

## Study of nest material and importance of site selection for construction of nest by *Sturnus pagodarum*

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### Abstract

Brahminy Starling (or Brahminy myna), bird built nest in cavity or holes in tree or boughs, in wall or roof of house, rocks, old building, railway station and holes of wells. The brahminy starling is a single breeding bird in a breeding season. In this study it was observed that construction of nests were start in end of the February and completed in end of the April 2018. Eggs was observed in the month of April 2018. Which are pale bluish green in colour. Also it was observed that nesting materials were twigs of neem, gulmohar, soft and dry grass and green leaves of local region, piece of dry cloths, small piece of plastic or transparent polythene strips, metal wire, feathers of other birds etc. Nest cavity of egg chamber is lined with comparatively softer material like fine stem, fresh grass, green leaves of local plants and cotten etc. Selection of nesting site were depend on many factors such as completely safe area from predators, availability of adequate amount of food and water, protected from bad climate and physiological conditions of birds, habitat, clutch size, size of birds, or reproductive success patterns of chick, longevity conditions of a species.

**Key words:** Building material of nest, brahminy starling, sites selection, *Sturnus pagodarum*

### Introduction

The genus *Sturnus* belongs to the family Sturnidae (a family of starling and mynas) of order Passeriformes (class - Aves). The brahminy myna measures about 19 - 22 cm in length. The body has beautiful garb, which is combination of reddish, brown and black colours with a distinguished black crest. The bill and the legs are bright yellow and there are yellow wattles (loose folds of skin) on the gape. Both sexes are similarly garbed, but crest is slightly smaller in females. Juveniles have dull coloration and no distinct crest, but with black patch of feathers on head. It is widely distributed in India from southern Kashmir to Kanyakumari up to 88°E longitudes in the east and Rajasthan, northern Gujrat, Kutch in the west (Bolger et. al., 2005). In Indian subcontinent, this genus is represented by as many as 9 species and 19 subspecies (Ali and Ripley, 1983, 1987). It was also recorded in Pakistan, Cylon, Nepal and Thailand (Kazmierczak, 2008) and mainly resident. Their habitat are open areas, farmland, dry deciduous forest etc. It is locally common but capricious and subject to seasonal movements in monsoons visiting northern cold-winter parts (as high as 1400-1600 m) in summers. Birds are the most important ecological indicator of the environment (Bibby et. al., 1992). Brahminy mynas are generally found in grasslands, fields and gardens i.e. in wild as well as near to human habitation. Brahminy mynas are ground feeder, omnivorous, feed chiefly on fruits, berries, vegetables, nectar and insects (Bruggers, 1983; Feare and Craig, 1999; Rasmussen and Anderton, 2005), but in captivity are easily maintainable on soft and proteinaceous diets and thus suitable for

laboratory investigations. They are sociable species and move in company of 4 to 7 members and have communal roosts. Communal roosting means it roosts together with other species of Myna as well as with other avian species, also known as heterogeneous roosting (Mahabal, A. 1997). Usually, brahminy myna is noticed in company of other species of myna, although they do not belong to the same genus like Parakeets. The breeding season extends from March to September, but the main reproductive period varies with the locality (earlier in south and later in north India) (Ali and Ripley, 1987). The normal clutch is 3 to 6 eggs are laid which are pale bluish green in colour. The eggs hatch in about 11 to 15 days. It is reported that they breed naturally in cavities and holes in trees, rocks scraps, building walls, in old nest of other bird species and also in man made nest boxes (Kaur and Khera, 2014; Dhandhukia and Patel, 2012). Nest were occupied by common myna along with other species such as rose - ringed parakeet, oriental magpie robin, spotted owlet and house sparrow etc. Panicker (1980) observed that when barbets completed their breeding, the nest was taken over by Brahminy myna at the height of 5 to 7.5 meters. Common myna commonly breeds between March to September of every year and lay three clutches of eggs in one season (Pell and Tidemann, 1997). Both sexes share the responsibilities of nest building, incubation and caring of youngs (Ali and Ripley, 1987). Nest is made from a collection of grass, dead leaves, feathers and rubbish stuffed in a hole or tree-trunk or artificial cavities, railway station and wells (Dhandhukia et. al, 2012), sometime has colonial nesting and nesting in steal anchor pipe also been reported by Sharma 1996.

### **Materials and methods**

The study was carried out from end of the February to end of the May 2018 in and near the D.R.A. Government P.G. College Bisauli, Badaun (U.P.) India under natural condition. Which latitude is 28.2978°N and longitude is 78.9345°E and 164 meters above the sea level. Data were collected from the nest by the help of wood leader and binoculars. Nest searching was done on alternate days during the study period of three months. The observation on nest building were started in the beginning of the breeding season. The nests were studied for their structure and types of nest building material and importance of site selection for construction of nest. It is reported that they breed naturally in cavities and holes in trees, rocks scraps, building walls, in old nest of other bird species and also in man made nest boxes.

### **Result and Discussion**

Brahminy mynas are monogamous and show territorial behaviour for protection of nesting sites during the breeding season. This species also have a single annual breeding season of about six month from March to August (Ali and Ripley 1972). In early breeding season, both male and female brahminy myna bird were responsible for the selection of nesting site. Both birds take 15 to 25 days in the selection of nesting site (Lamba, 1963g). Distance between breeding and feeding sites (abiotic and biotic components) also played an important role in the selection of breeding sites, along with safety from predators and inter-specific competition (Dhandhukia and Patel, 2012). Selection of nesting site is considered to be one of the most important factors in reproductive success in many species of birds (Li and martin, 1991) and it has been recorded that in some species, reproductive success has been reduced due to poor nest site selection (Frederick, 1986). Any physical measurement of nests (size or nesting materials used) should be done after the nestlings have fledged from the nest (Mayer Gross et al., 1997). Artificial wooden nest boxes, a hole in a tree trunk or in a wall is the usual nesting site for the brahminy myna. Male brahminy myna bird appears to select a possible nesting site but the final selection is done by the

female brahminy myna bird. Both male and female bird completes its nest with in 12-25 days (Lamba, 1963f). It was observed that the nesting materials are stem of small plants, stem of creepers, thin and paliable twigs, small piece of cloth and papers or rag, feather of local birds, leaves of neem, pepal, other local plants and threads etc. All materials are used in the constraction of the base and outer lining of the nest. The egg cavity is slight depression in the platform like nest is constructed by softer material like very thin grasses, stem and green leaves. The completed nest is a rough circular pad shaped structure with a central depression. The size of the nest depends upon the size of the hole in which it is located. Measurement of diameter of pad is 10 to 14 cm and the thickness of the pad measured from 10 to 12 cm. Depression of egg chamber measured about 4 to 6 cm in diameter and 2 to 3 cm in depth. Green leaves in nest play an important role to provide soft bed for the nestlings and also maintain humidity in the nest (Sengupta, 1982). Maximum nest material act as insulator that is help in decreasing heat exchange result play an important role in eggs incubation (Panicker 1980). When the nest construction activity completed then egg laying process start. Generally in one clutch brahminy myna laid four to five eggs at regular intervals of 24 hours. Generally myna started construction of their nest in the second week of March. At the time of site selection, courtship behaviour was seen in mid march of 2016. During drought many breeding pairs of birds species showed dealy in nesting for several weeks (McCreeedy et al., 2015). In male and female of common myna mated many times in early morning. It is continued until the day before the last egg was laid. Also reported in head bowing and bobbing by Kannan and James 2001. Common myna commonly breeds between March to September of every year and lay three clutches of eggs in one season (Pell and Tidemann, 1997). Common myna prefer red trees of Gulmohar followed by silver oak for making cavity nests and egg laying in comperision to other trees (Kaur and Khera, 2014). In this study we observed that twigs and leaves of Neem (*Azadirachta indica*) was used in nesting material, neem work as insecticidal and antipathogenic agents, also has been reported by Sengupta, 1982; Clark and Mason, 1985; Dhandhukia and Patel, 2012. Brahminy myna preferred those areas which are surrounded with trees and buildings to make nests. In this study we noticed that material used in nest construction were shown as twigs, dry grass, leaves and roots, feathers of birds, piece of cloths, rubber ring, stem of local plant species, also found plastic bags, transparent polythene strips, snake slough, metal wire (Lamba 1963). Distance between breeding and feeding sites (abiotic and biotic components) also played an important role in the slection of breeding sites, along with safety from predators and inter-specific competition (Dhandhukia and Patel, 2012). Male and female Brahminy myna breed during the period when suitable food for their young ones is in abundance.

### **Conclusion**

In this study it was concluded that generally Brahminy starling selected those areas for nest construction which is completely safe area from their predators, availability of adequate amount of food and water, protected from bad climate and physiological conditions of birds, habitat, clutch size, size of birds, or reproductive success patterns of chick, longevity conditions of a species. Nest is constructed by small twigs, pieces of small stem, stem of creepers, stem of grass, feather, pieces of small cloths, plastic and papers, skin of snake, cigarettes wrappers etc. Nest cavity of egg chamber is lined with comparatively softer material like fine stem, fresh grass, green leaves of local plants and cotten etc. Brahminy starling birds completes their nest with in 16 to 26 days. Eggs was observed in the month of April 2018. Which are pale bluish green in colour.

### **References**

1. McCreedy Chris, Charles van and Riper. (2015). Effect of Drought and Fire on Bird communities of the Kofa National Wildlife Refuge. Arizona III.
2. Kaur S. and Khera K. S. (2014). Nesting and egg laying of common myna in agricultural landscape. Indian Journal of Applied Research, Volume: 04, Issue 02, 31-33.
3. Dhandhukia S. N. and Patel K. B. (2012). Selection of nesting sites and nesting material in common myna (*Acridotheres tristis*), in an urban area. International Journal of pharmacy & life science. Volume: 03, Issue 8, 1897-1904.
4. Kazmierczak K. (2008). A field guide to the birds of the Indian Subcontinent. Christopher Helms, London.
5. Bolger, D. T., Michael A. Patten, David C. Bostock (2005). Avian reproductive failure in response to an extreme climatic event *Oecologia*. 142, 398-406.
6. Rasmussen, P. C. and Anderton, J. C. (2005). Birds of South Asia, The Ripley Guide. Smithsonian Institution and Lynx Edicions. 2: 584.
7. Kannan, R. And James, D. (2001). The birds of North America Online: Common Myna.
8. Feare, C. and Craig, A. (1999). Starlings and mynas. Illustrated by Barry Croucher, Chris Shields and Kamol Komolphalin. Princeton University Press Princeton New Jersey.
9. Mahabal, A. (1997). Communal roosting in common myna *Acridotheres tristis* and its functional significance. *J. Bombay Nat. Hist. Soc.* 94 (2): 342-349.
10. Pell, A. S. and Tidmann, C.R. (1997). The ecology of the common myna in urban nature reserves in the Australian Capital Territory. *Emu* 97: 141-149.
11. Sharma, S. K., (1996). Nesting in anchor pipe by Brahminy myna, *Sturnus pagodarum* (Gmelin). *J. Bombay Nat. Hist. Soc.* 93 (1): 91.
12. Bibby, C., Burgess, N. D. and Hill, D.A. (1992). Bird census techniques, Taylor & Francis, Academic Press, London.
13. Li, P. and Martin, T. E. (1991). Nest site selection and nesting success of cavity nesting birds in high elevation forest drainage. *Auk* 108: 405-418.
14. Ali. S and Ripley S. D. (1987). Handbook of the Birds of India and Pakistan, Together with those of Bangladesh, Nepal, Bhutan and Sri Lanka, (Oxford University Press, Delhi, India).
15. Frederick, P. C. (1986). Conspecific nest takeovers and egg destruction by White Ibises. *Wilson Bull* 98: 156-157.
16. Clark, L. and Mason, J. R. (1985). Use of nesting material as insecticidal and antipathogenic agents by the European Starling. *Oecologia* 67: 169-176.
17. Ali. S and Ripley D. (1983). Handbook of the Birds of India and Pakistan, (Oxford University Press, Bombay, India).
18. Ali. S and Ripley S. D. (1983). Handbook of the Birds of India and Pakistan, (Oxford University Press, Bombay, India).
19. Bruggers, R. L. (1983). Vertebrate damage control research in agriculture. Annual Report. DWRC/USAID. 101 p.
20. Sengupta, S. (1982). Studies in the life history of the common myna (*Acridotheres tristis*). *Proc. Zool. Soc. Calcutta*. 21: 1-27.

21. Panicker, K. N. (1980). Ecology of hole nesting bird. J. Bombay Nat. Hist. Soc 75: 1227-1237.
22. Ali. S and Ripley S. D. (1972). Handbook of the Birds of India and Pakistan, 5 (Oxford University Prees).
23. Limba, B. S. (1963). The nidification of some common Indian myna (*Acridotheres tristis*) Linn. Res Bull Punjab Univ14: 11-20.
24. Lamba, B. S. (1963f). Nidification of some common Indian birds No. 7. The Spotted billed or grey Pelican, *Pelecanus philippensis* Gmelin, Payo The Indian Journal of Ornithology, 1 (2): 110-119.
25. Lamba, B. S. (1963g). Nesting habits of common birds. Everyday Science. VIII, (3-4): 47-55.
26. Mayer Gross, H., Crick, H. Q. P. and Green wood, J. J. D. 1997. The effect of observers visiting the nests of Passerines an experimental study. Bird study 44 (1): 53-65.