



# The life of birds at our school campus

Team 58 Valtorta College

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## **A) Abstract of the investigation**

There are lots of birds on the rooftop of our school buildings, what are they doing there? When we visit the rooftop of our school, we can find that many kinds of birds are feeding, resting and even nesting.

Why are there birds living in such an exposed place? Are they not afraid of being caught by predators or man? Facing the risk of being caught, they still land on our rooftop and try to do the things that they like. Why?

We would also like to study if the activities of birds would be affected by environment factors or not. Besides this, we set up an experiment to investigate whether birds are first attracted by colour of fruits while foraging.

We took a number of photographs and recorded video clips. Surprisingly we got some precious moments of bird's life e.g. feeding tomatoes, attempt to feed on fake tomatoes, courtship rituals and the birth of three baby white wagtails! (We would show these during oral presentation on 17<sup>th</sup> April 2010.

Get ready and join our investigation!

## **B) Reasons and objectives of the investigation**

On 6<sup>th</sup> Feb., 2010, we visited Tai Po Kau Nature Reserve. We saw many people taking photographs in front of a tree. We were so curious and we went there to have a closer look. In fact they were taking photographs of a bird called fork-tailed sunbird (叉尾太陽鳥). This aroused our interest in finding out more about birds.

Coincidentally, there is an organic farm on the rooftop of Block D and E at our school campus. The crops, in particular the tomatoes, attracted a variety of birds to land, forage, take rest and even nest there. So we visited the rooftop and made observations for a few weeks. We found many different types of birds, such as dove, tree sparrow, red-whiskered bulbul, Chinese bulbul, etc. During our investigation period, there



we were mainly tomato plants growing there. It was found that some birds ate tomatoes. The majority of the tomato plants were protected by net while some tomato plants were uncovered.

Moreover we could also hear specific bird calls made by different species of birds. We also notice that they had some typical behaviours for communication.

In addition, we found a bird nest with 3 eggs on the rooftop of Block C in mid March. Therefore we decided to follow the development of the eggs in this bird nest.

After preliminary study of the birds found on the rooftop of our school buildings and the vicinity of our school campus, we decided to do the following investigations:

- a) To record the number and types of birds found on the rooftop of our school buildings. To find whether environmental factors affect the frequency of birds found or not.
- b) To observe and record the activities of birds by taking photographs and recording video clips.
- c) To test whether birds are first attracted by bright colour of fruits or not while foraging.  
(using fake tomatoes)
- d) To observe and record the development of eggs inside a white wagtail's nest at the rooftop of Block C.

## **C) Method of the investigation**

### **i) Methodology:**

#### **1. Physical factors and the birds we found during our investigation**

During our preliminary investigation, we found that birds were more active in the early morning, about six to eight o'clock and in the evening, about four to six o'clock. There are relatively less birds found at the rooftop in the other time periods. In order to minimize the disturbance to birds and, we carried out our investigation twice per school day, which started at eight o'clock in the morning and half past four in the evening. On 27<sup>th</sup> March, we came back school at 06:30 and conduct a two-hour investigation. Afterwards, we went to the vicinity of our school campus to have a closer look at the birds and their living environment.

During our investigation, we observe the activities of the birds especially those land on our rooftop. Moreover, we record the physical factors ( temperature in °C, relative humidity in % and light intensity in lux) and the weather condition. We use thermohygrometer and light meter accordingly. We also record the number and types of birds. We are intended to find out whether these environmental factors are related to the observed frequencies of birds. In our investigation, we also use a DSLR camera with a 70-200mm (+1.4x extender) tele lens and video camera to observe and record the behaviour and activities of birds.

#### **2. Observation about whether birds would “eat” fake tomatoes**

From our observations, birds would eat tomatoes in our school organic farm. In fact we had a video clip showing a Chinese bulbul feeding on a tomato during our investigation. After all, we wondered how birds know whether the tomatoes are edible or not. Are they first attracted by the bright colour or smell of ripe tomatoes?

So we bought some fake tomatoes which were made up of plastic. Then we put these fake tomatoes alongside real tomatoes. We set up a video camera for recording what happen there for an hour. We carried out this investigation on 29/3 and 31/3.

If birds peck at the fake tomatoes, it may imply that birds rely on their sight mainly during foraging. If they don't peck at the fake tomatoes but real tomatoes instead, it may imply that birds rely on their smell mainly during foraging.

#### **3. Making of a growing up diary of white wagtail chicks**

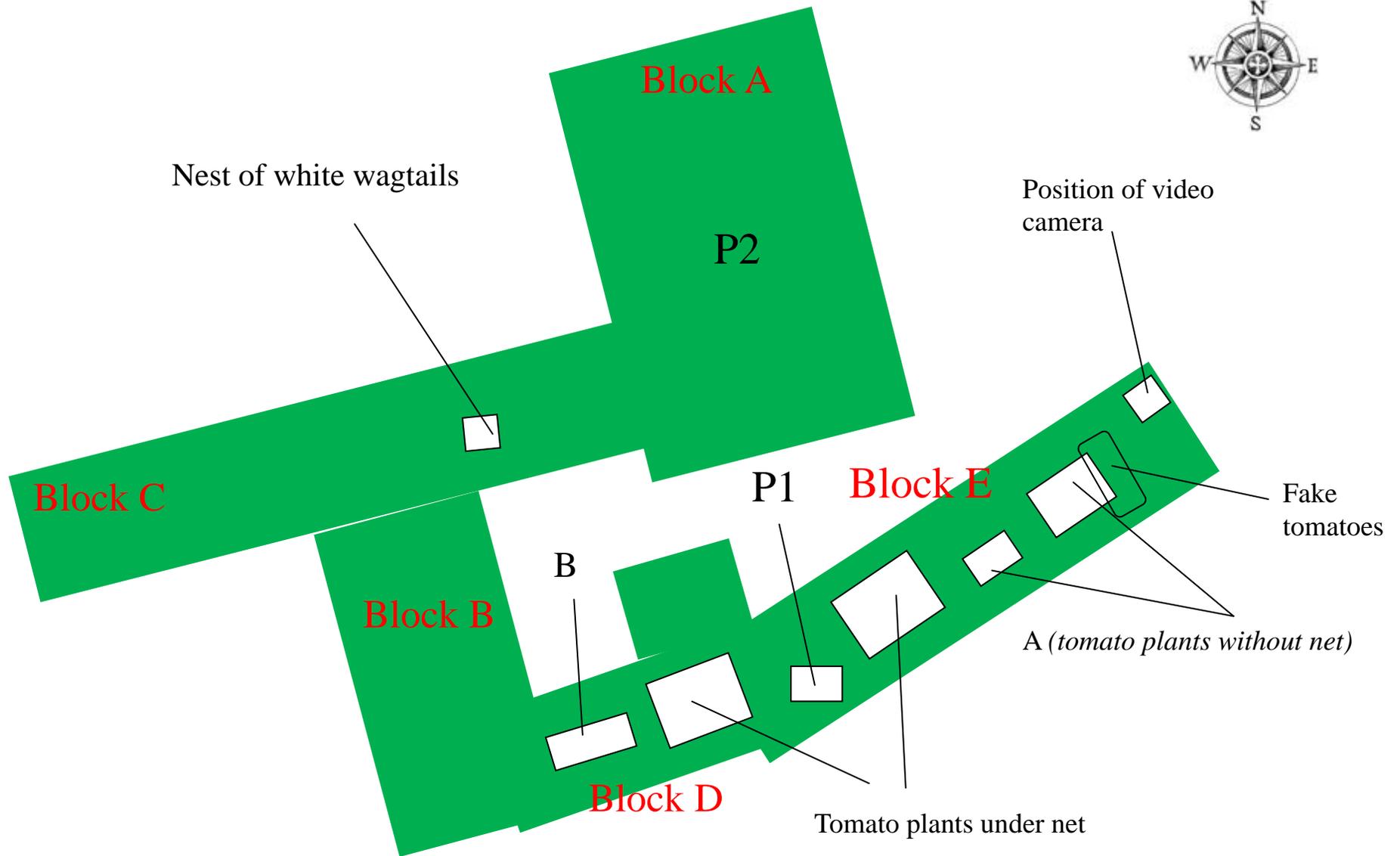
We took some photographs of the nest. We observed the activities of the parents and chicks by setting up a video camera in front of the nest. In order to minimize disturbance to these birds, we visited the nest every few days only and stay for a short moment each time.

### **ii) Equipments and materials :**

Equipments and materials	Usage
DSLR camera with a 70-200mm tele lens (+1.4x extender)	To record the behaviour and activities of birds
video camera	
thermohygrometer	To record thermometer, relative humidity and light intensity
light meter	
fake tomatoes (plastic) and pots of real tomatoes	To test whether birds are first attracted by bright colour of fruits or not.

## D) Results and observations

### i) The floor plan of the roof top of our school campus



## ii) A profile of the birds we had observed

During our investigation, we observed some characteristic features and behaviour about different kinds of birds. We listened carefully any bird calls and observed the activities of birds that land on our rooftops and surroundings. We also studied the photographs and video clips that we took. When in doubts, we search some reference books to confirm our findings. The profile of 10 birds that we observed was summarized as follow:

### 1. Black-collared Starling, *Sturnus nigricollis* (黑領椋鳥)

RESIDENT 留鳥

*Characteristic:* large starling white head , with yellow bare skin around the eye. Prominent black collar, upperparts and wings dark brown or black with white tips.

*Sound:* noisy and gregarious

*Length:* ~28cm (adult)

*Food:* juicy fruits, insects and earthworm



### 2. Common Koel, *Eudynamys scolopacea* 噪鵲

RESIDENT 留鳥

*Characteristic:* The male of the nominate race is glossy bluish-black, with a pale green or grey bill, the iris is crimson, and it has grey legs and feet. The female of the nominate race is brownish on the crown and has rufous streaks on the head. The back, rump and wing coverts are dark brown with white and buff spots.

The underparts are whitish, but is heavily striped.

*Sound:* the male makes a repeated *koo-Ooo*. The female makes a shrill *kik-kik-kik...*

*Length:* ~ 43 cm (adult)

*Food:* fruits, seeds and insect



### 3. Chinese Bulbul, *Pycnonotus sinensis*(白頭鶇)

RESIDENT 留鳥

*Characteristic:* black head, bill and legs. Conspicuous white nape, cheeks and throat. buffy breast to vent.

*Sound:* Call is similar to Crested Bulbul but less musical.

*Length:* ~23 cm (adult)

*Food:* fruits, seeds and insect



#### 4. Crested Myna, *Acridotheres cristatellus* (八哥)

RESIDENT 留鳥

*Characteristic:* shiny black overall, with orange yellow iris and long tufts above the bill. Bill yellow, legs pale pink. A distinctive white patch under each wing in flight. Two small white marks on the sides at rest.

*Length:* ~26 cm (adult)

*Food:* fruits, seeds and insect



#### 5. Eurasian Tree Sparrow, *Ploceus hilippinus* (樹麻雀)

RESIDENT 留鳥

*Characteristic:* brown head, white cheeks marked with a black patch. Lores, throat and bill black. Upperparts brown with dark stripes. Underparts pale grey, flanks brown.

*Length:* ~15cm (adult)

*Food:* grass seeds and insect



#### 6. Oriental Magpie Robin, *Copsychus saularis* (鵲鴝)

RESIDENT 留鳥

*Characteristic:* black and white robin. Black bill and legs. Head mantle and center of tail are black, while the underparts, wing bar and outer edge of tail are white

*Sound:* loud and melodious calls, sometimes also a long Drawn-out hissing.

*Length:* ~23cm (adult)

*Food:* insect



#### 7. Red-Whiskered Bulbul, *Pycnonotus jocosus* (紅耳鶯)

RESIDENT 留鳥

*Characteristic:* Black head, bill and legs, prominent erect crown feathers. Red ear coverts, white cheeks and throat, with black moustachial stripe. Brown upperparts to tail, which is tipped with white. Under-parts pale brown with orange red vent.

*Sound:* call a cheerful “bulbit...bulbit...”

*Length:* ~20cm (adult)

*Food:* fruits, seeds and insect



## 8. Rock Dove, *Columba livia*(原鴿)

RESIDENT 留鳥

*Characteristic:* Highly variable plumage. The most typical one has deep grey head, and metallic green and purple feathers on the neck. Wing tip and tail black, body grey blue, with two broad black stripes on wing coverts.

*Sound:* call a low-pitched "hoo..hoo.."

*Length:* ~32cm(adult)

*Food:* fruits and seeds.



## 9. Spotted Dove, *Streptopelia chinensis*(珠頸斑鳩)

RESIDENT 留鳥

*Characteristic:* Black hind neck with dense white spots. Grey head, overall plumage Brown, black bill and red legs. White edge on tip of outer tail

*Sound:* call is a "hoo..hoo..." at low pitch.

*Length:* ~30cm(adult)

*Food:* fruits, seeds and insect



## 10. White Wagtail, *Motacilla alba* (白鵲鴿)

RESIDENT 留鳥

*Characteristic:* Plumage consists of black, white and grey. Long-tailed. Grey up-perparts more prominent in winter. Complete white face with no eyestripe.

*Length:* ~19cm(adult)

*Food:* insect



### iii) Records of the physical factors and the birds we observed during our investigation

Date	22/03	22/03	23/03	23/03	24/03	24/03	25/03	26/03	*27/03	29/03
Time	0745-0800	1640-1710	0800-0815	1635-1710	0801-0815	1705-1800	0800-0815	1620-1700	0650-0800	0800-0815
Temperature (°C)	25.0	25.7	23.4	27.4	24.8	27.3	15.3	25.8	19.4	19.0
Light Intensity (X100 lux)	490	120	58	125	116	93	23	33.7	17	150
Relative Humidity (%)	58.8	64.3	81.6	68.3	84.5	73.8	50.1	39.8	50.6	48.2
Weather Condition	Fine	Cloudy	Cloudy , Misty	Cloudy	Cloudy	Cloudy	Cloudy , Windy	Sunny	Fine	Fine
Common name, <i>Scientific name</i> (學名)	Number of birds , Place found ( <i>Refer to the floor plan in p.4</i> )									
Black-collared Starling, <i>Sturnus nigricollis</i> (黑領椋鳥)	7 , P2				1 , P1					
Chinese Bulbul, <i>Pycnonotus sinensis</i> (白頭鶇)		2 , A				2 , A 2 , B		2 , P1	4 , P1	
Crested Myna, <i>Acridotheres cristatellus</i> (八哥)	2 , P2									2 , P2
Eurasian Tree Sparrow, <i>Ploveus hilippinus</i> (樹麻雀)	1 , B	8 , A	2 , A	4 , A	3 , B	6 , A	2 , P1	5 , P1	14 , A 5 , P1	5 , P2

\* extended study

## Records of the physical factors and the birds we observed during our investigation (continued)

Date	22/03	22/03	23/03	23/03	24/03	24/03	25/03	26/03	*27/03	29/03
Time	0745-0800	1640-1710	0800-0815	1635-1710	0801-0815	1705-1800	0800-0815	1620-1700	0650-0800	0800-0815
Temperature (°C)	25.0	25.7	23.4	27.4	24.8	27.3	15.3	25.8	19.4	19.0
Light Intensity (X100 lux)	490	120	58	125	116	93	23	33.7	17	150
Relative Humidity (%)	58.8	64.3	81.6	68.3	84.5	73.8	50.1	39.8	50.6	48.2
Weather Condition	Fine	Cloudy	Cloudy , Misty	Cloudy	Cloudy	Cloudy	Cloudy , Windy	Sunny	Fine	Fine
Common Name , <i>Scientific Name</i> (學名)	Number of birds , Place found ( <i>Refer to the floor plan in p.4</i> )									
Oriental Magpie Robin, <i>Copsychus saularis</i> (鶺鴒)				2 , A		1 , P1		1 , P1	1 , A	
Red-whiskered Bulbul, <i>Pycnonotus jocosus</i> (紅耳鶇)			3 , A	3 , A	1 , B 2 , P2	4 , A 2 , B		2 , P1	3 , P2	
Rock Dove, <i>Columba livia</i> (原鴿)			1 , A	2 , B	1 , P1	1 , P1	1 , P1	2 , P1	1 , A	1 , P2
Spotted Dove, <i>Streptopelia chinensis</i> (珠頸斑鳩)	1 , A	2 , A							2 , A	

\* extended study

**iv) Highlights of the video recordings of the pots of tomatoes at the Block E rooftop (with and without fake tomatoes)**

At a corner of the rooftop of Block E (*Refer to floor plan in p.4*), we set up a video camera in front of some pots of tomatoes. In three afternoons, we recorded for one hour each time. The aims of each recording and highlights of findings were given below:

	<b>Date</b>	<b>Time</b>	<b>Aim</b>	<b>Observation</b>
(1)	23/03	16:30-17:30	We noticed that there were some tomatoes seemed to be eaten by birds. Therefore we want to see whether birds will feed on tomatoes or not.	A Chinese bulbul came to the tomato's plant and feed on a tomato.  We also saw that some tree sparrows wandered around pots of tomatoes but they did not peck the tomatoes. They just pecked the soil instead.
(2)	29/03	16:30-17:30	Once confirmed that birds would feed on tomatoes, we want to know which sense (sight or smell) does the birds use to find food. Therefore we put some fake tomatoes to the pots of tomatoes to see whether birds would try to eat them or not.	A Chinese bulbul came and pecked at a fake tomato once and left then.  A tree sparrow came there and pecked the soil instead of any tomatoes.
(3)	31/03	16:00-17:00	Re-run investigation (2) to confirm the previous findings.	A Chinese bulbul came and pecked at a fake tomato. Then it fed on a real tomato. After that, it tried to feed on the fake tomato once again. Afterwards it flew away.  A tree sparrow also came there and pecked at the soil in the pots of tomatoes only.

***N.B. We will show some video clips during oral presentation on 17<sup>th</sup> April 2010.***

**v) Growing up dairy of white wagtail chicks**

Date	Time	Place	Aim	Highlights of observation	
12/3	10:30	Rooftop of Block C	General search for birds	We found that there were three eggs in a nest. The nest was built inside a broken wooden cabinet.	
18/3 (with video recording)	10:30-11:30	Rooftop of Block C	We want to see whose eggs are they.	A white wagtail came to the nest and incubated the eggs. It left and returned to the nest for few times during the one-hour video recording.	
29/3 (with video recording)	10:30-11:30	Rooftop of Block C	Three chicks were born. We want to see how the parents take care of their chicks.	<p>The female white wagtail fed the little chicks with some insects.</p> <p>The chicks opened their mouths widely when they sensed the presence of their parents.</p>	

				<p>The female also ate the droppings of the chicks too. It cleaned the nest with its beak frequently.</p> <p>The parents cooperate to safeguard and feed the chicks. They communicate with each other with calls and flicking tails.</p> <p>The male is pure white and the female is a bit dull in colour.</p> <p>The male came back with a worm and fed the chicks together with its partner.</p>	 
7/4	11:00	Roof-top of Block C	Follow-up observation of the development of the chicks.	<p>All the 3 chicks had already opened their eyes!</p> <p>The chicks got more feathers. It was speculated that they might fly away from the nest within a week.</p>	

**Precaution:** In order to avoid disturbance to the birds, we just visited the nest every few days. We only stayed near the nest for a short moment for setting up video camera or making records. We remained silence throughout our study there. If parents were frightened, they might abandon the nest and even the chicks.

## E) Discussion

### i) Interpretation of results

#### 1. Physical factors and the birds we found at the rooftop of Block D&E(organic farm)

At the rooftop of Block D&E(organic farm), we recorded the conditions of the environment and made observations twice daily between 22<sup>nd</sup> to 29<sup>th</sup> March. The analysis of results are as shown below:

In general, the birds will be more willing to forage in a warmer situation. It is because is greater when the temperature is lower. During flying, the birds will use up a lot of energy. If they cannot find enough food to eat, it may not be able to compensate the energy lost to the surrounding .

In general, there were less birds during cold days because birds would prefer to stay at shelter during adverse environmental conditions.

Less birds were found during cloudy and rainy days. Although feather of birds were waterproof, birds would have more heat loss when rainwater evaporated from their body surface. Undoubtedly, birds would hide up themselves in such conditions.

In addition, when the sunlight was intense in the noon, less birds were found as well. They preferred to stay under canopies of trees to prevent overheat.

From our results, we could not find out any direct relationship between the feeding habit of birds and relative humidity.

#### 2. Observation about whether birds would “eat” fake tomatoes and general feeding habits of birds

We had some ripe tomatoes on the rooftop of Block D&E (organic farm) and we found that the Chinese bulbul - *Pycnonotus sinensis* (白頭鸚) frequently fed on tomatoes. Their beaks are small and pointed, this favours them to peck at the tomato.

We bought some fake plastic tomatoes and put them amidst the real tomatoes to see whether birds will attempt to eat the fake ones or not. Then we saw one Chinese bulbul - *Pycnonotus sinensis* (白頭鸚) trying to peck the tomato during our study on 29/3 and 31/3. This suggests that the bird is most likely to rely on the their eyesight but not smell to locate the food source. Anyway, birds use their beaks to examine whether the food is edible or not.

Tree sparrows did not feed on either real tomatoes or fake tomatoes. They just peck at the soil to look for worms and seeds. Surprisingly, although red-whiskered bulbuls are similar to Chinese

bulbul, we did not them feeding on any tomatoes too. These might probably be affected by the size and shape of beaks. For example, the beak of Chinese Bulbul is bigger and pointed so that it peck open skin of tomatoes while tree sparrow with smaller and shorter beak prefer to feed on seeds and worms.

Birds have good eyesight and hence they are easily attracted by the bright colours of fruits. We observed that birds keep alert while they are feeding. Whenever they sense any potential hazards, they will fly away immediately.

### 3. Findings from observing the white wagtail's nest

A pair of white wagtail, *Motacilla alba* (白鵲鶯), had built a nest in a broken wooden cabinet on the rooftop of Block C. There were three eggs in the nest and the parent flew in and out of the nest very frequently. On 29<sup>th</sup> March, we found out that all the three eggs had hatched into chicks! We set up a video camera and recorded the parents feeding the chicks.

We saw the baby birds raising their neck making begging sounds and opening their yellow mouth wide to beg food from the mother. This movement is one of the natural instinct of the birds in order to survive. The mother bird dips the prey into chicks' mouth. Also we saw one of the parents communicating with its partner by raising its tail and making short contact calls. We think this is how birds communicate with each other.

From the book "BIRDS-the habitats and the skills", "the parents reinforce their bond and reassure each other that they both have the best interests of the brood at heart. Each time a partner returns to the nest there has to be some form of statement that the incoming partner arrives with good intentions. They greet each other. In addition, when one partner comes to relieve the other on the nest, there may be a changeover ceremony, presumably because it is important to make decisions about any admission to the nesting territory or the nest itself. Besides visual ceremonies, they also communicated by songs. When a partner comes back at the entrance of the nest, it flicks its tails and its partner just responds by the same way." The above was confirmed by our video recordings. We will show this during our oral presentation.

From our video recordings, we also find that parents will remove the faeces of their young. "Parents encourage their nestlings to defaecate only when a parent is in attendance at the nest. Very young nestlings produce faeces in a sack so that it will not fall apart when the parent collects it. It is because the smell of faeces in the nest would attract any predator with a well-developed sense of smell." This is also demonstrated by our video recording.

## 4. General observation about the behaviour of birds

Birds stand high to keep alert of the surrounding. When they approach the food, they will peck on food and keep moving head to keep alert. They will fly away at once when see moving object or hear a loud sound.

We also heard a variety of bird calls, we found that different birds make totally different vocalizations. Especially the call of the Koel, which is a very noisy repeating sound pattern “ko-el, ko-el”, with each repeat slightly higher until the bird cannot make a higher sound, this is a very interesting phenomenon. According to “Sibley’s birding basics”, bird’s calls can be classified into contact calls, flight calls, courtship calls and alarm calls etc. We noticed that birds make contact calls when they land, make flight calls when they are in the air or tend to fly, and the Koel’s loud, repeating sound is probably intended to attract the opposite sex.

## 5. Other observations

Birds usually not eat the whole tomato. The partially eaten tomatoes would attract fruitflies to feed on them. After few days, the tomatoes would turn bad and a nasty smell would be noticeable.

During our investigation period, we saw pairs of birds flying, taking rest together. We also saw few pairs of birds showing courtship rituals. (dove and red-whiskered bulbul) Most probably it was the breeding season of certain bird species. Courtship rituals may determine the partner and regulate the timing of sexual readiness. e.g. aerial display of *Pericrocotus flammeus* (scarlet minivet) (in flight, it gives a 4-note high-pitched “flee-flee...” call) and courtship dance as shown by doves. The bobbing and swaying of their heads and the ‘pumping’ up and down of their bellies were seen at the rooftop of Block B.

## ii) Limitation of our investigation

### 1. Time constraint

As the project lasts for only a limited period of time, we can just observe the habits and behaviours of birds for few times. We cannot investigate the life cycle of birds in different seasons. As we observe the birds at our school rooftops, when our students had come back to school, the noise would scare the birds. Therefore we can only take records in a very limited time period. i.e. the time before most students come back to school and the time they left. Moreover, we cannot carry out investigation when light is insufficient. Therefore we can't carry out observation before sun rise or at night.

### 2. Minimise disturbance of birds

We found that White Wagtail built a nest on rooftop of Block C of our school building. Although we can observe the nest conveniently, we should not visit them very frequently. We will frighten them and may force the parents to abandon the nest and hence eggs/chicks.

### 3. Weather and environmental factors

According to the results of our investigation, we found that the numbers of birds visiting the rooftop of our school is different under various conditions. Just like in the cold weather, the numbers of birds we saw is fewer than the normal conditions. It shows that in different conditions the birds' activities are different. Moreover, our study would somehow be restricted by harsh conditions.

### 4. Equipment

Our equipments are not sufficient. Just like our camera can't focus the birds too clear that are far away from us. Therefore we may not observe the characteristics of birds clearly.

### 5. Identifications of species and sexes of birds

When birds are too far away, we may not identify them easily. Luckily we can identify them by their calls, colours of feathers and their flying pattern.

We know that the habits and activities of different sexes of birds may be totally different. Although we can get the characteristic of the birds from reference books, but we cannot hardly distinguish them as we can seldom approach them so closely. In some species, the two sexes look similarly. e.g. white wagtails – male is pure white while female is a bit dull in colour. In addition, male usually serves as the safeguard of their nest.

### **iii) Further discussion**

#### **1. The relationship between birds and crops**

According to the book “Birds-their habits and the skills”, human expansion across the globe has led to substantial clashes with wild bird populations. For example, harvests were poor so the birds were blamed for this failure and, apparently with Mao Tse Tung’s approval, farmers began to kill as many birds as they could and thus help the harvest along. However, they had killed the birds eating the pests that destroyed the crops. The next year, no one shot or trapped a bird over a long period of time the birds returned and crops improved. It obviously show that the interaction of human and birds.

Nowadays, many farmers also think that birds will eat all their crops and use numerous methods to chase them from the crops. But they really do not know that the birds help them to remove the harmful insect instead of eat their crops. Therefore we can ensure that birds are not the foe of us. The farmers may not chase them away instead of conserve or even protect them. Just like our rooftop, we grow some crops there as a result some birds may come and eat some of them. We use a kind of method as to live with them. We protect most of our crops by nets. Besides, we give some crops without net to the birds as to attract them to come and eat the harmful insects to certain extent. Therefore we can conserve the birds and protect most of our crops as well.

#### **2. Ecotourism**

There is a controversy over the issue of eco-tourism. Many of us contend that ecotourism is beneficial to our environment and human beings since the beauty of nature can be observed. Moreover, where there are man there is destroy. We may think that we will not disturb their living environment. But birds have food eyesight and sensitive to sounds. Therefore our slight body movement will also disturb or even frighten the birds. Nevertheless, if you want to conserve the environment, you should educate the visitors’ civic consciousness and responsibilities.

#### **3. The problems arise from the birds in residential area**

In the early morning, when we look around our school. We can see hundreds of doves flying in the sky and rest on the rooftop of the buildings in the residential area. (See photograph in p.18)



People living there has complained that there are hundreds of doves stay on the housetop and pollute their living area. We agree that hundreds of doves would disturb the living of residents nearby. These doves always produce a lot of noises. In addition, the droppings of them are very unhygienic and may help the transmission of some diseases e.g. avian flu. It poses a serious potential health hazard. They always scratch the ground to locate food source along pavements. They get used to live in crowded urban area. Therefore they are not easily frightened by people walking around them.

Some residents put some CD out of windows so as to scare doves. But it does not seem to be a workable method. Many people has complained that the doves' problems to the government. But some environmental organizations strongly doubt to scare them since it may destroy the nature. A compromise should be made between nature conservation and control of public hygiene. Ideally a win-win situation should be adopted.

## **F) Summary**

Based on our observations, we find that birds are less active when temperature is low and weather condition is harsh.

Different birds eat different types of food. The feeding habit is determined by the difference in size and shape of beak. Birds find food by using their good eyesight and use their beaks to examine the food. If in doubts, they simply fly away. Birds always keep alert on the happenings surrounding them.

From the study of the white wagtail's nest, parental care is distinctly exhibited by the two parents. Nesting is very energy consuming and the bond of parents is crucial to the survival of the chicks. Birds' instincts are clearly shown in the way chicks react to approaching parents and the way that the two parents communicate with each other.

All in all, we should treasure the nature and try out best to conserve the wildlife.

## **G) Bibliography**

### **Book Reference:**

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Publisher: Wan Li Book Co Ltd.

#### **2. A Colour Guide to Hong Kong Birds**

Author: Clive Viney & Karen Phillipps

Publisher: J. R. LEE, Government Printer at the Government

#### **3. SIBLEY 'S Birding Basics**

Author: David Sibley

Publisher: David Sibley

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