

BIRD BANDING NOTES

ISSUED BY THE BUREAU OF BIOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF AGRICULTURE
FOR THE INFORMATION OF BIRD-BANDING COOPERATORS

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"Watch for Series Designations on Your Bands"
(Series letters now include A, B, C, F, H, L, and 34)

ADMINISTRATIVE CHANGES IN BIOLOGICAL SURVEY

Mr. Redington Returns to Forest Service.--Effective February 26, 1934, Paul G. Redington, who for seven years had been chief of the Biological Survey was transferred at his own request to the Forest Service, where his services were desired in connection with increased activity of that organization. Twenty-three of Mr. Redington's thirty years' service with the Department of Agriculture have been with the Forest Service, where he was assistant forester, in charge of public relations, when transferred to the Biological Survey in 1927.

Jay N. Darling the New Chief of the Biological Survey.--Under date of March 10, 1934, the Secretary of Agriculture announced the appointment of Jay Norwood Darling, of Des Moines, Iowa, as Chief of the Biological Survey. Known nationally and internationally for his world-famous cartoons under the name of "Ding", he is also recognized as a leader in wild-life conservation and restoration activities, fields to which he has devoted many years of his life. Early this year he was awarded the Outdoor Life Magazine medal for outstanding service in the field of wild-life conservation. He is a member of the Advisory Board, Migratory Bird Treaty Act, the Iowa Fish and Game Commission, the Iowa Planning Commission, and the Des Moines Park Board. Already well known to the staff of the Bureau, he was warmly welcomed when he took office on March 19, and later at an informal reception on the evening of April 4, in connection with the fifth annual party of present and former members of the Survey.

Appropriations Restored for Fiscal Year 1935.--It is a pleasure to announce that the House Committee on Appropriations restored to the Agricultural Appropriation bill for the fiscal year 1935 (starting July 1, 1934), the Biological Survey items for scientific investigations that had been omitted by the Bureau of the Budget. The bill has passed both Houses of Congress and was approved by the President on March 26, 1934, so that the funds for work with North American birds for next year will at least equal those available for the current fiscal year. The Biological Survey understands that the

NOTE.--"BIRD BANDING NOTES" is not for general distribution, but anyone using in a published paper any of the information contained in it will be expected to give credit to the person named and to the Bureau.

restoration of these items was due in no small part to the active interest of its many friends, for whose support the Bureau and all interested in the furtherance of its work are extremely grateful. The administrative and scientific staff of the Survey feel that there is no organization in the United States that is so well fitted to deal with the many complex problems relating to the administration of our wild-life resources, and it is confidently believed that with the whole-hearted backing of naturalists, sportsmen, and conservationists, there should be no great difficulty in reconciling the various interests that are at stake and in preserving all elements of our fauna not only for the enjoyment of the present but also of future generations.

GENERAL INFORMATION

The Annual Report.--Bird-banding cooperators should remember that the fiscal year of the Government closes on June 30, and that in accordance with the policy adopted some years ago only those banding records that are received by the Survey before the closing hour on June 30 will be counted in the tabulation that will show the extent of banding operations during the present fiscal year. This does not mean that all schedules now held at banding stations should be sent in at that time, but it is important that schedules for species no longer being trapped, because of seasonal residence, should be in not later than June 30.

Publication Rights to Bird Banding Data.--From the inception of the bird-banding work it has been the policy of the Survey to consider that publication rights to data resulting from banded birds are vested jointly in the Bureau and in the cooperator responsible for the banding. In the case of banding material that has been published in the regular Department bulletins or elsewhere (as in the two "Return Bulletins" and in many issues of the Canadian Field Naturalist), the material then becomes public property, to be used by anyone as he may see fit. The Bureau has, however, always taken the stand that any serious-minded investigator should have access to the data files if the Bureau is satisfied that the work contemplated is desirable and that the worker is competent to conduct it, provided that no other worker is known to be engaged upon a similar problem. Also, the Bureau has emphasized the desirability for communicating with other station operators when it was proposed to use, in an article prepared for publication, any of the material resulting from the operations of those stations. While it is believed that this has been generally understood by most cooperators it seems desirable at this time to restate the policy, particularly since cooperators engaged in working up definite problems occasionally visit the Washington offices and request permission to make an abstract of data from the banding files. Ordinarily such permission is given under the provisions above stated.

Attention, Massachusetts Cooperators.--Information is desired concerning the station holding or using bands numbered H34601-H34650. When these were issued, the record was inadvertently omitted from the issue file and as a recovery is now at hand, the original banding record cannot be located. It is believed that these bands were issued to a Massachusetts station, but all cooperators should examine their bands to see whether or not this series was issued to them.

Schedules and Return Cards.--The Survey again calls attention to the desirability of using pen and ink or typewriter in making out banding records. Do not use lead pencil.

If the place of banding of any birds reported on a schedule is different from the address given in the upper right corner, the point or points, should be named under the "Substation" heading and the banding record designated with the appropriate letter. Such information should not be put on the back of the schedule under "Remarks."

Schedules should be sent in twice a year, not monthly, unless they happen to be filled, when they may be sent in at any time. Sending partly filled schedules at more frequent intervals is not only a waste of printed supplies, but also of valuable space in the files.

Series Designation.--Remember that the series letter or figure is an important part of the number and always should be given on schedules and return cards. The new "fiscal year" series should be separated from the rest of the number by a hyphen; as, 34-247396.

A. O. U. Memorial Volume.--A special memorial volume, entitled "Fifty Years Progress of American Ornithology, 1883-1933", was issued by the American Ornithologists' Union on the occasion of the last annual meeting. This is a 250-page volume containing special articles on all fields of ornithology. There are chapters on "Bird Banding", "Life History", and other subjects of interest to the operators of banding stations. It may be obtained only from the Treasurer of the A. O. U., W. L. McAtee, 200 Cedar St., Cherrydale, Va. The price is \$1.10 postpaid.

"Michigan Bird Banders".--A group of bird banding cooperators in Michigan met at East Lansing on November 11, 1933, for the purpose of comparing notes on methods and for general discussion of the work. It was decided to form a permanent organization and the name of "Michigan Bird Banders" was adopted. The following officers were elected: President, Dr. H. A. Barbour, Mayville; secretary, Allen Montgomery, Owosso; treasurer, C. C. Ludwig, Lansing.

A Correction.--In the last (September, 1933) issue of Bird Banding Notes (vol. 2, no. 9) an error has been detected on page 135 where "F. L. Sumner, Jr., Berkeley, Calif." is credited with banding 1,300 birds. The reference is to E. L. Sumner, Sr., the business manager of the Western Bird Banding Association.

PHOTOGRAPHS

Since the last number of Bird Banding Notes was issued the collection of photographs has continued to grow. The Biological Survey thanks all those cooperators who have sent interesting pictures showing various details in connection with their operations. It is frequently difficult to obtain good pictures showing different aspects of the banding work, since, for example, traps made from wire netting do not ordinarily photograph well. Nevertheless occasionally a picture of exceptional merit is obtained, and when prints are sent to the Survey they are placed in the files where they are available for use in illustrating banding papers.

Every print sent in should be titled with date, locality, and the name of the cooperator. This information should be entered on the back of the print lightly with pen and ink. Within recent months a few pictures were received without any identifying legend.

Among the pictures received during recent months are the following:

Mrs. Marie V. Beals, Elmhurst, N. Y.: A series of 23 excellent pictures of a screech owl, young and adult spotted sandpipers, young ospreys and their nests, both eggs and young of common and least terns, and two immature wood thrushes.

Allen Green, Oakville, Ia.: Nine, showing a large flock of ducks wintering on his wild-fowl refuge; a portrait of an immature least bittern; and mallards tipping up as they feed in the shallow waters of Ray Lake.

C. A. Pease, Berkeley, Calif.: One, showing a partially albino California thrasher.

Hal Oliver, Oakland, Calif.: One, showing 30 or 40 California quail at his banding station.

Wm. Vogt, Wantagh, N. Y.: Two pictures of hand-reared black ducks and the nesting shelters used at the Flanders Club, Flanders, L. I., N. Y.

J. L. Primrose, Raleigh, N. C.: Two of a banded adult bald eagle. One picture shows the eagle in a cage and the other shows Mr. Primrose holding it preparatory to its release.

James Cosbey, Jr., Buffalo, N. Y.: An excellent photograph of a water trap with end and top openings. (For description see under "Traps".)

P. L. Osborn, Lakin, Kans.: Five, four of which show scenes at his waterfowl banding station, while the fifth is a picture of a mourning dove on its nest.

Dr. D. L. Dery, Quebec, Canada: A picture of the banding party that he led to the Upper and Lower Razades on the Lower St. Lawrence River for banding herring gulls.

Carl Welty, Fairfield, Iowa: A picture of an opossum taken last spring in one of his Government sparrow traps.

C. H. Watson, Andover, N. Y.: A print from a motion picture film showing four frames of an immature great horned owl in an attitude of defense with its wings spread and arched.

Frank Bishop, St. Johns, Mich.: Four, two of which show present low-water conditions in the Great Lakes region; one shows the nest and eggs of a herring gull; and the fourth shows the nest and eggs of a black tern.

Miss Louise J. Miller, Zion, Ill.: Six, showing a mockingbird, a white-breasted nuthatch, and a screech owl caught in her traps.

Mrs. Florence K. Daley, Olivera, N. Y.: An interesting picture of an immature saw whet owl.

Herbert Buckalew, Milford, Del.: Eight, showing nests and eggs, young, or the adult birds of the marsh hawk, turkey vulture, common tern, least tern, piping plover, and red-winged blackbird.

George D. Eustis, Vineyard Haven, Mass.: Nine, showing another interesting series of the "Marthas Vineyard" barn owls.

John E. Sibley, Whittemore, Mich.: Three, one of which shows a glassed in wind-vane feeding shelter; the other two are pictures of a banded sparrow hawk that was captured in a modified cloverleaf trap.

Edward McColgan, Catonsville, Md.: Two excellent photographs of a downy woodpecker feeding at a lump of suet.

WORK AT BANDING STATIONS

One of the outstanding pieces of work done during the past winter was the operation conducted by Glenn L. Berner and C. E. Boardman, of Jamestown, N. Dak., with snow buntings, Lapland longspurs, and horned larks. The snow buntings and longspurs received particular attention and both were banded literally by the hundreds. Under date of January 3, Mr. Berner wrote that he estimated the flock of buntings at 5,000 and that he had already banded 360, while he believed Mr. Boardman's total would be at least 100 more than that. During one morning 193 were banded, 85 being taken at one fall of a 6-foot drop trap. The method employed was to set four of these large drop traps about 100 feet from a closed car, which was used by the operators as a blind. Mr. Berner reports that the snow buntings are adept at hiding their feet in their feathers, which was particularly noticeable on cold days, and then there was some difficulty in getting the tarsus out to apply the band. Mr. Boardman writes that on very cold days these birds have a habit of lying on their sides to feed, evidently drawing their feet up into their plumage, while during mild weather they will "strut" proudly. On one occasion a flock alighted all around the car, much to the delight of the operators. These birds seem to be decidedly nomadic in their habits. Mr. Boardman states that among all the individuals they have banded, they obtained only two repeats; one was caught twice on one day and another was recaptured two days after banding. It will be recalled that Oscar M. Bryens, of McMillan, Mich., had one snow bunting which repeated many times.

Last summer Mr. Berner also banded a large number of burrowing owls, a species he reports as being very gentle to handle and of exceptional interest to work with. On one occasion while he was banding a female, she kept calling and protesting, causing her mate to answer and to make repeated dives at Mr. Berner's head. Mr. Berner writes that he paid little attention, as this had happened before, but finally something struck him on top of the head and his cap sailed off in the grasp of the indignant little owl, which carried it at least 20 feet before dropping it.

The reports from Mr. Berner and Mr. Boardman are so filled with interesting items that it would be easy to fill this entire issue with comments from their stations.

Walt Batezel, of Collingswood, N. J., and Prof. Lawrence E. Hicks, of Columbus, Ohio, have been conducting investigations of starlings along similar lines, their intention being to compare results in an effort to learn of any similarities or differences between starlings in New Jersey and in Ohio. Such an investigation should disclose to what degree geographical and other influences in either State determine alteration or adaptation of habit. It is suggested that if cooperators working with starlings in other States conduct similar studies the interchange of results may be of unusual interest. On one schedule Professor Hicks reported the banding data for 6,959 of these birds.

Lewis W. Campbell, of Toledo, Ohio, reports that from 1929 to 1931 he banded 13 Cooper's hawks, of which 9 were reported as recovered elsewhere. Only one of these was shot the second year after banding. Of 19 marsh hawks banded during the period 1928 to 1932, only 3 were reported as recoveries, and he suggests that it is possible the mortality is much higher for the young marsh hawks because of the ground nesting habits of this species.

Walter R. Salt, of Rosebud, Alta., also has given particular attention to birds of prey. A recent report from him contains the banding data for 2 western red-tailed hawks, 12 Swainson's hawks, 7 ferruginous rough-legs, 2 prairie falcons, 3 duck hawks, 2 sparrow hawks, 11 short-eared owls, and 5 great horned owls.

John E. Sibley, of Whittemore, Mich., has transmitted an interesting tabulation of the results of his banding station for the four years 1930 to 1933. It is noted that while the total number of birds banded by him during 1930 was only 29, in 1933 this had risen to 636, representing 28 species. He also submitted an inventory of the equipment used at his station which he valued at \$64.

Clarence F. Smith, of Oakland, Calif., made a trip during the latter part of last summer to the Farallon Islands, where he banded more than 350 individuals of 8 species, including the following: Farallon cormorant, California murre, tufted puffin, pigeon guillemot, western gull, Cassin's auklet, rock wren, and ashly petrel. His report contains so many interesting items relative to the actions of these birds that it is hoped the work thus started can be followed up during the coming season.

C. E. Holcombe, of Zion, Ill., last December submitted a report of birds banded at his station in fall and early winter. In it 1,551 birds were represented, among which it is noted that he banded 70 ovenbirds, and 119 hermit thrushes. During the calendar year he banded more than 1,200 juncos. Mr. Holcombe reported that pine and evening grosbeaks had been noted in the vicinity of his station, which was the first time he had observed these species in that locality.

C. J. Goetz, of Cincinnati, Ohio, under date of November 25, 1933, commented on the fact that he had already heard from 3 of a brood of 4 barn-owl nestlings banded by him on June 11, 1932, at Springdale, Ohio. One (B622023), was reported from Arkansas in October 1932; another (B622025), from Alabama in November 1932; while the third (B622022), was found dead in Georgia in November 1933. During March 1934, Mr. Goetz resumed operation of his waterfowl banding station in Illinois. Despite bad weather he placed bands on 1 coot, 2 pintails, 2 ring-necked ducks, 25 black ducks, and 537 mallards, together with 52 small nongame birds.

Prof. O. A. Stevens, of Fargo, N. Dak., in his report on operations conducted last fall lists 436 Harris's sparrows and 118 clay-colored sparrows banded at his station and states that 237 Harris's sparrows repeated 1,635 times. He had 18 traps in operation, most of them continuously.

James E. and William J. Beecher, of Chicago, Ill., report that they have 12 traps at their station and that they plan additional installations during the present season. One of their latest traps is designed for the capture of black terns. Very few of these birds have been banded as adults, so it is hoped that the trap will be successful. They also are contemplating a banding station for migratory waterfowl.

R. S. Huddleston, of Tippecanoe City, Ohio, completed his first year as a bird-banding cooperator with 180 birds of 18 species. He reports that his station equipment consists of a Government sparrow trap, a four-compartment Potter trap, two false-bottom traps, one two-compartment top- and side-entrance trap, and one Baldwin woodpecker trap. There has been so much local interest in his station that he says all the sick and injured birds found in the neighborhood are being brought to him for treatment.

L. J. Broderick, of Washington's Birthplace, Va., reports that the first bird captured at his station was a junco, which was taken under rather peculiar circumstances. One evening, shortly after dark, he heard a scratching sound at his dining-room window, which was raised, and the junco immediately entered the room. It was caught, banded, and released the following morning. Mr. Broderick states that this is the first time he has known of a bird trying to come into a lighted room at night.

E. A. McIlhenny, of Avery Island, La., banded several thousand ducks, chiefly pintails, during the winter and early spring seasons. He also was able to capture a fair number of blue geese. On November 12 he banded 87 of these birds, part of which were obtained by his men running into the flock and seizing the birds before they could take wing or get away by hiding. He states that on one attempt an assistant caught 8 blue geese with his bare hands and he believed that if he had had more help he could on this day have banded several hundred of these birds.

He has forwarded the following list of some of his record duck catches:

Dec. 19, 1931.....	786	Jan. 25, 1933.....	717
Jan. 1, 1932.....	534	Feb. 5, 1933.....	590
Jan. 8, 1932.....	595	Nov. 11, 1933.....	616
Nov. 14, 1932.....	711	Nov. 23, 1933.....	581
Dec. 14, 1932.....	728	Dec. 12, 1933.....	1,514
Dec. 20, 1932.....	819	Dec. 22, 1933.....	856
Jan. 19, 1933.....	550		

In cooperation with the Biological Survey, Mr. McIlhenny has on several occasions made shipments of banded ducks to prearranged points where the birds were received and liberated in favorable areas. The purpose of this experiment has been to test the homing instinct of these birds for their particular migratory flyway. The following tabulation shows the number of pintails shipped to various points that were retrapped at Avery Island during the past season.

<u>Released</u>	<u>Place of release</u>	<u>Retrapped Avery I., La. 1933-34</u>
Feb. 1930	Washington, D. C.	4
Mar. 1933	Blackwater Migratory Bird Refuge, Cambridge, Md.	3
Mar. 1933	O. L. Austin Ornithological Research Station, North Eastham, Cape Cod, Mass.	4
Feb. 1930	Berkeley, Calif.	5
Mar. 1933	Berkeley, Calif.	6
Mar. 1933	Lake Malheur Migratory Bird Refuge, Voltage, Oreg.	2
Feb. 1930	National Bison Range, Moiese, Mont.	3
Feb. 1931	National Bison Range, Moiese, Mont.	2

M. J. Magee, of Sault Ste. Marie, Mich., summarizing his work for 1933, lists the banding records of 2,011 birds. These represent 41 species, headed as usual by the purple finch, with 1,444, and followed by the evening grosbeak with 244.

C. Brooke Worth, of St. Davids, Pa., has transmitted an interesting story connected with the banding of osprey A721063, which he obtained as a fledgling at Avalon, N. J. Mr. Worth reports that the bird consumed 20 cents worth of fish every day, and became very tame. On September 18 it was taken to his home at St. Davids where a "nest" was built for it. The bird was given its liberty but each day it came back to the artificial nest for its fish ration. Sometimes it would disappear for several hours, visiting different ponds in the vicinity, although Mr. Worth reports that he did not learn that the bird actually caught any fish. Nevertheless, on October 14 after it was fed as usual, it disappeared. As it has not been reported as a return it is hoped that the bird was fully able to care for itself.

A. F. Satterthwaite, of Webster Groves, Mo., reports banding 220 birds of 28 species during 1933. Heading his list are the robin (48), the blue jay (27), and the brown thrasher (22).

Miss Dorothy A. Baldwin, of Hardwick, Mass., has continued her studies of the chickadee. Observations of these birds made at her station seem to indicate a general tendency toward permanent mating. She reports that during the past winter she had three known mated pairs, of which both birds survived. In each case the two birds of the pair appeared together at the feeding shelf. At least one of her pairs has kept together for two years. These two birds were banded within 10 minutes of each other on January 29, 1932, and ever since have been seen constantly in each other's company.

Mrs. F. C. Laskey, of Nashville, Tenn., captured on December 10, 1933, the first Harris's sparrow to be recorded for that State. She also captured two specimens of white-crowned sparrow, which were forwarded to Washington and there determined to be the subspecies known as Gambel's sparrow.

E. L. Sumner, of Berkeley, Calif., transmitted to the Survey a copy of the report he made to the Western Bird Banding Association, which summarizes his operations during the period January 1 to December 31, 1933, during which time his traps were operated a total of 183 days in two locations. He banded 1,239 birds of 28 species and identified subspecies. His list is headed by the golden-crowned sparrow (381), Nuttall's sparrow (176), and the junco (140).

Charles Yeomans, of Chicago, Ill., reports that in two weeks during September 1933 he captured about 80 warblers in a Cohasset warbler trap, using a steady stream of water from a small hose connected to the house supply. He found that a funnel entrance in the wall of the trap at the bottom added considerably to its efficiency.

Mrs. Blanche M. Getty, of Sioux Falls, S. Dak., whose interesting work with rose-breasted grosbeaks will be recalled by many cooperators, reports an interesting experience with a young robin which was brought to her last summer after having been badly mauled by a dog. One eye was out, but otherwise the bird was not seriously injured, and she soon had it able to care for itself. It refused to leave, however, until late in the season, and even after it had been given its liberty it usually returned to its cage to spend the night.

Miss Constance A. Everett, of Waseca, Minn., recently transmitted a report on 444 birds banded during the past year. Her list is headed by the bronzed grackle (170), the robin (96), and the white-throated sparrow (39). Miss Everett reports that there seemed to be more birds of all kinds around her station last season and she had many more returns than ever before. At the time of her last communication, January 9, 1934, she stated that she and her mother were leaving for a month's trip in Mexico.

Irvin Sturgis, of Lexington, Mo., reports that his station equipment consists of one 4-celled Potter trap, one 2-celled Potter trap, two Government sparrow traps, three Higgins midget traps, and six drop traps. Another sparrow trap and a 4-celled Potter trap were under construction, and he expects to add a chimney-swift trap to his equipment. He has set a goal of 800 birds for the coming season.

John E. Sibley, of Whittemore, Mich., has added several new traps to his equipment and announces that before the end of the current fiscal year, June 30, 1934, he expects to have banded at least 1,000 birds.

E. W. Ehmann, of Piedmont, Calif., who operates the waterfowl station at Lake Merritt, Oakland, Calif., reports that 5 percent of all the ducks he has banded (the station was started in 1926) were retrapped by him during the past season, and more than 50 percent of all the ducks he trapped last season were already banded, indicating a most remarkable return ratio.

Frederick C. Labahn, Jr., of Blue Island, Ill., recently reported his "species list" was 44 and that he had banded 888 birds. Between March 18 and April 10, 1934, he placed bands on 423 birds. He finds his traps enable him to "check up" on some of the less conspicuous birds in the vicinity. For example, he was surprised to trap a cowbird on March 27, while on April 2 he captured a Lincoln's sparrow and on April 10, a swamp sparrow, neither of which had been previously detected during the present migration season.

Russell S. Davis, of Clayton, Ill., has transmitted a resume concerning two major projects that are being conducted at his station; one of these on the sex determination for tree sparrows, is practically complete. He finds that the measurement of the wings is a reasonably accurate test, the female having the shorter primaries. He has found only one male tree sparrow with a wing measure less than 65 mm., and only one female with a wing measurement greater than that. Three females and four males measured an even 65 mm. He also has found a plumage difference in the feathers at the base of the crown. In this region he has detected that females have a series of dusky black spots mingled with the brown. These spots average slightly larger than the head of a pin. During the fall and winter months the spots are partly concealed by the white edgings, and to see them it is frequently necessary to lift the feathers with the point of a pencil or similar instrument. As spring approaches, this white edging wears off and the spots then become readily visible.

Another interesting experiment had to do with the gain in weight of a sparrow hawk. The bird was fed an English sparrow that weighed 205 grams, but the hawk gained only 176 grains in weight, or 59 grains less than the weight of food consumed. Of this, 15 grains was accounted for by droppings, leaving 44 grains unaccounted for.

Among matters of passing interest, Mr. Davis comments on his observation that primary feathers on any individual bird are the same length in successive molts. For example a chickadee with a 59-mm. third primary had the same length in three successive return records covering 23 months.

Oscar M. Bryens, of McMillan, Mich., puts the snow bunting in second place at his station for the calendar year 1933, having banded 174 of these birds as against 179 of the savanna sparrow. It is interesting to note that while he obtained 154 repeats for the savanna sparrow he obtained 155 for the snow bunting. Also 22 return records were obtained for the savanna sparrow and 18 for the snow bunting. Mr. Bryens states that he has had excellent results from placing his traps on stands 4 and 5 feet above ground. Though the snow bunting is considered a ground bird, most of those banded were taken on these stands. He makes the stands with the top a little larger than what the trap will cover.

Miss Louise J. Miller, of Zion, Ill., reports that during the past season white-throated sparrows in the vicinity of her station were more numerous than ever and that the slate-colored junco was several times more abundant than at any

time since she started banding several years ago. On the other hand hermit thrushes, fox sparrows, and brown creepers were decidedly less numerous.

Gustave Domitz, Jr., of Pequannock, N. J., reports for last year a total of 483 birds, representing 36 species, headed by the robin (97) and the tree sparrow (81). He also obtained 8 return records. On the grounds of his trapping station he had 11 nests of 7 species.

Waterfowl Stations.--Cooperators working with migratory waterfowl were unusually active during the fall, winter, and spring months. Literally thousands of ducks and geese were banded, which with the great numbers banded in preceding seasons resulted in a veritable flood of letters to the Bureau, reporting recoveries. During the period October 16, 1933, to February 16, 1934, 5,568 such letters were received. The record day was December 26, when, after the Christmas holiday, 224 letters were received. The daily average over a 90-day period was about 50.

The following waterfowl stations are known to have been in operation during the past season:

O. L. Austin Ornithological Research Station, North Eastham, Mass.
A. J. Butler, Chilliwack, B. C.
Geo. T. Baker, Bemidji, Minn.
Philip C. Barney, Farmington, Conn.
Henry A. Bowden, Litchfield and Morris Game Sanctuary, Litchfield, Conn.
L. H. Barkhausen, Chicago, Ill.
Herbert R. Buetner, Burlington, Iowa.
Frank M. Benson, Lake Malheur Migratory Bird Refuge, Voltage, Oreg.
Dr. Karl Christofferson, Blaney Park, Blaney, Mich.
E. W. Ehmann, Piedmont, Calif.
Frank B. Foster, Phoenixville, Pa.
Richard Gordon, Paul J. Rainey Wild Life Sanctuary, Abbeville, La.
C. J. Goetz, Cincinnati, Ohio.
Frank Hopkins, Moon Lake Wild Life Refuge, Campbellsport, Wis.
Egbert Jones, Ceres, Calif.
Dr. W. B. Large, Rochester, N. Y.
E. A. McIlhenny, Avery Island, La.
Martin K. Nelson, Fertile, Minn.
Dr. Miles D. Pirnie, Kellogg Bird Sanctuary, Battle Creek, Mich.
Joseph Powers, Flanders Club, Flanders, L. I., N. Y.
G. C. Riefel, Ladner, B. C.
Dr. Arthur Rotch, Boston, Mass.
H. D. Ruhl, Michigan Conservation Commission, Lansing, Mich.
Frank W. Robl, Ellinwood, Kans.
G. Stratton, Waco, Tex.
H. S. Turner, Penikese Island, Mass.
Wm. Vogt, Jones Beach Bird Sanctuary, Wantagh, L. I., N. Y.
Peter J. Van Huizen, Blackwater Migratory Bird Refuge, Cambridge, Md.
Julius White, Rochester, N. Y.
Edward Ward, Delta, Man.
H. M. Worcester, Tule Lake Migratory Bird Refuge, Merrill, Oreg.
Clarence Webb, Earleville, Md.
L. H. Wentz, Ponca City, Okla.

BANDS

Mrs. F. C. Laskey, of Nashville, Tenn., comments upon the fact that bands of Size 1A are not suitable for towhees, cardinals, or other birds with heavy bills. This is a fact, and on such birds cooperators should use size 2 or size 3 bands that have been cut down to the proper size. The diameter of No. 1A is correct for these birds but there are mechanical difficulties in the way of making a band this small from tempered aluminum. Nevertheless it is of the utmost importance that bands used on these birds be hard enough to prevent the birds from crushing them. This is a matter that should not be neglected by any cooperator. It is not considered good practice to lap size 2 bands when they are used on these birds as the lap gives the bird an opportunity to crush the band, whereas it cannot do so when the two ends butt together in ring form.

James P. Melzer, of Milford, N. H., reports similar experiences when banding evening grosbeaks and states that one bird, retaken about two hours after it had been banded, was found to have pinched the band so badly as to threaten serious injury. The size 2 bands issued during the present year are made of fully tempered aluminum, and if they are trimmed down to 1A size so that they will fit snugly, they should not cause any serious trouble.

If it becomes necessary to remove a band, obtain the services of an assistant to hold the bird. Full instructions for this operation are given on page 99 of the Manual, and if followed carefully there will be no trouble in removing an improperly placed band or one that has been mutilated by the bird. Be careful, however, to put all pressure and leverage on the band as the tiny bones in the tarsus of a small bird are easily broken.

This year bands of sizes 5 and 6 have been made somewhat larger. Size 5 is now large enough for herring gulls and for most of the larger ducks, although occasionally a mallard or black duck will be found with such a large foot that it will require size 6. Size 6 is correct for black-crowned night herons.

TRAPS

When this number of Bird Banding Notes was planned it was hoped that it would be possible to include drawings of several traps that have been reported to the Biological Survey during the last few months. Since, however, the issue is already large and the preparation of drawings would unduly delay its appearance it seems desirable to describe them briefly without illustrations in the hope that cooperators will be able to understand their construction. The various devices developed at banding stations and described in Bird Banding Notes will, of course, be available when it becomes necessary and desirable to issue a revised edition of the Manual.

Miss Dorothy A. Baldwin, of Hardwick, Mass., reported that she refitted her Potter traps with the trigger device developed by Howard W. Braun, of Canton, Ohio (Bird Banding Notes, vol. 2, no. 8, pp. 119-120, May, 1933), which she found to be very efficient. Nevertheless, the released trigger, swinging freely inside the trap, was found to be responsible for occasional injuries to captured birds which struck against it. The Survey suggested attaching a light weight to the outside

portion of the trigger so that when released the inner portion of the trigger wire would be held against the top of the trap. Miss Baldwin tried this and found that it solved the problem. She finds, however, that it is better to attach the weight to the inner part of the trigger rather than the outer portion. She attaches the weight just above, the last downward bend. This does not interfere in the least with setting or operating the device, and with the weight on the inner part of the trigger, the tip of the wire, when the trap is sprung, is brought close against the ground where there is no possibility of a bird striking against it.

M. M. Turner, of Water Valley, Miss., reports that at his station he has found the funnel type of trap superior to any other. As an automatic ground trap this probably is the best that has been tried, and it employs a principal that can be used successfully on other traps. Mr. Turner also reports that he and E. Earl Bell, also of Water Valley, banded more than 1,800 chimney swifts on September 28, 1933. He states that the birds came out of the chimney very nicely and did not cause any trouble by clogging the funnel leading to the receiving cage.

The so-called "Australian crow trap" that from time to time has been mentioned in Bird Banding Notes is figured and described in the 1933 summer issue of the Maryland Conservationist, pages 12 and 13. It is believed that as long as the supply lasts copies of this issue may be obtained on request addressed to E. Lee LeCompte, State Game Warden, 512 Munsey Bldg., Baltimore, Md.

Dr. J. E. Horning, of Edmonton, Alta., also has described to the Biological Survey, a crow trap that was developed a few years ago by Dan Patton, of Midnapore, Alta., a former bird-banding cooperator. Dr. Horning describes the trap as a pen of chicken wire, 10 or 12 feet square with the walls 2 or 3 feet high, and no top. The pen is baited for two or three days with the offal from a slaughtered beef or veal. After the birds are accustomed to feeding inside the pen the top is covered with wire netting. On one or more sides of the trap a passage, in the form of a trench, is dug under the wire. This should be 8 or 10 inches deep and about 10 inches wide and it should slope gradually from the inside and the outside, that is, it should be deepest immediately under the wire netting. Inside the trap and against the wire netting a piece of hardware cloth about 12 inches wide is laid over each passage, leaving ample room for the birds to walk under it. When a crow finds that it cannot get into the trap through the top, it drops to the ground and walks around the walls close to the wire, seeking an entrance. Finally it comes across one of the trenches which it follows into the trap pen. After feeding it will walk to the nearest point of the fence or wall and work all around it seeking a way out, walking on the hardware cloth over the trenches, not realizing that this is the way it got in. The result is that the birds that enter will walk around and around and few, if any will escape. Dr. Horning reports that Mr. Patton has caught as many as 70 magpies and crows in one day with one of these traps.

Glenn L. Berner, of Jamestown, N. Dak., has sent in valuable comments relative to some of the traps used in the specialized banding work carried on at his station.

In capturing burrowing owls he had his best success with steel traps the jaws of which were covered with a piece of split soft rubber tubing. He found it rather difficult to catch these birds in Dr. Brenckle's bottom-opening funnel trap, but nevertheless he states that this trap will catch them. Mr. Berner also gives as his opinion that Dr. Brenckle's 6-celled warbler trap seems to be about "the best bet" for warblers and vireos. He thinks that it might not be so effective near a water-course, but during the dry, hot days late in summer, he found that birds give it a great deal of attention.

C. E. Boardman, of Jamestown, N. Dak., has sent to the Survey a specimen of what he terms the "Pettibone snare", as it was described to him by L. C. Pettibone, of Dawson, N. Dak. The sample received consists of two pieces of 8-gauge galvanized iron wire about 30 inches long. These are bent in the middle at right angles and fastened together by wiring and soldering so that they form an X. Starting at one corner, soft brown hemp twine is carried around this frame support in courses about 5 inches apart, thus making a web to which horse hair snares are attached. The snares are made with loops 1 inch to 1 1/2 inches in diameter, and they are attached to the twine every 3 or 4 inches. The snare is placed flat on the ground and feed sprinkled over it. Mr. Boardman states that it is hard for a bird to walk across it without being caught. He observed that a bird snared by the foot does not alarm the rest of the birds but rather seems to hold them. He has taken as many as 12 from one feeding flock. The use of snares to obtain birds for banding is a more or less unexplored field and the Biological Survey has been hesitant about recommending them. Anyone experimenting with a device of this kind should keep it under constant observation, for if improperly used it might result in much justifiable criticism.

James Cosby, Jr., of Buffalo, N. Y., has transmitted two drawings accompanied by descriptions of traps he has developed. One of these is a modification of the false-bottom trap described in the Manual and the other is a water trap of his own design. When set the door of the false bottom trap is held out horizontally. A locking bail prevents the door from being opened from the inside after the trap has been sprung. Action of the door is speeded up by the use of a mouse-trap spring, the trap in this respect being similar to the one described in Bird Banding Notes, January, 1927 (vol. 1, no. 21, p. 13). Mr. Cosby states that he has found that the ordinary false-bottom trap is often accidentally sprung by wind or rain but that he has had no such trouble in the trap he developed.

Mr. Cosby's water trap is in some respects similar to the Lurvey combination trap figured on page 35 of the Manual. It has, however, a different trigger arrangement and there are two doors on top that fall together to close the opening, while at either end there are vertically sliding doors of the Potter type rather than the side-swinging type used in the Lurvey trap. Here again a mouse-trap spring is used to speed up the action of the top doors. When set the top doors are held apart by a jointed brace connected to a vertical guide extending down into the trap chamber to engage with perches near the central water tray. A bird alighting on one of these perches throws the jointed brace upward, which permits the top doors to close, which in falling pull the triggers that support the end doors.

E. Carroll Poler, of Medina, N. Y., has transmitted a sketch and brief description of a trap that he has found successful in the capture of bank swallows. He states that by its use he was enabled to catch 50 birds in about two hours. It consists of a light pine frame-work, triangular in cross section, measuring 50 inches long, 20 inches high, and 14 inches across the base. One side, 50 by 20 inches, is covered with a piece of auto curtain celluloid. The opposite side, being the part that lies against the nesting bank is, of course, left open, while the ends are covered with cheese-cloth or any light thread netting. A net bag also is suspended below the trap chamber. Thus the trap is similar in principle to the well-known chimney swift trap, in that the birds fly out of their nest holes, strike against the celluloid, and drop down into the bag below. As the celluloid is so close to the nest holes, the birds will not be injured in any way as they have not had space to acquire much velocity.

J. L. Primrose, of Raleigh, N. C., has submitted a drawing of a trap that he has found remarkably efficient. It is in effect a 3-foot cube made from no. 3 galvanized-wire hardware cloth. A T-perch made from a broom handle is placed in the center of the trap. Two openings are provided, one on top and one at the bottom. These are closed by strings, the top door having two strings by which it may be opened or closed at will. It is this latter feature that Mr. Primrose claims makes his trap particularly effective, for as he observes, frequently when a bird is caught other birds of the same or different species will gather and make every effort to enter. When a bird is trapped through the top door of a trap of this type it is possible, by closely watching the bottom door, to prevent escape of the first bird, to capture other birds that will enter through their eagerness. In other words he finds it possible, by manipulating the strings of the top door to admit other birds while still preventing the escape of those already captured. Mr. Primrose states that he has caught at one time as many as 6 birds of 3 species. He also has transmitted a drawing and description of a gathering cage that he has found effective, particularly when used with traps of large size. It is a 12-inch cube made of 1/4-inch hardware cloth. A door 6 inches square is provided at the bottom on one side, through which birds are driven from the traps, while a 4-inch door in the top is provided to admit the hand of the operator when removing captured birds.

Herbert Buckalew, of Milford, Del., has successfully used a snare in capturing adult ospreys for banding. A schedule submitted by him last fall contains banding records for 23 of these birds. Of these 17 were adults, the other 6 being juveniles banded at their nests.

BAIT

Edward N. Davis, of Shirley, Mass., and Winter Park, Fla., writes that the statement under this heading in the last number of Bird Banding Notes was somewhat misleading as it implied that he used bread for bait at his station at Shirley, Mass. On the contrary he has never found bread to be particularly good at his northern station although at the Florida station birds are readily attracted by it. Also, an error was made in stating that he toasted the bread. Mr. Davis writes that he has had many a good laugh over the mental picture of him toasting the large quantity of bread that he used last winter. Had he done this he thinks he would have had no time to go around to his traps. Mr. Davis writes that while he considers that his

discovery of bread as a good bait was a "lucky strike", all the toasted bread he has used was in that condition before he got it.

Miss Louise J. Miller, of Zion, Ill., has reported a rather unique means of attracting birds to the vicinity of her trapping station. She reports that during the hot, dry weather of last summer she made an observation that she believed to be rather significant. Although her lawn and shrubbery were not watered so regularly as those of her neighbors, she noted that after giving the ground around the traps a good soaking, more birds were found around them during the following day. It is possible that the fresh cool appearance of the ground around the traps was responsible, but the birds may have found a more practical reason in the food placed there for them.

Frederick C. Labahn, Jr., of Blue Island, Ill., reports that he has found sections of apples and pomegranates, and suet, to be good bait for starlings, while at his station, apples also have been a good bait for robins.

Glenn L. Berner, of Jamestown, N. Dak., reports that an excellent place to take grackles is in a corn patch, just at the time when the corn is passing from the roasting ear stage to ripeness. Birds go into these patches in large flocks and they appear to take instant notice of any traps that are set for them. Oats and barley for bait, with some chaff scattered around the traps gave gratifying results. Mr. Berner also reports several large catches of goldfinches made with a 4-foot drop trap generously baited with sunflower seed heads.

RETURNS

E. L. Sumner, of Berkeley, Calif., has reported an interesting return for wren-tit 91519. This bird was banded on March 22, 1925, by E. D. Clabaugh, in Strawberry Canyon, near Berkeley. Mr. Sumner has been banding in the same location since September 1930. He has trapped this wren-tit 13 times, the last time on February 21, 1934. He observes that as this bird must have been hatched not later than June 1924, if it lives until next June it will be at least 10 years old. The original band put on by Mr. Clabaugh is still in good condition.

Mr. Sumner reports another interesting return, this being for golden-crowned sparrow C161333. On April 6, 1933, he took 10 of these birds, including C161333, that had been trapped in Strawberry Canyon, and released them about 5 p.m. in a small wooded canyon near Hollywood, 400 miles south. This particular individual was recaptured on October 23, 1933, within a few hundred feet of the place where first trapped.

T. H. Wheeler, of Ann Arbor, Mich., reports a longevity record for blue jay 9612, which was banded on January 2, 1922, at Ann Arbor, by Scott A. Warthin. It was recaptured on November 17, 1933, at Ann Arbor, by Mr. Wheeler.

Another comparable blue jay case (439724) is reported by Mrs. Lucy Stock Chapin, of Hartford, Conn. This bird was banded on March 25, 1926. It was first captured in 1921 by Henry C. Denslow, and kept in captivity. After banding, the bird was liberated but it refused to leave, and on December 21, 1933, it was still in good condition.

E. Earl Bell, of Water Valley, Miss., had an interesting experience while banding chimney swifts on September 23, 1933. On this day he took 900 birds, among which were three of the 800 he banded at this point in the autumn of 1931. In addition, he had two foreign returns. One of these (A273308) was banded on May 2, 1932, at Hagerstown, Md., by W. W. Middlekauff, and the other (F24194) was banded on August 22, 1931, at Leetonia, Ohio, by Paul A. Stewart.

L. C. Pettibone, of Dawson, N. Dak., banded 3 redhead ducks on April 18, 1933. One of these (B636302) was killed at Cayuga Lake, N. Y., on November 26, 1933; the second (B636127) was killed the next day at Seneca Lake, N. Y.; the third (B636166) was killed on December 6, 1933, at the head of the Gunpowder River, Md.

F. J. Keller, of Antioch, Nebr., reported the seventh consecutive return for the famous mallard that carries band 555414. She was originally banded on November 29, 1927, and has returned to his station to nest every year since. Her date of return this year, February 4, 1934, is the earliest yet recorded, although in 1932 she was recorded on February 21.

Gannet 313778, banded on September 2, 1924, at Bonaventure Island, Que., by Wm. M. Duval, was found dead about December 16, 1933, at Rockaway Point, Long Island, N. Y.

Mallard 305068, banded on March 27, 1924, at Portage des Sioux, Mo., by John Broecker, was shot November 22, 1933, at Kaskaskia Island, Randolph County, Ill.

Blue-winged teal A539662, banded on August 29, 1932, at Forest Lake, Minn., by Walter P. Houle, was killed February 17, 1934, between Gonaives and St. Marc, Haiti.

Woodcock A408449, banded on December 16, 1932, at Fairhope, Ala., by Mrs. W. H. Edwards, was shot October 31, 1933, at Sydney, N. S.

Semipalmated sandpiper L1986, banded on August 29, 1933, at North Eastham, Cape Code, Mass., by Dr. O. L. Austin, Jr., was recovered September 24, 1933, at Carupano, Venezuela.

Crow A519168, banded on April 6, 1932, at North Eastham, Mass., by Dr. O. L. Austin, Jr., was killed October 22, 1933, at Mira, Cape Breton, N. S.

Bullock's oriole F110559, banded at Coachella, Calif., on August 11, 1933, by Mr. and Mrs. Ben L. Clary, was recaptured about February 9, 1934, at Lareto, Lower California.

Bronzed grackle 352032, banded on June 26, 1925, at Indianapolis, Ind., by S. E. Perkins, III, was found dead at Riverside Park, Indianapolis, Ind., March 21, 1934. This is one of the oldest grackles, if not the oldest thus far reported.

Evening grosbeak B261619, banded at Sault Ste. Marie, Mich., on October 12, 1933, by M. J. Magee, was trapped and released at Milford, N. H., February 26, 1934, by James P. Melzer.

Evening grosbeak A275847, banded at Blaney, Mich., on March 11, 1932, by Dr. Karl Christofferson, was trapped and released at Presque Isle, Maine, February 28, 1934, by G. D. Chamberlain.

Purple finch 135603, banded at Northeast Harbor, Maine, on June 21, 1924, by Mrs. Eleanora S. Morgan, was trapped and released at Bar Harbor, Maine, April 28, 1933, by Mrs. Effie A. Anthony.

White-throated sparrow C102618 was banded on November 16, 1932, at Ambler, Pa., by Charles Platt. It repeated six times up to December 31, 1932, when it disappeared. It returned to the station on April 4, 1933, and in the fall of 1933 it was the first whitethroat to be taken in Mr. Platt's traps, being captured on October 29.

Tree sparrow 495285, banded on November 24, 1929, at Milton, Mass., by W. R. Peabody, was retrapped at that station December 25, 1930, February 28, 1933, and December 12, 1933.

Junco F26935, banded on November 2, 1932, at Elmhurst, L. I., N. Y., by Mrs. Marie V. Beals, was recaptured and released at Shelbyville, Ind., about November 8, 1933.

Fox sparrow B126789, banded on October 25, 1930, at Wolfeboro, N. H., by Ralph G. Carpenter, II, was retrapped at Elmhurst, L. I., N. Y., November 9, 1933, by Mrs. Marie V. Beals.

Loggerhead shrike B166224, banded in the nest on June 25, 1933, at Carmangay, Alta., by Dr. and Mrs. J. E. Horning, was killed at The Grove, Tex., December 22, 1933.

Note. - As this issue goes to press, word is received that Lewis O. Shelley, of East Westmoreland, N. H., is conducting a bluebird study and desires to correspond with other operators in New England who have worked with these birds, particularly if the banding has been done in September, October, or November. The Survey considers such investigations as being very much worth while, and it is hoped that any cooperators who believe they can help in this instance will get in touch with Mr. Shelley.