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THE ROLE OF THE CAMERA IN BIRDWATCHING IN SINGAPORE

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INTRODUCTION

In the 19th century, ornithologists went out into the field with a rifle and a "bird boy" to collect specimens (Bircham, 2007). That was a time when the natural history museums in Europe were stocking up on bird specimens from around the world. Ornithologists worked mostly from museums, describing and classifying birds. This was followed by a century where birdwatchers roamed the outdoors, collecting live bird sightings. The rifle was slowly being replaced by the binoculars. Many birdwatchers were amateur naturalists and looked disapprovingly at ornithologists who collected specimens. At the same time, ornithologists were unhappy to have masses of birdwatchers infringing on their territory. Only with time did the two groups see eye-to-eye and manage to work together, with birdwatchers collecting field observations that provided ornithologists with data for their monographs.

Birdwatching became popular in Singapore in the early 1950s when British colonial civil servants came to collect more museum specimens as well as to document the field behaviour of birds. While many were ornithologists, not a few were amateur naturalists who made substantial contributions to our knowledge of local and regional birds (Wang & Hails, 2007). With time, the locals took to birdwatching, learning from colonial enthusiasts as well as other expatriates who came to Singapore for business and for employment (Wee & Tsang, 2008; Wee & Subaraj, 2009). Most of the birdwatchers were members of the then Malayan Nature Society (Singapore Branch), now Nature Society (Singapore) (NSS).

In early 2000s another group, the bird photographers, came onto the scene (Chan et al., 2007b). Digital cameras were then becoming affordable as prices fell with every new model introduced into the market. Memory cards that replaced costly colour films allowed for unlimited exposures to be made. Moreover, the quality of the images could be conveniently checked in the field, and longer and longer focal length lenses became available for long-distance photography.

Naturally, their entry upset the traditional birdwatchers. As with ornithologists of old looking disapprovingly at birdwatchers, local birdwatchers were predictably unhappy with camera-toting photographers stalking birds (Wee & Tsang, 2008). However, photographers are currently at the forefront of new sightings and their excellent images of birds and their behaviour are making substantial contributions to ornithology (Wee & Subaraj, 2009). Such a major change is obviously proving to be unnerving and stressful to the traditionalists. There are those who refuse to go on birdwatching forays with camera-toting birders (K. C. Tsang, pers. obs.) and others preferring the old ways of making field notes and lamenting the high cost of camera equipment that may make this simple pleasure beyond the means of the average birdwatcher (M. Hall, pers. comm.). Yet, a few progressive birdwatchers are slowly accepting the change and bringing digital cameras together with a pair of binoculars when in the field, and as birdwatchers find themselves depending more and more on photographers for sightings and good images for their internet postings, the two groups are gradually learning to coexist, albeit uneasily (Wee & Subaraj, 2009).

IDENTIFYING BIRDS

One major problem in organised birdwatching is credibility. The more experienced a person is, the more his or her identifications are accepted, sometimes without question. It is generally known that sightings of a rarity is not accepted by the Records Committee (RC) of the NSS Bird Group unless one senior member has seen the bird. This is understandable, because in the absence of an image as evidence, who would believe claims, even accompanied by field notes, by observers who are less experienced?

Unfortunately there will always be embarrassing exceptions. In Feb.1990, V. Konrad sighted what he believed to be a long-billed plover (*Charadrius placidus*) at the east coast of Singapore. As there were no previous reports of this plover, he submitted his account to K. S. Lim who chaired and continues to chair the RC. The sighting was officially accepted nearly eight years later (Lim, 1998). The subsequent publication of the sighting (Konrad, 2005) attracted the attention of

Leader (2006) who re-identified the bird as a kentish plover (*Charadrius alexandrinus*). The presence of an image paved the way for an immediate retraction of the claim by the RC, albeit 15 years later.

This incident clearly showed the importance of photographs in such claims, because even with photographic evidence, as seen here, mistakes can be made. This episode also highlighted the problems involved in the identification of certain groups of birds. But what if there was no image? We would continue to be oblivious of the mis-identification and happily live with the claim of the 1990 sighting of the long-billed plover as Singapore's first, and to date, only recorded sighting. Obviously, if a mistake can be made with photographic evidence, imagine the many earlier claims by the RC based on sketchy descriptions that have been accepted as correct and can never be questioned. The situation is made the more serious when details of how decisions were arrived at were never made public, as also in the case of the long-billed plover. Obviously there should be a requirement for photographic evidence when a hitherto unrecorded species is being submitted as a new sighting.

Another example of the usefulness of photographs is the sightings of a female and an immature Asian emerald cuckoo (*Chrysococcyx maculatus*) in May 2006 at the Upper Peirce Reservoir forest (Figs. 1, 2). The sightings, together with images, were submitted to the RC but it was only in Apr.2008 that the application was accepted (Wee (YC), 2008b). Obviously members of the committee had trouble with the species as it took them 23 months to come to a conclusion. Without images, the sighting would invariably have been rejected for lack of evidence. And there have been a few earlier sightings rejected because of lack of evidence (Wang & Hails, 2007).

A recent sighting of the bat hawk (*Macheiramphus alcinus*) by a group of birder-photographers, this time also with photographic evidence, saw their claims accepted almost immediately (Tan & Ng, 2009). No doubt this raptor is easily identifiable from the photograph. The last time there was a confirmed sighting was nearly 60 years ago and as usual, there were also a number of subsequent unconfirmed sightings. Indeed, the camera is proving to be a valuable tool in birdwatching.

A final example of the usefulness of photographic evidence involves the first sighting of the Jerdon's baza (*Aviceda jerdoni*) in Dec.2002 (Wang & Lim, 2002). In a letter to the editor of BirdingAsia giving an update to the baza's sightings in Singapore, apparently in response to a paper in the same journal by Chan et al. (2007a), Lim (2008b) made a claim that the first recorded sighting should have been Jan.1996. This claim was based on a photograph made by K. S.

Fig. 1. This photograph of a female Asian emerald cuckoo (*Chrysococcyx maculatus*) is one of two that convinced the Records Committee of its authenticity. (Photograph by: K. C. Tsang).

Fig. 2. This is the other photograph, a juvenile Asian emerald cuckoo, that helped got the species into the checklist. (Photograph by: K. C. Tsang).

Ong who only recently rediscovered her old image of a raptor (K. S. Ong, pers. comm.). The image was apparently forgotten for seven years until it found its way into the hands of the RC. It would have helped shore up the credibility of the RC had the claim been made after the photograph and account were published, not before. Such a claim should not be based on trust but on publication. Unfortunately, to date, the photograph has still to be published.

FOOD AND FEEDING BEHAVIOUR

Identifying the different foods birds eat through the binoculars is not a problem. However, most birdwatchers and photographers are not biologists and only identify plant foods in the most general terms—fruits, seeds, flowers, etc., or at most are able to identify certain common plants. However, images allow botanists to subsequently identify the plants the photographers are not able to (Wee (YC), 2007b; Chan et al., 2008; Lai, 2008). Botanists have also helped to identify a number of flowers that insectivorous birds visit to feed on the nectar (Heng, 2008; Lim, 2008a) and to eat the flowers and their buds (Wee (YC), 2007d; 2008a) (Fig. 3).

As for animal foods, again recognising the broad groups of insects and other animals is not a problem, but to identify the genus or species can be a challenge. In many cases the actual food capture takes place in a split second that makes close scrutiny difficult. The latest in camera technology allows for a series of exposures to be made with a single click of the shutter (Chan et al., 2007b). This provides a series of images that can be examined at leisure well after the event. These images can be enlarged, assuming the resolution is high enough, and the images well-focused, and sent to specialist biologists for detailed identification.

A selection of the animal foods that have been identified this way include fish (Chan & Khoo, 2006; Pan, 2008; Pan & Khoo, 2008; Tan, 2009b) (Fig. 4), skink (Subaraj, 2008), crustacean (Liu, 2008), mollusc (Wee et al., 2006; Chan, 2007a; Wee & Wee (YC), 2007) and spider (Lok & Koh, 2009). Insect identification to their generic and/or specific level includes dragonfly (Lee & Subaraj, 2009), caterpillar (Wee (YC), 2006), moth (Tan, 2009a), cockroach (Wee, 2008), and wasp (Wee, 2007). The taking of a grasshopper by a brown wood owl (*Strix leptogrammica*) was a new food record but unfortunately the image did not allow for detailed identification of the prey (Tsang, 2008a) (Fig. 5).

Fig. 3. Long-tailed parakeets (*Psittacula longicauda*) eating flowers of Alexandra palms (*Archontophoenix alexandrae*). (Photograph by: Y. C. Wee).

Fig. 4. A juvenile little tern (*Sterna albifrons*) with a giant snakehead (*Channa micropeltes*) in its bill. (Photograph by: Chan Yoke Meng).

Fig. 5. A brown wood owl (*Strix leptogrammica*) clutching a grasshopper in its talons. (Photograph by: K. C. Tsang).

Details of foods brought to nesting birds have also been documented in the case of the common tailorbird (*Orthotomus sutorius*) (Tsang, 2008b) and yellow-vented bulbul (*Pycnonotus goiavier*) (Khew, 2006).

Fig. 6. A blue-crowned hanging parrot (*Loriculus galgulus*) helping to pollinate the flowers of the semi-parasitic mistletoe, *Macrosolen cochinchinensis.* (Photograph by: Chan Yoke Meng).

Besides identifying the foods that birds eat, eating behaviour can also be studied through photography. This involves how the bird eats a fig or berry by swallowing it whole, biting or squashing it to obtain the juice (Chan, 2007b; Chua, 2008; Lam, 2007), then the regurgitating of the seed after swallowing the fruit can also be noted through photography (Chua et al., 2009). And most interesting of all, the regurgitating of pellets by non-raptorial birds after a meal has been documented by the camera (Wang et al., 2009).

DOCUMENTING BIRD BEHAVIOUR

Field observations have always been made with the binoculars, with meticulous notes made in the field before details become fuzzy. Only a few experienced field hands are usually comfortable as well as competent with such a procedure. For one, unless the observer is familiar with the particular aspect of behaviour, it would not be easy to put into words what were seen. This is especially so when the observations were brief and through the binoculars. However, a series of images on a particular behaviour can always be interpreted at leisure by more experienced birdwatchers after the event.

The pollinating of the semi-parasitic, tropical mistletoe, *Macrosolen cochinchinensis* by a blue-crowned hanging parrot (*Loriculus galgulus*) is a split-second process (Fig. 6). The bird uses its bill to clamp on a mature flower bud, triggering the petals to burst open, thus allowing the bird to get at the nectar inside (Wee (YC), 2007a). Photographic evidence helps to show the bird's tongue harvesting the nectar that field observation may fail to reveal. Similarly, the olive-backed sunbird (*Cinnyris jugularis*) and the scarlet-backed flowerpecker (*Dicaeum cruentatum*) have been documented doing the same with the flowers of another semi-parasitic mistletoe, *Dendrophthoe pentandra* (Wee (YC), 2007c). The camera has also proved useful in documenting the use of projectile vomiting by black-naped terns (*Sterna sumatrana*) on an intruding grey heron (*Ardea cinerea*) (Deng et al., 2008).

Images have also been shown to be useful in documenting the breeding ecology of the Malaysian plover (*Charadrius peronii*) (Tang, 2006), zebra dove (*Geopelia striata*) (Wee & Wang, 2008) (Fig. 7) and little tern (*Sterna sumatrana*) (Cheah & Ng, 2008). Also, images by different photographers have allowed for data to be consolidated on the biology of the chestnut-bellied malkoha (*Phaenicophaeus sumatranus*) (Lok & Lee, 2008) and species of barbets (Lok & Lee, 2009; Lok et al., 2009a,b). The different stages of nest building to brooding and fledging are easily recorded, with dates for easy reference and compilation of information (Wee et al., 2008).

Fig. 7. Photography helped document the breeding behaviour of the zebra dove (*Geopelia striata*). Here an adult feeds its two chicks. (Photograph by: Y. C. Wee).

DISCUSSION AND CONCLUSIONS

Most birdwatchers go into the field armed only with a pair of binoculars and many among them love to observe just birds, the so-called 'twitchers'. Similarly, there are the twitcher equivalents among bird photographers—those who take portrait photographs of birds. However, most photographers move on from portraiture to studying bird behaviour and in the process they become better bird photographers. This intellectual activity maintains their interests in bird photography. In twitching, without colourful images and only a sentence or two to describe sightings, there is no real competition to better one another; hence many newcomers to birdwatching cannot sustain their interest for long. After all, it is a matter of time before they have ticked off the more common birds in the Singapore checklist.

The recent spate of bird photographers and the exciting images many have showcased have stirred a renewal of interest in birdwatching. The camera has definitely proved to be a useful tool, as images play important roles in the identification and documentation of birds, as elaborated above. Many an experienced birdwatcher has been impressed and are now toting a camera when out in the field and this speaks well for the future of birdwatching.

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