

## **Appendix 12-3**

### **Methodology and Results of Flight Line Surveys**

#### **Methodology**

Flight lines of birds through the area between LMC BCP and Hoo Hok Wai were surveyed once monthly from April to September and twice-monthly from October to March. Three surveyors were deployed simultaneously at a) LMC Lookout, b) near/at LMC Police Operational Base (POB) at Horn Hill (Ngau Kok Shan) and c) at Hoo Hok Wai, adjacent to LMC Loop (see **Figure 12.2** for locations). Initially, the count location near LMC POB was on the boundary fence road, but shifted to an observation tower within the POB once permission had been obtained to use this facility. Observations were carried out simultaneously at each of the three sites for two hours in the early morning, the peak period of bird activity, on the dates listed in **Table A12-3**.

Each surveyor marked on a standard map the estimated location of the flight path used by waterbird species, birds of prey or other larger species of conservation interest passing through the area. Flights involving short hops from point to point were not recorded. The focus was on birds carrying out long-distance flights from areas to the south of LMC Spur Line railway and San Sham Road to HHW. Species generally commensal with man (e.g. Black-collared Starling), common and widespread in HK (e.g. Crested Myna) or small in size and not prone to following flight lines en masse (e.g. Barn Swallow) were ignored in order to concentrate on species of conservation interest and/or those prone to using flight lines (e.g. large waterbirds), which are likely to be most impacted by development.

For each observation of birds in flight, the number, the species and their height above the ground was recorded. Height above the ground was estimated in relation to the level of LMC Loop and adjacent fish pond area, and/or the location of the observer. Given the difficulty of accurately measuring height above ground from a distance, three height classes were used: 10m, 20m and 30m or above. In practice, this means birds were assigned to ranges of 5-15m (10m height class), 15-25m (20m height class) and 25m or above (30m height class).

Approximate heights of observation points were 40m at LMC Lookout, 20m at LMC POB observation tower and 0m at Hoo Hok Wai. Only observers experienced in carrying out flight line surveys were used.

Flight line locations marked on the maps were then overlain by a 100m grid, each square having a unique number. Inevitable survey error in the field in marking the location of some flight lines meant that a smaller grid was not considered feasible, and would introduce a spurious element of accuracy. The number of birds of each species passing through each 100m square (the number of ‘bird-flights’) and their height above ground were then entered into an Excel spreadsheet. These data were then mapped, and on the figures produced a greater intensity of colour indicates a higher number of birds.

The data were then analysed by species, annually and according to wet and dry season, which cover, broadly speaking, the breeding and the non-breeding seasons. The period November to February was treated as the dry season, while March to October was regarded as the wet season. As it was apparent by late February that sufficient data had been collected for the dry season, both counts in March, which is a transitional month between dry and wet seasons, were carried out at the end of the month, in order to provide more data for the wet season.

In the winter period, the number of large waterbirds using the flight line is so high that it is not possible to use the number recorded during flight line mapping as a representative guide

to the actual number of birds using the flight line corridor (the process of observing individual birds or flocks and recording data means that some birds fly by unseen). Total count data are necessary to provide an indication of the importance of the flight line corridor, and allow comparison with data collected regarding Great Cormorants in the years 2000-2005 (Anon. 2005). Consequently, separate census counts were carried out once-monthly at LMC Lookout throughout the survey period (excluding June); an extra count was made in March in order to census the dry season early in the month and the wet season late in the month. These counts involved one surveyor counting the number of large waterbird species passing in the period from 15 minutes before sunrise until two hours after. This period was chosen with reference to counts made by Anon. (2005), which revealed that the vast majority of Great Cormorants using the flight line did so during this period.

In addition, four roost census counts of Great Cormorants at their night-time roost at Mai Po NR and Nam Sang Wai were carried out during the midwinter period when numbers are highest; these occurred on 16th December, 14th and 27th January and 24th February. This allowed an assessment of the minimum proportion of the Deep Bay wintering population utilising the ecological corridor.

**Table A12-3.** Dates of coordinated flight line surveys and census counts, June 2009 to May 2010.

Month	Coordinated survey	Flight-line Census count	Month	Coordinated survey	Flight Line Census count	Cormorant roost census
June	30 <sup>th</sup>	n/a	December	10 <sup>th</sup> , 23 <sup>rd</sup>	22 <sup>nd</sup>	16 <sup>th</sup>
July	14 <sup>th</sup>	26 <sup>th</sup>	January	13 <sup>th</sup> , 26 <sup>th</sup>	30 <sup>th</sup>	14 <sup>th</sup> , 27 <sup>th</sup>
August	26 <sup>th</sup>	25 <sup>th</sup>	February	17 <sup>th</sup> , 24 <sup>th</sup>	11 <sup>th</sup>	24 <sup>th</sup>
September	5 <sup>th</sup> Oct*	10 <sup>th</sup>	March	26 <sup>th</sup> , 30 <sup>th</sup>	3 <sup>rd</sup> , 27 <sup>th</sup>	
October	13 <sup>th</sup> , 27 <sup>th</sup>	29 <sup>th</sup>	April	4 <sup>th</sup> May*	23 <sup>rd</sup>	
November	9 <sup>th</sup> , 24 <sup>th</sup>	23 <sup>rd</sup>	May	26 <sup>th</sup>	27 <sup>th</sup>	

\* survey delayed due to bad weather.

It is likely that some birds flying over the centre of LMC Loop or along the central section of Shenzhen River were missed due to distance from observers. As a result, occurrence of birds in these areas should be supplemented by inference from the pattern in adjacent areas.

## **Results**

The total number of flight line observations across all 100m squares (i.e. one flight of one or more birds through a 100m square) was 2930, with 1244 in the wet season and 1686 in the dry season. The total number of bird-flights recorded was 9195, with 1929 in the wet season and 7266 in the dry season. A ‘bird-flight’ is defined as one bird flying through a 100m square; thus, a flock of seven Great Cormorants flying through a square would represent seven bird-flights. **Table A12-4** details the number of bird-flights for the eight most numerous species.

**Table A12-4.** Number of bird-flights of the most numerous species recorded during flight line surveys 2009-2010.

Species	Wet Season	Dry Season	Total
Great Cormorant	291	5492	5783
Great Egret	505	666	1171
Little Egret	567	886	1453
Grey Heron	61	98	159

Species	Wet Season	Dry Season	Total
Chinese Pond Heron	114	13	127
Black-crowned Night Heron	163	0	163
Cattle Egret	104	2	106
Black-faced Spoonbill	85	108	193
<b>Total</b>	<b>1890</b>	<b>7265</b>	<b>9155</b>

In addition to the species listed in **Table A12-4**, small numbers (in parentheses) of the following species were recorded: Black Kite (8), Black-winged Stilt (1), Bonelli's Eagle (1), Collared Crow (7), Common Greenshank (1), Common Teal (1), Common Kestrel (1), Eastern Marsh Harrier (1), Eurasian Hobby (2), Greater Spotted Eagle (1), Green Sandpiper (1), Imperial Eagle (1), Large-billed Crow (5), Little Grebe (1), Peregrine Falcon (2), Pintail Snipe (1), Purple Heron (1), Wood Sandpiper (2), Whimbrel (2). The number of bird-flights is insufficient to allow meaningful presentation in maps for these species.

### Distribution of flight lines

**Figures A12-1 to A12-21** comprise maps illustrating the location of recorded flight lines. The overall summary map (**Figure A12-1**) clearly indicates that most were located over LMC Meander and adjacent areas, comprising the southeast edge of LMC Loop up to a width of approximately 150m and fish ponds up to width of approximately 50m. It appears that birds are using the Meander as a guide in order to take them past LMC Loop and into the fishpond area beyond. What is noticeable is the relative lack of birds flying directly over LMC Loop itself, despite there being a relatively large area of undisturbed natural habitat, including reed marsh.

It thus appears that the Meander is the most important element of the flight line corridor. This may be because birds feel safer flying over water than they do over land, where potential sources of disturbance are greater in number and there is cover for predators or hunters (while not an issue in HK, the latter is elsewhere in the region). Although there are some differences in the density of shading along the eastern section of the Meander parallel to the boundary fence, this is unlikely to reflect any significant differences in the number of birds; rather, this is more likely to be an artefact of observer location (some areas are not as visible as others).

In addition to the general southwest – northeast orientation of flight lines, the northeastern section of the Meander is also a focus of flight line activity, though less intensive. Some birds, after passing over the main southeastern section of the Meander, fly along this northeastern section to access adjacent ponds.

There does not appear to be a significant difference in the overall distribution of all birds between wet and dry season (**Figures A12-2 and A12-3**), apart from a broader spread of records along the northeastern section of the Meander.

The main entry point to the LMC Loop area appears to be in the vicinity of Ha Wan Tsuen, in the area of which there are a number of more-darkly shaded squares (351-700 birds). However, when the data for all birds are divided into wet and dry season (**Figures A12-2 and A12-3**), it becomes apparent that this arises as a result of a dry season concentration of flight lines in this area. When the dry season data are analysed by species, it is clear that this is mainly due to a concentration of Great Cormorant flight lines through this area (**Figure A12-4**).

**Figure A12-5** indicates, however, that in the dry season ardeids also enter the LMC Loop area in the same area that cormorants do, in the vicinity of Ha Wan Tsuen. A number of ardeids also fly along the Shenzhen River beyond LMC Loop to enter the HHW area from a more westerly point, on the far side; this pattern is much less apparent for cormorants. In general, ardeids have a somewhat broader spread of flight lines compared with Great Cormorants (**Figure A12-6**).

The wet season data, which do not include cormorants as they are not present in HK in the summer, indicate that the entry point for most birds in that season lies over Ha Wan Tsuen Road, between Ha Wan Tsuen and the junction of LMC Road and Lung Hau Road. The vast majority of birds at this time are ardeids (egrets and herons); **Figure A12-7** summarises ardeid flight lines in the wet season.

The alignment of LMC Meander in relation to the large fish pond area at HHW means that the area where birds enter the fish pond is located around the northeast corner of the Meander. This pattern is the same in both wet (**Figure A12-2**) and dry season (**Figure A12-3**) and for both cormorants (**Figure A12-4**) and ardeids (**Figure A12-6**).

### Species differences

In terms of differences among ardeid species, these were not major. In the dry season the larger Great Egret (**Figure A12-8**) appears to adopt flight lines somewhat more focussed on LMC Meander than the smaller Little Egret (**Figure A12-9**), whose flight lines occupy a greater area of LMC Loop and the Shenzhen River. The smallest ardeid species, Chinese Pond Heron (**Figure A12-10**), appears to adhere rather more closely to LMC Meander, though it should be noted that very few birds were recorded (no more than three in any square). It is unclear whether the important factor for Chinese Pond Heron is the Meander itself or the fact it lies adjacent to fish ponds, as this species shows a greater tendency to fly short distances between foraging areas ('hopping' from pond to pond), and does not often occur at the drained ponds that are a feature of the dry season in fish pond areas (which can result in larger numbers of ardeids using a particular flight line to reach a single drained pond). Night Herons were not recorded at all during the dry season.

In the wet season Great Egret (**Figure A12-11**) shows a broader spread of flight lines through the area than it does in the dry season, and is not so reliant on LMC Meander. In contrast Little Egret (**Figure A12-12**) shows a more concentrated distribution of flight lines, centred mainly on LMC Meander. Substantially more Chinese Pond Herons (**Figure A12-13**) were recorded in the wet season, and flight lines were also concentrated mainly on LMC Meander, though with a fairly broad spread across the Loop and Shenzhen River. However, for this species in particular, due to its small size and tendency to fly low, it is more likely that birds flying at some distance from observers would not be seen.

The distribution of Black-faced Spoonbill flight lines is depicted in **Figure A12-14**, which shows that this species is also focussed on LMC Meander. However, the numbers recorded are relatively low, and an observation during bird trapping fieldwork of a flock of 36 birds flying over the centre of the Loop toward HHW suggests that the preference for LMC Meander is not as marked as for other species.



## Height of flight

In terms of the height above ground at which birds fly, **Figures A12-15, A12-16 and A12-17** illustrate the number of all birds recorded flying at 30m, 20m and 10m respectively. It can be seen that 30m flight lines are concentrated in the area near Ha Wan Tsuen, whereas 10m flight lines are disproportionately located along the northeastern section of the Meander. The concentration of 30m flight lines appears to be related to the presence of other disruptions to the flight line to the south, including the LMC Spur Line railway and San-Sham Road leading to LMC BCP, as well as taller trees, which together cause birds to enter the LMC Loop area at a greater height. However, with no other impediments, birds are then able to gradually lose height as they approach the main fish pond area of HHW, which results in there being more 10m flight lines in the northeastern section of LMC Meander. The location of 20m flight lines shows a broader correspondence with the overall picture, presumably because this height class is sufficiently high in the area of Ha Wan Tsuen and sufficiently low nearer to foraging areas at HHW.

It is apparent that 10m flight lines are much reduced in number in areas inside LMC Loop itself, with a significant area devoid of all flight lines at this height (**Figure A12-17**). While this may, in part, be due to the fact that these areas are furthest from the three observers and thus more difficult to survey, the absence of flight lines in the southern part of the Loop, within sight of the relatively high vantage point of LMC Lookout, suggests this is to some degree a real phenomenon.

## Difference in direction to/from LMC

**Figures A12-18 and A12-19** illustrate the wet season distribution of ardeid flight lines toward HHW and toward LMC respectively. It appears that birds returning to LMC adopt a slightly broader spread of routes, with the Shenzhen River in particular more likely to be used on the outward journey toward LMC. **Figures A12-20 and A12-21** illustrate the same for Great Cormorant, and while the distribution of flight lines for this species is also broader when returning to LMC, use of the Shenzhen River remains limited.

## Flight Line Census counts

**Table A12-5** provides the results of early morning counts made from LMC Lookout of the number of birds using the flight line corridor.

**Table A12-5.** Counts of large waterbirds flying past LMC Lookout toward HHW from 15mins before sunrise until two hours after, 2009-2010.

Date	Great Cormorant	Grey Heron	Great Egret	Little Egret	Cattle Egret	CPH	Night Heron	B-f Spoonbill
26 <sup>th</sup> Jul.	0	0	26	62	0	10	18	0
25 <sup>th</sup> Aug.	0	0	17	79	0	3	4	0
3 <sup>rd</sup> Sep.	0	0	47	99	0	4	3	0
29 <sup>th</sup> Oct.	66	5	48	61	0	3	0	0
23 <sup>rd</sup> Nov.	696	8	32	36	0	1	0	0
22 <sup>nd</sup> Dec.	687	2	165	43	0	0	0	2
30 <sup>th</sup> Jan.	1092	12	189	118	0	0	0	2
11 <sup>th</sup> Feb.	1370	5	289	23	0	0	0	3
3 <sup>rd</sup> Mar.	1647	2	206	59	0	0	0	2

Date	Great Cormorant	Grey Heron	Great Egret	Little Egret	Cattle Egret	CPH	Night Heron	B-f Spoonbill
27 <sup>th</sup> Mar.	1	6	161	151	3	7	2	35
23 <sup>rd</sup> Apr.	0	0	44	71	39	4	9	0
27 <sup>th</sup> May	0	0	211	46	31	3	13	0

The number of Grey Herons flying toward HHW appears to form a very small proportion of the population present in Deep Bay. However, it should be noted that Grey Heron and Black-crowned Night Heron largely forage nocturnally in HK, and these counts probably underestimate the importance of HHW to these species. Similarly, the number of Chinese Pond Herons recorded carrying out significant flights through the area was also low. These figures almost certainly underestimate the importance of the corridor to this species, however, as it does not forage at drained ponds en masse (which results in very obvious flight line usage). Instead, it is much more likely to carry out short flights between foraging areas. However, although it is possible that some underestimate of numbers of these species has occurred, it is unlikely to have resulted in any bias regarding the location of their preferred flight lines. Consequently, it is not anticipated that the significance of impacts might be underestimated.

Cattle Egrets were only recorded in the spring months of March to May, reflecting their main period of occurrence, while Night Heron was only recorded from late March to July, during the breeding season.

**Table A12-6** compares data collected during counts of Great Cormorant made in the 2004-2005 winter period with those made as part of this study, during winter 2009-2010. Given the rise and fall in numbers as winter progresses, they have been broadly arranged according to date and month.

**Table A12-6** Number of Great Cormorants flying past LMC Lookout toward HHW from 15mins before sunrise until two hours after, winter periods 2004-2005 and 2009-2010

Date	Total	Date	Total
<b>Winter 2004-05</b>		<b>Winter 2009-10</b>	
		29 October 2009	66
23 November 2004	658		
30 November 2004	530	23 November 2009	696
07 December 2004	763		
		22 December 2009	687
25 January 2005	634	30 January 2010	1092
01 February 2005	1766		
15 February 2005	1597	11 February 2010	1370
22 February 2005	2134		
03 March 2005	2627	03 March 2010	1647
08 March 2005	1643		
15 March 2005	1420		

In order to place these in context, they need to be compared with counts of the Deep Bay population. Counting of cormorants at night-time roost generally results in the most accurate

assessment of the wintering population, and this was carried out on four dates in the 2009-10 winter period. **Table A12-7** provides the results of Great Cormorant evening roost counts at Mai Po NR and Nam Sang Wai during winter 2009-2010, together with the count of cormorants flying past LMC Lookout on the date nearest to the relevant roost count, and the percentage each constitutes of that roost count.

**Table A12-7** Roost counts of the wintering population of Great Cormorants 2009-10 compared with counts from LMC Lookout on nearest date.

Date	Mai Po NR	Nam Sang Wai	Total	LMC Lookout Count
16 <sup>th</sup> December 2009	4,310	5,071	9,381	687/7.3% (22 <sup>nd</sup> Dec.)
14 <sup>th</sup> January 2010	5,950	4,099	10,049	1092/10.9% (30 <sup>th</sup> Jan.)
27 <sup>th</sup> January 2010	5,661	3,384	9,045	1092/12.1% (30 <sup>th</sup> Jan.)
24 <sup>th</sup> February 2010	4,450	3,350	7,800	1647/21.1% (3 <sup>rd</sup> Mar.)

The peak count of birds flying to HHW was higher in 2004-2005 in both absolute terms (2,627 as against 1,647) and relative to the peak count of the wintering population (27.5% as against 16.4%), which peaked at 10,049 in 2009-10. The count of 1,647 birds on 3<sup>rd</sup> March constitutes 21.1% of the roost count nearest in time on 24<sup>th</sup> February, which was 7,800. It is clear that a substantial element of the wintering Great Cormorant population in HK forages at HHW.

Criterion 6 of the Ramsar Convention (Convention on Wetlands of International Importance especially as Waterfowl Habitat, Ramsar, 1971), of which China is a signatory, states that “a wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.” The east and southeast Asian wintering population of Great Cormorant was estimated to be 25,000-100,000 birds by Wetlands International<sup>1</sup>, and the corresponding 1% threshold set at 1,000 birds. The Mai Po Inner Deep Bay Ramsar Site thus comprises a regionally important wetland for this species, as it supported approximately 10% of the regional population in winter 2009-10. As the HHW area provided foraging sites for up to 16.4% of these birds, it can be seen that HHW is an important wetland for the HK population of this species.

**Table A12-8** compares counts of the two most numerous ardeid species, Great Egret and Little Egret, with their respective monthly total counts obtained in the Ramsar Site Waterbird Monitoring Programme. Numbers of other ardeid species are deemed too small to make such a comparison useful.

**Table A12-8** Counts of Great and Little Egrets flying past LMC Lookout toward HHW from 15mins before sunrise until two hours after, 2009-2010, compared with Deep Bay area total counts in same month.

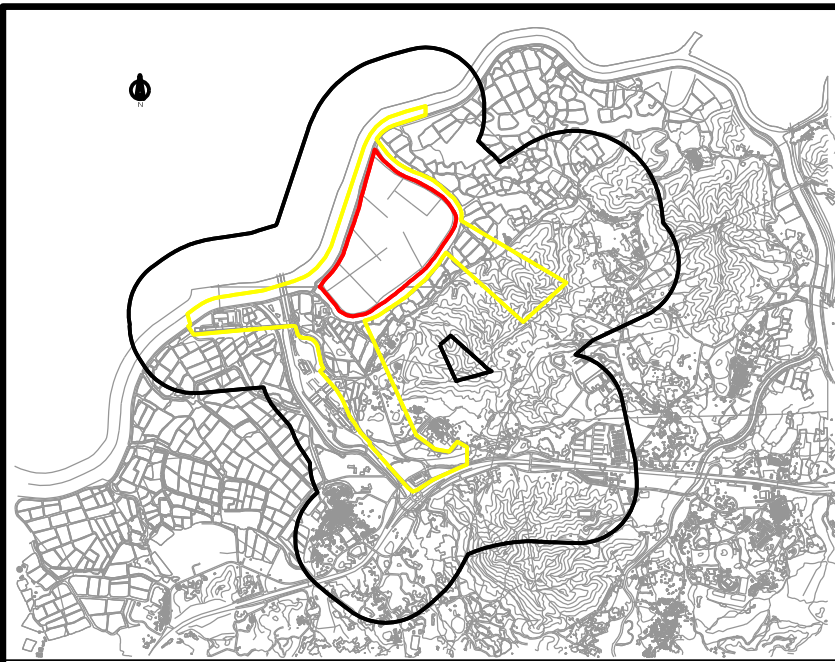
Month	Great Egret			Little Egret		
	Deep Bay	LMCL	%	Deep Bay	LMCL	%
July	368	26	7.0	701	62	8.8
August	278	17	6.1	563	79	14.0
September	585	47	8.0	787	99	12.6
October	515	48	9.3	957	61	6.3
November	541	32	5.9	745	36	4.8

<sup>1</sup> Wetlands International (2013). "Waterbird Population Estimates". Retrieved from [wpe.wetlands.org](http://wpe.wetlands.org) on 12 May 2013

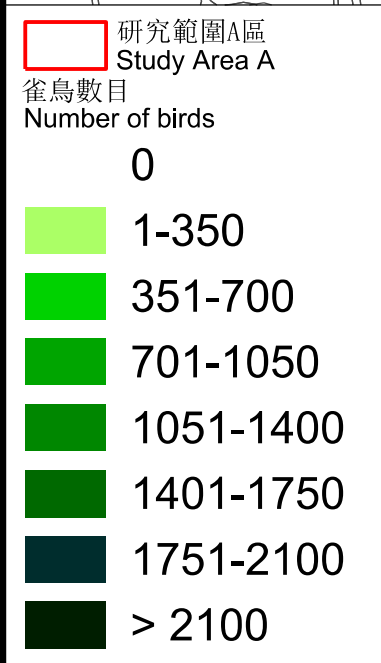
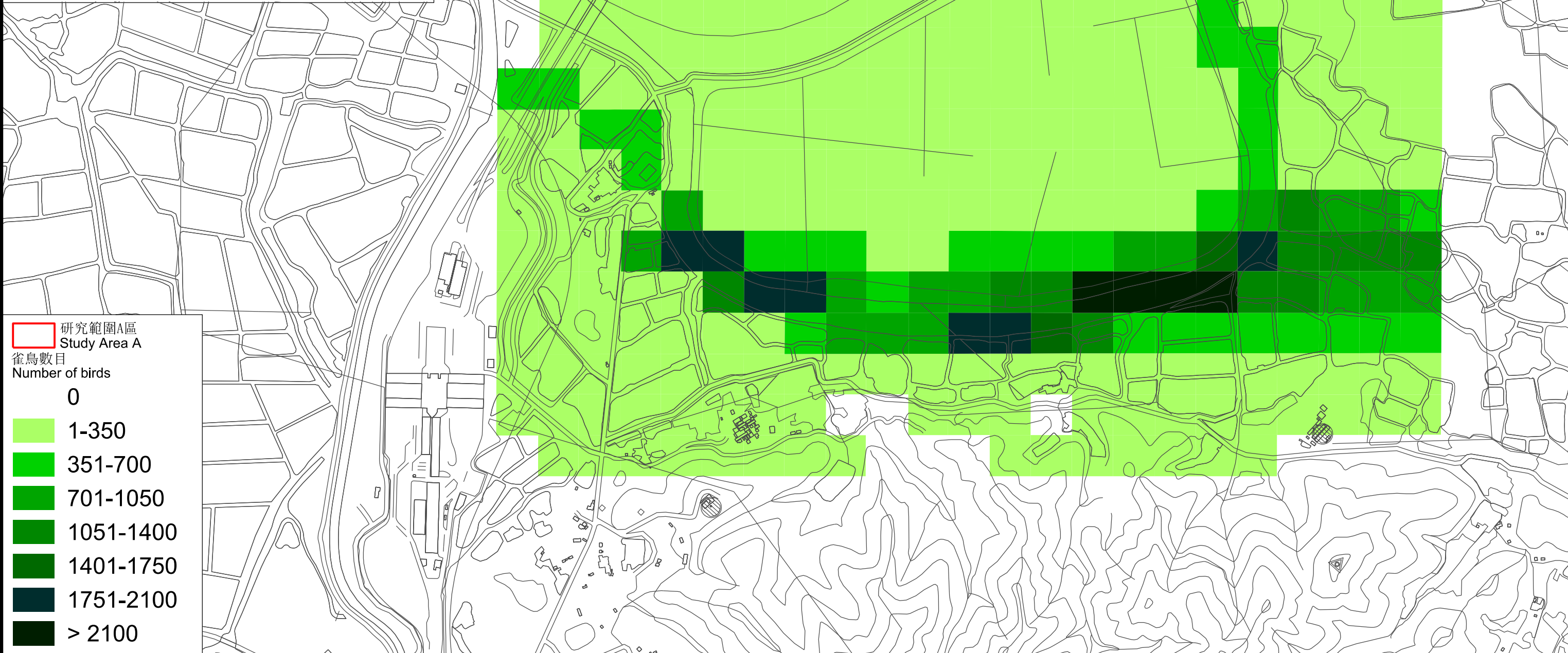
Month	Great Egret			Little Egret		
	Deep Bay	LMCL	%	Deep Bay	LMCL	%
December	882	165	18.7	1047	43	4.1
January	656	189	28.8	1197	118	9.9
February	600	289	48.2	850	23	2.7
3 <sup>rd</sup> Mar.	321	206	64.2	732	59	8.1
27 <sup>th</sup> Mar.	321	161	50.2	732	151	20.6
April	307	44	14.3	822	71	8.6
May	379	211	55.7	489	46	9.4

The proportion of the Deep Bay population of Great and Little Egrets flying to HHW varied during the year, particularly in respect of Great Egret. For Great Egret, the range was 5.9-64.2%, while that for Little Egret was 2.7-20.6%. The reason for the variation is probably related to variation in foraging opportunities, particularly with regard to drained down fish ponds, which provide an abundant though short-lived source of food for egrets.

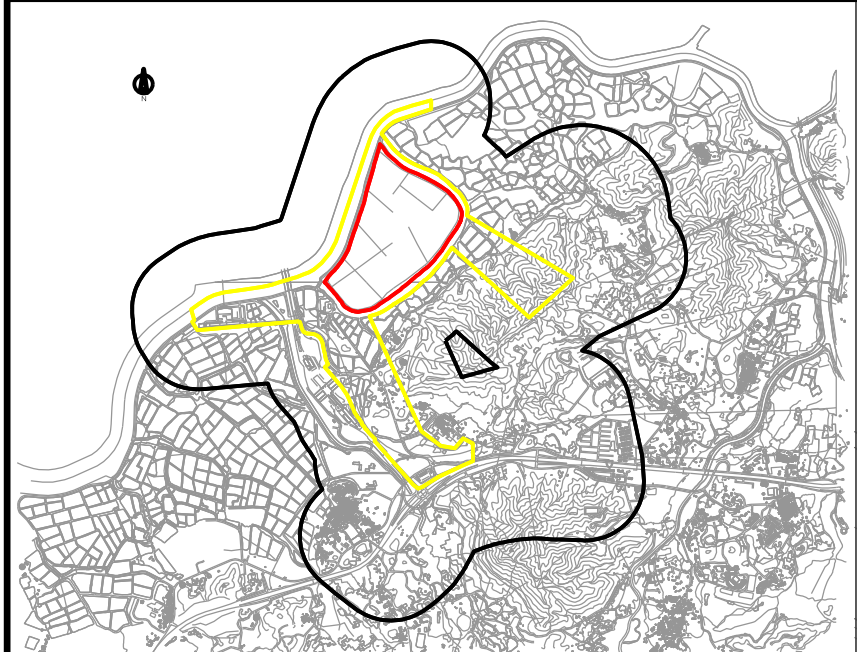
The data indicate that the flight line linkage to HHW is potentially very important for the Great and Little Egret population in Deep Bay in certain months. In particular, a large proportion of the Deep Bay Great Egret population appears to utilise the area in the winter months. This may be related to the relatively undisturbed nature of the HHW area and the fact that fish pond size is relatively large compared to other areas; both of these factors are likely to be attractive to a large, more disturbance-sensitive species such as Great Egret.



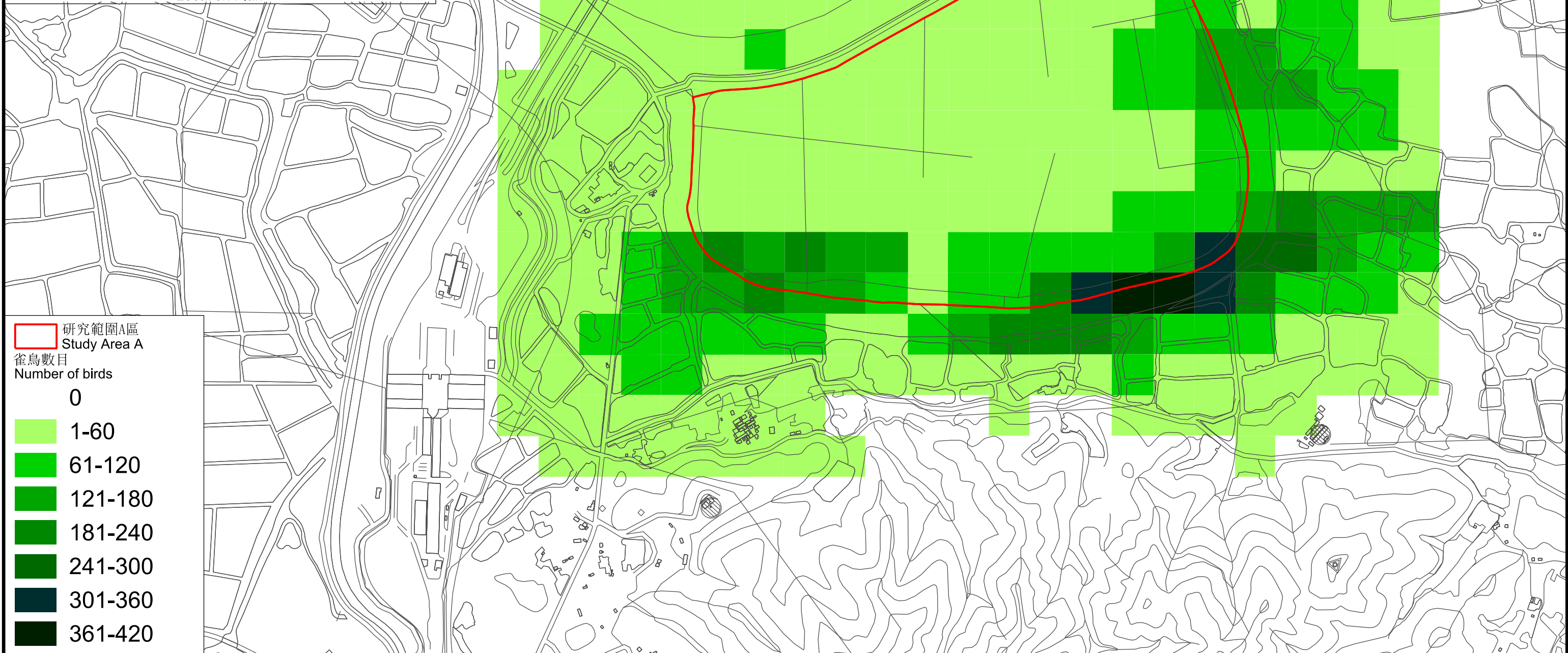
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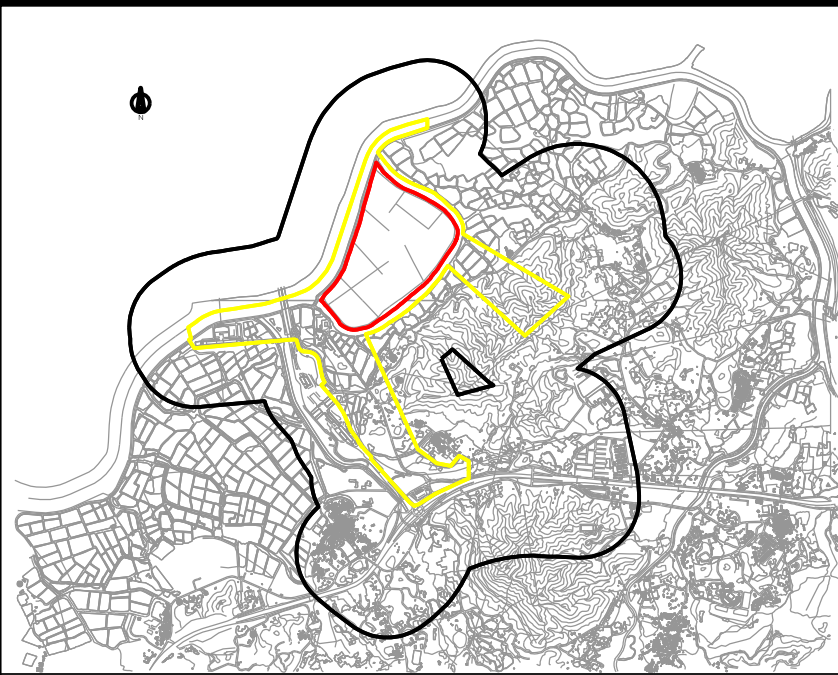


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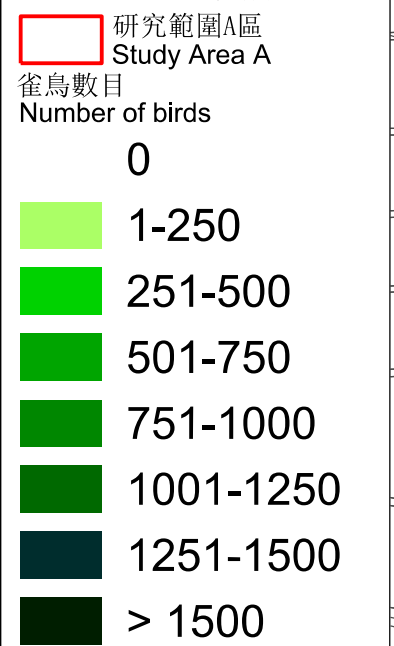
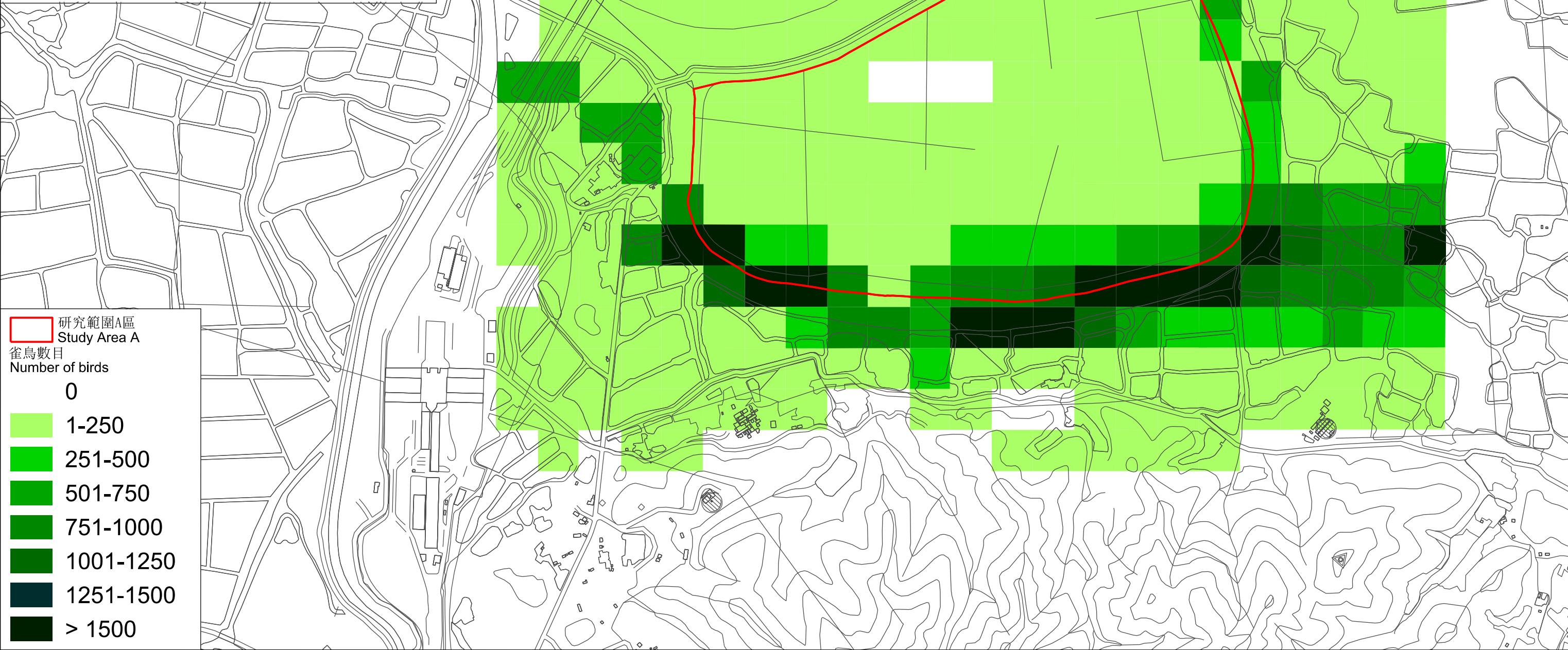


研究範圍A區  
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 Number of birds  
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 1-60  
 61-120  
 121-180  
 181-240  
 241-300  
 301-360  
 361-420

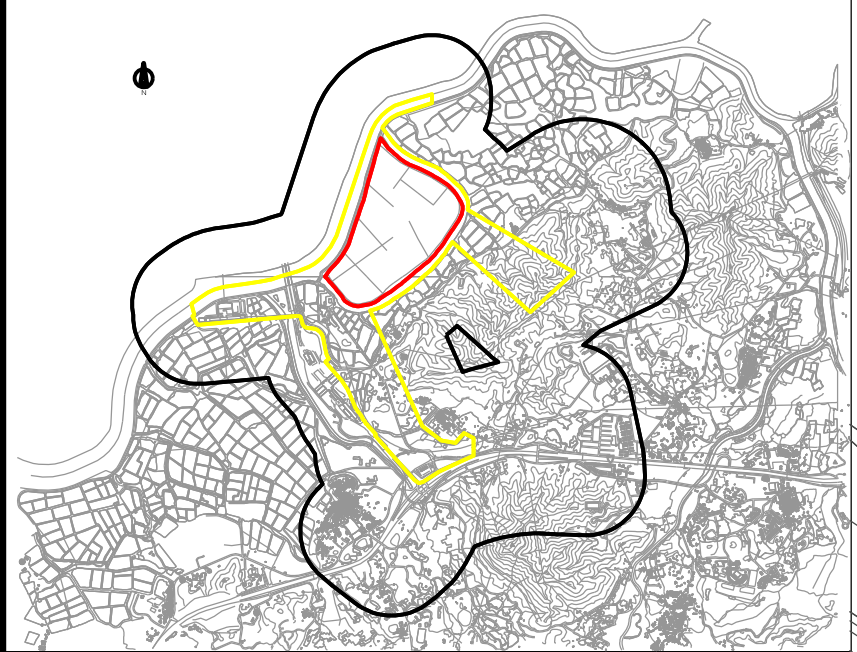




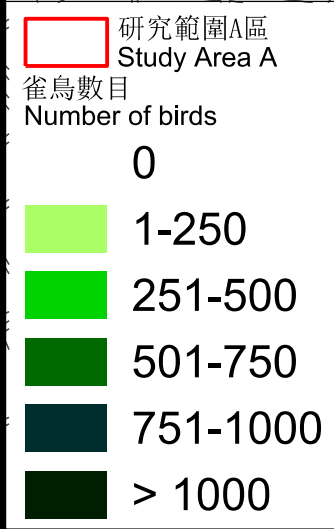
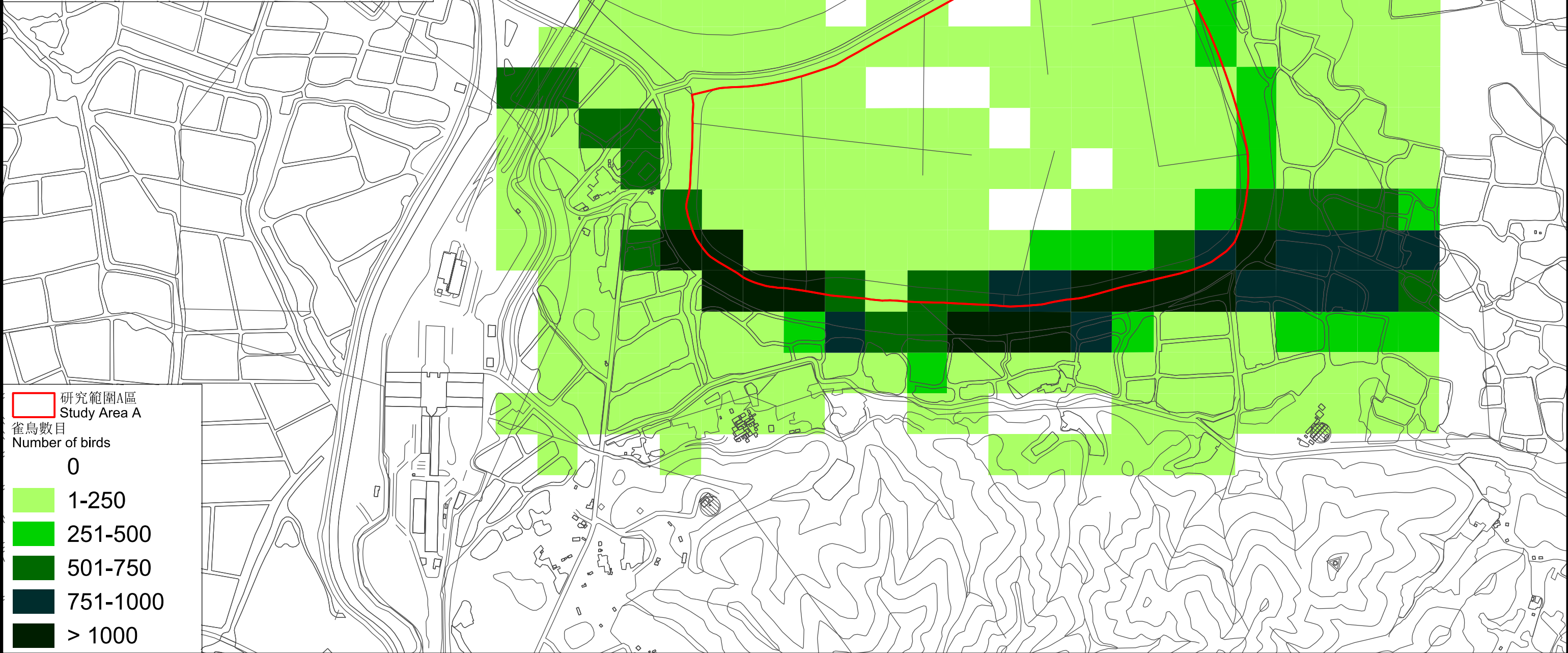
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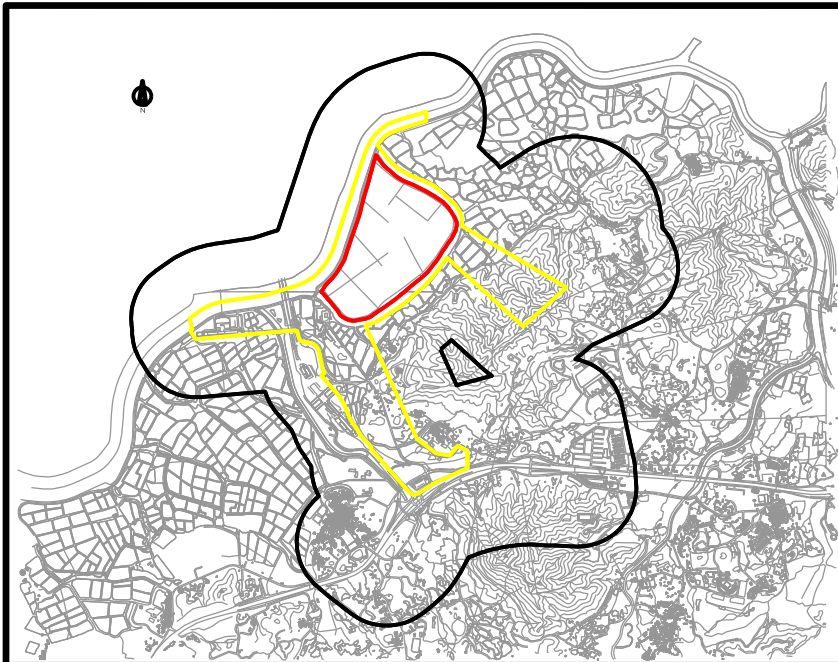




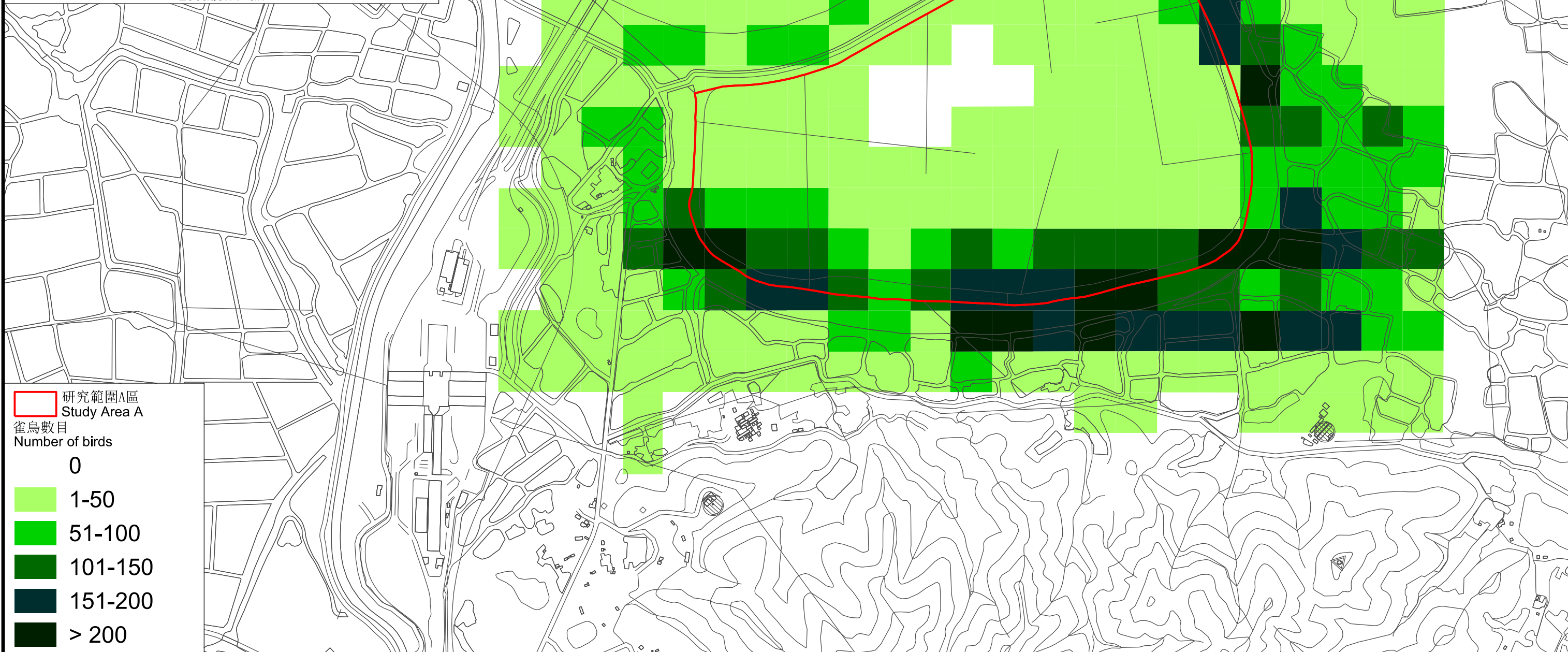
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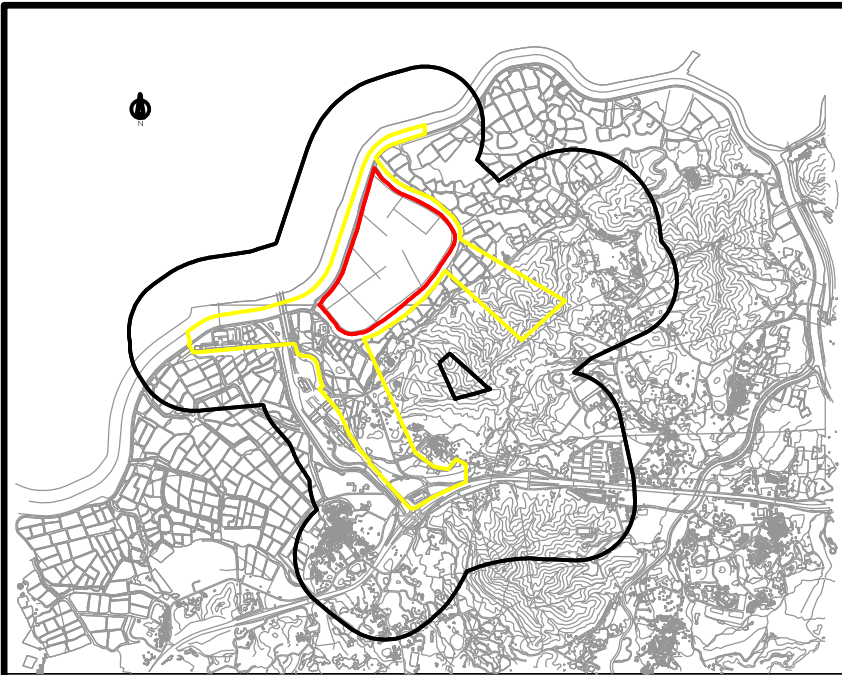


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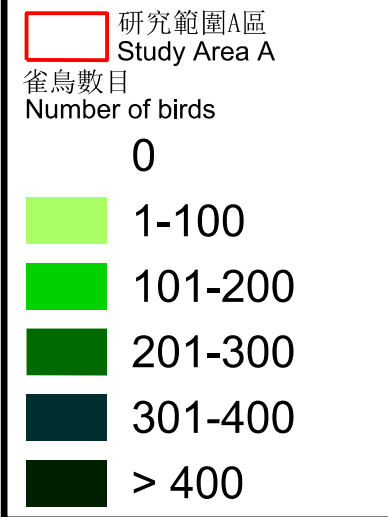
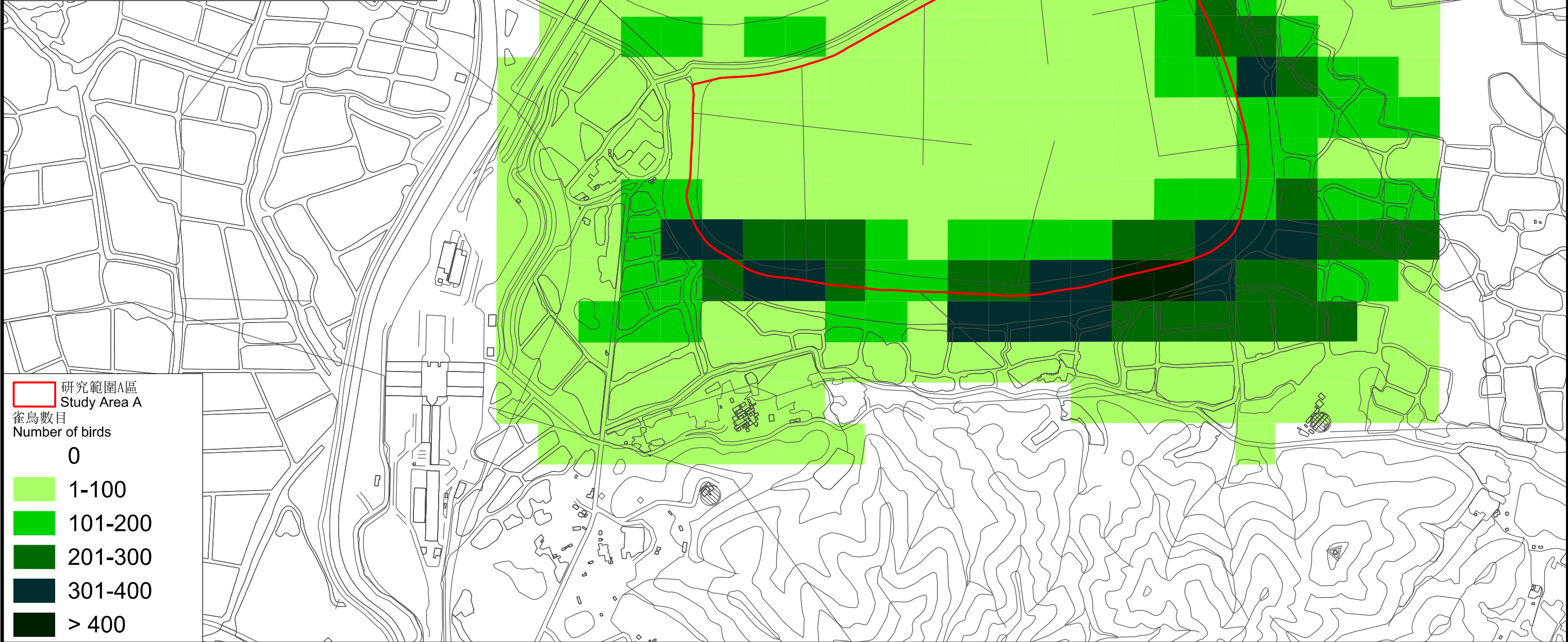


研究範圍A區  
 Study Area A  
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 Number of birds  
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 1-50  
 51-100  
 101-150  
 151-200  
 > 200

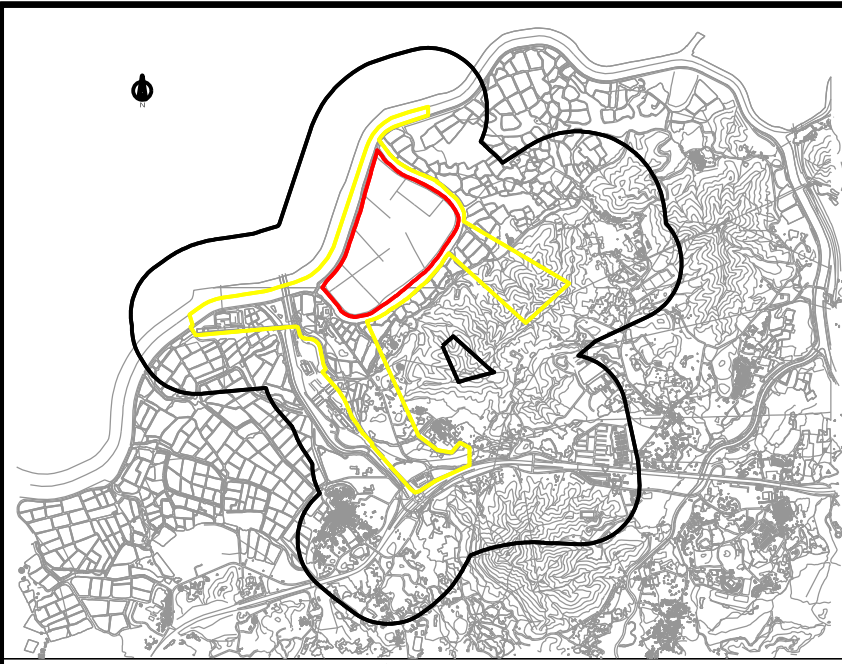




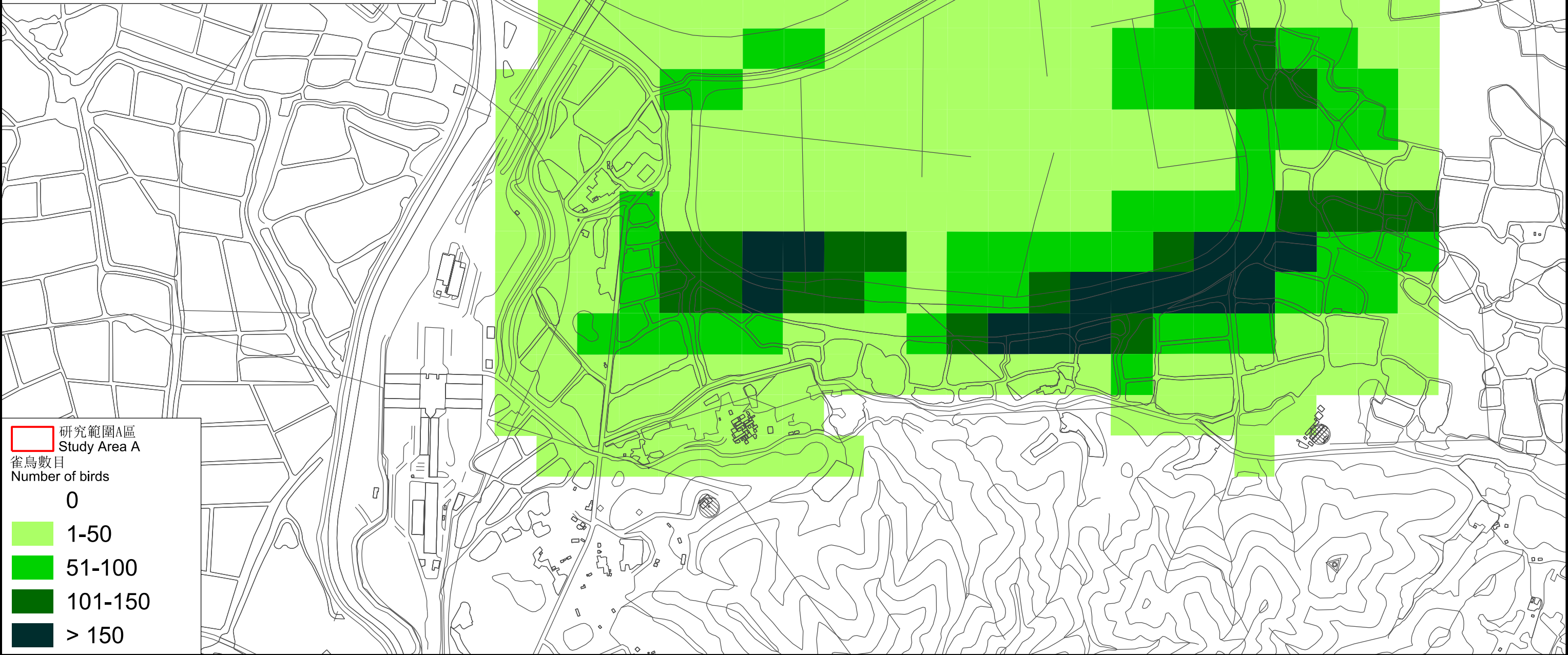
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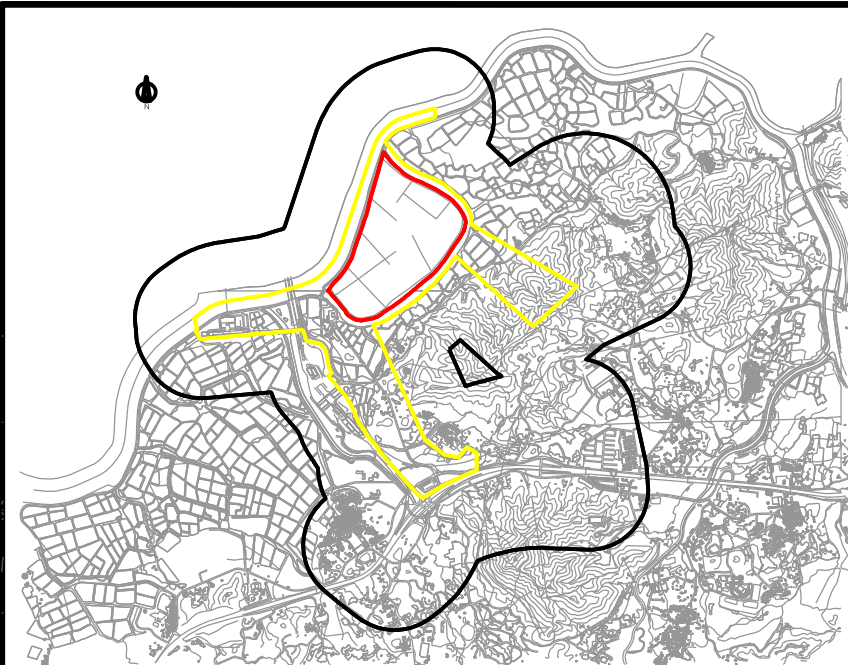


位置圖  
Location Plan

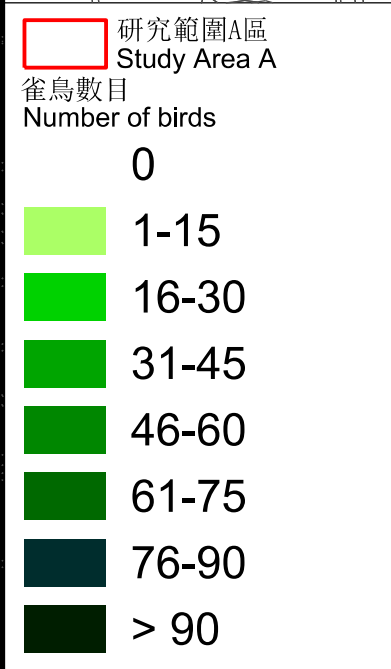
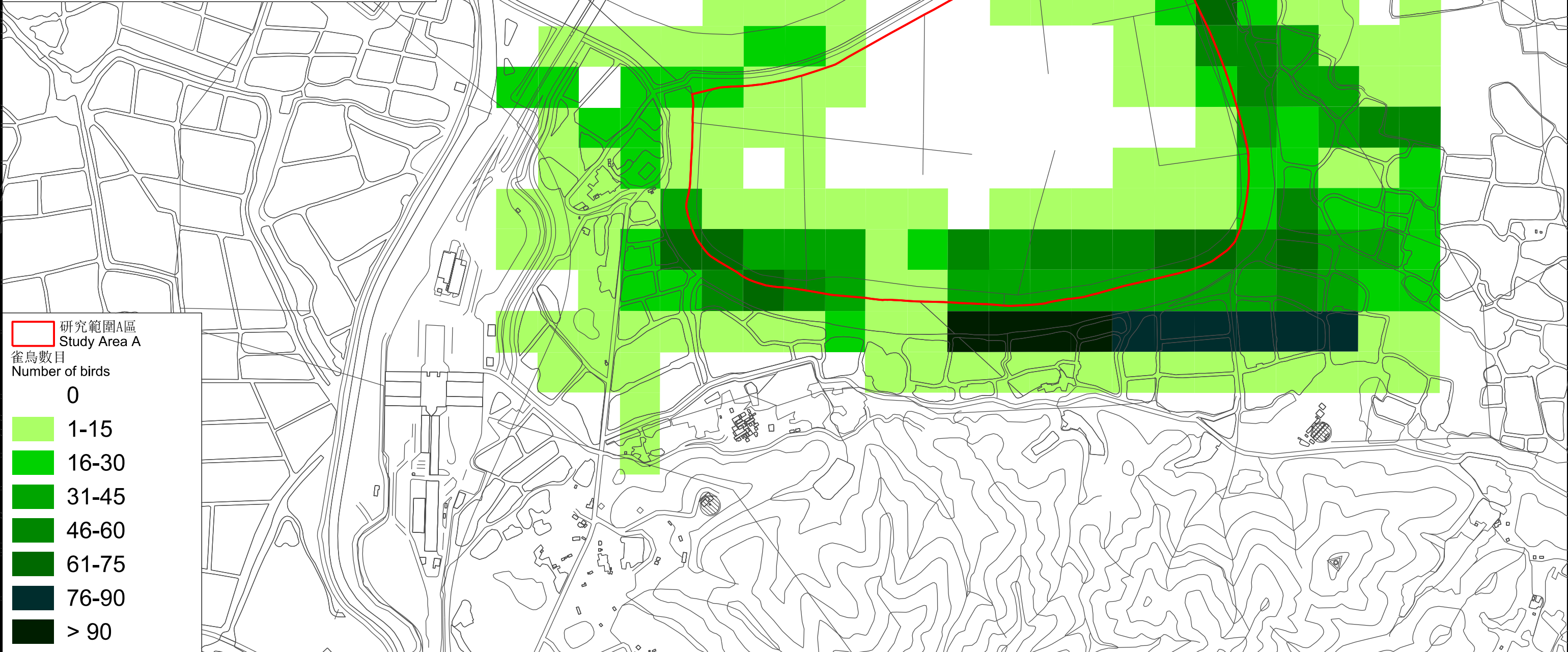


研究範圍A區  
 Study Area A  
 雀鳥數目  
 Number of birds  
 0  
 1-50  
 51-100  
 101-150  
 > 150

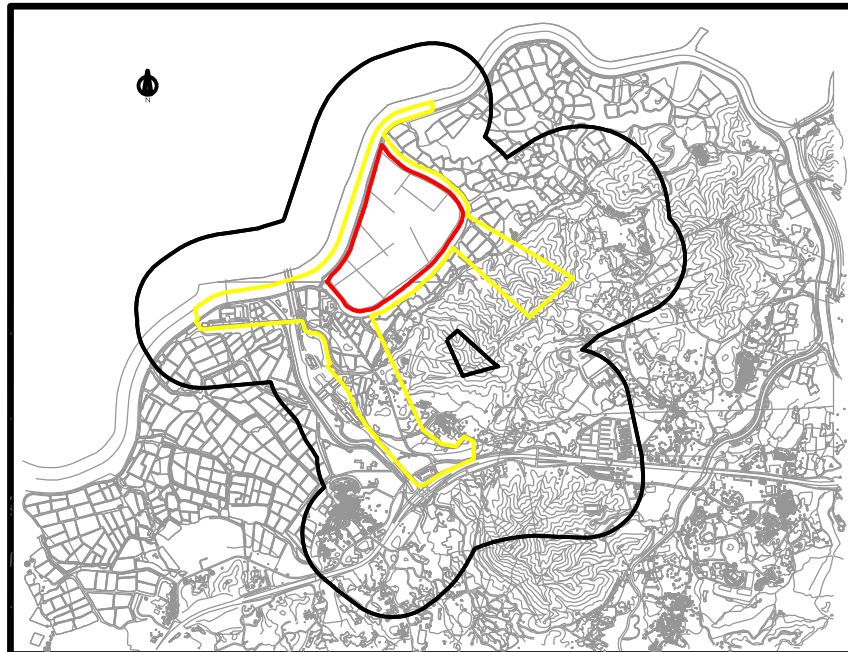




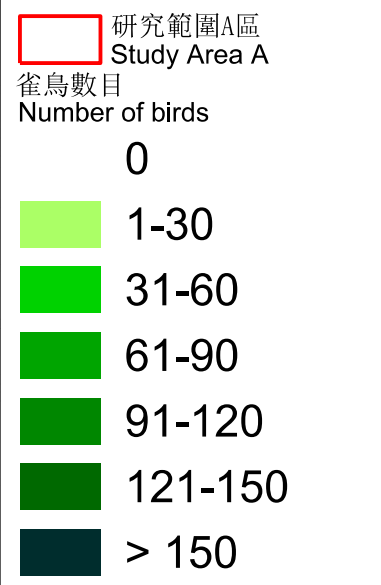
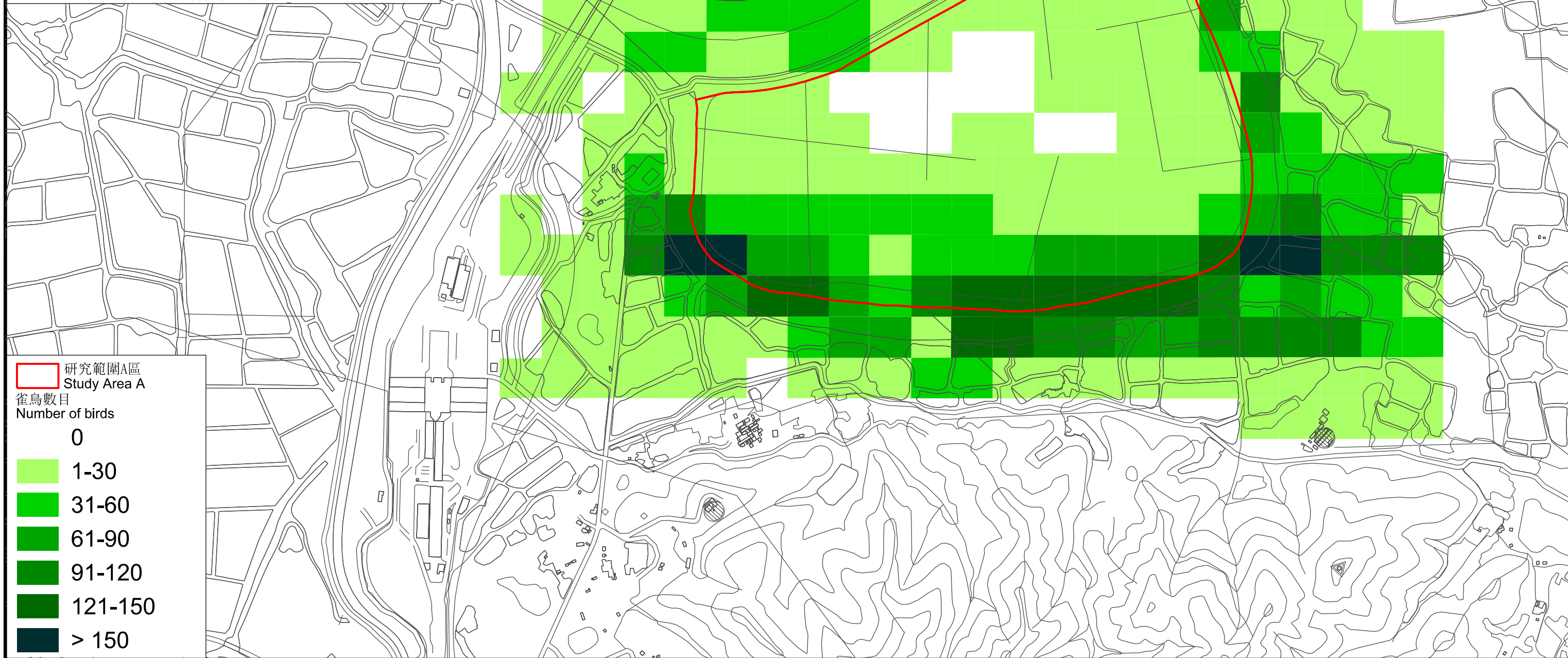
位置圖  
Location Plan



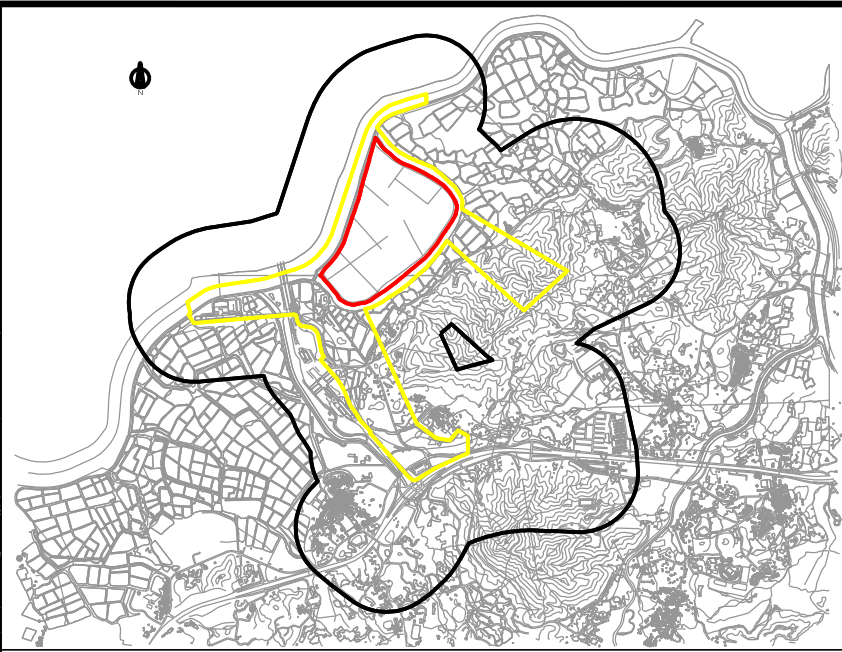




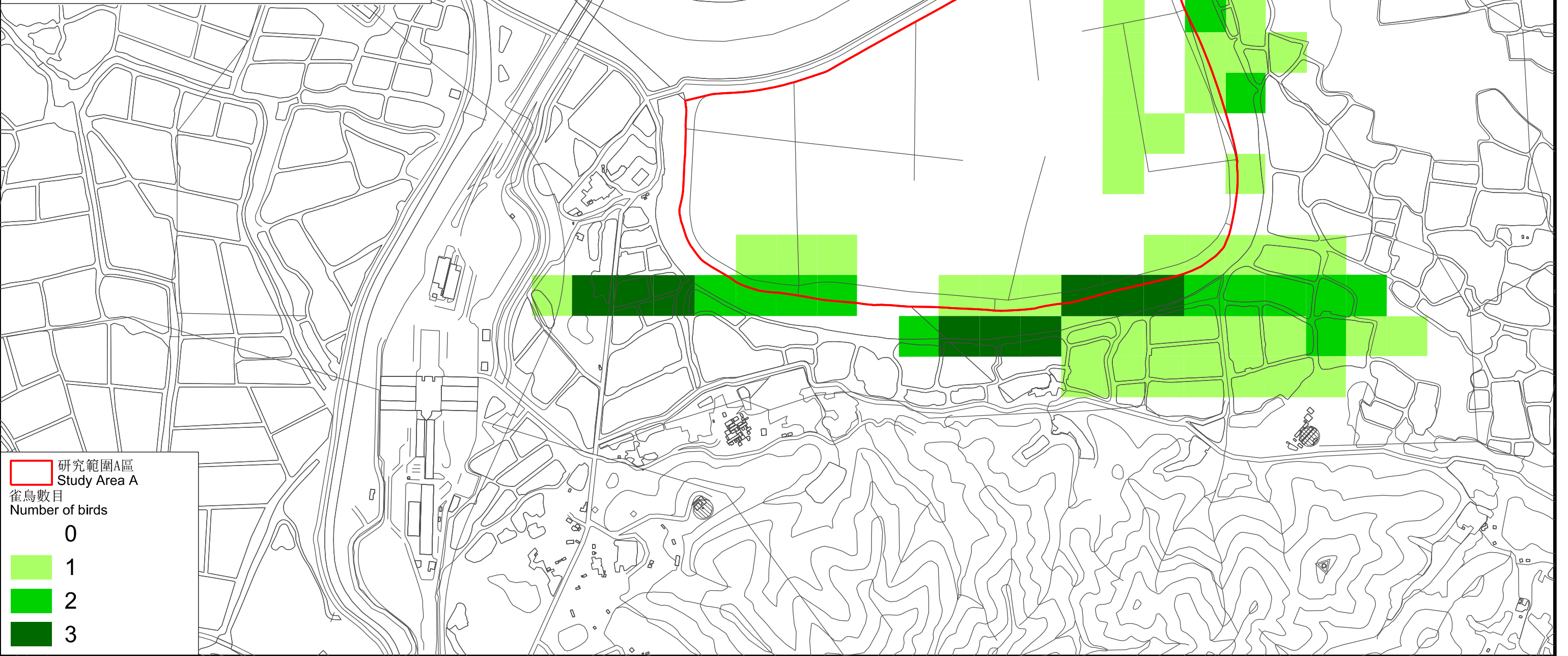
位置圖  
Location Plan







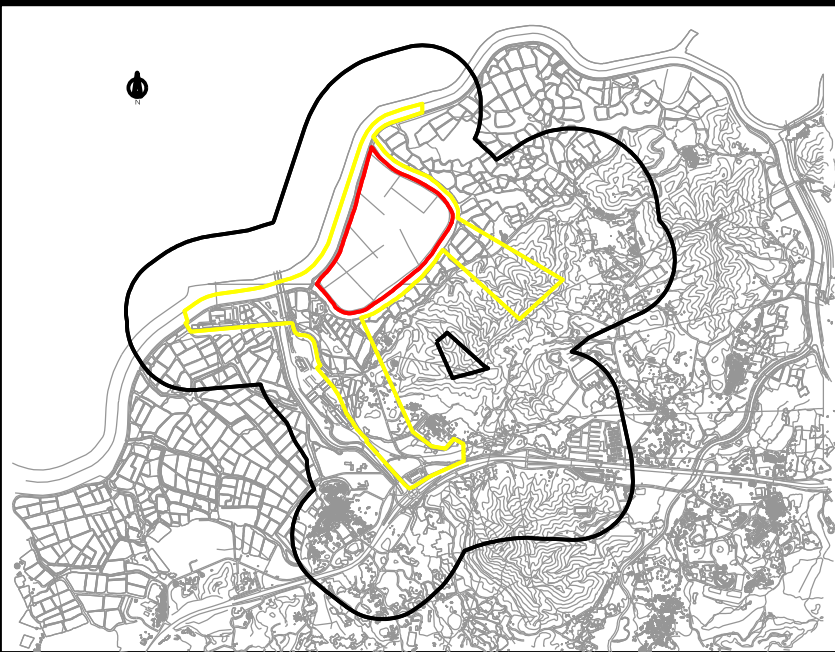
位置圖  
Location Plan



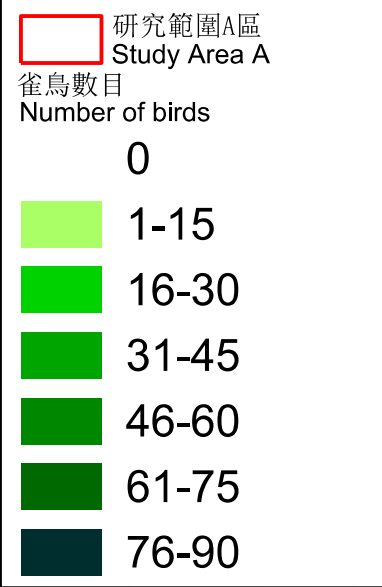
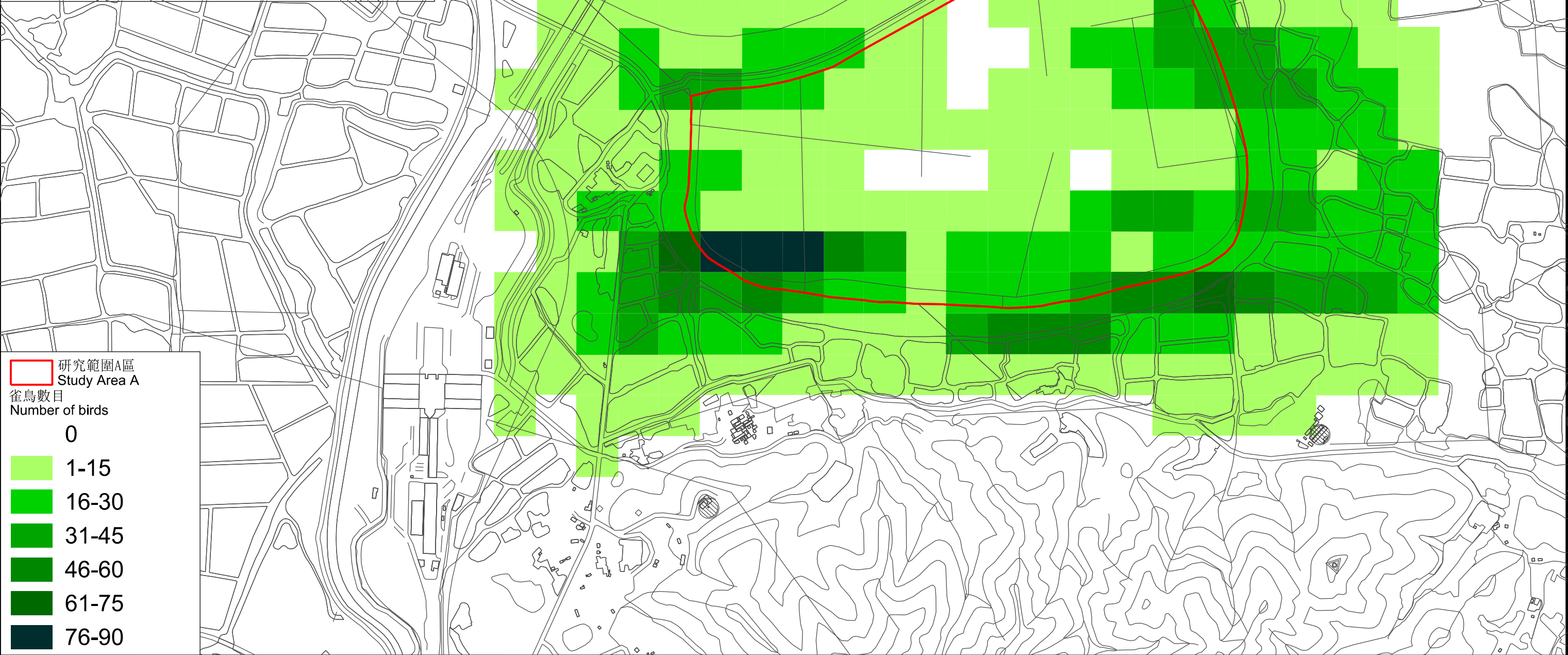
研究範圍A區  
 Study Area A  
 雀鳥數目  
 Number of birds  
 0  
 1  
 2  
 3



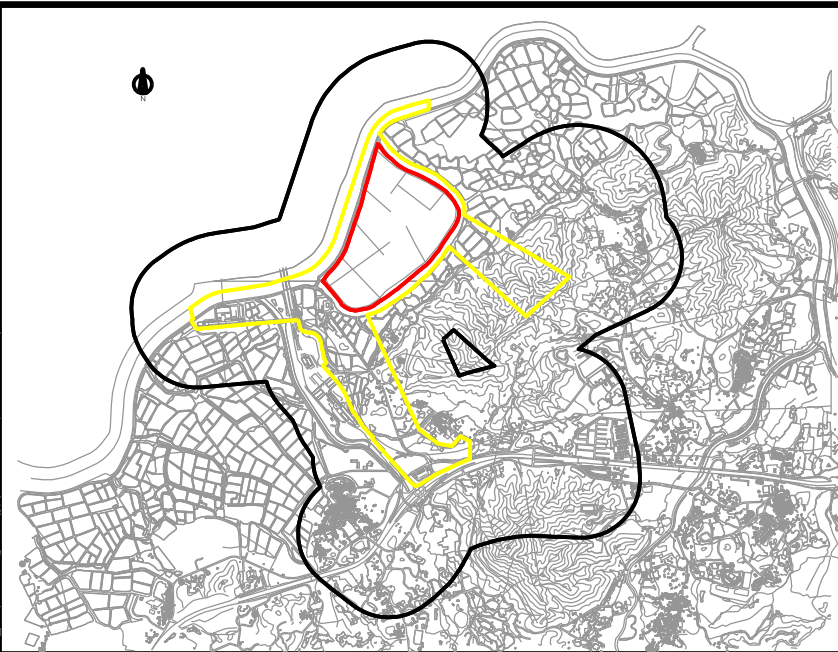




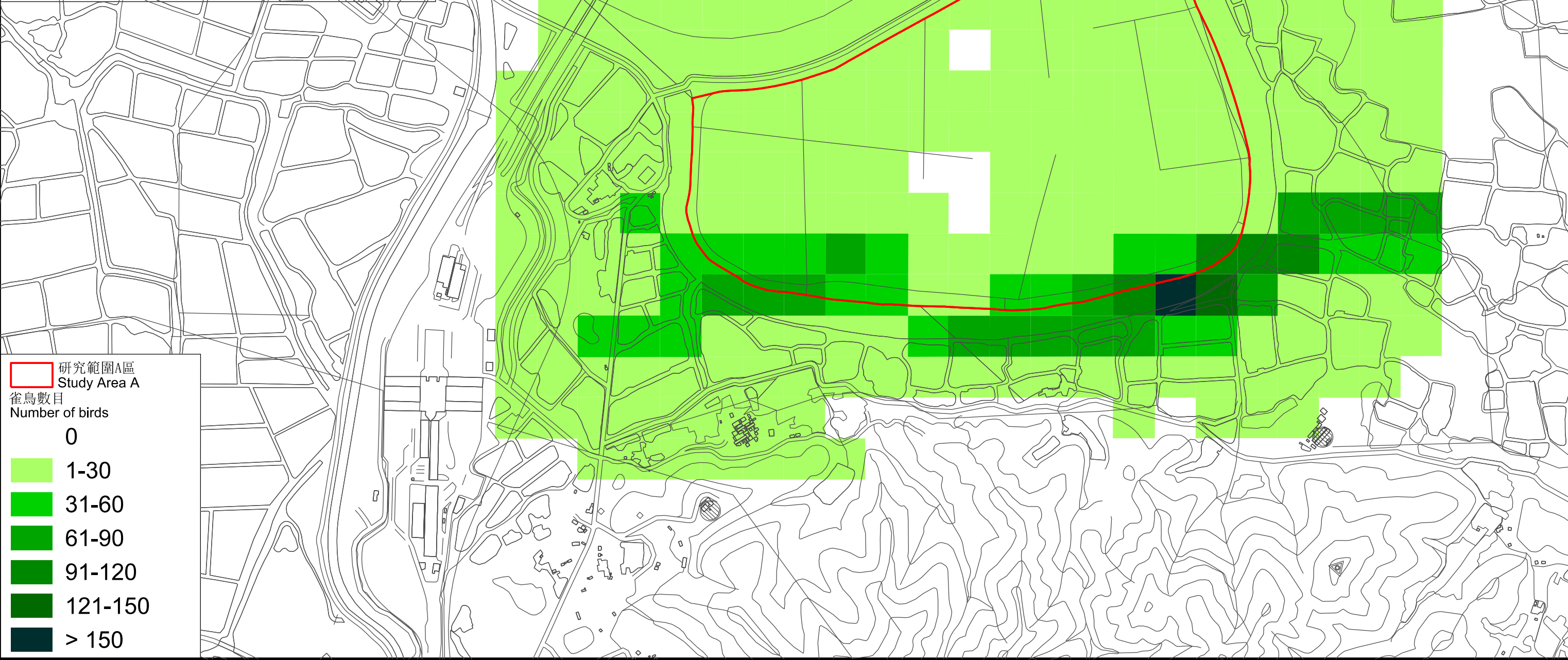
位置圖  
Location Plan





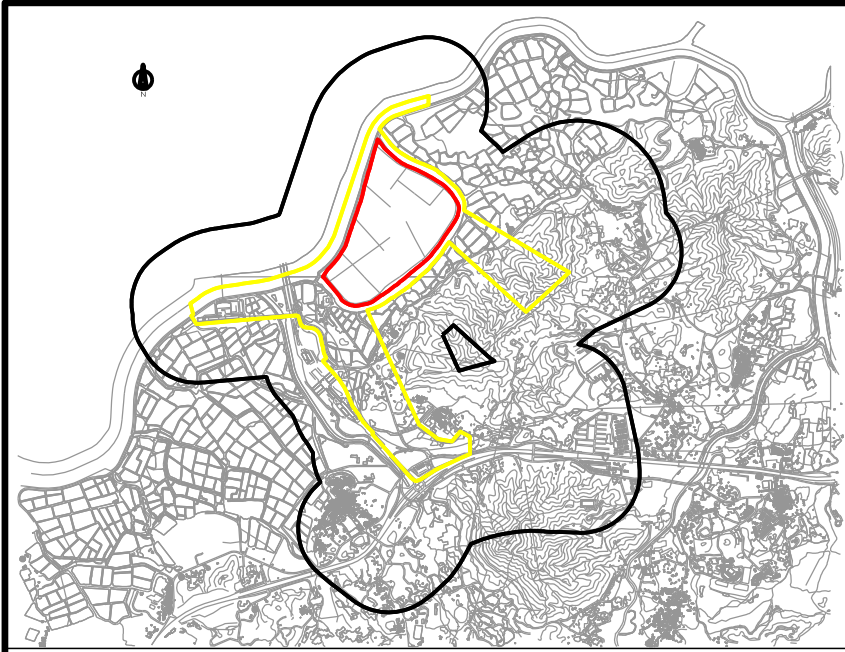


位置圖  
Location Plan

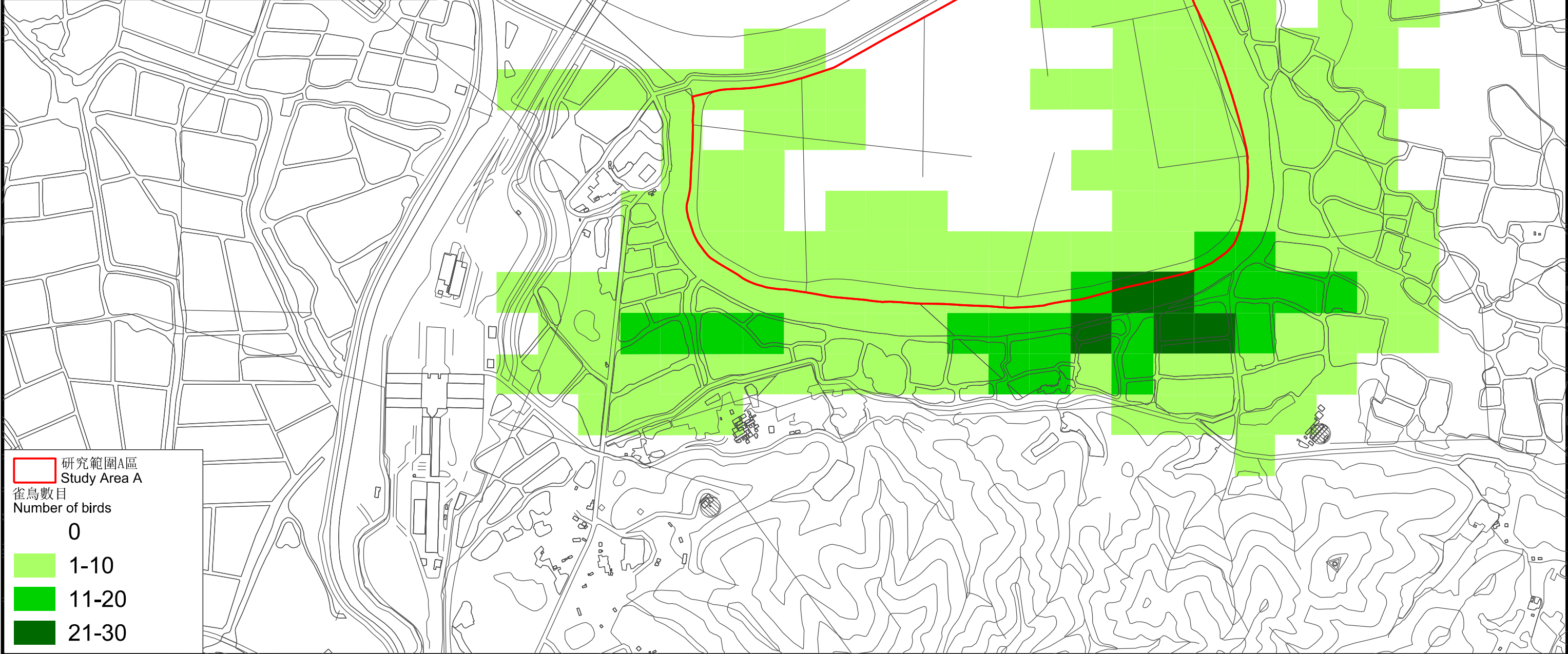


研究範圍A區  
 Study Area A  
 雀鳥數目  
 Number of birds  
 0  
 1-30  
 31-60  
 61-90  
 91-120  
 121-150  
 > 150



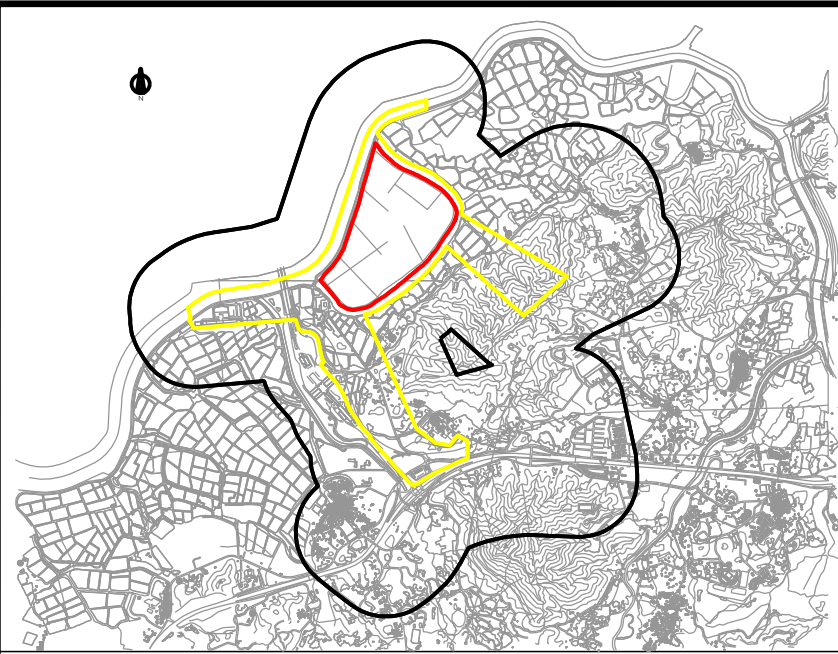


位置圖  
Location Plan

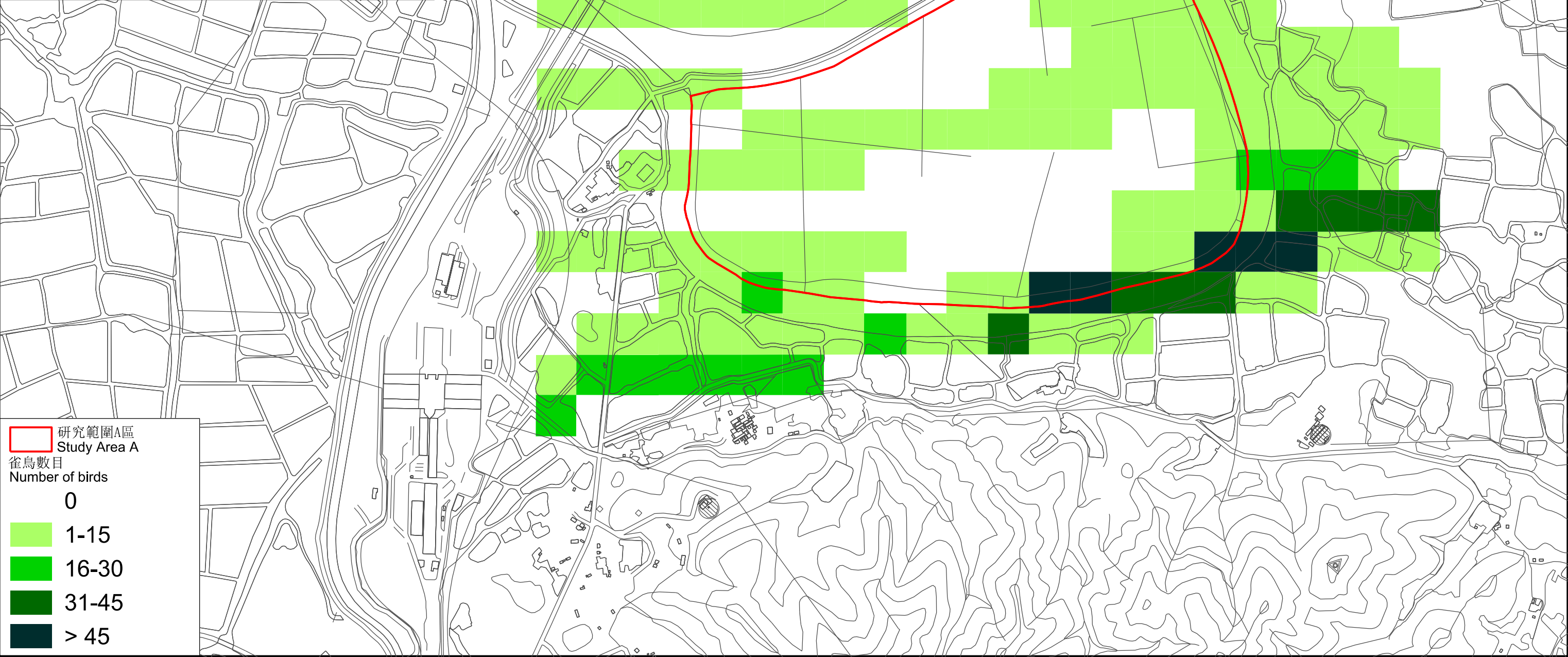


研究範圍A區  
 Study Area A  
 雀鳥數目  
 Number of birds  
 0  
 1-10  
 11-20  
 21-30



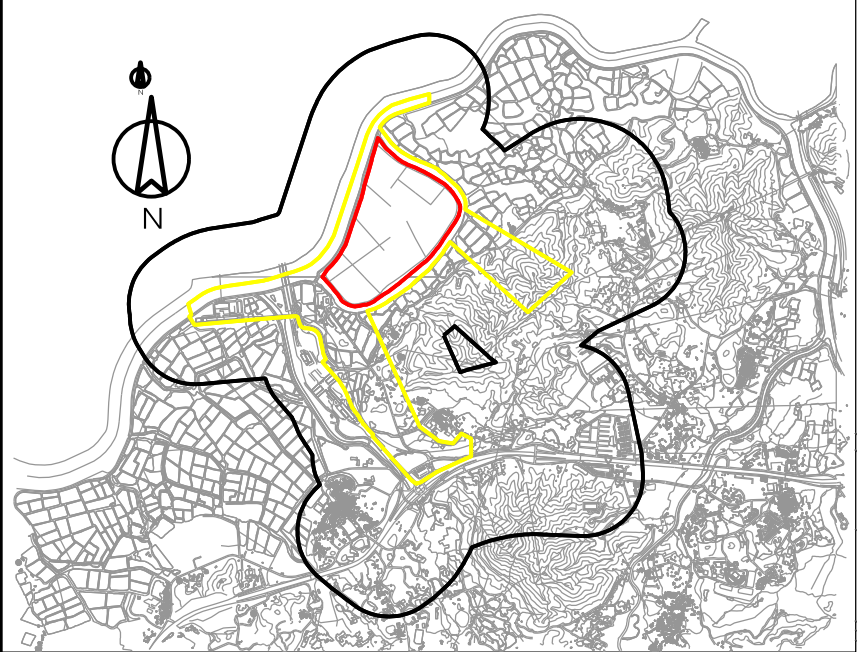


位置圖  
Location Plan

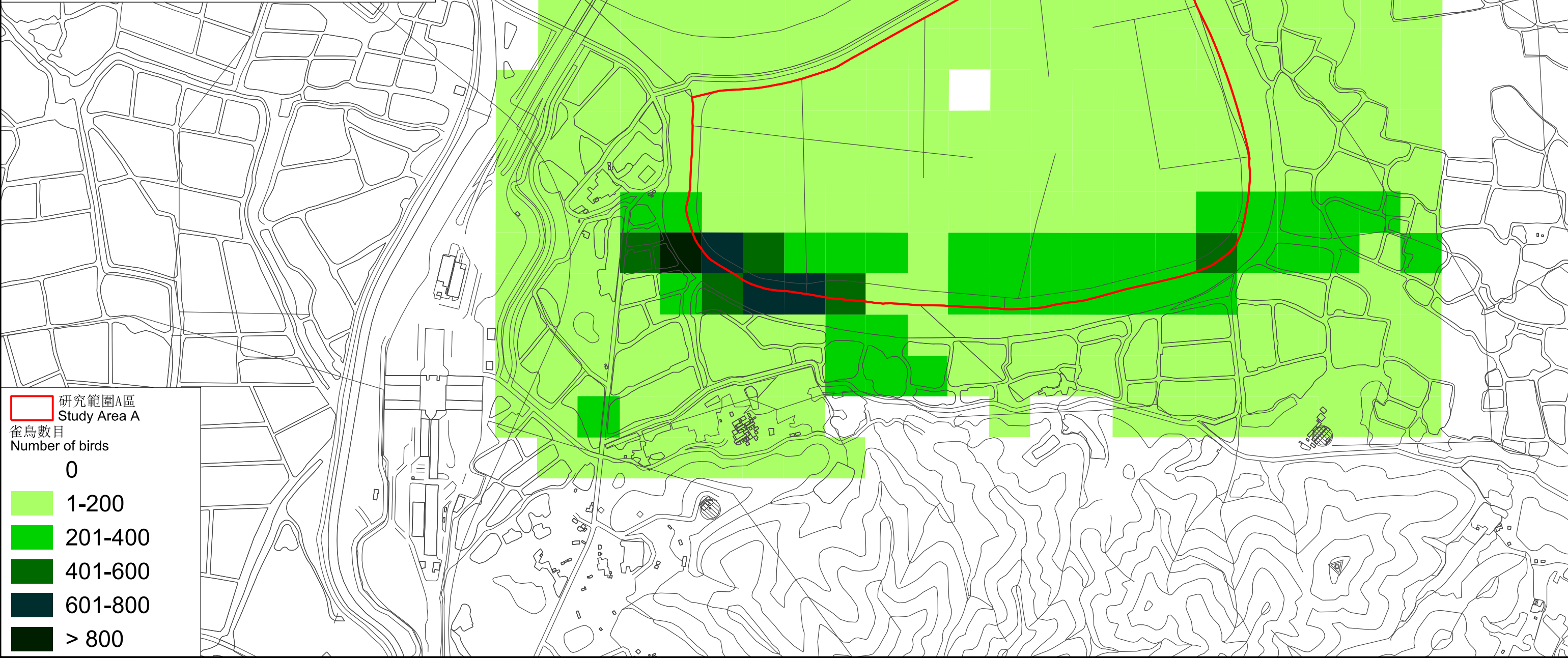


研究範圍A區  
 Study Area A  
 雀鳥數目  
 Number of birds  
 0  
 1-15  
 16-30  
 31-45  
 > 45





位置圖  
Location Plan

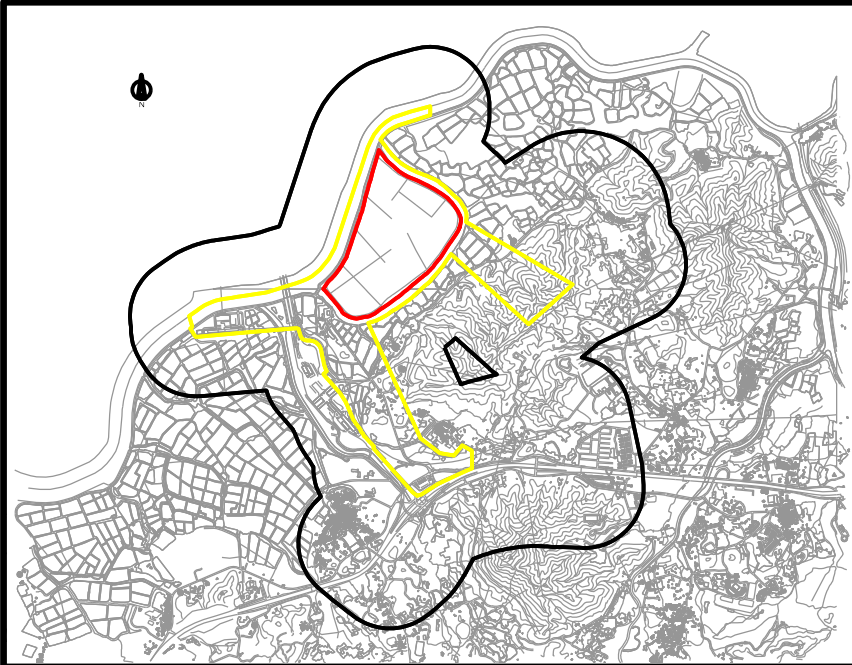


研究範圍A區  
Study Area A

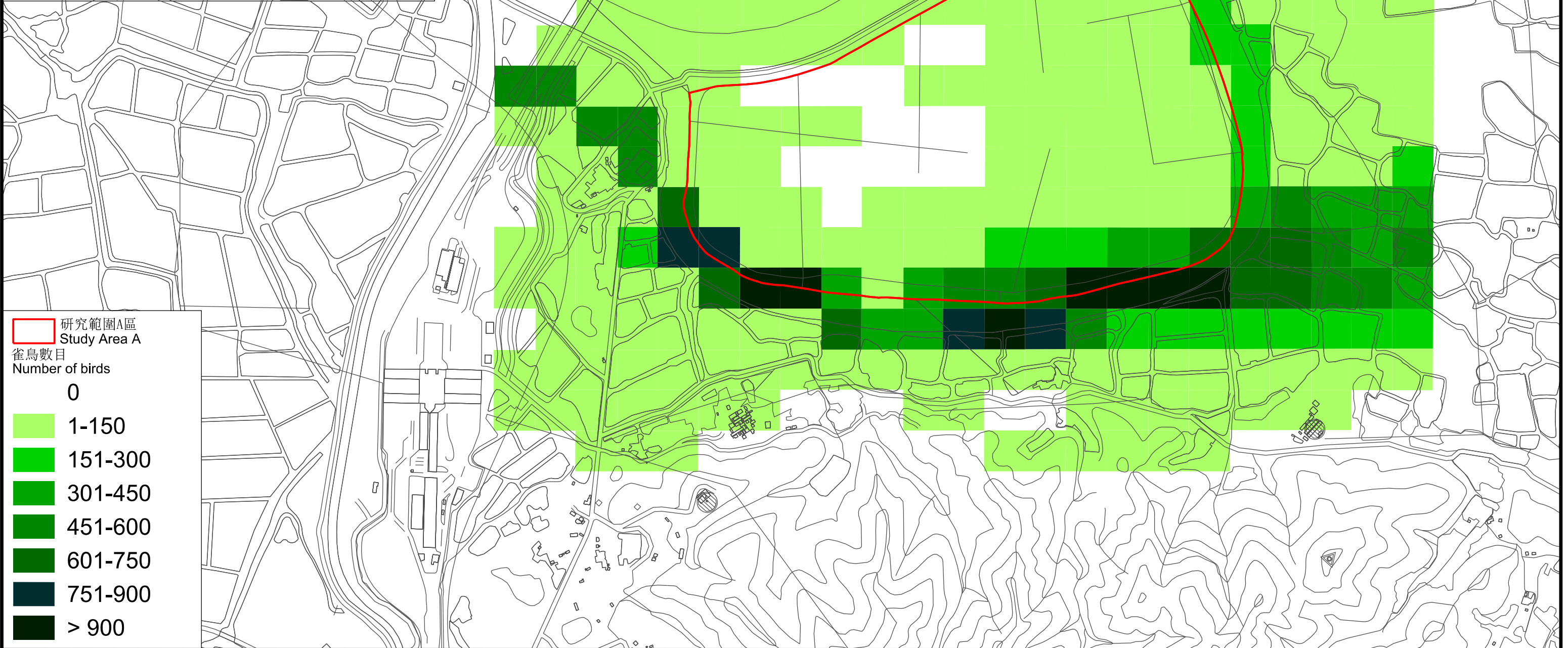
雀鳥數目  
Number of birds

	0
	1-200
	201-400
	401-600
	601-800
	> 800



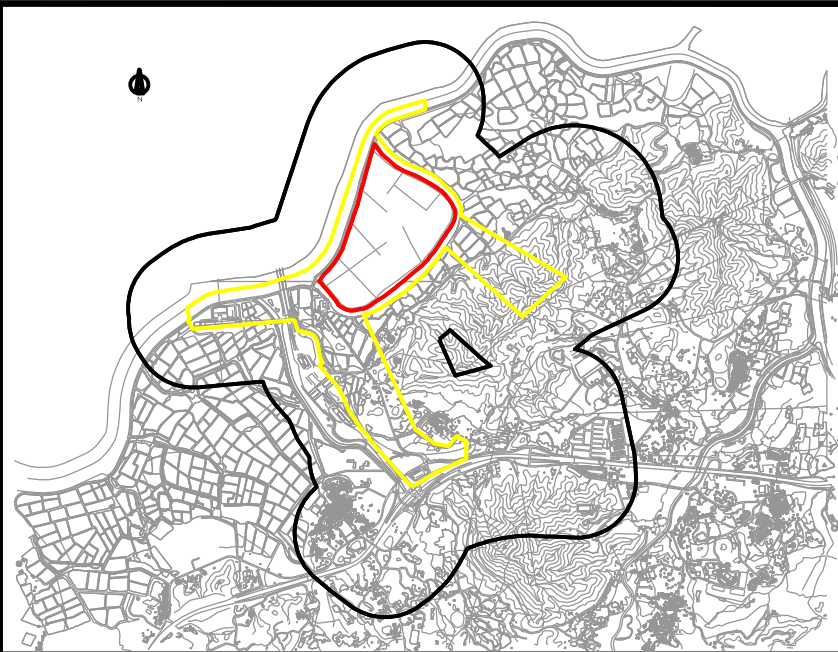


位置圖  
Location Plan

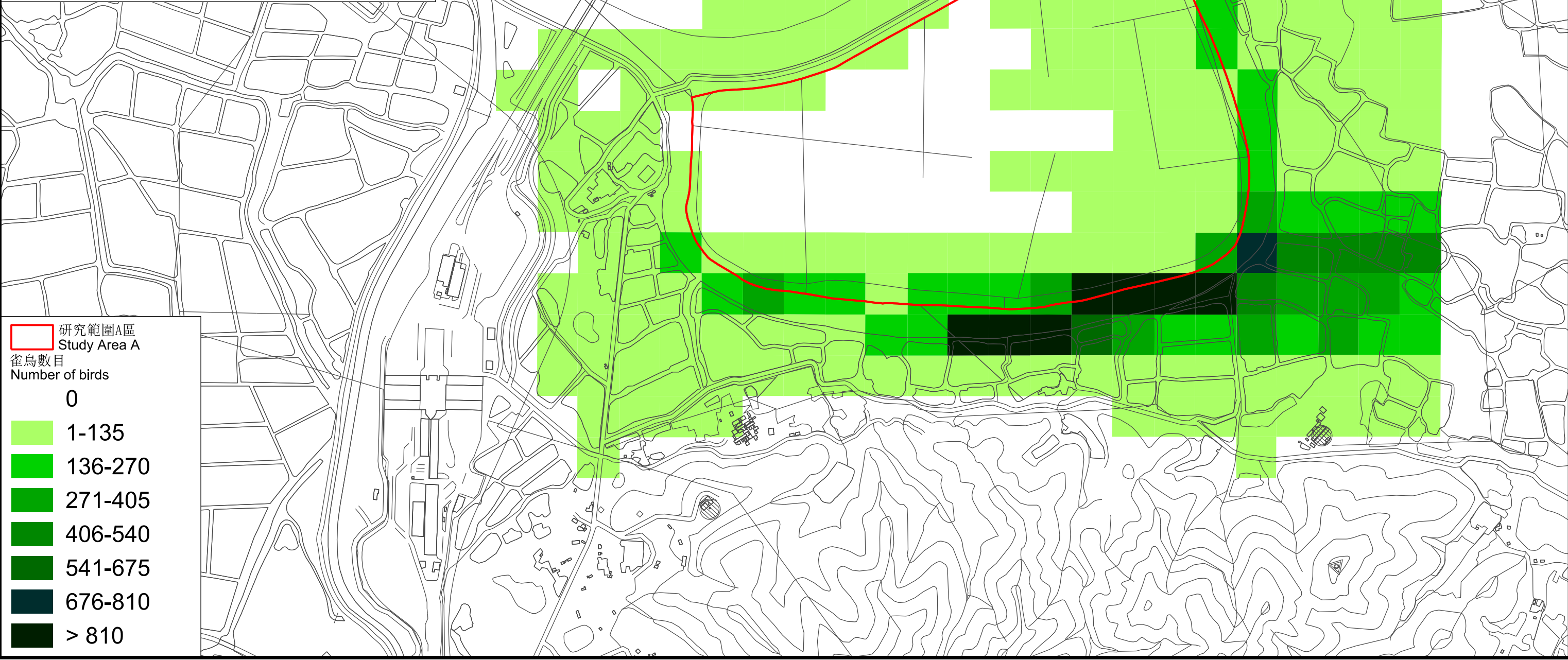


研究範圍A區  
 Study Area A  
 雀鳥數目  
 Number of birds  
 0  
 1-150  
 151-300  
 301-450  
 451-600  
 601-750  
 751-900  
 > 900



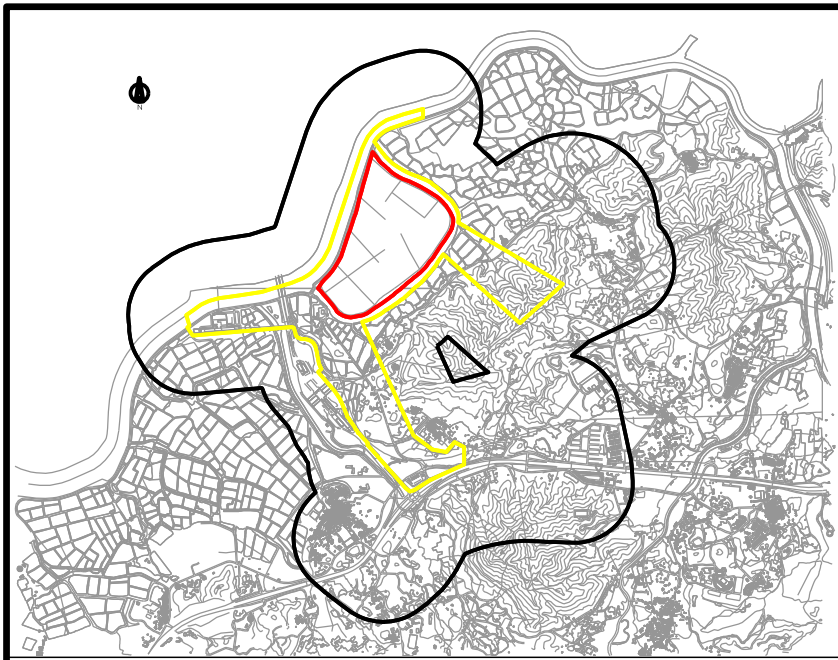


位置圖  
Location Plan

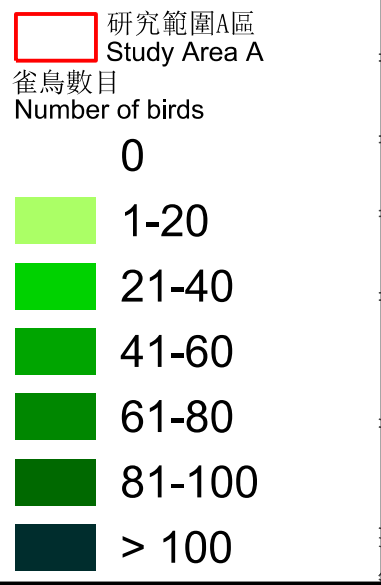
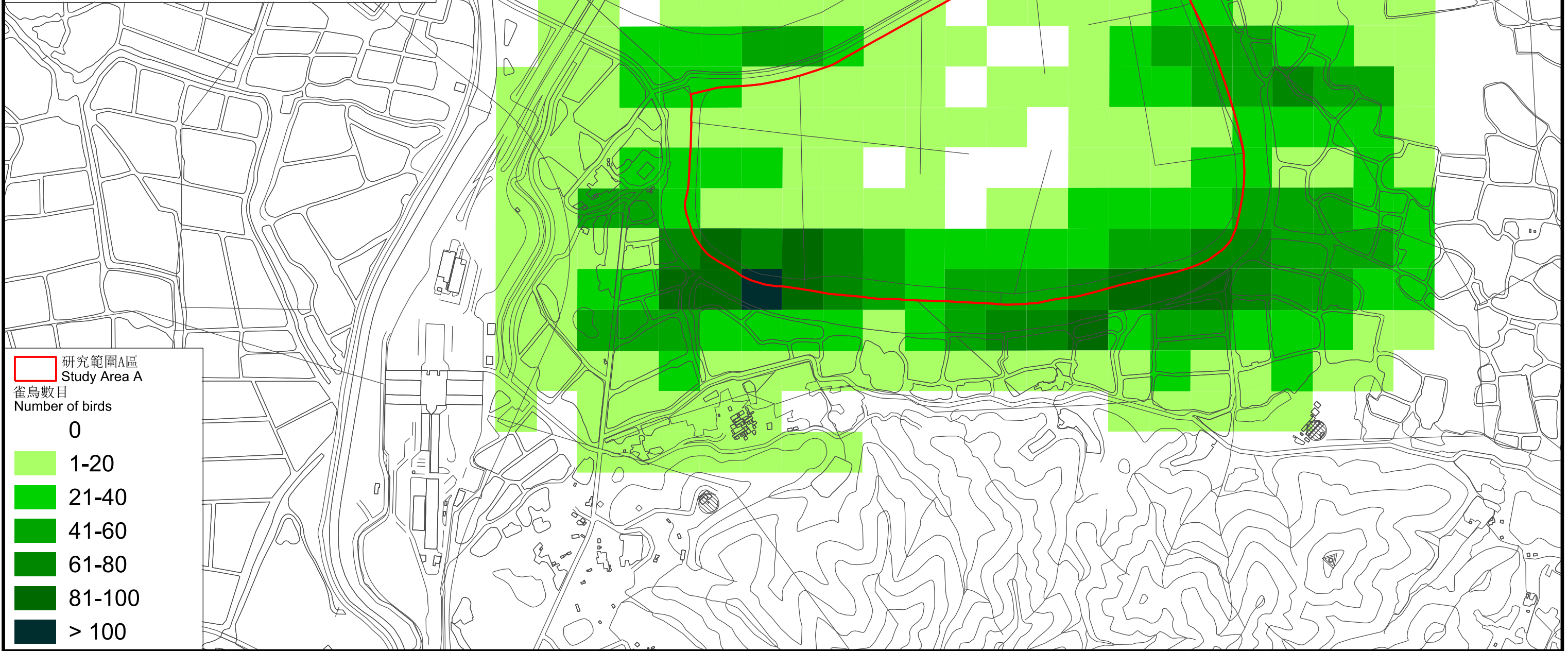


研究範圍A區  
 Study Area A  
 雀鳥數目  
 Number of birds  
 0  
 1-135  
 136-270  
 271-405  
 406-540  
 541-675  
 676-810  
 > 810

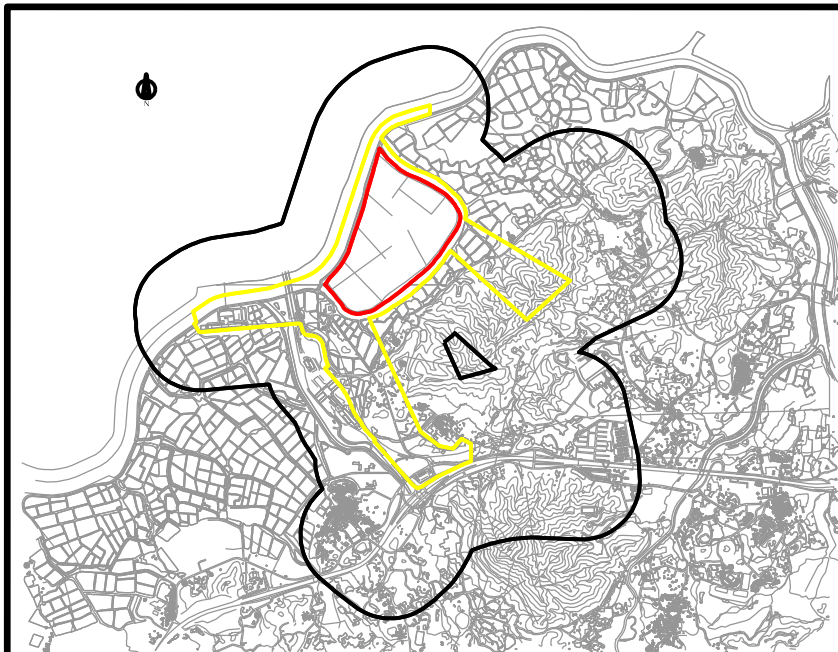




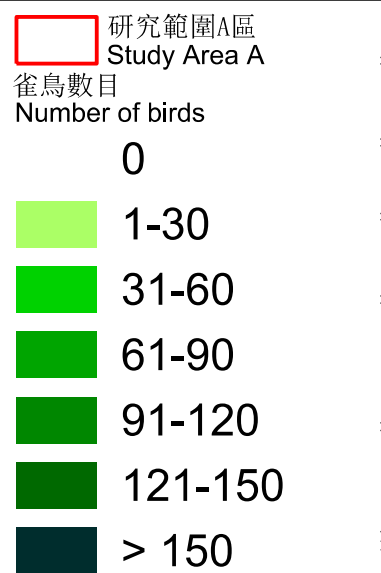
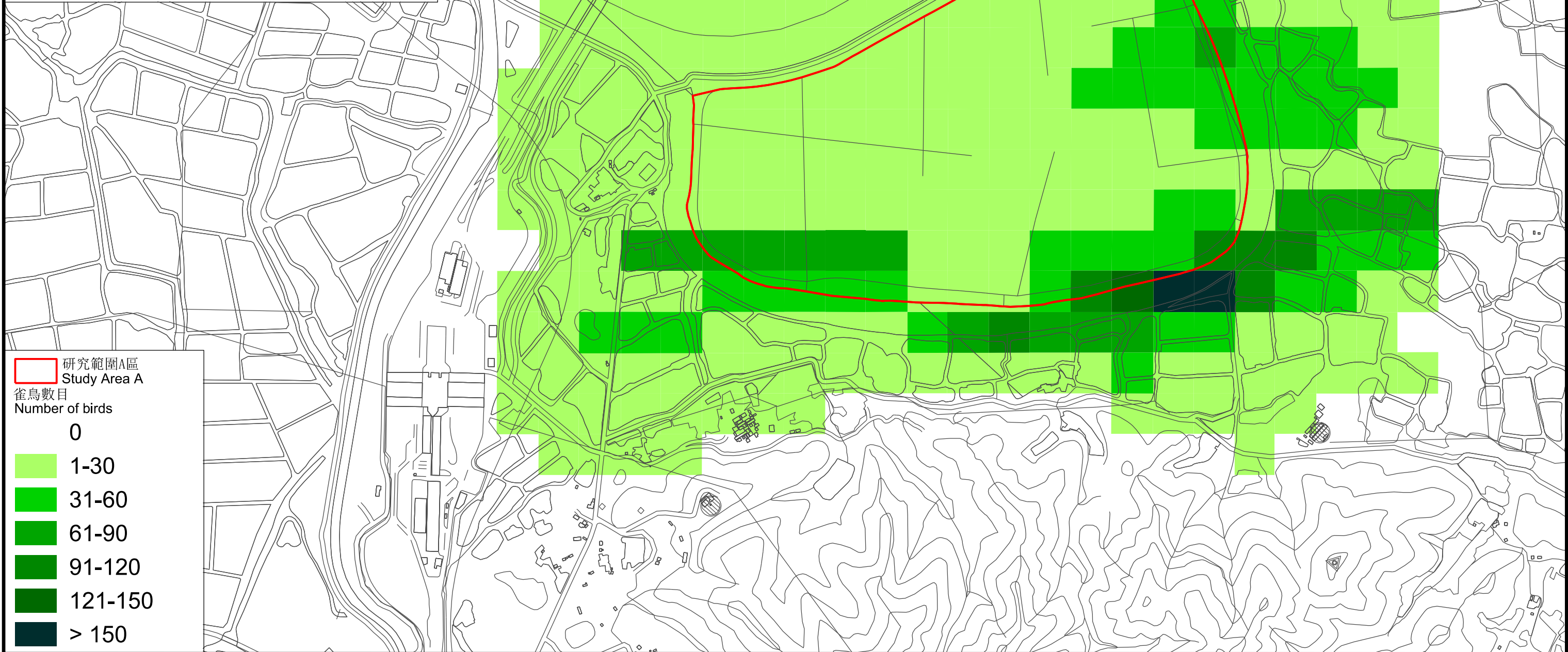
位置圖  
Location Plan



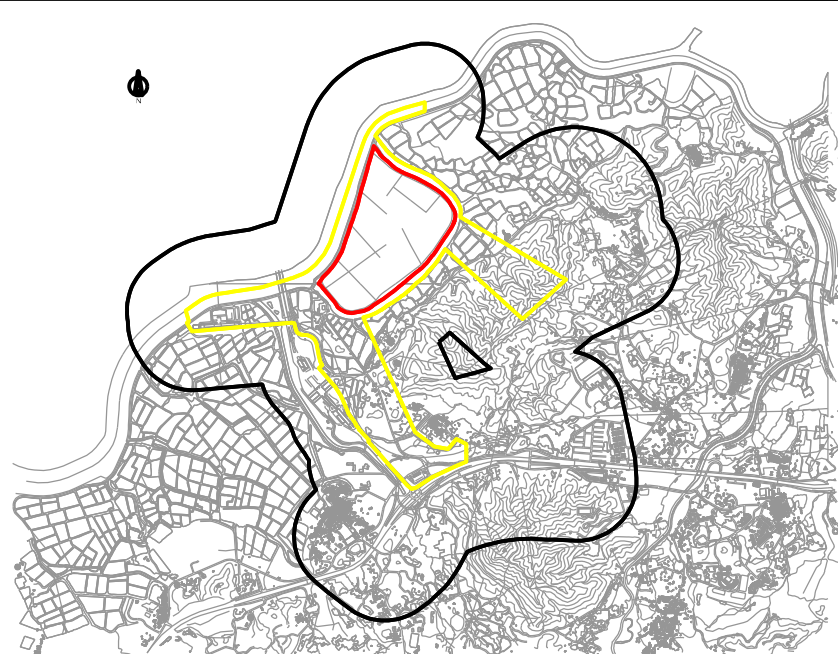




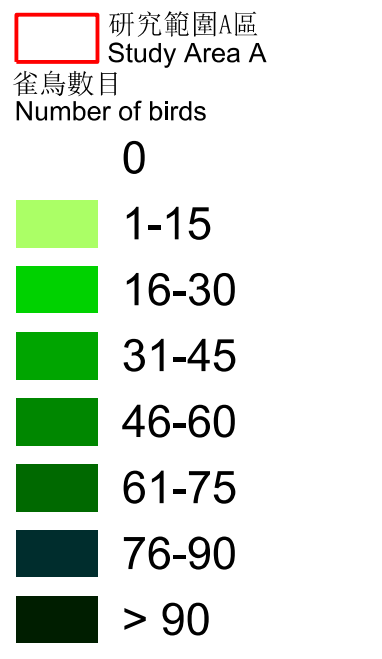
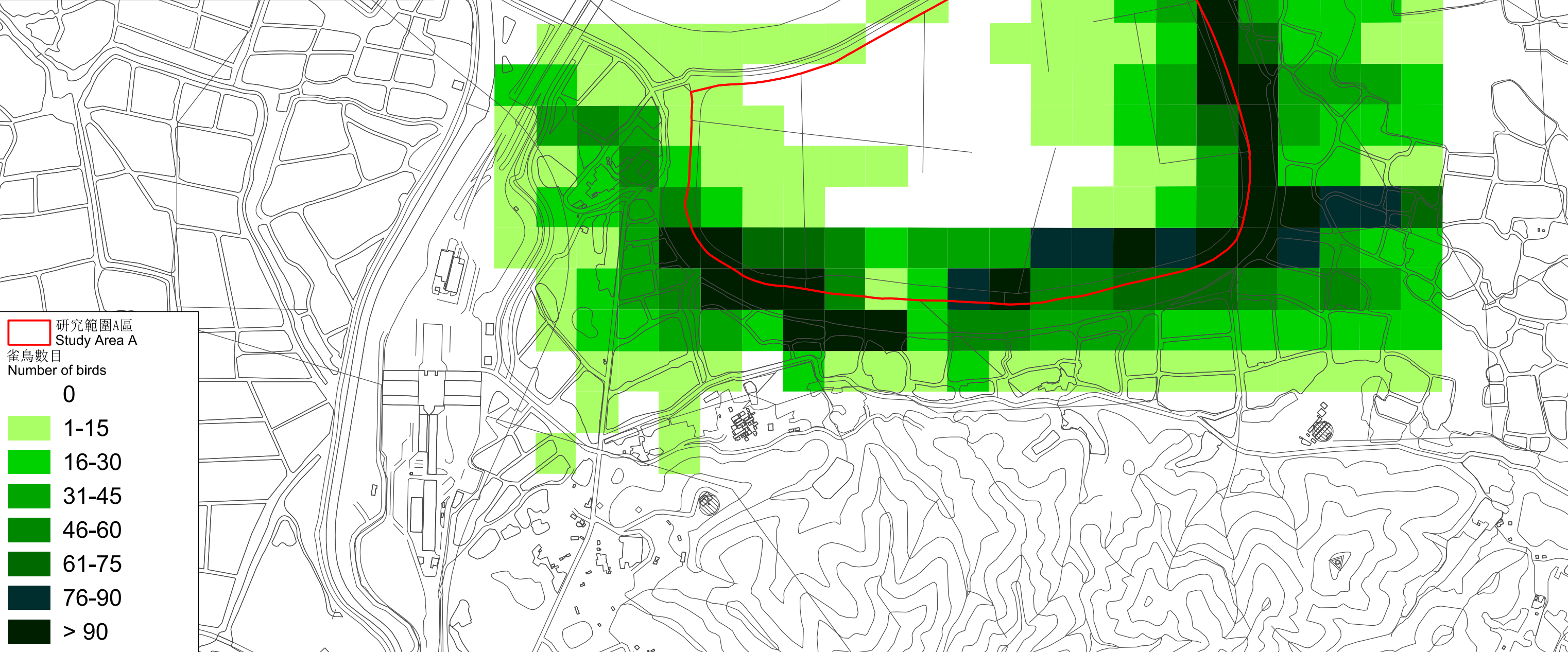
位置圖  
Location Plan



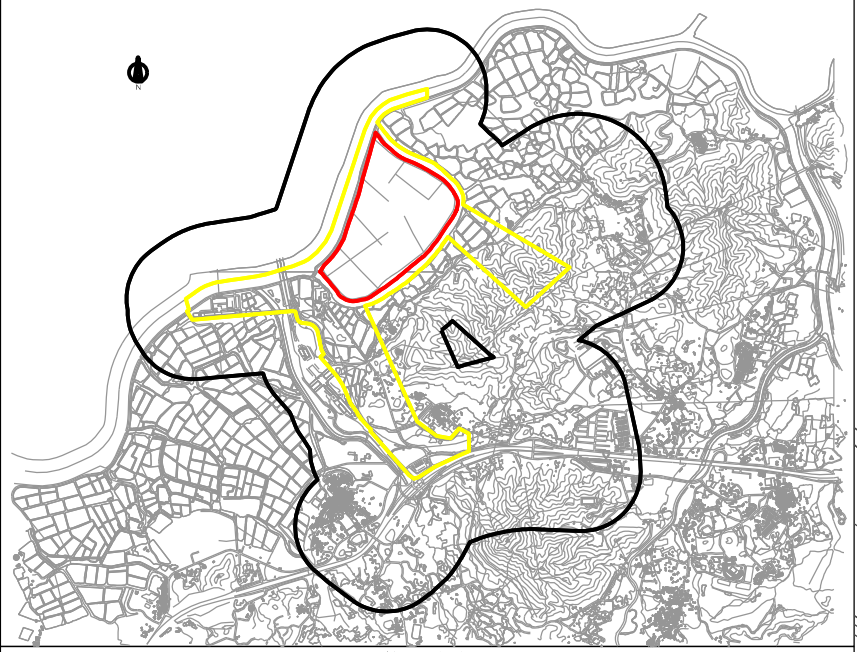




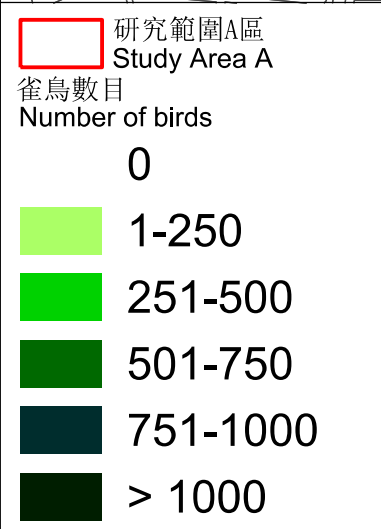
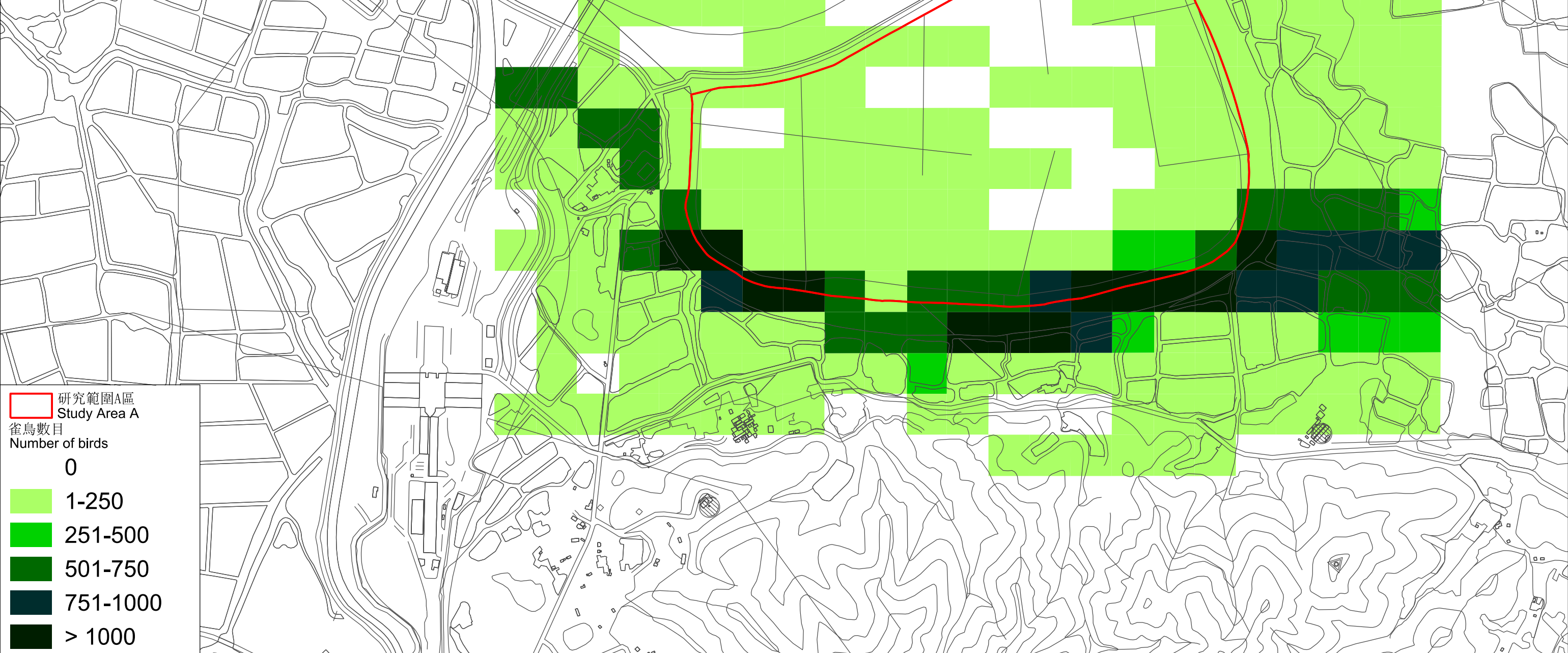
位置圖  
Location Plan



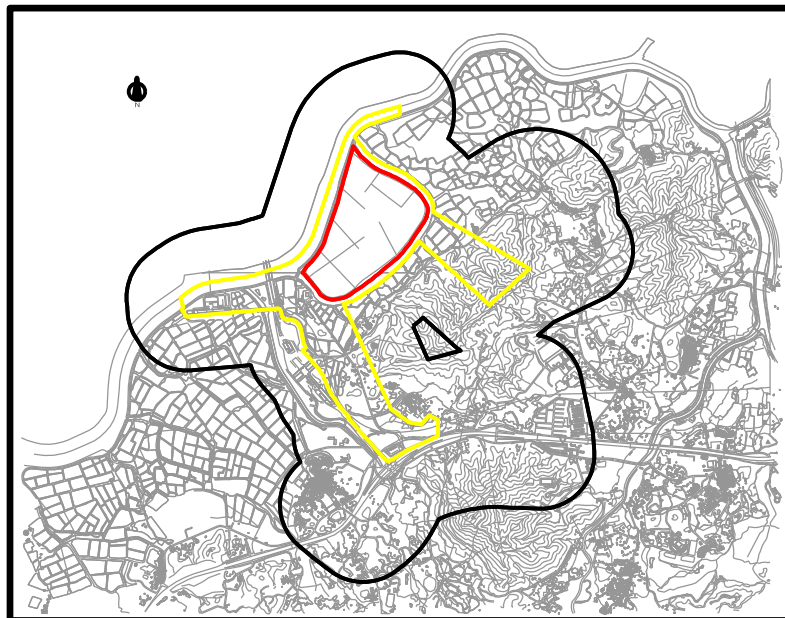




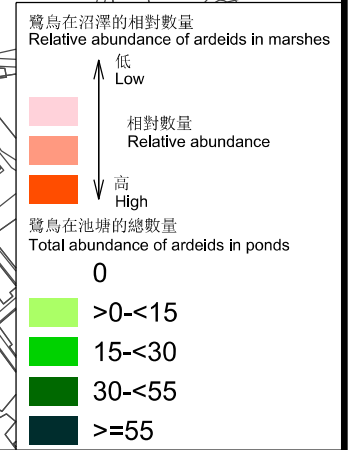
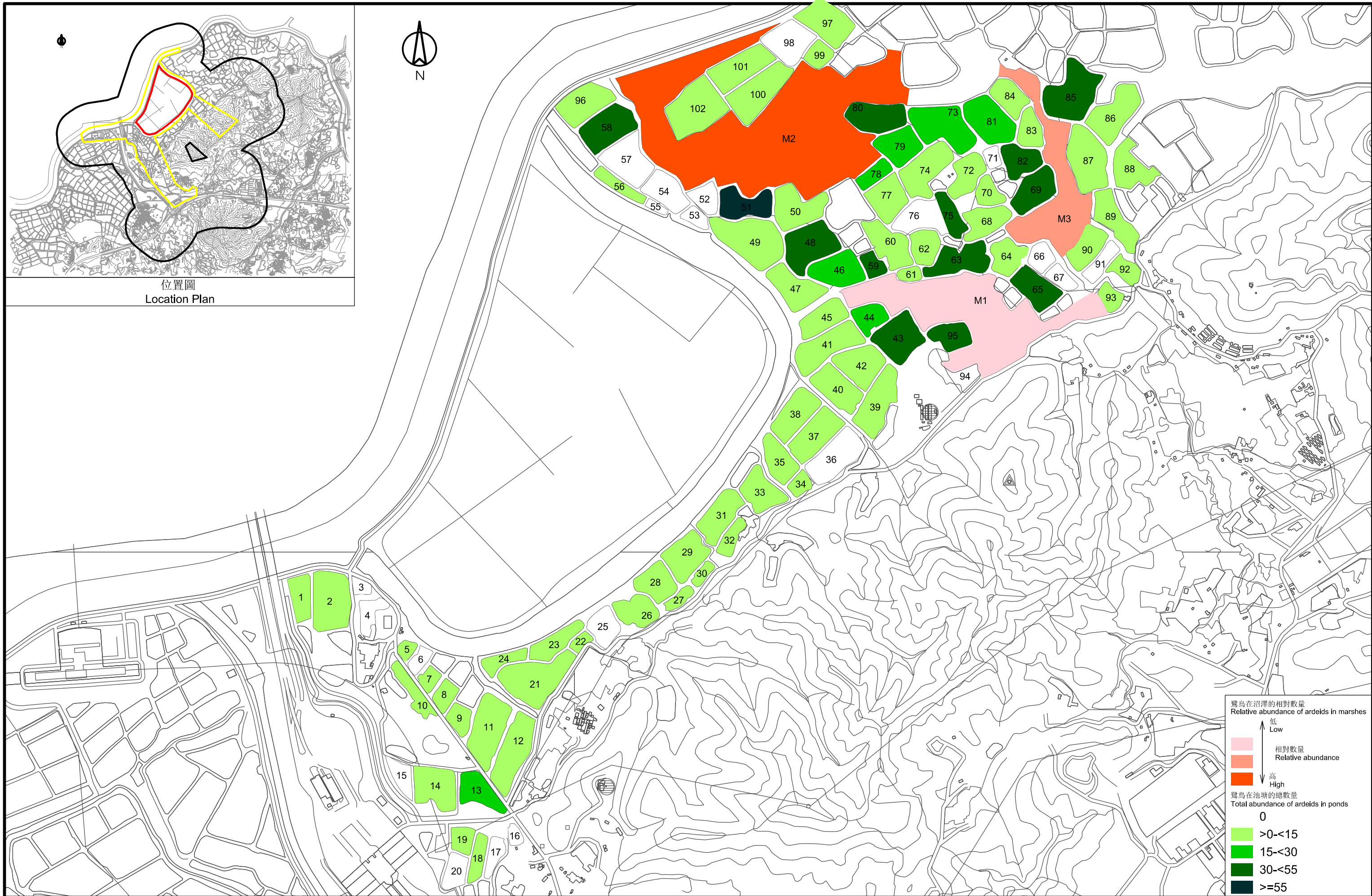
位置圖  
Location Plan



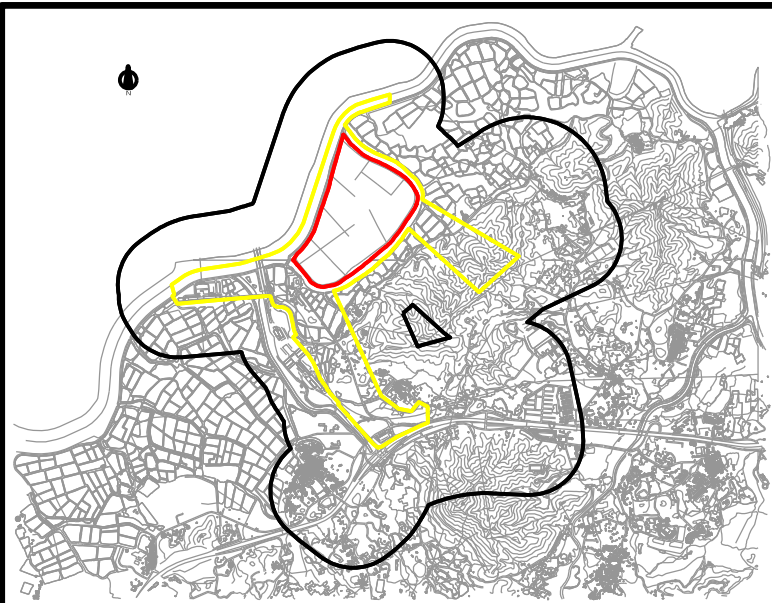




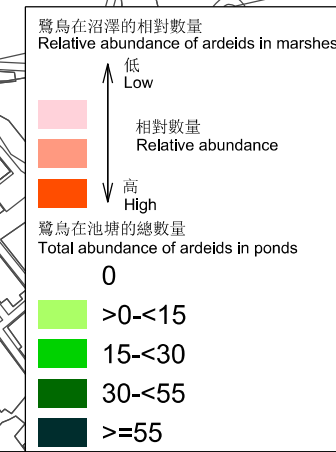
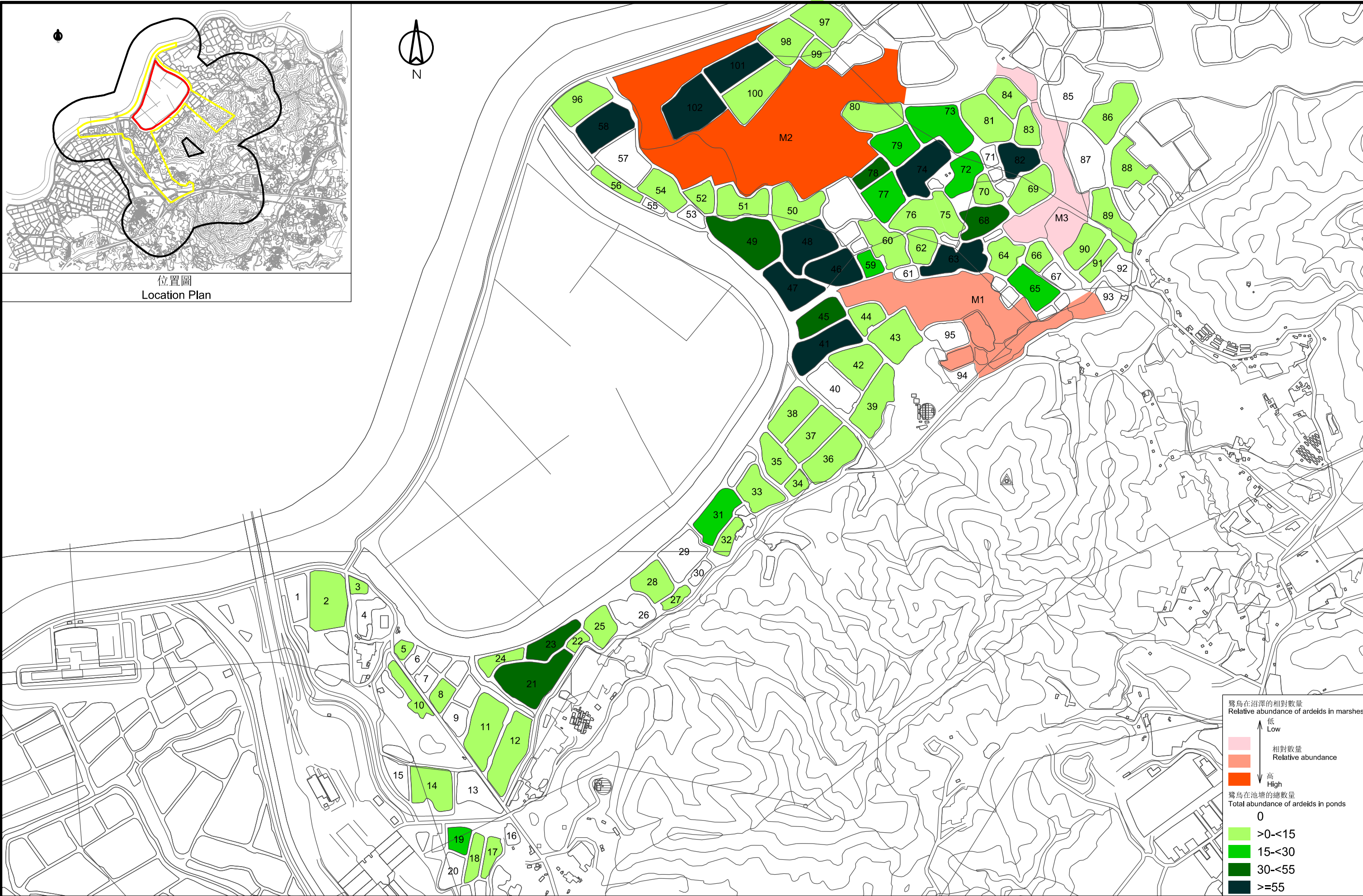
位置圖  
Location Plan



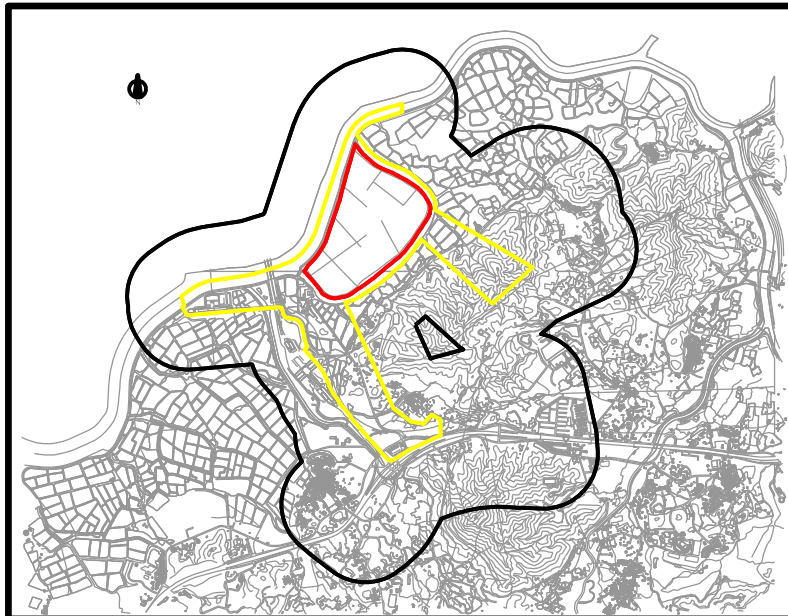




位置圖  
Location Plan







位置圖  
Location Plan

