SUBJECT: Progress Report on Kirtland's Warbler Reintroduction Study
DATE: 30 September 1986
TO: Mr. George Irvine
From: Carol Boccetti, Ohio Cooperative Wildlife Research Unit

Since the last update of April 1986, the Kirtland's Warbler reintroduction study has proceeded as planned:

Dr. Jon Bart and I went to Michigan on 9 and 10 May to meet Jerry Weinrich (CDNR), Bill Irvine (USFS), and John Pyelich (chairman of KWRT). We discussed the study objectives and made preliminary plans for the fieldwork to be done in the late summer. Dr. Bart and I briefly visited a couple potential study sites.

Dr. Bart and I returned to Michigan on 22 June to attend the Recovery Team meeting and to determine the optimum breeding habitat for the Nashville Warbler. The latter task turned into a preliminary study (reported in the Interem Report of July 1986 by Bart) that continued through 2 July. It was important to define the optimum breeding habitat of the Nashville Warbler in order to select release sites. The reintroduction study would be invalid if we released birds in a habitat they did not prefer, because they would leave the site to seek optimal habitat. Once the release sites were selected (in Iosco Co.), we concentrated our efforts on matters in Columbus.

To begin work on the aviary at the Columbus Zoo, we drew up rough plans and then turned to several consultants. Personnel from the Owens-Corning Technical Center advised us on the type and amount of insulation necessary for the sound reduction we desired; we did not want the birds to hear each other when they began to sing in the spring. Owens-Corning personnel also advised us on the ventilation system and introduced us to a lighting specialist. Zoo maintenence were consulted regarding general, structural design and the electrical system. Dr. Russ Greenburg of the National Zoo, and Jim Pickner of the Minneapolis Zoo both gave advice regarding the interior design of the individual modules as well as technical avicultural information.

Once the revised plans were in hand, we went hard to work constructing the aviary. The structure consisted of 17 modules, 1 medical room, and 1 workroom/kitchen. Each module was 4 ft wide by 10 ft long and 8 ft high, and made of solid plywood. The floor was to be covered with wood chips approximately 1/4 in thick. The modules had 12 artificial pine branches strategically placed on the walls, 4 roosting platforms high in the corners, and 1 feeding platform. Each module had one 3 ft artificial pine tree in the center. The back wall was completely covered with hardware cloth to allow the birds to grip on to at least one wall. The front of the modules had a door and a "removable" observation window (also feeding access). The ventilation system was designed to have 4 air exchanges per hour. The lighting system was programmed to the Florida light cycle, automatically coming on at 6:00 AM and going off at 6:00 PM.

While the aviary in Columbus was being completed, temporary holding facilities were being constructed in Michigan. The Michigan DNR, in appreciated cooperation with OSU, was putting together 3 of the outdoor

aviaries to be placed on the release sites. These aviaries were modified cowbird traps, eventually to be used as such. We simply lined the inside of the "trap" with 1/4 inch mesh nylon netting so as to hold such small birds as warblers.

I also built 14 small holding cages, 18 inches on a side, to transport the warblers and to temporarily hold them in Michigan until they could be taken to the Columbus Zoo.

I started mist netting for Nashville Warblers on 24 July with the invaluable help of Dr. Russ Greenburg, who stayed in Michigan until 30 July. After the first 2 netting days, Russ and I decided to keep only juveniles because the adults did not seem to be taking to captivity very well. When Russ left, Sue Savage (a Master Bander who recently graduated from OSU's Master's Program) became my assistant. The netting continued until 15 August when we caught the 40th Nashville Warbler that we could keep. Throughout the 3 week netting period, we averaged approximately 2 to 3 birds a day.

I was netting in approximately 6 to 7 year old deciduous scrub areas. Many areas had been burned and/or were adjacent to mature forest. I was looking for areas with predominately oak (Quercus) and/or aspen (Populus). Several areas had jack pine (Pinus banksiana) mixed in with the deciduous trees. Most of the trees were less than 3 m high, averaging about 2 m high and densely stocked. The understory was commonly bracken fern (Pteridium) and blueberry (Vaccinium), or sedge (Carex). This habitat was selected, rather than the breeding habitat, because of the time of year and the target age class of the birds to be captured. It was theorized that the fledglings were dispersing in the fall: wandering and foraging. This habitat was optimum for foraging due to the high insect populations here at this time of year.

It was in a typical area, as described above, that I caught a juvenile Kirtland's Warbler on 5 August. The nearest known Kirtland's Warbler area was approximately 3 miles away. The location of the capture net was SW1/4 of the NW1/4 S5 R2E T24N. This location, and all net locations, were approved by Jerry Wienrich of the Michigan DNR before netting took place.

Once birds were caught, they were quickly taken to the holding site (Sylvia Taylor's garage!), where they were observed until they ate and drank. If they did not do such within 4 to 6 hours, they were released. After 24 hours, the birds that were kept were moved to their temporary holding sites for the duration of the fieldwork. Approximately half of each day's catch was kept at the holding site in the 18 inch cages, and the other half was taken to the outdoor aviaries on the release sites. One aviary was filled before putting birds in the next aviary. The birds were held on the release sites for about 2 weeks.

The first release site to have birds was Silver Creek, location 3; the second site was Buck Creek V, location 3; the third site was Buck Creek III, location 3 (see interim report of July 1986 by Bart). The purpose of placing birds on the release sites in the fall was to try to "cue" them in to the site. Perhaps in the fall juveniles seek out the site to which they will return. If this is true, then showing the birds the release site in the fall should increase their success in the spring, i.e. they will

remain on the site and reproduce. A comparison of the success of "cued" birds to that of the "control" birds held inside in the 18 inch cages should reveal if placement of birds on the release site in the fall is necessary and shed some light on the theory that juveniles seek out areas in the fall to return to in the spring.

All birds were transported to the Columbus Zoo aviary by 29 August, without any fatalities. The birds that were kept in separate places remained separated so that if pair bonding occurred in the spring, each member of the pair had the same treatment. Six of the modules in the aviary held 3 Nashville Warblers each, and 11 modules held 2 birds each. The birds adjusted to the artificial surroundings quickly, eating and drinking within an hour and learning their new surroundings. After adjusting, they spent a great deal of time in the artificial tree and even pretended to forage!

The birds were fed on a daily basis. Their diet consisted of mealworms and a prepared food (zoo's recipe for insectivorous birds). The water was supplemented with vitamins and was also changed daily. The birds have taken to the prepared food. This was very important since the majority of the nutrition was derived from the prepared food and not the appealing live mealworms.

Since the birds have been in the aviary at the Columbus Zoo there has been one mortality. The bird died of unknown causes. I am presently treating another bird for a suspected upper respiratory infection. The zoo vet is checking the bird regularly, and I must medicate it daily. After much disturbance, capture and transportation, we have 38 very healthy Nashville Warblers that seem to have adjusted well to life at the Columbus Zoo.

Plans for the next few months include the constant maintenence of the birds and a formal observation schedule to record some typical behaviors in captivity for this species. The release of the birds in the spring is still planned for early May 1987.

In summary, the project has proceeded on schedule. The preliminary study of 22 June - 2 July laid the groundwork for selecting the release sites in Iosco Co. The fieldwork of 22 July - 29 August was successful in the capture of 40 Nashville Warbler juveniles from Oscoda and Ogemaw Counties. Birds were kept in 2 places during the fieldwork: indoors in 18 inch cages, and outdoors in modified cowbird traps on 3 of the release sites. The aviary at the Columbus Zoo was completed just in time for occupancy. Transport of the birds from Mio, MI to Columbus, OH occurred without fatalities. The birds adjusted well to the artificial surroundings of aviary cages. Since then, 1 bird has died of unknown causes and 1 bird is being treated for suspected upper respiratory infection (and improving). The release of the hopefully pair bonded birds is tenatively scheduled for early May.