FREQUENTLY ASKED QUESTIONS
ABOUT GATHERING BIRCH BARK
FOR WABANAKI CULTURAL USE
By Kathy Pollard and Ann Pollard-Ranco
In collaboration with Bangor Land Trust

Beginnings. Birch bark canoe under construction at Indian Island, July, 2022

Introduction by Bangor Land Trust:

Kathy Pollard and Ann Pollard-Ranco of Know Your Land Consulting have worked with us for several years on an Edible Landscape Project to improve wildlife habitat in our preserves surrounding the Penjajawoc Marsh in Bangor, Maine. In assessing existing flora and fauna, Lucy Quimby, President of Bangor Land Trust, asked Kathy to keep an eye out for resources Penobscots and other Wabanaki might find useful. Kathy noted there are hundreds of beautiful 35+ year old paper birch trees growing up in our Walden Parke Preserve following a clearcut 40 years ago. She suggested birch bark could be a welcome resource for nearby Penobscot citizens, explaining that it can be difficult to access near Wabanaki communities. We began a thoughtful exploration of inviting Wabanaki cultural use on one of our preserves, including birch bark gathering and the possibility of setting aside some of these trees, to grow to maturity so that decades from now they could become sources of material for future birchbark canoe makers. A number of questions about the cultural significance of birch bark, how its removal affects the tree, and more broadly, why sharing resources located on conservation land with indigenous gatherers is important. Many other landowners are similarly exploring Wabanaki cultural use and we asked Kathy and Ann to prepare this Birch Bark FAQ based on a list of questions our Board of Directors compiled. We hope it will help inform decision making for other organizations.—Bangor Land Trust

FREQUENTLY ASKED QUESTIONS:

Why do Wabanaki need access to birch bark?

Paper birch was identified by Passamaquoddy elder, Tribal Historic Preservation Officer, and former Forester Donald Soctomah, as one of the most crucial resources for

Wabanaki cultural continuance, but most Wabanaki don't have ready access to this important traditional material. Most birch trees that bark can be removed from are located in commercial forests often hours distant from reservation communities. Birches growing in these forests tend to be harvested at young ages, not attaining a size necessary for birch bark canoes and other cultural vessels.

Since the 1970's, land conservation organizations in Maine have been purchasing land to protect wildlife habitat and provide public access for people to enjoy the natural world. Collectively, these organizations now own and manage more than 1,000,000 acres of what is Wabanaki Homeland.

Land conservation organizations frequently acquire former commercial forests with a goal of allowing these regenerating forests to mature; thus paper birch trees growing on conserved lands have the potential to reach maturity (70-90 years old). Some of them could become a source of essential Wabanaki cultural material. Further, land conservation organizations are uniquely positioned to facilitate restored relationship between Wabanaki and lands now under conservation by inviting cultural use on these lands.

Detail of spruce root lashing on birch bark canoe under construction at Indian Island, July, 2022. Photo courtesy of Ann Pollard-Ranco.

The paper birch trees in Bangor Land Trust's Walden Parke Preserve are located only 8 miles from the Penobscot community at Indian Island, making this resource easily accessible to tribal artisans and canoe makers. However, while it was easier for Bangor Land Trust to envision sustainable harvest of wild growing permaculture foods and medicines, the idea of inviting indigenous gathering of birch bark elicited some dissonance. Bark removal leaves a conspicuous indication on the tree, which runs contrary to the conservation movement's long-standing ethos encapsulated in the mantra, "take nothing and leave no trace".

While this FAQ helps to answer what happens to the tree after bark is removed, perhaps a modified conservation ethos that expands to make room for traditional indigenous ecological knowledge and relationship with place, “Leave a beautiful trace!” (Peter Forbes 2021), could help shift the perception that all human signs on wilderness or conserved land are blemishes and somehow wrong from an ethical perspective— or bad for the ecosystem.

University of Maine forestry professor and tree pathologist Dr. William Livingston felt this modified conservation ethos is closer to Aldo Leopold’s (recognized as the “father” of the conservation movement): “When we see land as a community to which we belong, we may begin to use it with love and respect. All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts.The land ethic simply enlarges the boundaries of the community to include soils, waters, plants and animals, or collectively the land.” (Aldo Leopold, The Land Ethic, A Sand County Almanac.1949.)

Penobscot citizen Ann Pollard-Ranco shares how her cultural lenses are in alignment with the concept of “leave a beautiful trace”: “I was hiking along the Stillwater River in Old Town, and came upon an old paper birch tree that had some bark removed many years ago. It made my heart happy to know that a Penobscot perhaps from an earlier generation asked this tree for bark, likely left an offering gift of tobacco, collected some bark, and that the tree continued its own life journey unharmed, to be recognized all these years later as I walked through its home.”

What are traditional Native American cultural uses of birch bark?

The bark of Paper Birch (Betula papyrifera) has held crucial importance over the course of thousands of years in the material and spiritual cultures of people who are indigenous to where birch trees grow; world wide this encompasses the circumpolar region. Birch bark has been used for making homes, jewelry, pack baskets, cooking and storage vessels, moose calls, footwear, toys, mats, fish cleaning platters, winnowing baskets, decorations, drawn and etched art, pyrography, dentalia art, baby carriers, and recording stories and history—to name just a few elements of material culture birch bark plays a role in. As well, inner bark and leaves have analgesic, astringent, and anti-inflammatory qualities and are used in traditional medicine while various fungi growing on the bark and trunk have an array of other medicinal and antibacterial properties.When sap is flowing it can be tapped as a delicious nutrient-rich tonic water.

Example of contemporary birch bark biting art, Jenna Stanton, Citizen Potowatomi, photo used by permission of the artist.

A birch bark baby carrier made approximately 100 years ago, found in an antique store in Bangor, Maine. Artist unknown, possible Anishinabe in origin.

Perhaps the most iconic use of birch bark is the invention of the birch bark canoe some 3,500 years ago. Made from materials readily available in the forest: birch bark, cedar wood, spruce roots, and pine pitch, the bark canoe is both an ingenious technological innovation, and a profoundly beautiful art form. It encapsulates thousands of years of traditional knowledge and culture.

Portion of Tomah Joseph birch bark story panel depicting moose hunt, circa early 20th century. Hudson Museum, University of Maine.

Some people have inquired why birch bark would still need to be used in canoe making “when there are modern materials like Kevlar”. The answer is simple: Birchbark canoes “are a defining aspect of our culture” (the late David Moses Bridges, Passamaquoddy canoe maker, personal conversation 2007). He further explained that while canoe making tools were passed down to him from his grandfather who was a birch bark canoe maker, his grandfather died before he could teach him this skill. This played out in other Wabanaki communities during the early-mid 20th century, until no one was left to carry the knowledge forward. Reviving this tradition was made possible by a non-indigenous birch bark canoe maker, Steve Cayard, who offered canoe building apprenticeships in Wabanaki communities. This is how David Moses Bridges learned how to use his grandfather’s traditional tools, and how he became the next link in a chain of cultural knowledge that hopefully will continue long into the future.

Birch bark canoe from 19th century, preserved by Hudson Museum, University of Maine.

What is birch bark like when removed from a living tree? Birch bark is a multi layered leather-like material that is waterproof and infused with antibacterial qualities. It can be cut, folded, stitched. It has natural layers of wax that can be polished to a glossy finish, that helps prevent water loss when covering the tree (Dr. William Livingston, personal communication.) Once removed from a living tree, and made into something, birch bark does not break down. Objects made from this material can endure for hundreds of years.

Examples of rolled up, harvested birch bark, Hudson Museum, University of Maine.

Birch bark is white to cream to light gray on the outside, and yellow to orange to brown on the inside, depending on the time of year it is harvested. Layers of bark can be peeled apart to create a very thin paper-like thickness while the initial bark sheet is about up to ⅛” thick.

Layers of birch bark, and variations in coloring

Birch bark can be removed from living trees as well as downed trees. In the latter case, depending on how long the tree has been down, the bark can grow brittle over time and be riddled with insect and woodpecker holes, limiting its potential uses.

Birch bark wigwam replica, built by Penobscot birch bark artisan and basket maker, Chief Barry Dana. Hudson Museum, University of Maine.

When is birch bark gathered? There are two times of year for removing birch bark and each yields a distinctive type of material (the late David Moses Bridges, personal communication). Spring to early summer, around when wild roses bloom, is the ideal time to gather bark, while the sap is running. The bark literally pops off the tree once a

vertical cut is incised on the trunk. This bark is yellowish on the inside. The second time for gathering bark is anytime before and after the spring sap flow (Steve Cayard, canoe maker). Referred to as winter bark, it takes more effort to remove and a paper thin layer of inner bark comes off with it (which does not harm the tree). When the inside of the bark is dry, it deepens in color through an oxidation process to a rich yellow-orange or brown. Bark removed at this time usually is used for decorative purposes because that thin dark layer can be scraped off to create beautiful images on the remaining bark surface.

Examples of etched bark containers, Hudson Museum, University of Maine.

Is there one specific species of birch that bark is removed from? Yes, of the different varieties of birch, the paper birch or white birch is used. Paper birch are categorized as a relatively short lived tree, and are among the first to begin reforesting an area after fire, clear cut, or other disturbance. Their wood readily decomposes after they die, thereby enriching the soil for other trees to grow. While many die before reaching maturity, some have lived for over 200 years.

What size do the trees need to be in order for their bark to be harvested? This depends on the intended use of the birch bark. Bark can be removed from trees ranging from 4” to 18” diameter. A 4” diameter birch tree is about 30 years old, and its bark is thinner, while an 18” diameter birch tree could be over 100 years old, and the outer bark is considerably thicker than a young tree’s.

What percentage of bark is removed from the tree? Generally, a section two to three feet long is removed from each tree, but sometimes less and sometimes more; it really depends on the quality of the available bark on a given tree, and what it will be used for.

Does harvesting the bark kill the tree? As a rule, if birch bark removal is practiced sustainably, and a relatively small amount of bark is removed from the trunk (+- three feet), the tree is able to withstand this stressor. Note that only the outer bark layer is peeled off. The phloem, cambium, and xylem layers remain intact.

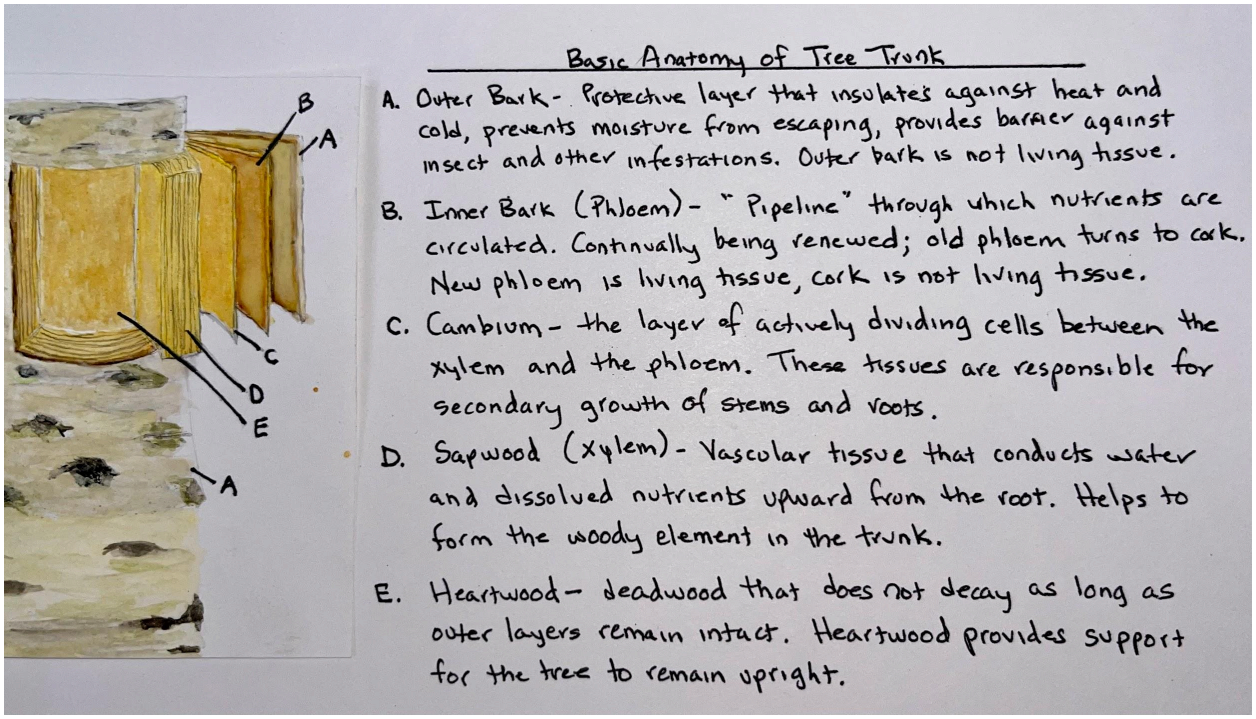


Illustration of tree trunk anatomy. (Kathy Pollard) Only the outer bark is removed from the tree.

However, when bark is removed from a mature birch tree for the purposes of supplying material for a birch bark canoe, about twenty feet of bark is needed. This is most of the available bark on the trunk. According to Steve Cayard, birch bark canoe maker, and Dr. William Livingston, tree pathologist, this amount of stress will kill the tree. Dr Livingston further clarified why most other birch trees can live in spite of outer bark removal: “Scientific knowledge requires that observations on expected responses (tree growth) to actions (bark removal) be repeatable. This has been made for centuries by the Wabanaki. Bark can be removed from birch in a sustainable manner. Scientific knowledge also seeks to explain observations in the context of other scientific knowledge. The known anatomy of tree bark is consistent with the traditional practice of removing birch bark; when removing only the outer dead bark (rhytidome) without damaging the inner bark (phloem and cambium), the tree still has an outer layer to protect the living tissues from water loss and from invasion by other organisms. This is a

scientific hypothesis that can explain why bark removal can be accomplished sustainably.”

What is the process for removing bark? Bark removal starts with a careful assessment of a prospective tree’s potential. Most traditional artisans and canoe builders learn, and are able to recognize, specific criteria that contribute to bark quality and development. Not every paper birch tree is a suitable candidate to remove bark from. In fact, according to Steve Cayard, if one is searching for a canoe tree, of an array of potentially thousands of mature birches big enough for supplying bark for a canoe, only one—if lucky— will prove suitable. Today, that is a very rare, hard to find tree! Fortunately, trees with bark to be used for other cultural purposes are more plentiful.

Once a tree is identified as a good prospect for whatever intended purpose, the traditional indigenous practice is to make a tobacco or other offering to the tree, and ask for its bark. A test cut is made, then a vertical cut is incised on the trunk to a depth just before the phloem layer. Two horizontal cuts define the length of the sheet of bark to be removed. The sheet is then gently pulled away from the trunk. Lastly, a prayer of gratitude is spoken.

Freshly peeled birch bark. Note the perpendicular cut does not penetrate the inner bark; a protective layer of bark remains on the tree, which is why the tree is usually unharmed.

By contrast, this photo shows birch bark removed with what may have been incorrect technique. The perpendicular cut appears to have penetrated all the way to the sapwood. Removing bark in this manner could foster conditions that favor insect infestation or disease that harms the tree, in addition to altering the tree's capacity to deal with temperature fluctuations (Dr. William Livingston, University of Maine tree pathologist, personal communication).

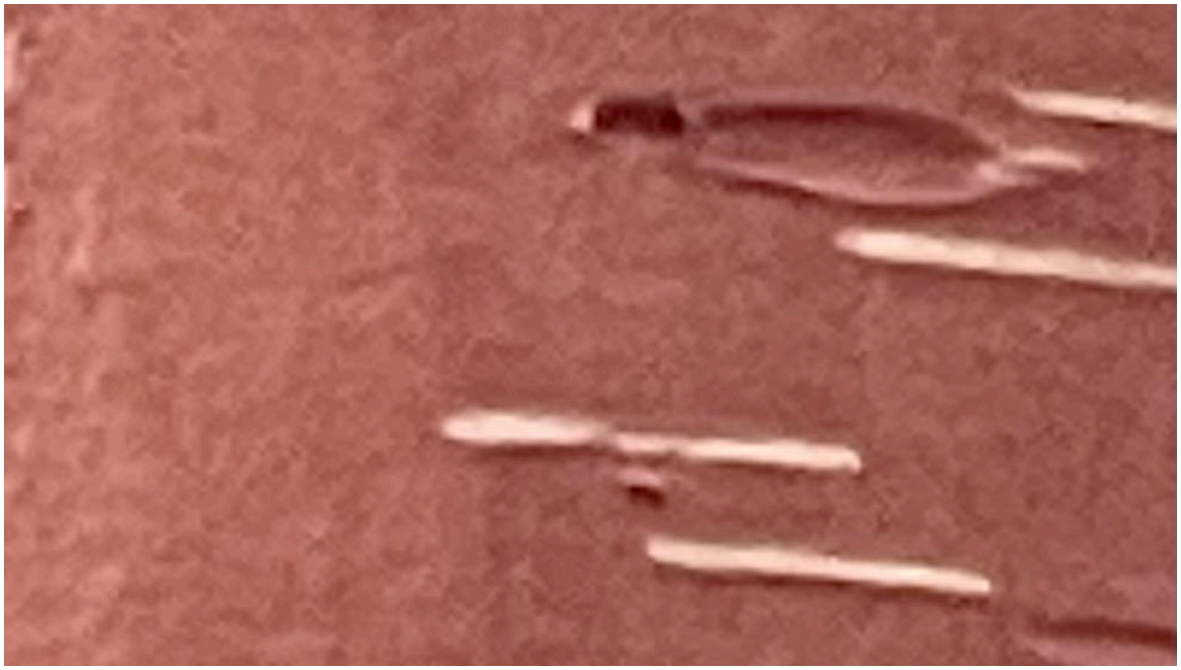
If a cut was made horizontally around the entire circumference of the tree and that cut was deeper than the phloem layer, then the tree most likely would die. It is, however, a misconception that sustainable removal of birch bark categorically will kill every tree.

Sign tacked to a tree on Sears Island, Searsport, Maine

Native American birch bark gatherers learn how to sustainably remove the bark without unduly harming the tree with the exception, as mentioned previously, of trees chosen for birch bark canoe material. When these trees which are already near the end of their lifespan die after bark removal, they open space for regeneration of new trees and they provide essential habitat for birds and wildlife. (Sandy Wolscek, Forester, Blue Hill Heritage Trust).

A few last points that came up in discussing bark removal with Dr. Livingston: He emphasized the importance of removing bark from healthy trees, “those that have a full crown and don’t suffer from drought, competition, or from insects and pathogens. These trees will very likely tolerate the bark removal and continue to grow.” By contrast, “If trees are suffering from other stresses, they are most likely to experience poor growth and possible mortality after bark removal. If useful bark could be removed from a tree that is suffering from other stresses, it would be best to cut the tree and allow the neighboring trees to benefit from the increased light and increased availability of soil nutrients and water”. Dr. Livingston also noted that in forests where birch trees have rooted in great numbers and are crowding one another, many of those trees—at least 50%— will die all on their own (whether bark is removed from them or not) due to overcrowding, competition, and natural selection. This is an important consideration because if a tree whose bark was sustainably gathered subsequently died, this practice could be blamed but the tree might have been one of those 50% that would have died regardless.

What does the tree look like when the bark is taken from it? In the space where bark has been removed along a birch tree's trunk, the inner bark is exposed to air, and it eventually oxidizes from yellowish to a dark brown or black color.



The darkened coloring after outer bark has been removed.

Over time, a gray, corky appearance develops. It is easy to spot birch trees in the forest that have had some of their bark removed. As the years go on, eventually new bark grows over the area and it will take on a silver and gray coloring. Generally the tree does not fully recover its mostly white appearance though. Nonetheless the tree can thrive and often does.

Old birch tree with bark removed a long time ago, still thriving along Stillwater River

A cluster of birches with intervals where bark is regrowing after removal. Note the white in the middle of the smaller area of dark bark on the middle tree. Below is a close up demonstrating that eventually the trees can produce white outer bark again but it never looks exactly as it did before bark was removed.

What percentage of trees that have had bark removed survive? Although it is hard to state an exact number, if birch bark gathering is practiced sustainably, informed by traditional indigenous ecological knowledge, most trees go on to live out their lifespan. Occasionally bark may be improperly removed resulting in a tree's death, or in onset of disease that may alter the quality of wood, should the tree be subsequently harvested for commercial purposes.

Are commercial uses of the bark envisioned? No.

How many trees will have some of their bark removed? Not every paper birch tree is suitable for bark removal. Trees are carefully selected based on characteristics that are passed down generation to generation, and depending on the intended use of the bark. Values of sustainability also are passed down so that bark gatherers would not hone in on a small space and remove bark from all of the available trees. There is an ethic, always, of ensuring that there are some left for others and for future generations. With this in mind it is impossible to state a maximum number of trees whose bark would be removed; this could be fine tuned by the conservation organization and Wabanaki if desired.

What if there is a disease that attacks birch trees, or climate change makes them less likely to grow on our land? Birch trees prefer cold climates in the circumpolar regions, and with climate change, Maine—already near the southern range of paper birch distribution— will experience a shift in forest composition that will favor other hardwoods. With climate change also comes potential new diseases and pests that can attack and threaten existing trees. However, according to Dr. William Livingston, it is unlikely birch trees will be going anywhere anytime soon. This is in sync with traditional indigenous philosophy expressed by Donald Soctomah "We cannot get hung up on this potential eventuality. Birch has always been here and we believe it always will be!"

When talking about setting aside some birch trees to be allowed to mature for several decades in order that they might become birchbark canoe material for future generations, would trees around them have to be cut down? Birch bark quality is better when bark is gathered from trees that are growing among other trees, rather than in a field, because competition promotes upward rather than outward branching of the tree, resulting in more clear bark along the trunk. One looks for trees growing amongst evergreens, with relatively clear trunks and limited branch scars. However, if selected trees were severely crowded by other birch trees, it would be important to leave the door open to the possibility of some selective thinning if a birch bark canoe maker identifying birch trees to be set aside for the future felt that would be favorable for those trees. It is entirely possible that the quality of the birches in Walden

Parke Preserve is unsuitable for growing into trees that could become sources of bark for canoes (Steve Cayard, canoe maker). This is something that only an expert in evaluating trees for this use could determine.

Why is it important for land conservation organizations to consider cultural use agreements with Wabanaki? A deeper dive into the past 500 years of history.

The Wabanaki (People of the Dawnland) include citizens of the federally recognized Passamaquoddy, Mi'kmaq, Penobscot, and Maliseet Nations, as well as descendants of Abenaki, the fifth member of the Wabanaki Confederacy. Wabanaki have continuously called what became Maine, its associated islands, and the Canadian Maritimes home for over 12,000 years. Unlike the Euro-American concept of property ownership, and the idea of home as a structure people reside within, the indigenous way of being in relationship with homelands and waters recognized territorial boundaries that people could move freely within, but no one living within those boundaries was the "owner" of any specific space; it was held, protected, and managed collectively. Moreover, "home" was not limited to a structure built upon the land; home was all the territory in which its human occupants lived in, moved about in, and coexisted with all other life (James Eric Francis, Penobscot Tribal Historian). *Home* was all of the Wabanaki Homeland—including all 23 million acres of what became known as Maine.

After European colonizers arrived in the Northeast, they used the Doctrine of Discovery as justification to appropriate land, waters, and resources—in spite of the fact that Wabanaki were already thriving here in large numbers for thousands of years. Over-harvest of resources, dam construction, and other detrimental disruption of carefully balanced ecosystems followed. As these changes disturbed millennia-old relationships, indigenous protests were met with attitudes of entitlement, with little regard for the catastrophic environmental repercussions that began to unfold and that we are still seeing the effects of today. Soon, Wabanaki were denied access to beloved ancestral places. Indigenous leaders attempted to negotiate adherence to treaties promising access, but the colonizers were not open to sharing the spaces they now claimed as their own.They resorted to force and genocide to weaken indigenous capacity to protect their rights within their Homeland. One of the most egregious examples was the Phipps Proclamation in the late 1700's that made it legal, and financially rewarding, to **hunt** Wabanaki men, women, and children, and redeem their scalps for cash. Some of the old churches along the Maine coast were built with bounty hunting revenues.

By the early 1800's, Penobscot, Mi' kmaq, Passamaquoddy, and Maliseet, as well as many adopted Abenaki refugees who had to flee their own Western Maine/Kennebec

River territory following a series of devastating massacres, were relegated to “Indian reservations” that collectively comprise only a tiny fraction of the Wabanaki Homeland. Numbers of survivors within each community had fallen so low that communities were composed of only a few hundred citizens, ironically similar to the current status of the right whale, whose total population is now just 350 individuals.

Right whale, pyrography on birch bark, Sierra Henries, Nipmuk. Photo used by permission of the artist.

The only reason the U.S. Government did not forcibly remove those surviving Wabanaki to Indian Territory (Oklahoma) during Andrew Jackson’s Indian Removal Act of 1830–as happened to many other tribal nations along the Eastern Seaboard—was that the government believed Wabanaki would become extinct—so why go to the expense and bother (Donald Soctomah, Passamaquoddy Historic Preservation).

While Maine Indians did not fulfil the government’s prediction, colonization and its systematic oppression of indigenous people lives on in Wabanaki communities where other facets of genocide continued right through the 20th century. Without adequate access to resources including traditional foods, reliance on government commodities foods that are known to cause chronic diseases resulting in disproportionate morbidity and mortality became a necessity for many families’ survival. There were concerted attempts to extinguish language, spirituality, and culture; “kill the Indian to spare the man”, was justification used to rip children from their parents’ arms to be raised in horrific church and government run boarding schools where untold numbers indeed died or suffered unthinkable traumas; many more children were removed from their families and communities forever, to be raised by non-native people. Indigenous women were sterilized without knowledge or consent to deter population recovery and in accordance

with racist eugenics policies and philosophies; disproportionate violence against Wabanaki was facilitated by laws structured to protect non-native perpetrators. Wabanaki now hold less than 1% of their Homelands and waters. By contrast, more than 90% of Maine is privately owned. After the Maine Indian Land Claims Settlement Act of 1980, treaty rights that had allowed limited capacity to practice subsistence hunting, fishing, and gathering on non-Indian lands were weakened, tribal sovereignty was restricted, and private landowners gained the legal right to prevent indigenous access to ancestral places and resources. For many Wabanaki even through the 20th century, ongoing racism and discrimination was a constant, such as the refrain, “You don’t belong here, get back to your reservation”.

This refrain encapsulates how capacity to control land and resources reinforces privilege steeped in colonialism. It also gets to the heart of what can be done in the here and now to tip the scales in a more equitable direction. Wabanaki citizens have identified pathways toward improved health and well-being, language and cultural revitalization, and prosperity. In all cases, having increased access to essential traditional resources for restoring indigenous food ways, medicine practices, and for cultural, spiritual, and economic needs—has been identified as an essential component of healing. This goes hand in hand with access to land—and land back.

Land conservation organizations are uniquely positioned to facilitate these goals by virtue of the sheer amount of Wabanaki Homeland they collectively control. Taking steps to build relationship with Wabanaki, and to prioritize opening channels of opportunity for Wabanaki to revitalize relationships of interdependence with these parts of their homeland will not only lead to more equality in the present day and future; it will also benefit everyone as, together, we face a future of unprecedented climate challenges.

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At a recent Penobscot community celebration on Indian Island, children and families lined up beside the Penobscot River for rides in a traditional birch bark canoe—and a jet powered boat used by the game wardens to get where they need to be, quickly. One boat would speed off with a load of eager passengers, to the roaring of its giant rear fan that sprayed water back on the gathered people on shore. A modern vessel unimagined by Penobscot ancestors that has its place in 21st century life along the Penobscot River. Will it be here 3,500 years from now? Perhaps. Or perhaps that technology will fall by the wayside as so much has in the past 100 years.

Contemporary birch bark canoe. Penobscot Nation Community Days August, 2022

In the opposite direction, the birchbark canoe carrying one or two passengers, quietly and gracefully bobbed along the river, paddles dipping in silent rhythm that echoes back through the realm of thousands of years. The birch bark canoe, a technology developed three and a half millennia ago, is still here, still made much the same way it was crafted before steel tools were introduced making the process a bit easier nowadays. These 21st century birch bark canoes have taken their place as one more link in the chain of indigenous cultural continuity that will carry into the future as long as there are birch trees to give their bark for canoes. Today's canoes could not have been made without mature birch trees found on someone's land who granted access and permission to gather the bark. We hope that this FAQ helps inform decisions of other landowners considering similar access, not only for canoe makers but also for the many Wabanaki artisans who rely on birch bark for their creations!

The authors acknowledge with gratitude Bangor Land Trust for em*bark*ing on this not always smooth journey of learning and sharing, and to the many indigenous artisans and knowledge keepers, and other professionals who contributed their perspectives, wisdom, and knowledge. Thanks to present day artisans and artisans of past eras for sharing examples of their birch bark art. Many thanks to Dr. William Livingston, for helping to clarify—and more importantly—*uplift and support* traditional indigenous ecological knowledge with western scientific theory. A special thanks to traditional birch bark canoe maker and teacher Steve Cayard for sharing his knowledge, and to the late

David Moses Bridges for indeed bridging cultural divides with his enthusiasm, talent, and skills as a birch bark artisan and canoe maker. Lastly, this FAQ and all the research and work to produce it could not have been possible without generous support from a charitable foundation of Maine Community Foundation. Thank you all.

Newly completed birch bark canoe being carried to the Penobscot River for its first journey on the water. Penobscot Community Days, Indian Island, summer 2022.