

**Tattooing nestlings for individual recognition.**—We have tried several systems of identification marks for nestling birds too young to band with little satisfaction—numbering with nail polish or felt-tip marking pens, snipping off pieces of down, tying colored threads loosely around the legs and neck, etc. These methods are either ineffective or they are time consuming because markers must be replaced frequently. We have found, however, that an India ink tattoo mark on the abdomen can be applied easily at any age and is permanent.

We use a 1 cc disposable tuberculin syringe with a 26 gauge needle, filled with black India ink. The method is to grasp a small area of skin of the mid-ventral apterium with the thumb and forefinger and insert the tip of the needle directly under the skin to a depth of 2 or 3 mm, parallel to the surface of the abdomen. The needle should be inserted just enough that the hole at the end of the needle is under the skin. When the skin is released and the needle withdrawn, a small spot of India ink is left behind. If a little ink is ejected from the needle before inserting it under the skin, enough usually remains at the tip of the needle to produce a spot about 2 to 3 mm in diameter without injecting additional ink. The spot can be enlarged by injecting ink while the needle is under the skin, but we found this difficult to control. By varying the number of spots and their location on the abdomen, we have no difficulty producing unique combinations for up to six young in Starling (*Sturnus vulgaris*) broods.

It is not necessary to use a new needle for each young or brood marked, but one must be careful to avoid penetrating the abdominal cavity with the needle. None of the birds we have marked has shown any signs of discomfort or infection, and tattooing does not appear to affect growth or development in any way. Of more than 100 tattoo marks applied to nestling Starlings soon after hatching, few shifted position, disappeared, or faded before bands were placed on the birds at about two weeks of age. We did find, however, that day-old nestlings are more difficult to mark than older birds because their skin is stretched tightly over the abdomen, and tattoo marks applied at that age are sometimes very faint or small. In such cases, it is helpful to reinforce the mark after two or three days, when the skin becomes looser.

This method was originally suggested by John Cullen and developed in the field by Susan Peters, Susan Progoff, and Susan White.—ROBERT E. RICKLEFS, *Department of Biology, University of Pennsylvania, Philadelphia, Pa. 19104*. Received 28 November 1972, accepted 4 December 1972.

**Postjuvinal molt in the White-eyed Vireo.**—There are conflicting reports on the extent of the postjuvinal molt of the White-eyed Vireo (*Vireo griseus*). Dwight (*Ann. N. Y. Acad. Sci.*, **13**: 235, 1900) reported a complete postjuvinal molt with replacement of remiges and rectrices. On the other hand, Forbush (*Birds of Massachusetts and other New England States*, 3:188, 193, Boston, Mass. Dept. Agric., 1929) and Roberts (*The birds of Minnesota*, 2:663, Minneapolis, 1932, Univ. Minn. Press) included the species among those vireos having an incomplete molt. Bent (*U. S. Natl. Mus., Bull.* 197:231, 1950) supported this latter view when he could find no evidence of the replacement of flight feathers in a series of museum specimens. In light of these statements, the following observations seem noteworthy.

In 1968, 1969, and 1970 juvenile white-eyes (aged on the basis of a gray iris) were captured in mist nets placed in deciduous scrub of abandoned agricultural fields near Bloomington, Monroe County, Indiana; detailed descriptions of the vegetation and area are given by Nolan (*Auk*, **72**: 55-61, 1955; *Ecology*, **44**: 305-313, 1963). Each vireo was banded and notes were made on its plumage, with especial attention to birds in molt.

Table 1 summarizes the condition of the plumage of the juveniles undergoing a complete postjuvinal molt. All captures and recaptures are included in order to provide some information on the timing and sequence of feather loss and growth. Individuals are identified by the final three digits of their U. S. Fish and Wildlife Service aluminum band.

TABLE 1. Condition of plumage of juvenile White-eyed Vireos examined during postjuvinal molt.

Bird no.	Date of capture	Condition of feathers <sup>1</sup>																				
		Right remiges						Secondarys						Rectrices				Coverts		Other		
		Primaries			Secondarys			Proximal		Distal		Primary		Secondary		Tail	Head	Trunk				
1	2	3	4	5	6	7	8	9	10	Proximal	Distal											
379	28 July 1969	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
	30 July 1969	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F
	14 Aug. 1969	F	F	F	F	F	F	F	F	F	+	F	F	F	F	+	+	+	+	+	+	+
393	05 Aug. 1969	F	F	F	F	+	F	F	F	F	+	F	+	+	+	+	+	+	+	+	+	+
	11 Aug. 1969	F	F	F	F	F	75	50	F	F	+	F	+	+	+	+	+	+	+	+	+	+
416	05 Sept. 1969	F	F	F	F	F	F	+	+	+	+	F	F	F	F	F	F	F	F	F	F	F
492	29 July 1970	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	+	F	F	F	F	+
	12 Aug. 1970	F	F	F	F	F	F	F	F	F	+	F	+	F	O, F <sup>2</sup>	+	+	+	+	+	+	+
493	17 Aug. 1970	F	F	F	F	F	F	F	F	F	+	F	+	F	+	+	+	+	+	+	+	+
	05 Aug. 1970	F	F	F	F	F	50	30	F	F	F	F	F	F	+	+	+	+	+	+	+	+
494	05 Aug. 1970	F	F	F	F	F	+	F	F	F	F	F	F	F	F	F	F	F	F	F	F	+

<sup>1</sup>F = fully grown feather(s) (old or new), + = feather(s) growing or fully grown with sheath at base, O = missing feather(s), numerical values = approximate per cent of full length.

<sup>2</sup>Central two pairs of rectrices missing; others full length.

Seven birds were symmetrically replacing remiges. In numbers 400, 492, and 493 the relative growth of the new primaries indicates that their loss and replacement proceeded centrifugally. Other captured juveniles either were not molting (eight birds) or were replacing only coverts and feathers of tracts other than the alar tract (five birds).

These observations demonstrate that at least some individuals renew flight feathers during the postjuvinal molt. It is possible, of course, that geographical, age, or individual differences occur with respect to completeness of molt and that not all flight feathers are replaced even in birds having a "complete" molt. For example, Scott (Bird-Banding, **38**: 37-51, 1967) found that only those juvenile Cardinals (*Richmondia cardinalis*) that hatch early in the breeding season have a complete molt, and Foster (*Condor*, **69**: 169-200, 1967) concluded that only certain flight feathers are replaced in some juvenile Orange-crowned Warblers (*Vermivora celata*). These problems can be resolved only after larger numbers of molting juvenile white-eyes have been examined.

I thank Drs. Val Nolan, Jr. and Carl W. Helms for critically reading a draft of this note. These observations were made while conducting research supported by Indiana University.—CHARLES F. THOMPSON, *Department of Zoology, University of Georgia, Athens, Georgia 30601*. Received 8 November 1972, accepted 20 November 1972.

**Some encounters between birds and pelecypods.**—It is doubtful that bivalves are significant agents of bird mortality, but the following three observations in New York indicate that littoral birds occasionally have unfortunate encounters with these animals.

In the salt marsh at Fox Point, Nassau County in June 1954, I flushed a Green Heron (*Butorides virescens*) from a slough bank, and as the bird flew higher, I noticed one of its legs hanging vertically. A medium-sized clam was attached to one of the toes, weighting the whole leg down. The heron flew off low over the marsh and landed about 70 m away.

Frank Enders and I found a drowned Common Tern (*Sterna hirundo*) near Oak Beach, Suffolk County in July 1967. Its bill tip was gripped tightly by the shell of a *Venus mercenaria* (the clam measured 6 x 8 cm). Apparently, the tern had been swimming in the shallow water and had probed at the fluttering mantle of the clam, whereupon the clam shut, holding the bird down until it drowned. The tern was about three weeks old.

In the Oak Beach salt marsh in October 1967, I flushed an American Bittern (*Botaurus lentiginosus*). Like the Green Heron, its leg was weighted down by a mollusc, in this case a large mussel, probably *Modiolus demissus*. The bittern flew easily with its burden, and landed about 100 m away.

There are numerous reports of oystercatchers, knots, and other shorebirds being trapped by molluscs (see, for example, *BTO News*, No. 48: 7, 1971). These incidents usually involve a bird being caught by its mandibles, presumably as it fed. It is probably more unusual for a bird to be trapped by its feet as it steps on a mollusc. Birds that frequent mussel beds are more likely prone to entrapment and death by drowning, particularly in view of the fact that mussels are attached to the substrate by their tough byssal threads. Larger birds conceivably could free themselves or pull the mussel from its attachment, but smaller birds would be trapped. Birds that drown in this manner would seldom be found, and the evidence of such mortality would soon be erased as the mollusc released its hold at high tide.—WILLIAM POST, *Research Division, North Carolina Department of Mental Health, Raleigh, North Carolina 27611*. Received 20 November 1972, accepted 28 November 1972.