

Supplementary Information for

Birds generally carry a small repertoire of bitter taste receptor genes

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Table S1. References of the dietary preferences and genomic contig N50 statistics for the 48 birds studied.

Species	Contig N50 (bp)	Diet	References *
Rifleman	18K	Insectivore	Oliver 1955
Golden-collared Manakin	34K	Frugivore	Worthington 1989
Medium Ground Finch	30K	Granivore	Scott 1996
American Crow	24K	Omnivore	http://animaldiversity.org
Zebra Finch	38K	Granivore	http://animaldiversity.org
Budgerigar	55K	Granivore	DeGolier et al. 1999
Kea	16K	Frugivore	Brejaart 1988
Peregrine Falcon	28K	Carnivore	http://animaldiversity.org
Red-legged Seriema	17K	Carnivore	del Hoyo et al. 1992
Carmine Bee-eater	20K	Insectivore	Hoi et al. 2015
Downy Woodpecker	20K	Insectivore	http://animaldiversity.org
Rhinoceros Hornbill	14K	Frugivore	Kemp and Woodcock. 1995
Bar-tailed Trogon	19K	Omnivore	del Hoyo et al. 1992
Cuckoo Roller	19K	Insectivore	del Hoyo et al. 1992
Speckled Mousebird	18K	Frugivore	Roberts et al, 2005
Barn Owl	13K	Carnivore	DeGolier et al, 1999
White-tailed Eagle	20K	Carnivore	del Hoyo et al. 1992
Bald Eagle	105K	Carnivore	http://animaldiversity.org
Turkey Vulture	12K	Carnivore	http://animaldiversity.org
Dalmatian Pelican	18K	Carnivore	del Hoyo et al. 1992
Little Egret	24K	Carnivore	Goutner et al. 1997
Crested Ibis	22K	Carnivore	del Hoyo et al. 1992
Great Cormorant	15K	Carnivore	http://animaldiversity.org
Northern Fulmar	17K	Carnivore	http://animaldiversity.org
Emperor Penguin	30K	Carnivore	http://animaldiversity.org
Adelie Penguin	19K	Carnivore	http://animaldiversity.org
Red-throated Loon	16K	Carnivore	http://animaldiversity.org
White-tailed Tropicbird	18K	Carnivore	Schreiber. 1991
Sunbittern	16K	Insectivore	Knowlton. 1909
Killdeer	32K	Insectivore	DeGolier et al. 1999
Grey Crowned Crane	18K	Omnivore	http://animaldiversity.org
Hoatzin	24K	Folivore	http://animaldiversity.org
Anna's Hummingbird	23K	Nectarivore	DeGolier et al. 1999
Chimney Swift	28K	Insectivore	http://animaldiversity.org
Chuck-will's-widow	22K	Insectivore	http://animaldiversity.org
MacQueen's Bustard	18K	Omnivore	Perrins. 2009
Red-crested Turaco	18K	Frugivore	del Hoyo et al. 1992
Common Cuckoo	31K	Insectivore	http://animaldiversity.org
Brown Mesite	18K	Omnivore	del Hoyo et al. 1992
Yellow-throated Sandgrouse	26K	Granivore	Campbell and Lack. 1985

Domestic Pigeon	22K	Granivore	DeGolier et al. 1999
American Flamingo	16K	Omnivore	Perrins 2009
Great Crested Grebe	13K	Carnivore	http://animaldiversity.org
Turkey	26K	Omnivore	DeGolier et al. 1999
Chicken	279K	Granivore	DeGolier et al. 1999
Peking Duck	26K	Granivore	DeGolier et al. 1999
White-throated Tinamou	24K	Granivore	Perrins 2009
Common Ostrich	29K	Granivore	http://animaldiversity.org
Alligator		Carnivore	http://animaldiversity.org
Crocodile		Carnivore	http://animaldiversity.org
Gharial		Carnivore	http://animaldiversity.org

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Table S2. All partial *Tas2r* genes identified in this study. Non-overlapping partial genes (shown in bold) in one species with similar orthology are potentially from the same locus with gaps.

Species/Genome	Different orthologs	Non-overlapping <i>Tas2rs</i> potentially from same locus
Rifleman	Rifleman_Tas2r5_P Rifleman_Tas2r6_P Rifleman_Tas2r7_P Rifleman_Tas2r8_P	None
Golden-collared Manakin	Golden-collared_Manakin_Tas2r7_P Golden-collared_Manakin_Tas2r8_P	None
Medium Ground Finch	Medium_Ground_Finch_Tas2r9_P Medium_Ground_Finch_Tas2r7_P Medium_Ground_Finch_Tas2r8_P	None
Carmine Bee-eater	Carmine_Bee-eater_Tas2r4_P	Carmine_Bee-eater_Tas2r2_P Carmine_Bee-eater_Tas2r3_P
Bar-tailed Trogon	Bar-tailed_Trogon_Tas2r6_P Bar-tailed_Trogon_Tas2r8_P Bar-tailed_Trogon_Tas2r9_P Bar-tailed_Trogon_Tas2r11_P	Bar-tailed_Trogon_Tas2r7_P Bar-tailed_Trogon_Tas2r10_P
Speckled Mousebird	Speckled_Mousebird_Tas2r2_P Speckled_Mousebird_Tas2r3_P Speckled_Mousebird_Tas2r4_P	None
Anna's Hummingbird	Hummingbird_Tas2r8_P	Hummingbird_Tas2r7_P Hummingbird_Tas2r9_P Hummingbird_Tas2r10_P
Chimney Swift	None	Chimney_Swift_Tas2r6_P Chimney_Swift_Tas2r5_P
MacQueen's Bustard	None	MacQueens_Bustard_Tas2r3_P MacQueens_Bustard_Tas2r4_P
Peking Duck	Peking_Duck_Tas2r3_P Peking_Duck_Tas2r4_P	None

Table S3. Syntenic analysis for partial genes.

Species	Gene name	Scaffold	Upstream gene	Downstream gene
Rifleman	Rifleman_Tas2r5_P	scaffold12242	poly N (incomplete sequencing)	taste receptor type 2 member 9-like
	Rifleman_Tas2r6_P	scaffold28229	NA (No available data due to short contig)	NA
	Rifleman_Tas2r7_P	C16332196	No blast hit	NA
	Rifleman_Tas2r8_P	scaffold28228	NA	NA
Golden-collared Manakin	Golden-collared_Manakin_Tas2r7_P	scaffold920	mepirin A subunit alpha	NA
	Golden-collared_Manakin_Tas2r8_P	scaffold2273	NA	No blast hit
Medium Ground Finch	Medium_Ground_Finch_Tas2r9_P	scaffold1047	taste receptor type 2 member 40-like	poly N
	Medium_Ground_Finch_Tas2r7_P	scaffold4119	NA	NA
	Medium_Ground_Finch_Tas2r8_P	scaffold748	poly N	No blast hit
Carmine Bee-eater	Carmine_Bee-eater_Tas2r2_P	scaffold19532	mepirin A subunit alpha	NA
	Carmine_Bee-eater_Tas2r3_P	scaffold20440	NA	NA
	Carmine_Bee-eater_Tas2r4_P	scaffold41834	NA	No blast hit
Bar-tailed Trogon	Bar-tailed_Trogon_Tas2r6_P	scaffold6731	poly N	No blast hit
	Bar-tailed_Trogon_Tas2r7_P	scaffold2738	poly N	transposon-derived protein ZK1236.4
	Bar-tailed_Trogon_Tas2r8_P	scaffold23126	NA	No blast hit
	Bar-tailed_Trogon_Tas2r9_P	scaffold15085	NA	poly N
	Bar-tailed_Trogon_Tas2r10_P	scaffold22121	poly N	NA
	Bar-tailed_Trogon_Tas2r11_P	scaffold41964	NA	NA
Speckled Mousebird	Speckled_Mousebird_Tas2r2_P	scaffold37637	NA	NA
	Speckled_Mousebird_Tas2r3_P	scaffold38140	No blast hit	poly N
	Speckled_Mousebird_Tas2r4_P	scaffold37670	No blast hit	poly N
Anna's Hummingbird	Hummingbird_Tas2r7_P	C10465731	NA	NA
	Hummingbird_Tas2r8_P	C10690480	NA	NA

	Hummingbird_Tas2r9_P	C10499692	NA	NA
	Hummingbird_Tas2r10_P	C10429533	NA	NA
Chimney Swift	Chimney_Swift_Tas2r6_P	scaffold99	Taste receptor type 2 member 9	poly N
	Chimney_Swift_Tas2r5_P	scaffold46	poly N	transposon-derived protein ZK1236.4
MacQueen's Bustard	MacQueens_Bustard_Tas2r3_P	C15284394	NA	NA
	MacQueens_Bustard_Tas2r4_P	C15304738	No blast hit	NA
Peking Duck	Peking_Duck_Tas2r3_P	C18799681	NA	NA
	Peking_Duck_Tas2r4_P	scaffold2869	NA	ankyrin repeat domain-containing protein

Table S4. *Tas2r* gene repertoires of 48 birds and three crocodylians examined.

Order	Common name	Species name	Diet*	Number of <i>Tas2r</i> genes			
				Intact	Partial	Pseudo	Total
Passeriformes	Rifleman	<i>Acanthisitta chloris</i>	Insectivore	4	4	1	9
	Golden-collared Manakin	<i>Manacus vitellinus</i>	Frugivore	6	2	1	9
	Medium Ground Finch	<i>Geospiza fortis</i>	Granivore	6	3	2	11
	American Crow	<i>Corvus brachyrhynchos</i>	Omnivore	7	1	2	10
Psittaciformes	Zebra Finch	<i>Taeniopygia guttata</i>	Granivore	7	0	1	8
	Budgerigar	<i>Melopsittacus undulatus</i>	Granivore	1	0	1	2
	Kea	<i>Nestor notabilis</i>	Frugivore	1	0	1	2
Falconiformes	Peregrine Falcon	<i>Falco peregrinus</i>	Carnivore	2	0	0	2
Cariamiformes	Red-legged Seriema	<i>Cariama cristata</i>	Omnivore	2	0	0	2
Coraciiformes	Carmine Bee-eater	<i>Merops nubicus</i>	Insectivore	1	2	0	3
Piciformes	Downy Woodpecker	<i>Picoides pubescens</i>	Insectivore	4	0	1	5
Bucerotiformes	Rhinoceros Hornbill	<i>Buceros rhinoceros</i>	Frugivore	1	1	1	3
Trogoniformes	Bar-tailed Trogon	<i>Apaloderma vittatum</i>	Omnivore	5	5	2	12
Leptosomiformes	Cuckoo Roller	<i>Leptosomus discolor</i>	Insectivore	2	0	0	2
Coliiformes	Speckled Mousebird	<i>Colius striatus</i>	Frugivore	1	3	0	4
Strigiformes	Barn Owl	<i>Tyto alba</i>	Carnivore	2	0	0	2
Accipitriformes	White-tailed Eagle	<i>Haliaeetus albicilla</i>	Carnivore	2	0	1	3
	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Carnivore	2	0	1	3
	Turkey Vulture	<i>Cathartes aura</i>	Carnivore	2	0	1	3
Pelecaniformes	Dalmatian Pelican	<i>Pelecanus crispus</i>	Carnivore	1	0	1	2
	Little Egret	<i>Egretta garzetta</i>	Carnivore	2	0	1	3
	Crested Ibis	<i>Nipponia nippon</i>	Carnivore	2	0	0	2
	Great Cormorant	<i>Phalacrocorax carbo</i>	Carnivore	1	0	1	2
Procellariiformes	Northern Fulmar	<i>Fulmarus glacialis</i>	Carnivore	2	0	0	2
Sphenisciformes	Emperor Penguin	<i>Aptenodytes forsteri</i>	Carnivore	0	0	3	3
	Adelie Penguin	<i>Pygoscelis adeliae</i>	Carnivore	0	0	3	3
Gaviiformes	Red-throated Loon	<i>Gavia stellata</i>	Carnivore	0	0	3	3
Phaethontiformes	White-tailed Tropicbird	<i>Phaethon lepturus</i>	Carnivore	1	0	1	2
Eurypygiformes	Sunbittern	<i>Eurypyga helias</i>	Insectivore	2	0	0	2
Charadriiformes	Killdeer	<i>Charadrius vociferus</i>	Insectivore	3	0	0	3
Gruiformes	Grey Crowned Crane	<i>Balearica regulorum</i>	Omnivore	2	0	1	3
Opisthocomiformes	Hoatzin	<i>Opisthocomus hoazin</i>	Folivores	4	0	0	4
Caprimulgiformes	Anna's Hummingbird	<i>Calypte anna</i>	Nectarivore	6	2	2	10
	Chimney Swift	<i>Chaetura pelagica</i>	Insectivore	4	1	0	5
	Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	Insectivore	3	0	0	3
Otidiformes	MacQueen's Bustard	<i>Chlamydotis macqueenii</i>	Omnivore	2	1	0	3
Musophagiformes	Red-crested Turaco	<i>Tauraco erythrolophus</i>	Frugivore	3	0	0	3
Cuculiformes	Common Cuckoo	<i>Cuculus canorus</i>	Insectivore	2	1	0	3
Mesitornithiformes	Brown Mesite	<i>Mesitornis unicolor</i>	Omnivore	3	0	0	3
Pterocliiformes	Yellow-throated Sandgrouse	<i>Pterocles gutturalis</i>	Granivore	1	0	2	3
Columbiformes	Domestic Pigeon	<i>Columba livia</i>	Granivore	1	0	0	1

Phoenicopteriformes	American Flamingo	<i>Phoenicopterus ruber</i>	Omnivore	2	0	0	2
Podicipediformes	Great Crested Grebe	<i>Podiceps cristatus</i>	Carnivore	1	0	1	2
Galliformes	Turkey	<i>Meleagris gallopavo</i>	Omnivore	2	0	2	4
	Chicken	<i>Gallus gallus</i>	Granivore	3	0	0	3
Anseriformes	Peking Duck	<i>Anas platyrhynchos</i>	Granivore	2	2	0	4
Tinamiformes	White-throated Tinamou	<i>Tinamus guttatus</i>	Granivore	2	0	0	2
Struthioniformes	Common Ostrich	<i>Struthio camelus</i>	Granivore	1	0	1	2
Crocodylia	Alligator	<i>Alligator mississippiensis</i>	Carnivore	7	0	3	10
	Crocodile	<i>Crocodylus porosus</i>	Carnivore	5	0	1	6
	Gharial	<i>Gavialis gangeticus</i>	Carnivore	8	0	3	11

[†]Note - The diet classification for each bird was determined by a food type predominated in its diet with 51% or more.

Table S5. Genomic locations for all avian *Tas2r* genes studied. Potential tandem duplicated genes were highlighted in gray.

Species	Gene name	Gene type	Genomic location			
			Scaffold	Subject start	Subject end	Orientation
Rifleman	Rifleman_Tas2r2	Intact	scaffold4455	7457	6453	-
	Rifleman_Tas2r1	Intact	scaffold4455	2206	1253	-
	Rifleman_Tas2r3	Intact	scaffold8056	12904	11933	-
	Rifleman_Tas2r5_P	Partial	scaffold12242	3985	4458	+
	Rifleman_Tas2r4	Intact	scaffold12242	7500	8450	+
	Rifleman_Tas2r6_P	Partial	scaffold28229	1	684	+
	Rifleman_Tas2r7_P	Partial	C16332196	463	681	+
	Rifleman_Tas2r8_P	Partial	scaffold28228	1	681	+
	Rifleman_Tas2r9_Ps	Pseudogene	scaffold31809	1100	1402	+
Golden-collared Manakin	Golden-collared_Manakin_Tas2r1	Intact	scaffold208	227981	227016	-
	Golden-collared_Manakin_Tas2r3	Intact	scaffold300	1025772	1024837	-
	Golden-collared_Manakin_Tas2r2	Intact	scaffold114	1187	2152	+
	Golden-collared_Manakin_Tas2r9_Ps	Pseudogene	scaffold114	6615	6999	+
	Golden-collared_Manakin_Tas2r6	Intact	scaffold114	9190	10137	+
	Golden-collared_Manakin_Tas2r4	Intact	scaffold114	14217	15158	+
	Golden-collared_Manakin_Tas2r5	Intact	scaffold114	17745	18698	+
	Golden-collared_Manakin_Tas2r7_P	Partial	scaffold920	8287	8942	+
	Golden-collared_Manakin_Tas2r8_P	Partial	scaffold2273	588	76	-
Medium Ground Finch	Medium_Ground_Finch_Tas2r1	Intact	scaffold52	273539	272586	-
	Medium_Ground_Finch_Tas2r3	Intact	scaffold52	268377	267424	-
	Medium_Ground_Finch_Tas2r4	Intact	scaffold52	265312	264353	-
	Medium_Ground_Finch_Tas2r2	Intact	scaffold884	340322	339363	-
	Medium_Ground_Finch_Tas2r9_P	Partial	scaffold1047	222842	222346	-
	Medium_Ground_Finch_Tas2r5	Intact	scaffold1047	226160	227095	+
	Medium_Ground_Finch_Tas2r6	Intact	scaffold1047	229180	230115	+
	Medium_Ground_Finch_Tas2r7_P	Partial	scaffold4119	1	474	+

	Medium_Ground_Finch_Tas2r8_P	Partial	scaffold748	1173	218	-
	Medium_Ground_Finch_Tas2r10_Ps	Pseudogene	scaffold16	15333977	15334638	+
	Medium_Ground_Finch_Tas2r11_Ps	Pseudogene	scaffold98	2326511	2326828	+
American Crow	American_Crow_Tas2r5	Intact	scaffold116	14005127	14005987	+
	American_Crow_Tas2r4	Intact	scaffold116	14009670	14010503	+
	American_Crow_Tas2r6	Intact	scaffold116	14014569	14015522	+
	American_Crow_Tas2r3	Intact	scaffold116	14020521	14021474	+
	American_Crow_Tas2r7	Intact	scaffold116	14023651	14024523	+
	American_Crow_Tas2r1	Intact	scaffold44	3712104	3711139	-
	American_Crow_Tas2r9_Ps	Pseudogene	scaffold176	231755	232486	+
	American_Crow_Tas2r8_P	Partial	scaffold176	235228/246101	236057/246932	+
	American_Crow_Tas2r2	Intact	scaffold176	259591	260457	+
	American_Crow_Tas2r10_Ps	Pseudogene	scaffold176	261052	261675	+
Zebra Finch	Zebra_Finch_Tas2r7	Intact	197886634	34532	33597	-
	Zebra_Finch_Tas2r1	Intact	197886634	31495	30563	-
	Zebra_Finch_Tas2r3	Intact	197886632	4989	4054	-
	Zebra_Finch_Tas2r5	Intact	197889227	1229	2182	+
	Zebra_Finch_Tas2r4	Intact	197889227	5553	6506	+
	Zebra_Finch_Tas2r2	Intact	197889227	8615	9556	+
	Zebra_Finch_Tas2r6	Intact	197889228	25001	25951	+
	Zebra_Finch_Tas2r8_Ps	Pseudogene	197886466	66259	65558	-
Budgerigar	Budgerigar_Tas2r1	Intact	scf900160277026	5924866	5923916	-
	Budgerigar_Tas2r2_Ps	Pseudogene	scf900160277078	2394556	2394238	-
Kea	Kea_Tas2r1	Intact	scaffold708	17773	16823	-
	Kea_Tas2r2_Ps	Pseudogene	scaffold2803	24786	25289	+
Peregrine Falcon	Falco_peregrinus_Tas2r1	Intact	scaffold36_1	974909	973959	-
	Falco_peregrinus_Tas2r2	Intact	scaffold236_2	252192	251236	-
Red-legged Seriema	Red-legged_Seriema_Tas2r1	Intact	scaffold4031	30673	31608	+
	Red-legged_Seriema_Tas2r2	Intact	scaffold19391	18028	17084	-
Carmine Bee-eater	Carmine_Bee-eater_Tas2r1	Intact	scaffold3372	87990	88961	+

	Carmine_Bee-eater_Tas2r2_P	Partial	scaffold19532	33317	33655	+
	Carmine_Bee-eater_Tas2r3_P	Partial	scaffold20440	408	1	-
	Carmine_Bee-eater_Tas2r4_P	Partial	scaffold41834	665	153	-
Downy Woodpecker	Downy_Woodpecker_Tas2r3	Intact	scaffold415	197347	198282	+
	Downy_Woodpecker_Tas2r1	Intact	scaffold167	1583542	1582640	-
	Downy_Woodpecker_Tas2r5_Ps	Pseudogene	scaffold167	1203820	1202920	-
	Downy_Woodpecker_Tas2r2	Intact	scaffold167	1199105	1198152	-
	Downy_Woodpecker_Tas2r4	Intact	scaffold167	1194675	1193722	-
Rhinoceros Hornbill	Rhinoceros_Hornbill_Tas2r1	Intact	scaffold12344	27568	26621	-
	Rhinoceros_Hornbill_Tas2r2_P	Partial	scaffold13313	15130	14588	-
	Rhinoceros_Hornbill_Tas2r3_Ps	Pseudogene	scaffold16794	48703	49158	+
Bar-tailed Trogon	Bar-tailed_Trogon_Tas2r1	Intact	C12131352	2119	1166	-
	Bar-tailed_Trogon_Tas2r2	Intact	scaffold21851	7714	6761	-
	Bar-tailed_Trogon_Tas2r3	Intact	scaffold31381	3617	2655	-
	Bar-tailed_Trogon_Tas2r4	Intact	scaffold1004	9023	8070	-
	Bar-tailed_Trogon_Tas2r5	Intact	scaffold11293	1524	586	-
	Bar-tailed_Trogon_Tas2r6_P	Partial	scaffold6731	959	179	-
	Bar-tailed_Trogon_Tas2r7_P	Partial	scaffold2738	3688	3284	-
	Bar-tailed_Trogon_Tas2r8_P	Partial	scaffold23126	870	280	-
	Bar-tailed_Trogon_Tas2r9_P	Partial	scaffold15085	4	248	+
	Bar-tailed_Trogon_Tas2r10_P	Partial	scaffold22121	895	1149	+
	Bar-tailed_Trogon_Tas2r11_P	Partial	scaffold41964	431	3	-
	Bar-tailed_Trogon_Tas2r12_Ps	Pseudogene	scaffold21145	631	212	-
	Bar-tailed_Trogon_Tas2r13_Ps	Pseudogene	scaffold5893	3341	3673	+
Cuckoo Roller	Cuckoo_Roller_Tas2r1	Intact	scaffold14764	1156	2103	+
	Cuckoo_Roller_Tas2r2	Intact	scaffold9319	79935	80882	+
Speckled Mousebird	Speckled_Mousebird_Tas2r1	Intact	scaffold12255	22430	21483	-
	Speckled_Mousebird_Tas2r2_P	Partial	scaffold37637	864	1	-
	Speckled_Mousebird_Tas2r3_P	Partial	scaffold38140	110	627	+
	Speckled_Mousebird_Tas2r4_P	Partial	scaffold37670	327	1	-

Barn Owl	Barn_Owl_Tas2r1	Intact	scaffold2332	27837	26890	-
	Barn_Owl_Tas2r2	Intact	scaffold45413	3568	2615	-
White-tailed Eagle	White-tailed_Eagle_Tas2r1	Intact	scaffold37208	12737	13684	+
	White-tailed_Eagle_Tas2r2	Intact	scaffold28067	1469	2404	+
	White-tailed_Eagle_Tas2r3_Ps	Pseudogene	scaffold6740	109178	109689	+
Bald Eagle	Bald_Eagle_Tas2r1	Intact	Scaffold417	20795	21742	+
	Bald_Eagle_Tas2r2	Intact	Scaffold1158	116576	117511	+
	Bald_Eagle_Tas2r3_Ps	Pseudogene	Scaffold2485	264533	264132	-
Turkey Vulture	Turkey_Vulture_Tas2r1	Intact	scaffold669	17751	16822	-
	Turkey_Vulture_Tas2r2	Intact	scaffold12515	10755	9820	-
	Turkey_Vulture_Tas2r3_Ps	Pseudogene	scaffold8688	22181	21309	-
Dalmatian Pelican	Dalmatian_Pelican_Tas2r1	Intact	scaffold5020	54960	55913	+
	Dalmatian_Pelican_Tas2r2_Ps	Pseudogene	scaffold1017	134426	133610	-
Little Egret	Little_Egret_Tas2r2	Intact	scaffold323	734669	735129	+
	Little_Egret_Tas2r1	Intact	scaffold235	857838	858791	+
	Little_Egret_Tas2r3_Ps	Pseudogene	scaffold85	4378460	4377559	-
Crested Ibis	Crested_Ibis_Tas2r1	Intact	Scaffold6	7962604	7963572	+
	Crested_Ibis_Tas2r2	Intact	Scaffold155	4229721	4230674	+
Great Cormorant	Great_Cormorant_Tas2r1	Intact	scaffold16155	44227	45180	+
	Great_Cormorant_Tas2r2_Ps	Pseudogene	scaffold1307	8247	7459	-
Northern Fulmar	Northern_Fulmar_Tas2r1	Intact	scaffold3220	32172	33119	+
	Northern_Fulmar_Tas2r2	Intact	scaffold2043	1921	968	-
Emperor Penguin	Emperor_Penguin_Tas2r1_Ps	Pseudogene	Scaffold405	350048	350730	+
	Emperor_Penguin_Tas2r2_Ps	Pseudogene	Scaffold231	4670477	4669656	-
	Emperor_Penguin_Tas2r3_Ps	Pseudogene	Scaffold57	3998393	3997770	-
Adelie Penguin	Adelie_Penguin_Tas2r1_Ps	Pseudogene	Scaffold84	2982957	2983310	+
	Adelie_Penguin_Tas2r2_Ps	Pseudogene	Scaffold120	373785	374467	+
	Adelie_Penguin_Tas2r3_Ps	Pseudogene	Scaffold121	4214242	4215192	+
Red-throated Loon	Red-throated_Loon_Tas2r1_Ps	Pseudogene	scaffold5827	40213	40977	+
	Red-throated_Loon_Tas2r2_Ps	Pseudogene	scaffold9999	6330	7052	+

White-tailed Tropicbird	Red-throated_Loon_Tas2r3_Ps	Pseudogene	scaffold6843	3746	4108	+
	White-tailed_Tropicbird_Tas2r1	Intact	scaffold4143	36540	37490	+
Sunbittern	White-tailed_Tropicbird_Tas2r2_Ps	Pseudogene	scaffold8246	28218	28808	+
	Sunbittern_Tas2r1	Intact	scaffold37432	10666	11613	+
Killdeer	Sunbittern_Tas2r2	Intact	C15859869	1291	338	-
	Killdeer_Tas2r1	Intact	scaffold1	8183821	8184768	+
Grey Crowned Crane	Killdeer_Tas2r2	Intact	scaffold301	300207	301139	+
	Killdeer_Tas2r3	Intact	scaffold800	300112	301065	+
	Grey_Crowned_Crane_Tas2r1	Intact	scaffold1927	37295	38248	+
Hoatzin	Grey_Crowned_Crane_Tas2r2	Intact	scaffold12917	15309	14374	-
	Grey_Crowned_Crane_Tas2r3_Ps	Pseudogene	scaffold8931	32614	32237	-
	Hoatzin_Tas2r1	Intact	scaffold1028	1673	720	-
	Hoatzin_Tas2r2	Intact	scaffold659	3004	3957	+
	Hoatzin_Tas2r3	Intact	scaffold813	102136	103071	+
	Hoatzin_Tas2r4	Intact	scaffold256	1620801	1621754	+
Anna's Hummingbird	Hummingbird_Tas2r3	Intact	scaffold127	2659677	2658724	-
	Hummingbird_Tas2r6	Intact	scaffold127	2655667	2654714	-
	Hummingbird_Tas2r4	Intact	scaffold33	3789761	3788835	-
	Hummingbird_Tas2r2	Intact	scaffold372	10650	9697	-
	Hummingbird_Tas2r12_Ps	Pseudogene	scaffold372	7772	7377	-
	Hummingbird_Tas2r5	Intact	scaffold372	5703	4750	-
	Hummingbird_Tas2r1	Intact	scaffold372	1304	342	-
	Hummingbird_Tas2r7_P	Partial	C10465731	3	224	+
	Hummingbird_Tas2r8_P	Partial	C10690480	3	242	+
	Hummingbird_Tas2r9_P	Partial	C10499692	242	3	-
	Hummingbird_Tas2r10_P	Partial	C10429533	3	203	+
Chimney Swift	Hummingbird_Tas2r11_Ps	Pseudogene	C10902572	676	162	-
	Chimney_Swift_Tas2r1	Intact	scaffold46	6393863	6394828	+
	Chimney_Swift_Tas2r4	Intact	scaffold277	283732	282785	-
	Chimney_Swift_Tas2r2	Intact	scaffold99	2644851	2643886	-

	Chimney_Swift_Tas2r3	Intact	scaffold99	2641505	2640543	-
	Chimney_Swift_Tas2r6_P	Partial	scaffold99	2636740	2636288	-
Chuck-will's-widow	Chimney_Swift_Tas2r5_P	Partial	scaffold46	6389989	6390327	+
	Chuck-wills-widow_Tas2r1	Intact	scaffold396	2121	3047	+
	Chuck-wills-widow_Tas2r2	Intact	scaffold1914	4972	4025	-
	Chuck-wills-widow_Tas2r3	Intact	scaffold1000	93270	92323	-
MacQueen's Bustard	MacQueens_Bustard_Tas2r1	Intact	scaffold23313	3506	2580	-
	MacQueens_Bustard_Tas2r2	Intact	scaffold414	82836	81925	-
	MacQueens_Bustard_Tas2r3_P	Partial	C15284394	1	474	+
	MacQueens_Bustard_Tas2r4_P	Partial	C15304738	265	525	+
Red-crested Turaco	Red-crested_Turaco_Tas2r1	Intact	scaffold2314	23361	22441	-
	Red-crested_Turaco_Tas2r2	Intact	scaffold34572	20881	19928	-
	Red-crested_Turaco_Tas2r3	Intact	scaffold18533	42888	41941	-
Common Cuckoo	Common_Cuckoo_Tas2r1	Intact	scaffold15	9317171	9316224	-
	Common_Cuckoo_Tas2r2	Intact	scaffold463	861923	860972	-
	Common_Cuckoo_Tas2r3_P	Partial	scaffold463	832513	832188	-
Brown Mesite	Brown_Mesite_Tas2r1	Intact	scaffold7920	19231	18269	-
	Brown_Mesite_Tas2r2	Intact	scaffold2045	26762	27703	+
	Brown_Mesite_Tas2r3	Intact	scaffold16819	19640	20575	+
Yellow-throated Sandgrouse	Yellow-throated_Sandgrouse_Tas2r1	Intact	scaffold1013	45299	46249	+
	Yellow-throated_Sandgrouse_Tas2r2_Ps	Pseudogene	scaffold28979	19334	19654	+
	Yellow-throated_Sandgrouse_Tas2r3_Ps	Pseudogene	scaffold15952	19934	19538	-
Domestic Pigeon	Domestic_Pigeon_Tas2r1	Intact	scaffold589	321699	322652	+
American Flamingo	American_Flamingo_Tas2r1	Intact	scaffold3389	6195	7154	+
	American_Flamingo_Tas2r2	Intact	scaffold9414	12146	11193	-
Great Crested Grebe	Great_Crested_Grebe_Tas2r1	Intact	scaffold16170	8914	7964	-
	Great_Crested_Grebe_Tas2r2_Ps	Pseudogene	scaffold2598	19885	20763	+
Turkey	Turkey_Tas2r1	Intact	chromosome2	115831982	115830963	-
	Turkey_Tas2r2	Intact	chromosome1	199170357	199171292	+
	Turkey_Tas2r3_Ps	Pseudogene	chromosome1	81484150	81483545	-

Chicken	Turkey_Tas2r4_Ps	Pseudogene	chromosome1	81511020	81510565	-
	Chicken_Tas2r1	Intact	354539478	114300	115265	+
	Chicken_Tas2r2	Intact	354542216	41217	40282	-
Peking Duck	Chicken_Tas2r3	Intact	354541529	5258	6193	+
	Peking_Duck_Tas2r1	Intact	scaffold1150	546595	547530	+
	Peking_Duck_Tas2r2	Intact	scaffold470	320497	319553	-
	Peking_Duck_Tas2r3_P	Partial	C18799681	326	3	-
White-throated Tinamou	Peking_Duck_Tas2r4_P	Partial	scaffold2869	1	729	+
	White-throated_Tinamou_Tas2r1	Intact	scaffold1945	19999	19064	-
	White-throated_Tinamou_Tas2r2	Intact	scaffold252	624516	625445	+
Common Ostrich	Common_Ostrich_Tas2r1	Intact	scaffold494	1849648	1848713	-
	Common_Ostrich_Tas2r2_Ps	Pseudogene	scaffold966	256186	256888	+

Table S6. Tandem duplicated *Tas2r* genes and the lengths of their scaffolds.

Species	Scaffold	Scaffold length (bp)	<i>Tas2r</i> gene number
Rifleman	scaffold4455	79059	2
	scaffold12242	12473	2
Golden-collared Manakin	scaffold114	2564601	5
Medium Ground Finch	scaffold52	279058	3
	scaffold1047	566768	3
American Crow	scaffold116	16488145	5
	scaffold176	604260	4
Downy Woodpecker	scaffold167	3849947	4
Anna's Hummingbird	scaffold127	2661235	2
	scaffold372	3831364	4
Chimney Swift	scaffold99	2651650	3
Zebra Finch	197886634	36224	2
	197889227	112379	3

Table S7. Potential gene conversion events between avian *Tas2r* genes.

Sequence pair	<i>P</i> value	Fragment length
Zebra_Finch_ <i>Tas2r1</i> and Zebra_Finch_ <i>Tas2r3</i>	0.01047	71 aa
Zebra_Finch_ <i>Tas2r3</i> and Zebra_Finch_ <i>Tas2r7</i>	0.02702	75 aa

Figure Legends

Figure S1. The Bayesian Inference (BI) phylogenetic tree with detailed species and gene names, and Bayesian posterior probabilities as percentages that were not shown in figure 1.

Figure S2. The Bayesian phylogenetic tree topology, where nodes with Bayesian posterior probabilities below 50% were collapsed. See details in figure S1.

Figure S3. The neighbor-joining phylogenetic tree with pairwise-deletion of gaps.

Figure S4. The neighbor-joining phylogenetic tree with complete-deletion of gaps.

Figure S5. While coded the red-legged seriema as 1, the repeated phylogenetically independent contrast (PIC) analysis confirmed the correlation between diet codes and putatively functional *Tas2r* gene numbers (A), and revealed a same trend between PICs of diet codes and those of total *Tas2r* gene numbers (B).

Figure S6. No correlation between the contig N50 length of each genome and the fraction of partial *Tas2r* genes.

Figure S1

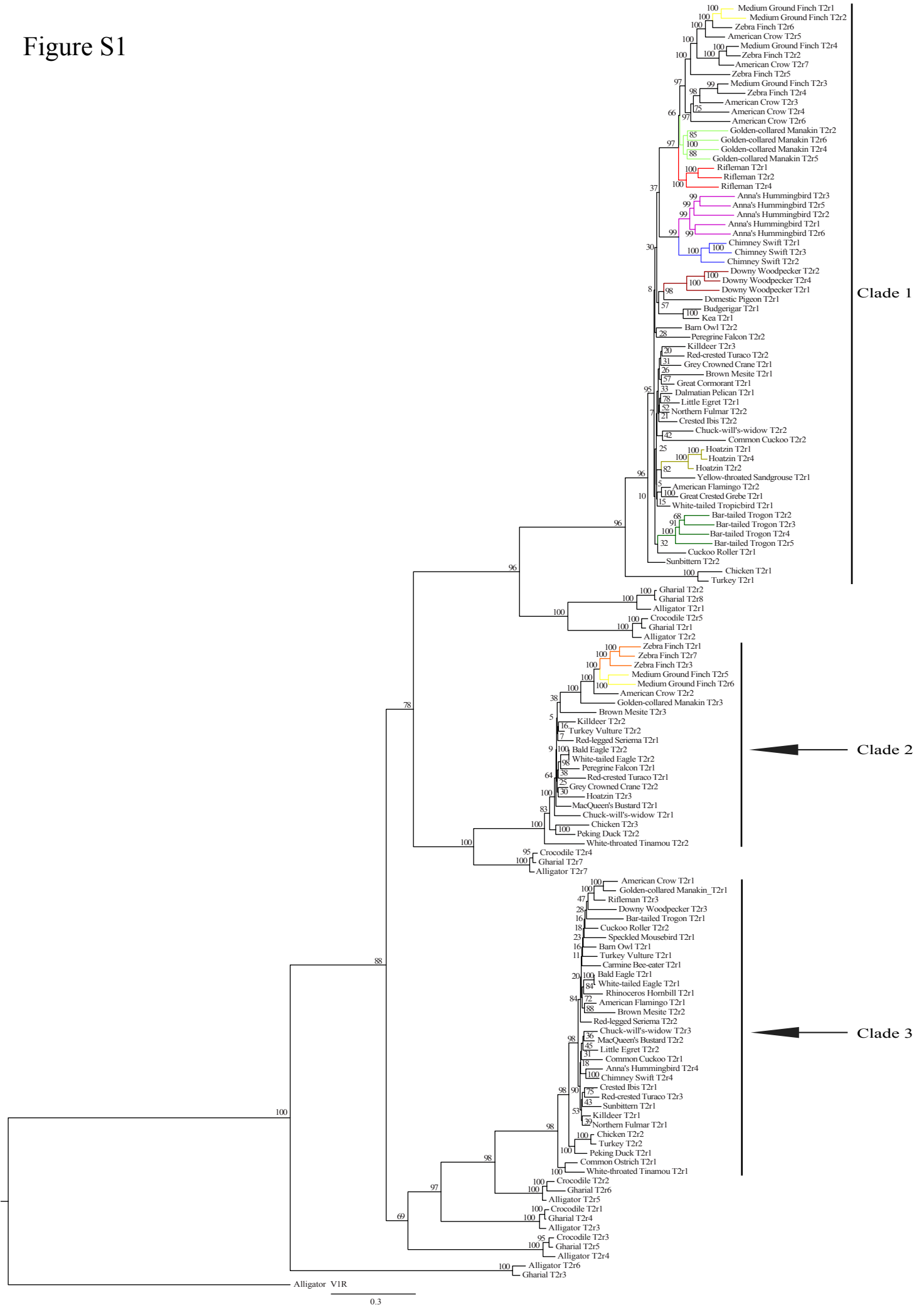


Figure S2

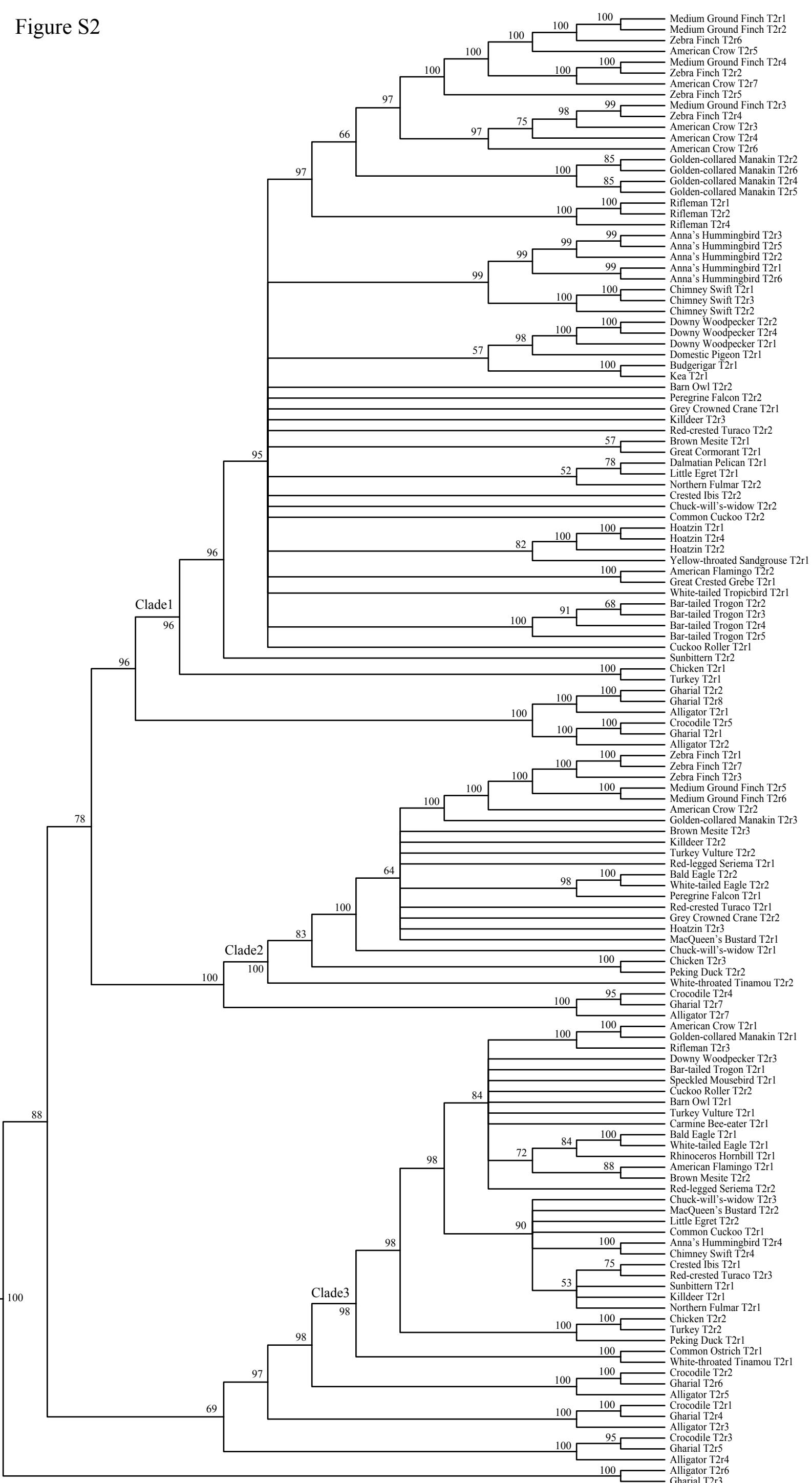


Figure S3

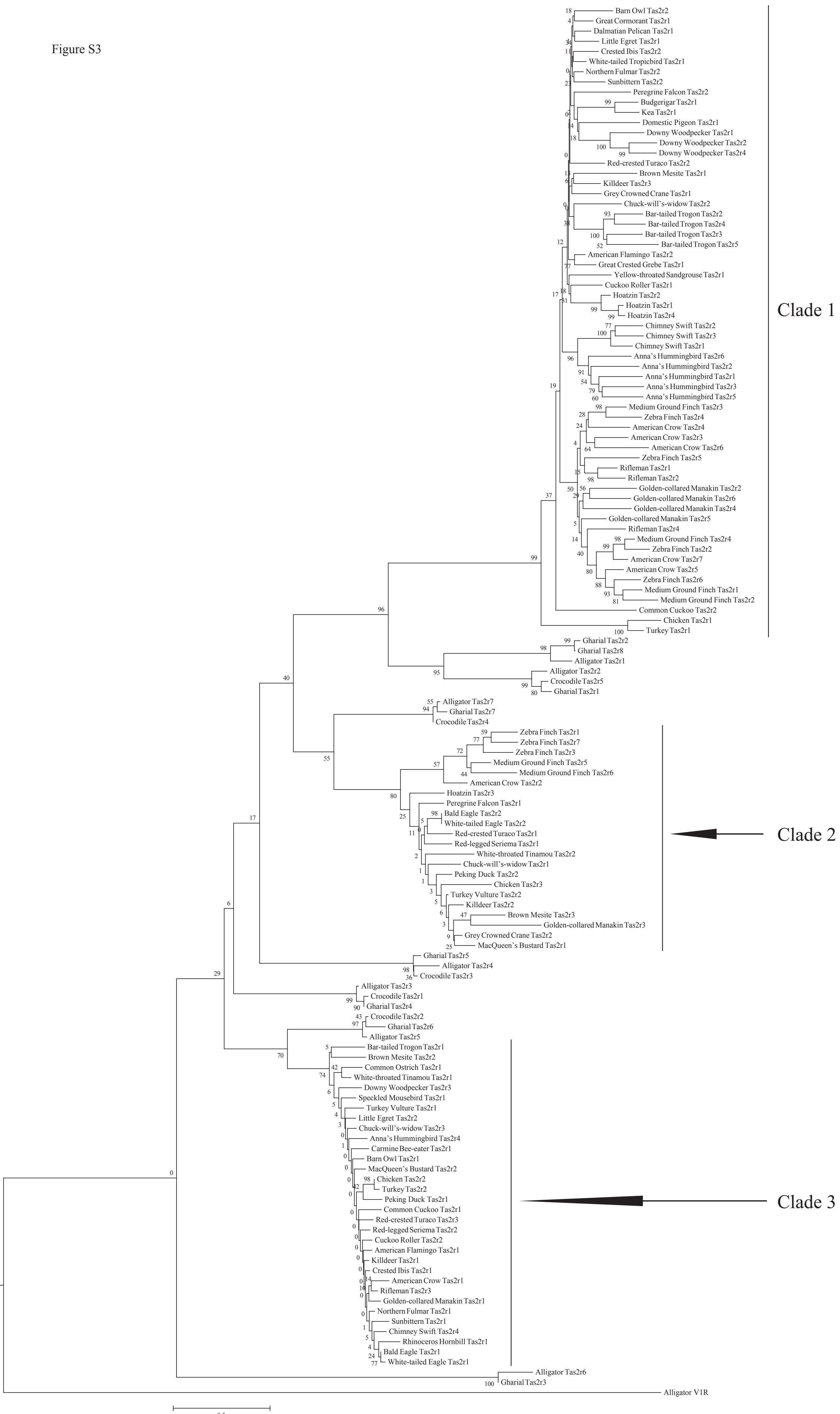


Figure S4

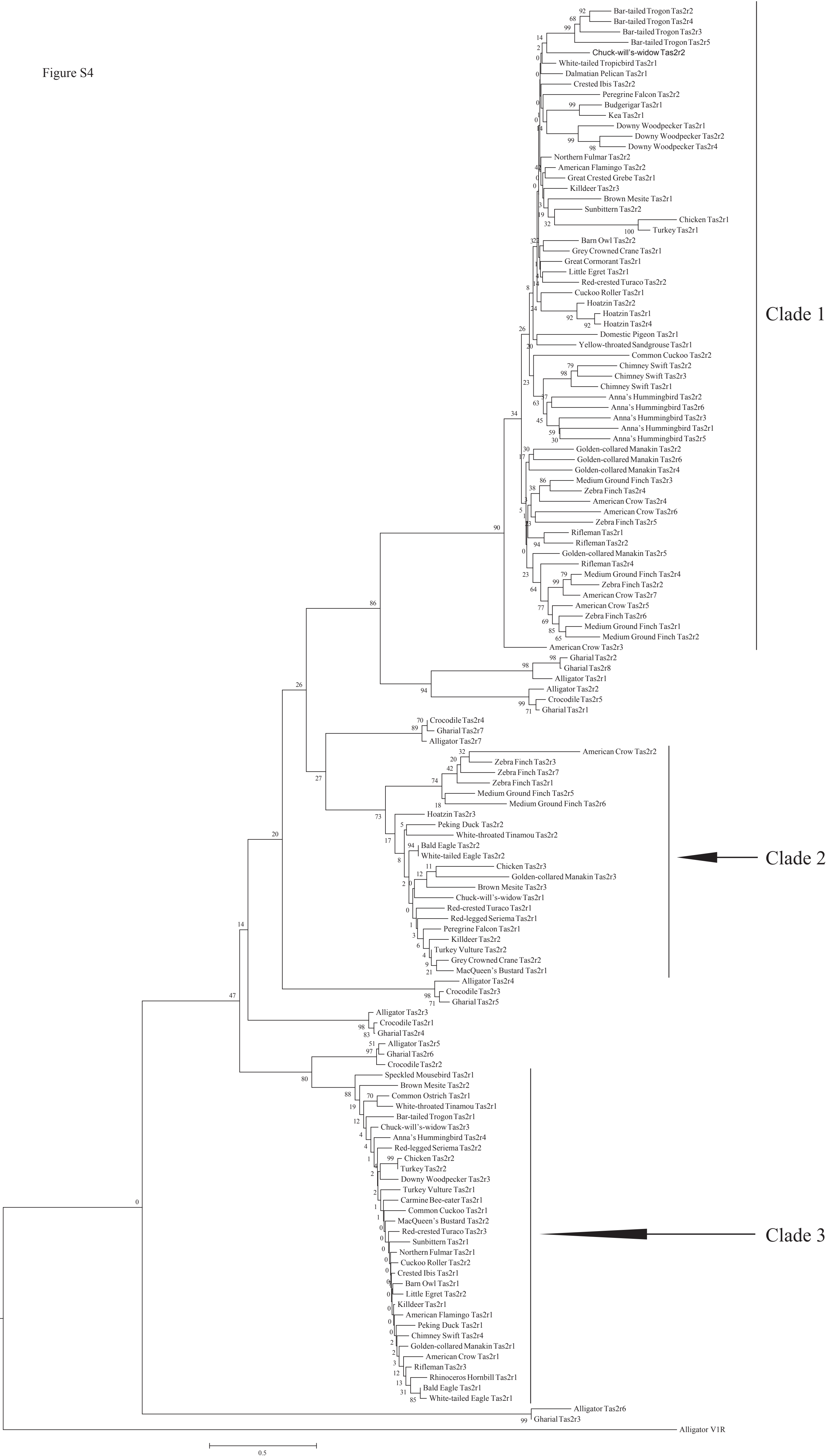


Figure S5

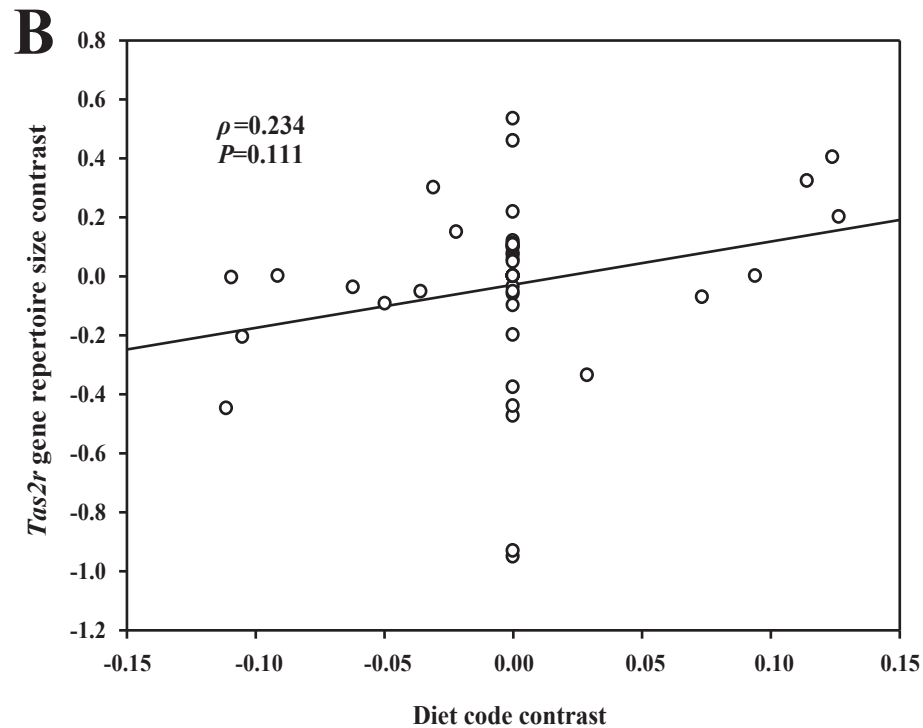
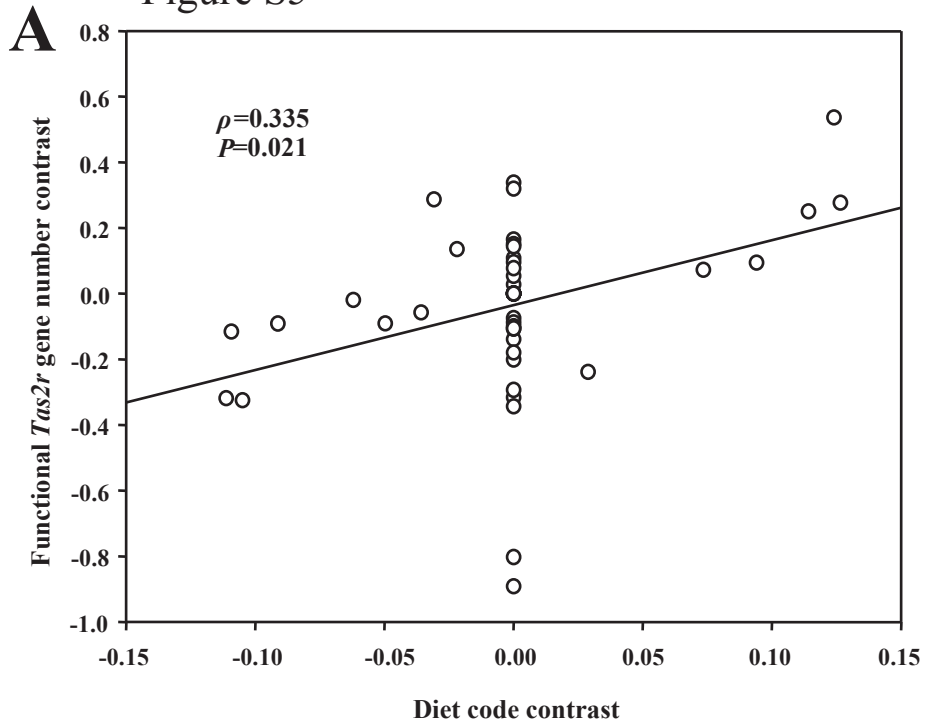


Figure S6

