Unauthorized Fossil Collecting from National Park Service Shorelines: Servicewide Policy and Perspectives

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Background: Scale of unauthorized fossil collection

Since 2002, the NPS has been developing baseline paleontological resource inventory reports for each of the 32 NPS inventory and monitoring networks (ecosystem-based clusters of park units). These reports are literature-based, assessing past and present research, museum collections inventories, and evaluation of park resource management issues and needs. The reports address all contexts in which fossils are found in each park in each network. Through this endeavor, the NPS has ascertained that at least 211 park units have fossils either *in situ* or in museum collections. Thirty additional parks contain geologic formations that potentially contain fossils, although no fossils have yet been documented in those particular parks. All 32 reports should be completed by 2010.

The servicewide perspective provided by these reports enables the NPS to detect resource management trends, contexts, and issues that are shared by multiple parks or issues that are unique to a particular network or region. One issue revealed during the research for these reports is the unauthorized collection (collection without an NPS-approved permit) of fossils from at least 12 coastal parks along the Atlantic and Gulf coasts, and the Great Lakes. Such collection contravenes NPS regulations, which specify that fossils may be collected in parks only for scientific or educational purposes pursuant to an NPS-approved research and collection permit.[1] Without such a permit, the collection, removing, digging, or injuring of partial or entire non-fossilized and fossilized paleontological specimens from their natural state is prohibited Servicewide.[2]

The types of fossils known to have been collected in parks without authorization from NPS park managers, based on written documentation or photographs by the park or Geologic Resources Division staff, include 400-million-year-old Petoskey stones (ancient corals), Miocene shark teeth and marine mammal bones, Pliocene marine invertebrates and vertebrates, Pleistocene invertebrates and shark teeth, and ammonites. Some of these fossils have been physically chiseled out of the bluffs along the parks' shoreline, while others have been picked up from the beaches where they had washed up.

Approximately 60 park units which preserve coastal or shoreline resources are now known to also preserve fossils. Most likely, unauthorized collection in these parks is more widespread than the 12 parks in which it has been documented.

Why unauthorized fossil collection in parks is a problem

There are six reasons why the NPS should address the issue of unauthorized fossil collection in parks:

1. *Inconsistent with the NPS Organic Act.* Fossils are not renewable resources. Allowing fossils to be collected from park lands without NPS authorization is contrary to the Act's intent and mandate to conserve park resources unimpaired for the enjoyment of current and future generations.
2. *Prohibited by NPS regulations.* As stated above, the collection of fossils in parks without a permit is clearly prohibited by NPS regulations. These regulations apply (a) on federally owned lands and waters, (b) on lands and waters that are administered by the NPS pursuant to a written instrument or over which the NPS holds a less-than-fee interest, and (c) in waters subject to the jurisdiction of the U.S. up to the mean high water line, regardless of the ownership of the submerged lands.
3. *Contrary to NPS management policies.* The policy of the NPS is to protect geologic features from the unacceptable impacts of human activity, while allowing natural processes to continue. Geologic features are defined as including paleontological and paleo-ecological resources, such as fossilized plants or animals, or their traces. It is also the policy of the NPS to take appropriate action to prevent unauthorized fossil collection.[3] Failing to effectively address unauthorized fossil collection is inconsistent with these policies.
4. *Undermines NPS law enforcement.* Visitors who collect fossils in a park without NPS permission may develop the mistaken belief that it is permissible to collect fossils, or other park resources, in other park units. They may convey this misapprehension to their friends and families, creating a negative, cascading effect that complicates the management of multiple parks, and the ability of NPS law enforcement staff to protect park resources. It is inconsistent for the NPS to enforce the regulatory prohibitions on the unauthorized collection of some resources such as archeological specimens, but not enforce the prohibitions on the unauthorized collection of fossils. This inconsistency may also complicate the ability of federal magistrates to impose effective penalties for the unauthorized collection of NPS resources.
5. *Diminishes the value of the resources.* The collection of these fossils from NPS shorelines may contribute to the loss of scientifically significant or interesting fossils from the public domain. Scientifically significant fossils have been found along the shorelines of several parks, including a well-preserved walrus skull at Cape Hatteras National Seashore, and another mammal skull at George Washington Birthplace National Monument. Shark teeth at George Washington Birthplace National Monument have been found in association with Native American shell middens, indicating the shark teeth were used as tools. Fortunately, these specimens were collected by researchers or knowledgeable volunteers, and now reside in museums. Had these fossils been collected and removed from the park without authorization, their scientific and educational value would have been greatly diminished.
6. *Adversely impacts future visitor experience opportunities to discover fossils in a natu-*

ral context. One visitor recently told NPS staff at George Washington Birthplace National Monument, "We don't find the big shark teeth like we used to!" She indicated that she had collected shark teeth with her family from the time she was a young girl, and that her family could regularly find large shark teeth in the past. Although it is possible that the lack of large shark teeth stems from a sudden reduction in the numbers of shark teeth contained in the park's eroding bluffs, the more likely explanation is that today's large number of collectors reduces a visitor's chances of finding the large shark teeth, resulting in lost visitor experiences and educational opportunities.

Why it is difficult to stop unauthorized fossil collection

For at least four reasons, it is very difficult for the NPS to stop the illegal collection of fossils from NPS shorelines.

1. *Regulatory confusion.* Although the NPS regulations cited above clearly prohibit the collection of fossils in parks without an NPS-approved permit, another NPS regulation potentially undermines those prohibitions by allowing superintendents to permit the casual collection of unoccupied seashells.[4] It is very difficult for most park visitors to distinguish between fossilized and modern seashells.
2. *Jurisdictional confusion.* It can be difficult for the NPS to determine and reasonably prove that a fossil was actually collected within park boundaries. Many coastal parks' boundaries follow the mean high or mean low water line, or sometimes both. Fossils collected from the water beyond these boundaries are not within NPS jurisdiction. As park shorelines erode or accrete, the location of the exact boundary line can become unclear. Therefore, fossils collected from beaches may or may not be within NPS jurisdiction.
3. *Enforcement difficulty.* Given the millions of park visitors who spend time on park beaches every year, and the ease of picking up fossils from exposed beaches and bluffs, it is very difficult for NPS law enforcement rangers to be at the right spot at the right time. However, the March 2009 enactment of the Paleontological Resources Preservation Act, P.L. 111-11, which directs federal land management agencies, such as the NPS, to take certain measures to increase the protection of fossils, may strengthen the ability of law enforcement staff to predict, detect, and promptly respond to unauthorized fossil collection.
4. *Public perception.* Parks may experience public pressure to allow the continued collection of fossils from park shorelines. In some park areas, fossil collecting is a family tradition. Fossils are very popular with the public, and their removal from the park is viewed by many as a harmless activity. The continuous erosion of park shorelines and the fossils therein creates the impression that these fossils are in plentiful supply, or will be lost anyway, so collecting them would not be harmful.

Potential NPS management strategies

Currently, park managers address unauthorized fossil collection differently. Staff at George Washington Birthplace National Monument have put up signs along the beach explaining

that the collection of all objects from the park is prohibited. Yet a recent park photo revealed a woman collecting fossils from the beach right behind the sign! George Washington Birthplace National Monument staff have also made personal contacts with park visitors to explain the NPS rules, and have issued citations in some cases.

Another approach, utilized by staff at Sleeping Bear Dunes National Lakeshore, is the differentiation between casual and directed (or even commercial) collecting. Education, outreach, and warnings are used in the former situation, while citations and confiscation are used in the latter situation.

Five additional strategies might include the following:

1. *More outreach, education, and interpretation.* The NPS should continue or increase visitor education efforts to highlight that the NPS resource conservation and stewardship mandate includes fossils. Outreach, education, and interpretation should show that the appearance of previously-unseen fossils, and the erosion or weathering of known specimens, is a natural process, and that leaving the fossils in place allows the next visitor to personally experience that process as well.
2. *Explicit servicewide survey and guidance.* It may be helpful for the NPS to assess the full scale of unauthorized fossil collection and to develop guidance on successful methods of reducing this problem.
3. *Consider and incorporate social science data.* It might be helpful for NPS natural resources and law enforcement staff to work with the NPS social science program to develop signs, brochures, and other forms of communication that are most effective at reducing visitor theft of NPS resources and increasing the willingness of the public to bring new discoveries to the attention of the NPS.
4. *Encourage and support more fossil monitoring and data collection by scientists, amateur collectors, local fossil clubs, and students.* These volunteers might serve as the park's eyes and ears by monitoring park shorelines for the appearance of newly-exposed fossils, alerting park staff about unauthorized collectors, and helping park staff collect exposed fossils and related data for scientific study, and park museum collections. Several park museums contain specimens collected by park staff and visitors along the park shoreline.
5. *Revise NPS regulations.* Revising or expanding NPS regulations to implement the Paleontological Resources Preservation Act, and to address problems such as the confusion caused by the collection of unoccupied seashells, might help the NPS better protect fossils.

Conclusion

As our knowledge of the fossil record, that is protected by the national park system, continues to grow, so too does the knowledge of the fossil management issues shared servicewide. Through increased documentation efforts and a servicewide management perspective, the fossil resource management techniques learned and applied at one park may be valuable and adaptable for other parks. Thus, the unauthorized collection of fossils from NPS shoreline

parks is not solely a coastal issue. It is an issue that should be addressed by the entire NPS resource management community.

Endnotes

1. 36 CFR [Code of Federal Regulations] sec. 2.5(a).
2. 36 CFR sec. 2.1(a)(1)(iii); 36 CFR sec. 13.20(e)(1).
3. NPS Management Policies sec. 4.8.2 (2006).
4. 36 CFR sec. 2.1(c)(1).