


Were the Ancient Coast Salish Farmers? A Story of Origins

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*Were the ancient Coast Salish farmers? Conventional anthropological wisdom asserts that the ethnographically known communities of the Northwest Coast of North America were “complex hunter-fisher-gatherers” who lacked any form of concerted plant food cultivation and production. Despite decades of extensive ethnobotanical and paleoethnobotanical study throughout the Pacific Northwest demonstrating the contrary, this “classic anomaly” is still a cornerstone of anthropological and archaeological canons. The recent discovery of a spectacularly preserved wetland wapato (Indian potato, *Sagittaria latifolia*) garden, built 3,800 years ago in Katzie traditional territory near Vancouver, British Columbia, has helped recast this picture, alongside evidence for other forms of resource management practiced by Northwest Coast peoples. This article examines “origins of agriculture” stories from three distinctive perspectives: Coast Salish Katzie people who cultivated wapato for millennia; settlers who colonized the Fraser River Delta historically, bringing with them their own ideas about what constitutes farming; and archaeologists, who are challenged by these data to reevaluate their own understandings of these cultural constructs. These perspectives have critical bearing on the historical appropriation of lands and waterways by settler communities in British Columbia as well as contemporary questions of sovereignty and stewardship in this region and well beyond.*

Keywords: Katzie First Nation, Coast Salish, wapato (*Sagittaria latifolia*), wetland farming, origins of agriculture, Northwest Coast, complex hunter-gatherers, Indigenous archaeology, community archaeology, sovereignty

*Les Salish de la côte anciens étaient-ils agriculteurs? L’anthropologie présente habituellement les communautés de la côte Nord-Ouest de l’Amérique du Nord, décrites par le biais de travaux ethnographiques, comme des « chasseurs-pêcheurs-cueilleurs complexes » ne possédant aucun système organisé de culture et de production de plantes comestibles. Malgré des années de recherches ethnobotaniques et paléoethnobotaniques démontrant le contraire, cet exemple classique « d’anomalie » reste à la base des canons de l’anthropologie et de l’archéologie. Ces idées sont toutefois remises en question par la découverte récente d’un jardin de wapato (sagittaire à larges feuilles, *Sagittaria latifolia*) en contexte humide dans un état de conservation exceptionnel, aménagé il y a 3 800 sur le territoire traditionnel des Katzie près de Vancouver, en Colombie-Britannique, ainsi que par des découvertes mettant de l’avant d’autres formes de gestion des ressources pratiquées par les peuples de la côte Nord-Ouest. Cet article s’intéresse aux récits de « l’origine de l’agriculture » provenant de trois perspectives différentes: les Salish de la côte Katzie, qui ont cultivé le wapato pendant des millénaires; les colons s’étant installés dans la région du delta du fleuve Fraser pendant la période historique, amenant avec eux leurs propres idées sur ce que constitue l’agriculture; ainsi que les archéologues, qui face aux données qu’ils collectent, doivent réévaluer leur propre compréhension de ces constructions culturelles. Ces trois points de vue jouent un rôle majeur dans la question de l’appropriation historique des territoires et cours d’eaux de la Colombie-Britannique par les colons, mais également dans des questions contemporaines de souveraineté et d’intendance ayant des répercussions à plusieurs échelles.*

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American Antiquity 86(3), 2021, pp. 504–525

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Published by Cambridge University Press on behalf of the Society for

American Archaeology

doi:10.1017/aaq.2020.115

Mots clés: Première Nation Katzie, Salish de la côte, *Sagittaria latifolia*, agriculture en milieu humide, origines de l'agriculture, côte Nord-Ouest, chasseurs-cueilleurs complexes, archéologie autochtone, archéologie communautaire, souveraineté

Anthropological orthodoxy claims that the ethnographically known communities of the Northwest Coast of North America were “complex hunter-fisher-gatherers” who lacked any form of concerted plant food cultivation and production. This view has considerable traction despite many decades of extensive ethnobotanical and paleoethnobotanical study throughout the region demonstrating the contrary, in addition to widespread archaeological evidence that Northwest Coast Indigenous peoples managed the production of fish and shellfish resources (e.g., Deur 2000; Deur and Turner 2005; Lepofsky and Armstrong 2018; Lepofsky and Lertzman 2008; Lepofsky and Lyons 2013; Lepofsky et al. 2016; Thornton and Deur 2015; Turner et al. 2013). This “classic anomaly” remains a cornerstone of anthropological and archaeological canons despite the growing reach of this scholarship.

Its persistence relates to long-standing, deeply embedded, and reified constructs of foragers and farmers and their relative places in our world (e.g., Brody 2000; Hillman and Harris 1989; Ingold 1986). Anthropological inquiry has proceeded under the firm belief that foragers and farmers are distinct and natural categories—the former representing nature and the latter, culture (de Luna 2017; Hodder 1990), a binary that has helped justify colonial conquest throughout the world (Trigger 1980). These terms, however, do not hold up under scrutiny because of their failure to successfully accommodate the diversity of human subsistence economies across either space or time (Kelly 2013). For this reason, some scholars in the origins of agriculture and related arenas have focused on how particular suites of practices involved in plant management transform over time (including changes of emphasis and direction, use of multiple cultivation strategies, and continuous use of wild plant foods), rather than on the hypothetical boundaries and purportedly evolutionary relationship between foraging and farming behaviors (Casas et al. 2007; Denham 2009; Killion 2013; Wallace

et al. 2018). These ongoing discussions set the stage for the case study presented here.

We examine the question of whether the ancient Coast Salish, a linguistic subgroup of Northwest Coast First Nations (Figure 1), practiced farming prior to contact. This inquiry provides a means to examine cultural perceptions of foraging/hunting-gathering and farming societies—including societies that do not comfortably fit these categories—and in turn, to explore the persistence of the categories themselves and evaluate their contemporary utility, resonance, and implications. We define “farming,” in a vernacular sense, to mean the cultivation, production, and (at least) behavioral domestication of plant and animal foods (Zvelebil 1993). This last category includes taxa with economic importance but lacks markers of morphological change indicating domestication (Smith 2005:60–61). We use the terms “farming” and (preindustrial) “agriculture” interchangeably in this article, recognizing that both have multiple meanings and usages (Smith 2005:54–59). The other major term we employ in this article is “Indigenous resource management,” a paradigm that views First Peoples as deeply engaged in shaping and sustainably managing plant and animal communities of various scales and at different stages of their life cycles to enhance their productivity. The accruing body of research in the Pacific Northwest relies heavily on the knowledge, agency, and partnership of First Nations scholars and traditional practitioners.

Although the vast majority of examples of Indigenous resource management principles and practices in this region derive from the historic period, those with precontact antecedents include mariculture (Caldwell et al. 2012; Lepofsky et al. 2016), forest gardening (Armstrong 2017; Armstrong et al. 2021; Turner et al. 2013), fisheries management (Butler and Campbell 2004; Lepofsky and Caldwell 2013; Suttles 1951a), controlled landscape burning (Boyd 1999; Gottesfeld 1994; Lepofsky et al.

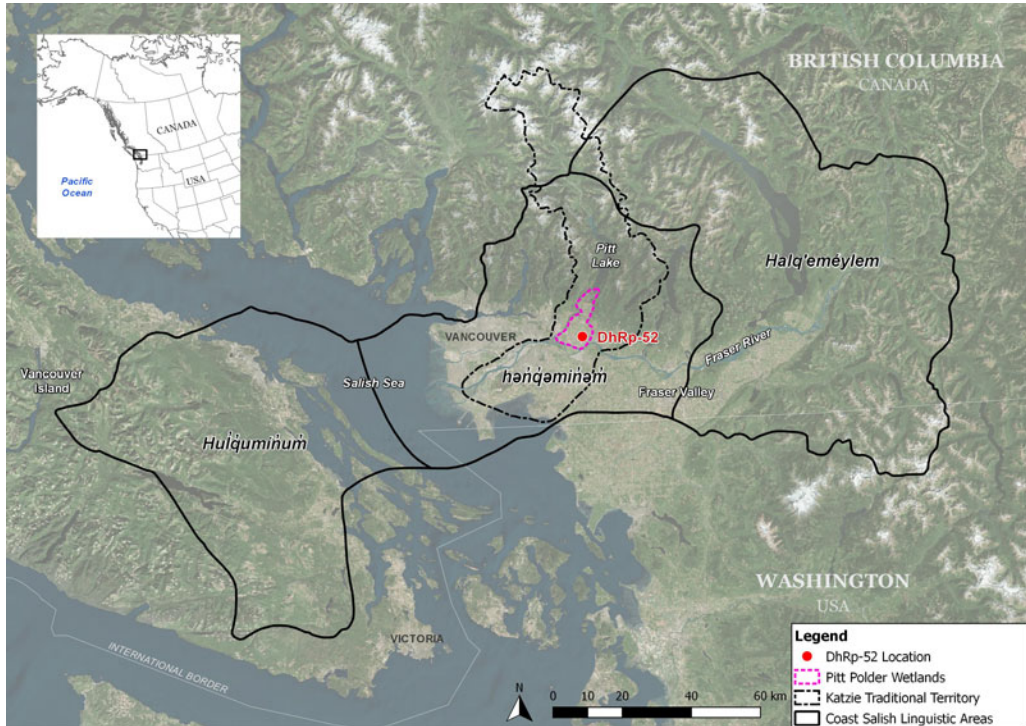


Figure 1. Coast Salish dialects and Katzie traditional territory.

2003), edible geophyte or “root food” production (Deur 2000; Lyons and Ritchie 2017; Peacock 1998; Spurgeon 2001), and the more general terraforming of anthropogenic landscapes (Deur et al. 2015; Grier and Schwadron 2017; Lepofsky et al. 2009). Ancient plant cultivation practices, in particular, have proven difficult to “find” because of the lack of baseline data, the subtlety of Indigenous resource management techniques, and their lack of historical recognition and documentation (Deur and Turner 2005; Lepofsky 2004; Lepofsky and Lertzman 2008; Suttles 1951b; Turner et al. 2021). Root foods, which supplied vital nutrients and carbohydrates to Northwest Coast communities, were highly sought-after trade commodities and dietary staples—most notably, camas (*Camassia* spp.) and wapato (*Sagittaria latifolia*)—throughout the Fraser and Columbia River systems (Darby 2005; Duff 1952; Spurgeon 2001; Suttles 2005; Turner and Kuhnlein 1983). In this region, archaeobotanical evidence for root foods from processing contexts in the form of bulbs, tubers, and other storage organs is relatively rare

(Lepofsky and Lyons 2013; Lyons and Ritchie 2017; Lyons, Prentiss, et al. 2018), whereas evidence for ancient growing contexts, such as gardens or fields, is almost nonexistent (but see Deur 2005; Moss 2005; Turner 2014:2:189).

When considered alongside recent and large-scale archaeological documentation of Indigenous resource management on the Northwest Coast, the discovery of a well-preserved wapato-growing feature in Katzie traditional territory near Vancouver, British Columbia, has the power to recast this picture. Here, we describe this find, situate it within a cultural context, and explore origin stories related to wapato cultivation among ancestral Coast Salish communities as a way to investigate larger cultural constructs around farming, subsistence, and resource management. We look at the foundational narratives by which Coast Salish and settler cultures comprehended the nature of farming within the territory of hənqəmīnəm speakers of the lower Fraser Delta of British Columbia (Figure 1). This includes an exploration of Katzie origin stories related to wapato, as well as both settler and

archaeological conceptions of the origins of agriculture as applied to this region. We use the term “stories” intentionally to acknowledge that each set of origin stories comes from a distinct cultural vantage point, and accordingly, should be positioned and considered on equal footing (Geia et al. 2013). These perspectives have critical bearing on not only the historical appropriation of lands and waterways by settler communities in British Columbia but also contemporary questions of sovereignty and stewardship in this region and well beyond. In the discussion, we ask what implications the stories of agricultural origins have in real-world contexts.

The DhRp-52 Wapato Feature: Site and Cultural Context

The site of DhRp-52 was discovered in 2006 in contemporary Katzie (ḡíćəý) territory. The Katzie are a Coast Salish community whose territory resides within a rich and storied wetland mosaic encompassing the Pitt Polder wetlands that drain into the Fraser River, 50 km east of Vancouver, British Columbia, Canada (Figures 1 and 2). During the mid-Holocene, this area was part of a large estuary that formed as the Fraser Delta prograded southwestward. Ancestors of the Katzie people maintained a vast system of intertwining sloughs that formed travel corridors linking together a network of resource-rich streams, marshes, bogs, and fens (Copp et al. 2019; Hoffmann et al. 2001). They reshaped their landscapes and waterscapes to create terraces for homes and productive wetland niches that both ensured and amplified wapato production (Hoffmann et al. 2016). This highly fertile and biodiverse setting made Katzie people a critical supplier of wetland flora and fauna—particularly, the highly prized wapato, an herbaceous wetland perennial in the water plantain family (Figure 3)—to neighboring communities during ethnohistoric times (Duff 1952:74; Suttles 1955:26). During its habitation, DhRp-52 would have been located a meter above sea level on an uplifted deposit of sand at a slough edge that was subject to flooding during the annual Fraser River spring freshet.

DhRp-52 has both a low-lying wet site, where organic materials and artifacts were preserved in

an anaerobic environment, and an upland dry site with deeply stratified, intact cultural deposits. Radiocarbon dates suggest that the site was occupied for a 2,500-year period, from approximately 5700 cal BP to roughly 3200 cal BP (Hoffmann et al. 2016; Figure 4). The wapato feature was built during the Late Component (4100–3200 cal BP) of occupation, by which time large rectangular houses built and occupied during the Middle Component (5300–4250 cal BP) had been replaced by at least one large circular pit-house with a well-defined central hearth (Figure 5). A massive pit feature (242 m²) filled with tons of fire-altered rock (FAR) occupied the east side of the residential site. Radiocarbon dates indicate that the pit feature was used during all recorded periods of site occupation, but most intensively during the Late Component. Both the periphery of the pit and the interior of the pit-house contain concentrations of stone disc beads (>90,000) that are often interpreted as markers of wealth-based inequality among ancestral peoples of the Pacific Northwest region (Coupland et al. 2016; Hoffmann et al. 2016).

Evidence for hydrological engineering and plant management (Smith 2011) derives from the anthropogenically modified deposits within the wet site. The primary feature—and the only one of its kind yet confirmed throughout the Northwest Coast—is a 292 m² flat, submerged rock pavement consisting primarily of uniform-sized pieces of fire-altered rock interspersed with rounded cobbles laid one course thick (Figure 6). The pavement extends onto higher ground and becomes thicker, to a maximum of two courses, up the adjacent embankment. The rock feature is clearly anthropogenic rather than naturally occurring; approximately two-thirds of the stones excavated from a 42 m² sample were thermally altered. Analyses of the sediments, pollen profiles, and seed rain (uncharred seeds deposited naturally on a cultural site that reflect the surrounding ecology) confirm that the resident managers altered the hydrological regime to make the feature more aqueous (see Table 1), resulting in the amplification of wapato growth through time (Hoffmann et al. 2016).

The highest overall counts of wapato tubers in the wet site were found within and above the lowest and largest segment of the rock pavement

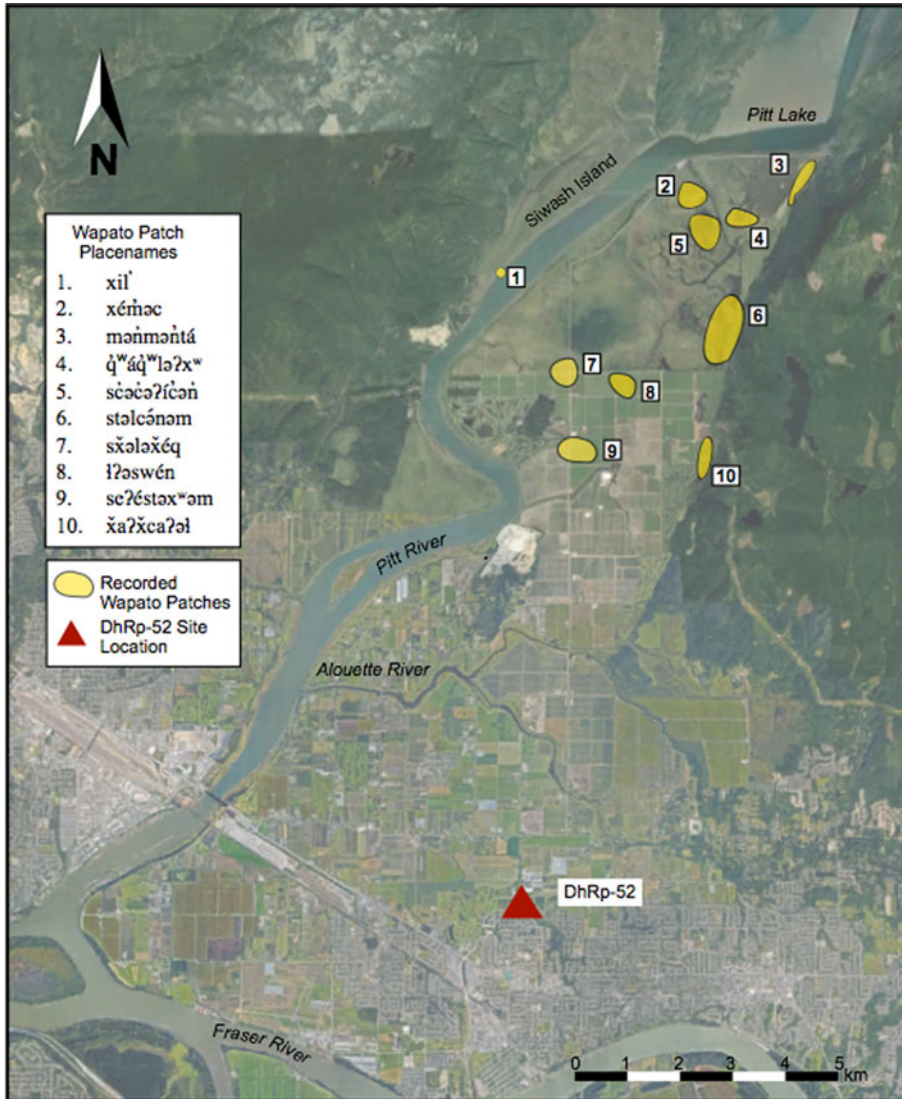


Figure 2. Historically documented wapato gardens and DhRp-52 within contemporary Katzie First Nation territory.

(71.8% of 3,768 total). Of these, 49.4% ($n = 1,337$) were recovered from the S3W deposits (Figure 6; Hoffmann et al. 2016). Wapato tubers were found in growing position, some complete with attached rhizomes, in charcoal-rich substrates. The rock pavement likely functioned as a physical barrier to prevent the penetration of rhizomes deep into the underlying substrate, thereby making the tubers available for harvest at a predictable and accessible depth (Hoffmann et al. 2016). At DhRp-52, 42 m² of pavement was excavated from a 1,600 m² zone

within a slough tract suitable for growing wapato and estimated at 112,500 m² (Figure 7). The latter is on par with Salishan reserve claims for wetlands, explored below. If wapato is cultivated in about 10 cm of sediment at a production rate of 55 tubers/m³ (Spurgeon 2001), and growing areas are rotated to allow the biannual fallowing indicated by experimental farming and traditional knowledge (Darby 2005; Roma Leon, personal communication 2020), then the productivity of this feature could range as high as 4,400–275,000 tubers per year—a significant



Figure 3. Fresh wapato tubers (upper) and archaeological wapato tubers recovered from DhRp-52 (lower). Photographs courtesy of Katzie First Nation.

contribution to the diet of residents and likely neighboring communities.

The broken tips of 74 wooden implements and a fragment of a tumpline were found directly beneath, above, or lodged within the rock pavement (Figure 8). A further 45 wooden implement tips were found in a midden area adjacent to the pavement. The majority of the wooden tools are interpreted as digging stick tips. Many are polished smooth and fire hardened, and where in situ orientation was recorded, most were found embedded tip-down in the rock pavement, presumably having broken off during use as harvesting implements.

The density of wapato and its clearly intensive form of cultivation, combined with the proximity of the rock pavement to at least one large residential structure at DhRp-52, lead us to call the

feature a garden (cf. van der Veen 2005). This wetland garden is a prominent feature of the final occupation phase of this long-lived multi-component village site. The stratigraphic dates place the use of the garden (3800–3200 BP) in what is known as the Charles Phase within the regional Gulf of Georgia sequence on the Northwest Coast (Figure 5). Charles Phase sites are typically small, some contain small houses, and people of this era are thought to have had highly localized economies and a lack of social complexity or resource intensification (e.g., Mason 2017; Pratt 1992; Schaepe 1998; but see Coup-land et al. 2016; Prentiss and Walsh 2018). What little evidence for plant use exists for this time period is generally limited to edible seasonal resources, the use of western red cedar (*Thuja plicata*) for structural purposes, and a variety of perishable artifacts from wet sites (Bernick 1998, 2019; Lepofsky and Lyons 2013). In our discussion, we consider how DhRp-52 accords with conventional interpretations of the Charles Phase and our wider conceptions of mid-Holocene socioeconomies on the Northwest Coast. Below, we focus on origin stories that relate to the wetland garden itself and the cultural implications that arise from them.

On the Origins of Wapato: Swaneset and the Sandhill Crane Sisters

One of the several lenses by which we can explore the origins of the wapato garden is through Katzie origin stories. Coast Salish scholar Jo-Ann Archibald (2008) advises us that Indigenous stories from the oral tradition contain deep, serious life lessons. They instruct about the very nature and meaning of being, and in doing so, require careful and culturally appropriate analysis—what Archibald calls “storywork.” This work relies on ethnographic context, linguistic evidence, and contemporary Katzie knowledge.

In 1936, the ethnographer Diamond Jenness spoke with the Katzie shaman and historian Old Pierre, who was then about 75 years old. The account was published as “The Faith of a Coast Salish Indian” in 1955. In a text titled “The Katzie Book of Genesis,” Old Pierre recounts the creation of his people and lands by Swaneset. According to

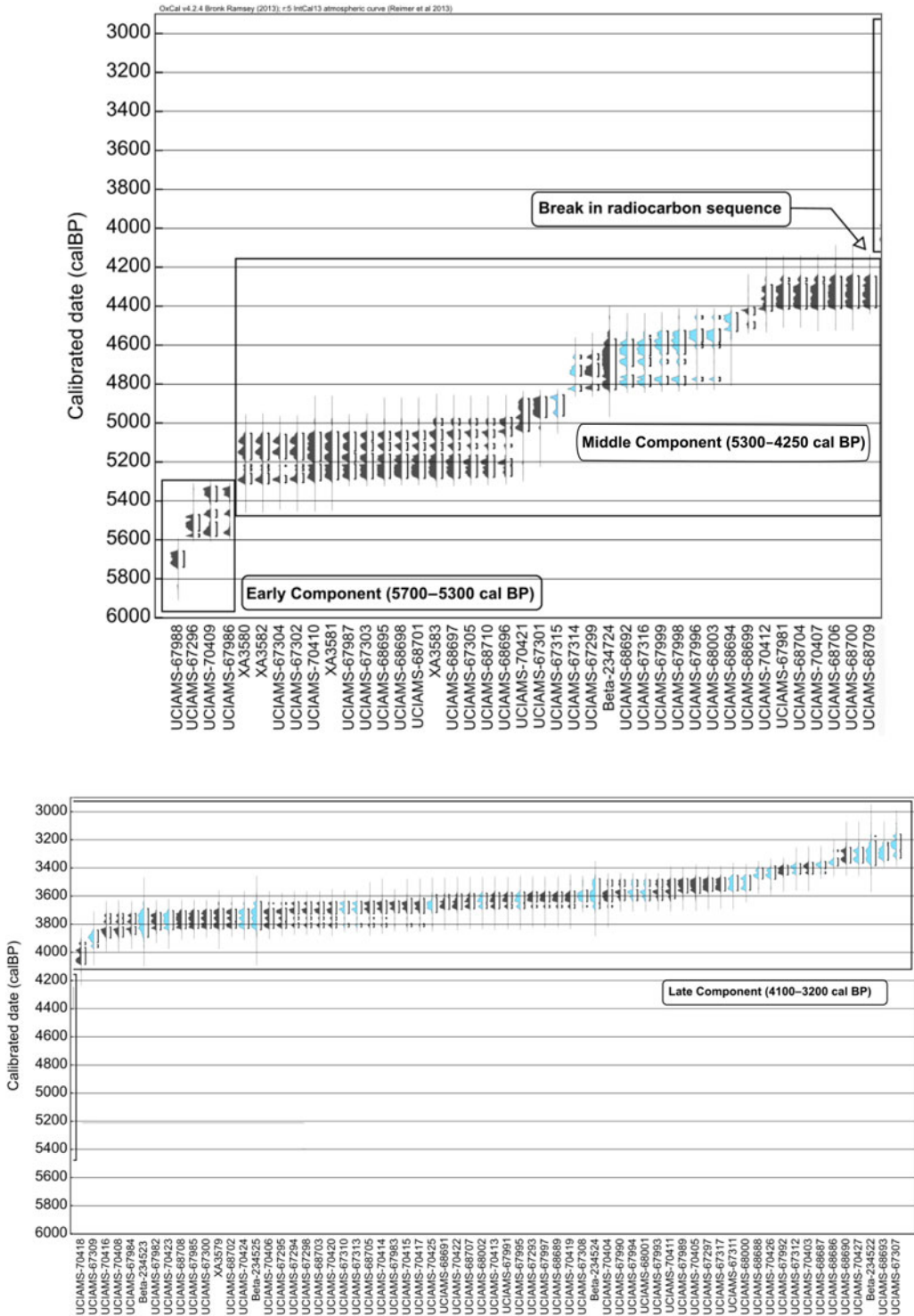


Figure 4. Radiocarbon sequence for DhRp-52. Lighter lines indicate wet site dates. (Color online)

Date BP	Gulf of Georgia Sequence	DhRp-52 Sequence	
present	Gulf of Georgia Culture (1100–500/Contact BP) Increasing similarity to ethnographically known communities		
500			
1000			
1500	Marpole Phase (2400–1100 BP) Elaborate burials, widespread status ascription, multifamily houses, well-developed art forms, established social and economic systems.		
2000	Locarno Beach Phase (2400–3500/3400 BP) Labrets, pithouses (single family), adzes, salmon-based storage economy, presence of special use sites, beads in burials.		
2500			
3000			
3500	Charles Culture (3500/3400–4500 BP) Small rectangular and circular semi-subterranean structures, large quantities of beads in burials, ground stone tech., limited evidence of storage.		Late Component (3200–4100 BP) Pithouse, wapato garden, adzes, large quantity of beads, continued use of large FAR-filled pit.
4000	Old Cordilleran Culture (4500–9000 BP) Abundant cobble choppers, inland habitation, large-scale mammal hunting, highly mobile with limited evidence of permanent residential sites.		Middle Component (4250–5300 BP) Large rectangular houses (multifamily); concentrations of ochre around central hearth features; no beads, labrets, or adzes; mostly chipped stone tools; large FAR-filled pit feature.
4500			
5000			
5500			
6000			
6500	*No structures, abundance of cobble choppers.		
7000			
7500			
8000			
8500			
9000			

Figure 5. Comparison of the regional culture history model with the DhRp-52 site chronology.

Old Pierre, Swanaset created the vast slough systems of the Pitt Polder and then returned to his people at Sheridan Hill to announce

that he had reshaped the land so that it would provide them with an abundance of Indian potatoes, cranberries, and other foods. The people scattered to gather these foods while Swanaset spent his days watching them. As he wandered along one day, he observed two very pretty girls, the sandhill crane (sli'm) sisters, who at that time had the forms of human beings [Jenness 1955:13].

Swanaset proposed marriage to the Sandhill Crane sisters. They celebrated by roasting Indian potatoes (wapato) for him, which he found soft and tasty. He later

accompanied them to the potato-fields, and . . . watched them gather their food. They had no sticks, but dug with their hands and, like sandhill cranes to-day, threw the mud behind them, after which they broke it up and collected their potatoes [Jenness 1955:13].

These passages speak to the socioeconomic significance of wapato to the Katzie in the 1930s

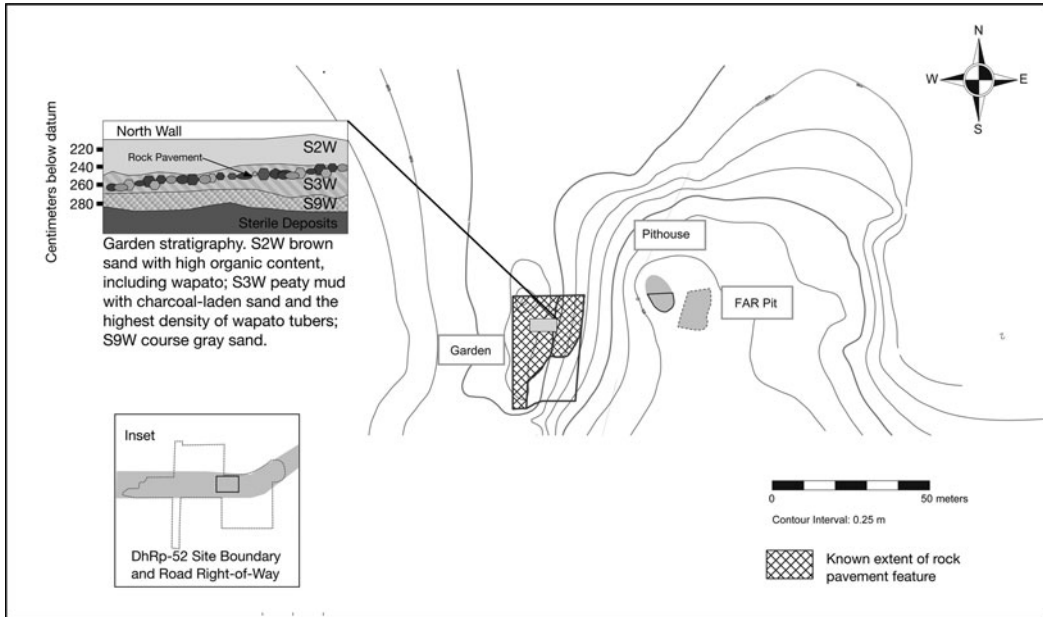


Figure 6. Plan of DhRp-52 wet site garden and adjacent residential dry site.

based on age-old oral traditions. In the larger text, Swanaset creates the optimum conditions for wetland faunal and floral resources to flourish and then teaches the Katzie how to find, hunt, cultivate, and preserve them; to choose proper sites and build homes; and to follow social mores and behave in the proper manner. Although the spoken form of this narrative surely altered over time and across tellings, the reliance on particular resources likely had very deep roots based in observations of the natural world. Swanaset observes how the sisters harvested wapato by digging up the mud. This may have been the original method by which proto-Coast Salish peoples who first settled the region—those we assume to be ancestors of today's Coast Salish communities—discovered that these tubers were edible. In addition to humans, many wetland creatures—including muskrats, waterfowl, and of course, cranes—actively seek wapato tubers (Garibaldi 2003). Turner (2014:2:162) suggests that First Peoples entering the New World may have seen, in similar fashion, that Northern rice root (*Fritillaria camschatcensis*) was edible by watching grizzlies dig and consume it in tidal marshes. Kelly Squires (personal communication 2017) posits that cranes have likely made gardens throughout Katzie territory

one of their long-standing migration stops because they provided such a rich and dependable food source (cf. Darby 2005). This ecological pattern creates an indelible symbolic association between sandhill cranes, wetlands, and wapato.

Historically, we know that visitors from communities throughout the Salish Sea region streamed into Katzie territory in the late fall, following the salmon fishery, to harvest wapato, bog cranberries, crabapples, sphagnum moss, and other wetland resources owned and managed by the Katzie (Duff 1952:74). Wapato was cultivated and traded at a similar scale by Chinook peoples of the Lower Columbia (Darby 2005), and less intensively by other communities of the Pacific Northwest (Garibaldi 2003; Haerberlin and Gunther 1930). Traditional Katzie knowledge and ethnographic records describe how the Katzie grew wapato in large tracts. Some were common property, and others were seasonally owned by specific families. Large family tracts were annually weeded to allow the plants to flourish, demarcated to show ownership, and individually tended until the fall harvest (Suttles 1955:27). The plants were harvested from fall through late winter when women stepped out of their canoes and “danced” through the frigid water causing the fleshy tubers to break free and float to the surface—a technique

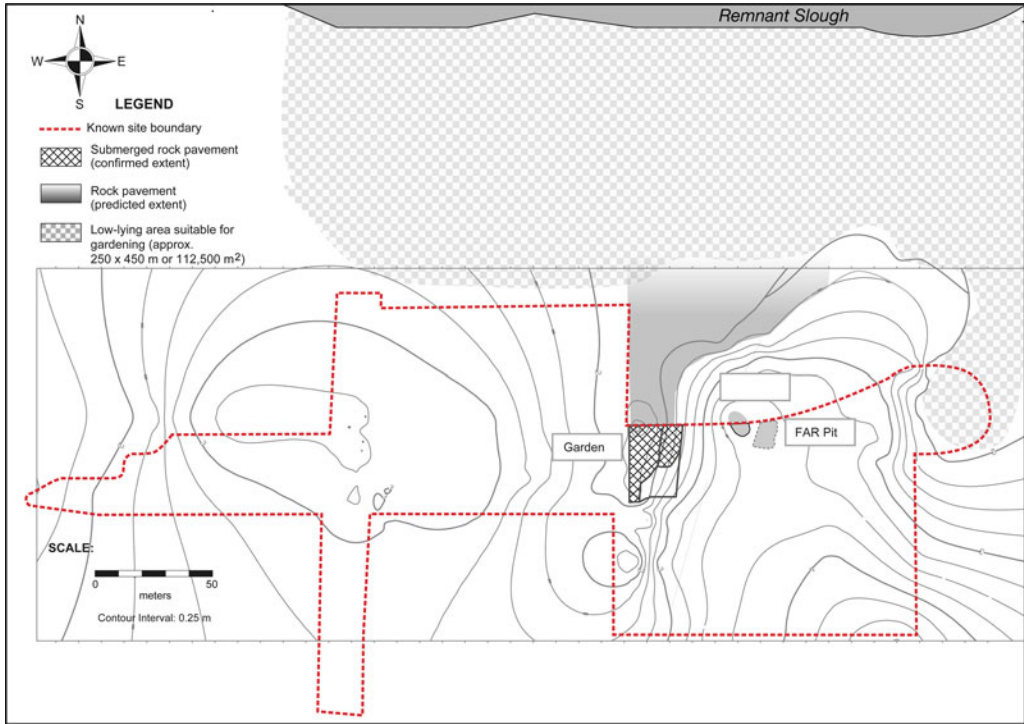


Figure 7. Estimate of area suitable for growing wapato surrounding DhRp-52.

much like that demonstrated by the Sandhill Crane Sisters.

Although resource management and procurement most often took place at the family or village level, complex affinal relationships promoted a much broader geographic distribution of and access to carefully managed (and

often anthropogenically extended) resource niches well beyond Katzie territory. Status essentially derived from food gifting, sharing, and production; and “the best camas beds, fern beds, wapato ponds, and clam beds were owned by extended families” (Suttles 1960:300). The constant year-round movement of Coast Salish peoples up and down the Fraser River and its tributaries not only fostered but required this expansive network of kin ties that simultaneously allowed access to and control over territories and resources (Ames 2002; Carlson 2010:47–48; Ritchie and Hatoum 2020).

Wapato, as a cultural keystone resource (Garibaldi and Turner 2004), was central to both basic subsistence and the prestige economy—a fact that is revealed by its cosmopolitan linguistic distribution. “Wapato” derives from *wáptu* in Chinuk Wawa, or Chinook jargon, and it is also known as *ḵʷəḳʷəwl̓s* in *hən̓q̓əmi̓n̓əm*, “Indian potato” and “broad-leaved arrowhead” in English, and *Sagittaria latifolia* in Latin (Le Jeune 1924 in Spurgeon 2001:38). The *hən̓q̓əmi̓n̓əm* word for wapato is *ḵʷəḳʷəwl̓s*, and a family



Figure 8. Digging stick tips found lodged in the rock pavement. Photograph courtesy of Katzie First Nation. (Color online)

patch of wapato is *q'wéxtan*. The term for “tuber” used by Coast Salish speakers is *skaus* (sqéwθ), which would later become the generic word for the European potato (*Solanum tuberosum*)—a resource with Andean origins (Suttles 1951b, 1955:27; Turner 2014:1:511). *Skaus* has a proto-Coast Salish root, *s-qawc*, that is thousands of years old, suggesting that the cultural use of valued root resources is of similar antiquity (cf. Galloway 2009; Kuipers 2002; Turner et al. 2013:145). Verbs related directly or generally to wapato production—many with proto-Coast Salish linguistic origins—include those for roasting, planting or sowing, pulling up by the roots, clearing land, fencing or fortifying, spreading, raking, and marking, which suggests a linguistic frame for a complex resource management ecology (Galloway 2009; Kuipers 2002; Suttles 1951a, 2005:191–192; Turner 2014:Table A3-2).

Through times of economic, social, and cultural upheaval, *həñqəmihəñ* terms for wapato and other culturally significant plants, wapato patches, and resource management practices persisted within Katzie memory (Spurgeon 2001:68–75; Suttles 1955). Despite historical Katzie being forcibly removed from their traditional lands and waterways (Hoffmann 2017), the storywork of these resources and places endured in Katzie knowledge and discourse and has prompted the contemporary community and leadership to restore the stewardship imperatives that underpin traditional resource management practices (Katzie First Nation 2017; Lyons, Hoffmann, et al. 2018).

On the Origins of Agriculture: The Settler View of Coast Salish Territory

Indigenous resource management practices, such as wapato cultivation, have been seen (or rather, not seen) since contact through the lens of Western history and thought. Flowing from Enlightenment ideals, nineteenth- to mid-twentieth-century historical models tended to be generalizing, objectifying, and reductionist, as well as heavily entangled with imperialist economic strategies driven by an agrarian ideal (de Luna 2017; Harris and Demeritt 1997:249). Western origin stories are founded on the ideal

of the Fertile Crescent, where growing wheat, raising cattle, and sedentary living are the epitome of domesticated life, both provided and sanctioned by God (Blake 2015:42–44). The agrarian story is a moral tale of progress that rests firmly on the raising of cereal crops for flour and feed.

An example of the origin myth of this agrarian ideal can be derived from the direct statements of English colonizers. In 1898, Canadian Deputy Superintendent General of Indian Affairs James Smart laid out the Department of Indian Affairs' view on the position of agriculture in the hierarchy of “progress”:

The initial step towards the civilization of our Indians should be the adoption of agricultural pursuits . . . if the red man is to take his place and keep pace with the white in other directions. . . . Cultivation of the soil necessitates remaining in one spot, and then exerts an educational influence of a general character. It keeps prominently before the mind the relation of cause and effect, together with the dependence on a higher power. It teaches moreover the necessity for systematic work at the proper season, for giving attention to detail, and patience in waiting for results [James A. Smart, 1898, Canada, Sessional Papers, Department of Indian Affairs Annual Reports, xxi].

Prior to contact with newcomers, coastal First Nations lived comfortably within their own versions of carefully cultivated environments (Turner 2014:1:265; Turner et al. 2013), and their resource management regimes aligned with Indigenous legal principles of title rights that appear to have great antiquity (Martindale et al. 2017). Smart's version draws from the English vision of agriculture, the doctrines of a heavily patriarchal version of Christianity, and the perception that lands of British Columbia were *terra nullius*, and consequently free for the taking. The differences between English common law and Indigenous land practices are well documented (Borrows 2010), and they suggest a self-serving relationship between settler-colonial land encroachment and their ignorance of Indigenous resource management.

The first half of the nineteenth century was a time of intensive interaction, trade, and curiosity between these very different peoples and viewpoints (Fisher 1971–1972). First Nations found great use for incoming technologies and foodstuffs brought by the earliest traders. Potatoes, in particular, rapidly became a staple of the early contact era. They were sought after the length of the coast by First Nations communities, who built and grew gardens for them and other acquired root foods such as carrots, turnips, and onions. Deep knowledge of root food cultivation allowed for the rapid adoption of potato gardening on cultivated prairies: scores of potato gardens were recorded between 1825 and 1857, and First Nations gardeners actively traded potatoes back to Europeans for their sustenance (McDonald 2005; Moss 2005; Suttles 1951b:147). Despite the ubiquity of potato gardens in the mid-nineteenth century, this period of plenty was short lived. When the colony of British Columbia was established in 1858, Governor James Douglas appropriated Indigenous land for settlers by signing a series of treaties with Vancouver Island Salish and creating Indian reserves on unextinguished First Nations' territory in the remainder of the province. Less than a decade later, Douglas's successor, Land Commissioner Joseph Trutch, would reduce the original reserve sizes by tenfold because, in his estimation, First Nations communities had not adequately conformed to an agrarian lifestyle (Fisher 1971–1972).

Despite Trutch's assessment, many Coast Salish families of this period grew crops in kitchen gardens, planted fields of corn, tended orchards of fruit trees, and kept small-scale dairies (Oliver 2010). First Nations communities, however, were prohibited by federal legislation in 1870 from claiming land via preemption, a process wherein European settlers were allowed up to 320 acres of so-called "unsettled" land (Carlson 2010). In the latter half of the nineteenth century—a time when Katzie people still used and maintained wapato gardens (Figure 2)—extensive programs of diking, dredging, and filling would eradicate the carefully managed slough systems and wetlands throughout the Pitt Polder region to make way for dryland agriculture (Hoffmann 2017). Indian Reserve

Commission maps and surveyors' notes for 1879 record Katzie's desire to have a number of their "potato" (wapato) gardens in the Pitt River wetlands set aside, but the commissioners took the flooded areas marked as potato grounds to be in error, and Katzie were denied their traditional wapato tracts (Mohun 1880).

The myth of agrarian society was not borne out in the lands of the Coast Salish. Settler ideologies drove newcomers to both denigrate and eradicate native plant species and their carefully managed landscapes—including wetland habitats, which Westerners viewed as dangerous and disease ridden (O'Sullivan 2013; Siemens 1998)—and to eschew the knowledge of Coast Salish peoples (Garibaldi and Turner 2004). Nearly all historically existing wapato cropland was destroyed through land alterations related to draining and filling wetlands (Spurgeon 2001). The marginal stands of wapato that did continue to exist, over time, became inedible as they absorbed toxic pesticides, heavy metals, and other foreign substances leached into the soil and water system via agricultural and industrial development (Garibaldi 2003; Hoffmann 2010, 2017).

Fortunately, it is not too late to deconstruct the pervasive origin myths that created and perpetuated perceptions of the superiority of modern agriculture and industry. Nor is it too late to document the principles and practices of cultivating the carbohydrate-rich, non-grain resources to the extent that they effectively became "behavioral domesticates" of Northwest Coast communities (Smith 2005:61; Zvelebil 1993). Indeed, as we discuss below, the work of relearning and implementing these practices is underway at Katzie and other First Nations communities.

On the Origins of Agriculture: The Archaeological Models

A third set of origin stories derives from archaeological models. These models are built on similar narratives as Western settler history and rely on many of the same assumptions about the agrarian ideal. Here, we seek to unpack these ideas—which continue to inform how archaeologists think about and describe cultural "others"—in

order to assess how the wapato garden fits into this disciplinary picture.

V. Gordon Childe (1936) coined the term “Neolithic Revolution” to describe the shift from a foraging existence to settled agricultural communities beginning around 12,000 years ago in the Near Eastern region of Mesopotamia. The major studies of the “Fertile Crescent” in the mid-twentieth century, which charted the spread of the Neolithic Revolution to Europe, were based on the tacit Western assumption that the ideal route to “civilization” follows the path of cereal grain cultivation and animal husbandry to the apex of human subsistence: domestication, agriculture, surplus production, population growth, social complexity, and the many trappings of sedentary society. Societies lacking any form of farming were considered “primitive.” According to Childe,

There in the Ancient East, too, some episodes . . . in the great drama of conquest of civilization are enacted on the open stage. The greatest moments—that revolution where man ceased to be purely parasitic and, with the adoption of agriculture and stock-raising, became a creator emancipated from the whims of his environment [Childe 1934:1].

The Near Eastern case study became *the* origin story about the birth of agriculture for generations of archaeologists and anthropologists, sanctioned (and made unassailable) by scientific ideas of objectivity and an accruing body of empirical evidence derived from dryland archaeological sites in Europe and Mesopotamia (Blake 2015:44–45).

In time, archaeologists encountered human societies whose economies blurred these lines and which could not be fit onto a continuum between forager and farmer. As a result, they were forced to consider how these economies might be understood and categorized. The use of terms such as “middle range” for these societies shows the continued conceptual power of the continuum. Midrange societies are those that existed sustainably for long stretches of time without adopting or creating morphological domesticates or developing into “state-level” societies (all embedded expectations of the established agrarian model). Several Indigenous

nations of the Americas—such as the Calusa of Florida (Hutchinson et al. 2016) and the Chumash (Arnold 1992) and Kumeyaay (Shipek 1989) of California—and the mosaic of historically documented First Nations peoples of the Pacific Northwest, including the Coast Salish (Ames and Maschner 1999; Matson and Coupland 1995; Prentiss and Kuijt 2012), fit this type. These societies, which have been called “complex hunter-gatherers” and “transegalitarian societies,” have long posed a challenge to conventional anthropological taxonomies (Hayden 1995; Sassaman 2004; Smith 2005:37–39).

As an exercise that illustrates our larger critique, we ask where the DhRp-52 wapato garden fits within the midrange models (Table 1). Using terms defined in Ford’s (1985) and Harris’s (1996) schema, we provide evidence from DhRp-52 for a suite of plant cultivation practices. This analysis of the wapato plot reveals that site residents were likely fertilizing, possibly weeding, tilling with digging sticks, manipulating the garden’s hydrology to amplify growth, creating a rock pavement for ease of harvest, and selectively harvesting (site residents were also likely involved in feasting, large-scale processing, status-oriented activities, and exchange; Hoffmann et al. 2016; Lyons, Hoffmann, et al. 2018). The attributes of the wapato plot suggest that these proto-Coast Salish gardeners were practicing what has variously been called “wild plant food production” by Harris (1996), “behavioral domestication” by Zvelebil (1993), “low-level food production without morphological domestication” by Smith (2005), and somewhere between “incipient agriculture” and “gardening” by Ford (1985), this former designation first suggested by Suttles in 1951.

So, were the ancient Coast Salish farmers? In the vernacular sense, the answer is yes. Wapato was a behavioral domesticate of proto-Coast Salish people—at least at DhRp-52—and of both ethnographic-era Katzie and Chinook (Darby 2005; Suttles 1955). This assessment is greatly strengthened, and potentially extended to Northwest Coast Peoples more generally, if we add other perennial root foods such as the late precontact estuarine gardens of springbank clover (*Trifolium wormskioldii*) and Pacific silverweed (*Potentilla anserina*) in Nuu’cha’nulth

Table 1. Evidence for Cultivation Practices in the DhRp-52 Wapato Garden.

Practice	Definition	DhRp-52 Evidence	DhRp-52 Interpretation
Land clearing and modification	This is the clearing of vegetation or other land modifications to create or enable conditions for a garden plot.	Submerged rock pavement (11 × 17 m), one course thick, was laid in the lowest part of the site—the garden with uniform-sized fire-altered rock and rounded cobbles. 4,500 seeds deposited as seed rain through 7 garden deposits in wet site showed dramatic increase within and above rock pavement of wetland obligate species water nymph (<i>Najas</i> spp.); they decreased again rapidly after garden’s management ceased. Wapato seed counts generally low, but seed heads actively predated by waterfowl. Wapato pollen increased dramatically in deposits within and above rock pavement.	<i>Land clearing:</i> As opposed to clearing per se, original wild-growing plot of wapato came under an in situ management regime (Casas et al. 2007), a parallel type of process for a wet site. <i>Land modification:</i> The hydrology of wapato garden was modified to create a more inundated environment, amplifying tuber growth. Growth conditions were modified through engineering of rock pavement at the feet of plants to create even substrate, probably to ensure the predictability and stability of the harvest.
Tending and Sowing	Tending is the encouragement of plant growth by direct care of target species and limiting competition via weeding and predator control. Sowing is the broadcast of mature seed. It constitutes greater intervention in life cycle, and it could be in combination with tilling seedbeds or storing seed.	200+ whole wapato tubers and thousands of fragments and rhizomes (total parts = 3,768) were recovered from the garden. Tubers were healthy and round (mean diameter = 1.8 cm). Densities within rock pavement and deposit above (S3W; Figure 5) 55.4 tubers (or fragments) per m ³ vs. 4.4/m ³ for adjacent bank and midden deposits. $\delta^{15}\text{N}$ (nitrogen) levels in ancient wapato specimens were significantly higher than modern samples. One explanation is intentional deposition of food waste in garden. Fertilization may have been affected by charcoal mulching. Waterbirds consume wapato tubers. Ethnographically, Katzie practiced waterfowl control in or near wapato gardens (Jenness 1955). The antiquity of the practice is evidenced by widespread temporal distribution of sling stones throughout Katzie wetlands (Sagarbarria 2017).	<i>Tending:</i> The plot was certainly tended. Wapato tubers grew well in and above the rock pavement. The plot may have been fertilized. <i>Sowing:</i> Sowing occurred in the garden. Wapato reproduces vegetatively (by rhizomes) and by seed. Gardeners clearly practiced selective harvesting, allowing smaller bulbs to grow following the season. They may or may not have had seed reproduction knowledge.
Tilling	Tilling is a deliberate effort to expand size of stands of seed plants through soil disturbance, churning, and/or detachment of bulbs during harvest.	75 of a total of 185 digging stick tips were found in situ in wapato garden; several were found jammed, tip down, in rock pavement.	<i>Tilling:</i> Tilling was occurring. Digging sticks were used to enable harvest, aerate soil, and churn mucky substrate.
Transplanting	Transplanting is moving the locale of plants for ease of access, consolidation, experimentation, or other reasons.	Garden tenure coincides with extensive evidence for very large-scale food processing and/or cooking on residential part of site; potential exchange of stone beads for wapato tubers or garden access (see Hoffmann 2010).	<i>Transplanting.</i> It is unknown if plants were transplanted to or from DhRp-52. Wapato was historically transplanted by Puget Sound and Stó:lō First Nations and potentially by Secwepemc of interior British Columbia. This practice likely has precontact roots. Contemporary Katzie specialists have been successful transplanting wapato in Alouette and Pitt drainages.

and Kwak'wak'akw territories (Deur 2000, 2005; Mathews and Turner 2017), evidence for camas production by Coast and Straits Salish communities (Lyons and Ritchie 2017), and native tobacco (*Nicotiana quadrivalvis*) gardens in Haida, Tlingit, and Tsimshian territories (Moss 2005; Turner 2014:2:189).

Yet, within the disciplinary framework, no answer comes without equivocation. Assigning the characteristics of these gardens and attendant economic practices to particular categories is problematic for a number of reasons. First, terms such as “cultivation,” “gardening,” and “farming” are defined in a wide variety of ways, making their potential applications ambiguous (Smith 2005:54–59). Second, in trying to pigeonhole complex cultural practices into predefined schema, which are by their nature both relative and reductionist, we undermine our understanding of their specific contexts and uniqueness (Ames 2005:71; Turner 2014:1:265). Third, the midrange models are focused on the reproduction of annuals in dry-land contexts by seed rather than on wetland perennials by vegetative means (Deur 2000:41–46), an outcome of the hegemony of the agrarian model itself. Blake (2015) has observed that

[we] have generally neglected to theorize about the origins of non-grain crop agriculture. Although we are now accumulating information about the domestication histories of non-grain crops, we still do not have many models or explanations about how root crops, tree fruits, and other non-grain foods and spices came to be domesticated—and this goes for both Old World and New World species [Blake 2015:50].

The wetland farming literature from tropical and temperate regions such as Asia and Central and South America offers excellent analogues for mixed subsistence economies that integrated cultivated crops—including small-scale gardens and large cultivated fields—tree crops, and wild resource procurement over long durations (Casas et al. 2007; Denevan 2001; Killion 2013; Siemens 1983; VanDerwarker 2005). Wetland farming can feature raised and drained beds, modifications to water and soil regimes, substantial rock and earthworks, and the expansion of

productive niches for wild plant species and their intercropping with cultivars (Ford and Nigh 2015; Nations and Nigh 1980). Key root crops originating in the Americas—including manioc (*Manihot esculenta*), sweet potatoes (*Ipomoea batatas*), peanuts (*Arachis hypogaea*), and many others—are essential cultivars in these mixed gardening regimes that often existed in close proximity to rich wetland environments with their abundant fish, waterbird, and aquatic animal populations (e.g., Heckenberger 2004). In Mesoamerica, these forms of wetland farming were similarly doubted by proponents of the dry-land paradigm, and perhaps for this reason, this literature tends to focus on variation—in shape, structure, and hydrological engineering, in addition to prospects for past and present usage—rather than on origins and the hegemony of a single model (Siemens 1983, 1998; Sluyter 1999).

The DhRp-52 garden is an excellent archaeological example of a mixed subsistence regime that employed niche construction. Starting at 3800 BP, resident gardeners constructed a rock pavement that effectively altered the hydrological regime to make the garden wetter, in turn dramatically amplifying wapato production, as seen in commensurate rise in tuber densities and wetland obligate plant species through the garden sequence (Table 1). By creating a rich niche for wapato, these gardeners also created bait for predators such as waterbirds, thereby making the garden a seasonal hunting locale (Darby 2005; Garibaldi 2003). This set of anthropogenically enhanced biotic interrelationships invokes Monks's (1987) classic Northwest Coast “prey as bait” model. The wapato garden was managed in this way for some 500 years—at the same time as a vast suite of wild wetland and terrestrial plants was consistently harvested by site residents—and after the garden's abandonment, its deposits dried up and acidified as the wetland moved toward a lower-energy peat bog (Hoffmann et al. 2016). Clearly, these different facets of knowledge were passed on during the succeeding three millennia, given that historic Katzie continued to cultivate and manage large tracts of wapato and pursue seasonal game at these same locales (Suttles 1955). We are currently pursuing evidence for other ancient wapato gardens—including investigations of a

sequence of potential (now disrupted) rock pavements from the Carruthers site, located inland from DhRp-52 (Copp et al. 2019)—and we are confident that others will be found when we develop the correct lenses to find them.

As we expand our frames of analysis for the wapato garden and other archaeological forms of cultivation on the Northwest Coast, we should also be rethinking how we frame our questions. Instead of asking if the ancient Coast Salish were farmers in the vein of Childe's Neolithic Revolution, perhaps we should shift our gaze to more culturally appropriate analogues: Were the ancient Coast Salish resource managers? Yes. Were they ecosystem engineers? Yes. Did they combine cultivation and foraging? Yes. And, were they wetland farmers? Yes, they were. These assessments are echoed in the words of Kwakwaka'wakw elder and scholar Daisy Sewid-Smith, who explained to Nancy Turner and colleagues (2013) that her people knew that plants and animals do not just appear in nature with the characteristics that people desire—they require a sustained set of cultural practices and knowledges to produce them. She reasoned that “to get more harvest, and a bigger . . . berry, they did these things. Same thing . . . a farmer does” (Turner et al. 2013:107).

Discussion: What Do Stories of Agricultural Origins Mean in the Real World?

A game-changing discovery such as the wapato garden at the archaeological site of DhRp-52 offers many communities of knowledge-holders both challenges and opportunities for growth. The finding of evidence for sustained mid-Holocene wetland farming on the Northwest Coast of North America should prompt First Nations, settler, and archaeological communities to reexamine their/our origin stories and to revisit what we think we know. In this discussion, we explore the real-world implications of these stories.

The beliefs that First Nations peoples of the Pacific Northwest once held about their place in the world were buried and undermined by colonial bullying, genocide, marginalization, and assimilationist processes, and for this reason, the excavation of the wapato garden was a landmark of recent Katzie history. Over 70 Katzie

members participated in the management, excavation, and analyses of DhRp-52 (Hoffmann 2010). The excavation brought a revival of cultural pride, identity, and knowledge. It also reflected the customary laws and scholarship embedded in the stories of Swanese and his teachings about how to take care of the social and natural worlds around them. Although not a panacea for all challenges to the community, this experience and its outcomes has given many Katzie a sense of knowing who they once were and equally provided a new (old) footing from which to move forward (Lyons, Hoffmann, et al. 2018). For other Katzie, the government's unwillingness to preserve the site and the archaeological excavation that paved the way for construction of an arterial roadway serves as yet another example of how government forces continue to impact the trajectory of Katzie lives, and how colonial policy is echoed in the present (e.g., Abbott 2017; Schaepe 2018).

Contemporary Katzie leaders are continuing the negotiation work toward a land claims treaty with the province and nation that would give them greater control of their lands and resources. They are using evidence of ancient plant management to counter Western conceptions of “land use” that were—and continue to be—used to justify preemption of Katzie territory (Hoffmann 2017). “We *were* farmers, and now we have proof!” declared one Katzie leader (Peter James, personal communication 2017). Wapato farming is seeing a resurgence through the implementation of the Katzie ecocultural restoration plan, which is fostering experimentation with different forms of cultivation (Katzie First Nation 2017). This work is part of a larger cultural resurgence movement of First Nations and Native American communities throughout the Pacific Northwest to restore culturally important species and the habitats that sustain them (e.g., Reynolds and Dupres 2018; Turner 2020; Turner, ed. 2020).

The settler community of the Fraser River Delta, in contemporary Coast Salish territory, may similarly be encouraged by the well-publicized find of the wapato garden to examine its own origin stories and relationships to its Katzie neighbors. First Nations assertions of rights and title to territory and resources through treaty

will continue to affect settler populations, and these negotiations can be viewed and proceed with either antipathy or goodwill. Historically, Canadian governments, media, and the popular culture that drives them have not been friendly to Indigenous rights or claims (Coulthard 2014). Katzie are among those First Nations actively challenging respective communities of the Fraser Delta to envision how they might coexist and create a shared sense of belonging to the landscapes, economies, and communities they live in together.

The continuing trope of capitalist progress and its financial and cultural trappings is increasingly coming under sharp scrutiny. People are looking elsewhere for models of wellness and ways to grow and sustain it. In this vein, Turner and colleagues (2013:127) suggest, “There is tremendous potential for traditional [Indigenous] management methods to be renewed and applied, probably incorporating some of the more recent tools and techniques to make them practical in a modern context.” A growing number of First Nations and allied practitioners in the Pacific Northwest are hard at work restoring camas prairies, wetland, and intertidal gardens; running native plant nurseries and seed exchanges; and developing strategies for food security, alternative energies, and land-based pedagogies (Turner, ed. 2020).

The wapato finding also challenges the origin stories of archaeologists. In terms of nomenclature, the wapato garden requires us to reconsider how we conceive of and categorize both ancient and contemporary Northwest Coast communities. Were the ancient Coast Salish farmers? What does DhRp-52 mean for archaeological origin stories about ancient plant food production on the Northwest Coast? What do we call the practices that created and sustained it? This article intends to provoke some of these discussions rather than provide definitive answers. What does the wapato garden mean for the relationship between Northwest Coast archaeologists and contemporary Coast Salish peoples? Undoubtedly, our First Nations partners and colleagues will continue to bring us new understandings of both themselves and ourselves and prompt us to revise our ideas and our methods of inquiry and analysis.

In terms of the “classic anomaly,” the wapato garden urges us to rethink how mid-Holocene economies were organized and operated in proto-Coast Salish territory and beyond. The story that Charles Phase cultures in the Gulf of Georgia gradually evolved from simple to complex is unsettled by the wapato garden and its implications. What the wapato garden, the large and elaborate processing facilities, and the close to 100,000 beads recovered at DhRp-52 (Hoffmann et al. 2016) suggest is that proto-Coast Salish cultures developed resource intensification, socially complex relationships, and status-related inequality during the Charles Phase. These circumstances may not have been sustained across time and place—but they are very clearly documented at many locations within the region (Figure 5; Coupland et al. 2016; Martindale et al. 2017; Prentiss and Walsh 2018). Chances are that gardens of this nature exist elsewhere in Coast Salish territory in different time periods and that other examples of resource management practices and mixed economic practices will increasingly be discovered as we continue to expand the lenses through which we observe and analyze archaeological data.

In the wider anthropological realm, how do contemporary usages of the terms “hunter-fisher-gatherer” and “farmer” hold up under scrutiny? In his inquiry, Robert Kelly (2013) was unable to find a consistent definition of “hunter-gatherer,” providing but one illustration of the typology’s failure to successfully accommodate the diversity and changing trajectories of human subsistence economies across either space or time. Notably, many of the economic practices, effects, and social consequences of agriculture are visible in nonagricultural contexts, suggesting that the taxonomy itself is overly simplistic and that economic models might better be conceived as multibranching and fluid forms than as linear and fixed continua (e.g., Ames 1991; Denham 2009; Smith 2005, 2011). The variations in material complexity that we are seeing in First Nations histories across space and time in the Pacific Northwest—which do not follow either unilineal or universal trajectories—challenge some of archaeology’s foundational beliefs and persistent organizing

principles. It is time that we reevaluate our terms, examine their (often colonial) cultural underpinnings, and work to understand both specific logics and local ideas, practices, and experiences on their own terms (de Luna 2017; Martindale and Nicholas 2014).

This article has examined cultural constructs about farming in relation to the archaeological discovery of a 3,800-year-old wapato garden in contemporary Katzie territory, near Vancouver, British Columbia. Our examination of origin stories suggests that many of our terms carry certain colonial baggage, and furthermore, they have been applied uncritically to both peoples and their lifeways of the past and present. The contention that proto-Coast Salish people were wetland garden farmers *in addition* to being sophisticated resource managers who practiced a mixed subsistence economy—including hunting, gathering, fishing, and farming—challenges not only anthropological orthodoxy about Northwest Coast societies but asks archaeologists and settlers alike to revisit the terms of our engagement with First Nations of the region. Katzie, like other Indigenous peoples, are well aware of the sovereignty, legal, and stewardship stakes embedded deep in the colonial nomenclature, and they are keen to move forward on an equal footing with the newcomers to their original lands.

Acknowledgments. These ideas have been happily gestating for many years and have vastly benefited from our interactions and discussions with scores of people. We owe our greatest thanks to successive Katzie chiefs and councils as well as the Katzie crew members who led the excavations on this site—practically, spiritually, and emotionally. Thanks to Katzie chiefs and councils past and present, Katzie elders, and community members—especially Cyril Pierre, James Adams, Mike Leon, and Leah Muenier. Many thanks to the wonderful scholars of wapato and Northwest Coast plant life: Old Pierre and his son Simon Pierre, Wayne Suttles, Roma Leon, Nancy Turner, Dana Lepofsky, Terry Spurgeon, Ann Garibaldi, Melissa Darby, Sandra Peacock, Douglas Deur, Linda Storm, Chelsey Armstrong, Chief Adam Smith, and Daisy Sewid-Smith. Special thanks to Amy Homan, Emily Wilkerson, Alejandra Diaz, Stephanie Huddleston, Teresa Leon, Anna Baran, and Kitty Bernick for their dedicated work related to the DhRp-52 site. We thank several individuals whose knowledge and expertise have been useful and appreciated: our very astute and generous reviewers, including Dave Schaepe and editor Lynn Gamble, as well as Anna Prentiss, Gary Coupland, Strang Burton, Kathryn de Luna, Colton Vogelaar, Ian Cameron, Solène Mallet Gauthier, and Morgan Ritchie. We dedicate this article

to Ken Ames, a man of towering intellect and kindness, who is sorely missed by us and many others.

Data Availability Statement. All data is archived at Katzie First Nation. Contact Katzie Chief and Council with data inquiries: 19700 Salish Rd, Pitt Meadows, BC V3Y 2G6, Canada.

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Submitted March 11, 2020; Revised September 28, 2020;
Accepted September 29, 2020