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Can You Dig It? Yes, You Can! But at What Cost?: A Proposal for the Protection of Domestic Fossils on Private Land

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**CAN YOU DIG IT? YES, YOU CAN! BUT AT WHAT COST?:
A PROPOSAL FOR THE PROTECTION OF
DOMESTIC FOSSILS ON PRIVATE LAND**

Bridget Roddy[†]

Abstract

Paleontological resources require similar protections to archaeological resources because the threat of looting, improper excavation, and market demand are analogous. Paleontological resources are responsible for informing much of scientists' understanding of evolution and the history of the planet, just as cultural property helps to inform the evolution of humanity and culture. Once either object is removed from its original context, there is an immediate and invaluable loss of information that could have illuminated important information about the past. When either is removed from the environment in which they were created, a nonrenewable link to the past is lost.

Existing laws are too limited to provide sufficient protection relative to the importance of paleontological resources. Recent high-profile examples of the public sale of dinosaur remains illustrate the threat to these resources if their sale is not restricted. The proposed legislative changes in this Article attempt to address these issues by expanding state level protection of fossils being excavated on private land and giving museums a financial advantage when purchasing fossils. There is an urgent need for these regulations as the prices of dinosaurs at auction skyrocket and never-before-seen fossils erode in the desert.

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I. INTRODUCTION

Paleontological resources require similar protections to archaeological resources because the threat of looting, improper excavation, and market demand are analogous. For the purposes of this Article, “paleontological resources” means any fossilized remains, traces, or imprints of organisms, preserved in or on the earth’s crust, that are of paleontological interest and that provide information about the history of life on earth.”¹ Paleontological resources are responsible for informing much of scientists’ understanding of evolution and the history of the planet, just as cultural property helps to inform the evolution of humanity and culture. Once either object is removed from its original context, there is an immediate and invaluable loss of information that could have illuminated important information about the past. When either is removed from the environment in which they were created, a nonrenewable link to the past is lost.

Further, there is a growing demand for fossils by private buyers.² This demand incentivizes commercial fossil dealers to exploit the weak or nonexistent laws that currently govern fossil collection for financial gain. Trained paleontologists value the fossils themselves for their ability to teach about past ecosystems and biodiversity, whereas commercial fossil hunters, dealers, and landowners value these resources for only the price they can fetch at an auction or from a private buyer.

The existing United States law regarding the protection of paleontological resources, the Paleontological Resources Preservation Act (“PRPA”), divides land into two categories: federally owned and privately owned.³ Fossils residing in the dirt of federally-owned lands, such as national parks, are the property of the government and cannot be removed without a permit from the regulatory agency.⁴ This is in stark contrast to those fossils found on privately-owned land. Since landowners in the United States have the same rights over paleontological objects on their property as they do with any other private property, it is the land owner’s prerogative to keep, sell, or destroy: for

1. Paleontological Resources Preservation Act, 16 U.S.C. § 470aaa(4).

2. Donovan Webster, *The Dinosaur Fossil Wars*, SMITHSONIAN MAG. (Apr. 2009), <https://www.smithsonianmag.com/science-nature/the-dinosaur-fossil-wars-116496039/> [<https://perma.cc/C6X3-AKZT>].

3. See generally 16 U.S.C. § 470aaa.

4. § 470aaa-3(a).

example, a one-of-a-kind, 60-million-year-old *T. rex* they find in their backyard.⁵

These competing interests—paleontologists to protect and study rare paleontological objects, fossil dealers to profit, and landowners to maintain dominion over their land—make implementing meaningful regulations difficult.

This Article proposes that United States law can better protect excavated paleontological resources by using existing legal framework for protecting cultural property and passing new legislation that deters fossil collection for financial gain, prioritizes collection by scientific and academic institutes, and addresses three specific harms caused by lack of regulation. These harms are as follows. First, when individuals collect fossils with financial motive, they give little reverence in preserving or documenting the area where they found the fossils. This loss of context prevents paleontologists from learning all they can from fossilized remains. Second, while paleontologists are able to access dig sites on federally-owned land through the PRPA, accessing fossils on privately-owned land is often not financially possible when competing with commercial fossil dealers for dig permits. Third, unique fossil specimens that reach the public market are often too expensive for museums and research institutions to purchase because the demand for these fossils is so high.

First, this Article will discuss the role fossils have had throughout human history to establish their importance and worthiness of protection. Second, this Article will discuss existing laws which govern the excavation of paleontological resources in the United States. Third, this Article will discuss the three harms identified above, alongside case studies of *Black Hills Institution of Geological Research v. United States, Department of Justice* and *Murray v. BEJ Minerals, LLC*, two pivotal cases on this issue that further underscore the need for robust protection of meaningful fossil finds. This section will also propose potential solutions at the state level that would result in better protection of paleontological resources. States can better protect paleontological resources by expanding existing state antiquities laws to include paleontological finds and requiring permits to dig for fossils on private land. States can grant further protection through market regulation that incentivizes private landowners to grant permits to scientific institutions and disincentivizes high prices for fossils at auction.

5. See Denise R. Johnson, *Reflections on the Bundle of Rights*, 32 VT. L. REV. 247, 253 (2007).

A. Importance of Paleontological Resources

1. Cultural History

Since antiquity, dinosaur bones and fossilized remains have been cornerstones of folklore, religious practices, and academic intrigue, earning a spot in the cultural histories of countries around the world.⁶ From the time humans started to interpret the world around them, fossils have informed humanity's worldview. Folklorist and historian Adrienne Mayor in *The First Fossil Hunters* writes, "The tasks of paleontologists and classical historians and archaeologists are remarkably similar—to excavate, decipher, and bring to life the tantalizing remains of time we will never see."⁷ Greek mythology tells of Pelops's great shoulder blade—reputed to have magical powers—being displayed in its own shrine.⁸ In myth, Pelops was Heracles' great-grandfather and a founder of the Olympic Games.⁹ Historians believe the shoulder blade truly existed, but what the ancient Greeks had on display was a mammoth scapula, which would have been human in shape but awe-inspiringly god-like in size.¹⁰ Smaller invertebrate fossils were often interpreted as sacred based upon their resemblance to familiar or sacred objects.¹¹ In India for example, Hindus worship saligrams, or fossil ammonites, as the disc (chakra) of the god Vishnu.¹² Saligrams provide a good example of fossils used in a creation story for a religion practiced in the present-day. Fossilized remains also appear as tangible cultural property in Chinese history, labeled as "dragon bones" in the earliest discovery of oracle bones by anthropologists in the twentieth century, tucked away in an apothecary's inventory.¹³ Oracle bones were bits of tortoise shells and animal bones used

6. This area of study is called Geomythology. "Geomythology is the study of etiological oral traditions created by pre-scientific cultures to explain—in poetic metaphor and mythological imagery—geological phenomena such as volcanoes, earthquakes, floods, fossils, and other natural features of the landscape." Adrienne Mayor, *Geomythology*, in *ENCYCLOPEDIA OF GEOLOGY* (Richard Selley et al. eds. 2004), <https://web.stanford.edu/dept/HPS/MayorGeomythology.pdf> [<https://perma.cc/5962-KUXV>].

7. ADRIENNE MAYOR, *THE FIRST FOSSIL HUNTERS: DINOSAURS, MAMMOTHS, AND MYTH IN GREEK AND ROMAN TIMES* 29 (2011) <https://muse.jhu.edu/book/30262> [<https://perma.cc/2RF9-YZWG>].

8. *Id.* at 99.

9. *Id.*

10. *Id.*

11. Alexandra Anna van der Geer et al., *Fossil Folklore from India: The Siwalik Hills and the Mahabharata*, 119 *FOLKLORE* 71, 71 (2008).

12. *Id.* at 72.

13. SIGRID SCHMALZER, *THE PEOPLE'S PEKING MAN: POPULAR SCIENCE AND*

for divination during the Shang dynasty (eighteenth to eleventh centuries B.C.E.).¹⁴

In North America, the Pawnee tribe held sacred nahurac (spirit animal) mounds where Pawnee medicine men undertook vision quests where they were said to encounter mysterious creatures and receive special healing powers.¹⁵ One such mound was Pahowa on the Solomon River in Kansas, a unique limestone formation about 40 feet high with a spring-fed mineral pool on top, described by Pawnee elders as a high timbered bank where immense, petrified bones spilled out.¹⁶ Anthropologists believe the Pawnee considered these mounds as spirit animal sites because they contained the peculiar fossil remains of extinct creatures.¹⁷ These stories show us how fossilized remains of prehistoric creatures were essential to the development of these cultures by informing their worldview. Today, fossil records provide context essential to understanding the Earth's natural history and the evolution of our world.

2. Natural History

As the only record of life on Earth, fossils hold the key to understanding the history of the planet and its potential future. From them we have learned that our planet is 4.6 billion years old (give or take 50 million years)¹⁸ and that our continents were arranged by shifting plates in the Earth's crust that shaped our land and seas.¹⁹ By studying fossil remains and their context in the Earth's crust, scientists are able to create a record of mass extinctions and make predictions about pressing modern issues like climate change.²⁰ Paleontological remains have significant scientific value, and they are, in comparison to all

HUMAN IDENTITY IN TWENTIETH-CENTURY CHINA, 36 (2008).

14. *Id.* at 1 n.2.

15. ADRIENNE MAYOR, Fossil Legends of the First Americans 187 (2005).

16. *Id.* at 186–87. In the 1960s, despite the landmark's designation as a unique historical and geological site (natural artesian springs are extremely rare in Kansas), it was declared a "mud hole" by the Army Corps of Engineers. They piled debris from the old spa into Pahowa's sacred pool and, in 1968, submerged the mound under the newly created Waconda Lake. Now, a highway marker is the only memorial.

17. *Id.*

18. Colin Schultz, *How Do We Know the Earth is 4.6 Billion Years Old?*, SMITHSONIAN MAG. (2014), <https://www.smithsonianmag.com/smart-news/how-do-we-know-earth-46-billion-years-old-180951483/> [<https://perma.cc/8VQR-6ZJQ>].

19. *Id.*

20. PAIGE WILLIAMS, THE DINOSAUR ARTIST: OBSESSION, BETRAYAL, AND THE QUEST FOR EARTH'S ULTIMATE TROPHY, xvi (2018).

organic life to have died on Earth, incredibly rare. It is estimated “that less than one percent of the animal species that ever lived became fossils.”²¹ Fossils have made it possible to experience a world before human existence. “The fact that our planet buries its dead is an amazing thing. The fact that you can read the history of the planet in fossils is profoundly cool. “We finally figured out how the planet works, and we did it through fossils,” said paleobotanist Kirk Johnson, Head of the Smithsonian National Museum of Natural History.²²

While fossil remains alone are fascinating, the context in which they are found is necessary to understand what our planet used to look like and why it changed.²³ Bones alone are important, but they tell a story when studied alongside the circumstances that lead to fossilization and in the presence of other fossils or plant life. This context is often lost when commercial fossil hunters excavate remains. Commercial fossil hunters are individuals who search for fossil remains to sell to wealthy individuals and occasionally museums.²⁴ Despite often referring to themselves as “commercial paleontologists,” those who take part in the commercial sale of fossils are almost never professional, degree-holding paleontologists.²⁵ While a commercial hunter and a paleontologist may both be collectors, “no reputable paleontologist is a dealer.”²⁶ In general, professional paleontologists disagree with the commercialization of fossils as they are important and rare scientific materials.²⁷ Taking this material out of the earth and into the hands of

21. Paige Williams, *The Fossil Wars: On the Battle Between Paleontologists and Amateur Dealers*, LITERARY HUB (Sept. 24, 2018), <https://lithub.com/the-fossil-wars-on-the-battle-between-paleontologists-and-amateur-dealers/> [<https://perma.cc/QAJ8-2EL3>].

22. WILLIAMS, *supra* note 20, at xxii.

23. See Roderick T. Wells, *Earth's Geological History: A Contextual Framework for Assessment of World Heritage Fossil Site Nominations*, INT'L UNION FOR CONSERVATION OF NATURE, (Sept. 1996), <https://www.iucn.org/sites/dev/files/import/downloads/fossils.pdf> [<https://perma.cc/99FG-F8JW>]. This article further explains the importance of fossil records and their preservation.

24. See Donovan Webster, *The Dinosaur Fossil Wars*, SMITHSONIAN MAG. (Apr. 2009), <https://www.smithsonianmag.com/science-nature/the-dinosaur-fossil-wars-116496039/> [<https://perma.cc/A3AE-CAC5>].

25. See Paige Williams, *The Fossil Wars: On the Battle Between Paleontologists and Amateur Dealers*, LITERARY HUB (Sept. 24, 2018), <https://lithub.com/the-fossil-wars-on-the-battle-between-paleontologists-and-amateur-dealers/> [<https://perma.cc/QAJ8-2EL3>].

26. WILLIAMS, *supra* note 20, at xix.

27. See Michael Greshko, ‘Stan’ the *T. Rex* Just Sold for \$31.8 Million—and Scientists are Furious, NAT'L GEOGRAPHIC (Oct. 12, 2020), <https://www.nationalgeographic.com/science/article/stan-tyrannosaurus-rex-sold-at-auction-paleontologists-are-furious> [<https://perma.cc/ACQ5-39SE>].

casual collectors to display in their homes rather than making them available for scientific study prevents the advancement of the study of paleontology. Fossils are rare, less than 1% of all the animal species that ever lived became fossils, and when a dealer sells a fossil to a private buyer, they are potentially selling scientific material that no longer exists anywhere on Earth.²⁸ Commercial hunters often argue that they are preserving fossils that would otherwise be destroyed by the elements, though experts are torn as to whether this is a sufficient justification for their practices.²⁹ Vincent Santuchi, a Paleontologist for the National Parks Service, disapproves of selling fossils commercially, and he says, “In a way, the dealers are protecting the fossils, but they’re destroying their research value by not letting scientists do it.”³⁰ Whether the collection of fossils for commercial gain is a blow to science or not, the growing demand for dinosaur skeletons as a luxury commodity is undeniable.

3. Market Demand

Not even a global pandemic could dampen the excitement surrounding the sale of the 39-foot-long *Tyrannosaurus rex*, affectionately nicknamed “Stan,” at Christie’s New York Auction House in October 2020.³¹ Prior to his sale, Stan was housed for more than three decades in South Dakota, where he was discovered by the Black Hills Institute of Geological Research in Hill City, South Dakota.³² The auction house placed the 67-million-year-old carnivore facing out of its flagship location’s windows, where it stared down Midtown traffic

28. Paige Williams, *The Fossil Wars: On the Battle Between Paleontologists and Amateur Dealers*, LITERARY HUB (Sept. 24, 2018), <https://lithub.com/the-fossil-wars-on-the-battle-between-paleontologists-and-amateur-dealers/> [<https://perma.cc/QAJ8-2EL3>].

29. Dr. Bakker, arguably the world’s premier paleontologist, conversely strongly opposes regulatory obstacles to fossil collecting, explaining that “[t]hrough the whole history of dinosaur paleontology more discoveries of new species and whole new faunas have been made by ‘amateurs’ than those few people privileged enough to draw taxpayers’ money to do their job.” 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, 488, 500 n.185 (1994).

30. WILLIAMS, *supra* note 20, at 316.

31. Michael Greshko, ‘*Dueling Dinosaurs’ Fossil, Hidden from Science for 14 Years, Could Finally Reveal Its Secrets*, NAT’L GEOGRAPHIC (Nov. 17, 2020), <https://www.nationalgeographic.com/science/article/dueling-dinosaurs-fossil-finally-set-to-reveal-secrets> [<https://perma.cc/Y6BZ-PXK7>].

32. *Id.*

with its baseball-sized eyes.³³ Christie's estimated that, with this eye-catching display, a pandemic-adapted marketing approach, and a livestreamed auction, the skeleton would sell for \$8 million.³⁴ After a 20-minute bidding war on October 6, 2020, an anonymous buyer bought Stan for a staggering \$31.8 million.³⁵ While Stan's new owner remains anonymous, it was likely not a museum that purchased him as this astounding price tag is out of reach for most museums.³⁶ Christie's likely sold Stan to a wealthy individual, frustrating scientists who hoped the skeleton would be available for the public to enjoy and scientists to study.³⁷ The booming market for fossils has attracted many high-profile buyers, including Nicolas Cage, who once outbid fellow Hollywood actor Leonardo DiCaprio, paying \$270,000 for the skull of a Mongolian Tarbosaurus Bataar at the I.M. Chait Gallery in Beverly Hills.³⁸

Stan is not the first multimillion dollar *T. rex* to sell at auction in the United States. Tyrannosaurus Sue sold in 1997 for a then unprecedented \$7.6 million, following a long and highly publicized legal battle over ownership rights.³⁹ At the same time of the litigation surrounding the skeleton, the Steven Spielberg film *Jurassic Park* (1993), the first film to successfully recreate dinosaurs using computer generated images ("CGI"), was released in theaters.⁴⁰ Five years later, when her skeleton came up for auction, the sequel, *The Lost World: Jurassic*

33. Zachary Small, *A T. Rex Skeleton Arrives in Rockefeller Center Ahead of Auction*, N.Y. TIMES (Sept. 16, 2020), <https://www.nytimes.com/2020/09/16/arts/design/t-rex-skeleton-christies-rockefeller-center.html> [<https://perma.cc/U6EG-9GX7>].

34. *Id.*

35. Zachary Small, *T. Rex Skeleton Brings \$31.8 Million at Christie's Auction*, N.Y. TIMES (Oct. 6, 2020), <https://www.nytimes.com/2020/10/06/arts/design/t-rex-skeleton-brings-31-8-million-at-christies-auction.html> [<https://perma.cc/B7MN-B2A6>].

36. *Id.*

37. Michael Greshko, *'Stan' the T. Rex Just Sold for \$31.8 Million—and Scientists are Furious*, NAT'L GEOGRAPHIC (Oct. 12, 2020), <https://www.nationalgeographic.com/science/article/stan-tyrannosaurus-rex-sold-at-auction-paleontologists-are-furious> [<https://perma.cc/ACQ5-39SE>].

38. Julie Miller, *Nicolas Cage Outbid Leonardo DiCaprio for a Dinosaur Skull That May Have Been Stolen*, VANITY FAIR (Oct. 29, 2013), <https://www.vanityfair.com/hollywood/2013/10/nicolas-cage-leonardo-dicaprio-dinosaur-skull> [<https://perma.cc/S4Y2-S522>].

39. Lydia Pyne, *The Second Life of Mongolian Fossils*, THE ATLANTIC (Dec. 27, 2017), <https://www.theatlantic.com/science/archive/2017/12/second-life-of-mongolian-fossils/548558/> [<https://perma.cc/PPC7-JF57>].

40. Riley Black, *Why Do We Keep Going Back to Jurassic Park?*, SMITHSONIAN MAG. (Oct. 25, 2011), <https://www.smithsonianmag.com/science-nature/why-do-we-keep-going-back-to-jurassic-park-117247927/> [<https://perma.cc/HE42-7H74>].

Park (1997), was released.⁴¹ The franchise became a massive success with the original film winning three Academy Awards and currently sits at number 30 in the all-time worldwide box office rankings.⁴² *Jurassic Park*'s success can be attributed to both spectacular visual imagery and an unfamiliar, exciting perspective of dinosaurs, which had, until this point, only been seen in animation and stop motion.⁴³ The groundbreaking special effects in the films brought dinosaurs to life,⁴⁴ and the auction of Sue was able to capture the excitement of the movies and translate it into a real-life sale at auction. Along with this excitement came a new attention to the legal and ethical debate regarding the sale of dinosaur skeletons. Some fossils are legal to sell while others are not, and commercial dealers and amateur fossil hunters often do not know, or do not care to know, the difference. For most commercial dealers, a potential million-dollar payday for a unique find seems to outweigh the risk of potentially breaking domestic or foreign law.⁴⁵ With unique finds selling for millions at auction, some commercial dealers are willing to take that risk.

4. National Importance

Founding Father Thomas Jefferson was an early champion of paleontology and believed fossils represented compelling scientific evidence of the great vitality of the North American continent.⁴⁶ In

41. Lydia Pyne, *The Second Life of Mongolian Fossils*, THE ATLANTIC (Dec. 27, 2017), <https://www.theatlantic.com/science/archive/2017/12/second-life-of-mongolian-fossils/548558/> [<https://perma.cc/PPC7-JF57>].

42. *All Time World Box Office*, THE NUMBERS, <https://www.the-numbers.com/box-office-records/worldwide/all-movies/cumulative/all-time> [<https://perma.cc/ZS28-PXSZ>]; *Jurassic Park (1993): Awards*, IMDB, <https://www.imdb.com/title/tt0107290/awards/> [<https://perma.cc/W44V-PA5S>].

43. Riley Black, *Why Do We Keep Going Back to Jurassic Park?*, SMITHSONIAN MAG. (Oct. 25, 2011), <https://www.smithsonianmag.com/science-nature/why-do-we-keep-going-back-to-jurassic-park-117247927/> [<https://perma.cc/HE42-7H74>].

44. *Id.*

45. Federal agents seized nearly 7 tons of rare Argentinian fossils from a vendor at the Tucson Gem, Mineral and Fossil Showcase in 2006. The Tucson Gem and mineral show has been described as the “New York Stock Exchange of the mineral world,” by dealers and the “pawn shop of paleontology” by Mark Goodwin, a paleontologist at the University of California Museum of Paleontology in Berkeley. Goodwin also believes that oversight of the commercial fossil market is minimal, and fines and penalties are so low that they do not deter smugglers. Becky Pallack, *Feds Seized Fossils at Gem Shows*, ARIZ. DAILY STAR (Feb. 24, 2006), https://tucson.com/news/local/crime/feds-seized-fossils-at-gem-shows/article_c3343756-a709-5c4e-a9a0-05b8f8796736.html [<https://perma.cc/2ARM-PL6F>].

46. President Jefferson’s collection, which included fossils of the American mastodon, giant ground sloth, and woolly mammoth, now resides at the Academy of

1761, best-selling French author Georges-Louis Leclerc, count de Buffon, wrote of “American Degeneracy;” his theory that even mother nature had forsaken the continent, “North America—so uncultivated, so wild, so full of those super-wet rivers and lakes—was too saturated and tangled to be of substance.”⁴⁷ In rebuttal to Leclerc’s claims, Jefferson penned what would later become known as the *Notes on the State of Virginia* in which he pointed to the existence of fossil vertebrates as proof that America was capable of creating impressive creatures.⁴⁸

Jefferson’s pronouncement that fossils were evidence of America’s power was, in a sense, prophetic. Today, the United States holds the record for the most dinosaur fossils ever discovered.⁴⁹ According to Paleobiology Database, a non-governmental public resource for professional researchers to contribute paleontological discoveries, 56,398 fossils have been discovered in the United States as of 2021, far exceeding Canada’s finds in second place with 13,751 fossils.⁵⁰ The United States has also set the record for the highest price paid for a fossil twice: first with the sale of Sue in 1997 and second in 2020 with the sale of Stan for \$31.8 million.⁵¹ The influence the United

Natural Sciences of Drexel University in Philadelphia. *Saving Our Nation’s Treasures*, DREXEL UNIV. <https://ansp.org/exhibits/online-exhibits/stories/saving-our-nations-treasures/> [<https://perma.cc/XMA2-R2PA>].

47. WILLIAMS, *supra* note 20, at 367.

48. See THOMAS JEFFERSON, NOTES ON THE STATE OF VIRGINIA (Apex Data Services trans., Amanda Page & Sarah Ficke eds., Univ. of N.C. Press 2006) (1782), <https://docsouth.unc.edu/southlit/jefferson/jefferson.html> [<https://perma.cc/8QA2-AB3A>]. While *Notes on the State of Virginia* is considered a foundational text in American history, it is also where Jefferson laid out his justification for slavery and is not without its issues.

49. Hugh Morris, *Mapped: Every Dinosaur Fossil Ever Found in Britain*, THE TELEGRAPH (Apr. 3, 2018, 12:44 PM), <https://www.telegraph.co.uk/travel/maps-and-graphics/where-to-find-dinosaur-fossils/> [<https://perma.cc/4DUA-YDGL>]. Recently, however, many discoveries celebrated by the media were found in China, Mongolia, and Argentina. See Sarah Laskow, *Why All the Cool New Dinosaurs Are from Asia and South America*, ATLAS OBSCURA (Oct. 9, 2015), <https://www.atlasobscura.com/articles/why-all-the-cool-new-dinosaurs-are-from-asia-and-south-america> [<https://perma.cc/4BEF-4GQL>].

50. Collection Search Results for United States, THE PALEOBIOLOGY DATABASE, <https://paleobiodb.org/classic> [<https://perma.cc/27KT-4MNB>] (in “Country/Continent” field enter “United States”); Collection Search Results for Canada, THE PALEOBIOLOGY DATABASE, <https://paleobiodb.org/classic> [<https://perma.cc/27KT-4MNB>] (in “Country/Continent” field enter “Canada”).

51. See Michael Greshko, ‘Stan’ the T. Rex Just Sold for \$31.8 Million—and Scientists are Furious, NAT’L GEOGRAPHIC (Oct. 12, 2020), <https://www.nationalgeographic.com/science/article/stan-tyrannosaurus-rex-sold-at-auction-paleontologists-are-furious> [<https://perma.cc/ACQ5-39SE>].

States has over the fossil market is reason enough to give more attention to its domestic legislation regarding the protection of paleontological resources.

B. Existing Legal Framework for Protecting Fossils Domestically

Despite the newfound attention fossil smuggling has garnered in the last decade from high-profile seizures, the history of individuals excavating fossils, motivated by their own curiosity and gain, in America is older than the country itself.⁵² Nevertheless, United States federal laws only regulate the collection of paleontological resources found on federal land. While some states have laws specifically targeting fossil remains, collection on private land is largely unregulated.⁵³ This often creates tension between scientific institutions that need access to private land to conduct research on fossil-rich soil and private landowners who can make more money by leasing the land to commercial fossil hunters.⁵⁴

1. Antiquities Act of 1906

In 1906, Congress passed the Antiquities Act of 1906 to protect “cultural, historical, and scientifically important resources found on federal land.”⁵⁵ The Antiquities Act gave the president authority “to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments.”⁵⁶ This part of the Antiquities Act has been used to protect certain areas of paleontological interest. For example, in 1915, President Woodrow Wilson

52. In July 1739, French soldiers, guided by the Algonquin Avenaki tribe up the Allegheny River, seized three massive teeth along with a tusk and a femur from the area which is now northern Kentucky. The soldiers shipped the materials back to Paris. Canadian military officer Charles de Longueuil, commander of the French soldiers, was credited with discovering America’s first fossils. While it is unlikely the French or Canadian governments would have acknowledged these actions as “theft” at the time, the land where the fossils were collected from was controlled by the Algonquins when the fossils were taken. MAYOR, *supra* note 15, at 18–20.

53. Murray v. BEJ Mins., LLC, 464 P.3d 80, 88 (Mont. 2020).

54. See *Science and Commerce Clash Over Selling Dinosaur Fossils for Profit*, WALL STREET JOURNAL (Apr. 14, 2020, 7:00 AM), <https://www.wsj.com/video/science-and-commerce-clash-over-selling-dinosaur-fossils-for-profit/91A24839-3332-4C0A-B019-848BE2472F50.html> [<https://perma.cc/QP79-VCCW>].

55. 16 U.S.C. §§ 431–433 (repealed 2014).

56. § 431 (repealed 2014).

used this act's authority to establish Dinosaur National Monument in parts of Utah and later Colorado.⁵⁷

The Antiquities Act also made it illegal for any person to “appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity,” situated on federal land without the permission of the federal government.⁵⁸ The Antiquities Act provided for penalties of up to only 500 dollars and/or 90 days in prison.⁵⁹ The Antiquities Act has the potential of covering paleontological resources specifically, by giving the Secretaries of the Interior, Agriculture, and Army the authority to protect fossils as “objects of antiquity,” but it never quite has.⁶⁰

2. Paleontological Resources Preservation Act (“PRPA”)

In 2009, President Obama signed the Omnibus Public Land Management Act.⁶¹ Within this huge omnibus bill was the PRPA,⁶² Here, the federal government defines a “paleontological resource” as any “fossilized remains, traces, or imprints of organisms, preserved in or on the Earth’s crust, that are of paleontological interest and that provide information about the history of life on Earth.”⁶³ The law prevents commercial fossil hunters from collecting on federal, but not private, land by prohibiting the commercial exploitation of resources collected by the public.⁶⁴

Before the PRPA was passed, federal land management agencies relied on a patchwork of federal laws when managing paleontological finds within their jurisdictions.⁶⁵ This lack of guidance was concerning

57. Proclamation No. 1313, 39 Stat. 1752 (Oct. 4, 1915). In 1938, President Roosevelt expanded Dinosaur National Monument to include portions of the Green and Yampa Rivers. Proclamation No. 2290, 53 Stat. 2454 (July 14, 1938).

58. § 433 (repealed 2014).

59. *Id.*

60. *See generally* Black Hills Inst. of Geological Rsch. v. U.S. Dep’t of Justice, 978 F.2d 1043 (8th Cir. 1992) (As part of an investigation into possible criminal violations of the Antiquities Act, 16 U.S.C. § 433 (1988), federal agents seized the ten-ton fossil of “Sue” the T. Rex on May 14, 1992. The institute was ultimately not convicted of charges relating to the Antiquities act.). *See discussion infra* Section C.2a.

61. Omnibus Public Land Management Act of 2009, Pub L. No. 111-11, 123 Stat. 991 (codified as amended in scattered sections of 16 U.S.C.).

62. Paleontological Resources Preservation Act, 16 U.S.C. §§ 470aaa–470aaa-11 (2012).

63. § 470aaa(4).

64. § 470aaa-5.

65. Keith Cronin, *A Bone to Pick: The Paleontological Resources Preservation Act and Its Effect on Commercial Paleontology*, 7 ALB. GOV’T L. REV. 267 (2014).

for Bureau of Land Management officials who viewed protection of fossil resources as “only incidental” to the primary purpose of managing public lands “in a manner that recognizes the Nation’s need for domestic sources of minerals, food, timber, and fiber.”⁶⁶ Congress had considered two competing fossil management bills in the 1990s.⁶⁷ First, the Vertebrate Paleontological Resources Protection Act (“VPRPA”) in 1992,⁶⁸ then the Fossil Preservation Act (“FPA”) in 1996.⁶⁹ Neither passed, and paleontologists had to wait more than a decade for the passage of the PRPA.

3. Eminent Domain

The Takings Clause of the Fifth Amendment, made applicable to the States through the Fourteenth Amendment, is designed to bar a government from forcing some people alone to “bear public burdens which, in all fairness and justice, should be borne by the public as a whole.”⁷⁰ The Constitution “does not prohibit the taking of private property, but instead places a condition on the exercise of that power” by requiring “just compensation for that taking.”⁷¹ This practice of taking private property and converting it for public use with the payment of compensation is called “eminent domain.”⁷²

The government has used this power several times in the interest of preserving important objects for the public good, rather than leaving them in private hands and risking them being lost or destroyed. For example, Congress used eminent domain to justify the taking of President Nixon’s papers and tape recordings under the Presidential Recordings and Materials Preservation Act⁷³ because of the “important

66. SCOTT E. FOSS, *What is Our Mandate to Manage Fossil Resources on Federal Lands?*, in NEW MEXICO MUSEUM OF NATURAL HISTORY AND SCIENCE BULLETIN 13, 13 (Spencer G. Lucas et al., eds., 2006) <http://npshistory.com/series/symposia/fossil-resources/7/proceedings.pdf> [<https://perma.cc/GUC3-TJTE>].

67. Alexa Z. Chew, *Note, Nothing Besides Remains: Preserving the Scientific and Cultural Value of Paleontological Resources in the United States*, 54 DUKE L.J. 1031, 1046 (2005).

68. Vertebrate Paleontological Resources Protection Act, S. 3107, 102d Cong. (1992).

69. Fossil Preservation Act of 1996, H.R. 2943, 104th Cong. § 2(b)(1)-(2) (1996).

70. Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104, 125 (1978) (quoting *Armstrong v. United States*, 364 U.S. 40, 49 (1960)).

71. Lingle v. Chevron U.S.A. Inc., 544 U.S. 528, 535 (2005).

72. David McCord, *Eminent Domain*, in 13 POWELL ON REAL PROPERTY § 79F.03 (2021).

73. Pub. L. No. 93-526, §§ 104–105.

public interest in preservation of the materials.”⁷⁴ The Supreme Court also upheld a Wyoming law that limited how private landowners could use natural gas reserves on their property.⁷⁵ The court found this was within the state’s authority to limit an individual’s rights in the interest of the community and to preserve the state’s natural resources.⁷⁶ Eminent domain has never been used to seize fossils from private owners in the United States, but vesting statutes used in other areas, such as China⁷⁷ and Alberta, Canada,⁷⁸ use similar doctrines in their preservation framework. These statutes state that the property in all archaeological resources and paleontological resources within the country is vested in the government.⁷⁹ By using the power of eminent domain, the United States is able to seize fossils that are scientifically significant and reimburse the owners, as has been done in other countries. Paleontologist Thomas Carr made this argument prior to a Bonham auction of the “Dueling Dinosaurs.”⁸⁰ He wrote that the federal government should intervene and seize the Dueling Dinosaurs with eminent domain and compensate the owners’ expenses incurred in collecting and preparing the specimens.⁸¹ It is not likely that private landowners would be amenable to this arrangement; from solely a financial standpoint, the highest bid for the dinosaurs in the Bonham auction was over \$5 million, far more than the cost of collecting and preparing the fossils. Even if legislators could pass a vesting statute, this would require the government to pay “just compensation”⁸² under eminent domain for all material seized from private land. Because of the vast amount of fossils in the United States, a statute of this magnitude would require a significant amount of federal funds. This would be an ongoing and unusually unjustifiable expense because a substantial amount of material unearthed is not of scientific interest.⁸³

74. *Nixon v. Adm’r of Gen. Servs.*, 433 U.S. 425, 466 (1977).

75. *Walls v. Midland Carbon Co.*, 254 U.S. 300, 313 (1920).

76. *Id.* at 325.

77. Law on the Protection of Cultural Relics (promulgated by the Standing Comm. Nat’l People’s Cong., Nov. 19, 1982, effective Nov. 19, 1982).

78. Historical Resources Act, R.S.A. 2000, c H-9 (Can. Alta.).

79. R.S.A. 2000, c H-9, s 32(1).

80. Thomas Carr, *How Can We Rescue the Dinosaurs from Tuesday’s Auction?* TYRANNOSAUROIDEA CENT. (Nov. 15, 2013), <http://tyrannosauroidcentral.blogspot.com/2013/11/how-can-we-rescue-dinosaurs-from.html>

[<https://perma.cc/SN42-TB39>]. See full discussion of the scientific importance of the Dueling Dinosaurs *infra* Section C.2.b.

81. *Id.*

82. U.S. CONST. amend. V.

83. *Murray v. Billings Garfield Land Co.*, 187 F. Supp. 3d 1203, 1207 (D. Mont. 2016).

4. State Law

While the PRPA has answered many questions surrounding the proper handling of fossil finds on federal land, states seem to be divided on how to handle disputes surrounding paleontological finds on private land and state-owned land. Most states have legislation that prohibit fossil collection on state land without a permit, while in others, for example Michigan, fossil collection on state-owned land is only “discouraged.”⁸⁴ If a state has any legislation regarding collection on private land, it is typically done within the context of a state antiquity act, which is typically an adaptation of the federal statute and only covers archeological artifacts. New Mexico, for example, requires individuals digging on another’s privately-owned land with “earthmoving equipment” on an archaeological site⁸⁵ to obtain a permit, which includes evidence of qualification to perform the excavation and submitting a report upon completion of specimens removed.⁸⁶ In Indiana and Washington, appellate courts have determined that private landowners digging on their own land are subject to state permitting requirements in the interest of preserving “historical and archeological culture.”⁸⁷ In all of these cases, the statute explicitly covers archaeological and not paleontological resources.⁸⁸ However, the statutes themselves suggest a willingness by states to put limitations on private landowners in the name of preservation, creating a precedent for similar legislation for the protection of significant fossil remains.

Considering the United States’ legacy of upholding private ownership rights and the growing demand for fossils on the luxury market, it is likely many more state legislatures and courts will be discussing the protection of fossils over the next few years. Currently, United

84. Randall L. Milstein, *Middle Silurian Paleocology; The Raber Fossil Beds, Chippewa County, Michigan*, GEOLOGICAL SOC’Y OF AM. CENTENNIAL FIELD GUIDE 1 (1987), https://www.michigan.gov/documents/deq/GIMDL-GSA87E_302407_7.pdf [<https://perma.cc/U6C9-83WS>].

85. N.M. STAT. ANN. § 18-6-11 (defining “archeological site” as “a location where there exists material evidence of the past life and culture of human beings in this state”).

86. *Id.*

87. “The state may regulate activities on private property that affect our historical and archeological culture; thus, the state is better able to discover and preserve more of our heritage.” *Whiteacre v. State*, 619 N.E.2d 605, 608 (Ind. App. 1993); “The evidence showed Ms. Lightle and Mr. Horner were engaged in digging for and gathering arrowheads, items specifically mentioned in the definition of archeological resources. The statutory language is sufficient to put ordinary citizens on notice that such conduct is prohibited.” *State v. Lightle*, 944 P.2d 1114, 1116 (Wash. App. 1997).

88. *Whiteacre*, 619 N.E.2d at 608; *Lightle*, 944 P.2d at 1116.

States laws fall short in recognizing and protecting the scientifically important paleontological finds. Meanwhile, the market demand for fossils has flourished.

C. Three Harms of Unregulated Fossil Collection

1. Financial Incentives Deprioritize Scientific Importance

Because America is rich in fossils, and because these fossils represent a significant portion of the fossils for sale worldwide, the United States should treat itself as a “source country” for fossils and create legislation accordingly. In art and cultural heritage law, scholars discuss objects of cultural importance in a framework developed by John Merryman of Stanford University.⁸⁹ “Source countries” are nations where art and cultural heritage artifacts originate; Merryman gives nations like Mexico, Egypt, Greece, and India as examples.⁹⁰ The counterpart, “market countries,” are nations that receive and sell art and cultural property, for example, France, Germany, and the United States.⁹¹ Source countries often create laws that reflect their position as an exporter of cultural heritage. These laws legitimize national ownership of antiquities found in the soil as a way of stemming the flow of important art and culture out of the country.⁹² Italy is one example. Regardless of whether the artifacts are found on public or private land, their ownership vests in the Italian government because the primary proprietor of cultural heritage is the national public.⁹³ Market countries, on the other hand, have a higher demand for cultural property than they do supply and encourage the importation of cultural heritage from other nations.⁹⁴ The United States is a prime example of this as one of few nations that does not treat cultural objects within its jurisdiction as parts of a “natural, cultural heritage.”⁹⁵ Still, the United States was the largest market for art worldwide and accounted for 44%

89. John H. Merryman, *Two Ways of Thinking About Cultural Property*, 80 AM. J. INT’L L. 831 (1986).

90. *Id.* at 832.

91. *Id.* at 850–51. While the theory lays out two separate categories, in practice, countries often operate as both source and market countries.

92. *Id.*

93. Sue J. Park, *Cultural Property Regime in Italy: An Industrialized Source Nation’s Difficulties in Retaining and Recovering Its Antiquities*, 23 U. PA. J. INT’L ECON. L. 931, 940 (2002).

94. Merryman, *supra* note 89, at 832.

95. *Id.*

of global art sales by value in 2020.⁹⁶ Countries can also be both a “market” and “source” country concurrently if they are participating as both the suppliers and buyers of items.⁹⁷ The United States is an example of this, particularly in the case of paleontological resources. In considering changes to the regulation of domestic paleontological resources, the United States must think of itself as a “source” of fossils and not just as a participant in the market for them. The United States’ prioritization of financial profits over scientific discovery unpins the other two issues discussed below, and the two solutions proposed aim to shift that priority through legislation.

2. Academic and Research Institutions Cannot Compete Financially for Fossils at Auction

As mentioned, the excavation and subsequent sale of *Tyrannosaurus Sue* in 1997 happened at the peak of the 1990s dinosaur-phenomenon.⁹⁸ This sale for an unheard-of amount of money created a lucrative market for dinosaur fossils; these remains were not only coveted by museums but also by the public. This new demand came with new problems for paleontologists, land owners, and commercial fossil hunters. Some of these issues are illustrated in *Sue’s* origin story.

a. *Dinosaurs in the Auction House: Black Hills Institute of Geological Research v. United States, Department of Justice*

i. Discovery

The area now known as the South Dakota Badlands was once submerged by the Western Interior Seaway, a vast body of saltwater that stretched lengthwise from the north slope of Alaska to northern Mexico and across from central Utah to Minnesota.⁹⁹ Water covered the area for approximately 50 million years.¹⁰⁰ In that time, sedimentary

96. Clare McAndrew, *The Art Market 2020*, ART BASEL & UBS (2021), https://d2u3kfw92fzu7.cloudfront.net/The_Art_Market_2020-1.pdf [https://perma.cc/US8W-7H2E].

97. Merryman, *supra* note 89, at 832 n.4.

98. Lydia Pyne, *The Second Life of Mongolian Fossils*, THE ATLANTIC (Dec. 27, 2017), <https://www.theatlantic.com/science/archive/2017/12/second-life-of-mongolian-fossils/548558/> [https://perma.cc/8USM-Q6NE].

99. LAURA N. ROBINSON ROBERTS AND MARK A. KIRSCHBAUM, PALEOGEOGRAPHY OF THE LATE CRETACEOUS OF THE WESTERN INTERIOR OF MIDDLE NORTH AMERICA 2 (1995) <https://pubs.usgs.gov/pp/1561/report.pdf> [https://perma.cc/3NG4-3V6M].

100. *Id.*

layers entombed the remains of the animals that lived in the area.¹⁰¹ Now, thanks to wind erosion and a dearth of urban sprawl, the Badlands and Black Hills Region of South Dakota is a prime location for hunting fossils.¹⁰²

On August 12, 1990, Sue Hendrickson followed what she calls her “sixth sense”¹⁰³ out to a sandstone cliff in South Dakota. There, partially consumed by the cliffside, was a nearly complete *T. rex* skeleton. Hendrickson was a researcher and fossil hunter from the Black Hills Institute of Geological Research (“BHI”). BHI collects and prepares fossils for museums and individuals.¹⁰⁴ Their website describes the institute as the “world’s finest paleontological and earth science supply house.”¹⁰⁵

The Black Hills Institute had an existing agreement with the ranch owner and member of the Cheyenne River Sioux Tribe, Maurice Williams, to dig for fossils on his land.¹⁰⁶ Peter Larson, BHI founder and commercial fossil dealer, wrote Williams a \$5,000 check for the fossil, writing in the memo line “for Therapod Skeleton Sue 8.4.90 MW.”¹⁰⁷ The BHI team spent the next few days excavating the 42-foot-long and 13-foot-tall dinosaur from the bluff and shipped her back to the institute located in Hill City, South Dakota, owned by Larson and his brother, also an amateur fossil hunter and commercial dealer.¹⁰⁸

ii. Seizure

When National Parks Service Paleontologist Vincent Santuchi learned about the sale, he was outraged that the Larsons had claimed ownership of the skeleton as he believed the rancher did not have the permission to sell the skeleton in the first place.¹⁰⁹ Because Williams was a member of the Cheyenne River Sioux Tribe, he did not technically own the land where Sue was found.¹¹⁰ The land was held in trust

101. PHILIP W. STOFFER, GEOLOGY OF BADLANDS NATIONAL REPORT: A PRELIMINARY REPORT 4 (2003) <https://www.nrc.gov/docs/ML1525/ML15251A370.pdf> [<https://perma.cc/VSY4-DX8K>].

102. *Id.* at 6.

103. WILLIAMS, *supra* note 20, at 44.

104. Black Hills Inst. of Geological Rsch v. S.D. Sch. of Mines & Tech., 12 F.3d 737, 739 (8th Cir. 1993).

105. *What We Do*, BLACK HILLS INST., https://www.bhigr.com/pages/wwd/wwd_main.htm [<https://perma.cc/7GTP-754K>].

106. DINOSAUR 13 (Statement Pictures 2014).

107. *Id.*

108. *Id.*

109. *Id.*

110. *Id.*

by the Department of the Interior, so Williams was required to get permission before selling Sue.¹¹¹ Santuchi alerted the parks department, which in turn alerted the tribe. The tribe argued that Sue belonged to them, and they would benefit tremendously from the dinosaur sale.¹¹²

On May 12, 1992, the FBI raided the Black Hills Institute with a warrant to seize *Tyrannosaurus Sue* on the grounds that Larson and company had taken the bones from federal property.¹¹³ The government seized the fossil based on the research company's violation of section 433, which banned removal of antiquities from federal lands.¹¹⁴ The warrant also required the BHI to turn over any paperwork related to Sue and any other fossils found on Williams's land.¹¹⁵ Armed FBI agents and the National Guard secured the area while federal agents crated Sue's remains and sent Sue off to the South Dakota School of Geology Department of Mines and Technology, which would store her until the courts resolved the ownership issue. Protesters, hoping Sue would remain at "home" in the Black Hills, watched as armored vehicles carried her away, some crying, others holding signs reading "SAVE SUE!"¹¹⁶

iii. BHI Sues

In return, the Black Hills Institute sued the Department of Justice, Department of the Interior, the Cheyenne River Sioux Tribe, and the South Dakota School of Geology Department of Mines and Technology, arguing Sue was their property.¹¹⁷ Rancher Williams joined the lawsuit arguing that the fossil belonged to him and that the \$5,000 BHI paid to him was solely for permission to dig, not take findings.¹¹⁸ BHI denied this, citing the memo line on the check which explicitly mentioned the skeleton.¹¹⁹ Other than the check, neither party had a written record outlining the terms of their agreement.¹²⁰ This lack of formal

111. See *Black Hills Inst. of Geological Rsch. v. South Dakota Sch. of Mines & Tech.*, 12 F.3d 737, 740 (8th Cir. 1993).

112. William Turner, *Curse of Sue Digs Hole for Dinosaur Hunters*, THE CHI. TRIBUNE (May 15, 2000) [<https://perma.cc/4736-3SLN>].

113. See *Black Hills Inst. of Geological Rsch.*, 12 F.3d at 739.

114. 16 U.S.C.S. § 433 (repealed 2014). Today, this seizure would have been for the violation of the PRPA for removing paleontological remains from government property without a permit.

115. See *Black Hills Inst. of Geological Rsch.*, 12 F.3d at 743.

116. DINOSAUR 13 (Statement Pictures 2014).

117. *Black Hills Inst. of Geological Rsch.*, 12 F.3d at 739.

118. DINOSAUR 13 (Statement Pictures 2014).

119. *Id.*

120. *Id.*

agreement between fossil hunters and landowners was fairly commonplace prior to this series of litigation.

iv. Ownership Issue

Had Sue not been found on tribal land, it is possible her fate would have been much different. In 1969, Maurice Williams, a member of the Cheyenne River Sioux Tribe, had placed the parcel of land where Sue was discovered in “trust” with the United States Department of the Interior.¹²¹ This allowed him to forego paying property taxes but required him to obtain permission from the Bureau of Indian Affairs before selling any part of the land.¹²² The United States government claimed that because it held the land in trust, the skeleton belonged to them.¹²³

Peter Duffy, BHI’s attorney, describes the land where Sue was found as one of the most legally complicated areas one could find a skeleton: “Sue came out from an absolute legal netherworld.”¹²⁴ Sue’s resting place was located on the exterior boundary of the Cheyenne River reservation that the United States Government held in trust for an individual, not public or tribal-owned land. The Land Allotment Act,¹²⁵ sometimes called the Dawes Act, divided western states into parcels of land that the government held in trust for individual Native Americans. This parceling makes determining which individual’s land a particular cliffside belongs to very difficult to determine.

The Cheyenne River Sioux Tribe originally claimed the skeleton should belong to them but lost their case in tribal court and subsequently dropped their claim in federal court.¹²⁶ The South Dakota

121. *Black Hills Inst. of Geological Rsch.*, 12 F.3d at 739.

122. Section 4 of the Indian Reorganization Act of 1934 (codified at 25 U.S.C.S. § 5107), with some exceptions, prohibits the sale or other transfer of restricted Indian trust lands. Native American owners who wish to make a sale must submit an application to the Secretary of the Interior who has discretion to remove restrictions and to approve conveyances with respect to lands or interests in lands held by individual Native Americans under the IRA. 25 U.S.C.S. § 5134. An attempted sale of an interest in Indian trust land without approval is void and does not transfer title. *Black Hills Inst. of Geological Rsch. v. U.S. Dep’t of Justice*, 812 F. Supp. 1015, 1019 (D.S.D. 1993).

123. *Black Hills Inst. of Geological Rsch.*, 12 F.3d at 739.

124. DINOSAUR 13 (Statement Pictures 2014).

125. Act for Allotment of Lands to Indians, ch. 119, 24 Stat. 388 (1887). “An act to provide for the allotment of lands in severalty to Indians on the various reservations, and to extend the protection of the laws of the United States and the Territories over the Indians, and for other purposes.”

126. William Mullen, *Curse of Sue Digs Hole for Dinosaur Hunters*, CHIC. TRIBUNE (May 15, 2000), <https://www.chicagotribune.com/news/ct-xpm-2000-05->

district court found that Sue was an “interest in land” under the land trust statute.¹²⁷ Because Williams failed to receive the Secretary of the Interior’s approval for his attempted sale, the court reasoned, the transaction was void, and the United States retained title to Sue, in trust, for Williams.¹²⁸ The Black Hills Institute appealed but was ultimately unsuccessful.¹²⁹

In December of 1993, United States District Judge Richard Battey issued his final ruling on Sue’s ownership.¹³⁰ Judge Battey held that, unlike archeological finds, the bones had become mineralized and were therefore considered part of the land within the meaning of South Dakota Law.¹³¹ A Native American cannot sell land that is held in trust without permission from the federal government, therefore, the \$5,000 check exchanged between Larson and Williams was “null and void.”¹³² The court determined Morris Williams owned Sue as she was found on his land and had no authority to sell Sue in the first place.¹³³

v. Criminal Charges

Following the custody battle for Sue, the United States District Attorney’s Office began collecting evidence for a grand jury investigation into the BHI, specifically looking into the business practices of collecting on public lands.¹³⁴ The government believed the BHI was making a business of selling fossils both domestically and internationally that had been illegally taken from public lands.

Such harsh consequences were not uncommon for commercial fossil dealers. *Dinosaur 13*, a 2014 documentary about Sue’s discovery, attributes these charges as the government making an example of the BHI in an effort to deter other fossil hunters who had been taking advantage of lax protection of federal land.¹³⁵

Judge Richard Battey, the same district judge who had decided Sue’s fate, presided over Larson’s criminal case. The prosecution

15-0005150127-story.html [https://perma.cc/6WY5-U664].

127. *Black Hills Inst. of Geological Rsch.*, 12 F.3d at 740.

128. *Id.* at 741.

129. *Id.* at 739.

130. *Id.*

131. *Id.* at 743 (holding “that the fossil was ‘land’ within the meaning of § 464 and § 483 [of the Indian Reorganization Act of 1934 (IRA)]. Sue Hendrickson found the fossil embedded in the land. Under South Dakota law, the fossil was an ‘ingredient’ comprising part of the ‘solid material of the earth’”).

132. *Id.*

133. *Id.*

134. *DINOSAUR 13* (Statement Pictures 2014).

135. *Id.*

charged Larson with theft, interstate transport of stolen property, wire fraud, money laundering, conspiracy, and making felonious misdeclarations on customs forms.¹³⁶ In total, the government brought 36 counts against Peter Larson, amounting to a potential sentence of 353 years in prison.¹³⁷

In April 1996, the court convicted Peter Larson of two misdemeanors: theft of United States' property retention of stolen United States' property in violation of 18 U.S.C.S. § 641; and failure to file a customs report when exporting monetary instruments and failure to file a report when importing monetary instruments in violation of 31 U.S.C.S. section 5316(a)(1)(A).¹³⁸ His sentence was two years in jail, a \$5,000 fine, and two years of supervised release.¹³⁹

vi. Second Sale of Sue

In 1996, Morris Williams was granted permission by the government to sell Sue, and he entrusted Sotheby's Auction House with the sale.¹⁴⁰ Sotheby's employed former Black Hills Institute employee, Terry Wentz, to prepare and mount Sue before the auction.¹⁴¹ The auctioneer read the provenance of Sue as "Property of the United States of America in trust to Morris William, obtained in South Dakota."¹⁴² Sue's bidding opened at \$500,000 dollars and lasted 6 minutes and 29 seconds. McDonald's and The Walt Disney Company, with the help of private donors, purchased the dinosaur for \$8 million and donated her to the Chicago Field Museum. Williams was paid \$7.6 million, after Sotheby's cut, and McDonald's and Walt Disney were given full-scale replicas of the skeleton. Sue has been on display at the Field since 2000.¹⁴³ As of 2020, the BHI has discovered nine additional *T. rex* skeletons.¹⁴⁴ These skeletons have fetched similar astronomical prices, including Tyrannosaurus Stan, who sold for \$31 million at Christie's Auction House in 2020.¹⁴⁵

136. *United States v. Larson*, 110 F.3d 620, 622–23 (8th Cir. 1997).

137. *Id.* at 623.

138. *Id.*

139. *Id.*

140. DINOSAUR 13 (Statement Pictures 2014).

141. *Id.*

142. *Id.*

143. *Id.*

144. *Id.*

145. *See* discussion *supra* Section I.A.3.

vii. Sue's Legacy

Prior to Sue, many institutions received free land access from landowners. Now, researchers have to compete with a rush of commercial hunters who can afford to pay for the right to dig on private land.¹⁴⁶ Sue also had an effect on the paleontology market. Her sale created a benchmark for dinosaur fossils so high that academic institutions often struggle to compete. Commercial hunters take pride in selling to museums, but they also court wealthy, private collectors.¹⁴⁷ Today, many commercial dealers prefer to sell highly publicized and scientifically impressive discoveries at auction houses, where they sell for much more than what museums are willing or able to pay.¹⁴⁸

b. *Potential Solution: Market Regulation*

Fossils currently in private hands or paleontological resources that are not purchased by the state but are still scientifically important will likely be too expensive for museums to purchase on the open market. In all three cases discussed in this Article—Tyrannosaurus Sue, Tyrannosaurus Stan, and the Dueling Dinosaurs—the price at auction far exceeded what a museum was capable of paying, and, as was the case with “Sue” and the Dueling Dinosaurs, the purchase of these skeletons was only possible through significant donations from private individuals and corporations. Legislation is necessary for museums and academic institutions to be able to compete in the commercial fossil market.

While the PRPA set some parameters on paleontological resources at the federal level, states must also pass legislation to make meaningful changes. This proposal suggests a Pigouvian sales tax for

146. Sara K. Mazurek, *The Dinosaur in the Living Room: A Proposal to Enable Academic Access to Fossils Discovered on Private Land*, 31 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 272, 287–88 (2020).

147. Paige Williams, *The Fossil Wars: On the Battle Between Paleontologists and Amateur Dealers*, *LITERARY HUB* (Sept. 24, 2018), <https://lithub.com/the-fossil-wars-on-the-battle-between-paleontologists-and-amateur-dealers/> [<https://perma.cc/QAJ8-2EL3>].

148. See Donovan Webster, *The Dinosaur Fossil Wars*, *SMITHSONIAN MAG.* (Apr. 2009), <https://www.smithsonianmag.com/science-nature/the-dinosaur-fossil-wars-116496039/> [<https://perma.cc/A3AE-CAC5>]. See also *Natural History*, BONHAMS, <https://www.bonhams.com/departments/NAT/> [<https://perma.cc/F9YZ-L4NC>] (“The Natural History department conducts three auctions a year, firmly establishing Bonhams as the forerunner in the field internationally.”); See also I.M. CHAIT, <https://www.chait.com>. [<https://perma.cc/455U-CPHH>] (“I.M. Chait conducts a multitude of auctions throughout the year with each auction featuring hundreds of lots ranging in price from \$300 to over \$1,000,000.”).

paleontological resources purchased by individuals or organizations who intend to keep their purchases in private collections that are not readily available to science or the general public.¹⁴⁹ Conventionally, a “sales tax is levied at the point of sale, collected by the retailer, and passed on to the government.”¹⁵⁰ Pigouvian taxes, specifically, “designed to mitigate harm in the present and to reduce harm in the future.”¹⁵¹ While the primary purpose of Pigou,¹⁵² this would be a state-level selective sales tax proposal wherein all revenue collected would be used to fund agencies responsible for operations in the model legislation proposed in the following section. States often use selective sales taxes.¹⁵³ These taxes are designed to internalize the social costs of economic activities so that the polluting industry—here, the commercial fossil industry—pays the government to prevent or mitigate the harm the industry causes.¹⁵⁴ Functionally, the money raised from this tax on paleontological resources sold at market would go toward funding grants for academic and research institutions working in paleontological fields. This proposal would be most effective in states where large auction houses reside, specifically New York.

Using taxes to add protection to scientifically significant finds already have some support. After the unprecedented sale price of “Stan” in 2020, NBC proposed tax credits for ranchers and quarry owners who allow paleontologists to collect fossils on their land for museums.¹⁵⁵

c. Pigouvian Tax Model Proposal

The State of New York derives its constitutional authority to tax from Article XVI of the state constitution,¹⁵⁶ which allows the State of

149. Julia Kagan, *Sales Tax Definition*, INVESTOPEDIA, <https://www.investopedia.com/terms/s/salestax.asp> [<https://perma.cc/7PA2-M5RR>].

150. *Id.*

151. Lawrence Rothfield, *How Can We Fund the Fight Against Antiquities Looting and Trafficking? A “Pollution” Tax on the Antiquities Trade* 2 ANTIQUES COALITION POLICY BRIEF, Dec. 2016, at 4, <https://theantiquitiescoalition.org/wp-content/uploads/2016/12/Policy-Brief-2-.pdf> [<https://perma.cc/VN28-DBDE>].

152. *Id.* at 4.

153. *How Do State and Local Taxes Work?*, TAX POL’Y CTR., <https://www.taxpolicycenter.org/briefing-book/how-do-state-and-local-sales-taxes-work> [<https://perma.cc/65LX-HAAQ>].

154. See Rothfield, *supra* note 151, at 1.

155. Adam Larson, *Stan the T. Rex Auction Sale of \$31.8 Million Sets a Record — and Sets Back Science*, NBC NEWS (Oct. 7, 2020, 12:02 PM), <https://www.nbcnews.com/think/opinion/stan-t-rex-auction-sale-31-8-million-sets-record-nca1242410> [<https://perma.cc/QMB2-BFL5>].

156. N.Y. CONST. art. XVI, § 1.

New York to impose taxes, so long as it does not exceed the full value of the item, and allows the state to exempt certain organizations from a tax requirement.¹⁵⁷ New York imposes several selective sales taxes, including a tax on gasoline,¹⁵⁸ cigarettes,¹⁵⁹ and lottery tickets.¹⁶⁰ This would be a tax specifically on the sale of paleontological resources to private individuals. Paleontological resources would be defined as it is in the PRPA as “any fossilized remains, traces, or imprints of organisms, preserved in or on the earth’s crust, that are of paleontological interest and that provide information about the history of life on earth.”¹⁶¹ The tax would define private individuals as any individual who is not acting as an agent or for the benefit of a museum or research institution. This type of sales tax would give museums a competitive advantage in public sales of scientifically important finds by waiving a sales tax and by incentivizing private buyers to not drive-up auction prices by imposing an additional tax to the auction price.

3. Scientists are Shut Out from Fossils on Private Land

The increase in demand for fossils has also increased demand for digging rights on the land where fossils are found. Before Sue’s sale ushered in a wave of new fossil hunters, paleontologists did not have much competition when it came to leasing private land to dig on. Now, private landowners in fossil-rich areas like Wyoming stand to make much more leasing their land to commercial dealers than academics.¹⁶² One fossil hunter told Wyoming Public Media he pays landowners 10% of the profit he makes from the fossils found on their land,¹⁶³ an incentive scientists cannot offer.

When fossils are discovered on private land, landowners, or the commercial fossil hunters they contract their land to, often sell their finds to private collectors. This can sometimes result in scientifically important specimens passing into private hands and becoming inaccessible to museums and research facilities. This loss of potentially

157. *Id.* § 2.

158. N.Y. TAX LAW § 282(a).

159. § 471(a).

160. § 1609.

161. Paleontological Resources Preservation Act, 16 U.S.C. § 470aaa(4).

162. See Irina Zhorov, *Fossils on Private Lands Find Collectors and Critics*, WYO. PUB. MEDIA, (Oct. 18, 2013), <https://www.wyomingpublicmedia.org/post/fossils-private-lands-find-collectors-and-critics-0#stream/0> [<https://perma.cc/2KZ4-2DCY>].

163. *Id.*

monumentally important dinosaur fossils is illustrated in *Murray v. BEJ Minerals, LLC*, or the case of the “Dueling Dinosaurs.”¹⁶⁴

a. *In the Duel for Dinosaurs, Science Loses: Murray v. BEJ Minerals, LLC*

i. Discovery

In 2006, on a desiccated hillside on a Montana ranch owned by Lige and Mary Ann Murray, Clayton “Dinosaur Cowboy” Phillips, discovered the remains of a 22-foot-long theropod and a 28-foot-long ceratopsian who appeared to have been locked in battle before being entombed in sandstone, likely alongside an ancient riverbed.¹⁶⁵ The dinosaur remains, which were later determined to be an adolescent *Tyrannosaurus rex* and a *Triceratops*, is an incredibly unique fossil with nearly two complete fossils and potentially preserved soft tissue, which is usually lost in the fossilization process.¹⁶⁶ “The Dueling Dinosaurs is one of the most remarkable fossil discoveries ever made,” says Scott Sampson, a paleontologist and the president of Science World, a nonprofit education and research facility in Vancouver. “It is the closest thing I have ever seen to large-scale fighting dinosaurs. If it is what we think it is, it’s ancient behavior caught in the fossil record. We’ve been digging for over 100 years in the Americas, and no one’s found a specimen quite like this one.”¹⁶⁷ Unfortunately, Sampson and the rest of the scientific community are still waiting for the opportunity to study the fossil.¹⁶⁸

ii. Litigation

Originally, Phillips and the Murrays tried to find a museum to buy the fossil but could never find one who was willing to pay what they were asking.¹⁶⁹ They even tried auctioning the fossil in 2013, but the

164. *Murray v. BEJ Mins., LLC*, 908 F.3d 437, 447 (9th Cir. 2018).

165. Mike Sager, *Will the Public Ever Get to See the “Dueling Dinosaurs”?*, SMITHSONIAN MAG. (July 2017), <https://www.smithsonianmag.com/science-nature/public-ever-see-dueling-dinosaurs-180963676/> [<https://perma.cc/PC5P-EQSR>].

166. *Id.*

167. *Id.*

168. Michael Greshko, ‘Dueling Dinosaurs’ Fossil, Hidden From Science for 14 years, Could Finally Reveal its Secrets, NAT’L GEOGRAPHIC (Nov. 17, 2020) <https://www.nationalgeographic.com/science/article/dueling-dinosaurs-fossil-finally-set-to-reveal-secrets> [<https://perma.cc/4UVW-FK9V>].

169. Mike Sager, *Will the Public Ever Get to See the “Dueling Dinosaurs”?*,

bids failed to meet the \$6 million reserve price. Finally, the North Carolina Museum of Natural Sciences (“NCMNS”) negotiated a sale, under the condition that the Murrays could prove they were the lawful owners of the fossil.¹⁷⁰

The Murrays own the surface rights and one-third of the mineral rights of a Montana ranch, and the remaining mineral rights were owned by their former business partners, the Seversons.¹⁷¹ To clarify ownership, the Murrays sought a court order saying they were the rightful owners of the fossils, hoping the state would rule the fossils were a part of the surface rights, which the Murrays owned outright.¹⁷² A federal judge awarded the Murrays full ownership, but the Ninth Circuit overturned the award in a 2-1 decision in February 2018.¹⁷³ There, the Ninth Circuit ruled against the Murrays, holding that the law should not treat dinosaur fossils different than the remains of plants and animals that create oil, gas, and coal.¹⁷⁴ Paleontologists saw this ruling as a disaster. Equating fossils to minerals went against a century’s worth of fossil ownership claims. They also feared that because mineral rights for a given property are often so fragmented, getting permission for future digs on private land would become next to impossible.¹⁷⁵

iii. Outcome

In a rare partnership, professional paleontologists partnered with commercial fossil dealers to petition the Montana Supreme Court to answer whether, under Montana law, dinosaur fossils are minerals for the purpose of a mineral reservation.¹⁷⁶ In a 2020 ruling, the justices

SMITHSONIAN MAG. (July 2017), <https://www.smithsonianmag.com/science-nature/public-ever-see-dueling-dinosaurs-180963676/> [https://perma.cc/PC5P-EQSR].

170. Michael Greshko, ‘*Dueling Dinosaurs’ Fossil, Hidden from Science for 14 Years, Could Finally Reveal Its Secrets*, NAT’L GEOGRAPHIC (Nov. 17, 2020), <https://www.nationalgeographic.com/science/article/dueling-dinosaurs-fossil-finally-set-to-reveal-secrets> [https://perma.cc/Y6BZ-PXK7].

171. *Id.*

172. Amy Beth Hanson, *Court Says Dinosaur Fossils Worth Millions Aren’t Minerals*, PHSY.ORG (May 21, 2020), <https://phys.org/news/2020-05-court-dinosaur-fossils-worth-millions.html> [https://perma.cc/CL54-T64H].

173. *Id.*

174. *Murray v. BEJ Mins., LLC*, 908 F.3d 437 (9th Cir. 2018).

175. Mike Sager, *Will the Public Ever Get to See the “Dueling Dinosaurs”?*, SMITHSONIAN MAG. (July 2017), <https://www.smithsonianmag.com/science-nature/public-ever-see-dueling-dinosaurs-180963676/> [https://perma.cc/PC5P-EQSR].

176. Michael Greshko, ‘*Dueling Dinosaurs’ Fossil, Hidden from Science for 14*

said dinosaur fossils are part of the surface rights and are not minerals under state law.¹⁷⁷ In response to the legal battles and appeals from paleontologists, the Montana legislature unanimously passed a bill stating dinosaur fossils are not considered minerals under Montana law unless the contract separating the surface and mineral rights reserves fossils as part of the mineral rights.¹⁷⁸

This is a rare example of private landowners' prioritization of profit working to/for the benefit of science—had the fossils sold at the Bonham auction to the private individual who bid \$5.5 million in 2014, it is unclear whether these fossils would ever have been seen by the public.¹⁷⁹ Fortunately, the Dueling Dinosaurs, which have been crated and stored for the last 14 years, have a new home. Thanks to private and state donors, the nonprofit, Friends of the North Carolina Museum of Natural Sciences (“NCMNS”), is buying the Dueling Dinosaurs on the NCMNS's behalf for an undisclosed amount.¹⁸⁰ The fossil will be housed in a new expansion to the museum, including a state-of-the-art paleontology lab, which will open in 2022.¹⁸¹

iv. Aftermath

While paleontologists ultimately got the outcome they hoped for, with the help of the Montana legislature and private donors who made the purchase on the museum's behalf possible, little meaningful change was made to the system as a whole. And, while the fossils themselves will be accessible to science because commercial fossil hunters removed them from the Murrays' land, any additional contextual information that could have been observed has been lost completely. The new law officially designating fossils as “not minerals” gives private landowners and paleontologists the same ownership

Years, Could Finally Reveal Its Secrets, NAT'L GEOGRAPHIC, <https://www.nationalgeographic.com/science/article/dueling-dinosaurs-fossil-finally-set-to-reveal-secrets> [<https://perma.cc/RP2W-DEYS>].

177. *Murray v. BEJ Mins., LLC*, 464 P.3d 80, 93 (Mont. 2020).

178. On April 16, 2019, the Governor of Montana signed into law a bill declaring that dinosaur “fossils are not minerals and that fossils belong to the surface estate.” H.B. 229, 66th Leg. (Mont. 2019).

179. Amy Beth Hanson, *Court Says Dinosaur Fossils Worth Millions Aren't Minerals*, PHSY.ORG (May 21, 2020) <https://phys.org/news/2020-05-court-dinosaur-fossils-worth-millions.html> [<https://perma.cc/CL54-T64H>].

180. Michael Greshko, *'Dueling Dinosaurs' Fossil, Hidden from Science for 14 Years, Could Finally Reveal Its Secrets*, NAT'L GEOGRAPHIC, <https://www.nationalgeographic.com/science/article/dueling-dinosaurs-fossil-finally-set-to-reveal-secrets> [<https://perma.cc/RP2W-DEYS>].

181. *Id.*

rights they assumed they already had. The paleontological community had already been operating under the assumption that surface rights, not mineral rights, apply to fossils as fossils are not precious minerals or oil. The market for fossils found on private land is still completely unregulated, even though they have the potential to change our entire relationship with the natural world by teaching us new things about evolution and prehistoric creatures. The case of the Dueling Dinosaurs exemplifies how courts fail to consider the fossils' cultural and scientific value and focus only on the economic value between the two litigating parties.¹⁸² This leaves the scientific future of fossils largely in the hands of non-professionals whose ultimate stake in the resources is financial. Until the courts and legislature work to create meaningful change to protect paleontological resources from disappearing into private collections, science will continue to lose access to material essential to understanding the natural world.

b. *Potential Solution: Eminent Domain*

While a full ban on the collection of paleontological resources on private land for commercial uses would solve all of these issues, it is not a practical solution for the United States. The takings clause in the United States Constitution would theoretically justify the government seizing fossils from private land in exchange for just compensation. However, this type of action would likely be financially unsustainable and largely unpopular. The PRPA, the only federal statute that specifically protects paleontological resources, passed only as a piece of a larger omnibus bill and followed several failed congressional efforts to regulate fossil collection.¹⁸³ Further, the current political climate is not conducive for the implementation of policies that would infringe on individuals' private property. Legislation of this nature would likely face resistance from a growing opposition to new regulation generally, and "a sense that preservation ordinances are somehow fundamentally violative of individual property rights."¹⁸⁴

Even if a statute vesting the ownership of fossils on private land in the government with just compensation could pass, such a law

182. Mazurek, *supra* note 146, at 307–08.

183. Keith Cronin, *A Bone to Pick: The Paleontological Resources Preservation Act and Its Effect on Commercial Paleontology*, 7 ALB. GOV'T L. REV. 267, 280 (2014).

184. Jess R. Phelps, *Moving Beyond Preservation Paralysis: Evaluating Post-Regulatory Alternatives for Twenty-First Century Preservation*, 37 VT. L. REV. 113, 113 (2012).

would be unsustainable.¹⁸⁵ The administrative strain and cost of such a system would be significant, ongoing, and unusually unjustifiable because a substantial amount of material unearthed is not of scientific interest.¹⁸⁶ Protecting paleontological resources using eminent domain would be expensive and overinclusive. This type of proposal would be, at the very least, unpopular with landowners who would lose some rights over full ownership, enjoyment, and profit from their land. Finally, because the United States is such a fossil rich country, the government would inevitably spend an unjustifiable amount of money on materials of little scientific or display value.¹⁸⁷

A full ban on private collection would also not necessarily be beneficial to science. The commercial fossil business has allowed for more paleontological discoveries to reach the public and is a major and necessary source of fossils for museums.¹⁸⁸ As many museums do not have the staff or ability to mount collecting expeditions, create and house a preparation facility, or hire a fully trained and educated staff, the commercial fossil industry in the United States is responsible for a sizable portion of modern paleontology discoveries.¹⁸⁹ For example, the American Museum of Natural History purchased one of its most important fossils, a mummy of a duck billed dinosaur, from commercial fossil hunter Charles Sternberg.¹⁹⁰ If new legislation were to eliminate the industry entirely, then fewer fossils would be available for everyone. According to Mark Norell, a paleontologist at the American Museum of Natural History in New York, “There are a lot more fossils out there that are just being destroyed by neglect and erosion than there are paleontologists that can actually collect them.”¹⁹¹ Without an independently funded industry searching for and preserving these fossils, many would be lost to natural elements.

185. Mazurek, *supra* note 146, at 323.

186. *Id.*

187. *Id.*

188. See Neal L. Larson et al., *What Commercial Fossil Dealers Contribute to the Science of Paleontology*, J. OF PALEONTOLOGICAL SCI. 1, 3 (Nov. 2019), <https://www.aaps-journal.org/pdf/Contributions-to-Paleontology.pdf> [<https://perma.cc/B2LK-YN4R>]. (“Nearly all natural history museums have acquired specimens for their paleontological exhibits from the professional commercial community.”).

189. *Id.*

190. Wall Street Journal, *Science and Commerce Clash Over Selling Dinosaur Fossils for Profit*, WSJ VIDEO (Apr. 14, 2020, 6:00 AM) <https://www.wsj.com/video/series/in-depth-features/science-and-commerce-clash-over-selling-dinosaur-fossils-for-profit/91A24839-3332-4C0A-B019-848BE2472F50> [<https://perma.cc/WG4W-D3Z4>].

191. *Id.*

c. Proposed Solution: Modification of State Antiquities Laws

Instead of using eminent domain, expanding existing preservation laws can better protect paleontological resources. This solution proposes amending antiquities laws already present in many states to include paleontological resources alongside archaeological resources.

Alabama's Aboriginal Mounds, Earthworks and Other Antiquities Law¹⁹² provides an excellent example of a state antiquities law that would provide adequate protection of fossils if expanded to cover paleontological resources. This law reserves the exclusive right and privilege of the state to "explore, excavate or survey aboriginal mounds, earthworks, burial sites, etc." and "state ownership of objects found or located therein declared."¹⁹³ This act goes beyond reserving these rights solely on state-owned land by including privately owned land, "subject to the rights of the owner of the land upon which such antiquities are situated."¹⁹⁴

The statute also requires anyone looking for antiquities on private land to obtain consent from the owner prior to survey, a typical no trespassing law, but goes further by requiring any excavation to not harm any surrounding "crops, houses or improvements on the land adjacent to or forming a part of such remains."¹⁹⁵ The statute further criminalizes the destruction, defacement, or permanent injury of any remains and requires that individuals restore the land to the same or like condition as before such explorations or excavations.¹⁹⁶ Any individual who excavates or explores "any of the aboriginal mounds, earthworks or other antiquities" without permission in the state will be guilty of a misdemeanor and, upon conviction, shall be fined not more than \$1,000.00 for each offense.¹⁹⁷

Amending this statute to include paleontological remains, would give the state the power to take ownership of significant finds found on private land, though not require them to take ownership of fossils holding little or no scientific value. The addition of requiring the conservation of private land during excavation provides some additional protection to landowners and will likely incentivize them to be more willing to grant permission to dig on their land, particularly to professional paleontologists trained in doing so. Finally, extending the

192. ALA. CODE § 41-3-1 (2013).

193. *Id.*

194. *Id.*

195. § 41-3-3.

196. § 41-3-4.

197. § 41-3-6.

statute to prohibit the damage or destruction of any paleontological resources would add significant protection to fossils excavated by amateur fossil hunters.

This statute could be further improved with an addition from New Mexico's statute, which requires individuals digging on private land with "earthmoving equipment" on an archaeological site¹⁹⁸ to obtain a permit. Obtaining a permit to dig on private land requires the applicant to provide (1) evidence of qualification to perform the excavation; (2) a satisfactory plan for excavation that includes methods for how the excavation will take place; and (3) a summary report upon completion of the excavation that contains "relevant maps, documents, drawings and photographs, together with a description of the archaeological specimens removed as a result of the excavation."¹⁹⁹

This proposal would create a system of responsibility regarding the excavation of paleontological resources. This model law would (1) vest all paleontological resources on state-owned land to the state; (2) allow the state the opportunity to take possession of fossils found on private land within the rights of the landowner, namely just compensation as described in the Takings Clause of the Constitution; (3) apply monetary penalties to any destruction of private land in search of fossils or the destruction or defacement of the fossils themselves; and (4) require state approval for any excavations on private land through permits requiring individuals to be qualified to conduct a search and provide extensive context for their finds so that their research can be reproduced. This would allow states to prevent any significant discoveries from being lost to private buyers by allowing them the opportunity to purchase them first. The permit requirement prevents meaningful and important context of excavated fossils from being lost entirely. Finally, by requiring individuals partaking in excavations to be "qualified," but not necessarily associated with a museum or research institution, allows fossil hunters to continue to participate in the search for fossils that would otherwise be lost to nature.

II. CONCLUSION

Fossils are essential to informing the way humans understand and interpret the world and are worthy of rigorous protection. Existing laws provide some protection but are too limited to provide sufficient

198. See N.M. STAT. ANN. § 18-6-11 (defining "archaeological site" as "a location where there exists material evidence of the past life and culture of human beings in this state.").

199. § 18-6-11(b).

protection relative to the importance of paleontological resources. Recent high-profile examples of the public sale of dinosaur remains illustrate the threat to these resources if they are not protected. The proposed legislative changes in this Article attempt to address these issues by expanding state level protection of fossils being excavated on private land and giving museums a financial advantage when purchasing fossils. There is an urgent need for these regulations as the prices of dinosaurs at auction skyrocket and never-before-seen fossils erode in the American desert.