of variance. For this study, the variables were converted into *z*-scores (since a few of the variables deviated from normal distribution). Once the variables were converted into *z*-scores, they met all the assumptions to

run parametric tests. Then, the t-tests were run twice: once with the converted *z*-scores and once with the non-converted data. I present the data in the non-converted format because the results showed no differences. It should be noted, however, that parametric tests in general are very robust with respect to violations of assumptions. The failure to have a perfectly normal distribution, for example, in not very damaging to the accuracy of the probability values obtained through a t-test (Weiss and Hassett, 1982). Critical alpha levels were set at .05.

RESULTS

The statistically significant results indicate that compared to the pre-NAGPRA years, osteological studies containing Native American remains have decreased (Student's t-value = 5.302, *df* = 29, P = .001), fewer sites are used (Student's t-value = 3.159, *df* = 29, P = .004), and fewer geographic locations are examined (Student's t-value = 3.141, *df* = 29, P = .005) (See Figures 1 and 2).

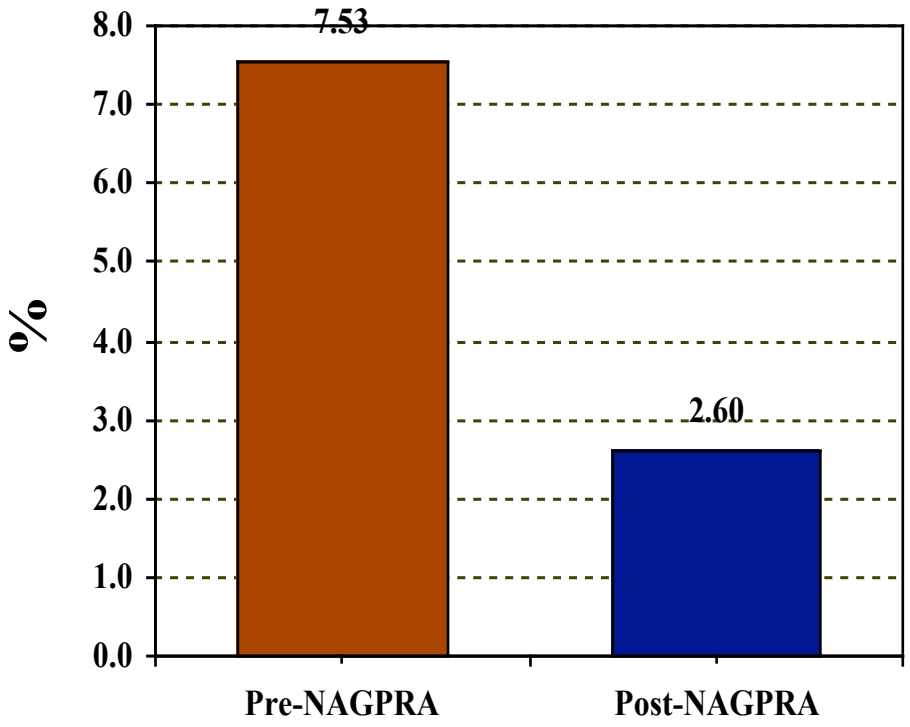

Figure 1. Decline in percentage of osteological studies using Native American remains; bars = mean

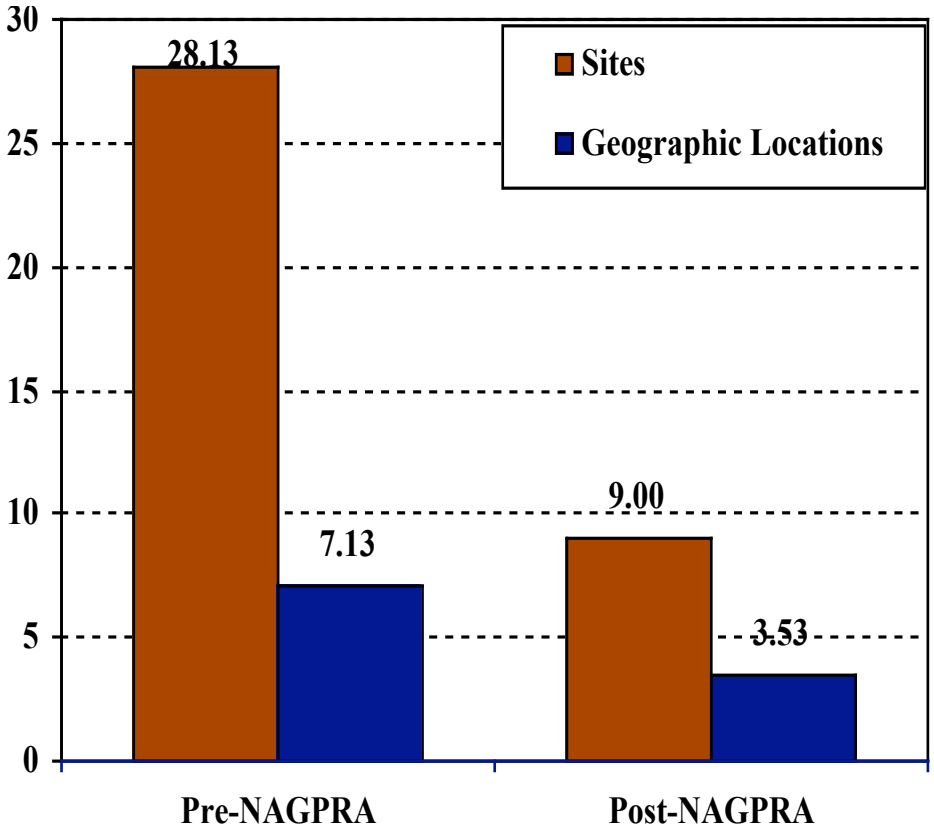

Figure 2. *Decline in number of sites and geographic variance; bars = mean.*

Both before and after NAGPRA was enacted, over 70 percent of the osteological studies come from sites in nine states. Research using Native American human remains significantly decreased in four (Alaska, Arizona, Kentucky, and Ohio) out of the nine states from pre-NAGPRA and post-NAGPRA years (Student's t-values range from 2.149 to 2.883, *df*s = 29, Ps > .05) (See Figure 3).

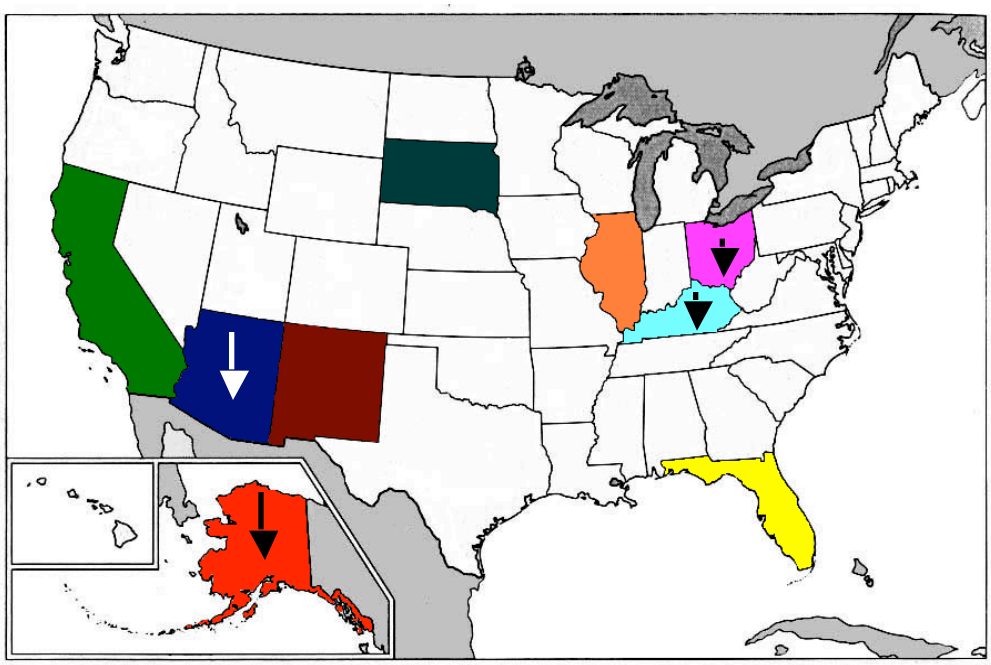

Figure 3. *From 1975 to 2005, over 70% of the studies published use remains from 9 states (Alaska, Arizona, California, Florida, Kentucky, New Mexico, Ohio, and South Dakota). Arrows show statistically significant ($P < 0.05$) decreases in osteological research in four out of nine of the states from Pre-NAGPRA to Post-NAGPRA.*

Only one-third of the osteological studies published after 1994 use *Standards: For Data Collection from Human Skeletal Remains*. The remaining variables did not differ significantly from pre-NAGPRA to Post-NAGPRA years.

DISCUSSION

The Rose and Colleagues (1996) and Klesert and Powell (1993) predictions have not come about in the years since NAGPRA was enacted. Conversely, it seems from the analysis of the publications that NAGPRA negatively impacted osteological research that uses Native American remains. Although there may be valid reasons for repatriation (such as an established direct cultural link) NAGPRA has impeded the progress of scientific research on Native North America human remains. Anthropologists doing fieldwork may opt not to conduct research on associated remains in case repatriation occurs in the middle of a project. Other universities disallow research on human remains until they have achieved full NAGPRA compliance. Finally, skeletal collections once available have been repatriated and are no longer available for study.

Repatriation laws are increasing in numbers and decreasing the proof required of Native American tribes for repatriation claims. A California law (CalNAGPRA) removes the

requirement of Federal recognition for Native American groups who are culturally affiliated (which is very broadly defined and can be proven with little scientific research) to obtain human remains. CalNAGPRA allows as much weight to be given to Native American's "oral histories" and "tribal testimonies" as to forensic, geological, or other scientific evidence when determining affiliation. One section of CalNAGPRA states that "Determination of cultural affiliation shall not be construed to authorize the completion or initiation of any scientific study of human remains or cultural items." In other words, besides determining cultural affiliation, scientists cannot conduct research on the remains while the fate of the remains have not been decided. Once cultural affiliation is determined and repatriation processes begin, it may be too late to conduct additional research.

Other anthropologists opt to study remains from South and Central America to avoid the complexities of repatriation issues. An examination of the number of osteological publications seems to indicate that these studies have increased over the years since NAGPRA passed, but a more systematic analysis needs to be conducted on this trend. In personal communication with other anthropologists, they have spoken of their endeavors outside of the United States and related their effort in part to avoid NAGPRA issues. However, the ideology of repatriation and reburial is escalating and spreading around the world. Israel passed a law in 1995 that human remains must be handed over to the Ministry of Religious Affairs and not classified as "antiquities." Consequently, Hebrew University handed over numerous ancient skeletons from their research collection for reburial (Watzman 2000). Australia has recently passed legislation to allow Aborigines to claim prehistoric skeletons from museum collections. When skeletons are handed over, the Aborigines bury them at sea in order to ensure that scientists will never study them again. It may only be a matter of time until the same occurs in South and Central America.

One can make a valid argument that the evidence presented here is not enough to prove that NAGPRA is the cause of the changes in anthropological research. Other supporting evidence must be presented to strengthen the case. For example, other journals should also be examined to determine whether the trends mentioned here occurred throughout the discipline's publications. As a note, a preliminary examination of the *International Journal of Osteoarchaeology* reveals that over 90% of the studies conducted on human skeletal remains in the last ten years use non-US remains. Studies concerning trends in Master's and Ph.D. research may reveal more information.

Osteology is not a dying subject in anthropology, but rather access has declined to study Native American remains. There seems to be a vacancy in anthropology curriculums concerning the training of forensic specialists to identify modern North American remains compared to ancient North American remains. An indication that osteology as a topic thrives comes from the annual proceedings at the American Association of Physical Anthropologists. Not only are osteology presentations the leading type of presentations in the meetings, but publications are robust as well. The overall number of osteological (this includes international and non-Native American remains) publications has increased over the last thirty years. The *American Journal of Physical Anthropology* has continued having a high percentage of osteology publications; both

before and after NAGPRA, the topic most frequently published in the *American Journal of Physical Anthropology* has consistently been related to osteology and, more specifically, paleopathology (see the annual proceedings published in the December issues of the journal). Even in 2004, osteology was the most represented topic in the journal with 25% of the journal's articles coming from osteological research; the next most published theme was population genetics with 16%. Thus, it does not appear that the changes are due to a decrease in interest in osteology. The increase in osteological studies not containing Native American remains, both in the *American Journal of Physical Anthropology* and other journals, such as the *International Journal of Osteoarchaeology*, lend further support to the notion that the changes documented in this report are a result of researchers avoiding remains that may be subject to NAGPRA regulations.

As a final note, the ethical considerations of repatriation are in the forefront of human remains politics and study. Rose and colleagues (1996) may be correct in stating that NAGPRA has created a more ethical science. However, as scientists it is our ethical obligation to study and try to explain the world around us. NAGPRA and other repatriation laws obstruct the process of scientific endeavors; thereby, creating an ethical dilemma for scientists.

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