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(Un)making a conservation landscape: repeat photography and environmental narrative in Mexico's Sierra de San Pedro Mártir National Park

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ABSTRACT

This essay uses repeat photography, a method in the natural sciences for studying change over time, to re-examine the conservation status of Baja California as a 'living museum' of pristine wilderness and relic of California's ecological past. My focus is the Sierra de San Pedro Mártir National Park, a portion of northern Baja's forest symbolizing conservation's narrative of Baja as the 'before' to California's 'after'. While this narrative has protected this ecosystem, I argue that it has also been instrumental in expanding U.S. conservation model into Mexico and casting local, land-based people with centuries of land tenure as enemies of conservation. While repeat photography can corroborate conservation's story, I propose a critical re-photography that turns the lens back onto ourselves as the makers of landscapes. I leverage repeat photography's implicit reflexivity to reveal the scientific and cultural priorities that have relegated land-based people to the past and threaten to exclude them from the future.

KEYWORDS

Conservation; national parks; repeat photography; photography; Mexico; Baja; California; Baja California; wilderness; narrative

There's a tree in Mexico, a Jeffrey pine at the edge of a three-mile-long wetland meadow called La Encantada, nestled on the rugged spine of Baja California's Sierra San Pedro Mártir (SSPM) (Figure 1). The tree was first photographed in 1930 by explorer and naturalist Margaret W. Bancroft on an expedition across the peninsula. I'm here with the Mexican Bird Resurvey Project to compare today's birds against the survey archives of the Moore Lab of Zoology at Occidental College, the world's largest Mexican bird collection (Moore Lab of Zoology at Occidental College 2019). La Encantada was a regular stop along a transect across the Baja peninsula that was surveyed repeatedly in the early twentieth century by U.S. explorers and scientists. Their surveys produced immense regional biodiversity archives critical to conserving the Sierra's forests. Along with bird data, expeditions also archived thousands of photographs, some of which, like Bancroft's pine, we've brought along to rephotograph for the resurvey. Repeat photography is a method used by natural scientists to study change over time. I'm an environmental humanist, not a scientist: I hope repeat photography might contribute something useful to the Lab's resurvey, but I also think it can tell us how this conservation landscape was made.

La Encantada is ringed by a mixed-conifer forest ecologically contiguous to the forests of southern California. The tree we're looking for lies at the very edge of its habitable range. Considered the southern limit of the California Floristic Province that stretches from southern Oregon to northern Baja, the SSPM's forests retain some of the last evidence of a lost ecology, a fragment of southern California's diverse montane conifer ecosystem that, along with Jeffrey,



Figure 1. Jeffrey Pine, La Encantada meadow, Sierra San Pedro Mártir, Baja California, Mexico. Margaret W. Bancroft, 1930. ©San Diego Society of Natural History, all rights reserved.

includes sugar pine, lodgepole pine, incense-cedar, and white fir. Unlike southern California's forests, the SSPM has never been logged, its fires have never been suppressed. A portion was protected as a forest reserve in 1923, and as a national park since 1947. The forest's current scientific and conservation value derives from its rarity as a pristine survival of California's Mediterranean-type ecology, preserved, in the words of the park's decree, as 'a true living museum of the flora and fauna of the region' (Decreto Declara Parque Nacional, 1947).

SSPM's conservation status, as a museum relic, turns the biodiversity and photographic data we came to collect into snapshots in time. Bancroft's photograph supplies a compelling visual waypoint, inviting a comparison between a seemingly remnant landscape and the relative modernity of an observer visiting from a future located more in space than time. In Moore Lab Director John McCormack's words, this tree is 'the real story' of these mountains, proof of what survives outside the accelerations of capital and development across a border only a hundred miles north. In one respect, depending on the tree's fate, a then/now, side-by-side repeat photographic stereopair might make a useful analogue to the SSPM's conservation status itself, confirming ecologists' assessment of the forest as 'free of human disturbance' (Evetts et al., 2007, p. 318).

In another, though, that same stereopair affords an opportunity to investigate the meaning and making of a conservation landscape. While repeat photography might reveal the pine as a relic in a relic ecosystem, symbol of successful conservation, it also replaces the tree in history, as an element in conservation's story of this landscape, because repeat photography, as anthropologist Pauline von Hellerman reminds us, is less an objective than a narrative practice. Stereopairs show us two points in time, linked by 'dominant global assumptions, frameworks and narratives' (2020, p. 365). In the SSPM, stories, at least as much as ecology, determine the landscape's value and fate. The dominant story here follows an environmental 'crisis narrative' (von Hellerman, 2020, p. 367) that casts pastoralists in these mountains as 'enemies of

conservation' (Dowie, 2009). Rooted in a standard of 'untouched and untouchable wilderness' (Gomez-Pompa & Kaus, 1992, p. 296), conservation's narrative of 'doom and resurrection' justifies replacing traditional resource use and users with centuries of land tenure with 'more rational and far-seeing' state administration guided by 'scientific conservation' (Guha, 2000, p. 41). Despite that this narrative is incomplete and based on contradictory data, it reflects beliefs fundamental to Western-style conservation and is therefore 'quite difficult to escape' (von Hellerman, 2020, p. 382).

Here, I use repeat photography to complicate conservation's narrative. I follow waypoints that represent places and moments along a line in space that was transformed, through scientific practice, into a baseline in time that became vital to conservation's story of Baja as the 'before' to California's 'after'. While repeat photography can reinforce this story, I propose a critical rather than a corroborating re-photography to challenge the justice of a narrative that relegates land-based people to the past and threatens to exclude them from the future.

Repeat photography as method

At its most basic, repeat photography in the natural sciences entails comparing archival landscape photographs to photographs taken at the same time and place to produce a 'then/now' stereographic pairing that provides a powerful visualisation of environmental change. 'A simple, inexpensive, and elegant tool for reconstructing past environmental changes and monitoring future ones' (Swetnam et al., 1999, p. 1196), it was first used as early as 1900 to document glacier change (Webb et al., 2010, p. 3). Geoscientists and ecologists have used repeat photography to document landscape-level changes from glaciation, earthquake, flood, forest recruitment, wildland fire, livestock grazing, agriculture, development, fire suppression, deforestation, and climate change (Webb et al., 2010, pp. 7–8). Repeat photography can stimulate 'public dialogue' (Swetnam et al., 1999, p. 1196) about the causes of change because it persuades where other data does not: Stereopairs of glacial recession, for example, first brought global climate change to consciousness for many (Fagre & McKeon, 2010, p. 77). But the detail of ground-based photographs and ability to reproduce them across time also allows repeat photography to chart change in seemingly undisturbed sites, like parts of the desert West, where human impacts are less obvious (Hastings & Turner, 1965, p. xv).

Much repeat photography in the U.S. West is possible today because of vast photographic archives produced by government resource surveys that left 'an important visual baseline' for future comparative study (Klett et al., 2004, p. 2). Pioneered as a method for cataloguing and exploiting the West's expansive landscapes, surveys occurred at the intersection of natural history, natural resource speculation, and empire. USGS surveys, like those conducted by Clarence King and George Wheeler in the 1860s and 1870s along the 40th parallel, were instrumental in opening the West, recently depopulated of Indigenous people, to settlement and resource extraction. Survey photographs produced the 'scientific and political capital' needed to expand U.S. settler-colonial political and economic interests into the continental interior (Jurovics, 2010, p. 9; Lewis, 2012, p. 14).

Our photographs represent expeditions by U.S. explorers, surveyors, and scientists seeking to document biodiversity, assess natural resources, and expand U.S. interests along a geographically and biologically diverse transect across the Baja peninsula. They include the first photographic survey in 1903 by explorer Ford A. Carpenter; biological surveys by Berkeley's Museum of Vertebrate Zoology and the San Diego Natural History Museum between 1920 and 1930; and Bancroft's 1930 expedition. This transect and this period—the earliest possible starting point for any repeat photography here—shaped current conservation priorities in the region (Figure 2).

Repeat photographer Mark Klett argues that rephotographing survey photographs like these without acknowledging their role in empire-building risks perpetuating stories about the West



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as 'virgin land...upon which Americans could inscribe their own future' (Klett et al., 1984; Sandweiss, 2004, p. 177). However, while we can acknowledge this, repeat photography can never fully divorce itself from its settler-colonial contexts, largely because repeat photography starts with photographs taken well after the decimation and eviction of Indigenous people, and

thus risks erasing Indigenous people's role in landscape change prior to the first photographic documentation.

For example, the Kiliwa, the Indigenous group most active in the SSPM, once ranged widely throughout what is now the park. Today, they are concentrated in a 'reserva' outside of park boundaries, to the north in lowland Valle Trinidad, where they practice traditional subsistence hunting and harvesting, farm yucca, and graze cattle (Calderón Hinojosa et al., 2006). A representative of Tribu Kiliwa told us that Kiliwa communication with the park has decreased over time and that park managers have never included them in policy decisions (personal communication, January 12, 2020). Given the recency of the SSPM region's first photographs relative to the history of its Indigenous inhabitants, repeat photography can lend little to ongoing debates about the historical impact of Kiliwa on Sierra ecology (Evelt et al., 2007; Minnich et al., Minnich et al. 1997), nor can it settle debates about their historical role in the high meadows, specifically.¹ On these debates hinges the story of whether the SSPM is 'free of human disturbance' and therefore a true ecological baseline for California. By using repeat photography to measure a baseline that may never have existed, the repeat photographer may repeat dominant colonial narratives that reinforce the park's exclusion of Kiliwa from a meaningful role in conservation. In this context, the repeat photographic stereopair acts as a hall of mirrors in which colonial visitors reflect and repeat colonial landscape ideas at each other across time, and the repeat photographer becomes yet another emissary of powerful institutions promoting conservation priorities from elsewhere. This poses 'a serious issue for biodiversity in the region' because it excludes Indigenous traditional knowledge from consideration in the park's natural resource policies (Wilken-Robertson, 2004, pp. 62–63).

However, by far the more pressing conservation issue—and my subject—is the impact and presence of subsistence pastoralists, *ganaderos*, on the ecology of the Sierra's high-elevation forest and ecologically-rich wetland meadows like La Encantada, the site of Bancroft's Jeffrey pine. The *ganadero* tradition dates to the end of the Spanish missions in the early nineteenth century, when mission lands were sold or given to local Mexican citizens for subsistence cattle ranching, the dominant economic interest throughout much of the nineteenth century (R. A. Minnich & Franco-Vizcaíno, 1998, p. 102). Between 1870 and 1890, minor gold strikes in the mountains drew international interest from European and American speculators, who employed Indigenous Kiliwa, much reduced in number from disease, and Mexican subsistence grazers for ecologically destructive hydraulic mining (Calderón Hinojosa et al., 2006). The Mexican Revolution of 1911 ended international resource interests in the region and gave *ganaderos* new political and economic security under the *ejidos*, a state-supported, anti-colonial land cooperative system, rooted in pre-colonial Indigenous tradition, intended to restore land to poor rural Mexicans and Indigenous people. In 1947, portions of the SSPM were declared a national park, closed to commercial exploitation, including cattle grazing. Today, members of the largest *ejido* bordering the park, the Bramadero, claim the park violated their land tenure and threatens their economic security.

Conservation, as it is regarding Indigenous people, is split on *ganaderos'* historic and present influence on Sierra ecology. Richard Minnich argues there is 'not much' ecological change since the earliest Europeans (personal communication, June 13, 2019), that the meadows 'are very resilient', and that 'the rich tradition of grazing' should be allowed to continue (R. A. Minnich & Franco-Vizcaíno, 1998, pp. 108, 127). Others, however, regard grazing as the ecosystem's prime threat. Cattle, say members of one Mexican conservation organisation, have been degrading the landscape for 'almost 200 years' (personal communication, January 8, 2019). Their certainty, however, inversely correlates to the quality of their evidence: After more than two centuries of transhumant grazing, they 'cannot say' cattle have altered the SSPM. Another organisation admits they 'haven't collected the data' (personal communication, June 9, 2019). Despite disagreements and lack of data, the narrative of Baja as ecological baseline continues to shape conservation priorities that threaten *ganaderos'* traditional livelihood. 'It's a natural park', said one university

scientist based in Ensenada: 'It's not a ranch'. The distinction leads to one conclusion: 'cattle must be removed' (personal communication, June 12, 2019). Today, *ganaderos* pose a 'problem not yet resolved' by current conservation policy (Calderón Hinojosa et al., 2006, p. 62).

Using repeat photography to adjudicate *ganaderos'* impacts risks reproducing fictions of imperial resource management by reproducing the landscape priorities of earlier surveys that resulted, if not in the expansion of the U.S. empire, then in U.S.-style conservation into Mexico. It risks affirming my complicity in a conservation story where the line between access and exclusion is 'not drawn between the known and unknown but between belief-systems' about the role of people in 'a natural park', systems that conform to western-style conservation's belief in 'an inverse relationship between human actions and the well-being of the natural environment' (Gomez-Pompa & Kaus, 1992, pp. 306, 294). Instead, I turn this colonial survey tool back onto conservation's story of itself. I use repeat photography to interrogate the assumptions and beliefs that reinforce a relationship between Baja and California—between 'then' and 'now'—that promises to exclude long-time users. This approach requires a critical rather than corroborating repeat photography to reveal how conservation landscapes are made.

For such an approach, we might look to repeat photography's uses outside natural science. For example, visual anthropologist Trudi Smith helpfully distinguishes 'reflective' repeat photography, typical of natural science, from a more 'interpretive' practice. A 'reflective' approach treats the photographic stereopair as a 'realist' reflection of truth (Smith, 2007, p. 192). To natural scientists, photographs yield 'objective visual evidence of landscape change', affording 'direct comparison of the landscape then and now', and cameras become a technological substitute for human observers prone to bias and error (Malde, 1973, p. 193). Smith argues this approach betrays a naïve relationship to photography by failing to acknowledge that ideas about time and change are embedded in the tools of landscape study. An 'interpretive' practice challenges this naïveté by turning the lens back onto the photographers. In contrast to a naïvely technological practice where observers disappear in the scientific fiction of an 'authoritative point of view' (Kumar, 2014, p. 155)—always ahistorical, placeless, and beyond the frame—repeat photography, Smith argues, is 'an embodied experience', where researchers 'investigate historical and contemporary social realities' by attending to, not ignoring, their role as makers of space and time (Smith, 2007, p. 185).

Smith's approach de-centers the original photographers, and their photographs, as arbiters of a landscape's meaning. Repeat photographer Mark Klett similarly distinguishes scientific or 'quantitative' repeat photography from a qualitative approach, akin to Smith's. This approach, better suited to 'the social sciences and the arts' (2012, p. 4/24), sees repeat photography as an opportunity to interrogate photographers' unacknowledged relationship to places they photograph. To Klett, stereopairs are not unidirectional, then/now relationships, but an 'interaction of two distinct viewpoints in time', and repeat photographers are always engaged in 'an act of participation' in the making of a landscape (1984, p. 37).

Borrowing from Klett, Smith, von Hellerman, and others, I practice a critical repeat photography that acknowledges that a repeat photograph, despite its name, doesn't merely repeat, but 'transforms the archival photograph by generating a new relationship' with it (Smith, 2007, p. 196), because a repeat is 'an extension, amplification, contradiction, and/or modification of the original photographer's perceptions' (Klett et al., 1984, p. 37). Whether we acknowledge it or not, repeat photography does not simply describe, but 'invents' categories like time and space through the act of repeating a photograph (Smith, 2007, p. 184). Far from claiming truths, critical repeat photography opens a 'dialogue about the nature of time and change' (Kumar, 2014, p. 142), which is ultimately a dialogue about a landscape's meaning.

Instead of naïvely 'reflective' *repeat* photography, we might practice *re-photography*, a distinction that reminds us that repeat photography doesn't merely *repeat* or *re-take* archival photographs, but reconsiders, reconstructs, and, indeed, *re-makes* them.² Re-photography also restores what is conventionally excluded from the frame, and from the landscape: non-photograph

archival context critical in exploring stories the originals told about land and natural resources, like field notes, institutional correspondence, maps, and specimens. Furthermore, re-photography is embodied. By re-inhabiting scientifically important places, re-photography offers opportunities for serendipity and connection to local communities affected by conservation stories and, potentially, new perspectives that are ‘community-based and locally relevant’ (von Hellerman, 2020, p. 365). Finally, re-photography is self-reflexive (Fox, 2001, p. 214). Rather than participate uncritically in a landscape’s making, re-photography reveals and leverages repeat photography’s implicit self-reflexivity by forcing us to confront our own social, geographical, and political positionality relative to the places we study and the people living there. If repeat photography uncritically *makes* place in the image of neocolonial resource management, then perhaps re-photography can *unmake* the narratives that imperil people’s lives and livelihoods.

Re-photography story I: La Encantada

Perhaps as much as four or five hundred years old, Bancroft’s pine straddles the before and after of the region’s conservation story. We enter that story on horseback, following the arroyo connecting La Encantada to its sister meadow La Grulla, seven miles west, where we camped. Finding a lone tree in this immense landscape is daunting. A mile wide and over three miles long, La Encantada lacks identifying features to help triangulate its location, but we have a guide: a *vaquero* named Raimundo ‘Rai’ Martorell (Figure 3). Rai and his family belong to a park-adjacent *ejido* and have pastured cattle in these mountain meadows for over two hundred years. Rai’s knowledge of the landscape is astonishingly precise: photos of landforms that appear



Figure 3. Raimundo ‘Rai’ Martorell. Sierra San Pedro Mártir, Baja California, Mexico. Photo by the author, 2018.

to us hopelessly indistinct are immediately recognisable to him. With Rai's help, we guess the pine in Bancroft's photo is at the north end of the meadow, on the far east side.

Even with Rai's help, the search feels endless. When we think we're about the right distance from the ridgeline of indiscriminate granite hills in Bancroft's photo, we leave the horses in the shade and walk east across the sun-bleached, alkali landscape until we think we've eliminated the parallax of our position relative to hers. Eventually, we spot an old grazer's shack frozen mid-collapse. Nearby, the pine is weathering where it fell ([Figure 4](#)). When trees fall in this arid, high-elevation climate, they erode more than they decay, their bodies monuments to slow change.

The Jeffrey pine's domination of the original photo makes it easy to miss what the repeat reveals: much of the photo is a vast, empty sky. Only by removing the monumental pine does Bancroft's compression of the meadow to a narrow strip along the bottom of the frame become apparent. This compression foregrounds the scale of the nonhuman relative to the human: tree and sky dominate while cattle in the meadow practically disappear. The grazer's shack and middens—still evidently in use—lie just outside the frame ([Figure 5](#)).

We learn Bancroft's radical perspective was partly out of necessity; given the distance between the tree and the steep granite hillside, she couldn't contain the tree in the frame without lying on the ground and shooting up at a steep angle ([Figure 6](#)). However, Bancroft took another photograph from higher up, looking down as if from the pine's perspective ([Figure 7](#)). To get it, she scrambled up a series of large, rough boulders—the highest point she could safely attain. (The tree line's advance into the meadow obscures this view in a repeat.) While the cattle are clearly more visible here, the meadow expanse swallows them. The two photos suggest Bancroft was thinking about scale.

The stereopair makes an instructive diptych with another of the same meadow by Adrey E. Borell, shot from the opposite vantage (south to north) on a 1925 expedition for Berkeley's Museum of Vertebrate Zoology (MVZ) ([Figure 8](#)). It's an interesting thought experiment: imagining Bancroft's foreground pine as the background pine in Borell's photograph, which has also fallen in the intervening years. Borell's pine, equal in size and stature to Bancroft's, is rescaled to its context as just one more in the tree line. The cataclysmic spectacle of time signified by the stereopair of Bancroft's monumental pine, blown up to outsize proportions, starkly contrasts the nearly imperceptible landscape-level changes suggested by the repeat of Borell's. Instead of cataclysm, the Borell stereopair reduces the hundred-foot tree's impact to the *tic* of a dendrochronological hour hand.

Despite differing vantages, both stereopairs convey the immensity of the nonhuman relative to the human and the almost imperceptible passage of time in this vast landscape. In their own way, each pair affirms a sentiment expressed by Bancroft's husband—explorer and amateur zoologist Griffing Bancroft—that in these meadows, 'the human element...is pitifully small'. His only 'synonym' for this outsize relationship of the nonhuman to the human 'is Wilderness' (Bancroft, 1932, p. 39).



Figure 4. La Encantada meadow, Sierra San Pedro Mártir, Baja California, Mexico. Left, by Margaret W. Bancroft, 1930. Right, by the author and Josh Medina for the Mexican Bird Resurvey Project, 2018.



Figure 5. Clockwise from the top left: Ganaderos' cabin, exterior; middens; cabin interior showing jeans and cooking utensils; cabin interior with coffee mug. La Encantada meadow, Sierra San Pedro Mártir, Baja California, Mexico. Photos by the author, 2018.

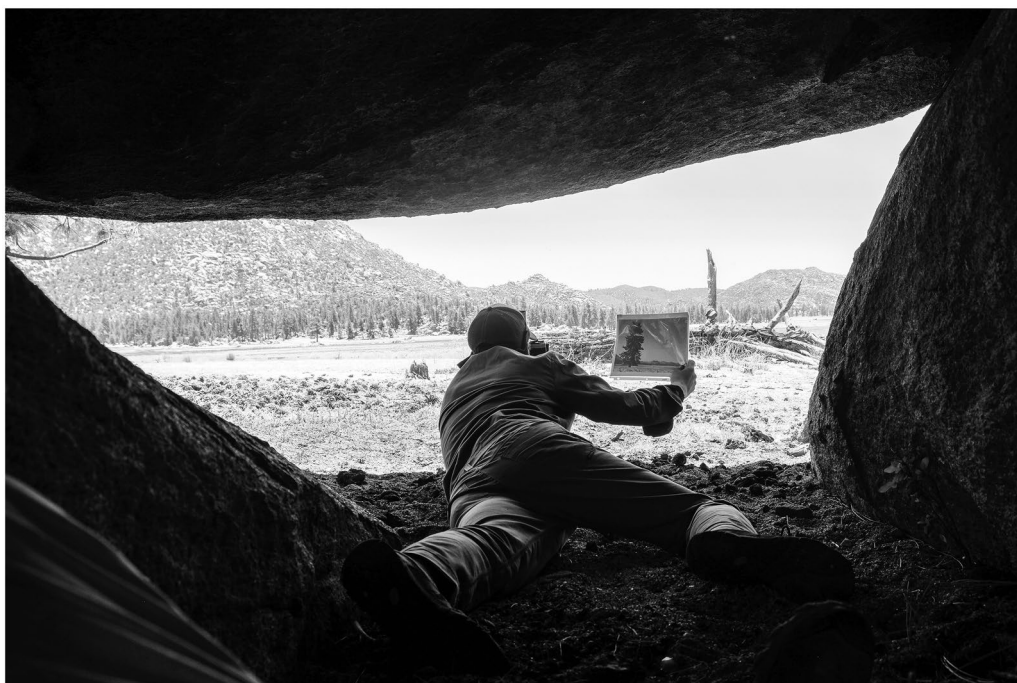


Figure 6. Josh Medina photographs the author reshooting Bancroft's Jeffrey pine at La Encantada meadow, Sierra San Pedro Mártir, Baja California, Mexico, 2018. The boulders make a natural viewfinder onto the tree and meadow.



Figure 7. La Encantada meadow, taken from a height just above the location of the Jeffrey pine, Sierra San Pedro Mártir, Baja California, Mexico. Margaret W. Bancroft, 1935. ©San Diego Society of Natural History, all rights reserved.



Figure 8. La Encantada meadow. Left: Adrey E. Borell. La Encantada. No. 4778, 1925, with permission of Museum of Vertebrate Zoology Archives, University of California, Berkeley. Right: the author and Josh Medina for the Mexican Bird Resurvey Project, 2018.

Inventing a conservation baseline

As Griffing's remark suggests, photos like Margaret's captured the fantasy of an unpeopled wilderness just a few hours from Los Angeles. Comparisons between Alta (upper) and Baja (lower) California were irresistible: Griffing wrote 'of the first hundred miles' south of the border, 'one cannot but contrast them with the other side of the line, with San Diego and Los Angeles and a three million population' (1932, p. 40). Griffing's inclusion of Margaret's San Ysidro Tijuana border crossing photo implied a political border separating Alta from Baja California in both time and space (Figure 9). Southern Californians marvelled at Baja as a *primaeval* backyard



Figure 9. Margaret W. Bancroft, 1930. San Ysidro border crossing, Tijuana, Mexico. ©San Diego Society of Natural History, all rights reserved.

wilderness. Ford Ashman Carpenter, explorer and first photographer of the SSPM, saw in this region ‘conditions [that are] today...exactly the same as they were when Cortez conquered Mexico’. Belying Carpenter’s enthusiastic appraisal is the presence of cattle in his panorama of La Grulla meadow, having arrived only with European settlers (Sayre, 2017, p. 128) (Figure 10). Nevertheless, Carpenter used his photography to elicit financial interest in the allure of a landscape he considered ‘a rival of Yosemite’, piquing the interest of one entrepreneur who wrote, ‘people go to far away Africa to see primitive conditions that can be just as easily found within a few hundred miles’ of Los Angeles (Carpenter, 1903, p. 113). There was money in selling the relic past to the comparative moderns across the border, who were hungry to recreate themselves physically and spiritually in the wilderness, that ‘window to...the remote beginnings of humankind’ (Gomez-Pompa & Kaus, 1992, p. 295). Subsequent cultural narratives, like *Where the Old West Never Died* (1968), *Baja: Land of Lost Missions* (1968), *Last of the Californios* (1981), and *The Forgotten Peninsula* (1986), reinforce beliefs about Baja as home to primitives subsisting on a lost landscape ‘separated from the mainstream of change’ (Pourade, 1981).

Seeing Baja was like looking into a museum case—a view conforming to wilderness in the U.S. environmental imaginary. Ecologist Aldo Leopold’s 1949 essay ‘Wilderness’ first articulated for U.S. conservation science the idea of self-maintaining, autonomous wilderness as nature’s ‘most perfect norm’ (Leopold, 1949, p. 196). Leopold argued to preserve ‘some tag-ends of wilderness...as museum pieces, for the edification of those who may one day wish to see, feel, or study the origins of their cultural inheritance’ (1949, p. 188, emphasis added). As a conservation metaphor, the museum justifies preserving some ‘relics’ or ‘remnants’ (1949, pp. 189, 199) for cultural heritage, recreation, and science against economic exploitation. But the wilderness museum also gave conservationists an ecological baseline, or ‘base datum for normality’: ‘a wild area’ necessary to assess ‘sick ones’ (1949, p. 197) where original ecological conditions no longer exist. Leopold expressed this analogy through the lens of a metaphorical landscape camera, as



Figure 10. La Grulla meadow, seven miles west of its sister meadow La Encantada. Above: Ford A. Carpenter in 1903. With permission of Special Collections & Archives, UC San Diego. Below: the author and Whitney Tsai for the Mexican Bird Resurvey Project, 2018.

a snapshot in time: Wilderness supplies a ‘biotic province’ with ‘a *picture* of how healthy land maintains itself’ (1949, p. 196, emphasis added).

During an intense period of regional scientific interest, numerous museum scientists established Baja’s status as a ‘tag-end’ of California wilderness, filling their museums with data necessary to create the ‘picture’ of this ecological remnant. The MVZ’s transect surveys in particular proved critical both to Baja’s ecological relationship to California and to the region’s conservation status. MVZ Director Joseph Grinnell first identified Baja’s ‘faunal affinity’ with Alta California and its function as an ecological baseline, reaching ‘the conviction that the entire peninsula is Californian in faunal affinities; it is not Mexican’ (Grinnell, 1926, p. 7, 1928). While the U.S.’ 1854 Gadsden Purchase following the Mexican-American War failed to acquire Baja *politically*, Grinnell nevertheless secured Baja *ecologically* as a remnant of California wilderness. However, although politics arbitrarily bisected the ecology of the Californias, politics also spared that ecology from incursions by the north’s ‘three million population’. Erasing that border invited U.S. resource speculation. Grinnell, adherent of scientific conservation’s ‘doom and resurrection’ narrative, worried unchecked speculation thoughtless ‘of the distant future’ would soon ‘exhaust our natural resources’ and accelerate ‘[t]he depressing conditions’ in places like Europe that lacked America’s unmolested wildernesses (Grinnell, 1924). His ‘gloomy’ prognosticating drove a frenzy of survey expeditions between 1923 and 1930 to prove Baja’s importance as California’s ecological baseline. U.S. surveys like the MVZ’s, in turn, contributed to Mexico’s own conservation assessment; in 1947, Mexico declared the ‘wild’, ‘virgin’ condition of the SSPM’s high elevation forest among ‘the best...of the entire Republic’, ‘a *true living museum* of the flora and fauna of the region’, and decreed it a national park (Decreto Declara Parque Nacional, 1947, emphasis added). Both Grinnell’s actual museum and the decree’s metaphorical one co-produced Baja as California’s living relic, a status the decree promised to preserve in perpetuity as an unpeopled wilderness—a type of protection original to U.S. environmental conservation.³

Contemporary ecologists have reinforced this assessment, claiming northern Baja as a ‘relict biota’ exhibiting ‘the last remnants of undisturbed habitats of the North American Mediterranean

region' (Bojórquez-Tapia et al., 2004, p. 112). Historically 'free of human disturbance' (Evetts et al., 2007, p. 318), the SSPM's forests supply 'direct evidence' of California's 'pre-contact', 'pristine' forests (Barbour et al., 2002, pp. 469, 462; Bojórquez-Tapia et al., 2004, p. 112; Mallek et al., 2013, p. 25). SSPM's 'remnant' status justifies what long-term ecological researchers call a 'space-for-time substitution' (White & Walker, 1997, p. 345), where one landscape's present stands in for another's past. The space-for-time analogy is contemporary ecological science's term for Leopold's 'base datum for normality', its 'picture' of self-maintaining nature, or wilderness. And, like Leopold's base datum, the analogy justifies the landscape's conservation value—its value relative to *other* landscapes—because 'relics of the old West add meaning and value to the new' (Leopold, 1949, p. 199). Together, the museum and picture metaphors reveal the logic that makes a conservation landscape: Wilderness archives the origins of our ecological and cultural heritage, like photographs preserved outside 'the mainstream of change'. One scientist we spoke with referred to the SSPM's conservation value in these terms, calling the SSPM 'a *symbol* of the North American forest', elevating the SSPM from scientific analogy to conservation ideal.

'The human element'

Re-photographic stereopairs of Bancroft's and Borell's photographs, like the forest, serve as 'symbols': relic artefacts of a wilderness museum and analogies for pristine, nonhuman nature. In foregrounding the scale of the nonhuman relative to the human, minimising economic activity and labour (cattle grazing), the stereopairs suggest that markers of time in conservation landscapes are only ever nonhuman. Purely 'reflective' repeat photographers might see in these stereopairs confirmation of California's cultural and ecological baseline, reinforcing the idea that time stands still here relative to the landscapes of accelerated change across the border. However, this assessment is only unproblematically true if we crop 'the human element', not only from the landscape, as Bancroft did, but from the photographic act, which the reflective repeat photographer might do. In moving from the landscape to the archive, the photographer disappears into a naïve fiction of objectivity, leaving only the photograph. We might say the photograph attains the status of evidence because of this disappearance. A reflective approach can treat a repeat photograph as a transparent window onto landscape because it treats repeat photography as a repetition of that original process. But *re*-photography isn't repetition, it's repetition in reverse: beginning in the archive and moving back into the landscape. In that reversal, the photographer re-enters the frame. Re-photography acknowledges the photographer as a participant in the making of landscapes, not merely users of an instrument correcting for human bias and error. Re-photography recognises that photographs create as much as document the places they depict (Klett, 2010, p. 34).

The practice of repeating Bancroft's and Borell's photographs illustrates the point: by re-inhabiting the original locations, we learned the photographers, despite five years separating them, were, in a sense, photographing one another across the meadow. Bancroft and Borell didn't only photograph a landscape; by shooting each other across space and time, they captured a *relationship* to landscape that belonged to U.S. survey interests. Their choices of perspective and scale, of what to include and exclude, captured cultural and institutional priorities that ultimately produced this 'living museum'. Furthermore, through some archival serendipity, we learned Carpenter also photographed the same meadow in 1903—likely from Borell's same vantage (Figure 11). Places along the transect were visited and photographed repeatedly. To the repeat photographer, the 'high image density' (Klett, 2012, p. 12) of archived photographs in places like La Encantada affords a window into time and change in this landscape. But to the re-photographer, that same archive merely fixes the idea of this place as a relic of California's past.

By assembling these archival photographs and returning to the field, we opened a visual dialogue across time 'about the nature of time and change' in this landscape (Kumar, 2014, p.



Figure 11. La Encantada meadow. Ford A. Carpenter, 1903. With permission of Special Collections & Archives, UC San Diego. We think Carpenter photographed the same tree line from very near the same location as Borell in 1925.

142)—perhaps even a ‘multilogue’ (Fox, 2001, p. 214) given our contributions to this conversation. That conversation challenges the scientific fiction, inherent in repeat photography, of ‘a single authoritative point of view’ (Kumar, 2014, p. 155), seeing instead an ‘interaction of two [or more] distinct viewpoints in time’ (Klett et al., 1984, p. 37). Staging this interaction makes explicit the reflexivity implicit in repeat photography: It suggests that, when we look at landscapes, we see ourselves as much as the landscapes we intend to photograph. By ignoring this reflexivity, repeat photography simply reflects and repeats the choices, priorities, and institutional imperatives relegating Baja to the past. But, by acknowledging it, re-photography reverse engineers the logic that produced Baja as a relic of California; it turns the lens back onto ourselves as makers of landscapes and ‘reinterpret[s] the ideas and methods’ embedded in those earlier efforts (Klett, 2012, p. 19). Understood this way, all re-photography becomes a visual metaphor for a way of seeing place, which turns a method for documenting time and change into a means to interrogate ideas about time and change.

Re-photography narrative II: the cabin and the museum

Re-photography’s reflexivity is itself a useful analogue to the making of a conservation landscape, in part because re-photography returns us, not just to places, but to the origins of conservation’s logic. In dealing with actual pictures (photographs) archived in actual museums, re-photography usefully reveals how science makes the artefacts used to study landscapes and set conservation priorities by reversing a conservation landscape’s making: re-photography turns photographs from windows onto a remote past back into artefacts of the science of time and change, revealing photographs to *be* artefacts. At La Encantada, we captured conservation’s recursive, self-regarding logic by staging an interaction between the early photographers and ourselves. But another re-photography opportunity demonstrated this logic more explicitly.

Borell’s 1925 photo at Vallecitos, another big meadow along the transect within what is now the park boundary, features Chester Lamb, another of Grinnell’s field agents, standing before a pine-log hunting cabin used by *ganaderos* for shelter and curing meat (Figure 12). Given its size and sturdy build, we think it’s likely still standing. We had hoped the cabin would allow us to re-photograph what Bancroft excluded at La Encantada: enduring evidence of life and labour, or ‘the human element’ on this landscape. Felipe, the ranger at the park entry office, recognises the cabin, but says it was demolished. In its place stands the Museo Parque Nacional.

The museum exhibits conventional stories of regional firsts: the first peoples, the first missionaries. Nearby, an exhibit dedicated to ‘*montura antigua*’, or antique mounts, features stiffened calfskin boxes and saddlebags of *vaqueros* who drove cattle into the mountain meadows during the summer months (Figure 13). Our guides, Rai Martorell and his sister and brother-in-law Aide



Figure 12. Lamb at Old Cabin. Vallecitos, Lower California, Mexico. No. 4814. 1925. Adrey E. Borell. With permission of the Museum of Vertebrate Zoology Archives, University of California, Berkeley.



Figure 13. Top left and right: Traditional leather *ganaderos*'s tack at the Museo de Sierra de San Pedro Mártir. Bottom left and right: Tackle boxes with our gear at camp in La Grulla meadow; Rolando Arce secures our gear to a horse, Sierra San Pedro Mártir, Baja California, Mexico. Photos by the author, 2018.

and Rolando Arce, safely transported our cameras and instruments down the rugged canyons into the meadows using identical tack, as useful in the 21st century as in the 19th (Figure 14). *Ganaderos* like Rai, Aide, and Rolando, working as guides when not driving cattle, assisted scientists, like Grinnell, whose ‘science of land health’ (Leopold, 1949, p. 196) gave the SSPM its status as ‘a true living museum’. But it’s impossible to ignore that this status, ironically, also led to the prohibition of the very ‘natural resource development practices’ (Bojorquez-Tapia 114 2004) on which *ganaderos* depend: cattle grazing.

Mexico’s General Law of Ecological Equilibrium and Environmental Protection officially forbids cattle grazing in national parks.⁴ However, administrators for the Sierra de San Pedro Mártir Parque Nacional, recognising the *ejidos*’ precedence, informally permit it. They acknowledge, ‘You cannot go up to people [and say], ‘From now on, no more’. Instead, ‘it has to be dealt with little by little’ (personal communication, June 7, 2019). *Ganaderos* experience conservation’s incremental exclusions as a ‘slow violence’ (Nixon, 2011, p. 85). One *ejido* member recounts, in the early 1900s before the park, his grandfather built ‘small houses’ like the cabin we came to shoot. In ‘rain or snow, we would sleep in the cabin’. But a park director in the early 2000s ‘cleared everything out’. Not everything, though. ‘There is a military base that has its own cabins. The UNAM [Universidad Autónoma de México] Observatory, CONAFOR [Comisión Nacional Forestal], the National Park, the Condor Project, they all have...very good houses, warm houses; as for us, we don’t have a warm house’. By contrast, condor scientists’ story reads like this *ganadero*’s story in reverse: ‘At the beginning, we were living in tents, then in trailers, and then finally, with Mexican budget, the field station. Then, the San Diego Zoo helped us make it more comfortable’ (personal communication, January 11, 2020). The two accounts confirm conservation’s logic: As conservation evolves from metaphor of the ‘living museum’ to increasingly material presence on the landscape, the *ganadero* tradition disappears, sequestered in a park museum that installs people like Rai, Rolando, and Aide as relics in a relic ecosystem.⁵



Figure 14. Left to right: Rolando Arce, Aide Arce, Raimundo Martorell, of *ejido* Bramadero, La Grulla meadow. Photo by the author, 2018.

Perhaps this is why some *ganaderos* have resisted proposals for more inclusive conservation (Bojórquez-Tapia et al., 2004, p. 114): Conservation that sacrifices cultural and economic interests for wilderness or biodiversity protection ‘provokes righteous resentment... and escalates boundary disputes’ in protected areas (Gómez-Pompa & Kaus, 1999, p. 5982). Moreover, not only has this conservation approach been revealed as ‘inherently unsustainable’, it has a well-documented global history of environmental injustice: ‘Fortress conservation’ (Brockington, 2002), as it is known, reframes local ‘land-based people’ (Pulido, 1996, p. 3) with hundreds and sometimes thousands of years of land stewardship as ‘enemies of conservation’ to evict them from wilderness preserves while promoting the economic interests of the state, scientific conservation, and tourism in those same preserves (Dowie, 2009, p. xv; Goldman, 2020; Guha, 2000; Sayre, 2005).⁶

In a sense, we found what we came looking for: evidence of the ‘human element’ in the museum’s story of the *ganadero* tradition. However, the exhibit suggests we were guided to a place where people *used* to work. The conservation metaphor became a reality: The ‘living museum’, manifested in an actual museum, built on the site of the *ganaderos* cabin, replaced evidence of prior land use and lifeways with its story of a ‘pristine’, ‘living museum’ of ‘wild’ nature. Re-photography captured the circular logic that produced this narrative: Our photographs belong to scientific archives that shaped the SSPM’s conservation status as a relic landscape; that landscape was formally recognised as a national park and ‘living museum’ of the region’s flora and fauna in 1947; that metaphorical museum is now symbolised by an actual museum devoted to the park’s natural and cultural history, which justifies excluding land-based people from the present by reinterpreting them as relics of the past.



Figure 15. Ford Carpenter’s Polaroid camera at the Museo de Sierra de San Pedro Mártir, Baja California, Mexico. Photo by the author, 2019.

The park's museum distils its logic into a single point. In what Roland Barthes might call the *punctum* of this museum (1980, pp. 26–27), and of conservation's story of itself, the museum exhibits Carpenter's Polaroid camera, the instrument through which he saw in 1903 'primitive conditions' that, to him, were 'exactly the same as they were when Cortez conquered Mexico'—conditions he sought to sell to the north as wilderness, and which have since become, by analogy, California's conservation baseline (Figure 15). Looking at this camera is like looking at a museum archiving itself: A museum exhibit devoted to the instrument that collected the data that transformed this landscape into a museum, it makes explicit colonialism's recursive irony, revealing that when we point our instruments, we see ourselves reflected across time and space. If, as John McCormack said, Bancroft's photo tells the 'real story' of conservation in this landscape, the camera, like Barthes' *punctum*, acts as the 'wound' in that story, reminding us of the exclusions that have followed from it.

Conclusion

As geographer Nathan Sayre observes, ecologists—for utility's sake—often must 'piece together' a baseline 'picture' to set conservation priorities (2005, p. xxxvii, emphasis added). However, the choice of where to locate the baseline reflects cultural priorities that 'freeze-frame' nature at a culturally specific and historically selective moment in time (Beinart & Coates, 1995, p. 85). Not only does this 'picture' fix in time what is a 'dynamic environment' (Sayre, 2005, p. xxxviii), it fixes on film, when photographing and rephotographing such places, normative ideas about nature as a timeless, 'static,' or 'undisturbed' condition interrupted by the introduction of 'culture' (Turner et al., 2003, p. 17). Most often, the nature/culture separation is understood as a temporal separation between 'then' and 'now'—a causal genealogy whose inflection point is the arrival of livestock with European settlers, or, as Carpenter said of Baja, just before 'Cortez conquered Mexico'. However, this 'simple model' of change fails to account for the 'continuum of cultural influence' across time and the challenge of charting change in the arid U.S. West and Mexico, where climate and drought 'usually overwhelm grazing effects' (Turner et al., 2003, pp. 35, 30). The choice to locate 'optimum' (Sayre, 2017, p. 128) environmental conditions at some originary moment reflects, therefore, not just conservation utility, but priorities based as much on 'assumption' as 'observation' (Turner et al., 2003, p. 32).

A conservation baseline, we could say, is less a place than a conflict zone where nature meets culture, nonhuman meets human, south meets north, and *before* meets *after*. Harnessed to these binaries, repeat photography presents a compelling story of a landscape, but ultimately reveals how our methods repeat then/now, before/after narratives that justify dispossessing people of their land. In fact, repeat photography can tell us a little more of the before/after of the *ganaderos* than about Indigenous land practices before colonisation. Any two photographs across time can, at best, open up a 'debate' about change, say Hastings and Turner (1965, p. 289). Klett agrees: stereopairs cannot tell us 'the causes or even existence of external forces that cause change' (2010, p. 33). But Klett and von Hellerman challenge even the temporal assumptions about before and after, then and now, that underpin repeat photography. 'Any two images placed together form a new whole,' and neither image, 'first or latest in the series, represents a definitive statement,' writes Klett (2010, p. 33; 1984, p. 37). The narrative linearity implied by repeat photography simply 'does not exist,' argues von Hellerman; instead, the two photographs are 'two different snapshots of one particular location' (2020, p. 382). Klett and von Hellerman echo John Berger's claim that 'a photograph...isolates, preserves and presents a moment taken from a continuum' (1980, p. 293): A photograph cannot reflect, but only invoke 'what is not shown'. In repeat photography, what is not shown is the time between two photographs, which we fill with 'general categories already in the spectator's mind' (1980, p. 294)—like ideas about nature and culture, nonhuman and human time, and conservation baselines. For Klett, what this leaves, if not absolute statements of cause and effect, is narrative. But, when hitched to conservation priorities—like wilderness or baselines 'free of human contact'—these narratives, as I've shown, are 'partial,' 'reductive, and misleading' (von Hellerman, 2020, p. 382).

Instead of narrative, I argue that re-photography turns the lens onto the making and makers of conservation narratives. Re-photography reveals that concepts like ‘nature’ and ‘culture’ are often mapped, uncritically, onto ‘then/now’ and ‘before/after’. It is precisely in this mapping that they become critical to conservation’s story. However, before/after is not simply a distinction in time in the SSPM: it is an interpretation of space, where Baja today serves, by analogy, as the ‘before’ to California’s ‘after’—a relationship memorialised in an actual museum whose implications for the future the *ganaderos* understand all too well: ‘We’re dinosaurs because we’re in danger of extinction,’ laments one: ‘At any moment they can run us off’. Repeat photography that uncritically repeats this story simply reflects priorities that consign Baja—and its people—to the past. If a reflective repeat photography implicitly justifies conservation’s exclusions, imaging a place where people only *used* to work, re-photography can help us visualise injustices that take place out of sight/site. By re-placing original photographs in archival context, by restoring to the frame what has been cropped out, by revealing the photographer to be part of the dialogue about a landscape’s meaning and not merely conservation’s instrument, re-photography helps to unmake stories about land and people that otherwise remain ‘difficult to escape’.

Notes

1. Minnich argues that the Kiliwa ‘weren’t much up there’ owing to the harsh winters and lack of acorns that sustained other Native California peoples, and that ‘the archaeology is very weak’ (personal communication, June 13, 2019). Others point to seasonal use ‘over many generations’ based on ‘considerable’ archaeological evidence (Foster & Bendimez Patterson, 1997, p. 35).
2. My thanks to the anonymous reviewer at *Landscape Research* for this clarifying semantic distinction.
3. See Simonian for analysis of the U.S. influence on Mexican forest conservation (1995, Chapter 5).
4. The same law requires park administrators to co-manage the park using a process involving an advisory council comprised of park administrators, conservationists, and neighboring *ejidos*, which are legally considered, as park administrators told us, to belong ‘to the surrounding area that is affected by the park’ (personal communication, June 7, 2019).
5. Pattison & Rasmussen (in press) analyze a similar logic in current conservation policy in the SSPM National Park, by which the park makes pastoralists party to their own exclusion in a process we call ‘exclusion by inclusion’ (2024, p. 331).
6. While I take a critical view of conservation, conservation and justice need not be mutually exclusive. Minnich et al. have proposed making SSPM a biosphere reserve, a national park alternative that would conserve natural resources ‘without undermining the activities of the rural population’ (1997, p. 640).

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Data availability statement

Some data that support the findings of this study are available from the corresponding author upon reasonable request.

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