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Biodiversity Of Birds And Effects Of Contaminations On Bird's Distribution In Summer Season From Three Stations Of Nallar River Tiruppur, Tamilnadu, India

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Abstract: The birds are considered the most diverse organisms in the animals in all ecosystems. And the Tiruppur district is a highly domesticated area which has many garments industries. Industrial wastes are discharged in circadian manner and contaminated the Nallar river and the Present study is to investigate the bird's distribution and effect of contaminations on bird's distribution from various sites of Nallar river surrounding areas which are highly domesticated and contaminated in Tiruppur district in summer season (March, April, May) from collected data the species richness was evaluated.

Keywords: Biodiversity, Bird's survey, Domesticated areas, Industrialized areas, River contamination.

Introduction: -

Tiruppur is a highly domesticated and industrialized area of Tamil Nadu state, in which the most contaminated two rivers are present 1. Noyyal river, 2. Nallar river. This study is about the areas which are associated with Nallar river. In earth the most important lives supporting system is biodiversity. The birds are found in various habitats and it plays a vital role in all ecosystems. The class Aves in phylum chordate have a large group of birds having varied size, shape, habits and occupy different environments, these birds may be affected by the contaminations occurred in the ecosystems the main objective of the present study is to document the bird diversity from Nallar river region and effects of the contaminations on the bird's distribution. In summer season when the birds are migrating for many reasons.

Objective: -

- ❖ To collect data on the contaminations of Nallar river and the population of bird's distribution in domesticated and industrialized areas around Nallar river in Tiruppur.

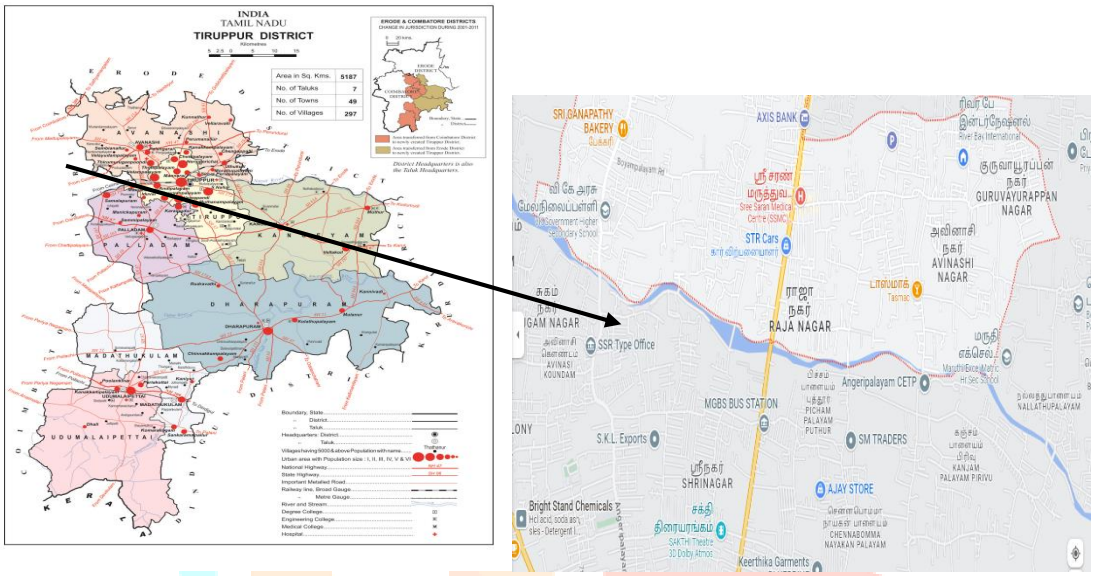
Materials and methods:

I. Study Region:

Nallar river is an intermittent stream which is located in Tiruppur district in Tamil Nadu. Situated between 11o7 ′51″N Latitude 77o23′20″E Longitude with 283 metres (928 feet) Elevation. In which Angeripalayam (1), Poyampalayam (2), Nallathupalayam (3) areas were taken for study

II.Bioassessment of biodiversity of birds: -

Birds were counted using direct count method for this method a suitable area was selected and all visible birds were counted. This counting does not make with any bias to ensure accuracy. The bird census was taken by" Total count" method wherever possible. And it was done by walking around the selected area and the percentage coverage was marked. During counting each section was divided into many small areas and in all areas, birds were counted. All the birds on the ground and water are counted using some equipment such as Binocular and noted using software's like e − birds. Flying behind the observer were not included in the counting.



SOURCE:- Google

Figure 1: study area map showing sample location

Pollution: -

The Nallar river is contaminated with industrial dyeing waters, domestic wastes such as garbage, industrial noise.

Water pollution: -

Water pollution is measured by many ways here the Ph, TDS, DO is used to measure the pollution level of water.

Noise pollution: -

Noise pollution is measured with the help of integrated sound level meter. The noise level is measured as 50-55 dB.

Soil pollution: -

Soil pollution is caused by the domestic and industrial waste dumping.

Air pollution: -

Air pollution is caused by the industrial smog.

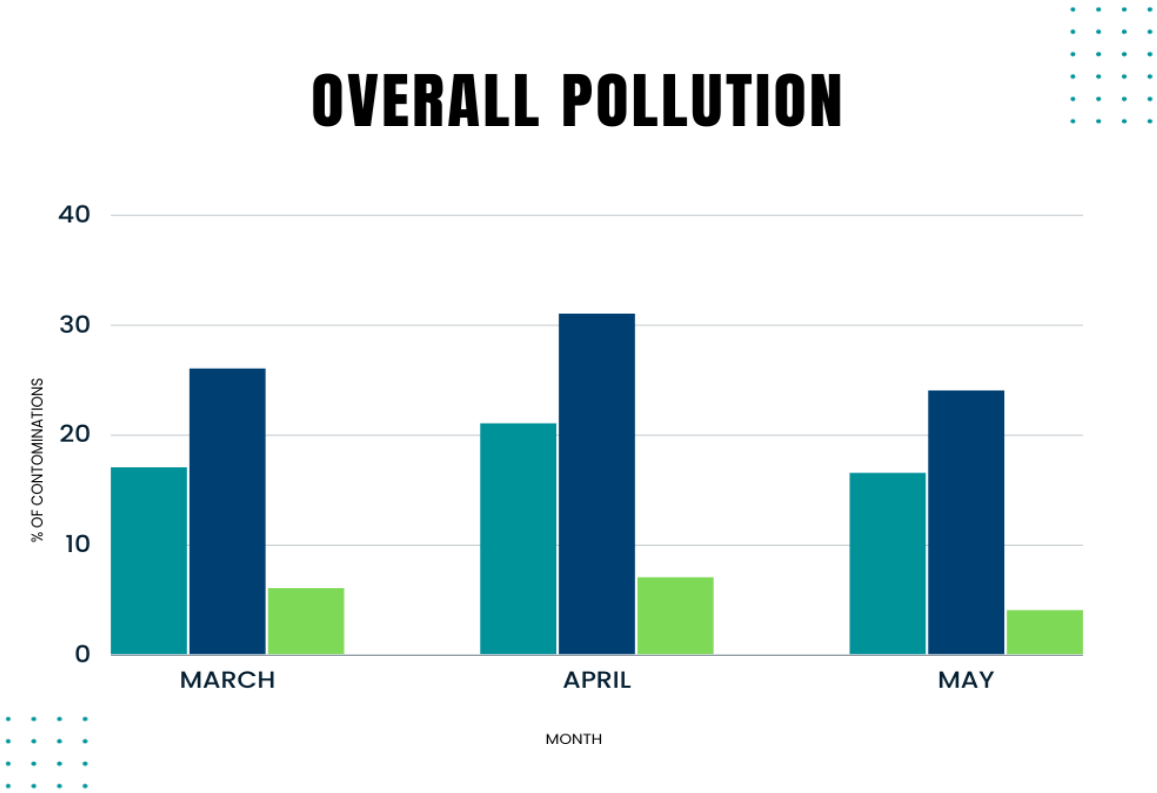


Chart 1: Overall contamination during the survey period

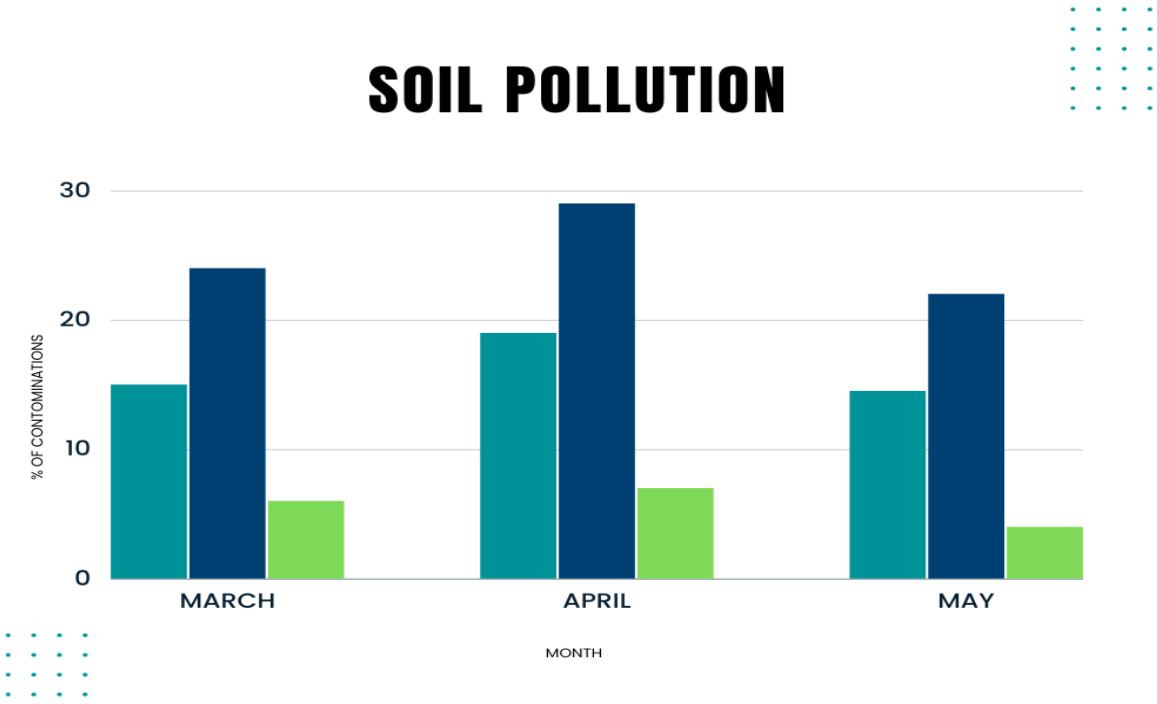


Chart 2: Soil Pollution during the survey period

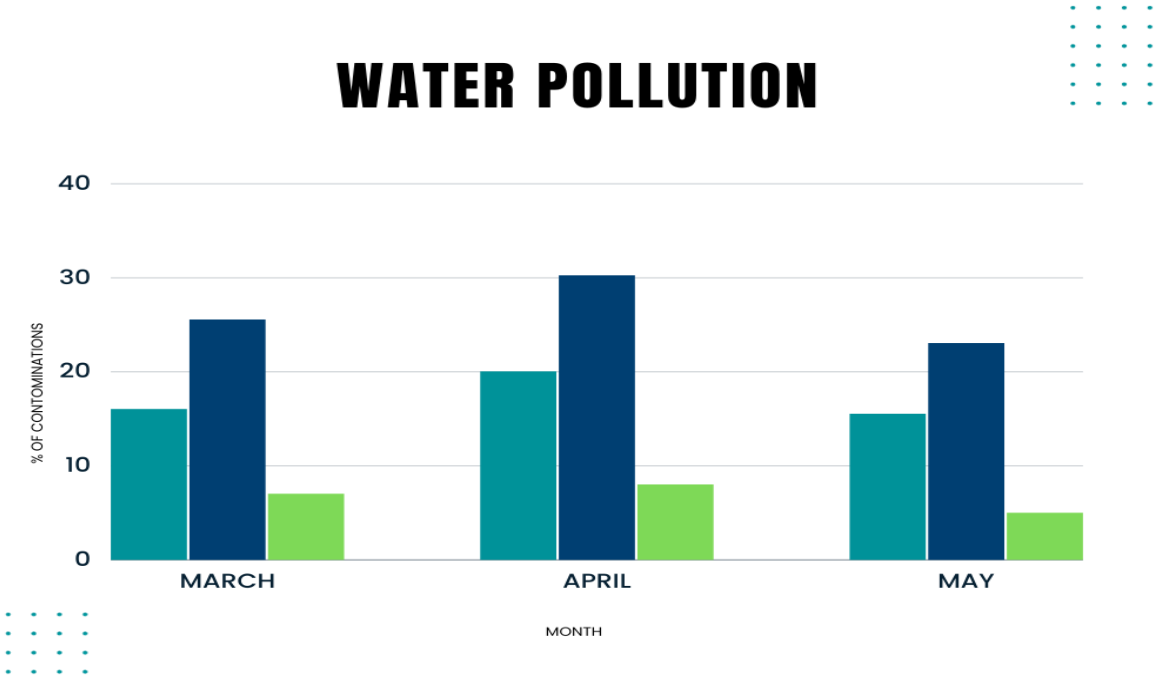


Chart 3: Water pollution during the survey period

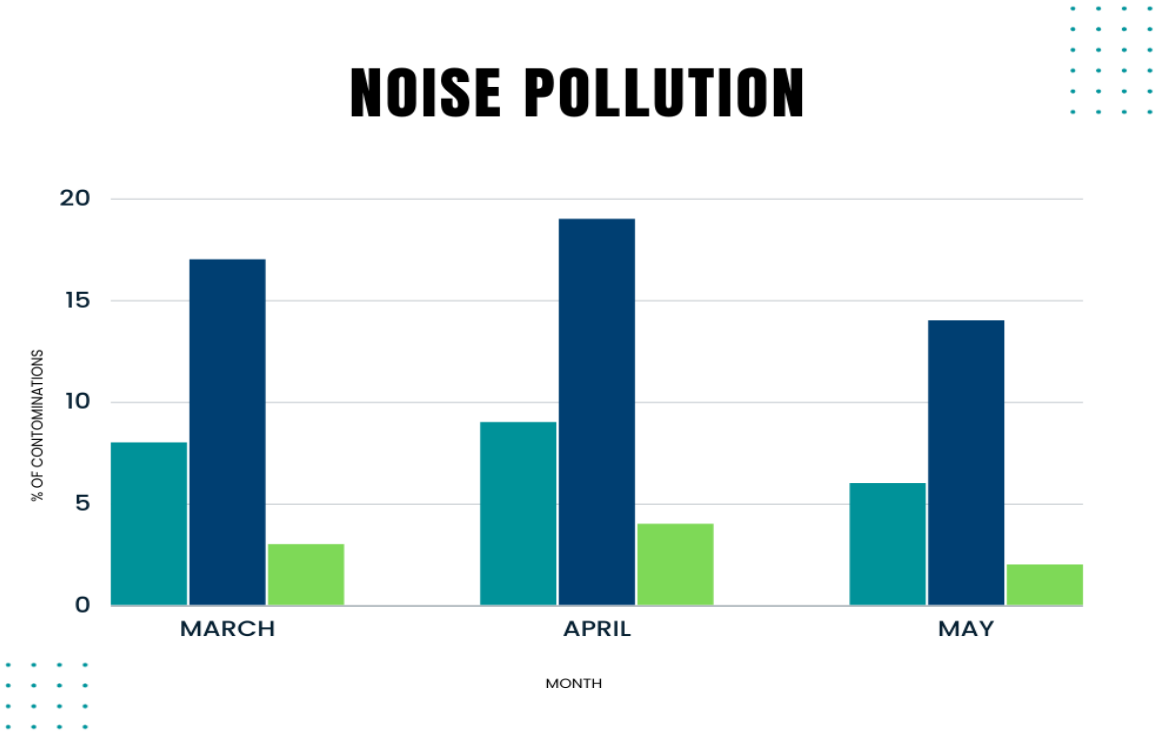


Chart 4: Noise Pollution during the survey period

Diversity: -

The diversity was evaluated with two things 1. The species richness of the birds in each site and 2. the number of birds identified in each species in each sites the diversity evaluation is very important to know how much that particular ecosystem is important to the lives.

Table 1: Bird survey of Angeripalayam (Station 1) in summer

S:NO	COMMON NAME	ORDER	FAMILY
1	COLUMBA LIVIA EUDYNAMYS	COLUMBIFORMES	COLUMBIDAE
2	SCOLOPACEUS	CUCULIFORMES	CUCULIDAE
3	ARDEOLA GRAYII	PELECANIFORMES	ARDEIDAE
4	CORVUS SLENDENS	PASSERIFORMES	CORVIDAE
5	HALCYON SMYRNENSIS	CORACIIFORMES	ALCEDINIDAE
6	PAVO CRISTATUS	GALLIFORMES	PHASIANIDAE
7	LEPTOCOMA ZEYLONICA	PASSERIFORMES	NECTARINIIDAE
8	CINNYRIS ASIATICUS	PASSERIFORMES	NECTARINIIDAE
9	COPSYCHUS FULICATUS	PASSERIFORMES	MUSCICAPIDAE
10	PASSER DOMESTICUS	PASSERIFORMES	PASSERIDAE
11	IDUNA RAMA	PASSERIFORMES	ACROCEPHALIDAE
12	ANTIGONE ANTIGONE PHAENICOPHAEUS	GRUIFORMES	GRUIDAE
13	VIRIDIROSTRIS	CUCULIFORMES	CUCULIDAE
14	STREPTOPELIA DECAOCTO	COLUMBIFORMES	COLUMBIDAE
15	UPUPA EPOPS	BUCEROTIFORMES	UPUPIDAE
16	ACRIDOTHERES TRISTIS	PASSERIFORMES	STURNIDAE
17	CYPSIURUS BALASIENSIS	APODIFORMES	APODIDAE
18	ORIOLUS KUNDOO	PASSERIFORMES	ORIOLIDAE
19	NYCTICORAX NYCTICORAX CORVUS	PELECANIFORMES	ARDEIDAE
20	MACRORHYNCHOS	PASSERIFORMES	CORVIDAE
21	MEROPS PHILIPPINUS	CORACIIFORMES	MEROPIDAE

Table 2: Bird survey of Poyampalayam (Station 2) in summer

S:NO	COMMON NAME	ORDER	FAMILY
1	COLUMBA LIVIA EUDYNAMYS	COLUMBIFORMES	COLUMBIDAE
2	SCOLOPACEUS	CUCULIFORMES	CUCULIDAE
3	ARDEOLA GRAYII	PELECANIFORMES	ARDEIDAE
4	CORVUS SLENDENS	PASSERIFORMES	CORVIDAE
5	PSITTACULA KRAMERI CORVUS	PSITTACIFORMES	PSITTACULIDAE
6	MACRORHYNCHOS ACROCEPHALUS	PASSERIFORMES	CORVIDAE
7	DUMETORUM	PASSERIFORMES	ACROCEPHALIDAE
8	PAVO CRISTATUS	GALLIFORMES	PHASIANIDAE
9	DICRURUS MACROCERCUS	PASSERIFORMES	DICRURIDAE
10	COPSYCHUS FULICATUS	PASSERIFORMES	MUSCICAPIDAE
11	PASSER DOMESTICUS	PASSERIFORMES	PASSERIDAE

12	PRINIA SOCIALIS	PASSERIFORMES	CISTICOLIDAE
13	ACRIDOTHERES TRISTIS	PASSERIFORMES	STURNIDAE
14	CYPSIURUS BALASIENSIS	APODIFORMES	APODIDAE

Table 3: Bird survey of Nallathupalayam (Station 3) in summer

S:NO	COMMON NAME	ORDER	FAMILY
1	COLUMBA LIVIA	COLUMBIFORMES	COLUMBIDAE
2	BUBULCUS IBIS	PELECANIFORMES	ARDEIDAE
3	ARDEOLA GRAYII	PELECANIFORMES	ARDEIDAE
4	CORVUS SLENDENS	PASSERIFORMES	CORVIDAE
5	CORVUS MACRORHYNCHOS	PASSERIFORMES	CORVIDAE
6	PRINIA INORNATA	PASSERIFORMES	CISTICOLIDAE
7	PAVO CRISTATUS	GALLIFORMES	PHASIANIDAE
8	ARGYA AFFINIS	PASSERIFORMES	LEIOTHRICHIDAE
9	ORTHOTOMUS SUTORIUS	PASSERIFORMES	CISTICOLIDAE
10	LEPTOCOMA ZEYLONICA	PASSERIFORMES	NECTARINIIDAE
11	DICRURUS MACROCERCUS	PASSERIFORMES	DICRURIDAE
12	CINNYRIS ASIATICUS	PASSERIFORMES	NECTARINIIDAE
13	EUODICE MALABARICA	PASSERIFORMES	ESTRILDLDIDAE
14	CENTROPUS SINENSIS	CUCULIFORMES	CUCULIDAE
15	COPSYCHUS FULICATUS	PASSERIFORMES	MUSCICAPIDAE
16	PASSER DOMESTICUS	PASSERIFORMES	PASSERIDAE
17	IDUNA RAMA	PASSERIFORMES	ACROCEPHALIDAE
18	PASTOR ROSEUS	PASSERIFORMES	STURNIDAE
19	SAXICOLA CAPRATA	PASSERIFORMES	MUSCICAPIDAE
20	ANTIGONE ANTIGONE	GRUIFORMES	GRUIDAE
21	ATHENE BRAMA PHAENICOPHAEUS	STRIGIFORMES	STRIGIDAE
22	VIRIDIROSTRIS	CUCULIFORMES	CUCULIDAE
23	ORIOLUS KUNDOO	PASSERIFORMES	ORIOLIDAE
24	STREPTOPELIA DECAOCTO	COLUMBIFORMES	COLUMBIDAE
25	UPUPA EPOPS	BUCEROTIFORMES	UPUPIDAE
26	ACRIDOTHERES TRISTIS	PASSERIFORMES	STURNIDAE
27	CLAMATOR LEVAILLANTII	CUCULIFORMES	CUCULIDAE
28	MEROPS PHILIPPINUS	CORACIIFORMES	MEROPIDAE
29	CYPSIURUS BALASIENSIS	APODIFORMES	APODIDAE
30	NYCTICORAX NYCTICORAX	PELECANIFORMES	ARDEIDAE
31	MICROCARBO NIGER	SULIFORMES	PHALACROCORACIDAE

Species richness: -

The species richness was evaluated by the number of species recorded in a site. Species richness was evaluated by observing different species of birds in a selected three site

Table 4: Overall Species identified during the survey period

S:NO	COMMON NAME	ORDER	FAMILY
1	COLUMBA LIVIA	COLUMBIFORMES	COLUMBIDAE
2	EUDYNAMYS SCOLOPACEUS	CUCULIFORMES	CUCULIDAE
3	BUBULCUS IBIS	PELECANIFORMES	ARDEIDAE
4	ARDEOLA GRAYII	PELECANIFORMES	ARDEIDAE
5	CORVUS SLENDENS	PASSERIFORMES	CORVIDAE
6	HALCYON SMYRNENSIS	CORACIIFORMES	ALCEDINIDAE
7	PSITTACULA KRAMERI	PSITTACIFORMES	PSITTACULIDAE
8	CORVUS MACRORHYNCHOS	PASSERIFORMES	CORVIDAE
9	PRINIA INORNATA	PASSERIFORMES	CISTICOLIDAE
10	ACROCEPHALUS DUMETORUM	PASSERIFORMES	ACROCEPHALIDAE
11	PAVO CRISTATUS	GALLIFORMES	PHASIANIDAE
12	ARGYA AFFINIS	PASSERIFORMES	LEIOTHRICHIDAE
13	ORTHOTOMUS SUTORIUS	PASSERIFORMES	CISTICOLIDAE
14	LEPTOCOMA ZEYLONICA	PASSERIFORMES	NECTARINIIDAE
15	DICRURUS MACROCERCUS	PASSERIFORMES	DICRURIDAE
16	CINNYRIS ASIATICUS	PASSERIFORMES	NECTARINIIDAE
17	EUODICE MALABARICA	PASSERIFORMES	ESTRILDLDIDAE
18	CENTROPUS SINENSIS	CUCULIFORMES	CUCULIDAE
19	COPSYCHUS FULICATUS	PASSERIFORMES	MUSCICAPIDAE
20	PASSER DOMESTICUS	PASSERIFORMES	PASSERIDAE
21	IDUNA RAMA	PASSERIFORMES	ACROCEPHALIDAE
22	PASTOR ROSEUS	PASSERIFORMES	STURNIDAE
23	SAXICOLA CAPRATA	PASSERIFORMES	MUSCICAPIDAE
24	ANTIGONE ANTIGONE	GRUIFORMES	GRUIDAE
25	ATHENE BRAMA	STRIGIFORMES	STRIGIDAE
26	PRINIA SOCIALIS	PASSERIFORMES	CISTICOLIDAE
27	PHAENICOPHAEUS VIRIDIROSTRIS	CUCULIFORMES	CUCULIDAE
28	ORIOLUS KUNDOO	PASSERIFORMES	ORIOLIDAE
29	STREPTOPELIA DECAOCTO	COLUMBIFORMES	COLUMBIDAE
30	UPUPA EPOPS	BUCEROTIFORMES	UPUPIDAE
31	ACRIDOTHERES TRISTIS	PASSERIFORMES	STURNIDAE
32	CLAMATOR LEVAILLANTII	CUCULIFORMES	CUCULIDAE
33	MEROPS PHILIPPINUS	CORACIIFORMES	MEROPIDAE
34	CYPSIURUS BALASIENSIS	APODIFORMES	APODIDAE
35	NYCTICORAX NYCTICORAX	PELECANIFORMES	ARDEIDAE
36	MICROCARBO NIGER	SULIFORMES	PHALACROCORACIDAE

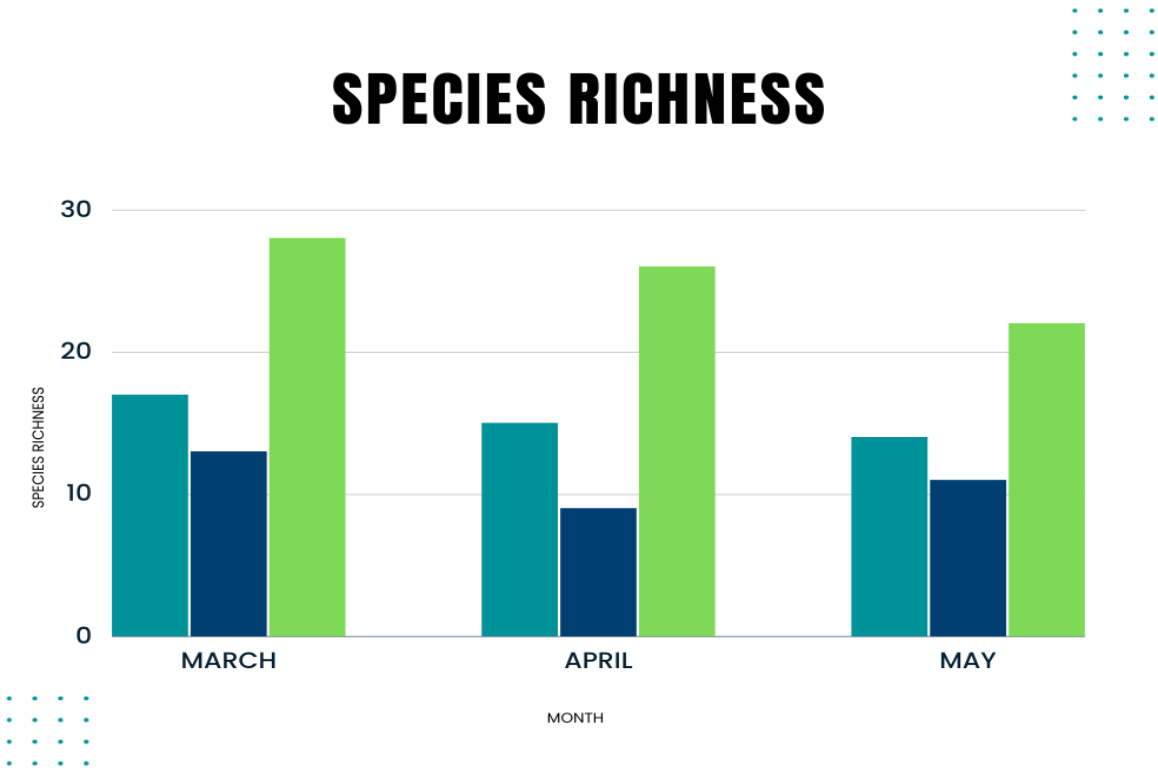


Chart 5: Species Richness of three selected stations

OBSERVATION AND RESULTS: -

Among the three selected stations Poyampalayam (2) is identified most contaminated and Nallathupalayam (3) is identified as contaminated free stations. The birds belong to 36 species of 22 families of 12 Orders were identified in total in the selected sites of Nallar river. 21 species were identified in Angeripalayam (1), 14 species were identified in Poyampalayam (2), 31 species were identified in Nallathupalayam (3).

DISCUSSION: -

Among the three selected sites Poyampalayam (2) is highly domesticated and industrials having site which is lower in species richness The Nallathupalayam (3) is very lower in domestication and industrials. Release of high domestic waste and industrial waste affected the birds and reduced the species richness and population of birds.

CONCLUSION: -

River ecosystem supports a fair bird diversity. From this paper it is clear that the pollution is highly affecting the population of bird's diversity. I suggest the following conservation measures for protecting the diversity of birds in the Nallar river: (1) Awareness program for conservation of bird species among the industrial owners and local peoples, (2) Initiating biomonitoring program is necessary for monitoring and conservation of the birds Nallar river, (3) Following the instructions of discharging the industrial wastes into the river given by the government and (4) using low noise producing machines.

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