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STORRS L. OLSON

BULLETIN
OF THE
FLORIDA STATE MUSEUM
BIOLOGICAL SCIENCES

Volume 4

Number 11

PLEISTOCENE BIRDS FROM NEW PROVIDENCE
ISLAND, BAHAMAS

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UNIVERSITY OF FLORIDA
Gainesville
1959

PLEISTOCENE BIRDS FROM NEW PROVIDENCE ISLAND, BAHAMAS

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SYNOPSIS: Only 4 of 15 species of birds from a Pleistocene deposit on New Providence still exist on the island. The other species either are extinct or occur now farther south in the Bahamas and Greater Antilles. The extinct forms include 2 raptors previously known only from Great Exuma Island and 6 new species: *Caracara creightoni*, *Burhinus nanus*, *Glaucidium dickinsoni*, *Otus providentiae*, *Bathoceleus hyphalus* (new genus, Picidae), and *Corvus wetmorei*.

The fossil deposit is assigned to the pre-Pamlico portion of the Wisconsin glacial stage, when the sea had retreated to the 10-fathom mark to expose a large land mass which reached within 10 miles of Cuba. At this time the avifauna of the Bahamas appears to have been about 40 percent richer than at present. The faunal tie to the Greater Antilles, particularly Cuba, was strong, while the relationship to Florida was weaker than today.

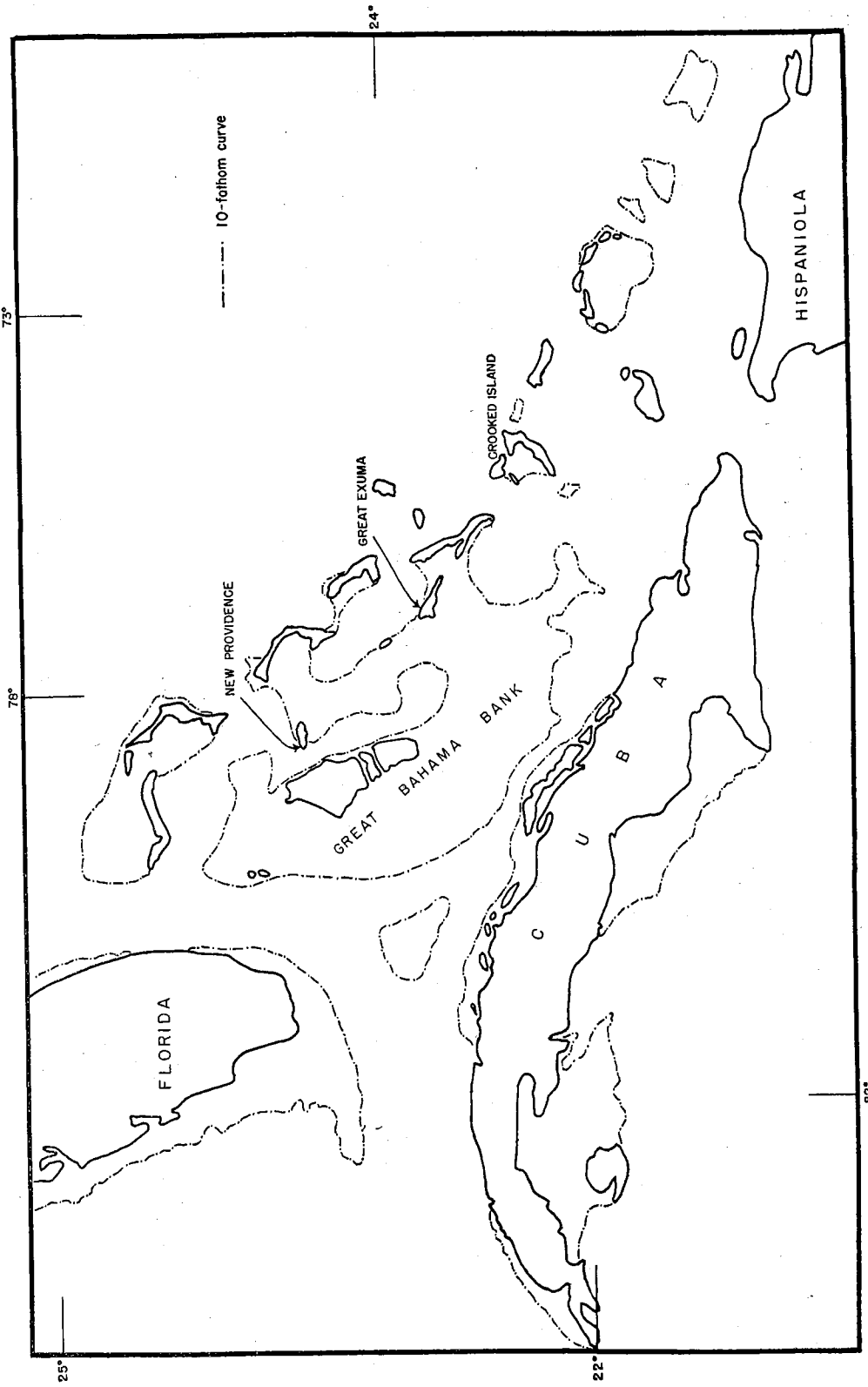
INTRODUCTION

Knowledge of the past bird life of the island of New Providence has heretofore been lacking. Such information from elsewhere in the Bahamas is meager, being limited to a paper on Pleistocene birds from Great Exuma Island (Wetmore, 1937B) and to a report of bird remains from an Indian midden of ceramic age on Crooked Island (Wetmore, 1938). Although small, these collections are of great interest. From Great Exuma the 13 species identified include 3 extinct raptors and 3 living forms presently confined to the Greater Antilles. The 11 species reported from the pre-Columbian site on Crooked Island also include several birds that no longer occur on that island, although still extant elsewhere in the West Indies.

During the summer of 1958 Dr. J. C. Dickinson, Jr., of the University of Florida, discovered a Pleistocene vertebrate locality on New Providence. With the assistance of Dr. Walter Auffenberg preliminary excavations were carried out during August. Abundant remains of large extinct rodents (*Geocapromys*) comprise the bulk of the collection, but bats, birds, reptiles, and frogs are also present. The avian material, which forms the subject of this report, contains a high proportion of extinct species, besides others that no longer

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exist on New Providence. As it adds materially to our knowledge of the origin of the ornithology of the Bahamas, it is to be hoped that further investigations may soon be made at this important site.

DESCRIPTION OF LOCALITY

The fossil locality is a sinkhole in oolitic limestone near the western end of New Providence. A large banana tree growing in the sink led the collectors to designate it the Banana Hole. The sink is located along the roadside between Lyford Cay and Clifton Pier. It is just north of the old settlement of Clifton and lies about one-half mile inland from Clifton Point. The surface elevation is about 30 feet above present sea level. The floor of the sink lies about 20 feet below the surface and consists of reddish brown clay containing vertebrate fossils. Excavation was made to a depth of only 1 foot.

When brought to the laboratory the bones were covered with reddish matrix. Washing and microscopic inspection showed the matrix to consist of nothing but clay, with no other minerals or marine invertebrates. The bones themselves, when cleaned, have a buff coloration and are more heavily mineralized than cave fossils usually are. Many of them are abraded, but others show no erosion. They are thought to have accumulated in the sink largely through the feeding activities of raptorial birds.

Class AVES

Order FALCONIFORMES

Family ACCIPITRIDAE

Calohierax quadratus Wetmore

Plate I, fig. 1

Calohierax quadratus Wetmore, 1937B, p. 429, fig. 1-3 (Pleistocene, Great Exuma Island).

REFERRED MATERIAL. Distal portion of right tibiotarsus, UFC 3152.

DESCRIPTION. Agrees with *Buteo* Lacépède and *Buteogallus* Lesson and differs from *Accipiter* Brisson in having shaft of tibiotarsus stout and flaring gently above internal condyle; internal rugosity of oblique ligament situated near upper end of supratendinal bridge. Differs from *Buteo* and *Buteogallus* in having raised edges of peroneal groove forming ridges, not shelves; internal rugosity of oblique ligament situated slightly lower on shaft.

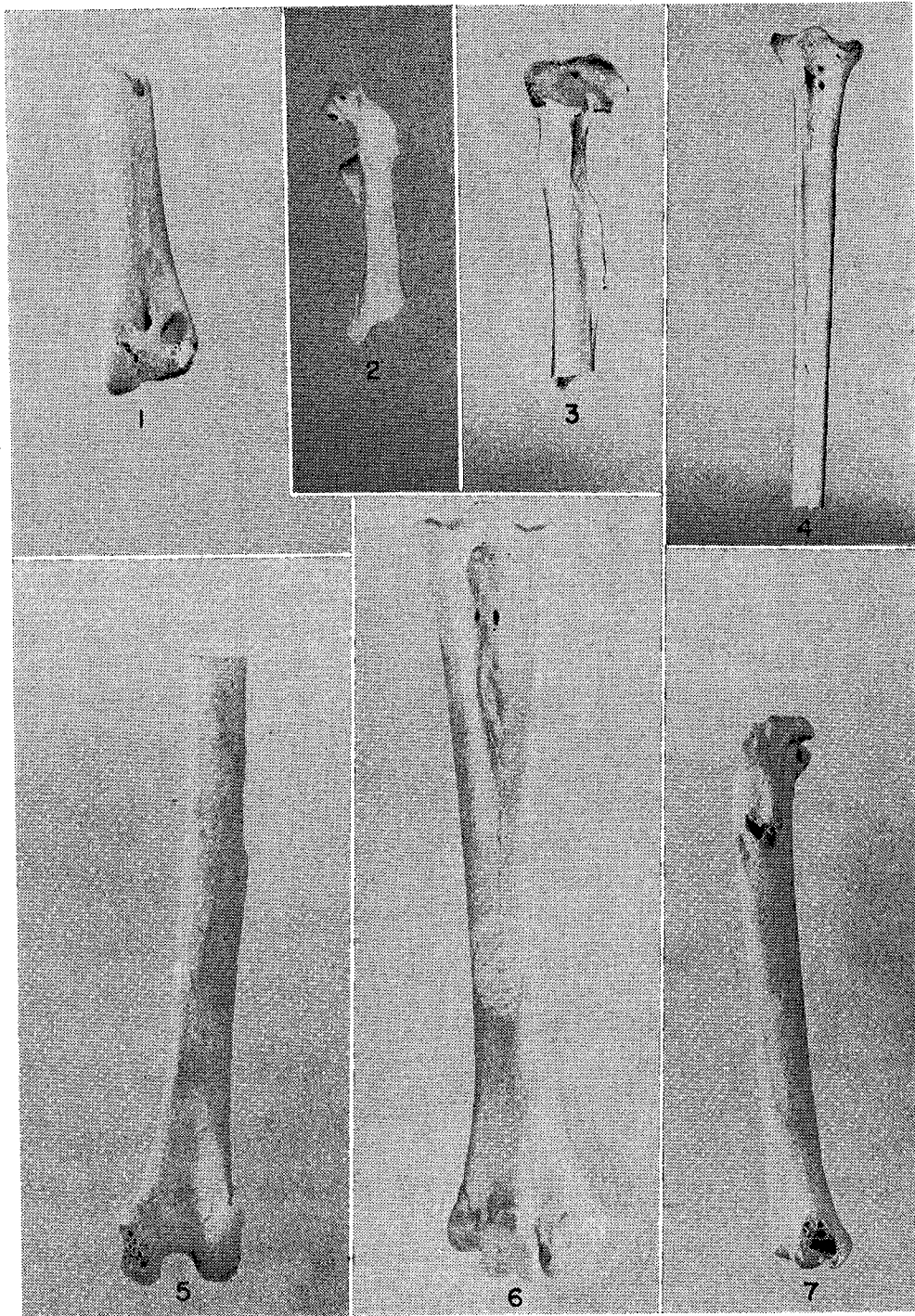


Plate I. Fig. 1, *Calohierax quadratus* Wetmore, tibiotarsus, UFC 3152, X 1.3. Fig. 2-4, *Burhinus nanus* n. sp., holotype coracoid, UFC 3154, X 1.3; tibiotarsus UFC 3155, X 1.3; tarsometatarsus, UFC 3156, X 1.1. Fig. 5-6, *Tyto pollens* Wetmore, tibiotarsus, UFC 3195, X 0.9; tarsometatarsus, UFC 3196, X 1. Fig. 7, *Caracara creightoni* n. sp., holotype carpometacarpus, UFC 3153, X 1.3.

Size near that of female *Buteo lineatus alleni*, larger than *Buteo platypterus*, smaller than *Buteo jamaicensis* and *Buteogallus anthracinus*. Least width of shaft, 5.1 mm.; abrasion of the condyles prevents taking other standard measurements.

DISTRIBUTION. *Calohierax* was described on the basis of a fragmentary tarsometatarsus from Great Exuma, and the type has heretofore remained unique.

Family FALCONIDAE

Caracara creightoni, new species

Plate I, fig. 7

HOLOTYPE. Left carpometacarpus, lacking proximal end and shaft of metacarpal III, UFC 3153. From Pleistocene at Banana Hole, New Providence Island, Bahamas. Collected by J. C. Dickinson, Jr., and Walter Auffenberg, 28 August 1958.

DIAGNOSIS. Differs from living *Caracara cheriway* (Jacquin) of tropical and subtropical America in having carpometacarpus with distal edge of pisiform process curved forward; a depression on shaft distad to pisiform process; metacarpal III with its base nearly straight, without medial angulation proximal to intermetacarpal tuberosity; tuberosity of metacarpal II, in medial view, with its outline more angular and less rounded, and its base more deeply excavated dorsally and laterally; subterminal tubercle on dorsal surface of shaft of metacarpal II obsolete. Size somewhat smaller than in congeneric species, living and fossil.

Length, from anterior edge of metacarpal I to distal condyle of metacarpal II, 44.9 mm. (46.0-49.0 in *C. cheriway*); width of metacarpal II, at level of intermetacarpal tuberosity, 4.9 mm. (5.1-5.3 in *C. cheriway*).

ETYMOLOGY. The new species from the Bahamas is dedicated to Albert M. Creighton, of Boston and Nassau, in recognition of his support of the summer's field work.

In substituting the generic name *Caracara* Merrem for *Polyborus* Vieillot, Hellmayr and Conover (1949) retained the masculine endings of the several species formerly in *Polyborus*, and this action was followed by the American Ornithologists' Union (1957). As the name *Caracara* is of barbaric rather than classical origin, its gender is to be determined by the original author. Merrem (1826) included four species in *Caracara*. For three of these, *C. accipitrina*, *C. aquilina*,

and *C. crotophaga*, he used adjectives with feminine endings. Only the fourth specific name, *Caracara plancus*, is masculine, but the word *plancus* is a noun (meaning a kind of eagle), and therefore its gender is not effected by the gender of *Caracara*. As all the adjectives Merrem used in *Caracara* are feminine, it is obvious that he considered his new generic term as of feminine gender, and the endings of the specific adjectives currently placed in *Caracara* should agree.

DISTRIBUTION. In the modern fauna this arid tropical and subtropical genus occurs on the mainland from southern South America to Arizona, Texas, and southern Florida. Its modern West Indian range extends only to Cuba and the Isle of Pines, where the mainland species, *Caracara cheriway*, occurs.

Caracara prelutosa (Howard, 1938) is known from the Pleistocene of California and Florida, and from early Recent deposits in New Mexico. It was represented in the Pleistocene of Nuevo León by a slightly differentiated race, *Caracara prelutosa grinnelli* (Howard, 1940). The only prehistoric West Indian representative hitherto known is *Caracara latebrosa* (Wetmore, 1920, 1922A); from a Quaternary cave deposit on Puerto Rico.

Order CHARADRIIFORMES

Family BURHINIDAE

Burhinus nanus, new species

Plate I, figs. 2, 3, 4

HOLOTYPE. Left coracoid, lacking lower end, UFC 3154. From Pleistocene at Banana Hole, New Providence Island, Bahamas. Collected by J. C. Dickinson, Jr., and Walter Auffenberg, 28 August 1958.

DIAGNOSIS. Differs from living *Burhinus dominicensis* (Cory) of Hispaniola in smaller size; much smaller than living *Burhinus bistratus* (Wagler) of Central and South America (see table 1).

REFERRED MATERIAL. Proximal portion of right tibiotarsus, UFC 3155; proximal portion of left tarsometatarsus, UFC 3156.

ETYMOLOGY. Latin, nanus, dwarf.

DISTRIBUTION. Although widespread in the Old World, the thick-knees, family Burhinidae, occur in America at present only in arid portions of the Neotropical mainland, from southern Mexico to Peru and Brazil, and on the island of Hispaniola.

TABLE 1

MEASUREMENTS (IN MM.) OF *Burhinus*

Element	<i>B. nanus</i>	<i>B. dominicensis</i> (3)	<i>B. bistriatus</i> (2)
Coracoid:			
Length to notch above internal sternal angle	22.5	24.9-25.3	26.1-28.8
Head to procoracoid foramen	13.5	14.1-15.1	14.5-15.9
Least width of shaft	3.1	3.5- 3.6	3.8- 3.9
Tibiotarsus:			
Length to end of fibular ridge	22.6	24.3	24.9-26.7
Proximal width	8.2	9.7	10.2-11.2
Width through fibular ridge	5.1	6.1	6.9- 7.1
Tarsometatarsus:			
Proximal width	9.5	—	10.9-11.1
Depth through hypotarsus	8.8	—	9.6-10.0
Width of shaft at middle	3.4	—	3.6- 3.7

Order COLUMBIFORMES

Family COLUMBIDAE

Columba squamosa Bonnaterre

REFERRED MATERIAL. Anterior portion of sternum, UFC 3157; left and right coracoids, UFC 3158-3159; 2 right ulnas, UFC 3160-3161; right tarsometatarsus, UFC 3162.

DESCRIPTION. Bones from *Columba squamosa* differ from those of *Columba leucocephala* in being larger and more robust, although some measurements overlap. In addition the inner surface of the sternal plate of *C. squamosa* has near its anterior end a large median foramen, which is lacking in *C. leucocephala*. Most of the bones referred above agree with modern skeletons, but the two ulnas are even larger and heavier than in available comparative material. The length of the single complete fossil ulna is 58.4 mm., against 54.1-56.1 in modern *C. squamosa*. This could reflect a specific difference, and therefore further material is desirable.

DISTRIBUTION. At the present time the Scaled Pigeon has a wide distribution in the West Indies, being absent only from Jamaica and the Bahamas. It was previously reported, however, from the Pleistocene of Great Exuma in the Bahamas (Wetmore, 1937B) and has also

been found in prehistoric sites on Puerto Rico (Wetmore, 1922A, 1938), St. Croix (Wetmore, 1937A), and Martinique (Wetmore, 1952).

Columba leucocephala Linnaeus

REFERRED MATERIAL. 3 left coracoids, UFC 3163-3165; 2 left humeri, UFC 3166-3167; right ulna, UFC 3168; 4 left and 4 right carpometacarpi, UFC 3169-3176; left digit II, phalanx 1 of manus, UFC 3177; left and right femora, UFC 3178-3179; left tibiotarsus, UFC 3180; left and right tarsometatarsi, UFC 3181-3182.

DISTRIBUTION. The White-crowned Pigeon is common today in the Florida Keys, Bahamas, Greater Antilles, and northern Leeward Islands. It has been recorded from prehistoric sites on Crooked Island in the Bahamas (Wetmore, 1938), Puerto Rico (Wetmore, 1922A), and St. Croix (Wetmore, 1937A), but this is the first Pleistocene record of the species.

Zenaida aurita (Temminck)

REFERRED MATERIAL. Left coracoid, UFC 3183; right scapula, UFC 3184; 2 left and 1 right humeri, UFC 3185-3187; 2 left ulnas, UFC 3188-3189; 3 left carpometacarpi, UFC 3190-3192.

DISTRIBUTION. The Zenaida Dove occurs today throughout the West Indies and on the coast of Yucatan. It has been recorded from prehistoric sites on Puerto Rico (Wetmore, 1922A, 1938), St. Croix (Wetmore, 1937A), and Martinique (Wetmore, 1952), but this is its first Pleistocene occurrence.

Order PSITTACIFORMES

Family PSITTACIDAE

Amazona leucocephala (Linnaeus)

REFERRED MATERIAL. Right tarsometatarsus, UFC 3193; distal end of right radius, UFC 3194.

DISTRIBUTION. This parrot is limited at present to the Caymans, Cuba, the Isle of Pines, and to Abaco, Acklin, and Great Inagua in the Bahamas. Its former Bahaman range was more extensive, as it occurred within recent years on Long and Fortune islands (Bond, 1956) and in pre-Columbian time on Crooked Island (Wetmore, 1938). This is the first Pleistocene record.

Order STRIGIFORMES

Family TYTONIDAE

Tyto pollens Wetmore

Plate I, figs. 5-6

Tyto pollens Wetmore, 1937B, p. 436, fig. 10-16 (Pleistocene, Great Exuma Island).

REFERRED MATERIAL. Distal portion of left tibiotarsus, UFC 3195; left tarsometatarsus, UFC 3196; proximal portion of right tarsometatarsus, apparently from another individual, UFC 3197; inner trochlea of right tarsometatarsus, UFC 3198; outer trochlea of right tarsometatarsus, UFC 3199.

DESCRIPTION. Measurements of these specimens are given in table 2. They indicate that while *Tyto pollens* was a very robust bird, with the widths of the bones almost twice those of living *Tyto alba pratincola*, the tarsometatarsus was relatively short and exceeded that of the modern barn owl by only about 15 percent.

TABLE 2

MEASUREMENTS (IN MM.) OF *Tyto*

Element	<i>T. pollens</i>	<i>T. ostologa</i>	<i>T. alba pratincola</i> (9)
Tibiotarsus:			
Width through trochleae	16.7	—	9.9-11.0
Least width of shaft	7.8	—	4.8- 5.4
Tarsometatarsus:			
Length	93.5	—	75.4-81.9
Proximal width	17.7-18.2	17.5	10.0-11.1
Least width of shaft	8.6	—	4.5- 4.9
Width through trochleae	21.2	—	12.1-13.0
Width of outer trochlea	14.9, 14.9	13.5	7.8- 8.7
Width of inner trochlea	12.3-13.2	11.7	6.9- 7.5

DISTRIBUTION. Previous knowledge of giant Pleistocene barn owls is due to Wetmore (1922, 1937B, 1959), who reported *Tyto ostologa* from Haiti, *Tyto pollens* from Great Exuma, and an unnamed form from Cuba. These tremendous birds, which must have equaled or exceeded in bulk any owl now living, were probably derived from the same stock and apparently were contemporaries during the Pleistocene. It is quite possible that they had differentiated from each other only to the subspecific level.

