

LEG AND FOOT COLOUR OF THE MARSH CRAKE *Porzana pusilla*

By K. E. WESTERSKOV

Department of Zoology, University of Otago, Dunedin

In most of the ornithological literature examined, including textbooks, field guides and general texts, the Marsh Crake *Porzana pusilla* is credited with having brownish, greyish, reddish grey or flesh-coloured legs. The leg colour of this species has even been claimed to be diagnostic, aiding in identification and separation from related species.

The "Handbook of British Birds under 'Field-characters and General Habits' of this species says: "legs brownish or greyish flesh-colour, not green." And further (*op. cit.*, p. 192): "legs and feet dirty greyish-flesh, joints inclined to be yellowish (Naumann)". Undoubtedly Naumann must bear the main responsibility for this statement, so often repeated in the literature; he not only says (1905: 175) about the colour of the feet of *pusilla* (translation): "*It is never green*" but elaborates further that this has been the case in both live and dead birds examined. To this he adds a footnote to the effect that leg colour in earlier publications has been given as green, but that this is incorrect. After this firm rejection of former descriptions that the legs are green — in one of the classics of European ornithological literature — no wonder that in particular European texts from then on accepted Naumann's "dirty greyish-flesh to pale reddish-grey."

In Peterson, Mountfort and Hollom's *Field Guide* (1954: 106): "dull flesh legs" are given as diagnostic for the Marsh Crake while "Legs green (Baillon's are dull flesh coloured)" is given under Little Crake *P. parva* as characteristic of this very similar species; this difference is also shown in the colour plate (Plate 17). Frieling (1936: 141) also gives "Fleischfarbene Fusse" as diagnostic of *P. pusilla* in contrast to greenish feet in *P. parva*. Other examples are Fitter (1952: 100): "legs greyish" in Marsh Crake while "legs green" in Little Crake; Fisher (1955: 39): "legs brownish flesh" in *P. pusilla* and "legs green" in *P. parva*. A great many other works have been consulted with much the same result.

On 25 May 1969 I had the opportunity to examine a fresh specimen of the New Zealand subspecies *P. pusilla affinis* (Gray) a few hours after it was accidentally killed by a dog during duck shooting. This specimen was found at Hooper's inlet, Otago Peninsula at Dunedin. While a duck was shot down, the retrieving dog brought its surprised master, Mr. T. E. Fitzgerald, Lower Portobello, the just dead, slightly damaged crake. Within a couple of hours I obtained the specimen which is now in the Otago Museum, Dunedin.

The Marsh Crake — or Baillon's Crake as it is called in Britain — is quite a common bird in New Zealand in swamps and lagoons, although it is rarely seen. Given the opportunity of examining a fresh specimen, I made a thorough investigation of plumage, bill, legs and feet measurements. Comparing the results with standard

texts — and as it happened I first consulted the *Handbook* — I was immediately aware of a discrepancy which was confirmed by subsequent further examination of the literature and specimens in the Otago Museum.

The specimen examined, an adult female, had the following measurements: wing 82 mm., free culmen 17 mm., tail 42 mm., tarsus 26 mm. Iris bright red; bill bright pale greenish, darker horny brown on culmen. *Legs and toes yellowish olive-green* with the long nails pale horn brown. First primary and outer (longest) alula feather with a narrow white line on edge of outer (narrow) web. Weight 38.4 g.

The quite brightly coloured yellowish olive-green legs and feet attracted my attention and as a quick look at the literature showed a description at variance with the facts, I asked the two artists of the Otago Medical School's art department, Mr. J. B. Irwin and Miss Y. R. Joel, to paint water colours of the legs, which they readily did. This permanent record is available. I should add that the green colour of bill, legs and feet over the couple of days while examination and painting took place gradually lost intensity and gave way to a darker coloration; in the dry specimen legs and feet were horny brown with no green at all.

In the Otago Museum's collections I examined 12 specimens of Marsh Crake. Ten study specimens all had horny brownish legs, so typical of museum specimens of a great many birds. There is hardly any doubt that the repeated literature description of horny brown legs in this species had its origin in examination of dried study skins without label entries on true fresh leg colour.

Two display specimens (a female from Waiho River, 13 June 1901, and a female from Te Anau, 3 October 1966) had legs and feet painted a life-like olive greenish. There are no details available on original leg colour in the Waiho River specimen, but the museum taxidermist, Mr. P. J. O'Brien, advises me that the Te Anau specimen from 1966 had bill and legs painted according to details given on the original field label; in this specimen the legs and feet were correctly painted a distinct yellowish olive-green.

Further to these two specimens, while the other skins examined had dried horny brown legs and feet, labels of four of the ten specimens contained information to the effect that in fresh condition the legs had been green; this information was given on labels of these specimens:

- (1) a male from Middlemarch, 6 May 1961; label about feet: "Yellowish olive";
- (2) a male from Papakaio, 12 April 1962; label note on feet: "Greenish horn";
- (3) a female, Dunedin, 16 June 1961; label note on feet: "Greenish brown";
- (4) a female, Pyramid, Southland, 6 June 1961; label on legs and feet: "Greenish brown."

The New Zealand subspecies *P. pusilla affinis* is endemic and was first described by Gray. I have checked the original description by Gray (1845: 14) who, however, does not mention the colour of legs and feet of what he called *Ortygometra affinis*.

Hutton (1871: 33) says this species has: "legs, feet and bill brownish green." Buller (1888: 103) says that the Marsh Crane has "bill, tarsi and toes pale brown, tinged with olive." Oliver (1930: 344) about the Marsh Crane states: "Bill and feet olive brown," while in his second edition (1955: 359) he says: "Bill and feet brownish green." Falla, Sibson and Turbott (1966:106) say almost identically: "Bill, legs and feet brownish-green."

Of the five New Zealand specimens of which leg colour was known, two were males and three females, and they were from the months of April, May and June. But before the widely-accepted brown leg colour in the Marsh Crane can be decisively refuted, it is necessary to establish beyond doubt that leg colour is not affected by: (1) sub-specific, (2) sex, (3) age or (4) seasonal differences and thus showing variation.

Peters (1934: 183) divides *P. pusilla* into five subspecies: (1) *P. p. intermedia* (Hermann), breeding in central and southern Europe, east to Persia, and wintering north and south of the Sahara; (2) *P. p. pusilla* (Pallas), breeding in central and eastern Asia, wintering in India, Ceylon, Malaya and the Philippines; (3) *P. p. obscura* Neumann, eastern and southern Africa, Madagascar; (4) *P. p. palustris* Gould, Australia with Tasmania; (5) *P. p. affinis* (J. E. Gray), New Zealand.

Thanks to co-operation of colleagues and as a result of my own examination of New Zealand and Australian specimens (the latter during visits in August 1969 to museums in Sydney and Adelaide), observations have been obtained on leg and foot colour of all five subspecies. It should be noted that Benson (1964: 2-5) after comparing 45 European with 108 African and Madagascan specimens concluded "in my opinion *obscura* is not worth recognizing as distinct from *intermedia*."

Specimens of *intermedia*, *pusilla* and *obscura* were kindly examined for me in the British Museum (Natural History) by Mr. P. Colston.

P. p. intermedia. An adult male, collected at Karyatan, 4 March 1905, by D. Carruthers and J. H. Miller had on field label this information about legs and feet: "Olive green." British Museum.

P. p. pusilla. A total of 30 specimens in the British Museum had records on field label as to colour of legs and feet. The 17 adult specimens were all recorded to have had greenish legs although descriptions varied: (1) Males, Deesa in September ("greenish olive"), central Annam in April ("dull green"), central Siam in January ("olive green"), Calcutta in February ("pale dingy olive green"), Tirhot in March ("dusky green"), Tenasserim in May ("dull green"), central Annam in April ("gris verdat"), Borneo no date ("dark green-brown"), Katmandu in April ("greenish brown"): (2) Females, Nepal in February ("greenish grey"), Kohat in March ("green"), China in April ("greenish grey"), central Annam in April ("vert sombre"), Sandee in March ("light green"): (3) Unsexed, Shanghai in May ("pale green"), Khandesh in December ("green"), and Nepal Valley, no date ("buffy green"). The remaining 13 immature specimens had field labels with varying information about leg colour,

7 with green, greenish or olive green colour; 4 with olive brown but olive in itself means a "dull yellowish green colour" so this colour is yellowish green-brown; the remaining 2 immature specimens, collected by the same persons, at Quetta in October, were both listed as having "brownish pink" legs and feet. As these are the only two cases of all records available indicating aberrant colour, is it possible that misinterpretation of colour, late writing of field labels or some other factor accounted for the description? From the Russian literature Professor L. A. Portenko has kindly extracted the following pertinent information. Menzbier (1895: 470) correctly attributed the Marsh Crake with having "legs olive." Kozlova (1935: 17) said it has: "legs olive brownish." Buturlin (1935: 240) recorded: "Legs yellowish-green or dull green, or olive-brownish." Spangenberg (1951: 676) says *pusilla* has: "Legs olive-brown." I also note that Smythies (1960: 179) for this species records: "feet greenish-horn, claws horn," and that Rand and Gilliard (1967: 111) found: "feet greenish grey to pale green."

P. p. obscura. In the British Museum (Natural History) are found 12 specimens with field labels with information about leg and foot colour; all were recorded to have olive green or greenish legs and feet: 6 adult males, Angola in August ("pale dull olive green"), Uganda in July ("pale greenish brown"), South-west Africa in January ("olive green"), Angola in August ("brownish olive-green," and 2 specimens: "dull olive green"); 3 adult females, Ethiopia in July ("flesh olive"), Angola in August ("pale dull olive-green"), South-west Africa in January ("olive green"); 2 immature males, Angola in August ("brownish olive-green"), and Angola in August ("pale dull olive green"); and an immature female from Angola in August ("brownish olive-green"). Several of the African ornithological handbooks correctly describe the leg colour of this form, e.g. Clancey (1964: 131): "legs and toes olive-green."

P. p. palustris. In August 1969 I examined the 30 specimens of the Australian subspecies of the Marsh Crake in the Australian Museum, Sydney, but unfortunately no labels or card entries contained information about fresh leg colour. I also examined the 12 specimens in the South Australian Museum in Adelaide; 6 of these specimens carried field labels with pertinent information: 3 adult males, all from Paradise, South Australia, in August ("feet and toes green" and "feet and bill, green") and November ("legs green"); and 3 adult females, one from Robe, South Australia, in November, breeding ("Feet: olive green"), and 2 from Paradise in August ("legs and bill green" and "legs and toes olive green"). While in Australia, Mr. W. Roy Wheeler of Melbourne kindly advised me that Mr. F. T. H. Smith of Kew, Melbourne, might have colour photographs of this species. Mr. Smith has lent to me three of his transparencies and in two of these leg and foot colours are quite distinct. One is of an adult bird, held in the hand and photographed at Kororoit Creek, Altona, on 22 January 1956, and shows clearly both legs of an olive green colour; the other transparency taken at Fisherman's Bend, Melbourne, on 15 November 1955, shows a crake standing up over its eggs with one leg — olive green — clearly showing. Mr. Smith has further advised me that on 25 October 1969 he saw this crake in a swamp near Patterson River at Carrum: "I eventually had it feeding, mostly in the open, in front of me for at least 10



[F. T. H. Smith

Plate XLI — Marsh Crane *Porzana pusilla* on nest at Fisherman's Bend, Melbourne, Australia, 15/11/55.

minutes. It was a very handsomely hued adult. I saw the legs extremely well with a 10 x 50 binocular from about 30 feet. Again I would have put down the leg colour as greyish-green, or perhaps more descriptive: light olive. The leg colour is lighter than the bill colour." Tracing the history of this species in the Australian ornithological literature, Gould (1848: 80) stated: "bill and feet olive-brown." Mathews (1910-11: 214), quoted above statement directly from Gould, but interestingly enough and in contrast to the text, the legs on the colour plate (57) are hand-painted a near-correct pale olive-green (in the copy examined by me, at the Australian Museum Library, Sydney). North (1913-14: 213) on the other hand correctly stated: "legs olive; feet slightly tinted with brown." Sharland (1958: 12) also correctly said: "bill, legs, feet greenish").

P. p. affinis. The information about New Zealand specimens examined was presented above in the introductory section, showing that males and females from April, May and June have yellowish olive-green legs and feet.

Concluding the review of leg and foot colour in the five subspecies of the Marsh Crane, it will be seen that the colour of these soft parts is olive greenish and alike in all subspecies — as would be expected although it hardly can be taken for granted.

Sex differences. To rule out a possible sexual dimorphism in leg and foot colour, the available records were reviewed. Of the total sample, collating information on all five subspecies (excluding the two possibly mislabelled specimens referred to above under *pusilla*), 27 were males and 20 were females, and all had greenish olive legs.

Age differences. The possibility also existed that leg colour may change with age, as in many species of gull, oystercatchers and stilts. The sample of 13 immature specimens of *P. p. pusilla* in the British Museum referred to above provides evidence that there is no or only slight if any change in leg coloration from immature to adult. The only two specimens with labels indicating leg colour at variance with all the rest — and already mentioned twice above — are two immature males, collected at Quetta on 8 October 1881 by the same person (Sir O. St. John); for both he wrote for leg and foot colour "brownish pink." It is impossible now to trace or verify the origin of this statement and as it differs so radically — in fact coincides with some of the repeated incorrect descriptions in past and present texts — I consider it justified to disregard these label entries. The remaining 11 immature specimens consist of 4 males and 7 females: Males, Turkistan in October ("pale olive green"), Deesa in September ("pale olive brown"), S. Andamans in December ("olive green"), Khandesh in October ("olive green"); Females, Calcutta in February ("dull pale yellowish olive"), Deesa in September ("pale olive brown"), Bangkok in February ("plumbeous with greenish tinge on tarsus and tibia"), Deesa in September (two specimens both labelled: "pale olive brown"), Malegaum Nasik in October ("greenish flesh"), and Khandesh in October ("greenish"). There is also in the British Museum collection an immature female of *P. p. obscura* from Angola in August with field label describing legs and feet as "brownish olive green." The above information may be interpreted as immature birds possibly not having the intensity of olive green of the adults but maybe rather more brownish olive green or paler, less intense olive green. There is, however, no doubt that leg and foot coloration in immature Marsh Crakes is in the greenish (olive or brownish green) area and not brownish or flesh-coloured.

Seasonal variation. A final possibility is some variation in relation to season as is the case in for example species of egrets, stilts and oystercatchers. Of the total 51 specimens included in this study and having olive green legs, seasonal distribution is as follows: January 3, February 4, March 3, April 7, May 4, June 2, July 2, August 12, September 5, October 4, November 3, December 2. If, however, the six-months' differences between seasons in the northern and southern hemispheres are considered, the results are different but adequate samples from all seasons are still represented: spring 14, summer 3, autumn 12, winter 22. No seasonal variation in leg and foot colour is detectable.

Summarizing the information presented above, the Marsh Crake *Porzana pusilla* has olive green legs and feet which fact is in contrast to a prevailing error in the ornithological literature; the green leg colour applies to all five subspecies, to both sexes, to all seasons, and to immature birds as well as adults although some immatures have brownish olive-green or paler olive green legs than the adults.

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REFERENCES

- BENSON, C. W., 1964: The European and African races of Baillon's Crake, *Porzana pusilla*. *Bull. Brit. Orn. Cl.*, 84: 2-5.
- BULLER, W. L., 1888: A History of the Birds of New Zealand. Vol. 2. London.
- BUTURLIN, S. A., 1935: (Guide to the Birds of U.S.S.R.). Vol. 2. Moscow.
- CLANCEY, P. A., 1964: The Birds of Natal and Zululand. Oliver & Boyd, Edinburgh.
- FALLA, R. A., SIBSON, R. B., and TURBOTT, E. G., 1966: A Field Guide to the Birds of New Zealand. Collins, London.
- FISHER, J., 1955: Bird Recognition. Vol. 3. Penguin Books, Harmondsworth.
- FITTER, R. S. R., 1952: The Pocket Guide to British Birds. Collins, London.
- FRIELING, H., 1936: Exkursionsbuch zum Bestimmen de Vogel in freier Natur. Julius Springer, Berlin.
- GOULD, J., 1848: The Birds of Australia. Vol. 6. London.
- GRAY, G. R., 1845: Birds, in The Zoology of the Voyage of H.M.S. Erebus and Terror. London.
- HUTTON, F. W., 1871: Catalogue of the Birds of New Zealand. Geological Survey, Wellington.
- KOZLOVA, E. V., 1935: (Les oiseaux de l'URSS, l'ordre des Gruiformes). Tabl. analyt. Faune U.R.S.S.
- MATHEWS, G. M., 1910-11: The Birds of Australia. Vol. 6. London.
- MENZBIER, M. A., 1895: (Birds of Russia). Vol. 1. Moscow.
- NAUMANN, J. A., 1905: Naturgeschichte der Vogel Mitteleuropas. Vol. 7. Gera.
- NORTH, A. J., 1913-14: Nests and Eggs of Birds Found Breeding in Australia and Tasmania. Vol. 4. Australian Museum, Sydney.
- OLIVER, W. R. B., 1930: New Zealand Birds. First ed., Wellington.
- OLIVER, W. R. B., 1955: New Zealand Birds. Second ed. A. H. & A. W. Reed, Wellington.
- PETERS, J. L., 1934: Check-list of Birds of the World. Vol. 2. Harvard Univ. Press, Cambridge, Mass.
- PETERSON, R., MOUNTFORT, G., and HOLLOW, P.A.D., 1954: A Field Guide to the Birds of Britain and Europe. Collins, London.
- RAND, A. L., and GILLIARD, E. T., 1967: Handbook of New Guinea Birds. Weidenfeld & Nicholson, London.
- SHARLAND, M., 1958: Tasmanian Birds. Angus & Robertson, Sydney.
- SMYTHIES, B. E., 1960: The Birds of Borneo. Oliver & Boyd, Edinburgh.
- SPANGENBERG, E. P., 1951: (Birds of the Soviet Union). Vol. 3. Moscow.
- WITHERBY, H. F., JOURDAIN, F. C. R., TICEHURST, N. F., and TUCKER, B. W., 1965: The Handbook of British Birds. Vol. 5. Witherby, London.