



An account concerning arrival and departure time of few selected winter migratory birds in Haryana rural ponds

Rohtash Chand Gupta¹, Tirshem Kumar Kaushik² and Surjit Kumar²

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Abstract

The present study has been carried out in few selected Northern Districts of Haryana State for a period of three years w.e.f. 2005-08. Attention has been focused on winter migratory birds that sojourn in Haryana and other parts of north Haryana. These birds come to Haryana from far off places, across the rim of great Himalayas and beyond. Only eighteen birds' departure and arrival time was recorded for study convenience. These migratory birds do not arrive in Haryana in one lot, on one date and at one time. Instead, these display a definite, pattern, decorum and time table, specific to species and even specific to place subject to varying temperature barometer.

The present study reveal that Northern Shoveller (*Anas clypeata*) Northern Pintail (*Anas acuta*) Common Teal (*Anas crecca*) and Gadwall (*Anas strepera*) arrive in October; Bar-headed Goose (*Anser indicus*) Graylag Goose (*Anser anser*) Spot billed Duck (*Anas poecilorhyncha*) arrive in November. As far as departure time is concerned, it is interesting to note that Mallard generally depart in February. Birds like Greylag Goose (*Anser anser*) Spot-billed Duck (*Anas poecilorhyncha*), Common Pochard (*Aythya ferina*), Eurasian Wigeon (*Anas penelope*), Tufted Pochard (*Aythya fuligula*) Red-crested Pochard (*Rhodonessa rufina*) and Rudy Shelduck (*Tadorna ferruginea*) departs in March every year. On the other hand, Common Coot (*Fulica atra*) Northern Shoveller (*Anas clypeata*) Northern Pintail (*Anas acuta*), Common Teal, (*Anas crecca*), Gadwall (*Anas strepera*) and Bar-headed Goose (*Anser indicus*) depart as late as April. Simultaneously, another aspect of gradual increase in number from October to December and conversely gradual decrease in number from January to February was also analyzed in case of few birds only. Greatest flocks of nearly 250 or so were in case of Northern Shoveller (*Anas clypeata*), Northern Pintail (*Anas acuta*), Common Teal (*Anas crecca*) and Common Coot (*Fulica atra*). Contrary to this, least number in a flock less than fifteen was seen in case of Bar-headed Goose (*Anser indicus*), Greylag Goose (*Anser anser*) etc.

Keywords: Arrival patterns, Climax number, Departure patterns, Rural ponds, Winter migratory birds

Introduction

Migration in animals is a very natural phenomenon which amongst other factors is guided and warranted by environmental related scarcity of food. There are innumerable curious examples of fish migration in high seas corresponding to ambient temperature regimes in consonance with juxtaposed specific water currents loaded with variety of food consisting of plankton and nekton. Similarly, migration has been observed in large sized mammals (Elephants, Beast and Antelopes etc.)

However, migration in birds is an extremely complex phenomenon due to unknown factors and

unknown variety of tools of migration, whooping distances of migration and several others puzzling migration related phenomenon. Arctic Tern covers a distance of 17,000 kms during their migration from Arctic to Antarctic to avoid the harsh winter of Arctic and moves to the cozy Antarctic summer (Ali, 1996). Eastern Curlews (*Numenius madagascariensis*) migrate from south eastern Queensland to the North eastern Russia by traveling a distance of 12000 kms. Demoiselle crane (*Anthropoides virgo*) migrates from its Southern Russia to breeding ground. Gujarat by traveling approximately 4,917 kms. Eurasian Crane (*Grus grus*) migrates from their Siberian breeding grounds to the Bharatpur National Park, Rajasthan (Javed *et al.*, 2003). Bar-headed goose (*Anser indicus*) migrates from China to India over the Himalayas (Javed *et al.*, 2003). Arctic loon (*Gavia artica*) migrates from Northern Russia to Southern Europe to avoid the

Author's Address

¹ H. No. 566 Sector-3, Kurukshetra, Haryana (India)
E-mail- rohtashchandgupta@rediffmail.com

² Department of Zoology, Kurukshetra University,
Kurukshetra, Haryana (India)
E-mail-tarshemkaushik@rediffmail.com

harsh condition of the winter (Bodenstein and Schuz, 1944).

Golden Plover (*Pluvialis dominica fulva*) breeds in Western Alaska and North East Siberia. It migrates from its breeding ground to the Hawaiian island by traveling at least 3200 kms across open sea. Also Snipe (*Capella hardwickii*) migrates from Japan (breeding ground) to the East Australia and Tasmania (wintering ground) by covering a distance of 4800 km nonstop over the sea (Ali, 1996). Woodcock (*Scolopax rustica*) migrates from Himalayas to the Nilgiris and other hills of south India (Ali, 1996)

This very phenomenon is also reflected in northern India by way of extensive migratory birds that arrive from far off areas like Eurasia (Eurasian Wigeon, Mallard, Northern Pintail, Common Pochard and Spotted Redshank), China (Bar-headed Goose) and across the length and breadth of Himalayas (Great-Crested Grebe, Bar-headed Goose, Rudy Shelduck and Common Sandpiper Common Redshank and Pallas Gull (Ali and Ripley, 1968).

Haryana provides a very potent example of receiving lakhs of winter migratory birds that arrive in Sanctuary (Bajaj, 2002) and rural ponds (Kaushik, 2008). In the present study, attention has been focused on the migratory birds to understand their "arrival pattern" w.e.f. September to December and conversely "departure pattern" w.e.f. January to March-April in each winter season. It is to mention that some information on birds in Haryana has been made available by Department of Zoology, Kurukshetra University Kurukshetra (Gupta and Bajaj, 1989, 1991; Gupta and Goel, 1994; Gupta and Bajaj, 1996; Gupta and Midha, 1992, 1993, 1994, 1995; Gupta and Bajaj, 1998, 1999, 2000; Gupta and Kumar, 2009 and Gupta *et al.*, 2009).

Materials and Method

Haryana has 21 districts and its geographical position lies between 27° 37'N to 30° 35'N latitude and 74° 28'E to 77° 36'E longitude. The nodal point of conducting survey work was Kurukshetra University (Kurukshetra district lies between latitude 29° 52'N to 30° 12'N and longitude 76° 26'E to 77° 04'E in the north-eastern part of the state). Kurukshetra being in the Northern region of Haryana, having seven Northern Districts, viz. Panchkula, Ambala,

Yamunanagar, Kurukshetra, Kaithal, Karnal and Panipat were selected for the purpose of recording observations on winter migratory birds. Each district was further sub-divided from the view point of sub-divisional blocks and in each sub unit, such villages were marked for observations as possessed perennial ponds. In all, approximately 550 villages were selected and study was conducted for three winter season w.e.f. September 2005 to April 2008. Ponds were visited as per convenience for at least on 2-3 occasion in a given winter seasons. The camera used was Zenith (1986-Model) with Russian made telelens. The identification of birds was done using field guides (Ali and Ripley, 1968; Kumar *et al.*, 2005 and Grimmet *et al.*, 1998).

In so far as arrival pattern is concerned, winter migratory birds were carefully photographed within 2-3 days of their arrival and approximate number of bird species-wise were recorded until their climax number reached in December each year. Similarly, the departure pattern and gradual thinning of numbers through January, February and March was recorded. The arrival and departure patterns were observed in four ponds viz. Raipur village pond (Karnal), Dhurala village Pond (Kurukshetra), Gumthala village pond (Yamunanagar) and Brahamsarowar (Kurushetra) considering sixteen wetland winter visitor birds. All these ponds are approximately of 4-5 acres area and were easy to be divided into four parts with the help of permanently posting five poles, one in the centre, and the other four at equal distance from each other on the periphery of the pond. The observations were simply deduced to reflect the arrival and departure patterns in each case. Further analysis was done through software to extrapolate the patterns in the shape of histograms and graphs.

Results and Discussion

Results of arrival and departure time of few selected migratory bird species are given in Table 1 and 2 and Fig. 1-18. As mentioned earlier, the present paper endeavors to understand the arrival (September to December) and departure (January-March) of winter migratory birds that are observed in rural Haryana ponds every winter. In all, eighteen wetland birds viz. Northern Shoveller, Northern Pintail, Common Teal, Spot billed Duck, Mallard, Garganey, Eurasian Wigeon, Common



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Pochard, Tufted Pochard, Red-Crested Pochard, Bar-Headed Goose, Graylag Goose, Gadwall, Common Coot, Pheasant tailed Jacana and Comb Duck were selected out of forty six species observed during the study period in Northern Haryana (Table 1 and 2). It is evident from Fig. 1 that winter migratory birds start arriving in September and continue to do so until December.

However, maximum species do arrive in October and November each year (Fig.1). The first to arrive is Common Coot in September and last to arrive is Eurasian Wigeon in December (Table1). Northern Shoveller, Northern Pintail, Common Teal and Rudy Shelduck arrived in the second quarter of October each year. However, Gadwall, Bar-headed Goose, Greylag Goose, Spot-billed

Table 1: Arrival and departure time of few selected migratory birds species at village ponds in northern Haryana during 2005-2008

S.No	Common name	Month of arrival			Month of departure		
		2005	2006	2007	2006	2007	2008
1	Common Coot	25Sept	28Sept	20 Sep.	25April	27April	10 May
2	Northern Shoveller	20Oct.	21Oct.	10 Oct.	28April	30April	25 April
3	Northern Pintail	20 Oct.	22Oct.	10 Oct	10April	15April	15 April
4	Common Teal	20 Oct.	22Oct.	12 Oct	12April	20April	20 April
5	Gadwall	25Oct.	10Nov	1 Nov	25Mar.	28Mar	30 Mar
6	Bar-headed Goose	1Nov.	5Nov.	30 Oct.	20April	22April	25April
7	Greylag Goose	5 Nov	10 Nov	1 Nov	28 Mar	25 Mar	30 Mar
8	Spot-billed Duck	25 Oct	22Oct.	25 Oct	22Mar	28Mar	25Mar
9	Mallard	25Nov.	30Nov.	20Nov.	5Feb.	10Feb.	20 Feb
10	Common Pochard	22Nov.	25Nov.	10 Nov.	25Mar	30Mar	28 Mar
11	Eurasian Wigeon	25Nov.	30Nov.	20 Nov.	20Aug	22Aug.	30 Aug
12	Lesser Whistling Teal	15Mar.	20Mar.	10 Mar.	20Aug	25Aug	30 Aug
13	Garganey	15Mar.	20Mar.	10 Mar.	30May	30May	30 May
14	Tufted Pochard	25 Nov	28 Nov	20 Nov	30 Mar	27 Mar	30 Mar
15	Red-crested Pochard	22 Nov	25 Nov	20 Nov	28 Mar	30 Mar	30 Mar
16	Rudy Shelduck	30 Oct	28 Oct	1 Nov	30 Mar	28 Mar	30Mar
17	Comb Duck	30 May	1 June	5 June	10 Sep	15 Sep	02 Sep
18	Pheasant tailed Jacana	28 May	30 May	31 May	25Aug	20 Aug	28 Aug



Mallard, Common Pochard, Tufted Pochard and Red-crested Pochard arrived in November (Table 1 and Fig. 1). It is pertinent to mention that Garganey and Lesser Whistling Teal have been seen to arrive

as late as March and Comb duck and Pheasant tailed Jacana in May. Ali and Ripley (1968) reported that Common Teal, Northern Shoveller, Northern Pintail and Gadwall arrived in India by

Table 2: Generalized mannerism of gradual increase in concentration of few selected migratory birds leading to their climax number and the pattern of gradual decline in number at village ponds in Northern Haryana during 2007-08

S.N.	Common Name	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1	Common Coot	70	150	175	175	175	175	150	140	10	2
2	Northern Shoveller	0	125	200	250	250	250	50	20	0	0
3	Northern Pintail	0	90	160	210	210	210	40	0	0	0
4	Common Teal	0	50	120	140	140	140	30	10	0	0
5	Gadwall	0	20	45	65	65	65	40	5	0	0
6	Bar-headed Goose	0	0	4	10	10	10	10	8	0	0
7	Greylag Goose	0	0	10	15	15	15	15	10	0	0
8	Spot-billed Duck	0	5	23	28	28	28	25	20	0	0
9	Mallard	0	0	4	12	12	12	2	0	0	0
10	Common Pochard	0	0	18	35	35	35	30	25	12	0
11	Eurasian Wigeon	0	0	12	30	30	30	17	0	0	0
12	Lesser Whistling Teal	0	0	0	0	0	0	8	14	14	2
13	Garganey	0	0	0	0	0	0	28	34	30	0
14	Tufted Pochard	0	0	8	18	18	18	0	0	0	0
15	Red-crested Pochard	0	0	25	45	48	50	10	0	0	0
16	Rudy Shelduck	0	40	65	70	70	60	10	0	0	0

end of August and the influx continuing till November. In so far as departure in a specific winter season is concerned, interestingly Mallard, leave here for their original home in February and it arrived in December only. Maximum birds departed in March (Gadwall, Greylag Goose, Spot-billed Duck, Common Pochard, Tufted Pochard, Red-crested Pochard and Rudy Shelduck) (Table 1 and Fig. 2). Further, Common Teal, Northern Shoveller, Northern Pintail and Bar-Headed Goose departed in the last week of April each year during the study period. On the contrary, Comb Duck departed in September in all

the three years. Mazumdar *et al* (2005) reported that Lesser Whistling Teal began to depart in the second quarter of January and Gadwall, Northern Pintail and Common Teal were departed in the second quarter of February at Santragachi Jheel, West Bengal. Ali and Ripley (1968) reported that Gadwall, Northern Shoveller, Common Pochard, Eurasian Wigeon, Tufted Pochard, Red-crested Pochard and Northern Pintail mostly departed by end of March and Rudy Shelduck have mostly departed in April. Precisely speaking, winter migratory birds do not arrive in one lot in Haryana rural ponds. Instead, these arrive in a gradual



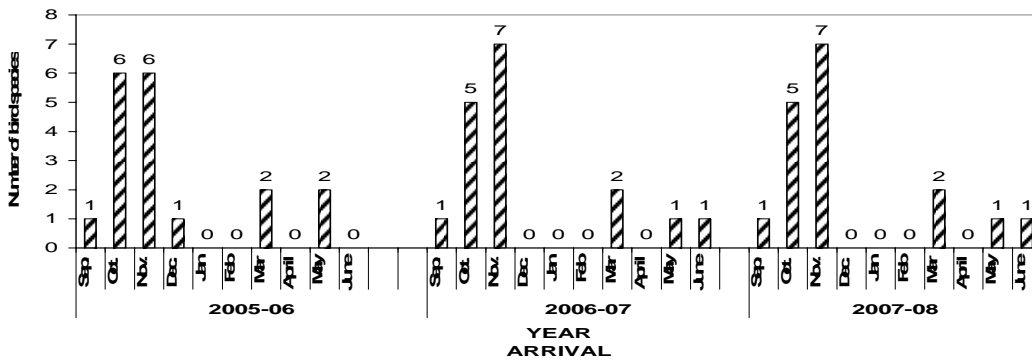


Fig.1

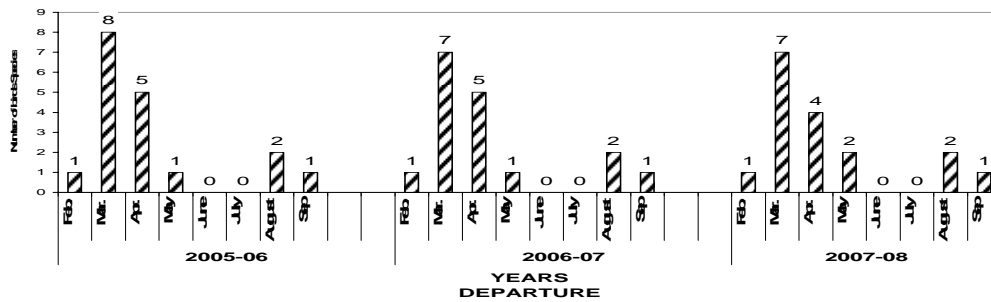


Fig.2

Fig.1-2: Comparative depiction of incidence of arrival time and departure time of some selected migratory birds at village ponds in Northern Haryana during 2005-08 (one bar-diagram stands for total species departed in a month)

manner over successive days, weeks and months (Fig. 3 to 18).

In consequences a “Climax” number is arrived at, more often than not, in the month of December each winter as shown in Fig. 3 to 18, however, in case of Mallard, climax number is generally maintained even after December (Fig.11). Conversely, all these birds display departure mannerism wherein now there is a graded decline of numbers to reach zero level which is seen always in March-April (Fig. 3-18). On the other hand, Comb-Duck and Lesser Whistling Teal departed in June and September respectfully. While comparing the present results, with those of

earlier workers in India elsewhere, it is borne out that Comb-Duck and Lesser Whistling Teal show a unique phenomenon of arrive quite late, so much so, that these two birds visit Haryana ponds virtually in summer. Mazumdar *et al.* (2005) reported that Lesser Whistling Teal was first migrants to arrive during last quarter of October and begin to depart in the first week of January from Santragachi Jheel, West Bengal.

Further, Garganey too (Fig.15) arrive in March and depart in May-June. It is pertinent to mention that Comb-Duck observed in Phalar and Pundri village ponds in Kaithal district, Jalubi and Duliya village ponds in Ambala District,



Hathira village pond in Kurukshetra district, Rugsana and Baras village ponds in Karnal district and Joshi and Alupur village ponds in Panipat district in the month of May-September each year during the study period. Comb-Duck falls in the Schedule II as per CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora). Finally it is recommended that

concerned authorities take appropriate measure at village ponds like Pharal, Pundri, Jalubi, Duliya, Rugsana, Baras, Alupur, Raipur Rodan, Gagsina, Jamba, Barana, Samana, Baras, Kirmich, Hathira, Kunjpura, Gheer, Jhinrehri, Satoundi, Deeg, Dhurala, Chaushalla, Batta, Kalayat, Shergarh, Devigarh, Amin and Sandhir to provide extra protection to winter visitors in Haryana.

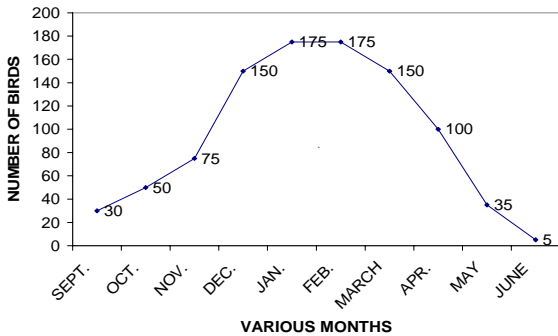


Fig.3 DEPICTION OF MANNERISM OF GRADUAL INCREASE IN NUMBER OF COMMON COOT TO CLIMAX AND GRADUAL DECLINE IN NUMBER

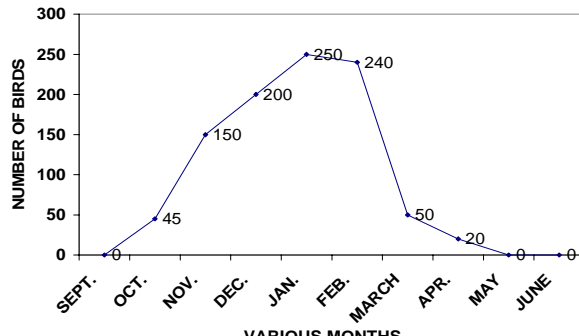


Fig.4 Depiction of mannerism of gradual increase in number of Northern Shoveller to climax and decline in number at Raipur village pond in Karnal District during 2007-08

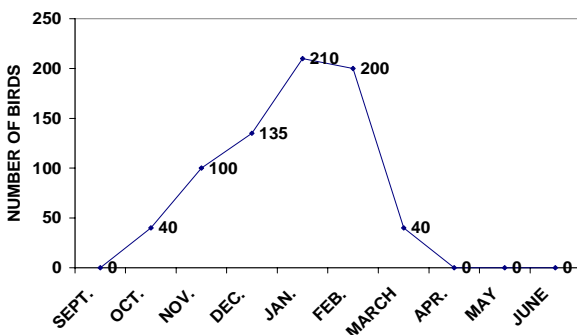


Fig.5 Depiction of mannerism of gradual increase in Number of Northern Pintail to climax and decline in number at Raipur Village pond in Karnal District during 2007-08

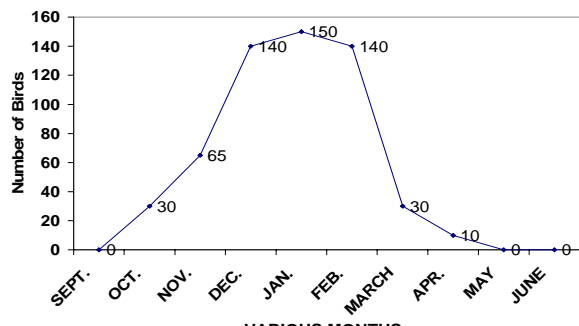


Fig.6 Depiction of mannerism of gradual increase in number of Common Teal to climax and decline in number at Raipur village pond in Karnal district during 2007-08

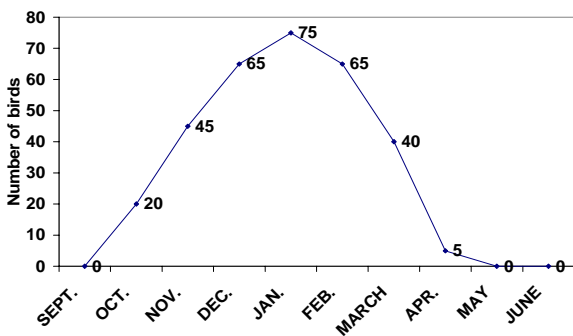


Fig.7 Depiction of mannerism of gradual increase in number of Gadwall to climax and decline in number at Raipur village pond in Karnal district during 2007-08

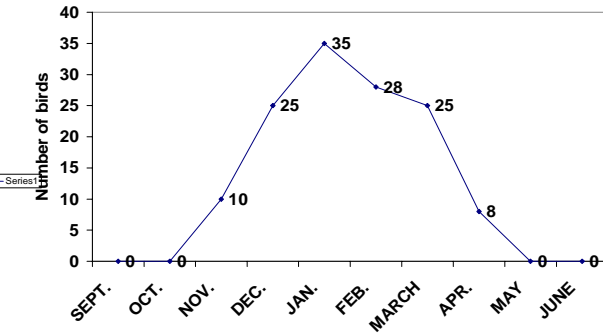


Fig.8 Depiction of mannerism of gradual increase in concentration of Bar-headed Goose to climax and their decline in number at Raipur Village pond during 2007-08

Fig. 3-8: Showing the phenomenon of gradual increase and decrease in number of Common Coot, Northern Shoveller, Pintail, Common Teal, Gadwall and Bar-headed Goose respectively at village ponds in Haryana.



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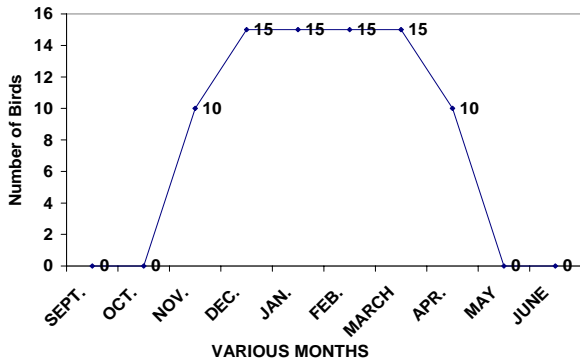


Fig.9 Depiction of mannerism of gradual increase in concentration of Grey lag Goose to climax and decline in number at Raipur village pond in Karnal district during 2007-08

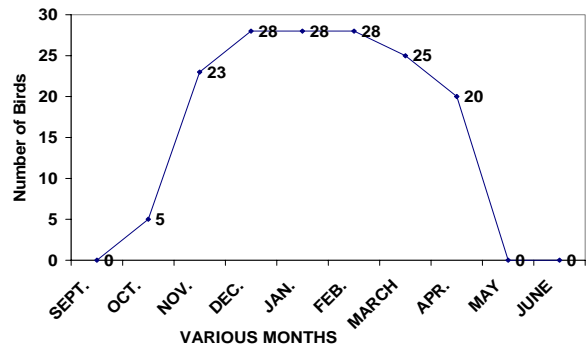


Fig.10 Depiction of mannerism of gradual increase in number of Spot billed Duck to climax and decline in number at Raipur village pond in Karnal district during 2007-08

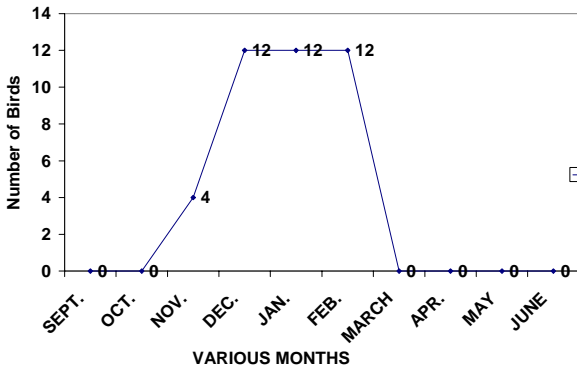


Fig.11 Depiction of mannerism of gradual increase in number of Mallard to climax and decline in number at Brahmarsarovar in Kurukshetra district during 2007-08

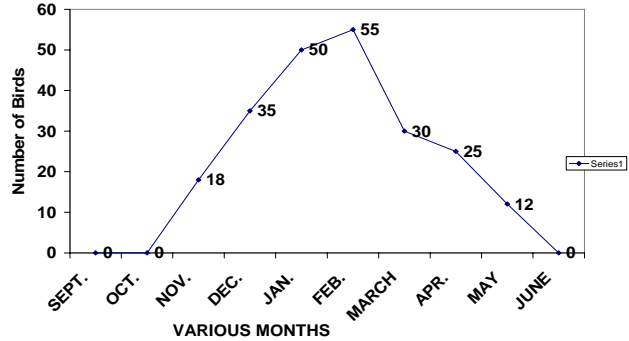


Fig.12 Depiction of mannerism of gradual increase in number of Common Pochard to climax and declining in number at Dhurala village pond in Kurukshetra district during 2007-08

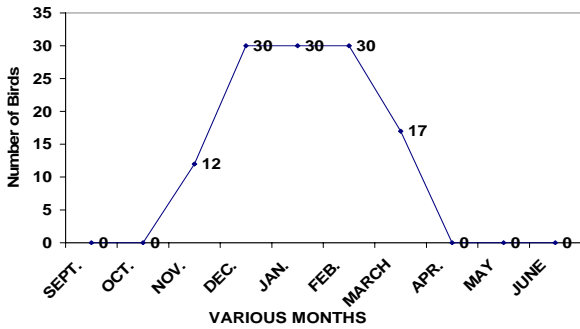


Fig.13 Depiction of mannerism of gradual increase in concentration of Wigeon to climax and decline in number at Raipur village pond in Karnal district during 2007-08

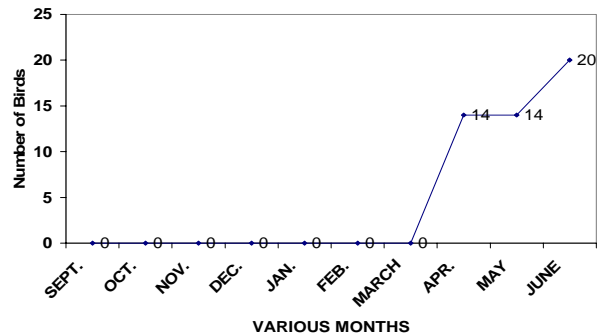


Fig.14 Depiction of mannerism of gradual increase in concentration of Lesser whistling Duck to climax and gradual decline in number at Raipur village pond in Karnal district during 2007-08

Fig.9-14: Showing the phenomenon of gradual increase and decrease in number of Greylag Goose, Spot-billed Duck, Mallard, Common Pochard, Eurasian Wigeon and Lesser Whistling Teal respectively at village ponds in Northern Haryana

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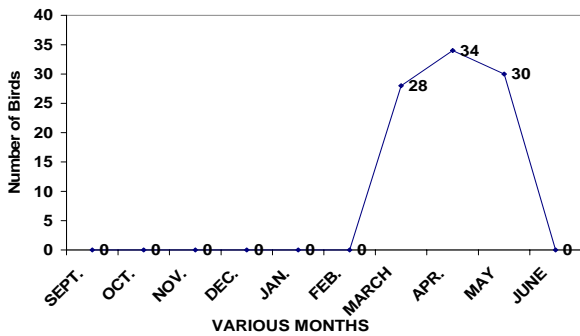


Fig.15 Depiction of mannerism of gradual increase in number of Garganey to climax and gradual decline in number at raipur village pond in karnal district during 2007-08

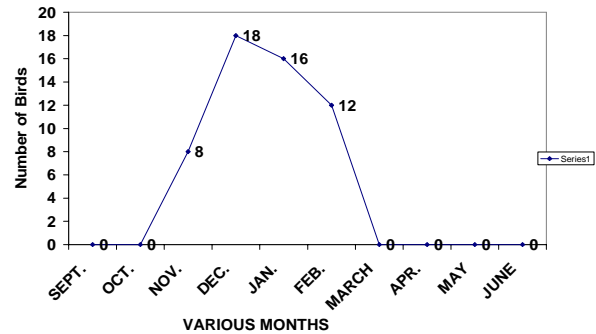


Fig.16 Depiction of mannerism of gradual increase in concentration of Tufted Pochard at Brahmsarovar in Kurukshetra district during 2007-08

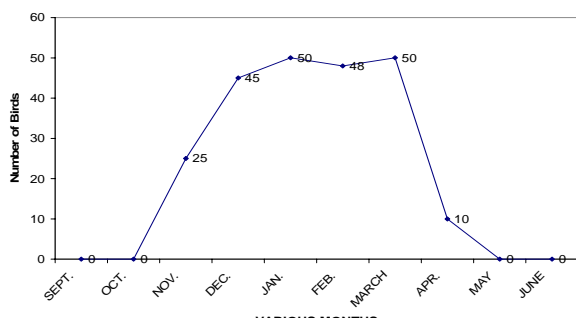


Fig 17. Depiction of mannerism of gradual increase in number of Red-crested Pochard to climax and decline in number at Gumthala village pond in Yamunanagar district during 2007-08

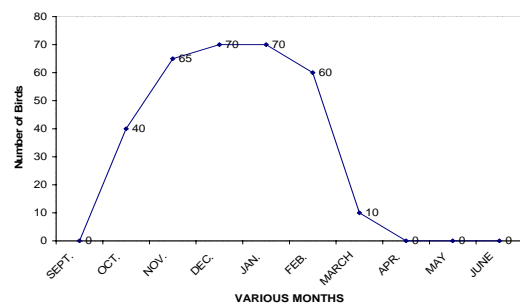


Fig 18. Depiction of mannerism of gradual increase in number of Rudy Shelduck to climax at Garhpur Tapu village pond in Karnal district during 2007-08

Fig.15-18: Showing the phenomenon of gradual increase and decrease in number of Garganey, Tufted Pochard, Red- crested Pochard and Rudy Shelduck respectively at village ponds in Northern Haryana

References

- Ali, S., 1996. *The Book of Indian Birds*. 12th Edition (Revised & enlarged), Oxford University Press, Mumbai.
- Ali, S. and Ripley, S. D., 1968. *Handbook of the birds of India and Pakistan together with those of Nepal, Sikkim, Bhutan and Ceylon*. 1 Vols. Oxford University Press. New Delhi.
- Bajaj, M., 2002. *Studies on the Avian Fauna of Bird Sanctuaries*. PhD. Thesis. Department of Zoology, Kurukshetra University, Kurukshetra.
- Bodenstein, G. and Schuz, E., 1944. Vom Shleitzug des Prachttauchers (*Colymbus arcticus*) *Ornithologische montsberichte*, 52:98-105.
- Grimmet, R., Inskipp, T. and Inskipp, C., 1998. *Birds of the Indian subcontinent*. Oxford University Press, Delhi, 888pp.
- Gupta, R.C. and Bajaj, M., 1999. An analysis of Ecological and behavioral patterns of migratory Shoveller (*Anas clypeata*) (Linnaeus) in certain wetlands of Haryana. *Jeevanti*, 17: 27-35.
- Gupta, R.C. and Bajaj, M., 2000. An analysis of Ecological and behavioural aspects of Cormorants in and around Kurukshetra. *Jeevanti*, 18: 58-67.
- Gupta, R.C. and Midha, M., 1992. Nest lodging sites of Common Jungle and Large Grey Babbler: A study in comparison. *Journal of Haryana Studies*, Vol. XXIV, 90-92.
- Gupta, R.C. and Midha, M., 1994. Observations on the behavior of Large Grey Babbler (*Turdoides malcolmi*) (Sykes). *Cheetal*, 33(2): 42-51.
- Gupta, R.C. and Midha M., 1995. On certain nidification aspects in case of Large Grey Babbler (*Turdoides malcolmi*) (Sykes) (Passeriformes: Muscicapidae). *J. Natcon*, 7(1): 39-46.
- Gupta, R.C. and Midha, M., 1993. Certain investigations into the daily life schedule of Jungle Babbler (*Turdoides striatus*) (Dumont). *Jeevanti*, 11: 15-24.



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- Gupta, R.C. and Goel, P., 1994. On the roosting behaviour of Bank Myna, Common Myna and Pied Myna. *Geobios*, 21: 93-100.
- Gupta, R.C. and Bajaj, R., 1996. *Nidification exercise in case of Pied Myna (Sturnus contra)* SES and PSCST, Dabi Chandigarh: 105-108
- Gupta, R.C. and Bajaj, R., 1989. On the familiar role of male bird of Pied Myna (*Sturnus contra contra*) during incubation of eggs. *Jeevanti*, 7: 27-33.
- Gupta, R.C. and Bajaj, R., 1991. Ecological and behavioural studies on Pied Myna, (*Sturnus contra contra*) Linnaeus. *Jeevanti*, 9: 41-45.
- Gupta, R.C. and Bajaj, M., 1998. Preliminary observations on winter avifauna of a perennial sewer wetland body of Kurukshetra. *Jeevanti*, 16: 46-57.
- Gupta, R.C. and Kumar, S., 2009. Determination of avian biodiversity in Morni hills in district Panchkula, Haryana. *J. Adv. Zool.*, 30 (1):44-53.
- Gupta, R. C., Kaushik, T.K. and Kumar, S., 2009. Analysis of Winter migratory Wetland Birds in Karnal district in Haryana. *J. Adv. Zool.*, 30 (2):104-117.
- Javed, S., Higuchi, H., Nagendran, M. and Takekawa, J. Y., 2003. Satellite Telemetry and Wildlife studies in India: Advantages, options and challenges. *Curr. Sci.*, 85(10) 1439-1443
- Kaushik, T.K., 2008. Studies on the natural history of Avian fauna of natural village ponds in northern Haryana. Ph.D Thesis. Department of Zoology, Kurukshetra University, Kurukshetra.
- Kumar, A., Sati, J.P., Tak, P.C. and Alfred, J.R.B., 2005. *Handbook on Indian Wetland Birds and their Conservation*: i-xxvi; 1-468 (Published by Director, Zool. Surv. India.
- Mazumdar, S., Ghosh, P. and Saha, G.K., 2005. Diversity and behaviour of Water Fowl in Santragachi Jheel, West Bengal, India, during winter Season. *Indian Birds*, 1(3): 68-69.

