An Ecology of Invasion: The Environmental Effects of California's Missions

Mary Kristen Layne (University of Glasgow)

The Franciscan missions established by the Spanish in the late 18th century have been a polarizing topic (Hackel 2003, p.644), in which the missionaries have been seen alternately as civilizing heroes and culturally destructive monsters (Sandos 1997, p.222). Media attention to the Columbian quincentennial and the bicentennial of California's annexation into the United States has encouraged renewed scholarship of California's history. The new historical discourse that has emerged combines cross-cultural and interdisciplinary insights to form a more nuanced picture of the Spanish frontier institutions (Skowronek 1998, p.699). The act of missionizing California was neither genocide (see Jack Norton, 2014) nor benevolence (see Mary Floyd Williams, 1922); rather, the colonizing endeavour ignited a radical shift in geographic hegemony kindled by economic, social, and ecological factors.

In their co-edited anthology on the history of the American West, William Cronon, George Miles, and Jay Gitlin (1992) present six simultaneous processes at work in colonial power dynamics: state-forming, market-making, self-shaping, boundary-setting, species-shifting, and land-taking. These lenses will guide my discussion through the multi-layered palimpsest of California history.

First, I will present the history of the missions (Catholic settlements in California aimed toward converting the native populations to Catholicism) from the perspective of the Spanish

monarchy. From a Spanish political angle, the foundation of the missions fulfilled the simultaneous goals of shaping a colonial society to support further expansion into the North American continent, guarding against American and Russian encroachments on Spanish territory, and opening up valuable trade routes across the Pacific Ocean into Asia and the Americas. Then, I will present the same history through the eyes of the indigenous populace, who utilized the missions first as trade partners, and then as safe havens as the outside world became more unstable. Once the indigenous populace began living inside the missions, they faced massive changes to their traditional ways of life, and were forced to assimilate new beliefs and practices into their culture, at the expense of losing touch with both indigenous skills and the non-converted Indians outwith the mission.

These two mainstream depictions of Indian-mission relations fail to confront the underlying environmental processes shifting in California due to the arrival of the Spanish settlers. Landscape management, drought, and imported pathogen, animal, and plant species played a massive role in the successes and failures of the missions. These ecological factors offer discursively neglected explanation of the underlying modus of the mass hegemonic shift in the lives of California Indians, culminating in Native American demise.

Section I. Spanish History: A Defence of New World Holdings

Between 1769 and 1823, Franciscan friars, under the instruction of the Spanish government, founded 21 missions (self-sustaining centres for religious conversion), four presidios (military installations), and three pueblos (lay agricultural sites) in what is now the U.S. state of California (Graham 1998, p.45). The first mission, which served as a model for the development of further missions and prompted the

construction of the presidios and pueblos, was the Mission San Diego, founded in 1769 under Governor Gaspar de Portolá and Franciscan Father President Junípero Serra (Engstrand 1998, p.92, Preston 1997, p.260). In over 65 years of establishing missions, the Spanish baptized 90,000 Indians, and gained control of the region through a social and economic transformation (Langer and Jackson 1988, p.289). At Spain's peak presence in the area, one sixth of coastal California fell under direct Spanish rule (Preston 1997, p.271).

I.1 State-forming

By the time of the California missions, the Spanish crown had realized the ineffectiveness of large-scale religious conversion, and missions were considered politically obsolete (Sandos 197, p.201). However, a shortage in the royal coffers meant that missions looked much more cost-effective, as they were largely self-sustaining institutions (Langer and Jackson 1988, p.287).

The official duties of the missions, according to a 1794 report on California's missions and presidios, were:

> …to contribute to reducing the numerous pagans of those regions to a civilized and Christian life by making them respect the religious functions and the office of the ministers of the Holy Gospel, to preserve peace among the new Christian vassals of our August Sovereign, and to maintain the greatest harmony between them and the pagan tribes who occupy those lands. (Servín and Costansó 1970, p.223)

The missions were, on the surface level, an idealist Catholic community, founded on the theory that in two generations, Christianized Indians would be civilized and capable of self-government (Williams 1922, p.24). After ten years of instruction in religion, language, and law by devoted Franciscan friars, they would

receive their own lands and form agricultural pueblos, capable of industrialization and gaining material prosperity (Sandos 1997, p.201, Williams 1922, p.24).

The drive to improve the human inhabitants of the missions stemmed from a Catholic Dominionist viewpoint, which claims humans are obligated to control and protect nature (Henderson 2012, p.15). This religious doctrine influenced the way missions perceived the Native Americans, who they viewed as part of the natural world, as well as the landscape itself (Preston 1997, p.264). That the missionaries felt called to improve the wilderness they encountered is well documented in diaries and letters of the time. For instance, William Preston presents the letters of Berabé Cobo, a 17th century New World naturalist, who writes :

> All the regions of the globe have contributed their fruits and abundance to adorn and enrich this quarter of the world, which we Spaniards found so poor and destitute of the plants and animals most necessary to nourish and give service to mankind. (Preston 1997, p. 264)

Notions of improvement, however, also entailed perceptions of ownership of both the landscape and the people inhabiting it. The crown hoped that just as the landscape would provide raw material goods, so would the Indians become the village-peasantry necessary for Spain to have strong economic power in the region. To achieve that goal, it was necessary that they be nucleated into village-like settings (via the missions), and come to understand European economic and labour regimes (Langer and Jackson 1988, p.289).

The political goals behind the establishment of the missions indicate that the Spanish interest in the region was not merely a

benevolent one of converting lost souls to Christ. The Spanish crown had a vested interest in the California region for its geographical relation to Spanish economic interests, from both a defensive and offensive perspective. The Spanish were particularly worried about the English and Russian threat to mines in Northern Mexico (Langer and Jackson 1988, p.290), and wanted to stave off any foreign attempts to mount control over the region's rich mineral deposits. California, therefore, became a buffer colony against foreign aggressors (Engstrand 1998, p.92), as the Spanish strove to improve the relation of Spain to the world.

I.2 Market making

An economic analysis of the situation in California further nuances the role of the missions though, as they often do, the politics and economics proved to contain a great deal of overlap. When the Spaniards arrived in California they were met by anxious and threatened Native Americans, who possessed much greater strength in numbers (Simmons 1998, p.70). Gift giving proved to be the most effective form of early diplomacy between the groups, as each group was anxious to appease the other (Dane and Palóu 1935, p.106, Engstrand 1998, p.94). More formalized trade was quick to follow. Records indicate that as early as 1773, settlers and Indians began bartering for sea otter pelts. The pelt exchange extended far beyond California: Spanish traders found the pelts a valuable commodity for trans-Pacific trade with China (Preston 1997, p.282). Trade in labour, services, and products soon connected Indians to the global economy (Sandos 1997, p.202). Indians rapidly incorporated the imported goods into their lifestyles, particularly the livestock of the missionaries and other material implements, such as axes and firearms (Preston 1997,

p.275). Once they began acculturating foreign tools – by adding iron to their weapons, for instance – they found continued contact with the Spanish and their goods necessary to maintain their new standard of living (Skowronek 1998, p.692).

The acquisition of new tools was not the only lifestyle change faced by the Indians in the missions. In order to support their upkeep at the missions, Indians were tasked by the friars to engage in agriculture (Dane and Palóu 1935, p.110). Preferring to rely on European-style agriculture rather than the gathering methods of the Indians, missionaries undertook massive landscape works to install agricultural institutions, using the Indians as their labour force for both construction and upkeep. A letter written by Junípero Serra at the Mission Santa Clara de Asís indicates the extent and speed of works undertaken: by March 1, 1777, two months after the settlement of the mission in January of that year, the padres and Indians had already ploughed, and planted corn, beans, wheat, and vegetables. Within the first year, they had constructed large-scale irrigation works (Skowronek 1998, p.691).

By the turn of the 19th century, the missions were not only self-sufficient, as the Spanish crown had intended, but also had developed into full-fledged commercial operations, providing food and other goods to the military, and engaging in international trade with beef tallow and cattle hides (Graham 1998, p.46), as well as the skins of elk, antelope, and deer (Preston 1997, p.282). Archaeological finds further indicate that missions engaged in activities such as tanning, milling, tile making, and lime production (Graham 1998, p.47). The missions formed a regional monopoly in textiles, which they provided at a reduced rate to the military (Langer and Jackson 1988, p.300), perpetuating the symbiotic relationship of military and religious institutions in the region.

Section II. Indigenous History: A Choice Between Freedom and Food

When the Spanish began founding missions in 1769, approximately 310.000 Indians lived in California, speaking 100 mutually unintelligible languages (Simmons 1998, p.48), the highest population density in North America (Graham 1998, p.44). By 1830, only 18,000 remained (Sandos 1997, p.222). The physical and cultural changes at the missions were overwhelming to the population, which, prior to the arrival of the Spanish, had enjoyed a large degree of self-sufficiency (Simmons 1998, p.48). Once forced into dependence on the Spanish, via both active and passive pressures, the cultural essence of being a Native Californian was decimated just as much as the population numbers, if not mores.

II.1 Boundary-setting

Indians spent varying amounts of time living within the missions, depending on the governance styles of the different padres, leaders of the missions. The time commitment required of the converted ranged from Mission San Diego, where most inhabitants stayed and worked only a week or two a year, to Mission San Carlos Borromeo, where inhabitants only were allowed two weeks a year *outside* the mission (Hackel 2005, p.85). The lack of freedom and the necessity to carry a pass whenever on leave created a strict division between the baptized and unbaptized Indians (Hackel 2003, p.646).

Mission baptism records suggest that the first natives to come to the missions were those already disadvantaged in some way – unmarried women, orphans, and the elderly (Hackel 2005, p.67). As larger portions of indigenous society arrived at or were subsumed by the missions, those remaining outside the missions were disadvantaged

as well, as their traditional trade networks were disrupted by a lack of trading partners (Hackel 2005, p.96). Eventually, the Indians had no choice but to surrender to the manipulative power of the missions. This version of events does not align with the story told by the documents of the padres. The missions appeared to be unaware of their role in unravelling of the indigenous lifestyle: the padres credited the increasing numbers of turnover to the pull of their mission, not realizing the increase represented a defeated capitulation to the mission's destructive push (Hackel 2005, p.77).

II.2 Self-shaping

Effects on the Indians were not only physical. The cultural shifts, and the loss of cultural traditions, can be credited for much of the unrest in the missions (Hackel 2003, p.651). Prior to the missions, the Native American lifestyle had been a semisedentary one of subsistence gathering, hunting, and fishing from various seasonal homes (Kotzebue 1830, p.135, Skowronek 1998, p.680). Members of various people groups harvested tobacco, grapes, mesquite, and wild seeds, and were particularly good at basket making (Graham 1998, p.44), one of the many skills lost in the cultural transition. A loose political structure centred on villages facilitated a small trade economy in exchanging game and food (Langer and Jackson 1988, p.288).

The societal, economic, and religious reorganization of the missions was jarring to the indigenous populations (Langer and Jackson 1988, p.309). Once in the mission, Indians had to adjust to a different pace of life: instead of spending 20 hours a week hunting, gathering, and fishing, Indians worked six hours each day at agricultural tasks to which they were unaccustomed, as large-scale agriculture (involving weeding, ploughing, mass harvesting, and the upkeep of the domestic

animals) was not part of their traditional lifestyle (Skowronek 1998, p.691).

Less obvious features of mission life brought further cultural shocks. Cultural transferences – and tensions – occurred between Indians groups as well as between the Indians and Spanish (Hackel 2003, p.656). The Native Americans inhabiting the Spanish missions were not a homogenous set. Differing indigenous people groups from across California were drawn into the missions, bringing their own cultural norms and traditions with them – within the St. Clara mission alone, more than 20 languages were spoken (Kotzebue 1830, p.135). However, the Catholicism espoused by the missions proved to be the biggest cultural disrupter, replacing indigenous cultural practices and ceremonies with Catholic sacraments and rites.

Religious tensions were already rife within the missions due to the overt Catholicism, and were heightened by a variety of cultural differences. Rather than allowing for native practices, however, the padres worked to expunge 'uncivilized' aspects from Indian culture. The work of George Ezra Dane presents a useful translation of Francisco Palóu's 1787 description of the founding of Mission San Francisco. A telling cultural discrepancy between Catholic doctrine and indigenous practice is evident:

> At this Mission, on one occasion, we baptized three infants born within two weeks, all children of one Indian by three wives who were sisters. As if this were not enough, he had also taken his mother-in-law to wife. But by the will of God he was converted, and his four wives also, and he kept only the eldest sister who had been his first wife, while the others after their baptism were married according to the Roman ritual to other converts. By this example, and by means of our sermons and our teaching, they are being persuaded to forsake polygamy and are being brought into our Holy Catholic Faith. (Dane 1935, p.110)

By promoting monogamy amongst Indian residents, Franciscan friars thus upset the reproductive norms of the society.

Not all cultural disruption was intentional. Even the infrastructure of the missions caused tension. For instance, water systems – wells, dams, reservoirs, and crop irrigation systems – were prominent features of missions, but were perceived by Indians as spiritual assaults, shutting off access to protective spirits in the water (Preston 1997, p.285).

Some traditional practices did survive for a time, especially those related to subsistence hunting and gathering. Even though agriculture was a mainstay of the mission system, the fledgling mission agriculture proved insufficient to maintain the large numbers of Spanish and natives within the missions (Graham 1998, p.46). Indians were thus encouraged to leave the mission to hunt and gather, especially in times of shortage within the missions (Hackel 2005, p.84). Initially, therefore, Indians' diets changed very little in the missions. Palóu writes that the Indians at the Mission San Francisco continued to fish and hunt while in the mission, feasting on whale and sea-lion meat, as well as seed dumplings, strawberries, hazelnuts, blackberries, and wild onion (Dane and Palóu 1935, p.109).

Once the missions became self-supporting, however, foraging became a luxury rather than a necessity (Sandos 1997, p.209). Native Americans struggled with dietary changes, as they were unused to the provided porridge of flour, maize, peas, and beans (Kotzebue 1830, p.135, Hackel 2005, p.92). The introduction of milk and cheese into the culture added to digestive distress, as most Indians were at the time, and still are, lactose intolerant (Skowronek 1998, p.696).

As more indigenous communities came to the missions, the traditional culinary practices and cultural ritual based around a symbiosis with the natural landscape grew less prevalent, replaced by European

models. Children born in missions had little chance to learn the traditional skills of living with the landscape their parents had had when they arrived at the missions (Hackel 2005, p.96). As native heritage and culture declined, the natural landscape began to suffer as well (Anderson et al. 1998, p.39). A culture of co-existence with nature could not survive separation from the landscape, nor could the landscape continue on as it was without the influence of the people who had co-evolved with it.

Section III. Natural History: A Subtle Invasion

Neither of the two stories presented thus far offer the same through-line as that offered by a narrative of the landscape, the natural world itself that pre-dates and post-dates the entire narrative arc of this paper. Understanding the environmental factors at work in the Californian regime change creates a new lens for viewing Californian history. I would argue that utilizing this lens promotes the establishment of a more neutral viewpoint, less burdened by cultural nuances and the biases of those able to write history.

To begin, in order to discuss the pre-Columbian landscape in California, it is necessary to cast aside the binary division between humans and nature. 'The Native Californians were not simply *in* California; they *were* California,' write Anderson et al. to illustrate this point (1998, p.16). Native Americans' lifestyles had come to so closely follow the land's rhythms that the landscape and the indigenous population lived symbiotically, each supporting, shaping, and benefitting the other over time. Their management of plant and animal habitats allowed indigenous peoples to sustain 'extraordinary' population densities, for both indigenous human inhabitants and animal populations (Simmons 1998, p.51).

It is only in recent decades that scholars have begun unpacking the ecological history of California. In her study of political ecology – 'political power as inserted into ecological relationships' – Martha L. Henderson (2012, p.15) found that the public and environmental sectors can have massively transforming effects on each other. This notion was certainly the case in colonial California, as changes to Native American lifestyle led to significant alteration of the landscape, which in turn led to the downfall of Indian peoples remaining outwith the missions. Accounting for landscape use alteration changes the way the story of the California missions is told, and creates a new critical lens worthy of discussion.

III.1 Land-taking

In their attempt to make the 'New World into a New Europe' (Skowronek 1998, p.690), the Spanish introduced Old World agricultural techniques, as previously discussed, with varying levels of success. As the landscape had been under the management of the Native Americans for millennia, Spanish technology was not particularly suited to the Californian area. Spanish farming practices, including mass irrigation systems (Preston 1997, p.285, Skowronek 1998, p.690, Graham 1998, p.45), proved to exacerbate soil salinity (Hackel 2005, p.72) and eliminate wetlands. Now, less than 10% of the coastal wetlands and 2% of the interior wetlands present in the eighteenth century remain, largely in part to non-native agricultural practices (Anderson, et al. 1998, p.13). The 21 missions put an extraordinary amount of land under the plough. At their peak land occupancy in the early nineteenth century, the coastal missions and pueblos were cultivating 10,000 acres of land (Preston 1997, p.286).

Even more detrimental than the added technologies and land grabs, however, were the technologies, such as controlled burns and mosaic vegetation planting, stripped from the landscape via the reduction of Native Americans, the 'linchpin' species of the landscape (Preston 1997, p.267). The landscape to which the Spaniards arrived in 1542 was not a wild one, though it looked like a wilderness to the European eye (Preston 1997, p.264). Instead, the landscape had been carefully managed – domesticated, if not farmed – by the Indians for thousands of years. Their practices included lighting fires on hillsides, pruning willows, coppicing, pruning, tilling, and transplanting plant species (Anderson, et al. 1998, p.14, Preston 1997, p.265). Indians tended the landscape as a whole like a garden, introducing mosaic vegetation to the region (thereby increasing ecosystem and vegetation diversity) in order to have a continuous variety of food and material sources (Anderson et al. 1998, p.22).

The fire regime was perhaps the most ecologically important of these practices. It is estimated that between 5.6 and 13 million acres of California burned each year under a combination of lightning fires and indigenous fire regimes, with each area typically burning once every 10-50 years, most commonly in the late summer and early fall (Anderson et al. 1998, p.15). Fires improved the productivity of seed plants, reduced diseases, parasites and insects, increased deer browse, and could shape the growth of valuable plant species (Anderson et al. 1998, p.26, Preston 1997, p.269, Hackel 2005, p.25).

The decline of Indian populations, coupled with the strict punishments inflicted by the Spanish on anyone caught deliberately burning fields (Hackel 2005, p.90), had severe ecological repercussions. In addition to reducing the numbers of large game, who had become accustomed to a fire-cleared landscape, the lack of fire also shifted the tree regime, with fir, oak, and spruce replacing the smoke-dependent

redwood (Anderson et al. 1998, p.24). White firs, introduced by the Spanish, had the further effect of allowing those ground fires that did start to climb up to the crowns of trees, becoming more disastrous for human and non-human ecosystems alike (Anderson et al. 1998, p.29). These same fir trees encroached on fields, causing meadows to shrink, as the indigenous perennial grasses needed frequent fires to maintain their dominance over other species (Preston 1997, p.273, Anderson et al. 1998, p.23). As the fire-dependent bunchgrasses and other herbaceous plants disappeared (Preston 1997, p.273), the ground became barren and prone to erosion (Preston 1997, p.274), a process only exacerbated by the 1793-1797 drought, which roughly corresponded with the onset of missionary activity (Hackel 2005, p.79).

III.2 Species-shifting

Further stressing the already tenuous survival of indigenous plants was a mass ecological change brought on by the introduction of new pathogen, animal, and plant species. Termed by Steven Hackel as 'ecological imperialism' (2005, p.65), these exotic species invaded the Californian climate, and decimated local plants, animals, and immunities (Anderson et al. 1998, p.19). Those who depended on the indigenous varieties were left to struggle to find substitutes.

The introduction of European pathogens to the Indians is the aspect of biological destruction most commonly discussed. In her essay on mission archaeology, Elizabeth Graham writes that, by the time California was missionized, missionaries would have known about the devastating effects of European disease on Indians (Graham 1998, p.45). Unfortunately, realizing economic and religious goals superseded concerns about epidemics.

Disease ran rampant through Indian immune systems, as Native Americans had spent millennia isolated from pathogens evolving in the Old World (Preston 1997, p.288). In his initial examination of the Indian population of Mission San Carlos, Claude-Nicholas Rollin, the mission physician, recorded throat and lung infections, dysentery (spread via the introduced irrigation systems), whooping cough, strabismus, diarrhoea, diphtheria, measles, influenza, and tuberculosis amongst the diseases represented. Frequent epidemics of these and other diseases could wipe out 10-20% of the mission population within weeks (Hackel 2005, p.114).

Beyond the diseases that killed outright, venereal disease undercut population rates in a less direct and slower-acting way: syphilis, introduced by the Spanish, spread through sexual acts as well as birthing, nursing, and cultural activities, including scarification for tattoos and bleeding the sick (Sandos 1997, p.200). Syphilis and gonorrhoea, which could not be fully treated before the advent of antibiotics, caused stillbirths, birth defects, prematurity, and infertility (Hackel 2005, p.117, Sandos 1997, p.200). At Mission San Buenaventura, for instance, missionaries found that ¼ of pregnancies ended in miscarriage or stillbirth (Hackel 2005, p.113). Furthermore, untreated syphilis and gonorrhoea could lead to sterility in both men and women (Hackel 2005, p.117). Faced with such drastically reduced odds of reproduction and survival, indigenous people groups were unable to sustain their population numbers: unable to replace through live births the number of people dying of disease, the Indian population plummeted. The reduction of Indians in the missions encouraged an ever-expanding recruitment of Native Americans from outside the mission compounds. In this effort, the padres were assisted by the landscape destruction wrought by their own agricultural practices.

As the Indian population plummeted, the numbers of imported domesticated animals soared. The agricultural lifestyle introduced by the missions involved the maintenance of large amounts of livestock: settlers imported sheep, goats, pigs, poultry, cattle, mules, horses, and oxen in large numbers (Preston 1997, p.275, Skowronek 1998, p.691). By the end of the Spanish period, the missions held 193.234 sheep, 149.730 cattle, and 19.830 horses (Hackel 2005, p.80). When corrals proved to be ineffective in containing these animals, they were turned loose on the countryside, where they indiscriminately invaded and exhausted valley after valley (Hackel 2005, p.70).[1]

Sheep were particularly harmful, damaging alpine meadows by eating grasses down to their roots (Anderson et al. 1998, p.31). Thistles, drastically increasing with the lack of meadow fires, swarmed into sheep-stripped fields. The plants were disastrous in themselves, as they decimated a variety of local food sources. The main damage they caused, however, was indirect. Imported cattle rejected the thistles as food, and moved further and further inland in search of virgin feeding ground (Anderson et al. 1998 p.23). The process of meadow stripping was thus perpetuated as meadows were intensively grazed and invasive plants gained control.

All roaming animals spread seeds of invasive plants – imported grasses crossed California on the hooves and in the digestive tracts of livestock, invading and devastating valleys that the padres of the missions never reached. The botanic invasion was to such great extent that it is today estimated that 17% of plants in California are non-

[1] If there is any doubt that the introduction of a single species can devastate a faunal ecosystem, the case of Santa Catalina Island off the coast of California should serve as example. The introduction of goats onto the island was responsible for the extinctions of 48 native plant and animal species (Preston 1997, p.277).

native, following the introduction of approximately 1.000 non-native species through colonization (Anderson et al. 1998, p.13). Mediterranean grasses swept into hoof-trampled and sheep-gnawed fields with a vengeance. The less dense grasses failed to absorb the water and other nutrients contained in native grasses, nor did they perform the water storage and filtering ecosystem services carried out by indigenous plants. In addition to causing a profound food crisis for indigenous peoples and animals, who were unable to eat the new grasses, the annual grasses that displaced native perennials created shifts in the soil composition important beyond agriculture. Laura E. Koteen et al. recently found that grass displacement in California has created a significant drop in soil carbon storage, as well as prompted changes in soil texture and acidity. The lack of carbon storage is most worrisome in the fact that, in a grassland ecosystem, the large majority of carbon is stored in the soil. Once the soil is no longer able to sequester this carbon, it is released into the atmosphere, where it is a driving force behind climate change (Koteen et al. 2011, p.2). Dryer, warmer soil began to redefine the types of species that could thrive in California; some endemic plants were no longer to maintain a strong presence. In the absence of endemic plants, invasive species were well poised to take over barren areas. Among them was the salt cedar, which filled in remaining wetlands, forming thickets impenetrable by humans or animals. The thickets pulled water from the surrounding area, drying natural springs (Anderson et al. 1998, p.32).

The livestock-induced landscape degradation created a positive feedback loop of cultural and environmental demise, as the landscape was no longer able to support the indigenous human population that had tended it. It is therefore no surprise that Hackel (2005, p.77) finds a rough correlation between when grazing animals arrived in certain territories and when the indigenous villages within those valleys arrived

at the missions, asking to be baptized. Spanish sheep and salt cedars, perhaps, were responsible for saving more souls than the padres. The missions were the last vestiges of resources in a broken ecosystem.

Conclusion: The End of the Story

In conclusion, it would appear that Hackel's claim of the primacy of biological and ecological forces in the stories of the California mission (2005, p.65) rings true. As is indicated by this paper, alterative discourses surrounding the Spanish missions abound, but bring with them cultural burdens of subjectivity. The combined story of the death of a landscape and its people presents the full picture of the legacy of the California missions. In just the same way that it is impossible to discuss California's 'natural' landscape without including its people, it is impossible – and inaccurate – to discuss the Native Americans of California without including their valleys, coastlines, and forests.

The Native American culture, a culture so intimately entwined with its environment, was drastically impacted by environmental degradation. As conditions worsened outside the missions, leaving the missions became less and less of an option, as it was impossible to return to the former way of life (Graham 1998, p.46). Indians still on the outside were faced with the bewildering choice between attempting to sustain a lifestyle suffering from disease and ecological disruption or embracing a new culture within the missions (Sandos 1997, p.205).

As an old form of life died away, the missions offered the only available sustenance in the region, the pastoral paradise they had attempted to be from the beginning (Hackel 2005, p.79). The story of the California missions is one of defensive, economic, and sustentative uses of the land, conflicting interests that finally rendered the landscape unstable. Further research into the ecological aspects of the California missions will provide an avenue for objective discussion and documentation of

hegemonic transition. Utilizing this form of discourse may very well prove a useful tool for discussing indigenous cultural decline at a global level.

Bibliography

Anderson, M. Kat, Michael G. Barbour & Valerie Whitworth. 2008. A World of Balance and Plenty: Land, Plants, Animals, and Humans in a Pre-European California. In Gutiérrez, Ramón and Orsi, Richard J. (eds.). *Contested Eden: California Before the Gold Rush*. Berkeley, California: University of California Press.

Cronon, William, George Miles, & Jay Gitlin. 1992. Becoming West: Toward a New Meaning for Western History. In William Cronon, George Miles, and Jay Gitlin, (eds.). *Under an Open Sky: Rethinking Americans Western Past*. New York: W. W. Norton.

Dane, George Ezra and Francisco Palóu. 1935. The Founding of the Presidio and Mission of Our Father Saint Francis. *California Historical Society Quarterly* 14(2) 102-110.

Engstrand, Iris H.W. 2008. Seekers of the 'Northern Mystery' – European Exploration of California and the Pacific. In Gutiérrez, Ramón and Orsi, Richard J. (eds.). *Contested Eden: California Before the Gold Rush*. Berkeley, California: University of California Press.

Graham, Elizabeth. 1998. Mission Archaeology. *Annual Review of Anthropology*. 27. 25-62.

Hackel, Steven W. 2003. Indian Testimony and the Mission San Gabriel Uprising of 1785. *Ethnohistory*. 50(4). 643-669.

Hackel, Steven W. 2005. *Children of Coyote, Missionaries of Saint Francis: Indian-Spanish Relations in Colonial California 1769-1850*. Chapel Hill: University of North Carolina Press.

Henderson, Martha L. 2012. Revealing the Origin of Human-Nature Dualities in Christian Political Structures. *Yearbook of the Association of Pacific Coast Geographers*. 74. 15-27.

Koteen, Laura E., Dennis D. Baldocchi, & John Harte. 2011. Invasion of non-native grasses causes a drop in soil carbon storage in California grasslands. *Environmental Research Letters*. 6. 1-10. http://iopscience.iop.org/1748-9326/6/4/044001/fulltext/ (6 April 2014).

Kotzebue, Otto von. 1830. From Kotzebue's last Voyage round the World - THE MISSIONS OF CALIFORNIA. *The Athenaeum*; 29th May. p.135. Available from: *British Periodicals*. 329.

Langer, Erick D. & Robert H. Jackson. 1988. Colonial and Republican Missions Compared: The Cases of Alta California and Southeastern Bolivia. *Comparative Studies in Society and History*. 30(2). 286-311.

Norton, Jack. 2014. If the Truth Be Told: Revising California History as a Moral Objective. *American Behavioral Scientist*. 58. 83-96.

Preston, William. 1997. Serpent in the Garden: Environmental Change in Colonial California. *California History*. 76(2/3). 260-298.

Sandos, J.A. 1997. Between Crucifix and Lance: Indian-White Relations in California, 1769-1848. *California History* 76(2/3). 196-229.

Servín, Manuel P. & Costansó, Miguel. 1970. Costansó's 1794 Report on Strengthening New California's Presidios. *California Historical Society Quarterly*. 49(3). 221-232.

Simmons, William S. 2008. Indian Peoples of California. In Gutiérrez, Ramón and Orsi, Richard J. (eds.). *Contested Eden: California Before the Gold Rush*. Berkeley, California: University of California Press.

Skowronek, Russel K. 1998. Sifting the Evidence: Perceptions of Life at the Ohlone (Costanoan) Missions of Alta California. *Ethnohistory*. 45(4). 675-708.

Williams, Mary Floyd. 1922. Mission, Presidio and Pueblo: Notes on California Local Institutions under Spain and Mexico. *California Historical Society Quarterly*. 1(1). 23-35.