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Yesterday and Today
Planting for Tomorrow

Almost a millennium ago in what is today Delaware Water Gap National Recreation Area (NRA), prayers and tobacco were offered to Kahesana Xaskwim (kay-ess-ahna haas-queem). She was also known as "mother corn" by some of the earliest inhabitants of the valley — the Lenape (or Delaware) Indians. She is one of the benefactor spirits, or manitowouk, who oversees all of the plants.[1] Corn, beans, squash, tobacco, sunflowers, and other crops were grown in the valley. Land was cleared for cultivation and planted year after year until its productivity declined, was allowed to rest, and perhaps was cultivated again at a later date.

Delaware Water Gap NRA was not established to commemorate a specific time period. Nevertheless, notable historical and cultural imprints on the land began over 10,000 years ago with Paleolithic peoples and continue to the present day. Some agricultural fields were cultivated since at least 1300. Prior to European settlement, it is believed that periodic fire was part of this area's ecology. Fire helped to maintain open space in the valley and surrounding ridges. To restore this greater cultural landscape, it is important to plant historically accurate fire-dependent grasses. Successful native grass restoration projects in the park have involved the cooperation of the ranger division, farmer special use permittees, and outside public and private entities. Through this cooperation, more than 100 acres of native grasses (big bluestem, little bluestem, switchgrass, deertongue, Indian grass, and Virginia, riverbank, and eastern wild ryes) have been restored in the last 5 years. The goal is to continue native grass restoration efforts, combined with a program to eradicate invasive exotic plant species as called for in National Park Service Management Policies.[2]

Beginning in the early 1700s, Europeans settled the valley bringing with them orchard crops, rye, oats, buckwheat, flax, cattle, and sheep. Much of the park's upland acreage was better suited for grazing than row crops. One remnant orchard, the Roberts farm orchard, is believed to be the oldest in the National Park Service.[3] It is being managed and propagated through an agricultural special use permit and with the assistance of the Frederick Law Olmsted Center for Landscape Preservation. While most of the apple trees are not yet identified as to variety, one has been identified as a Newtown Pippin. The variety's origins go back to the Newtown, (Long Island) NY, estate of Gershom Moore. There is a report that the first Moore to settle in Newtown Village brought either a seed or young tree from England about 1666.[4] The park's tree may be over 200 years old.

Around 1900, wealthy visitors began buying farms for rural retreats, horse boarding, hay production, and vacation facilities.[5] Inactive farm fields were frequently rented to neighboring farmers, thereby maintaining agricultural landscapes. Where fields were allowed to mature into woodlands through succession, vestiges of stone row field borders are still apparent today. Place names within the park, like Wheat Plains, Egypt Mills, and others, testify to the historical importance of agriculture in the valley. Nowadays, resource protection practices utilize modern farming and succession management tools to protect and preserve this agricultural context.

Maintaining a mix of open space and forested areas offers a glimpse into different time periods and creates and maintains vistas along roads — increasing the diversity of the scenery for travelers. The use of agriculture as a tool to maintain park open space is addressed both in National Park Service natural resource management guidelines and directed in the park's General Management Plan (GMP). Agricultural landscapes are also representative of (historic) cultural landscape.

Farmer permittees help the park manage 2,700 acres of parkland by farming and an additional 1,000 acres by mowing. Through agricultural Special Use Permits (SUPs), farmers facilitate two management objectives: 1) they hold back forest succession and help maintain cultural land-use patterns and open space (which the park has neither the personnel or equipment to do), and 2) they benefit wildlife, which in turn enhances the bird watching, hunting, and other recreational activities called for in the park's enabling legislation.

Besides cultural landscape issues, other resource considerations are addressed prior to issuing an agricultural SUP. Advising on best

Lenape corn varieties likely grown in the Delaware Valley include, left to right, Delaware blue (Sehsapsing), Grandmother corn, white flour corn (Puhwhem). Photo by the author.

management practices (BMPs) in-house are the park archeologist, park rangers, natural resource personnel, and the park's historic preservation staff. Outside agencies may include county conservation boards, state wildlife agencies, and the U.S. Fish and Wildlife Service. The Natural Resource Conservation Service (NRCS) is always consulted and prepares a "conservation plan" for each tract that is included as part of the lease and directs BMPs to control soil loss. BMPs may include installation and maintenance of riparian buffers, contour strips, hedgerows, field borders, and may address soil types, cultivation methods, and crop rotations — all designed to protect the natural and cultural resources of the park. Having and implementing a conservation plan is also a requirement for farmer permittees seeking enrollment in federal agricultural subsidy programs.

No-till farming, where only small openings are cut in the soil to plant seeds, is required in areas of archeological sensitivity where farming continues. Minimum-till methods (lightly disking the soil surface) are used in other areas. At one site, preliminary data demonstrate that the practice of minimum tillage is a benefit to the nesting success of the wood turtle (Clemmys insculpta), a threatened species in New Jersey. In this situation, cultural farming practices (the coordination of tillage, spraying, and harvesting operations) benefit a natural resource. While hedgerows, contour/filter strips, wetland protection, and riparian buffers were not historic, nor were minimum or no-till practices, their use has greatly enhanced the protection of park resources. Organic farming too has made great strides in land protection practices — utilizing cover crops as green mulch, double cropping, etc. Unfortunately the tilling requirements in organic systems conflict with the need to protect underground archeological resources, and it is uncertain whether organic farming can be expanded throughout the park.

Pesticide use is restricted to products approved by the National Park Service as safe for use within the watershed and with park soils. Further, farmer permittees are required to enroll their acreage into crop management associations (CMAs). CMAs scout crops for insects, weeds, and nutrient deficiencies, conduct soil tests, and recommend products from a cost-benefit perspective. While an additional expense for the farmer, CMAs ultimately save money by assuring that pesticides and fertilizers are used only when necessary and only in the amounts and locations where they are required.

Agricultural leasing also helps maintain culturally and historically significant farm structures. The Brodhead farm, begun in 1770, is currently leased as an organic farm. The permittees are undertaking substantial restoration of the farm structures.

Today, into the continuum of the 21st century, it is comforting to know that Kahesana Xaskwim still looks after the crops and plants that comprise the cultural landscape in the scenic valley of the Delaware River.

Notes

1 Mark Raymond Harrington, *Religion and Ceremonies of the Lenape* (New York: AMS Press, Reprinted from an original in the collections of the University of Chicago Library, 1921), 43-44.

2 *National Park Service, Management Policies 2001.* (Washington, D.C., U.S. Department of the Interior, National Park Service), 4.1.5.

3 William Coli, and Nora Mitchell, *Inventory and Conservation of Genetic Resources in the Form of Historically Significant Fruit and Nut Trees in the National Park System* (Boston: National Park Service Regional Office, 1992).

4 Thomas Burford, *Apples: A Catalog of International Varieties.* (Monroe, Virginia, 1998).

5 Richard Westmacott, *Managing Culturally Significant Landscapes in the National Park Service.* (Washington, D.C.: U.S. Government Printing Office, Volume 1).

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