Pinaleño Mountains in the Twentieth Century
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Throughout the twentieth century, a few major events dominated the history of the Forest Service. First, the founding of the National Forest Service in 1905 replaced the Bureau of Forestry and led to the creation of modern National Forests. The new service was created under the jurisdiction of the Department of Agriculture with the purpose of securing a long term supply of timber for the American people.[1] Second, the great depression of the 1930s, Franklin Roosevelt's creation of the Civilian Conservation Corps (CCC) and the expansion of the Forest Service changed the shape of National Forests.[2] This time period featured a major transition from timber management to hands on putting resources into the forest. The Forest Service and CCC planted trees, carved trails, built roads, and conducted research; actively molding forests and applying the latest forestry techniques instead of letting the forest take its course.[3] A third period of great change came in the 1970s during the environmental era.[4] The emphasis changed from conceptualizing the forests as resources to be converted into marketable goods to seeing them as wilderness in need of preservation. While conservation has always been an important part of the Forest Service - advocated by both those who saw an intrinsic value in wilderness and by those who used the wilderness for recreational purposes - increased urbanization highlighted the uniqueness of forests. Efforts to catalog and protect the environments of forests became a main priority while ecologists and conservationists gained status.[5] These three main shifts defined the Forest Service in the twentieth century.

Let us consider how these trends played out in a specific district of this national network: the Pinaleño Mountains of southeastern Arizona

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[1] Eric Rutkow, *American Canopy: Trees, Forests, and the Making of a Nation* 1st (New York: Scribner, 2012).
Emily K. Brock, *Money Trees: The Douglas Fir and American Forestry, 1900-1944* (Corvallis: Oregon State University Press, 2015).
[2] Rutkow *American Canopy*, 249.
[3] Brock *Money Trees*, 100.
[4] Rutkow *American Canopy*, 314.
[5] Char Miller, *Public Lands, Public Debates: A Century of Controversy.* (Corvallis: Oregon State University Press, 2012); Dennis Roth, "The National Forests and the Campaign for Wilderness Legislation" in Char Miller, *American Forests: Nature, Culture, and Politics* (Lawrence: University Press of Kansas, 1997); John F. Reiger, "Wildlife, Conservation, and the First Forest Reserve" in Char Miller, *American Forests*.

(currently under the management of Coronado National Forest).[6] Many of the mountains in Coronado National Forest are Sky Islands—mountains with sufficient height to feature significantly different ecosystems than exist in the valleys below and with enough isolation from other peaks to have developed unique ecologies. Significant mountain ranges near the Pinaleño Mountains are the Santa Catalina and Chiricahua Mountains. The 1905 founding of the Forest Service nearly coincided with the designation of the Pinaleños as nationally protected land. Therefore, this was the beginning of the presence of government supervisors – both the Forest Service and locally elected legislators with jurisdiction over the mountains – in the Pinaleños. The designation of protected land also attracted ecologists who were present in and vocal about the mountains throughout the 1900s. The 1930s Forest Service and Civilian Conservation Corps expansion literally made the way for recreational visitors to enjoy the mountains. Once roads were improved, tourists began to come to the mountains.[7] They quickly became the most populous group using the mountains and had the greatest effect on the range's development from the 1930s on. Later in the century when the Environmental era came into full swing, ecologists gained prominence in the Pinaleños as well, but their popularity only served to increase recreational interest in the range—the power of tourists never waned.

1900-1930 – Nineteenth-Century Carry Over

While I look primarily at the twentieth century, there are some important nineteenth-century trends to recognize. The range was originally part of Apache territory who made wide use of the mountains before being moved to reservations.[8] After the Civil War, Union troops were dispatched to the west to move Native Americans to reservations. The army used ground gained in the mountains to set up a unique military tool: the heliograph, a system of mirrors used to send Morse code messages from the mountain top. Building the heliograph station meant that whites, for possibly the first time, developed a system of trails to gain access to the Pinaleños. After the Apache had been neutralized, these trails were used by white residents to get to the cooler temperatures of the mountains for enjoyment. As this trend developed, the Heliograph

[6] The Pinaleño Mountains are often colloquially referred to as the Graham Mountains, after Mt. Graham, their highest peak (10,700 feet).

[7] I will often refer to recreational visitors to the mountains as tourists, though they mainly came from southern Arizona.

[8] The present day San Carlos reservation nearly abuts the Pinaleños, thus Native Americans still have significant access to the mountains.

station and Hospital Flat (a nearby flat in the range) developed as regularly visited locations with some accommodations. With this established timber harvesting and sparse visiting by pleasure seekers, the twentieth century began.

The popularity of the Pinaleños and other Sky Island mountains led the government to look into protecting the area to maintain its resources. Similarly, timber harvesting in the Pinaleños had become significant enough to raise concerns about the long term supply of wood.[9] In May of 1902 the General Land Office made a survey of the heights, geographic location, and private land holdings in the nearby Chiricahua Mountains.[10] The Chiricahua Mountains were incorporated as protected land at the same time as the Pinaleño Mountains, so a similar survey most likely took place in the more northern range as well. In July of 1902, The Pinaleño Mountains (118,600 acres of them) were set apart as the Mount Graham Forest Reserve.[11] Later, in 1908, they were incorporated into the larger Crook National Forest.[12] In these early years, the Forest Reserve workers were primarily tasked with replanting sections of forest to ensure the future timber supply.[13]

These changes in what government subdivision was in charge of managing the land produced little impact on how people actually used the mountains. Maps of the area were drafted by the Forest Service during this time period: they give information on where the National Forest lines lie, but little else.[14] In contrast, maps from the same period of Santa Catalina National Forest feature information about roads and trails approaching the National Forest, nearby railroad tracks, and details about canyons, peaks, and other important landscape features.[15] The difference between these maps indicate disparate levels of government involvement in each mountain range. Again, in 1910, the Forest Service expanded the

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[9] Royal S. Kellogg, "Report of an Examination of the Chiricahua Mountains in Arizona May 22, 1902", https://speccoll.library.arizona.edu/collections/report-examination-chiricahua-mountains-arizona.

[10] Ibid.

[11] National Irrigation Association (U.S.) and American Forestry Association, "Forestry and Irrigation," *Forestry and Irrigation* (1902): 351.

[12] United States Forest Service Southwestern Region (abbreviated later as USFS SW Region), *Crook National Forest, Arizona. 1909*, map image, 1909, (Arizona State Library: Archives and Public Records: History and Archives Divisions (abbreviated later as AZ Library).

[13] Royal S. Kellogg, "Forest Conditions in Southern Arizona" in National Irrigation Association (U.S.) and American Forestry Association, *Forestry and Irrigation* (1902): 505.

[14] USFS SW Region, *Crook National Forest, Arizona. 1909*, map image, 1909, (AZ Library).

[15] USFS SW Region, *Santa Catalina National Forest, Arizona. 1907*, map image, 1907, (AZ Library).

area under Crook National Forest to include land to the west.[16] However, there were no major developments in how the forest was overseen. Besides limited timber restoration, the management of the Pinaleño Mountains was fairly nonexistent in the first two decades of the twentieth century and tourists continued to use the same roads and trails and pursue the same activities as they had in the previous century.

These means to access the mountains were unrefined. Excepting a few areas with rough road access such as Hospital Flat and the Heliograph Station, the rest of the mountains had to be reached through hiking or horseback riding. Naturalist Forrest Shreve photographed his mid-1910s expedition to the Pinaleños. He and his team rode horses, mules, and walked to the various parts of the mountains they were interested in surveying.[17] Given the presence of Apache Indians in the area previous to its settlement by whites, there were a number of trails still navigable in the mountains, but Shreve's writing and photographs indicate they were rough and not undertaken by many.[18] Thus, the majority of the mountain range went unused by the public.
Shreve's ecological survey was the first of its type in forty years.[19] The last survey was conducted by Lieutenant George Montague Wheeler and army surgeon Joseph Trimble Rothrock, leaders of a Union army division charged with surveying the lands owned by or of interest to the government.[20] In 1874, they made a record of the plants native to the Pinaleños and published their findings as a US Geographical Survey.[21] While their data was comprehensive, it was outdated by the 1910s. Shreve used inventive methods to collect data about the mountains' ecology and compared conditions in the Pinaleño Mountains to those of other ranges. He recognized the shortcomings of the data he was able to collect by himself, but nevertheless persisted, and became the first person to survey the Pinaleños in the twentieth century. After Shreve's work,

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[16] USFS SW Region, *Crook National Forest, Arizona. 1910*, map image, 1910, (AZ Library).
[17] Forrest Shreve, "The Trail to Columbine," *Forrest Shreve Photographs, 1902-1940,* Box 1, Notebook 2, (University of Arizona Libraries, Special Collections (abbreviated later as UA Library).
[18] Forrest Shreve, "The Arrival at Short Camp," *Forrest Shreve Photographs, 1902-1940,* Box 1, Notebook 2, (UA Library).
[19] Forrest Shreve, "A Comparison of the Vegetational Features of Two Desert Mountain Ranges," *The Plant World* 22, no. 10 (1919): 291-307.
[20] Sereno Watson, *List of Plants Collected in Nevada, Arizona, and Utah, upon Lieut. G.M. Wheeler's Survey in 1871, and 1872* or *Catalogue of Plants Collected in The Years 1871, 1872, and 1872, with Descriptions of New Species.* (Washington: Government Printing Office, 1874).
[21] Joseph Trimble Rothrock, *Reports upon the Botanical Collections made in Portions of Nevada, Utah, California, Colorado, New Mexico and Arizona, during the Years, 1871, 1872, 1873, 1874, and 1875.* (United States: 1878).

ecological study of the Pinaleños dropped off: other naturalists studying biology in southern Arizona largely overlooked the Pinaleño Mountains, focusing on more populated areas of the nationally protected land instead.[22] These areas with greater visitation were more present in the public eye (and therefore had more of a potential audience as a subject for publication), had better infrastructural to access them, and were closer to research centers such as the University of Arizona. Nevertheless, Shreve was significant for laying the groundwork for study in the range and recording the conditions of roads and trails.

The 1920s saw widespread use of the automobile. As automobiles became popular, roads which would have been suitable for horse drawn carts were insufficient for pleasure travel. Roads needed to be paved or graded to be acceptable for the new traffic. The Arizona Highway Department acted to fill this need and recorded their progress in *Arizona Highways Magazine* which featured announcements of road improvement projects. (Later on, the magazine grew into a scenic guide for citizens looking for the tourist attractions offered by the state; however, its first years of publication were simply concerned with reporting on what measures were being taken to improve roads across Arizona.) As of 1922, the Highway Department mainly focused on improving roads and building infrastructure such as bridges in the more metropolitan areas of the state. The nearest planned construction to the Pinaleño Mountains was a project to pave the road between Safford and Solomonville.[23] It was not until the next decade that the Highway department considered improving the roads in the Pinaleños. This lack of roads deterred many tourists from enjoying the mountain; as automobiles became increasingly popular, the mountains remained relatively inaccessible. A Rand McNally road map of Arizona from 1927 labels the road into the Pinaleños as a "dirt or poor road," the lowest quality label given to roads on this map.[24] Thus, the 1920s featured a lessening of public interest in the mountains.

1930-1970 – Road Building Brings Popularity Boom

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[22] Two papers for example: Walter P. Taylor and W. G. McGinnies. "The Bio-Ecology of Forest and Range," *The Scientific Monthly* 27, no. 2 (1928): 177-82. and Charles C. Adams, "Ecological Conditions in National Forests and in National Parks," *The Scientific Monthly* 20, no. 6 (1925): 561-93. are typical examples of the type of work done by naturalists. They have many of the same goals and foci as Forest Shreve, but study areas other than the Pinaleño Mountains.

[23] *Arizona Highways* vol. 2 no. 3, December 1922, 4.

[24] Rand McNally, *Auto Road Map: Arizona, New Mexico*, 1927, On "Historic Maps," *arizonaroads.com*, 2001.

The 1930s saw the same attitude from scientists as the previous decade: while there were ecological investigations in southern Arizona, none of them looked at Pinaleños.[25] The lack of quality motor roads and tourist attention created obstacles for scientific study. However, these trends were soon to change: the 1930s saw the first major road building project in the range. At the beginning of 1931, proposals to build roads and trails in the National Forest began.[26] By March, *Arizona Highways Magazine* (still functioning as a bulletin for highway news and not as a tourist guide) announced that bids for developing roads in Crook National Forest would open that month.[27] Throughout the rest of 1931, the magazine published updates on the construction and opened new bids.[28] The construction occurred primarily along the Swift Trail, and focused on widening and grading unpaved roads to make them automobile accessible. Construction proceeded until November when the grading was complete.[29] The results of this work made an obvious impact in the range's accessibility. A Forest Service map from 1931 shows the Swift Trail as a "good motor road" until Heliograph Peak, at which point it was still a trail.[30] A 1937 map shows Swift Trail as graded to the Columbine lookout station.[31] Government infrastructure projects in the National Forest impacted how the area was used for the rest of the century.

With the newly graded Swift Trail, anyone could enjoy the beauty of the Pinaleños – riding in an automobile was much easier than arriving via horse. Accordingly, the way in which people used the mountains changed. In contrast to the rough and tumble photos from Forrest Shreve's surveying team, photos from the 1930s show tourists relaxing in the mountains. People went to the mountains for recreation – images show groups having picnics, women wearing long skirts and white shirts (evidence they did not have to trek through difficult trails), and people

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[25] G. A. Pearson, "A Twenty Year Record of Changes in an Arizona Pine Forest." *Ecology* 14, no. 3 (1933): 272-85.
[26] "Many Forest Roads" *Arizona Highways*, January 1931, (Arizona Highway Department) Pg. 20.
[27] "Advertised for Construction" *Arizona Highways,* March 1931, (Arizona Highway Department) Pg. 24.
[28] *Arizona Highways,* March, April, May, June, August, September, and October 1931 issues, (Arizona Highway Department).
[29] *Arizona Highways,* November 1931, (Arizona Highway Department) Pg. 22.
[30] USFS SW Region, *Crook National Forest, Arizona. 1931*, map image, 1931. (AZ Library)
[31] Ibid.

relaxing in the obviously fair weather.[32] Automobiles and good motor roads opened the Pinaleños to new types of recreational usage and marked the emergence of a new era in the mountains.

Working in tandem with the growing popularity of the Pinaleños, the Forest Service continued to build infrastructure in the mountains. Early in the 1940s the Swift Trail was graded all the way to Riggs Flat.[33] Furthermore, the Forest Service installed picnic grounds, hiking trails, and cabins in addition to privately owned facilities.[34] This level of government investment changed the character of the Pinaleños beyond what any timber camp had done, and the Swift Trail became a permanent feature of the National Forest. Far from the itinerate accommodations set up by explorers like Forest Shreve, the new camp grounds were yearlong establishments in the mountains. With these new facilities, the Pinaleños grew into a place to visit in southern Arizona.

At this time, *Arizona Highways Magazine* began to develop its present role of touting tourist information. In 1943 the magazine ran an article on Chiricahua National Monument, the first time the magazine featured an attraction from the mountains of southeastern Arizona.[35] Though the article did not specifically discuss the Pinaleño Mountains, it did introduce a comparison between desert mountains and sea islands – a concept that became critical in the future of the Pinaleños. Author Natt Dodge explained that the distance between mountain ranges in southern Arizona meant that each had a specific biological index which had developed in relative isolation. They were isolated "mountain island[s] in a desert sea."[36] The comparison elevated the status of the mountains as recreational destinations.

Later in the twentieth century, the comparison with islands would lead to efforts to preserve the delicate mountain ecological systems, but in the 1940s ecologists were just beginning to update the catalog of the Pinaleño Mountains. After two decades of largely ignoring the Pinaleños, scientists once again began to study the range. This shift resulted from two factors. One, the study of the more popular ranges - such as the Santa Catalina Mountains near Tucson – became comprehensive enough that comparison between other ranges was the next logical step to

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[32] "Rock Creek Footbridge," *Heritage Photo Gallery* (United States Department of Agriculture: Forest Service: Coronado National Forest), 1937.
[33] USFS SW Region, *Crook National Forest, Arizona. 1941*, map image, 1941. (AZ Library)
[34] Weldon F. Heald, "Skytrail of the Chiricahuas," *Arizona Highways*, April 1954 (Arizona Highway Department).
[35] Natt Dodge, "Monument in the Mountain" *Arizona Highways* 19, March 1943 (Arizona Highway Department) Pg. 20-28.
[36] Ibid., 22.

understanding how the well-studied mountains fit into the context of a broader area. Secondly, the improved roads of the Pinaleños offered easier access. One example of this trend is Walter Phillips's 1946 study making a catalog of fern species present in Arizona which made frequent mention of the species present in the Pinaleño Mountains.[37] In his discussion of the plant life of the Pinaleños, Phillips frequently refers to the work done by Forrest Shreve, showing that this was one of the first studies to include the range since Shreve had done so in the 1910s.

In the 1950s, scientists continued to study how the Pinaleños fit in with the ecology of the rest of the state. A 1954 study published in the *Journal of Mammology* focused on cataloguing the habitat and spread of coati across Arizona.[38] Their method of study included both looking for signs of the animals as well as communicating with residents. This study shows the continued importance of the Pinaleños in Arizona ecological studies. It also traces a change in tactic: these scientists engaged in less Shreve style trekking through the hills and more dependence on tapping local knowledge about conditions. This increase of attention, especially published in a journal with national readership, led to greater appreciation of the range.

Beyond including the Pinaleño Mountains in surveys of larger trends, the later 1950s saw the beginning of studies devoted solely to the systems at play in the Pinaleños. Donald Hoffmeister led a team to catalog the mammalian populations present in the Pinaleños, the last of the "island-like mountain ranges" to have such a survey made.[39] Over the course of two summers the team used a variety of methods – setting live catch traps, hiking through the mountains to find tracks and droppings, talking to residents, and keeping lookouts – to comprehensively list every type of mammal in the Pinaleños. From the 1956 report, it is clear that the team had a dynamic experience with the range unrivaled since the days of Shreve. The accounts related by Hoffmeister and the time spent by his team in the Pinaleño Mountains shows that the range had come into its own: for the rest of the twentieth century, the Pinaleños were recognized by the ecological community as an important element of Arizonan biological systems.

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[37] Walter S. Phillips, "A Check-List of the Ferns of Arizona," *American Fern Journal* 36, no. 4 (1946): 97-108.

[38] O. C. Walmo and S. Gallizioli, "Status of the Coati in Arizona." *Journal of Mammology* 35, no. 1 (1954). 48-54.
Coati are a type of social mammal well adapted to living in the mountains of Arizona and are found across the state.

[39] Donald F. Hoffmeister, "Mammals of the Graham (Pinaleño) Mountains, Arizona," *The American Midland Naturalist* 55, no. 2 (1956): 257-88. Quotation taken from page 257.

What ecologists were recognizing as an important location in Arizona, the Forest Service sought to make more recreationally popular. In 1953, Crook National Forest was dissolved, its contents split up between the surrounding National Forests. The Pinaleños were transferred to Coronado National Forest.[40] This change in management brought monumental developments over the next decade, the first of which was the creation of Riggs Flat Lake at the end of the Swift Trail in 1957.[41] The lake, like many in Arizona, is actually a reservoir created with a dam and stocked with fish each summer. Its creation marked a dramatic shift in how the Forest Service managed the Pinaleños. All previous changes - road building, fire prevention, or campground creation - removed natural elements in an effort to preserve the forest and make it accessible for visitors. Building the lake, however, went into a new territory of creating a new habitat, bringing in biological content, and attempting to bring in more visitors with an attraction not native to the mountains. This more hands-on role began to be a modus operandi for the government involved with managing the forest from this point on.

Recreation, fueled by friendly Forest Service management, grew significantly in the 1950s. Coronado National Forest emphasized managing the forest to provide recreational opportunities for the visiting public. Weldon Heald wrote for *Arizona Highways* in 1954 describing the resources in the Chiricahua Mountains.[42] He explained the hundreds of miles of trails with many cabins to stay in made for a perfect vacation spot.[43] The Chiricahuas had a greater degree of development because they had been a part of Coronado National Forest for much longer (since 1917) and because they also included tourist attraction Chiricahua National Monument.[44] Nevertheless, there was similar development in the Pinaleño Mountains of trails, cabins, and other facilities. Weldon Heald published another article in 1959, this time giving attention to the Pinaleños in addition to other ranges.[45] He pointed out the major attractions of the range: the second highest peak in Arizona with vehicle accessibility, the quality of the Swift Trail, and an extensive system of

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[40] *History and Culture* (United States Department of Agriculture: Forest Service: Coronado National Forest).
[41] Darwin Van Campen, "Riggs Flat Lake – Jewel in the Pinaleños," *Arizona Highways*, September 1968 (Arizona Highway Department).
[42] Weldon F. Heald, "Skytrail of the Chiricahuas," *Arizona Highways*, April 1954, (Arizona Highway Department).
[43] Ibid., 8.
[44] *History and Culture,* (United States Department of Agriculture: Forest Service: Coronado National Forest).
[45] Weldon F. Heald, "Mountains in the Sun," *Arizona Highways*, October 1959, (Arizona Highway Department). 33-35.

trails. He concluded by declaring the Pinaleños "ideal for three or four-day knapsack trips."[46] The information in these articles and their presence in *Arizona Highways* signifies that recreational use was increasing in the 1950s. The campgrounds and buildings offered various levels of comfort to stay in so less rough and tumble types could enjoy the forest while those more gung-ho still had trails, backcountry, and plentiful wildlife to interact with.

The creation of Riggs Flat Lake made fishing one of the greatest attractions of the Pinaleños. Early in the 1960s, Riggs Flat Lake was celebrated as a solution to the needs of southern Arizona fishers, becoming the top attraction and the most frequently written about location in the Pinaleño Mountains. [47] Fishing in the lake and various streams of the mountain gained popularity and being in the mountains led many to consider the Indian historical grounds they traversed.[48] As more people came to fish, other attractions developed around the area. A 1968 article by Darwin Van Campen in *Arizona Highways* exhibited the lake as the major attraction, but historical sites, shopping facilities, orchards, Forest Service buildings, and the superb scenery along the Swift Trail also contributed to making a visit to the Pinaleños a worthwhile event for a large variety of people.[49] The mountains became increasingly popular and visitor friendly and a greater diversity of people came to enjoy them.

In tandem with the increase of recreational use, the Arizona Highway Department undertook the largest road improvement project in the Pinaleños since the 1930s. In 1960 and 1961 the Swift Trail was gradually established as State Route 366 (its current designation).[50] Next, a resolution was passed in 1962 to improve the highway.[51] On the ground, this translated to paving the lower part of the Swift Trail, bringing it to the condition it is in today. These government actions

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[46] Ibid., 35.
[47] Charles C. Niehuis, "More Lakes for More Fishing," *Arizona Highways*, August 1961, (Arizona Highway Department).
[48] Robert B. Whitaker, "Good Fishing in the Indian Country," *Arizona Highways*, May 1967, (Arizona Highway Department).
[49] Van Campen "Riggs Flat Lake."
[50] "Right of Way Resolutions: 1960- -116" *Arizona Highway Data* (http://azhighwaydata.com/resolutions/?resnum=1960-%20-116); "Right of Way Resolutions: 1961- -010" *Arizona Highway Data* (http://azhighwaydata.com/resolutions/?resnum=1961-%20-010); "Right of Way Resolutions: 1961- -070" *Arizona Highway Data* (http://azhighwaydata.com/resolutions/?resnum=1961-%20-070).
[51] "Right of Way Resolutions: 1962- -052" *Arizona Highway Data* (http://azhighwaydata.com/resolutions/?resnum=1962-%20-052).

modernized the face of the Pinaleños, generated more attention for the mountains, and created greater accessibility.

In the midst of the increasing popularity and government road building projects, a toll began to be exacted on the mountains' ecology, though few at the time took much interest. Taking up less than half a page, W. L. Minckley published a barely noticeable piece in *Journal of the Arizona Academy of Science* in 1968. Its title was as forlorn as the size of the article: "Possible Extirpation of the Spruce Squirrel from the Pinaleño (Graham) Mountains, South-Central Arizona."[52] The information about the location and alternative name of the mountains suggests that they were not popular enough to be immediately recognizable despite the increase in tourism and state spending. This tactic magnifies the effect of the article: a local extinction had occurred but was of little importance to the powers that be. Minckley explained that the Abert's squirrel, a non-native species, overcame the Spruce squirrel—a species, according to Hoffmeister's 1956 report, unique to the Pinaleño Mountains.[53] This report is evidence that ecologists were continuing to work in the Pinaleños, observing the major changes being made to the mountains by tourists and the Forest Service, but were unable to make any changes themselves. The relaxed acknowledgement of the destruction of natural habitats would not remain normative for long: the Environmental Era featured dramatic increases in attention to ecological issues.

1970-2000 – The Environmental Era

The popular use of the National Forest continued to take an ecological toll and researchers began to voice concerns. In 1976, a team of scientists looked into the distribution of Coati.[54] Their records show that the species had been doing quite well in the mid-century era, but experienced a severe decrease in population in the early 1960s due to distemper.[55] After the die off, the Game and Fish Department had sponsored several releases of coatis in an effort to increase the population, but a healthy group of coati had not been seen in the

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[52] W. L. Minckley, "Possible Extirpation of the Spruce Squirrel from the Pinaleño (Graham) Mountains, South-Central Arizona," *Journal of the Arizona Academy of Science* 5, no. 2 (1968): 110.

[53] Hoffmeister "Mammals of the Graham Mountains."

[54] John H. Kaufmann, Dirk V. Lanning, and Sarah E. Poole, "Current Status and Distribution of the Coati in the United States," *Journal of Mammalogy* 57, no. 4 (1976): 621-37.

[55] Kaufmann "Current Status of the Coati," 625.

Pinaleños since 1970.[56] The scientific team was concerned, especially since they determined the range was an ideal habitat for coati. They concluded that the reason for the lack of success in the species was due to the public use of the mountains and that as a remedy, the Forest Service should reach out and create greater awareness about the issue.[57] While the first alarm had been sounded in the 1960s, it was feeble and lacked a call to action - this report went further than Minckley's report on the Spruce Squirrel: it acknowledged the positive efforts already being made, but called on the Forest Service to do more. Miles Hanrahan was another researcher advocating greater conservation. He petitioned for protection of the lower elevation slopes of the Pinaleños endangered by cattle grazing.[58] Like those advocating the coati, Hanrahan represented a growing concern about the ecological degradation of the mountain. Calls to protect wildlife did change the role of government over time, but the 1970s Forest Service mainly sought to manage the forest for recreational enjoyment by maintaining the roads crucial to bringing the public into the mountains, stocking Riggs Flat Lake, and promoting tourism.

Increasing recreational use of the Pinaleños through the 1970s and 1980s prevented the government from quickly responding to ecologists' pleas for preservation measures. Despite the frequent and comprehensive coverage, the Pinaleño Mountains received from *Arizona Highways* magazine, one citizen, James Woods, wrote to the editor requesting a special issue devoted entirely to the Pinaleños.[59] The public was hungry for the mountains, especially as they offered a huge variety of recreational activities. Very few outside the ecological community voiced concerns about the effects the popular use was having on the mountain range. At this time, the term 'sky islands' (still in use today) fully developed as the official category of isolated, high elevation desert mountains.[60] As people wrote about sky islands, the general public accepted the idea and flocked to the mountains to enjoy what they now had a term for.[61] The more time people spent in the mountains, the more things they discovered to do year round. One group, the Tucson chapter

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[56] Ibid., 629.
[57] Ibid., 365.
[58] Miles P. Hanrahan, "Grazing Marginal Ranges in the Southwest," *Journal of Range Management* 28, no. 3 (1975): 245-47.
[59] James L. Woods, "More Mountains," *Arizona Highways*, September 1977, (Arizona Highway Department).
[60] Dan McGowan, "Islands in the Sky," *Arizona Highways*, January 1981, (Arizona Highway Department).
[61] F. R. Gelbach, *Mountain Islands and Desert Seas: A Natural History of the U.S. - Mexican Borderlands,* (College Station: Texas A&M University Press, College Station, 1981).

of the Arizona Native Plant Society, began holding an annual wild flower walk through the mountains in August while others came to the range in the winter season to enjoy skiing on the highest mountain in southern Arizona.[62] Greater public use of the mountain brought the inevitable side effects of greater pollution, more permanent wear on roads and trails, and more intrusion into wild habitats. This continued to take its toll and became a main point in the heated discussion of mountain use that developed in the late 1980s.

Beyond being concerned about the impact of greater human presence on the mountains, ecologists were alarmed at proposals from the University of Arizona to build an international observatory on Mount Graham in the 1980s.[63] Given the growing concern since the 1970s advent of the Environmental Era, biologists cried out that the construction project would cause permanent damage to the range's ecology, especially to the safety of the Mt. Graham Red Squirrel, a species specific to the Pinaleños.[64] This concern shows a marked change from the dismissive attitudes about the extinction of the Spruce squirrel just two decades earlier.[65] Many saw the issue as a competition of ecologists against astronomers, with only one winner possible.[66] Ecologists and preservationists rallied as the congressional decision on whether or not the proposal would be approved approached while the Forest Service prepared and published a report on the estimated impact the construction would have.[67] This marked a high point in energy put into the Pinaleño Mountains by the ecological community: never before had they been so involved and so vociferously united against an encroaching danger.

The attention from ecologists launched the Pinaleños into the national political arena, and to the front page of state news. Senator Dennis DeConcini and Representative Morris K. Udall had both been in office since the late 1970s, but not until the second half of the 1980s and

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[62] "Orchids of the Sky Islands" *Arizona Highways*, August 1986, (Arizona Highway Department).; Robert Farrell, "Mount Graham and the Pinaleños: Mountains of Contrast: From Desert to Dense Forest, From Ice Age to Tomorrow's Technology," *Arizona Highways*, October 1987, (Arizona Highway Department).

[63] "Mt Graham International Observatory Timeline" *James Kolbe Papers 1958-2006,* Box 192, Folder 7, (UA Library).

[64] Letter from George T. Frampton, Jr., President of The Wilderness Society to James Kolbe, *James Kolbe Papers, 1958-2006*, Box 192, folder 7, (UA Library).

[65] Minckley "Possible Extirpation."

[66] Elizabeth Pennisi, "Biology versus Astronomy: The Battle for Mount Graham." *BioScience* 39, no. 1 (1989): 10-13.

[67] United States Forest Service, *Final environmental impact statement, proposed Mt. Graham astrophysical area, Pinaleño Mountains, Coronado National Forest*. (Tucson: USDA Forest Service, 1988).

the heated discussion about the Mt. Graham Observatory did the Pinaleños become a topic they discussed, wrote about, or researched. However, as the controversy grew, they as well as Representative James Kolbe, became intensely involved in the issue.[68] They received, read, and responded to letters from ecologists, constituents who used the Pinaleños as a recreational pleasure ground, and astronomers from the University of Arizona's Stuart Observatory; made a trip to the Pinaleños to visit the proposed developmental area; and were in frequent contact with each other over the issue.[69] This was the most attention the range had ever received from elected government officials, and it led to the largest change in landscape the mountains experienced in the later twentieth century: the proposal was approved in 1988 and construction began shortly thereafter. Since the road building project of the 1930s, this government action had the largest impact on changing the face of the mountains.

After the 1988 decision in favor of building the international observatory, national and local government became less concerned with the Pinaleño Mountains. Udall, Kolbe, and DeConcini redirected their attention to the newest issues and the main management of the mountains was taken care of by the Forest Service. This relatively low level of government action established in the last decade of the twentieth century was later carried on to the twenty-first.

Ecologists felt they had lost the battle over the observatory and, in contrast with elected legislators, were dedicated to being more active in the mountains as a consequence. The 1990s brought a proliferation of interest in studying the Pinaleños as ecologists seemed determined to create a bulwark of work showing the ecological significance of the range. Ecologists researched forest trees, the wellbeing of the Mt. Graham Red

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[68] *Dennis DeConcini Papers, 1944-2008*, Boxes 75, 76, and 425, (UA Library).; *James Kolbe Papers, 1958-2006*, Boxes 24, 25, 70,191, 192, 202, 204, and 218, (UA Library).; *Papers of Morris K. Udall, 1920-1995, 1910-2006*, Boxes 232, 305, 469, 630, 675, 696. 697, and 752, (UA Library). All of these boxes include files on the Mount Graham Telescope controversy, and are the only time the Pinaleños occur in their records.

[69] Coronado National Forest, "Mount Graham Red Squirrel: an Expanded Biological Assessment," *James Kolbe Papers, 1958-2006*. Box 192, Folder 1, (UA Library).; Citizens of Mount Graham, "Reasons for Recall Petition, Boycotts, Picketing, Reprimands, etc. of Citizens of Graham County and Mount Graham," *James Kolbe Papers, 1958-2006*, Box 24, Folder 12, (UA Library).; Neville Woolf, Ph.D., "Mt. Graham International Observatory: Was the Biological Opinion Biased, and if so, in Which Direction?" *James Kolbe Papers, 1958-2006,* Box 191, folder 27, (UA Library).; Margy McGonagill, "Mount Graham International Observatory Site Visit," *James Kolbe Papers, 1958-2006*, Box 191, Folder 26, (UA Library).; Packet of Fifty-Five Letters to Congressional Representatives from James Kolbe, *James Kolbe Papers, 1958-2006*, Box 192, Folder 7, (UA Library).

Squirrel, plant populations, and the range as a whole unit.[70] Though significant research had been done in the 1970s and 80s, arguments about the importance of preserving the mountains' ecology had not been a well rooted enough foundation to stand up to the demands of the astronomical community. By the end of the 1990s, there was a huge body of research to show the Pinaleños were and are an important location for ecological study and preservation of Arizona habitat.

Recreationalists also flocked to the mountains in the 1990s, but with a much lighter purpose than ecologists. The public was not deterred by the observatory construction: in fact, upon completion, the observatory became an attraction many traveled to see.[71] The old popular activates such as hiking, camping, fishing, and skiing continued to draw people to the mountains for recreation.[72] The Pinaleño Mountains were even featured in a nationally published tourist guide of important seasonal events for their enormous lady bug breeding populations in early summer.[73] Given their easy access to the mountain, visitors were not to be deterred from enjoying the sky islands, and they remained stalwart as the most influential group on the mountain.

Conclusion

The three main groups active in the Pinaleño Mountains in the twentieth century were recreational visitors, ecological scientists, and government managers. Of these three, tourist interests had the greatest role in shaping the development of the mountains: they compromised the majority of people in the mountains and motivated major government

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[70] Julie C. Stromberg, and Duncan T. Patten, "Dynamics of the Spruce-Fir Forests on the Pinaleño Mountains, Graham Co., Arizona," *The Southwestern Naturalist* 36, no. 1 (1991): 37-48.; Julia C. Stromberg, and Duncan T. Patten, "Seed and Cone Production by Engelmann Spruce in the Pinaleño Mountains, Arizona," *Journal of the Arizona-Nevada Academy of Science* 27, no. 1 (1993): 79-88.; Peter Aleshire, "Along the Way: 700-Year-Old Douglas Firs May Hold Clues to the Future," *Arizona Highways*, October 1994, (Arizona Highway Department). 2.; Peter Warshall, "The Biopolitics of the Mt. Graham Red Squirrel (Tamiasciuris Hudsonicus Grahamensis)," *Conservation Biology* 8, no. 4 (1994): 977-88. L Steven P. McLaughlin, "Additions to the Flora of the Pinaleño Mountains, Arizona," *Journal of the Arizona-Nevada Academy of Science* 27, no. 1 (1993): 5-32.; Janice Emily Bowers, "Mount Graham, Pinaleño Mountains," *The North American Review* 281, no. 6 (1996): 10-12.

[71] Dollar, "Visitors Track the Stars at Arizona's Renowned Observatories," *Arizona Highways*, August 1998, (Arizona Highway Department).

[72]"Journey to Sky Island," *Arizona Highways*, June 1995, (Arizona Highway Department).; "Hooked on Cold," *Arizona Highways*, December 1994, (Arizona Highway Department).

[73] Ben Guterson, *Seasonal Guide to the Natural Year: A Month by Month Guide to Natural Events*, (Golden: Fulcrum Pub, 1994). 109.

funded infrastructure projects. It was not until the last two decades of the twentieth century that the government exercised any major authority not directly aimed at increasing recreational access, in the case of the international telescope (and even then, the telescope became a tourist attraction). Similarly, ecologists were intermittently present on the mountain throughout the century but did little to change how the mountain was managed until the debate over the telescope. In contrast, tourists drove innovations on the mountain such as campsite creation, road building, and media attention as well as destruction such as extinctions, pollution, and habitat degradation. For better or worse, recreational visitors had the greatest impact on the Pinaleño Mountains in the twentieth century.

Atalanta Hoyt will graduate this May with a Bachelor of Arts degree in History and Music Theory. She is this year's History Department nominee for the College of Social and Behavioral Sciences' Outstanding Graduating Senior Award. After graduation she will be beginning the University of Arizona's Teach Arizona MA degree program through the College of Education. In conjunction with this she is also a member of the Arizona Teachers' Academy – a new program designed to raise the quality of education in high-needs public schools in Arizona. In pursuing a career as an educator, Atalanta hopes to help youth develop an appreciation for the social sciences, build community networks, and elevate the status of teachers in Arizona.

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