

THE INTERSECTION OF NEW DEAL PUBLIC WORKS PROGRAMS AND NATIONAL PARK SERVICE PALEONTOLOGY

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Abstract—President Franklin D. Roosevelt’s New Deal created numerous public works programs to relieve the burden of unemployment during the Great Depression and conserve America’s public lands and natural resources. Millions of workers were employed to build infrastructure and perform environmental protection efforts, including on newly or soon-to-be established units of the National Park Service. At a number of these parks, the work administered by programs such as the Civilian Conservation Corps (CCC) and Works Progress Administration (WPA) uncovered fossil resources or directly supported educational paleontology projects. The early histories of Big Bend National Park, Dinosaur National Monument, Fossil Cycad National Monument, and Grand Canyon National Park, among other parks, each present significant interactions between public works program workers and paleontological resources. Some notable examples include the creation of fossil displays at CCC-built museums and the excavation of fossil specimens by CCC and WPA workmen. These understudied interactions illustrate the lasting impact of New Deal programs and help to coalesce a rich and largely untold history of paleontological work throughout the National Park Service.

INTRODUCTION

In less than two decades after the establishment of the National Park Service (NPS) in 1916, the country was beset by the Great Depression. Unemployment in the US rose from a little over 3% in 1929 to over 25% of the civilian workforce in 1933, and young people were particularly affected by the economic downturn (Paige, 1985). By the time Franklin D. Roosevelt was elected President in 1932, many states had begun to hire unemployed civilians to undertake needed conservation work, including Roosevelt’s home state of New York (Paige, 1985). These relief efforts and ideas contributed to the eventual creation of the Civilian Conservation Corps (CCC) and other public works programs as part of Roosevelt’s New Deal beginning in 1933 (Salmond, 1967). The New Deal culminated in the establishment of several domestic agencies, projects, and programs enacted by the federal government to relieve the burden of the Depression. In addition to financial reform, welfare programs, housing aid, and other protections for citizens, the New Deal provided manual labor jobs on public lands, aiding in the construction of roads, trails, buildings, and other infrastructure recognizable across national parks and monuments to this day.

On March 31, 1933, only weeks after Roosevelt’s inauguration, the Emergency Conservation Work Act created what would be known as the CCC, thought of as “the vanguard of a more comprehensive relief proposal” (Salmond, 1967, p. 24). The stated goals of the CCC were to temporarily employ the unemployed, “regardless of race, color or creed, in carrying on the work of a public nature,” involving the prevention of forest fires, floods, and soil erosion, plant pest and disease control, and construction in national forests and parks (McEntee, 1943, p. 5). The organizational plan included the support of the Departments of War, Labor, Agriculture, and Interior (McEntee, 1943). In the first three months of the program, 275,000 young men between ages 18 and 25 enrolled in the CCC, and more than three million in total were enrolled between 1933 and 1942 (McEntee, 1943), two-thirds of whom were based in national and state park areas (Paige, 1985). The CCC “boys” received training, health care, food, and housing at camps on public lands, and they were required to send \$25 of their \$30 monthly pay home to their families (Salmond, 1967). Adjusted for inflation, \$30 in 1933 would be worth just over \$700 in 2025. Congress ended funding for the CCC in 1942, by which time 198 CCC camps had

operated within 94 national parks and monuments, substantially increasing employment, conservation, and recreational opportunities for the nation (Wirth, 1980; Paige, 1985).

Other relief programs followed the lead set by the CCC. The Federal Emergency Relief Act (FERA) was signed into law by President Roosevelt on May 12, 1933, to grant money to states for their overburdened relief efforts. In just two years, FERA granted a total of \$3 billion for various projects and state and local relief programs (US Federal Works Agency, 1947). In November of 1933, the Civil Works Administration (CWA) was created specifically to help unemployed Americans through the winter of 1933–1934. The CWA received funding from FERA, Congress, and the Public Works Administration (PWA), which administered loans and grants to state and local governments for the hiring of private contractors between 1933 and 1943. More than four million workers were employed by the CWA, conducting beneficial public projects like the building of roads, levees, and public facilities (US Federal Works Agency, 1947). The brief but impactful efforts of the CWA and FERA, which ended in 1934 and 1935, respectively, set the foundation for the formation of the largest program of the New Deal era.

The Works Progress Administration (WPA), the most diversified and prolific employer of the New Deal, was established by Roosevelt via an Executive Order on May 6, 1935. While the majority of WPA projects focused on building infrastructure, many involved other services such as historic preservation, research, and the arts (US Federal Works Agency, 1947). The WPA also hired primarily young unskilled men, but unlike the CCC, workers included men and women of all ages, backgrounds, and skill levels. The WPA employed people directly, with local governments often assessing their needs and requesting project approval from state and federal entities. Nearly \$18 million in WPA funds were expended in support of NPS projects from 1936 to 1943 (US Federal Works Agency, 1947, p. 119). By the time of the WPA’s termination in 1943, the program had employed a total of 8.5 million Americans (US Federal Works Agency, 1947).

A lesser-known contribution of these programs was the support provided to a variety of paleontology-focused projects in a handful of NPS units, including Big Bend National Park, Dinosaur National Monument, Fossil Cycad National Monument, and Grand Canyon National Park (Fig. 1). The activities of CCC,

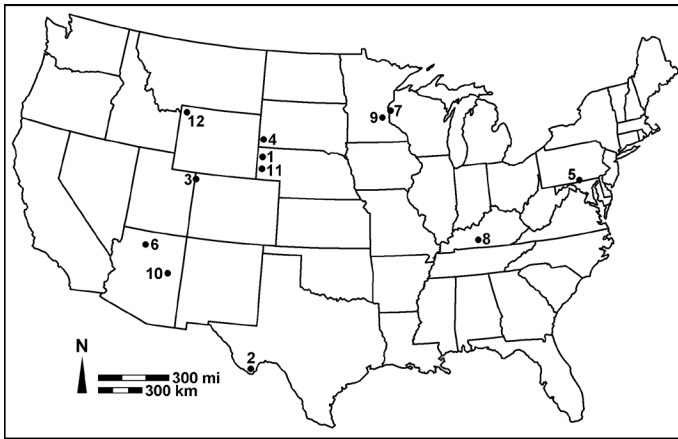


FIGURE 1. Map of the 12 featured NPS units which contain interactions between New Deal public works programs and paleontology in alphabetical order: 1. Agate Fossil Beds National Monument; 2. Big Bend National Park; 3. Dinosaur National Monument; 4. Fossil Cycad National Monument; 5. Gettysburg National Military Park; 6. Grand Canyon National Park; 7. Ice Age National Scenic Trail; 8. Mammoth Cave National Park; 9. Mississippi National River and Recreation Area; 10. Petrified Forest National Park; 11. Scotts Bluff National Monument; 12. Yellowstone National Park.

WPA, and other New Deal-era workers led to significant fossil discoveries in the national parks, enhanced protection of these non-renewable resources, and improved opportunities for fossil education. The extent of this impact across the NPS is not well documented, and the NPS Paleontology Program is expanding and improving its archival records to record and preserve this important history related to paleontology in the national parks.

THE NEW DEAL AND PALEONTOLOGY IN THE PARKS

Agate Fossil Beds National Monument

Agate Fossil Beds National Monument (AGFO), Nebraska, was authorized as an NPS unit in 1965, but its history goes back much further. AGFO is one of the premiere fossil localities for the study of Miocene-age mammals (NPS, 2024). Paleontological fieldwork in the area of Agate Springs Ranch began in the late 19th century when James Cook and his family first discovered the bone hills and sought to preserve them (Cockrell, 1986). In the early 1900s, the fossil hills yielded thousands of bones, which helped to define the mammalian fauna of North America's Early Miocene. AGFO is also the site at which the ichnofossil *Daemonelix*, or "Devil's corkscrews," were first described and later understood to be the burrows of the Miocene beaver *Palaeocastor* (NPS, 2024). Years later, Harold J. Cook, the son of James Cook and a paleontologist in his own right, worked for the CWA at Scotts Bluff National Monument, where he led a research team for the park's museum and eventually was appointed a temporary ranger, CCC project leader, and acting superintendent for one year between June 1934 and June 1935 (Cockrell, 1986). After completing his time at the monument, he returned to operating Agate Springs Ranch.

In 1938, NPS Chief Naturalist Earl Trager requested Cook's help in creating geological and paleontological exhibits at Scotts Bluff National Monument. Cook granted the NPS permission to display specimens from the Agate Springs Fossil Quarries: a two-horned rhinoceros *Diceratherium* and camelid *Stenomylus* collected by Paul O. McGrew, a CCC paleontologist and foreman and Cook's son-in-law (Cockrell, 1986). It is possible these fossil specimens were collected by a detached CCC crew of company 762, according to an article by McGrew published in

1936 in Camp 762's own monthly newspaper, the *Adobe Echo*. McGrew describes previous collection efforts by the University of Nebraska and the Carnegie Museum, which uncovered a ten-inch-thick fossil-bearing layer and specimens of the genera *Diceratherium*, *Dinohyus* (now called *Daedodon*), and *Moropus* (McGrew, 1 June 1936). News of these finds generated interest from other parties and local researchers, which were aided by workers like those of the CCC.

Big Bend National Park

Big Bend National Park (BIBE), Texas, comprises over 800,000 acres in southwestern Texas and protects hundreds of modern plant and animal species across the Chihuahuan Desert bordering the Rio Grande. The park encompasses the entire Chisos Mountain range, a culturally rich area noted for its rivers, canyons, and geologic wonders (Maxwell, 1967). These features of the Big Bend area generated interest from naturalists and Texas lawmakers to preserve the land indefinitely. The NPS sent Yellowstone Superintendent Roger Toll to evaluate the resource-rich region in 1934, and it was soon recommended for the establishment of both a national park and a CCC camp (Wick and Corrick, 2015). In the decade before the opening of BIBE to the public in 1944, NPS staff and workers from the CCC and WPA prepared the park for visitors and laid the foundation for paleontological study.

The NPS relied heavily on the CCC during the 1930s to prepare facilities for the up-and-coming park. The CCC camp was established in the Chisos Mountains, and workers developed the Basin area by constructing a road and clearing land for a campground. Due to the Big Bend's remote and difficult environmental conditions, the enthusiasm of local leaders and NPS decision-makers did not always extend to the CCC men performing the work. However, the CCC unit was awarded more funding over time to construct the camp and make it easily accessible by the public (Welsh, 2002). By the end of 1936, the CCC continued receiving praise and recognition for their work and, as a result, morale in the camp began to improve. The CCC (and future NPS) director, Conrad Wirth, visited the camp in December 1936, noting that most of the men were of Hispanic descent (Wirth, 1980). Before departing Big Bend that winter, the workers held a Christmas celebration featuring eggnog made of goat's milk, and Wirth considered it a "very hospitable gathering" and an "extra fine Christmas dinner" (Wirth, 1980, p. 121).

The many challenges of the Chisos Basin camp area, particularly its isolation and extreme environment, provided NPS planners a "laboratory for innovation" (McClelland, 1998; Welsh, 2002, p. 187). In fact, many remote areas of what is now BIBE were more easily accessed in the 1930s via early ranch roads than they are today due to modern backcountry exploration rules (Steve Wick, pers. comm., 2024). NPS regional geologist Charles N. Gould and geologist Ross A. Maxwell participated in a geologic survey of the area in 1936 with the help of students Hugh M. Eley and O'Reilly N. Sandoz. This seminal survey was beneficial in many ways, including establishing infrastructure and attending to the needs of long-lasting lodging, such as locating a reliable water supply for the camp (Welsh, 2002). While fossils such as petrified wood, ammonites, and some vertebrate remains had been found nearby in the preceding decades (Wick and Corrick, 2015), it was not until this field documentation that the presence of significant vertebrate fossils in Big Bend was fully recognized. According to Gould, "it now looks as if the Big Bend area will be one of the most prolific dinosaur collecting areas in the United States" (Gould, 1936a, p. 1). The surveyors had found several areas yielding dinosaur remains and excavated large bones belonging to at least six different species, while estimating to have also observed fragments from hundreds of individuals (Gould, 1936a). Maxwell and Gould then set

about creating a small temporary museum at the CCC camp in the Chisos Basin.

With the help of the “especially trained” CCC workers, the museum came to house hundreds of specimens, with more than 300 on display (Gould, 1936b). The workers erected tables and shelving upon which would be placed the truckloads of fossil specimens recovered from each of Gould’s surveying trips (Fig. 2). Another wing of the building was converted into a laboratory, and a third wing served as living quarters for NPS technicians. The museum collection included fossil oysters, ammonites, sharks’ teeth, turtle bones, petrified wood, crystals, and stone tools, among other geologic specimens (Fig. 3). NPS assistant regional director Herbert Maier notified NPS director Arno Cammerer of the “numerous outstanding examples of fossils of great scientific value” in the museum (Maier, ?1937, p. 1). Around this time, CCC men had discovered hadrosaur dinosaur bones, which were later reconstructed by O’Reilly Sandoz, a graduate student from the University of Oklahoma, and placed on display in one of the camp’s wooden barracks (Wick and Corrick, 2015). CCC enrollees aided Maxwell by arranging specimens, mounting his completed maps, and creating signs and labels for various displays at the simple museum (Welsh, 2002). They also created trailside signs at the locations of large fossil oysters and placed markers near various geologic and topographic features. Maier made the appeal for this CCC-funded research to continue and be incorporated into a general museum plan for Big Bend, noting that the Public Works Administration (PWA) had funded such work elsewhere in the US (Welsh, 2002).

Due to a mandatory cut in the number of camps nationwide, the completion of intended projects, and uncertainty surrounding the opening of the national park, the CCC camp temporarily closed in December 1937 (Welsh, 2002). Following this, Maxwell helped to map the geology of the park and later provided suggestions for the design and priority needs at the CCC camp once it reopened in the Chisos Basin in 1940. Because nearly every visitor to the park would go by the museum due to its proximity to the completed roads, upon the camp’s reopening

the agency hired an education specialist to train CCC-enrollee museum attendants. Camp superintendent Kirk Scott proposed having “intelligent enrollees who have pleasing personalities” give presentations to visitors (Welsh, 2002, p. 221), likely similar to those given today by BIBE interpretive staff. These early trainees were to study Maxwell’s catalogue of specimens that contained common and scientific names, geologic information, and the date, location, and collector associated with each. Such work continued until the permanent closure of the CCC camp in 1943. A significant disruption to this scientific endeavor took place on Christmas Eve 1941, when the museum and all specimens within were destroyed by a fire. Nothing was salvaged. Maxwell eventually left Big Bend to work at national monument sites in Arizona before returning in 1945 to become the park’s first superintendent, presiding over the difficult beginnings of a park he loved and represented until 1952.

Elsewhere in the area that would become BIBE, the WPA supported another paleontological initiative led by William S. Strain, a classmate of Hugh Eley, who had assisted Gould in his 1936 survey. Strain taught geology at the Texas College of Mines and Mineralogy (now the University of Texas at El Paso) and hoped to obtain a mountable dinosaur skeleton for the university’s new Texas Centennial Museum. In 1938, with the help of nearly a dozen WPA men, Strain spent weeks prospecting a region near Talley Mountain in what is now BIBE in order to locate a productive and accessible fossil-bearing locality (Langston et al., 1989). Over the course of six months between July 1938 and January 1939, the crew worked three different quarries within the Aguja Formation (Fig. 4) (Strain, ?1940). The first site was abandoned when the overburden became too time-consuming to remove. The second site was left behind due to a lack of specimens, and the third was worked until the project’s end. The first WPA quarry produced a sizeable number of fragmentary, disarticulated fossil specimens from hadrosaurs, ceratopsians, theropods, and ankylosaurs, among other dinosaur species (Wick and Corrick, 2015). The inexperienced crew worked diligently, clearing the overburden so that others could

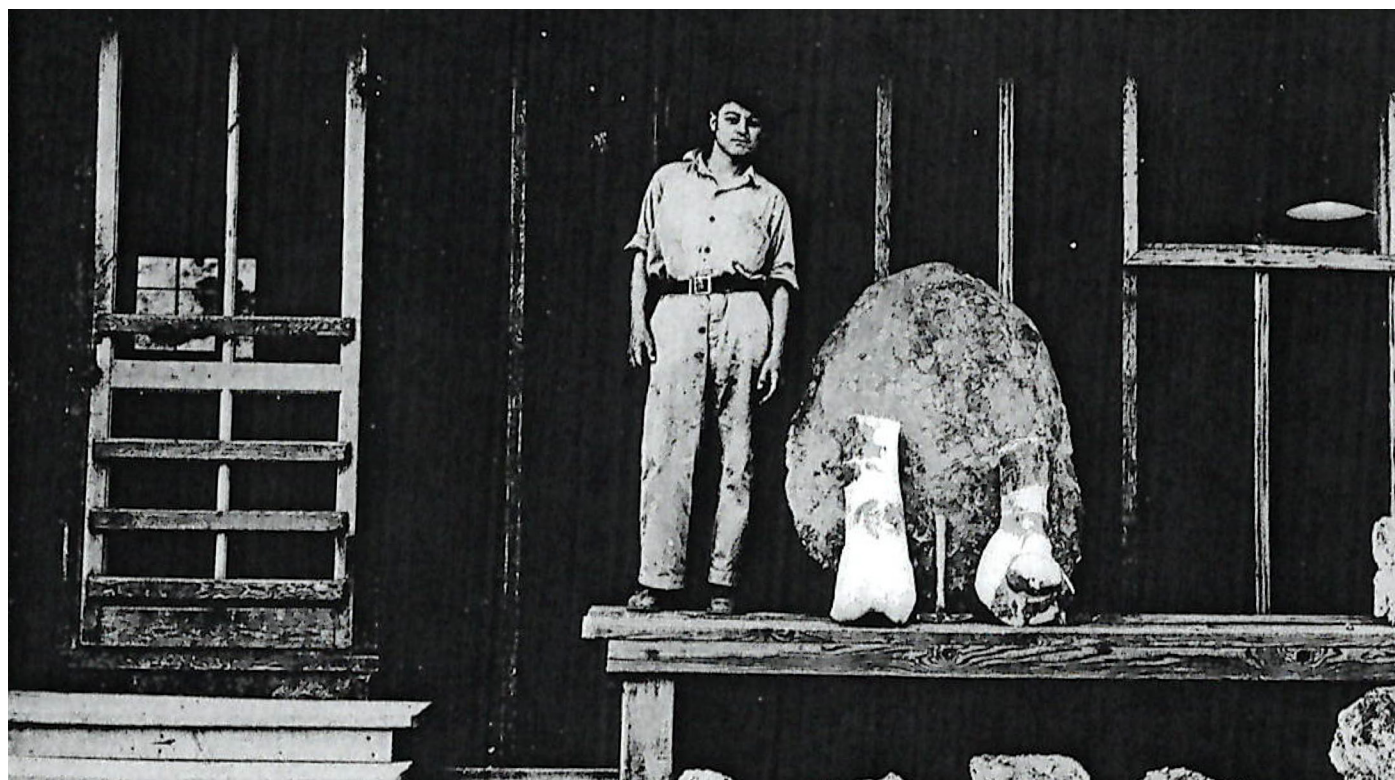


FIGURE 2. CCC enrollee with dinosaur bones at the Chisos Basin CCC museum (NPS).

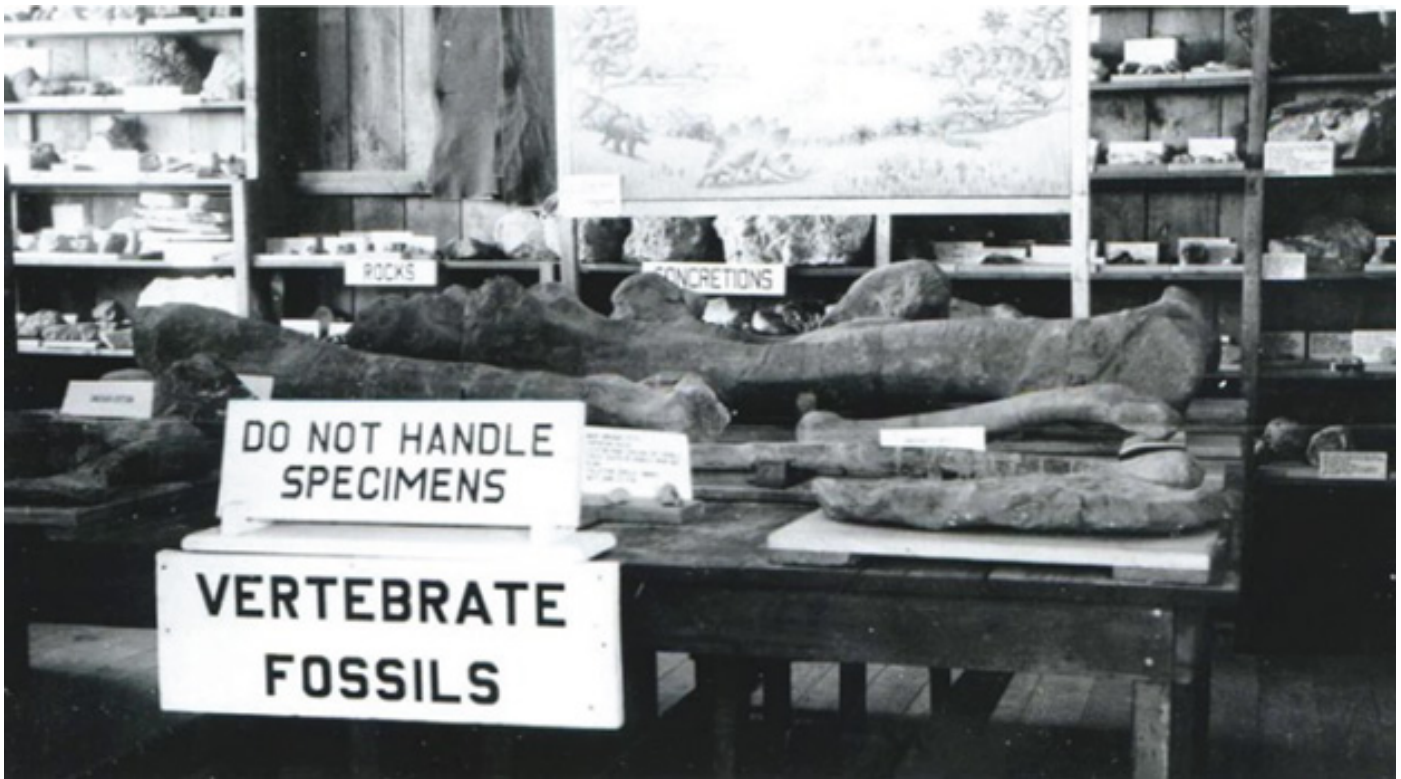


FIGURE 3. Dinosaur bones and geological specimens on display at the Chisos museum in converted CCC barracks in what would become Big Bend National Park. A dinosaur habitat painting is displayed over the bones (NPS).



FIGURE 4. Workmen beginning operation at the site of WPA Quarry #1 in Big Bend (Strain, ?1940).

recover the specimens. The men camped within yards of the quarries and were transported to and from their homes between pay periods, which were frequently round trips greater than 100 miles (Strain, 1940). The WPA workers had quarried nearly 3,000 cubic yards of rock by the time the work ended in January 1939. Strain (?1940) reported that at least 500 bones were collected, but most were, isolated fragments or concretions, and thus a mountable skeleton was never recovered. The material would not be studied in detail for many decades. While Strain's primary goal was not achieved, he and the WPA workers showed that the area itself was rich with fossils.

Famed paleontologist Barnum Brown, representing the American Museum of Natural History (AMNH), came to what is now BIBE in the summer of 1940. During this trip, Brown collected his last dinosaur specimens for the AMNH, which included *Alamosaurus* remains among other dinosaur bones (Wick and Corrick, 2015). Brown and others prospected near the WPA quarries because of the results of Strain's collections, and he found a specimen just north of WPA quarry #1 that was later identified as a partial skull of the primitive alligator *Deinosuchus* (Steve Wick, pers. comm., 2024). Mounted and displayed for many years, this was a highly regarded paleontological achievement and helped paint a picture of the Late Cretaceous shoreline environment that once existed in the area of Big Bend.

In June 1938, 17-year-old Wann Langston Jr., a volunteer at the University of Oklahoma paleontology laboratory, accompanied a pair of researchers on a field trip to Big Bend (Bell et al., 2013). Here he recovered his first dinosaur specimen from similar strata within Aguja Formation in BIBE as the material from the WPA quarries (Bell et al., 2013). Langston later became a professor at the University of Texas at Austin, at which he would study the WPA-era collections more closely and contribute significantly to the understanding of Cretaceous vertebrate fauna in the Big Bend region (Langston, et al., 1989). He also collected more complete *Deinosuchus* material from the Aguja Formation, and in 1971, one of his graduate students, Douglas Lawson, discovered the pterosaur *Quetzalcoatlus northropi* in the younger Javelina Formation, the largest flying animal ever discovered (Bell et al., 2013). Another student of Langston, Tom Lehman, would study the 1938 WPA sites (especially the ceratopsian material) in greater detail as part of his Master's thesis (Lehman, 1982). Lehman found WPA quarry #1 particularly significant due to the presence of fossils representing over 20 individuals, suggesting that ceratopsians congregated in groups (Lehman, 1982; Lehman, 2007). The first report on hadrosaurs from Big Bend also focused on the specimens collected from the WPA quarries and was conducted as part of a Master's thesis by Kyle L. Davies, another student of Langston's (Davies, 1983). Future work would continue to build on the discoveries of the WPA workers (Davies and Lehman, 1989; Wagner 2001). The Aguja Formation of BIBE continues to produce important fossil specimens to this day.

Dinosaur National Monument

Dinosaur National Monument (DINO), Colorado and Utah, is known for the world-renowned Carnegie Dinosaur Quarry which preserves approximately 1,500 bones for visitors to observe in situ on the quarry face. The Quarry Exhibit Hall is an excellent example of geoconservation, with its "Wall of Bones" containing specimens of *Allosaurus*, *Apatosaurus*, *Diplodocus*, *Stegosaurus*, and other dinosaurs of the late Jurassic Period (NPS, 2023a). The site was first discovered in August 1909 by Earl Douglass who had been sent on a fossil reconnaissance by the director of the Carnegie Museum of Natural History. When Douglass found eight *Apatosaurus* vertebra protruding from sedimentary outcrops near Jensen, Utah, news quickly spread, and visitors from many states came to see the bonebed (Beidleman, 1968). A quarrying operation began at the site,

surrounded by signage telling visitors not to "molest bones," and after years of contradictory claims to the land, the 80 acres of quarry area was established as a national monument in 1915 (Carpenter, 2018, p. 4).

Development of the quarry continued after the establishment of the National Park Service as a bureau in the Department of Interior in 1916, but work halted in 1923 and sat idle for many years (Beidleman, 1968). During that time, however, there was frequent discussion of building a museum around the exposed dinosaur remains. Leaders within the young NPS were interested in the exhibit potential of DINO, but other newly established NPS units had more pressing needs for limited agency funds (Beidleman, 1968). Bills were introduced to support the development of DINO, and prominent names such as Barnum Brown, Stephen Mather, and acting NPS director Arno Cammerer spoke in its favor, but the quarry exhibit failed to receive Congressional support. In 1929, Roger Toll, the transitioning superintendent from Rocky Mountain National Park to Yellowstone, submitted a report to Cammerer which contained ideas for development of the quarry (Toll, 1929). This and other documented suggestions such as "An Outline of Development for Dinosaur National Monument" by W.P. Weber would later serve as a work plan for construction during the Great Depression (Boyle, 1936).

Very early into the New Deal in late 1933, work at DINO began again with help from the Civil Works Administration (CWA) of Utah. Using existing ideas from Toll and others, approximately 20 CWA workers from Jensen, Utah began improving roads to the quarry, clearing debris, and removing the overburden that covered the bone-bearing layers (Beidleman, 1968). This work was supervised by Dr. Albert C. Boyle, a former chief geologist with Union Pacific and a passionate teacher of geology in the national parks (Fig. 5). After Earl Douglass' death in 1931, Boyle carried the torch as an advocate for the park, not only for preservation but for its educational value (Carr, 2012). He would host numerous events, including a picnic for the CWA workmen and their wives, so that newcomers to the monument could see it up close and even search for fossils. This work was at times discouraged by NPS officials, who directed the workmen to focus on improving the roads and conducting their work properly (Beidleman, 1968). Nevertheless, Boyle launched into his work with immense enthusiasm, giving lectures on geology and instilling enthusiasm into local schools, clubs, and the men of the camp.

In April 1934, after just a few months of work, the federal government suspended CWA activities nationwide. Boyle and others sought alternate means of support for the quarry and obtained assistance through the Transient Relief Service of Utah, also known as the Federal Emergency Relief Administration (FERA) (Beidleman, 1968). In June 1934, Boyle managed a new local camp which had complete housing facilities at the quarry site for more than 40 men. Their work primarily focused on removing overburden from the quarry, and they used many of the supplies left behind by the CWA (Beidleman, 1968). Through working six hours each day and five days per week, the FERA workers received room and board, medical and dental care, and a weekly allowance of \$3 (Boyle, 1936), which would be roughly \$68 per week in 2025. In addition to these benefits, the men were also instructed every evening in geology, chemistry, physics, astronomy, and enough training necessary to guide visitors at the monument (Carr, 2012). Boyle would illustrate these lectures using lantern slides and blackboard drawings. On Saturdays he took the men on geological field trips, enabling them to collect suitable geologic materials for demonstrations, which were added to the park's growing collections (Beidleman, 1968). The instruction by Boyle provided a strong background in geology in place of a traditional classroom setting. To increase morale and encourage self-improvement among the FERA workers, Dr.



FIGURE 5. Albert C. Boyle examining dinosaur specimens at Dinosaur National Monument's exhibit building (NPS).

Boyle encouraged the men to compose songs and write poetry, and he prepared photos of the monument and quarrying activities for them at his own expense (Carr, 2012). One such poem by the workers was even read aloud by Boyle at the first Memorial Day service for Earl Douglass in 1936 (Vernal Express, 1936). The group was known as Camp Esparenza [sic] (Carr, 2012), possibly for the Spanish word "esperanza," meaning "hope."

An advocate for tourism, Boyle hosted visitors from faraway states and even other countries, many of whom would write back thanking him for his interpretive services and ensuring that the lengthy journey to DINO was amply rewarded (Beidleman, 1968). Among these visitors were fifty men from the CCC camp in nearby Vernal, Utah on Thanksgiving Day, 1935. CCC workers would regularly return in coming years, attending tours and lectures at the monument (Beidleman, 1968). Boyle sought to ensure, as stated in his monthly reports, that all visitors would leave with new understanding of the dinosaurs and with a strong desire to return and learn more about the land (Beidleman, 1968). During late 1935, the FERA camps closed across Utah, but the operations at DINO continued through support of the WPA (Fig. 6). Boyle was retained as a supervisor of the WPA quarry project and served as acting custodian of the monument. He had been living out of a one-room tent which also contained \$2,000 worth of field equipment, worth over \$40,000 in today's money, and a number of fossil specimens (Carr, 2012). In July 1936, a storage building was completed to house bone specimens and protect them from the elements. This storage building also served as the park's first museum, supplied in part by collections from the men at camp (Beidleman, 1968). Specially trained workers even prepared paintings of dinosaurs to supplement the exhibits. Boyle would spend entire days working in the museum, which would be open for 11 hours in the winter and 16 hours in the summer (Carr, 2012).

In January 1937, LIFE Magazine released a four-page illustrated article about DINO, and a letter was sent to the editor the following month by a visitor (Turner, 1937). The visitor noted that "a real human story" was taking place at the monument with "Dr. Boyle and his boys." The letter stated that while visitors expected to hear about the dinosaurs, Boyle would first tell them all about the workers (Turner, 1937). Men who had been down on their luck mere months prior were now authorities on the science at the monument and were on the way to securing jobs



FIGURE 6. WPA workers exposing the bone layer of what would be the Quarry wall at Dinosaur National Monument (NPS).

thanks to the efforts of Dr. Boyle. According to the writer, "the 'boys' are reclaiming the dinosaurs and Dr. Boyle is reclaiming the 'boys'" (Turner, 1937; Carr, 2012, p. 39). Articles such as the one in LIFE Magazine, the new museum, and improved roads and signboards all likely contributed to the record number of visitors that were to follow in the coming years.

Work on removing the overburden at the quarry continued. In 1938, by presidential proclamation from Franklin Roosevelt through the Antiquities Act, DINO's borders were expanded beyond the original 80 acres to more than 200,000 acres in Utah and Colorado to encompass sections of the Green and Yampa Rivers, and also in part to accommodate housing needs for workers (Carpenter, 2018). Boyle continued his supervision of the work until 1940, when he and the 97 WPA workmen were discharged. By this time, nearly all of the proposed work at the monument had been completed (Carr, 2012).

Fossil Cycad National Monument

Fossil Cycad National Monument (FOCY), South Dakota, was established in 1922 to protect a rich exposure of fossil cycadeoids in the southern Black Hills of South Dakota (at the time, cycads and cycadeoids were not firmly distinguished). In less than a decade most of the plant fossils exposed at the surface which had generated public interest in the park were removed through unauthorized collecting (Toll, 20 November 1929). Due to the loss of these sensitive non-renewable paleontological resources, the National Park Service coordinated test excavations at the monument to determine if any fossils were present beneath the surface.

In 1929, on a series of visits to parks and monuments in the western states, Yellowstone superintendent Roger Toll wrote a letter to the NPS director reporting the loss of cycadeoid specimens, writing, "If [FOCY] has no value, present or future, it is a liability, not an asset, to the rest of the system" (Toll, 20 November 1929). Years later, after the establishment of public works relief programs, Toll asked NPS director Arno Cammerer for an Emergency Conservation Work (ECW) camp to assist with excavations and locate potential subsurface fossil cycads at FOCY (Toll, 24 June 1935). The ECW Act of 1933 was FDR's initiative to provide conservation jobs to young unemployed men, but the name Roosevelt used to address Congress, the Civilian Conservation Corps, quickly caught on in its stead and was later made official in 1937 (Salmond, 1967). In October of 1935, a crew of thirteen CCC workers from a camp at nearby Wind Cave National Park (WICA) began work at FOCY under the supervision of Yale paleobotanist George Reber Wieland (Santucci and Hughes, 1998).

Dr. Wieland was a widely recognized paleobotanist based at Yale University who first gained interest in fossil cycads after assisting Yale paleontology professor Othniel C. Marsh in the field (Santucci and Hughes, 1998). On a trip to the Black Hills of South Dakota, Wieland met paleobotanist Lester Ward of the US Geological Survey and viewed his extensive collection of cycadeoid trunks (Wieland, 1916). Ward had conducted some of the earliest investigations at the Minnekahta locality, as it was called before the monument's establishment, and had noted that specimens were often taken by fossil collectors or sold by dealers (Santucci et al., 2024). Wieland continued to study fossil cycads at Yale, and in 1920 purchased the 320 fossil-rich acres that would become FOCY under the US Homestead Act (1862). Wieland then offered to donate the land back to the federal government to preserve the fossil locality as a national monument. Following the establishment of the park in 1922, oversight of the monument was left to local ranchers and the superintendent of WICA, but FOCY does not appear in any of their reports until 1933 (Santucci and Ghist, 2014). By then, countless fossils had been lost, necessitating the return of Wieland and his CCC crew in 1935.

The CCC workers opened six to eight excavation pits and very quickly recovered over one ton of uneroded fossil cycad specimens (Fig. 7) (Wieland, 19 November 1935). The collections were viewed as an important success, as Wieland soon reported to the Director, "The material now in hand will in itself afford an ample exhibit... The CCC boys after a few days got into the spirit of the search, after all quite like a game of poker and worked splendidly, finally closing the work with reluctance, as we had come near a point where we could get material at will – though there is yet needed much more exploratory work" (Wieland, 19 November 1935). The superintendent of WICA, Edward D. Freeland, expressed similar supportive sentiments, stating the work had "unquestionably proven" that many cycads still remained (Santucci and Hughes, 1998). Despite this, NPS Chief Naturalist Earl Trager expressed doubt in the extent of recoverable fossils from FOCY, writing shortly after the CCC work, "the specimens were overlain by massive hard sandstone making it almost impossible for a casual collector to obtain any specimens" (Trager, 28 January 1936).

During the excavation, an enduring dispute began between Wieland and acting chief geologist Carroll H. Wegemann.

Wegemann was present at the site, in addition to NPS representative Roy A. Wilson and Chief Naturalist Earl Trager (Santucci and Ghist, 2014). Wegemann accused Wieland of removing the original surficial specimens and bringing them back to Yale, in addition to stealing fossils collected during the 1935 excavation (Santucci and Hughes, 1998). WICA superintendent Edward D. Freeland defended Wieland, although Wieland did admit to Trager to removing over 1,000 specimens before the monument's establishment (Trager, 18 March 1939), stating that Wegemann was "tactless" and had "an unfortunate manner with other people" (Freeland, 18 November 1935). Wegemann ultimately shut down the CCC excavation in November 1935 (Wegemann, 1936).

Wieland fervently sought further development of the monument after the CCC work but was met with resistance due mostly to the paucity of surficial *in situ* specimens (Santucci and Ghist, 2014). He hoped to construct a visitor center at the monument site, as well as roads, exhibits, or an *in situ* display similar to what was planned for Dinosaur National Monument. NPS Director Arno Cammerer suggested instead that a fossil cycad display be placed at WICA's visitor center, but Wieland was unmoved, emphasizing the importance of *in situ* development so that FOCY was not "lost again in the shuffle of time" (Wieland, 1937, p. 289). By 1937, the excavation pits had been filled and leveled by CCC workers from WICA. Wieland began to urge members of Congress to contact the Secretary of Interior or propose appropriation bills for funding for development of the monument (Santucci and Hughes, 1998). One example of this is Francis Case, a congressman from South Dakota who wrote to NPS Associate Director Arthur Demaray for PWA funds or the diversion of other CCC camps to support Wieland's goals (Case, 12 April 1940). He also petitioned Cammerer for a CCC camp following the work that was underway at Mount Rushmore and Badlands National Monument (Case, 29 April 1940). Despite these appeals, no progress was made toward development at FOCY. While the brief efforts by CCC workers momentarily breathed new life into the monument, it did not ultimately revive interest in developing the monument. In 1957, after FOCY's strongest advocate in Wieland had passed away, Congress passed legislation to abolish Fossil Cycad as a national monument, and the land was transferred to the Bureau of Land Management.



FIGURE 7. Yale paleobotanist George Wieland supervising CCC workers excavating fossil cycadeoid specimens at Fossil Cycad National Monument in 1935 (NPS).

Gettysburg National Military Park

Gettysburg National Military Park (GETT), Pennsylvania, protects the landscape of the pivotal July 1863 battle of Gettysburg of the during the American Civil War. While GETT is known primarily for its cultural significance, the land also preserves important natural and paleontological resources. Two CCC units, the African American companies 385 and 1355, worked at GETT from 1933 to 1942 (Rosiecki, 2015). During this time of construction and maintenance, blocks of mudstone were quarried outside of park boundaries at Trostle Quarry, York Springs, Pennsylvania, and transported to the park to build stone bridges. Fossil tracks of the ichnospecies *Atreipus milfordensis* and *Anchisauripus* sp. were discovered in the quarried blocks (Santucci and Hunt, 1995; Santucci et al., 2020). The stone blocks containing the fossil footprints were placed along the capstone of the bridge in order to make the tracks visible, and they remain monitored by park staff at GETT to this day (Santucci et al., 2020).

Grand Canyon National Park

Grand Canyon National Park (GRCA), Arizona, garnered significant attention in the early years of the NPS from notable paleontologists such as Charles Doolittle Walcott, John C. Merriam, and Edwin McKee. GRCA was established as a national park in 1919, only a few years after the establishment of the NPS itself, and projects were soon underway, many of which were supported by the Carnegie Institution of Washington (Spamer, 2021). The park was ripe for development by the beginning of the CCC in 1933, and much of the CCC work which took place is well-documented through reports and photography.

One such Carnegie-funded project during this transitional period was the research of David White, a paleobotanist who conducted field work in GRCA in the 1920s. White described more than two dozen species of fossil plants and trace fossils from the Permian Hermit Formation and published his work in a 1929 monograph, which remains a primary guide to fossil plants of the Grand Canyon (White, 1929). To recognize this foundational work, the CCC built a trailside *in situ* fossil fern exhibit at Cedar Ridge on the South Kaibab Trail in 1937 (Fig. 8). This exhibit was re-dedicated in 2008 during a CCC symposium at GRCA (Spamer, 2021). The Kaibab Trail was one of two sites with extensive interactions between the CCC workers and the park's fossil resources; the second noteworthy location is the Pleistocene fossil site within Rampart Cave.

In July 1936, Willis Lyman Evans, an indigenous American archeologist of the Pit River Tribe and a foreman for the CCC, discovered the remains of a giant ground sloth lair within Rampart Cave at the western end of Grand Canyon (Lost City Museum, 2024). At the time, this area was administered as part of the newly established Boulder Dam Recreational Area, later to be known as Lake Mead National Recreation Area, becoming part of Grand Canyon National Park in 1975. The newly constructed Boulder (now Hoover) Dam controlled the levels of the Colorado River and allowed easier access to the cave, one of the first Pleistocene fossil discoveries within what is now GRCA (Spamer, 2021). The floor was covered in dung left by Shasta ground sloths (*Nothrotheriops shastensis*), as well as pack rat middens and other Ice Age fossil remains (Mead et al., 2021; Spamer, 2021). Evans immediately recognized the location's significance from his experience excavating another cave in the region, and soon the men from CCC Company 573 were enlisted to assist in the excavations.

The first task in excavating Rampart Cave was to improve access to the site, which was located up a steep talus slope above the Colorado River (Spamer, 2021). The CCC crew of 26 men spent several weeks constructing a trail to the cave and then built ladders to reach the entrance (Bobko, 1993). To work inside the cave safely, the men used respirators to enter in turns

to excavate and collect specimens, before coming out to rest (Fig. 9). According to one of the workers, Evans instructed the CCC men on how to dig gently with trowels and small tools to collect fossils without causing them any damage (Bobko, 1993). The collections included vertebrate bones, fur, and barrels of dung which preserved Pleistocene plant material and filled areas of the cave up to six feet deep (Spamer, 2021). Rampart Cave was the first location in Grand Canyon studied for Pleistocene remains, and hundreds of fossils were recovered over the span of a short summer collecting season in 1936 (Mead et al., 2021).

The excavation of Rampart Cave was completed by the fall of 1936, and the CCC crew returned to the main camp in Boulder City and most of the workers were reassigned to other tasks. Geologist Edward Schenk, who had overseen much of the excavation, selected two men, Michael Bobko and Julius Souch, to help classify, number, and preserve all the collected fossils (Bobko, 1993). In 1993, Bobko's granddaughter Kathy Swoboda interviewed him about his CCC experience at Grand Canyon, including his work excavating the cave, working with Schenk, and learning about paleontology (Bobko, 1993). According to his recollections, Bobko and Souch utilized a book called *The Nomenclature of Paleontology*, which was brought by men who had made digs at the La Brea Tar Pits (Bobko, 1993). Under Schenk's guidance, the men referred to the fossils outlined in the book and matched them to the bones from the cave to identify the recovered specimens. They classified, cleaned, and gave numbers to all specimens, applied shellac, and packed them carefully into cardboard boxes to be shipped to the Smithsonian Institution (Bobko, 1993). Over 550 specimens were produced by Schenk's Rampart Cave excavations (Kim Besom, pers. comm., 2024). The Smithsonian would later send Remington Kellogg to perform the largest excavation of Rampart Cave in 1942. Although much of the material remains unstudied in great detail, the contents of the cave and collections by the CCC men were incredibly valuable to later paleontologists and paleoecology studies (Spamer, 2021).

Once the work at Rampart Cave was completed, Schenk reportedly invited Bobko to assist him at Stanford as a lab technician (Bobko, 1993). This opportunity would have provided Bobko an education equivalent to a degree in geology, but he decided instead to return home to his family after the completion of his enrollment in the CCC. Bobko had taken many photographs of the CCC crew at work during the excavation and of the fossils they were collecting, and many of these photos remain in Grand Canyon's collection (Fig. 10). The NPS hoped



FIGURE 8. CCC workers in 1937 constructing the fossil fern exhibit quarry on the South Kaibab Trail at Grand Canyon National Park (NPS, Grand Canyon Museum Collection, #00793).



FIGURE 9. CCC workers inside Rampart Cave at Grand Canyon National Park (NPS, Grand Canyon Museum Collection, #08526).

to turn the area into an *in situ* public exhibit, with ideas that included running a trench with walls of glass through the cave and/or taking boat tours which stopped at Rampart Cave, but there was ultimately never a dedicated exhibit in place (Spamer, 2021). Despite this, the cave continued to attract interest from the public, and visitors would make the trek even after the area had been gated. In 1977, a visitor accidentally started a fire, lighting the dry dung and destroying a portion of the cave's contents (NPS, 1977).

Most fossil specimens in Grand Canyon's museum collections that are attributed to CCC enrollees come from the Permian Toroweap Formation lying between the Coconino Sandstone and the marine Kaibab Formation, which forms the rim of the Canyon (McKee, 1938; Mark Nebel, pers. comm., 2024). Another area from which there were CCC-era collections was the Bright Angel Trail, which passes through fossiliferous Cambrian exposures that have yielded remains of trilobites, brachiopods, and invertebrate trackways. A trilobite exhibit was built by the CCC in 1936 near a "garden spot" along the trail known as Indian Garden (today called Havasupai Gardens), but there is no evidence remaining of the site's existence, and the precise location of the exhibit and associated quarries is not well known today (Spamer, 2021). The approximate position of the exhibit's two display cases was relocated in 2009 using historic images, but no excavation took place to determine the status of any remaining material (Foster, 2011). No trilobites were found at this time, but brachiopods and trace fossils were present (Foster, 2011). Other exhibits were proposed during the 1930s, but due to the abundance of CCC projects at the Canyon, other funding priorities, and the end of the CCC in 1942, not all the proposed fossil exhibits could be completed. The substantial

amount of CCC work at the Grand Canyon and in northern Arizona has been the focus of much study, and further details can be found in resources such as Paige (1985) and Audretsch (2011, 2013).

Ice Age National Scenic Trail

The CCC and public works programs made contributions in state parks as well as federal lands. For example, from 1935 to 1940, CCC men worked at Camp Interstate in Interstate Park in Wisconsin, which is now part of the Ice Age National Scenic Trail and NPS-affiliate Ice Age National Scientific Reserve. The workers constructed many buildings out of stone quarried from the park, such as a house on Lake O' the Dalles. Near this site, bones of prehistoric bison were recovered from a former peat bog as the CCC work took place, along with approximately 300 other bones and three artifacts (Palmer, 1954; Hawley, 2009).

In October 1936, CCC workers digging a ditch for a pipeline near Mountain Meadow, across the park road from Lake O' the Dalles, found large bison leg bones in peat, later identified as *Bison occidentalis* (Pond, 1937; McDonald, 1981). Extensive digging at the site also revealed two flint projectile points and a copper awl (Cooper, 1937; Pond, 1937). From the fall of 1936 to the summer of 1937, approximately 1,300 fossils were excavated, representing at least 42 bison (*B. occidentalis*), nine elk (*Cervus elaphus*), and one white tailed deer (*Odocoileus virginianus*), all in near-pristine condition (Hawley et al., 2007).

While the initial belief was that the bison had been killed by humans, further research challenged this idea and suggested that many of the animals died naturally (Hawley et al., 2007). For example, the bones have no cut marks or other indications of butchering and are more consistent with a lag accumulation and



FIGURE 10. Men of CCC Company 573, the crew that excavated Rampart Cave. Photo taken by Michael Bobko (NPS, Grand Canyon Museum Collection, #06997).

slow settling (Hawley et al., 2007). The artifacts are believed to belong to the Old Copper culture of the Great Lakes region, and artifacts from similar sites are dated between 5600 and 7500 years before present (Hawley et al., 2007). However, more recent studies extend the range to as recent as 1580 years before present (Pompeani et al., 2021), supporting the idea that the bison at this site predated the Great Lakes natives as *B. occidentalis* is thought to have gone extinct around the mid-Holocene, approximately 5000 years ago (McDonald, 1981). Furthermore, samples of cortical bone from three right bison metacarpals and two left elk scapulae were measured using radiocarbon dating, and all clustered tightly around 6600 years in age (Kolb et al., 2010). The most recent studies into the site suggest the remains were deposited along a shoreline environment and buried by sediment accumulation due to wave action (Kolb et al., 2010).

Mammoth Cave National Park

Mammoth Cave National Park (MACA), Kentucky, was authorized in 1926 and later established in 1941. Around the time of the Great Depression, much of the park's land still needed to be developed in preparation for visitors. Four CCC camps were set up in MACA, housing 200 to 250 men (Groves et al., 2021). CCC camps were segregated, and many camps composed of black CCC workmen were placed on federal lands like NPS areas to avoid racial conflict (Paige, 1985, p. 94). Company 510 or "Camp #1" at MACA was made up solely of African American men and included former cave guides Arthur and Clifton Bransford (NPS, 2022).

The CCC work at MACA was among the most extensive in Kentucky and in many national parks. The CCC men conducted considerable excavations and landscaping around fossiliferous areas and caves at MACA, such as Houchin's Narrows, Proctor Cave, the Frozen Niagara section, and the Historic Entrance (Colburn, 2005). Trail construction took place through travertine

deposits on Fossil Avenue in the New Discovery Section of the cave (Fig. 11). In a log of activities by park naturalist Claude Hibbard, he noted a March 1935 visit to the office of the CCC Camp #1 superintendent to look over rocks and invertebrate fossils collected by the CCC men (Tolleson and Olson, 2024). The park geologist Erwin Robert Pohl worked on developing a geologic map for MACA during the CCC years. It was during this fieldwork that Dr. Pohl acquired the nucleus of MACA's fossil collection, which would not receive significant additions until the parkwide paleontological inventory that began in 2020 (Tolleson and Olson, 2024). Pohl kept a close record of his work and findings through weekly reports. Due to the overlap, it is possible that some specimens in MACA collections were discovered by CCC men, but more research is needed to determine the details of the field collections of fossils at MACA.

Mississippi National River and Recreation Area

Mississippi National River and Recreation Area (MISS) is a 72-mile protected stretch of the upper Mississippi River in Minnesota established by the NPS in 1988. The NPS partners with several institutions and stakeholders along the river to preserve its important cultural, recreational, and natural resources. One of the many partner sites within this NPS area is Hidden Falls Regional Park in St. Paul, Minnesota. In July 1938, when clearing debris for widening the north entrance road into the park, a WPA crew uncovered a fossil skeleton of a Pleistocene rodent the size of a large dog (Powell, 1948). The specimen was a young adult individual of the extinct *Castoroides ohioensis*, also known as the giant beaver (Erickson, 1962). The animal appears to have taken shelter beneath a ledge of the Ordovician Platteville Formation just over 10,000 years ago, which collapsed and crushed it (Erickson, 1962). The skeleton was recovered, then prepared, reconstructed, and displayed at the Science Museum of Minnesota by museum director Louis

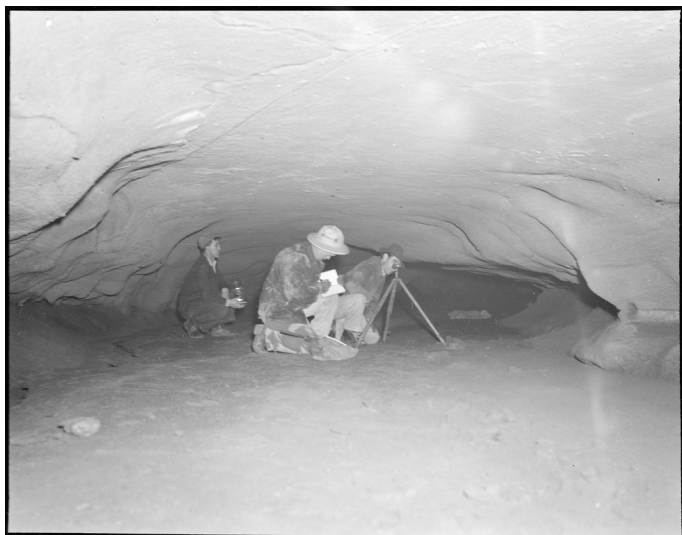


FIGURE 11. Trail work conducted by a survey party on Fossil Avenue in the New Discovery Section at Mammoth Cave National Park, circa 1942 (NPS).

H. Powell (Powell, 1948). Although it is damaged, the specimen represents one of the most complete examples of this species (Erickson, 1962).

Petrified Forest National Park

Extensive work was undertaken by the CCC at Petrified Forest National Park (PEFO). The earliest CCC work focused on road construction projects off the main park road to access locations such as Jasper and Blue Forests and trails around Newspaper Rock and Crystal Forest (Parker, 2020). These roads, trails, and other CCC-period infrastructure are still used to this day. Another important park project was the construction of a 16-mile water line to the park headquarters at Rainbow Forest, much of which was dug by hand (Parker, 2020). CCC men at PEFO were trained in more than just manual labor; they also gained skills in art and science. CCC workers excavated and cleaned fossils, gave presentations to visitors, and wrote and illustrated newsletters for the park (Parker, 2020). Some specimens collected with the help of the CCC include *Neocalamites* casts, and a photo of an enrollee collecting stem molds is used as the background in an exhibit at the Rainbow Forest Museum (Fig. 12). An extensive photograph collection of the CCC work at PEFO is preserved by the park.

Perhaps the most notable contribution by the CCC to PEFO was the construction of the Painted Desert Inn (Fig. 13). The inn was built between 1937 and 1940 including portions of walls containing petrified wood from an earlier 1920s lodge (Harrison, 1985). The site had been acquired by the NPS in 1936 using funds from the WPA. The architectural design was made by NPS architect Lyle E. Bennett in Spanish/Pueblo Revival style, and interior murals were painted by Hopi artist Fred Kabotie (Harrison, 1985). When the “Stone Tree House” was restored by the CCC, much of the petrified wood was concealed beneath stucco but remains part of the foundation (Santucci et al., 2020). The inn was threatened with demolition in 1974, but the meticulous interior work by the CCC men and Fred Kabotie persuaded NPS staff to preserve the building and reopen it as a wayside (Parker, 2020). Soon after, it was listed on the National Register of Historic Places and was later designated as a National Historic Landmark in 1987 (Santucci et al., 2020).

It is worth noting that PEFO is one of 13 national parks to have a promotional poster designed by the WPA’s Federal Art Project. Between 1938 and 1941, the NPS employed WPA artists at the Western Museum Laboratories (WML) to create posters as



FIGURE 12. A CCC enrollee holding a stem mold. This photo is used in an exhibit at the Rainbow Forest Museum at Petrified Forest National Park (NPS).

advertisements to promote tourism in the parks (Berger, 2020). The posters were visually striking and captured the essence of each park. Each were produced using silkscreen printing, and the art style was so distinctive that it became known as “WPA style,” with reproductions still highly sought-after to this day. PEFO’s design would have been unique amongst the collection, which included Grand Canyon, Wind Cave, Yellowstone, and Zion, due to its featuring of fossils in the form of the park’s signature petrified wood. The posters were largely lost to time until the 1970s when former park ranger Doug Leen rediscovered one at Grand Teton and began restoring and reproducing the prints (Berger, 2020). Only a small fraction has resurfaced, however. An estimated 1400 original copies of the national park posters were created, but only 42 have since been found (Berger, 2020). The WML also created a phytosaur diorama for PEFO (Fig. 14) under the direction of park naturalist Howard Stagner, and the diorama has been on exhibit at the Rainbow Forest Museum since 1936 (Parker, 2020).

Scotts Bluff National Monument

Scotts Bluff National Monument (SCBL) had a CWA contingent in 1933 until the exhaustion of funding in April 1934, and these efforts produced the first ever professional research studies at the monument (Cockrell, 1983). The first two reports were “A History of Scotts Bluff, Nebraska” by Dr. Donald D. Brand and “An Outline of the Geology and Paleontology of Scotts Bluff National Monument” (Effinger, 1934). One notable project by the CWA at this time was the construction at Summit Road,



FIGURE 13. The Painted Desert Inn at Petrified Forest National Park (NPS, Petrified Forest National Park, Catalogue #20706).



FIGURE 14. Phytosaur figures being sculpted by Paul J. Fair at the Western Museum Laboratory for a Triassic diorama at Petrified Forest National Park (NPS).

intended to provide automobile access to the summit of Scotts Bluff. This effort entailed the excavation a number of tunnels, which in February 1934 revealed fossil specimens including “remains of hyena, rhinoceros, deer, and oredons [oreodonts]” (Scottsbluff Daily Star-Herald, 1 March 1934; Barber, 2001, p. 32). Because the excavations were done by hand rather than machinery, the specimens were more easily recovered intact (Scottsbluff Daily Star-Herald, 1 March 1934). After the end of CWA funding, Harold J. Cook, the paleontologist and geologist from Agate Springs Ranch, became the third custodian of SCBL in late 1934 and worked to resume development and construction at the monument.

In April 1935, around 200 men in “CCC Camp 762” began working on existing and new projects at Scotts Bluff (Cockrell, 1983). Cook was succeeded by Charles E. Randels as custodian of the monument from July 1935 to June 1938. Merrill J. Mattes, the Junior Historian and later the official custodian and first permanent employee at the monument, arrived in October 1935 and recruited interpretive staff for the park from the CCC camp (Cockrell, 1983). The CCC projects involved the construction of the summit road, picnic grounds, maintenance buildings, and a visitor center, which included a paleontology wing and basement (Cockrell, 1983), though there is no paleontology exhibit in the current visitor center. A crew of CCC employees were also reported to have accompanied paleontologist Paul O. McGrew to collect Pliocene specimens approximately 25 miles south of the monument (Ryan, 1937). CCC workers were involved in a

wide variety of tasks, including the collection of fossils, until the closure of the camp in 1938.

Natasha Smith, a paleontology graduate student from University of California (UC), Berkeley, worked for the CWA’s Field Division of Education to create dioramas for museums across the western US. This is the same organization the NPS contracted to do its 1934 paleontology study (Effinger, 1934). The Field Division of Education was later renamed the Western Museum Laboratory (WML) and was a joint project between the NPS and UC Berkeley, which brought in artists and historians under multiple New Deal programs to create two-dimensional watercolor paintings and other creative designs for museum displays (Cockrell, 1983). Smith’s research focused on prehistoric horses, and she created models of *Moropus*, an extinct horse relative, for display at SCBL (Fig. 15) (NPS, 2023). As of 2024, there are still three models produced by the WML in the museum collections at SCBL, and one model is at AGFO (Arthur Stiles, pers. comm., 2024). In 1936, Smith was hired by the WPA where she continued her work as part of the Federal Art Project, a New Deal relief program to employ artists, creating miniature models for Aztec Ruins National Monument and Tumacácori National Historical Park (NPS, 2023). While most examples listed herein involve men performing manual labor, women, artists, and teachers also conducted important research and interpretive work relating to fossils in the early NPS.

Yellowstone National Park

The CCC conducted work at America’s first national park, Yellowstone National Park, for the entirety of the program’s existence, from 1933 to 1942. The work at Yellowstone was extensive, covering six main camps across the park, in addition to many side camps, and included landscaping, tree planting, trail maintenance, fire prevention, museum assistance, and countless other tasks (Manns, 1981). Despite this wide range, there are little to no confirmed interactions between these CCC workers and Yellowstone’s fossil resources. However, there were a number of dioramas that were placed on exhibit at the Yellowstone visitor center in the 1930s that are suspected to have been produced by the WML at Berkeley, supported by New Deal funding. One diorama depicts petrified tree stumps from along Specimen Ridge in Yellowstone (Fig. 16). The exhibit has since been lost, and it is not known if it has been destroyed or where it might be if it still exists. CCC workers at the park were also reported to have prepared and photographed museum specimens (Manns, 1981), and it is possible that through this work or the



FIGURE 15. Natasha Smith modeling a horse to be used in a prehistoric animal exhibit at the visitor center of Scotts Bluff National Monument (NPS).

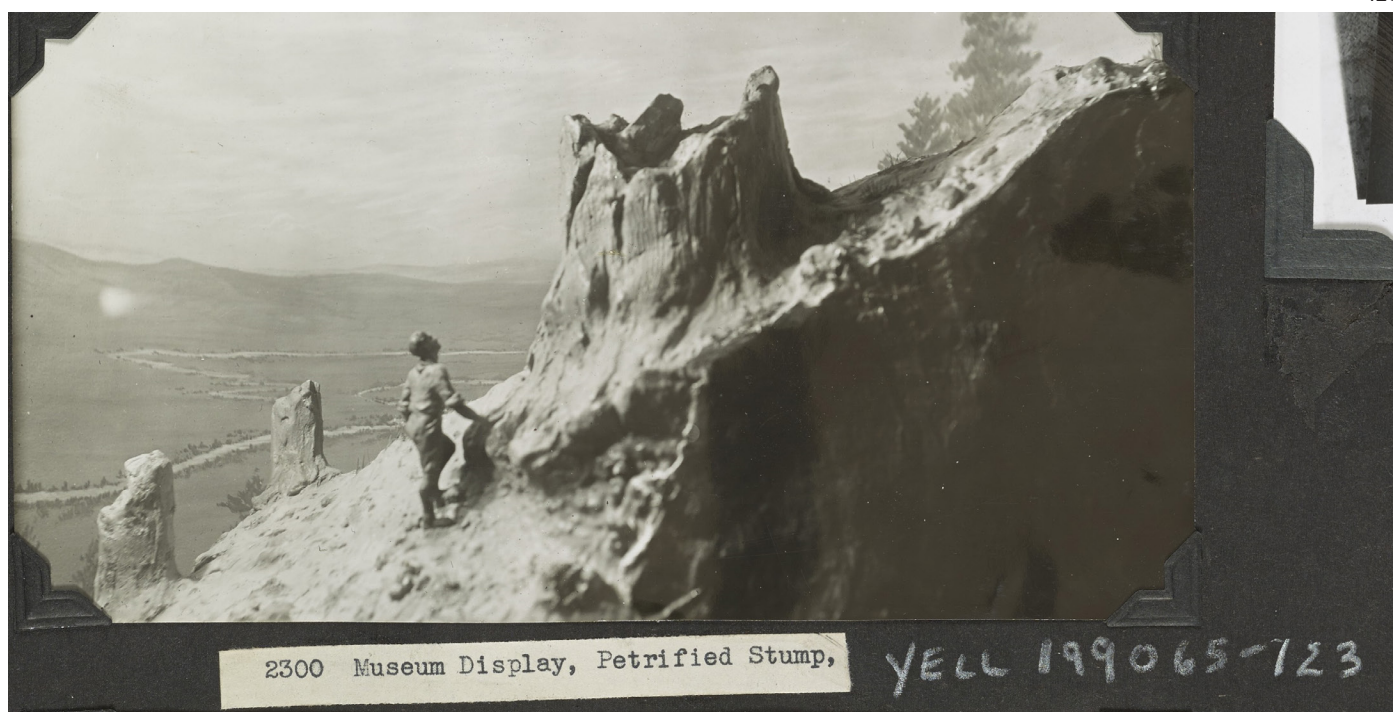


FIGURE 16. A museum display of a petrified stump at Specimen Ridge in Yellowstone National Park, possibly produced by the Western Museum Laboratories (NPS).

many other projects, contributions were made to Yellowstone's history of paleontology. Further research is needed to better understand the history of these projects.

CONCLUSION

This summary represents the first attempt to document the contributions of the public works programs of the New Deal to paleontology across the National Park Service. The parks listed above have substantial documentation from this period, but there are many NPS units that were established after the 1930s which may have had CCC work take place on pre-park land, or fossil discoveries from this time may not have been deemed noteworthy. With fossils documented in at least 288 NPS units, it is highly likely that more examples of this interaction exist than what is presented above. It is recommended that future research includes a broader examination of primary sources within park archives and museums such as correspondences, geologic reports, and field photographs to find further evidence of New Deal-era paleontological connections with NPS areas. As evidenced above, the work of this time period has had far-reaching impacts in public education, scientific research, and promotion of the national parks. Many average Americans through the New Deal programs left a mark on the parks they worked at and significantly contributed to our understanding of paleontology. It is therefore imperative that their history, as a chapter of our nation's history, continues to be documented in full.

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