Coimbatore City Bird Atlas

February–March, 2020

A Summary Report

April 2020

Acknowledgements

Coimbatore City Bird Atlas Team

Volunteer participants: See Appendix 1 for a full list of Volunteer participants.

Overall Project Coordinators: Mr. K. Selvaganesh and Dr. T. Arulvelan (Vet.)

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Dashboard management: Mr. V. Rajarajan

Introduction

Coimbatore City Bird Atlas is a citizen science project to map the distribution and abundance of birds of the Coimbatore City (see Map 1) using field surveys between 2020 and 2022. For more details about the plan, please see the following blog titled *Planning the Coimbatore City Bird Atlas* at this link: https://coimbatorecitybirdatlas.wordpress.com/2020/02/20/planning-the-coimbatore-city-bird-atlas/.
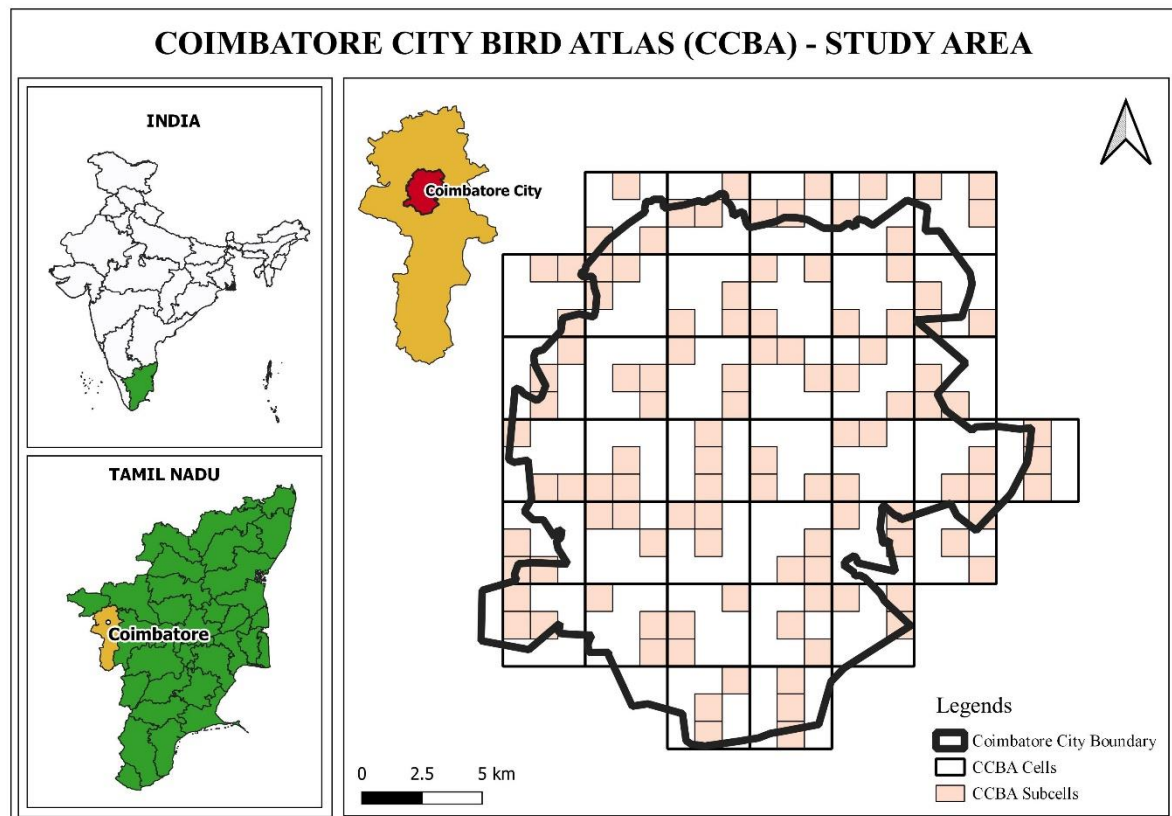
Map. 1 Location of the Coimbatore city and the sampling grids or CCBA cells. Each CCBA cell (white) was sub-divided into sub-cells (pink) that were sampled randomly.

Methods

Sampling design

The city was gridded and divided into **37,** 3.3 km x 3.3 km cells. Each cell was a sampling unit. The cells were then further sub-divided into **9,** 1.1 km x 1.1 km sub-cells (Map 2). Three sub-cells were selected randomly from each cell and four, 15-minute long, complete bird lists were recorded in each.
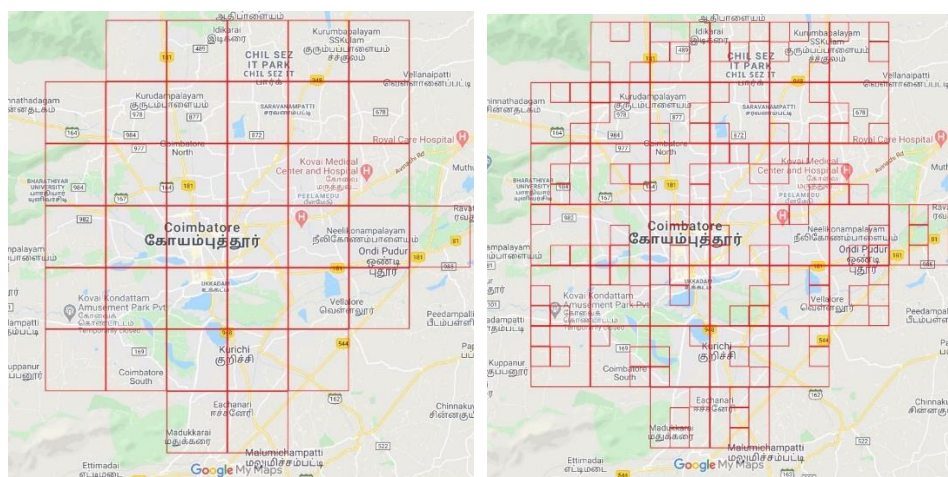
Map 2. Coimbatore city divided into 3.3 km² cells (left) and three 1.1 km² random sub-cells within each cell (right)

Field surveys

Field surveys for February – March 2020 were announced in early February and interested participants were asked to register online. Over 100 interested birders from across Tamil Nadu registered for the surveys, however, priority was given to the birders living in and around Coimbatore city.

The surveys started on 22nd February and were completed on 18th March. Most of the surveys were carried out during weekends and only rarely on the weekdays. Each sub-cell was surveyed by two teams to avoid observer bias. In general, the team that surveyed the sub-cell for the first time, spent half an hour and submitted two 15-minute travelling lists. The second team visited the same sub-cell after a week and completed the remaining effort. Generally, in one morning each team covered three sub-cells.

Participant composition and profile

We conducted a feedback survey after the field work. Based on the feedback survey results we have compiled the composition, profile and other details of the birders that participated in the filed surveys. Total number of participants were 74 (see Appendix 1 for full list of participants). However, 53 of them carried out most of the surveys, and 28 of these led different teams. Twenty-two participants were trainees of the Green Skill Development Programme (GSDP) who attended a one-day training workshop and they were led by the experienced birders. Of the 53 regular birders, 32% were females and the rest were male birders.

Regular birders that conducted this survey were local Coimbatore birders and only 11 birders were from outside the Coimbatore district. Birders from all walks of life participated in this survey and many of them were biology students and wildlife researchers (Fig. 1.).
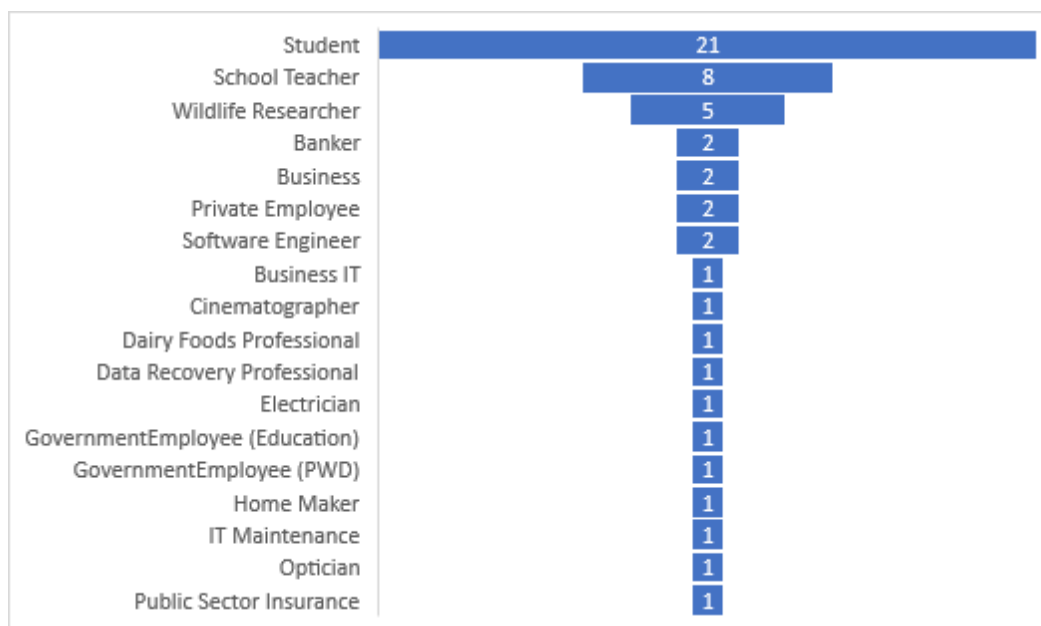
Figure. 1.Birders belonged to different professions. Numbers inside the bars are the number of birders.

All the team leaders and the regular birders involved in this survey were familiar with most of the common birds of this region. About 34% of the birders have been birding for 5–10 years or more (Fig. 2). Several of them (about 15 birders) had experience in participating either in the Kerala Bird Atlas and/or other bird surveys conducted by the Tamil Nadu Forest Department.

Figure 2. Experience level of birders that participated in the Coimbatore City Bird Atlas,

Training for the participants

Participants used Locus Free, an Android mobile application, to navigate to the assigned sub-cells for conducting surveys. Many birders were not familiar with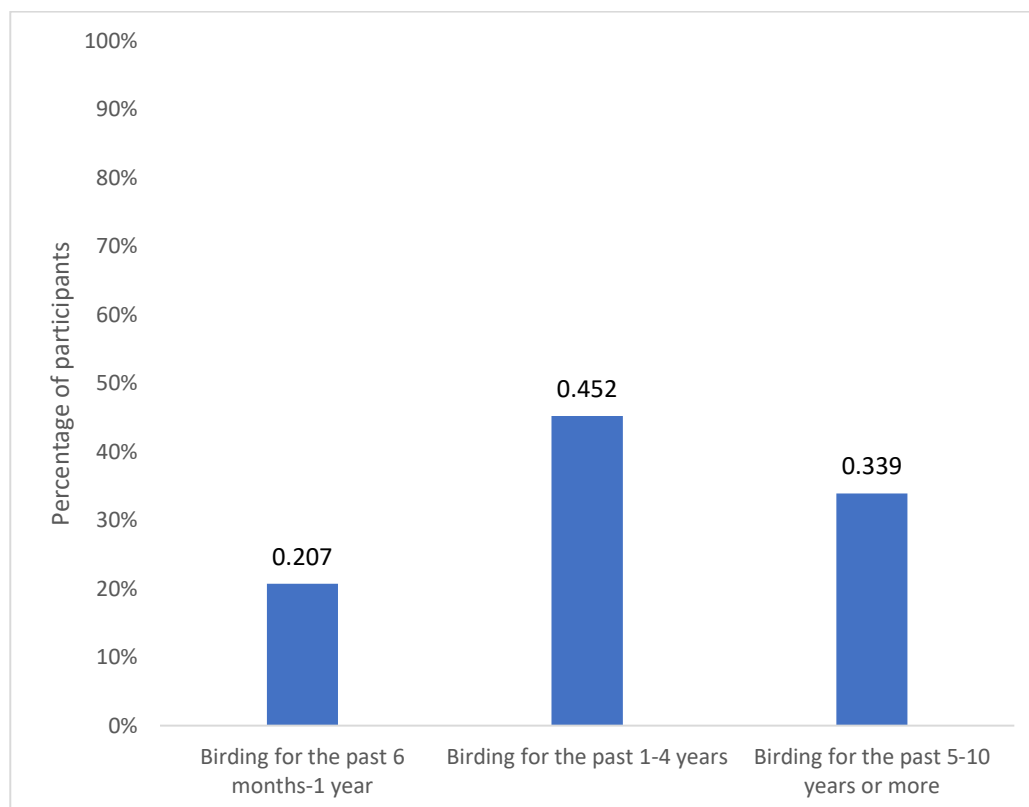 this app. The field coordinators conducted two meetings for the team leaders and provided hands-on training to use the navigation app. Almost all the birders were familiar with eBird mobile app and the birds seen and heard during the survey were entered using a dedicated ebird group account (username: kovaibirdatlas). To communicate with the participants and to clear any doubts related to species identity, Locus app, and for planning the field survey, a dedicated WhatsApp group was created.

Results

Totally 142 bird species were recorded during this survey (see Appendix 2 for full list of species). Although, all the sub-cells (totally 111) were visited, we have a complete 1-hour sampling effort (four checklists, 15 minutes each) only for 105 sub-cells. Of the 6 incomplete sub-cells, 1 sub-cell was sampled only for 15 minutes and the rest (5) were sampled for 45 mins (3 lists). We had to discard these lists since in a couple of these lists due to a GPS error in the eBird app, the distance information wasn't available and the surveys were done outside of the intended sub-cells. Surveys were carried out between 06:00 am and 10:00 am and only seven lists were started after 09:30 AM (Fig. 3).
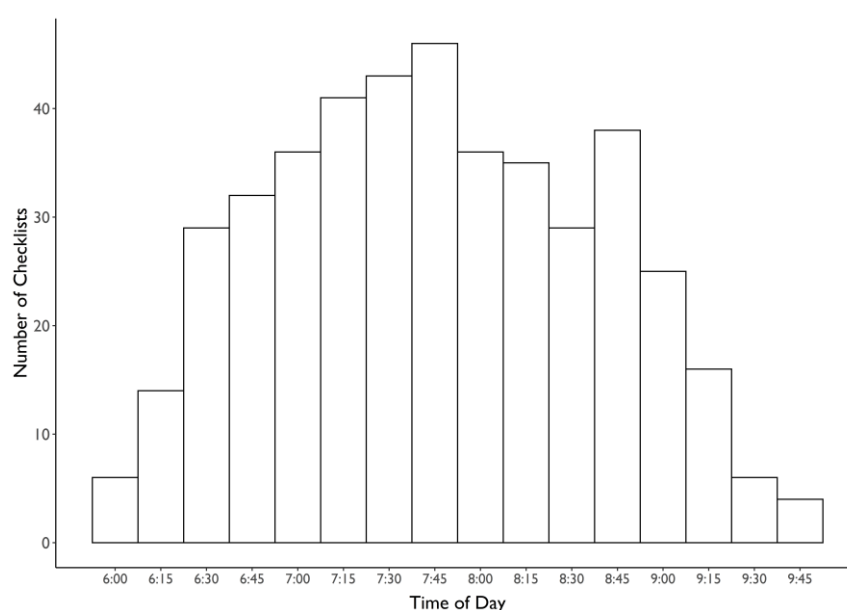

Figure 3. Starting time of the checklists during the Coimbatore City Bird Atlas, February–March, 2020

Analysis

For the analysis all sampled sub-cells with at least **3** lists (45minute effort) and all cells with at least **2** sampled sub-cells (22% spatial coverage) were included. Frequencies of species were recorded in each sub-cell and averaged to the cell level. Frequency of a species in a sub-cell, was calculated as the number of lists a species was present in, divided by the total number of surveys in the sub-cell. Similarly, city level frequencies of species were calculated as the average frequency across all the cells.

Taxonomy followed is eBird (2020) and English common names followed English (India) version of eBird (2020). Data recorded as *sphus* (white egret sp., bird sp.) and slashes (Great/Intermediate Egret) were not included in the analysis.
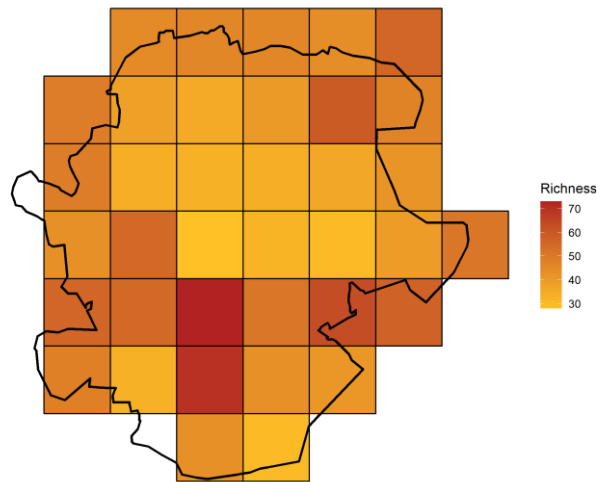
Species richness and abundance

Figure 4. Species richness (variation in the number of species) in each cell recorded during the Coimbatore City Bird Atlas survey, February–March, 2020

The number of bird species recorded in a cell ranged from a minimum of 23 species to a maximum of 73 species. (Fig. 4). House Crow and Common Myna were most abundant (89%), followed by Rose-ringed parakeet (70%), Rock Pigeon (Feral Pigeon) (68%), and Yellow-billed babbler (63%). See Table 1 for top 10 most abundant species recorded during this survey. See Appendix 2 for the percent frequency in the lists for all the species and Fig. 5 for the distribution of those species.

Table 1. The top 10 most abundant species. See the Appendix 2 for a full list of species with abundances.

Common Name	Frequency	
House Crow	89	%
Common Myna	89	%
Rose-ringed Parakeet	70	%
Rock Pigeon (Feral Pigeon)	68	%
Yellow-billed Babbler	63	%
Asian Koel	59	%
Large-billed Crow	58	%
Purple Sunbird	54	%
Indian Peafowl	53	%
Common Tailorbird	52	%

Lessons and future plans

We faced mainly logistical issues during this survey. Though the participants were very enthusiastic initially, the importance of doing the bird atlas was not fully understood and this resulted in several dropouts towards the end of the survey. Last minute announced and unannounced withdrawals created confusion and resulted in doing/redoing the survey on weekdays.

Navigation inside the sub-cell was done fairly easily by many birders, but for a few it was difficult despite the training in the beginning. The eBird app tracking function wasn't working in the poor network areas for some birders, and so, we couldn't get the distance and exact time details for certain lists. This resulted in discarding a few checklists as mentioned in the results section above. We realized this only after completing the survey while looking at the list locations on the map. One of the coordinators who was involved in organizing the field survey was also maintaining the dashboard. This was too much to handle for one person alone and resulted in placing the lists in wrong cells, although this was thoroughly checked on the map and rectified. We could not involve many of the birders who are keen to participate since providing accommodation to everyone was difficult.

In future surveys, we plan to overcome several of these issues by some of the activities listed below:

1. It is essential to have a pre-survey meeting for all the participants to explain the importance of doing a bird atlas and also the field survey techniques. A survey activity chart can be given to the team. Identified team leaders will need a separate session on their responsibilities and field survey methods.
2. Each sub cell can be given a running serial number starting from 1 to 111 for the use of participants while allocating cells to them. The same can be entered in the checklist comment section by the participants. The organizing team can convert the running serial numbers to the exact 8-digit sub-cell number while managing the dashboard.
3. There should be exclusive teams for checklist review, dashboard management and field survey planning.
4. Manual record of cells allocated, cells completed/uncompleted/altered with observer's name and reasons for change need to be maintained, simultaneously. This will enable cross-checking with dashboard and real time entries.
5. All the checklists need to be submitted and shared on the same day of the survey, without omission. Survey team leaders need to ensure this by close monitoring and insistence.
6. The list reviewing team should directly interact with the team leaders/observers for corrections/ omissions/deletions of the species or to inform about issue with the tracks.
7. Only those checklists that are complete in all respects will be given to the dashboard team.
8. Explore options for offering accommodation to invited outstation observers.
9. For the coming season in June 2020, we can bring down the survey days to six (6th Sat & 7th Sun, 13th Sat & 14th Sun, 20th Sat & 21st Sun) in the month of June 2020.
10. We need a minimum of 30 birders as bench strength for every survey day. The whole dashboard work has to be completed before end of June 2020.

The issues and the suggestions that are given here came up during discussions with the team leaders and participants. A feedback form with questions related to the issues faced during the survey was sent out to all the participants and some of the suggestions mentioned here are based on their responses. We also sent out specific questions to the participants on the WhatsApp group for collating responses.

Figure 5. Distribution of all bird species recorded during Coimbatore City Bird Atlas, February–March, 2020. The colors indicate the frequency of lists in which a species was reported.
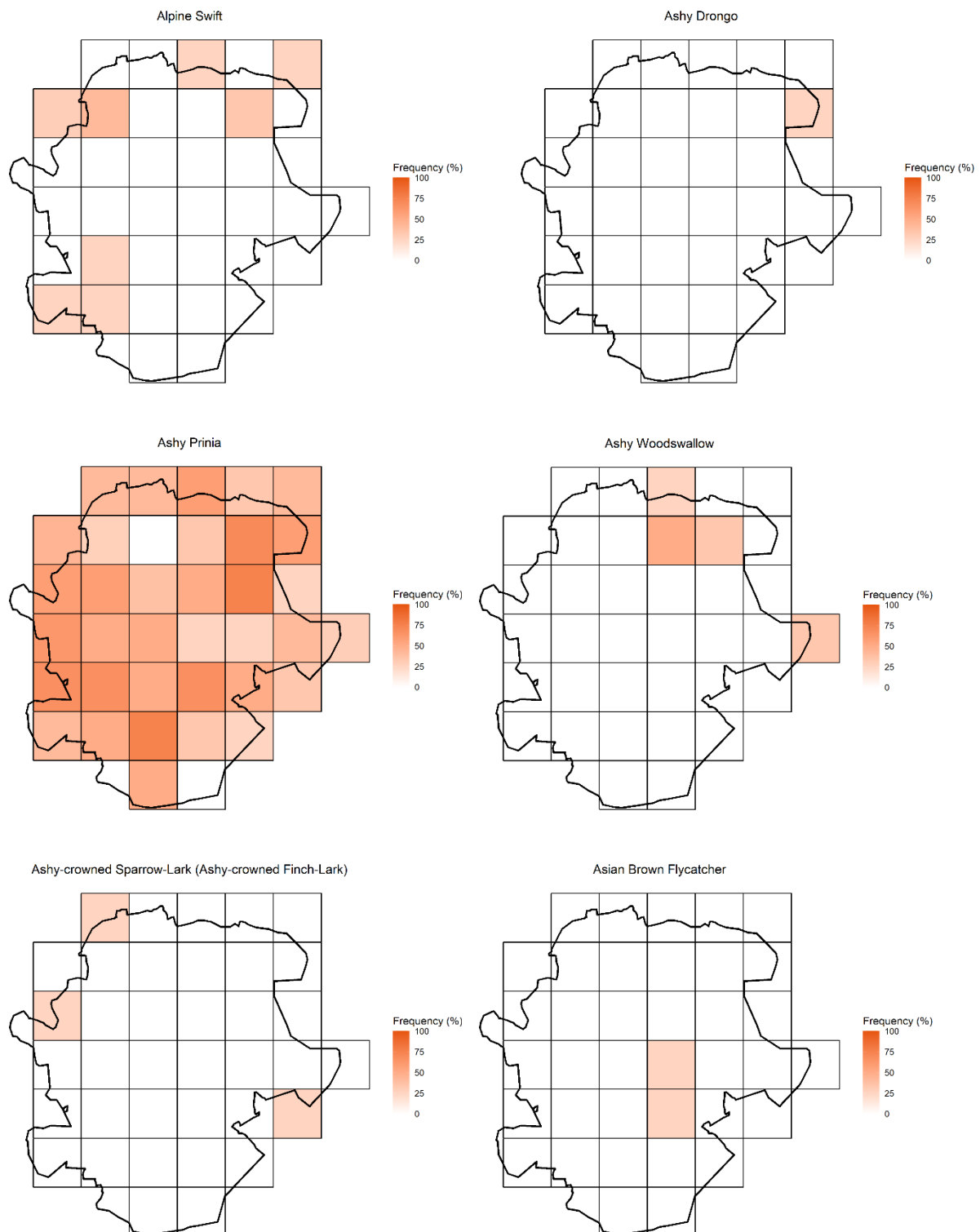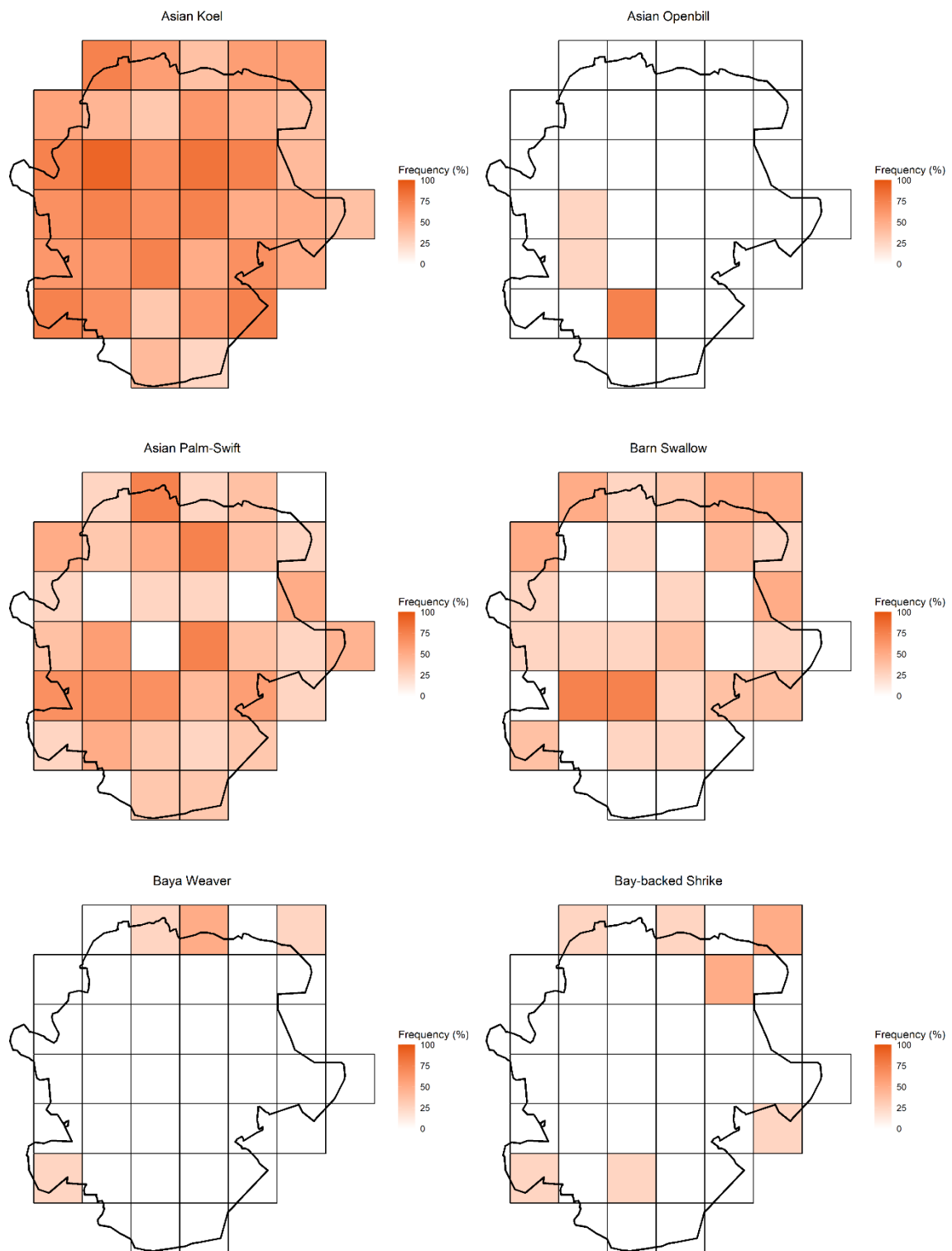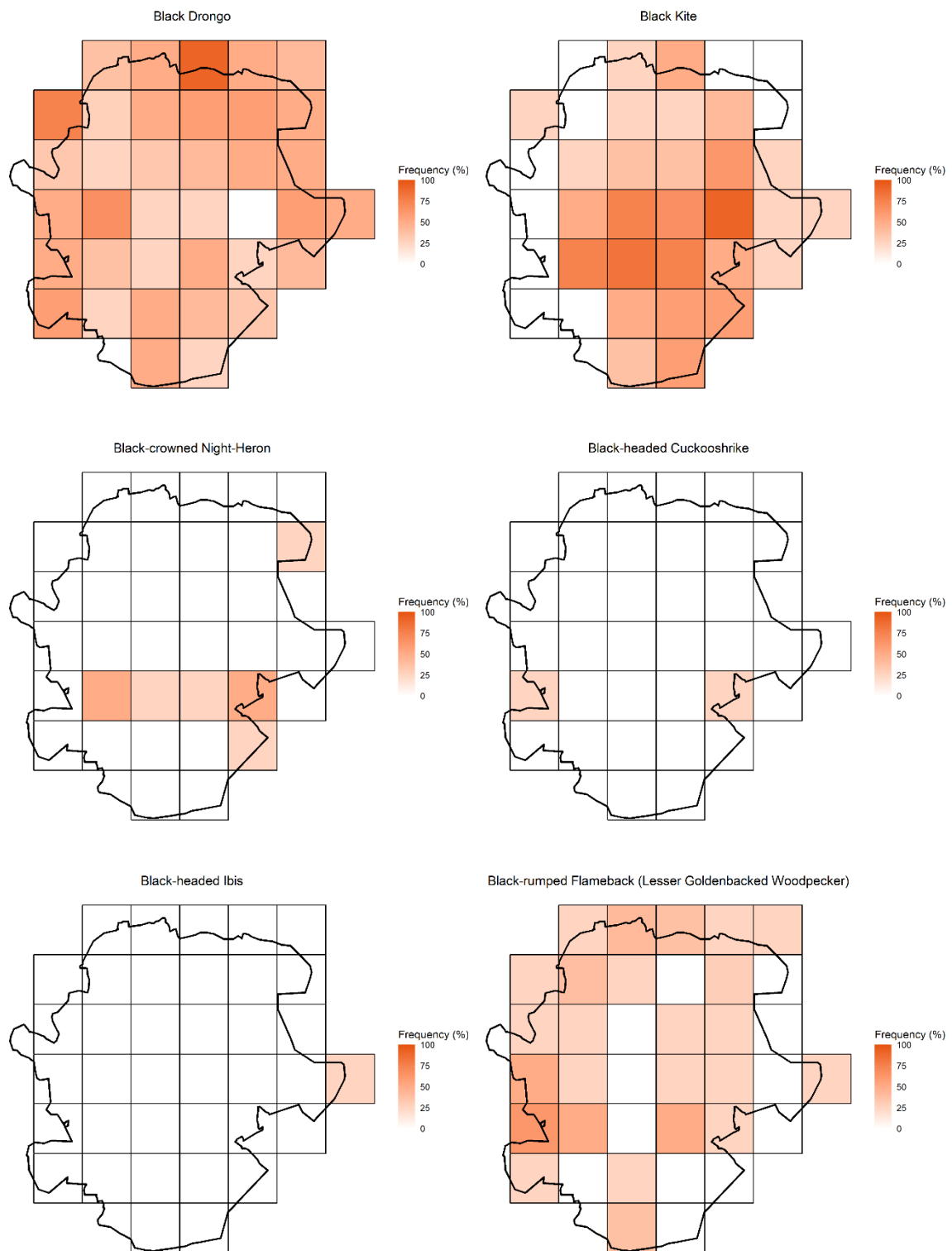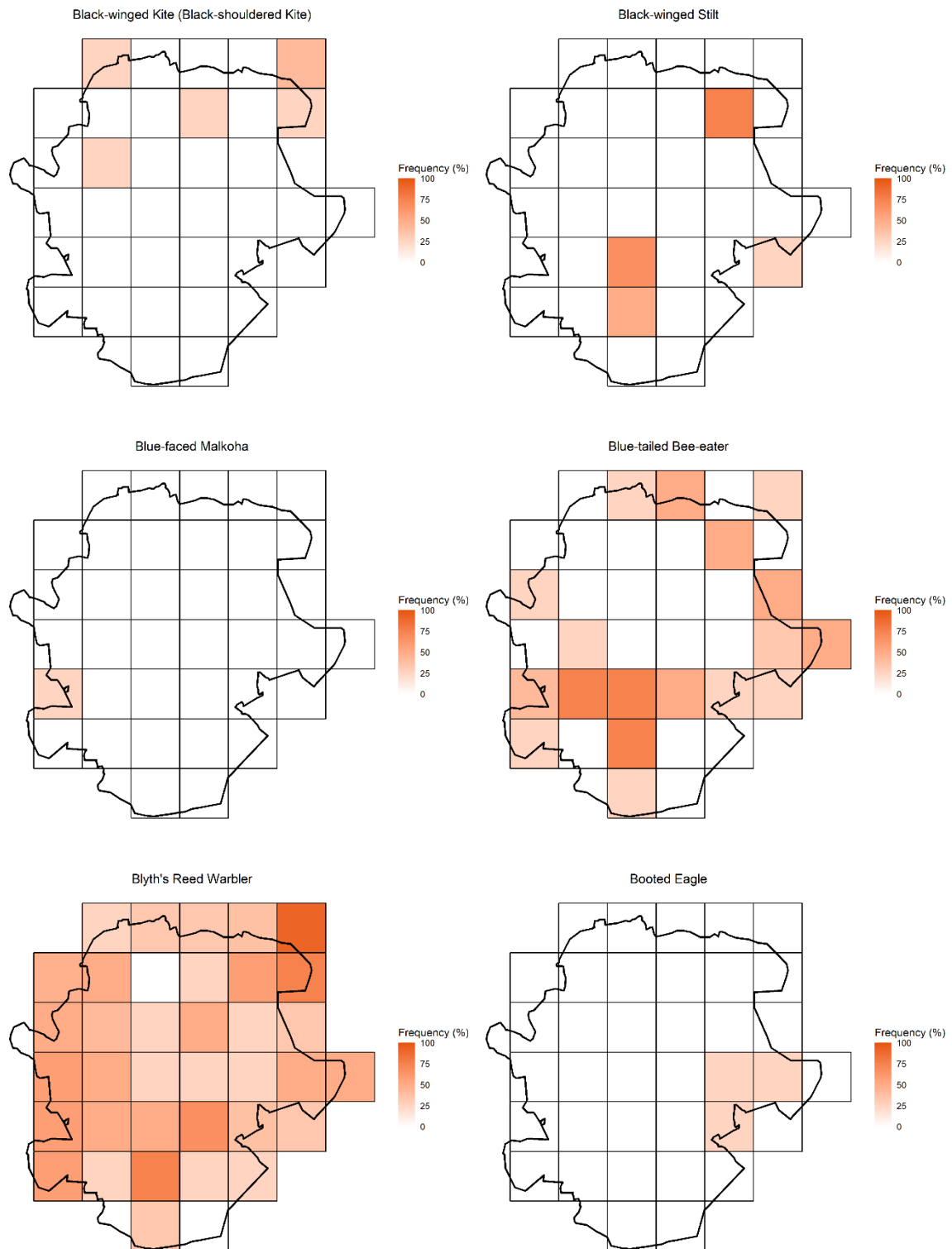
Figure 5. Cont.

Figure 5. Cont.

Figure 5. Cont.

Figure 5. Cont.

Booted Warbler

Brahminy Kite

Brahminy Starling

Bronze-winged Jacana

Brown Shrike

Cattle Egret

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Figure 5. Cont.

Chestnut-bellied Sandgrouse

Chestnut-tailed Starling

Citrine Wagtail

Clamorous Reed Warbler (Indian Great Reed Warbler)

Common Greenshank

Common Hawk-Cuckoo

Figure 5. Cont.

Common Iora

Common Kingfisher (Small Blue Kingfisher)

Common Myna

Common Redshank

Common Sandpiper

Common Tailorbird

Figure 5. Cont.

Figure 5. Cont.

Eurasian Kestrel (Common Kestrel)

Eurasian Marsh-Harrier

Eurasian Moorhen

Eurasian Spoonbill

Garganey

Glossy Ibis

Figure 5. Cont.

Great Cormorant

Great Egret

Greater Coucal (Southern)

Green Bee-eater

Green Sandpiper

Green Warbler

Figure 5. Cont.

Figure 5. Cont.

Figure 5. Cont.

Indian Paradise-Flycatcher

Indian Peafowl

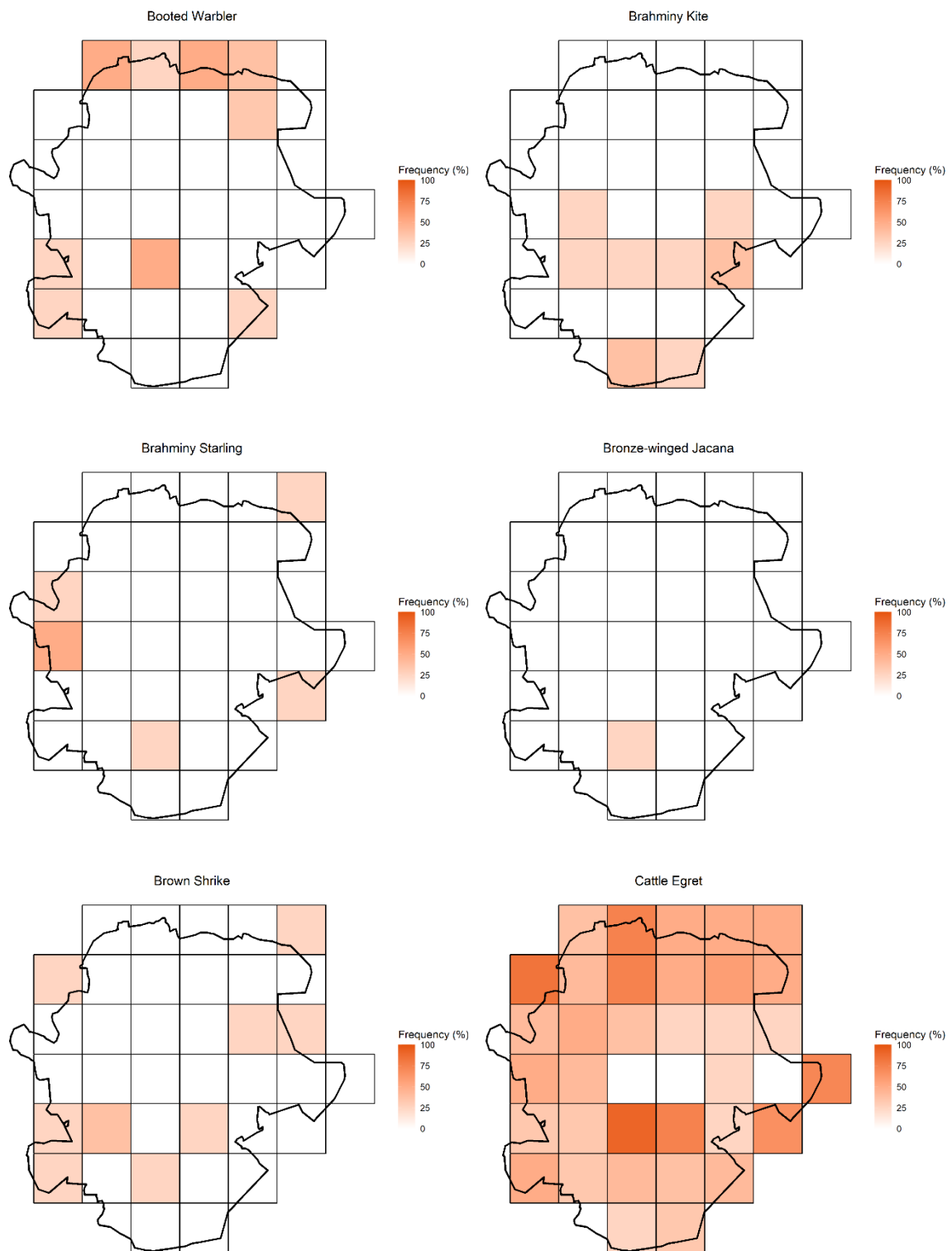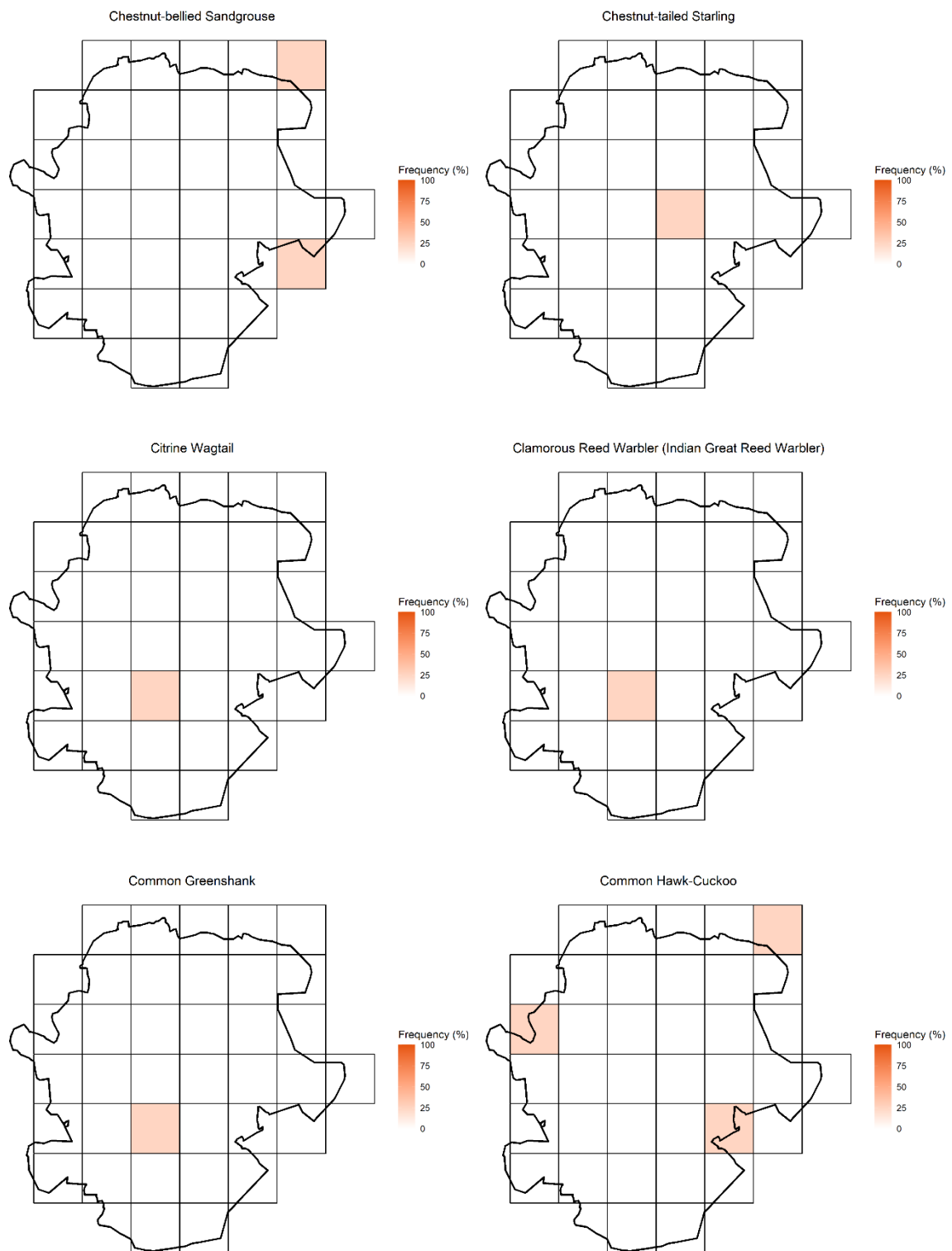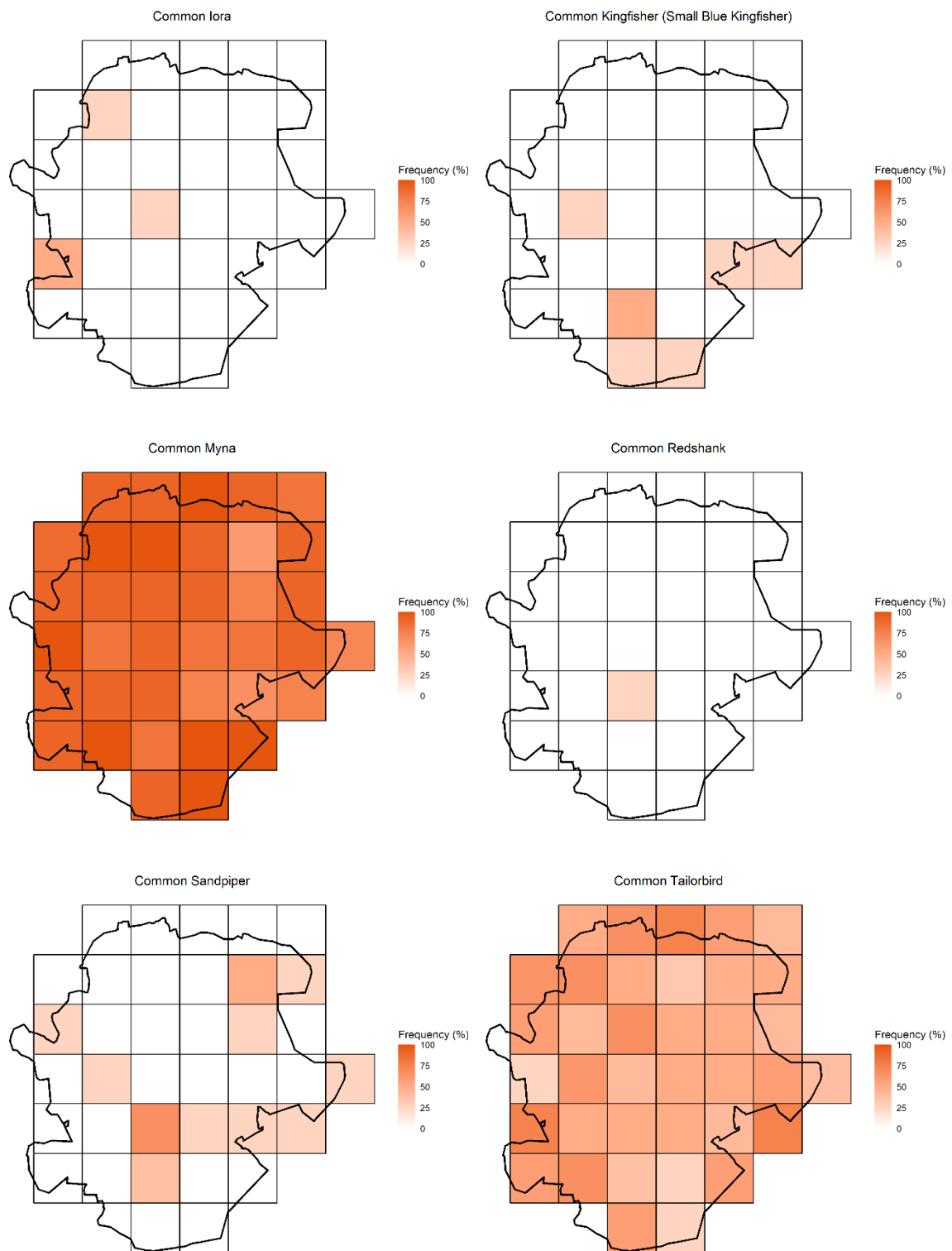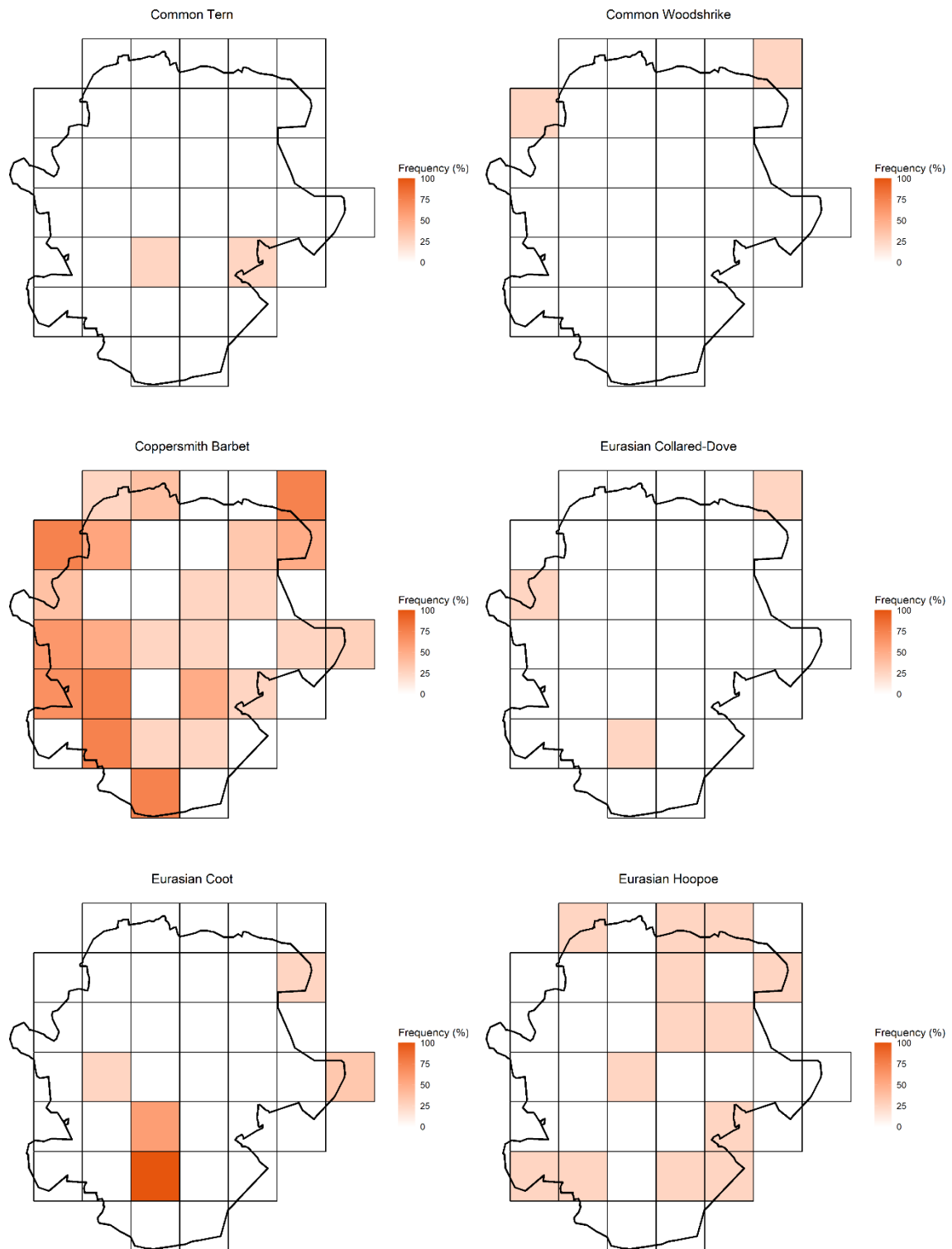Indian Pond-Heron

Indian Robin

Indian Roller

Indian Silverbill (White-throated Munia)

Figure 5. Cont.

Figure 5. Cont.

Figure 5. Cont.

Little Grebe

Little Ringed Plover

Little Stint

Little Swift (Indian House Swift)

Loten's Sunbird (Long-billed Sunbird)

Marsh Sandpiper

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Figure 5. Cont.

Oriental Darter

Oriental Honey-buzzard (Crested Honey Buzzard)

Oriental Magpie-Robin

Oriental Skylark

Paddyfield Pipit

Painted Stork

Figure 5. Cont.

Pale-billed Flowerpecker

Pied Bushchat

Pied Cuckoo (Jacobin Cuckoo)

Pied Kingfisher

Plain Prinia

Purple Heron

Figure 5. Cont.

Purple Sunbird

Purple-rumped Sunbird

Red-necked Falcon

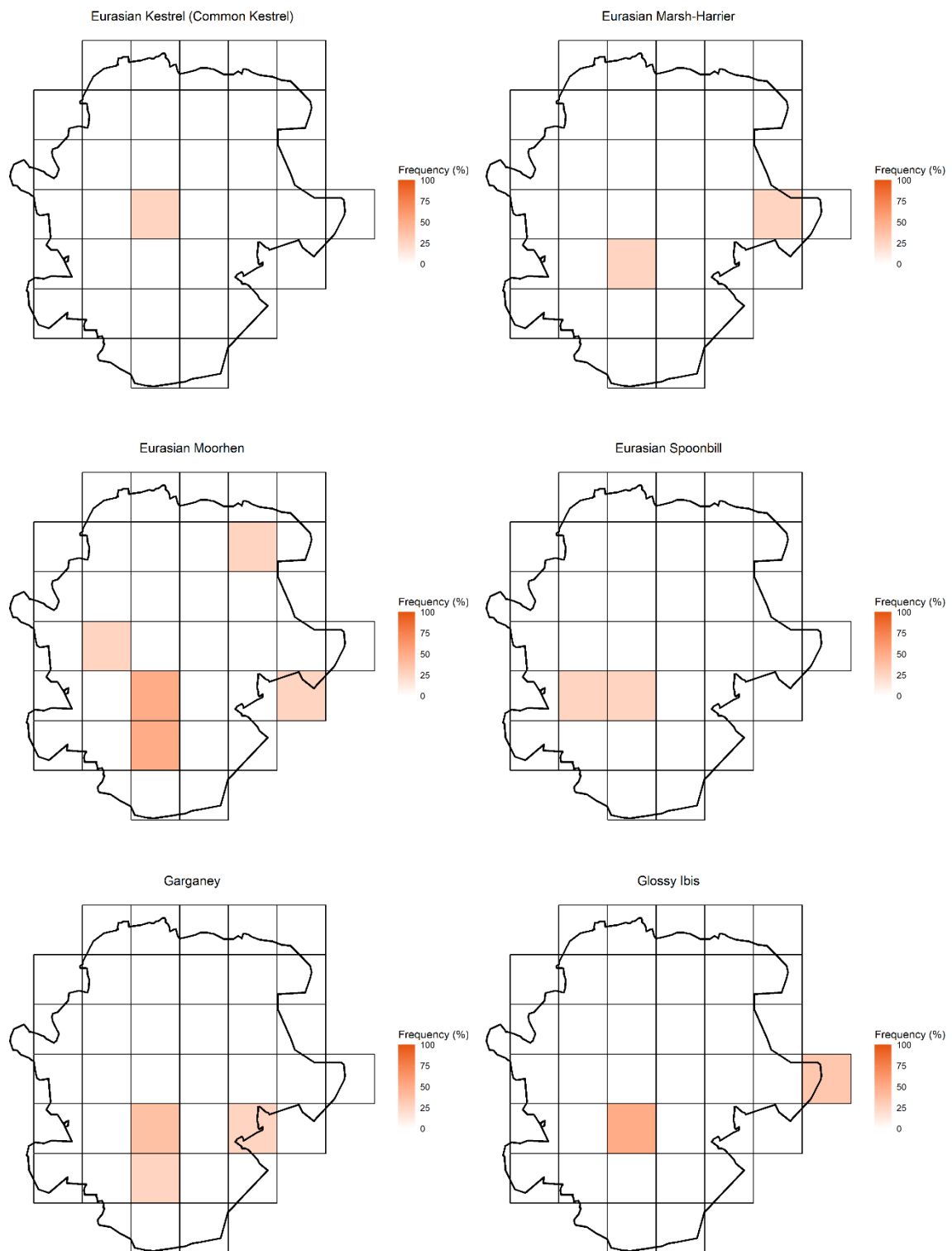Red-rumped Swallow
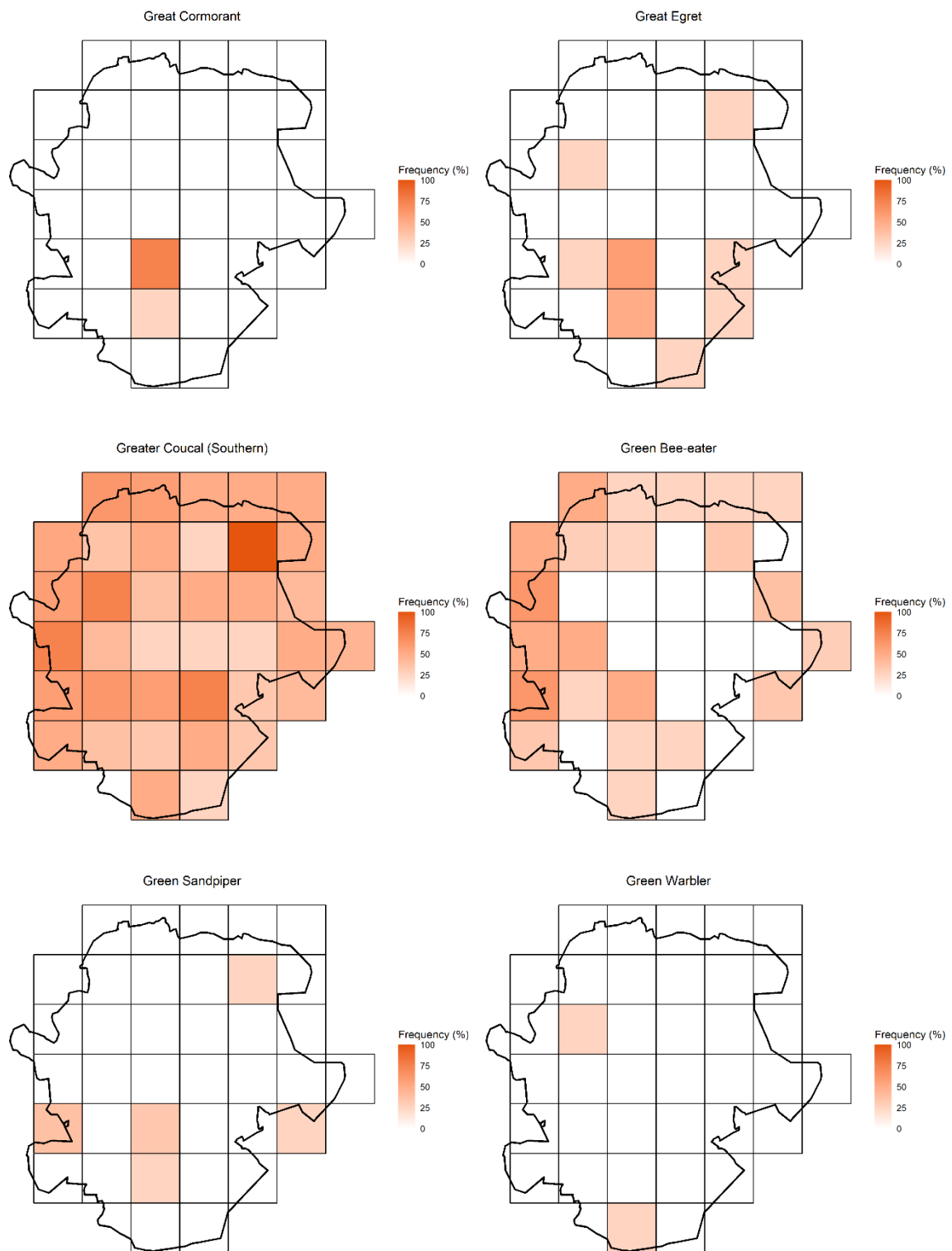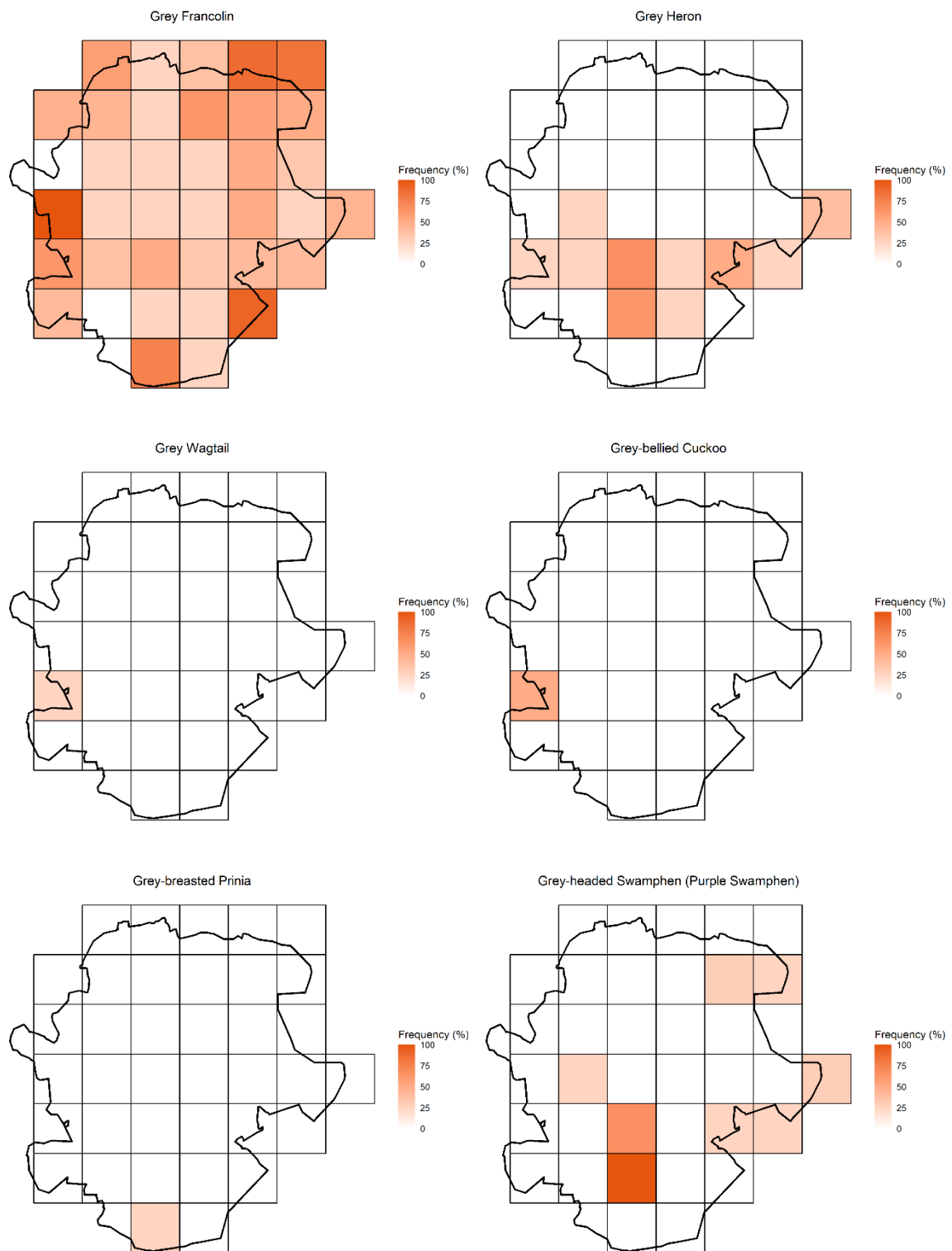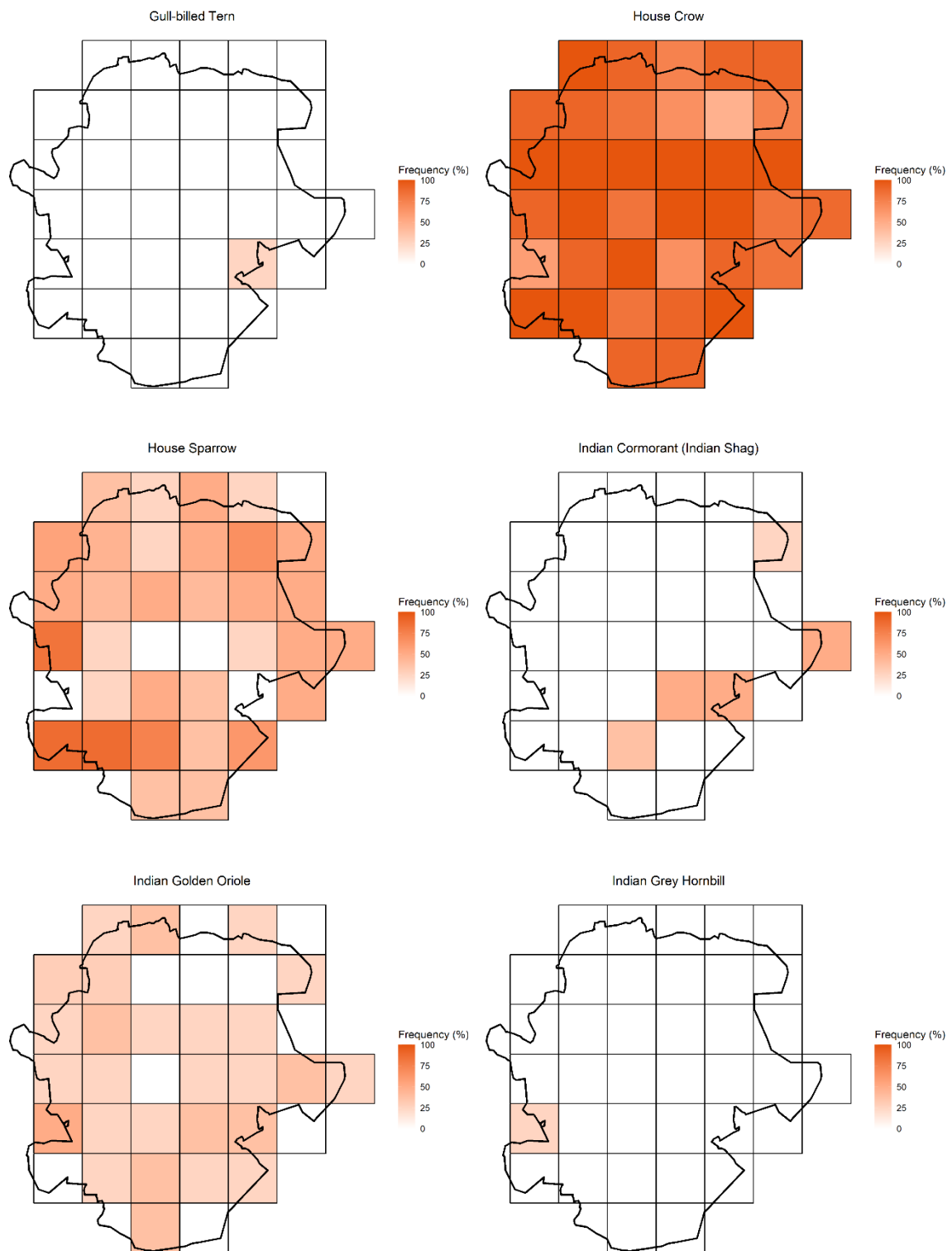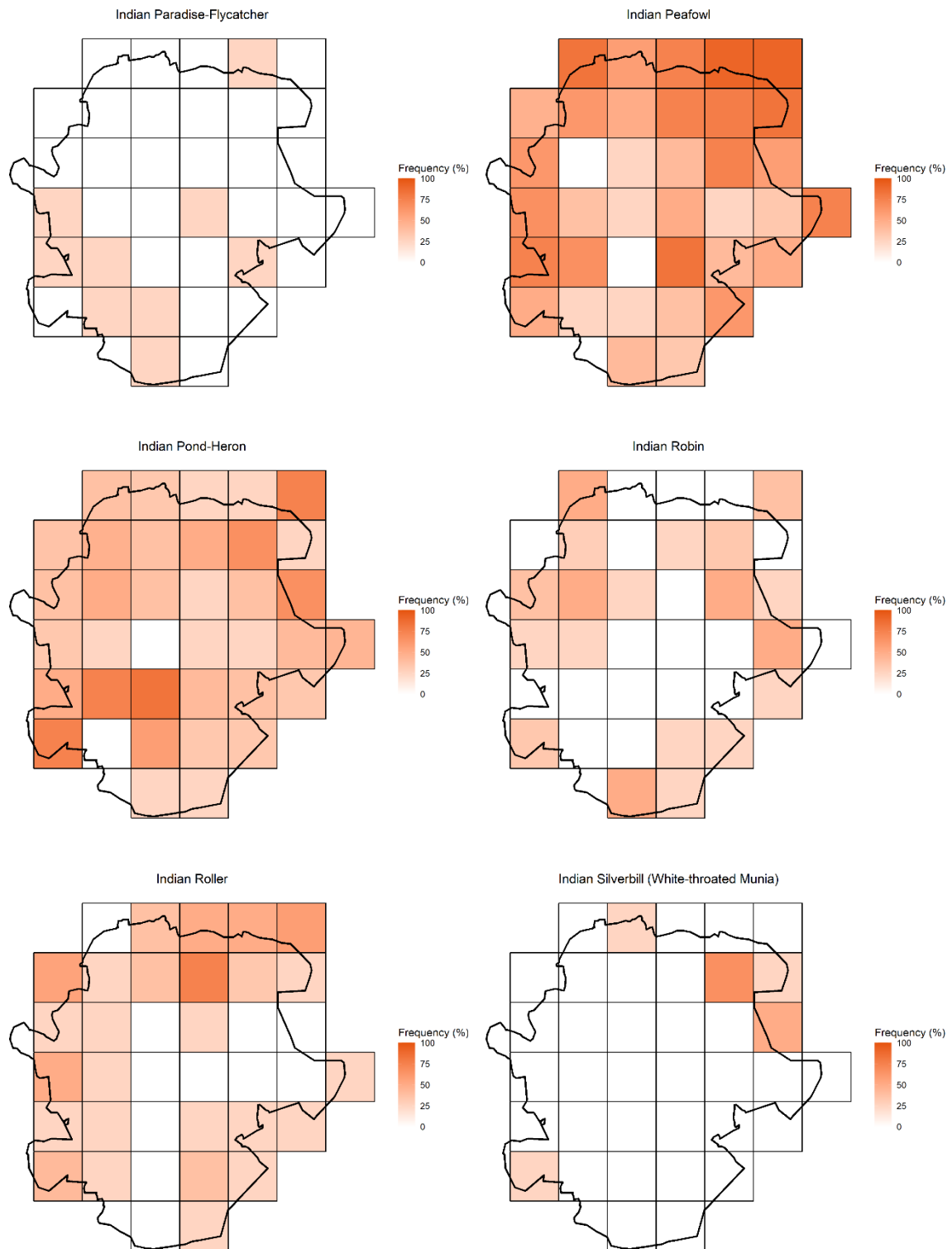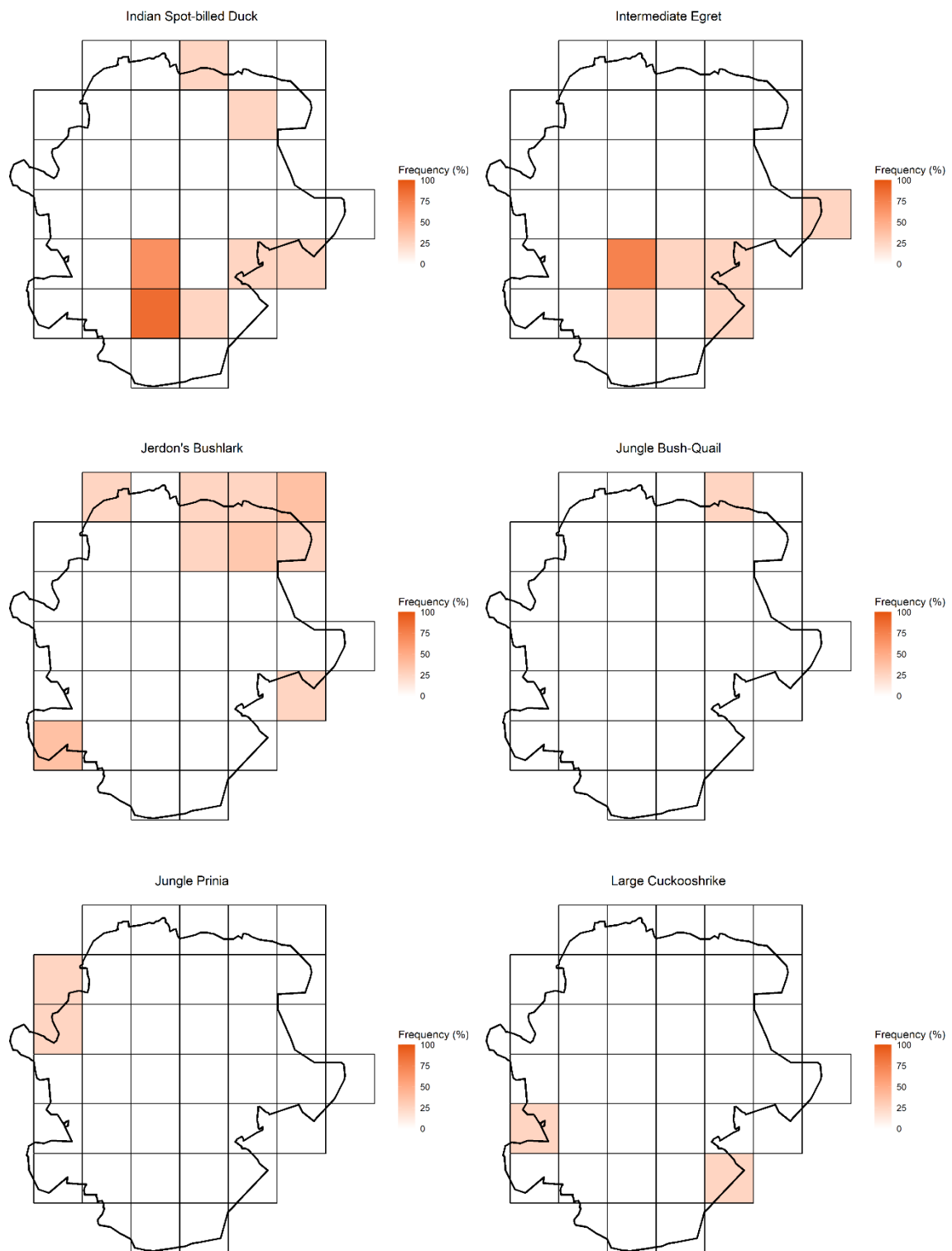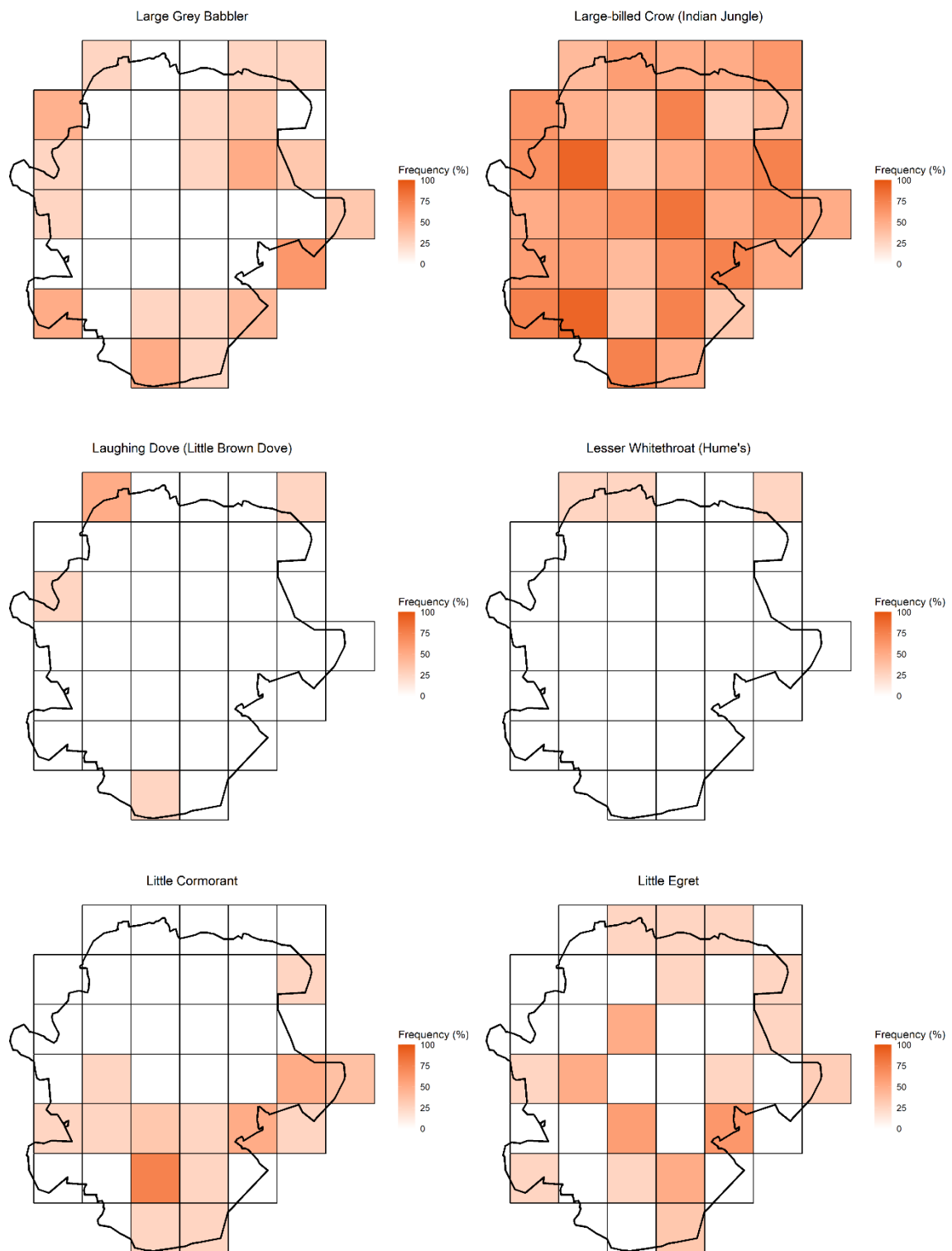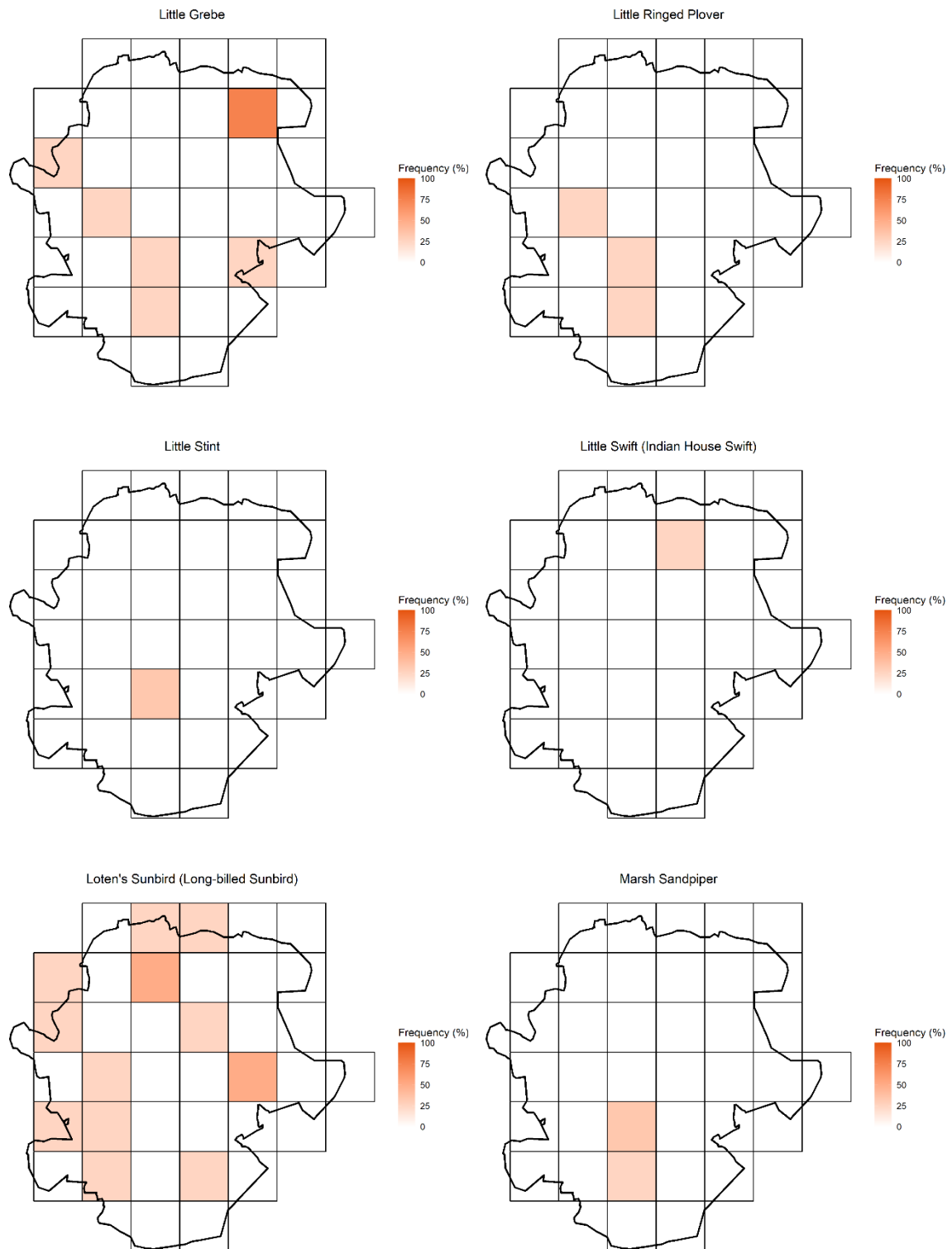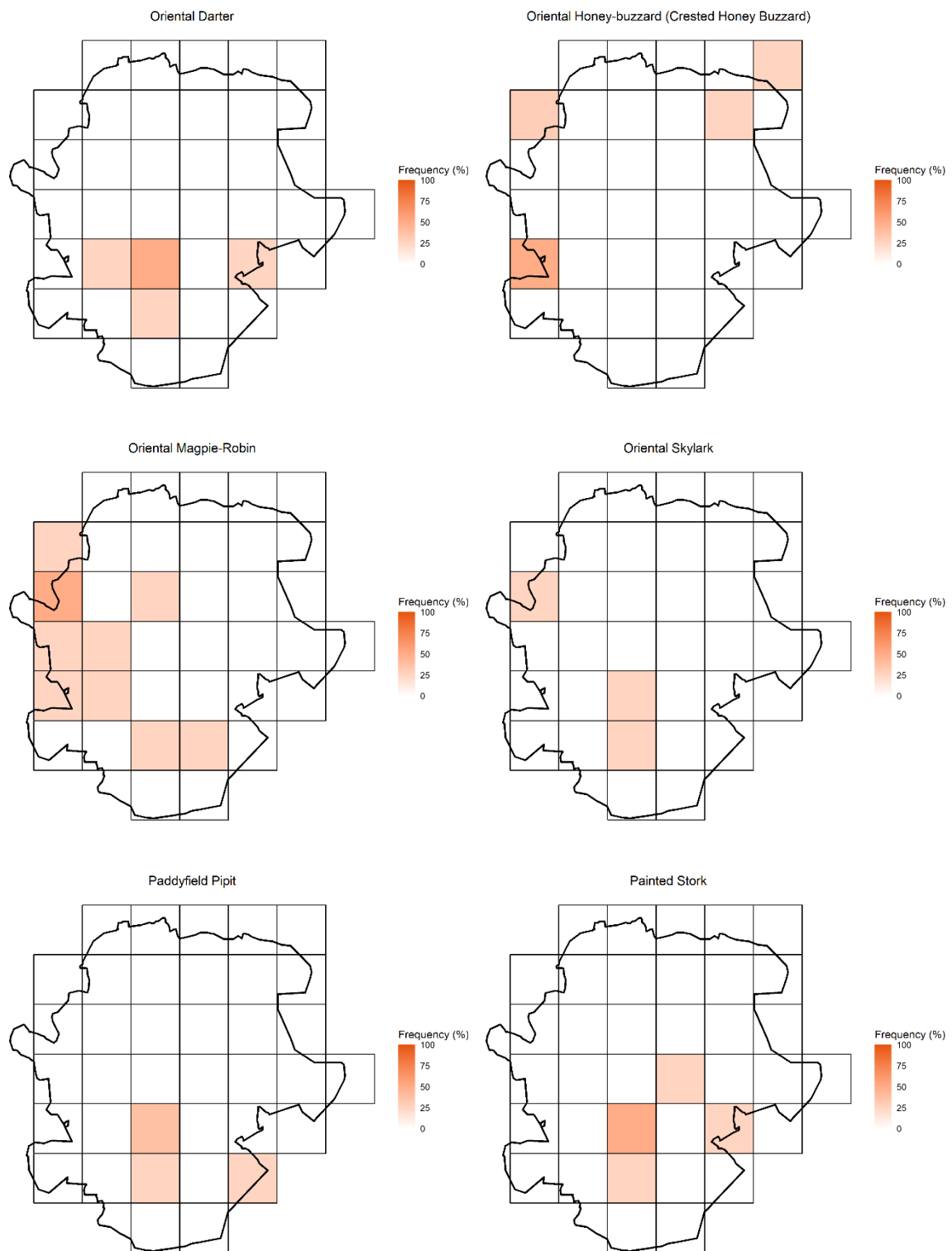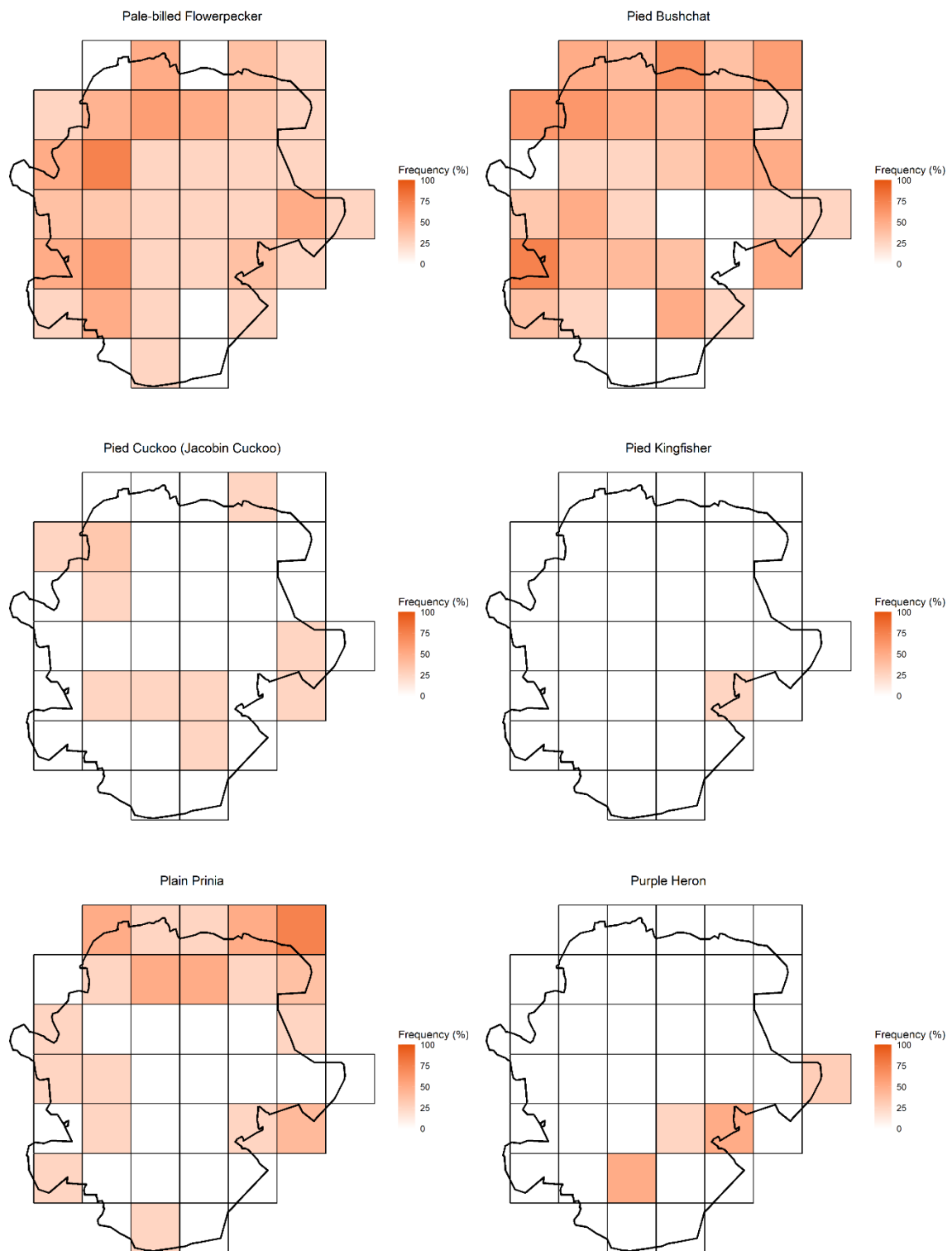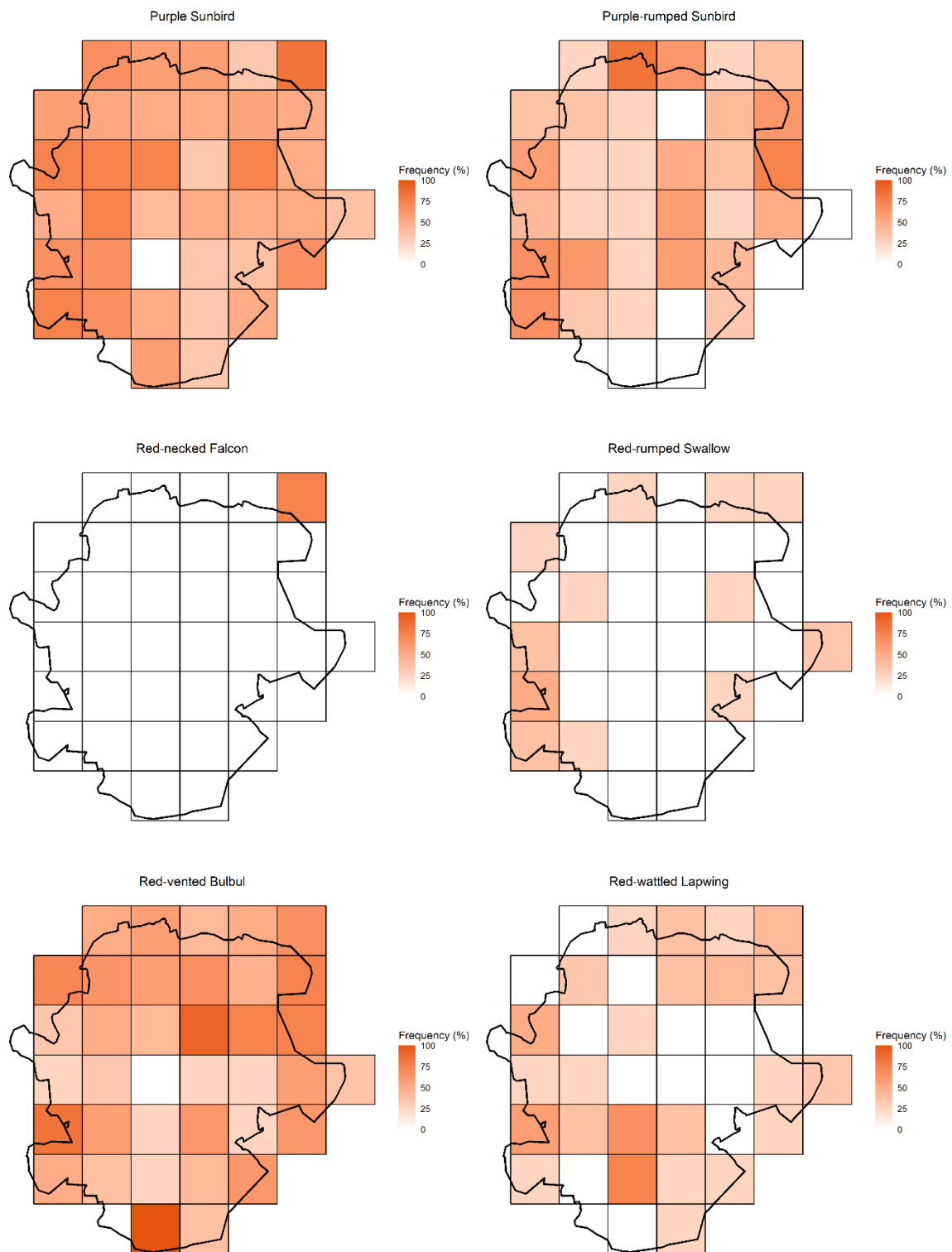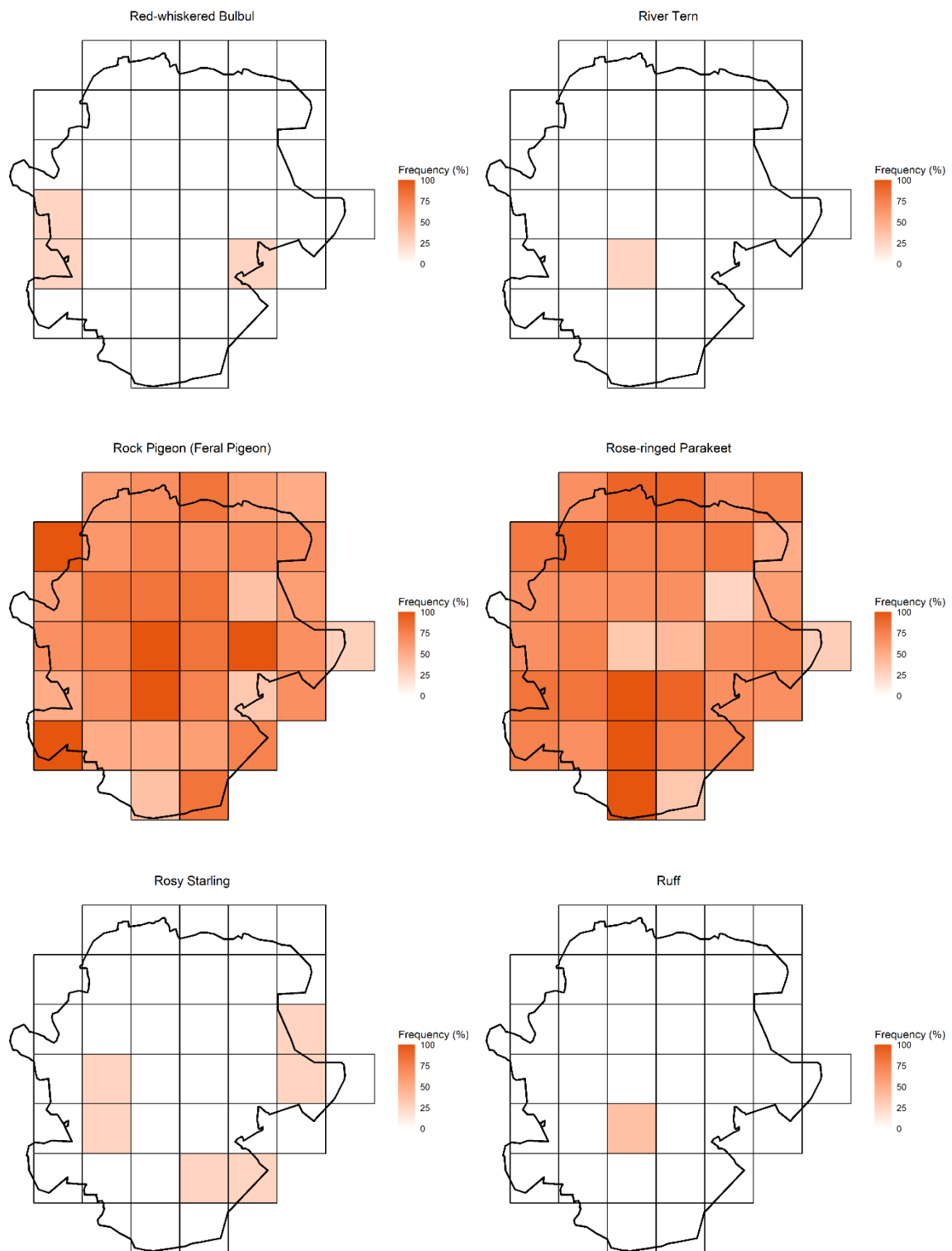

Red-vented Bulbul

Red-wattled Lapwing

Figure 5. Cont.

Figure 5. Cont.

Figure 5. Cont.

Figure 5. Cont.

White-browed Bulbul

White-browed Wagtail (Large Pied Wagtail)

White-cheeked Barbet (Small Green Barbet)

White-rumped Munia

White-throated Kingfisher

Wood Sandpiper

Figure 5. Cont.

Appendix 1. List of participants in the Coimbatore City Bird Atlas, February–March, 2020
(* Indicates team leaders)

ABILASH*, AJAY S, AMSA AM *, ANANDARAJ J*, ANGEL JOY, ANGELINE MANO*, ANTONY ANISTA M*, ARAVINDHAN, ARULVELAN T*

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DIVAKARAN AVINASH S*

GANDHIMATHI K, GOPI M

HARIGOKUL

JAYAKUMAR D*, JEGANATHAN P*, JOEL SONIYA C*, JOSEPH MELKIS RAJA*

KALAIARASI T, KARTHIKEYAN R*, KARTHIKEYAN R, KARUNAMOORTHY S*, KASIRAMAN V, KAVITHA RAMKUMAR, KISHORE, KRISHNAVENI G*

MADHANPRATHAP R*, MARI SELVI G, MOHAMMED SHAHIDH R*, MOHAN RAJ S, MUTHUSAMY A*, MYTHEESWARAN T*

NANDHAKUMAR R*, NITYASREE KUMARESAN, NIVETHA A R

PARTHIBAN N, PAVENTHRAN, PAVITHRA J, PRASANTH, PUGAZHENTHI N, PUSHPARAJ

REKHA

SAMUEL AJ, SATHISH KUMAR, SATHISH R, SELVAGANESH K*, SIDHESH BHOR, SIVA T*, SNEHA, SOORYA KUMAR V, SREEDHARAN, SRINIVASAN, SUGANYA M, SUGUNA RAMAMOORTHY, SUNDAR MURUGANANDHAN, SUNDARARAJAN, SURENDHAR BOOBALAN*, SYED AAMIR S A, SYED MARJUK

THOMAS SEEJO

VANITHA P*, VIJAYALAKSHMI T, VISALAKSHI G*, VISHWADHAR S

YOGESHWARAN A*, YOGESHWARI, YOGESWARIE S*

Appendix 2. List of all bird species (in alphabetical order) recorded during the Coimbatore City Bird Atlas Survey, February–March, 2020. Frequency of reporting (percentage of lists in which the species occurred).

Common Name	Scientific Name	Frequency
Alpine Swift	*Apus melba*	6.19
Ashy Drongo	*Dicrurus leucophaeus*	0.68
Ashy Prinia	*Prinia socialis*	45
Ashy Woodswallow	*Artamus fuscus*	3.83
Ashy-crowned Sparrow-Lark (Ashy-crowned Finch-Lark)	*Eremopterix griseus*	2.03
Asian Brown Flycatcher	*Muscicapa dauurica*	1.35
Asian Koel	*Eudynamys scolopaceus*	59
Asian Openbill	*Anastomus oscitans*	3.38
Asian Palm-Swift	*Cypsiurus balasiensis*	38
Barn Swallow	*Hirundo rustica*	25
Baya Weaver	*Ploceus philippinus*	3.38
Bay-backed Shrike	*Lanius vittatus*	6.08
Black Drongo	*Dicrurus macrocercus*	44
Black Kite	*Milvus migrans*	34.68
Black-crowned Night-Heron	*Nycticorax nycticorax*	5.41
Black-headed Cuckooshrike	*Lalage melanoptera*	1.35
Black-headed Ibis	*Threskiornis melanocephalus*	0.68
Black-rumped Flameback (Lesser Goldenbacked Woodpecker)	*Dinopium benghalense*	21.55
Black-winged Kite (Black-shouldered Kite)	*Elanus caeruleus*	3.83
Black-winged Stilt	*Himantopus himantopus*	5.86
Blue-faced Malkoha	*Phaenicophaeus viridirostris*	0.68
Blue-tailed Bee-eater	*Merops philippinus*	20.27
Blyth's Reed Warbler	*Acrocephalus dumetorum*	41
Booted Eagle	*Hieraaetus pennatus*	2.03
Booted Warbler	*Iduna caligata*	8.67
Brahminy Kite	*Haliastur indus*	6.08
Brahminy Starling	*Sturnia pagodarum*	4.05
Bronze-winged Jacana	*Metopidius indicus*	0.68
Brown Shrike	*Lanius cristatus*	6.42
Cattle Egret	*Bubulcus ibis*	43
Chestnut-bellied Sandgrouse	*Pterocles exustus*	1.35
Chestnut-tailed Starling	*Sturnia malabarica*	0.68
Citrine Wagtail	*Motacilla citreola*	0.68
Clamorous Reed Warbler (Indian Great Reed Warbler)	*Acrocephalus stentoreus*	0.68
Common Greenshank	*Tringa nebularia*	0.68
Common Hawk-Cuckoo	*Hierococcyx varius*	2.03
Common Iora	*Aegithina tiphia*	2.7
Common Kingfisher (Small Blue Kingfisher)	*Alcedo atthis*	4.73
Common Myna	*Acridotheres tristis*	89
Common Redshank	*Tringa totanus*	0.68
Common Sandpiper	*Actitis hypoleucos*	9.57
Common Tailorbird	*Orthotomus sutorius*	52
Common Tern	*Sterna hirundo*	1.35
Common Woodshrike	*Tephrodornis pondicerianus*	1.35
Coppersmith Barbet	*Psilopogon haemacephalus*	28.9
Eurasian Collared-Dove	*Streptopelia decaocto*	2.03

Eurasian Coot	*Fulica atra*	6.53
Eurasian Hoopoe	*Upupa epops*	8.78
Eurasian Kestrel (Common Kestrel)	*Falco tinnunculus*	0.68
Eurasian Marsh-Harrier	*Circus aeruginosus*	1.35
Eurasian Moorhen	*Gallinula chloropus*	4.73
Eurasian Spoonbill	*Platalea leucorodia*	1.35
Garganey	*Spatula querquedula*	2.36
Glossy Ibis	*Plegadis falcinellus*	2.25
Great Cormorant	*Phalacrocorax carbo*	2.7
Great Egret	*Ardea alba*	6.98
Greater Coucal (Southern)	*Centropus sinensus*	48
Green Bee-eater	*Merops orientalis*	21.51
Green Sandpiper	*Tringa ochropus*	3.94
Green Warbler	*Phylloscopus nitidus*	1.35
Grey Francolin	*Francolinus pondicerianus*	43
Grey Heron	*Ardea cinerea*	9.95
Grey Wagtail	*Motacilla cinerea*	0.68
Grey-bellied Cuckoo	*Cacomantis passerinus*	1.35
Grey-breasted Prinia	*Prinia hodgsonii*	0.68
Grey-headed Swamphen (Purple Swamphen)	*Porphyrio poliocephalus*	8.78
Gull-billed Tern	*Gelochelidon nilotica*	0.68
House Crow	*Corvus splendens*	89
House Sparrow	*Passer domesticus*	41
Indian Cormorant (Indian Shag)	*Phalacrocorax fuscicollis*	5.74
Indian Golden Oriole	*Oriolus kundoo*	21.51
Indian Grey Hornbill	*Ocyceros birostris*	0.68
Indian Paradise-Flycatcher	*Terpsiphone paradisi*	6.08
Indian Peafowl	*Pavo cristatus*	53
Indian Pond-Heron	*Ardeola grayii*	40
Indian Robin	*Copsychus fulicatus*	17.45
Indian Roller	*Coracias benghalensis*	24.36
Indian Silverbill (White-throated Munia)	*Euodice malabarica*	5.18
Indian Spot-billed Duck	*Anas poecilorhyncha*	7.55
Intermediate Egret	*Ardea intermedia*	5.41
Jerdon's Bushlark	*Mirafra affinis*	6.98
Jungle Bush-Quail	*Perdicula asiatica*	0.68
Jungle Prinia	*Prinia sylvatica*	1.35
Large Cuckooshrike	*Coracina macei*	1.35
Large Grey Babbler	*Turdoides malcolmi*	17.61
Large-billed Crow (Indian Jungle)	*Corvus macrorhynchos*	58
Laughing Dove (Little Brown Dove)	*Streptopelia senegalensis*	3.38
Lesser Whitethroat (Hume's)	*Sylvia curruca althaea*	2.03
Little Cormorant	*Microcarbo niger*	12.73
Little Egret	*Egretta garzetta*	15.77
Little Grebe	*Tachybaptus ruficollis*	5.41
Little Ringed Plover	*Charadrius dubius*	2.03
Little Stint	*Calidris minuta*	0.9
Little Swift (Indian House Swift)	*Apus affinis*	0.68
Loten's Sunbird (Long-billed Sunbird)	*Cinnyris lotenius*	9.46

Common Name	Scientific Name	Value
Marsh Sandpiper	*Tringa stagnatilis*	1.58
Oriental Darter	*Anhinga melanogaster*	3.38
Oriental Honey-buzzard (Crested Honey Buzzard)	*Pernis ptilorhynchus*	3.49
Oriental Magpie-Robin	*Copsychus saularis*	6.76
Oriental Skylark	*Alauda gulgula*	2.03
Paddyfield Pipit	*Anthus rufulus*	2.36
Painted Stork	*Mycteria leucocephala*	3.38
Pale-billed Flowerpecker	*Dicaeum erythrorhynchos*	31.64
Pied Bushchat	*Saxicola caprata*	34.35
Pied Cuckoo (Jacobin Cuckoo)	*Clamator jacobinus*	6.98
Pied Kingfisher	*Ceryle rudis*	0.68
Plain Prinia	*Prinia inornata*	17.68
Purple Heron	*Ardea purpurea*	4.17
Purple Sunbird	*Cinnyris asiaticus*	54
Purple-rumped Sunbird	*Leptocoma zeylonica*	36
Red-necked Falcon	*Falco chicquera*	2.03
Red-rumped Swallow	*Cecropis daurica*	9.68
Red-vented Bulbul	*Pycnonotus cafer*	51
Red-wattled Lapwing	*Vanellus indicus*	23.31
Red-whiskered Bulbul	*Pycnonotus jocosus*	2.03
River Tern	*Sterna aurantia*	0.68
Rock Pigeon (Feral Pigeon)	*Columba livia (Feral Pigeon)*	68
Rose-ringed Parakeet	*Psittacula krameri*	70
Rosy Starling	*Pastor roseus*	4.05
Ruff	*Calidris pugnax*	1.01
Rufous Treepie	*Dendrocitta vagabunda*	27.48
Scaly-breasted Munia (Spotted Munia)	*Lonchura punctulata*	7.09
Shikra	*Accipiter badius*	21.96
Short-toed Snake-Eagle	*Circaetus gallicus*	0.68
Slaty-breasted Rail	*Lewinia striata*	0.68
Spot-billed Pelican	*Pelecanus philippensis*	5.74
Spotted Dove	*Streptopelia chinensis*	16.1
Spotted Owlet	*Athene brama*	12.16
Tricolored Munia (Black-headed Munia)	*Lonchura malacca*	0.68
Western Yellow Wagtail	*Motacilla flava*	6.31
Whiskered Tern	*Chlidonias hybrida*	2.03
White-breasted Waterhen	*Amaurornis phoenicurus*	22.26
White-browed Bulbul	*Pycnonotus luteolus*	2.03
White-browed Wagtail (Large Pied Wagtail)	*Motacilla maderaspatensis*	17.45
White-cheeked Barbet (Small Green Barbet)	*Psilopogon viridis*	3.72
White-rumped Munia	*Lonchura striata*	3.04
White-throated Kingfisher	*Halcyon smyrnensis*	38
Wood Sandpiper	*Tringa glareola*	9.35
Yellow-billed Babbler	*Turdoides affinis*	63
Yellow-throated Sparrow (Chestnut-shouldered Petronia)	*Gymnoris xanthocollis*	0.9
Yellow-wattled Lapwing	*Vanellus malabaricus*	4.05
Zitting Cisticola	*Cisticola juncidis*	2.7

Photos of some of the habitats covered during this survey.

Team leaders' meetings for planning and Locus App training.

Photos from the field.

Photos from the field. Cont.