



CHAPTER 3.

Human and Land-Use

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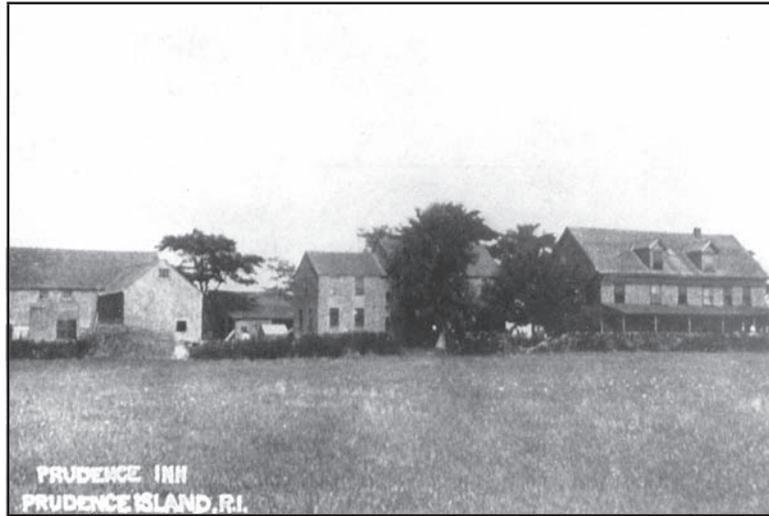


Figure 3.1. The Prudence Inn (built in 1894) contained more than 20 guestrooms. *Postcard reproduction.*





Human and Land-Use History of the NBNERR

Overview

Prudence Island has had a long history of predominantly seasonal use, with a human population that has fluctuated considerably due to changes in the political climate. The location of Prudence Island near the center of Narragansett Bay, although considered isolated and relatively inaccessible by today's standards, made the island a highly desirable central location during periods when water travel was prevalent.

The land-use practices on Prudence Island are generally consistent with land-use practices throughout New England from prehistoric periods through the present. This region was extensively forested prior to European settlement, and the forest was believed to be highly dynamic due to the influence of natural disturbance, changing climate conditions, and the activities of American Indians (Foster and Motzkin, 1998). The use of fire to remove understory vegetation, a common practice of the Indians in this region, resulted in forests that have been described as open and park-like (Morton, 1883[1632]). However, as Indian use of Prudence Island was limited to seasonal activities (Stachiw, 1981), it is possible that the forests on the island would have retained a more natural vegetation composition and structure than forests of nearby coastal areas that were subject to year-round human impacts. Recent investigations of regional land-use history suggest that open-land habitats in pre-European uplands were more uncommon than previously believed; natural and human disturbance was infrequent and generally local to Indian settlements (Foster and Motzkin, 2003).

The colonial influence on the New England landscape is visible today in the form of stone walls, foundations, and forest composition. The impact on the landscape during European settlement in this region was substantial. Much of the forest was cleared for agriculture, pasture, and for timber and cordwood. Initially, areas near the coast and river systems supported the largest population centers. Deforestation began in these areas and spread across the landscape in concert with more widespread settlement throughout the region. The greatest degree of deforestation in New England generally occurred during the postcolonial period (reaching its maximum around the mid-1800s); however, deforestation of Prudence Island is likely to have occurred somewhat earlier, as the most intensive agricultural period occurred prior to the Revolution-

ary War. During the time that forests were being cleared, drainage of coastal and inland wetlands also occurred, which together with the deforestation activities would have altered the hydrology of the region (Niering, 1998). Changes in hydrology would, in turn, influence future vegetation composition. Although reforestation has occurred throughout much of the region, the current forests are dissimilar to the forests that existed prior to European settlement, reflected most notably in the reduction or loss of previously dominant or common species. In addition to forest compositional trends that can be linked to past land use, structurally the forests are most often young and even aged (Foster, 1992).

Agricultural use of the land on Prudence Island began with the establishment of multiple tenant farms on large continuous parcels during the colonial era, then changed to fewer, larger individual farms operated by a small number of tenants throughout the 19th century, and finally progressed to the abandonment of all but a few owner-operated farms by the start of the 20th century. As elsewhere in New England, it wasn't until competition from Midwestern states in the mid- to late 1800s made local farming unprofitable that much of the land on Prudence Island was abandoned as farmland. Generally, the least productive, marginal lands were abandoned first. During the last century, the abandonment of large tracts of land on the island created a patchwork of multi-stage vegetation as each parcel in turn was successionaly reclaimed by grassland and woody species, eventually developing into the forests of today.

Prehistory (prior to 1640)

The islands of Narragansett Bay, with their numerous sheltered coves, likely provided excellent fishing and shellfishing resources that would have been attractive to prehistoric populations. Privately held artifact collections from Prudence Island representing various projectile point styles ranging from Middle Archaic to Late Woodland periods (6,000 B.P. to 4,500 B.P.) serve to support this suggestion. However, these artifact collections are relatively modest and may indicate only limited use of the island throughout its history. A prehistoric survey of Prudence and Patience islands conducted in 1981 identified numerous seasonal campsites where shellfish processing, stone tool manufacturing, and cook-



ing were evident, but also found no strong evidence that permanent, large prehistoric settlements existed on either island (Kerber and Luedtke, 1981).

The absence of permanent settlements and the apparent lack of diversity in activities at identified seasonal campsites on Prudence Island may best be explained by political factors that structured prehistoric communities and their activities. Historically, the jurisdiction of islands has often been ambiguous, leading them to become relatively underutilized neutral territory. It has been suggested that this may account for the limited prehistoric use of both Prudence and Patience islands (Kerber and Luedtke, 1981). Jurisdictional disputes may similarly account for limited use of Prudence Island during the mid-

1600s. Prudence and Patience islands existed on the eastern edge of the Narragansett Indian territory but appeared to be peripheral to their main area of activity (Kerber and Luedtke, 1981). Maytum (1976) suggests that the Wampanoag tribe, with a territory predominantly east

of the Bay, may have inhabited many islands in the Bay prior to the Narragansett tribe expansion into this area. Certainly both tribes claimed ownership of Prudence Island during the early colonial period. The Narragansett tribe attempted to attract European settlement by offering Prudence Island as a gift, first to John Oldham in 1634, then to Roger Williams in 1637. Later, in 1669, King Phillip, sachem of the Wampanoag tribe, gave Prudence Island to John Paine and in 1670, the Wampanoag tribe made the claim that since Prudence Island belonged to them, the transfer of Prudence Island from the Narragansett tribe to Roger Williams was illegal. Although there was a clear dispute as to ownership, the purpose of gifting the island to European settlers was presumably to prevent use of the land by the neighboring tribe and/or to establish a neutral territory.

The Colonial Era (circa 1640 to 1775)

It is probable that, when the first colonists arrived, a mature growth forest of mixed hardwoods and conifers covered Prudence Island. Wild game

and fish were undoubtedly plentiful, potable water sources were abundant, and the soil types would have supported the farming practices of the time. The location of the island in the middle of Narragansett Bay was beneficial in terms of climate and ease of travel.

In 1637, Roger Williams and Gov. John Winthrop of Massachusetts purchased Prudence Island (called Chibachuweisset by the Indians) from the Narragansett sachems, Canonicus and Miantonomi, for 20 fathoms of wampum and two coats. Williams kept the north half of the island for himself, with Gov. Winthrop taking the south half of the island. Although Williams visited the island on a number of occasions, he and Gov. Winthrop were typical

absentee landlords of the time, reflecting property ownership attitudes that were to prevail throughout much of Prudence Island's history.

The settlement of Prudence Island started soon after it was purchased, initially at the north end of the island and slightly later at the extreme south end. Williams established the first small stock farm in the vicinity of Potters and Sheep Pen Cove (at the northern end of Prudence

Island) and his servant Joshua Windsor became the first colonial resident. Although this initial attempt at establishing a stock farm failed, by about 1665, there were a small number of tenants living in the area around Potters Cove and the neck of the island. The main activity associated with these farms appears to have been stock farming, particularly sheep and pigs. These settlers cleared land, pastured their animals, and grew some crops including corn, wheat, and rye. They cut trees for building homes, fences, barns, and used firewood for cooking and heating. Although the activities of these early settlers had some impact, they occupied only a small part of Prudence Island, and their impact was likely to have been minimal. The earliest settlers on the extreme south end of the island probably arrived some time in the 1650s. Within 10 years, there were a number of settlers in this area. The tenants at this end of the island were primarily planters, not stock farmers. Although property ownership would change many times throughout the next century, a small number of individuals continued to own large continuous parcels and these properties were occupied by tenant farmers.

The impact of King Phillip's War (1675–1676) on the inhabitants of Prudence Island was significant, though no battles were fought here.





The war caused many of the residents to confront their isolation and vulnerability and many of them departed the island. Also at this time, lands were becoming available elsewhere, and land ownership would have represented a substantial improvement over continuing as a tenant on Prudence Island (Stachiw, 1981).

As the region became increasingly settled in the years following King Philip's War, tenant farmers eventually returned to Prudence Island. By about 1730, more than 20 small farms had been established across Prudence Island. The island had become somewhat of a market basket, exporting farm produce to other areas of the state, including Newport and Providence. This "golden age of farming" on Prudence Island lasted from about 1735 until 1775.

The first regular ferry service to the island was established in 1742, and the increased accessibility significantly enhanced the desirability of this location. A number of ferries were operated at various times, and these ferries often carried the mail between Providence and Newport, distributing mail to Prudence Island residents and businesses along an overland route between ferry landings located at the north and south ends of the island.

In addition to livestock operations and farming, the island supported at least three grinding mills during the colonial era, two powered by wind, and one by water. It is noteworthy that there was also some type of blacksmith operation, called the "pin factory," that was located near the south end of the island. The island population at this time was sufficient to support not only ferry services, but houses of entertainment or inns, a brick- and pottery-making business, and a shipbuilding operation, as well as institutions dedicated to education and religion. With 20 to 30 farms and various support activities taking place on the island, the impact of human activities had become significant. During the seasonal peaks of activity, the human population on the island reached 2,500 to 3,000.

The Revolutionary War & Its Aftermath (circa 1776 to 1874)

The Revolutionary War had a devastating social and ecological impact on Prudence Island. Due to its relative isolation, Prudence Island and its residents suffered greatly—more so than most other areas of Rhode Island. British soldiers raided the island multiple times and several skirmishes were fought there, starting in January 1776. The island was virtually abandoned from January 1776 until

about 1780. British troops burned nearly all buildings on the island between 1776 and 1778, cut down all the remaining trees on the island for firewood, and confiscated or destroyed everything of value they could find. After the war, many of the prewar residents never returned to the island.

A wealthy Providence merchant purchased large tracts of land on the island following the Revolutionary War and built three new farmhouses in the 1780s—two near the center of the island, and one in the Potters Cove area. The practice of tenant farming resumed at Prudence Island following the construction of these farmhouses.

The farms established after the war were typically larger and fewer in number than their prewar counterparts. By the mid-19th century there were about 12 farms operating on the island, varying in size from 100 to 800 acres. Most of these farms were occupied by tenants. A typical farm on Prudence Island during the mid-19th century would have kept a small number of horses, several oxen, some milk cows, a few pigs, and a larger number of sheep (probably more than 50). This typical farm would also have produced corn, oats, barley, rye, potatoes, and large amounts of hay (Bains, 1997). In addition, butter, milk, wool, and market vegetables would likely have been produced.

In the latter half of the 19th century, two menhaden processing works operated on the island, the Herreshoff works in the Nag Creek area, and the Wilson & Almy works at the extreme south end. During the same time frame, as agriculture grew less and less profitable, some island farmers took to growing Rhode Island bent grass seed and for a period of time grew and sold turf as well. These activities were particularly detrimental to the ecology of certain parts of the island, causing near total loss of topsoil. The turf (and topsoil) removal, coupled with the wind erosion that followed, left large areas in the center and extreme south end of the island nearly devoid of vegetation. The overall decrease in soil productivity as the result of poor farming practices, combined with a reduction in profits due to a supply of cheap agricultural products from the Midwest, contributed to the abandonment of agriculture on Prudence Island (Stachiw, 1981).

From Farming Community to Summer Resort (circa 1875 to 1940)

As farming became less profitable, other opportunities presented themselves toward the end of the 19th century. Since Prudence Island represented an attractive alternative to urban lifestyles, summer visita-



tion to the island by vacationers increased. This new land use resulted in an increase in land values and further subdivision of properties (Stachiw, 1981). Early vacationers were boarded in farmhouses, but demand soon outgrew these few buildings, and several seasonal inns (Fig. 3.1) and boardinghouses were in operation during this era to accommodate the increase in summer visitors.

Prudence Park, the island's first summer resort, was established on the west side of Prudence in 1875. A large wharf was built to accommodate regular steamboat stops on an existing scheduled service that ran between Providence and Newport. The Prudence Park tract was platted into house lots and streets were laid out. Within a short time, a number of houses, as well as a bathing pavilion and bathhouses, were constructed. The regular steamboat service also helped the boarding house industry on the island by providing a convenient mode of transportation.

The development of the eastern shore was facilitated by the establishment of a ferry service between Prudence Island and Bristol in 1904 (Fig. 3.2). The first ferry was a 16-foot-long open boat, and passengers had to be rowed ashore at Prudence. However, this new service offered a much shorter boat ride—when compared to the three-hour steamboat journey from Providence—and multiple trips each day during the summer. An added advantage was that one could board the train in Providence, ride to Bristol, and debark a short distance from the ferry landing. By 1910, a dock had been built at Homestead (the site of the current ferry landing along the eastern shore) and a much larger ferry had been put into service. The result was that by 1920 more than 100 summer cottages had been built along the eastern shore of Prudence Island.

As more vacationers were buying lots and building cottages of their own, fewer visitors were staying at island inns or guesthouses. By 1930, many of the inns had closed. At that time, there were only three working farms on the island and fewer full-time residents than at any time in the previous 150 years. Many island residents made their living on the Bay (e.g., shellfishing, lobstering) and often supplemented their income by provid-

ing support services for the summer residents, such as carpentry or retail merchandising via the grocery/sundry stores that operated seasonally on the island. By 1946, there were 300 cottages and 1,500 seasonal residents on Prudence Island.

The establishment of Prudence Island as a summer resort community and tourist destination can be directly linked to the large-scale abandonment of agriculture across most of the island, freeing large tracts of land for residential development and altering the vegetation composition of the island. In the 1920s, deer returned to Prudence after a long absence. Much of the land on the island was developing into early successional forest, and human activity had become mostly recreational in nature.

Mid-20th Century to the Present (after 1940)

In 1942, a new type of land use was established on Prudence Island when the federal government purchased approximately 625 acres at the south end, which became the site of a U.S. Navy ammunition dump. The alterations done to this property by the Navy were extensive, and nearly every trace of prior uses of this land was removed during the construction of ammunition bunkers and firebreaks. The Navy installation was reduced to caretaker status in 1946, reopened during the Korean War, and remained an active ammunition storage facility until the early 1970s. In 1980, this property was given to the state of Rhode Island as part of the Federal Lands to Parks Program.

Shortly after World War II, in 1950, the federal government announced plans to build an animal research laboratory near the center of Prudence Island at the site of the abandoned Baker Farm. Overwhelming public opposition caused that laboratory to be built elsewhere. This community effort to restrict land use marked the beginning of a conservation and preservation effort that continues today. In 1959, the Baker Farm property was preserved under the ownership of the Rhode Island Heritage Foundation. In the era of conservation that has followed, approximately 70 percent of Prudence Island has been preserved or protected from development.

Although Prudence Island remains primarily a seasonal use destination, the support services that currently exist are fewer in number today than they were at the turn of the previous century. As the tourism industry was developing, Prudence Island had boasted a number of service and entertainment facilities (e.g., stores, farm stands, bakeries, casinos, dance halls, and yacht clubs). Two hurricanes (in

Figure 3.2. Early ferries, shown at the Sandy Point landing, made the development of the eastern shore of the island possible. Postcard reproduction.





1938 and 1954) were responsible for the destruction of many of these facilities, situated as they typically were, near the shoreline. Fire was responsible for destroying others. More recent support services generally emphasize low-impact, outdoor recreational use of the land. A national estuarine sanctuary was established at the north end of the island after that property was purchased from a private owner in 1978, and the state of Rhode Island operated a park on the island on the former Navy property during the 1980s. The greatest manipulations of these properties during that time were the construction and maintenance of hiking trails and campsites. With the establishment of the NBNERR (which manages the former estuarine sanctuary, former Navy lands, and former Rhode Island Heritage Foundation properties, among others) and the Prudence Conservancy, the emphasis on low-impact recreation will likely continue.

At present, the population of full-time residents is growing more rapidly than that of seasonal residents and many of the older cottages are being converted for year-round use. New home construction continues to be slow but constant. Access to Prudence Island is easier today than at any time in the island's history, effectively minimizing the need for additional support services. Although development pressure continues to be a concern, the recent preservation efforts and the continued lack of on-island amenities would suggest that land use on Prudence Island is unlikely to change substantially in the near future.

Land-Use Legacy

From the Colonial era to the current time, the major impacts to land on Prudence Island can be attributed to a few factors. These factors include war (e.g., Revolutionary War, World War II), agricultural and animal husbandry practices (particularly sheep grazing, as well as grass seed and turf production), and natural forces.

Based on the number of natural disturbances that historically have affected the island's ecology, it should be expected that natural disturbance will continue to influence the island's ecosystems. In addition to the hurricanes of 1938 and 1954, which caused substantial property damage and significantly altered shoreline features, other recorded hurricanes (in 1634, 1815, 1869, 1944, 1960, and 1991) presumably impacted both coastal and upland features of Prudence Island as well. At least three droughts have been documented, during the 1830s and 1850s, as well as an unusually severe drought in 1957 that left Indian Spring and Mill Creek (the

primary source of groundwater for island residents at that time) completely dry. As continued natural disturbance is a near certainty, Prudence Island ecosystems are expected to change across various temporal and spatial scales even in the absence of further human interference. These expected natural disturbances will also influence a landscape that is dissimilar to the landscape that was present prior to European settlement, which contained a distinctly different vegetation composition and structure than that which is present today (Foster and Motzkin, 1998). As a result, we cannot know with certainty what the future vegetation assemblages on Prudence Island will resemble.

In addition to the physical remains of past land-use practices on Prudence Island, visible impacts to the vegetation community are also in evidence. Perhaps most notable is the presence of pine barrens, which owe their existence in part to poor agricultural practices, particularly the growth and sale of turf (or sod). This practice resulted in the removal of significant amounts of topsoil in many areas of the island but its impact is most evident in areas overlying sandy subsoils (see Fig. 4.6, page 28). These pine barrens are locally rare and will, over time, be displaced by a mixed hardwood forest in the absence of extensive management. This transition of the pine barrens to a hardwood forest is already well under way. As many of the vegetation complexes that are now present on Prudence Island can be directly linked to intensive human disturbance, it follows that continued human manipulations may be required to maintain these plant assemblages.

Another legacy of past land-use practices is the abundance of invasive plants on Prudence Island. Historical land use has been linked to long-term changes in vegetation and environmental relationships, a shift in dominant species, and reduced community diversity (Foster, 1992). Perhaps more significantly, past land-use practices were determined to be the single strongest predictor of invasive species richness and cover in southern New England (Lundgren et al., 2004). Asiatic bittersweet (*Celastrus orbiculatus*), the most prevalent invasive plant on Prudence Island, has been shown to both suppress native species and to alter vegetation development in early successional forests (Fike and Niering, 1999). The distribution and abundance of this invasive plant is directly responsible for reducing recreational opportunities on Prudence Island by restricting movement through natural areas and by the provision of tick habitat (see Chapter 6). Consequently, as the result of past land-use history, invasive plant removal will likely remain a priority for current and future land managers.



Although it is generally expected that present land-use activities, such as seasonal residential use and low-impact recreation, will continue into the future, particularly in light of the fact that much of the island has been protected from development, an underlying potential for development exists. Recent construction of new residences—generally adjacent to existing residential areas—and renovations of older structures to accommodate greater use throughout the year represent only a slight shift in current land use. This trend has been relatively slow and, at the current rate, the impact on existing island ecosystems is presumably limited. However, a recent buildout analysis of Prudence Island estimated that in excess of 600 additional homes were possible given the current zoning laws and the amount of privately owned vacant land (Portsmouth Planning Department, 2005). Recent land and easement acquisitions by the state and Prudence Conservancy, respectively, have reduced the number of potential new homes to approximately 460. Although much improved, development on this scale, which represents a 100 percent increase over the current number of residences, would almost certainly result in significant impact to island ecosystems, particularly as many of the potential new homesites would be located in areas that are presently undeveloped and represent a range of habitat types. However, the ongoing emphasis on conservation and preservation of land may effectively limit this potential development.

As elsewhere in New England, the greatest human land-use impact on Prudence Island occurred during historic times. Unlike natural disturbances that occur at various temporal and spatial scales, and most often do not impact extensive geographic areas, the impact of European settlement was both widespread and dramatic, occurring within a very limited time frame. Mature growth forests on Prudence Island were completely removed within a scant 150-year period and the land-use practices that followed were intensive, preventing the development of successional communities for an additional 100 years. This extensive manipulation directly impacted animal communities and continues to affect the island's ecology. Although ecosystem change may be considered inevitable, particularly as the impact of changing climate, invasive species, and pollution are realized, it remains a priority for land managers to adopt strategies that protect threatened species and maximize local and regional biodiversity. Human perturbation of Prudence Island ecosystems in recent history makes continued stewardship a necessity.

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