

## BIRD BANDING STATION AT THE PARKER RIVER NATIONAL WILDLIFE REFUGE

by Bill Gette

In April 1998, Massachusetts Audubon's Joppa Flats Education Center opened a bird-banding station on Plum Island, Newbury, in cooperation with the United States Fish and Wildlife Service at the Parker River National Wildlife Refuge. This new station was established utilizing the Master Bird Banding Permit issued to the author by the Bird Banding Laboratory in Laurel, Maryland. I was first issued my banding license in 1962 and have participated in banding operations in Georgia, Massachusetts, Maine, and New Jersey. The station is administered under a Special Use Permit issued annually by the Parker River National Wildlife Refuge, and access to the station is limited to the staff of Joppa Flats, volunteers who have been trained and registered, and participants in educational programs. Under the refuge permit, Joppa Flats makes available to the Parker River staff all banding records and other pertinent information. The station is funded through private monetary contributions and gifts of equipment.

The goal for the 1998 spring banding season was a modest one: to test the feasibility of operating a station on Parker River National Wildlife Refuge, and, if it was found to be feasible, to begin developing the infrastructure required to sustain this ambitious project over the long term. To launch the new station, we had to consider all elements of the operation, including site selection, volunteer training, collection of reference materials and identification aids, and establishment of banding procedures.

Working with Jack Fillio (Refuge Manager at Parker River), Deborah Melvin (a wildlife biologist at the refuge), and Simon Perkins and Wayne Petersen of Massachusetts Audubon, we selected a banding site near the Maintenance Subheadquarters on Plum Island. Site selection criteria included the presence of suitable habitat for migratory passerines, knowledge that concentrations of birds had been observed in the area in the past, protection from wind, adequate space for banding operations and educational programs, and minimal impact on other refuge activities.

After site selection, the next step in developing the station was to clear lanes in which to erect mist nets. In planning our lanes, we chose areas that provided protection from both the sun and wind. Protection from the sun is important to avoid exposing captured birds to excessive heat while they are in the nets and to make the nets more difficult for the birds to see (nets placed in the direct sunlight tend to shine). Mist nets tend to billow in the wind, which makes them less effective, so it is also important to locate the lanes behind dunes and vegetation that serve to minimize wind speeds.

The mist nets that we use are 12 meters long and 2.6 meters high and are constructed of black nylon thread. The nets have a mesh of 36 millimeters and are suspended from five cords, called trammels, that run the length of the net. Besides supporting the mesh, the trammels also create "pockets" of net that absorb the impact of the birds flying into the net and serve to capture the birds. The first mist nets we installed were attached to temporary poles that had been driven into the ground and stabilized with guide wires.

Once the lanes had been established and the nets installed, I began banding on April 26. I invited Nancy Soulette and Brooke Stevens to assist with the project. Nancy and Brooke, both very active volunteers and field trip leaders at Joppa Flats, were invited to participate since they had expressed an interest in our banding program and had excellent bird identification skills. Besides gaining hands-on experience at the Joppa Flats station, Nancy, Brooke, and I traveled to the Manomet Center for Conservation Sciences to visit their nationally known banding operation in Plymouth, Massachusetts, and observe banding activities.

Trevor Lloyd-Evans, leader of the bird banding program at Manomet, and his staff have developed a comprehensive library of literature for identifying, aging, sexing, and evaluating passerines. Moreover, based on many years of experience, they have developed a proven set of banding protocols and procedures that reflect the most recent studies of banding ethics, research techniques, and bander training. Due to the success of the Manomet operation, we decided to follow the Manomet banding model and adopted most of Trevor's procedures for our Plum Island station. The staff members at Manomet were extremely generous with their time and provided a significant amount of their banding information and interpretive materials. Manomet's support in the early development stages of our station was critical to our success.

Our spring 1998 banding activities were limited to twelve banding days in April and May. While of limited duration, the operation did confirm that a banding station on the Parker River National Wildlife Refuge was feasible. Further, it demonstrated that a banding station could achieve two important goals for the Massachusetts Audubon Society and the United States Fish and Wildlife Service. First, the station could serve as a research facility to increase our understanding of how passerines utilize Plum Island during spring and fall migration, and it could serve as an important educational facility for school and adult programs. For example, our banding studies could provide insight into the length of stay of migrants on Plum Island, changes in fat content and body mass, and differential timing of age and sex cohorts during migration. Long-term studies could also help clarify population trends and alert us to needed conservation actions while species are still fairly common. Second, the station could serve as an important educational facility for both school and adult programs. Participants on field trips to the station could gain a greater

understanding of birds, scientific research procedures, migration strategies, and the need for bird conservation.

During April and May 1998, we banded a total of 176 birds representing thirty species. The three species with the highest number of individuals banded were Gray Catbird (38), Yellow-rumped Warbler (19), and American Redstart (12). In all, we banded thirteen species of warblers. The bird that generated the most interest among our volunteers was a Bicknell's Thrush, captured and banded on May 29; Trevor Lloyd-Evans reports that Manomet has banded only two Bicknell's Thrushes in the past thirty years.

Following our banding protocol, we closed the banding station at the end of May so as not to interfere with nesting activities of the breeding birds on Plum Island.

We reopened the station on August 31, 1998, and operated it through October 23. The Joppa Flats Education Center hired Jeff Farrington, an experienced bander who had worked at both Manomet and at the Vermont Institute of Natural Sciences, as the Lead Bander and Station Manager. Jeff's primary goal for the fall banding season was to continue developing the infrastructure for the station. Key tasks besides banding included computerizing banding records, developing and organizing interpretive materials, improving existing net lanes and adding new ones, training volunteers, and developing educational programs for school groups and teacher workshops.

During the fall season, we operated the station for thirty-six days. During this time period, we banded 772 birds representing forty-nine species. The three species with the highest individual counts were Yellow-rumped Warbler (272), Gray Catbird (98), and White-throated Sparrow (79). We banded sixteen species of warblers including Orange-crowned (3), Mourning (2), and Yellow-breasted Chat (1). Other captures of interest included Philadelphia Vireo (4) and Yellow-bellied Sapsucker (4). For each bird captured, we determined and recorded the following information:

- species
- age
- sex
- status of:
  - skull pneumaticization (the development of the skull)
  - cloacal protuberance
  - brood patch
  - fat
  - molt
- wing cord measurement (the length of the wing from the carpal joint to the end of the longest primary)
- weight
- net in which captured
- capture date and time

Of the 772 birds captured and analyzed during the fall program, 626 (81 percent) of the birds were determined by plumage characteristics, the extent of skull pneumaticization, or other factors to be Hatching Year birds — birds that had hatched that summer. Eighty-one of the birds (11 percent) were classified as After Hatching Year, indicating that these birds were at least one full year old. The age of the remaining 65 birds (eight percent) could not be determined with certainty. In addition to the initial captures, we also processed 59 recaptures of fifteen species. (Recaptures are birds that we had previously caught and banded at our station.) Gray Catbirds (25) represented the species with the highest recapture rate. The high Gray Catbird recapture rate is attributed to the fact that many of the catbirds were hatching-year birds that had stayed within a relatively small area around our net lanes. This increased the probability of recapturing these individuals. The majority of recaptured birds of all species demonstrated increased mass between captures.

Throughout the first year of the station's operation, we ran the banding station from the trunk of a car and an improvised banding table exposed to the weather. The process of building the station's infrastructure was relatively slow due to limited resources and time. In the spring of 1999, however, we made significant progress. First, Dan McHugh of Rowley donated a custom-built banding shed. This shed, measuring 10 x 12 feet, has two banding areas and space for interpretive programs. It is also accessible to participants in wheelchairs. Further, Jeff Farrington and volunteers upgraded all nine of our net lanes with permanent poles and added additional demonstration areas for interpretive programs. We also received several donations of money and equipment from individuals and foundations to support the operation. With the significant improvements we made, we now have a state-of-the-art facility.

We opened the spring 1999 banding season on April 14 and operated it through May 26. We had a total of thirty-two banding dates. All together, we banded 645 individual birds of fifty-four species. The species with the highest counts included Gray Catbird (92), Yellow-rumped Warbler (65), and Ruby-crowned Kinglet (51). The relatively high number of Ruby-crowned Kinglets at Joppa Flats was paralleled in banding data compiled at Manomet. Manomet banded over twice as many Ruby-crowned Kinglets in the spring of 1999 as they did in the spring of 1998. In addition to the initial captures, we also processed 89 recaptures of sixteen species. Of these birds, 21 individuals had been banded at the station the previous year. Two American Redstarts that we banded on May 17 and 18, 1998, were recaptured at the same site on May 11 and 15, 1999, respectively. Seven Gray Catbirds that we banded in May 1998 were recaptured in May 1999. Three additional Gray Catbirds that we banded in the fall of 1998 were recaptured in May. Two Yellow Warblers captured on May 15 and 26, 1998, were recaptured on May 11 and 18, 1999, respectively. To date, we have

not captured any birds banded by another banding station nor have any of our birds been recovered by other stations.

We reopened the banding station on August 30, 1999, and operate it through mid-November. Since we have completed development of the infrastructure for the banding station, we are now focusing attention on ways to enhance the station's role in education and research. While we have already conducted school field trips, adult programs, and banding workshops at the station, we plan to expand these programs. We feel that a visit to the station, where students and teachers can observe banding procedures and participate in record-keeping and other tasks, represents a very important educational experience. Exposure to the birds will spark the students' interest in birds and their conservation.

In the longer term, we plan to develop relationships with colleges and universities so that ongoing research can be conducted at our Plum Island site. From this research, we hope to learn more about how migratory passerines utilize the Parker River National Wildlife Refuge. The findings may help bring about refuge management practices that will enhance the value of the reserve for passerines.

If you would like to know more about programs at the Joppa Flats Bird Banding Station on the Parker River National Wildlife Refuge or could help support this operation, please contact Sanctuary Director Bill Gette at (978) 462-9998 or write to the Joppa Flats Education Center, PO Box 1558, Newburyport, MA 01950.

**Bill Gette** is Sanctuary Director at Massachusetts Audubon's Joppa Flats Education Center in Newburyport, Massachusetts.

