

# Bones of Contention: The Regulation of Paleontological Resources on the Federal Public Lands<sup>†</sup>

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The edifice of human understanding is . . . formed of material put together stone by stone. No one could be so presumptuous as to believe himself capable of taking all the reports of a new truth and deducing from it all the consequences, in assigning value to it for all the centuries to come. A discovery may appear to be nothing but a hollow speculation. What practical value does it have? Time will teach us in determining its application to the arts and the new chemistry . . . will reveal to us many other marvels.<sup>1</sup>

## INTRODUCTION

On the morning of May 14, 1992, agents from the Federal Bureau of Investigation descended upon the Black Hills Institute of Geological Research ("BHI") in Hill City, South Dakota,<sup>2</sup> and brought to the nation's attention a debate normally reserved for the pages of scientific journals and backrooms of paleontological societies and natural history museums. On that day, the FBI was not searching for the typical criminal. Rather, they were looking for the remains of an exceptionally rare sixty-five million-year-old *Tyrannosaurus Rex* skeleton named "Sue" which the government claims BHI—a commercial fossil dealer—illegally expropriated from federal lands.<sup>3</sup> Under the direction of the U.S. Attorney in South Dakota, the FBI crated the uncurated dinosaur bones and shipped them off to be stored as "evidence." At the time of the raid, the Federal Government was investigating BHI and reportedly feared that

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1. HENRI GRÉGOIRE, *Rapport sur les encouragements, récompenses et pensions à accorder aux savans, aux gens de lettres et aux artistes*, reprinted in 2 OEUVRÉS DE L'ABBÉ GRÉGOIRE 303, 309 (1977) (quoted in Joseph L. Sax, *Heritage Preservation as a Public Duty: The Abbé Grégoire and the Origins of an Idea*, 88 MICH. L. REV. 1142, 1165 (1990) (discussing the development of a historic preservation philosophy and the contributions of the French philosopher Henri Grégoire in the late eighteenth century)).

2. See Malcolm W. Browne, *A Dinosaur Named Sue Divides Fossil Hunters*, N.Y. TIMES, July 21, 1992, at C1; see also Alison Frankel, *Tyrannosaurus Lex*, AM. LAW., Dec. 1992, at 45; Paul McEnroe, *They Battle for a Dinosaur Named Sue*, NAT'L L.J., Nov. 9, 1992, at 8; Michael Milstein, *Battle for Bones*, HIGH COUNTRY NEWS, Sept. 21, 1992, at 1.

3. BHI recovered "Sue" in August, 1990, from land held in individual trust by the United States for the benefit of Maurice Williams, a Native American, within the boundaries of the Cheyenne River Sioux Indian Reservation in western South Dakota. Frankel, *supra* note 2, at 45.

BHI was about to ship, and possibly sell "Sue's" remains to an out-of-state interest.<sup>4</sup> Since confiscated by the Federal Government, "Sue's" remains have served as a symbol of the deeply divided scientific and policy debate over the question of who has the right to extract, and possibly profit from, the remains of the Earth's past.

To many professional paleontologists, educators, and museum curators, the *Black Hills* case represents the threat that the rapidly expanding commercial fossil market poses to the nation's paleontological resources. Today, more than fifty commercial fossil companies and countless individual prospectors<sup>5</sup> comprise a multimillion dollar industry<sup>6</sup>—supplying fossils to private collectors, as well as to a variety of public and private institutions. Many in the professional community view the commercialization of fossil collecting as posing a direct threat to public and scientific access to paleontological specimens. They argue that commercialization will result in sale to private entities, illegal excavation from public lands, and increased vandalism of fossil sites.<sup>7</sup>

On the other hand, for many commercial and amateur fossil collectors, "Sue's" seizure symbolizes government intrusion into their rights to use the public lands, and reflects an elitist attitude among professional paleontologists concerning who should have the right to collect and retain custody of the nation's fossils. Commercial dealers believe that their market-driven efforts contribute significantly to the development of scientific knowledge and that without their efforts these same remains would merely weather away by the erosional processes that exposed them in the first place.

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4. The Government seized the dinosaur bones on May 14, 1992, as evidence in the investigation of BHI's possible violations of the Antiquities Act, 16 U.S.C. § 433 (1988). At the time of the seizure, BHI reportedly planned to ship, at the expense of a private company, the *Tyrannosaurus Rex* skull to a NASA facility in Alabama for a CAT-scan to examine osteological data, as well as information on brain size and shape. BHI has denied that it planned to sell "Sue" which it claims it had already donated to a related South Dakota non-profit group that intended to use the dinosaur as a centerpiece in a new museum. See Virginia Morell, *G-Men Capture T. Rex*, DISCOVER, Jan. 1993, at 80; Milstein, *supra* note 2, at 10.

The seizure of evidence by the United States was upheld by the Eighth Circuit Court of Appeals in *Black Hills Inst. of Geological Research v. United States Dep't of Justice*, 967 F.2d 1237 (8th Cir. 1992), *aff'd*, 978 F.2d 1043 (8th Cir. 1992). On February 3, 1993, the United States District Court for the District of South Dakota granted the Department of Justice's summary judgment motion to dismiss BHI's complaint for the return of "Sue's" remains. In granting summary judgment for the Department of Justice, the district court ruled that Maurice Williams' land is Indian trust land, held in trust by the United States, and any alienation by sale of an interest in such land must be made with the consent of the Secretary of Interior which BHI had failed to obtain. *Black Hills Inst. of Geological Research v. United States Dep't of Justice*, 812 F. Supp. 1015, 1020-21 (D.S.D. 1993). However, "Sue's" remains are still resting in a warehouse at the South Dakota School of Mines and Technology pending the outcome of BHI's appeal of the district court's decision. See Malcolm W. Browne, *Dinosaur Institute Keeps Digging*, N.Y. TIMES, July 27, 1993, at C6.

5. Jumes Coates, *The Bone Rustlers*, CALGARY HERALD, Dec. 21, 1991, at C4.

6. In 1985, the estimated gross income of commercial fossil dealers was three million dollars. COMMITTEE ON GUIDELINES FOR PALEONTOLOGICAL COLLECTING—NATIONAL RESEARCH COUNCIL, PALEONTOLOGICAL COLLECTING 12 (1987) [hereinafter PALEONTOLOGICAL COLLECTING].

7. See Tom Harvey, *Thriving International Market; Theft of Fossils is a Growing Problem in U.S.*, L.A. TIMES, Nov. 6, 1987, at 18.

While paleontological resources are often a prominent feature of public lands, especially in the western United States, there is currently no federal law regulating the collection of paleontological resources on public or private lands. The Antiquities Act of 1906,<sup>8</sup> once thought to provide for the protection of paleontological resources on federal lands, was rendered virtually unenforceable by *United States v. Diaz*.<sup>9</sup> In *Diaz*, the Ninth Circuit Court of Appeals held that the Act's penalty provisions were unconstitutionally vague. In addition, only a handful of states regulate collection on state-owned lands. Given this vacuum of authority, the two largest public land management agencies—the Bureau of Land Management and the United States Forest Service—have devised their own regulations and currently issue permits to a relatively small number of professional fossil expeditions each year pursuant to a variety of statutes. Meanwhile, there is little or no regulation of amateur collectors—be they commercial entrepreneurs, hobbyists, or students. The Federal Government's piecemeal approach to regulating this valuable natural resource lacks both the guidance of a cohesive national policy for the protection of the nation's fossils and the science-specific guidelines necessary for federal agencies to administer the recovery and preservation of fossils from the federal public lands.

This Note examines the need for comprehensive regulation of paleontological resources on the federal public lands. Part I outlines the importance of paleontological resources and the need for protection of these resources. Part II investigates the current framework by which paleontological resources are regulated under federal law and regulations. Part III explores whether there should be comprehensive federal legislation for the protection of paleontological resources on the public lands by examining a National Academy of Sciences study which recommends maintaining the current regulatory scheme. Part III also examines counterarguments as to why the present regulatory framework is not succeeding in protecting the nation's paleontological resources. Part IV analyzes the recently introduced Vertebrate Paleontological Resources Protection Act ("VPRPA") and includes suggestions for increasing its effectiveness. This Note concludes by recommending the adoption of a modified version of the VPRPA to promote a uniform national policy to protect the nation's paleontological resources for scientific and educational study while at the same time encouraging the recovery of these resources.

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8. Antiquities Act of 1906, ch. 3060, 34 Stat. 225 (1906) (codified at 16 U.S.C. §§ 431-433 (1988)).

9. *Diaz*, 499 F.2d 113 (9th Cir. 1974); see discussion *infra* notes 46-50 and accompanying text.

## I. PALEONTOLOGICAL RESOURCES PROTECTION

### *A. What Are Paleontological Resources and Why Do We Need to Protect Them?*

Before exploring the significance of paleontological resources and the regulation of those resources, it is important first to understand the science of paleontology and the specific threats to the nation's paleontological resources. Paleontology is the science of past, nonhuman lifeforms as revealed through fossils.<sup>10</sup> Fossils, which take many forms including bones, shells, leaves, and tracks, are the remains and traces of these past lifeforms which have since become transposed into minerals found in the Earth's rocks.<sup>11</sup> Fossils provide an important resource for a wide array of scientific disciplines because they provide basic data for evolutionary studies, measurement of time in Earth history, and understanding ancient environments and geographies.<sup>12</sup> Fossils provide the only direct means by which to measure the history of life on the Earth, which dates back as far as 3.5 billion years. This knowledge of the history of life on this planet has had a profound impact not only upon our understanding of the evolution of life and the ability to measure changes in the Earth's environments, but also upon human inquiry into our own existence in a perspective of time and evolution.<sup>13</sup>

### *B. Paleontological Collecting*

Because a wide variety of fossil remains are necessary to develop an understanding of past life on the planet, fossil collecting is one of the most important tasks of a paleontologist. There are literally billions of fossils located in the geological strata of the Earth that are continually exposed by natural weathering processes such as wind, rain, and ice. But while there is an abundance of fossils locked up in the Earth, fossils are not a renewable resource. Each fossil specimen represents a once-living organism and can provide a wealth of data on the physical and social environment in which that particular organism lived. The scientific understanding developed from paleontological remains is possible only through the recovery and collection of fossils in the field—without the efforts of people in the field our knowledge of past life on Earth would be severely limited. This knowledge base will not develop further without continuing field work and the recovery of additional paleontological data.

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10. ALAN M. CVANCARA, *SLEUTHING FOSSILS* 1 (1990).

11. Fossils are generally formed when animals or plants die and are buried in sediment before they can decompose. The skeletal structure or remaining impressions are gradually replaced by minerals in the same form as when the animal or plant lived. RICHARD FORTEY, *FOSSILS: THE KEY TO THE PAST* 9 (1991).

12. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 9.

13. *Id.*

Fossil collectors can be divided into three groups: scientists, commercial collectors, and amateur collectors. Scientific collectors, such as paleontologists, paleobiologists, and paleobotanists—who are generally employed by educational institutions, museums, and geological surveys—require a thorough and comprehensive collection of fossils to conduct their research.<sup>14</sup> Commercial collectors seek fossils primarily for financial gain in an industry that has been developing in this country over the past one hundred years.<sup>15</sup> Amateur collectors, who include hobbyists as well as students and number as many as 500,000 persons in the United States,<sup>16</sup> gather fossils for enjoyment, aesthetic pleasure, and education. In addition, some amateur collectors trade and sell fossils through a multitude of publications, associations, and gem and mineral shows.<sup>17</sup>

The three groups of collectors may benefit from interacting with one another. Commercial and amateur collectors base much of their understanding of fossils upon scientific studies and technical information derived from professional research paleontologists. On the other hand, because of the field-intensive nature of paleontology, commercial collectors and amateurs may make significant contributions to the paleontological sciences when they opt to relinquish their finds, either by sale, loan, or donation to the scientific community.<sup>18</sup> Commercial dealers, such as BHI, can also provide a necessary service in providing fossils to institutions that lack the financial ability and staff to acquire the variety of specimens and resources utilized by schools and museums.<sup>19</sup> In fact, many museums set aside funds to purchase unique, unusual, or rare fossils.<sup>20</sup>

### C. *The Difference Between Paleontology and Archaeology*

Many individuals fail both to understand the difference between paleontology and the specifically regulated science of archaeology, and to see the significance of that distinction. Unlike paleontology, which focuses on the study of prehistoric, nonhuman life through fossils,<sup>21</sup> archaeology is concerned with the recovery of physical evidence of past human societies, such as human remains and artifacts, and the theories which guide the

14. CVANCARA, *supra* note 10, at 187-88.

15. *Id.* at 188.

16. *Management of Archeological and Paleontological Resources on Federal Lands, 1985: Hearing Before the Subcomm. on Public Lands, Reserved Water and Resource Conservation of the Senate Comm. on Energy and Natural Resources, 99th Cong., 1st Sess. 98 (1985) (National Academy of Sciences Revised Draft Report) [hereinafter 1985 Archeological and Paleontological Resources Hearing].*

17. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 10, 45.

18. For example, in the Mazon Creek formation in Illinois, where sparse fossil deposits depict a unique view of life in coal swamps 300 million years ago, amateurs who have worked with the Field Museum of Natural History in Chicago have made significant analyses of the Mazon Creek possible. *Id.* at 10-11; see also Michael Milstein, *Private Versus Public Science*, HIGH COUNTRY NEWS, Sept. 21, 1992, at 11.

19. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 5.

20. *Id.* at 13.

21. See *supra* notes 10-13 and accompanying text.

interpretation of this evidence.<sup>22</sup> Paleontological specimens, however, do not have the inherent cultural interest which is often associated with the remains and artifacts of human cultures.<sup>23</sup>

Archaeology is a highly site specific science. The relationship of artifacts to one another in a site's sediment deposits, floral and faunal remains, and physical environment all provide information about the activities of the inhabitants.<sup>24</sup> Thus, archaeological sites are often best preserved intact and in situ.<sup>25</sup> Scientifically, paleontological resources are most useful once they are removed from the site—*ex situ*—and have been cleaned, preserved, and pieced together.<sup>26</sup> Once a fossil is excavated, however, the data as to where and in what geological formation it was found are very important in identifying the fossil species, as well as for conducting future research in that area. Such site specific information is becoming more important as many researchers abandon the historical focus of identifying species of dinosaurs and increasingly investigate how they lived and socialized,<sup>27</sup> and why they became extinct.

#### *D. The Threat to the Nation's Paleontological Resources*

No one knows how many paleontological specimens and sites there are in the United States because paleontologists and land managers have surveyed only a minute portion of the country. Consequently, it is impossible to know how many specimens have been lost or destroyed, because land managers have almost no records of the location of specimens nor of the illegal excavation of fossil remains from public lands. The only completed study to date estimated that of the paleontological sites surveyed in the Oglala National Grassland, almost one-third showed signs of unauthorized collecting.<sup>28</sup> An even greater number of sites and specimens in other areas of the country likely have been lost or destroyed. The principle activities threatening the remaining paleontological resources are the increasing commercial market in fossil specimens, illegal excavations from public lands, and land development activities.

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22. Paul R. Fish, *Federal Policy and Legislation for Archaeological Conservation*, 22 ARIZ. L. REV. 681, 681 (1980).

23. For a discussion of the importance of culturally significant artifacts in both a national and common cultural context, see John H. Merryman, *Two Ways of Thinking About Cultural Property*, 80 AM. J. INT'L. L. 831 (1986).

24. FRANK HOLE & ROBERT F. HEIZER, AN INTRODUCTION TO PREHISTORIC ARCHAEOLOGY 25-39 (3d ed. 1973).

25. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 12.

26. FORTEY, *supra* note 11, at 173-79.

27. *See, e.g.*, JOHN R. HORNER & JAMES GORMAN, DIGGING DINOSAURS (1990) (detailing Horner's discovery of juvenile *Maiasaura* in Montana and discussing evidence of how dinosaurs may have nested and reared their young).

28. HANNAN E. LAGARRY-GUYON & ROBERT M. HUNT, JR., 1991 PALEONTOLOGICAL RESOURCE SURVEY OF THE OGLALA NATIONAL GRASSLAND (ROUNDTOP 7.5' QUADRANGLE), SIOUX COUNTY, NEBRASKA (1991) (commissioned by the USDA Forest Service and completed by the Division of Vertebrate Paleontology of the University of Nebraska Museum); *see also infra* note 36 (discussing statistical evidence found by the Nebraska study).

While the debate over the commercialization of paleontological remains in the United States and abroad is not a recent development,<sup>29</sup> the *Black Hills* case and the rapidly expanding commercial fossil market have focused public attention on the potential threat that commercialization poses to this invaluable scientific resource. With the growth of the lucrative market in selling fossils, the remains of early life on Earth have become as highly valued as rare works of art<sup>30</sup> and are increasingly being mined in much the same way as other mineral resources. Reportedly, the increase in this market is partly due to rising demand for relics in Europe and Japan where new museums are opening but where few fossils are available locally.<sup>31</sup>

The threats posed by the increasing interest in fossils for commercial purposes include the loss of access to important scientific specimens that are acquired by private individuals<sup>32</sup> and increased competition that paleontologists and their institutions must face in acquiring access to fossils and fossil sites. The scientific value of a fossil specimen can often be realized in its relationship to similar fossils found in the same or different areas and its location in the geological time scale. Once a fossil is removed from its environment, the data accompanying its find are extremely important in developing a collective understanding of the particular species, the organism's life, and the environment in which it lived. When individuals purchase rare and well-preserved fossils and isolate these specimens in private, and possibly undocumented, collections, scientific and public access to these materials is directly threatened.

The high-priced market for fossils is making it more difficult for paleontologists to protect legally permitted sites currently under excavation,<sup>33</sup> as well as forcing them to compete with commercial dealers who can outbid them for the rights to work sites on private lands.<sup>34</sup> The potential profit from the sale

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29. In the late 1870's, paleontologists Edward Drinker Cope and Othniel Charles Marsh routinely paid for bones and information leading to sites while in intense competition with one another to uncover fossils in the western United States. EDWIN H. COLBERT, *MEN AND DINOSAURS* 66-94 (1968). Academy of Natural Sciences director Joseph Leidy, the first to confirm evidence that dinosaurs lived in North America, wrote: "Professors Marsh and Cope, with their long purses, offer money for what used to come to me for nothing, and in that respect I cannot compete with them." Michael Milstein, *Diggers Battle over Ancient Bones*, CHRISTIAN SCI. MONITOR, Sept. 9, 1992, at 13.

30. Commercial fossil dealers such as Geological Enterprises of Ardmore, Oklahoma, have catalog listings including "one of the top 10 skulls ever found" of *Triceratops* for \$200,000, a complete *Edmontosaurus* for \$350,000, and a mounted *Subhyracodon* skeleton for \$40,000. *Bulletin No. 44*, GEOLOGICAL ENTERPRISES, INC., Jan. 1992, at cover, 39, 43.

31. Milstein, *supra* note 2, at 11.

32. Of the six known specimens of *Archaeopteryx*, the possible evolutionary link between dinosaurs and modern birds, which were collected in southern Bavaria, Germany, one is now missing and believed to have been sold by its private owner. MICHAEL BENTON, *ON THE TRAIL OF THE DINOSAURS* 17 (1989); Milstein, *supra* note 2, at 11.

33. A recent fossil dig in Wyoming by a Harvard University paleontological crew was disrupted when the site was raided overnight removing most of a dinosaur fossil which the academics had uncovered. Coates, *supra* note 5, at C4.

34. In 1990, a Johns Hopkins University paleontologist lost a *Hadrosaurus* nesting site on a private ranch in Montana when a commercial dealer from Calgary offered the landowners more money for access to the site. Morell, *supra* note 4, at 80.

of fossils can also lead to the inadvertent destruction of delicate fossil remains by inexperienced collectors who see only the dollar signs of profit in the remnants of the past.<sup>35</sup> In addition, the growing commercial market and high prices for important specimens will undoubtedly make it more difficult for museums and educational institutions to compete with private collectors and investors.

A related and equally disturbing threat to the nation's paleontological resources is the illegal excavation of fossils from public lands and the destruction of fossil remains in situ. While few studies have been commissioned, the most complete investigation to date estimated that of the fossil sites surveyed, almost one-third showed evidence of illegal excavation activities.<sup>36</sup> As fossils become more valuable in the private marketplace, so will the pressure to increase the supply of fossils, resulting in increased pressure upon the public lands which hold an abundance of the nation's paleontological resources.

Probably the greatest loss of paleontological resources comes in the course of land development activities. While land development activities such as mining, road construction, and housing development expedite the natural erosional processes and can benefit the paleontologist by exposing fossil deposits, these activities also account for the loss of untold millions of fossils from routine operations. The Federal Government and many states have sought to protect these resources by requiring environmental impact analyses and "salvage" programs, as well as specific permit requirements which require the stationing of paleontologists at certain sites to collect specimens or stipulations that a project must be interrupted upon the uncovering of a "significant fossil."<sup>37</sup>

Given the nature and magnitude of paleontological resources in this country and the lack of a mechanism to monitor the loss of fossil resources through commercial sale, theft, and destruction, it is difficult to determine the combined effect of these activities. One pattern, however, is evident. As the commercialization of fossil collecting increases, so too does the disappearance of these resources into private hands and the pressure to access the vast quantities of these resources on the public lands.

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A recent newspaper article quoted the following observation of the director of the Nebraska State Museum: "Because of commercialization, we're slowly losing access to our fossil resources. . . . High prices have stripped away the scientific value of these finds and left perhaps only the aesthetic values. They become merely curiosities for someone's coffee table." Milstein, *supra* note 29, at 12.

35. A North Dakota Geological Survey paleontologist reports that a rancher in the state, upon learning the value of a skeleton on his property, destroyed a rare *Torosaurus* in attempting to excavate it with spade and shovel. Judy Pasternak, *Monstrous Bones of Contention*, L.A. TIMES, Oct. 2, 1992, at A1, A22.

36. A 1991 study documenting illegal fossil collecting on the Oglala National Grassland commissioned by the U.S. Forest Service and completed by the University of Nebraska State Museum found that of the 11.4 square miles of fossiliferous bedrock surveyed, approximately 20% showed physical evidence of unauthorized fossil collecting. Of the 39 sites designated as having special importance because of exceptional preservation of fossils, 11 (28%) showed evidence of unauthorized collecting. See LAGARRY-GUYON & HUNT, *supra* note 28, at 1.

37. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 20.



## II. EXISTING LAWS AND REGULATION OF PALEONTOLOGICAL RESOURCES

There is presently no federal legislation specifically regulating paleontological resources located on public or private lands. The Antiquities Act of 1906 is the most relevant statute regarding the protection of paleontological resources on lands owned and controlled by the United States, including Indian lands.<sup>38</sup> However, the constitutional validity of the law, and therefore its use by the principle federal land management agencies which deal with paleontological remains—the Bureau of Land Management (“BLM”), the United States Forest Service (“USFS”), and the National Park Service (“NPS”)—is now severely restricted.<sup>39</sup> Additional authority for the regulation of paleontological resources is currently exercised by these agencies under a myriad of statutes including the Archaeological Resources Protection Act, the National Environmental Policy Act, the Federal Land Policy and Management Act, the National Forest Management Act, the National Park Service Organic Act, and several independent agency regulations.

### *A. Independent Statutory Authority*

#### 1. Antiquities Act of 1906

The Antiquities Act of 1906 prohibits any person from appropriating, excavating, injuring, or destroying any “historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States” without first obtaining permission from the federal land manager.<sup>40</sup> Permits under the Act are issued by the secretary of the department with jurisdiction over the land and then only to “qualified” institutions for the benefit of “reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects.”<sup>41</sup> The Act also requires that remains collected must be permanently preserved in public museums from which they shall not be removed except under authority of the Secretary of the Smithsonian and then only to another public museum.<sup>42</sup> Violators of the Antiquities Act are subject to a fine of \$500, or ninety days in jail, or both.<sup>43</sup>

While the provisions of the Antiquities Act appear to create a structure for the regulation of antiquities found on public lands, the Act’s deficiencies lie in its application to paleontological resources. The Act neither mentions

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38. Regulations governing the preservation of antiquities on Indian lands were issued pursuant to the Antiquities Act of 1906, 16 U.S.C. § 432. These regulations apply to “Indian tribal lands or . . . individually owned trust or restricted Indian lands.” 25 C.F.R. § 261.2 (1993).

39. See *infra* part II.C.

40. 16 U.S.C. § 433.

41. *Id.* § 432.

42. *Id.*; 43 C.F.R. § 3.17 (1992).

43. 16 U.S.C. § 433. This fine constitutes a minimal deterrent considering that the value of some fossil specimens reaches into the hundreds of thousands of dollars. See *supra* note 30.

fossils or paleontological resources, nor defines the term "objects of antiquity." Yet, the Act has been used on a case-by-case basis to permit paleontological excavations as objects of "scientific interest" under a separate section of the Act authorizing the President to establish national monuments.<sup>44</sup> Congress' failure to include paleontological resources within the Act's coverage is evidenced by the legislative history of the Act which is concerned almost exclusively with archaeological and historical resources.<sup>45</sup>

This lack of specificity in the Antiquities Act eventually nullified the effectiveness of the law's enforcement provisions. In 1974, the Ninth Circuit Court of Appeals held that the Antiquities Act's definition of "object of antiquity" was unconstitutionally vague and therefore unenforceable in *United States v. Diaz*.<sup>46</sup> In *Diaz*, the defendant was charged with violating the Antiquities Act for appropriating recently constructed Apache face masks found in a cave on the San Carlos Indian reservation in Arizona.<sup>47</sup> Despite the fact that *Diaz* concerned archaeological remains, it served as the basis for dismissing the only known prosecution for fossil collecting under the Antiquities Act in *United States v. Jenkins*.<sup>48</sup>

In contrast, in 1979, the Tenth Circuit Court of Appeals upheld the application of the Antiquities Act to an enforcement charge for the theft of archaeological artifacts from National Forest lands in New Mexico in the case of *United States v. Smyer*.<sup>49</sup> This split in authorities has undermined the deterrence value of the Antiquities Act by questioning the constitutional validity of the Act and has led the federal land management agencies away from the Act as an authority for regulating paleontological remains.<sup>50</sup> This

44. 16 U.S.C. § 431; see also *infra* notes 64-65 and accompanying text (discussing § 2 of the Antiquities Act).

45. *Preservation of Historic and Prehistoric Ruins, Etc., 1904: Hearing on S. 4127 and S. 5603 Before the Subcomm. of the Senate Comm. on Public Lands, 58th Cong., 2d Sess. 3 (1904); H.R. REP. No. 2224, 59th Cong., 1st Sess. 1 (1906).*

46. *Diaz*, 499 F.2d 113 (9th Cir. 1974). The court held that the Antiquities Act violated the Fifth Amendment's Due Process Clause because it provided no notice "that the word 'antiquity' can have reference not only to the age of an object but also to the use for which the object was made and to which it was put, subjects not likely to be of common knowledge." *Id.* at 115.

47. *Id.* at 114.

48. *Jenkins*, No. CR-74-63-BLG (D. Mont. Jan. 13, 1975). Professor Jenkins was charged with a violation of 16 U.S.C. § 551 (1988) in the alleged removal of fossils from BLM land onto which he had mistakenly entered.

49. *Smyer*, 596 F.2d 939 (10th Cir. 1979). The court stated that the facts in this case could be distinguished from *Diaz* based upon the age of the objects in question. "In *Diaz* the charge was appropriation of . . . masks [which] had been made in 1969 or 1970. . . . These facts must be contrasted with the instant case where the evidence showed that objects 800-900 years old were taken from ancient sites for commercial motives." *Id.* at 941. In rebutting the Ninth Circuit's vagueness attack upon the Act, the court held: "the Antiquities Act gives a person of ordinary intelligence a reasonable opportunity to know that excavating prehistoric Indian burial grounds and appropriating 800-900 year old artifacts is prohibited." *Id.* at 941.

50. See *infra* part II.C. This point is further supported by the District Court for the District of South Dakota's recent ruling in *Black Hills Inst. of Geological Research v. United States Dep't of Justice*, 812 F. Supp. 1015 (D.S.D. 1993). In that case, discussed *supra* note 4, the District Court did not address the United States Attorney's arguments for federal ownership based upon the Antiquities Act, but rested its holding more narrowly on the grounds that the property from which the fossil was excavated was held in trust by the United States for the benefit of the individual Indian owner. *Black Hills*, 812 F.Supp.

failure of the Act to adequately protect the nation's archaeological remains coupled with an ever-growing threat to those resources from pothunters, vandals, and commercial dealers eventually led to new legislation specifically protecting these resources under the Archaeological Resources Protection Act of 1979.<sup>51</sup>

## 2. Archaeological Resources Protection Act

In 1979, Congress enacted the Archaeological Resources Protection Act ("ARPA") to "secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands."<sup>52</sup> While the ARPA expressly excludes paleontological resources under its provisions, except for those specimens found in an archaeological context,<sup>53</sup> the Act is important because it provides an example of legislation superseding the application of the Antiquities Act to a particular group of historical remains and it reveals the foundation for recently proposed legislation dealing with paleontological resources.<sup>54</sup>

The ARPA establishes a permitting procedure for the excavation and removal of archaeological resources on public and Indian lands, and prohibits excavation, removal, and damage of these resources without a permit issued under the ARPA or the Antiquities Act.<sup>55</sup> In attempting to focus its attention on the problems posed by commercial markets and illegal excavation of archaeological resources, however, the ARPA specifically exempts the amateur arrowhead and hobby collector from the law's application.<sup>56</sup>

In addition to regulating archaeological resources on public lands, the ARPA also prohibits the trafficking in artifacts obtained in violation of federal, state, or local law.<sup>57</sup> The ARPA exempts information about archaeological resources protected under the Act from the provisions of the Freedom of Information Act to prevent unauthorized collectors from using federal information to locate archaeological resources.<sup>58</sup> On the other hand, ARPA attempts, through its permitting procedures, to insure that excavated

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at 1019-20.

51. See Lorrie D. Northey, *The Archaeological Resources Protection Act of 1979: Protecting Prehistory for the Future*, 6 HARV. ENVTL. L. REV. 61, 71-73 (1982).

52. 16 U.S.C. § 470aa(b) (1988).

53. The ARPA's definition of an archaeological resource states: "Nonfossilized and fossilized paleontological specimens, or any portion or piece thereof, shall not be considered archaeological resources . . . unless found in archaeological context." 16 U.S.C. § 470bb(1). The reason for this restricted definition pertaining to paleontological resources is not elaborated upon in the ARPA's legislative history. It appears from that history, however, that the motivation behind this definition was to protect archaeological resources as narrowly as possible without infringing upon other scientific disciplines which were not under consideration at the time. See 125 CONG. REC. 28,116 (1979) (statement of Rep. Udall).

54. See *infra* part III.B.

55. 16 U.S.C. § 470ee(a) (1988).

56. *Id.* § 470ee(g).

57. *Id.* § 470ee(b)-(c).

58. *Id.* § 470hh(a).

resources and related information will be preserved for the public.<sup>59</sup> The Act also encourages the distribution of information from private archaeological collections that were obtained before the effective date of the Act.<sup>60</sup>

### 3. Preservation of Paleontological Sites

In addition to regulating the excavation of historical resources, the Federal Government also has an important role in preserving areas of significant historical interest through a multitude of federal statutes and regulations including the Antiquities Act, the Historic Sites Act,<sup>61</sup> the National Historic Preservation Act,<sup>62</sup> and the National Natural Landmarks ("NNL") program.<sup>63</sup> The most significant of these laws in regard to paleontological resource site protection are the Antiquities Act and the NNL program.

Under § 2 of the Antiquities Act, the President is authorized to establish national monuments to preserve regional "historic landmarks, historic and prehistoric structures, and other objects of historic and scientific interest" located on federal lands.<sup>64</sup> This authority allows the Executive Branch broad power to restrict the use of certain public lands upon which there are located resources falling within the purposes of the Act. While the Antiquities Act does not mention fossils or paleontology, the establishment of several fossil-based monuments suggests that paleontological resources are considered objects of historic and scientific interest under this provision of the Act. The application of § 2 has led to the establishment of such significant fossil resources areas as Dinosaur National Monument in Utah.<sup>65</sup>

Paleontological sites are also protected under the NNL program which is administered by the National Park Service pursuant to the Historic Sites Act. The NNL program's purpose is to "identify and encourage the preservation of nationally significant examples of the full range of ecological and geological features that constitute the nation's natural heritage."<sup>66</sup> Under the regulations, a national natural landmark is "an area of national significance . . . that contains an outstanding representative example(s) of the nation's natural heritage, including . . . fossil evidence of the development of life on [E]arth."<sup>67</sup>

While NNL programs remain under the jurisdiction and control of the particular land management agency, the National Park Service alone identifies, designs, and monitors the NNL programs. The Act also encourages private

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59. *Id.* § 470cc(b)(3).

60. *Id.* § 470jj.

61. Historic Sites Act, ch. 593, 49 Stat. 666 (1935) (codified as amended at 16 U.S.C. §§ 461-467 (1988)).

62. National Historic Preservation Act, Pub. L. No. 89-665, 80 Stat. 915 (1966) (codified as amended at 16 U.S.C. § 470 (1988)).

63. 36 C.F.R. § 62 (1992).

64. 16 U.S.C. § 431.

65. Proclamation No. 1313, 39 Stat. 1752 (1915).

66. 36 C.F.R. § 62.1 (1992).

67. *Id.*

landowners to enter into voluntary cooperative agreements to protect significant values of the landmark.<sup>68</sup> This program has led to the designation of such areas as the Cleveland-Lloyd Dinosaur Quarry in Utah, which has produced thirty complete dinosaur skeletons since its establishment in 1931,<sup>69</sup> and the Lance Creek Fossil Area in Wyoming.

Still other fossil sites have been protected through the Research Natural Area<sup>70</sup> ("RNA") regulatory designation by BLM and the Forest Service under the general authority of the Federal Land Policy and Management Act ("FLPMA")<sup>71</sup> and National Forest Management Act ("NFMA"),<sup>72</sup> respectively. RNA's include areas that are established and maintained for the primary purpose of research and education because the area has, *inter alia*, typical or outstanding representations of common geologic, soil, or water features.<sup>73</sup> Under the RNA designation, the BLM has protected areas including the Fossil Forest in New Mexico by withdrawing it from mineral leasing.<sup>74</sup> Within the Fossil Forest, fossils may be collected only with a special use permit issued by the BLM state office.<sup>75</sup>

#### 4. National Environmental Policy Act

The nation's focus on improving the quality of the natural environment as established through the National Environmental Policy Act<sup>76</sup> ("NEPA") has also led to an increasing concentration on maintaining the quality of the nation's cultural and historical resources. NEPA, which was enacted in 1969, includes as one of its goals the preservation of "important historic, cultural, and natural aspects of our national heritage."<sup>77</sup> NEPA's greatest effect on the preservation of paleontological resources is the procedural requirement that federal agencies prepare an environmental impact statement ("EIS") for any "major Federal actions significantly affecting the quality of the human environment."<sup>78</sup> In analyzing the significance of impacts on the human environment, the Act requires the agency to consider, among other things, any "[u]nique characteristics of the geographic area such as proximity to historic or cultural resources"<sup>79</sup> and requires the discussion of impacts of the federal

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68. *Id.* § 62.4(g)(1).

69. BUREAU OF LAND MANAGEMENT, U.S. DEP'T OF INTERIOR, *YOUR FRAGILE LEGACY* (1982).

70. 43 C.F.R. § 8223 (1992).

71. Federal Land Policy and Management Act, Pub. L. No. 94-579, 90 Stat. 2743 (1976) (codified as amended at 43 U.S.C. §§ 1701-1782 (1988)).

72. National Forest Management Act, Pub. L. No. 94-588, 90 Stat. 2949 (1976) (codified as amended at 16 U.S.C. §§ 1600-1614 (1988)).

73. 43 C.F.R. § 8224.1(a) (1992).

74. *Id.* § 8224.1(h).

75. *Id.* § 8224.1(a).

76. National Environmental Policy Act, Pub. L. No. 91-190, 83 Stat. 852 (1969) (codified as amended at 42 U.S.C. §§ 4321-4347 (1988)).

77. 42 U.S.C. § 4331(b)(4).

78. *Id.* § 4332(C).

79. 40 C.F.R. § 1508.27(b)(3) (1992).

action upon those resources.<sup>80</sup> The result of this historic component requirement is the inclusion of a discussion of impacts upon paleontological resources in the EIS where such resources may be affected by the activity triggering the federal action. NEPA does not mandate any particular approach to the inventory or management of fossils.<sup>81</sup> Nor does it require any substantive result in an agency's determination as to whether to allow a project to proceed.<sup>82</sup>

## 5. Mineral Development Laws

While the nation's mineral development laws generally provide for the protection of environmental, cultural, and historical resources associated with extraction of mineral resources, these laws do not include the classification of paleontological resources as "minerals" for purposes of regulating the development of fossils from the federal public lands.

The Mineral Leasing Act ("MLA") provides that before issuing any coal lease, the Secretary of Interior must consider the effects that mining under the proposed lease might have on an area, including environmental effects.<sup>83</sup> A lease issued pursuant to the Act must include such terms and conditions as the Secretary determines are necessary prior to taking any action on a leasehold that might cause a significant disturbance to the environment, which may include impacts on cultural or historic artifacts. Where a disturbance will occur through development activities, the lessee is required to submit an operation and reclamation plan for the Secretary's approval.<sup>84</sup> Similarly, the Surface Mining Control and Reclamation Act of 1977<sup>85</sup> ("SMCRA") authorizes the Secretary of Interior to designate an area unsuitable for surface coal mining operations if such operations will "affect fragile or historic lands in which such operations could result in significant damage to important historic, cultural, scientific, and aesthetic values and natural systems."<sup>86</sup>

Nonetheless, while the mineral development laws generally establish a mechanism for the protection of paleontological resources from the developmental impacts of other minerals, these laws do not directly regulate the

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80. *Id.* § 1502.

81. While Exec. Order No. 11593, 3 C.F.R. § 154 (1971), placed detailed requirements upon the cultural resource impact analysis under NEPA and the NHPA, no comparable authority exists for paleontology, which leaves agencies to their own discretion in determining the scope of any paleontological inventory and impact analysis with regard to fossil resources. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 221 & 221 n.47.

82. See Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 558 (1978) (stating that "NEPA does set forth significant substantive goals for the Nation, but its mandate to agencies is essentially procedural"); see also Strycker's Bay Neighborhood Council, Inc. v. Karlen, 444 U.S. 223 (1980).

83. Mineral Leasing Act of 1920 (codified as amended at 30 U.S.C. §§ 181-287 201(a)(3)(C) (1988)); 30 U.S.C. § 201(a)(3)(C).

84. 30 U.S.C. § 207(a), (c).

85. Surface Mining Control and Reclamation Act, Pub. L. No. 95-87, 91 Stat. 447 (1977) (codified as amended at 30 U.S.C. §§ 1201-1328 (1988)).

86. 30 U.S.C. § 1272(a)(3)(B).

extraction of paleontological resources. Neither the MLA, SMCRA, nor the 1872 Mining Law<sup>87</sup>—which governs the production of hardrock minerals<sup>88</sup> from federal public lands—refer to paleontological resources with regard to development under the prospective laws. At least in regard to the 1872 Mining Law, it has been specifically determined by the Department of the Interior that the fossil remains of prehistoric animals do not constitute “minerals” and are not subject to development under that law.<sup>89</sup>

While paleontological resources appear to fall outside the scope of the MLA, SMCRA, and the 1872 Mining Law, it is unclear whether fossils may be regulated pursuant to the Materials Disposal Act of 1947 (“MDA”).<sup>90</sup> The MDA, as amended by the Common Varieties Act of 1955,<sup>91</sup> provides for the sale of sand, stone, gravel, pumice, cinders, and other designated “common” minerals, unless the deposit “has some property giving it distinct and special value.”<sup>92</sup> While the regulation of fossils pursuant to the MDA does not appear to have been settled, at least one commentator has suggested that the MDA may provide statutory authority for the disposal of fossils from the public lands for commercial purposes.<sup>93</sup> On the other hand, a strong argument can be made that fossils are not subject to development under the MDA given that paleontological resources should clearly fit within the Act’s language exempting the disposal of mineral deposits which have “distinct and special value.” Aside from the uncertainty surrounding the MDA, however, the nation’s mineral development laws do not provide a means for addressing the regulation of paleontological resources on the federal public lands.

87. Mining Law of 1872, ch. 152, 17 Stat. 91 (1872) (codified as amended at 30 U.S.C. §§ 21-43 (1988)).

88. The 1872 Mining Law provides that “all valuable mineral deposits shall be free and open to exploration and purchase.” 30 U.S.C. § 22 (1988). This definition has been narrowed by subsequent legislation and judicial opinions to exclude water, oil and gas, coal, geothermal resources, and common variety minerals such as sand and gravel. *See generally* GEORGE C. COGGINS ET AL., FEDERAL PUBLIC LAND AND RESOURCES LAW 425-30 (3d ed. 1993).

89. *See* Earl Douglass, 44 PUB. LANDS DEC. 325 (1915). The First Assistant Secretary, in holding that the Mining Law did not apply to the extraction of dinosaur remains from public lands, stated:

The material here claimed is not recognized as a mineral by standard authorities on the subject.

It is not classified as a mineral product in trade or commerce, nor does it possess economic value for use in trade, manufacture, the sciences, or in mechanical or ornamental arts; therefore

... it is not a mineral within the meaning of the public land laws.

*Id.* at 326.

Given the current economic value placed on fossils by scientists, educators, and private collectors, it appears that reconsideration of this issue by the Department of the Interior today could lead to an opposite result if based upon the same legal standard as in *Douglass*.

90. Materials Disposal Act of 1947, ch. 406, 61 Stat. 681 (1947) (codified as amended at 30 U.S.C. §§ 601-602 (1988)).

91. Common Varieties Act of 1955, ch. 375, 69 Stat. 368 (1955) (codified as amended at 30 U.S.C. § 611 (1988)).

92. 30 U.S.C. § 611.

93. *See* PALEONTOLOGICAL COLLECTING, *supra* note 6, at 223.

### *C. Exercise of Permitting Authority by Public Land Management Agencies*

Twenty-nine percent of the land acreage in the United States is owned by the Federal Government.<sup>94</sup> While there has been no concerted effort to estimate the distribution of paleontological resources on the federal public lands, in some of the most widely regarded fossil-bearing states—including Montana, Wyoming, and Utah—the Federal Government controls as much as two-thirds of the land which remains relatively free of large-scale land development.<sup>95</sup> The principal federal agencies delegated the task of managing this large area, and the agencies of principal concern to the management of paleontological resources on those lands, include: the BLM and the National Park Service (“NPS”)—both within the Department of Interior—and the United States Forest Service (“USFS”), which is housed in the Department of Agriculture.

#### 1. Department of Interior

##### a. Bureau of Land Management

The BLM is the largest of the federal land management agencies, controlling approximately forty-one percent of the nation’s federally owned lands.<sup>96</sup> These lands are often regarded as containing the greatest source of fossil resources in the United States. After assuming permitting authority from the NPS in 1984,<sup>97</sup> the BLM regulated fossil collecting under the authority of the Antiquities Act.<sup>98</sup> However, given the uncertain constitutional standing of the Antiquities Act under *Diaz* and its progeny, in recent years the BLM has shifted its regulatory focus away from the 1906 Act and towards its own organic act as authority for regulating paleontological resources on its lands.<sup>99</sup>

Currently, BLM regulates the collection of paleontological resources under the authority of FLPMA. FLPMA provides BLM with the comprehensive authority to manage lands under its jurisdiction through the multiple use and sustained yield of natural resources.<sup>100</sup> This mandate includes the management of the public lands so that they are utilized in a manner that will best

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94. BUREAU OF LAND MANAGEMENT, PUBLIC LAND STATISTICS 5 (1991).

95. In Montana, Wyoming, and Utah, the Federal Government controls 28%, 49%, and 64% of the land respectively. *Id.*

96. *Id.* at 1.

97. See *infra* note 114 and accompanying text.

98. As recently as 1984, DOI apparently considered fossils to be subject to the Antiquities Act. Secretarial Order No. 3104 redelegate authority for issuance of archaeological and paleontological permits” under the Antiquities Act and the ARPA from the NPS to the various land management agencies. 49 Fed. Reg. 40226 (1984).

99. Letter from Lori Monroe, Attorney, Office of the Solicitor, United States Department of Interior, to the author (Feb. 23, 1993) (on file with author).

100. 43 U.S.C. § 1732(a) (1988).



meet the needs of the American people through a combination of uses that take into account the scientific and historical values of the various resources without impairing the land's productivity.<sup>101</sup>

FLPMA provides BLM with the general authority to regulate the use and occupancy of lands under its jurisdiction "through permits, leases, licenses, published rules, or other instruments as the Secretary deems appropriate."<sup>102</sup> Any person who "knowingly and willfully violates any such regulation which is lawfully issued" pursuant to FLPMA is subject to a fine of up to one thousand dollars or imprisonment of up to twelve months, or both.<sup>103</sup> In 1982, the BLM entered into a proposed rulemaking for the purposes of establishing procedures under which fossils, geological materials, and hobby mineral materials would be regulated.<sup>104</sup> These regulations, however, were never adopted. Today, BLM regulates paleontological resources at the state office level, depending upon the nature of the party conducting the collecting and the resource specimen itself.

The collection of fossil vertebrates and scientifically significant invertebrate and plant fossils on BLM lands may be conducted only under a paleontological collecting permit issued by the agency.<sup>105</sup> Permits may be issued to "academic, scientific, governmental, or other qualified institution, individuals or companies that propose to locate, examine, or excavate paleontological remains on public lands."<sup>106</sup> Permits are issued under three categories depending upon the nature of the work: noncollection reconnaissance permits for surveying and mapping; collection and limited removal permits that allow for surface collection and limited testing; and excavation permits for large-scale excavations.<sup>107</sup> Paleontological materials that are collected under a paleontological permit issued by the BLM remain government property and are to be properly curated and preserved for future researchers.<sup>108</sup> This includes the requirement that such recovered materials must be deposited in an institution which provides public access, and that thereafter the resource may not be "sold, bartered, or disposed of in any way without the consent of the Federal Government."<sup>109</sup>

BLM regulations also provide for the collection of petrified wood. Such collection is managed under authority of the Materials Disposal Act and the regulations promulgated thereunder. Department of Interior regulations allow collection of limited quantities of petrified wood for noncommercial purposes without a permit, except for specimens which weigh in excess of 250

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101. *Id.* § 1732(b).

102. *Id.*

103. *Id.* § 1733(a).

104. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 139.

105. *Id.* at 143 (BLM Collecting Guidelines).

106. *Id.* at 148.

107. *Id.* at 144.

108. *Id.* at 154.

109. *Id.*

pounds.<sup>110</sup> Specimens removed under the free use provisions may not be sold or traded to commercial dealers.<sup>111</sup>

Noncommercial, amateur collecting of fossils, other than petrified wood and vertebrate fossils, is currently covered by general conduct regulations which allow for the collection of "reasonable amounts" of nonrenewable resources including common invertebrate fossils.<sup>112</sup> No permit is needed for such collecting. However, invertebrate and plant fossils of scientifically significant interest, such as fossil insects or soft bodied forms, may be protected on a case-by-case basis in a manner similar to that of vertebrate fossils under a paleontological collecting permit.<sup>113</sup>

#### b. National Park Service

From 1968 to 1984, the National Park Service had the sole responsibility for issuing all fossil collecting permits for lands controlled by the Department of Interior. During that time, NPS issued an average of twenty permits per year. In 1984, however, the Secretary of Interior redelegated the permitting responsibilities to each agency within the Department.<sup>114</sup> Today, the NPS, like the BLM, has broad authority to regulate the use of lands under its jurisdiction pursuant to its organic act. The National Park Service Organic Act of 1916<sup>115</sup> states that national parks and monuments are to be managed "to conserve the scenery and the natural and historic objects . . . therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."<sup>116</sup> The statute also provides that "no natural curiosities, wonders, or objects of interest shall be leased, rented, or granted to anyone on such terms as to interfere with free access to them by the public."<sup>117</sup> Enforcement measures include a fine of up to \$500 or imprisonment not exceeding six months, or both.<sup>118</sup>

NPS regulations provide that "nonfossilized and fossilized paleontological specimens . . . or the parts thereof" may not be disturbed, injured, or removed without a permit.<sup>119</sup> A permit may be issued only to reputable scientific or educational institutions or a state or federal agency under certain conditions,

110. 43 C.F.R. § 3622.4(a)(1) (1992).

111. *Id.* § 3622.4(a)(3).

112. *Id.* §§ 8365.1-.5(b)(2).

113. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 145.

114. *Id.* at 124. In the years following 1968, the NPS issued on average 20 fossil collecting permits each year. This number constituted all federal permits issued except for a small number issued by the Department of Agriculture.

115. National Park Service Organic Act of 1916, Pub. L. No. 64-235, 39 Stat. 535 (1916) (codified as amended at 16 U.S.C. §§ 1-4 (1988)).

116. 16 U.S.C. § 1.

117. *Id.* § 3.

118. *Id.*

119. 36 C.F.R. § 2.1(a)(iii) (1992).

including a determination "that the collection is necessary to the stated scientific or resource management goals of the institution or agency."<sup>120</sup>

Legislation establishing certain national parks or national monuments under the NPS organic act, as well as the National Natural Landmarks Program,<sup>121</sup> may also impose a duty on NPS to preserve certain resources, including fossils. Several national monuments such as Florissant Fossil Beds National Monument<sup>122</sup> and Fossil Butte National Monument<sup>123</sup> have been established in this manner.

## 2. Forest Service

The Secretary of the Department of Agriculture has broad authority under the National Forest Management Act and the Forest Service General Provisions<sup>124</sup> to protect and regulate the use of National Forests. The Department relies upon this authority to enact regulations concerning paleontological resources located on lands under its jurisdiction.<sup>125</sup> Currently, Forest Service regulations specifically prohibit "excavating, damaging, or removing any vertebrate fossil or removing any paleontological resources for commercial purposes without a special use authorization."<sup>126</sup> The regulation defines "paleontological resource" as "any evidence of fossilized remains of multicellular invertebrate and vertebrate animals and multicellular plants, including imprints thereof" excluding organic remains used primarily for "fuel such as coal and oil."<sup>127</sup> Any violation of these regulations is punishable by a fine of not more than \$500 or imprisonment of not more than six months, or both.<sup>128</sup>

Presumably, under these regulations, the collection of invertebrate fossils for non-commercial purposes is permissible on Forest Service land without a permit. The Forest Service, unlike the BLM or NPS, will allow the collection of fossils for commercial purposes if a permit is applied for and issued under the Forest Service permitting system. However, it appears that no permits have been issued for commercial fossil collecting under the Forest Service permit system.<sup>129</sup>

Prior to August 1986, the Forest Service had prohibited the excavation or collection of *any* paleontological resources without a special use permit.<sup>130</sup> In that year, the Forest Service published an interim rulemaking amending the

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120. *Id.* § 2.5(b).

121. *See supra* notes 66-68 and accompanying text.

122. Pub. L. No. 91-60, 83 Stat. 101 (1969).

123. Pub. L. No. 92-537, 86 Stat. 1069 (1972).

124. 16 U.S.C. § 551-580 (1988).

125. 36 C.F.R. § 261 (1992).

126. *Id.* § 261.9(i).

127. *Id.* § 261.2.

128. 16 U.S.C. § 551.

129. Interview with Tom King, Minerals and Geology Management Staff, Department of Agriculture, on January 15, 1993.

130. 36 C.F.R. § 261.9 (1985).

prior regulation by limiting the permit requirement to the collection of any vertebrate fossil and to commercial collecting. Two primary reasons were cited for the rule change. First, the distinction between "archaeological" and "paleontological" resources in the ARPA implies that federal land management agencies are not mandated to exercise the same degree of protection for the two resources. Second, the collection of paleontological objects on National Forest lands is "a legitimate scientific and educational pursuit and there is no evidence of widespread conflicts or problems that would require a blanket prohibition" on such activities.<sup>131</sup> The rulemaking states that vertebrate fossils, however, would remain subject to regulation given that they "have traditionally been accorded special significance and will remain subject to regulation."<sup>132</sup>

Under this rule change, Forest Service land managers may still issue special closure orders to protect paleontological resources at unique sites. Such closures are authorized for the protection of, among other things, "[o]bjects or areas of historical, archaeological, geological, or paleontological interest,"<sup>133</sup> but "occupancy or use" may be authorized by special use permits.<sup>134</sup>

### III. THE QUESTION OF FEDERAL LEGISLATION

During the past ten years, increasing confusion over the legal authority for regulating fossil collecting, as well as the emerging friction within the fossil collecting community concerning the commercialization of fossils, has led to suggestions for creating a national policy regarding paleontological collecting. While similar problems within the archaeological community have already led to comprehensive archaeological resource laws in the form of the ARPA, controversy within the fossil-collecting community and a lack of federal initiative have yet to produce a cohesive national policy on this issue.<sup>135</sup>

Two major proposals represent the two competing views for regulating fossil collecting. One view, expressed by the National Academy of Sciences ("NAS") in a 1987 report, proposes to reduce rather than promote regulation of fossil collecting. The other view would enact specific legislation addressing paleontological resources through the Vertebrate Paleontological Resources Protection Act.

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131. 51 Fed. Reg. 30,355 (1986).

132. *Id.* (Aug. 26, 1986). As of 1991 the interim rule, which did go into effect in 1986, had not yet been published as a final rulemaking; see 56 Fed. Reg. 17,008 (1991) ("This rule has been delayed in order to receive and consider a final report from the National Academy of Sciences . . ."). See also *infra* part III.A.

133. 36 C.F.R. §§ 261.53(c), (d) (1992).

134. *Id.* § 261.1a.

135. In 1985, the Senate Subcommittee on Public Lands held hearings regarding the management of archeological and paleontological resources on federal lands. These hearings, which concentrated predominantly upon archeological remains, failed to produce any substantive congressional policy regarding paleontological resources protection. See *1985 Archeological and Paleontological Resources Hearing, supra* note 16.

*A. The National Academy of Sciences Report*

In 1987, the NAS Committee on Guidelines for Paleontological Collecting published the results of its three-year examination of the question of how the government should protect and preserve fossils while at the same time allowing other legitimate uses of the land and encouraging the scientific study of fossils.<sup>136</sup> The committee's study of this issue, the most complete to date, led it to conclude that further government regulation of fossil collecting—with the exception of large scale quarrying of fossils and commercial collecting—was not necessary:

In general, the science of paleontology is best served by unimpeded access to fossils and fossil-bearing rocks in the field. Paleontology's need for unimpeded access is in sharp contrast to the prevailing situation in archeology. . . . Generally, no scientific purpose is served by special systems of notification before collecting and reporting after collecting because these functions are performed well by existing mechanisms of scientific communication. From a scientific viewpoint, the role of the land manager should be to facilitate exploration for, and collection of, paleontological materials.<sup>137</sup>

The policy basis of the committee's recommendations is that paleontological knowledge is furthered most by encouraging the wholesale recovery of fossils from the public lands. According to the NAS, fossils that are not collected will eventually be degraded by the same weathering and erosional processes that brought them to the surface in the first place. Thus, as a precursor to scientific study, recovery must be encouraged before the specimen is lost.

The NAS committee recommended that scientific collecting of fossils on the public lands (except in National Parks) should not be subject to permit requirements or other regulation.<sup>138</sup> The committee participants, which included a broad array of paleontologists from both the public and private sector, concluded that increased protection of paleontological resources on the public lands was unnecessary. The reasoning behind this conclusion is that permit requirements and prohibitions would deter amateurs and students from conducting field work, involve prohibitions which could then easily be broken, harm the extractive industry businesses, and create an unnecessary bureaucracy which would impede access to fossils.<sup>139</sup>

In considering the issue of commercial collecting, the NAS committee recommended that such collecting should be allowed—albeit under a regulated permitting system—so as to minimize the risk of losing fossils and data of importance to paleontology.<sup>140</sup> The committee suggests that commercial

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136. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 1.

137. *Id.* at 2 (citation omitted).

138. *Id.* at 3.

139. John Pojeta, Jr., Fossils for the Future, Invited Comments for the Northern Plains Governors' Conference (Aug. 24-26, 1992).

140. "[P]rohibition of all commercial fossil collecting and trafficking would create other problems. For example, most schools and colleges lack resident collections of fossils and must purchase study specimens for classroom use." PALEONTOLOGICAL COLLECTING, *supra* note 6, at 5.

permit applicants should be endorsed by a professional paleontologist, reviewed by paleontologists qualified to assess the project's impact on related research programs, and that specimens deemed to be of special scientific interest should be deposited in a public institution.<sup>141</sup> These provisions for permitting and monitoring, however, would apply only to commercial collectors.

While these recommendations protect against the loss of some scientifically important fossil remains, the NAS report has been criticized by some professional paleontologists—most notably the Society of Vertebrate Paleontology (“SVP”)—for failing to document adequately the collection of fossils on the public lands and for failing to prohibit all types of commercial collecting.<sup>142</sup> The NAS report suggests allowing unrestricted access by fossil collectors, so long as they are not “commercial collectors.” The report relies exclusively upon the existing myriad of laws and regulations. It proposes no definition for distinguishing a commercial collector from an amateur who may later sell or trade fossils, nor any method for increasing enforcement mechanisms for illegal excavation, nor for combating the problems of losing public access to scientifically significant specimens. The best the report does is state that “[f]ossils of scientific significance should be deposited in institutions where there are established research and educational programs in paleontology.”<sup>143</sup> It creates no mechanism for achieving this goal.

In addition to allowing for the commercial collecting of fossils on public lands, the NAS report further restricts federal control over fossil collection by opposing blanket paleontological inventories, mitigation, or salvage activities related to the public lands as part of routine environmental assessment, impact analysis, or permitting. The report states: “The land is innocent of paleontological significance until a paleontologist demonstrates otherwise.”<sup>144</sup> Therefore, the report concludes, land managers should facilitate the work of *all* fossil collectors to conduct field collecting to increase our knowledge of fossil distributions on the public lands. The inventory and knowledge gained from these fossils, it is believed, will then develop and be passed on to the public through the normal channels of scientific communication. This recommendation has been severely criticized as an unwarranted restriction upon documenting scientific resources. To exclude such surveys appears to be short-sighted, given scientific interest in documenting the wide variety of past life on Earth and in protecting rare and exceptional resources before they are destroyed.

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141. *Id.* at 25 (recommendation 5).

142. Specifically, the SVP responds that the scientific collection of fossils on public lands should be conducted only under a permitting process and that commercial collecting should be banned. *Fossil Vertebrates on Federal Lands*, SOC'Y OF VERTEBRATE PALEONTOLOGY NEWS BULL., NO. 148 (Soc'y of Vertebrate Paleontologists), Feb. 1990, at 29-32.

143. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 25.

144. *Id.* at 21.

### B. The Need for Comprehensive Regulation

Contrary to the underlying premise of the NAS committee report, the current statutory and regulatory mechanisms presently in place do not adequately protect the nation's paleontological resources. The existing enforcement mechanism of the single federal law which could be used to address paleontological resources—the Antiquities Act—is so clouded by the question of constitutionality following *Diaz* that it is inadequate to deter the theft and damage of paleontological resources on public lands. Within this vacuum of specific statutory authority, the federal land management agencies have attempted to fill the void with a myriad of regulations issued under the principle authority of their organic acts. With more than sixty federal agencies that have—or assume—regulatory responsibility for fossil collecting,<sup>145</sup> a confusing and often contradictory structure for overseeing the management of paleontological resources has evolved.

The regulations in effect today lack any sort of uniform collecting guidelines to direct the professional paleontologist moving across property boundaries. The Forest Service, for example, only requires a permit for the collection of vertebrate fossils on its lands, allowing all other types of collection to occur unregulated. The NPS, on the other hand, prohibits any type of fossil collecting without a collection permit. The BLM, meanwhile, allows the collection of "reasonable amounts" of invertebrate fossils and petrified wood without a permit, but does require one for other paleontological activities. The Forest Service also allows commercial collectors to apply for permits to collect fossils, while the BLM and NPS do not. These varying regulations, as well as the lack of clear statutory authority for their promulgation, provide neither the fossil collector nor the land manager a clear picture of paleontological resource policy. For this reason, both the interests opposing and promoting expanded regulation agree that there is a need for a uniform national policy for the regulation of paleontological resources.<sup>146</sup>

While the agencies do have permitting authority under the current regulatory structure, this permitting process is ineffective and inefficient. In 1983, only forty permit applications were approved to conduct paleontological research

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145. *Id.* at 2.

146. Even the National Academy of Sciences report, which opposes additional regulation, recommends that "[a] uniform national policy on paleontological collecting should be adopted by all federal agencies." However, it concludes that adequate statutory authority now exists to implement such a policy. The current version of the VPRPA also states as one of its purposes: "to establish, to the extent practicable, a common policy for Federal management agencies for managing vertebrate paleontological resources . . ." STAFF OF SENATOR BAUCUS, 103D CONG., 1ST SESS., DRAFT VERTEBRATE PALEONTOLOGICAL RESOURCES PROTECTION ACT (1993) [hereinafter VPRPA]. At the time of the publication of this Note, this draft of the VPRPA has not yet been introduced in the 103d Congress. The original version of this Note was based upon S. 3107, 102d Cong., 2d Sess. (1992), which was not acted upon by the 102d Congress. This Note, however, is based upon the new version of S.3107, *id.*, that takes into account several substantive changes in the 1993 bill and corresponding changes in section number references.

on the entire public land domain.<sup>147</sup> This surprisingly low number most likely results from the fact that very few collectors, aside from the larger-scale professional expeditions, bother to apply for permits to conduct paleontological activities on the public lands. The few that do acquire permits have also made it clear that the complicated environmental analysis process of obtaining a federal permit to conduct even a minor excavation places an onerous burden on the professional scientist.<sup>148</sup> Meanwhile, the federal land manager pays little, if any, attention to the amateur collector whose activities may be far more damaging than those of the paleontologist. While there is enforcement authority under the organic acts of the individual agencies, to date there are few known incidences of actual prosecutions for violations of these regulations.<sup>149</sup>

The current regulatory framework also fails to address the growing problems that the commercialization of fossils poses. The increasing demand for paleontological resources created by the marketplace will undoubtedly present additional problems for the land manager in dealing with increasing activity—both legal and illegal—on the public lands. Beyond land management, however, is an even greater question arising regarding the expropriation of this unique natural resource from the public domain. As non-renewable resources, which are the basis of human understanding of past life on this planet, paleontological resources constitute a unique aspect of our natural heritage and should be protected as such under federal law.

The courts have long recognized that many of the nation's natural resources, particularly those associated with navigable waters, are to be held in trust for the benefit, use, and enjoyment of the citizens of the individual states. This right—the public trust doctrine—requires that certain lands remain in trust for the public and establishes a fiduciary duty on the part of state governments, and possibly the Federal Government, to devote certain resources to the common benefit.<sup>150</sup> This duty may preclude the government from selling

147. 1985 *Archeological and Paleontological Resources Hearing*, *supra* note 16, at 199 (statement of Dr. Sterling Grogan).

148. This perspective is well represented in curator Dr. Spencer G. Lucas' testimony before a Senate subcommittee:

It is my conclusion that BLM's attempts to regulate fossils have obstructed the collecting efforts of professional paleontologists while not obstructing those of the amateur fossil collector and vandal. BLM requires from the professional paleontologist what I deem to be unnecessary paperwork. . . . For example, accessing [sic] the environmental impacts of driving a jeep on a dirt road in an area denuded for miles of vegetation. . . . On the other hand, BLM is incapable of preventing the amateur collector, the vandal or other member of the general public whose activities more often than not destroy valuable scientific information, from collecting fossils. These people make no effort to obtain permits and have in no way been penalized for their violations of BLM's regulations. . . . The result is that those people who should collect fossils, qualified professional paleontologists, are those whose efforts are most being hampered by the BLM.

*Id.* at 56 (Statement of Dr. Spencer G. Lucas).

149. PALEONTOLOGICAL COLLECTING, *supra* note 6, at 216.

150. While the public trust doctrine has generally been held to apply to navigable waterways, there is a growing body of caselaw that suggests that the doctrine may also apply to the federal public lands. For a discussion of the increasing application of the public trust doctrine to the public lands, see Susan D. Baer, *The Public Trust Doctrine—A Tool to Make Federal Administration Agencies Increase*



these resources or otherwise foreclosing public access to them.<sup>151</sup> This underlying trust responsibility, which is also embodied in public land law,<sup>152</sup> implicates a strong duty upon the Federal Government to protect this unique resource for the benefit of society and future generations. At a minimum, this trust responsibility should require that adequate compensation be paid the citizens of the United States for its resources,<sup>153</sup> and in the interests of protecting our natural heritage, more significantly should require stringent protection of these resources so that they remain a part of the public domain through the assurance of public access.

#### IV. THE VERTEBRATE PALEONTOLOGICAL RESOURCES PROTECTION ACT

The proposed Vertebrate Paleontological Resources Protection Act<sup>154</sup> ("Act" or "VPRPA") would create the statutory authority to manage paleontological resources on the federal public lands.<sup>155</sup> The Act's primary goals are to "secure, for the present and future benefit of the people of the United States, the protection of vertebrate paleontological resources and sites that are on Federal lands," while providing "opportunities and access for amateur and other private paleontologists . . . to collect vertebrate paleontological resources," thereby reducing the loss of these resources from natural erosional processes and theft.<sup>156</sup> Section 2 clearly states that the impetus behind the bill is that current federal laws provide inadequate protection for paleontological resources and sites which form an irreplaceable part of the heritage of the United States.<sup>157</sup>

The VPRPA, like the ARPA, establishes a permitting procedure for the exploration and collection of fossils on public lands, and bans the commercial collection or sale of these resources. Furthermore, the bill provides that "significant" paleontological resources recovered from public lands must be deposited in public institutions or, in the case of non-significant resources, may be retained but remain in the ownership of the Federal Government. The bill also attempts to respond to the complaints of paleontologists regarding inefficient and contradictory federal management policies by creating the structure under which paleontological resources are to be managed separately from archaeological resources and providing for the adoption of a uniform

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*Protection of Public Land and Its Resources*, 15 B.C. ENVTL. AFF. L. REV. 385 (1988); Charles F. Wilkinson, *The Public Trust Doctrine in Public Land Law*, 14 U.C.D. L. REV. 269 (1980).

151. Marla Mansfield, *On the Cusp of Property Rights: Lessons from Public Land Law*, 18 *ECOLOGY L.Q.* 43, 84-85 (1991).

152. *See, e.g.*, 43 U.S.C. § 1701(a)(8) (1988) (Federal Land Policy and Management Act) ("The Congress declares that it is the policy of the United States that . . . the public lands be managed in a manner that will protect the quality of scientific, scenic, historical . . . values.").

153. *See id.* § 1701(a)(9) ("[T]he United States [should] receive fair market value of the use of the public lands and their resources unless otherwise provided for by statute.").

154. VPRPA, *supra* note 146.

155. *Id.* § 5(1).

156. *Id.* § 3(1), (5).

157. *Id.* § 2(6)(A), (3).

federal policy in regulating paleontological resources. Violators of the bill would face criminal penalties of up to \$10,000 and two years in jail with an allowance in the bill for increasing these limits where particularly valuable resources are concerned. In addition, the VPRPA sets out a strong federal policy interest in facilitating better management of the nation's paleontological resources through creation of reporting requirements for recovered fossils and the establishment of a survey plan to determine the extent of paleontological resources on the public lands.

### *A. Scope of Protection Under the Proposed Act*

In an apparent effort to avoid a constitutional attack based on vagueness, as in *Diaz*,<sup>158</sup> the VPRPA explicitly defines a number of important terms so as to leave no doubt when a permit is required. Paleontological resources are defined under the more specific category of "vertebrate paleontological resources" as "any naturally occurring remains or trace of a vertebrate that lived prior to the Holocene epoch."<sup>159</sup> In the case of any dispute regarding the definition, the bill allows that the remains in question may also be designated as a paleontological resource by the federal land manager upon the advice of a paleontologist qualified to make such a determination.<sup>160</sup>

By its very title, the VPRPA narrowly addresses the question of paleontological remains by including only vertebrates under its protection. While its purpose statement does not explain why the bill addresses only vertebrate fossils, the underlying policy of protecting those resources which are "endangered" by commercial collecting is in line with the perception today that the greatest threat to the nation's paleontological resources is posed by the vast amounts of money to be made in the trade of the most notable of fossils—dinosaur remains. Presumably, the regulation of the collection of other types of fossils, including invertebrates, leaf imprints, shells, and petrified wood, would continue to be regulated as they are under current agency regulations.

The VPRPA protects paleontological resources on public lands, which are defined as including all "lands owned or controlled by the Federal Government, except lands within Indian country."<sup>161</sup> Under this definition, the bill clearly excludes any regulation over private or state lands. As a result, federal jurisdiction under the VPRPA is co-extensive with the Antiquities Act,<sup>162</sup> thereby not widening the reach of the Federal Government but rather filling in the interstices where regulation has been previously lacking.

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158. See *supra* note 46 and accompanying text.

159. VPRPA, *supra* note 146, § 4(9)(A)(i).

160. *Id.* § 4(9)(C).

161. *Id.* § 4(4).

162. The Antiquities Act applies to lands "owned or controlled by the United States." 16 U.S.C. § 433 (1988).

### B. Permitting

Section 11(a) establishes that no person may “excavate, disturb, remove, damage, or otherwise alter or deface, or attempt to excavate, disturb, remove, damage, or otherwise alter or deface, a vertebrate paleontological resource located on Federal lands unless pursuant to a permit under section 8 or 9.” The VPRPA provides for the issuance of both limited surface collecting permits under § 8 and more detailed excavation and removal permits under § 9 to address both the needs of amateurs and professionals. Regardless of the type of permit, the VPRPA clearly requires that permits are to be issued for scientific, educational, and public display purposes only,<sup>163</sup> and are not to be used to further the commercial collecting of fossils.<sup>164</sup> Senator Baucus, the VPRPA’s original sponsor makes resoundingly clear the policy of banning the commercial use of the nation’s paleontological resources: “There are many commercial opportunities available on Federal lands, but selling these historical national treasures should not be one. We manage these lands as a public trust for all the people.”<sup>165</sup>

While the VPRPA bans the ability of commercial dealers to apply for permits to collect on public lands for private profit, the bill allows reputable commercial dealers to continue to operate. Section 9 of the Act provides that a commercial collector may apply for a permit where working under the contract authority of a “suitable repository,” so long as the recovered fossil is used for scientific research or public education and remains the property of the United States.<sup>166</sup> Under the bill, a “suitable repository” includes “a public or private organization (including a college, university, Federal or State repository, or museum)” that has an established fossil collection that is catalogued, accessible to the public, and not directly affiliated with a commercial fossil venture.<sup>167</sup> In this manner, the VPRPA allows commercial fossil dealers to continue their operations on public lands where they are working as “subcontractors” for a public research institution. This policy not only lessens the impact of this legislation upon the commercial operators, but allows for the establishment of a more market-efficient approach by creating the structure for public institutions that lack the ability to staff a full-time, institutionally based field team to contract with private field specialists to conduct reconnaissance and collection activities. Such an institutional structure would meet the financial goals of commercial collectors in receiving compensation for their services while simultaneously guaranteeing that fossils located on public lands will forever remain a part of the public domain.

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163. VPRPA, *supra* note 146, § 9(b)(1)(D).

164. *Id.* § 9(b)(1)(E).

165. 138 CONG. REC. S.10,933 (daily ed. July 30, 1992) (statement of Sen. Baucus regarding S. 3107, *supra* note 146, which still appears to apply to the VPRPA, *supra* note 146).

166. VPRPA, *supra* note 146, § 9(b)(1)(E).

167. *Id.* § 4(8)(A)-(B). This definition would not allow a commercial organization such as BHI or even a separate private institution controlled by a commercial outfit to qualify as a “suitable repository.”

The VPRPA's permitting procedures greatly expand the current, limited agency practice under which permits are only issued for relatively large-scale fossil excavations. These new permitting requirements will, in turn, result in an increasing burden on the individual land manager. For instance, while banning commercial collecting, the VPRPA would allow amateurs to apply for surface collecting and excavation and removal permits so long as they meet the permitting requirements and any recovered resource remains the property of the government. This permitting provision, even while allowing for a less entailed surface collecting permit procedure, will create an onerous responsibility for the individual land manager and amateur by requiring permits for even the casual tourist or science student.

In order to correct this potential administrative problem, the VPRPA could allow for the collection of certain types of common vertebrate fossils without a permit in designated "less significant" areas as now exists in the BLM and USFS regulations.<sup>168</sup> A provision allowing for "casual" collecting would clearly lessen the burden on the land manager as well as meet the needs of a large number of citizens who might be impacted unnecessarily and deterred from fossil collecting by the VPRPA. While the removal of resources under such a provision might result in some loss of scientific knowledge, the burden of prevention and enforcement in these cases might be served better through public education and site specific information which would be available upon entering a designated site. Under such a provision, the VPRPA could direct federal agencies to initiate programs to foster communication between private citizens, land managers, and paleontologists to create an atmosphere of cooperation and respect for the public lands. Furthermore, a "casual" collecting program and its related educational resources would serve to foster public education and recognition of the importance of paleontological resources and the need to keep these resources in the public domain.

The decision-making process for issuing permits under the VPRPA is conducted under the authority of the land management agency with jurisdiction over the public lands in question. In this manner, the VPRPA provides that decisions as to how to manage the resource will be made by the individual agency at as local a level as that agency deems feasible. The federal land manager's decision whether to issue a permit is made by the local federal land manager based upon the recommendations of a professional paleontologist who advises the agency, assuring input from the scientific community itself. The VPRPA's excavation and removal permit application requires the inclusion of information concerning the scope, timing, and location of the proposed activity, the identification and qualifications of the persons responsible for the operation, and a description of the arrangement for disposition of the resource in a suitable repository.<sup>169</sup> Under this more detailed permitting and reporting procedure, the land manager will have a

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168. See *supra* notes 112-13 and accompanying text (discussing applicable BLM regulations) and note 129 and accompanying text (discussing applicable USFS regulations).

169. VPRPA, *supra* note 146, § 9(a)(2)(A)-(C).

greater base of knowledge to create a more complete record for management of that particular land base. The knowledge of the resources recovered from the federal lands is a solid first step in implementing § 18's goal of creating a survey of the public lands to identify the nature and extent of paleontological resources on those lands and expanding the nation's paleontological data base.<sup>170</sup>

### C. Ownership of Recovered Resources

While the permitting provisions of the proposed VPRPA are clearly more onerous than any previous law or regulation, the crux of the VPRPA is in the restrictions it places upon the resources once they are extricated from the land. Section 10 of the VPRPA requires that scientifically significant paleontological resources recovered under permit from the public lands shall be deposited in a suitable repository and that any resources recovered shall be held in trust for the people of the United States.<sup>171</sup> The determination of "scientific significance"—which is not defined in the Act—is to be made by the federal land manager in consultation with a vertebrate paleontologist qualified to assess the resource.<sup>172</sup> Furthermore, the institutions in which the fossil is deposited must continue to ensure that the resource is catalogued, maintained, and accessible for study and educational purposes.<sup>173</sup> These requirements mirror BLM guidelines which also require that paleontological materials collected under permits from BLM lands remain the property of the United States and must be properly curated and preserved for future researchers.<sup>174</sup>

In addition to the restricted custody requirement for significant fossils, which applies to professionals and amateurs alike, the VPRPA further provides that amateur collectors are restricted in their ownership of any fossil resource obtained under the VPRPA's permitting requirements. The VPRPA defines an "amateur collector" as an individual who collects paleontological resources for personal enjoyment, recreation, and educational purposes, and who is affiliated with a governmental, public, or not-for-profit organization that engages in public education regarding vertebrate paleontological resources.<sup>175</sup> This definition clearly restricts even the type of amateur collector to someone who has an affiliation with an institution which promotes education regarding paleontological collection—thereby excluding a broad group of interested citizens who may happen occasionally to desire to collect insignificant fossils for their own personal enjoyment but have no such direct affiliation or similar certification. Once issued a permit, amateurs may retain *possession* of resources recovered under a permit which are not of "significant

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170. See discussion *infra* notes 196-99 and accompanying text.

171. VPRPA, *supra* note 146, § 10(a).

172. *Id.* § 10(a)(1)(B).

173. *Id.* § 10(a)(2)(A)-(B).

174. See *supra* notes 100-09 and accompanying text.

175. VPRPA, *supra* note 146, § 4(1)(A)-(D).

scientific value" for their personal collections. However, the Federal Government will still retain *ownership* of the resource which cannot be sold or traded commercially.<sup>176</sup> This provision, which reflects the bill's strong policy of protecting fossil resources for the advancement of public knowledge,<sup>177</sup> attempts to resolve a central dilemma faced by the land manager and policymaker in structuring a regulatory framework for fossil collecting.

The dilemma is that the science of paleontology requires the discovery and collection of fossil remains and, thus, from a policy standpoint requires as much collection as possible. Yet, unless the recovered resources are documented and available to the scientific community at large, the scientific significance of the fossil resource may never be known. Because both commercial collectors and amateurs—who do make significant contributions to the science—are motivated by a desire to retain ownership rights over the property they collect for either sale or personal possession, the policymaker faces the problem of encouraging the field reconnaissance activity while restricting the use of the resource once it is recovered.

The problem posed by the VPRPA as it now stands is that although the amateur collector can retain possession of non-scientifically significant fossils, the amateur has no means of establishing a full ownership interest in any of the fossil resources collected on the public lands. As a result, the legislation fails to create an incentive for the recovery of fossil resources, which under the VPRPA would forever remain the property of the Federal Government. This disincentive could be cured at least in part by the adoption of an approach similar to that embodied in the Alberta Historical Resources Act<sup>178</sup> ("HRA").

In Alberta, which is considered at least as rich in fossil resources as its southern neighbor Montana, the HRA provides that "the property in *all* archaeological resources and palcontological resources within Alberta is vested in the Crown in Right of Alberta."<sup>179</sup> No fossil found on public or private land in Alberta may be commercially sold, traded, or taken out of the Province unless ownership has been applied for and granted by the Crown through a Disposition Certificate;<sup>180</sup> and then only those fossils listed on a control list are available for such disposition.<sup>181</sup> A private individual may retain paleontological remains collected under the provisions of the HRA without a Disposition Certificate, however, those remains are held in care for the people of Alberta.

Under the HRA, the determination as to whether to grant ownership through a Disposition Certificate is made by the provincial agency charged with

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176. *Id.* § 10(b)(1)-(2).

177. Section 3 of the VPRPA states that it is the purpose of the Act, among other things, to "secure, for the present and future benefit of the people of the United States, the protection of vertebrate paleontological resources and sites that are on Federal lands." *Id.* § 3(1).

178. Historical Resources Act, R.S.A., ch. H-8 (1973) (Alta.).

179. *Id.* § 28(1) (emphasis added).

180. *Id.* §§ 28(2), 29(1).

181. The Control List designates which fossils may be mined and commercially sold. The list includes ammonite, oyster shells, petrified wood, and plant leaf impressions. Alta. Reg. 393/87.

management of paleontological resources with the assistance of an advisory committee and the Royal Tyrrell Museum of Paleontology. The provincial agency grants disposition only for fossils listed on the provincial "control list" which designates specific fossils as not of special scientific interest. Paralleling the HRA, the VPRPA could allow for the land manager to grant ownership to the amateur based upon a similar control list developed under the authority and guidance of a central paleontology agency such as the United States Geological Survey ("USGS"). In this way, the VPRPA could encourage the preservation of significant fossil remains for scientific study while allowing the private collector her interest to retain ownership of non-significant fossils recovered under a VPRPA permit.

#### *D. The Sale of Paleontological Resources*

Section 11(b) of the VPRPA provides that no person "may sell, purchase, exchange, transport, export, receive, or offer to sell, purchase, exchange, or export a vertebrate paleontological resource if the resource was excavated or removed from Federal lands" in violation of the Act. This provision creates enforcement authority for the federal land manager beyond the mere permitting requirements of sections 8 and 9. Banning the trade of unlawfully acquired paleontological remains enables federal prosecutors to pursue those who trade illegally obtained artifacts and thereby restrict the market incentives for commercial looting on public lands resulting in further loss of public resources. Instituting a ban on trade in illegally obtained fossils will also force museums and other institutions to take greater precaution in determining the origin of their acquisitions by requiring more detailed information and labeling regarding the location and discovery of fossil resources. In anticipation of the outgrowth of paperwork that can be expected to sprout under the new law, the VPRPA also prohibits the false labeling or identification of any vertebrate paleontological resource removed from federal lands.<sup>182</sup>

A potential problem with this section of the VPRPA is that the Act's prohibition of the sale of vertebrate fossils recovered from the public lands may merely focus the attention of private fossil dealers away from the public lands and toward private property. There is no question that so long as a private market exists for paleontological resources, the nation's paleontological heritage—whether recovered on public or private lands—will continue to be threatened by private enterprise. A possible solution to this problem is the enactment of a provision within the VPRPA banning the sale of any scientifically significant vertebrate fossil regardless of where it is recovered unless the sale is made to a "suitable repository," such as a public research or educational institution. Analogous legislation already exists in the Eagle Protection Act<sup>183</sup> and the Migratory Bird Treaty Act<sup>184</sup> which both prohibit

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182. VPRPA, *supra* note 146, § 11(d).

183. 16 U.S.C. § 668a (1988).

184. *Id.* § 703.

commercial trade in certain species of birds. While such a ban in the trade of vertebrate fossils recovered on private lands may seem obtrusive to private land owners and commercial collectors, Congress' authority to regulate an analogous activity relating to endangered species has been held not to constitute a constitutional taking subject to compensation under the Fifth Amendment.<sup>185</sup> A ban on the sale of vertebrate fossils appears to be the most direct and effective means by which the government could prevent the wholesale loss of fossil resources from non-federal lands without entering into the entangling web of regulating paleontological resources on private and state-controlled lands. Unless such a measure is taken, federally protective legislation such as the VPRPA will serve only to redirect commercial efforts to non-federal lands.

### *E. Land Development Activities*

The VPRPA does not address any issues which specifically deal with land development and its impact upon paleontological resources. By failing to mention permitting requirements for activities relating to mining, timber, or other multiple uses of public lands, the VPRPA ignores the special problem posed by these potentially large-scale activities. The laws regulating multiple uses of federal lands and the environmental impact assessments of federally sponsored projects<sup>186</sup> do not provide complete protection for paleontological resources, nor can they be expected to remain unaffected by implementation of the VPRPA. These laws provide no specific formula for dealing with competing economic development and preservation goals, nor do they provide the means by which the Federal Government or the developer should undertake salvage work where paleontological resources are threatened or about to be harmed.

While § 11 of the VPRPA prohibits any defacement or damage to paleontological resources on public lands, these protections are directed only toward individuals interested in the paleontological resource, not toward the miner, forester, or water developer. Due to the fossiliferous nature of many geological formations, which may contain literally millions of specimens, the legislation should acknowledge the developmental uses of the public lands and provide a formula for balancing the need to protect scientifically important fossil resources and the ability of developers to utilize areas which do not contain significant paleontological resources. Without such a provision, the developer could potentially be subject to enforcement penalties under the VPRPA for even inadvertent harm to relatively minor fossil resources. One solution could be a modified provision similar to § 12(a) of the ARPA, which

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185. *Andrus v. Allard*, 444 U.S. 51 (1979). In pertinent part, *Andrus*, which concerned the sale of eagle feathers, holds that "[t]he simple prohibition of the sale of lawfully acquired property . . . does not effect a taking in violation of the Fifth Amendment." *Id.* at 67-68. "The regulations challenged here do not compel the surrender of the artifacts, and there is no physical invasion or restraint upon them." *Id.* at 65.

186. See *supra* notes 76-86 and accompanying text.



exempts activities relating to mining, mineral leasing, and reclamation from the ARPA's permit requirements.<sup>187</sup> By specifically prescribing the developmental instances in which its provisions are triggered and when these activities should be left to other federal laws, the VPRPA could set out a clear policy for balancing development and protection interests as well as establishing predictable guidelines for developers.

### F. Enforcement

Criminal as well as civil penalties bolster the VPRPA's provisions requiring permits and prohibiting the trafficking of fossil resources recovered illegally from public lands. Anyone who knowingly violates the substantive provisions of the Act may be fined \$10,000 or be ordered to serve up to one year in prison, or both.<sup>188</sup> The VPRPA escalates this penalty where the value of the paleontological resource and the cost of its recovery, restoration, or repair exceed \$500 to a fine of up to \$20,000, or two years in prison, or both.<sup>189</sup> The VPRPA also attempts to deter repeat violators by imposing a maximum fine of \$100,000 or imprisonment of not more than five years, or both, upon conviction for a second or subsequent violation.<sup>190</sup> Federal land managers may also impose civil penalties based upon the individual agency's regulations adopted under the Act.<sup>191</sup>

However, while the VPRPA takes a stronger enforcement approach than the Antiquities Act and attempts to clear up the deficiencies associated with that law, the Act fails to address adequately enforcement problems which have arisen under the current regulatory system. For instance, § 11(b)(2) states that the prohibition against illegal trafficking "shall not apply to a person with respect to a vertebrate paleontological resource that was in the lawful possession of the person prior to the date of enactment of this Act." The legislation says nothing about those resources which were illegally obtained prior to the passage of the VPRPA. This prospective application of the VPRPA completely ignores the regulation of the possession and trafficking in pre-VPRPA illegally obtained fossils and the loopholes in enforcement that currently exist under the Antiquities Act.<sup>192</sup> If the goal of this legislation is to protect the nation's paleontological resources and to ensure that these resources are deposited in institutions for the benefit of the citizens of the United States, addressing the problems that exist today regarding fossils obtained illegally from the federal public lands must be included within its provisions.

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187. 16 U.S.C. § 470kk(a) (1988).

188. VPRPA, *supra* note 146, § 12(a)(1).

189. *Id.* § 12(a)(2).

190. *Id.* § 12(b).

191. *Id.* § 13(a)(1)(A).

192. See discussion *supra* part II.A.1.

### *G. Management of Paleontological Resources*

The VPRPA provides that each land management agency shall promulgate its own regulations to carry out the provisions of the Act,<sup>193</sup> creating managerial flexibility in applying the Act to lands within each agency's jurisdiction. Section 5 requires that paleontological resources be managed separately from archaeological and cultural resources and that paleontological resources "be managed by or in consultation with vertebrate paleontologists," thereby responding to paleontologists' complaints regarding agency inexperience in dealing with fossil resources.

The VPRPA directs the Secretary of Interior both to expand the nation's paleontological database through increased cooperation with private individuals and professional paleontologists and to develop plans for surveying lands that are likely to contain scientifically valuable paleontological resources. In addition, the bill would direct individual federal land managers both to establish programs to increase public awareness of the necessity of protecting paleontological resources located on public lands as well as to educate permit holders prior to their entry onto federal lands.<sup>194</sup>

The VPRPA, however, in its effort to place permitting and management authority in the hands of each individual agency, overlooks the opportunity to designate a central agency to serve as a paleontology specialist to assist the federal land managers. Decentralizing the control over public lands to the local land manager is necessary, but these managers are often ill-equipped to deal with complex paleontological resource issues. Creating a central body within an existing agency, such as the Department of Interior, could fulfill an important informational role in assisting the local land manager in implementing the provisions of the VPRPA without disturbing the land manager's final authority over the local land use decisions. Within the Department of Interior, the USGS could very well serve this role under statutory direction. The USGS is already staffed with paleontologists who currently conduct research, fieldwork, and mapping services for the Federal Government. By using an agency such as the USGS, each individual agency could avoid developing a separate paleontological program, dodging what one commentator calls the "rediscovery of the wheel" procedure which is unnecessary, expensive, and duplicative.<sup>195</sup>

In addition to specialized expertise in fossil resource management, a centralized agency could provide the means of collecting survey, inventory, and resource database information in one location which could then be catalogued and accessible to the public.<sup>196</sup> The concept of creating a central

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193. VPRPA, *supra* note 146, § 16(a)-(b).

194. *Id.* § 6(a)-(b).

195. 1985 *Archeological and Paleontological Resources Hearing*, *supra* note 16, at 98 (statement of Helen Tappan Loeblich).

196. One commentator has suggested the establishment of a national paleontological laboratory in an effort to catalogue and document the nation's paleontological resources in order to provide greater access to recovered fossils. Such an institution, it is suggested, could take one of several forms including

database began in 1992 with the passage of the National Geological Mapping Act of 1992.<sup>197</sup> The Act establishes the National Cooperative Geologic Mapping Program whose objectives include the development of a geologic map data base including the development of a national paleontologic data base to assemble descriptive and interpretive information. The database will specifically include "paleontological investigations that provide information critical to understanding the age and depositional environment of fossil-bearing geologic-map units, which investigations shall be contributed to a national paleontologic data base."<sup>198</sup> The USGS will maintain the National Paleontological Data Base. Such a database could eventually be expanded to include information from state geological surveys, academic institutions, and companies.<sup>199</sup>

Additional steps have also recently been taken to create a cooperative structure among the principle land management agencies. In the spring of 1992, the directors of the BLM, NPS, USFS, and USGS signed a Memorandum of Understanding ("MOU") to provide "procedures and guidance for communication, cooperation, and research about issues of common concern in the management of paleontological resources."<sup>200</sup> Among the goals of the MOU is the facilitation of research by USGS paleontologists to increase and improve the National Paleontological Database and to provide the "means for a consistent flow of up-to-date information about fossils to support the land and resource management responsibilities" of the various agencies.<sup>201</sup> With a voluntary effort already underway among the federal agencies, the VPRPA would further facilitate this cooperation by creating a formal paleontology information service within the Department of Interior which would insure the continuation of this cooperative effort.

## CONCLUSION

Paleontological resources play an important role in providing an understanding of our past. The record of this past is part of our national heritage. When private individuals remove from the public domain or destroy any segment of that record, an irreplaceable portion of that record is lost. In order to protect this heritage and provide incentives to encourage the continued exploration of

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a paleontological institute centered at the Smithsonian, regional centers based on major museums, or a separate federal or corporate entity. J. Thomas Dutro, Jr., *A National Paleontological Laboratory?*, 2 *PALAIOS* 203 (inside cover) (1987).

197. Nat'l Geological Mapping Act of 1992, Pub. L. No. 102-285, 106 Stat. 166. The incorporation of this Act into the VPRPA has been included in the most recent version of the VPRPA. See VPRPA, *supra* note 146, § 7(b).

198. John Pojeta, Jr., *Recent Federal Happenings in Paleontology*, 66 *J. PALEONTOLOGY* 702 (1992).

199. *Id.* at 702.

200. Mem. of Understanding between the U.S. Geological Survey, Dept. of the Interior Bureau of Land Management, Dept. of the Interior Nat'l Park Serv., Dept. of the Interior and U.S. Forest Serv., and Dept. of Agriculture for Management of Fossils on Public Lands 1 (1992).

201. *Id.* at 2.

our fossil resources, it is essential that Congress adopt a comprehensive statutory policy for the regulation of fossil resources.

The VPRPA creates the basic structure to provide for the protection of the nation's paleontological resources. This legislation, for the first time, specifically addresses the threats confronting fossil resources on the public lands and outlines a method for adopting a uniform federal policy to regulate the surveying, permitting, and removal of these resources from the public domain. While the VPRPA does begin the process of addressing this important issue, there are several regulatory considerations which should be addressed in its provisions. Among these are the need for creating ownership incentives for amateurs, banning the trade in vertebrate fossils from private as well as public lands, providing for land development permitting, addressing current enforcement problems, and establishing a central paleontology authority in the Department of Interior. With these modifications and further refinements, the VPRPA provides an opportunity for Congress to begin the process of protecting the nation's fossil resources for those who seek the answers which they hold.