

Supplementary information

Detection and characterisation of coronaviruses in migratory and non-migratory Australian wild birds

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Supplementary Table S1. Bird species, location and timing of sampling for coronavirus positive birds. Age of bird was identified as Unknown (U), Juvenile (J) or adult (A)

Sample ID	Species	Collection Date	Collection Location	State	Age	5' UTR PCR Result	Nested PCR Result	Modified PCR Result	Coronavirus Genus	Genbank Accession
Curlew sandpiper CoV-9763-2016/12/28-WS/VIC	Curlew sandpiper	28/12/2016	Werribee South	VIC	U	-	-	+		
Curlew sandpiper CoV-9768-2016/12/28-WS/VIC	Curlew sandpiper	28/12/2016	Werribee South	VIC	U	-	+	+		
Curlew sandpiper CoV-9776-2016/12/28-WS/VIC	Curlew sandpiper	28/12/2016	Werribee South	VIC	U	-	+	+	Gamma	MG764091
Curlew sandpiper CoV-9819-2016/12/30-WS/VIC	Curlew sandpiper	30/12/2016	Werribee South	VIC	U	+	-	+	Gamma	MG764092
Curlew sandpiper CoV-9820-2016/12/30-WS/VIC	Curlew sandpiper	30/12/2016	Werribee South	VIC	U	-	+	+		
Curlew sandpiper CoV-9821-2016/12/30-WS/VIC	Curlew sandpiper	30/12/2016	Werribee South	VIC	U	-	-	+		
Curlew sandpiper CoV-9822-2016/12/30-WS/VIC	Curlew sandpiper	30/12/2016	Werribee South	VIC	U	-	+	-	Gamma	MG764093
Curlew sandpiper CoV-9825-2016/12/30-WS/VIC	Curlew sandpiper	30/12/2016	Werribee South	VIC	U	-	-	+	Delta	MG764094
Grey teal CoV-10002-2016/6/11-PV/VIC	Grey teal	11/06/2016	Paynesville	VIC	U	-	+	-	Gamma	MG764095
Grey teal CoV-10178-2016/6/13-CR/VIC	Grey teal	13/06/2016	Carlisle river	VIC	A	+	+	+	Gamma	MG764096
Grey teal CoV-10181-2016/6/13-CR/VIC	Grey teal	13/06/2016	Carlisle river	VIC	A	-	+	+	Gamma	MG764097
Grey teal CoV-10214-2016/6/13-CR/VIC	Grey teal	13/06/2016	Carlisle river	VIC	A	+	+	+	Gamma	MG764098
Grey teal CoV-10215-2016/6/13-CR/VIC	Grey teal	13/06/2016	Carlisle river	VIC	A	+	+	+		
Grey teal CoV-10226-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	+	+	+		
Grey teal CoV-10227-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	+	+	+		
Grey teal CoV-10228-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	-	+	+	Gamma	MG764099
Grey teal CoV-10229-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	+	+	+	Gamma	MG764100
Grey teal CoV-10230-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	+	+	+	Gamma	MG764101
Grey teal CoV-10234-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	+	+	+	Gamma	MG764102
Grey teal CoV-10235-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	-	+	-	Gamma	MG764103
Grey teal CoV-10237-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	-	+	+		
Grey teal CoV-10238-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	-	+	+		
Grey teal CoV-10239-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	-	+	+		
Grey teal CoV-10240-2016/10/28-MM/NSW	Grey teal	28/10/2016	Moulamein	NSW	A	-	+	+		
Grey teal CoV-10241-2016/10/29-MM/NSW	Grey teal	29/10/2016	Moulamein	NSW	U	-	+	+		

Grey teal CoV-10243-2016/10/29-MM/NSW	Grey teal	29/10/2016	Moulamein	NSW	U	-	+	-	Gamma	MG764104
Grey teal CoV-10250-2016/10/29-MM/NSW	Grey teal	29/10/2016	Moulamein	NSW	U	+	+	+	Gamma	MG764105
Pacific black duck CoV-10180-2016/6/13-CR/VIC	Pacific black duck	13/06/2016	Carlisle river	VIC	A	-	+	+	Gamma	MG764106
Pacific black duck CoV-10196-2016/6/13-CR/VIC	Pacific black duck	13/06/2016	Carlisle river	VIC	A	+	+	+	Gamma	MG764107
Pacific black duck CoV-10221-2016/6/13-CR/VIC	Pacific black duck	13/06/2016	Carlisle river	VIC	A	+	+	+	Gamma	MG764108
Pacific black duck CoV-8907-2016/6/7-LC/VIC	Pacific black duck	7/06/2016	Lake Connewarre	VIC	A	-	-	+	Gamma	MG764109
Pacific black duck CoV-8916-2016/6/7-LC/VIC	Pacific black duck	7/06/2016	Lake Connewarre	VIC	A	-	+	+		
Pacific black duck CoV-9707-2016/12/21-LC/VIC	Pacific black duck	21/12/2016	Lake Connewarre	VIC	A	-	+	+		
Pacific black duck CoV-9709-2016/12/21-LC/VIC	Pacific black duck	21/12/2016	Lake Connewarre	VIC	J	-	+	+		
Pacific black duck CoV-9710-2016/12/21-LC/VIC	Pacific black duck	21/12/2016	Lake Connewarre	VIC	J	+	+	+	Gamma	MG764110
Pacific black duck CoV-9711-2016/12/21-LC/VIC	Pacific black duck	21/12/2016	Lake Connewarre	VIC	J	+	+	+	Gamma	MG764111
Pacific black duck CoV-9712-2016/12/21-LC/VIC	Pacific black duck	21/12/2016	Lake Connewarre	VIC	J	-	+	+		
Pacific black duck CoV-9713-2016/12/21-LC/VIC	Pacific black duck	21/12/2016	Lake Connewarre	VIC	J	+	+	+		
Pacific black duck CoV-9714-2016/12/21-LC/VIC	Pacific black duck	21/12/2016	Lake Connewarre	VIC	A	-	+	+		
Pacific black duck CoV-9715-2016/12/22-LC/VIC	Pacific black duck	22/12/2016	Lake Connewarre	VIC	A	-	+	+		
Pacific black duck CoV-9718-2016/12/22-LC/VIC	Pacific black duck	22/12/2016	Lake Connewarre	VIC	J	-	-	+	Gamma	MG764112
Pacific black duck CoV-9719-2016/12/22-LC/VIC	Pacific black duck	22/12/2016	Lake Connewarre	VIC	A	-	-	+	Gamma	MG764113
Pacific black duck CoV-9720-2016/12/22-LC/VIC	Pacific black duck	22/12/2016	Lake Connewarre	VIC	A	-	+	+		
Pacific black duck CoV-9721-2016/12/22-LC/VIC	Pacific black duck	22/12/2016	Lake Connewarre	VIC	A	-	+	+	Gamma	MG764114
Pacific Black Duck CoV-G0001-2016/12/21-LC/VIC	Pacific Black Duck	21/12/2016	Lake Connewarre	VIC	J	+	+	+	Gamma, Delta	MG764115, MG764116
Pied heron CoV-9518-2016/4/30-HD/NT	Pied heron	30/04/2016	Humpty Doo	NT	A	-	+	+	Delta	MG764117
Pied heron CoV-9521-2016/5/1-HD/NT	Pied heron	1/05/2016	Humpty Doo	NT	A	-	+	-	Delta	MG764118
Pied heron CoV-9522-2016/5/1-HD/NT	Pied heron	1/05/2016	Humpty Doo	NT	J	-	+	-	Delta	MG764119
Pied heron CoV-9523-2016/5/1-HD/NT	Pied heron	1/05/2016	Humpty Doo	NT	J	-	+	+	Delta	MG764120
Pied heron CoV-9524-2016/5/1-HD/NT	Pied heron	1/05/2016	Humpty Doo	NT	J	-	+	+	Delta	MG764121
Radjah shelduck CoV-9515-2016/4/28-HD/NT	Radjah shelduck	28/04/2016	Humpty Doo	NT	A	+	+	+	Gamma	MG764122
Red-necked stint CoV-10034-2017/1/7-YC/VIC	Red-necked stint	7/01/2017	Yallock Creek	VIC	U	-	+	-		
Red-necked stint CoV-10402-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	-	+	+	Gamma	MG764123
Red-necked stint CoV-10412-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		

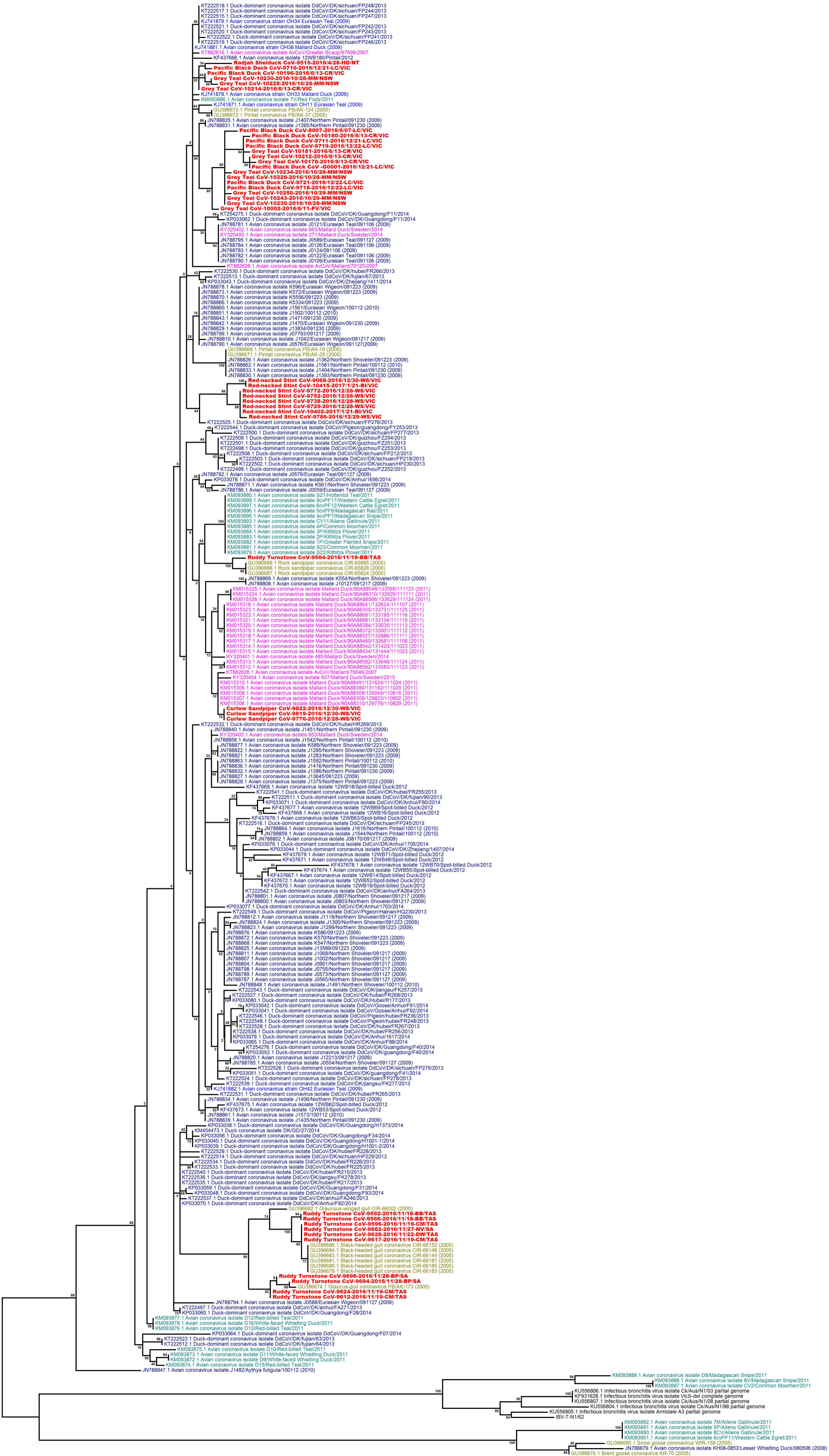
Red-necked stint CoV-10415-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	+	+	Gamma	MG764124
Red-necked stint CoV-10442-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10443-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10452-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10455-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	-	-	+		
Red-necked stint CoV-10461-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10467-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	-	-	+	Delta	MG764125
Red-necked stint CoV-10479-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	-	-	+		
Red-necked stint CoV-10485-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10490-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10496-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10504-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10517-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10519-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10522-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10523-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10524-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10533-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10540-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	+	+		
Red-necked stint CoV-10554-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-10563-2017/1/21-BI/VIC	Red-necked stint	21/01/2017	Barrallier Island	VIC	U	+	-	-		
Red-necked stint CoV-9060-2016/12/30-WS/VIC	Red-necked stint	30/12/2016	Werribee South	VIC	U	-	-	+		
Red-necked stint CoV-9068-2016/12/30-WS/VIC	Red-necked stint	30/12/2016	Werribee South	VIC	U	-	-	+	Gamma	MG764126
Red-necked stint CoV-9074-2016/12/30-WS/VIC	Red-necked stint	30/12/2016	Werribee South	VIC	U	-	+	+		
Red-necked stint CoV-9075-2016/12/30-WS/VIC	Red-necked stint	30/12/2016	Werribee South	VIC	U	+	+	-		
Red-necked stint CoV-9729-2016/12/28-WS/VIC	Red-necked stint	28/12/2016	Werribee South	VIC	U	-	+	-	Gamma	MG764127
Red-necked stint CoV-9736-2016/12/28-WS/VIC	Red-necked stint	28/12/2016	Werribee South	VIC	U	-	-	+		
Red-necked stint CoV-9738-2016/12/28-WS/VIC	Red-necked stint	28/12/2016	Werribee South	VIC	U	-	+	+	Gamma	MG764128
Red-necked stint CoV-9745-2016/12/28-WS/VIC	Red-necked stint	28/12/2016	Werribee South	VIC	U	-	+	+		
Red-necked stint CoV-9752-2016/12/28-WS/VIC	Red-necked stint	28/12/2016	Werribee South	VIC	U	-	+	+	Gamma	MG764129

Red-necked stint CoV-9772-2016/12/28-WS/VIC	Red-necked stint	28/12/2016	Werribee South	VIC	U	-	+	+	Gamma	MG764130
Red-necked stint CoV-9780-2016/12/29-WS/VIC	Red-necked stint	29/12/2016	Werribee South	VIC	U	-	+	-	Gamma	MG764131
Red-necked stint CoV-9786-2016/12/29-WS/VIC	Red-necked stint	29/12/2016	Werribee South	VIC	U	-	+	+	Gamma	MG764132
Red-necked stint CoV-9794-2016/12/29-WS/VIC	Red-necked stint	29/12/2016	Werribee South	VIC	U	-	+	+		
Red-necked stint CoV-9795-2016/12/29-WS/VIC	Red-necked stint	29/12/2016	Werribee South	VIC	U	-	-	+	Delta	MG764133
Red-necked stint CoV-9809-2016/12/29-WS/VIC	Red-necked stint	29/12/2016	Werribee South	VIC	U	-	+	+		
Red-necked stint CoV-9810-2016/12/29-WS/VIC	Red-necked stint	29/12/2016	Werribee South	VIC	U	-	+	+		
Red-necked stint CoV-9811-2016/12/29-WS/VIC	Red-necked stint	29/12/2016	Werribee South	VIC	U	-	+	+		
Red-necked stint CoV-9967-2017/1/7-YC/VIC	Red-necked stint	7/01/2017	Yallock Creek	VIC	U	+	-	-		
Ruddy turnstone CoV-9549-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	+	+	+	Gamma	MG764134
Ruddy turnstone CoV-9550-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	+	+	+	Gamma	MG764135
Ruddy turnstone CoV-9551-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	-	-	+		
Ruddy turnstone CoV-9560-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	-	+	+	Delta	MG764136
Ruddy turnstone CoV-9564-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	+	+	+	Gamma	MG764137
Ruddy turnstone CoV-9566-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	+	+	+	Gamma	MG764138
Ruddy turnstone CoV-9567-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	-	+	+	Delta	MH090081
Ruddy turnstone CoV-9574-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	-	+	-	Delta	MG764139
Ruddy turnstone CoV-9582-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	-	+	+		
Ruddy turnstone CoV-9583-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	-	-	+		
Ruddy turnstone CoV-9586-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	-	-	+		
Ruddy turnstone CoV-9587-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	+	+	+	Gamma	MG764140
Ruddy turnstone CoV-9592-2016/11/18-BB/TAS	Ruddy turnstone	18/11/2016	Burges Bay	TAS	U	-	+	-	Gamma	MG764141
Ruddy turnstone CoV-9596-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	+	+	+	Gamma	MG764142
Ruddy turnstone CoV-9597-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	+	+	+	Gamma	MG764143
Ruddy turnstone CoV-9600-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	+	-	+	Gamma	MG764144
Ruddy turnstone CoV-9602-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	+	+	+	Gamma	MG764145
Ruddy turnstone CoV-9604-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	-	+	+		
Ruddy turnstone CoV-9605-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	-	+	+	Gamma	MH090080
Ruddy turnstone CoV-9610-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	-	+	+	Delta	MG764146
Ruddy turnstone CoV-9612-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	+	+	+	Gamma	MG764147

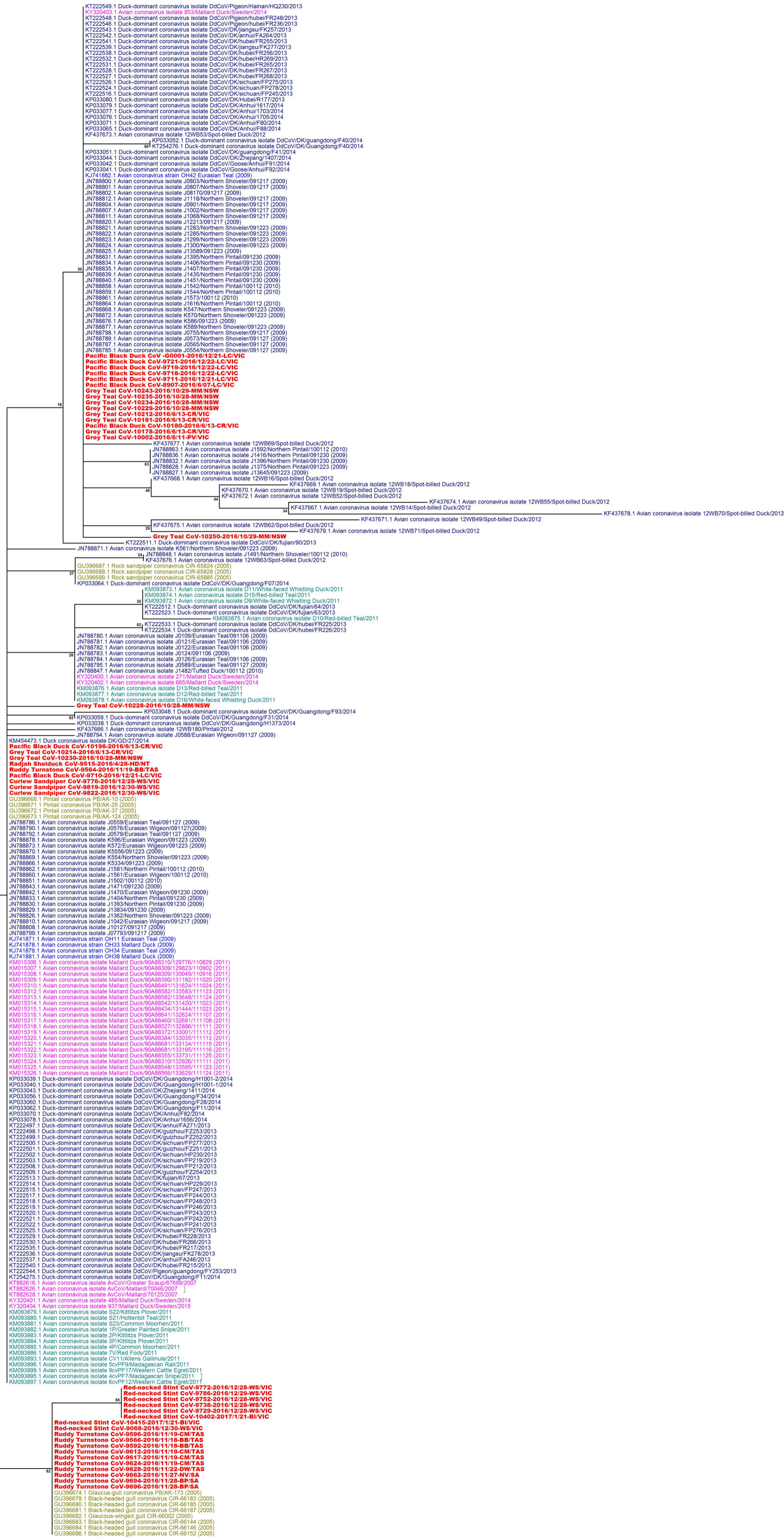
Ruddy turnstone CoV-9614-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	-	+	Not Tested*		
Ruddy turnstone CoV-9617-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	+	+	+	Gamma	MG764148
Ruddy turnstone CoV-9619-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	-	+	+		
Ruddy turnstone CoV-9623-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	-	+	+	Gamma	MG764149
Ruddy turnstone CoV-9624-2016/11/19-CM/TAS	Ruddy turnstone	19/11/2016	Central Manuka	TAS	U	-	+	+	Gamma	MG764150
Ruddy turnstone CoV-9628-2016/11/22-DW/TAS	Ruddy turnstone	22/11/2016	Dripping Wells	TAS	U	+	+	+	Gamma	MG764151
Ruddy turnstone CoV-9652-2016/11/22-DW/TAS	Ruddy turnstone	22/11/2016	Dripping Wells	TAS	U	+	+	+		
Ruddy turnstone CoV-9653-2016/11/22-DW/TAS	Ruddy turnstone	22/11/2016	Dripping Wells	TAS	U	+	+	+		
Ruddy turnstone CoV-9656-2016/11/27-NV/SA	Ruddy turnstone	27/11/2016	Nene Valley	SA	U	+	+	+		
Ruddy turnstone CoV-9657-2016/11/27-NV/SA	Ruddy turnstone	27/11/2016	Nene Valley	SA	U	+	+	+		
Ruddy turnstone CoV-9662-2016/11/27-NV/SA	Ruddy turnstone	27/11/2016	Nene Valley	SA	U	-	-	+	Gamma	MG764152
Ruddy turnstone CoV-9668-2016/11/27-NV/SA	Ruddy turnstone	27/11/2016	Nene Valley	SA	U	-	-	+	Gamma	MG764153
Ruddy turnstone CoV-9671-2016/11/27-NV/SA	Ruddy turnstone	27/11/2016	Nene Valley	SA	U	+	+	+		
Ruddy turnstone CoV-9682-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	+	+		
Ruddy turnstone CoV-9684-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	-	+		
Ruddy turnstone CoV-9685-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	+	+		
Ruddy turnstone CoV-9686-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	-	-	+		
Ruddy turnstone CoV-9687-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	+	+		
Ruddy turnstone CoV-9690-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	+	+		
Ruddy turnstone CoV-9691-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	+	+		
Ruddy turnstone CoV-9692-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	+	+		
Ruddy turnstone CoV-9693-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	-	+	+		
Ruddy turnstone CoV-9694-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	+	+	Gamma	MG764154
Ruddy turnstone CoV-9696-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	+	+	Gamma	MG764155
Ruddy turnstone CoV-9698-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	-	+	+	Delta	MG764156
Ruddy turnstone CoV-9699-2016/11/28-BP/SA	Ruddy turnstone	28/11/2016	Boatswain Point	SA	U	+	+	+		
Wood duck CoV-10220-2016/6/13-CR/VIC	Wood duck	13/06/2016	Carlisle river	VIC	A	+	-	-		

*Due to insufficient RNA for assay

Supplementary Figure S1. *Maximum likelihood phylogenetic tree of the 277 bp fragment of the polymerase gene of gammacoronaviruses from wild birds including the sequences obtained in this study. Bootstrap confidence of each branch was calculated from 1000 replicates. The region where each sequence was obtained is indicated with colour. Australia (red), Madagascar (teal), China, Hong Kong and Korea (dark blue), Bering Strait region (green), United States of America (light blue) and Sweden (pink). The sampling location and state of each Australian sample is identified with a two letter code and the state: New South Wales (NSW): MM-Moulamein; Northern Territory (NT): HD-Humpty Doo; South Australia (SA): BP-Boatswain Point, NV-Nene Valley; Tasmania (TAS): BB-Borges Bay, King Island, CM-Central Manuka, King Island, DW-Dripping Wells, King Island, Tasmania; Victoria (VIC): BI-Barrallier Island, CR-Carlisle River, LC-Lake Connewarre, PV-Paynesville, WS-Werribee South.*



Supplementary Figure S2. *Maximum likelihood phylogenetic tree of the 92 amino acid sequence of the gammacoronaviruses from wild birds. Bootstrap confidence of each branch was calculated from 500 replicates. The region where each sequence was obtained is indicated with colour. Australia (red), Madagascar (teal), China, Hong Kong and Korea (dark blue), Bering Strait region (green), United States of America (light blue) and Sweden (pink). The sampling location and state of each Australian sample is identified with a two letter code and the state: New South Wales (NSW): MM-Moulamein; Northern Territory (NT): HD-Humpty Doo; South Australia (SA): BP-Boatswain Point, NV-Nene Valley; Tasmania (TAS): BB-Borges Bay, King Island, CM-Central Manuka, King Island, DW-Dripping Wells, King Island, Tasmania; Victoria (VIC): BI-Barrallier Island, CR-Carlisle River, LC-Lake Connewarre, PV-Paynesville, WS-Werribee South.*



Supplementary Figure S3. *Maximum likelihood phylogenetic tree of the 311 nt fragment of the polymerase gene of deltacoronaviruses from wild birds, including the sequences obtained in this study. Bootstrap confidence of each branch was calculated from 1000 replicates. The sampling location and state of each Australian sample is identified with a two letter code and the state: New South Wales (NSW): MM-Moulamein; Northern Territory (NT): HD-Humpty Doo; South Australia (SA): BP-Boatswain Point, NV-Nene Valley; Tasmania (TAS): BB-Borges Bay, King Island, CM-Central Manuka, King Island, DW-Dripping Wells, King Island, Tasmania; Victoria (VIC): BI-Barrallier Island, CR-Carlisle River, LC-Lake Connewarre, PV-Paynesville, WS-Werribee South.*

