

NOTHING BESIDES REMAINS: PRESERVING THE SCIENTIFIC AND CULTURAL VALUE OF PALEONTOLOGICAL RESOURCES IN THE UNITED STATES

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INTRODUCTION

The badlands of Wyoming can be unforgiving—scorching heat in the summer, sweeping blizzards in the winter, and only seven inches of rainfall each year¹ prevent most life from taking hold. Although the door may be closed to all but the hardiest of organisms, a window to a long-extinct world is wide open. The climate has made life a struggle in this desert, but it has also preserved the fossils lying beneath the rocky surface. Plant roots do not break them apart and rain does not turn them into mush, as in moister climes. Intact, and brimming with mystery, they tempt people to pick them up and take them home.

Two men took them home by the ton in the late nineteenth century.² Othniel Charles Marsh and Edward Drinker Cope competed for collection sites and sometimes smashed abandoned specimens so that the other man's crew could not collect them.³ Their fossils were front page news, and a fascinated public pored over accounts of the strange new creatures being found in the West. One memorable illustration shows a *Brontosaurus giganteus* standing on its hind legs, long neck outstretched, peering into the eleventh story

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1. See BRS, INC., WYO. WATER DEV. COMM'N, WIND/BIGHORN RIVER BASIN PLAN: EXECUTIVE SUMMARY 1 (2003) available at <http://waterplan.state.wy.us/plan/bighorn/execsumm.pdf> (showing precipitation for the Bighorn Basin, Wyoming).

2. See W.J.T. MITCHELL, THE LAST DINOSAUR BOOK: THE LIFE AND TIMES OF A CULTURAL ICON 29 (1998) (recounting the “fossil feud” between Othniel Charles Marsh and Edward Drinker Cope).

3. Brent H. Breithaupt, *Railroads, Blizzards, and Dinosaurs: A History of Collecting in the Morrison Formation of Wyoming During the Nineteenth Century*, 23 MOD. GEOLOGY 441, 455 (1998). Marsh also tried to destroy Cope's reputation by circulating stories that he was insane. MITCHELL, *supra* note 2, at 29.

of the New York Life Building.⁴ Thirty years later, Barnum Brown, a dinosaur hunter, excavated a “dinosaur graveyard” in Wyoming, which would become the basis for a scene in the film *Fantasia*.⁵

After a half century’s lull, the last thirty years have seen a great resurgence in the public’s interest in fossils, in part because of the popularity of the film *Jurassic Park*,⁶ and also because new controversies grabbed the public’s attention. In the 1970s, Professor John Ostrom resurrected Professor T.H. Huxley’s defunct theory that birds evolved from dinosaurs,⁷ setting off a fierce debate among paleontologists. With the 1995 discovery of feathered dinosaurs in the Liaoning region of China, this theory has proven prescient.⁸ At about the same time that Ostrom’s theory began to take hold in the scientific community, Professors Luis and Walter Alvarez announced that a giant meteorite crashed into the earth 65 million years ago and killed the dinosaurs.⁹ This announcement provided a powerful image that launched a thousand television specials.¹⁰

This revival has resulted in a considerable commercial market for fossils, previously considered the province of museums and universities. Collectors will pay premium prices to have a piece of prehistory in their own homes.¹¹ Anyone can buy a dinosaur fossil on eBay, from a fragment for \$5 to a skeleton for \$2,000.¹² A particularly intact skeleton can fetch millions of dollars at auction houses like

4. See Breithaupt, *supra* note 3, at 458 (reproducing the front page of *The New York Journal* and its headline, “MOST COLOSSAL ANIMAL EVER ON EARTH JUST FOUND OUT WEST”).

5. MITCHELL, *supra* note 2, at 167.

6. *Id.* at 17.

7. See *id.* at 137 (noting the “schism” created by Huxley’s theory between the avian and reptilian models of dinosaur paleontology); John H. Ostrom, *Archaeopteryx and the Origin of Flight*, 49 Q. REV. BIOLOGY 35 (1974) (hypothesizing a “predatory theory of the origin of avian flight” based on fossils of the dinosaur *Archaeopteryx*).

8. See, e.g., Carl C. Swisher III et al., *Cretaceous Age for the Feathered Dinosaurs of Liaoning, China*, 400 NATURE 58 (1999) (describing fossils of feathered dinosaurs).

9. Luis W. Alvarez et al., *Extraterrestrial Cause for the Cretaceous-Tertiary Extinction*, 208 SCIENCE 1095 (1980). See generally WALTER ALVAREZ, *T. REX AND THE CRATER OF DOOM* (1997) (describing, in narrative form, how Walter Alvarez developed the theory and found a candidate impact crater in Mexico).

10. For one such example, see *NOVA’s The Asteroid and the Dinosaur* (PBS television broadcast, Mar. 10, 1981).

11. See Christie Brown, *A Dinosaur Named Sue*, FORBES, Feb. 28, 1994, at 116 (“Last year Bonhams auction house in London fetched \$5,000 for 23 petrified dinosaur droppings, \$7,700 for 33 bug-filled chunks of amber and \$78,000 for a nest of 10 dinosaur eggs.”).

12. Editorial, *Precious Bones*, BOSTON GLOBE, June 29, 2003, at D10.

Sotheby's.¹³ This increase in demand for specimens concerns those paleontologists who worry that scientifically valuable specimens are being destroyed by clumsy collecting methods and that crucial contextual information is being lost in the collectors' hasty efforts to extract the fossils.¹⁴ Other paleontologists worry that America's heritage is being sold to the highest bidder.¹⁵

The growing commercial market calls for a comprehensive system to govern the collection and trade of fossils. However, the choice of regulatory route depends on which aspect of a fossil is valued most highly. There are at least three ways to assign value to a fossil: economic, scientific, and cultural.¹⁶ Preserving one type of value may limit or destroy the others. For example, digging up a fossil as quickly as possible to rush it to market may maximize economic value, but it can destroy scientific value.

For private collectors, the value of a fossil is inherent in the object itself; its value is akin to that of a piece of art. That is, a fossil is worth what the market is willing to pay, and the priority is to find, collect, and prepare the best-looking and most complete specimens

13. Usha Lee McFarling, *Ancient Bone Sales Thrive in Capitalist Era*, L.A. TIMES, Jan. 22, 2001, at A1.

14. See H.R. 2057 and H.R. 2416: *Joint Hearing on H.R. 2416 Before the Subcomm. on Fisheries Conservation, Wildlife and Oceans and the Subcomm. on Forests and Forest Health of the House Comm. on Resources*, 108th Cong. 47 (2003) (statement of Catherine A. Forster, Ph.D., Member at Large, Society of Vertebrate Paleontology) [hereinafter Forster Testimony] (explaining that the context in which fossils are found can "provide information about ancient environments and climates, the age of the fossils, position in a historical sequence, . . . their paleographic location[, and] ecological interactions and communities"); *Illegal Trafficking of Archaeological Resources; Protection of Paleontological Resources; and Designate Certain Waterways in Puerto Rico: Hearing on S. 2727 Before the Subcomm. on National Parks of the Senate Energy and Natural Resources Comm.*, 107th Cong. 15 (2002) (statement of Richard Stucky, Ph.D., President, Society of Vertebrate Paleontology) ("A fossil collected without [contextual] information has lost much of its value.").

15. See JOSEPH L. SAX, *PLAYING DARTS WITH A REMBRANDT: PUBLIC AND PRIVATE RIGHTS IN CULTURAL TREASURES* 179–85 (1999) (discussing the American legal system's inability to protect paleontological resources as a part of the national heritage). Paleontology is the study of past life forms, as represented by their fossils. This is distinct from archaeology, which is the scientific study of past people and their culture through the examination and analysis of their artifacts, such as potshards. PATRICK LEIGGI & PETER MAY, *VERTEBRATE PALEONTOLOGICAL TECHNIQUES* 1–2 (1994).

16. These three classifications have been culled from types of value discussed by other commentators. See Allison M. Dussias, *Science, Sovereignty, and the Sacred Text: Paleontological Resources and Native American Rights*, 55 MD. L. REV. 84, 107 (1996) (contrasting religious value and commercial value); Joseph L. Sax, *Implementing the Public Trust in Paleontological Resources*, in *PROCEEDINGS OF THE 6TH FOSSIL RESOURCE CONFERENCE* 174 (Vincent L. Santucci & Lindsay McClelland eds., 2001) (discussing "material-object value" and "scientific/educational value").

possible. Like art, a fossil's economic value is enhanced by a proper provenance that shows a legal passage through the market.¹⁷

For scientists, however, the value of a fossil is usually contextual.¹⁸ Most paleontological research focuses not only on the fossil itself, but also on the fossil's location, the kind of rock it was found in, the other organisms that were nearby, its position in the historical sequence, its paleogeographic location, and how the fossil is positioned relative to other fossils.¹⁹ This information helps paleontologists put together the natural history of the organism from which the fossil formed, such as its age and how the organism lived and died, and also helps them to describe the climate and ecosystem in which the organism lived.²⁰ Fossil formation is a rare occurrence because of the exceptional environmental conditions that it requires.²¹ More than 99 percent of the species that have lived are extinct and can only be known by their fossilized remains, if at all.²² Without contextual information, evidence of how extinct organisms lived is lost.²³ Knowledge of past ecosystems and climates is especially important since global climate change, biodiversity, and ecosystem health have become prominent public policy issues.²⁴

Finally, a fossil's cultural value reflects its importance to the larger community. The value of certain objects transcends market value or scientific discovery to become part of collective knowledge and experience. Such objects, including fossils, intuitively belong within the public domain.²⁵

17. See, e.g., Paleo Direct Fossils, *Fossils: Important Topics on Fossils and Primitive Human Artifacts: Legality of Fossils for Sale and Collecting Fossils*, at <http://www.paleodirect.com/fossils.htm> (last visited June 18, 2005) (on file with the *Duke Law Journal*) (describing the importance of purchasing fossils from a trusted supplier to ensure that the fossils were legally obtained); Colossal-Fossil-Site, *The Paper Trail and Value (in Work)*, at <http://www.colossal-fossil-site.com/271-paperwork-value.htm> (last visited June 18, 2005) (on file with the *Duke Law Journal*) (describing the importance of keeping collection records); see also Anne Carlisle Schmidt, *The Confuciusornis Sanctus: An Examination of Chinese Cultural Property Law and Policy in Action*, 23 B.C. INT'L & COMP. L. REV. 185, 187-90 (2000) (discussing the difficulties that museums have when trying to exhibit fossils without provenances).

18. See *supra* note 14 and accompanying text.

19. Forster Testimony, *supra* note 14, at 45, 47.

20. See, e.g., LEIGGI & MAY, *supra* note 15, at 47-53, 59-77.

21. *Id.*

22. *Id.*

23. *Id.*

24. *Id.*

25. See Sax, *supra* note 16, at 174 (“[N]o one should be permitted to privatize the knowledge that collectively constitutes the field of paleontology. When government implements

This Note argues that any successful comprehensive regulation of fossil collection and trading must address these conflicting value systems and resolve them within the existing private property regime.²⁶ Part I reviews the existing legal framework, including statutes, regulations, and case law, that has failed to adequately protect fossils. Part II reviews proposed legislation, including two statutes that were never passed and one that is currently pending. In Part III, this Note suggests a statute that would both maximize the preservation of fossils' scientific and cultural value and be enforceable by borrowing elements from the existing legal framework, the failed and pending legislation, and the scholarly literature. To maximize the preservation of noneconomic value, a statute must further four goals: (1) banning commercial collecting on public land, (2) providing that all fossils found on federal land are property of the United States, (3) deterring plundering, and (4) maintaining accessibility for amateur collectors. To be enforceable, the statute must promote uniformity, establish clear guidelines, limit paperwork, and reward those who provide information about violators.

I. THE EXISTING LEGAL FRAMEWORK²⁷

The United States has an exceptional approach to fossil legislation—it draws a line between fossils found on public land and those found on private land. Fossils found on private land belong to the land's owners, who may deal with them as they wish, including selling or destroying them. Fossils found on public land, however, are owned by the public and cannot pass into private ownership. Thus it is legally impossible for a fossil found on public land to have economic value, but perfectly legal for the owner of a fossil found on private land to destroy its scientific value.

that principle by regulation governing excavation, use, and ownership of fossils . . . it acts appropriately as a public trustee . . .”).

26. Although arguing for a new American property regime is well outside the scope of this Note, for a recent discussion of the topic, see generally LAURA S. UNDERKUFFLER, *THE IDEA OF PROPERTY: ITS MEANING AND POWER* (2003).

27. This Note provides only a brief overview of the regulation of federal paleontological resources. For a highly detailed explication of all the laws and regulations relating to fossil preservation, see Robert W. Malmshemer & Alisa S.H. Hilfinger, *In Search of a Paleontological Resources Policy for Federal Lands*, 43 *NAT. RESOURCES J.* 587, 592–98 & nn.31–83 (2003).

No comprehensive federal law protects paleontological resources, but fossils are protected in particular places and under particular circumstances. In addition, the various public agencies that manage federal lands where fossils are found regulate who can collect fossils on their land, and violators may be prosecuted for theft of government property. However, as the caselaw demonstrates, prosecution is difficult, and the penalties are insufficient to deter poachers.

A. Statutory Authority

Although no federal legislation specifically targets paleontological resources on public lands,²⁸ at least eight statutes regulate them, although the statutes themselves are directed at other targets.²⁹ The most inclusive statute is the Antiquities Act of 1906, which prohibits the appropriation, excavation, injury, or destruction of “any historic or prehistoric ruin or monument, or any object of antiquity” that is located on federal land “without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated.”³⁰ The Antiquities Act does not define “object[s] of antiquity,” and it has been used to permit specific paleontological excavations under a section that authorizes the president to establish national monuments.³¹ In 1974, the Ninth Circuit Court of Appeals held that the Antiquities Act was “fatally vague” because it employed “undefined terms of uncommon usage,”³² and so violated the Due Process Clause of the U.S. Constitution. However, the Tenth Circuit Court of Appeals upheld the Antiquities Act’s constitutionality in

28. *Id.* at 592.

29. A comprehensive list of statutes, regulations and policies that federal agencies use to manage fossils may be found in: BUREAU OF LAND MGMT., U.S. DEP’T OF THE INTERIOR, COLLECTION, STORAGE, PRESERVATION AND SCIENTIFIC STUDY OF FOSSILS FROM FEDERAL AND INDIAN LANDS app. 1, at 9–15 (May 1999), available at <http://www.fs.fed.us/geology/fedfos.pdf>.

30. Antiquities Act of 1906 § 1, 16 U.S.C. § 433 (2000). Violators may be subject to a fine of up to five hundred dollars, imprisonment for a maximum period of ninety days, or both. *Id.*

31. *Id.* § 2, 16 U.S.C. § 431 (2000). *See, e.g.*, Dinosaur National Monument, Proclamation No. 131, 39 Stat. 1752 (Oct. 4, 1915); Petrified Forest National Monument, Proclamation No. 697, 34 Stat. 3266 (Dec. 8, 1906).

32. *United States v. Diaz*, 499 F.2d 113, 115 (9th Cir. 1974). Appellant was prosecuted for appropriating Indian face masks that were made in 1969 or 1970, but were considered “objects of antiquity” because they related to long-standing religious or social traditions. *Id.* at 114. The court held that the Antiquities Act gave no notice that “antiquity” could have this definition. *Id.* at 115.

1979.³³ The Antiquities Act's successor, the Archeological Resources Protection Act of 1979 (ARPA),³⁴ protects archaeological resources on public lands and Indian lands because they are an "accessible and irreplaceable part of the Nation's heritage."³⁵ ARPA was adopted to protect artifacts, which had become increasingly endangered as their commercial value rose.³⁶ ARPA specifically excludes paleontological specimens from its protection unless they are found in an archaeological context.³⁷

Several planning statutes also address paleontological resources. The National Park Service (NPS) is required to conserve natural and historic objects in the National Park System, and the agency has broad authority to promulgate regulations to advance this goal.³⁸ For example, the NPS must address paleontological resources³⁹ in its conservation and management plans for parks covered by the Alaska National Interest Lands Conservation Act of 1980.⁴⁰ Information concerning the nature and specific location of paleontological resources in parks may be withheld from disclosure under the Freedom of Information Act.⁴¹ Fossils that are found in significant caves are protected,⁴² as are those found in the Hells Canyon National Recreation Area.⁴³

Finally, the fact that the unauthorized conversion of anything of value belonging to the United States is a criminal act serves as a catchall for any fossils that are not protected by other means.⁴⁴

B. Regulatory Authority

Regulations governing paleontological resources fall into two major categories: protection and prohibition. The NPS, the Forest Service, and the Bureau of Land Management (BLM) are the primary agencies promulgating regulations. The NPS prohibits

33. *United States v. Smyer*, 596 F.2d 939, 940-41 (10th Cir. 1979).

34. 16 U.S.C. §§ 470aa-mm (2000).

35. *Id.* § 470aa(a)(1).

36. *Id.* § 470aa(a)(2)-(3).

37. *Id.* § 470bb(1).

38. National Park Service Organic Act, 16 U.S.C. § 1 (2000).

39. *Id.* § 3191(b).

40. *Id.* § 3101-3233.

41. *Id.* § 5937.

42. *Id.* § 4306.

43. *Id.* § 460gg-7(b).

44. 18 U.S.C. § 641 (2000).

anyone from possessing, injuring, or disturbing paleontological specimens.⁴⁵ It also has the power to designate National Natural Landmarks, which are “outstanding example[s] of major biological and geological features” within the United States, including fossils.⁴⁶ The Forest Service requires special-use authorization for the excavation, damage, or removal of any paleontological resource for commercial purposes,⁴⁷ and the agency prohibits people from entering any area that is closed for the protection of a paleontological interest.⁴⁸ The BLM allows the collection of reasonable amounts of common invertebrate fossils and petrified wood for noncommercial purposes,⁴⁹ but it prohibits the willful disturbance of any scientific or cultural resource without authorization.⁵⁰ Violations of BLM regulations are Class A misdemeanors, punishable by a maximum of one year in prison, a one hundred thousand dollar fine, or both.⁵¹ Violating a Forest Service regulation is a Class B misdemeanor, punishable by up to six months’ imprisonment, a five thousand dollar fine, or both.⁵²

C. Case Law

There is very little case law regarding fossil disputes, and to date, only one fossil prosecution has been based on the Antiquities Act.⁵³ The case of Sue the *Tyrannosaurus rex* was a failed attempt to prosecute under the Antiquities Act, and it highlights everything wrong with American fossil law. In August 1990, a commercial fossil collector, Peter Larson, and an amateur collector, Sue Hendrickson,

45. 36 C.F.R. § 2.1 (2004).

46. *Id.* § 62.2.

47. *Id.* § 261.9(i).

48. *Id.* § 261.53(c).

49. 43 C.F.R. § 8365.1–5(b)(2) to (3) (2003).

50. *Id.* § 8365.1–5(a)(1); *see also* U.S. DEPT. OF THE INTERIOR ET AL., ASSESSMENT OF FOSSIL MANAGEMENT ON FEDERAL & INDIAN LANDS 20 tbl.2 (May 2000) (summarizing the requirements for obtaining a scientific collecting permit), *available at* <http://www.fs.fed.us/geology/fossil.pdf>.

51. *Parks and Memorial Bills: Hearing on S. 546 Before the Subcomm. on Nat’l Parks of the Senate Energy and Natural Res. Comm.*, 108th Cong. (2003) (statement of Elizabeth Estill, Deputy Chief for Programs Legislation and Communications, Forest Service, U.S. Department of Agriculture) [hereinafter Estill Testimony].

52. *Id.*

53. *See* Malmshemer & Hilfinger, *supra* note 27, at 597–98 (“This unreported case involved a Harvard professor who was arrested and charged under the Antiquities Act with collecting fossils on BLM land.”).

happened upon a *T. rex* skeleton in the Black Hills of South Dakota.⁵⁴ Larson was the president and owner of the Black Hills Institute of Geological Research (Institute), in Hill City, South Dakota, which focused on collecting, preparing, and marketing fossils.⁵⁵ The skeleton was found on a ranch belonging to Maurice Williams, a Native American living on the Cheyenne River Sioux Indian Reservation.⁵⁶ Williams sold the Institute the rights to excavate the site for five thousand dollars.⁵⁷

Larson and the Institute unearthed the fossil in a speedy seventeen days, and it proved to be the largest and most complete *T. rex* skeleton excavated to that date.⁵⁸ The Institute spent two years preparing the specimen,⁵⁹ which had been nicknamed “Sue” after its discoverer. Larson invited paleontologists to study Sue and publicly announced that she would never be sold; instead, he would showcase her remains in a new natural history museum in Hill City.⁶⁰

Two months after Larson’s March 1992 announcement, government agents raided the Institute and seized the ten-ton fossil, storing it in a metal container inside a machine shop at the South Dakota School of Mines and Technology (School of Mines).⁶¹ The United States Attorney for South Dakota had ordered the raid, based on a violation of the Antiquities Act.⁶² Maurice Williams’ ranch was part of the Reservation, and as such it was held in trust for him by the United States.⁶³ This unusual property arrangement placed the land under the purview of the Antiquities Act—at least to a degree.

Maurice Williams, the Cheyenne River Sioux tribe, and the Institute all claimed ownership over the valuable specimen. The trust

54. Alison Frankel, *Tyrannosaurus Lex*, AM. LAW., Dec. 1992, at 45.

55. *United States v. Larson*, 110 F.3d 620, 623 (8th Cir. 1997) (*Black Hills VI*).

56. *Black Hills Inst. of Geological Research v. United States Dep’t of Justice*, 967 F.2d 1237, 1238–39 (8th Cir. 1992) (*Black Hills I*).

57. *Black Hills V*, 88 F.3d at 615.

58. *Black Hills I*, 967 F.2d at 1239.

59. *See id.* at 1238 (noting that the Institute held the fossil from August 1990 until its seizure in May 1992); Frankel, *supra* note 54, at 45.

60. *See id.* at 1239 (“The Institute moved the fossil to Hill City, South Dakota, for public display and research.”).

61. *Id.*

62. *Id.*

63. *Black Hills Inst. of Geological Research v. United States*, 812 F. Supp. 1015, 1016–17 (D.S.D. 1993). The laws regarding Native American trust land are somewhat complex. For a deeper discussion of the laws’ implications in the *Black Hills* cases, see Dussias, *supra* note 16, at 86–96.

patent deed to Williams' property included a restriction against alienation, which expired four years after he accepted payment from Larson.⁶⁴ Williams could not remove the restriction or convey an "interest in the land" without approval from the Secretary of the Interior.⁶⁵ He failed to apply for or receive such approval, which should have voided Williams' sale of the excavation rights to the Institute.⁶⁶ However, the Institute argued that Sue was not an "interest in land" because, once severed (extracted), she had become personal property, which was not subject to the restriction.⁶⁷ The court disagreed as to both the nature and ownership of the property: it held that the extraction did not transform "land" into "property" and did not sever the fossil from Williams' trust.⁶⁸ The "salient point is that the fossil had for millions of years been an 'ingredient' of the earth that the United States holds in trust for Williams."⁶⁹ Sue had become integrated into the land, and she was thus subject to the laws governing Indian trust land.⁷⁰ Williams could not and did not transfer title to Larson.⁷¹ The dinosaur still belonged to him as much as Indian trust land ever belonged to him. The federal government arranged for the fossil to be auctioned by Sotheby's, with the proceeds going to Williams. The Field Museum in Chicago and several corporate

64. *Black Hills Inst. of Geological Research*, 812 F. Supp. at 1020.

65. *Id.* (citing 25 U.S.C. § 483 (2000)).

66. *Id.*

67. *Id.* at 1021 n.6.

68. *Id.* at 1021.

69. *Black Hills Inst. of Geological Research v. S.D. Sch. of Mines & Tech.*, 12 F.3d 737, 742 (8th Cir. 1993) (*Black Hills III*) (explaining that so long as Sue was land held in trust under the relevant statutes, the attempted transfer of interest was void and the trust continued in the Sue fossil when it became personal property); *see also* *United States v. Brown*, 8 F.2d 564, 566 (8th Cir. 1925) ("[N]o change of form of property [of Indian trust land] divests it of a trust.").

70. *See* 25 U.S.C. § 348 ("[I]f any conveyance shall be made of the lands set apart and allotted as herein provided, or any contract made touching the same, before the expiration of the time [specified], such conveyance or contract shall be absolutely null and void . . ."); *id.* § 461 ("[N]o land of any Indian reservation, created or set apart by treaty or agreement with the Indians, Act of Congress, Executive order, purchase, or otherwise, shall be allotted in severalty to any Indian.").

71. Having lost any claim to ownership or possession, the Institute asserted a \$209,000 lien against the fossil for the work it performed in excavating and preparing Sue. *Black Hills Inst. of Geological Research v. Williams*, 88 F.3d 614, 615 (8th Cir. 1996) (*Black Hills V*). The claim was denied. *Id.* The court commented that the Institute was on notice that the federal government had a possible interest in the fossil because it was found within the boundaries of the reservation, and that the Institute had failed to diligently investigate whether Sue could be removed without government approval. *Id.* at 616. As a result, the Institute could not be considered a good-faith, bona fide purchaser. *Id.*

backers, including The Walt Disney Company and McDonald's Corporation, won the auction with a bid of \$8.36 million.⁷²

Meanwhile, the government obtained a thirty-nine-count indictment against Larson, alleging a variety of crimes, none of which included the Antiquities Act;⁷³ he was ultimately convicted of theft of United States' property,⁷⁴ retention of stolen United States' property,⁷⁵ failure to file a customs report when exporting monetary instruments,⁷⁶ and failure to file a customs report when importing monetary instruments.⁷⁷ Amazingly, none of these offenses involved the *T. rex*; Larson was convicted of a series of minor crimes unrelated to Sue, stemming instead from other fossil-collecting expeditions.⁷⁸ "Sue [was] nowhere to be found within the four corners of the . . . criminal prosecution."⁷⁹

Larson was sentenced to two years' confinement, two years' supervised release, a \$5,000 fine, and a special assessment of \$150.⁸⁰ Judge Beam, dissenting in relevant part, stated that Larson's sentence was too harsh "given the minimal and uncertain nature of the offenses, especially the theft offenses involving property of less than \$100 in value."⁸¹ She viewed the criminal prosecution as federal participation in "an earlier and ongoing argument between and

72. The fossil is now on display at the Field Museum, and casts are owned by The Walt Disney Corporation and McDonald's Corporation. *SAX*, *supra* note 15, at 181.

73. *United States v. Larson*, 110 F.3d 620, 623 (8th Cir. 1997) (*Black Hills VII*).

74. *Id.* at 622 (violation of 18 U.S.C. § 641 (2000)). Along with Sue's remains, the government seized fossils that were taken from the Gallatin National Forest in Montana and the Buffalo Gap National Grasslands in South Dakota, which are lands belonging to the United States, and from which Larson did not have authority to remove fossils. *Id.* at 623.

75. *Id.* at 622 (second violation of 18 U.S.C. § 641). Larson removed and kept invertebrate fossils from Forest Service land for commercial purposes. *Id.* at 624.

76. *Id.* at 622 (violation of 31 U.S.C. § 5316(a)(1)(A) (2000)). Larson carried more than ten thousand dollars with him to Peru, where he excavated and exported baleen whale fossils, without filing the appropriate customs form. *Id.* at 623.

77. *Id.* at 622 (second violation of 31 U.S.C. § 5316(a)(1)(A)). Larson purchased more than ten thousand dollars in traveler's checks while on a business trip to Japan and again failed to complete the appropriate customs form. *Id.* at 623.

78. *Id.* at 623; *see supra* notes 74–77 and accompanying text. Larson argued that the invertebrate fossils that he had removed from a national forest were legally collected under the Forest Service's 1986 regulation allowing noncommercial harvesting of invertebrate fossils. *Black Hills VI*, 110 F.3d at 624 (citing 51 Fed. Reg. 30,355, 30,355–56, *codified at* 36 C.F.R. § 261.9(i) (2004)). The court rejected this argument because a rational trier of fact could have found beyond a reasonable doubt that he removed the fossils for commercial purposes. *Id.*

79. *Id.* at 629 (Beam, J., concurring and dissenting).

80. *Id.* at 623.

81. *Id.* at 630 (Beam, J., concurring and dissenting).

among public, academic, and commercial collectors and curators vying for control of archaeological remains worldwide.”⁸² This categorization was probably quite accurate, and during the *Black Hills* litigation, several legislative alternatives were proposed to clarify the federal laws on fossil collecting and thus prevent such shaky prosecutions in the future.

II. PROPOSED ALTERNATIVES TO THE EXISTING LEGAL FRAMEWORK

Two competing pieces of legislation were introduced in the wake of the *Black Hills* litigation. One, the Vertebrate Paleontological Resources Protection Act (VPRPA),⁸³ sought to protect fossils’ cultural and scientific value. The other, the Fossil Preservation Act (FPA),⁸⁴ primarily sought to protect fossils’ economic value. Both bills failed to pass. In 2002, the umbrella legislation concept was revived in the Paleontological Resources Preservation Act (PRPA),⁸⁵ which focuses on fossils’ cultural and scientific value. PRPA passed in the Senate⁸⁶ and is under consideration by the House of Representatives.

A. *Scholarly Views on an Ideal Statute*

Many commentators agree that the existing legal patchwork is inadequate,⁸⁷ but they disagree as to what should be done about it. One pair of scholars has focused on the unfairness of the current system and its singling out of commercial collectors for punishment.⁸⁸

82. *Id.* at 628 (Beam, J., concurring and dissenting).

83. S. 3107, 102d Cong. (1992).

84. H.R. 2943, 104th Cong. § 2(b)(1)–(2) (1996).

85. S. 263, 109th Cong. (2005).

86. S. 263, 109th Cong. (as passed by Senate, July, 26, 2005).

87. *See* Malmshemer & Hilfinger, *supra* note 27, at 613 (“Congress needs to exercise this power rather than delegating its authority to federal agencies without guidance.”); David J. Lazerwitz, Note, *Bones of Contention: The Regulation of Paleontological Resources on the Federal Public Lands*, 69 IND. L.J. 601, 623 (1994) (arguing that the fossil collector and the land manager need a clear picture of paleontological resource policy, which can be achieved through uniformity); Gretchen Lundgren, Comment, *Protecting Federal Fossils from Extinction*, 26 B.C. ENVTL. AFF. L. REV. 225, 227 (1998) (“[T]here is a need for a single comprehensive and coherent federal policy for managing and protecting fossils on public lands.”); *cf.* Schmidt, *supra* note 17, at 212–15 (describing the difficulty of enforcing China’s patchwork paleontology law).

88. *See* Patrick K. Duffy & Lois A. Lofgren, *Jurassic Farce: A Critical Analysis of the Government’s Seizure of “Sue™,” a Sixty-Five-Million-Year-Old Tyrannosaurus rex Fossil*, 39 S.D. L. REV. 478, 481 (1994) (“[R]ecent [regulatory] efforts to ‘regulate’ paleontologists have been by search warrant and a good deal more heavy-handed than the treatment accorded their archaeological brethren.”).

Other writers have suggested elements that might be incorporated into an ideal fossil protection statute, with most focusing on enhancing clarity or enforceability.⁸⁹ Still other scholars have proposed complete overhauls of the ideological groundwork.⁹⁰

Proposals for improving legal clarity include creating a law that explicitly protects fossils, rather than extending archaeology or cultural relic laws to cover paleontology,⁹¹ and defining terms broadly⁹² but clearly, to avoid confusion and multiple interpretations.⁹³

An ideal law would intervene before damage is done to the fossils and the dig site, rather than pursuing the bad guys after the site has been looted.⁹⁴ One author suggests that a preventative scheme may be more productive than a punishment-based system.⁹⁵ Prevention may require non-legal responses, such as sealing off valuable collecting areas and increasing public awareness of fossils' non-economic values.⁹⁶ Ranking fossil sites based on the symbolic, historic, or scientific value of the fossils, or their rarity, could focus resources on the sites that are most deserving of protection.⁹⁷ Penalties could deter theft, and a national policy could provide agencies with prosecution guidance.⁹⁸ A central agency could be designated to control paleontological resource issues by assisting federal land managers, saving the rest of the agencies from "rediscover[ing] . . . the wheel."⁹⁹ Regulating only fossils on federal land is probably insufficient, however, without a certification-of-origin requirement.¹⁰⁰

89. See *infra* notes 91–105 and accompanying text.

90. See *infra* notes 106–14 and accompanying text.

91. Schmidt, *supra* note 17, at 210–11.

92. A narrow definition of protected fossils, as the example of China shows, will not suffice to protect specimens. Cf. Lundgren, *supra* note 87, at 260.

93. *Id.*

94. Schmidt, *supra* note 17, at 213.

95. *Id.* at 215.

96. *Id.* at 218–20; see also Lundgren, *supra* note 87, at 259 (“Agencies often avoid the delay and conflict accompanying promulgating regulations due to the diverse interests of various groups by promulgating rules internally. . . . [T]he lack of public participation and knowledge of the rules[, however,] serves only to impede the protection of fossils because collectors may be unaware that such rules exist.”).

97. See Schmidt, *supra* note 17, at 204–06 (describing the Chinese system of administratively grading cultural relics and sites and the concomitant protections applied, but noting potential problems stemming from the subjectivity of the grading process).

98. Lundgren, *supra* note 87, at 262.

99. Lazerwitz, *supra* note 87, at 634.

100. Sax, *supra* note 16, at 176.

The permitting process could be made more effective and efficient by focusing on amateur collectors, in addition to paleontologists, who bear an “onerous burden” of obtaining a permit even though they engage in activities that may be less damaging than those of amateurs.¹⁰¹ One commentator offers three reasons why comprehensive legislation should include amateur permits.¹⁰² First, permits will allow agencies to “adapt to the varying levels of protection fossils require.”¹⁰³ Second, land management agencies will be able to track the number of collectors.¹⁰⁴ Third, requiring permits for all collectors will eliminate ambiguity about who may collect fossils.¹⁰⁵

Professor Joseph L. Sax argues that the United States should recognize fossils as “elements of the national patrimony,” as other countries do, and as such should be protected on both public *and private* land.¹⁰⁶ “[N]o one should be permitted to privatize the knowledge that collectively constitutes the field of paleontology.”¹⁰⁷ He suggests several practical approaches to this problem. For example, in France, the state holds the right to control all future excavation of antiquities, thereby providing “a barrier against both destructive or mutilative behavior by landowners and against extortionate economic demands, and permit[ing] to government researchers a right of temporary occupation for purposes of study and preservation.”¹⁰⁸ The state would compensate the owners of excavated land for actual losses to current use or development value, but not for historic or scientific values.¹⁰⁹ Sax also advocates for an established scheme by which the government can identify which fossils should be “regulated or acquired.”¹¹⁰ He suggests distinguishing between the object and the ideas that are embedded within the object, and

101. Lazerwitz, *supra* note 87, at 623–24.

102. Lundgren, *supra* note 87, at 260.

103. *Id.* at 260–61.

104. *Id.* at 261.

105. *Id.*

106. SAX, *supra* note 15, at 184. Sax does not see any constitutional barriers to extending protection to private lands. See Sax, *supra* note 16, at 176 (reasoning that such regulation would neither be ultra vires with respect to the Commerce Clause nor transgressive of the Takings Clause).

107. Sax, *supra* note 16, at 174.

108. SAX, *supra* note 15, at 193.

109. *Id.*

110. *Id.* at 194.

regulating fossils to the extent required to preserve the ideas.¹¹¹ The object would be treated as an ordinary object on public lands would be treated, whereas the ideas—and whatever portion of the object is needed to preserve them—would be safeguarded as “inalienable element[s] of the public domain.”¹¹² This would be similar to the English treatment of treasure trove, in which items that are not required for public institutions are returned to the finder.¹¹³ Another way to encourage private owners of significant fossils to share their scientific value with the public would be to have them register the fossils; in exchange for making them available to researchers and the public, the owners would receive a tax benefit such as a charitable deduction or partial exemption from the estate tax.¹¹⁴

Other commentators express concern about the role that Native American tribes should play in the regulation of paleontological resources found on reservation lands, although these concerns come from opposite theoretical directions—preservation of Native American culture versus the preservation of Native Americans’ right to profit from the fossils. Professor Allison Dussias places scientific and economic values at one end of the spectrum, and religious (or cultural) value at the other.¹¹⁵ According to Professor Dussias, Native Americans consider fossils a part of their “sacred text,”¹¹⁶ viewing them as objects integral to a living religion.¹¹⁷ From this perspective, scientists and commercial collectors pose indistinguishable threats to fossils; whether used to advance human knowledge or hung above the mantle like a swordfish, fossils removed from the earth offend Native American traditions.¹¹⁸ Two other authors, however, emphasize that if fossil legislation must be passed, an action that they do not advocate, it should distinguish public land from Indian trust land, as ARPA

111. *Id.* at 195.

112. Sax, *supra* note 16, at 174.

113. SAX, *supra* note 15, at 196.

114. Sax, *supra* note 16, at 175. Another proposal would “compensate commercial collectors for their time and expense for excavating and for preparing scientifically significant specimens.” Dorna Sachiko Sakurai, Comment, *Animal, Mineral, or Cultural Antiquity?: The Management and Protection of Paleontological Resources*, 17 LOY. L.A. INT’L & COMP. L.J. 197, 217 (1994).

115. Dussias, *supra* note 16, at 107.

116. *Id.* at 153.

117. *Id.* at 154–55; see *id.* at 107–08 (“[T]he use of fossils in healing practices demonstrates their religious significance.”).

118. Dussias does not recognize the distinction between scientifically minded paleontologists and commercial collectors, which is perhaps the result of her strong commitment to the cultural value of fossils. See *id.* at 156 (referring to the Institute staff as paleontologists).

does.¹¹⁹ These authors consider it essential that Native Americans not be deprived of a potential economic resource, noting that some fossils “have great monetary value and might be viewed as a financial asset similar to mining, hunting, and fishing rights.”¹²⁰ Professor Sax has weighed in on this dialogue, charging the government with finding a way “to accommodate the two distinctive trust-type obligations the United States bears, to tribal autonomy *and* to our common evolutionary heritage.”¹²¹

B. Failed Legislation

Two pieces of legislation introduced in the 1990s took opposite approaches to creating comprehensive fossil legislation. One, the VPRPA, found favor with scientists who approved of its focus on scientific method. The other, the FPA, was endorsed by commercial collectors, who would have been permitted to collect and profit from fossils found on federal lands.

1. *The Vertebrate Paleontological Resources Protection Act.* The VPRPA was introduced to the 102d Congress by Senator Max Baucus.¹²² Although the legislative history does not refer directly to Sue, the bill was introduced on July 30, 1992,¹²³ ten weeks after the government’s raid on the Institute. Baucus cited the rising commercial pressure to exploit fossils, fueled by their recent rise in popularity, as a compelling reason for comprehensive protection.¹²⁴ VPRPA would have attempted to smooth over the apparent conflict between the scientific community and amateur collectors by describing the latter as a vital part of the former,¹²⁵ and noting that amateurs’ previous contributions had advanced American paleontology.¹²⁶ VPRPA would have encouraged amateur collecting

119. See Duffy & Lofgren, *supra* note 88, at 496 (stating that ARPA included this distinction after protest by Native Americans and encouraging similar action in the future).

120. *Id.* at 497–98 (quoting Thomas H. Boyd, *Disputes Regarding the Possession of Native American Religious and Cultural Objects and Human Remains: A Discussion of the Applicable Law and Proposed Legislation*, 55 MO. L. REV. 883, 891–92 (1990)). Patrick Duffy was counsel to the Institute, which arguably informed his opinion. *Id.* at 478 n.†.

121. Sax, *supra* note 16, at 176.

122. S. 3107, 102d Cong. (1992).

123. *Id.*

124. 138 CONG. REC. 20,489 (1992) (statement of Sen. Baucus).

125. S. 3107 § 2(4).

126. *Id.* § 2(5)–(6).

by allowing amateurs to apply for permits¹²⁷ and retain the fossils that they found unless they were of “significant scientific value.”¹²⁸ This would have expanded agencies’ practice, which mainly involves issuing permits for large-scale fossil excavations.¹²⁹ The fossils would have remained the property of the United States, however; amateurs would have been prevented from selling them,¹³⁰ and only those amateurs affiliated with a suitable institution would have been issued permits.¹³¹

The permitting process would have filtered and distinguished those individuals who were truly amateur paleontologists from those who were treasure hunters by using a purpose test; collecting for commercial purposes would have been strictly prohibited.¹³² In addition, any trade in illegally obtained fossils would have been prohibited.¹³³ A knowing violation would have resulted in a maximum fine of ten thousand dollars, imprisonment for up to one year, or both,¹³⁴ with the maximum fine and prison sentence doubled if the fossil value exceeded five hundred dollars.¹³⁵ Subsequent offenses would have resulted in a maximum fine of one hundred thousand dollars, imprisonment of up to five years, or both.¹³⁶ Civil penalties were to be determined by subsequent administrative regulations.¹³⁷

127. *See id.* § 6(b)(1) (requiring that an applicant be qualified to carry out the activity, but not specifying any formal training or a degree in paleontology).

128. *Id.* § 7(b)(1). Amateur collectors would have to report discoveries of a paleontological resource to the federal land manager, who would determine whether the resource has “significant scientific value.” *Id.* The federal land manager could consult with a paleontologist qualified to assess the resource in making this determination. *Id.* § 7(b)(2).

129. Lazerwitz, *supra* note 87, at 628.

130. S. 3107 §7(b)(3). This arrangement is identical to one in use by scientific collectors now—the appropriate repository retains possession of the fossil, but the fossil remains the property of the United States and cannot be alienated. U.S. DEP’T. OF THE INTERIOR ET AL., *supra* note 50, at 21.

131. S. 3107 § 4(1). An amateur collector is an individual who “collects paleontological resources for personal enjoyment, recreation, and educational purposes” and “is affiliated with a suitable institution for the purpose of collecting paleontological resources.” *Id.*

132. *Id.* § 8(a).

133. *Id.* § 8(b)–(c).

134. *Id.* § 8(d)(1)(A).

135. *Id.* § 8(d)(B). Value is determined by either the commercial or paleontological value of the resource plus the cost of recovery, restoration, and repair. *Id.*

136. *Id.* § 8(d)(2).

137. *Id.* § 9(a)(2).

2. *The Fossil Preservation Act of 1996.* The FPA was introduced in the House of Representatives by Representatives Tim Johnson and Joe Skeen with the stated purposes of securing fossils on public lands for the present and future benefit of Americans and providing a uniform national policy on fossil collecting.¹³⁸ The FPA advanced these purposes by proposing to open public lands to commercial collecting, thereby reducing the “loss of fossils resulting from erosion and theft” and encouraging the study of “scientifically unique paleontological specimens.”¹³⁹ Paleontology would be “best served by unimpeded access to fossils and fossil-bearing rocks in the field.”¹⁴⁰

The FPA would have created a new type of permit, the commercial collecting permit.¹⁴¹ This permit would have allowed fossils collected from federal lands to be sold, with fees and royalties payable to the federal government.¹⁴² Commercial collectors would have been required to maintain paleontological records, to deposit them with the United States Geological Survey, and to report any unanticipated discoveries to the agency granting the permit.¹⁴³ The National Fossil Council (Council), a creation of the FPA, would have determined which fossils were scientifically unique.¹⁴⁴ Fossils would have been presumed not to be scientifically unique; approval by five of the seven Council members would have been required to rebut the presumption.¹⁴⁵

The FPA did not assign criminal penalties for violations, but federal land managers could have assessed civil penalties of up to one hundred thousand dollars for willful violation of any provision.¹⁴⁶

Because it intended to permit commercial collection and private enrichment from public property, the FPA was lambasted in the press as extremist legislation that would subject public land to commercial

138. H.R. 2943, 104th Cong. § 2(b)(1)–(2) (1996).

139. *Id.* § 2(b)(3)–(4).

140. *Id.* § 2(a)(2).

141. *Id.* § 5(d). The FPA would have continued to authorize the issuance of educational collecting permits and scientific collecting permits. *Id.* § 5(b)–(c).

142. *Id.* §§ 5(d)(1)(A)–(B), 6.

143. *Id.* § 5(d)(1)(C)–(D).

144. *Id.* §§ 9(b)(1), 5(d)(1)(D).

145. *See id.* § 9(f)(2) (“Designating a fossil as scientifically unique in connection with a commercial permit *requires an affirmative vote of five members* of the Council.” (emphasis added)).

146. *Id.* § 8(a).

fossil plundering.¹⁴⁷ The president of the Society of Vertebrate Paleontology criticized the FPA because the rules equated importance with size and rarity and because commercial collectors were unlikely to record small, but crucial, details in their quests to collect spectacular finds.¹⁴⁸

C. Currently Proposed Legislation: Paleontological Resources Preservation Act

PRPA would add little to the procedural system that federal agencies currently employ to regulate collection of paleontological resources; it would merely streamline the existing jumble by instituting uniform criminal and civil penalties for violations.¹⁴⁹ The PRPA would make prosecuting violators easier and more successful; prosecutors are reluctant to try fossil theft cases under the current regime because they are so difficult to win.¹⁵⁰

PRPA is a response to the 2000 report, "Assessment of Fossil Management on Federal and Indian Lands,"¹⁵¹ which was commissioned by Congress following a Senate Report.¹⁵² Seven federal agencies and the Smithsonian Institution prepared the 2000

147. See Chris Beard, Editorial, *Save the Dinosaurs*, PITTSBURGH POST-GAZETTE, Feb. 28, 1996, at A11 ("All parents with children who are fascinated by dinosaurs need to understand that powerful elements in Congress aim to drive a stake through the heart of their child's early enthusiasm for science in the form of dinosaurs.").

148. Philip Cohen, *U.S. Bill Could Give Fossil Hunters a Field Day*, NEW SCIENTIST, Mar. 16, 1996, at 1010.

149. See 149 CONG. REC. S3266 (daily ed. Mar. 6, 2003) (statement of Sen. Akaka) ("The protections offered in this Act are not new. Federal land management agencies have individual regulations prohibiting theft of government property."); see also *H.R. 2057 and H.R. 2416: Joint Hearing on H.R. 2416 Before the Subcomm. on Fisheries Conservation, Wildlife and Oceans and the Subcomm. on Forests and Forest Health of the House Comm. on Resources*, 108th Cong. 36 (2003) (statement of Rep. James P. McGovern) ("It is important to note that the bill seeks only to penalize those who seek to profit illegally from these public resources. It does not place any new restrictions on amateur collectors, who by and large respect the value of these fossils.").

150. 149 CONG. REC. S3266 (statement of Sen. Akaka).

151. U.S. DEP'T. OF THE INTERIOR ET AL., *supra* note 50.

152. 149 CONG. REC. S3266 (statement of Sen. Akaka). PRPA was first introduced in 2002, when it had bipartisan support, but it was still awaiting committee approval at the close of the 107th Congress. *Id.* The Act was approved by unanimous consent in the Senate during the 107th Congress. 149 CONG. REC. S3265 (2003). PRPA was reintroduced in the 108th Congress by Senator Daniel Akaka as S. 546 and by Representative James McGovern as H.R. 2416. Valentina Petrova, *McGovern Leads the Effort to Protect Treasured Fossils*, WORCESTER TELEGRAM & GAZETTE, June 23, 2003, at A1. The two bills were similar in content, but neither was approved at the close of the 108th Congress. PRPA was reintroduced in the 109th Congress by Senator Akaka as S. 263.

report.¹⁵³ PRPA encompassed the recommendations made in the report,¹⁵⁴ which advised that (1) federal action should reaffirm federal fossils' scientific, educational, and, when appropriate, recreational values; (2) vertebrate fossil collection should only be performed by qualified persons, and fossils should remain the property of the United States; (3) penalties for fossil theft should be strengthened and should take into account the fossils' value and any damage resulting from illegal collection; and (4) the public should be involved in federal fossil management, and educational opportunities should be increased.¹⁵⁵

Like the existing laws and VPRPA, PRPA would apply only to federal lands,¹⁵⁶ and fossils that are collected would remain property of the United States.¹⁵⁷ A permit would be required in all cases except casual collecting¹⁵⁸—a new designation covering common invertebrate and plant fossils collected for noncommercial personal use.¹⁵⁹ Casual collectors would be limited to a “reasonable amount” of fossils that are collected so as to produce “negligible disturbance” to the earth's surface.¹⁶⁰ Permits would be issued to qualified applicants excavating for the purpose of furthering paleontological knowledge or public education.¹⁶¹

PRPA would impose both criminal and civil penalties.¹⁶² In addition, illegal collectors' vehicles and equipment could be seized, along with the wrongfully collected fossils, and disposed of or sold.¹⁶³

153. 149 CONG. REC. S3266 (statement of Sen. Akaka).

154. *Id.*

155. U.S. DEP'T. OF THE INTERIOR ET AL., *supra* note 50, at 9–10. The report made three other recommendations: (1) agencies should continue to take mission-specific approaches to plant and invertebrate fossil management; (2) there should be an increased emphasis on fossil inventory to ensure effective stewardship; and (3) scientifically valuable fossils should be curated as federal property and modern technology should be used to improve curation, access, and information sharing. *Id.*

156. S. 263 pmb., 109th Cong. (2005). “Federal lands” means lands controlled or administered by the Secretary of the Interior, except Indian lands, and National Forest System lands controlled or administered by the Secretary of Agriculture. *Id.* § 2(3).

157. *Id.* § 5(c)(1).

158. *Id.* § 5(a)(2).

159. *Id.* § 2(1).

160. *Id.* “Reasonable amount” and “negligible disturbance” are terms that will be determined by the secretary who administers the public land on which the particular resource is found. *Id.* § 2(2).

161. *Id.* § 5(b).

162. *Id.* §§ 7–8.

163. *Id.* § 9(b).

As under existing regulations, federal paleontological resources could not be disturbed unless explicitly permitted by PRPA.¹⁶⁴ Furthermore, if a person knew or should have known that a particular resource had been obtained illegally, any trade in that resource would be a criminal offense.¹⁶⁵ False labels, records, or accounts of excavated federal fossils would also be prohibited.¹⁶⁶ Transgressors could be imprisoned for up to ten years and fined.¹⁶⁷ However, if the sum of the commercial and paleontological value of the fossils involved and the restoration and repair costs did not exceed five hundred dollars, then the imprisonment would be limited to a maximum of one year.¹⁶⁸

Regulations promulgated under the PRPA would specify civil penalties.¹⁶⁹ Penalty payments would be used to protect, restore, or repair the fossils and sites that were the subject of the action, or to acquire and protect other sites with equivalent resources.¹⁷⁰

PRPA would also include a carrot to aid enforcement: rewards for information. The rewards would be paid from collected penalties and would be distributed to anyone who provided information leading to a civil or criminal penalty.¹⁷¹ The reward would be the lesser of five hundred dollars or half of the collected penalty.¹⁷²

PRPA would emphasize public education and awareness of the significance of paleontological resources.¹⁷³ Seized fossils would be transferred to educational institutions and used for scientific or educational purposes.¹⁷⁴ All federal fossils would be managed and protected using scientific principles and expertise, preserved for the public, and made available for scientific research and public education.¹⁷⁵ Interagency coordination and collaborative efforts with nonfederal partners, the scientific community, and the general public would characterize plans to inventory, monitor, and use the fossils.¹⁷⁶

164. *Id.* § 7(a)(1).

165. *Id.* § 7(a)(2).

166. *Id.* § 7(b).

167. *Id.* § 7(c).

168. *Id.*

169. *Id.* § 8(a)(2).

170. *Id.* § 8(d).

171. *Id.* § 9(a).

172. *Id.*

173. *Id.* § 4.

174. *Id.* § 9(c).

175. *Id.* § 5(c)(2).

176. *Id.* § 3(a).

III. AN IDEAL STATUTE

An ideal legal framework for managing fossils should meet two goals: first, it should maximize the preservation of fossils' scientific and cultural value, and second, it should be enforceable. It should also be able to meet these goals while operating in an imperfect world. In other words, the ideal legal framework would embrace the unpleasant realities of paleontological resource protection: only public land is regulable, agency resources are limited, and people are greedy. Either comprehensive legislation or a uniform regulatory framework created by land management agencies can create this framework.¹⁷⁷ National legislation is preferable to uniform agency regulation because it would establish clear authority, give lawmakers a clean slate, and refocus national attention on the scientific and cultural importance of fossils.¹⁷⁸

Other countries go farther, limiting commercial collecting on both public and private land. The United States is "almost alone among nations in taking an essentially hands-off position as to such materials on private lands, unless they are human remains."¹⁷⁹ For example, China prohibits the removal of any Chinese fossils from the country under their Cultural Relics Protection Law,¹⁸⁰ and Australia heavily regulates the export of Australian fossils under its Protection of Moveable Cultural Heritage Act of 1986.¹⁸¹ The legal literature about fossil regulation neglects to address why the United States does not extend its protection to nonfederal fossils,¹⁸² but the strong American tradition of protecting private property rights suggests one reason for the limitation.

Although it would be ideal to extend statutory protection to private lands along with public lands, there are too many legal and political barriers in this country for this change to be feasible. First, because extending protection to private lands runs counter to American private property values it would certainly be opposed in

177. Malmshemer & Hilfinger, *supra* note 27, at 613–14.

178. Lundgren, *supra* note 87, at 259.

179. Sax, *supra* note 16, at 176.

180. See Schmidt, *supra* note 17, at 186 (discussing amendments to the Cultural Relics Protection Law to provide more protection for fossils).

181. Michael Reed, *Heritage Slips Out Quietly*, AUSTRALIAN, Aug. 13, 1999, at 10.

182. Paleontological resources covered by ARPA are the exception to the generally unprotected status of nonfederal fossils. See 16 U.S.C. § 470bb(1) (2000) (stating that paleontological specimens are not considered archaeological resources unless they are found in an archaeological context).

Congress and by the press as another instance of the federal government sticking its head where it does not belong. A collector like Peter Larson, excavating on a private ranch, does not pose a threat unless one takes an expansive view of public welfare. Second, if a bill that extended protection to private lands were enacted, the federally sponsored removal of fossils from nonfederal lands would implicate the Takings Clause, thereby raising the possibility that the fossils' removal would require compensation by the government.¹⁸³

Third, extending protection to private lands could deter public involvement in paleontology. This seems like a perverse argument at first glance, but people are captivated by the idea of ownership, however illusory. From a scientific perspective, all fossils should be kept in the public domain where they can be studied, but from a social or psychological perspective, people are motivated by private ownership. The thought of owning a piece of the past is alluring.¹⁸⁴

Finally, although fossils are valuable as well as fun and interesting, they simply cannot command the requisite importance to make their protection universal in this country. Archaeological artifacts that are found on private lands are also generally unprotected. Because of artifacts' close connection to past *human* life, it seems more likely that public support for their protection would occur before support for protection of fossils unrelated to human life.¹⁸⁵

A. *Maximizing the Preservation of Scientific and Cultural Value*

To maximize the preservation of fossils' scientific and cultural value, an ideal statute should achieve at least four goals: explicitly ban commercial collecting on all federal land, vest permanent ownership of all fossils found on federal land with the United States, deter

183. In addition, because the Eighth Circuit has interpreted fossils as being part of the earth and not separable into personalty, *Black Hills Inst. of Geological Research v. S.D. Sch. of Mines & Tech.*, 12 F.3d 737, 742 (8th Cir. 1993) (*Black Hills III*), real property law would seem to apply. *But see* Lazerwitz, *supra* note 87, at 632 ("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 under the Fifth Amendment.").

184. *See* Tatiana Flessas, *Sacrificial Stone*, 14 LAW & LITERATURE 49, 66 (2002) ("We take ownership of the past. This act of affirmation . . . [is] needed to claim ancient objects or to occupy or rebuild ruins. It is a cry of fictional recognition, of desire-driven appropriation, of power that seeks to overturn the loss of *memory* in the past.").

185. *See* Lazerwitz, *supra* note 87, at 606 ("Paleontological specimens, however, do not have the inherent cultural interest which is often associated with the remains and artifacts of human cultures.").

plundering, and maintain accessibility to fossils for amateur collectors.

1. *Banning Commercial Collecting on Federal Land.* Commercial collecting on federal land must remain illegal to preserve fossils' cultural and scientific value. Banning commercial collecting on federal lands would destroy any legitimate economic value that any fossils found there might have. Although there will always be a market for illegally collected fossils, preventing the emergence of a legitimate market would encourage collecting only by those with scientific and educational motivations. Scientists and educators tend to use care and documentation when collecting, thus preserving scientific value, and they usually deposit their finds in a public institution, thus preserving cultural value.¹⁸⁶ Commercial collection compromises both scientific and cultural value in favor of maximizing economic value via private sales and ownership.¹⁸⁷

2. *Vesting Federal Ownership.* Any fossils collected on federal land should remain property of the United States. As noted by the Eighth Circuit, fossils are ingredients of the land, and although separated from it, still belong to the landowners.¹⁸⁸ Although some agencies allow private benefit from public resources—selling mineral and timber rights to private companies, for example¹⁸⁹—such rights should not be extended to paleontological collection because of fossils' significant cultural and scientific value.

The ideal statute would, like PRPA, ensure federal fossil ownership but grant public access so that fossils remain available for study and display by requiring that significant finds be kept in a suitable repository.¹⁹⁰ Assigning fossils to the public domain would avoid the expense of culling scientifically unique specimens from the rest as the FPA had proposed; FPA's Council review process would have used public time and resources for private gain. In addition, a

186. See Lundgren, *supra* note 87, at 261.

187. See *supra* note 14 and accompanying text.

188. *Black Hills III*, 12 F.3d at 742.

189. See, e.g., U.S. BUREAU OF LAND MGMT., SOLID MINERAL PROGRAMS ON THE NATION'S FEDERAL LAND: MINIMIZING THE HUMAN 'FOOTPRINT' ON THE LANDSCAPE, at <http://www.blm.gov/nhp/pubs/brochures/minerals/> (last visited Feb. 28, 2005) (on file with the *Duke Law Journal*) (summarizing Bureau of Land Management regulations regarding mineral extraction).

190. See *supra* notes 155–60.

mandatory federal ownership rule is straightforward and easy to understand, preventing it from being found unconstitutionally vague, as was the Antiquities Act.¹⁹¹

3. *Deterring Plundering.* A bill banning commercial collecting on federal land must contain stronger criminal penalties than those currently available under either the Antiquities Act¹⁹² or the theft of government property catch-all provision.¹⁹³ In this context, it is more important to deter plundering than to find and punish violators. Fines, although punitive in nature, may not act as deterrents because the potential market price of a good specimen is so high and the barriers to collection so low. Criminal sanctions must be included in any ideal legislation, and sentences must be high enough to capture collectors' attention and induce them to ensure that they are not excavating on federal land. The criminal penalties that the PRPA would provide¹⁹⁴—and that would have been provided by VPRPA—include maximum felony prison sentences of ten years.¹⁹⁵ Such penalties would adequately deter potential federal-land fossil plunderers at any stage, from excavation to false documentation, and should be incorporated into the ideal statute. Any legislation should also include escalating punishments for recidivists, such as those contained in the VPRPA.¹⁹⁶

4. *Maintaining Accessibility for Amateurs.* An ideal statute should preserve the role of amateurs, an approach that is favored by PRPA and that was a driving force behind the FPA. Amateur collectors play an important role in paleontological discovery and to some extent, the field depends on keeping amateurs involved.¹⁹⁷ The public should feel that fossils are accessible at every stage, and letting

191. *See* *United States v. Diaz*, 499 F.2d 113, 115 (9th Cir. 1974) (holding that the Antiquities Act's "use of undefined terms of uncommon usage" rendered it "fatally vague").

192. The punishment for violating the Antiquities Act is a maximum fine of five hundred dollars or imprisonment of a maximum of ninety days, or both. 16 U.S.C. § 433 (2000).

193. *See supra* note 44 and accompanying text.

194. S. 546, 108th Cong. §9 (2003).

195. *Id.* Minor violations are not felonies. *See* 18 U.S.C. § 641 (2000) ("[I]f the value of [the stolen] property does not exceed the sum of \$1,000, he shall be fined under this title or imprisoned not more than one year, or both.").

196. *See supra* note 136.

197. *See* U.S. DEP'T. OF THE INTERIOR ET AL., *supra* note 50, at 34–36 (advocating an emphasis on public education and the use of technology to foster the involvement of the general public).

amateurs help scientists excavate important specimens and bring home common invertebrate and plant fossils accomplishes this goal. The BLM's current guidelines, permitting the collection of reasonable amounts of common invertebrate fossils and fossil plants for noncommercial purposes,¹⁹⁸ are a good model. The statute, however, should only allow surface collection. Removing overburden could unnecessarily expose fossils to the elements, hastening erosion and accelerating destruction from a matter of years to a matter of weeks.¹⁹⁹

There should be a voluntary reporting mechanism through which amateurs could report any potentially valuable specimens to the appropriate land use agency. Bone fragments that are washing out of the matrix and that are visible on the surface may be a sign that a more intact specimen lies beneath the surface. Although nonpermit holders should not be allowed to collect vertebrate fossils, not even bone fragments, alerting agencies of fossil whereabouts may help manage the resource more effectively. Some collectors who are considered amateurs, like Sue Hendrickson, are experienced prospectors, and a reporting mechanism would take advantage of their advanced skill levels, allowing agencies to cast a wider reconnaissance net. Anecdotal evidence suggests that this already happens on some scale—amateurs who know whom to contact will sometimes call the BLM agent covering the area or forward photographs of a mysterious bone to the state paleontologist. Establishing a more effective system that will leave fewer people wondering what to do with the potential dinosaur graveyard at their feet will be good for preservation and education. Not all amateur collectors are out to make a buck; some people simply enjoy the adventure.

B. Enforceability

An ideal statute would be more enforceable than the current regime because violations are hard to prosecute, little interpretive case law exists, and the heart of the problem is not addressed. Three elements of an enforceable fossil protection statute are clear guidelines, streamlined processing, and rewards. The *Black Hills* litigation is a perfect illustration of why an ideal fossil management

198. *Id.* at 20 tbl.1.

199. See LEIGGI & MAY, *supra* note 15, at 71–72 (describing the need for amateurs to obtain permission from landowners and instructing on appropriate methods for removing sediment overburden).

statute must be enforceable. Peter Larson was not charged with any crimes relating to the excavation of Sue²⁰⁰ even though the excavation was the clear catalyst for bringing criminal and civil actions against him. Instead, he was charged with many small crimes, which ultimately resulted in modest fines and imprisonment.²⁰¹ Before the criminal trial even began, there were over 350 entries on the docket sheets in related civil proceedings.²⁰² The government's trouble began when it tried to use the weak, and possibly unconstitutionally vague, Antiquities Act to prosecute Larson. A stronger federal statute would have given the government more firepower and would have streamlined the process. In fact, a stronger statute might have avoided the incident altogether. Larson, knowing of the possible penalties, might have decided to examine more diligently whether he could dig on Williams' land. Someone of Larson's experience would have been aware of Sue's economic value as private property, and such an individual probably would have double checked the property to be sure that Sue would not be confiscated and that there would not be criminal penalties for excavating her.

1. *Clear Guidelines.* The statute must clearly list the permitted and forbidden activities and detail the available punishments. In addition, it must provide guidelines for prosecution. The statute should also apply to all federal lands in the same way, regardless of which government agency manages the land. Under the current regulatory regime, each agency has its own rules, meaning that collectors—both commercial and noncommercial—and prosecutors have five different sets of rules to learn. Although surface collecting is legal on BLM land, it is not legal on National Park land.²⁰³ This understandably confuses amateurs²⁰⁴ and may create an escape chute for informed commercial collectors. Employing a uniform rule would eliminate such misunderstandings, requiring everybody to remember and follow the same rules on all federal lands. The ideal statute should also streamline prosecution efforts because cases would follow similar formats, deepening interpretive case law.

200. See *supra* notes 73–79 and accompanying text.

201. See *supra* notes 74–77 and accompanying text.

202. *In re Larson*, 43 F.3d 410, 411 (8th Cir. 1994) (*Black Hills IV*).

203. U.S. DEP'T OF THE INTERIOR ET AL., *supra* note 50, at 20.

204. See *id.* at 28 (“The consulting agencies received some input to indicate that the differences in collection policies for plant and invertebrate fossils may be confusing to the public.”).

2. *Streamlined Processing.* The statute should not impose new rules that generate more paperwork for agencies to complete. All three of the proposed bills include provisions that would increase mandatory reporting, permitting, and levels of evaluation by federal land agents; some scholarly publications support this position as well.²⁰⁵ Government agencies have limited resources, and these resources should be put to their best and highest use. In this case, that use is protecting fossils and preventing plundering. A more elaborate permitting and reporting system should not be a part of an ideal statute because more permits require more agents to review them, leaving less time for field work. Requiring amateurs to obtain permits for casual surface collection would be impractical because of the permit volume and the impossibility of enforcement. If lawmakers must increase the amount of red tape in this area, they should support this decision by sufficiently funding the agencies responsible for reviewing the paperwork. One commentator suggests dispensing updated information about fossils through a permit system²⁰⁶—an excellent suggestion that could be incorporated in a non-permit context. For example, kiosks in popular collecting areas could include this information, as could government web sites.

3. *Rewards.* Rewards in exchange for information about violators may aid enforcement. PRPA includes reward provisions, although the Forest Service believes that the maximum reward amount would be ineffective in most cases and that an appropriate reward amount should be determined on a case-by-case basis, taking into account the significance of the case and the provided information.²⁰⁷ Such a reward system would differ from the voluntary reporting mechanism suggested above²⁰⁸ because it would apply only to reports of suspected illegal collection, and not to sightings of undisturbed fossil sites.

205. See, e.g., Lazerwitz, *supra* note 87, at 634–35 (approving VPRPA’s additional reporting requirements, but suggesting that permitting and management authority be centralized within one federal agency); Lundgren, *supra* note 87, at 260 (“One possible way to provide additional protection to fossils is to require amateurs to receive permits to collect fossils on public lands.”).

206. Lundgren, *supra* note 87, at 261.

207. Estill Testimony, *supra* note 51.

208. See *supra* Part III.A.4.

Some countries also offer “finders rewards” to discoverers of antiquities as an incentive to turn them over to the State.²⁰⁹ Professor Sax states that “practical wisdom suggests that finders ordinarily need to be compensated generously or the public is unlikely to get the found objects, regardless of the formal rules.”²¹⁰ As the Forest Service warned, however, it is unlikely that the United States would be able to fund adequate finders rewards;²¹¹ a voluntary reporting mechanism that depends on citizens’ virtue may be the best available substitute. A survey conducted in 1995 showed that over 90 percent of respondents believed that a fossil should be reported to authorities, regardless of whether it was found on private or federal land.²¹² This suggests that voluntary reporting could be successful.

CONCLUSION

The primary goal of this Note is to illustrate how valuable fossils are to society’s collective understanding of Earth’s past and future, and that this value transcends dollar signs. Scientific and cultural value must take precedence over economic enrichment, and lawmakers must be pushed to pass legislation that will protect these resources for all people, not just those fortunate enough to afford them or tenacious enough to dig them up and take them home. This Note encourages participation in paleontology at all levels, but urges responsible collection, documentation, and storage. This can best be achieved through the passage of comprehensive legislation that bans commercial collecting on federal land, provides that all fossils found on federal land remain the property of the people, deters plundering, ensures access to fossils for amateur collectors, establishes clear guidelines, promotes streamlined processing, and rewards those who provide information about violators. Without a significant paradigm shift in the way Americans think about personal property, comprehensive legislation will not reach fossils found on private property, which are equally deserving of protection. Nevertheless, new legislation may ensure that tomorrow’s enthusiasts can enjoy the

209. SAX, *supra* note 15, at 185. Two countries offering “finders rewards” are Iraq and Sudan. *Id.*

210. *Id.*

211. See Forster Testimony, *supra* note 14, at 44 (statement of Elizabeth Estill, Deputy Chief, Programs, Legislation, and Communications, U.S. Forest Service) (“However, the currently worded language in Section 11 provides a maximum reward amount that we believe would [be] ineffective in most cases.”).

212. Lundgren, *supra* note 87, at 238.

fossils that today's collectors leave for them on federal lands. This is an opportunity to shape the future, not merely to reconstruct the past.