

MEMORANDUM

TO : All Banders

April 22, 1970

MTAB-14

FROM : Chief, Bird Banding Laboratory
Migratory Bird Populations Station
Laurel, Maryland 20810

SUBJECT: 1. Banding Data File Edit - Current Status..... page 1
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1. Banding Data File Edit - Current Status.

The Quality Control Edits of the North American Bird Banding Files discussed in MTAB's 12 and 13 are finally "in gear". Some of the reasons for these edits were outlined in MTAB-12. MTAB-13 included a brief progress report. Judging from conversations and correspondence during the past year, there is still some confusion as to what we are attempting to accomplish and what progress we are making. The following comments are intended to bring you up-to-date.

Please bear in mind that these comments pertain only to the "File Edits". The operational "Report to the Hunter" system used to acknowledge band recovery reports and enter new banding and recovery data into the files is a separate (although closely related) story.

The files we are editing are:

- a. The Banding Summary File - 1,792,553 records representing 14,719,156 birds (plus an additional 10,474 records representing an unknown number of birds. These records have errors in the "Total" fields so it is not yet possible to accurately determine how many birds are represented).

This file contains the summarized banding data for all:

- (1) Game birds banded from "Year 1" (around 1914) thru December 31, 1966.
- (2) Non-game birds banded from 1955 thru December 31, 1966.

When tabulating machines were first used to handle banding data, the volume of data was such that the equipment available was not able to handle them on a bird-by-bird basis. To reduce the volume of the files, these data were "summarized". That is:

all birds of the same species with the same "status and additional information" codes, banded under the same permit number, within the same 10' block of latitude and longitude during the same month or 5 day period (game birds were summarized on a 5-day interval, non-game birds were summarized on a monthly basis) were "totaled" into a single record. Game birds were further summarized by sex and the records contain "age" sub-totals. Non-game Summary Records contain both age and sex sub-totals. Thus, one summary record could represent anywhere from 1 to 99,999 birds.

Since the summary records do not contain band numbers, it is extremely difficult to maintain adequate "control" or to make necessary deletions, modifications or corrections.

- b. The Banding Tub File - 3,426,808 records, each representing 1 bird. Each record contains all the numeric data from your schedule (including the band number) for each bird banded. The file total noted above represents data for birds banded since January 1, 1967, entered into this file through December 7, 1969.
- c. The Tub File Index (T.F.I.) - The volume of data in the "Tub File" was so great that the entire file could not be handled in band number sequence on our computer. To solve this problem until we could shift our systems to a larger computer, we "sub-divided" the "Tub File" into several "volumes". Data in each "volume" were in band number sequence and a "Tub File Index" containing only band numbers, volume numbers and a few other bits of data was used to "keep track" of the location (which volume) of data for each band number.

The need for this file ceased this January when our operational "Report to the Hunter" systems were modified for use on a much larger IBM 360/65 computer located in Washington, D. C.

- d. The Recovery Statistical File - 1,490,909 records, each representing an "encounter" with a banded bird. Each record contains both numeric banding and numeric recovery data.

This file contains all such data for both game and non-game species banded since "Year 1".

Once the decision to proceed with the edits had been made, it was necessary to:

- a. Determine just what "legal" codes we were likely to encounter in the files. Since the machine files contain data going back to the days of the "American Bird Banding Association", which pre-dated the "Bureau of Biological Survey" era, which in turn pre-dated the present "U. S. Fish and Wildlife Service", this required a lot of digging and some imagination.

Once the "legal" codes had been determined (we are still not sure we have them all) it was necessary to outline a series of tests which would accept "legal" codes (during the time periods they were "legal") and reject "illegal" codes (or reject "legal" codes during "illegal" time periods). For example:

"Age" code 3 - How many of you can define an "age code 3" bird? Better still, how many definitions of that code can you find? So far, we have found about 3 "official" definitions. This code was "legal" through 1961 but became "illegal" after 1961. Examples of other "illegal" codes would be sex codes other than 0, 4, 5, 6 or 7 (we found some) or permit numbers that had never been issued (we found some of those, too).

- b. The next step was to outline a series of tests which would compare one code in a record against other codes in that same record to detect illogical conditions. For example:

The "date banded" is checked against the "date recovered" to make sure the bird wasn't "killed" or "recaptured" before it was banded. This check sounds fairly simple until you take into consideration the effect of the "Indefinite Recovery Date" codes which are used for recovery reports with incomplete or questionable data. The specifications for this single check fill two typewritten pages.

The "band size" is checked against the "AOU" number. This check (rather gross since it can't be done for bands smaller than size 2) is intended to detect erroneous AOU or band numbers. More than 19,000 AOU vs. band size discrepancies were found in the Recovery Statistical File. (See Subject No. 2 in this MTAB.)

- c. Following this, we outlined a series of tests in which data within one record in a file are matched against data in other records in that same file. These checks are intended to detect such things as duplicate records or, in the case of the "Recovery Statistical File", to detect "live encounters" after a "dead encounter" for the same bird had already occurred.
- d. The final step in the planning stage is the outline of a series of tests in which data in one file are matched against data in another file. These checks will detect records in the "Recovery Statistical File" for which corresponding data are not present in the Banding "Summary or Tub" Files.

It was necessary to finalize the criteria for each step outlined above before Mr. Bauer's Electronic Data Processing staff could begin their work - that of converting the scores of pages of notes, code-sheets, memos, agreements and disagreements which have accumulated so far into a series of Flow-Charts and coded instructions which can be understood by both our Station's IBM 360/20 and a 360/65 computer located in Washington, D. C. As those of you who are involved in data processing are aware, the operating systems of these two machines are not fully compatible, which complicates things a great deal.

The full documentation of the Banding Data File Edits will require hundreds of pages (and this type material is much less verbose than that found in "MTABs").

Due to a continual lack of personnel, problems encountered in shifting much of our operational "Report to the Hunter" computer system from our IBM 360/20 computer to a 360/65 computer in Washington during this same time period, a continually increasing "routine" workload, and other problems (See Subjects 6 and 7 elsewhere in this MTAB.), the Banding Laboratory staff has been able to work on the "File Edits" only on a "part-time" basis.

The same is true of the staff in Mr. Bauer's Electronic Data Processing Section. Although computer specialist Bob Shanahan has been assisted by Mrs. Colmore and other programmers, most of the design and programming of both the "Report to the Hunter" system and the "File Edits" have been "his baby".

Because of these problems, we have not been able to wrap the entire edit problem up in "one package" and clean up the files in "one fell swoop". Instead, we have divided the operation into several "phases".

The Table on page 7 outlines the progress made in completing the edits.

As indicated in the Table, data in each file are subjected to several "actions" during each "phase".

The entries in the "PHASE" column are further defined below:

Phase I - Code Check - The purpose of this phase is to insure the "legality" of the numbers in the data before we begin the record vs. record (within file) or file vs. file (between file) checks.

Phase II - Within-File - This phase checks data in one file against other data in the same file. The main purpose of this phase is the detection of duplicate records.

Phase III - Between-File - This phase checks data in one file against data in other files.

The entries in the "ACTION" column are defined below:

- a. Edit - Refers to the actual, physical passing of the data tapes through the computer and matching each bit of information against the "acceptable conditions" incorporated into the edit programs.
- b. Resolution - As the data tapes are passed, the computer "kicks-out" any record which does not meet all the "acceptable conditions".

Miss O'Loughlin, Senior Clerk in the Banding Lab's Control/Correction Unit (plus whomever else she can shanghai from other projects), bears most of the load of examining these "kick-outs", locating pertinent source documents (banding schedules, issue records, recovery letters, etc.) and, when possible, resolving the discrepancy. When she can't, she passes the problem to the Biological staff for resolution (or sympathy). Frequently correspondence with the person who used or recovered the band is necessary before the problem can be resolved.

- c. Re-Entry - Each of these "kick-outs" must be accounted for until the discrepancy is resolved. This requires a complex set of manual control procedures in the C/C Unit as well as a series of Computer Extraction and Re-Entry Programs.

The volume of discrepancies and time needed to resolve many of them is such that "resolved data" will be "dribbled" back into the Master Files over a period of many months (years?). Since, at some point in time, we will resume honoring requests for data from these files,

we must be able to determine how many records are "out" of any file at any time.

- d. Incorporate Logic (Inc. Logic) - After the data in a file have been "edited", all of the computer systems used to enter data into that file must be modified to incorporate the same checks used in the "Edits". This insures that "new" data receive the same "quality" checks the "old" data received during the Edit, thus maintaining the level of quality gained by the Edit.

As can be seen by the accompanying Table, more emphasis has been placed on editing data in some files than in others.

We concentrated first on the "Tub File vs. Tub File Index" edits since it was necessary to resolve discrepancies between these two files in order to get the "Report to the Hunter" system operational.

Second priority was placed on editing data in the "Tub File". Since the computer extracts data from the "Tub File" to process recoveries, it was important to verify the validity of these data as soon as possible since any "corrections" made to data in this file would result in "cleaner" data being entered into the "Recovery" File and transmitted to:

- a. persons who report recoveries of banded birds,
- b. recipients of "Report to the Bander" cards,
- c. recipients of "Supplemental P & I" cards (See MTAB-11),
- d. State and Provincial conservation agencies who receive:
 - (1) "Periodic Listings of Recoveries of Game Birds" sorted by state of banding,
 - (2) "Periodic Listings of Recoveries of Game Birds" sorted by state of recovery.

Our emphasis is now on the resolution of discrepancies in the "Recovery Statistical File" - the file from which most data used for analytical purposes are extracted.

Since we expect the largest number of discrepancies to be encountered in the Banding Data Summary File, and since data from that file are in less demand than those from the other files, the Summary File will be the last to be completely edited.

Future issues of MTABs will keep you posted on our progress.

Banding Data File Edit - Current Status

PHASE	FILE	ACTION	STATUS	NUMBER OF DISCREPANCIES*	
I.	Code Check	A. Tub	1. Edit	Done	58,048
			2. Resolution	"	
			3. Re-Entry	"	
			4. Inc. Logic	"	
		B. T.F.I.	N/A	N/A	-
	Recovery	C. Recovery	1. Edit	Run 4-13-70	110,552
			2. Resolution	"Kick-Outs" not yet rcd. fm. EDP	
			3. Re-Entry	Computer Programs being documented	
			4. Inc. Logic	Being Designed - Tgt. date 8-24-70	
		D. Summary	1. Edit	Partially Prog.	-
			2. Resolution	-	
			3. Re-Entry	Partially Prog.	
		4. Inc. Logic	Under Study		
II.	Within File	A. Tub	1. Edit	Done	67,390
			2. Resolution	"	
			3. Re-Entry	"	
			4. Inc. Logic	"	
		B. T.F.I.	N/A	N/A	-
	Recovery	C. Recovery	1. Edit	Being Programmed	
			2. Resolution	-	
			3. Re-Entry	-	
			4. Inc. Logic	-	
		D. Summary	1. Edit	Done	10,474**
			2. Resolution	Being Held	
			3. Re-Entry	System Ready	
		4. Inc. Logic	Being Designed		
III.	Between File	A. Tub vs. T.F.I.	1. Edit	Done	10,633
			2. Resolution	"	
			3. Re-Entry	"	
			4. Inc. Logic	N/A	
		B. Tub vs. Recovery	1. Edit	Partially Prog.	
			2. Resolution	-	
			3. Re-Entry	-	
			4. Inc. Logic	-	
		C. Summary vs. Rec.	1. Edit	Under Study	
			2. Resolution	"	
			3. Re-Entry	"	
			4. Inc. Logic	"	

* Except as noted, refers to discrepancies detected. In some cases more than 1 discrepancy per record was detected.

** This number refers to Summary Records. Each record may represent from 1 to 99,999 birds.

2. Revised Banding Manual.

Over the past few years we have heard murmurings from the banding fraternity, hinting that a revision of the banding manual might be desirable. Typically, our response has been a decisive "Gee, we'd like to but". Our most current "but" has been our reluctance to put out anything resembling a revised banding manual with the knowledge that portions of it would become obsolete in the foreseeable future.

As soon as the Banding Data File Edits are completed, some of the code systems are due for a major overhaul. We had hoped to have the edits completed and make these code conversions this summer. It's now apparent, due to existing workloads and personnel ceilings in the Banding Laboratory and Electronic Data Processing Section, that it will be impossible for us to accomplish the code conversions this year. Since this is the case, we are unable to come up with any acceptable (even to us) reason to delay the banding manual revision any longer.

Budget permitting, we hope to have at least a revision of the Reporting Procedures Section of the manual in your hands some time this year.

One of the sections of the existing manual we wish to bring up to date is that portion setting forth "recommended band sizes". In MTAB-13, we asked all banders to let us know of any additions or modifications of the existing list.

Approximately 2,000 master permittees (plus a large number of sub-permittees) received MTAB-13, but so far only ten have suggested modifications. This would indicate the other 1990 + recipients either:

- | | |
|---------------------------|--|
| a. don't read MTABs, | d. are satisfied with the present list, or |
| b. don't read the manual, | e. don't give a darn. |
| c. don't band birds, | |

IF YOU BELIEVE ANY OF THE RECOMMENDED BAND SIZES IN YOUR BANDING MANUAL ARE INAPPROPRIATE, PLEASE LET US KNOW. WE WOULD APPRECIATE RECEIVING COMMENTS BEFORE JUNE 1 SO WE CAN REVIEW THIS INFORMATION AND BEGIN TYPING.

3. Banding Schedule Submission Timetable.

We have just barely "dug out from under" the influx of banding schedules received during December-January-February. Many banders have needlessly

been put to the bother of completing and forwarding (via pink postal card forms, 3-860a - See MTAB-6, page 3), data they had already forwarded on schedules "buried in the backlog" in the Banding Laboratory. Likewise, many persons reporting recoveries have experienced an additional delay of several weeks to several months while we went through the motions of querying banders for data already here (but "lost" in the backlog). The hope of eliminating this annual "end of the year deluge" of banding schedules is what prompted the revised timetable for the submission of banding data outlined in MTAB-6 and referred to in MTAB-13. If you missed the notification in MTAB-13, or if the timetable outlined on pages 14, 15 and 16 of MTAB-6 have slipped your mind, please pull out your copy of MTAB-6 and refresh your memory.

DON'T FORGET THAT SCHEDULES FOR NON GAME-BIRDS MUST BE SUBMITTED TO THE BANDING LABORATORY AS SOON AS POSSIBLE AFTER COMPLETION OF THE STRING OF BANDS. THIS IS NO LONGER AN OPTIONAL PROCEDURE.

Game-bird banders, especially the "responsible individuals" for state conservation agencies, should refresh their memories and remind their personnel of the timetable for the submission of "Pre-", "Post" and "In-Season" banding data.

In order to assist you in remembering these revised timetables, we now routinely check your folder for the most recent banding schedule submissions prior to honoring any band order or taking action on any permit renewal or revision.

If data are overdue, the permit action or band order will be held until such time as the records are received.

Please help us help you by forwarding your data regularly.

4. Availability of Additional Copies of MTABs, Etc.

As most of you are aware, we enter only the name and address of "Master Permittees" into our mailing list. Thus "Sub-Permittees" do not receive "MTABs", "Bird Banding Notes", etc.

We had (rather naively) assumed most Master Permittees passed this information to their sub-permittees. Inquiries concerning the resolution of discrepancies detected in the "File Edits" indicate most sub-permittees (in many cases the person who actually bands the birds) have never seen an MTAB, and that Master Permittees "never find time" to discuss these procedures with them. Please pass these communications along to your sub-permittees.

Although we will not mail this material directly to your sub-permittees, we can modify our mailing list to provide you additional copies for distribution to your people.

IF YOU WISH ADDITIONAL COPIES OF THIS MATERIAL, PLEASE LET US KNOW. Be sure to indicate how many additional copies you wish.

5. Banding Nestlings - Reduction of Nest Predation.

Depending upon the speed with which we can get this MTAB mailed to you, we are either about to enter, or have already entered the period when many banders visit nests for the purpose of banding nestlings. It is well known that the "scent trail" left by a human visiting a nest probably attracts predators to the nest. I had the pleasure of sitting in on a discussion of this problem some time ago during which several "antidotes" were discussed. After this meeting I asked Fran Hamerstrom to summarize some of these ideas for distribution to all banders.

Her comments, given below, deal primarily with raptor nests, but many of the "hints" would also apply to other species. We would appreciate comments or suggested techniques from other banders.

Some Hints to Reduce Nest Predation

by Frances Hamerstrom

Most raptor nest predation is by mammals. It behooves banders of nestlings to "think with a good nose". Be careful not to leave a scent trail for cats, dogs, racoons or other predators to follow.

Nests in Trees

Start up the tree with a ladder (it leaves no scent up the trunk), or throw a rope over a branch and climb the rope, keeping clear of the trunk.

Another solution, recommended by Bob Dandrea, is to place naphthalene crystals ("moth balls") at the base of the tree. Tom Ray writes that an animal inhaling a nose-full of the fumes usually retreats to re-evaluate the consequences of raiding a nest protected by such noxious odors. Dandrea's idea of using the crystals is especially ingenious as naphthalene fumes are heavy and several handfuls of crystals, spread about the base of the tree, will settle in the ground cover and stay there for a long time -- certainly until the human scent has disappeared. Scattering crystals on the ground comprises the first barrier. A second barrier, for example a burlap collar containing naphthalene crystals, should be installed about six or seven feet below the nest.

WARNING - NAPHTHALENE FUMES ARE TOXIC. STORE IN AN AIRTIGHT CONTAINER.

Some banders spray the trunks of nest trees with commercial repellants designed to keep pet dogs off the furniture. It is possible that such products, particularly those with an oil base, might be worth a try.

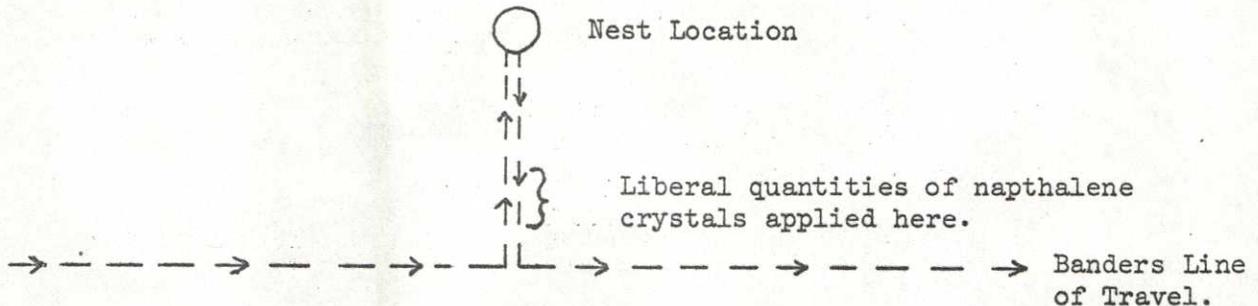
William Robinson suggests nailing wide metal collars around the trunk of the tree, camouflaged with spray paint to make them less conspicuous. Napthalene crystals, however, may well be as effective and are less conspicuous.

Some cliff nests have trails leading to them and napthalene on the trail should increase their security.

Nests on the Ground

If you are aware of the actual nest location, it is best to approach it on a path which would lead past the nest. When you are adjacent to the nest, you should turn at right angles to your path of travel, walk directly to the nest and band the nestlings. Once you have banded the nestlings, retrace your steps to your original line of travel.

On the return trip from the nest, sprinkle your trail with liberal quantities of napthalene crystals. When you reach your original trail, you should again turn at right angles and continue in your original direction of travel (see the sketch below). Thus any predator who picks up and follows your original trail would be discouraged from turning off and following your side trail to the nest. He would be more likely to continue following your trail in your original direction of travel.



6. Sorry Arizona - Congratulations(?) Kentucky.

In MTAB-13 we used the date of our receipt of the Arizona Game and Fish Commission's pre-season mourning dove and band-tailed pigeon schedules as an "example" of problems created by late data submission. Some people have assumed that Arizona now holds the "record" for "tardy" game-bird data submission. I'd like to take this opportunity to assure Arizona and all other "MTAB" readers that the use of Arizona's records was merely a matter of expediency. Their records happened to be "at hand" at the time MTAB-13 was written.

As things now stand (as of April 20, 1970), Arizona at best has only a tenuous hold on third place.

They lost the "record" when the New York Department of Conservation's 1969 pre-season dove banding schedules didn't arrive until March 16, 1970.

New York held the title only a short time before they were "knocked out" of first (last?) place by the April 13 and 20, 1970, arrivals of the Kentucky Department of Fish and Wildlife Resource's 1969 pre-season mourning dove banding data.

Congratulations Kentucky!

7. THE REST OF YOU" - Again.

Last April 16 (MTAB-12, page 6), we pointed out that for various reasons we were unable to prepare and mail our usual series of reminders and follow-ups to coax records from reluctant banders. To expedite clearing our files, we published a list of the names of persons or agencies from whom we had received no reports.

The original list contained 226 names, including 15 which should have been omitted. Appropriate apologies were made to these 15 banders in MTAB-13.

MTAB-13 also encouraged banders to review MTAB-12 and to give any of their friends who were listed a "gentle reminder" that their end-of-the-year reports were coming due.

We also expressed our wish that this year's list of "THE REST OF YOU" would consist of a "Negative Report".

Judging from the number of "THE REST OF YOU" who haven't managed to find time to forward 1969 data or a 1969 "Negative Report", it is apparent that many banders apparently have no friends, and the powers that control our destinies have more important things to do than fulfill the wishes of Bird Banding Laboratory types!

We are not quite sure whether to be encouraged, or discouraged, by the fact that this year's list of "THE REST OF YOU" contains only 203 names, whereas last year's list (should have) contained 211 names. The improvement can scarcely be described as overwhelming.

That 48 names on this year's list also appeared on last year's list is hardly grounds for encouragement. Names of "repeaters" are identified by an *. Since we are somewhat limited in the amount of space we have available to list these names, we doubt that it would be possible for us to enter two ** beside a name. Single * banders should keep this in mind as 1970 reports come due.

Following is a list of the names and permit numbers of those persons or organizations from whom, as of April 20, we apparently had received neither 1969 banding records nor a "Negative Report". Please check the list for your name or permit number. If they are present and:

- a. you have submitted your 1969 data, please let us know. Indicate the approximate date you mailed your schedules and some of the band numbers. We will triple-check (we double-checked before we prepared the list) to make sure your schedules didn't slip by our check-off system.
- b. you accomplished no bandings during 1969 and did submit a "Negative Report", please let us know the approximate date you submitted your report so we can again triple-check our files.
- c. you have not yet submitted your 1969 data nor a "Negative Report" for your permit number, please do so before May 12.

ANY BANDER FROM WHOM WE HAVE NOT RECEIVED 1969 RECORDS, A "NEGATIVE REPORT" OR A GOOD REASON WILL FIND HIS PERMIT SUSPENDED EFFECTIVE TUESDAY, MAY 13, 1970.

Any bander beside whose name an * appears, should accompany his overdue 1969 banding schedules or his overdue 1969 "Negative Report" with a rather detailed explanation of his need for a banding permit. If this need centers around "ornithological research" in which you are engaged, please include a resume of the goals of your research project(s). Be sure to include the estimated date upon which the results of your research will be submitted for publication, and to what publication you plan to submit them.

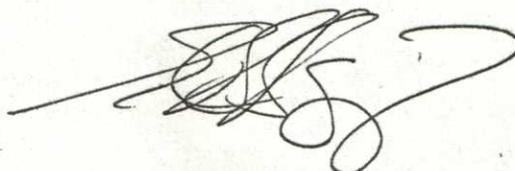
If an * appears beside your name and you are a U. S. Fish and Wildlife Service employee, please route the "detailed explanation" to the Banding

Laboratory via your Regional Supervisor. BSF&W Division of Research personnel should route these reports to the Banding Laboratory via the Washington office of the Division of Research.

<u>Name</u>	<u>Permit #</u>	<u>Name</u>	<u>Permit #</u>
Alamia, L., Miss	9701	Emery, E. I.	7537
Anderson, A. H.	5834	Enderson, J. H., Dr.	0671
*Alexander, R. M.	9428	Erickson, M. M., Dr.	4377
Antarctic Banding	8058	*Estes, R. R.	8675
Anthony, L. W.	9880	Farner, D. S., Dr.	6239
*Arkansas Game & Fish Dept.	6569	Ficken, M. S., Dr.	9652
Armitage, J. H.	7771	*Fish, J. L.	8836
Axelson, K.	9559	Forrester, D. J., Dr.	9875
BSF&W Reg. Dir., Boston	8102	Fort Niobrara NWR	7684
Bawdon, E. D.	8700	Fosberg, M. A.	5856
Behle, W. H., Dr.	4771	Fretwell, S.	8721
Bolin, C., USGMA	9802	*Fuchs, W., USGMA	8492
Bosak, E. M., USGMA	7885	Gale, N. B., Dr.	9172
Bridges, R., Mrs.	9045	Galindo, P., Dr.	0916
Broadbent, G. D.	9833	*Gangel, F.	8514
Brouchoud, B. N.	7412	Gates, J. M., Mr. & Mrs.	8201
Byrne, J. R.	9757	Gauerke, A. F.	9402
Cant, G.	8029	Gill, J. A.	9890
*Catahoula NWR	8593	Glover, F. A., Dr.	7335
*Chamberlain, J. L. Dr.	8506	Glover, L. E., USGMA	7498
Chandler, B. W.	9550	*Godin, A. J.	9623
Christie, J. F., Mrs.	8811	Goyette, J. D.	9105
Cooper, T.	9704	Grays Lake NWR	9543
Corchran, C. E.	9877	Gregory, S. H.	9657
Cotte, R., USGMA	8194	Guam Division of Fish & Game	9796
Cracraft, J. L.	8508	Gulf Island NWR	8319
Crandall, J. D.	7145	Haleakala National Park	9356
Cross, J. E., USGMA	9711	*Hall, B., Mrs.	9048
Crowell, K. L.	0695	Hall, D. L., USGMA	9473
Davenport, D., Jr., USGMA	9509	Hall, J. R., USGMA	9732
Delaware Brd. of Game & Fish	6961	Halverson, N.	8591
*Delta NWR	6253	*Hamnett, W. L.	9043
Diffendall, W. E., USGMA	7834	Handy, P. D.	8436
Dingledine, J. A.	9495	Hanneman, W. W., Dr.	9558
Dixon, K. L., Dr.	2992	Hanson, R. C.	7689
Downhower, J. F., Dr.	9847	Hardister, J. P.	9462
Drawz, C. A.	9881	*Harris, R. S., USGMA	7416
Dumont, H., Mrs.	9813	Haven, R. R., Mrs.	8376
Eadie, J. D., USGMA	7598	Hawaii Div. of Fish & Game	8487
Elder, A. W., USGMA	3560	Hawksley, O., Prof.	6473

<u>Name</u>	<u>Permit #</u>	<u>Name</u>	<u>Permit #</u>
Heck, O. A.	9511	Noltemeier, A. P. USGMA	7559
Heintzelman, D. S.	8229	Nun, G. J., USGMA	8328
Hess, A. J., Mr. & Mrs.	8638	Oceanic Institute	9848
*Hitchner, J. G.	7109	Ohio Coop Wldf. Res. Unit	7086
Hoke, G., Mr. & Mrs.	7839	Oklahoma Dept. Wldf. Con.	6525
Holt, J. P., Miss	8258	*Olsen, T. D.	8817
*Holyoke, J. B., Dr.	8453	*O'Neill, E. J.	8713
Howe, L. L.	5660	Oswalt, C. H., Mrs.	9783
*Howell, J. C., Dr.	4910	Pantelidis, V., Mrs.	7931
Ingram, T. N.	8469	Parker, B. W., USGMA	8983
Jackson, W. B.	6712	Parker, H. W., Mrs.	9868
Jervis, R. A., Dr.	9841	Patterson, S. W.	9682
Johnston, H. C.	9365	Peelle, M. L.	5477
Johnson, N. K., Dr.	9049	*Peters, H. S.	6707
Keller, C. E.	9887	*Pfitzer, D. W.	9332
Kenaga, E. E.	7516	Probst, J. R.	9857
Kensinger, W. R., USGMA	9341	Purinton, R. D., USGMA	9449
*Kern Pixley NWR	9013	*Pursley, A. G., USGMA	8670
*Kimmich, J. M. & R. B.	8427	*Quay, T. L., Dr.	9056
*Kirkland, D., USGMA	9516	*Ralph, C. J.	9082
Kirven, M. N.	9320	Ramsdell, G. T.	7232
*Kleiner, E. S.	9661	Rand, A. C., Miss	9883
Lake Woodruff NWR	9292	Reimlinger, G. E.	9620
*Lehrman, D. S.	9627	*Reynoldson, L. J., USGMA	8687
Leineke, C.	9817	*Rice, J. N.	6489
Lesser, F. H.	9345	Richardson, C. H., Jr., USGMA	7577
Ligas, F. J.	7690	Riley, D. F.	9541
Loftin, H.	8017	Schnell, G. D.	8649
Long, W. E.	9716	Schnitzer, A.	6888
*Lynch, J. J.	6706	Scott, F. R.	7790
Lyon, D. L., Dr.	9421	Scudder, C. E., Mrs.	9387
Madsen, C. R.	9463	Shaub, B. M., Prof.	6466
*Martin, A. J.	8855	Shaw, R. L., Mrs.	0905
*Matlock, J. M.	8568	Sheldon NWR	6685
*Mayne, B. R., Dr.	8906	Sheldon, W. O.	9282
McKenzie, D. S.	8419	Shorter, D. A., Dr.	9793
Mehner, J. F.	7277	*Sibley, C. G., Dr.	5453
Merritt, R. E.	8123	Sincock, J. L.	9551
Miller, S. T., USGMA	7706	*Skarda, R. G.	9390
Minick, J. E., USGMA	9073	*Slater, K. R.	7902
*Moeding, J. E.	8615	Smith, R. N.	9275
Moholt, W. K., USGMA	9007	Smith, W. P.	9885
Musselman, T. E., Dr.	2262	Smithsonian Institution	9700
Nicholson, W. W.	8033		
*Niemeyer, A. E., USGMA	7641		
Nighswonger, P. F., Dr.	5695		
Noden, C. M., Mrs.	9280		

<u>Name</u>	<u>Permit #</u>	<u>Name</u>	<u>Permit #</u>
*Snow, W. D., USGMA	7833	Udvardy, M. D., Dr.	0777
S. D. Coop Wldf. Res. Unit	9262	*Umatilla NWR	9589
Spear, A. P.	8079	UCB Arbovirus Field Station	9869
Stallcup, P. L., Dr.	9712	Vossler, E. W., Mrs.	8842
*Stapp, W. B.	7471	Wallace, G. J., Dr.	5586
*Starzyk, M. J., Dr.	8967	Webster, C. G.	6639
Stieg, G. D.	9858	*Wiens, J. A., Dr.	9496
Stiles, E. W.	9061	Welder Wildlife Foundation	7507
*Sumrell, J. A.	9064	Williamson, P., Mrs.	9370
Sutton, G. M., Dr.	5096	Wilson, G. H., USGMA	9012
Swendsen, D. H., USGMA	9020	*Wilson, L. G., Dr.	9290
Szijj, L. J., Dr.	9267	Wisconsin State University	9524
Tamarac NWR	6258	*Wolfson, A., Dr.	5636
Tate, J. L., Dr. & Mrs.	9022	Woodard, G. R.	9039
*Teer, J. G.	8597	Woolfolk, E. J.	6476
Tordoff, H. B., Dr.	7155	Worthen, G. L.	9886
Tucker, H. G.	7836		



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