

Madhav Gadgil  
Centre for Ecological Sciences  
Indian Institute of Science  
Bangalore 560 012, India.  
Email: madhav@ces.iisc.ernet.in

## Project Lifescope

### 9. Crows

Project Lifescope aims to generate attractive material on a set of about 1500 species and higher taxonomic categories of specially identified taxa to nurture the study of living organisms as a part of teaching biology and other related subjects in India. With their bright colours, mellifluous calls and sizes ranging from that of our thumb like the flower pecker, to full human height like the saras crane, birds have always fascinated people who have longed to take to air after them. They have been conferred the status of vehicles of Gods, and thereby protected, as peafowl is around Murugan temples. But they are also extensively hunted for flesh and feathers and caged for entertainment. With so much attention focussed on them, they are the most studied group of animals, with thousands of bird watchers in every part of the world.

Birds are thus an ideal vehicle to encourage students to observe at first hand the world around them and to learn much for themselves from the book of nature. Birds also offer other non-professionals unparalleled opportunities to contribute to scientific knowledge. There is a great diversity of birds around us; the Indian subcontinent harbours 1237, or over 12.5% of all bird species, although our land area is just over 2%. Around any school or college one may easily see 50-60 species; over 140 have been recorded on the campus of the Indian Institute of Science in Bangalore. We focus here on the most familiar of them all, the house crow, a constant companion of man through the length and breadth of our country.

#### House Crow

*Corvus splendens*: Corvidae

**Order:** Passeriformes

Crows are predominantly black, medium sized birds with tails shorter than the wing and graduated or rounded at the back. Their bills are stout with stiff, straight bristles that reach almost

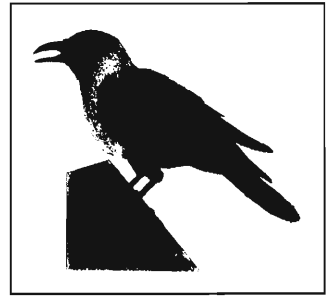


to the middle. The house crow has a dusky gray nape, neck, upper breast and upper back, being glossy black over the rest of the body.

A crow intrudes itself on one's attention, wherever one may be, if not with its glossy black colour, then by its crowing and cawing. All its names, the generic name *Corvus*, the English crow, the Sanskrit *kaka*, the Hindi *kawwa*, the Kannada *kaage* derive from its calls. The specific name *splendens* presumably refers to its splendid impudence, for the house crow is forever harrying and swearing at people, kites and dogs and bullying smaller birds.

Crows pervade beliefs of Indian folk. Its guttural call, especially when sitting on a banana plant, heralds the arrival of a guest for meal. Its acceptance of proffered food accompanying ceremonies of funerals or on death anniversaries signifies the contentment of the departed soul. A wicked person who enjoys hurting another is compared to a crow looking for sores on the neck of an oxen. That such an apparently sagacious creature is fooled by the koel is celebrated by poets in all Indian languages.

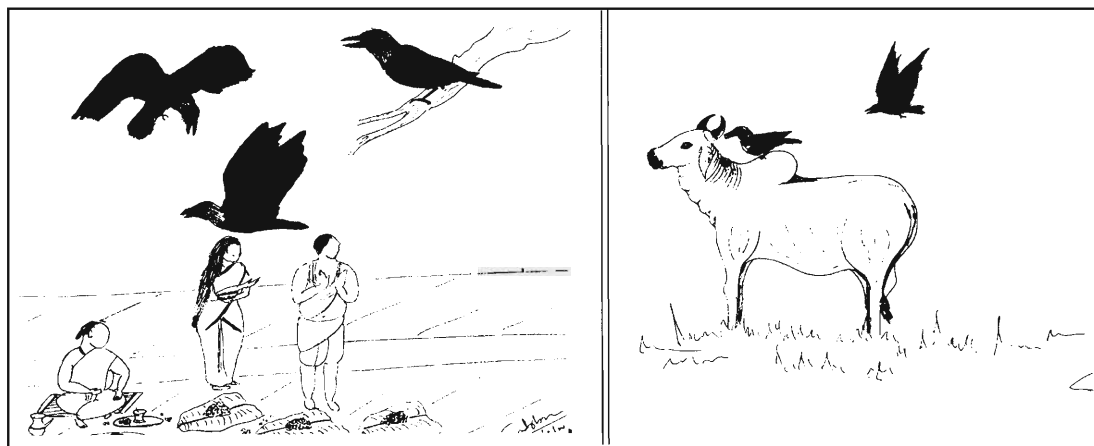
**Related Species:** India harbours four resident species of crows, the two commonest are the house crow and jungle crow, present pretty much throughout the subcontinent. Closest in appearance to the house crow is the jackdaw which is somewhat smaller, has lesser amount of grey in its plumage and has a white iris around the eye. The jackdaw is confined to Kashmir and north Punjab. The jungle crow is distinguished from the house crow by the absence of any grey on the hind neck and breast. The raven is similar in appearance to a jungle crow, but is bigger and lacks the *caw caw* call, that of the raven being a hoarse bark, *pruk pruk*. The raven is confined to parts of Punjab, Western Rajasthan and Kutch. Males and females are alike in all the crow species, the juveniles look similar but have a less glossy plumage. Two others, the rook and the carrion crow are winter visitors to the northwestern parts of the country; both resemble the jungle crow.



**House crow.**

*The smile of a crow  
is quizzical and wry,  
Whose meaning is  
abundantly clear,  
It says I will  
bully you  
However you try  
to escape me,  
You can't, my dear!*



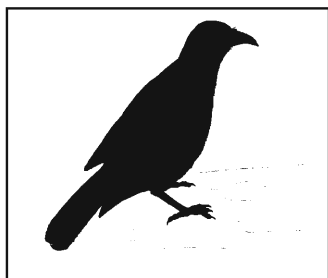


**Crows are a major presence in Indian life.**

**Distribution:** The house crow has four subspecies that cover coastal and southern Iran, most of the Indian subcontinent with the exception of Kashmir and northern Punjab, Sri Lanka, Maldives and Western parts of Myanmar. It has been introduced to and is well established in Zanzibar, Aden and Mauritius.

At the boundaries of the distribution of the species, there are excellent opportunities for students to look at the distribution of crow populations to understand what factors govern the ranges of the four resident species. For instance, exactly how low does the rainfall have to be for the raven to replace the jungle crow in Western Rajasthan? Similarly within the range of the house crow, the Ceylon subspecies *Corvus splendens protegatus* replaces the principal subspecies *Corvus splendens splendens* in Kerala. The two subspecies differ in that the Ceylon subspecies has much darker grey feathers on the nape, neck, upper breast and upper back. It would be of interest to map the northern boundary between the two subspecies on the Karnataka–Kerala border and the eastern boundary along the Western Ghats separating Kerala and Tamilnadu. How sharp is this boundary? Is there a broad zone of overlap and interbreeding between the two subspecies? A great deal of such scientific information of interest could come from simple but well planned field observations by students and teachers of biology, as well as by amateur bird-watchers.

**Jungle crow.**



**Habitat Preference:** The house crow is a confirmed commensal of man. The haunts of man are the haunts of the house crow and with him it is most numerous in cities and towns, but the jungle and desert suit it equally well if man is there. The jungle crow too often visits cities and villages for the sake of scavenging, but is more at home in forests and jungles. On the well-wooded campus of the Indian Institute of Science, though, the jungle crow seems to be the more abundant of the two. Since the two overlap in distribution over all of Peninsular India it would be interesting to study patterns of their distribution along the urban-rural-wilderness gradients. Is there a threshold density of human habitation above which the jungle crow yields to the house crow? Is this threshold constant all over the country?

At the boundaries of the distribution of the species, there are excellent opportunities for students to look at the distribution of crow populations to understand what factors govern the ranges of the four resident species.

### Numbers and Movements

Emperor Akbar once asked Birbal how many crows lived in Delhi. Unhesitatingly, Birbal said, 6387. What if we made a complete census tomorrow and you were found wrong, asked Akbar. Birbal replied that if there were fewer than 6387, evidently some had gone out visiting friends, if there were more, they were currently enjoying the hospitality of their Delhi friends! We still do not have a real understanding of the densities and movement patterns of these birds, but believe that barring in parts of Himalayas where they move up in summer and down in winter, house crows remain rooted in one locality all their lives. Even if they are thus amongst the most resident of birds, crows may be commuting considerable distances every day. This is because they spend their nights in a few restricted spots in dense congregations, but fan out over a wider area to feed during the day. Such communal roosting is characteristic of the crows and several other common species of birds as well, for instance, Indian myna, roseringed parakeet, little green bee-eater and pond heron. Moreover several species may roost together. Thus, there is a huge mixed communal roost of Indian myna, jungle myna, house crow and jungle crow on the tree-lined avenues close to the main building of the Indian Institute of Science. Moreover, this is a traditional roosting site, in

We still do not have a real understanding of the densities and movement patterns of these birds, but believe that barring in parts of Himalayas where they move up in summer and down in winter, house crows remain rooted in one locality all their lives.



Communal roosts and the daily to and fro traffic of birds provide wonderful opportunities for students of biology and amateur bird watchers to make scientific contributions.

occupation at least since 1973 when I joined the Institute. At that time the company also included brahminy mynas which have since disappeared, victims of excessive use of persistent pesticides.

These communal roosts and the daily to and fro traffic of birds provide wonderful opportunities for students of biology and amateur bird watchers to make scientific contributions. For species like the house crow, there are conspicuous, well defined roosting sites. It is easy enough to map all such sites in any locality and count the numbers of birds as they predictably fly in at dusk from all directions. All it would take is to station eighteen observers encircling the roosting site, with a clear understanding as to the sector over which they should count. Of course there would be some flying back and forth, but a few replicate counts would provide an excellent estimate with statistically defined confidence limits.

In India we have little good information on numbers of birds, their population densities in different regions and habitats and fluctuations over the years, except through the annual waterfowl counts, largely focussing on migratory birds.

In India we have little good information on numbers of birds, their population densities in different regions and habitats and fluctuations over the years, except through the annual waterfowl counts, largely focussing on migratory birds. Yet it would be easily possible, either for teachers and students of biology or amateur bird watchers to organize themselves to take up counts at communal roosts and generate excellent information on these issues, information that can lead to important new insights into ecology of bird populations. Since all the good data on bird population ecology today comes from colder latitudes this may lead to novel scientific insights. It would also generate good information relevant to conservation issues, for instance on decline of insectivorous birds like brahminy myna.

### **Advantages of Communal Roosting**

Permit me to cite one example of how an apparently simple observation may lead to interesting scientific inferences. In 1971-72, I spent several months observing a mixed communal roost of house crows, jungle crows and Indian myna on the campus of the Film and Television Institute of India in Pune. I

was intrigued by the issue of what was the advantage of such communal roosting. It had been suggested that an important advantage was communication of information on good food sources. Thus birds which had discovered a particularly rich food source the previous day might rapidly fly towards it the next morning. Other birds who had encountered poorer sources the previous day might follow them. But this does not explain why species with very different food habits such as house crow and Indian myna should form mixed roosts. Formation of mixed roosts may instead be favoured by the advantage of running a lower risk of predation because of a more efficient system of warning in a larger group. During my observations on the mixed communal roosts I noted that the house and jungle crows suddenly shifted the location of their roost one day to another clump of trees about 300 m away, leaving Indian mynas behind. Four days later Indian mynas too shifted and rejoined the crows. This suggested that the mixed communal roosts did not occur simply because there were just a few good roosting sites. Instead, they seemed to genuinely confer advantage through lowering risk of predation. Since some scientists had dismissed the latter possibility, my simple observations led to an interesting paper in the well-known bird journal, *Ibis*.

Simple field observations could provide answers to questions like:  
Why should species with very different food habits such as house crow and Indian myna form mixed roosts?

### Daily Rhythm

Other interesting scientific questions, for instance, relating to biological rhythms could be approached through a study of house crow communal roosts. The crows leave the roosts at dawn, rather quickly in small parties, but fly back at dusk over a much longer period in a steady stream of straggling rabbles. One may ask: do they leave (or return) at a fixed time by clock, so that they leave when it is darker in December than in June? Or is it that they leave at some fixed time in relation to the sunrise, so that they leave much later in December than in June? Or is it that they leave at some constant light intensity, so that they leave later on a cloudy compared to a bright day in the month of June? How is communal roosting affected by nesting? Do one or both parents stay overnight on the nest when looking



after eggs and chicks? A whole range of such questions is waiting to be explored.

### Social Behaviour

The house crow is highly sociable, occurring always in pairs or parties, small and large, roosting together in huge numbers, but nesting in a dispersed fashion. Yet we do not know simple facts relating to the social behaviour of this familiar bird. The authoritative *Handbook of the Birds of India and Pakistan* states that it is evidently paired for life. At the same time, it reports that copulating pairs are frequently mobbed by other crows and that there is good circumstantial evidence of much promiscuity in mating. These are contradictory and it would be very interesting to ascertain if they are indeed paired for life.

### Communication

Gregarious, sociable, clannish and cunning, the house crows are constantly chattering amongst each other. Their commonest call is a shrill *quah quah*, or a more nasal *kaan kaan*. When resting they soliloquize in a more musical *kurrrrr*. In addition they have a variety of special calls, for instance a subdued *kree-kree-kree* accompanies the assumption of a pre-copulatory posture by the female. Salim Ali says that at night some roosting individuals occasionally emit a single drawn-out *caw* unlike anything heard during the day time – may be the outcome of a nightmare! Evidently there is scope for careful recording of the whole variety of crow calls and unravelling their function. For instance, they appear very effective at communicating the finding of food. When winged ants or termites emerge in their thousands from a nest at the onset of rains, it takes at most ten minutes before tens, even hundreds of crows congregate on this rich food source. Is this aided by special food-finding calls? Or is the information conveyed through some special flight patterns?

Salim Ali says that at night some roosting individuals occasionally emit a single drawn-out *caw* unlike anything heard during the day time – may be the outcome of a nightmare!

House crows are wonderful acrobats. In urban localities numbers collect at sunset on a specially tall tree or a high building especially when a stiff wind is blowing and engage in a variety of



spectacular games, supplanting one another from some coveted vantage-point, or competing in fantastic maneuvers – shooting down through space with wings closed or with lightning twists, turns and sideslips and somersaulting and looping-the-loop, thoroughly enjoying themselves. Do these antics have any function, for instance, selection of mates? Do they reach a crescendo just before the beginning of the nesting season? Many such questions remain open, begging to be explored.

**Mobbing**

House and jungle crows are avid mobbers of cats, owls, kites, or urchins going around with catapults. They also mob their nest-parasites, the koels. Indeed, crows seem to spend an inordinate fraction of their time indulging in mobbing. It would be interesting to work out their time budget and assess how much time and energy is devoted to this pastime. Evolutionary biologists believe that time-energy budgets are so moulded that the overall mix of activities maximizes the number of copies of its genes that an animal leaves behind. If so, what exactly do crows achieve by mobbing pariah kites who are not their predators? Perhaps pariah kites are their competitors for human refuge and the mobbing increases the crows' share of this resource. Such a hypothesis would surely merit exploration.

**Nesting**

Crows nest primarily from April to June, though the season may extend from March to August depending on the locality. Their nesting season is

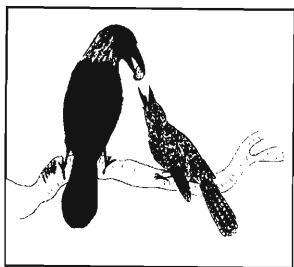


*Crows are fond of aerial manoeuvres.*

*Crows spend a great deal of time mobbing birds of prey.*







**Koels parasitize nests of crows.**

heralded by the 'koohoo-koohoo' call of the nest-parasitic koels who victimise the house crow. The nests are normally placed in a fork of a mango or some other convenient tree about 3 m off the ground. The nests may be entirely constructed of iron wires and nails in lieu of sticks and twigs in settings like the heart of Mumbai city. About 4-5 eggs are laid and both sexes participate, presumably equally, in care of young. Crow nests are quite conspicuous and furnish excellent opportunities for observing the breeding behaviour. In case of some other nest parasites it has been demonstrated that the parasitism does benefit the host through control of external parasites on bodies of chicks. The conspicuous and famous parasitisation of the crow by koel surely deserves an in-depth investigation.

### Myth and Reality

I have written this account, not in the standard format as with the other Lifescape accounts, but more to stress on the manifold opportunities for scientific studies that this ubiquitous, familiar species opens up. Even then I have only touched the tip of the iceberg, many, many other possibilities exist if only one would look for them. Yet as children we are exposed to much nonsense about this most constant of animal companions of ours. A popular Marathi nursery rhyme talks of a crow grieving its black colour, envying the lily-white egrets, buying a soap and so thoroughly scrubbing itself that it dies, bleeding. The reality of course is that the crow is a scourge of the egrets at their breeding colonies, preying with impunity on their eggs and chicks. Far from being ashamed, this cocky bird is undoubtedly confident that black is beautiful!

### Suggested Reading

- [1] S Ali and S Dillen Ripley, *Handbook of the Birds of India and Pakistan, Corvidae, Vol. 5, 198-266, 1972.*
- [2] M Gadgil, *The function of communal roosts: relevance of mixed roosts, Ibis, Vol. 114 531-533, 1972.*

Illustrations by:  
K A Subramanian, CES, IISc.

Further enquiries and offers of help relating to Project Lifescape may be directed to Madhav Gadgil.