

Nebraska Wildlife Bulletin

No. 87-1

Nebraska Game and Parks Commission
2200 N. 33rd St. / P.O. Box 30370 / Lincoln, NE 68503

SEXING FIELD-DRESSED MALLARDS

by
Daryl R. Meints
Peru, Nebraska, State College
and
David W. Oates
Nebraska Game and Parks Commission

Mallards (*Anas platyrhynchos*) are the most preferred species in the Central Flyway. About 40 percent of all ducks harvested there between 1971 and 1980 were mallards (Carney et al. 1983). The U.S. Fish and Wildlife Service has tried to maintain a spring breeding population of about 9 million mallards, although the estimate for 1985 was 5.5 million birds. In an attempt to alleviate the pressure on this popular species, the point system was raised and the hunting season shortened. The point value for the drake was increased to 35, while the hen went to 100 points. Under conventional bag limits, this changed the take allowed from two hens to one. The Central Flyway Council estimates that this point value change alone may produce a 12 to 15 percent decrease in hen harvest.

Although the increase in the point value should encourage proper field identification, it may also lead to attempts by hunters to disguise illegal birds. Nebraska regulations (001.02A7) require that the head or a fully feathered wing remain attached to waterfowl during transportation. On arrival home, though, these parts may legally be removed, making conventional identification techniques impractical (Baldwin et al. 1931, Carney 1964, Central Flyway Council 1974, Haines 1978, and LeMaster 1983). Consequently, a simple method of sexing dressed or breasted birds could be useful for law enforcement personnel.

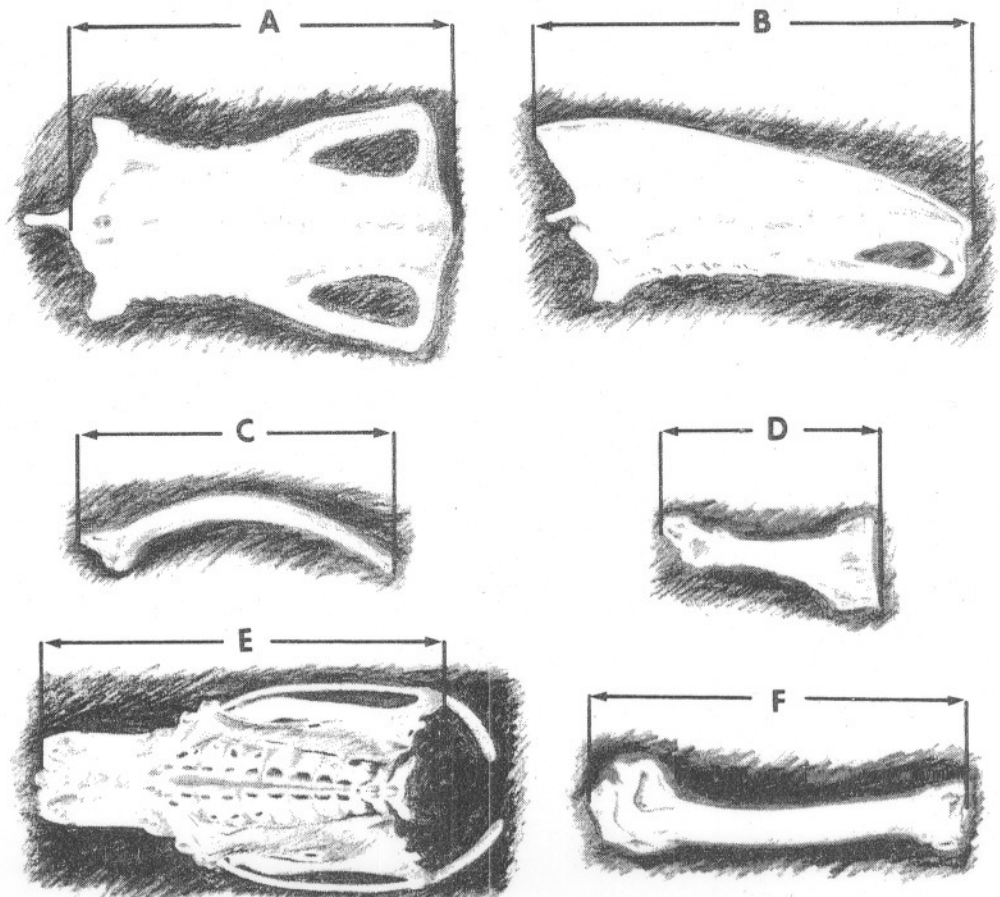
METHODS

Fifteen different skeletal measurements were made with calipers on 53 drake and 53 hen mallards primarily from the central United States. Most skeletal samples were obtained from museums at the Universities of Kansas, Michigan and Nebraska. The remainder were acquired from the Smithsonian Institution or were confiscated by conservation officers in Iowa.

Six of the 15 measurements were considered the most valuable for sexual determinations (Figure 1). Measurements were rounded up

Figure 1. Skeletal measurements (mm) for sexing mallards.

- (A) Distance from the dorsal manual spine to posterior end of crest along mid-ventral line.
- (B) Distance between end points on crest of sternum.
- (C) Maximum length of scapula from the apex to the fuscular articulation. (Make incision through skin and muscle along scapula length, grasp scapula firmly at the articulation and bend the scapula toward the ducks' head, snapping it free of the coracoid.)
- (D) The greatest distance between the head to the top of the sterno-coracoidal process. (The coracoid can be popped out of the coracoidal sulcus after the scapula has been removed.)
- (E) Distance from anterior iliac crest to the ischial angle. (Not a field measurement due to required amount of tissue to be removed).
- (F) Maximum length of the humerus from the head to internal condyle.



to the nearest millimeter for hens and down to the nearest millimeter for drakes. All six measurements can be made on a normally dressed duck, but only the sternal measurements would be possible on breasted birds. Fortunately, because of their palatability, the mallard is probably the one species most apt to be kept whole.

RESULTS AND DISCUSSION

Adult drakes are larger than adult hens. Birds were considered to be adults when sterna were completely calcified. In pheasants, this was found to occur at 22-24 weeks of age (Oates et al. 1985). If this holds true for ducks, one can expect to find immature birds in the northern sections of the Central Flyway especially during the early part of the hunting season. In Nebraska, most mallards are harvested after October, when most would skeletally be considered adults.

Two sternal, one scapular, one coracoidal, one pelvic, and one humerus measurement can all be used for sexing mallards (Figure 1). Oates et al. 1985 found that field measurements would normally be 1-3 mm longer than those made on laboratory specimens. This relationship between field study and museum specimens was verified in this study. There was more overlap between the sexes in mallards than pheasants. More than half of the birds could be sexed. However, differences were one standard deviation instead of two (Figure 2).

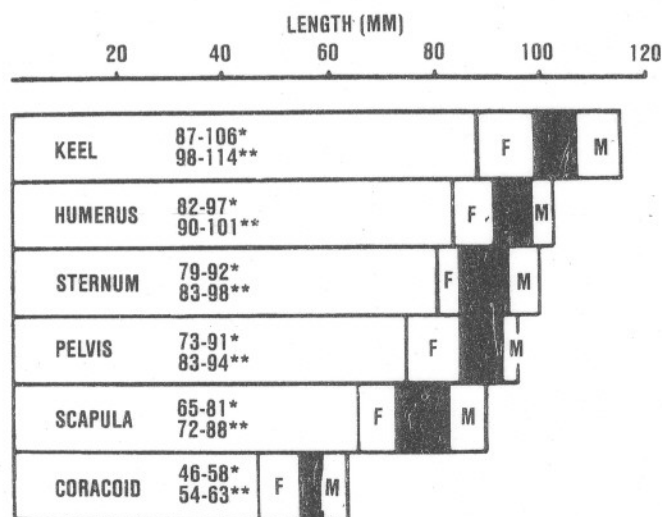


Figure 2. Maximum length measurements for hen and drake mallard in determining sex. Hens are represented with one asterisk and drakes with two. The overlap between sexes is illustrated by the shaded area.

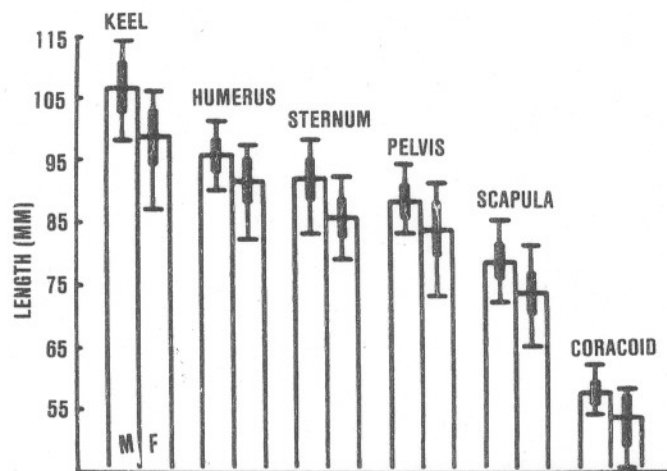
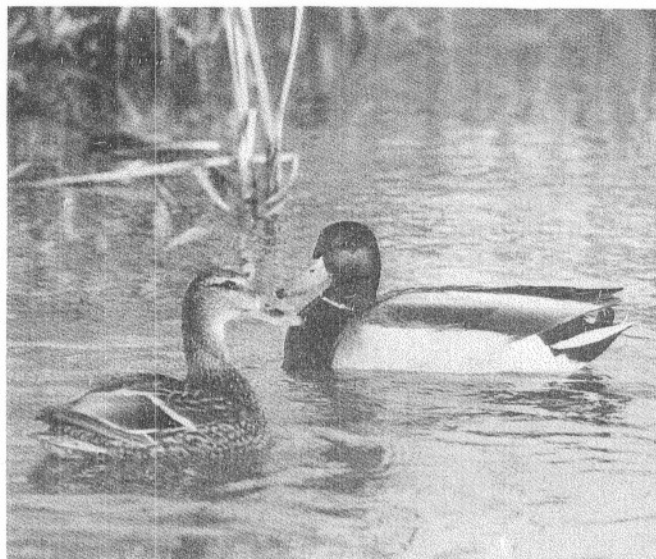


Figure 3. Left bar represents male, right bar female. The mean is found on the top of each bar. The range is represented by — and one standard deviation by ■.



Overlap of measurements existed, but statistical differences were found between the sexes ($P > 0.001$). The most practical field measurements would most likely be the keel and scapula (Figure 3).

To check feasibility of this technique, six Nebraska conservation officers were given seven breast and scapula bones to sex. Results indicated that they would occasionally over assess the value of this technique. An officer may make the original assessment of sex on the spot, but final confirmation for court purposes should be made in a laboratory. More discretion would be required by officers in sexing mallards by this method than is necessary for pheasants. However, it appears that it is possible to distinguish the sex of many birds in this manner.

ACKNOWLEDGEMENTS

This study was carried out through the cooperation of Peru State College, Nebraska Game and Parks Commission, the Smithsonian Institution, and the museums at the Universities of Nebraska, Kansas, and Michigan. A special thanks to Dr. Patricia Freeman and Tom Labeledz of the University of Nebraska Museum for helpful suggestions and for the use of samples, storage and workspace. Computer analysis by Kit Hams, art work by Paula Day, typing by Margo Ems, samples from Jerry Hoilien, and reviewing by Joe Gabig was greatly appreciated. A special thanks also goes to Nebraska Conservation Officers Dale Bruha, Russ Mort, Levi Krause, Terry Brentzel, Bill Krause, and Mark Webb, for their contributions in skeletal sexing.

LITERATURE CITED

- Baldwin, S. P., H. C. Oberholser, L. G. Warley. October 14, 1931. Measurements of Birds. Scientific Publications of the Cleveland Museum of Natural History Vol II. Contribution No. 17 from the Baldwin Research Laboratory, Gates Mills, OH.
- Carney, S. M. March 1964. Preliminary keys to waterfowl age and sex identification by means of wing plumage. Special Scientific Report—Wildlife No. 82.
- Carney, S. M., M. F. Sorensen and E. M. Martin. 1983. Distribution of waterfowl species harvested in states and counties during 1971-1980 hunting seasons. Special Scientific Report—Wildlife No. 254, 144 pp.
- Central Flyway Waterfowl Council. 1974. Waterfowl identification in the central flyway. Nebraska Game and Parks Commission
- Hines, B. 1978. Ducks at a Distance. Department of the Interior. U. S. Fish and Wildlife Service, Washington, D.C.
- LeMaster, R. 1983. The LeMaster Method. Waterfowl Identification. Scotch Game Call Co., Inc. 75 pp.
- Oates, D. W., G. I. Hoilien, R. M. Lawler. 1985. Sex identification of field-dressed ring-neck pheasants. Wildl. Soc. Bull. 13:64-67.