THE GENUS CAPELLIRALLUS

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ABSTRACT

Rallus hodgeni Scarlett is discussed and compared with **Capellirallus Karamu** Falla, and placed in the same genus. Additional details are given for **Capellirallus Karamu.**

DISCUSSION

In 1955 the writer published, as *Rallus hodgeni,* a new " rail " from South Island localities. In the same year Dr. W. R. B. Oliver created a new genus, *Pyramida,* for this bird. In 1954 Dr. R. A. Falla also published a new " rail " *Capellirallus Karamu,* from North Island caves. Since both papers were published, many more bones of each form have been found in the North Island, and a review of the available material seems desirable, as evidence has accumulated to show that *hodgeni* is a larger form of *Capellirallus,* and that *Pyramida* is an unnecessary generic separation.

The localities from which *Rallus hodgeni* were known in 1955 were Glenmark Swamp and Pyramid Valley Swamp, North Canterbury, and Marfell Beach, Lake Grassmere, Marlborough. To these can now be added, for the South Island, Rockshelter No. 1 on the farm of Euan Murchison, Weka Pass, North Canterbury, which is only 7 or 8 miles from Pyramid Valley, and S29/7 Wairau Bar Moahunter Camp, Marlborough, a few miles from Marfell Beach. It will be seen that the present known range from the South Island is from two restricted areas. The North Island localities for *hodgeni* include a group of caves and rockshelters in Hawkes Bay (Pigeon Bush Nos. 1 and 2, Hukanui 3, 7a and 7b, Bushface No. 3, and Te Weka No. 1, all investigated by the late W. H. Hartree and the writer); N128/3 Kaupokonui Moa-hunter site, and Ohawe Moa-hunter site on the Taranaki Coast; caves in the Mahoeni district, North Taranaki, and Harrison's Hole, Ruakokopatuna, Martinborough district. Mr. Russell Price has also found it at Poukawa Swamp, Hawkes Bay.

So far, no specimens of *Capellirallus Karamu* have been found in the South Island: The locality of the Holotype of the latter is Karamu Cave, about 13 miles from Hamilton, Waikato: Dr. Falla also had it from Conoor Cave, near Dannevirke, and Waitanguru, Waitomo. To these localities can be added several caves in the Mahaenui district (Skyline, Robbers Hole, Murder Canyon) — mostly collected by the Taranaki Caving Club — Papa Maru Cave, near Te Kuiti, Harrison's Hole, Ruakokopatuna, and sandhills, Tom Bowling Bay, Northland.

The Mahoenui-Waitomo-Te Kuiti limestone caves are part of one system.

When I published the original description of *Rallus hodgeni* no cranial material was available. Since then the position has improved slightly, and other parts of the skeleton are also better known.

DESCRIPTION

CRANIUM

Capellirallus hodgeni (Scarlett 1955)

Av. 22,951 A. From bones of five mixed individuals. Harrison's Hole, Ruakokopatuna, Martinborough. C. 2,000 feet, 1968: Coll. John Marston and Ian Peyton.

Av. 27,763 A. Posterior portion. Same locality and collectors, 1966. From mixed bones of at least 19 individuals.

Av. 18,308. Posterior portion, with part skeleton. Hukanui No. 3 cave, C. 30 miles from Napier, Hawkes Bay. C. 2,500 ft. April, 1960. Coll. W. H. Hartree. These bones are all the cranial material as yet available for study. They are very similar in size and shape to those of *Capellirallus Karamu.* Av. 22951 A differs mainly in being wider in the pre-orbital region. It is imperfect, being holed below (ventral aspect) on the left side. No pre-maxilla or mandible of *hodgeni* has yet been found, but despite this, the close similarity of *hodgeni* and *karamu* in all but size, shows that they are con-generic.

	Length posterior to beginning of pre-maxilla	Height	Minimum width at temporal fossae	Width at post-orbitals	Width at squamosals	Width of foramen magnum	Depth of foramen magnum
Av.22,951A	2.55+	1.65	0.625	1.95	2.1±	0.55	0.415
Av.21,763A	-	-	-	-	2.05	04.95	0.5
Av.18,308	-	-	-	-	2.0+	0.55	0.4±

PELVIS

None of the pelves is complete. I have taken measurements wherever available. Where a star (*) appears, it indicates that the sound half was measured and multiplied by two. Several other pelvic fragments, besides those listed, are in the Canterbury Museum collection, but are not measurable. All the pelves lack pubes.

Dr. Oliver considered the pelvis allied to *Tribonyx* and *Gallinula.* I have no *Tribonyx* for comparison, but have used two skeletons of *Gallinula chloropus cachinnaus Bangs,* and one of *Gallinula chloropus chloropus* (Linne) for comparison, as well as *Fulica atra australis,* Gould, *Fulica atra atra* (Linne), *Fulica americana americana,* Gmelin, and *Nesophalaris chathamensis* (Forbes).

Capellirallus is certainly allied to the Gallinules in the pelvis, differing from *Gallinula* and *Fulica* mainly in the relatively larger frontal iliac region.

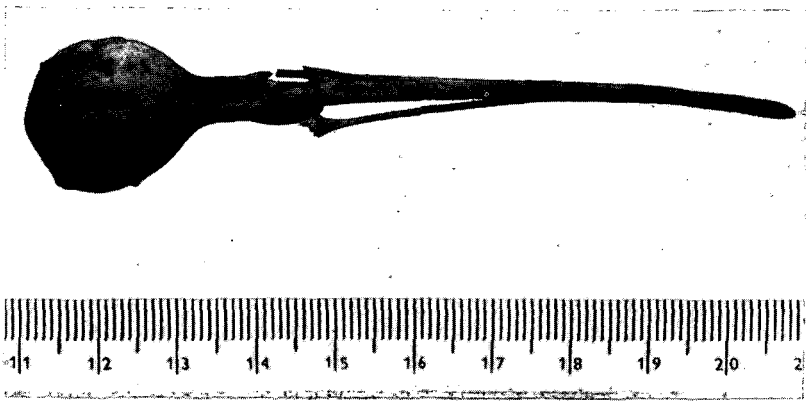

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Plate XXXVII — Av. 20,615. **Capellirallus Karamu** Falla. Dorsal view of cranium and pre-maxilla.

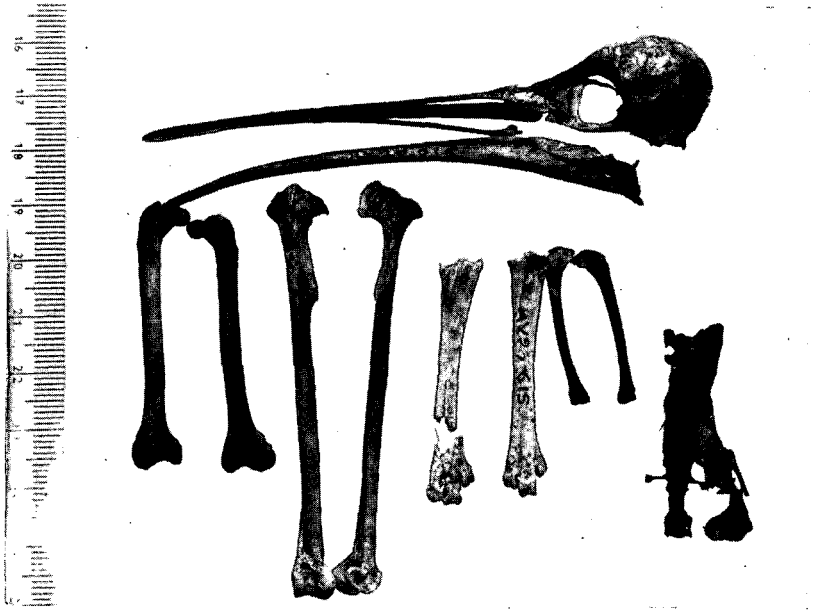

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Plate XXXVIII — Av. 20, 615: **Capellirallus Karamu** Falla. Cranium, pre-maxilla, mandible: Side view: R. and L. femora, tibio-tarsi, tarso-metatarsus, humeri and partial pelvis.

I have followed Dr. Oliver's excellent description of this bone. The anterior ends of the ilia slope steeply downwards from well behind the front of the first pelvic (sacral) vertebra, for about half their width, with the margins concave upwards. They then extend forwards, their transverse borders being thickened and fused on the inside to the transverse processes of the first sacral vertebra. Posterior to the short junction with the iliac crest, the upper margins of the ilia bend downwards for about a third of the width of the ilia, then gradually reach the crest again in front of the acetabulum. The iliac crest is arched. The post-acetabular portion of the pelvis is shorter than the pre-acetabular part. Its upper surface slopes backwards, gradually converging towards the lower border. The ischio-iliac plate slopes away from the upper surface at an angle of about 40 degrees from the vertical.

The pelves of *Capellirallus, Fulica, Nesophalaris* and *Gallinula* differ markedly from Rails — e.g. *Gallirallus,* in one aspect. In Rails, the anterior ischia completely cover the " spine " of the sacrum for about a third of the total length, then fall steeply, exposing the dorsal surface of the sacrum.

In *Capellirallus,* Coots and the other Gallinules, the dorsal surface and " spine " are exposed except for a very small portion at the anterior end.

As will be seen from the table, *Capellirallus lodgeni* is closer to *Gallinula* than *Fulica* in general proportions. Av. 5,803; 5,804; 6,197 are from Pyramid Valley Swamp, North Canterbury; Av. 21,763 B, C. D, H. from Harrison's Hole, Ruakopatuna; Av. 13,308 from Hukanui No. 3 cave, Hakes Bay; and Av. 17,510 from Hukanui 7A cave, Hawkes Bay. *Gallinula c. chloropus,* Av. 10,286 is a skeleton from Europe. *Gallinula chloropus cachinnans* Av. 21,194 and 21,195 are from Ontario, Canada (the pelvis of Av. 21,195 is broken). *Fulica atra atra,* Av. 5,229 is a European skeleton (from a dealer in Prague). *Fulica atra americana.* Av. 21,193 is an Ontario specimen, and *Fulica atra australis* is a skeleton from New South Wales.

STERNUM

Only one specimen, imperfect, is available of this bone of *Capellirallus hodgeni.* Av. 21,763I. It lacks most of the posterior lateral processes, but is otherwise complete. Length: Anterior to end of central lateral process 2.8. Width at anterior lateral processes: 1.9. Waist width 0.95. Keel length 1.7. Greatest depth of keel from body of sternum 1.0.

The anterior lateral processes project sharply forward, and on the inner surface slope steeply backwards, forming a 'V.' In this area the sternum closely resembles *Gallirallus* and *Nesolimnas.* There are 6 " notches " on each side to socket the sternal ribs, 4 of them prominent, the posterior and anterior ones shallow. *Gallinula* and *Fulica* also have six sternal ribs to each side.

The general shape is triangular as far as the posterior lateral processes, the central process being *sharply* so, and ending in a flattened point, 3 mm. wide. Only the bases of the posterior lateral processes remain, but they appear to have been moderately divergent, giving each side of the sternum a somewhat crescentic appearance.

	Length of body (minus pubes)	Anterior width	Posterior width	Width across supra-trochanteric processes	Depth of acetabulum	Width of acetabulum	Sacral length	Least width (middliac)
Capallirallus hodgeni								
Av. 5,803 Holotype	5.8	-	2.4±	-	0.3	0.35	4.8	1.0
Av. 6,197	5.5	-	2.5	2.6	0.3	0.4	4.9	1.0
Av. 5,804	5.4	1.45	2.6±	-	0.3	0.35	4.55	1.1
Av.21,763C	5.35	-	2.4 ±	2.5	0.4	0.3	4.55	1.0
Av.21,763B	-	-	-	2.55	0.35	0.35	5.1	1.15
Av.21,763H	-	1.4	-	-	-	-	-	-
Av.21,763D	-	-	-	-	0.35	0.3	4.2+	-
Av.18,308	-	-	-	2.6±	0.4	0.4	4.8+	-
Av.17,510	-	-	-	-	-	-	4.55	-
Gallinula C.chloropus								
Av 10,286	5.35	1.75	2.5	2.2	-	-	4.3	0.95
Gallinula chloropus cachinnans								
Av.21,194	5.15	1.7	2.25	2.3	0.3	0.3	4.4	1.1
Av 21,195	-	-	2.3±	2.35	0.325	0.325	-	1.1
Fulica atra atra								
Av 5,229	7.0	2.0	2.1	2.15	-	-	6.6	1.25
Fulica atra americana								
Av.21,193	6.95	1.8	1.7	2.1	0.4	0.4	6.3	1.0
Fulica atra australis								
Av 5,216	6.7	1.6	1.9	2.2	0.4	0.4	6.1	1.0

Viewed from the side, the sternum is " boat-hsaped," with the anterior and central processes sloping upwards. The keel is extremely shallow.

From the bottom of the V at the front, an acute triangular depression extends backwards for approximately 7 mm. to the anterior end of the keel.

In *Fulica, Gallinula,* in *Gallirallus,* which is flightless, *Nesophalaris,* flightless or nearly so, and *Hypotaenidia,* the keel is strong, fairly deep, and projects forwards.

In *Nesolimnas,* also presumably flightless, and *Porzana,* the keel is also deep in proportion to the size of the sternum, but further back under the body.

It is in this very shallow keel that *Capellirallus* differs most sharply from the other Gallinules, and from Rallines in general.

FEMUR

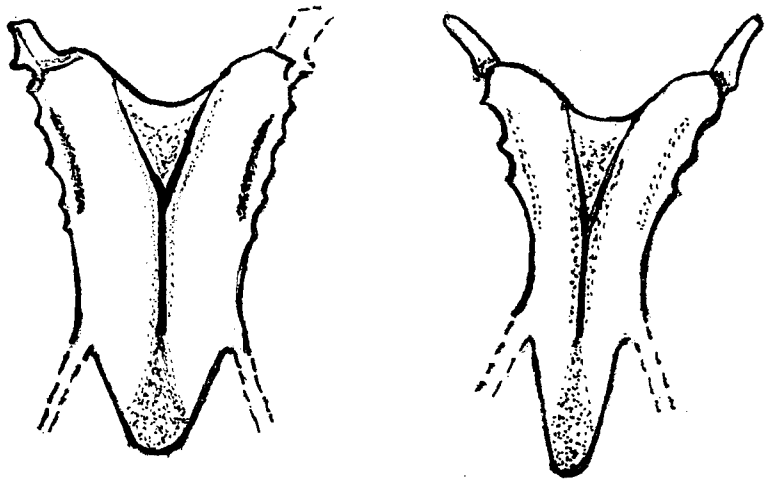
The trochanter major slopes in a pronounced curve, raised sharply above the body of the shaft. In this and other particulars it is closely similar to, in fact almost indistinguishable from *Gallinula. (Gallirallus hartreei* Scarlett with a femur of similar proportions, is distinguishable here, because the trochanter major lips inwards, in a much more pronounced fashion than in *Capellirallus* or *Gallinula. Fulica* has slightly more " lip " than the former two.) Articular head rounded with a flattened appearance below: Shaft with moderate torsion. Distal condyles expanded, with a deep groove between them:

Capellirallus hodgeni North Island	L.	D.	M.	D.
Maximum : Av.21,763N :	6,375	1.1	0.4	1.1
Minumum: Av.21,763P	5.3	1.075	0.4	1.0

29 measured

Capellirallus hodgeni South Island	L.	P.	M.	D.
Maximum : Av. 6,194	5.8	1.1	0.4	1.0
Minimum : Av. 2,056	5.375	1.05	0.4	1.0
Gallinula c.chloropus				
Av.10,286	5.4	-	0.4	0.95
Gallinula chloropus cachinnans				
Av.21,195	5.45	1.0	0.475	0.975
Av.21,194	5.4	1.0	0.475	1.0

Several femora of *c. hodgeni* had a mean of 0.5, and one a proximal width of 1.125 c.m. It was not possible to obtain the proximal width of Av. 10,286 because it is socketed in the pelvis in the mounted skeleton.



STERNA OF CAPELLIRALLUS

Capellirallus hodgeni (Scarlett). Av. 21,763I, ventral view, X2

Capellirallus Karamu (Falla). Composite; drawn from several fragments. Ventral view, X2

TIBIOTARSUS

The cnemial crest is large and oblong (in *Gallirallus hartreei* it is square), projecting forward and upward from the shaft. The ridge for attachment of the fibula is sharply defined, and roughened on the outer surface. The shaft is straight. The general resemblance to *Gallinula* is strong, except in the shape of the cnemial crest, where *Gallinula* is intermediate between *Capellirallus hodgeni* and *Gallirallus hartreei*.

Cnemial crest. In the North Island *Capellirallus hodgeni* the maximum width was 1.45. The maximum proximal width was 1.075, the greatest mean width 0.425, and the maximum distal measurement was 0.825.

The South Island bones had a maximum proximal width of 1.025, maximum cnemial crest 1.475, minimum mean of 3.5, and maximum distal width of 0.825.

Unfortunately, most of the cnemial crests were broken.

Capellirallus hodgeni : North Island :	L	P	Cnemial Crest	M	D
Maximum: Av.21,763W	8.05	0.95		0.4	0.75
Minimum: Av.21,7630	7.3	0.95	1.375	0.4	0.7

32 measured.

South Island :						
Maximum: Av.	5,985	7.8	1.1	1.5	0.425	0.8
Minimum: Av.	20,056	7.2	0.9	-	0.375	0.725
10 measured.						
Gallinula c. chloropus						
Av.	21,195	9.1	1.1	1.4	0.4	0.8
Av.	21,194	8.3	0.9	1.275	0.4	0.75
Gallinula chloropus cachinnans						
Av.	10,286	8.5	1.0	1.4	0.4	0.75

TARSO-METATARSUS

This is a short, squat bone, not easily distinguishable from that of *Gallirallus hartreei.* It is relatively shorter than the corresponding bone of most rails, *Gallinula* and *Fulica.*

Capellirallus hodgeni					
North Island :		L.	P.	M.	D.
Maximum : Av.	21,763Z	4.5	0.825	0.4	0.875
Minimum : Av.	21,763Y	4.1	0.8	0.4	0.75
20 measured.					
South Island :					
Maximum : Av.	5,803	4.25	0.7	0.4	0.75
Minimum : Av.	13,778	3.95	0.7+	0.4	0.75
Gallinula c. chloropus					
Av.	10,286	4 85	0.8	0.35	0.8
Gallinula chloropus cachinnans Av.	21,195	5.7	0.8	0.4	0.9
	21,194	5.3	0.75	0.4	0.825

The considerable variation in length of the tarso-metatarsus in both *Capellirallus* and *Gallinula* will be apparent.

The North Island *C. hodgeni* had a maximum proximal width of 0.85 (2 bones) maximum mean of 0.5 (1 bone) minimum mean of 0.375 (1 bone) and maximum distal width of 0.9 c.m. (3 bones).

In the South Island, the greatest proximal width was 0.75 (one bone) and the same bone measured 0.775 distally.

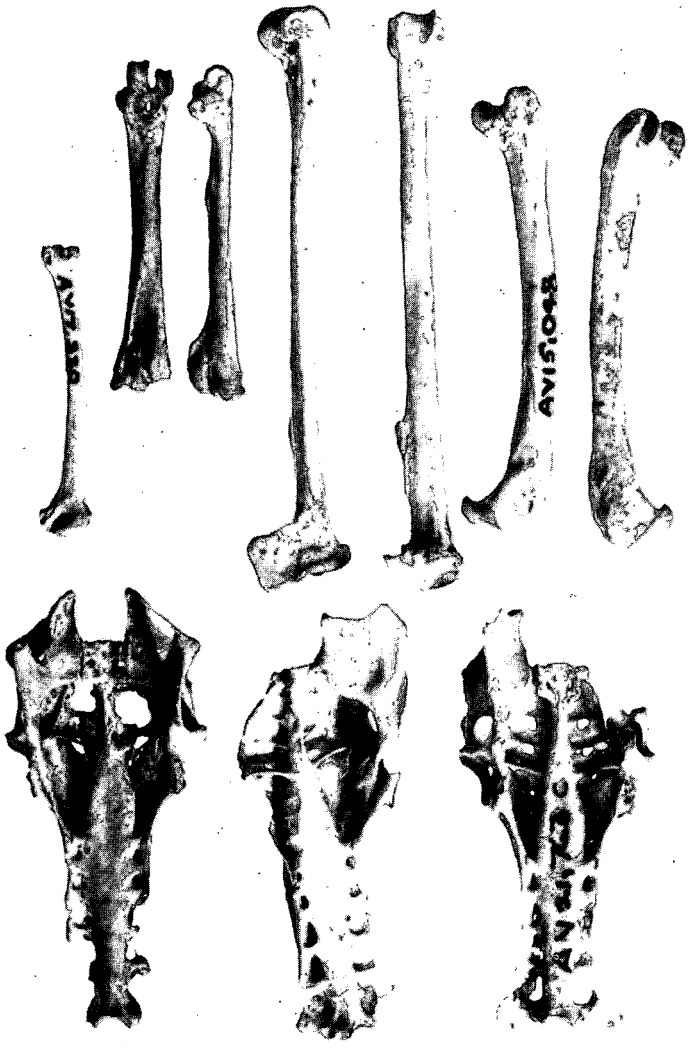


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Plate XXXIX — **Capellirallus hodgeni** (Scarlet). Pelves: North Island. Av. 21,763C: South Island Av. 5803 C (PARATYPE); Av. 6197 (HOLOTYPE). Ventral view.

Femora: North Island: Right: Av. 21,763Z. South Island: Left, Av. 15,048: Tibio-tarsi: North Island: Right: Av. 21,763O. South Island: Left, Av. 8281 (PARATYPE) Tarso-metatarsi: South Island: Right: Av. 5803 (PARATYPE); Left, Av. 8282 (PARATYPE). North Island: L. humerus Av. 17,330A. Posterior view, except Left tibio-tarsus and R. tarso-metatarsus, shown in side view.

HUMERUS

The humerus of *Capellirallus hodgeni* is typical in shape for the Gallinule - Ralline group. Proportionately it is much larger than that of *Capellirallus karamu.*

From the wings and sternum there is clear evidence that both *Capellirallus* were completely incapable of flight.

North Island.	L .	P.	M.	D.
Maximum : Av. 21,763d	4.325	0.825	0.3	0.65
Av. 21,763g	3.9	0.8	0.275	0.6
Minimum : Av. 21,763h	3.425	0.75	0.225	0.525
13 measured.				
South Island.				
Maximum : Av. 7,238	4.075	0.75	0.275	0.55
Minimum : Av. 17,330A	3.725	0.7	0.25	0.475

The North Island bones are from Harrison's Hole. Av. 21,763h seems abnormally small. The South Island Av. 7,238 is from Pyramid Valley, and Av. 17,330A from Euan Murchison's Rockshelter No. 1 Weka Pass.

ULNA

The North Island ulnae which I have atrributed to *Capellirallus hodgeni* are rather smaller than those from the South Island. They are all from Harrison's Hole. As will be seen, *Gallinula* exhibits a similar variation. The two South Island bones are from Marfell Beach. The Pyramid Valley ulna listed in my original paper was, by a printer's error, numbered Av. 6,647. It is Av. 6,646.

Capellirallus hodgeni

North Island	L.	P.	M.	D.
Maximum : Av. 22,245B	3.175	0.45	0.25	0.4
Minimum : Av. 22,245E	2,85	0.4	0.25	0.4
3 measured.				
South Island.				
Maximum : Av. 14,152	3.65+	0.625	0.4	0.5
Minimum : Av. 14,426	3.55	0.575	0.4	0.525
6 measured.				
Gallinula c. chloropus Av.10,286	4.3	0.7	0.35	0.55
Gallinula chloropus cachinnans :				
Maximum : Av. 24,195	4.7	0.65	0.325	0.55
Minimum : Av. 24,194	4.3	0.65	0.325	0.55

CARPO-METACARPUS

The bone is, in shape, typical of the Gallinule - Ralline group. Six were measured, all from Harrison's Hole.

Maximum length: Av. 21,763X, 2.175.

Minimum length: Av. 21,763I, 1.9.

CORACOID

Again, this bone is typical in shape of the Gallinule - Ralline group. The nine measured are all from Harrison's Hole. The greatest distal measurement was 1.0 c.m.

		L.	P.	M.	D.
Maximum :	Av. 22,245j	2.1	0.65	0.275	-
Minimum :	Av. 22,245k	1.8	0.55	0.215	0.8

There are many hundreds of mixed vertebrae and phalanges from Harrison's Hole yet to be sorted. Some of these may eventually be found to belong to *Capellirallus hodgeni.*

Capellirallus karamu Falla 1954

In 1954, Dr. R. A. Falla published a description of the skeleton of this bird, from Karamu Cave, and gave particulars of additional bones from Conoor Cave, near Dannevirke, and a limestone cave at Waitanguru, near Waitomo. Dr. Falla stated " Pectoral girdle, sternum, and wing-bones are missing, so that its flight potential remains unknown and can only be guessed at. From the fact that the legs have the proportional stoutness found in known flightless rails *(Gallirallus, Cabalus)*, a similar condition might be inferred." The Holotype is Auckland Museum No. 901.1.

In recent years, Canterbury Museum has been fortunate in obtaining several part skeletons of this bird, some of which contain the bones which were absent from the Holoytpe. These show that Dr. Falla was correct in his inference.

Av. 20.615: Skyline Cave, Mahoenui, North Taranaki, was collected on 26/9/1965 by the Taranaki Caving Club, and presented to the Museum, per David Medway. This skeleton is the *piece de resistance* of the Canterbury Museum's collection of these birds. The cranium is in good order, although a little eroded on the posterior. The detached pre-maxilla is almost complete. The mandible is complete although the right ramus fell off while it was being photographed. The pelvis is eroded, particularly at the posterior, but is otherwise in reasonable preservation. Thesternum is broken: R. and L. femora, tibio-tarsi, fibulae and R. tarso-metatarsus are in good order. The left tarso-metatarsus is broken in the shaft near the distal end. 17 phalanges are present. R. and L. humeri, ulnae, radii, carpo-metacarpi, coracoide, scapulae, 23 vertebrae and two caudal vertebrae were found. There are also 14 ribs, 5 sternal ribs, 5 and several broken trachaeal rings. Of the cranial bones, R. and L. quadrates, quadrato-jugals, pterygoids, and the R. and L. hypo-branchials (the hyoid " rods " of the tongue) are present, but detached. This is an almost complete, and rather fragile skeleton.

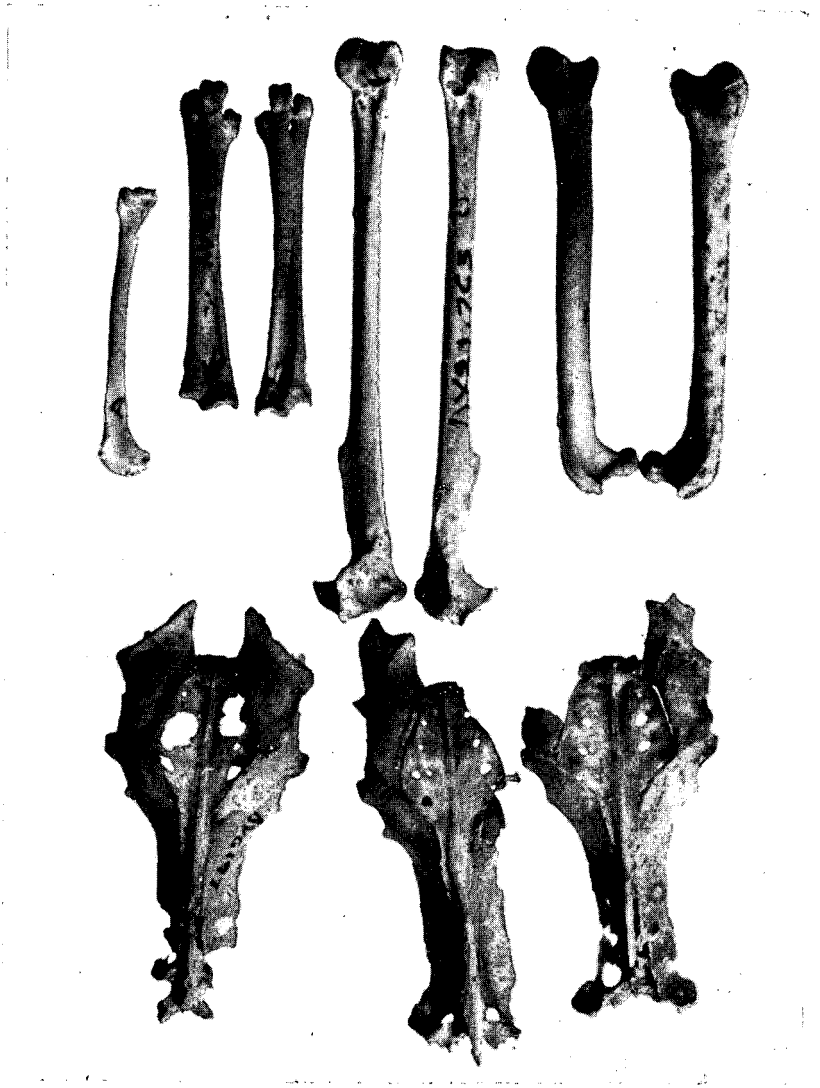

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Plate XL — **Capellirallus hodgeni** (Scarlett). Pelves: North Island: Av. 21,763C: South Island Av. 5803 C (PARATYPE); Av. 6197 (HOLOTYPE). Dorsal view.

Femora: North Island: Right: Av. 21,763Z. South Island: Left, Av. 15,048: Tibio-tarsi: North Island: Right: Av. 21,763O. South Island: Left, Av. 8281 (PARATYPE) Tarso-metatarsi: South Island: Right: Av. 5803 (PARATYPE); Left, Av. 8282 (PARATYPE). North Island: Left humerus: Av. 17330A. Anterior views (Left tibio-tarsus twisted to show cnemial crest).

Av. 20,614, another part skeleton, was also collected in Skyline Cave on the same day as Av. 20,615. The cranium has the base detached and the pre-maxilla and mandible are broken. The pelvis lacks the pubes, but is otherwise in good order. The posterior portion of the sternum is missing. R. and L. femora, tibio-tarsi, proximal R. fibula, R. and L. tarso-metatarsi are present, as are 8 phalanges, R. humerus, R. ulna, 18 vertebrae, part R. coracoid, L. radius, 8 and fragments of several other ribs, and a broken L. quadrate.

Av. 20,649: Skyline Cave, 20/2/1966. Same collectors. Part pre-maxilla, pelvis (a little worn), R. femur, R. tarso-metatarsus, proximal and distal ends of L. tarso-metatarsus, proximal R. and L. fibulae, 16 phalanges, R. and L. humeri, L. ulna, proximal L. scapula, L. coracoid, 11 vertebrae, 8 ribs, R. and L. quadrates, R. palatine and R. quadrato-jugal.

Av. 21,759: Murder Canyon, Mahoenui, 10/1/1968: coll. Philip Allen; per David Medway: Cranium in good order; part pre-maxilla and mandible, R., proximal and distal ends of L. femora, R. and L. tibio-tarsi and tarso-metatarsi, 19 phalanges, worn pelvis, R. carpo-metacarpus, R. ulna, L. radius, 23 vertebrae, 3 trachaeal rings, proximal fragment of R. scapula, 2 ribs, R. and L. quadrates, L. coracoid, R. hypo-branchial.

Av. 20,648: Skylint Cave, Mahoenui, 20/2/1966. Taranaki Caving Club, per David Medwav. Part cranium, fragment of mandible, part pelvis, worn sternum, R. and L. femora, and tibio-tarsi, proximal and distal ends of R. tarso-metatarsus, 6 phalanges, R. humerous, L. scapula, 11 vertebrae, 5 ribs, L. quadrate.

Av. 22,650: Skyline Cave, Mahoenui. Same data as Av. 22,648. Part pre-maxilla, mandible, worn pelvis, part sternum, L. tibo-tarsus, L. fibula, L. tarso-metatarsus, 21 phalanges, R. and L. humeri, ulnae and radii, coracoids, L. scapula, 21 vertebrae, 6 ribs, 9 trachaeal rings, R. and L. quadrates, part R. and L. palatines.

Av. 19,994: Robber's Hole, Mahoenui. -/9/1964. Coll. Algy Watson. Cranium, fragments of mandible, part pelvis, part sternum. R. and L. femora, tibio-tarsi, tarso-metatarsi, 1 phalanx, R. and L. humeri, L. ulna, 7 vertebrae, 3 ribs, trachaeal ring, R. quadrate.

Av. 20,616: Robber's Hole, Mahoenui. 6/1/1966. Taranaki Caving Club, per David Medway. Cranium, in good order, fragments of mandible, L. femur, R., distal end and part shaft of L. tibio-tarsi, 1 vertebra.

Av. 21,465: Robber's Hole, Mahoenui. 19/7/1967. Coll. R. Banham, per David Medway. Part mandible, part pelvis, distal end and shaft of R. tibio-tarsus, 9 vertebrae, L. quadrate.

Av. 18,849: Papa Maru Cave, near Te Kuiti. -/12/1962. Coll. Dorothy I. Gardiner. 20 vertebrae; R. and L. humeri, coracoids, L. ulna, part R. carpo-metacarpus, 5 phalanges, 12 ribs, L. quadrate.

Av. 19,256: Limestone Cave, Mahoenui, -/11/1963, coll. John Kendrick; 2 fragments of mandible, pelvis, part sternum, R. and L. femora, tibio-tarsi, tarso-metatarsi, 2 phalanges, proximal R. fibula, R. and L. humeri.

Av. 20,646: Skyline Cave, Mahoenui. 20/2/1966. Taranaki Caving Club per David Medway. Part cranium, part mandible, pelvis, 13 vertebrae, part R. and L. humeri, R. ulna, R. quadrate.

Av. 20,647: Skyline Cave, Mahoenui. Same data as Av. 21,646. Part cranium, part pre-maxilla, part mandible, R. and L. femora, proximal end and part shaft R., distal end and part shaft L. tibio-tarsi, proximal R. and L. fibulae, broken R., proximal L. tarso-metatarsi, 11 phalanges, 19 vertebrae, R. and L. humeri, 8 ribs, R. quadrate.

Av. 20,726: Robber's Hole, Mahoenui. 12/6/1966. Taranaki Caving Club, per David Medway. L. femur, proximal end and shaft of L. tibio-tarsus, R., distal end and shaft of L., tarso-metatarsi, 3 phalanges, R. and L. humeri, L. scapula, 4 vertebrae.

That exhausts the list of part skeletons of *Capellirallus karamu* in the Museum collection. The others are either add bones, or mixed lots. Av. 20,878 is a R. femur from Tom Bowling Bay, Northland. -/1/1966, coll. Jack Grant-Mackie; Av. 20,649A a R. tibio-tarsus from Skyline Cave, 20/2/1966. Av. 21,764A a mixture of at least 7 individuals from Harrison's Hole, in 1966. Coll. John Marston and Ian Peyton: Pelvis, fragments of 2 other pelves, 5 R., 6 L. femora, 4 part R., 3 and 4 part L. tibio-tarsi, 7 R., 2 L. tarso-metatarsi, 3 R., 2 and part 1 L. humeri, 1 R., 3 L. ulnae, 1 R., 1 L. coracoids. Av. 22,246: Harrison's Hole, 1968. Same collectors. Part cranium; L., distal L. femora. R. and L. tarso-metatarsi, 1 R., 2 L. humeri, L. coracoid — a minimum of 2 individuals.

CRANIUM etc.	Length with pre-maxilla	Length of pre-maxilla	Length, posterior to beginning of pre-maxilla	Height	Length of mandible	Minimum width at temporal fossae	Width at post-orbitals	Width at squamosals	Width at basi-occipetals	Width of foramen magnum	Depth of foramen magnum
Av.20,615	9.7	7.1	3.2	1.85	8.4	0.615	1.95	1.7	1.525	0.55	0.45
Av.20,614	-	-	3.15	-	-	0.525	2.0	1.85	1.4	0.55	-
Av.19,994	-	-	3.15	2.0	-	0.55	-	-	1.[illegible]	0.55	0.4
Av.21,753	-	-	3.2	1.85	-	0.525	1.8	1.725	1.4	0.6	0.4
Av.20,616	-	-	3.15	1.025	-	0.575	1.975	1.7	1.55	0.525	0.5
Holotype	8.8	5.6	-	-	-	0.57	-	-	-	-	-

It will be noted that no clavicle of this bird has yet been found, and it seems probable that the bird did not possess one.

All the measurements of the Holotype quoted in this paper are taken from those published by Dr. Falla.

I measured the pre-maxilla on the chord of the culmen.

	PELVIS							
	Length of body (Minus pubes)	Anterior width	Posterior width	Width across supra-trochanteric processes	Width of acetabulum	Depth of acetabulum	Sacral length	Least width Mid-iliac
Av.21,764A	4.5	1.5	2.1	1.9	0.4	0.35	4.1	0.9
Av.20,614	4.075	1.4 ± *	1.75	1.8	0.3	0.3	3.4	0.9
Av.20,649	4.0	1.1 ± *	4.8	1.8	0.25	0.275	3.5	0.8
Av.20,615	3.7	1.2 ± *	-	1.7 ± *	0.3	0.325	3.6	0.7 ± *
Av.19,256	-	-	1.9	1.8	0.35	0.325	-	0.8
Av.21,759	-	-	-	1.4 ± *	0.25	0.35	-	-
Av.20,648	-	1.2 ± *	-	-	0.275	0.3	3.5	0.8
Av.21,465	-	-	-	1.7 ± *	0.3	0.35	-	-
Av.20,646	-	-	-	1.6 ± *	0.3	0.325	3.95	0.8
Holotype	3.8	-	-	2.0	-	-	-	0.8

* Measured on the sound half, and doubled. By this means, a measurement accurate to within half a millimetre can be obtained.

STERNUM

All the sterna in the Canterbury Museum collection are broken, but some — e.g. Av. 20,648, Av. 20,650, are sufficiently complete to show that they are miniatures of that described for *Capellirallus hodgeni*, except that the point of the central processes is a little narrower in proportion, and they have a more slender anterior process. I have drawn the sternum as a composite of several fragments.

	FEMUR			
	L.	P.	M.	D.
Maximum: Av.19,256	4.75	0.925	0.4	0.9
Minimum :Av. 20,649	4.3	0.8	0.325	0.85
Holotype	4.43	0.76	0.38	0.8

6 measured (besides Holotype). The least distal width was 0.8 in the Canterbury Museum specimens.

TIBIO-TARSUS

		L.	P.	Chemial Crest	M.	D.
Maximum :	Av.19,256	7.3	0.925	1.1	0.4	0.7
	Av.20,615	7.1	0.95	1.2	0.425	0.7
Minimum:	Av.20,649	6.425	-	-	0.45	-
Holotype		6.5+	1.03	-	0.35	0.6

6 measured, besides Holotype

TARSO- METATARSUS

		L.	P:	M.	D.
Maximum :	Av.20,615	4.225	0.7	0.4	0.715
Minimum :	Av.20,649	3.7	-	0.4	0.775
Holotype		3.9	0.67	0.38	0.7

HUMERUS

		L.	P.	M.	D.
Maximum :	Av.20,615	2.8	0.6	0.2	0.35
Minimum :	Av.19,994	2.6	0.5	0.2	0.35

ULNA

		Length
Maximum :	Av. 20,615	1.725
Minimum :	Av. 19,914	1.575

Five measured :

CARPO- METACARPUS

		Length
Maximum :	Av. 20,615	1.125
Minimum :	Av. 21,759	1.0

CORACOID

		Length
Maximum :	Av. 21,615	1.6
Minimum :	Av. 20,649	1.4

Four measured.

These bones, for which I have given the length measurements only, are typical of the Gallinule - Ralline group in form, but are very small.

The overlap between the minimum length of some of the leg-bones of *hodgeni* and maximum length of *karamu* will have been noted, but the wing bones of *karamu* are very much smaller than those of *hodgeni.*

If *karamu* were found in both islands, there might be a case for considering these two forms as con-specific, the difference being sexual.

As *karamu* is confined to the North Island, it seems better for the present to maintain them as separate species, with the leg measurements sometimes converging. Complete skeletons of *hodgeni* are greatly to be desired.

The size range *within* each species is consistent with that found in Gallinules and Rails.

Gallinula, Fulica, Gallirallus, Nesophalaris, Nesolimnas, Hypotaenidia, for example, exhibit similar variations.

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