GENERAL NOTES

Common Eider and King Rail from the Dry Tortugas, Florida.—From 25 March to 4 April 1967, we watched the early spring migration at the Dry Tortugas islands, which lie in the Gulf of Mexico about 70 miles west of Key West, Florida, and recorded 70 species, the majority land birds. The two records reported here represent significant additions to the species' known distribution. The specimens have been deposited in the collection of the University of Miami (UMRC), Coral Gables, Florida. We thank O. T. Owre and W. B. Robertson, Jr. for reviewing the manuscript and verification of records and Mrs. R. C. Laybourne and R. C. Banks, Smithsonian Institution, for verifying identities.

Common Eider, *Somateria mollissima* (Linnaeus).—A much decomposed carcass was found on Garden Key 3 April 1967. Identification of the skeleton (UMRC 5246) was confirmed by Mrs. Laybourne; subspecific determination was not attempted. There appear to be fewer than five earlier records of this eider from Florida. It has not been previously recorded from the Florida Keys, and this is believed to be its southernmost record of occurrence for North America. A search of the Old World literature suggests this may be the southernmost record anywhere.

King Rail, *Rallus elegans* Audubon.—An oil-soaked bird, still alive, was found on Bush Key 28 March 1967. A male with no fat and testes very slightly enlarged, the bird (UMRC 5215) weighed 230.8 g. The species was reported once previously at the Tortugas (Sprunt, Florida Naturalist, 35: 40, 1962). Because the Dry Tortugas are roughly equidistant between the continental U. S. and Cuba where another subspecies, *R. e. ramsdeni*, occurs, the subspecific identity of the Tortugas King Rail merited checking. Mrs. Laybourne and Banks identified the present specimen as *R. e. elegans*. According to Meanley (Natural history of the King Rail, North Amer. Fauna, No. 67, 1969) the winter range of *R. e. elegans* extends as far south as the Everglades in Florida, and this subspecies is not known to migrate south of the continental U. S. Thus it is of interest that this bird was found during the spring migration period somewhat south of its normal winter range.—CLIVE A. PETROVIC, *F. T. Stone Laboratory, The Ohio State University, Put-in-Bay, Ohio 43456*, and JAMES KING, JR., *13910 N.W. 5th Avenue, North Miami, Florida 33168*. Accepted 29 Jul. 71.

Electrophoretic study of Mallard serum proteins.—The plasma proteins of the Mallard (*Anas platyrhynchos*) were characterized electrophoretically by Sibley and Johnsgard (Condor, 61: 85, 1959) using a paper strip separating system with very low resolving power for individual proteins. We have found no extensive study using an agarose gel medium with additional resolution. Electrophoresis procedures have been used extensively to search for hereditary differences between individuals, or species, in other animal groups. This note describes an extended study of Mallard serum proteins and other blood parameters and summarizes some of the more interesting results.

In a search for strain differences, we analyzed electrophoretically the plasma proteins of six strains of the Mallard maintained at the Max McGraw Wildlife Foundation, Dundee, Illinois. The birds included 383 males and 391 females, divided among the six strains as shown in Table 1.

Electrophoresis was accomplished with agarose gels (Analytical Chemists, Inc., sold by E. K. Turner, Inc., Palo Alto, California) (pH 8.8) in a sodium barbital buffer (pH 8.8). Separation proceeded at a constant current of 15 milliamps, 100–130 volts, for 1 hour. Staining with Buffalo (Amido) Black consistently revealed the presence of

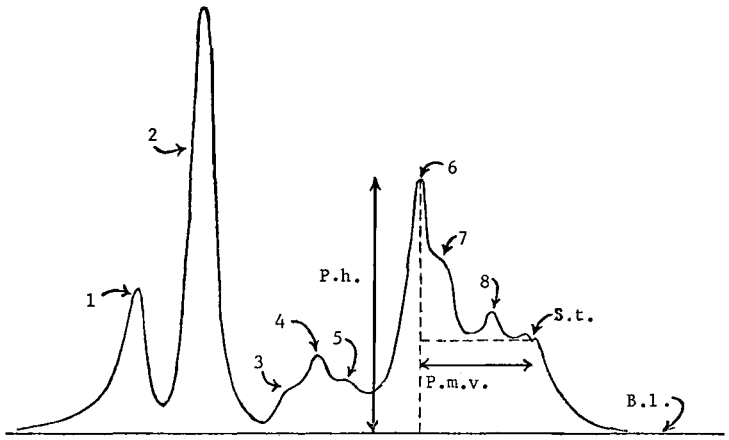

Figure 1. Diagrammatic representation of densitometer tracing showing peaks corresponding to the various stained bands of serum protein. The peaks are numbered according to the text description. B.l. = baseline, S.t. = sample trough (origin of sample), P.m.v. = peak migration value, P.h. = peak height.

eight protein bands that were identified tentatively, in order of decreasing migration rates, as: (1) pre-albumin, (2) albumin, (3) alpha-1, (4) alpha-2, (5) alpha-3, (6) beta or transferrin, (7) beta-2, and (8) beta-3 (Figure 1). Figure 2 shows a sample stained gel and the resulting Photovolt Densicord densitometer tracing. A protein band comparable in appearance and position to that of the human gamma globulin (which migrated to the negative pole, in contrast to all the other proteins) was not observed in the Mallard.

The stained gels were quantified from the densitometer tracing and the vertical height of each resultant peak was measured as an index of that protein's concentration. The migration distance between the origin of the sample and each peak was also measured. These measurements were converted to relative values by dividing each peak height by the sum of all the peak heights, and each peak migration distance by that of albumin.

In addition to the protein peak heights (crudely proportional to the concentrations) and migration distances, other variables measured and recorded included %Rbc (percent red blood cells), %Wbc (percent white blood cells), total plasma protein concen-

TABLE 1
MALLARD STRAINS STUDIED

Strain	Origin	Number	Mean age (months)
D	Domestic Mallards inbred 36 years	125	18.7
W	Wild Mallards captured in Michigan and Minnesota	12	91.1
F_1	Product of D hens and W drakes	171	53.1
F_2	Product of F_1 hens and W drakes	103	27.5
F_3	Product of F_2 hens and W drakes	132	27.7
F_A	Product of D hens and F_1 drakes	231	33.3

tration, bird age, sample age, and sex. These values were used in statistical analyses, which included a pairing-design *t*-test for comparing mean values of the variables, and correlation coefficients.

Statistical analysis revealed no consistent significant differences in any of the variables among strains, except for the inbred D. That strain exhibited both a higher %Wbc and a lower %Rbc than did any of the other strains. The significance of these differences was thought to indicate a strain more susceptible to disease and more anemic relative to the other strains. The D strain also demonstrated greater concentrations of each of the resolved proteins, with the exception of albumin.

Plots of migration values for each peak gave no indication of multimodal distributions that would be expected if discrete, simple, differences were present.

The "wildness" component of the strains, a value based on each strain's expected proportion of genes from the "wild" W strain (the wild bird had a"wildness" component of 1; the inbred D, 0; the F_1, ½; the F_2, ¾; the F_3, ⅞; and the F_A, ¼), revealed no consistently significant correlations with any of the remaining variables.

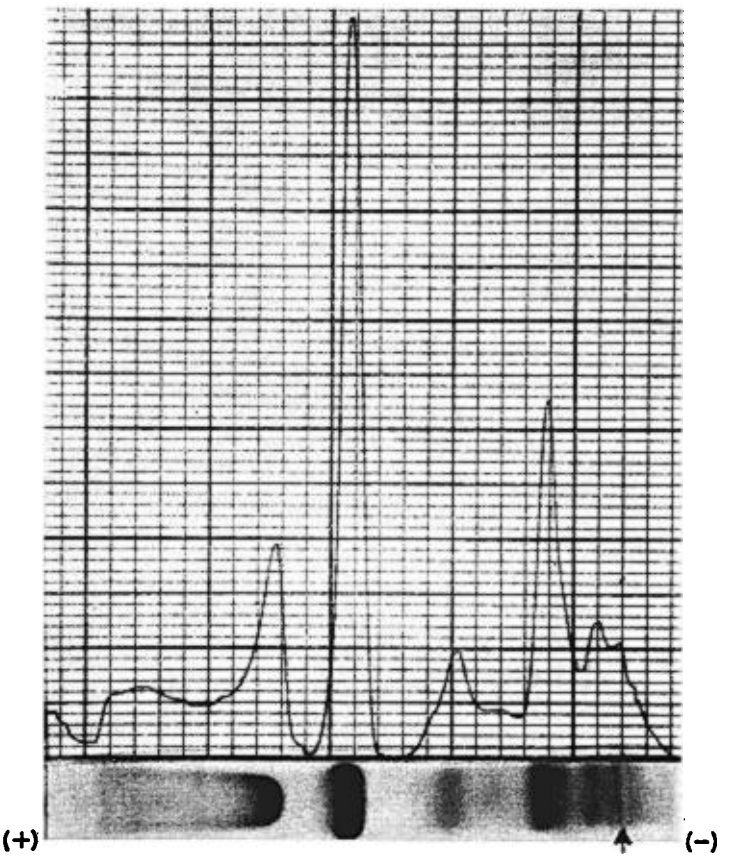

Figure 2. A typical densitometer tracing and the agarose gel strip that was used to generate it. The arrow indicates the sample trough (origin).

Several significant internal correlations appeared in the data that may be of physiological significance:

(1) The pre-albumin complex appeared in almost all birds sampled after the initiation of a corn based diet in October. It was identified as a lipoprotein (Elevitch, pers. comm.). Evidently some corn lipid was being transported in a fast running molecular complex, or induced the production of much higher concentrations of the observed pre-albumin.

(2) A strong positive correlation was noted between the bird's age and %Rbc, but %Wbc and the concentrations of each of the eight proteins decreased as the bird aged.

(3) No sexual differences were apparent in any of the variables measured. The birds were not in breeding condition during the sampling period, July 1968 to February 1969. The serum of one female did exhibit the intensely staining irregularly shaped band ("zigzag" band Elliott and Bennett, Poultry Sci., 50: 1365, 1971) that appears characteristic of egg laying in chickens.

(4) The concentration of transferrin was much lower in serum than in plasma samples.

Agarose gel was chosen with the knowledge that it does not produce the clarity of separation achieved by acrylamide gels at their best. The problem was to make as large a survey as possible with the available time. Acrylamide "disc" systems provide very good resolution at a very high unit investment in time. The slab survey techniques in acrylamide or starch do not generally provide similar resolution and require an investment in gel preparation time. The commercially prepared and standardized agarose gels seemed well-suited for this survey when time, uniformity, and resolution were all considered. The study was terminated early because a change of manufacturing procedure produced gels with markedly different properties (even reversing the relative positions of the albumin and pre-albumin). Thus the manufacturer's inability to deliver reliable standardized gels to us confounded the earlier arguments for agarose gel, and in further studies the acrylamide slab system would seem more appropriate.

We are aware of the demonstration of allelic differences in serum enzymes and other proteins in a number of avian species, but we have discovered no reports of similar discrete variation in the Mallard and are disappointed in finding no evidence of it in our material.

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First Pomarine Jaeger specimen from Brazil.—During the course of a visit to the Museu de Zoología da Universidade de São Paulo, Brazil, I found a Pomarine Jaeger, *Stercorarius pomarinus*, study skin collected at Urucurituba 160 km south of Santarem at the mouth of the Tapajós River in Pará State, Brazil (ca. 3° 30′ S, 55° 30′ W), 7 May 1960, by Alipio Pimentel for the field naturalist A. M. Olalla, São Paulo, who sent it to the Museu. The record is remarkable for two reasons. Not only was this specimen of a usually pelagic species collected nearly 800 km (480 miles) inland from the Atlantic, but it also constitutes the southernmost specimen record of the species for South America and the first record for Brazil. The specimen (No. 61777) is an immature, light phase female in freshly molted alternate plumage. The black cap is well-differentiated from the light nape and cheeks but lacks the golden hackles of a full adult. The base of the neck and back are dark with narrow white edges on the feather tips; wings and underparts as in adult; but it shows axillaries, under wing coverts, rump, and under tail coverts barred across with white and dark as are typical of a second-year bird. Its fresh and blunt-ended rectrices do not extend beyond the