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An appreciative inquiry and inventory of Indigenous food sovereignty initiatives within the western U.S.

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Abstract

Indigenous food sovereignty is informed by—and is a framework and movement that supports—all the various means through which Indigenous people are revitalizing and reclaiming their traditional foodways. These efforts incorporate established values, processes, and outcomes, including relationality, self-determination, decolonization, and wellbeing. Through appreciative inquiry, this research inventories Indigenous food sovereignty initiatives in the western United States and identifies their common themes and key features. A systematic search of scholarly and popular sources yielded a database of 123 initiatives that vary by type, land base, and geographic location. Three themes emerged across initiatives. First, concrete strategies include growing and food production, harvesting and food acquisition, food preparation, and distribution and exchange. Second, cultural revitalization occurs through community development, youth and young adult education, other forms of education, and regenerating cultural identity through traditions. Finally, initiative foundations include advocacy, policy, and environmental stewardship; funding mechanisms; and partnerships with non-Indigenous actors. Across themes, individual initiatives include numerous interconnected food sovereignty efforts and demonstrate

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the adaptive capacities of Indigenous people. This research compiles and aims to respectfully celebrate the myriad ways Indigenous people in the western U.S. are revitalizing their foodways as part of a larger movement toward Indigenous food sovereignty.

Keywords
Indigenous Food Sovereignty, Appreciative Inquiry, Systematic Search, Inventory, Interconnection, Adaptability, Cultural Revitalization, Western United States

Introduction

Indigenous people across the lands currently known as the United States[1] have suffered colonization and genocide at the hands of European settlers and subsequent governments. Despite these atrocities, Indigenous people and their food systems remain resilient (e.g., Arthur & Porter, 2019; Budowle et al., 2019; Fast & Collin-Vézina, 2010). Many are revitalizing and reclaiming their foodways through Indigenous food sovereignty (IFS), which is the "ability of an [i]ndigenous nation or community to control its own food system and food-producing resources free of control or limitations put on it by an outside power (such as a settler/colonizer government)" (Indian Education Division, n.d., para. 1).

Before foreign intrusion, Indigenous North American people cultivated, hunted, and gathered their food in their own ways (Arthur & Porter, 2019). The 574 federally recognized tribes—and hundreds more non-federally recognized tribes comprising Indigenous people who maintain tribal identities—within the U.S. each has unique food traditions and practices (Arthur, 2020; United States Government Accountability Office, 2012). IFS manifests in various ways due to these unique cultures and histories (Whyte, 2019). It provides a "tool to protect Indigenous food systems that are specifically evolved in different communities, and therefore depend on a community's own social, political, historical, and cultural contexts" (Settee & Shukla, 2020, p. 4). In addition to tribal and reservation contexts, over 70% of Native American people live in cities (Whittle, 2017). Nine of the top 13 cities with the largest Native American populations—Albuquerque, Houston, Los Angeles, Oklahoma City, Phoenix, San Antonio, San Diego, and Tulsa—are in the western U.S. (United States Census Bureau, 2012).

While studies have documented IFS initiatives across the entirety of the U.S. or Canada, to our knowledge, none comprehensively inventory and map these efforts with a specific focus on the Indigenous tribes and populations in the western U.S. (Centers for Disease Control and Prevention, 2013; Indigenous Food and Agriculture Initiative, 2015; Sumner et al., 2019). Additionally, the existing inventories of IFS initiatives in the U.S. do not employ a systematic search methodology, suggesting that room potentially remains to identify additional initiatives. For these reasons and due to the many interrelated yet unique cultures and foodways informing IFS, this research inventories, compiles, and aims to respectfully celebrate the many ways Indigenous people are reclaiming their food systems with a specific focus on the western U.S. Our ultimate goal is to illuminate and support their and non-Indigenous allies' work by compiling the range and variety of western U.S. IFS initiatives in an accessible, searchable, and amendable database. This paper explores two questions through a systematic search and appreciative inquiry: (1) What are the current IFS initiatives in the western U.S.? and (2) What are their common themes and key features?

Literature Review

To provide context for this inventory, we review the literature on IFS and the underlying values, processes, and outcomes that connect the many different foodways and initiatives informing and contributing to it. Additionally, we briefly review other relevant IFS inventories and compilations, including their methods and goals.

In 1996, farmer and peasant organizations

[1] For ease of reading and because Indigenous food sovereignty scholars (see Coté, 2016; Hoover, 2017; Robin, 2019) do so, we refer to so-called U.S., North America, etc. by present colonial nation-state names. We acknowledge, however, that these are unceded and appropriated lands.

worldwide met to address food insecurity and other agrarian concerns, formalizing the term "food sovereignty" as "the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems" (Vía Campesina, 1996, 2007, para. 3). This global "movement" centers a rights-based, bottom-up, participatory, and integrated approach (Agarwal, 2014, p. 1247; Carney, 2011). Indigenous people have found the food sovereignty movement helpful in advocating against the "hegemony of the globalized, neoliberal, industrial, capital-intensive, corporate-led model of agriculture that created destructive economic policies" (Coté, 2016, p. 1).

Food sovereignty's alternative to a global, industrial food system is often a local, agriculture-centric food system (Desmarais & Wittman, 2014). However, the general agrarian-based food sovereignty framework may lack applicability to all Indigenous people, given the centrality of game and wild plants in many Indigenous foodways and the uniqueness of foodways across tribes (Grey & Patel, 2015). Additionally, "rights" and "sovereignty" are colonial, Anglo-European concepts emerging from paradigms of domination, control, and authority (Coté, 2016, Grey & Patel, 2015). Indigenous people advocate for moving beyond rights-based food sovereignty approaches that have historically failed them. For example, governments overlook legal treaties and enforce policies that privilege corporations, perpetuating the oppression of Indigenous Nations and devaluing relationality with and responsibility for their families and nature (Corntassel, 2008; Coté, 2016; Morrison, 2011). Thus, debate over the usefulness of the term "sovereignty" to Indigenous justice efforts, including food sovereignty, is ongoing (Bauder & Mueller, 2021; Desmarais & Wittman, 2014; Hoover, 2017; Morrison, 2011).

Indigenous Food Sovereignty (IFS)

Regardless of terminology, Indigenous people had exercised what amounts to food sovereignty for millennia before it was "dismantled by colonialism" (Robin, 2019, p. 95). Today, underlying food sovereignty ideals occur through "Indigenous people's struggles for autonomy, self-sufficiency, and self-determination" (Coté, 2016, p. 9). IFS aims "to honor, value, and protect traditional food practices and networks in the face of ongoing pressures of [colonialism]" (Desmarais & Wittman, 2014, p. 1165). Through self-determination, IFS revitalizes food practices and ecological knowledge, refuting the colonial land ownership principles embedded in many food systems efforts (Coté, 2016; Daigle, 2017). Indigenous people often share worldviews and values that inform IFS despite the uniqueness of their food systems and cultures. Commonalities include (1) sacred or divine sovereignty restoring land-based relationships; (2) active participation to maintain land, soil, water, air, plants, and animals; (3) self-determination to maintain freedom from colonial systems; and (4) culturally appropriate legislation and policy (Morrison, 2011). In addition, IFS often highlights history, identity, land reform and redistribution, environmental restoration, and social determinants of health (People's Food Policy Project, 2011; Robin, 2019). These commonalities emerge from key values, processes, and outcomes that distinguish IFS from mainstream food sovereignty and are vital to the initiatives we explored in this research.

IFS Values

IFS reconnects people with land and food through values of relationality, responsibility, reciprocity, and respect, which emerge from an Indigenous worldview (Coté, 2016; Hoover, 2017; Kimmerer, 2013; Morrison, 2011; Robin, 2019). The relationships between Indigenous people, foodways, and the land undergird IFS (Grey & Patel, 2015). Kinship—between people, non-human beings, and natural entities as an ecological family sharing ancestry—helps restore and foster healthy relationships (Coté, 2016; Kimmerer, 2013; Kuhnlein, 2020; Salmón, 2000). Foods are, therefore, relatives forming a bond between humans and the land (Grey & Patel, 2015). The White Earth band of Ojibwe, for example, codified the legal rights of their relative, manoomin (wild rice), to protect it from pollution, patenting, and contamination (LaDuke, 2019). Healthy relationships with foodways sustain a community's capacity to respond and adapt to social or environmental changes

(Whyte, 2017).

Therefore, IFS requires human responsibility to the natural world, ensuring healthy food and ecosystems to support mutually beneficial relationships (Hoover, 2017). Responsible protection of ecosystems creates accountability for efficient and respectful interactions (James et al., 2021). Relatedly, reciprocity acknowledges the interdependence of all beings (Hoover, 2017). When one takes a gift from the Earth, they must give something back in gratitude as part of all beings' duty to one another (Corntassel, 2008; Kimmerer, 2013). Lastly, an Indigenous worldview sees the Earth as a living being, which demands the ethical and respectful treatment of the land in support of the other values outlined above (Coté, 2016; Miller, 2008; Robin, 2019).

IFS Processes

Interrelated processes influencing, embedded in, and resulting from IFS include self-determination, decolonization, and education. Self-determination re-emphasizes relationships with and responsibilities to the land through self-sufficiency (Alfred, 2005; Corntassel, 2008; Coté, 2016; Grey & Patel, 2015; Morrison, 2011; Robin, 2019; Stanciu 2019; Whyte, 2016). Stanciu (2019) asserts, "food sovereignty, environmental protection, and economic self-determination [are] essential platforms for community regeneration, renewal, and survival" (p. 121). Self-determination through foodways reduces reliance on outside companies, multinational corporations, and governments and instead supports culturally appropriate eating and achieving community balance for improved wellbeing (Huambachano, 2019; Kuhnlein, 2020; Robin, 2019).

To attain authentic self-determination in IFS, Indigenous people engage in ongoing, strategic processes of decolonizing foodways for cultural resurgence (Grey & Patel, 2015; Hoover, 2017; James et al., 2021, Robin, 2019). Decolonization allows Indigenous people to reclaim their identity and food choices independently from Western influences, supporting perpetual access to healthy food. Like self-determination, decolonization is a process, not a destination (Grey & Patel, 2015). IFS strives to regain access to land and food independently of the oppressive global food system (Hoover, 2017). When Indigenous people reclaim their land, they can fully regain autonomy from colonization and pursue self-determination (Coté, 2016; James et al., 2021; Tuck & Yang, 2012).

Decolonization and self-determination of foodways entail: (1) restoring and revitalizing land-based presence and practices, including reconnecting to traditional foodways; (2) reincorporating traditional diets to regain health; (3) transmitting culture, spiritual teachings, and knowledge across generations between Elders and youth; (4) centralizing food by facilitating family activities and the re-emergence of sociocultural institutions as governing authorities; and (5) initiating and improving upon sustainable land-based economies in both reservation- and urban-based communities for food system revitalization (Alfred, 2009).

In addition to self-determination and decolonization, reinvigorating culturally responsible education is an ongoing IFS process (Bagelman, 2018; Lowan-Trudeau, 2012). Indigenous education decompartmentalizes and recontextualizes subjects counter to Western educational approaches (Kawagley & Barnhardt, 1998; Medin & Bang, 2014). For example, storytelling and revitalizing language strengthen identity and perpetuate culture (Lowan-Trudeau, 2012). Pairing Elders with children revitalizes foodways through multigenerational knowledge production and strengthens Indigenous communities (Bagelman, 2018; Coté, 2016; Morrison, 2011; Simpson, 2002). Community-based education supporting Indigenous worldviews is central to achieving self-determination (Bang & Medin, 2010).

IFS Outcomes

Broad IFS outcomes include health and healing and environmental wellbeing and justice. There is no word for 'health' in many Indigenous languages, as the concept overlaps with relationships to land and food (Grey & Patel, 2015). Indigenous people experience health benefits from restoring culture and traditions (Bodirsky & Johnson, 2008; Hoover, 2017). Reconnecting with the land through IFS supports healing from generational trauma (Budowle et al., 2019; Hoover, 2017). As people become healthier through restored relationships with land, food, and culture, their entire commu-

nity becomes healthier (Hoover, 2017; Morrison, 2011). Healing and health increase resilience, which in turn further strengthens self-determination and cultural revitalization (Egeland & Harrison, 2013).

The revitalization of cultural knowledge heals both the people and land (Hoover, 2017). IFS initiatives often emphasize decarbonization, diversification, and decommodification (James et al., 2021). Collective IFS efforts help mitigate climate change, biodiversity loss, and declining water quality and inform sustainable land management practices (Whyte, 2019). These practices support systemic change that benefits all of humanity, because "as the original inhabitants of the land, we [Indigenous people] offer guidance in changing human behavior and ending destructive relationships to Mother Earth and the land and food systems that sustain all human beings" (Morrison, 2011, p. 112).

However, Indigenous people continue to experience environmental injustices to their lands, food systems, and waterways from outside development. For example, Indigenous people and allies spent months at Standing Rock protesting the Dakota Access Pipeline, which threatened to contaminate the water that sustains local foodways (Gilio-Whitaker, 2019). Defending the land and food systems integrity, including land reform and land back efforts that confront private ownership, intertwines IFS with environmental justice (Huambachano, 2019; Kepkiewicz & Dale, 2019; Whyte, 2015; Wires & LaRose, 2019).

North American IFS Inventories

The above values, processes, and goals occur throughout the IFS initiatives that we examine and similar inventories characterizing the range of IFS initiatives in North America. One study systematically searched and mapped Indigenous food procurement efforts in Canada to explicitly support Indigenous people's just transition efforts away from colonial food systems toward place-based food systems through and for IFS (Sumner et al., 2019). Another employed a survey methodology across the U.S. to inform potential funders, food system practitioners, and researchers about Indigenous change-makers transforming the food system. This compilation specifically aims to advance collaboration for Indigenous health by highlighting how IFS is not merely conceptual but comprises "deliberate action taken every day" (Indigenous Food and Agriculture Initiative, 2015, p. 3). A third interviewed tribal representatives and IFS champions across the U.S. to share their stories about IFS so that others may learn from them and further share stories (Centers for Disease Control and Prevention, 2013).

However, to our knowledge, no IFS initiative inventories have used a systematic search methodology specifically focused on the western U.S. These existing inventories' specific methodologies and geographic range provide room for extension through our focused systematic search of western U.S. initiatives. Additionally, we ground our work in the aims of the above inventories to highlight Indigenous people's deliberate, ongoing action for IFS and share information about these initiatives on which others can build. Such initiatives emerge from and are informed by the IFS values, processes, and outcomes reviewed above.

Methods

Appreciative inquiry and grounded theory methodologies—the latter of which we return to in our analysis section below—inform this research. Appreciative inquiry identifies and evaluates organizational strengths for positive, future organizational development (Reed, 2006). This methodological stance allowed us to identify IFS initiatives' strengths and key features. Beyond appreciating these initiatives in and of themselves, Morrison (2011, p. 98) maintains that appreciative inquiry through IFS supports "exploring, transforming, and rebuilding the industrial food system towards a more just and ecological model for all." Specifically, this research project centers on the first component of appreciative inquiry's 4-D Cycle: *discovery*, through which we identify IFS initiatives and features to appreciate the best of what is (Cooperrider & Whitney, 2005). Following Wilson's (2008) guidance, however, we recognize that we cannot claim ownership or discovery of these initiatives. They are led by Indigenous people, and both these initiatives and those people flourish regardless of this research.

The first author is a woman of Euro-settler descent who collected and analyzed these data and

wrote an initial version of this paper for her graduate research. The second author is a White woman who mentored that graduate research and cowrote this version of the paper. Through this study, we aspire to be allies to Indigenous people with a "desire to actively support social justice, to promote the rights of non-dominant groups, and to eliminate social inequalities that they benefit from" (Smith et al., 2016, p. 6). We hope that compiling these many initiatives supports IFS leaders, including practitioners, researchers, and their allies, in their ongoing and future food sovereignty work. In this way, the remaining points in the 4-D cycle of appreciative inquiry may emerge following this research, by, with, and for Indigenous people and communities: *dream,* envisioning what IFS, as a movement and framework, is calling for; *design,* considering how to co-construct ideal IFS initiatives; and *destiny,* adjusting, empowering and sustaining IFS initiatives in the western U.S. (Cooperrider & Whitney, 2005). The focus on the discovery aspect of appreciative inquiry through a systematic search in ways that do not, as of yet, engage Indigenous people or communities, squarely situates this research in a Western methodological approach. However, we hope that future phases of this work may directly engage those communities and apply Indigenous methodologies that broadly inspire us and this research (e.g., Smith, 2012; Wilson, 2008).

Data Collection

This study systematically searched academic literature and popular websites, adopting a similar methodology to Sumner et al. (2019), who produced an initiative map and database in another geographic region using different search terms. They searched popular and academic databases with initial search terms and then each type of food procurement initiative yielded from the initial search. Additionally, they searched Indigenous-led food procurement and support program websites and gray literature. Those authors compiled data in an Excel spreadsheet and used Google MyMaps to spatially represent results.

We took a similar approach by searching both scholarly literature through Google Scholar and our university's Libraries Quick Search database and popular websites through Google. *Indigenous food sovereignty* served as a keyword alone and in combination with *gardening, hunting, gathering, foraging, fishing,* and *farming* in each search engine. Search terms yielded scholarly journal articles, books, news articles, reports, and organization or program websites documenting specific IFS initiatives.

Criteria for inclusion in the dataset were those IFS initiatives that were (1) predominantly Indigenous-led or directly supporting Indigenous-led initiatives, and (2) located within the mainland western U.S. Watersheds provided land-based boundaries and parameters for the inventory. We included the Missouri, Arkansas-White-Red, and Texas Gulf watersheds; the western half of North Dakota; South Dakota; western Iowa, Missouri, Arkansas, and Louisiana; and all other mainland states further west (United States Geological Survey, n.d.). Given previous studies' geographic foci (see Centers for Disease Control and Prevention, 2013; Indigenous Food and Agriculture Initiative, 2015; Sumner et al., 2019) and our own context in Wyoming—in which the second author has previously engaged in regional action research supporting IFS—we narrowed our focus to the western U.S for a manageable scope and scale, which afforded deeper emphasis on a singular geographic region.

The first author scanned the first 150 sources yielded in the academic literature search for *Indigenous food sovereignty* and the first 100 sources for combined terms (e.g., *Indigenous food sovereignty* AND *gardening*), as there was ample repetition in results from the parent search term. The popular search involved scanning the first 50 sources for IFS initiatives. Searches concluded at a point of "diminishing returns," using the qualitative approach of saturation (Glaser & Strauss, 1967; Rowlands et al., 2016, p. 41). Given that the claim "further data collection yields no new information*"* is often vaguely and inconsistently applied in qualitative studies, we acknowledge that "there can [never] be an absolute or complete end point" in data collection (Low, 2019, p. 136; Rowlands et al., 2016). Moreover, some IFS initiatives are likely not documented in the literature or on the internet. Additionally, an opportunistic sampling approach captured initiatives that emerged during the data collection process but were outside of the systemic search itself

(Onwuegbuzie & Collins, 2007). We included initiatives that emerged from the first author's personal investigations, friends' and colleagues' suggestions, and the broader literature review for this paper. For example, the other U.S.-focused inventories and compilations we reviewed above augmented the systematic search (i.e., most of the initiatives we identified emerged anew from this search, but we did flesh out the inventory with a few western U.S. IFS initiatives documented in these previous efforts). We included any IFS initiatives emerging outside the systematic search only if they met the above search criteria.

The first author skimmed relevant sources for specific IFS initiatives and added each to a Google spreadsheet, including several columns described below in our results. Following Sumner et al. (2019), the spreadsheet includes a "location" column linked with Google MyMaps to spatially visualize each IFS effort and its key features. An additional web search gleaned further information about features not readily available from the initial search for many initiatives.

Data Analysis

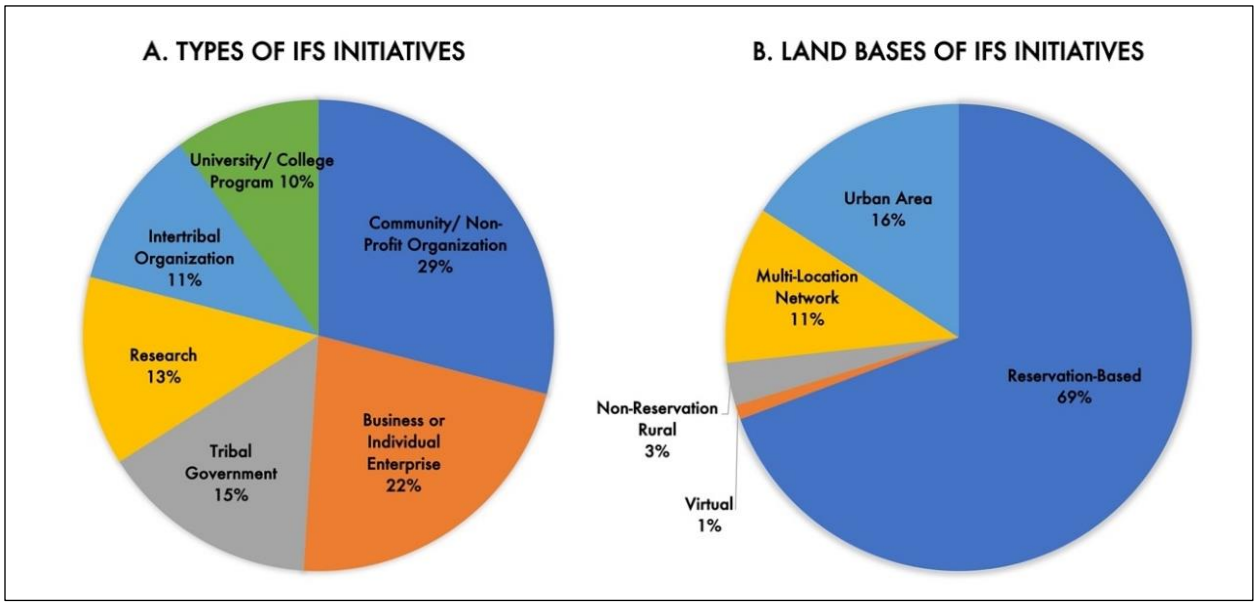
Deductive and inductive principles for theme generation supported the organization of IFS initiatives and their features in the spreadsheet (Ligurgo et al., 2018). Deductive themes informed by key IFS values, processes, and goals outlined in the literature review generated initial spreadsheet column headings (Bernard, 2006). After data collection, the first author identified inductive, emergent themes by taking an "active role … in identifying patterns/themes, selecting which are of interest" (Braun & Clark, 2006, p. 80). An iterative, thematic approach informed analysis, including generating initial themes, familiarizing ourselves with the data, searching for themes, reviewing themes, and defining and naming themes (Braun & Clarke, 2006; Nowell et al., 2017).

We also adopted a grounded theory analytical approach to identify key IFS initiative features by inductively identifying, reducing, and adjusting subthemes (Strauss & Corbin, 1990; Glaser & Strauss, 1967). However, we did not generate new theory *per se*. The most frequently appearing IFS efforts yielded common themes and subthematic features, which we used to verify source and theme saturation with multiple supportive examples (Morse, 2015; Saldaña, 2011). We present three major IFS initiative themes and subthemes in detail below.

Results

The search identified 123 unique IFS initiatives, many of which employ multiple IFS efforts and are

Figure 1. Western U.S. Indigenous Food Sovereignty Initiatives Categorized by Type and Land Base



diverse across types and land bases (see Figure 1). Three interrelated thematic categories organize initiatives based on their explicit descriptions in identified sources and—wherever possible—the initiatives' self-descriptions. Themes include concrete IFS strategies, cultural revitalization efforts, and IFS initiative foundations, each of which includes subthemes of key initiative features. Results show the uniqueness of initiatives to culture and place, but we categorize IFS initiatives to identify the common, interrelated features between them. Below, we define themes and subthemes and provide brief descriptions of supportive example initiatives for each. Many initiatives appear in multiple themes and subthemes but are only counted once here as distinct initiatives. The database[2] includes all 123 inventoried initiatives and more comprehensive details about their features (see Figure 2 for an excerpt of the database). In addition to key features, database categories include IFS initiative title; tribal, national, or other affiliation; watershed/region; location; type; land-base; mission, vision, and/or goal(s); search source(s) and complimentary URL(s); basic frequencies; and a key for category acronyms. However, in the results below, we narratively summarize these data and mainly present initiatives as examples of just one theme or subtheme for the sake of brevity and readability (i.e., descriptions below do not always explain the entirety of IFS efforts involved in each initiative). We invite readers to visit the database to fully explore initiatives and their key features. Additionally, Figure 3 shows the geographic distribution of initiatives in Google MyMaps. We present these geographic data rather than a visual depiction of initiatives across tribes, as many initiatives occur across multiple tribes, and some are not officially or practically affiliated with any specific tribe. However, the database itself identifies and categorizes initiatives by tribe as relevant.

Concrete IFS Strategies

The largest number of initiatives fall into the concrete IFS strategies theme, including specific Indigenous foodways practices. The four subthemes are growing and food production, harvesting and food acquisition, food preparation, and distribution and exchange.

Growing and Food Production

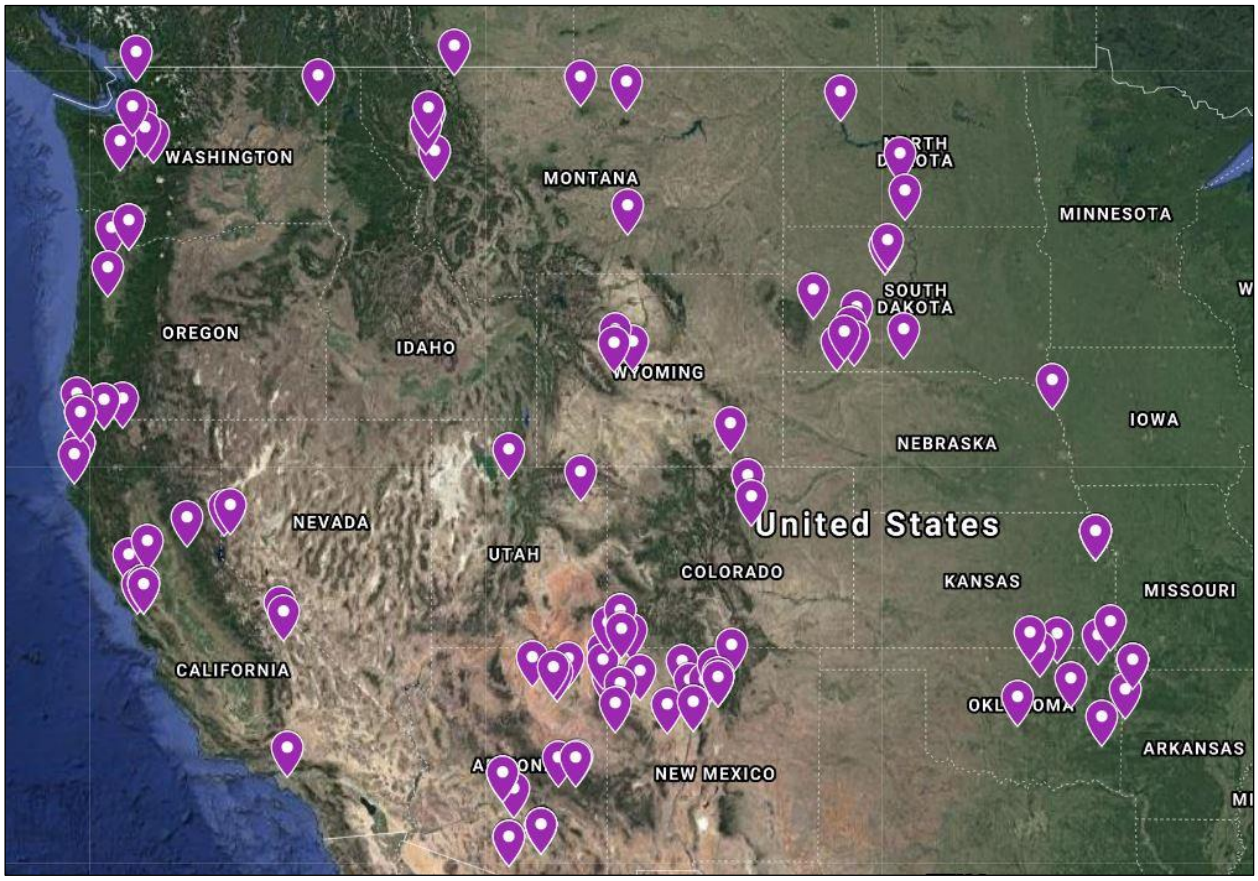
Growing—including gardening, tree planting, composting, farming, animal husbandry, beekeeping, seed-saving, and ranching—is the most common strategy, occurring in 138 efforts (i.e., some initiatives include more than one growing effort). Gardening is the most frequent strategy, appearing 50 times in the dataset. Gardens occur as demonstration plots, at the community and home levels, at schools, and in urban settings. For example, the Aaniiih Nakoda College Extension Program in

Figure 2. Western U.S. Indigenous Food Sovereignty (IFS) Initiatives and Key Features Inventory Database Excerpt

IFS Initiative	Tribal or National Affiliation	Location	Gardens / Horticulture
Grow Your Own Nueta Hidatsa Sahnish College	Mandan, Hidatsa, and Arikara Nations	New Town, ND	"Grow Your Own" that encouraged people to start their own backyard gardens or join the college's community garden
Tesuque Pueblo Farm	Tesuque Pueblo	Tesuque, NM	A small greenhouse built off to the side currently shelters 16 different types of tomatoes and a medicinal plant from Africa that is supposed to be useful in the treatment of cancer, diabetes and AIDS, according to the medicine man who gave it to Emigdio in South Africa
Black Star Farmers	Black/Indigenous Partnership	Seattle, WA	Black Star Farmers grow high-quality produce, plants, and traditional medicines to create self-sufficient communities.
Squamish Community Health Program	Squamish Tribe	Squamish, WA	Classes planned for the coming year include gardening classes in the spring with raised bed kits and seeds to participants, women's herbal wellness, herbs for summertime wellness and first aid. General raising of awareness about traditional foods and organic gardening.
Wiyot Tribe Natural Resource Department	Wiyot Tribe	Loleta, CA	Community Garden

[2] Access the Western U.S. IFS initiatives and key features inventory database at https://docs.google.com/spreadsheets/d/19T89mmNEx0PLoEDirB3yPHs4YJ4mQIjO9r2GBT_ryeg/edit#gid=1122191871

Figure 3. Geographic Distribution of Indigenous Food Sovereignty (IFS) Initiatives in the Western U.S.



Montana hosts a demonstration garden with hands-on learning opportunities, which led to community gardens in every Fort Belknap Reservation community (Morales & Friskics, 2019). The Growing Resilience study in the Wind River Reservation of Wyoming helped almost one hundred families install home gardens (Porter et al., 2019). After years of bringing students to the White Mountain Apache's Ndee Bikiyaa ("People's Farm") in Arizona to learn about corn, the farm now supports school gardens (The Edible Schoolyard Project, n.d.; Hoover, 2014f). In the second Healthy Children, Strong Families study, one anonymous Indigenous community incorporated an urban garden into the local health center (Adams et al., 2012).

Growing also includes 17 initiatives with tree planting, orchards, composting, or soil health efforts. Grow Our Own in the Wind River Reservation of Wyoming organizes tree planting events to connect people with each other and growing food (Wind River Grow Our Own 307, n.d.). The Muckleshoot Food Sovereignty Project includes fruit orchards in their garden (Hoover, 2014i). Among other efforts, the Traditional Native American Farmers Association in Santa Fe hosts workshops on building healthy soil (Traditional Native American Farmers Association, n.d.-b). The Big Pine Paiute Nation's Sustainable Food System Development Project in California composts to avoid chemical fertilizers and protect their water source (Hoover, 2014h).

Other food production strategies include 31 farming efforts, with five animal husbandry and beekeeping and six ranching efforts. The Alexander Pancho Memorial Learning Farm, part of the Tohono O'odham Community Action Program in Arizona, trains new and veteran farmers on traditional dryland farming techniques (Hoover, 2014e). The Eloheh Farm and Indigenous Center for Earth

Justice in Oregon keeps bees to pollinate their crops and maintain the health of their farm ecosystem in addition to raising free-roaming chickens (Eloheh Indigenous Center for Earth Justice, n.d.). The Ponca Agricultural Program reclaimed a former boarding school and now runs a cattle operation crossbreeding their unique Angus-longhorn (Hoover, 2014a).

In 29 strategies, seed-saving protects ancestral crop varieties by returning seeds to their places of origin and avoiding cross-contamination. Native Seeds/SEARCH, a Tucson-based nonprofit, donates or sells ancestral seed varieties to support IFS across many Nations in the Southwest (Native Seeds/SEARCH, n.d.-a). Mohawk tribal member Rowan White of Sierra Seeds in California rematriates[3] seeds back to the land where they originated through teaching, mentoring, and reconnecting people with their kin—the seed relatives (White, 2018; White, 2019). The Laguna Pueblo's Seven Arrows Garden in New Mexico intentionally protects their seeds from cross-pollinating with genetically modified organisms (GMOs) through traditional planting techniques (Centers for Disease Control and Prevention, 2013).

Harvesting and Food Acquisition

Wild harvesting—including gathering, hunting, and fishing—appears in 30 initiatives. Twenty gathering efforts highlight benefits beyond food collection. The Veggies for Kids research study in Nevada supported Washoe, Shoshone, and Paiute Tribes to collect traditional food like wild onions, buck berries, and pine nuts to bring "the current and past worlds together" (Emm et al., 2019, p. 218). The Squamish Community Health Program promotes physical activity through harvesting (Centers for Disease Control and Prevention, 2013).

Seven IFS initiatives incorporate hunting. The Oglala Lakota Sioux Nation's Teca WaWokiye Cokata (Teca Wawokiye Cokata, n.d.-a) in South Dakota organizes buffalo, deer, and elk hunts and teaches youth how to traditionally dry and store meat (Teca WaWokiye Cokata, n.d.-b). The Intertribal Buffalo Council based in South Dakota—comprising 69 federally recognized tribes across 19 states—returns buffalo to the land as a wild, non-livestock animal for collective healing (Intertribal Buffalo Council, n.d.). As a result, programs like the Oglala Lakota Sioux Nation's Generations Indigenous Ways in South Dakota hosts a traditional Buffalo Kill and community feed, honoring the animal. Any excess goes to seasonal camps and informal science seminars throughout the year (Generations Indigenous Ways, n.d.).

Fishing occurred in three efforts near waterways. The Yurok Tribe's Food Sovereignty Division of the Environmental Program in California engages youth in fishing events to restore and protect salmon habitat in partnership with federal and state agencies (Montalvo, 2021; Vanderheiden, 2021). Native Fish Keepers, a business run by Confederated Salish & Kootenai tribal members in Montana, provides native trout for customers and partially invests proceeds into species conservation strategies in Flathead Lake (Made in Montana, n.d.).

Food Preparation

Food preparation—including preservation, processing, cooking, and recipe sharing—appears 57 times. Preservation (e.g., canning, dehydrating, and smoking) and processing occur 24 times. The Oglala Lakota Sioux Nation's Oyate Teca (Young Peoples') Project in the Pine Ridge Reservation of South Dakota teaches youth water-bath and pressure canning and dehydration processes (Oyate Teca Project, n.d.). The Karuk Tribe Collaborative's Enhancing Tribal Health and Food Security in the Klamath Basin of Oregon and California by Building a Sustainable Regional Food System program at the University of California Berkeley offers

[3] Rematriation is the "reclaiming of ancestral remains, spirituality, culture, knowledge, and resources, instead of the more patriarchal associated repatriation" (Huambachano, 2019, p. 4). Rematriating land entails "returning the land to its original stewards and inhabitants" (Wires & LaRose, 2019, p. 31). Rematriation particularly applies to seed-saving, as the responsibility of caring for and protecting seeds often rests with women (White, 2018). Sierra Seeds also notes, "Rematriation is deep and multi-layered…Part of this rematriation path, of finding our seed relatives and carrying them home, is reawakening the intertwined harmonies of seedsongs of our ancestors, ourselves and those yet to come" (White, 2019, para. 10–13).

over 250 workshops and camps. It connects experienced cultural practitioners and Elders with youth and young adults to, for example, smoke salmon and prepare eel (Sowerwine et al., 2019). In the Standing Rock Sioux Tribe's Native Garden Project in North Dakota, "participants learned how to grind and toast corn wasná, can wild plum jelly, dry chokecherry patties, make box-elder syrup, and prepare medicine from elderberries" (Ruelle, 2017, p. 120).

Cooking—through classes, demonstrations, and events—emerges 18 times. Indigikitchen, a virtual platform created by two food activists who are Native American in Montana, shares online cooking classes, presents to school and public audiences, and posts recipes on its website (Indigikitchen, n.d.). The Indian Pueblo Cultural Center's Pante Project in Albuquerque—a collaborative between 19 New Mexico Pueblo Tribal Communities—is "an innovative teaching kitchen and restaurant centered around Indigenous cuisine education and exploration" that hosts cooking classes and demonstrations (Indian Pueblo Cultural Center, n.d., para. 1). The Restoring Shoshone Ancestral Food Gathering group organizes collaborative events where participants cook food together (Arthur & Porter, 2019).

Recipe sharing occurs 15 times in a variety of ways. Some appear in books like *The Pueblo Food Experience*, which documents the health benefits experienced by 14 Puebloan participants who ate only ancestral diets for three months (Swentzell & Perea, 2016). In Colorado, the Ute Mountain Ute's Bow and Arrow Brand posts cornmeal recipes online for customers (Bow and Arrow Brand, n.d.). The Northwest Indian College Traditional Plants and Foods Program in Washington sends "recipes and instructions on how to prepare and preserve the foods received in CSA boxes" to recipients as part of the Lummi Traditional Food Project (NWIC Plants and Food, n.d., para. 16).

Distribution and Exchange

The search revealed 85 food distribution and exchange efforts—including farmers markets and community-supported agriculture (CSA), sales, restaurants, and increased access and sharing. Seventeen IFS initiatives employ farmers markets and CSAs. The Cheyenne River Youth Project farmers market is collaboratively run by four of the seven traditional bands of Lakota—the Minneconjou, Oohenumpa, ITazipco, and SiHaSapa. Proceeds feed back into the project (Cheyenne River Youth Project, n.d.; Hoover, 2014j). Mobile farmers markets, like the Navajo-run Hasbídító in New Mexico, bring produce to food-insecure locations around the reservation (Fisher, 2018). The Hopi Food Cooperative co-sponsors the Hopi Farmers Market and a weekly CSA with local farmers (Hopi Food Cooperative, n.d.).

Food sales occur in 17 diverse ways. The largescale Intertribal Agriculture Council based in Montana runs the American Indian Foods Program. It supports Native American businesses through an international trade export program, Food Connection, which increases exposure in domestic and specialty markets and provides a certification program for a Native American–made product guarantee (Intertribal Agriculture Council, n.d.-b). The Yocha Dehe Wintun Nation's farm and ranch sell wine, olive oil, and other products directly to consumers and online (Yocha Dehe Wintun Nation, n.d.). Several research studies, like Apache Healthy Stores in Arizona, facilitate the increased stocking of healthy products in community stores (Maudrie et al., 2021).

Restaurants and catering occur 14 times as another food distribution strategy. The Quapaw Services Authority in Oklahoma supplies greenhouse produce, beef, and bison to its casino and hotel restaurants (McClennan, 2018; Montalvo, 2021). The proprietors of Tocabe—the only Native American restaurant in Denver—are descendants of Osage people from Oklahoma who educate customers by supporting Native American farmers, sharing family recipes, and positively representing Native American culture (Tocabe, n.d.). Itality: Plant Based Wellness in Jemez Pueblo, New Mexico, provides catering services using locally sourced produce grown by farmers who are Native American to cultivate wellness in Indigenous communities (Itality, n.d.).

Seventeen initiatives facilitate access to healthy food, and 20 share food with community members. The Hopi Tutskwa Permaculture Institute in Arizona supports bartering for fresh produce, vegeta-

bles, crafts, and home-prepared foods (Hopi Tutskwa Permaculture, n.d.). Amidst the COVID-19 pandemic, the Taos Pueblo's Red Willow Center in New Mexico initiated a Food Systems Matchmaker program to facilitate food movement between producers, distributors, and consumers (Red Willow Center, n.d.). Farmers market food access efforts include the Bishop Paiute Food Sovereignty Program in California that accepts CalFresh/Supplemental Nutrition Assistance Program (SNAP) benefits and the Cheyenne River Youth Project that accepts Electronic Benefit Transfer (EBT) cards (Bishop Paiute Food Sovereignty Program, n.d.; Steinberger, 2014). Both channel government assistance to Native American communities (Hoover, 2017).

Food-sharing practices, 20 in total, often prioritize Elders and children. For example, the WahZahZee Osage Nation's Bird Creek Farm Harvest Land program in Oklahoma provides produce and other food to the Elder Nutrition Program, Head Start, and community cultural events (The Osage Nation, n.d.). The Oglala Lakota Nation's Thunder Valley Community Development Corporation's Food Sovereignty Coalition in the Pine Ridge Reservation of South Dakota makes produce available to community members (Thunder Valley, n.d.). Sierra Seeds calls for re-establishing historic intertribal trade routes to strengthen Indigenous trading networks and increase economic sustainability (Hoover, 2017; Sierra Seeds, n.d.). The Native American Agriculture Fund in Arkansas is planning 10 regional food hubs supported by smaller sub-hubs in tribal communities to rebuild Native American food systems (Segrest et al., 2020, p. 26).

Cultural Revitalization

A second major IFS initiative theme is cultural revitalization, or restoring Indigenous food systems relationships to address community, culture, health, and education (Whyte, 2016). Subthemes include community development, youth education, other forms of education, and cultural identity efforts.

Community Development

The search revealed 102 community development strategies focused on community education and events, family-specific education, and relationship-building. Forty-five efforts include some form of community education, and nine include community-wide events. The Cultural Conservancy, an intertribal organization in the Bay Area of California, hosts public events to facilitate intergenerational, intercultural, and intertribal exchanges where participants "of all ages [can] connect with and learn from the land" (The Cultural Conservancy, n.d.-a, para. 12). The Yurok Agricultural Corporation's Weitchpec Nursery in California educates community members on food sovereignty, including why and how to grow a garden (IndianZ.com, 2020). Some host annual events, like the Santa Clara Pueblo's H.O.P.E. New Mexico Food and Seed Sovereignty Alliance in New Mexico, which shares the Tewa language to honor generations of Indigenous people who have protected and saved seeds (H.O.P.E. New Mexico Food and Seed Sovereignty Alliance, n.d.).

Eleven efforts include family-focused education. The Cochiti Pueblo's Keres Children's Learning Center in New Mexico educates entire families about healthy eating habits to support their young students (Keres Children's Learning Center, n.d.-a). The Traditional Native American Farmers Association states, "family oriented scale farming is the best approach in developing a sound future in agriculture" (Traditional Native American Farmers Association, n.d.-a).

Relationship-building strategies and connections within communities and to the land occur 31 times, with six incorporating a central community space. The Northwest Indian College supports participants in building strong relationships with the land and each other through cultivating, harvesting, processing, preparing, and serving native foods (NWIC Plants and Food, n.d.). The Navajo Nation's Black Mesa Coalition in New Mexico specifically highlights relationships as vital to their growing processes by "revitalizing the food system using a kinship-based approach" and reinstituting pre-colonization collective farming practices (Hoover, 2014g, para. 4). The Seven Arrows Garden provides a space for community members to gather and prioritizes veterans' healing from post-traumatic stress disorder (Centers for Disease Control and Prevention, 2013).

Youth Education

Eighty-nine efforts focus on youth education, including K-12 and young adult programming, leadership and scholarship opportunities, and Elders as teachers. For K-12-aged youth, 38 IFS initiatives include summer or year-round options. The Zuni Youth Enrichment program provides summer camp experiences to learn traditional food knowledge and grow empowerment (Hoover, 2014d). The Oyate Teca Project offers year-long classes in gardening, food entrepreneurship, and traditional food preservation (Running Strong for American Indian Youth, n.d.-d). The Karuk–UC Berkeley Collaborative's Pikyav Field Institute hosts field trips integrated into a culturally relevant K-12 Native American foods curriculum (Karuk–UC Berkeley Collaborative, n.d.). The Intertribal Agriculture Council supports 4-H livestock auction sales for youth to learn about agriculture and business in Montana (Intertribal Agriculture Council, n.d.-c).

Data show 18 educational efforts for young adults. At Aaniiih Nakoda College, Demonstration Garden participants engage in university research, which helps them generate culturally appropriate agricultural sciences knowledge (Morales & Friskics, 2019). The Navajo Ethno-Agriculture Education Farm in New Mexico partners with high schools and colleges to teach traditional agricultural practices through hands-on learning outside of the classroom and offers a full curriculum for college credit (Navajo Ethno-Agriculture, n.d.-a). Similarly, the New Mexico Acequia Association of Pueblo Nations in Santa Fe hosts Los Sembradores Farming Training Project. This nine-month intensive apprenticeship blends ancestral and modern agricultural methods with business planning (New Mexico Acequia Association, n.d.-a).

Youth leadership opportunities and scholarships occur 20 times. The University of Arkansas Indigenous Food and Agriculture Initiative hosts a Native Youth in Food and Agriculture Leadership Summit on agriculture, law, policy, stewardship, and more (Indigenous Food and Agriculture Initiative, n.d.). First Nations Development Institute's Native Agriculture and Food Systems Initiative awards scholarships for college-aged Indigenous students across the country (Phillips, 2015). The New Mexico Acequia Association supports 10 local Indigenous youth to learn about history and culture and brainstorm solutions for food and waterways challenges (New Mexico Acequia Association, n.d.-b).

Thirteen initiatives focus on Elders as teachers. The Standing Rock Sioux Nation's Native Garden Project in the Pine Ridge Reservation has an Elders Advisory Board that plans youth trips for learning stories and Lakota food-gathering practices (Wesner, 2012). On the WahZahZee Osage Nation's Bird Creek Farm in Oklahoma, Elders pass down food harvesting knowledge through storytelling (Jacob, 2019). With the goal of "strengthening the resilience of our Native food systems," the Cultural Conservancy—a Native American–led nonprofit in the California Bay Area—integrates youth and Elders into all of its work, "serving not only living generations, but also our ancestors and descendants" (The Cultural Conservancy, n.d.-a, para. 2; The Cultural Conservancy, n.d.-b, para. 1).

Other Forms of Education

Initiatives include 109 other forms of education focused on health and diet, traditional medicine, educational resources, and conferences. Twenty-eight use health and diet education, including 17 health baseline screenings that teach improvement through diet. The Ponca Agricultural Program hosts cooking classes where chefs teach people with diabetes about healthy eating (Hoover, 2014a). Northwest Tribal Food Sovereignty Coalition—part of Wellness for Every American Indian to View and Achieve Health Equity—collects health data to determine priorities for future health and diet educational programming (Frank-Buckner & Northwest Tribal Food Sovereignty Coalition, 2019; Tribal Epidemiology Centers, n.d.).

Fifteen efforts support better health for Indigenous people through education, and six incorporate traditional medicine. The New Mexico Acequia Association teaches participants to make traditional medicines from farm-grown plants (New Mexico Acequia Association, n.d.-a). The Aaniiih Nakoda College Extension Program grows a medicine wheel garden to teach about native

plants that prevent and cure illnesses (Morales & Friskics, 2019).

Educational resources for community members arise 24 times. Well for Culture—an Indigenous wellness initiative in Phoenix—provides an online blog, podcast, videos, and book recommendations to educate about health and diet and optimize the mind-body-spirit connection (Well for Culture, n.d.). Grow Your Own at Nueta Hidatsa Sahnish College in North Dakota provides online videos that teach people how to improve soil health and prepare foods (Benallie, 2021). The Tribal Health and Resilience in Vulnerable Environments (THRIVE) study with the Chickasaw and Choctaw Nations in Oklahoma created a documentary film to "engage tribal citizens, enhance local knowledge, and guide other tribes to improve their food and physical activity environments" (University of Oklahoma, 2019, "Detailed Description," para. 1).

Nineteen IFS conferences appear in the data. The Intertribal Agriculture Council hosts an annual conference where Indigenous people from across the U.S. share their IFS success stories, furthering their mission "to pursue and promote the conservation, development and use of our agricultural resources for the betterment of our people" (Intertribal Agriculture Council, n.d.-a, para. 1). Similarly, intertribal events occur with Native American chefs, food producers, artisans, students, and scholars, like the Tohono O'odham Native American Culinary Association's (NACA) Indigenous Food Symposium (Hoover, 2016).

Cultural Identity

Seventy-two IFS efforts support regenerating cultural identity through traditions, language, and food-related crafts. Thirty-four focus on cultural traditions, with nine emphasizing ceremony and spirituality and eight including storytelling. The Pima Indian-owned Ramona Farms in Arizona focuses on revitalizing the bafv, or tepary bean, to restore community relations with cultural heritage (Ramona Farms, n.d.). Sierra Seeds cultivates "intimacy with the earth and ancestral food traditions through medicinal storytelling on seed songs and seed rematriation in innovative, grounding, rich fertile, nourishing learning circles" (Sierra Seeds, n.d., para. 1). The women-led Sogorea Te' Land Trust in the ancestral homelands of the Chochenyo and Karkin Ohlone in the California Bay Area explicitly acquires land to restore Native American foodways and create a sacred space for ceremony (Wires & LaRose, 2019).

Language revitalization efforts occur 14 times. The Oglala Lakota Sioux Nation's Slim Buttes Agricultural Project in South Dakota hosts a bilingual radio show for gardeners from multiple Lakota Nations (Running Strong for American Indian Youth, n.d.-c). The Montessori school Cochiti Pueblo's Keres Children's Learning Center (KCLC) in New Mexico teaches language immersion and traditional food practices for a healthy lifestyle (Keres Children's Learning Center, n.d.-b). The Mvskoke Food Sovereignty Initiative and the Cherokee Nation of Oklahoma Heritage Seeds teach gardening skills through partnerships with language immersion programs (Hoover, 2014b; Hoover, 2017).

Seven initiatives incorporate culturally relevant craft-making activities directly related to food systems and sovereignty. Skills like basket-weaving, taught by Tohono O'odham Community Action, provide vessels that support food gathering (Hoover, 2014e). Teca WaWokiye Cokata support hunting by teaching skills like bow- and arrow-making and hide preparation (Teca Wawokiye Cokata, n.d.-b).

IFS Initiative Foundations

Lastly, three subthemes provide foundational support for IFS initiatives: advocacy, policy, and stewardship; funding mechanisms; and non-Indigenous partnerships.

Advocacy, Policy, and Stewardship

Fifty-six efforts focus on advocacy and policy, including specific land and waterways stewardship strategies to support IFS. Twenty-one advocacy efforts center on factors like environmental quality, GMOs, and collaboration, and eight explicitly support policymaking. The Ponca Agricultural Program networks with local partners to hold oil refineries accountable for decreased environmental quality and preserve the integrity of their lands and foodways (Hoover, 2014b). Seven Arrows Garden

advocates against GMO seeds (Centers for Disease Control and Prevention, 2013). The Tolowa Dee-ni' Nation's Tribal Food Sovereignty Program in California collaborates with local and federal agencies to manage the land for the long-term perpetuation of their food sources (True, 2020). The Black Mesa Water Coalition, which addresses mining threats to Navajo and Hopi waterways and health, advocates for policies protecting land and food sovereignty (United States Food Sovereignty Alliance, 2019). The Navajo Reservation-based Community Outreach and Patient Empowerment (COPE) compiles policy reports to support Diné food sovereignty (Fisher, 2018).

Land and waterways stewardship efforts occur 16 and 11 times, respectively. Some initiatives work to reacquire land, while others work to restore environmental integrity. As part of work "focused on ecological farming and food justice," the women-led Sogorea Te' Land Trust facilitates the rematriation of Indigenous lands to Indigenous people (Sogorea Te' Land Trust, n.d., para. 3). The Yurok Tribe has acquired thousands of acres of land through direct purchase and land transfers to restore salmon habitat (Montalvo, 2021). The Muckleshoot Tribe purchased almost 100,000 acres of timberland to promote future food harvesting (Hoover, 2014i). Because mining results in poor water quality and threatens productive agriculture in the Navajo reservation, the Navajo Ethno-Agriculture Farm teaches water quality testing to participants (Navajo Ethno-Agriculture, n.d.-b). The Tesuque Pueblo Farm also protects water as part of their IFS efforts (Hoover, 2014c). In response to devastated salmon populations, which have dwindled due to low water flows and warmer temperatures, the Yurok Tribe has advocated for dam removal for over 20 years (Romero-Briones, n.d.). Four dams are now on the brink of removal (Montalvo, 2021). The Nisqually Tribe Department of Natural Resources successfully removed a dam to restore salmon habitat, producing hundreds of acres of farmland, including the Tribe's Community Garden (Nisqually Indian Tribe, n.d.).

Funding Mechanisms

The second IFS foundation subtheme includes 44 funding mechanisms. These strategies involve 17 broad economic sustainability efforts, 16 Indigenous funding efforts, and 11 business training programs. The proprietors of mak-'amham and Cafe Ohlone donate a portion of their proceeds to stimulate the Ohlone community economy and feed back into the business (mak-'amham/Cafe Ohlone, n.d.). Mvskoke Food Sovereignty Initiative provides food to casinos from in-reservation producers, thereby creating jobs and keeping money in the community (Hoover, 2017). Native American–led nonprofits like Running Strong for American Indian Youth (RSAIY) provide financial resources to IFS initiatives. RSAIY expanded from an initial focus on the Pine Ridge and Cheyenne River Reservations in South Dakota to now support Native American youth and IFS efforts in 30 states (Running Strong for American Indian Youth, n.d.-a, n.d.-b). Funding also comes from larger, Native American–led nonprofits, like the First Nations Development Institute, which nourishes Native American foods, health, and financial empowerment by investing in Native American youth. This work strengthens tribal and community institutions, advances household and community asset-building strategies, and stewards Native Lands (First Nations Development Institute, n.d., para. 3).

Non-Indigenous Partnerships

While not directly or entirely led by Indigenous people, partnerships with non-Indigenous actors emerged as key initiatives for supporting Indigenous-led food sovereignty efforts. These include research, direct funding, and collaboration, which together appear 19 times. University-sponsored funding supports participatory action research projects that assist communities in identifying and achieving their priorities. The Yéego Gardening! study aimed "to learn more about healthy eating and gardening [i]n the Navajo Indian Reservation" and established two community gardens to improve health (Ornelas et al., 2017). The Chippewa Cree Tribal Health and Stone Child Community College in Montana partnered with researchers to determine barriers to entry for community gardens (Brown et al., 2020).

The Kellogg Foundation provides generous support for the Native Agriculture and Food Systems Initiative, which in turn supports smaller IFS

initiatives (Phillips, 2015). The Standing Rock Sioux's Native Garden Project collaborates with the non-Indigenous organization, Boys and Girls Club (Wesner, 2012). The Black Earth Farm in the California Bay Area is an urban-based holistic healing collaborative between Indigenous and Black people. It grows food for underserved populations, rescues unused food from community gardens, and provides services like nutritional counseling (Black Earth Farms, n.d.).

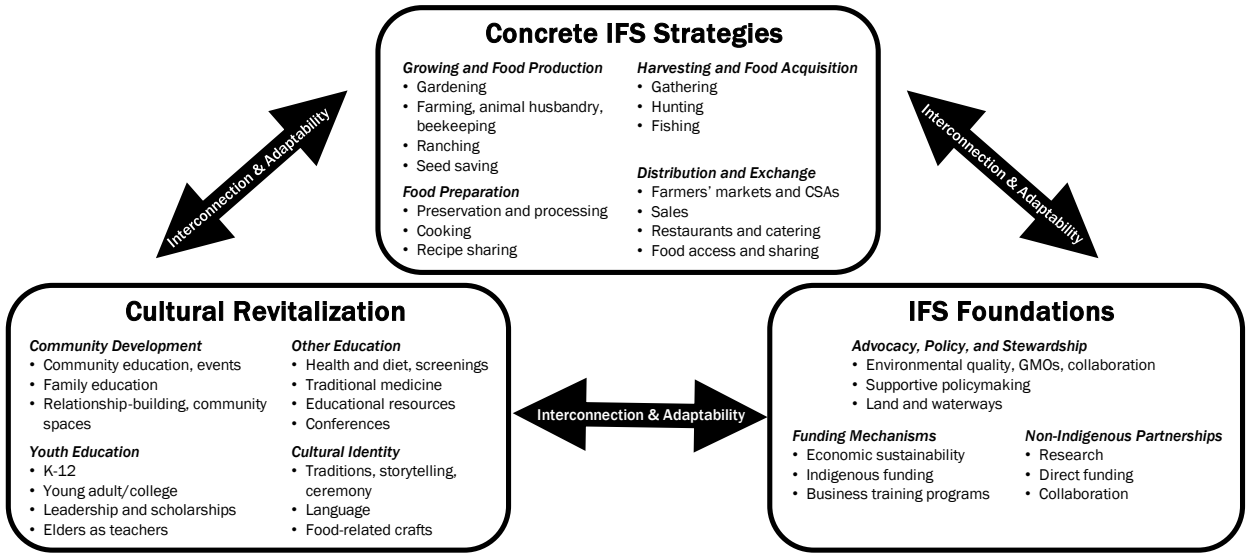
Discussion and Conclusion

IFS is informed by—and is a framework and movement that supports—all the various means through which Indigenous people are revitallizing and reclaiming their traditional foodways. The IFS initiatives described above—organized into themes of concrete strategies, cultural revitalization, and foundations—occur across multiple scales, types, and land bases. This study compiles and provides a glimpse into the many diverse IFS initiatives across the western U.S. and their common themes and key features (see Figure 4). As previous inventories have found and ours confirms, these various initiatives occur through IFS leaders' deliberate ongoing action (Indigenous Food and Agriculture Initiative, 2015). Initiatives emerge from the leadership and resilience of numerous Indigenous people across the region.

Individually and collectively, these initiatives also demonstrate the IFS values of relationality, responsibility, respect, and reciprocity. These values support the processes of self-determination, decolonization, and education to move toward outcomes of human and environmental health and wellbeing, all of which emerged in our review of the IFS literature. The diverse concrete strategies both restoring traditional foodways and employing contemporary approaches exemplify the many unique manifestations of food sovereignty and the process of self-determination, as noted by Grey & Patel (2015) and Morrison (2011). For example, the Restoring Shoshone Ancestral Food Gathering initiative supports restoring traditional foodways through food preparation events, among other efforts (Arthur & Porter, 2019). The Growing Resilience community-based participatory research project, on the other hand, engaged Eastern Shoshone and Northern Arapaho families in home gardening (Porter et al., 2019). While these tribes did not predominantly engage in agricultural foodways before foreign intrusion, this initiative serves as a manifestation of their present-day food sovereignty (Budowle et al., 2019).

Numerous efforts contribute to IFS outcomes of both environmental and human wellbeing—particularly in the IFS foundations theme—by addressing environmental degradation through leg-

Figure 4. Common Themes and Key Features of Western U.S. Indigenous Food Sovereignty (IFS) Initiatives



islation and policy, advocating for land and water stewardship, and redistributing land (see Morrison, 2011; People's Food Policy Project, 2011; Robin, 2019). For example, the Black Mesa Water Coalition's waterways and health advocacy demonstrates an emphasis on these IFS outcomes, as does the Yurok Tribe's acquisition of land to restore salmon habitat (Montalvo, 2021; United States Food Sovereignty Alliance, 2019). In addition, emphasizing nutrition through food production and distribution rebuilds health as an IFS outcome (see Alfred, 2009; People's Food Policy Project, 2011). The WahZahZee Osage Nation's Bird Creek Farm Harvest Land program's distribution to Elders, youth, and the community provides an example of how initiatives pursue the IFS outcome of human wellbeing (The Osage Nation, n.d.).

Efforts to revitalize culture through rebuilding community foundations demonstrate an ongoing practice of and commitment to processes of decolonization and education that appear in the IFS literature (Morrison, 2011; Robin, 2019). Indeed, education and learning are important overarching aspects for many IFS initiatives. Youth, young adult, family, and other forms of community and broader education often occur with cultural revitalization efforts. Beyond the cultural revitalization theme and its education-based subthemes, education and learning appear in over half of all initiatives, including those that additionally appear in concrete strategies and IFS foundations themes. An emphasis on intergenerational knowledge exchange between Elders and youth is a key feature in many efforts, as Coté (2016) and Morrison (2011) recommend. The Elders Advisory Board that plans youth trips for learning stories and Lakota food-gathering practices in the Standing Rock Sioux Nation's Native Garden Project in the Pine Ridge Reservation provides an example of this intergenerational education (Wesner, 2012). Many IFS initiatives emphasize youth, such as Zuni Youth Enrichment summer camp experiences for learning traditional food knowledge and growing empowerment, which speaks to the youngest generation's important role in perpetuating culture, as argued by Bagelman (2018) (Hoover, 2014d). Our findings demonstrate that IFS initiatives aim to empower Indigenous people, especially youth, to better understand, appreciate, and perpetuate their culture through their foodways in accordance with IFS literature (Sowerwine et al., 2019).

In addition to compiling and illuminating initiatives and their key features, this research both echoes and extends scholarly literature on IFS as a movement and framework. Initiatives exemplify values, processes, and outcomes from the literature, as detailed above, and demonstrate two key takeaways that emerge across all IFS initiatives and themes: interconnection and adaptability, also depicted in Figure 4. First, interconnection manifests in both the multiple IFS efforts employed by single initiatives and the relationality within them. While this compilation categorizes initiatives into themes and subthemes to communicate both their range and commonality, nearly all contain elements of multiple themes and employ multiple efforts. For example, the Bishop Paiute Food Sovereignty Program spans all three themes and numerous features. It includes many concrete IFS strategies (i.e., gardening and horticulture, tree planting and composting, animal husbandry, seed saving, gathering, food preparation, mobile markets, and food access). The initiative also engages in cultural revitalization through community, family, youth, and young adult education; community events; intergenerational learning; ceremony; and language revitalization. Finally, the program includes non-Indigenous funding partnerships and advocacy through stewardship services.

Other than the general types and land bases outlined in Figure 1 and themes and key features in Figure 4 and the database itself, we avoid overly typologizing IFS initiatives in ways that would impose Eurocentric worldviews and diminish their richness. Rather, their interconnection is the more resonant finding. It demonstrates the holistic, values-based nature of IFS and is already well-established by IFS scholars (e.g., Morrison, 2011). Interconnection occurs within initiatives, for example, through community gardens, community education, and increasing food access to strengthen bonds between people and their foodways. Relationship-building occurs between individuals, communities, sovereign Nations, and with non-Indigenous partners, with many IFS initiatives serving as collaborative ventures. This demonstrates the value

of relationality emphasized by numerous scholars (e.g., Coté, 2016; Grey & Patel, 2015; Morrison, 2011).

Second, adaptability is an overarching feature of IFS initiatives across all themes. Though foreign intrusion disrupted all Native American foodways, Indigenous people have adapted and continue to adapt to the conditions of colonialism while maintaining and incorporating ancestral traditions (Arthur & Porter, 2019). For example, the historically non-agricultural Sioux Nation has developed robust gardening programs to increase self-determination—much like the aforementioned Growing Resilience example. IFS efforts improve health, restore community wellbeing, and steward ecosystems as adaptive processes that respond to shifting social, political, and environmental systems over time (Whyte, 2019). These include advocating for policy change, protesting environmentally degrading mining and damming projects, and action research to explore and ameliorate health disparities or demonstrate the value of community gardening. Moreover, IFS efforts continue to grow, with many new initiatives emerging in recent years (Centers for Disease Control and Prevention, 2013; Hoover, 2017; Montalvo, 2021). The COVID-19 pandemic further illuminated the importance of adaptive initiatives grounded in IFS (James et al., 2021).

This research contributes a western U.S. perspective to the scholarly literature on IFS, as much of it focuses on Canada, including another compilation we found (Sumner et al., 2019). It also adds to existing inventories and compilations by being the first, to our knowledge, to apply a systematic search methodology to a U.S. context. Additionally, it offers more geographic depth than previous initiatives for a sharp focus on IFS leaders' action in a particular region as opposed to an entire country. Moreover, it provides aggregated, ground-level examples of the IFS values and concepts discussed in the literature. Practically, this inventory compiles these initiatives into one open-access database, which we find to be the most important outcome of this research due to its potential to support IFS initiatives and action in the future. We hope that Indigenous leaders and their allies can use—and, ideally, add to—this dynamic, living inventory in ways that bolster their current work and help them design future initiatives. We are particularly eager to connect with an organization that can maintain, update, and share this inventory over the long term to reach the greatest number of IFS practitioners, researchers, and educators.

Additionally, we hope this inventory provides exemplative approaches to the mounting food systems challenges faced by all of humanity and other living beings. While Indigenous people and their food systems remain resilient, IFS efforts exist amidst a colonized and commodified global food system. For example, only some of the land and water stewardship IFS foundations initiatives yielded by this search explicitly involve land back or rematriation efforts that are key to IFS. Again, initiatives are part of the ongoing *process* of striving for land access so that Indigenous people and foodways may survive and thrive more independently of the oppressive global food system, as we reviewed above and is noted by several scholars (Coté, 2016; Hoover, 2017; James et al., 2021; Tuck & Yang, 2012). Also, non-Indigenous people can learn much from the interconnection and adaptability demonstrated in these initiatives, following Morrison's (2011) note that appreciative inquiry through IFS can lead to more just and ecologically sound broader food systems. This is particularly relevant amidst the mounting, ongoing, and interrelated social-environmental crises embroiled with and emerging from colonialist and capitalist political-economic and food systems (Arthur & Porter, 2019).

While we attempted to comprehensively inventory IFS initiatives across the western U.S., this compilation is far from exhaustive. Some efforts only occurred once or have not operated in years; ascertaining the recency or currency of some initiatives proved difficult. Many likely have limited descriptions, are inaccessible via internet searches, or lack formal documentation. Furthermore, we suspect our search terms have failed to capture all the nuanced strategies in existence. This study is a mere snapshot of the many IFS efforts warranting celebration, support, and expansion.

Future studies might extend the scope of this

work by updating the inventory over time. Those updates may use additional and more specific search terms, such as "seed-saving" or "rematriation," that only emerged for us during our systematic search. Additionally, future research should check the descriptions and categorization of these efforts directly with IFS initiative leaders to confirm or adjust our depictions of their work and better understand if initiatives are ongoing or not. We also hope to explore whether and how IFS leaders, practitioners, and researchers are using this inventory in the future and ways to enhance its usability to support their and allies' work. Finally, while this research uniquely offers a sharp regional focus compared to other broader inventories, aggregating IFS initiatives in Canada, Mexico, the eastern U.S., Hawaii, and Alaska into one inventory using a uniform systematic search process would more comprehensively shed light on IFS efforts across North America.

In conclusion, Indigenous people have maintained sustainable and adaptive foodways across the so-called western U.S. for thousands of years. Despite foreign intrusion, they are reclaiming and redefining their foodways through IFS. This study identifies IFS initiatives, their themes, and key features in an accessible inventory to appreciate and respectfully celebrate the myriad strategies that manifest as part of a larger movement toward food sovereignty led by Indigenous people.

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