

A Re-Examination of the Bird Bones from Archaeological Sites Excavated in 1952 on New Caledonia

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E. W. Gifford and R. Shutler, Jr. conducted pioneering excavations at numerous archaeological sites on New Caledonia in 1952 (Gifford and Shutler 1956). Their descriptions and interpretations of the excavated materials, especially the ceramic assemblages from site 13, were fundamental in defining what has become known as the "Lapita Cultural Complex" (Green 1979; Kirch and Hunt, eds., 1988; Kirch, this volume).

Among the materials obtained on New Caledonia by Gifford and Shutler were bird bones from seven different sites that were sent to Alexander Wetmore of the Smithsonian Institution for study. (Unfortunately, site 13 itself seems to have yielded no bird bones.) Most of the bird bones were regarded as being too fragmentary for refined identification, although Wetmore did identify nine of the specimens, representing six species. The purpose of this paper is to present the results of my re-examination of the same set of bird bones that Wetmore examined.

My identifications are based upon comparisons with modern skeletons of birds from the Florida Museum of Natural History, New York State Museum, U. S. National Museum of Natural History (Smithsonian Institution), and the University of Washington Burke Museum. The comparative material I used was of much greater quantity and quality than that available to Wetmore more than 40 years ago. Of the 119 specimens that Gifford and Shutler and/or Wetmore regarded as certainly or possibly representing birds, 25 specimens actually represent either crab, fish, lizard, flying fox, or rat (Tables 1 and 2). Among the 94 bird bones, 33 are too fragmentary to identify beyond being a bird of some sort. I identified the remaining 61 bird bones to the level of family (4 specimens) or species (57 specimens). Wetmore's identifications and mine agree for the nine specimens that he identified to species. (The difference between his *Pterodroma leucoptera* and my *P. nigripennis* is only nomenclatural.)

The 61 bird bones represent three species of seabirds and nine species of landbirds (Table 3), none of which is extirpated on New Caledonia. Each of the species of landbirds still survives on the island. The goshawk *Accipiter haplochrous* is the only species in these assemblages that certainly is endemic to New Caledonia, although the single columbid bone is of a size that would suggest the endemic pigeon *Ducula goliath*. The three bones identified as Anatidae sp. are juvenile specimens that lack provenience. Their fresh appearance suggests that they may not be prehistoric, but may represent a duck or small goose, perhaps even a domesticated species, that died within the past two centuries. The remaining eight species of landbirds are all widespread in the tropical Pacific.

1. Editor's note: Prof. Steadman kindly agreed to re-analyze the bird bones collected by Gifford and Shulter at my invitation. His current affiliation and address are: Florida Museum of Natural History, University of Florida, P. O. Box 117800, Gainesville, FL 32611. Telephone 352-392-1721, FAX 352-846-0287, email: dsteadman@flmnh.ufl.edu. (PVK)

Any interpretations of this set of bones are tempered by small sample size. Nevertheless, I must question whether most or all of these bones were deposited during the first millennium of human occupation in New Caledonia. The prehistoric avifauna of New Caledonia is characterized by numerous extinct species (Balouet and Olson 1989), none of which occurs in these sites. In lacking bones of extirpated species of birds, the assemblages from New Caledonia differ markedly from those of Lapita sites in Fiji, Tonga, or Samoa (Steadman 1989, 1995). I suspect that most or all of the bones examined in this paper are less than 2000 years old.

Only sites 20 and 26 have enough depth and bird bones to suggest some tentative stratigraphic trends (Tables 4, 5). In both cases bones of the chicken (a non-native species) are confined to the upper strata, this conforming to the general trend in Oceania of increased use of domesticated species with time (Dye and Steadman 1990).

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Table 1
Identification of "Bird" Bones Collected on New Caledonia by
E.W. Gifford and R. Shutler in 1952

Site No.	Depth (inches)	Catalogue No.	Identification		Element
			A. Wetmore	D. Steadman	
19	0-6	15274	<i>Gallus gallus</i>	<i>Gallus gallus</i>	Ulna
19	0-6	15281	Not identified	<i>Gallus gallus</i>	Vertebra
19	0-6	15281	Not identified	<i>Gallus gallus</i>	Vertebra
19	0-6	15281	Not identified	<i>Gallus gallus</i>	Vertebra
19	0-6	15281	Not identified	<i>Gallirallus philippensis</i>	Humerus
19	0-6	15283	Bird	<i>Anous stolidus</i>	Coracoid
19	6-12	15284	Bird	<i>Anous stolidus</i>	Carpometacarpus
19	12-18	15282	Bat?	Lizard	Femur
20	0-6	15520	Bird	<i>Gallus gallus</i>	Femur
20	0-6	15520	Bird	<i>Porphyrio porphyrio</i>	Tibiotarsus
20	0-6	15520	Bird	<i>Tyto alba</i>	Ulna
20	0-6	15525	Bird	<i>Gallus gallus</i>	Pedal phalanx
20	0-6	15541	Bird	Bird sp.	?
20	0-6	15541	Bird	Bird sp.	?
20	0-6	15563	Bird	<i>Pteropus</i> sp.	Radius
20	0-6	15569	Bird	Bird sp.	Tibiotarsus?
20	6-12	15521	Bird	<i>Gallus gallus</i>	Scapula
20	6-12	15521	Bird	<i>Porphyrio porphyrio</i>	Tibiotarsus
20	6-12	15521	Bird	<i>Porphyrio porphyrio</i>	Tibiotarsus
20	6-12	15521	Bird	Fish	Pectoral spine
20	6-12	15521	Bird	<i>Gallus gallus</i>	Coracoid

Table 1 cont.

Site No.	Depth (inches)	Catalogue No.	Identification		Element
			A. Wetmore	D. Steadman	
20	6-12	15521	Bird	<i>Porphyrio porphyrio</i>	Pedal phalanx
20	6-12	15521	Bird	Bird sp.	Radius
20	6-12	15521	Bird	<i>Rattus</i> sp.	Ilium
20	6-12	15529	Not identified	Fish	?
20	6-12	15543	Not identified	Crab	leg
20	6-12	15548	Not identified	<i>Pteropus</i> sp.	Radius
20	6-12	15553	Not avian	<i>Pteropus</i> sp.	Radius
20	6-12	15562	Bird	<i>Pteropus</i> sp.	Radius
20	6-12	15564	Bird	<i>Pteropus</i> sp.	Radius
20	6-12	15564	Bird	<i>Pteropus</i> sp.	Radius
20	6-12	15570	Bird	Bird sp.	Radius
20	6-12	15570	Bird	Bird sp.	Tibiotarsus
20	12-18	15522	Bird	<i>Pluvialis dominica</i>	Femur
20	12-18	15522	Bird	<i>Porphyrio porphyrio</i>	Pedal phalanx
20	12-18	15522	Bird	Bird sp.	?
20	12-18	15532	Bird	Bird sp.	?
20	12-18	15549	Bird	<i>Porphyrio porphyrio</i>	Ulna
20	12-18	15549	Bird	<i>Pteropus</i> sp.	Humerus
20	12-18	15554	Bird	Bird sp.	Humerus
20	12-18	15571	Bird	Bird sp.	Tibiotarsus
20	12-18	15571	Bird	Bird sp.	?
20	18-24	15533	<i>Gallirallus philippensis</i>	<i>Gallirallus philippensis</i>	Humerus
20	18-24	15533	<i>Gallirallus philippensis</i>	<i>Gallirallus philippensis</i>	Carpometacarpus

Table 1 cont.

Site No.	Depth (inches)	Catalogue No.	Identification			Element
			A. Wetmore	D. Steadman		
20	18-24	15545	Bird	Bird sp.	?	
20	18-24	15550	Bird	<i>Accipiter haplochrous</i>		Carpometacarpus
20	18-24	15555	Bird	<i>Egretta sacra</i>		Pedal phalanx
20	18-24	15555	Bird	<i>Porphyrrio porphyrio</i>		Pedal phalanx
20	18-24	15565	Bird	<i>Porphyrrio porphyrio</i>		Tibiotarsus
20	18-24	15577	Bird	Bird sp.	?	
20	18-24	17982	Bird	<i>Gallirallus philippensis</i>		Pedal phalanx
20	18-24	17982	Bird	<i>Gallirallus philippensis</i>		Pedal phalanx
20	18-24	17982	Bird	<i>Tyto alba</i>		Ungual phalanx
20	24-30	15534	Bird	<i>Gallirallus philippensis</i>		Pedal phalanx
20	24-30	15546	Bird	<i>Porphyrrio porphyrio</i>		Pedal phalanx
20	24-30	15546	<i>Pterodroma leucoptera</i>	<i>Pterodroma nigripennis</i>		Humerus
20	24-30	15573	Bird	<i>Porphyrrio porphyrio</i>		Pedal phalanx
20	24-30	15573	Bird	<i>Tyto alba</i>		Humerus
20	30-36	15556	Bird	<i>Pteropus</i> sp.		Radius
20	30-36	15574	<i>Porphyrrio porphyrio</i>	<i>Porphyrrio porphyrio</i>		Tarsometatarsus
20	30-36	15574	<i>Porphyrrio porphyrio</i>	<i>Porphyrrio porphyrio</i>		Coracoid
20	36-42	15568	Bird	<i>Tyto alba</i>		Ulna
20	48-54	15560	Bird	Bird sp.		Radius
26	0-6	16083	Bird	<i>Gallus gallus</i>		Pedal phalanx
26	0-6	16083	Bird	Bird sp.		Femur?
26	0-6	16084	Bird	<i>Gallus gallus</i>		Pedal phalanx
26	0-6	16090	Bird	<i>Accipiter haplochrous</i>		Tibiotarsus

Table 1 cont.

Site No.	Depth (inches)	Catalogue No.	Identification			Element
			A. Wetmore	D. Steadman		
26	0-6	16090	Bird	Bird sp.		Tibiotarsus
26	0-6	16092	Bird	<i>Gallus gallus</i>		Humerus
26	0-6	16093	Bird	Bird sp.		?
26	0-6	16095	Bird	<i>Porphyrio porphyrio</i>		Tibiotarsus
26	0-6	16095	Bird	Fish		?
26	0-6	16132	<i>Gallus gallus</i>	<i>Gallus gallus</i>		Ulna
26	0-6	16144	Bird	Bird sp.		Tibiotarsus?
26	0-6	16154	Bird	Fish		?
26	0-6	16154	Bird	<i>Pteropus</i> sp.		Femur
26	0-6	16154	Bird	<i>Porphyrio porphyrio</i>		Carpometacarpus
26	0-6	16164	Bird	Bird sp.		?
26	6-12	16097	Bird	Bird sp.		Femur
26	6-12	16097	Bird	Bird sp.		?
26	6-12	16097	Bird	Bird sp.		?
26	6-12	16097	Bird	Bird sp.		?
26	6-12	16112	Bird	<i>Pteropus</i> sp.		Radius
26	6-12	16141	Bird	Bird sp.		Femur
26	6-12	16146	Bird	<i>Pteropus</i> sp.		Radius
26	6-12	16155	Bird	Bird sp.		Radius
26	6-12	16160	<i>Tyto alba</i>	<i>Tyto alba</i>		Femur
26	6-12	16160	Bird	<i>Tyto alba</i>		Pedal phalanx
26	6-12	16160	Bird	<i>Porphyrio porphyrio</i>		Ulna

Table 1 cont.

Site No.	Depth (inches)	Catalogue No.	Identification		Element
			A. Wetmore	D. Steadman	
26	6-12	16163	Bird	Bird sp.	Radius?
26	6-12	16165	Bird	Bird sp.	Tibiotarsus
26	12-18	16087	Bird	Bird sp.	Tibiotarsus
26	12-18	16103	Bird	Bird sp.	?
26	12-18	16103	Bird	<i>Pteropus</i> sp.	Humerus
26	12-18	16147	<i>Tyto alba</i>	<i>Tyto alba</i>	Ulna
26	12-18	16161	Bird	<i>Pteropus</i> sp.	Humerus
26	18-24	16138	Bird	<i>Egretta sacra</i>	Ulna
26	18-24	16138	Bird	<i>Porphyrrio porphyrio</i>	Humerus
26	18-24	16157	Bird	<i>Tyto alba</i>	Ulna
26	18-24	16157	Bird	<i>Porphyrrio porphyrio</i>	Tibiotarsus
26	24-30	16142	Bird	Bird sp.	Tibiotarsus
26	30-36	16127	Bird	<i>Pteropus</i> sp.	Humerus
44	0-6	16319	Bird	<i>Rattus</i> sp.	Tibiofibula
44	6-12	16320	Bird	<i>Pteropus</i> sp.	Humerus
44	6-12	16326	Bird	Bird sp.	Femur
50	0-6	16499	Bat?	<i>Pteropus</i> sp.	Tibia
50	6-12	16507	Bird	Bird sp.	Tibiotarsus
50	6-12	16507	Bird	Bird sp.	?
51	0-6	16534	Bird	Columbidae sp.	Ulna
51	6-12	16538	<i>Porphyrrio porphyrio</i>	<i>Porphyrrio porphyrio</i>	Femur
51	12-18	16535	Bird	<i>Pteropus</i> sp.	Humerus

Table 1 cont.

Site No.	Depth (inches)	Catalogue No.	Identification		Element
			A. Wetmore	D. Steadman	
52	6-12	16565	<i>Sterna bergii</i>	<i>Sterna bergii</i>	Humerus
52	6-12	16565	<i>Sterna bergii</i>	<i>Sterna bergii</i>	Humerus
52	6-12	16565	Bird	<i>Porphyrio porphyrio</i>	Tibiotarsus
Uncertain	Uncertain	16751	Bird	<i>Gallus gallus</i>	Radius
Uncertain	Uncertain	17224	Bird	<i>Gallus gallus</i>	Femur
Uncertain	Uncertain	17252	Bird	Anatidae juv.	Femur
Uncertain	Uncertain	17252	Bird	Anatidae juv.	Coracoid
Uncertain	Uncertain	25088	Bird	Anatidae juv.	Coracoid

Table 2
Summary of Specimens Identified in Table 1

Taxon	Number of Identified Specimens
Crab	1
Fish	4
Lizard	1
<i>Pteropus</i> sp. (flying fox)	17
<i>Rattus</i> sp. (rat)	2
<i>Pterodroma nigripennis</i> (Black-winged Petrel)	1
<i>Sterna bergii</i> (Crested Tern)	2
<i>Anous stolidus</i> (Brown Noddy)	2
<i>Egretta sacra</i> (Pacific Reef-Heron)	2
Anatidae sp. (duck/goose)	3
<i>Accipter haplochrous</i> (Blue Goshawk)	2
<i>Gallirallus philippensis</i> (Banded Rail)	6
<i>Porphyrio porphyrio</i> (Purple Swamphen)	19
<i>Pluvialis dominica</i> (Lesser Golden Plover)	1
Columbidae sp. (pigeon)	1
<i>Tyto alba</i> (Barn Owl)	8
<i>Gallus gallus</i> (Chicken)	14
Bird sp.	33

Table 3
Site Distribution of Identifiable Bird Bones, New Caledonia

Species	Site								Total
	19	20	26	44	50	51	52	Other	
Seabirds									
<i>Pterodroma nigripennis</i>		1							1
<i>Sterna bergii</i>							2		2
<i>Anous stolidus</i>	2								2
Landbirds									
<i>Egretta sacra</i>		1	1						2
Anatidae sp.								3	3
<i>Accipiter haplochrous</i>		1	1						2
<i>Gallirallus philippensis</i>	1	5							6
<i>Porphyrio porphyrio</i>		12	5			1	1		19
<i>Pluvialis dominica</i>		1							1
Columbidae sp. (large)						1			1
<i>Tyto alba</i>		4	4						8
<i>Gallus gallus</i>	4	4	4					2	14
Total	7	29	15	0	0	2	3	5	61

Table 4
Summary of Bird Bones from Site 20, New Caledonia

Species	Depth (inches)						
	0-6	6-12	12-18	18-24	24-30	30-36	36-42
<i>Pterodroma nigripennis</i>						1	
<i>Egretta sacra</i>				1			
<i>Accipiter haplochrous</i>				1			
<i>Gallirallus philippensis</i>				4	1		
<i>Porphyrio porphyrio</i>	1	3	2	2	2	2	
<i>Pluvialis dominica</i>			1				
<i>Tyto alba</i>	1			1	1		
<i>Gallus gallus</i>	2	2					1
Total	4	5	3	9	5	2	1

Table 5
Summary of Bird Bones from Site 26, New Caledonia

Species	Depth (inches)			
	0-6	6-12	12-18	18-24
<i>Egretta sacra</i>				1
<i>Accipiter haplochrous</i>	1			
<i>Porphyrio porphyrio</i>	2	1		2
<i>Tyto alba</i>		2	1	1
<i>Gallus gallus</i>	4			
Total	7	3	1	4