

Natural Resource Management in Hawaii

Researcher: Lauren Nelson, L.Nelson@master.unisg.it and Lauren.suneater@gmail.com

Institution: The University of Gastronomic Sciences

Title: Natural Resource Management and the Future of Food Sovereignty in Hawaii following the End of the Islands' Sugar Industry

Key Words: Food Sovereignty, Natural Resource Management, Hawaii, Sugarcane, Biodiversity, Agroecology

Abstract:

Hawaii's 180-year-old sugar industry ended with the closing of Maui's Pu‘unēnē Mill in December 2016, leaving 35,000 acres of Maui's Central Valley in a state of unknown transition. This research explores the history of Hawaii's sugar industry and its impact on the islands' ecology, food sovereignty, politics, demographics, and economy to better understand the future of Maui's Central Valley. Using data gathering from interviews with Maui farmers, this research describes the current proposals for the 35,000 acres of former cane land—highlighting the proposal that has gained the greatest community support, the *Mālama ‘Āina Report* (Luyendyk and Pell, 2016), which recommends a regenerative agriculture plan for the remediation of the land and the rebuilding of a diversified independent Hawaiian food system. This paper examines the benefits of the formation of a Central Maui Food Hub and its implications for Maui's cultivation of community, cultural preservation, food security and sovereignty, and the island's next generation of farmers.

Before sugarcane transformed the global economy, it was first domesticated in New Guinea between 8000-6000 B.C.E. Sugarcane, or *kō* in Hawaiian, was initially brought to Hawaii between 400-500 C.E. with the Polynesian seafarers who first settled on the islands (Chang, 1970). Kō was one of 35 “canoe plants” carried by Polynesian travelers to help establish reliable plant sources for food, ritual, materials, and medicine on newly settled lands (Chang, 1970). Canoe plants included `awapuhi wild ginger, hibiscus, sweet potato, turmeric, banana, `ulu breadfruit, the *kukui* candlenut tree, kava, and coconut palm (Luyendyk and Pell, 2016:34). The earliest *kānaka maoli*, Hawaiians, “grew nearly 40 varieties of *kō*,” to eat and to use as medicine (Chang, 1970). Kō was integrated into the Hawaiian *ahupua'a* land division system that utilized terraced gardens to grow food, connecting production along mountain streams to the islands’ valleys and the coast in a regenerative cycle. As Pell and Luyendyk (2016:10) describe, the sophisticated *ahupua'a* system encompasses “complete watersheds from mountain peak, *mauka*, to reef, *makai*, with several distinct sub-systems for food production, aquaculture, and communal land use.” Due to its high need for water, *kō* was planted along the terraced “embankments of the *lo`i*, taro ponds,” which helped prevent soil erosion (Chang, 1970). Prior to western contact, Hawaii’s abundant *ahupua'a*-based agricultural system was able to feed one million people (2016: 10).

Hawaii's location near the Tropic of Cancer made it an ideal setting for the commercial cultivation of sugarcane (Chang, 1970:39). The first successful sugarcane plantation in Hawaii was established in Kauai in 1835 (A&B Sugar Museum, 2018). When slavery was abolished in the Caribbean in 1838, wealthy U.S. investors focused on Hawaii's potential to produce sugar commercially to capitalize on the disturbed market (Franklin and Lyons, 2004:62). With increased investment and mechanization, the sugar industry boomed in Hawaii, increasing production from "10,000 tons in 1870 to half a million tons in 1910" (Mollett 1962:383), dramatically changing patterns of land ownership on the islands. By 1970, the Hawaiian sugar industry occupied "two-thirds of the cultivated land" in Hawaii (Walvin, 2017:39). The sugar industry directly impacted "the economic and political stability of Hawaii," eventually leading to the overthrow of the sovereign nation and its annexation to the United States (Walvin, 2017:171).

Prior to Western contact, the Hawaiian Islands produced enough food to feed one million people; today, Hawaii imports 90 percent of its food (Luyendyk and Pell, 2016). Despite Maui's fertile growing conditions and diverse microclimates capable of producing a wide range of crops including coconuts, bread fruits, bananas, leafy greens, potatoes, peaches, apples, cacao, and coffee—the island has only a ten-day supply of food at any time (Mollett 1962). Through the clearing of old growth forests and lands, the diverting of streams, and the polluting of watersheds, the sugar industry devastated Hawaii's resilient and abundant ahupua'a food production system, creating the fragile, insecure food system still in place on the islands. The fate of Maui's Central Valley has the potential to shift Hawaii's food system away from export-driven production towards a regenerative network that reinvigorates Hawaiian traditions and rebuilds food sovereignty.

This research discusses the effectiveness of various soil remediation techniques, arguing that Maui's Central Valley has the potential to become an international model of how to transition polluted industrial agricultural lands into productive, diversified farms—offering a social model for how to reappropriate colonized lands. Hawaii's food sovereignty is essential to the kānaka maoli's growing fight for Hawaiian political sovereignty and independence (Baker, 1997:641). The regenerative farming plan for Maui's Central Valley has the potential to fulfill the current need on the island for more kānaka maoli-led educational programming, giving Native Hawaiians power to determine how their culture is represented and shared (Baker, 1997:651).

Hawaii is known as "the endangered species capital of the world" (Luyendyk and Pell, 2016). Local farmers are hopeful that the transition of Alexander and Baldwin's Central Maui lands will allow for the planting of diverse crops to help rebuild the island's fragile ecosystems, biodiversity, ecological resilience, and food security (Tanji, 2018). As the leading proposed regenerative farming plan, the *Mālama 'Āina Report* suggests retrofitting the old sugarcane fields to build an agroecological farming system—through the use of integrated pest management, cover cropping, swell design, diversified planting of annual and perennial crops, sustainable livestock management, aquaculture and aquaponics, composting and waste recycling, and reforesting—to allow for holistic management and diverse scales of agriculture that form a "whole farming economy that is just and environmentally sound" (Luyendyk and Pell, 2016:35). The primary focus of

regenerative farmers looking at the future of Maui's Central Valley is to "find crops that could be grown profitably on Maui while minimizing the need for toxic chemical inputs," using canoe crops and other locally-adapted varieties to build a vibrant local food economy (Luyendyk and Pell, 2016:4).

Currently, sugarcane monocultures cover 64 million acres of the earth⁵, the majority of which are farmed using conventional extensive methods. The knowledge gained through transitioning a site like Maui's 35,000 acre sugar plantation could form that basis of an international "regenerative agriculture education industry" to aid in the restoration of polluted lands (Luyendyk and Pell, 2016:4); as one farmer on Maui explained, the transition will have "an impact far beyond our shores" (Luyendyk and Pell, 2016:4).

With the regenerative transition of Maui's former plantation lands as an example, the next generations of Hawaiian farmers will have the opportunity to grow food sovereignty, farming systems, and communities shaped by Hawaiian knowledge and *mālama ka 'āina*, care and respect for the earth.

References

- A&B Sugar Museum. September 2018. Alexander & Baldwin Sugar Museum, Puunene, Maui. September 2018.
- Baker, D., 1997. Ea and Knowing in Hawai'i. *Critical Inquiry*, 23(3): 640-59.
- Chang, JH., 1970. Sugar Cane in Hawaii and Taiwan: Contrasts in Ecology, Technology, and Economics. *Economic Geography*, 46(1): 39-52.
- Franklin, C. and Lyons, L., 2004. Remixing Hybridity: Globalization, Native Resistance, and Cultural Production in Hawai'i. *American Studies*, 45(3): 49-80.
- Luyendyk, L. and Pell, J., 2016. Mālama 'Āina: A Conversation about Maui's Farming Future. *Future of Maui*.
- Mollett, J.A., 1962. Capital and Labor in the Hawaiian Sugar Industry Since 1870: A Study of Economic Development. *Journal of Farm Economics* 44(2:162):381-388.
- Tanji, M., 2018. Spencers Plan 21-Lot Ag Project in Maalaea. *The Maui News*.
- Walvin, J., 2017. *Sugar: The World Corrupted, from Slavery to Obesity*. Little, Brown and Company.