Diet of Asian Glossy Starling (Aplonis panayensis) in Kuching City

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• Asian Glossy Starling (AGS) are omnivorous, feeding on soft fruits and arthropods (Skorupaa & Hothem, 1985; Corlet, 1992).

• Large population of AGS has become a problem in urban areas – contaminate building, spread disease, pest, etc.
One of the factors that promotes the population growth of AGS is abundance of foods in urban area.

Is AGS really abundant in Kuching?

If so, what types of food promotes the population growth of AGS in Kuching City?
Objectives

1) To determine the diet of AGS in Kuching City, Sarawak.

2) To determine the frequency of occurrence of fruits and insects in the diet of starlings.

3) To determine whether their diet compositions depend on the availability of fruits and insect in the vicinity of area of study.
Methodology

Study Site:

1) Civic Centre Kuching
2) Reservoir Park Kuching

Figure 2: Map of study site in Kuching City
Survey Methodology:

1) Point Counts at Reservoir Park
2) Counting Individual Birds at Civic Centre
3) Record of Potential Diet at Reservoir Park and surrounding area

Figure 3: AGS at Civic Centre
Feacal Examination :

- 51 feacal samples were collected at Civic Centre.
- During analysis, these samples were mixed and rinsed with 70% ethanol.
- Then, samples are examined under stereoscopic microscope with the aid of camera.
- The insects fragment are identified.

Figure 4 : Faeces of AGS at Civic Centre
1) Proportion of Urban Birds at Reservoir Park and Civic Centre

Table 1: Proportion of Birds at Reservoir Park and Kuching Centre

<table>
<thead>
<tr>
<th>Location</th>
<th>Reservoir Park</th>
<th>Civic Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of species</td>
<td>30</td>
<td>2</td>
</tr>
<tr>
<td>Mean number of bird</td>
<td>127</td>
<td>40</td>
</tr>
<tr>
<td>Mean number of Asian Glossy Starling</td>
<td>44</td>
<td>38</td>
</tr>
<tr>
<td>Mean number of other birds</td>
<td>83</td>
<td>2</td>
</tr>
<tr>
<td>Percentage of Asian Glossy Starling (%)</td>
<td>35%</td>
<td>95%</td>
</tr>
</tbody>
</table>
2) Record of Potential Diet

Relative Abundance of Fruiting Trees at Reservoir Park

Figure 5: Relative Abundance of Fruiting trees at Reservoir Park
Location of *Ficus* sp. within 1000m of Civic Centre

Source: Google map
Table 2: Total Relative Abundances of Insects at Reservoir Park.

<table>
<thead>
<tr>
<th>Types of Insects</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Lepidoptera</td>
<td>53</td>
</tr>
<tr>
<td>2) Orthoptera</td>
<td>21</td>
</tr>
<tr>
<td>3) Odonata</td>
<td>61</td>
</tr>
<tr>
<td>4) Hymenoptera</td>
<td>15692</td>
</tr>
<tr>
<td>- Formicidae sp.</td>
<td>15647</td>
</tr>
<tr>
<td>- Other species</td>
<td>45</td>
</tr>
<tr>
<td>5) Hemiptera</td>
<td>64</td>
</tr>
<tr>
<td>6) Coleoptera</td>
<td>1</td>
</tr>
<tr>
<td>7) Diptera</td>
<td>41</td>
</tr>
<tr>
<td>8) Isoptera</td>
<td>172</td>
</tr>
</tbody>
</table>
3) **Fecal Examination**

![Pie chart indicating the diet composition of Asian Glossy Starling. The chart shows that 49% of the diet is insects only, 49% is fruit only, and 2% is both insects and fruits.]

**Figure 6**: Diet Composition of Asian Glossy Starling
Faeces samples:

- 86% of samples contain figs
- 2% contain *Vitex* sp.
- 12% contain unidentified plant materials

- 70 individuals of Hymenoptera
  - 45 individuals of family *Agaonidae* (Fig wasp)
  - 7 individuals of family *Ormyridae* (Parasitize gall-making insects)
  - 18 individuals of family *Formicidae* (Ants)

- 5 individuals of unidentified Insects
Male fig wasps

Female fig wasp

Head of female fig wasp

Formicidae sp.

Fig flesh

Seed of figs
Conclusion

1) AGS is the dominant bird in Kuching City
   ○ 35% of birds in Reservoir Park and 95% of birds in Civic Centre.

2) 49% of fecal sample contain fruits and 49% fruit and insect
   ○ Fruits: mainly figs (86%)
   ○ Insect: mainly Hymenoptera from Family Agaonidae (45 individuals), Formicidae (18 individuals), Ormyridae (7 individuals)

3) The diet of AGS in Kuching City depends on the availability of fruits in particular figs which are present within 1 km of the sampling area.


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