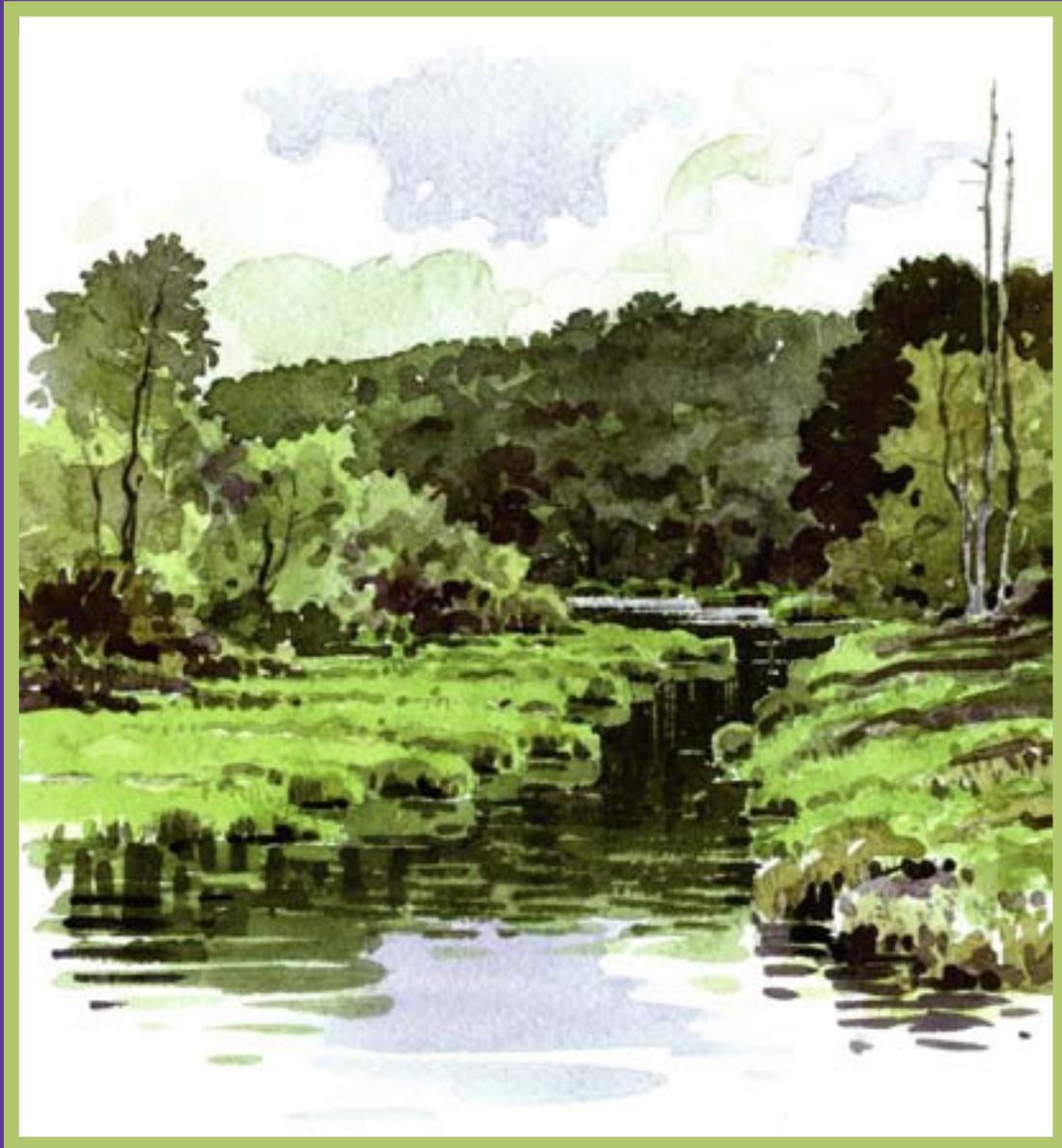


WINTER 2008-2009

SANCTUARY

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Gambling with Nature
The environmental effects of mega-casinos

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Gambling with the Weather

I am not a gambler by nature. I hate losing money and know too much about the odds at casinos to think that it makes any sense to put my hard-earned cash on the table.

Of course, there are many other ways we gamble in life that don't involve any money at all. Our choices in relationships, careers, hobbies, and child raising all involve levels of risk and chance. One of the obvious areas in which we take risks—both as individuals and collectively—is in our relationship to nature. Extreme sports enthusiasts who climb mountains or sail solo across oceans pit themselves against the elements. Their tales of endurance, bravery, and bad judgment can be both uplifting and tragic. *Into Thin Air* by Jon Krakauer comes to mind.

While there are the hardy (and foolhardy) few who put themselves in a dangerous position with nature, most of us have no intention of taking a risk and yet may nonetheless get swept into a situation in which the power of nature is brought home to us. Severe storms are obvious examples. All these years later, the Blizzard of '78 still affects the hoarding propensities of New Englanders whenever the forecast predicts a few inches of snow.

On a far more serious note, we are increasingly recognizing that human activities can make the impacts of storms even more devastating. Hurricane Katrina's effects on New Orleans were exacerbated by decades of destruction of wetlands and barrier beaches that might have cushioned the storm's impacts. Even more recently, the 2008 hurricane season pounded impoverished Haiti. Years of deforestation (98 percent of Haiti's forest has been cut) unleashed terrible flooding and mud slides, leading to even greater loss of life, property, and human suffering.

Individual weather events aside, the biggest current issue of how humans are gambling with nature is climate change. In spite of the most recent report from the Intergovernmental Panel on Climate Change (IPCC), which found that the Earth's climate is unequivocally warming and that human activities are the most likely cause, there are still those who argue that either the earth is not warming or that humans are not causing it. So this is the first gamble—there are those who still essentially say, "Let's bet that climate change isn't true."

But even if you accept that climate change is happening and is human influenced, there are a number of gambles left to choose. Among them is how aggressively we will seek to mitigate the problem and by what means. Many scientists and policy makers now believe that the United States should reduce its emissions at least 80 percent below 2000 levels by 2050. Is government regulation the answer? Can individuals be persuaded to change their habits? Is there a radical "fix" out there waiting to be discovered? Whatever the answer, we must remember that we are gambling with our children's and grandchildren's future. How will they look back and evaluate the bets we made and the stakes we were willing to put at risk?

Laura Johnson, President



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Endgame

My older brother was forever inventing elaborate dramas, amateur films, and photo shoots with my children when they were growing up. Most of these theatricals took place in the woods north of his home in Noank, in a section of Connecticut that was once termed “The Quiet Corner” on tourist maps.

One of the most intriguing haunts in this territory was the land around the current Mashantucket Foxwoods Resort Casino, which in the time of which I am writing about consisted of thick woods of oak and maples, interspersed with gloomy hemlock groves, cliff faces, secluded streams, and a few old fields. Here, in this isolated quiet corner, we would often act out one of his favorite stories—*The Adventures of Robin Hood*.

The irony of this was the fact that we were probably on Mashantucket Pequot reservation land when we produced these dramas. Part of the action of the Robin Hood legend, it will be remembered, was generated by a fight over land rights. As the pseudo sanctimonious Friar Tuck makes clear to one of the King’s knights, the land should be open to everyone, not just a select few.

This basic conflict over property rights was also one of the issues when the original Foxwoods was developed, and is now also part of the disagreements here in Massachusetts over the development of new casinos. Who in fact controls the rights to alter an existing environment?

While Foxwoods was under construction, my brother used to poke around on the land of his former theater sets, reminiscing about the children’s hour games he used to engage in there. He would often call me after these various trespasses to lament the destruction of the forest. My brother was an inveterate tree hugger, an assiduous counter of tree rings even before the demise of the Pequot forest. One evening there, after the workers left, he came across a veritable dead zone of felled hemlocks, trunks strewn every which way, the fertile earth churned to mud by the bulldozers and skidders. He counted the rings on the stumps and determined that many of the trees in the grove were over 150 years old.



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There came a point, finally, as the casino buildings began to rise on the sadly stripped lands, that whenever he drove up to visit me, my brother found the area too depressing to even look at and would make elaborate detours on back roads north and east of the area of destruction so as not to have to see the place.

Now, of course, the casino is built—more or less. New buildings and parking lots and garages are still being

added to accommodate the crowds; and, as my brother predicted, a road is under construction side by side with Route 2, which runs past Foxwoods. As if in memorial, images of local displaced wildlife are incised on the retaining walls of the highway without a hint of irony. There are many subsidiary buildings and parking lots and new developments in the area. Tour buses from as far away as New York City and Maine wind down once-rural Route 164, formerly a scenic road of well-built stone walls and well-tended farms.

I still drive down to Noank on Route 2 to visit my brother. From miles away, rising above the treetops, you can see the Wizard of Oz towers of what is now one of the most profitable casinos in America.

All to what end?, one has to wonder.

There are many ironies in this story. One is the new Mashantucket Pequot Museum & Research Center, which, through elaborate, state-of-the-art, computer-enhanced displays and films, documents the history of a culture that had sustained itself for as many as 8,000 years in that general area without substantially altering or harming the local environment. The other is that one translation of Mashantucket is “place of big trees.”

But I believe my brother witnessed the final incongruity. A year after the casino was opened he drove by the new building. On the road just in front of the grand entrance, he saw a dead fox, its full bushy tail lifting and falling in the wake of the indifferent passing cars and buses.

JHM

John Hanson Mitchell is editor of Sanctuary.

The View from Lantern Hill

by Jennifer Ryan

The possibility of gambling casinos is back on the table for Massachusetts. They have been proposed several times, and have been rejected, but a future round could gain greater traction. Casinos theoretically pay out millions to states and towns, but the environmental costs of these projects more often than not aren't accounted for. I know this from firsthand experience.

I grew up in southeastern Connecticut, one of the quiet corners of New England with open fields, overgrown pastures, narrow backcountry roads, and endless stone walls hinting at farms and fields now gone. The wide Thames River rolled down through this idyllic countryside to Long Island Sound. The whole region had a flavor of the sea and the wild hills clothed with thick-leaved laurels and oaks.

My parents considered spending time outdoors and the ability to entertain yourself to be of highest importance, which meant that my brother and I did not always participate in organized sports and other school group activities. As a result, we developed a slower appreciation of the world around us. One common summer outing consisted of a thirty-mile bike ride to the beach through Ledyard and down to Stonington and ultimately to Watch Hill. It made for a long day but there was always ice cream at the end of the road and sometimes fried shrimp at the Sea Swirl restaurant.

In addition to taking treks with my mother, who taught school and had her summers off, I spent a few weeks every summer at camp, including one at Mass Audubon's Wildwood. I also went to Thames Science Camp and "caught" hydras, played capture the flag in the Connecticut College Arboretum, hiked around the big glacial erratics in Devil's Hopyard, overnights in musty canvas tents, and climbed through the laurel and oak forest to the top of Lantern Hill.

Lantern Hill is in Ledyard, the next town over from mine. It was called Lantern Hill because it could be



New road construction at Foxwoods Casino

© JOHN H. MITCHELL

seen from the Sound—both by the lanterns that were posted at the top to guide in early sailors and by the moon reflecting off of the bright, coarse, quartz cliffs that faced the Sound. The top of the hills offered a good view of the coastal towns of southeastern Connecticut, and from the summit almost all you could see was green. It was here I swear I saw a copperhead on the trail. This was also the place that may have jostled my sleepy baby brother out into the world. My mother and my grandmother hiked up to the top of the hill when my mother was beyond 9 months pregnant, two weeks overdue. My brother arrived in the early hours of the next day.

In high school, my friends and I would sometimes make thermoses of sweet milk coffee, get coffee cakes at the local gas station, and hike to the top to watch the sunrise before school. Some of us, encouraged by the wild spirit of the place, wouldn't make it to school that day, but I only did that once. My brother, eight years younger, used to do the same thing with his friends, and maybe other kids still do.

But they won't see the same, quiet, green expanse that we enjoyed.

The view of Lantern Hill from the top changed in the 1990s. Below the ridge, rising from the Connecticut woods, lies a vast casino city—a conglomeration of structures that falls somewhere between the Wizard of Oz's Emerald City and Superman's Fortress of Solitude.

I stopped making the climb once Foxwoods Casino went up. But I went back to Ledyard this past summer to hike to the top with my mother in order to see the place through adult eyes.

Where there were once trees and hills, with occasional fields and watertowers, there is now a garish island of sky-high glass buildings and acres of parking lots that continually expand. From the top of the hill, even when you are looking the other way, you can hear the casino and the construction.

Lantern Hill, which was once threatened by mining for marble and quartz, is now protected by the tribe. The copperheads that nested in the ledges on the reservation are leaving. Blasting for construction has destroyed their dens, and people in the surrounding areas now buy "Snake Be Gone" from the local hardware stores in an attempt to keep the snakes out of their basements and outbuildings.

A six-lane highway is under construction to connect a new golf resort adjacent to the casino. The highway is cut into a formerly wooded hillside in some sections and is supported by retaining walls decorated by large concrete bas-reliefs of the wildlife that once inhabited these woods and hills: geese, turtles, and the eponymous fox of Foxwoods. The quiet view of miles of



Former hemlock grove

© JOHN H. MITCHELL

green is no more, and you can no longer bike down to the beaches from our town; traffic is too thick.

At night around Lantern Hill, it isn't the moonglow from the rock but the lights from the acres of parking lots and buildings that gleam in the night sky. Early on, just after the casino opened, a rotating crystal statue of a Native American shot a laser arrow up into the sky during regular simulated rainstorms in the main lobby. That was

stopped when pilots in planes passing overhead were startled by the sudden bright lights. I asked my mother what she thought about it all. "One less place to be alone and commune with nature," she said.

The environmental impacts of large resort-style casinos like those in Connecticut are tremendous. Land is cleared, roads built, traffic increased, and water wasted. The character of the surrounding towns changes dramatically as the economy gears toward the casinos—and not particularly for the best. Farms close, among other things, and casinos beget more construction tailored to the resort goers: First there was Foxwoods. Then there was a golf resort, and then came another casino, Mohegan Sun. Now there's constant chatter about a Universal Studios to be constructed on the grounds of a defunct state mental hospital nearby.

All of this is focused around indoor entertainment; there are no windows, no clocks, and the gamers don't know if it is day or night, an

ironic statement given the old image of the Native American as a natural human being.

The view of Lantern Hill from the top changed in the 1990s. Below the ridge, rising from the Connecticut woods, lies a vast casino city—a conglomeration of structures that falls somewhere between the Wizard of Oz's Emerald City and Superman's Fortress of Solitude.

THINGS TO COME



© JOHN H. MITCHELL

Former territory of foxes and owls

In Connecticut, the casinos contribute hundreds of millions of dollars to the state coffers. However, the money doesn't really compensate for local changes and challenges. Money that goes to the state doesn't come back to the towns in a proportionate way to address increased demands on infrastructure and schools. In fact, since the 1990s a greater and greater percentage of the money has gone to the general state treasury.

Lantern Hill is no longer a quiet place to hike and to sit at the top and watch birds soar on the warm updrafts, and the roads are not places for children to ride with their families down to the beaches. Children growing up in the area

Lantern Hill is no longer a quiet place to hike and to sit at the top and watch birds soar on the warm updrafts, and the roads are not places for children to ride with their families down to the beaches.

are now steeped in culture devoted to indoor entertainment, and this, coupled with the lure of video games and the computer, do not necessarily evoke quiet communion with the natural world.

For countless residents over many generations, there's been a long-standing love for the landscape of southeastern Connecticut, as there is here in Massachusetts. The advent of the huge casinos drastically changed both the physical and cultural landscape of one quiet corner of New England, and could come to Massachusetts as well.

Jennifer Ryan is Mass Audubon's legislative director. She is also a conservation biologist.

Thanking the Corn

Indigenous ways of living in balance.

by Michael J. Caduto



© ADELAIDE TYROL

In the 1990s I was working with a group of Abenaki friends and colleagues along the Connecticut River where it flows between southern Vermont and New Hampshire. Our intention was to co-lead a canoe trip from the Cornish-Windsor covered bridge to Fort #4 in Charlestown, New Hampshire. We had led similar trips in the past, and out of respect all followed Abenaki protocol in relation to the river before setting out. Our local indigenous hosts would always wade into the water and speak to the river, asking permission to ride on its back for the day. Then they would listen for a response from the living waters.

Up until this particular trip, the river had always given its assent. On that day, however, the Abenakis came back shaking their heads. The river had said “no.”

That left me with a group of twenty people who had paid a generous fee and traveled from all over New England specifically to make this trip. Many had stayed the previous night in local inns and hotels. When I explained the situation, people were not pleased. So we worked out a compromise: We would paddle around the cove near the canoe landing and study the native uses

and folklore of wild edible and medicinal plants. Then we would revisit the river to ask permission later that morning.

About an hour into our abbreviated program, a blanket of billowing black clouds moved upriver and covered the face of the sun. Soon the ominous sky was rent by brilliant deafening flashes of lightning. We paddled quickly to shore, scrambled out of the canoes, and tied them down atop our vehicles.

The fact is, if we had paddled downriver in that storm, which was supposed to last all day, we would have been caught in a dangerous soaking downpour, well away from the boat launch, and with no way to get back, save hitchhiking.

My appreciation of the Abenaki tradition of speaking to “All Our Relations”—including the *Kwenitegok*, or “Long River”—grew manifold on that day. I had faith in their belief that all things are related to humankind—be they beaver, bear, deer, rock, or river.

Years later, while I was working on a book about Native American gardening, I had a similar experience with two people of Wampanoag ancestry. I was trying to get a better understanding of the cultural life and ways of the Wampanoag. After sharing at length their knowledge about how to plant and tend a traditional Wampanoag garden, these two generous souls continued to patiently answer my questions over the course of two growing seasons.

“What kind of corn seed do you plant?” I asked.

“The traditional eight-row flint corn,” they said.

I wanted to know why the beans that I planted in a traditional Native American garden overwhelmed the corn. They explained that I had planted the beans too soon.

“You need to wait until the corn has grown hand-high before planting the bean seeds,” they said.

I asked why they would always plant four kernels of corn in each mound.

“We plant four kernels in the top of each mound and arrange them to the four directions,” they said. “It’s a symbol of how we give thanks to Corn, *Cautantowwit*, and to the Creator, *Kiehtan*.”

Many local indigenous people still quietly practice the old traditions when they are gardening, gathering wild edible and medicine plants, hunting, and fishing. One constant theme among the Native Americans I have met in New England, and in other parts of North America, is that of living in balance. This does not refer to the idealized form of existence that was touted in many New Age communities and treatises, but a simple elegant

form of coexisting with mutual respect and reciprocity toward the natural and human communities that one belongs to.

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In the early 1600s, during the initial years of contact between the Wampanoag and English colonists, Roger Williams was one of only a few people capable of stepping back far enough from a European perspective to clearly observe the practices and traditions of local natives. He observed that, “If any provision of fish or flesh come in, they make their neighbours partakers with them.”

It has been explained to me this way: In Native tradition, gifts are given and kept in trust by the recipient. After a time, the gift is given away again. Each time a gift is given, the spirit of generosity that it possesses grows. After the English settlers had kept the gifts from their Wampanoag neighbors for a time, they were often asked, “Why do you still have that gift? Why have you not yet given it away?”

This led to the erroneous conclusion among the English that they were being asked to return the gift to the giver, which in turn gave rise to the misconception of an “Indian giver.”

In fact, the opposite was true—the Native peoples were simply wondering why the English recipients were keeping their gifts to themselves and not sharing them with others.

During the Narraganset festival of Nickommoh, wealth was distributed among those who were most in need. Rites were predicated on a reciprocity designed to reestablish the balance. As a result, poverty was not an issue, and there was no such thing as theft.

This state of balance is also the basis for a traditional Wampanoag relationship with the natural world. Plants, animals, and all aspects of the land are viewed as gifts to be used with respect and gratitude, and the gift is then returned. There are at least three traditional ceremonies honoring the gift of corn alone, including the Planting, Green Corn, and Harvest celebrations.

“If they receive any good in hunting, fishing, harvest...,” observed Roger Williams, “they acknowledge God in it.”

And, as William Bradford observed in 1624, the English settlers had quickly learned what an essential gift corn was. “They began now highly to prize corn as more precious than silver.”

Wampanoag hunters asked the animal’s spirit to feed the family, and the animal returned the prayer by offering its flesh as food. The hunter reciprocated by not taking more than was needed and not being wasteful—by expressing gratitude and returning the gift.

In Wampanoag tradition, this form of acknowledgment had direct consequences. If an animal was not treated with respect and gratitude, hunters believed they would not succeed in obtaining food for their family and village.

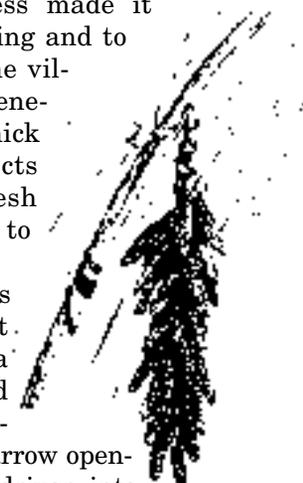
This does not mean that a traditional life was part of an ideal relationship with the natural world and that no harm was ever done or changes effected. One of the reasons that their neighbors knew the Wampanoag by the name Pokanoket, “place of the clear land,” was that the indigenous system of land management created large swaths of open land surrounding the villages. When the soil became depleted after several years of gardening on the same spot, that plot was abandoned and a new garden was cleared by cutting and burning.

The traditional garden was an elegant form of agriculture that included growing corn, beans, and squash as well as Jerusalem artichoke and ceremonial tobacco. Cornstalks provided support for the growing beans, whose leguminous roots enriched the soil with the nitrogen that was much needed by the corn. Squash leaves and vines grew to cover the ground in between the mounds of corn and beans, creating deep shade that discouraged the growth of weeds and preserved moisture. Squash included varieties of pumpkin, crookneck, acorn, summer squash, scallop, and zucchini.

Regular burning in the spring and autumn near the village created clearings for planting and reinvigorated growth of plants including blueberries, encouraged optimal deer habitat, and preserved ecological diversity. This openness made it easier to see prey for hunting and to spot people approaching the village, in case they were enemies. It also cut down on thick brush where biting insects lived and allowed fresh breezes to blow through to keep insects away.

Deer were sometimes hunted by a practice that came to be known as a “hedge drive.” Hunters used brush to create long funnel-shaped enclosures with a narrow opening at one end. Deer were driven into the wide end, and then pushed deeper and deeper toward the constricted opening where hunters waited to make the kill. Elaborate fish weirs took advantage of the movement of tidal flows to accomplish a similar feat in nearby estuaries.

Sachems could be of either gender, but women often held the hunting rights that applied to specific family territories. These rights were usually passed down on the woman’s side of the family. Through an intimate knowledge of the game animals within each territory, the populations of animals were carefully managed to ensure their long-term survival.



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Traditional Native American Games

In our time, casino gambling on Indian-held lands is so common in some states that it seems to be a customary use of land. But that's not the way things were.

To the European mind-set, "games" are equated with "play." But in Native American tradition, games have served many purposes, from pursuing pleasure and long life to curing illnesses. Some games were meant to please the Creator, bring rain, cast out evil spirits, and ensure a successful hunt or an abundant harvest. As in many families and among community organizations today, indigenous games helped to reinforce the bonds between players.

In addition to children's games, such as running races and playing with tops, adults played games of chance and games of skill. The Narraganset have a traditional, cardlike, counting game called *puim*. Flattened pieces of rush are used in place of cards.

The Massachuset people played a game called *hub-bub*. Five, small, two-sided pieces of bone were placed on a tray. One side was left white while the other was blackened. To take a turn, the tray was banged down with a loud cry of "Hub, hub, hub!" Scoring depended on the combination of black and white sides that showed after each turn. Other dicelike objects were made out of nutshells, animal teeth, and disks of pottery. Roger Williams described a game that used plum stones painted on one side in place of bone.

Players in an entertainment called hand game had to guess which hand was holding a marked stick. In the popular moccasin game, a small stone or other object was hidden in one of four moccasins and the player tried to

guess which moccasin contained the object.

Since clothing adornments and other items of value may have changed hands during games of chance, it is possible that, at times, these games served to reestablish the balance of wealth within a community. Their role may have been similar to that of the *potlatch* ceremony among cultures of the Pacific Northwest.

Wampanoag games of skill include archery and foot racing, as well as the popular ring-and-pin or toss-and-catch. Other challenges of dexterity included the Haudenosaunee (Iroquois) game of snow snake in which players would slide a long javelin-shaped object along the ice or snow. Shooting arrows at a spinning target was also popular.

Ball games were elaborate affairs that went on for several days. The famed "football" of the Massachuset and Narraganset peoples required players to put a hard fist-sized ball through a goal adorned with the decorated pelts of beaver, "black" otter, and other animals. To prevent injuries during disputes, weapons were taken from each person at the beginning of the game and strung up high in a tree. Goals were placed about a mile apart along an extremely flat expanse of beach. Players kicked the ball, ran with it, and occasionally swam after the ball when it entered the water. Early observers noted that two days would sometimes pass in between goals!



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The idea of owning the land itself was an alien concept to native people. Because of this tradition, when Wampanoag leaders signed land agreements with the English settlers, they believed they were granting permission to use the land, not transferring ownership.

At the time of contact with Europeans, and prior to the devastating epidemics that swept through the region from 1616 to 1619, there were some 24,000 Pokanoket people living in the "place of first light." These cataclysmic plagues, along with imposition of the resource-based economy of the English settlers, challenged the survivors in continuing their traditional way of life.

A robust trade in animal furs had created a decline in the supply as early as the first decades of the 1600s. The manifest of a single trade ship that sailed for England in 1636 recorded the pelts of some 55 minks, 200 otters, and 1,150 beavers. Wampanoags then started trading land for essentials. In 1650, Massasoit sold 196 square

miles of territory for a small number of winter coats, hatchets, knives, hoes, bolts of cotton, and moose hides.

After Metacomet (King Philip) was killed in August of 1676, the Wampanoags fell under the laws of the colonists, which further restricted their movements and ability to survive by practicing subsistence. In the aftermath of the Revolutionary War in 1783, additional federal laws and reservations were imposed.

The lesson of all this should be clear. We cannot live without the food and material resources provided by other forms of life, and the survival of plants and animals depends on the wise management practices of human neighbors. To step outside of a balanced relationship between humans and nonhumans is to risk living a life that is not sustainable.

Michael J. Caduto is an author, ecologist, educator, and storyteller who coauthored the Keepers of the Earth series and Native American Gardening.

Before the Deluge

*The town of Middleborough lies in one of the most
biologically diverse regions in the state.*

by Gayle Goddard-Taylor



© PAUL REZENDES

Atlantic white cedar swamp

Paddling the Nemasket River in southern Middleborough from its headwaters at Assawompsett Pond is balm for the nature lover's soul. Napping turtles line up nose to tail on the protruding limbs of submerged trees. A snapper rises from the depths to accompany the kayak briefly before veering away. Damselflies rest on the boat's smooth surface, and all around birdsong filters through the riparian grasses and forest canopy.

The Nemasket, a tributary of the Taunton River, is only one of Middleborough's many ecological gems. A visitor touring the back roads of the town would discover a great deal of open space harboring a rich diversity of plants and animals: Atlantic white cedar swamps, many red maple swamps, vernal pools, upland scrub oak forests, and a pond complex that supports seven of the state's twelve mussel species—and, according to locals, some pretty big pickerel.

There is also a great deal of history entwined with Middleborough's rivers, forests, and swamps. In pre-colonial times, Oliver Mill Park, which sits astride the Nemasket and is the location of a historic herring run, was a seasonal location for Native people. "In those times, and even up until the 1950s," says Betty Anderson, a local resident and Native American devotee, "it was said that when the herring ran the water level would rise one to two feet, and you could walk across the river on the backs of the fish."

In the spring, the local tribe would plant crops that would be tended by a few members over the summer, while the remainder traveled east to the cool sea breezes and rich shellfishing beds available in Plymouth.

At that time Oliver Mill was the site of the native

village known as Muttuck, a few miles up from Route 44's current location lay the village of Nemasket, while in northern Middleborough there was yet another native village, Titicut. By the time of the American Revolution, most tribal members had either died off or had moved east to Mashpee or elsewhere on the Cape, according to Anderson.

Oliver Mill Park is named for the owner of the town's first industrial complex, Peter Oliver, a Tory whose nearby home—Oliver Hall—was torched during the colonial uprising. Anderson says that more than a few silver artifacts from the old property can be found in homes around town today.

From Oliver Mill Park, the Nemasket slices through the northwestern corner of Middleborough to join the Taunton River at the border with Bridgewater. The Natural Heritage & Endangered Species Program (NHESP) of MassWildlife considers the Nemasket one



Green heron

of the town's leading ecological assets. The NHESP's statewide Biomap and Living Waters plans help towns identify the most viable terrestrial and aquatic areas to protect. In Middleborough, the Nemasket is considered a high priority.

"The areas along rivers are really important, not just for the biota but for water quality," says Natural Community Ecologist Patricia Swain of the NHESP. "Buffering provides better habitat for fish because it filters out pollutants, and the shade from trees cools the water."

Fortunately for the biota and the town, ongoing efforts by Middleborough have ensured that significant chunks of the land adjacent to the river are preserved. In fact, the town has some 6,000 acres of land protected by various means, according to Conservation Agent Patricia Cassady, from outright ownership to conservation restrictions. They have done this by partnering with such groups as The Nature Conservancy (TNC), the Trust for Public Land (TPL), and the Wildlands Trust of Southeastern Massachusetts.

These are critical times for Middleborough. The town has much open space but has yet to see the kind of growth experienced by other communities. Over the past decade, building permits for single-family homes have largely declined. More than half the total permits pulled in many years have been for mobile homes—and those were mostly for a single large development in northern Middleborough. The town's population has gone from 19,941 in 2000 to 22,852 as of January 1, 2008.

Middleborough's large size—the state's second largest

town behind Plymouth at 68 square miles—allows it to absorb this rate of growth.

"As far as sprawl, we really haven't seen any," says Town Planner Ruth Geoffrey. Currently, the town is juggling several efforts to preserve open space that not only protect important natural communities but also valuable historical, archeological, and water resources. "We've got so much on our plate," says Geoffrey, "we almost don't know what to do with it."

Another of Middleborough's biological treasures is its Atlantic white cedar swampland, a natural community listed as imperiled by the state. The NHESP has also identified these as high-priority areas. Such

swamps, formerly abundant along the coast from the Gulf of Mexico to Maine, have become increasingly rare.

Among the largest areas of Atlantic white cedar swamp in the state, Great and Little cedar swamps are found in the northeastern part of town. Other such wetlands can be found around Tispaquin Pond and Black Pond, where the town is working to acquire 1,000 acres to add to protected land obtained earlier with the help of TNC and MassWildlife.

Over time, Middleborough's Atlantic white cedar swamps have degraded for a variety of reasons. Fire and storms—as well as the massive land clearances of the nineteenth century—have destroyed the canopy and allowed the cedar swamp to be succeeded by opportunistic species. "The next generation of cedars won't develop in the shade," says Swain.

White cedar swamps sit atop an acidic peat substrate formed from fallen cedars and other understory species. The roots of these slow-growing trees must be submerged for certain lengths of time. If water levels drop, other less-light-dependent species will invade and stifle new cedar growth.

The value of this kind of natural community isn't limited to the habitat it provides to rare species such as the Hessel's hairstreak butterfly and bridle shiner, and birds such as the magnolia warbler, hermit thrush, and green heron. It also provides services free to the town by filtering pollutants from the water through its peat layer. Unfortunately, these swampy areas are highly sensitive to the byproducts of development—nitrogen runoff, changes in water chemistry and hydrology, and foot traffic.

A large chunk of Middleborough's white cedar swamp-

land was destroyed in the 1970s when about 900 of 1,500 acres owned by Cumberland Farms were bulldozed, drained, and filled. "The owners thought they were exempt from the wetlands law because the land was designated for agriculture," says Conservation Agent Cassidy, "but that doesn't apply when it's an Atlantic white cedar swamp."

A federal court fined the company and ordered it to begin restoring the swamp. Much of the area, however, remains a vast brown scar that seems to stretch to the horizon. In places, a few rows of corn have been planted, allowing the land to retain its agricultural designation. Currently, the town is involved in negotiations to purchase the full 1,500 acres.

In stark contrast, across the street from these rows of corn lies Little Cedar Swamp, where Anderson lives. Her hundred acres are largely under conservation restriction with the remainder donated to the Wildlands Trust. The area has also been deemed one of Middleborough's three Important Bird Areas (IBAs), sites that contain habitat considered essential for one or more bird species. An IBA may be a critical breeding or nesting site or be used by wintering or migrating birds. It can be as small as a few acres or range over thousands of acres. As required for an IBA designation, Anderson has documented all of the bird species found in this area and in the two other IBAs—a total of 183, by her count. She has also made note of various other living things.

"There are forty-three species of mammals in there or about a quarter of what exist in the state," says Anderson of the Little Cedar Swamp IBA. This is along with twenty-five to thirty butterflies and dragonflies, and most of the reptiles and amphibians that can be found in southeastern Massachusetts.

The two other IBAs are located at the Assawompsett Pond complex in southwestern Middleborough and at the Rocky Gutter Wildlife Management Area in the southeastern part of town. Rocky Gutter, a 3,380-acre chunk of mostly scrub oak upland and red maple swamp, is managed by MassWildlife.

The Assawompsett Pond complex, which extends into Lakeville, enjoys a great deal of shoreline buffering, thanks to New Bedford's efforts to protect its water supply. While they are not classified as coastal plain ponds, these ponds do show similar characteristics, including the presence of several state-listed plant species.

Coastal plain ponds left behind by the retreating glacier are deep enough to intersect with the water table, and their water levels vary with the rise and fall of groundwater. As the water alternately floods and ebbs, different plant species occupy successive levels of the shoreline.

The Assawompsett complex and the Nemasket River, which is protected up to its confluence with Fall Brook, also provide nesting and breeding habitat for other uncommon species including the bald eagle, upland sandpiper, and northern parula.

History and nature are once again linked in the northern part of town, where ecologists believe woodlands that may date back to the 1830s still stand. They may even be primal—that is forests that might have been harvested or used as pasture but never tilled. It's not "old growth," which would have been largely untouched since pre-European settlement, but it's a special pocket of land because, in a town that was previously an agricultural community, untilled land is rare. Such tracts are richer in biodiversity than land that has repeatedly endured the plow. Only soil tests, however, will determine if this is primal woodland, according to NHESP's Patricia Swain.

This part of town also holds several clusters of potential vernal pools—water bodies that dry up in summer but provide springtime habitat for species such as frogs and salamanders that need a place to develop quickly and in the absence of predators before they set out into the forest. These invaluable incubators for species such as wood frogs and blue-spotted salamanders must be documented and certified by the state before they can be protected. So far Middleborough has seven certified vernal pools.

Parts of southeastern Middleborough near neighboring Carver have the kind of sandy soils that support cranberry bog operations. Elsewhere in the southern part of town, Middleborough's soils are storied for their fertility, according to Conservation Agent Cassidy. "It's been said that Middleborough has some of the highest yielding soils in all of southeastern Massachusetts," she reports.

Despite its rich soils, Middleborough has seen most of its farms vanish. There is a single dairy farm still in operation and smaller truck farms peddle their produce at roadside stands, but agriculture no longer defines this community. That places the town at an important juncture—it can aggressively pursue protections for this open space or sit back. Middleborough has chosen the proactive route.

One sixteen-acre parcel actively farmed at present is being eyed by the town and its conservation partners for future acquisition, but Town Planner Ruth Geoffrey says that the dilemma is how to marry what seem to be competing interests. "We want to keep it as a farm but there are a lot of northern red-bellied cooters and box turtles and other species out there," says Geoffrey. "There are also major archeological resources under the land." It's a puzzle not unfamiliar to any community trying to retain its rural and cultural roots. But the state is full of towns that didn't make the effort and now strain to meet the demands caused by development.

"Trying to preserve all of these things isn't easy," says Geoffrey. "There's no blueprint for how you should do this."

Gayle Goddard-Taylor is a field editor for Sanctuary magazine.

Roulette

Les jeux ne sont pas faits

by E. Heidi Ricci and Jennifer Ryan

While Mass Audubon holds no official position on the moral, social, or cultural implications of casino gambling in the Commonwealth, we do have serious concerns over the potential environmental impacts of any proposed mega-development on the landscape, particularly in rural Massachusetts. Mega-casinos would encompass hundreds of acres or possibly even thousands of acres of land.

Massachusetts currently does not allow casino gambling. When and if the legislature takes action to approve casino gambling, it is important that the Commonwealth ensure that any destination resort casinos are held to the highest environmental and efficiency standards. Current state environmental laws will cover many of our concerns for casinos on private land, but not on sovereign Native American land. Any casino built on tribal reservation trust lands approved by the Bureau of Indian Affairs would be exempt from virtually all federal, state, and local laws, including environmental laws.

Under federal law, states have the opportunity to regulate sovereign tribal land when it's used for gaming, but this must be stipulated under a Tribal-State compact. The compact is an agreement laying out the scope and terms of Native American casino gambling. At the time of writing, the Mashpee Wampanoag have requested that the Governor begin Tribal-State compact negotiations, while the tribe's application to the federal government to take land into trust for a reservation is pending.

If a Tribal-State compact is developed, the Governor and General Court should make certain that all aspects of environmental and land-use protections are addressed in the compact. If the state does not do this, all authority will be de facto waived and there will be no standards for prevention or mitigation of environmental impacts on tribal land and greater difficulty in managing the effects on surrounding areas.

There are two types of casinos currently proposed in Massachusetts—those on and those off of sovereign Native American lands. There are significant environmental concerns for both, and additional concerns with resort-style mega-casinos on sovereign tribal lands that are not subject to state or local laws, including zoning and environmental laws.

There are many important factors to be addressed for a large-scale casino development, including environmental protection. Smart-growth principles support concentrating development in town or city centers by reusing existing sites and infrastructure. Equitable sharing of benefits

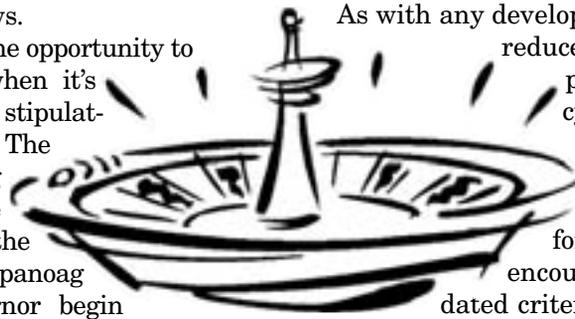
and impacts of development through inclusive community planning and decision-making that protect current and future generations is also important.

Environmentally sensitive lands, natural resources, agricultural lands, critical habitats, wetlands and water resources, and cultural and historic landscapes must be protected. Land, energy, water, and materials must be used efficiently to conserve natural resources and reduce waste and pollution. Housing near jobs, transit, and services must be provided. Alternate transportation options such as rail, bus, shared-ride services, and accessible biking/walking paths should be provided to maximize mobility, reduce congestion, conserve fuel, and improve air quality. Greenhouse gas emissions and fossil fuel use should be minimized by utilizing efficient and/or renewable energy. Finally, careful consideration must be given to the long-term impacts to the region, or multi-community area, affected by the development.

As with any development, a casino could theoretically reduce energy use and its carbon footprint by increasing energy efficiency through efficient siting, design, and operation. Accessibility to transportation alternatives such as an urban setting with multiple forms of transit should be strongly encouraged through legislatively mandated criteria applied in the selection of bids for licenses. But siting a huge casino in a rural location accessible primarily by highway would result in tens of thousands of vehicular trips, many from long distances. This situation must be addressed through selection of alternative sites or provision of efficient transportation options with funding support from the development.

The Leadership in Energy and Environmental Design (LEED) rating system is the nationally accepted benchmark for the design, construction, and operation of high-performance green buildings. Casinos are high energy consumers, making LEED certification at the highest level essential. Exterior lighting fixtures during and post construction should be directed downward to only project light on nonreflective surfaces to reduce light pollution.

Water sources for a project must be identified in advance of licensing and should be efficiently utilized. Projects must demonstrate that they will not exceed the safe yield of aquifers, river watersheds, or other water sources, and will not interfere with water needed by other users in the community and surrounding area. Buildings and grounds should be designed to minimize water use and maximize efficiency and onsite reuse. A



large casino such as the one proposed by the Mashpee Wampanoag in Middleboro is estimated to use an average of 750,000 gallons per day, and up to 1,500,000 gallons per day during peak usage—enough to serve 5,000 households. Minimization of wastewater production through water-efficient systems throughout the facility would also be important. Wastewater should be treated to a high level and reused or infiltrated into the same sub-watershed as the withdrawal if at all possible.

Finally, waste cannot be ignored. A strong program should be in place to reduce the volume and toxicity of waste mate-

rials produced during casino construction and operation as well as the requirement of a recycling program.

Public debate around casinos has typically focused on social and economic issues, yet environmental concerns deserve as much attention. It is vital that our state officials put in place adequate safeguards to protect the environment if large-scale resort casino development becomes a reality in Massachusetts.

E. Heidi Ricci is Mass Audubon's senior policy analyst. Jennifer Ryan is Mass Audubon's legislative director.

All Along the Taunton

by Priscilla Chapman



© JOE CALLAHAN

The site of the proposed Mashpee Wampanoag casino in Middleborough lies in the heart of the Taunton River watershed. The second largest in Massachusetts, the watershed covers 562 square miles within forty-three cities and towns, home to over half a million people. Hundreds of species of plants, birds, fish, and other wildlife share the watershed with the human population.

The casino site is located within a few hundred yards of the Nemasket River, one of nine major tributaries to the Taunton. The main stem of the Taunton flows freely without impoundment for forty miles, and together the Taunton and Nemasket support one of the largest anadromous fish runs in the Northeast. The gentle gradient of the river allows tidal influence to extend twenty miles inland, creating extensive brackish and freshwater marshes, some of which are globally rare. With miles of forested banks, the Taunton River is a prime place for canoeing, kayaking, and fishing in a natural setting.

In order to protect this rich natural resource in its free-flowing condition as well as its outstanding wildlife values, the National Park Service has recommended the Taunton River for the National Wild and Scenic Rivers System. Legislation to grant this designation is awaiting final approval in the US Senate.

The watershed includes numerous other outstanding features. The Assawompsett Pond complex is the largest natural lake in the Commonwealth, source of drinking water for over 200,000 people in eight communities, and the Hockomock Swamp is the largest freshwater wetland in Massachusetts. Examples of unusual wetlands such as Atlantic white cedar swamp and silver maple floodplain forest are found there. Seventy-eight rare species have been identified in the watershed by the Massachusetts Natural Heritage & Endangered Species Program. Ninety-three thousand acres of the watershed, 82,000 of which are unprotected, provide Core Habitat for those species. Many working farms provide food and dairy products while maintaining valuable open space.

Evidence of human settlement in the watershed, especially along the river's floodplain of rich alluvial soils, dates back 10,000 years. Throughout European colonization, periods of industrial development, and into the modern era, human activity has not destroyed the beauty or ecological richness of the river and the natural communities.

However, over the last fifteen years the Taunton River Watershed has experienced unprecedented growth, with development encroaching on fragile ecosystems. Increasing demand for water supply causes low-flow conditions in streams. Wastewater and storm-water discharges threaten water quality.

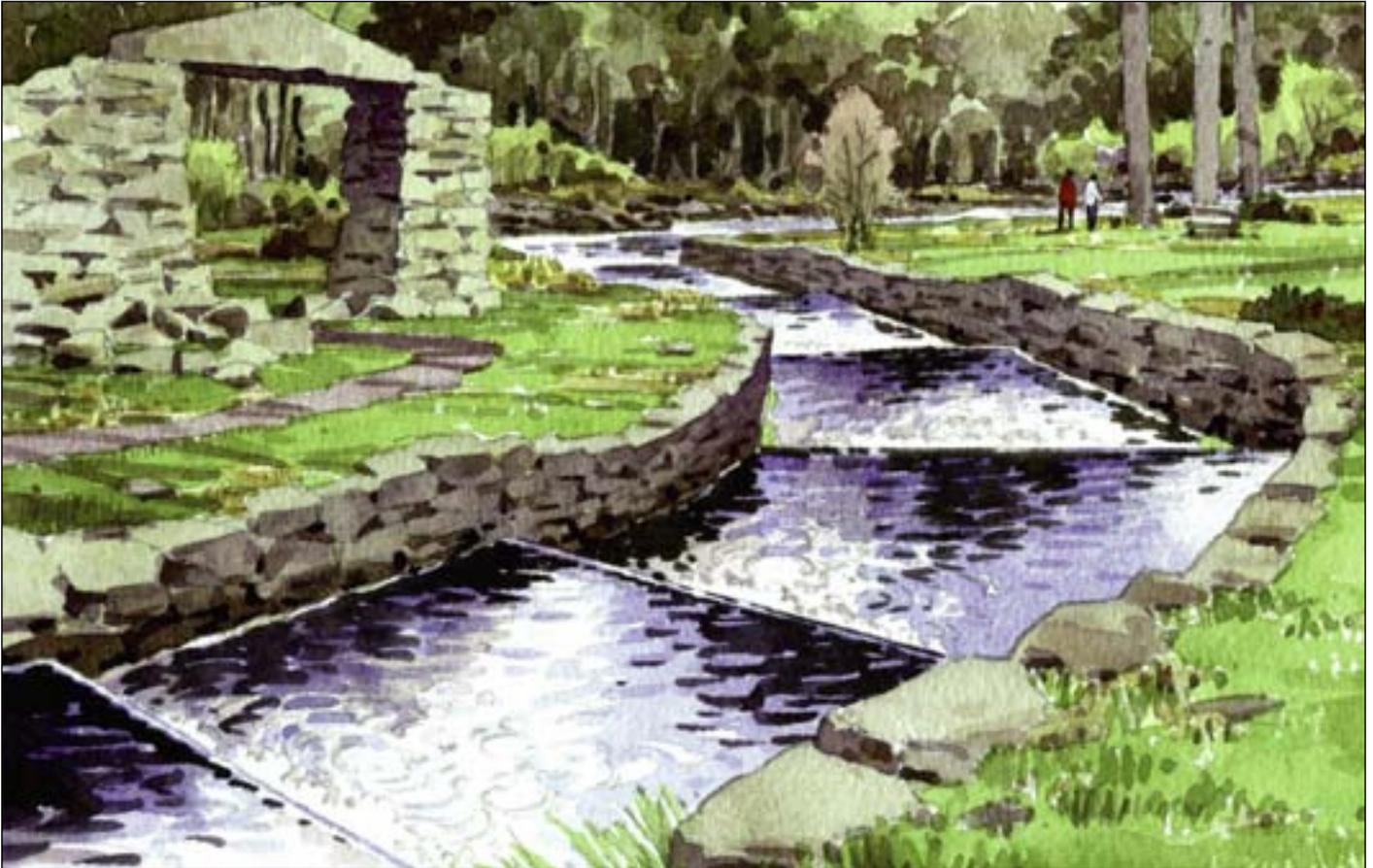
To counter these threats, ten groups including Mass Audubon have banded together to form the Taunton River Watershed Campaign. They are working to preserve the watershed's resources, help municipalities to plan for sustainable growth, and minimize the impacts of major developments such as the proposed resort casino.

For more information, contact Mass Audubon's Watershed Advocate Priscilla Chapman at 508-828-1104 or pchapman@massaudubon.org.

The Gaming Ground

Taking chances in Middleborough

by Nini Bloch



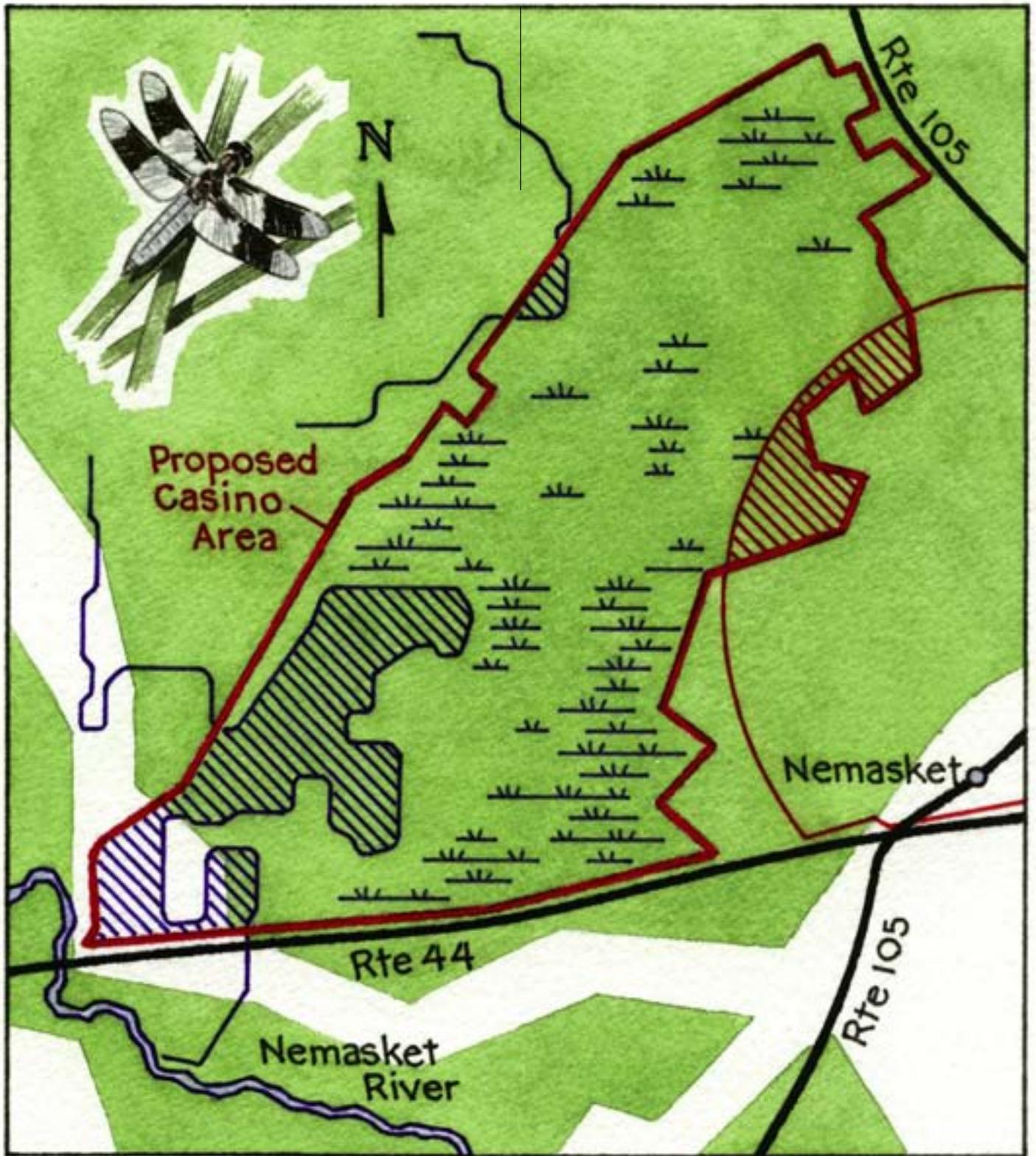
View of stone fishway in Oliver Mill Park, south of the proposed casino site

Starting in late April in a pool below the Wareham Street Dam on the Nemasket River in Middleborough, thousands of herring make the water boil before launching themselves up the fish ladder to head upstream. The fish amass on their annual spawning run (the largest in the Commonwealth) from Narragansett Bay to the headwaters of the Nemasket, in Assawompsett Pond in Lakeville. Tourists come to watch what herring have been doing for millennia.

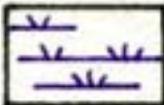
But that may change. Less than a mile away, if the Mashpee Wampanoag Indians and their financial backers clear the bureaucratic and legal hurdles, an enormous resort casino will open its doors in Middleborough. The \$1 billion project along Route 44 would feature a two-story casino with 4,000 slot machines and 200 game tables, a 10,000-seat event center, 10 restaurants and retail shops, a 15- to 18-story luxury hotel, a 24-pump

service station, and a garage and surface lots for up to 10,000 cars. A second phase would add an 18-hole golf course and a water park.

The tribe's developers already own 140 acres in Mashpee that include two burial grounds and land for the tribe's headquarters, housing, a senior center, and a museum. So far, casino backers have bought 125 of a proposed 539 acres of land in Middleborough, and the tribe has negotiated an agreement with the town that includes roughly \$7 million per year for the town in exchange for various municipal services and mitigation for the casino's impact. Currently, the Bureau of Indian Affairs is reviewing the tribe's application to place all its land into trust as a multipart reservation, a process that mandates a broad-based evaluation of the project's potential environmental impacts. If successful, the tribe would gain the status of a sovereign nation, its lands would be removed from the tax



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|  | Biocore Habitat |  | Critical Supporting Watershed |
|  | Wetlands |  | Rare Species Priority Habitat |

rolls, and any activities it conducted on tribal land would be exempt from state and local laws (including environmental regulations).

The Mashpee Wampanoag have prided themselves on always treading lightly on the land. Tribe member Angela Schwann says, “We are still the guardians of the land. We only take enough to feed our community. We do not practice exploitation of any kind.” Maintaining that claim will be a challenge given that the casino project could be the largest development ever proposed for southeastern Massachusetts. Its hotel tower would rival the tallest buildings in Quincy, Brockton, or New Bedford. Its footprint—in terms of such issues as water use, traffic, and light pollution—would be regional in impact. One has to wonder if the herring—and in fact the Nemasket River itself—can survive such massive disruption.

Non-Native proponents claim the casino would bring good jobs and attract tourists who would spend money on local businesses and inject vitality into a sagging rural economy. By contrast, among other arguments, opponents of the casino cite a litany of environmental impacts that they claim would cost the region far more than any economic benefits a casino might generate. Above all, their concerns focus on one vital resource: water—where it comes from, where it goes to, and what happens to it and all the living things that depend on it as it runs down to Narragansett Bay. To understand the potential impacts of the Mashpee Wampanoag casino project means taking the regional view as well as the local perspective.

This region is a land shaped by water. Middleborough is one of the forty-three towns and cities that make up the 562-square-mile Taunton River watershed, the second largest watershed in the state. The area harbors twenty-seven habitat types, the largest remaining wetland in Massachusetts, 29 native fish species, 114 bird species (including nesting bald eagles), and 77 state-listed rare species. At its closest, the Nemasket River that hosts the spring herring run flows north through Middleborough a quarter of a mile from the proposed casino site and empties into the Taunton River three miles beyond it. The Taunton is the longest free-flowing coastal river in New England.

Despite the watershed’s biological riches, the Massachusetts Department of Environmental Protection lists it as a “stressed basin” and the Nemasket River as “impaired.” Obviously, all is not well with the Nemasket. In recent years herring stocks have dropped so precipitously—from 2,000,000 to 400,000—that the Commonwealth has placed a moratorium on harvesting



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Canada geese in the wet meadow just north of the proposed casino area

herring from January 1, 2006, to January 1, 2009.

Middleborough’s history has revolved around the herring run and the Nemasket. Close to the proposed casino entry archaeologists have unearthed a pre-contact Native American site (possibly a perennial seasonal fishing camp). Herring ladders and the remains of mills dot the eleven-mile-long river. Settled by colonists in 1660, Middleborough, which is the state’s second largest town by land area, now has a population of 22,000. Organic farming and cranberries are major industries; Ocean Spray’s headquarters sit just over the town line in Lakeville. The town’s numerous wetlands support abundant wildlife and draw boaters, fishermen, and outdoor enthusiasts.

The undeveloped casino site in a “rural residential” zone is roughly half wetland. Streams flow through the forested property to the nearby Nemasket River. Because the land is so undisturbed, the Massachusetts Natural Heritage & Endangered Species Program (NHESP) has designated the entire plot as BioMap Core Habitat, which is defined as “the most viable habitat for rare species and natural communities in Massachusetts.” The parcel encompasses part of Meetinghouse Swamp and, respectively, on its eastern and western ends includes officially mapped Priority Habitat for rare species and Living Waters habitat, which is critical for freshwater diversity. The parcel’s wetlands are part of an aquifer system that supplies Middleborough’s drinking water.

The eastern box turtle, a state species of special concern, lives on the site. Four rare wetland species are known to frequent the area, though they’re not yet documented on the casino. The water-willow stem borer, a state-threatened moth that is endemic to southeastern Massachusetts, lives in the immediate vicinity and offers testament to how intact this ecosystem is.

Beaverdam Swamp to the immediate north and Great Cedar Swamp to the northeast form an interconnected wetland with Meetinghouse Swamp that support nearby cranberry bogs. More important, this wetland absorbs and filters rainwater to surface streams and underground aquifers, thus preventing both seasonal flooding and drought, and mitigating pollution to the impaired Nemasket. Wetlands are as vital as they are fragile. They cannot work, for instance, if they are paved over for the huge parking lots and added roadways projected for the casino.

But quite apart from any loss of rare species, disrupting or destroying the wetlands that recharge aquifers would directly threaten the drinking water supply not only for Middleborough but for surrounding communities as well. Middleborough relies on eleven community wells drilled into aquifer water that currently pump roughly 1.5 million gallons per day (mgd). The maximum permitted is 2.25 mgd. Estimates are that a mega-casino potentially could double water use to 3 mgd. Can the town safely supply this extra water? Middleborough Selectman Wayne Perkins claims capacity would meet demand because the town "is extremely fortunate to be sited on top of one of the largest sole aquifers in the [state]." But Weston Sanford, technical director of the environmental laboratory Groundwater Analytical in Buzzards Bay, Massachusetts, warns, "It's a common local myth that the town of Middleborough sits on a single huge aquifer with nearly inexhaustible quantities of potable water." Instead, he says, Middleborough and six neighboring towns rely on and share several "semi-isolated aquifers" whose capacity "remains unknown" but may be far less than optimists project. The Watershed Action Alliance of southeastern Massachusetts has estimated that the region's per-capita amount of potable water is less than that for the state of Nevada.

What is known is that longtime residents in Plympton who originally dug shallow wells already have to ration their water during seasonal droughts; and some have had to drill new deeper wells as the population of southeastern Massachusetts soars. In the next two decades, Middleborough's population is projected to grow to 50,000, and the region is expected to follow suit. Sanford estimates that Middleborough's water consumption with a casino could reach an estimated 6.6 mgd.

Counting on enough water for an expanding local population as well as a casino complex may prove a very bad bet, especially if the Mashpee Wampanoag tribe wins reservation status for its Middleborough parcel. Their resulting sovereign status would permit them to draw down local aquifers with impunity and without consideration for the other straws in the drink. The surrounding communities would have to fend for themselves.

At the other end of the water story, wastewater from the casino could affect the already impaired Nemasket and Taunton rivers and the region's aquifers. Based on

Mohegan Sun figures, estimates are that the proposed casino would generate .5 mgd to a maximum of 1 mgd of wastewater. Although, technically, the volume of added wastewater is within the maximum 2.16 mgd permitted for the town, even treated effluent is a form of pollution. Middleborough's effluent permit already cautions about excess nitrogen, which can cause algal blooms. There are legitimate concerns about whether the Nemasket and Taunton rivers—and the struggling herring—could handle the further assault.

Paving over acres of wetlands for casino parking lots would create another set of problems. Not only would the area lose the water absorption and filtering capacity from the parcel's existing wetlands, but torrents of storm runoff could flood wetlands and affect the water quality of the Nemasket River. Massive parking lots collect leaked car fluids that rainwater then would wash into the remaining wetlands. Pesticides and fertilizers used on the proposed golf course would exacerbate the problem. Of particular concern is the pollution that could reach the Nemasket or could filter into Middleborough's aquifers. As the town points out, eight of eleven community wells are "highly vulnerable" to contamination because the aquifers that supply them lack natural barriers to pollution. Already, one community well has experienced contamination from the Middleborough landfill.

As with any mega-casino project, traffic and noise and light pollution are other major concerns. Estimates are that a Middleborough casino could expect 40,000 car visits per day that, even with infrastructure improvements, would clog local traffic and add considerably to local air pollution. Snarled local traffic would impede emergency responders and even disaster evacuation. Route 44 is part of the evacuation route for either an accident at Plymouth's Pilgrim Nuclear Power Station or for those fleeing a hurricane on Cape Cod.

Middleborough lies in a lesser known section of rural New England. Residents here are proud of their dark night sky, which still offers one of the state's most brilliant views of the Milky Way. But the casino project's tower hotel would guarantee light pollution throughout the night in this patch of rural Americana that prides itself on its dark skies. Beyond the aesthetic and cultural loss, "beacons" are proven distracters and killers of migratory birds. Year-round light can also disrupt the behavior and reproduction of farm animals and wildlife, including the region's rare species.

The towns surrounding this massive project have had little opportunity to contribute comments. And given the risk to local water supply, and the river and the wetlands that have molded the local's history, one has to wonder if the Mashpee Wampanoag tribe's casino project is a gamble worth taking?

Nini Bloch is a freelance writer and editor in Bedford who covers field science, environmental topics, and animal behavior.

The Road to an Indian Casino



1. If the Mashpee Wampanoag tribe's land-into-trust application succeeds, then the tribe would have to appeal to the Department of the Interior to approve the tribe's use of its new "reservation" for gaming. During the Bush administration, the DOI has not granted a single such request.

2. If the tribe gains DOI approval for gaming, it then would have to negotiate a compact with Governor Deval Patrick—subject to legislative approval—to legalize Class III gambling in Massachusetts. Currently, slots and casino games such as roulette, craps, and blackjack are illegal in

the state, and bids to allow them have fallen flat. Any passage of a slots bill (for example, to allow slots at Suffolk Downs), however, would open the door.

3. Without the go-ahead for Class III gambling, the Middleborough casino is a much riskier financial venture. It could compete with Class II gambling (typically bingo and keno) that is readily available in Connecticut and Rhode Island—but not with the full-fledged facilities at Foxwoods and Mohegan Sun nearly 100 miles away.

NB



© JOHN H. MITCHELL

Foxwoods casino; the proposed Middleboro casino would be far bigger.

Casino Essentials

by Thomas Conuel



© JOHN H. MITCHELL

Reflections of Foxwoods Casino

•The term casino originally meant a small villa, summerhouse, or pavilion built for pleasure, usually in the garden of a larger Italian villa or palazzo. The use of the word in the sense of a gambling establishment first appeared in 1851, according to *The American Heritage® Dictionary of the English Language*.

•A kilowatt-hour is the electrical energy consumed in one hour at the constant rate of one kilowatt. The average household in the United States uses about 8,900 kilowatt-hours of electricity each year. A hotel/casino uses 400 times more electricity than the average home in Las Vegas; 350 times more electricity than a home in Anaheim; and about 330 times more than one in Minneapolis.

•In Oakland, California, the Lower Lake Rancheria Koi Nation wanted to build a casino and a seven-story hotel/spa complex on a 35-acre parking lot abutting a restored urban marshland. Conservationists opposed the plan, noting that the glare of lights from 24-hour gaming activities would disrupt endangered California clapper rails, which had been spotted at the site in increasing numbers. The lights would also attract predators that would prey on the birds. Facing opposition from civic and community leaders as well as environmentalists, in 2005, the Sonoma County Indians dropped their plans to build the casino.

•In 2007, Indian gaming facilities in the United States generated \$26.5 billion, a 5 percent increase over 2006. This amounted to 41 percent of all casino gaming revenue in the nation. Federal, state, and local governments received \$14.8 billion in 2007 from Indian casinos: \$1.3 billion in direct payments; and \$13.5 billion in taxes.

•In 2007, 230 American Indian tribes in twenty-eight states operated 425 gaming facilities. These operations directly supported about 346,000 jobs and paid about \$12 billion in wages. Indian gaming facilities in California generated the most revenue in 2007: \$7.8 billion, about 29 percent of the national total. Rounding out the top five states for revenue were Connecticut, Oklahoma, Arizona, and Florida.

•According to a study by the Center for Policy Analysis, University of Massachusetts Dartmouth, the casino gaming industry spends more than \$4 billion annually on construction, real estate, furniture, and equipment. It is not uncommon for gaming companies to invest \$100 million to \$1 billion for the construction of a new facility or to spend several hundred million dollars to expand an existing facility.

Tom Conuel is a field editor for Sanctuary magazine.

Energy Consumption Breakdown by Climate for a 195,000-Square-Foot Full-Service Hotel

Annual Electric Use	Units	Las Vegas	Anaheim	Minneapolis
	Kilowatt-hour	3,548 million	3,131 million	2,960 million

Poetry

Edited by Genie Zeiger



© ROBIE HUBLEY

Hidden Meadow

by Sophie Wadsworth

Twilight sifts into the grass
Breath the only agitation
in the stillness, as before a storm.
Not one animal lurks the field edge.

In the hour between the visible
and the nocturnal
the mute birch
bows around possibility.

Any sign will do:
a blue chip of eggshell
might suddenly blaze
with the day's accumulated light,

or a buck leap through a gap
in the underbrush.
One could be drawn in
by a breath soft as an old leaf.

Eyes open or closed, no matter.
A pelt of darkness bristles in the pines.
Wings hurtle through the air,
gesturing blindly.

Sophie Wadsworth's first collection of poems, Letters from Siberia, was published in 2004. She lives in the Boston area and works for the Nature Connection, also known as Animals as Intermediaries.

THE LONG VIEW



**The Council of Seven / Royal House of Pokanoket
Pokanoket Tribe / Wampanoag Nation**

Bristol, Rhode Island 02809

August 8, 2007

Dear Honorable Deval L. Patrick,

On behalf of the Pokanoket tribe of the Wampanoag nation, I beseech you to no longer entertain the concept or reality of a casino on the land of the Pokanoket tribe.

It is against the natural order of things when a Tribe conducts affairs in the land of another Tribe. The Department of the Interior (DOI) will not condone it. However, this is what is currently being proposed to you by the recent compact in Middleborough for a casino. The Mashpee's casino proposal for Middleborough is an affront to the Pokanoket Tribe and a strong indication the Mashpee Tribe has lost sight of its own heritage and tradition.

Our territory and boundaries are on file with the DOI and have been communicated dutifully to the state legislature of both Rhode Island and Massachusetts. Prior to any negotiation of Native American business on the lands of Pokanoket, our culture must be acknowledged and respected. For this to take place we must be afforded appropriate protocol. To do otherwise is to relive the grievous mistakes of our shared past.

We stand against the usurpation of Pokanoket lands for gaming or any other purpose by another Tribe. In light of the current push, we strongly urge you as Governor of Massachusetts to refuse to enter into negotiation, or other favorable consideration of an Indian casino on our lands.

I have enclosed "Territory and Boundaries of the Pokanoket Tribe of the Wampanoag Nation" to assist you. This document is on file with petition #145 with the DOI for Federal recognition of the Pokanoket Tribe of the Wampanoag Nation.

I look forward to hearing your position regarding this letter and enclosure. I am available to meet with you at your convenience for any questions you may have as it is impossible to answer all questions in one communication.

Best regards,

Michael "White Eagle Deer" Weeden

President

Pokanoket Tribe

Native Footprint

by Ann Prince

“We will be known forever by the tracks we leave.” DAKOTA PROVERB



© GORDON MORRISON

“The American Indian is of the soil... He fits into the landscape, for the hand that fashioned the continent also fashioned the man for his surroundings. He once grew as naturally as the wild sunflowers...”

Black Elk (1863-1950) OGLALA

Two local Native Americans, Distant Eagle and Dreaming Bear, have more in common than their native heritage. They believe in the traditional Indian ideal that humanity must live in balance with all life.

Last winter members of the Wampanoag tribal council unveiled the design for a proposed resort casino in the rural southeastern Massachusetts town of Middleborough. Preliminary plans include a thousand-room 15- to 18-story hotel; an adjacent quarter-million-square-foot, two-story casino; restaurants and shops; and a possible future water park and 18-hole golf course. Route 44, just 900 feet away, would be widened from two lanes to four and have three new interchanges; and a six-level parking garage would accommodate up to 10,000 vehicles.

Many Native people do not embrace this concept.

Distant Eagle, aka Reverend James David Audlin, is a member of the Kanienkehaka, or Mohawk, Nation and the pastor of two Reform churches in the Catskills. He is also on the board of the Coalition Against Gambling in New York. “Casinos are abhorrent to

Indians,” he says. He says that a casino imposes a tremendous environmental footprint, destroys animals’ homes, and inflicts damage upon the earth.

“The land is sacred,” declares Distant Eagle, “because it is holy, because it exists, because *it is*. We are best judged by how we treat our most vulnerable. The Tree Nations, the Bear Nations, All Living Things are sentient beings. We need to listen to them and learn from them. They have their own intrinsic value. This is the way it is supposed to be.”

Last March, in a speech before the Bureau of Indian Affairs, a member of the Massachusetts tribe named Dreaming Bear, whose English name is Faries Gray, responded to the Middleborough casino proposal.

“My concerns in Middleborough are twofold. One—this is not Mashpee territory. Two—destroying trees, the four-legged, the winged ones, all the creatures that will be destroyed if they build the casino is not the Indian way....

“What about the trees? How many trees are going to die? How many? Does anyone know? What about the creatures? How many will lose their homes?”

THE LONG VIEW



“Hills are always more beautiful than stone buildings, you know.... Lots of people hardly ever feel real soil under their feet, see plants grown except in flower pots, or get far enough beyond the street lights to catch the enchantment of a night sky, studded with stars. When people live far from scenes of the Great Spirit’s making, it’s easy for them to forget His laws.”

Walking Buffalo (1871-1967) STONY NAKOTA

“I don’t understand how the Mashpee can make sense of what they are attempting to do. They say that they care about the land; they have been good stewards of the land. But they are going to destroy the land. What little we have left they will destroy for financial reasons—what gives the Mashpee the right to take the lives of our brothers and sisters, our cousins—the creatures that live there? That is not the Native way. That is the way of the settlers. That is not the Native way—it never has been.

“I am Dreaming Bear, spiritual leader of the Massachuset, and the words I speak are true.”

Middleborough, which was once known for its wild lands and agriculture, is at a literal crossroad: Routes 44 and 495 converge there, making it a convenient location for a massive project such as the casino. But in an era when many are striving to decrease our cumulative carbon footprint, a project of this magnitude seems counterproductive. Environmental League of Massachusetts President George Bachrach and Conservation Law Foundation President Philip

Warburg asked in their February 2008 column in *The Boston Globe*: “Have the governor’s capable advisors clued him in on the environmental costs of creating miles-from-nowhere mega-magnets?...” Remotely sited “destination casinos” will give an “unwelcome boost to automobile-generated greenhouse gas emissions—the state’s fastest growing contributor to global warming,” they write. “All of this comes at a time when we must be strengthening our towns and cities rather than promoting sprawl.”

Distant Eagle concurs. “Vast numbers of people are drawn to casinos, and any single casino means millions of cars per year and the associated carbon-infused exhaust.” Furthermore, he notes that the building of a casino itself and use of the “attraction” strains water resources and pollutes the air, land, rivers, and lakes. He cites a northern New York State Indian casino on a reservation where nearby wells belonging to Native American residents were contaminated as a result of the casino.

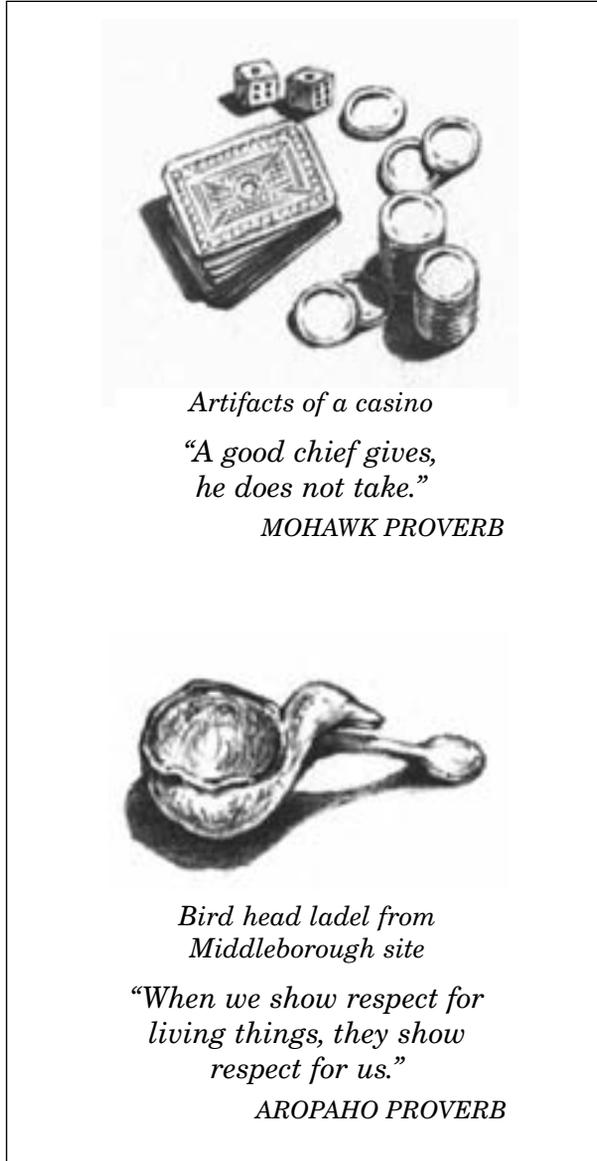
“Tinkering with nature has grave consequences,” says

Distant Eagle. “Humanity must accede to the dictates of the natural world.”

He explains that originally Indian gaming, which was part of their traditional way of life, had a circulator effect—no one would gain or lose; all who participate benefited. By contrast, casinos currently being built on sovereign land are sucking money out of the local economy. He describes true Native gaming as a small community activity for enjoyment and entertainment, or a way to offer assistance; the “winings” were meant to favor someone in need. In modern-day casinos, he says, “There’s a tilt in the wrong direction. The house always wins. Those who are traditional in their philosophy consider this regressive taxation and unethical.”

According to Tom Elias writing in the California *Santa Monica Mirror*, there is little documentation of significant benefit to Native people, except for a very select group that enjoys the profits of these multimillion-dollar businesses. “There’s no sign most casinos are willing to help other Indians out of poverty and into solid medical care and middle class life,” Elias says.

The Wampanoags themselves were known traditionally as peacekeepers and a people who have lived in harmony with their homeland. According to Laurie Weinstein, author of *Indians of North America: The Wampanoag*, “Reciprocity was at the heart of the Wampanoag’s religion, in their sense of having a relationship with all things in the Universe. Deer, bear, rocks, trees—everything that existed—had its own spirit.” At their summer home sites, they planted corn,



Artifacts of a casino

*“A good chief gives,
he does not take.”*

MOHAWK PROVERB



*Bird head ladel from
Middleborough site*

*“When we show respect for
living things, they show
respect for us.”*

ARPAHO PROVERB

© GORDON MORRISON

beans, and squash. They foraged for acorns, chestnuts, tubers, and berries; and they fished and hunted.

Though the ancient form of governance of the Native people is through consensus, many are dismayed that Wampanoag members are not permitted to speak out against the casino in Middleborough.

According to *Cape Cod Today*, “The tribe is still in the grips of a so-called government under the rule of an elected tribal council who will not give in to the will of the membership or the chief.” A distinguished Wampanoag elder and her family are being shunned for requesting access to the books, despite a vote by members to revoke the shunning and the clear message of Chief Silent Drum, Vernon Lopez, that the shunning is not justified “That council, though elected by the membership, is clearly controlled by outsiders whose only interest is how to use Indian sovereignty to profit from gambling,” *Cape Cod Today* contends.

In a presentation to the Middleborough Resort Advisory Committee in January 2008,

Casinofacts.org raised a list of questions related to the proposal:

“How would the aquifer be affected by the casino project?”

“What impact would the increased traffic have on pollution?”

“How would endangered/protected species be affected by the developer?”

Yet the ultimate question is: What will prevail, Sacred Mother Earth or the Almighty Dollar?

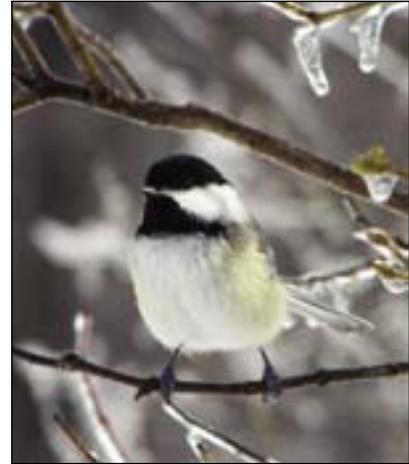
Ann Prince is associate editor of Sanctuary. She worked as a park naturalist for the first five years of her career.

Calling All Backyard Bird Feeders!

Participate in Mass Audubon's annual Focus on Feeders Weekend—fun for novice and experienced birders alike! **During the weekend of February 7 and 8, 2009**, we ask that you note the quantity and diversity of birds visiting your feeder.

Get your camera ready! We will also be awarding prizes in several categories for wildlife photographs submitted with results. All wildlife photos are welcome and need not be limited to birds. Amateur photographers only, please. All photos become the property of Mass Audubon.

Ask others to join the fun, since the value of the bird data collected increases with the number of participants. All participants will be entered into a prize drawing. Additional report forms are available on our website at www.massaudubon.org/focus.



Last year's winning photograph:
Black-capped Chickadee
by Anne Greene

Report your results online at
www.massaudubon.org/focus

STEP 1: During the weekend of February 7 and 8, check your feeders periodically and note the number of each species in view **at any one time**. At the end of the weekend, record the maximum number of birds observed **at any one time** for each species listed below.

STEP 2: Report your observations to Mass Audubon by **February 28, 2009**

Online at www.massaudubon.org/focus **OR**

Mail this report form to:

Mass Audubon/Focus on Feeders
208 South Great Road
Lincoln, MA 01773

Mail photo submissions to the address above, or e-mail them to membership@massaudubon.org. Include your name/address.

Name _____

Street _____

Town _____ State _____ Zip _____

How many bird feeders do you have? _____

How many months of the year do you feed birds? _____

What type of feed do you use? Mixed Seed _____ Sunflower _____

Thistle _____ Suet _____ Other _____

Have you ever visited a Mass Audubon wildlife sanctuary? _____

Have you ever taken a Mass Audubon birding program? _____

Are you a Mass Audubon member? _____

Please e-mail me when results appear on the website.

Here's my address: _____

American Crow _____

American Goldfinch _____

American Robin _____

American Tree Sparrow _____

Black-capped Chickadee _____

Blue Jay _____

Carolina Wren _____

Dark-eyed Junco _____

Downy Woodpecker _____

Evening Grosbeak _____

European Starling _____

House Finch _____

House (English) Sparrow _____

Mourning Dove _____

Northern Cardinal _____

Northern Flicker _____

Northern Mockingbird _____

Pine Siskin _____

Purple Finch _____

Red-bellied Woodpecker _____

Red-breasted Nuthatch _____

Rock Pigeon _____

Song Sparrow _____

Tufted Titmouse _____

White-breasted Nuthatch _____

White-throated Sparrow _____

Other Species: _____

To save resources, 2009 results and photo contest winners will appear on our website. If you prefer to receive results by mail, please send a stamped, self-addressed envelope to Mass Audubon at the address above.

Please report your observations to Mass Audubon by February 28, 2009.

Visit our website to explore
all of Mass Audubon's
summer camps. We have
16 day camps
and an overnight camp



With camps located throughout
the state, we're sure to have
something for your
family close by.

www.massaudubon.org/camps



SCHOOL VACATION WEEK PROGRAMS

BOSTON NATURE CENTER
Mattapan, 617-983-8500
Winter in the City
February 17-20

BROAD MEADOW BROOK
Worcester, 508-753-6087
February School Vacation Week
February 16-20
Single days available

BROADMOOR
South Natick, 508-655-2296
February School Vacation Week
February 17-20—9 a.m.-3 p.m.
Single days available

CONNECTICUT RIVER VALLEY
Easthampton, 413-584-3009
Vacation Days at Arcadia
February 17-20
Single days available

HABITAT
Belmont, 617-489-5050
February School Vacation Week
Raccoons, Chipmunks, and Bears, Oh My!:
February 17—9 a.m.-3:30 p.m.
Outstanding Owls:
February 18—9 a.m.-3:30 p.m.
Nature Detectives:
February 19—9 a.m.-3:30 p.m.
Thirteen Moons on a Turtle's Back:
February 20—9 a.m.-3:30 p.m.
For children in grades K-5
March Exploration Week
Wonderful Wildlife:
March 16—9 a.m.-3:30 p.m.
Raccoons, Chipmunks, and Bears, Oh My!:
March 17—9 a.m.-3:30 p.m.
Outstanding Owls:
March 18—9 a.m.-3:30 p.m.
Nature Detectives:
March 19—9 a.m.-3:30 p.m.
Thirteen Moons on a Turtle's Back:
March 20—9 a.m.-3:30 p.m.
For children in grades K-5

IPSWICH RIVER
Topsfield, 978-887-9264
February Vacation Adventure Days
February 17-20
For children in grades K-5

JOPPA FLATS
Newburyport, 978-462-9998
February School Vacation Week FlyBys
February 23, 25, and 27—11 a.m.-3 p.m.
For children ages 2-12.

MOOSE HILL
Sharon, 781-784-5691
February Vacation Days
February 16-20

SOUTH SHORE
Marshfield, 781-837-9400

STONY BROOK
Norfolk, 508-528-3140

VISUAL ARTS CENTER
Canton, 781-821-8853
Antarctica
February 16-20—9 a.m.-3 p.m.
For children ages 7-12

WACHUSETT MEADOW
Princeton, 978-464-2712
School Vacation Days at Wachusett Meadow
February 17-19
For children ages 5-11

WELLFLEET BAY
South Wellfleet, 508-349-2615
February Vacation Adventures
February 16-20—9 a.m.-3 p.m.
For children in grades pre-K through 3
Afternoon Family Fun
February 16-20—2-3:30 p.m.
For families with children of all ages

Call the individual sanctuaries for more information, fees, and to register.

For a full listing of Mass Audubon programs and events, visit our online catalog at www.massaudubon.org/programs.

Family Programs

BERKSHIRE SANCTUARIES

Lenox, 413-637-0320

Bird Banding Demonstration

January 10—10 a.m.-noon

BLUE HILLS

Milton, 617-333-0690

Winter Raptors

February 7—9 a.m.-5 p.m.

Rain date: February 14

BOSTON NATURE CENTER

Mattapan, 617-983-8500

Winter Sky Astronomy

January 13—6-7:30 p.m.

Family Fun

February 7—1-3 p.m.

Art and Nature

March 7—1-3 p.m.

BROAD MEADOW BROOK

Worcester, 508-753-6087

Snowshoeing for Families

February 14—1-3 p.m.

BROADMOOR

South Natick, 508-655-2296

Owl Festival

February 7

CONNECTICUT RIVER VALLEY

Easthampton, 413-584-3009

Skull Detectives

February 28—10-11:30 a.m.

DRUMLIN FARM

Lincoln, 781-259-2206

Sap to Syrup Farmer's Breakfast

March 14 and 15—9 a.m.-1 p.m.

Winter Rambles

December 10 and

January 8—3:30-5 p.m.

January 13—1-2:30 p.m.

For children ages 3 or older; maximum of two children per adult

Farm Folklore

Every Wednesday from

January 7-21—1-2:30 p.m.

Afternoon Chores and S'mores

January 6 and 16—3:30-5 p.m.

For children ages 4 or older; no backpack babies, please

By Our Snug Fire

Every Thursday from

January 8-22—3:30-5 p.m.

For children ages 4 or older; no backpack babies, please

IPSWICH RIVER

Topsfield, 978-887-9264

Groundhog Day Celebration

January 31—1-2:30

Family Adventure Day

February 7—9 a.m. -3 p.m.

JOPPA FLATS

Newburyport, 978-462-9998

Imagine, Sing, and Learn at Joppa Flats

January 8—

10-11:30 a.m. or 2:30-4 p.m.

January 9—

10-11:30 a.m. or 1-2:30 p.m.

February 5—

10-11:30 a.m. or 2:30-4 p.m.

February 6—

10-11:30 a.m. or 1-2:30 p.m.

March 5—

10-11:30 a.m. or 2:30-4 p.m.

March 6—

10-11:30 a.m. or 1-2:30 p.m.

For children ages 3-6

Family Flyby Programs

January 11, February 8, and

March 15—11 a.m. to 3 p.m.

For children ages 2-12

Homeschool Classes:

A Closer Look

January 5, February 2, and

March 2

For children ages 7-13

Investigate, Create, and Learn

January 14, February 11, and

March 11—3:30-5 p.m.

For children in grades 1-4

MOOSE HILL

Sharon, 781-784-5691

Free Star Party

January 16—7:30-11 p.m.

VISUAL ARTS CENTER

Canton, 781-821-8853

Painting Decoys

January 19—1-3 p.m.

January 24—10 a.m.-noon

WACHUSETT MEADOW

Princeton, 978-464-2712

Snowshoeing for Families

January 18—1-3 p.m.

For children ages 5 and up

WELLFLEET BAY

South Wellfleet, 508-349-2615

Owl Prowl

January 23 and February 6—

6-8 p.m.

For families with children ages 5 and up

14th Cape Cod Natural History

Conference

March 14

Call the individual sanctuaries for more information, fees, and to register.

For a full listing of Mass Audubon programs and events, visit our online catalog at www.massaudubon.org/programs.

Birding Programs

BERKSHIRE SANCTUARIES

Lenox, 413-637-0320

Eagles at Quabbin Reservoir

January 24—8:30 a.m.-4 p.m.

BOSTON NATURE CENTER

Mattapan, 617-983-8500

Big Green Birding Year Kickoff

January 3—8 a.m.-3 p.m.

Green Birding: How to Reduce Your Birding Footprint

February 26—6:30 p.m.-8 p.m.

Birding for Kids

March 14—10 a.m.-noon

BROAD MEADOW BROOK

Worcester, 508-753-6087

Young Birders Club

Meets Mondays after school

For children ages 8-16

BROADMOOR

South Natick, 508-655-2296

Adult Owl Prowl

January 31

CONNECTICUT RIVER VALLEY

Easthampton, 413-584-3009

Eagles at Quabbin Reservoir

February 7—10 a.m.-2 p.m.

Winter Crows

February 8—2-6 p.m.

IPSWICH RIVER

Topsfield, 978-887-9264

Eagles and Owls

January 11—8 a.m.-noon

February 1—8 a.m.-noon

JOPPA FLATS

Newburyport, 978-462-9998

Wednesday Morning Birding

Every Wednesday morning—

9:30 a.m.-12:30 p.m.

Superbowl of Birding VI

January 24—5 a.m.-5 p.m.

SOUTH SHORE

Marshfield, 781-837-9400

Owls and Omelets

January 24—5:30-7:30 a.m.

Call the individual sanctuaries for more information, fees, and to register.

For a full listing of Mass Audubon programs and events, visit our online catalog at www.massaudubon.org/programs.



Mass Audubon Tours
supporting conservation here and abroad

Natural History Travel



2009 International Birding and Nature Trips

Jamaica—Birding the Back Roads:
April 16-25, with Chris Leahy

Southern Spain: Birding in Extremadura and Andalusia
April 26-May 7, with Wayne Petersen

Brazil—Birding the Atlantic Forest and Pantanal:
October 3-14, with Bill Gette

Veracruz, Mexico—River of Raptors:
October 11-19, with Elissa Landre

South Africa:
October 3-15, 2009

Madagascar:
November 6-19, 2009, with David Larson

2009 US Tours

**Gay Head to Chappaquiddick—
a Martha's Vineyard Weekend:**
January 16-18
Cosponsored by Ipswich River
For more information, contact Drumlin Farm, 781-259-2206

South Texas Rarities—Birding Before the Wall:
February 6-12, with Tia Pinney and Strickland Wheelock
For more information, contact Drumlin Farm, 781-259-2206

Mojave and Death Valley:
March 1-9, with Bob Speare

Nantucket Island Birding Weekend:

March 20-22
Cosponsored with South Shore Sanctuaries
For more information, contact Ipswich River, 978-887-9264

**Texas—Birding Big Bend National Park
and the Davis Mountains:**

April 22-30, with René Laubach and Bob Prescott
For more information, contact Berkshire Sanctuaries,
413-637-0320, or Wellfleet Bay, 508-349-2615

Sapsucker Woods and Montezuma National Wildlife Refuge:

April 23-26, 2008
Cosponsored with Ipswich River
For more information, contact South Shore Sanctuaries,
781-837-9400

**Birding Point Pelee National Park
and Kirtland's Warbler Country:**

May 18-24, with René Laubach
For more information, contact Berkshire Sanctuaries,
413-637-0320

Connecticut Lakes Birding Weekend:

June 12-14, with Bill Gette
For more information, contact Joppa Flats, 978-462-9998

Elderhostel—Wildlife Research on Cape Cod:

June 14-19
For more information, contact Wellfleet Bay, 508-349-2615

Alaska—Whales and Wilderness Cruise:

June 6-14, with Taber Allison

*To see all trips and tours, go to the Calendar at www.massaudubon.org/travel.
For detailed itineraries, email: travel@massaudubon.org or call 800-289-9504.*



This land is your land...

Every year, Massachusetts loses 15,000 acres to development—forests, fields, and farmland—and with each acre we lose another piece of our connection to the natural world.

But in partnership with you, our members and donors, Mass Audubon is preserving our state's special places. Together we have protected more than 33,000 acres.

We need your support to care for these lands—your land—and to save other beautiful and ecologically significant landscapes before it's too late.

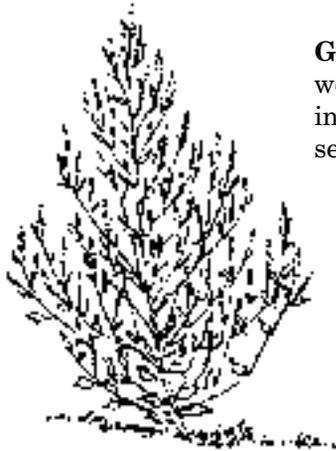
Help protect it with your gift to the Annual Fund.

Look for Mass Audubon's year-end appeal in your mailbox or donate online through our secure website at www.massaudubon.org/annualfund.

Common Foods of Native Americans

Illustrated by Gordon Morrison

If one of the key phrases in modern economics is sustainability, then the people who lived in North America for the last 12,000 years may have perfected the strategy. Below are a few of their common food sources.



Goosefoot: A common seed-producing weed. The Indians ate the fresh greens in spring and harvested the abundant seeds for gruel later in the season.



Blueberry: One of the staples of the diet of New England people. In some areas Indians burned over plots of forestland to encourage blueberry growth.



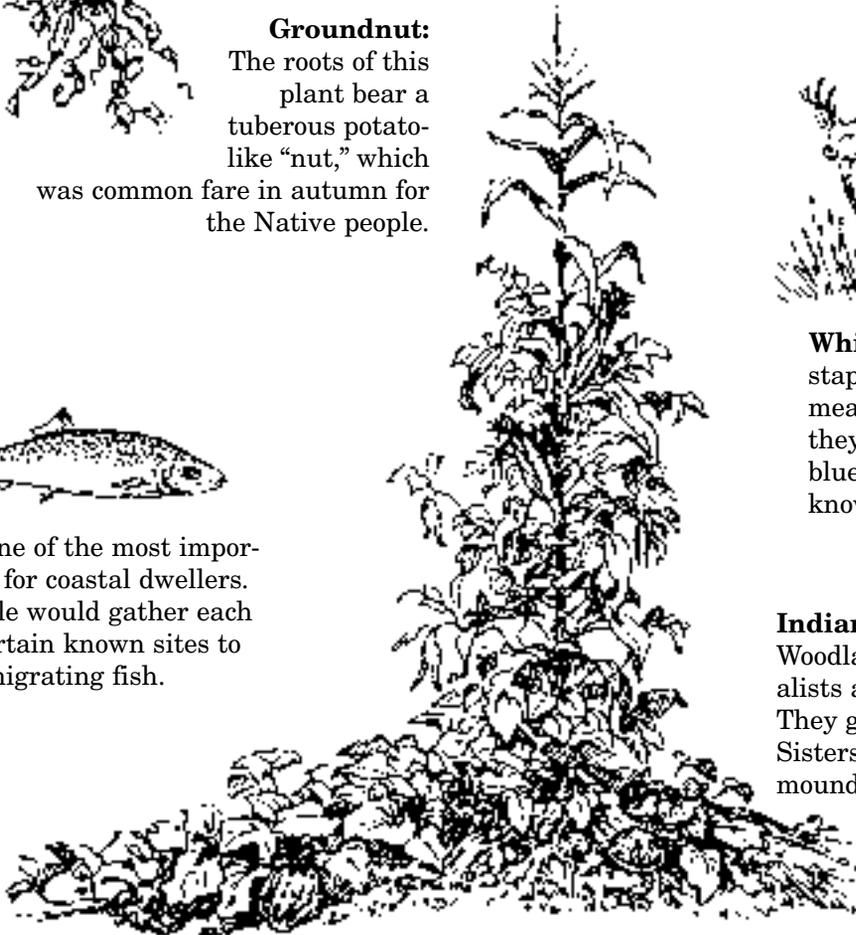
Groundnut: The roots of this plant bear a tuberous potato-like "nut," which was common fare in autumn for the Native people.



White-tailed Deer: Another staple. Indians ate the fresh meat and also dried strips, which they would mix with bear fat and blueberries to make a trail food known as pemmican.



Herring: One of the most important staples for coastal dwellers. Native people would gather each spring at certain known sites to collect the migrating fish.



Indian Gardens: The Eastern Woodland Indians were agriculturalists as well as hunter-gatherers. They grew the traditional "Three Sisters" of Indian agriculture, mounds of corn, beans, and squash that were fertilized in spring with herring.



Outdoor Almanac ▲ Winter 2008-2009



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December 2008



December 21 Winter solstice. Longest night of the year. Many festivals of light take place at his time of year throughout the world.

December 26 Watch for flocks of pine siskins and redpolls.

January 2009

January 3 Watch for fox tracks in fresh snow.

January 6 Depth of the natural year; very little activity. This was the traditional hunger season of the Eastern Woodland Indians.

January 11 Full moon. The Hunger Moon.

January 13 Observe your shrubs and fruit trees after the first snows. Nipped-off twigs with ragged edges are a sign of deer. Rabbits chew the twigs off cleanly.

January 15 Look for the bright stems of red osier dogwood along stone walls and roadsides, like Spanish dancers against the snow.

January 19 A general warming trend known as the January thaw occurs about this time. Watch for flights of bees and listen for the chirp of spring peepers.

January 26 New moon.

January 28 Great horned owls begin to nest about this time. Listen for their hooting from deeper woods.

February 2009

February 2 Groundhog Day. In Europe, the remaining days of cold were forecast on this day by the emergence of hibernating badgers or bears, not by groundhogs.

February 5 If there is a snowmelt, look for the traces of tunnels dug by voles and shrews.

February 9 Full moon. The Snow Moon.

February 11 Skunks emerge to mate about this time of year. Listen for their fights and squabbles late at night.

February 14 Starlings begin their spring whistling about this time. Listen also for the spring songs of chickadees and titmice.

February 17 On warm sunny days, look for signs of snowfleas at the bases of tree trunks. They look like a sprinkling of pepper on the snow.

February 20 Purple finches begin singing their spring songs.

February 24 Maple sap begins running. Watch for little icicles at the tips of sugar maple twigs.

February 25 New moon.

March 2009

March 5 On warm days watch for flights of mourning cloak butterflies, among the few hibernating insects.

March 9 Salamander migrations begin about this time. Watch for them crossing roads in wooded areas on the first warm rainy nights.

March 11 Full moon. The Worm Moon.

March 12 Pussy willows are fuzzed out.

March 14 Woodcock nuptial flights begin about this time, as the snow melts back in open fields. Listen for the *peent* call and the whistle of wings.

March 16 Skunk cabbages have emerged in wet areas by this date.

March 19 Red-winged blackbirds are back. Watch also for flights of grackles and cowbirds.

March 20 Vernal equinox, first day of spring. Days and nights are equal length.

