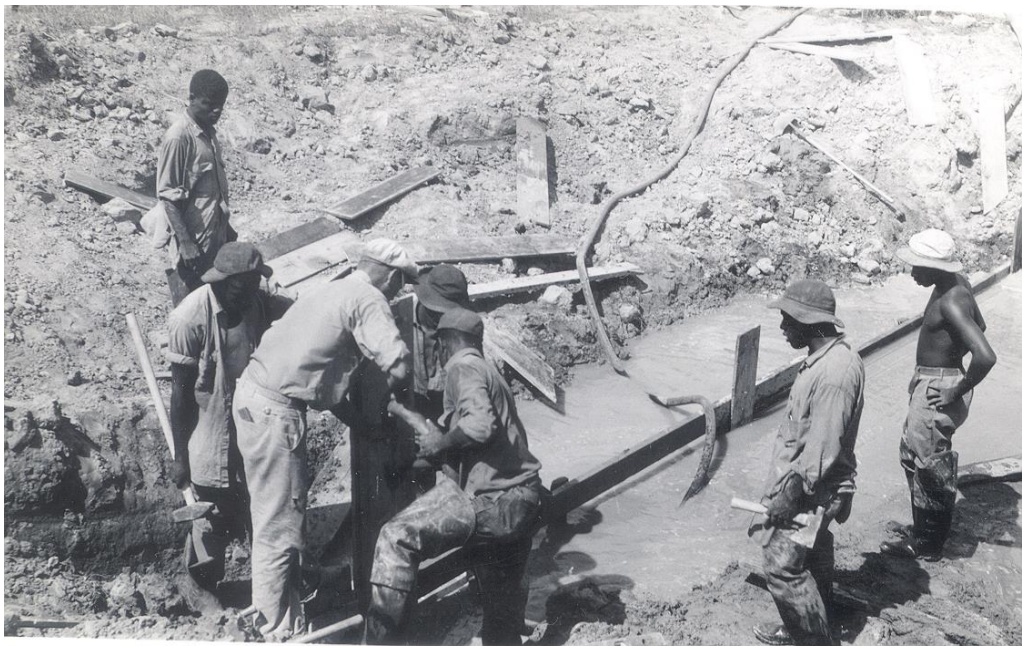
CREATION OF A LEGACY



THE STORY OF
THE CIVILIAN CONSERVATION CORPS
AT BOMBAY HOOK – 1938 to 1942

By

Robert W. Mayer

CREATION OF A LEGACY

THE STORY OF THE CIVILIAN CONSERVATION CORPS AT BOMBAY HOOK – 1938 to 1942

You're standing on a narrow plank laid over the mud in Finis Swamp. Step off the plank and you're thigh deep in oozy muck. It's hot - temperature and humidity about the same, both in the mid-nineties. Swarms of greenheads are joined by hordes of salt-marsh mosquitoes and several species of their freshwater cousins, along with a smattering of ticks, gnats, and chiggers. Your job? Remove the vast growths of poison ivy, cat-briar, and other impenetrable undergrowth covering the swamp that is being cleared to make a freshwater lake.

It is the summer of 1938, and an unusually wet spring seems only to have exacerbated these unpleasant conditions. You are a young black man and an enrollee in the CCC – the Civilian Conservation Corps. You are paid a dollar a day, grand total of thirty dollars per month – of which you get to keep five and the rest is sent home to your family![1]

On April 1, 1938, a newly established CCC company, Company 3269–C, occupied an existing CCC campsite at Leipsic. Delaware.[2] The new company, like all CCC companies, had a specific work assignment. That assignment was to assist in the development of twelve thousand acres purchased or taken under option for purchase by the Federal Government in 1937 to create a migratory waterfowl refuge east of Smyrna, stretching nine miles along Delaware Bay, and called *Bombay Hook*. Company 3269-C was a segregated African-American unit, the only such company in Delaware, and it worked on the refuge until March 18, 1942, less than one month short of four years, when it was abruptly reassigned to an Army project.[3] In those four years they did create a legacy.

The camp was located off Route 9, along the north side of the Leipsic River, and it had been established in 1935 to house a mosquito control unit, Company 3221. Initially the camp was designated MC-55 – camp designations indicated the work assignment of the unit stationed in the camp.[4] The mosquito control company moved out in 1938, and the camp was reassigned to the new African-American company that initially had 166 "enrollees." Its new designation was BF-1.[5] *BF* was the designation for CCC companies that worked on projects supervised by the Bureau of Biological Survey, an agency under the United States Department of Agriculture until 1939 when it was transferred to the Department of the Interior. The Biological Survey was responsible for planning and overseeing all CCC work done on federal wildlife refuges.[6]

The Civilian Conservation Corps

You're eighteen, with no job and no hope of a job, because there are no jobs. Your father lost his job too, such as it was, and your family is on relief – but that is not enough to pay the rent and put food on the table for your large family. The President talks about a "New Deal," and you sure could use one.

Many consider the Civilian Conservation Corps, established on March 31, 1933, to be among Franklin Delano Roosevelt's most successful Great Depression recovery initiatives. It seems to have met three of its seminal objectives. First, from 1933 until it was disbanded in 1942, it gave employment to over three million unemployed young men, including 250,000 African-Americans.[7] But its economic impact went beyond that. Paychecks sent to the homes of its enrollees helped many of these poverty-stricken families to survive. After only one year, more than 72 million dollars were distributed to the families of CCC enrollees. Moreover, many of these young men were given an opportunity to develop employable skills that allowed them to get jobs when they were discharged, and more than 40,000 illiterates were taught to read and write.[8]

As significant as these economic benefits were, the term "conservation" in its name gave the CCC another important objective - the conservation of natural resources. Called "Roosevelt's Tree Army," the CCC planted an estimated three billion trees during its nine-year existence. The Corps did construction work on 53 National Wildlife Refuges, building dikes and dams, planting trees, and erecting buildings. It did similar work in National Forests and National Parks, cutting many firebreaks, erecting fire towers, and building roads and trails. It helped to preserve grazing land in the West, and was involved in erosion and flood control projects. So clearly it had a significant impact on the ecology of the United States.[9]

And third, although less obvious, as a quasi-military organization, the CCC provided a cadre' of commissioned and non-commissioned officers that were badly needed in the war that started in 1941. Led by military officers, wearing military uniforms, subjected to military-type discipline, and conditioned to work as a team, the CCC enrollees readily adapted to service in the armed forces in World War II, even though because of pacifist pressure they were not allowed to receive direct military training while in the CCC.[10]

The CCC was unique in its governance structure, in that it involved four Federal departments and was never established as a permanent agency. It was overseen by an advisory council made up of representatives of the Secretaries of War, Agriculture, Interior, and Labor. The Army was responsible for logistics, for equipment, and for organization and leadership. Active, reserve, and retired officers, mostly from the Army but Navy, Marine, and Coast Guard as well, staffed more than 2,700 CCC companies. The Department of Agriculture and the Department of Interior planned and organized the work to be performed by each of the companies, and the Department of Labor recruited and selected applicants. The CCC was divided into nine Corps Areas across continental United States, and camps were found in every state (a total of twelve listed in Delaware). Usually one company was found in each camp, and each company had between 150 and 200 men.[11]

Young men between the ages of seventeen and twenty-five, who were unmarried, and whose families were "on relief" (the depression-era term for welfare benefits) were eligible to enroll (i.e., to enlist) in the CCC. An enrollment was of six months duration, and the first week was spent at a military base where the enrollees were taught how to wear the uniform, military discipline, and the other basics needed to live in a quasi-military unit. At the end of the first six-month enrollment, the enrollee could either be discharged or could re-enroll for another six months. Three such re-enrollments were allowed, making a total of two years. At the end of the two years the enrollee was required to leave the service.

The pay was $30 per month; the enrollee got to keep $5, and $25 was sent to his family. But the enrollee also received clothing in the form of Army uniforms; shelter in military-type barracks, albeit sometimes hastily built and with a pot-bellied stove for heat; and food that included three hearty meals per day, although the quality varied with the quality of the cooks.[12]

All You Can Eat – Life in the CCC

A TYPICAL MENU[13]

DAY	*BREAKFAST*	*LUNCH*	*DINNER*
Monday	*Fried Eggs* *Creamed Potatoes* *Oatmeal* *Stewed Prunes* *Toast - Butter* *Fresh Milk* *Coffee*	*Veal Chops* *Mashed Potatoes* *Brown Gravy* *Creamed Cauliflower* *Lettuce and Tomato Salad* *Bread - Butter* *Strawberries – Short Cake*	*Baked Beans with Ham* *Macaroni and Cheese* *Sauerkraut* *Bread - Butter* *Coffee* *Pumpkin Pie* *Fruit Jello*
Tuesday	*Bacon and Eggs* *Browned Potatoes* *Bread and Butter* *Hot Toast* *Fresh Milk* *Coffee*	*Brown Beef Stew* *String Beans* *Whole Boiled Potatoes* *Pickled Beets* *Cabbage Salad* *Bread and Butter* *Lemonade*	*Veal Stew* *Baked Beans* *Coleslaw* *Iced Tea*

This was the typical high caloric diet needed to sustain these men who spent every day in hard labor. In fact, the company that worked at Bombay Hook may have been more fortunate than some of the others in Delaware. The camp was close enough to the refuge so that, except for those working far out in the marshes, they could return to the camp for a noon meal in the mess hall. The enrollees at Bombay Hook, therefore, usually were able to have a full, hot dinner at noon as well as a full supper at night. Some companies that worked far from their camps and in many different locations, such as the mosquito control units, often had cold boxed dinners for their noon meal.

The pick, shovel, crosscut saw, and ax were the standard equipment of the CCC. At Bombay Hook they also used carpentry and masonry tools for construction of the several of buildings they erected on the refuge. Additionally they had some power equipment - a dragline, two dredges (one that they built themselves), bulldozers, and trucks, but such equipment seemed always in short supply, suffered frequent breakdowns, and sometimes was shipped to other camps when it seemed it could have been used to advantage at Bombay Hook.[14]

Health and safety were emphasized in the CCC camps. In many cases, one of the Army officers who were assigned to each camp was in the Medical Corps, either a physician or dentist, probably in recognition of the fact that most of the enrollees came from backgrounds that did not provide the best of health care. Safety, particularly fire safety, was an important concern, as was accident prevention. Despite the difficult working conditions at Bombay Hook, the Leipsic Company received an award in 1940 for completing more than 500 days without an accident. Unfortunately, that record was broken in July of 1940 when two of the enrollees were drowned in the Leipsic River when they fell from a boat located just off the CCC dock.[15]

The commanding officer of the unit at Bombay Hook was a lieutenant in the Army Reserve. His assistant, the subaltern, also was a lieutenant in the Army Reserve for the first two years and after that was a civilian employee. In 1938, the camp had an officer in the Army Medical Corps, first a physician and then a dentist. In the years following there was no medical officer on the staff, although the camp continued to have an infirmary and enrollees were placed on daily sick call. There was an education officer and a safety officer, both civilians. The staff had heavy

equipment operators for the dragline and dredge, and the remainder of the staff was made up of civilian members of the building and construction trades who served as instructors for the enrollees.

While hard work characterized the lives of the enrollees, educational opportunities were available, but not uniformly so, and usually were after hours on the enrollee's own time, not during the workday. Over its nine-year history, several hundred thousand enrollees completed high school, and some took college courses. The enrollees at Bombay Hook were able to take special evening classes taught for them by public school teachers at a local "colored" school – public schools also were segregated at that time. A few who were illiterate were required to take reading and writing classes. They also got on the job training in the construction trades from the camp staff until 1940 when most of the building program was completed. After that they were able to take classes in the construction trades offered in the evenings at Delaware State College.

It wasn't all work, however. Passes to nearby towns and cities were popular weekend activities, and Wilmington and Philadelphia were within reach by train for members of the Leipsic Camp. A traveling troupe of the WPA Federal Theatre Players (the WPA or Works Projects Administration was another "New Deal" depression recovery program) toured Delaware CCC camps in 1937, putting on plays in which some enrollees had the opportunity to play minor roles.[15] It was sports, however, that provided real relief from the daily grind. Boxing was a camp favorite, but baseball was probably the most popular – remember this was an era when every small town in America had its own amateur baseball team. There often was competition between camps, and in 1938 the Leipsic softball team won the Delaware CCC Title.[16]

The CCC in Delaware

"I remember the CCC in those stake-bodied army trucks drivin' through town on the way to the marsh where they dug those little ditches in a straight line. You can still see some of those ditches in the marsh behind our cottage at the beach." - An older resident of southern Delaware.

There were CCC camps at eight locations in Delaware. Camps in Lewis and Milford, both started in 1933, had companies assigned to work in private forests. In 1936 the assignments were changed and both became mosquito control units. A company based in Georgetown in 1935 did soil conservation work, as did a company based in a camp at Wyoming. In 1936 another company at the Georgetown camp worked at Redden State Forest. A special company made up of military veterans was located in a camp at Fort DuPont beginning in 1935. Two other mosquito control units were started in 1935, one at Magnolia and one at Leipsic, and both were terminated in 1938.[17]

The mosquito control unit at Leipsic, Company 3221, may have done drainage ditching on a small area of privately owned marsh that later became part of the southernmost section of the Bombay Hook refuge. The camp in Magnolia, which had housed Company 1295, was abandoned in 1938. Materials from this camp, lumber and stone, were salvaged by the Bombay Hook enrollees and used in construction work on the refuge.[18] For two months in the fall of 1941 the company left Bombay Hook to dismantle the soil conservation camp at Wyoming, the one started in 1936.

Mosquito control was the largest single CCC activity in the State of Delaware. One third of the CCC companies in Delaware were mosquito control units. Until the advent of the use of chemical control methods in the 1960s, mosquitoes were a serious health problem in coastal areas of the state that were near tidal salt marshes, the breeding grounds of the salt-marsh mosquito. Actually this included a substantial portion of the state since the salt-marsh mosquito routinely flies up to ten miles in search of a meal. During mosquito invasions in the 1930s most outdoor activities were cancelled in these areas.[19]

In the 1930s the preferred method for mosquito control was to drain the small, shallow pools in the salt marshes that remained on low tide, thus reducing the breeding habitat of the mosquito. The CCC enrollees cleaned several thousand miles of existing ditches and tidal streams in Kent and Sussex Counties, but their specialty was parallel-grid ditching.[20] Parallel ditches, each ten to twenty inches wide and up to thirty inches deep were spaced 150 feet apart through the marsh, draining into a gut or tidal stream. The ditches were dug by a two-man team, one using a long, heavy spade, the other a hook (sometimes called a potato hook). The marsh sod was cut and pulled out in clumps, each weighing sixty to eighty pounds. A two-man team could do about 235 feet of ditch a day.[21]

Although draining of marshes continued until the 1960s, it was found to be only marginally effective. Changing the marsh environment adversely effected wildlife, and in 1938 biologists from the Division of Wildlife Research, with help from the refuge staff, began studies on Bombay Hook Island to find mosquito control measures that would be compatible with wildlife conservation.

The theory being examined was that mosquito larva can be controlled by introducing killifish and other natural predator fish in marsh ponds. The CCC enrollees assisted in deepening some of the marsh ponds using dynamite. The blasts created craters more than four feet deep so that the ponds, deeper than the water table, would be fed from ground water, not just by tidal flow, thereby retaining water through the summer dry season and sustaining fish that eat mosquito larva – essentially the opposite of the parallel-grid ditching approach.[22 ,23]

The CCC at Bombay Hook[24]

"A CCC Camp was assigned to this refuge on April 1, 1938, and all major construction work included in the proposed development program for this area has been, and is being, accomplished as CCC projects." - Refuge Manager John Herholdt[25]

It's difficult to imagine what Bombay Hook was like before the construction projects began. Just as it is today, the salt marsh with its tidal streams and guts was the dominant feature. Fortunately, most of the marshes that were purchased in 1937 escaped the CCC mosquito control program and were not subject to parallel-grid ditching. Ninety percent of the salt marshes between Maine and Virginia were ditched between 1930 and 1940, making Bombay Hook's marshes a rarity.[26] However, these salt marshes had been used by their previous owners, not only for hunting and trapping, but also for an annual harvest of salt hay.

Some of the upland area, the "hard ground," was farmland, some still under cultivation, some abandoned. There were a number of old barns and other farm buildings that later were removed by the CCC. There were other areas that were forested. Wooded freshwater swamps and

brackish bogs made up another major component of the refuge, covering nearly one thousand acres.

The total area that was planned for freshwater impoundments in 1938 was estimated at 1,592 acres[27] of which 824 acres were salt marsh and 778 acres were wooded freshwater swamps and brackish bogs. The dike creating Raymond and Shearness Pools was to be built across the tidal salt marsh. What now is Raymond Pool and a large part of what now is Shearness Pool was salt marsh. The remainder of Shearness and all of what is now Finis Pool was one continuous brackish bog and wooded swamp. Bear Swamp, as its name implies, also was a swamp, again with some intrusion of the brackish salt marsh, but it remained a swamp until 1961 when Bear Swamp Pool was established.

So that's roughly what they had to work with.

Initially attention was given to the salt marsh environment, particularly to find ways of improving it as habitat for breeding ducks. The CCC workers helped to drill freshwater wells in the salt marsh. The idea was that fresh water could be used to maintain water in tidal pools and flood areas that became dried mud flats in hot summer months. By putting planks over the marsh to get a footing, the enrollees were able to set up well drilling rigs on Kent and Kelly Islands, and a year later on Bombay Hook Island, in order to drill artesian wells that provided a constant flow of freshwater. The pools retained water, but it was not determined if they had much effect on waterfowl.

Another plan was to place water control structures on 28 guts and ditches in the marsh that enter into Delaware Bay or its tributaries from the north side to Leipsic River to the northern boundary of the refuge, turning this area from a tidal salt marsh into a brackish marsh, again in a belief that this would enhance the habitat for breeding ducks. The first attempt was to build a water control structure at the mouth of Shearness Gut where it enters Duck Creek. After great effort they were able to drive pilings on both sides of the gut and then place a sill or low dam across the mouth, thus reducing the tidal flow from the creek into the gut – but tidal action quickly washed to out almost as soon as it was installed. They made one other effort, this time where Slooch Ditch enters the bay. This one was even more difficult because they had to work entirely from boats and work barges. Again they were unsuccessful, and that ended to plan for controlling the tidal action in this part of the marsh.

These efforts soon gave way, however, to the largest single project in the creation of the waterfowl refuge, the construction of freshwater lakes or pools – Raymond, Shearness, and Finis. That effort had two components, building dikes and a causeway to create the impoundments that would form the freshwater lakes, and clearing the wooded swamps that would become the lake bottoms. While there was much "pick and shovel" work involved in building the dikes and causeway, the massive earth moving job was accomplished with mechanical equipment – the dragline[28] and dredge.

Not so the clearing of the swamps. That was hard, tough manual labor, probably the most difficult job the CCC performed on the refuge.

Actually, swamp clearing required several steps, almost all without aid of any mechanical equipment. First, the trees, mostly sweet and black gum, swamp maple, and several species of swamp oak, were cut and the logs were pulled from the swamp, leaving the stumps.

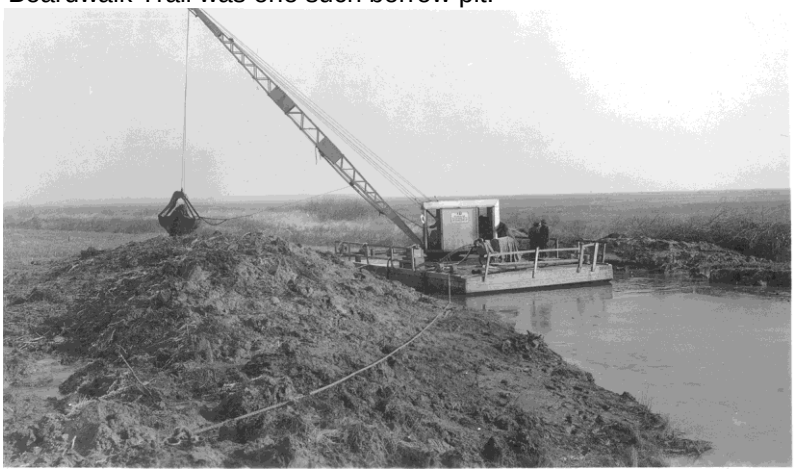
The stumps along the edges were pulled out using trucks, but those deeper in the swamp had to be removed by hand. Finally, the heavy undergrowth had to be removed.

By the time the enrollees left in 1942, only a portion of the swampland was cleared, primarily at Shearness, while most of the clearing at Finis was along the edges. At the end of their tenure the reports said that the CCC clearing operations at Finis resulted in “little or no progress.”

Weather was part of the problem. In 1938 and 1939 unusually wet conditions in the spring and summer months increased water levels, particularly in Finis. When finally they had an unusually dry season in the summer of 1941, the number of CCC enrollees was depleted, and there was not sufficient manpower to make much headway. Actually, the best progress in the swamp clearing operation was made during the winter months when the ground was frozen.

The Refuge Manager wrote in his Quarterly Report of January 1940: *"Swamp clearing went by leaps and bounds as conditions were the very best. The swamp froze solid, and cutting operations were not hindered by the moving of foot-walks and occasional encounters with thigh-deep muck. Moderately cold weather has a definite paralyzing affect on these Negro enrollees, and cold weather confines them to their barracks, so the progress on the clearing was due to the perseverance, tolerance, and patience of the camp foreman."*[29]

A different problem was encountered in building the dikes that formed the freshwater impoundments. Here the problem was settlement. The dikes were built across upland areas using the dragline to pile material taken from borrow pits along the way. The brackish pool at the entrance to the Boardwalk Trail was one such borrow pit.



When they reached the salt marsh, a dredge on a barge was used to cut a ditch across the marsh which was then filled with clay that had been dug from borrow pits and dried. This clay formed a base on which mud and peat dredged from the marsh was piled to construct the dyke. Unfortunately, the settlement and shrinkage of this dredged material was underestimated, and overall the rate of settlement was about eighty percent, seriously slowing the project. A pile of dredged material ten feet high would shrink as it drained and dried to two feet!

Dike construction began at the south end of Raymond Pool, using the dragline, in the summer of 1938. Raymond Pool was fully enclosed in November 1939 by a dike fifteen feet above the level of the marsh and creating an impoundment of 100 acres that was allowed to fill with rain water. The dike, however, was far from finished. Settlement continued and erosion of the banks became a serious problem. The CCC workers began the pick and shovel job of dressing the banks and building a roadway on top of the dike, only to discover that the top was thirty inches below specifications. Finally, in the fall of 1941 the dragline was placed on top of Raymond dike to complete the roadway at the specified elevation.

"This season the waterfowl appear to have forsaken the mud flat areas of the marsh for the stable water areas in the new pool. The greatest number of waterfowl seen on the refuge to date was an estimated 16,500, and about one-fourth of these were on the new 100-acre impoundment. The new Raymond Pool is by far the most heavily populated 100-acre section of the refuge. The Herons, Egrets, and Bitterns, which formerly occurred in small, scattered numbers throughout the refuge, or wherever their particular habitat prevailed, have also shown a preference for the new impoundment. Every night the croaks, squawks, and hoarse guttural screams of Great Blues, American Egrets, and Black-crowns can be heard as never before on any section of the refuge. This is something entirely new, and very much a spectacle to us as well as to our Natural-History minded friends" – Refuge Manager John Herholdt[30]

In the meantime, work continued on the impoundment across the marsh to create Shearness Pool. Again, a dredge working from Raymond and Shearness Guts was used to build the impoundment, but this work was not completed when the enrollees left in 1942. Another part of the Shearness project that the CCC workers were able to complete was construction of a causeway through the freshwater swamp to separate Shearness Pool from Finis. This causeway was constructed partially by manual labor and partially by using the dragline. Fill to form the causeway was taken from two natural depressions, creating small freshwater pools, now known as Big Woods Pond.

The enrollees built water control structures in the dikes and causeway, difficult work that required building forms and poring concrete in the mud and muck of the marsh. They also hand dug connecting ditches between the impoundment pools and between the pools and the salt marsh to allow freshwater to flow from one pool to another and to allow the pools to be drained into the tidal guts.

Reforestation, although less vigorous, was another important task in transforming the former farmlands of the upland areas into a wildlife habitat.

In 1938 the enrollees helped to create a tree nursery that had nearly forty-two thousand seedlings, and then in 1939 they added fifteen thousand more - and all the young trees that survived eventually were transplanted to the refuge. The initial planting included Norway maples, honey locust, green ash, black locust, persimmon, hackberry, yellow and red pine, and horse chestnut seedlings; the second planting dogwood and cedars. All seedlings were provided by the Soil Conservation Service.

In the fall of 1938, nearly twenty thousand black locust seedlings were transplanted from the nursery to permanent locations on the refuge. In the following spring five thousand cedar seedlings were planted on the refuge, and nearly three thousand black locusts were planted to replace those killed by mice over the winter. By the spring of 1939, nearly thirty-four thousand

seedlings had been planted on the refuge; however only eleven thousand survived because of rodent damage and poor planting practices. The CCC foremen who supervised the planting were experienced in mountain reforestation projects, but not in the conditions found in Kent County, Delaware.

Another major CCC task was construction of refuge buildings, including a headquarters building, an equipment shed, a boathouse and marine railway, houses for the manager and patrolman, and an observation tower. They also built a barge to carry a dredge and several small boats.

In the spring of 1939, the headquarters building,[31] which included offices and shops, was completed. Except for electrical work, construction was by the enrollees. During the following summer they completed a one-room overnight patrol cabin in the salt marsh at the junction of Duck Creek and Dutch Neck Canal. In April 1940 they completed a house for the Refuge Manager and a house for the Patrolman-Laborer (the two service employees at the refuge). A garage was later added to the Patrolman-Laborer's residence. In the fall of 1939 lumber was received for construction of an observation tower. The tower was completed early in 1940, despite the enrollees' difficulties in building it. Later they build an oil shed and grease rack at headquarters and rebuild a small shed at headquarters that was struck by lightening in September 1940.

The enrollees also were involved in marine and waterfront construction projects. In the spring of 1939 they built a marine railway at Whitehall Landing, the start of major construction at this site. Construction was begun on a boathouse in the fall of 1940, and at the same time a raised roadway to the boathouse site was started. By 1941, the boathouse, docks, and road to Whitehall Landing all were completed.

But they also built boats! In the spring of 1939 they remodeled three work boats, installing new rudders, shaft logs, engine beds and motors, and they also hauled, cleaned, and painted a fifty foot hull received from the Coast Guard. In 1940 the enrollees built a barge on which they installed a small dragline, and they used this vessel to replace the rented dredge that had been used on the Raymond dike.

Owners of the salt marshes north of the refuge annually burned their marshes to encourage new growth of marsh grasses. There was concern that these marsh fires would spread to the refuge so it was decided to create a firebreak. Its not clear, but the CCC may have helped to dig parallel ditches 150 feet apart for a distance of 1½ miles along what was then the northern boundary of the refuge from Duck Creek to the Delaware Bay. The ditches were filed with water, and the marsh between them was burned, thus creating a barren firebreak in the marsh. This break was maintained at least during the CCC tenure, and the ditches are still visible today.

Actually the enrollees first recorded project at Bombay Hook was to construct a display pool at the headquarters site. This pool, covering an area of about 375 square feet and with a depth at its center of 2½ feet, was completed later in the year. At the same site they also installed a sewer line, helped drive a well, and buried a telephone cable along Whitehall Road for a distance of nearly two miles**.** Because a cooperative farming program with local farmers was not yet in place, the refuge staff planted thirty-seven acres of corn which was cultivated, thinned, and weeded by the CCC after their arrival, and they also assisted with planting of buckwheat in eleven small food patches throughout the upland area.

In addition, the enrollees completed an array of smaller projects including demolition of old farm buildings and maintenance of the roads that constantly needed stone fill.

Then suddenly on April 18, 1942, all the enrollees left, reassigned to a new, unspecified Army project. All of the CCC presence that was left at Bombay Hook was the camp superintendent, one foreman, and four contract employees.

Do you suppose that in their wildest dreams these young black men could have imagined a hundred thousand snow geese or tens of thousands of shorebirds on the freshwater impoundments and tidal marshes? Could they have anticipated a herd of seven hundred deer? Would they believe what was planned as a waterfowl refuge would become home to such a diversity of plant and animal species? Would they really believe one hundred thirty thousand human visitors to this refuge each year? Truly they did create a living legacy!

---

[1] Drawn from descriptions in the *Narrative Report for the Bombay Hook Wildlife Refuge*, May 1 to July 31 and August 1 to October 31, 1938, John F. Herholdt, Jr. Refuge Manager, Bombay Hook Migratory Waterfowl Refuge, Bureau of Biological Survey, United States Department of Agriculture.

[2] *Index of State Listings,* National Association of Civilian Conservation Corps Alumni. URL: http://www.cccalumni.org/index/html.

[3] Herholdt, John F., Refuge Manager, *Bombay Hook National Wildlife Refuge, Quarterly Narrative Report, February, March, and April, 1942.*

[4] *Op. Cit., Index of State Listings.*

[5] Eldred, Tom. *Mosquito Control and Much More,* Delaware State News, Volume 99, Number 332, June 29, 1999.

[6] Friend, Milton, *Conservation Landmarks: Bureau of Biological Survey and National Biological Service.* URL: http://biology.usgs.gov/s+t/noframe/a222.htm

[7] Thurston, Thomas. *African Americans in the Civilian Conservation Corps.* New Deal Network. URL: http://newdeal.feri.org/aaccc/

[8] *Roosevelt's Tree Army.* National Association of Civilian Conservation Corps Alumni URL: http://www.cccalumni.org/history1.html

[9] *Ibid.*

[10] Morrison, Samuel Eliot. *The Oxford History of the American People.* (Oxford University Press, NY, 1965) p.955

[11] *Op. Cit. Roosevelt's Tree Army.*

[12] Justin, James F., *Civilian Conservation Corps Museum.* URL: http://members.aol.com/famjustin/ccchis.html

[13] Based on a weekly menu reported in: Justin, James F., *Camp Inspection Report, 6/8/37, Typical Menu, C01295, Camp MC-54, Magnolia, DE.* URL: wysiwyg://58/http://www.geocities.com/jkjustin2/1295b6.html

[14] Herholdt, John F., Refuge Manager, *Bombay Hook National Wildlife Refuge, Quarterly Narrative Report, July 31, 1938; April 30, 1940.*

[15] CCC Camp BF-1 superintendent's report, May 1 to August 31, 1940 (unpublished report on file at Bombay Hook NWR)

15. Justin, James, CCC Museum Newspaper Article, taken from ***Profress***, a Delaware WPA magazine, circa 1936

[16] [5] E-Mail note from Donna Broome, Associate Archivist, National Association of CCC Alumni.

[17] *Op. Cit., Index of State Listings.*

[18] Herholdt, John F., Refuge Manager, *Bombay Hook National Wildlife Refuge, Quarterly Narrative Report, January 31, 1939.*

[19] Meredith, William H., *Controlling Salt-Marsh Mosquitoes,* in Bryant, Tracey L. and Jonathan R. Pennock, Editors, *The Delaware Estuary: Rediscovering a Forgotten Resource.* (University of Delaware Sea Grant Program, 1988) p. 106.

[20] *Loc cit,* Eldred, Tom.

[21] Justin, James F., *Biography of James F. Justin.* URL: http://members.aol.com/famjustin/Hystin1/html.

[22] Herholdt, John F., *Narrative Report for Bombay Hook Wildlife Refuge, May 1 to July 30, 1939.* p. 8.

[23] *Op. Cit,* Meredith, William H.

[24] All references and descriptions of CCC projects at Bombay Hook are taken from *Quarterly Narrative Reports* from May 1, 1938 through April 30, 1942, prepared by the Refuge Manager, John F. Herholdt, Jr. and reports by the Superintendent, CCC Camp BF-1, Leipsic, Delaware, 1938 to 1941. These reports are on file at Bombay Hook National Wildlife Refuge. Specific citations in this section will be made only to direct quotations taken from these reports.

[25] Herholdt, John F., Jr., *Report of Activities for the Fiscal Year 1941.* Bombay Hook National Wildlife Refuge. p. 10

.

[26] *Loc Cit,* Meredith, William H.

[27] The freshwater impoundments, as finally constructed were considerably smaller that what was initially planned. Total area of these impoundments today is 1,100 acres, including Bear Swamp as well as Raymond, Shearness, and Finis.

[28] A dragline had a long boom with a winch and cable to which was attached a scoop or bucket, and this was mounted on a tracked vehicle. The boom was lowered and the scoop dropped to the ground. Then the boom was raised, dragging the scoop toward the rig and filling the scoop with earth. The winch was used to lift the scoop, and its contents then were deposited, in this case, on the dike.

[29] Herholdt, John F., Jr. *Quarterly Narrative Report, Bombay Hook National Wildlife Refuge, January 31, 1940.* p. 17

[30] Herholdt, John F., Jr. *Quarterly Narrative Report, Bombay Hook National Wildlife Refuge, October 31, 1940.* p 22.

[31] The headquarters site and former headquarters buildings are now the maintenance center