

# A REVIEW OF THE OSTEOLOGY AND PALEONTOLOGY OF TURKEYS (AVES: MELEAGRIDINAE)

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**ABSTRACT.** A study of the comparative osteology of specimens of all known species of living and extinct turkeys results in the recognition within the Meleagridinae of three genera: *Rhegminornis* Wetmore, *Proagriocharis* Martin and Tate, and *Meleagris* Linnaeus. *Meleagris* contains all diagnostic specimens of Blancan and younger ages, including both living species. The genera *Agriocharis* Chapman and *Pampavo* L. Miller are synonymized with *Meleagris*, and the species *Meleagris alta* Marsh and *Meleagris tridens* Wetmore are synonymized with *Meleagris gallopavo*. Evidence suggests that since at least Blancan times species in the lineage leading to *Meleagris gallopavo* have continuously occupied the southern United States. *Meleagris gallopavo* is absent from pre-Rancholabrean deposits.

Turkeys are large gallinaceous birds comprising the subfamily Meleagridinae of the family Phasianidae. All living and extinct species of this subfamily are known only from the New World. The fossil record of turkeys begins with *Rhegminornis calobates* Wetmore (1943) from the Lower Miocene (Hemphillian) of Florida. This poorly known form has characters of both the Phasianinae and the Meleagridinae. A much larger unnamed species is represented by a single, rather undiagnostic, element from the Upper Miocene deposits in Virginia. The earliest certain turkey is *Proagriocharis kimballensis* Martin and Tate (1970) from the Upper Pliocene (Hemphillian) of Nebraska. Fossils of turkeys are relatively common in the Pleistocene, and several distinct species are recognized. Table 1 lists the fossil localities from which the specimens came that I examined in this study, while Figure 1 shows the geographical distributions of all species of extinct and living turkeys. The nomenclature used in Table 1, although based on evidence presented later in this paper, is given now to maintain consistency throughout the paper.

The stimulus of this review of the osteology and paleontology of turkeys was the discovery of large numbers of fossils from two Pleistocene sites in Florida: Inglis IA, of earliest Irvingtonian age; and Coleman IIA, late Irvingtonian in age. These specimens differed significantly from the living *Meleagris gallopavo* Linnaeus, and appeared to resemble several poorly known extinct forms previously unknown in eastern North America. The Inglis IA site, with approximately 1240 specimens representing a minimum of 44 individuals, and the Coleman IIA site, with approximately 320 elements representing a minimum of 17 individuals, provide the earliest adequate samples for an assessment of individual variation in fossil turkeys. These samples thus provide excellent standards for comparison with fossil turkeys from other localities that are typically more fragmentary and less numerous.

Prior to the Inglis and Coleman finds, large samples of fossil turkeys were known from only three species, all of Rancholabrean age. These species are *M. crassipes* L. Miller (1940), *M. californica* (L. Miller 1909), and *M. gallopavo*. The relationships between the later forms and the rarer, earlier species were poorly known. This paper compares all extinct and living species of turkeys, incorporating the large Irvingtonian samples in an effort to determine the relationships among the various meleagridines. A revised classification and possible phylogeny are proposed, based on these comparisons.

## COMPARATIVE OSTEOLOGY

The study of fossil turkeys is complicated by their great sexual dimorphism, males being much larger than females. In the absence of qualitative osteological characters, a male of a small species might easily be confused with a female of a larger species. This problem is especially acute when a fossil site yields too few specimens to assess intraspecific size variation. This problem is largely alleviated, however, when enough fossils are recovered and two distinct size classes can be distinguished. This is the case at Inglis IA, Coleman IIA, Ichetucknee River, Rancho La Brea, and a few other sites. When specimens from a particular site are not qualitatively separable from two or more known species, the size of the fossils will determine the identification. This identification must be considered tentative because of the great intraspecific size variation. The large size differences found in turkey bones often make direct comparisons difficult, hence the extensive use of the term "relatively" in the following comparisons.

In undertaking the studies of comparative osteology, my original approach was to compare *Meleagris gallopavo* with *M.* (= *Agriocharis*) *scollata* and *M.* (= *Pampavo*) *californica* and, by searching for generic characters, determine to which genus the Inglis IA and Coleman IIA specimens belonged. It soon became apparent, however, that diagnostic characters are few and quite subtle. A broader approach was then taken

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