TECHNIQUES

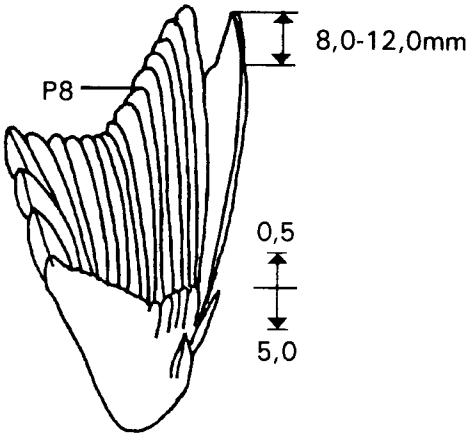
IDENTIFICATION AID FOR EUROPEAN MARSH WARBLER AND EUROPEAN REED WARBLER

J M H Raijmakers
P O Box 5067, Vanderbijlpark 1900

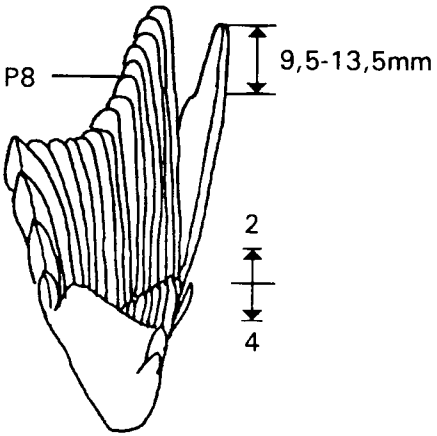
The characteristics of the European Marsh Warbler *Acrocephalus palustris* and the European Reed Warbler *A. scirpaceus* have been extensively researched. Even with all this research, the identification of these species still poses several problems of various kinds; these are now more addressable due to a properly defined system. The original text is hardly suitable for quick reference in the field. From that text these basic guidelines were drawn up.

With a few exceptions it is possible for the experienced ringer to distinguish confidently between the adult European Marsh Warbler and European Reed Warbler in the hand through differences in colour and measurements. However, several characteristics have to be considered in such a diagnosis. Less experienced persons usually have difficulty with this process. Distinguishing juvenile birds by these characteristics is even more problematic. Morphological measurements lead mostly to a large overlap range and only extreme data provide for confident species identification.

An identification is almost always possible if the method of Dorsch is employed. This makes use of the values of four measurements with combinations of higher, derived separation properties. It is often not necessary to make all the qualitative observations nor to evaluate all obtained values of the measurements; the ringer can break off the examination as soon as positive identification is acheived. It is recommended that all four measurements are taken one after another even if one does not analyse them all. In difficult cases the full analysis of the qualitative and quantitative character complexes will lead straight to a species determination.



A. European Marsh Warbler



B. European Reed Warbler

Figure 1. Difference in wing detail of (A) European Marsh and (B) European Reed Warblers.

COLOURATION

General colouration

European Marsh Warbler: Upperparts mat brown to light olive brown, in males the rump is more brownish, slightly tinged yellowish brown but not rufous. Birds wintering in South Africa often have heavily worn plumage with lighter feather edges. Juveniles have the upperparts more intensively olive brown and thus show a tendency towards the European Reed Warbler. Underparts light, dull ochre yellowish without rust brown markings on the flanks. The throat white contrasting with the underparts. According to Dornbusch the slight supercillium reaches to the eye and has a bright yellowish colour.

European Reed Warbler: Upperparts olive brown to warm brown, rump darker brown to rufous brown, becoming more greyish before migration. Juveniles may be coloured more rust brown and can also be duller in colour than adults. Underparts whitish to cream colour, flanks rust brown. According to Dornbusch, the slight supercilium reaches to the eye and has a brownish colour.

Wing details

Differences as given in the text and in Figure 1 can differentiate between the two species.

European Marsh Warbler: P2 ≈ P4 but P2 > P5, P3 is the longest. The notch on the inner vane of P2 mostly begins over the end of P8.

European Reed Warbler: P2 ≈ P4; P2 ≈ P5; P3 is the longest. The notch on the innervane of P2 starts mostly below the tip of P8 or at P8.

Colour and shape of feet and claws

European Marsh Warbler: Colour variable. Tarsus mostly light brown to light rust brown (never flesh coloured). Toes light to dark grey brown. Claws dull light brown to grey brown. For European Reed Warblers, a tendency towards darker colours exists especially for juvenile birds. Darker tarsus often also leads to darker toe and claw colours.

European Reed Warbler: Tarsus, toes and claws mostly dark grey showing a tendency towards olive brown. Lighter colouration occurs especially in juveniles. The following observations deserve attention. According to Györgypal & Haraszty (1980) the tip of the claw of the outer toe of the European Marsh Warbler reaches at the most to over the toe cushion of the middle toe while for the European Reed Warbler the claw reaches significantly further over the middle toe. Hildebrandt & Gnetsch measured the distance of the claw tip of the inner toe to the end of the toe cushion of the middle toe of some hundreds of European Reed Warblers and European Marsh Warblers. The following relationship was observed per hundred Warblers (Table 1).

Details of inner mouth and iris

European Marsh Warbler: mouth orange-yellow to orange.

European Reed Warbler: mouth orange to orange-red.

The iris of both species are light to medium olive brown. In the juveniles of both species the mouth is yellow and the iris dark grey brown.

Table 1. Difference in distance of inner toe claw tip to middle toe cushion.

Distance	European Reed Warbler		European Marsh Warbler	
mm	Adults	Juveniles	Adults	Juveniles
±0	96	89	3	0
-1	4	11	42	41
-2	0	0	55	59

Relative size of body and foot

Differences in the size of body and foot lead to differing visual impressions of proportions (Figure 2). In juveniles, this characteristic is less obvious.
European Marsh Warbler: larger bird with smaller foot.
European Reed Warbler: smaller bird with larger foot.

Forehead profile and bill

European Marsh Warbler: has a steeper forehead and shorter, stronger bill.
European Reed Warbler: has a more sloping forehead and longer, slimmer bill. (According to Dowsett-Lemaire & Dowsett 1979).

A. European Marsh Warbler.

B. European Reed Warbler.

Figure 2. Relative size of feet.

MORPHOMETRICS

The ranges of some of the measurements are given in Table 2 and Table 3.

There are three consecutive constructive character complexes (I, II and III) which have to be considered one after another. If reliable identification is possible after I or II, then the examination can be terminated after III. If the actions after III do not lead to a result, then the warbler is not precisely identifiable. Release without ringing.

Character Complex I

1. Measurement of wing length (WL)
(Precise to 0,5 mm).
Above 71 mm: *European Marsh Warbler.*
Below 64 mm: *European Reed Warbler.*

2. Measurement of notch (N)
(If possible precise to 0,2 mm).
Determine the length of the notch on the inner vane of the 2nd primary from beginning of notch to the tip of the feather by putting the ruler against the feather (Figure 3).
Below 9,0 mm: *European Marsh Warbler.*
Above 12,2 mm: *European Reed Warbler.*

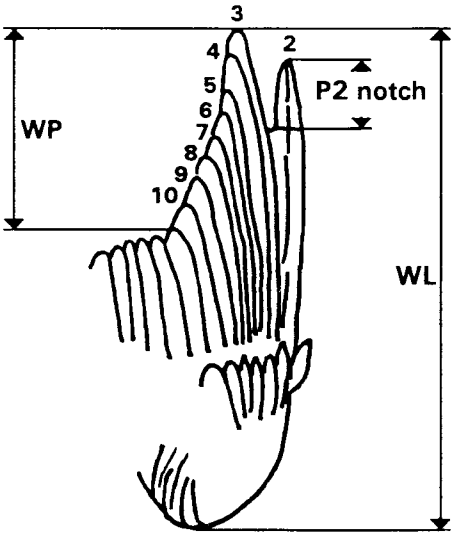


Figure 3. Measurements for wing notch.

3. Determination of the Quotient (Q) from notch length and wing length by formula or by reading from Table 4.

$$Q = N/WL \times 100$$

Where : N = P2 notch length
WL = Wing length

Below 14,0 mm: *European Marsh Warbler.*
Above 17,0 mm: *European Reed Warbler.*

Table 2. Range of wing length, P2 notch length and tail length in mm.

	Wing length		P2 notch	Tail length	
	Male	Female		Male	Female
European Marsh Warbler	65-74	64-73	7.5-11.5	49-56	48-54
European Reed Warbler	63-71	61-68	9.0-14.0	48-61	48-61

Table3. Range of culmen length and hind claw length in mm.

	Culmen length		Hind claw
	From feathers	From skull	
European Marsh Warbler	9,0-14.0	13,5-18,5	6,0-8,0
European Reed Warbler	11,0-16,5	14,5-18,5	6,0-8,5

Table 4. Determination of quotient from notch length and wing length.

P2 notch length mm	Wing Length (WL) mm							
	64	65	66	67	68	69	70	71
9,2	14,4	14,2	13,9	13,7	13,5	13,3	13,1	13,0
9,4	14,7	14,5	14,2	14,0	13,8	13,6	13,4	13,2
9,6	15,0	14,8	14,5	14,3	14,1	13,9	13,7	13,5
9,8	15,3	15,1	14,8	14,6	14,4	14,2	14,0	13,8
10,0	15,6	15,4	15,2	14,9	14,7	14,5	14,3	14,1
10,2	15,9	15,7	15,5	15,2	15,0	14,8	14,6	14,4
10,4	16,2	16,0	15,7	15,5	15,3	15,1	14,9	14,6
10,6	16,6	16,3	16,1	15,8	15,6	15,4	15,1	14,9
10,8	16,9	16,6	16,4	16,1	15,9	15,7	15,4	15,2
11,0	17,2	16,9	16,7	16,4	16,2	15,9	15,7	15,5
11,2	17,5	17,2	17,0	16,7	16,5	16,2	16,0	15,8
11,4	17,8	17,5	17,3	17,0	16,8	16,5	16,3	16,1
11,6	18,1	17,8	17,6	17,3	17,1	16,8	16,6	16,3
11,8	18,4	18,2	17,9	17,6	17,4	17,1	16,9	16,6
12,0	18,8	18,5	18,2	17,9	17,6	17,4	17,1	16,9
12,2	19,1	18,8	18,5	18,2	17,9	17,7	17,4	17,2

Character Complex II
(birds not positively identified in Complex I)
4.Measurement of wing point (WP)
(Precise to 0,5 mm).
Hold bird with head towards your body and lay primaries on top of one another. Measure length difference between the longest primary (= 3) and the outer secondaries (= 1). The latter is the ninth feather counted from the third primary. Pay attention to feather stretching.
Above 21 mm: *European Marsh Warbler.*
Below 18 mm: *European Reed Warbler.*

5. Determination of separation factor (F1)

F1 = Q + N – WP

Where: Q = Quotient
N = P2 notch
WP = Wing point

For juvenile birds:
Below 5,5 mm: *European Marsh Warbler.*
Above 8,0 mm: *European Reed Warbler.*
For adult birds:
Below 8,0 mm: *European Marsh Warbler.*
Above 8,5 mm: *European Reed Warbler.*

6. Use of the graphical determination aid
Species determination is also possible for both juvenile and adult birds when at least one of the connecting lines between the three value pairs WL – P2N, WL – F1 and WP – Q intercepts one of the black arrows or, alternatively, when all the connecting lines pass close to one of the arrows (Figure 4).
Left arrow: *European Reed Warbler.*
Right arrow: *European Marsh Warbler.*

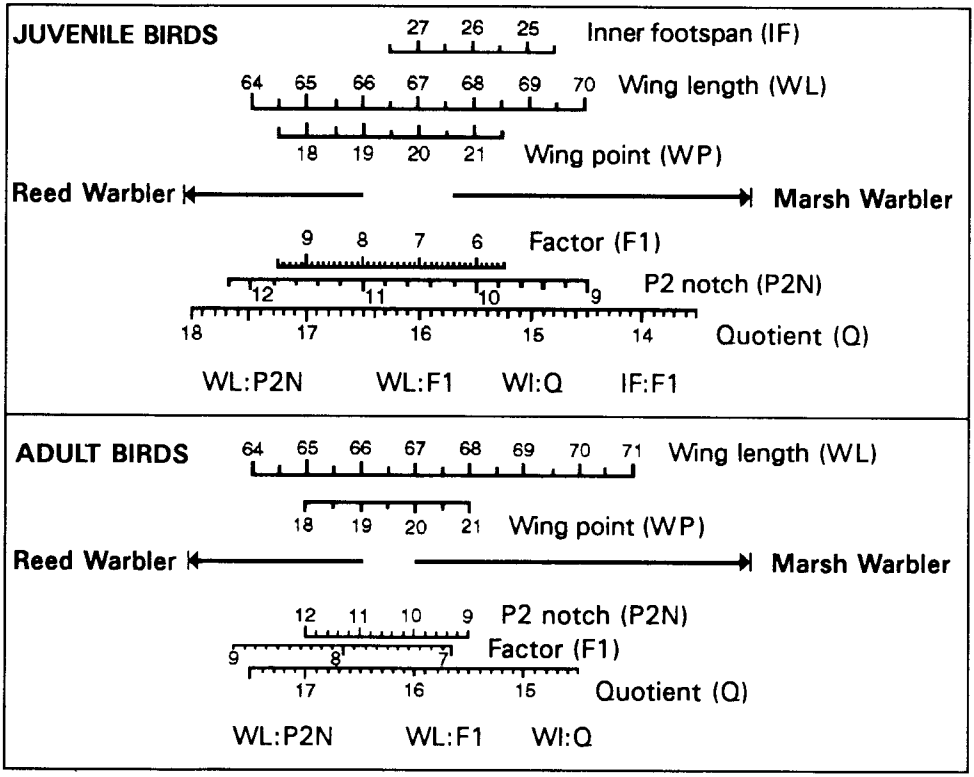


Figure 4. Graphical determination aid.

Characterisation Complex III

(for birds not positively identified under I and II).

7. Measuring the inner footspan (IF)

(Precise to 0,5 mm).

Put the foot on a flat-laid ruler. Stretch the hind claw fully and with the fingers of the free hand put the claw on the zero line; by using the middle finger or forefinger of the hand that is holding the bird, stretch the claw of the inner toe and determine the distance between the claws (Figure 5). The front claw will turn somewhat sideways during this procedure and the technique requires practice to ensure correct measurement.

Below 25 mm: *European Marsh Warbler.*
Above 27,5 mm: *European Reed Warbler.*

8. Determination of separation factor F2

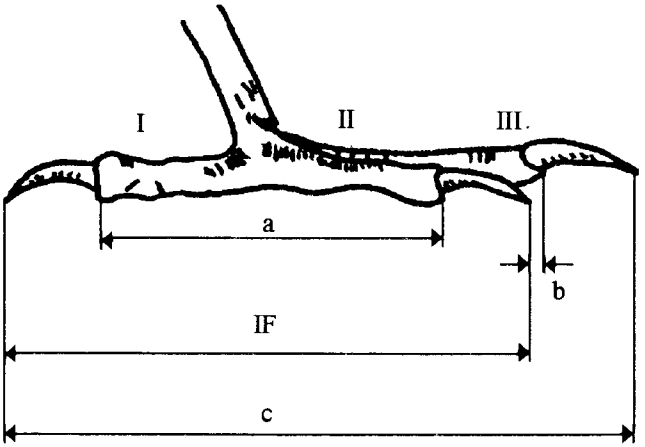
F2 = F1 + IF

Where F2 = Separation factor 2
F1 = Separation factor 1
IF = Inner footspan

For juvenile birds:
Below 32 mm: *European Marsh Warbler.*
Above 35 mm: *European Reed Warbler.*
For adult birds:
Below 33,5 mm: *European Marsh Warbler.*
Above 35 mm: *European Reed Warbler* .

9. Examination of the hind claw

Greyish black: mostly European Reed Warbler.
Light horn colour: predominantly European Marsh Warbler.



I = Hind toe
II = Inner toe
III = Middle toe
a = Inner footspan
b = Distance between point of claw of inner toe of and end of cushion of middle toe.
c = Footspan including claws.
IF = Inner footspan including claws.

Figure 5. Measuring the inner footspan

WALINDER SCORE

The European Reed Warbler can reliably be separated from the European Marsh Warbler by using the Walinder score.

From the length of bill to skull (A) is subtracted the product of the width of tarsus (B) multiplied by (C) the width of the bill (all measurements are taken as shown in Figure 6). If the result is from 4,5 to 8,0 the bird is a European Marsh Warbler. If the result is from 8,5 to 12,5 the bird is a European Reed Warbler.

Aknowledgments

The above was translated from: *Cistensänger, Seidensänger Schwirle und Rohrsänger* by Hans Bub und Harald Dorsch. The Walinder score was extracted from: *Identification Guide to European Passerines* by Lars Svensson.

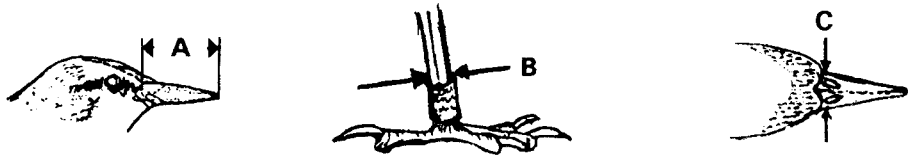


Figure 6. Illustration of Walinder Score features A, B and C.