

the Reed Warblers

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APPENDIX

Diversity
in a uniform
bird family

PAPYRUS YELLOW WARBLER

THICK-BILLED WARBLER

DARK-CAPPED YELLOW WARBLER

MOUNTAIN YELLOW WARBLER

EASTERN OLIVACEOUS WARBLER

WESTERN OLIVACEOUS WARBLER

BOOTED WARBLER

SYKES'S WARBLER

ICTERINE WARBLER

MELODIOUS WARBLER

UPCHER'S WARBLER

OLIVE-TREE WARBLER

KIRITIMATI WARBLER

SOUTHERN MARQUESAN WARBLER

AUSTRALIAN REED WARBLER

TUAMOTU WARBLER

NORTHERN MARQUESAN WARBLER

TAHITI WARBLER

HENDERSON ISLAND WARBLER

COOK ISLANDS WARBLER

RIMATARA WARBLER

MILLERBIRD

CLAMOROUS REED WARBLER

ORIENTAL REED WARBLER

GREAT REED WARBLER

CAPE VERDE WARBLER

GREATER SWAMP WARBLER

LESSER SWAMP WARBLER

MADAGASCAR SWAMP WARBLER

SEYCHELLES WARBLER

BASRA REED WARBLER

PADDYFIELD WARBLER

BLUNT-WINGED WARBLER

MANCHURIAN REED WARBLER

AFRICAN REED WARBLER

EURASIAN REED WARBLER

MARSH WARBLER

BLYTH'S REED WARBLER

LARGE-BILLED REED WARBLER

BLACK-BROWED REED WARBLER

AQUATIC WARBLER

MOUSTACHED WARBLER

SEDGE WARBLER

MADAGASCAR BRUSH WARBLER

Coverphoto: Marsh Warbler, Jiri Bohdal

Animals and plants mentioned in the text

(all acrocephalids in Tab. 2.1)

Birds

African Fish-Eagle <i>Haliaeetus vocifer</i>	Greenish Warbler <i>Phylloscopus trochiloides</i>
African Hill Babbler <i>Sylvia abyssinica</i>	Greylag Goose <i>Anser anser</i>
Asian Desert Warbler <i>Sylvia nana</i>	Harriers (<i>Circus</i> , Accipitridae)
Barn Swallow <i>Hirundo rustica</i>	Kinglets (<i>Regulus</i> , Regulidae)
Bearded Reedling <i>Panurus biarmicus</i>	Klaas's Cuckoo <i>Chrysococcyx klaas</i>
Bicolored Wren <i>Campylorhynchus griseus</i>	Laysan Duck <i>Anas laysanensis</i>
Blackcap <i>Sylvia atricapilla</i>	Laysan Finch <i>Telespiza cantans</i>
Black-throated Blue Warbler <i>Dendroica caerulescens</i>	Little Bittern <i>Ixobrychus minutus</i>
Bleating Warbler <i>Camaroptera brachyura</i>	Little Crane <i>Porzana parva</i>
Bronze-cuckoos (Australian) (<i>Chalcites</i> [<i>Chrysococcyx</i>], Cuculidae)	Lesser Cuckoo <i>Cuculus poliocephalus</i>
Brown-and-yellow Marshbird <i>Pseudoleistes virescens</i>	Madagascar Cuckoo <i>Cuculus rochii</i>
Brown-headed Cowbird <i>Molothrus ater</i>	Malachite Kingfisher <i>Alcedo cristata</i>
Carruthers's Cisticola <i>Cisticola carruthersi</i>	Many-colored Rush-tyrant <i>Tachuris rubrigastra</i>
<i>Chalcites</i> [<i>Chrysococcyx</i>] Australian bronze-cuckoos (Cuculidae)	Marsh Harrier <i>Circus aeruginosus</i>
Coal Tit <i>Periparus ater</i>	Marsh Wren <i>Cistothorus palustris</i>
Common Babbler <i>Turdoides caudata</i>	Meadow Pipit <i>Anthus pratensis</i>
Common Chaffinch <i>Fringilla coelebs</i>	Monarch-flycatchers (Monarchidae)
Common Cuckoo <i>Cuculus canorus</i>	Montagu's Harrier <i>Circus pygargus</i>
Common Myna <i>Acridotheres tristis</i>	Mountain Chiffchaff <i>Phylloscopus sindianus</i>
Common Nightingale <i>Luscinia megarhynchos</i>	Nelson's Sparrow <i>Ammodramus nelsoni</i>
Cotingas (Cotingidae)	Northern Brown-throated Weaver <i>Ploceus castanops</i>
Crab Plover <i>Dromas ardeola</i>	Northern Mockingbird <i>Mimus polyglottos</i>
Curve-billed Reedhaunter <i>Limnornis curvirostris</i>	Orange-crowned Warbler <i>Vermivora celata</i>
Darwin's finches (Geospizinae, Thraupidae)	Papyrus Canary <i>Serinus koliensis</i>
Dohrn's Thrush-Babbler <i>Sylvia dohrni</i>	Papyrus Gonolek <i>Laniarius erythrogaster</i>
Dunnock <i>Prunella modularis</i>	Penduline Tit <i>Remiz pendulinus</i>
Dusky Warbler <i>Phylloscopus fuscatus</i>	Pied Flycatcher <i>Ficedula hypoleuca</i>
Eleonora's Falcon <i>Falco eleonora</i>	Pied Wagtail <i>Motacilla alba</i>
Eurasian Bittern <i>Botaurus stellaris</i>	Rails (Rallidae)
Eurasian Jay <i>Garrulus glandarius</i>	Red-backed Shrike <i>Lanius collurio</i>
Eurasian Magpie <i>Pica pica</i>	Redwing <i>Turdus iliacus</i>
Eurasian Sparrowhawk <i>Accipiter nisus</i>	Red-winged Blackbird <i>Agelaius phoeniceus</i>
Eurasian Stonechat <i>Saxicola torquata</i>	Reed Bunting <i>Emberiza schoeniclus</i>
European Blackbird <i>Turdus merula</i>	River Warbler <i>Locustella fluviatilis</i>
European Robin <i>Erithacus rubecula</i>	Rufous Bush Robin <i>Cercotrichas galactotes</i>
Flycatchers (Old World, Muscicapidae)	Ruddy Turnstone <i>Arenaria interpres</i>
Garden Warbler <i>Sylvia borin</i>	Saltmarsh Sparrow <i>Ammodramus caudacutus</i>
Gerygone (<i>Gerygone</i> , Acanthizidae)	Savi's Warbler <i>Locustella luscinioides</i>
Giant Wren <i>Campylorhynchus chiapensis</i>	Scarlet-headed Blackbird (Federal) <i>Amblyramphus holosericeus</i>
Golden Oriole <i>Oriolus oriolus</i>	Seaside Sparrow <i>Ammodramus maritimus</i>
Grasshopper Warbler <i>Locustella naevia</i>	Sedge Wren <i>Cistothorus platensis</i>
Great Tit <i>Parus major</i>	Seychelles Fody <i>Foudia sechellarum</i>
	Sharp-tailed Streamcreeper <i>Lochmias nematura</i>
	Shoebill <i>Balaeniceps rex</i>
	Shrikes (Laniidae)
	Sky Lark <i>Alauda arvensis</i>
	Slender-billed Weaver <i>Ploceus pelzelni</i>

Snow Bunting *Plectrophenax nivalis*
Song Sparrow *Melospiza melodia*
Sooty Falcon *Falco concolor*
Southern Buffback *Dryoscopus cubla*
Spotted Flycatcher *Muscicapa striata*
Steppe Grey Shrike *Lanius pallidirostris*
Straight-billed Reedhaunter *Limnortyx rectirostris*
Striated Flycatcher *Muscipapa striata*
Sulphur-bearded Spinetail *Craniolaema sulphurifera*
Superb Fairywren *Malurus cyaneus*
Telespiza 'finches' (Drepanididae)
Terek Sandpiper *Xenus cinereus*
Thrush Nightingale *Luscinia luscinia*
Treecreepers (Certhiidae)
Treerunners *Margarornis* (Furnariidae)
Virginia's Warbler *Vermivora virginiae*
Wagtails (Motacillidae)
Warbling Dorado *Pseudocolaptes auratus*
Weavers (Ploceinae)
Western Marsh Harrier *Circus aeruginosus*
Western Reef Heron *Egretta gularis*
White-eyes (Zosteropidae)
White-winged Warbler *Bradypterus carpalis*
Winter Wren *Troglodytes troglodytes*
Wood Warblers Parulidae
Wren-like Rushbird *Phleocryptes melanops*
Yellow-chinned Spinetail *Certhiaxis cinnamomeus*
Yellow-headed Blackbird *Xanthocephalus xanthocephalus*
Yellow-winged Blackbird *Agelaius phoeniceus*
Zebra Finch *Taeniopygia guttata*

Other animals

Amphipods (Amphipoda, Crustacea)
Ant-lion (Neuroptera)
Aphids (Aphididae, Heteroptera)
Araneae (spiders)
Beetles (Coleoptera)
Black rat *Rattus rattus* (Muridae, Rodentia)
Brown tree snake *Boiga irregularis* (Colubridae, Serpentes)
Caddisflies (Trichoptera)
Cicadas (Cicadidae, Heteroptera)
Common dormouse *Muscardinus avellanarius* (Gliridae, Rodentia)
Coypu *Myocastor coypus* (Myocastoridae, Rodentia)
Gall-midge *Giraudiella inclusa* (Cecidomyiidae, Diptera)
Gecko (Gekkonidae, Lacertilia)
Great silver water-beetle *Dytiscus marginalis* (Dytiscidae)
Grasshoppers (Orthoptera)
Harvest mouse *Micromys minutus* (Muridae, Rodentia)

Japanese Rat Snake *Elaphe climacophora* (Serpentes)
Mayflies (Ephemeroptera)
Mealy plum aphid / plum aphid / reed aphid *Hyalopterus pruni* (Aphididae)
Miller moth *Agrotis laysanensis* (Noctuidae, Lepidoptera)
Mites (Acari)
Muskrat *Ondatra zibethicus* (Muridae, Rodentia)
Non-biting midges (Chironomidae, Diptera)
Orb-web spider (Araneidae, Araneae)
Orthoptera (grasshoppers and crickets)
Odonata (dragonflies and damselflies)
Pacific rat *Rattus exulans* (Muridae, Rodentia)
Polecat *Mustela putorius* (Mustelidae, Carnivora)
Pond skaters (Gerridae, Heteroptera)
Rabbit (European) *Oryctolagus cuniculus* (Lagomorpha)
Raccoon dog *Nyctereutes procyonoides* (Canidae, Carnivora)
Red fox *Vulpes vulpes* (Canidae, Carnivora)
Reed leopard *Phragmataecia castanea* (Cossidae, Lepidoptera)
Shoot-flies *Lipara* (Chloropidae, Diptera)
Shrew (Soricidae, Insectivora)
Skink (Scincidae, Lacertilia)
Stoat *Mustela erminea* (Mustelidae, Carnivora)
Twin-spotted wainscot *Archana geminipunctata* (Noctuidae, Lepidoptera)
Water slater *Asellus aquaticus* (Isopoda)
Water vole *Arvicola terrestris* (Muridae, Rodentia)
Weasel *Mustela nivalis* (Mustelidae, Carnivora)
Wolf spider (Lycosidae, Araneae)
Wood mouse *Apodemus sylvaticus* (Muridae, Rodentia)
Yellow-necked mouse *Apodemus flavicollis* (Muridae, Rodentia)

Plants

Almond *Prunus dulcis* (Rosaceae)
Aspen *Populus tremula* (Salicaceae)
Bamboo (Poaceae)
Barringtonia sp. ('fish-poison tree', Lecythidaceae)
Beach cordia *Cordia subcordata* (Boraginaceae)
Beach heliotrope tree *Tournefortia argentea* (Boraginaceae)
Bent grass *Agrostis stolonifera* (Poaceae)
Birch *Betula* sp. (Betulaceae)
Bulrush *Scirpus lacustris* (Cyperaceae)
Bush clover *Lespedeza* sp. (Fabaceae)
Californian bulrush *Schoenoplectus californicus*
Common reed *Phragmites australis* (Poaceae)
Clover (*Trifolium* sp., Fabaceae)
Elgon 'teak' *Olea capensis* (Oleaceae)
Elgon 'cedar' *Juniperus procera* (Cupressaceae)
Eulalia *Miscanthus sinensis* (Poaceae)
False spiraea *Sorbaria sorbifolia* (Rosaceae)

Ficus spp. (various figs, etc., Moraceae)
 Foxtail *Alopecurus pratensis* (Poaceae)
 Great fen sedge *Cladium mariscus* (Cyperaceae)
 Green algae *Cladophora* sp. (Ulvophyceae)
 Grey club-rush *Schoenoplectus tabernaemontani* (Cyperaceae)
 Guave *Psidium* sp. (Myrtaceae)
Leucaena leucocephala (white lead tree, Fabaceae)
 Mangrove (various woody plants of tropical and subtropical tidal mudflats)
 Mapou tree *Pisonia grandis* (Nyctaginaceae)
 Meadowsweet *Filipendula ulmaria* (Rosaceae)
Messerschmidia sp. (Boraginaceae)
Miconia calvenscens (bush currant, Melastomataceae)
 Montane bamboo *Arundinaria* sp. (Poaceae)
 Morinda (Indian mulberry; noni fruit) *Morinda citrifolia* (Rubiaceae)
 Oak *Quercus* sp. (Fagaceae)
 Palm (Arecaceae/Palmae)
 Papyrus *Cyperus papyrus* (Cyperaceae)
 Pine *Pinus* sp. (Pinaceae)
Pisonia grandis (Nyctaginaceae)
 Pistachio *Pistacia vera* (Anacardiaceae)
 Polynesian bamboo *Schizostachyum glaucifolium* (Poaceae)
 Portia tree (see Rosewood)

Prickly sea rush *Juncus maritimus* (Juncaceae)
 Purple loosestrife *Lythrum salicaria* (Lythraceae)
 Reedmace *Typha angustifolia* (Typhaceae)
 Reed sweet-grass *Glyceria maxima* (Poaceae)
 Rose-apple *Syzygium jambos* (Myrtaceae)
 Rosewood tree *Guibourtia* sp. (Fabaceae)
 Rosewood (Portia tree; milo) *Thespesia populnea* (Malvaceae)
 Saxaul *Haloxylon ammodendron* (Amaranthaceae)
 Screw-pine *Pandanus tectorius* (Pandanaceae)
 Sea club-rush *Schoenus maritimus* (Cyperaceae)
 Sea hibiscus (purau) *Hibiscus tiliaceus* (Malvaceae)
 She-oak tree *Casuarina* sp. (Casuarinaceae)
 Slough grass *Beckmannia eruciformis* (Poaceae)
 Stinging nettle *Urtica dioica* (Urticaceae)
 Strand tangantangan *Schleinitzia fosbergii* (Fabaceae)
 Strangler figs *Ficus* sp. (Moraceae)
 Tamarisk *Tamarix* sp. (Tamaricaceae)
 Thistles *Cirsium* sp. (Asteraceae)
 Water-hyacinth *Eichhornia crassipes* (Pontederiaceae)
 Water lettuce *Pistia stratiotes* (Araceae)
 Waterlilies *Nymphaea* sp. (Nymphaeaceae)
 Willow *Salix* sp. (Salicaceae)
 Yellowwood *Podocarpus latifolia* (Podocarpaceae)

Map 2.3 Miocene

<http://upload.wikimedia.org/wikipedia/commons/6/6b/Neogene-MioceneGlobal.jpg>

<http://jan.ucc.nau.edu/~rcb7/mollglobe.html>

Dr. Ron Blakey – <http://jan.ucc.nau.edu/~rcb7/>

Tab. 2 to Fig. 2.7

Correlations of original morphological variables with discriminant axes (DA) 1 and 2

Character	DA ₁	DA ₂
Wing		
Tail		0.59
Tarsus	0.53	
Body mass		0.74
Bill length		0.58
Bill width	– 0.53	
Bill depth		0.61
Hind toe	0.70	
Middle toe	0.73	
Hind claw	0.78	
Middle claw	0.81	
Tarsus diameter ₁		
Tarsus diameter ₂		0.69
Wing width		0.53
Primary projection		
Rictal bristles		
Notch length	– 0.50	
Tail graduation		

List of nest and nest site characters (Fig. 8.1).

Character states: 1 – 0.5 – 0. (The nests of Streaked and Manchurian Reed Warblers and of Papyrus Yellow Warblers remain undescribed).

1. a firmly woven ring at the rim of the nest is present, which makes the opening narrower than the inside of the nest cup
2. nest very deep (ratio outer diameter/nest height < 0.85)
3. nest flatter (ratio outer diameter/nest height > 1.4)
4. cup very deep (ratio inner diameter/depth of cup < 0.85)
5. cup shallow (ratio inner diameter/depth of cup > 1.4)
6. nest is very firmly built
7. besides soft material in nest wall there are many stiff stalks and stems
8. nest contains coarse material
9. nest bottom hangs free
10. nest is 'pressed' into the undergrowth
11. attachment by woven material
12. wet material is used for building the nest wall
13. attachment mainly by insect and spider silk
14. nest situated mostly below 1 m
15. nest situated commonly over 2 m
16. nest situated above water (or very wet ground)
17. nest rests in a fork
18. nest is attached to vertical stalks

Fig 13.1

Baillie, S.R., Marchant, J.H., Leech, D.I., Renwick, A.R., Joys, A.C., Noble, D.G., Barimore, C., Conway, G.J., Downie, I.S., Risely, K. & Robinson, R.A. (2010). Breeding Birds in the Wider Countryside: their conservation status 2010. BTO Research Report No. 565. BTO, Thetford.

(<http://www.bto.org/birdtrends>)

<http://www.bto.org/birdtrends2010/wcrsedwa.shtml>

Tab. to Fig. 14.3

Marsh-dwelling reed warblers and suboscines in South America (bold type) and comparison species.

Species	Habitats	Species	Habitats
Furnariidae		Tyrannidae	
Plain-breasted Earthcreeper <i>Upucerthia jelskii</i>	arid montane scrub	White-throated Spadebill <i>Platyrinchus mystaceus</i>	forest undergrowth
Bar-winged Cinclodes <i>Cinclodes fuscus</i>	grassland	Many-colored Rush-tyrant <i>Tachuris rubrigastra</i>	reedbed
Sharp-tailed Streamcreeper <i>Lochmias nematura</i>	streams in humid forest	Subtropical Doradito <i>Pseudocolopteryx acutipennis</i>	montane marshes
Wren-like Rushbird <i>Phleocryptes melanops</i>	emergent marsh vegetation	Warbling Doradito <i>Pseudocolopteryx flaviventris</i>	reedbeds, marshes
Curve-billed Reedhaunter <i>Limnornis curvirostris</i>	reedbeds	White-bellied Tyrannulet <i>Serpophaga munda</i>	montane thorn-forest
Cactus Canastero <i>Asthenes cactorum</i>	arid montane scrub	White-crested Tyrannulet <i>Serpophaga subcristata</i>	forest, woodlands
Rufous-capped Spinetail <i>Synallaxis ruficapilla</i>	evergreen forest	Sooty Tyrannulet <i>Serpophaga nigricans</i>	wetlands (near water)
Stripe-breasted Spinetail <i>Synallaxis cinnamomea</i>	deciduous forest, undergrowth	Yellow-billed Tit-tyrant <i>Anairetes flavirostris</i>	montane scrub
Yellow-chinned Spinetail <i>Certhiaxis cinnamomeus</i>	emergent & floating marsh vegetation	Tufted Tit-tyrant <i>Anairetes parulus</i>	shrublands
Chotoy Spinetail <i>Schoeniophylax phryganophilus</i>	isolated shrubs in savannas	Bearded Tachuri <i>Polystictus pectoralis</i>	grassland, savanna
Stripe-crowned Spinetail <i>Cranioleuca pyrrhophia</i>	dry tropical forest, scrub		
Creamy-crested Spinetail <i>Cranioleuca albicapilla</i>	montane woodland		
Sulphur-bearded Spinetail <i>Cranioleuca sulphurifera</i>	emergent marsh vegetation		
Straight-billed Reedhaunter <i>Limnornis rectirostris</i>	margins of marshes, <i>Eryngium</i> beds		

Species	Habitats
Acrocephalidae	
Moustached Warbler <i>Acrocephalus melanopogon</i>	reedbeds, reedmace
Sedge Warbler <i>Acrocephalus schoenobaenus</i>	marshes
Black-browed Reed Warbler <i>Acrocephalus bistrigiceps</i>	wetlands, damp meadows
Manchurian Reed Warbler <i>Acrocephalus tangorum</i>	<i>Phragmites</i> reedbeds
Paddyfield Warbler <i>Acrocephalus agricola</i>	<i>Phragmites</i> reedbeds
Blunt-winged Warbler <i>Acrocephalus concines</i>	<i>Phragmites</i> reedbeds
Eurasian Reed Warbler <i>Acrocephalus scirpaceus</i>	<i>Phragmites</i> reedbeds
African Reed Warbler <i>Acrocephalus baeticatus</i>	variety of reedy vegetation
Marsh Warbler <i>Acrocephalus palustris</i>	rank herbage, erect plants
Blyth's Reed Warbler <i>Acrocephalus dumetorum</i>	bushy habitat
Basra Reed Warbler <i>Acrocephalus griseldis</i>	emergent aquatic vegetation
Great Reed Warbler <i>Acrocephalus arundinaceus</i>	reedbeds
Oriental Reed Warbler <i>Acrocephalus orientalis</i>	reedbeds, tall grass, bushes
Clamorous Reed Warbler <i>Acrocephalus stentoreus</i>	reeds, bushes, scrub, mangroves
Australian Reed Warbler <i>Acrocephalus australis</i>	aquatic vegetation, bushes
Saipan Nightingale Reed Warbler <i>Acrocephalus hiwae</i>	thicket-meadow mosaic
Millerbird <i>Acrocephalus familiaris</i>	bushy hillside
Kiritimati Reed Warbler <i>Acrocephalus aequinoctialis</i>	open areas with scattered trees

Species	Habitats
Rimatara Reed Warbler <i>Acrocephalus rimatarae</i>	undergrowth of wooded areas
Henderson Reed Warbler <i>Acrocephalus taiti</i>	native forest
Greater Swamp Warbler <i>Acrocephalus rufescens</i>	emergent swamp vegetation, papyrus
Cape Verde Swamp Warbler <i>Acrocephalus brevipennis</i>	scrub
Lesser Swamp Warbler <i>Acrocephalus gracilirostris</i>	swamp vegetation
Madagascar Swamp Warbler <i>Acrocephalus newtoni</i>	marshy vegetation, scrub
Seychelles Brush Warbler <i>Acrocephalus sechellensis</i>	tall scrub-like vegetation
Upcher's Warbler <i>Hippolais languida</i>	scattered scrub
Olive-tree Warbler <i>Hippolais olivetorum</i>	open woodland
Melodious Warbler <i>Hippolais polyglotta</i>	bushy cover
Icterine Warbler <i>Hippolais icterina</i>	woodland edges, glades
Booted Warbler <i>Iduna caligata</i>	low scrub
Sykes's Warbler <i>Iduna rama</i>	tall shrubs and herbage
Isabelline Warbler <i>Iduna opaca</i>	bushy vegetation
Olivaceous Warbler <i>Iduna pallida</i>	thickets
African Yellow Warbler <i>Iduna natalensis</i>	rank vegetation
Mountain Yellow Warbler <i>Iduna similis</i>	montane bushes
Papyrus Yellow Warbler <i>Calamonastides gracilirostris</i>	papyrus swamps
Thick-billed Warbler <i>Phragmaticola aedon</i>	thick shrubbery