

Supplementary Material

Table S1. List of bird species recorded in 28 sampling sites distributed across the research region, comprising green spaces in both new and old districts of Kunming city, conducted via point count surveys.

Common name	Scientific name
Red-crested Pochard	<i>Netta rufina</i>
Common Pochard	<i>Aythya ferina</i>
Ferruginous Duck	<i>Aythya nyroca</i>
Garganey	<i>Spatula querquedula</i>
Gadwall	<i>Mareca strepera</i>
Mallard	<i>Anas platyrhynchos</i>
Common Teal	<i>Anas crecca</i>
Little Grebe	<i>Tachybaptus ruficollis</i>
Great Crested Grebe	<i>Podiceps cristatus</i>
Oriental Turtle Dove	<i>Streptopelia orientalis</i>
Spotted Dove	<i>Spilopelia chinensis</i>
Thick-billed Green-pigeon	<i>Treron curvirostra</i>
House Swift	<i>Apus nipalensis</i>
Chestnut-winged Cuckoo	<i>Clamator coromandus</i>
Asian Koel	<i>Eudynamys scolopaceus</i>
Large Hawk-cuckoo	<i>Hierococyx sparverioides</i>
Common Cuckoo	<i>Cuculus canorus</i>
Black-tailed Crane	<i>Zapornia bicolor</i>
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>

Common Moorhen	<i>Gallinula chloropus</i>
Common Coot	<i>Fulica atra</i>
Black-crowned Night-heron	<i>Nycticorax nycticorax</i>
Striated Heron	<i>Butorides striata</i>
Chinese Pond-heron	<i>Ardeola bacchus</i>
Cattle Egret	<i>Bubulcus ibis</i>
Grey Heron	<i>Ardea cinerea</i>
Great Egret	<i>Ardea alba</i>
Intermediate Egret	<i>Ardea intermedia</i>
Little Egret	<i>Egretta garzetta</i>
Great Cormorant	<i>Phalacrocorax carbo</i>
Black-winged Stilt	<i>Himantopus himantopus</i>
Little Ringed Plover	<i>Charadrius dubius</i>
Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>
Common Sandpiper	<i>Actitis hypoleucos</i>
Green Sandpiper	<i>Tringa ochropus</i>
Brown-headed Gull	<i>Larus brunnicephalus</i>
Black-headed Gull	<i>Larus ridibundus</i>
Besra	<i>Accipiter virgatus</i>
Black Kite	<i>Milvus migrans</i>
Eastern Buzzard	<i>Buteo japonicus</i>
Eurasian Hoopoe	<i>Upupa epops</i>
Blue-tailed Bee-eater	<i>Merops philippinus</i>
Common Kingfisher	<i>Alcedo atthis</i>
White-throated Kingfisher	<i>Halcyon smyrnensis</i>
Speckled Piculet	<i>Picumnus innominatus</i>

Grey-capped Pygmy Woodpecker	<i>Picoides canicapillus</i>
Common Kestrel	<i>Falco tinnunculus</i>
Rosy Minivet	<i>Pericrocotus roseus</i>
Long-tailed Minivet	<i>Pericrocotus ethologus</i>
Bull-headed Shrike	<i>Lanius bucephalus</i>
Brown Shrike	<i>Lanius cristatus</i>
Long-tailed Shrike	<i>Lanius schach</i>
Black Drongo	<i>Dicrurus macrocercus</i>
Ashy Drongo	<i>Dicrurus leucophaeus</i>
White-throated Fantail	<i>Rhipidura albicollis</i>
Azure-winged Magpie	<i>Cyanopica cyanus</i>
Blue Magpie	<i>Urocissa erythrorhyncha</i>
Common Magpie	<i>Pica pica</i>
Great Tit	<i>Parus major</i>
Green-backed Tit	<i>Parus monticolus</i>
Barn Swallow	<i>Hirundo rustica</i>
Black-throated Tit	<i>Aegithalos concinnus</i>
Zitting Cisticola	<i>Cisticola juncidis</i>
Plain Prinia	<i>Prinia inornata</i>
Crested Finchbill	<i>Spizixos canifrons</i>
Brown-breasted Bulbul	<i>Pycnonotus xanthorrhous</i>
Sooty-headed Bulbul	<i>Pycnonotus aurigaster</i>
Mountain Bulbul	<i>Hypsipetes mccllellandii</i>
Mountain Tailorbird	<i>Orthotomus cuculatus</i>
Clamorous Reed-warbler	<i>Acrocephalus stentoreus</i>
Dusky Warbler	<i>Phylloscopus fuscatus</i>

Buff-throated Warbler	<i>Phylloscopus subaffinis</i>
Buff-barred Warbler	<i>Phylloscopus pulcher</i>
Ashy-throated Warbler	<i>Phylloscopus maculipennis</i>
Pallas's Leaf-warbler	<i>Phylloscopus proregulus</i>
Yellow-browed Warbler	<i>Phylloscopus inornatus</i>
Eastern Crowned Warbler	<i>Phylloscopus coronatus</i>
Blyth's Leaf-Warbler	<i>Phylloscopus reguloides</i>
Black-streaked Scimitar-babbler	<i>Pomatorhinus gravivox</i>
Streak-breasted Scimitar- babbler	<i>Pomatorhinus ruficollis</i>
Rufous-capped Babbler	<i>Stachyris ruficeps</i>
Moustached Laughingthrush	<i>Garrulax cineraceus</i>
White-browed Laughingthrush	<i>Garrulax sannio</i>
Red-billed Leiothrix	<i>Leiothrix lutea</i>
Blyth's Shrike Babbler	<i>Pteruthius flaviscapis</i>
Blue-winged Minla	<i>Minla cyanouroptera</i>
Red-tailed Minla	<i>Minla ignotincta</i>
Spectacled Fulvetta	<i>Alcippe ruficapilla</i>
Rusty-capped Fulvetta	<i>Alcippe dubia</i>
Grey-cheeked Fulvetta	<i>Alcippe morrisonia</i>
Black-headed Sibia	<i>Heterophasia desgodinsi</i>
Vinous-throated Parrotbill	<i>Paradoxornis webbianus</i>
Ashy-throated Parrotbill	<i>Paradoxornis alphonsianus</i>
Oriental White-eye	<i>Zosterops palpebrosus</i>
Chestnut-vented Nuthatch	<i>Sitta nagaensis</i>
Crested Myna	<i>Acridotheres cristatellus</i>
Red-billed Starling	<i>Sturnus sericeus</i>

White-cheeked Starling	<i>Sturnus cineraceus</i>
Blue Whistling-Thrush	<i>Myophonus caeruleus</i>
Black-breasted Thrush	<i>Turdus dissimilis</i>
Common Blackbird	<i>Turdus merula</i>
Orange-flanked Bush-robin	<i>Tarsiger cyanurus</i>
Oriental Magpie-robin	<i>Copsychus saularis</i>
Daurian Redstart	<i>Phoenicurus auroreus</i>
Blue-fronted Redstart	<i>Phoenicurus frontalis</i>
Plumbeous Water-Redstart	<i>Rhyacornis fuliginosa</i>
White-tailed Robin	<i>Cinclidium leucurum</i>
Common Stonechat	<i>Saxicola torquatus</i>
Grey Bushchat	<i>Saxicola ferreus</i>
Chestnut-bellied Rock-Thrush	<i>Monticola rufiventris</i>
Asian Brown Flycatcher	<i>Muscicapa dauurica</i>
Taiga Flycatcher	<i>Ficedula albicilla</i>
Verditer Flycatcher	<i>Eumyias thalassinus</i>
Blue-throated Flycatcher	<i>Cyornis rubeculoides</i>
Hill Blue Flycatcher	<i>Cyornis banyumas</i>
Grey-headed Canary-flycatcher	<i>Culicicapa ceylonensis</i>
Fire-breasted Flowerpecker	<i>Dicaeum ignipectus</i>
Gould's Sunbird	<i>Aethopyga gouldiae</i>
Russet Sparrow	<i>Passer rutilans</i>
Eurasian Tree Sparrow	<i>Passer montanus</i>
Scaly-breasted Munia	<i>Lonchura punctulata</i>
Maroon-backed Accentor	<i>Prunella immaculata</i>
White Wagtail	<i>Motacilla alba</i>

Citrine Wagtail	<i>Motacilla citreola</i>
Gray Wagtail	<i>Motacilla cinerea</i>
Richard's Pipit	<i>Anthus richardi</i>
Olive-backed Pipit	<i>Anthus hodgsoni</i>
Rosy Pipit	<i>Anthus roseatus</i>
Black-headed Greenfinch	<i>Carduelis ambigua</i>
Common Rosefinch	<i>Carpodacus erythrinus</i>
Chinese Grosbeak	<i>Eophona migratoria</i>
Chestnut-eared Bunting	<i>Emberiza fucata</i>

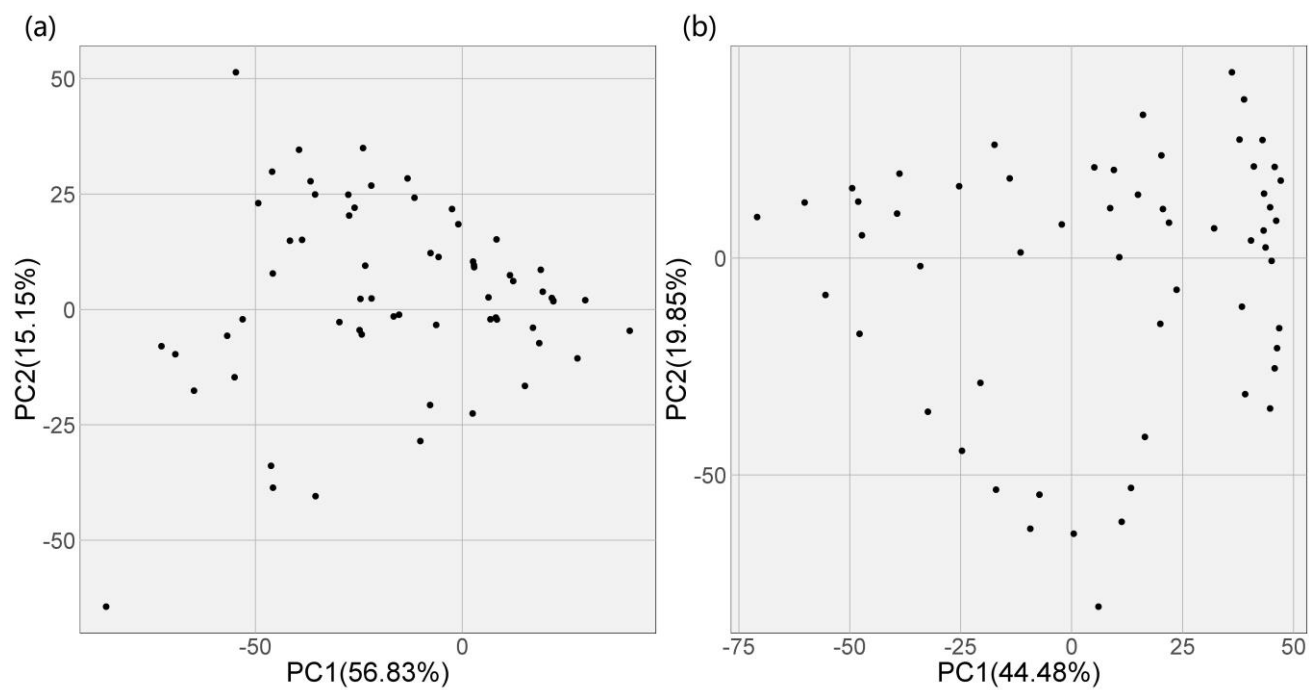


Figure S1. PCA plot for diet (a) and foraging strata (b) during the breeding season.

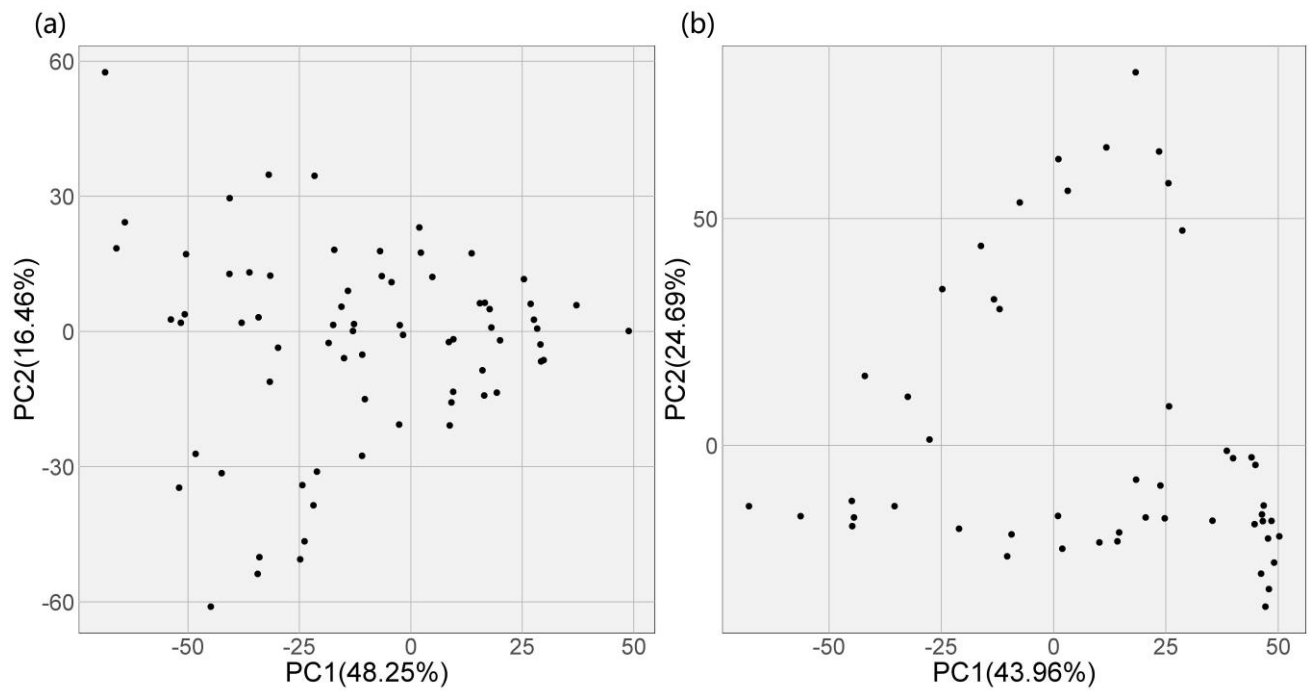


Figure S2. PCA plot for diet (a) and foraging strata (b) during the non-breeding season.

1 Table S2. The top-ranked model set used generalized linear models (GLMs) with a Gaussian family to examine the relationship between multi-
2 scale landscape metrics and bird species richness during the breeding season. The models were selected based on a criterion of $\Delta AICc$ values less
3 than 2.

	Type	Metric	Land use\Level	Buffer radius (m)	Model1	Model2	Model3
(Int)	-	-	-	-	15.698	-74.304	-84.405
	Area	PLAND	constructed land (class 100 level)		-0.287	-0.226	-0.229
	Altitude	Altitude_RANGE	landscape level	2200	0.018	0.013	0.015
	Dispersion	CLUMPY	forest (class level)	2000		92.396	
	Dispersion	CLUMPY	open green space (class 2400 level)				103.095
	AICc				161.631	162.861	163.205
	$\Delta AICc$				0.000	1.230	1.575
	weight				0.501	0.271	0.228

5 Table S3. The top-ranked model set used generalized linear models (GLMs) with a Gaussian family to examine the relationship between multi-
6 scale landscape metrics and bird species richness during the non-breeding season. The models were selected based on a criterion of $\Delta AICc$ values
7 less than 2.

	Type	Metric	Land use\Level	Buffer radius (m)	Model1	Model2	Model3	model4	model5	model6
(Int)	-	-	-	-	57.176	-218.190	49.910	58.991	56.398	50.140
	Dispersion	PLADJ	constructed land (class level)	100	-0.469	-0.459	-0.383	-0.514	-0.458	-0.468
	Subdivision	AREA_MN	open water (class level)	3000	0.517	0.490	0.518	0.600	0.524	0.528
	Subdivision	PD	open green space (class level)	400	-0.016					
	Dispersion	COHESION	open water (class level)	2800		2.747				
	Area	PLAND	constructed land (class level)	100			-0.153			
	Subdivision	PD	landscape level	600					-0.010	
	Interspersion	IJI	open green space (class level)	1600						0.085
AICc					148.464	148.734	148.737	148.901	149.288	149.975
$\Delta AICc$					0.000	0.269	0.273	0.437	0.823	1.510
weight					0.214	0.187	0.186	0.172	0.141	0.100

Table S4. The top-ranked model set used generalized linear models (GLMs) with a Gaussian family to examine the relationship between multi-scale landscape metrics and bird species FDis during the breeding season. The models were selected based on a criterion of $\Delta AICc$ values less than 2.

	Type	Metric	Land use\Level	Buffer radius (m)	Model1	Model2	Model3	Model4	Model5
(Int)	-	-	-	-	1.050	0.918	28.797	1.175	1.038
	Subdivision	AREA_MN	open water (class level)	1200	0.015	0.017	0.022	0.019	0.014
	Subdivision	PD	open green space (class level)	1200	-0.001		-0.004	-0.002	
	Isolation	ENN_MN	landscape level	200	0.007	0.009			0.009
	Dispersion	PLADJ	landscape level	3000			-0.278		
	Edge	ED	road (class level)	3000					-0.002
AICc					-15.367	-14.694	-14.444	-14.210	-13.417
Δ					0.000	0.672	0.923	1.157	1.949
AICc									
weight					0.305	0.218	0.192	0.171	0.115

Table S5. The top-ranked model set used generalized linear models (GLMs) with a Gaussian family to examine the relationship between multi-scale landscape metrics and bird species FDis during the non-breeding season. The models were selected based on a criterion of $\Delta AICc$ values less than 2.

	Type	Metric	Land use\Level	Buffer radius (m)	Model1	Model2	Model3	Model4
(Int)	-	-	-	-	-22.585	-16.851	-22.242	-25.938
	Dispersion	COHESION	constructed land (class level)	100	-0.036	-0.033	-0.032	
	Dispersion	COHESION	open water (class level)	3000	0.274	0.213	0.227	0.271
	Subdivision	AREA_AM	open water (class level)	600		0.003		
	Subdivision	DIVISION	constructed land (class level)	3000			3.966	
	Subdivision	AREA_MN	landscape level	2600				0.057
AICc					-12.573	-11.906	-11.212	-11.156
$\Delta AICc$					0.000	0.667	1.361	1.417
weight					0.368	0.264	0.186	0.181