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AN IMPROVED METHOD OF DETERMINING BAND NUMBERS ON ILLEGIBLE BANDS

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MANY of the banders who have been doing work with ducks, geese and shore birds have found that the bands, after a number of years, become so worn that they are illegible. Some of the banders find large numbers of these illegible bands during any one season. In October 1941 Mr. E. A. McIlhenny* mentioned some of these bands which were taken during the winter of 1941. I contacted Mr. McIlhenny asking him for some of these illegible bands upon which to experiment in an effort to determine band numbers.

Any bird bander resents not being able to determine the band numbers on his bands. When he can not complete the story of the bird a sense of futility hardly compensates for the hard work expended in trapping and banding these birds. With that in mind I began my experimentations by using first, ultra violet light. Certain digits on these old bands were brought out more clearly by the ultra violet light, but this method failed to bring out the exceptionally worn parts of the band, and was discarded as of little use in the final picture.

The next method attempted was the use of x-ray. I found that the alloy in the band was sufficient to make the entire band opaque to the x-ray. This method was not successful, and did not help in any degree to check additional digits on these bands.

The third and final method used was that of a slowly eroding solution which will attack the aluminum band as well as the copper band. The solution used by Mr. McIlhenny was that of an acid bath which was exceedingly strong. The principle of the two solutions is identically the same, that of erosion of the metal leaving the numbers exposed because of the compression of the molecules due to the stamping of the band. A slower eroding solution brings the numerals out after two or three applications, whereas the

*E. A. McIlhenny, *Bird Banding*, 12, No. 4: 168.

stronger acid solution erodes the numerals and the rest of the band so rapidly that you may miss the numbers when they become apparent.

The solution advised here is the use of the following formula.

$\frac{1}{2}$ oz. of Cupric Chloride
1 oz. of Methyl Alcohol
1 oz. of Distilled Water
1 oz. of Hydro-chloric Acid, U. S. P.

To mix this solution: dissolve the cupric chloride in the distilled water, and then add the methyl alcohol very slowly to the solution. After the cupric chloride is entirely dissolved, very slowly add the one ounce of U. S. P. hydro-chloric acid. This causes quite a violent reaction with the formation of fumes, and should be done in some glass receptacle. A large amount of heat is generated, and the addition of the hydro-chloric acid should be done very slowly. The solution may be stored in any rubber stoppered bottle.

Now that the solution is made, take a three-sixteenths inch glass tube about eight or ten inches long. With the glass tube as a dropper pick up one or two drops of the solution and apply it to the side of the band upon which the number was implanted. After a few seconds the solution will begin to foam and will form a reddish-black precipitate on top of the band. As soon as the boiling has stopped wash off the band with cold water and then very lightly rub your finger over the face of the band. Some of the black precipitate will stick to the numbers and thereby help to make them more legible. It has been my experience that three to six applications of one or two drops each of the solution with a washing in between each application usually brings out the band number. A little experience will show you the best period of time to leave the solution on the band. Always feel free to wash off the solution before it has completed its boiling if you think that it will erode the band too far. You can always add additional solution if you have not brought out the band number sufficiently.

It is a good idea to use a pair of rat-toothed forceps to hold the band. Do not allow the solution to get on your fingers until after the boiling has ceased. When that has occurred the large portion of the acid has been used up. If you do not have rat-toothed forceps an old surgical hemostat with which to grip the band is excellent. With such an instrument it is easy to wash the band and reapply additional solution without burning your hands or spotting your clothing.

I have found it very efficacious to use the solution on a piece of old window glass and also to keep all materials on that glass. This was done so that erosion of tables or porcelain sinks could be avoided.

I have found that this method will help determine about ninety-five percent of the band numbers on all of these eroded bands. This should be exceedingly valuable in the work with water fowl.

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