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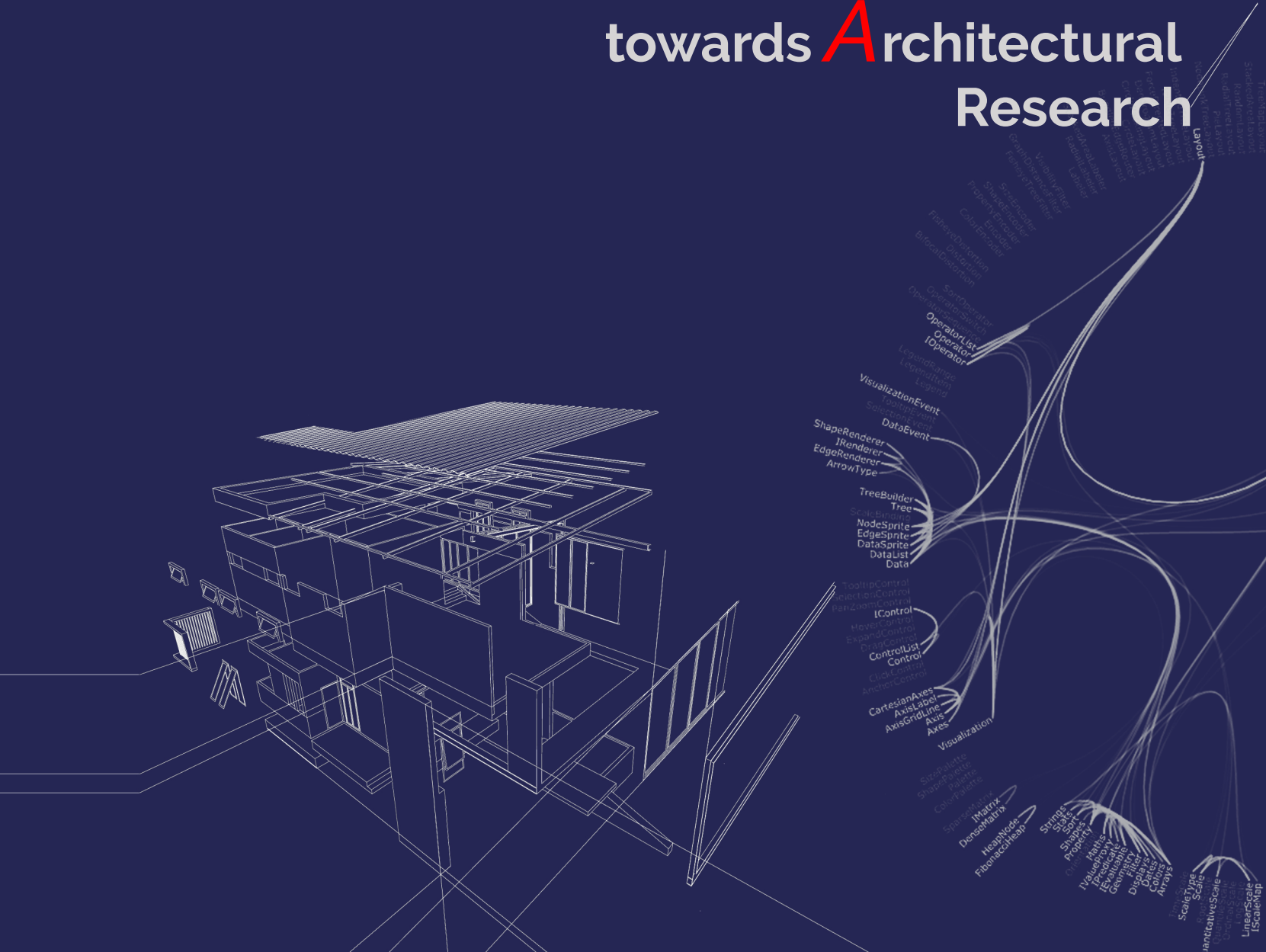
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1	Historic Villages: Bridging The Gap Between Past And Present: Toka, Newasa Tahsil, Ahemadnagar” Architectural Research
2	Landscape Approach For Attracting Birds At Residential Yard At Shrirampur Taluka, Ahemadnagar District, Maharashtra.




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Practice: Engrossed paradigm

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Table of Content

Sr. No.	Author	Title of the Paper	Page No.
Academicians and Professionals			
1	Ar. Sonali Palkar	An Assessment Of Online Education System In Architectural Colleges Of Mumbai During Covid-19 Pandemic	01
2	Ar. Jyoti Dhingra	Social Aspects Of Architectural Development In Sharjah, UAE	11
3	Ar. Sonia Chaudhary	Analysis Of Post Occupancy Evaluation In Online Design Studio	27
4	Ar. Suman Kaushik	Role Of Architect In Social Development	39
5	Ar. Priyanka Chavan	Enhance Indoor Air Quality And Thermal Comfort Through Natural Ventilation In Restaurants.	48
6	Ar. Kaveri Rai	Practical Narratives Of Imparting Knowledge In The Architecture Field To Offering Reflection On What E-Learning Represents From The Times Ahead.	59
7	Ar. Ketaki Pednekar	Study and identification of the architectural variables in Islamic architecture for the region of Hyderabad, India	63
8	Ar. Vaishali Anagal	Deciding To Redevelop: Residents' Perspective On Residential Redevelopment	76
9	Ar. Sudarshan Bodhankar	Study And Identification Of Various Areas Of Services, Their Considerations And Weightages In Green Building Rating Systems For Institutional Buildings	88
10	Er. Swapnil Shinde	Experimental study of shear failure of damaged RC beam strengthens with GFRP	96
11	Ar. Monica Giduturi	Urban Agriculture: A Sustainable Urban Extension Of Food Production And Healthy Living Spaces	107
12	Ar. Shreyas Paranjape	Medieval Land Fort Typology Of Marathwada Region – Case Of Paranda	115
13	Ar. Srushti Patil	Urban Sprawl & Its Impact On Natural Settings	123
14	Ar. Diksha More	Going Beyond Traditional Classrooms	132
15	Ar. Ketaki G. Badge	Hindu Religious Cultural Landscape Along Narmada River- Bharuch Region, Gujarat	139
16	Ar. Seema Thippeswamy	Acceptance And Challenges Of Virtual Teaching And Learning In Architectural Education	146

Practice: Engrossed Paradigm towards Architectural Research

17	Ar. Dipeeka Arbatti	Historic Villages: Bridging The Gap Between Past And Present: Toka, Newasa Tahsil, Ahemadnagar	158
18	Ar. Sushant Magdum	Role of Architects and Engineers in Village Infrastructure Development – A new tool for skillful Pedagogy	165
19	Ar. Anuja Gurjar	Urban Gardening Practices In Pune And Contribution To Urban Sustainability	174
20	Ar. Titan Bullet Das	Application of software skills an appurtenance to futuristic architectural studios & pedagogy	194
21	Ar. Meghana Patil	Innovative Teaching Method Need Of Education System	189
22	Ar. Mansoorsaheb B Mulla	Smart Urbanism And Public Participation: - An Approach In Enhancing Quality Of Life And To Counteract The Negative Urban Trends	193
23	Ar. Ankita Thakur	Adaptive Reuse of Structure for Sustainability: To research various structure in Pune that can be Adapted to increase the value of Sustainability	204
24	Ar. Akshay Wayal	Changing Trend in Architectural Teaching and Learning: Offline to Online	215
25	Ar. Ajinkya Niphadkar	Statistical Study of Relation between Courtyard and Light in Moderate Climate : A case of an Architectural College	223
26	Ar. Swati Chakraborty	Preservation of Historic Monuments – Causes of Decay	232
27	Ar. Kaustubh Gadgil	Colour And Texture Of Prison Walls And Its Psychological Effects On First Time Criminals	239
PG and UG – Students			
28	Asla Ashraf	Investigating The Effectiveness Of Virtual learning In The First-Year Architecture Design Studio	245
29	Ganesh Rajan	Analyze the performance of an eco-tourism resort in a regenerative environment	254
30	B. Selva Priyadarshan	Optimization of Daylight in Underground Structures: Proposal for Ariyalur Fossil Museum	263
31	Mamta Mahesh Wani	Control measures for construction noise pollution	274
32	Bhushan Vinod Rasane	Risk Management During Construction of Residential Buildings in Congested Areas (Peth Region) Of Pune	284
33	Dweep Yogesh Patel	Study on Management of Waste Generated in cruise During Sailing	293
34	Rahin Khan	Daylight Performance of Jali work in Islamic Heritage Structures of Ahmedabad, India	303

Practice: Engrossed Paradigm towards Architectural Research

35	Maithili Potnis	Association of Users with Courtyard Buildings	311
36	Anmol Billa	Universal Design within Urban fabric	321
37	Manasi Gaikwad	Campus Design and Social Development	332
38	Prajakta Kakade	Adaptive reuse of spaces in historical structures, Maharashtra for restoration - case studies	338
39	Sharvari Deshpande	Maratha System of Town And City Planning	342
40	Manasi Gaikwad	Revitalising Jamgaon Fort and its Surrounding Area	354
41	Smruti Hinge	The Role of Courtyard Architecture for Institutional Buildings	360
42	Dhanashree Pednekar	Sustainable Building design for hot and humid climate	368
43	Aishvarya Girigosavi	Research On Natural Lighting in Reading Spaces Of University in NOIDA , Uttar Pradesh Under The Perspective Of Energy-Efficiency	375
44	Raj Nilesh Patil	Advances in Architectural Practices By Vastushastra	383
45	Abhishek Sharma	Design parameters of zoological park for conservation of endangered species	396
46	Sumit Jadhav	Application of waste products in architecture	407
47	Pragati Shankar Kale	Conserving Spirit of Place: A Case of Tambat Ali	416
48	Sahil Zende	Study on efficiency of passive solar design strategies on thermal comfort attainment within tropical climate	423
49	Ashima Jain	Gentrification in Delhi	432
50	Pratiksha Bhujbal	Openings and orientation of buildings in hot semi-arid climate at Pune	442
51	Darshana Deokar	Effect of pre-treatment of sawdust on the setting time of Sawdust Concrete	446
52	Yukta Gandhi	Informal Learning Spaces in Institutional Buildings	452
53	Rutuja Shelke	Tribal Museum, Art and Craft Promotion Center	460
54	Shreya Kalbhor	Architectural feasibility of fishing harbours in India	472
55	Komal Gole	Condition assessment of Kedareshwar temple, Parali, Satara	482
56	Amey Golangade	Community Centre for Third Gender in India	492
57	Rohit Bhosale	Transformation of Open Public Spaces and its Response from Passive Spaces to Active Spaces during Vari	498

Practice: Engrossed Paradigm towards Architectural Research

58	Vaishnavi Bobade	Climate responsive architecture of traditional buildings in hot and dry climate in Maharashtra	512
59	Muskan Batra	Spatial Character Analysis of Streets as Public spaces: A Case of Nagpur	526
60	Runali Ghorpade	Circulation Pattern in Public Spaces (Market Places) – Detailed study of Human Movement	536
61	Priyanka Abhang	Assessment of Public Spaces in Baramati city	544
62	Manuvidya Garudapalli	Relationship between fashion and architecture	552
63	Sharva Darode	Change in Space Utilization Pattern during the Pandemic Period; Case of Apartment vs. Bungalow	561
64	Pranjali P. Shinde	Study of steps and stairs: An important building component to be conserved	571
65	Nisha Mhetre	Visual Communication for Deaf Accommodation at Ahemadnagar	578

HISTORIC VILLAGES: BRIDGING THE GAP BETWEEN PAST AND PRESENT: TOKA, NEWASA TAHSIL, AHEMADNAGAR

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Abstract.

India is country of villages , as compare to cities, every village is distinct in its character, in terms of Setting, communities, Nature, Culture, Heritage, History. This means all the roots of our history and tradition could be found in village areas. Term historic village refers to the village which is named after certain mythological and historic incidences , which are having ruins or actual examples of Architectural structures, where people have strong association with past myths ,beliefs and rituals. All these sentiments attached with particular place make it very unique in character. This paper is aiming to find out the potential areas for development of the historic village Toka,Newasa tahsil , District - Ahemadnagar. Methodology of this study is conducted through Literature Study and interview method. Study is limited to group of temples of Toka- Pravara sangam. This study would throw light on hidden history of villages and conservation of historic and religious structures. This could also be helpful for developing districts tourism profile and employment opportunities will be raised. Bridging The Gap Between Past And present by developing and conserving such villages will be strengthening foundations for developing forgotten villages.

Keywords: Historic Village, Temple Architecture, Heritage, Conservation

Introduction

Ahemadnagar district is very well known for Religious tourism. Newasa is Tahsil in the district known for its religious and mythological importance. It is also important place as confluence of holy river Godavari and Pravara. This paper is focusing on the place where lord Ram killed Marich is now a village called Toka named after the arrow which Lord Rama used to kill Marich. This holy village is situated on the confluence of Pravars and Godavari Rivers. Significance of this village is temples of God Shiva dedicated to Siddheshwar, Ghateshwar, Sangameshwar and Gangamata in Hemadpanti style. (Maharashtra State Gazetteers: Ahmednagar)

1.1 Aim

Value assessment of the *Peshwekalin group of temples* situated in the village Toka, Newasa Tahsil, Ahemadnagar

1.2 Objectives

To study religious tourism and historic tourism of Newasa Tahsil, District- Ahemdnagar

1. To study the significance and importance of village of Toka Pravara Sangam and surrounding villages in Newasa Tahsil, Ahemdnagar
2. To study group of Shiva temples and temple premises present on the conflict of rivers Pravara and Godavari

1.3 Study Area



Figure 1:Map Of India showing position of Maharashtra



Figure 2:Map Of Maharashtra showing position of Ahemdnagar District



Figure 3: Map Of Ahemdnagar District showing position of Newasa Tahsil



Figure 4: Macro scale Image showing confluence of rivers Pravar and Godavari ,nearby religious places and temples.



Figure 5: Micro scale Image showing confluence of rivers Pravar and Godavari at village Toka and five group of historic Shiva temples.



Figure 6: Siddheshwar



Figure 7: Mukteshwar



Figure 8: Ghateshwar



Figure 9: Gautmeshwar



Figure 10: Sangmeshwar

2. Literature Review and Inferences

Table 1. Mythological Significance and historic temples Of Nearby Villages.

No	Village/ Temple	Mythological Significance	Belifes And Facts	Historic Temples
1	Newasa	<p>Newasa is having great cultural heritage of 'Paiss Khamb' (Dnyaneshwar) temple, in the 12th century.'5The early historical period is represented at Newasa. It was a great trading centre having business relations with distant places including Rome.</p> <p>(Gupta) Newasa an ancient 'Nidhivas' the name itself suggests that it was a place of rich people. 'Saint Dnyaneshwar wrote a Dananeshwari in Newasa beside a pole which is still there. (VAIDYA) Newasa is also famous as sasurvadi (in laws) of Lord Khandoba, The First wife of Lord Khandoba is from Newasa bk name Mahalasa so khandoba is called Mhalasakant</p>	<p>When the sea was churned to get nectar, Lord Vishnu appeared in the form of Mohini(a beautiful and enchanting damsel) to distract the demons and deprive them of nectar. The demons stared at Mohini while Lord Vishnu distributed nectar to the gods and water to demons. (VAIDYA)</p> <p>-Also part of this area is called Dandakaranya.</p> <p>-The remains of a multilevel settlement dating from the Paleolithic period to the Middle Ages have been discovered at Navasa.</p>	<p>Mohiniraj Temple</p> <p>Saint Dnyaneshwar Paiss Khamb AD 1290 (Hasmukhlal Dhirajlal Sankalia)</p>
2	Moryachincho	<p>Moryachincho is a famous village in Newasa Tahsil. The More dynasty ruled the village for about 2,000 years.</p>		<p>A royal temple of the More dynasty is Pohahicha Mahadev.</p>

3	Toka - Pravara Sangam	<p>Toka is The Border of The Great Maratha dynasty near Godavari River where Pravara meets Godavari River is Toka .</p> <p>The old village is recognized as a holy place and has many small temples. The construction of these temples is in <i>Hemadpanti</i> style.</p>	<p>The place where Lord Ram killed Marich is now a village called Toka named after the arrow which Lord Rama used to kill Marich.</p>	<p><i>Siddheshwar Temple</i> , <i>Ghateshwar Temple</i> , <i>Sangameshwar Temple</i> , <i>Ghateshwar Temple</i> , <i>Gautameshwar temple</i></p> <p><i>Gangamata Temple</i> near the confluence of <i>Pravars</i> and <i>Godavari</i> Rivers. (Hasmukhlal Dhirajlal Sankalia)</p>
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Inferences: There are potential villages and historic temples in the selected study area and nearby.

Table 2. Values associated with village Toka.

No	Area	Heritage Value	Religious Value	Socio Cultural Value	Environmental Value	Inference
1	Pravara Godavari Confluence Ghats	Five group of Hemadpanthi temples are situated on the Confluence of river.	All after death rituals are held on Confluence of river.	Mahashivratri is the main festival. At that time 50 to 60 thousand pilgrims attend the fair. The main items of entertainment at the fair are folk dramas, swings, circus, magic feats, touring theaters etc. The programs of Kirtan, Bhajan, Pravachan, Kathas are also attended by the pilgrims at night.	Confluence areas of rivers are very important ecologically hence they are rich in flora and fauna . It has not given attention in this case.	Pravara Godavari Confluence Ghats are having all the values and environmental value at risk hence, high need of conservation and development.

2	Siddheshwar Temple	The beautifully carved temple portrays various mythological themes like Ramayana & Mahabharata and elegantly carvings of God & Goddesses. Presently in good condition.	There are temples dedicated to Durga Devi, Maruti, Ganesh, Dattatraya and Lord Vishnu Within the compound of the main temple.	Mahashivratri is the main festival. At that time 50 to 60 thousand pilgrims attend the fair.	The dumps from recently completed renovation of temple has been dumped near the temple premises which is disturbing the environment and ecology.	Temple is having all the values attached with it and environmental value is at higher risk hence, high need of conservation and development.
3	Mukteshwar	Situated in the river. No major carvings.	Kachan mruha which was killed by shri prabhuramcandra on this point and he got sadgati over here hence this temple is known as mukteswar	Main festival celebrated is mahashivratri. Many times pilgrims cant visit to the temple due to water levels.	Temple gets under the river water during many days of years.	Due to under river water most of the time, it has very less human interference however it is difficult to access.
4	Ghateshwar	Haphazard growing vegetation on shrine is affecting life span of structure.	Ghateshwar temple is believed to have been built at the place where the urn of amrita which was churned out of the sea by gods and demons was deposited.	Mahashivratri is the main festival. At that time 50 to 60 thousand pilgrims attend the fair.	Temple premises is highly paved which is absorbing more heat.	Historic value and environmental values are at high risk, hence, there is High need of conservation and attention.

5	Gautameshwar	Situated almost in the river. One of the oldest shrine but getting neglected due to accessibility issue.	Temple of Shiva	Mahashivratri is the main festival. At that time 50 to 60 thousand pilgrims attend the fair.	Temple is surrounded by water on its three sides. River is getting dilapated due to human intervention. Temple entrace has become dumpyard.	Religious and socio cultural activities are still happening though, Historic and environmental values are in the greater risk, hence, there is High need of conservation and attention.
6	Sangameshwar	The temple belongs to the period of the Peshwas as per the Devanagari inscriptions. It is on the verge of collapsing condition due to negligence	Temple of Shiva.	Mahashivratri is the main festival. At that time 50 to 60 thousand pilgrims attend the fair.	Haphazard growing vegetation on built structure is affecting life span of structure.	At very higher risk

 Values at greater Risk  Values at low Risk

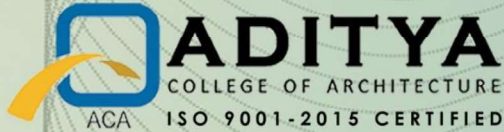
Conclusions

The above study proves that, the values associated with the study area, which includes major potential historic villages, various temples in villages, five group of hemadpanthi temples at Pravara Sangam are at very high risk. The whole area around the village Pravara Sangam along with village Kaygaon Toka, Newasa can form a strong historic village belt, which will be helpful for strengthening roots of heritage rooted in villages and bridging the gap between past and present by conserving the monuments and development of these historic villages. This will also strengthen the religious tourism of the area and new opportunities of income generation could be initiated.

References

- Gupta, Sunil. „Nevasa: A Type-site for the Study of Indo-Roman Trade in Western India.“ South asian studies (1998): 87-102
- Hasmukhlal Dhirajlal Sankalia, Madhukar Shripad Mate. „Antiquities of Nevasa.“ Antiquities of Nevasa (1959): 11
- Maharashtra State Gazetteers: Ahmednagar. Government. Ahmednagar: Director of Government Printing, Stationery and Publications, Maharashtra State, 1960.
- Vaidya, Ravindra G. „Pilgrimages, Tourism And The Need Of English: A Case.“ Pune research (2015): 5-7.

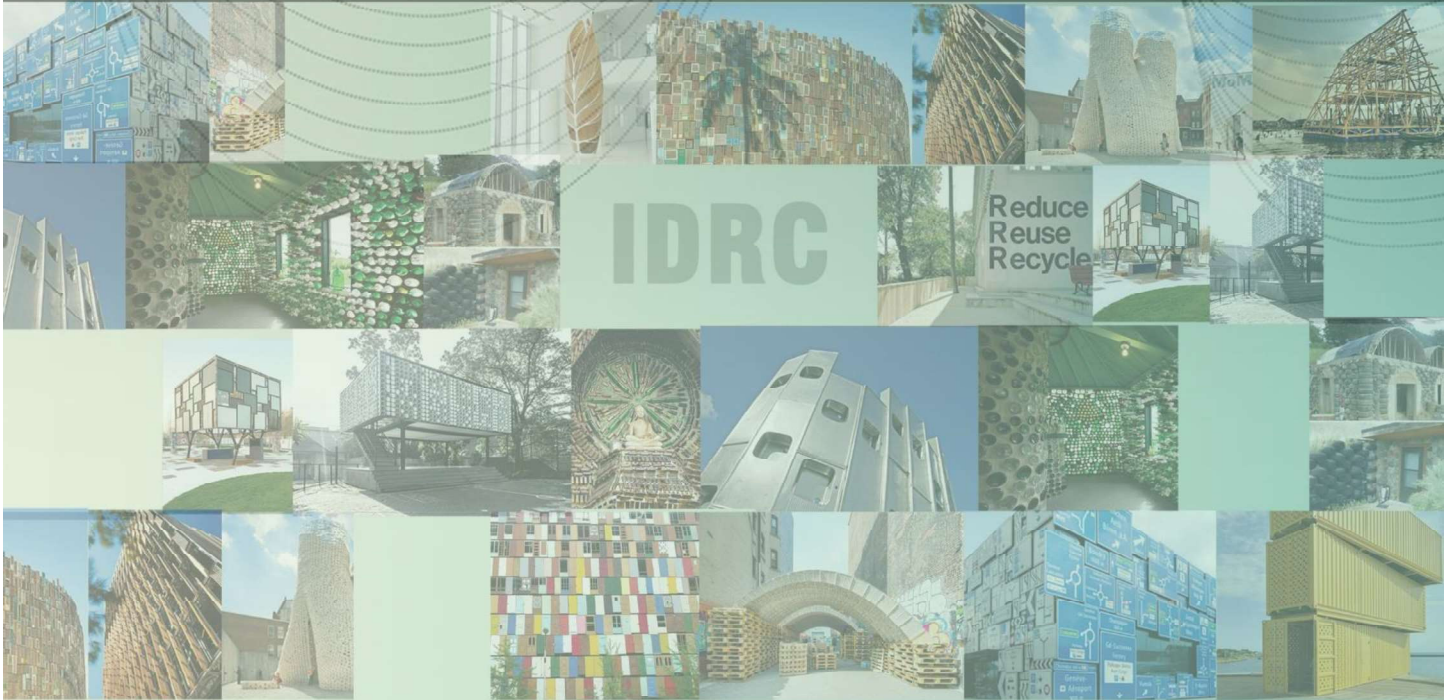
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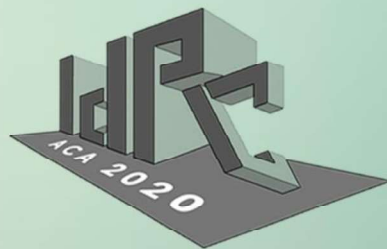
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TABLE OF CONTENTS : RESEARCH PAPER

S. No	Topic Of Research	Author's Name	Page No:
1.	Revamping Of Flood Deposits Into Construction Blocks: An Experiment To Prove Its Efficiency	Ar. Sibin Sabu Ar. Indugeetha.B	14
2.	Do The Surrounding Conditions Of Jogging Tracks Affect To The Attention? – A Case On Jogging Tracks In Suburban Colombo	Ar. M. Chamal Fernando	25
3.	Impact Of Green Spaces On Mental Health And Well-being; A Study On Employees At Software Companies Solution	Ar. Shashikala Sewwandi Galappaththi Dr. Ar. A. A. Hettiarachchi	34
4.	Impact Of Landscape Environment On Elders Mental Health And Wellbeing: A Study On Elder's Home Landscape In Sri Lanka	Ar. Navoda Wijethunga Dr. Ar. Anishka Hettiarachchi	42
5.	Habitable Transition Shelters : Improvising Transition Housing In Disaster Rehabilitation	Ar. Hadiya Jafar Ali Ar. Shynu Robert Ar. Santhosh Kumar K. G	51
6.	Electro(re) Forming : An Additive Approach To Metal Production	Ar. Divya Kumar Solanki	58
7.	Processing Irregularity - Engaging The Digital With Material Cultures	Ar. Archana Chenthil Kumar Ar. Matthew Osborne Ar. Amir Arsalan Tahouni	68
8.	An Investigation On Consecutive Pattern Of Bangladeshi Tripura Community, For Detection Of A Dual Activity "Modular Framework"	Ar. Tahjiba Tarannum Ar. Rahanat Ara Jafar Ar. Mahbuba Afrin	78
9.	Finding Workable Solutions To The Issues Adversely Affecting The Conservation Led Rehabilitation Of Built Cultural Heritage In India	Ar. Neha Tambe Ar. Prashant Banerjee	87
10.	Infusing New Purposes With An Underground Water Reservoir (UWR) Prototype As A Sustainable Design Strategy For Hilly Area – A Case Study In Bandarban, Bangladesh	Ar. Shuvra Das Ar. S. M. Rumman Mashrur Chowdhury	96
11.	Fusing New Methods With Traditional Material - Rethinking Interventions In Child Play Space In Bangladesh	Ar. Rahanat Ara Jafar Ar. Tabassum Ul-zannat Ar. Tahjiba Tarannum	104
12.	Adaptive Facades As A Passive Design Approach For The Buildings In UAE	Ar. Antima Kuda Ar. Ranjana Dobriyal Ar. Arushi Malhotra	112
13.	Reprocessing Leftover Spaces Into Campus Asset: A Proposal Towards Functional Regeneration Of The Building Courtyards Of Sust.	Ar. Gourpada Dey Ar. Raduan Md. Saiful Islam Prottoy Ar. Mushabbir Muttaki	124
14.	Challenges Of A City With A Heritage Core Case Study: Pune	Ar. Mahesh Rameshwar Bangad Ar. Prachi Prasanna Surana Ar. Shreya Sunil Agarwal	131

TABLE OF CONTENTS : RESEARCH PAPER

S. No	Topic Of Research	Author's Name	Page No:
15.	Material And Advanced Techniques Transforming Recovered Polymers Into Bespoke Building Components: Harvesting Local Plastic Waste For Building Material	Ar. Chris Thurlbourne	141
16.	Factors Affecting The Microclimate In The City Core Area Of Pune	Ar. Madhura Rasane Dr.Ar. Sujata Karve Ar. Mahesh Bangad	152
17.	Reconstruction Of 'Jain Math' For Repurpose To A Boutique Hotel At Amba, Kolhapur, Maharashtra, India	Ar. Anjali Surat Jadhav Ar. Sushma Kulkarni Ar. Ashish Rege	167
18.	Waste Hierarchy Framework For Construction And Demolition (C&D) Waste In India: Use Of Urbanite	Ar. Lavanya Vikram Ar. Arpana Betageri	176
19.	Urban Public Space: Exploring Transformations In A Cultural Neighbourhood In Delhi	Ar. Nidhi Sachdeva Ar. Charu Jain Dr. Ar. Qamar Irshad	185
20.	Analysis Of Shading Condition In The Streets Of Ancient Vedic Settlements Using Parametric Techniques	Ar. Mohammad Tahajibul Hossain Dr. Ar. Khandaker Shabbir Ahmed	196
21.	The Impact Of Street Wall Art In Creating Urban Spatial Identity: Special Reference To Jaffna Town, Sri Lanka	Ar. Kalaithasan Gowthaman	205
22.	Sustainable And Divine Development Of Built Environment	Ar. Shobha Dastapur	213
23.	Energy Efficient Design Strategies	Ar. Barkha Kataria	221
24.	Landscape Approach For Attracting Birds At Residential Yard At Shrirampur Taluka, Ahmednagar District, Maharashtra	Ar. Dipeeka Arbatti	229
25.	Embodied Carbon Quantity In Kerala Housing Practices: Precast Concrete As An Alternative To Meet Sustainability	Ar. Alisha Roy K Ar. Shynu Robert Ar. Ayyappan K A	238
26.	Place Identity And Place Attachment In Urban-lagoon Water Landscape - Batticaloa, Srilanka	Ar. Subahithan Manickaretnam Dr. Ar. Wasana De Silva	247
27.	Design Approach To Repurposing Urban Sprawl: Context Study Bengaluru	Ar. Sudha Kumari Ar. Surekha Ramineni Ar. Aruna Gopal	256
28.	Re-purposing Available Building Stock In City Cores- Possible Approaches In Indian Cities	Ar. Sindhushree R Prasad	265
29.	Architecture Through Repurpose – A Purposeful Approach Towards Built Environment	Ar. Kushal Kumar Dubey	272
30.	Role Of Awareness In Public Participation Towards Solid Waste Management	Ar. Himanshi Srivastava	278

LANDSCAPE APPROACH FOR ATTRACTING BIRDS AT RESIDENTIAL YARD AT SHRIRAMPUR TALUKA, AHMEDNAGAR DISTRICT, MAHARASHTRA.

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Abstract: Landscape approach for attracting birds at residential yard is micro level site development and could be treated as a prototype for development of residential landscapes. This study is aiming to derive planting policy Guidelines and Policy for developing habitat patches at residential yard for attracting birds at residential yard. Objectives of study are to collect information about habitat, behavior and ecology, by conducting live case study and synthesis of how spotted birds respond to existing landscape and habitats of residential yard. Methodology would be conducted through Literature review and live case study. From the above study it is found that, Total 26 types of birds were spotted and observed in live case study for five months, from March to July. 10 Insectivorous, 5 Fructivorous, 4 Granivorous, 2 Nectivorous, 3 Carnivorous, 2 Omnivorous birds are observed in this study. Molluscivorous, Mucivorous, Ophiophagous, Palynivorous, Piscivorous birds are not found in the case study. From this study it is concluded that, food, water, Shelter, Mates for Nesting and Reproduction are main components for attracting birds at any landscapes. Patches of woodlands and grasslands along with water feature are extremely important for attracting insectivorous and Fructivorous birds. Flowering shrubs and ground covers are important for attracting Granivorous and Nectivorous birds. Huge trees are recommended for attracting Omnivores, Avivorous And Carnivorous birds.

Keywords: Landscape Approach, Habitat Enhancement, Birds, Residential Yard.

INTRODUCTION / BACKGROUND

Residential yard landscapes are micro level site developments, when we talk about enhancement of habitat and fauna. The role of landscape architect in this research is to understand birds association with different group of birds and propose the planting policy accordingly. This research would be particularly talking about Bird Species and their association with various plant typology. In this study spotted Birds are first classified into groups, based on their food habits and their sizes (Length) and then observed based on certain parameters. From literature study it is found that, researchers and Very few landscape architects have worked for habitat enhancement of birds at Macro scale and Regional scale. Micro level habitat enhancement by using apt planting policy is very important stage, before going for Macro scale and Regional scale, which every landscape architect must consider while designing Residential landscape yards. Hence, This research is needed.

AIM / PURPOSE : To derive planting policy Guidelines and Policy for developing habitat patches for attracting birds at residential yard.

Objectives:

1. To collect information of different Habitat of Birds
2. To collect information of Classification of birds based of food habit
3. To select a live case study of a residential yard.
4. To collect information about habitat, behavior and ecology, Relationship with human of bird spotted at residential yard.
5. To synthesis how spotted birds respond to existing landscape of residential yard.

Scope:

Habitat development starts from micro scale like balconies, Terrace gardens, residential yards landscape patches. Scope of this research is focusing on Insectivorous, Fructivorous, Granivorous, Nectivorous, Carnivorous, Omnivorous and Avivorous bird types, which belongs to different habitats were spotted during live case study. This study was conducted for five months at residential yard by observation method. This research will discuss about distribution and habitat, relationship with human and plants of the birds spotted during study. This research is site specific which comes under western Maharashtra.

Limitation:

This study will not focus on urban scale or regional scale habitat enhancement landscape approach.

Research question:

How landscape approach of residential yards is important for attracting birds and their habitat enhancement ?

RESEARCH METHODOLOGY

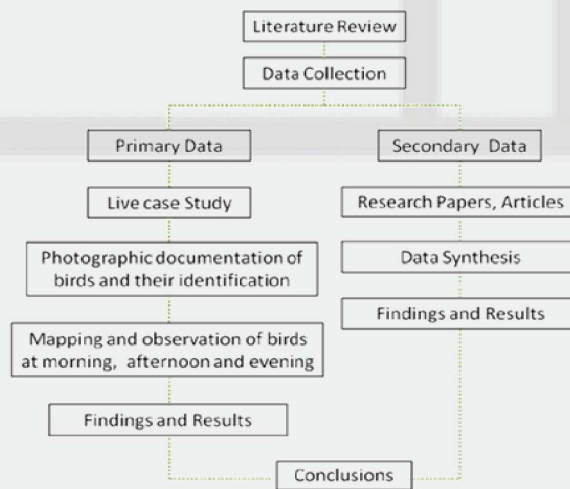


Chart No 1: Showing Methodology

FINDINGS: Information About Spotted Birds.

1. Coppersmith Barbet : (6 inches Small) - **Food:** Banyan, Peepal, And Other Wild Figs, Various Drupes And Berries, And The Occasional Insect, Caught In Aerial Sallies. It Also Feeds On Flower Petals. **Habitat :** Gardens, Groves And Sparse Woodland. Habitats With Dead Wood Suitable For Excavation Of Nests Are Important. (Mitchell Waite, 2002-2008)

2. Red-Vented Bulbul: (8.25 inches Small) - **Food:** Eats Fruit, Flower Buds, And Insects. **Habitat :** High In Trees Or Perched On Wires In Urban And Rural Areas; Generally Prefers Scrubby Edge Habitat Instead Of Dense Forest. (Mitchell Waite, 2002-2008) (Kasambe, May 2017)

3.Common Iora : (4.5–6.1 in Small) - **Food:** Insects Such As Grasshoppers, Caterpillars, Dragonflies And Mantises. It Also Consumes Spiders And Small Insects, Fruit, Berries And Nectar. **Habitat :** Acacia Scrub, Forest Edge, And Closed Forests, As Well As Agricultural Land And (In The Common Iora) Gardens (Mitchell Waite, 2002-2008) (Kasambe, May 2017)

- 4. Brahminy Starling:** (8-8 Inch Small) - **Food:** Fruit And Insects. Dry Forest, Scrub Jungle And Cultivation And Is Often Found Close To Human Habitations. They Especially Favor Areas With Waterlogged Or Marshy Lands. (Mitchell Waite, 2002-2008)
- 5. Asian Koel:** (15–18 in Large) - **Food:** Variety Of Insects, Caterpillars, Eggs And Small Vertebrates. Adults Feed Mainly On Fruit. **Habitat :**Light Woodland And Cultivation. (Mitchell Waite, 2002-2008) (Kasambe, May 2017)
- 6. Laughing Dove:** (9.8 in Medium) - **Food:** Fallen Seeds, Mainly Of Grasses, Other Vegetable Matter. **Habitat :**Grasslands And Cultivation. (Mitchell Waite, 2002-2008)
- 7. Scaly Breasted Munia:** (4.3–4.7 in Very Small) - **Food:**Grass Seeds Apart From Berries And Small Insects. **Habitat :**Tropical Plains And Grasslands. (Mitchell Waite, 2002-2008) (Kasambe, May 2017)
- 8. Parakeets :** (12 inches Medium) - **Food:**Including Seeds Of Spinifex, Mitchell's And Tussock's Grasses, Wild Oats And Canary Grass. They Also Eat Wild Millet And Farm Crops Such As Wheat. During The Rainy Season, They Search For Newly Sprouted Green Grasses. **Habitat :** Desert, Woodlands, Grasslands And Open Scrub Far From The Densely Populated Cities (Mitchell Waite, 2002-2008)
- 9. White-Breasted Waterhen:** (13-13 Inch Medium) - **Food:** Insects, Spiders, Grain, Fish, Worms And Snails, And Some Parts, Shoots And Roots, Of Marsh Plants. **Habitat :** Near Freshwater Marshes And In Habitats With Dense Undergrowth. It Is Very Common In Mangroves, Reed beds, Grasslands, Rice fields, Orchards, Parks And Gardens. Found Near Small Streams And Pools Where There Is Dense Vegetation. (Mitchell Waite, 2002-2008) (Kasambe, May 2017) (Kasambe, May 2017) (Mayntz, 2019)
- 10. Greater Coucal Or Crow Pheasant:** (19 inches Large) - **Food:** Insects, Caterpillars And Small Vertebrates Such As The Saw-Scaled Vipers. They Are Also Known To Eat Bird Eggs, Nestlings, Fruits And Seeds. **Habitat :** Jungle To Cultivation And Urban Gardens. (Mitchell Waite, 2002-2008)
- 11. Green Bee-Eater:** (9-11 inches Medium) - **Food:** Insects, Especially Bees, Wasps And Ants, Which Are Caught In The Air By Sorties From An Open Perch. **Habitat :**Open Country With Bushes. (Mitchell Waite, 2002-2008)
- 12. Black Drongo :** (13-inch Medium) - **Food:** Insects Such As Grasshoppers, Cicadas Termites, Wasps, Bees, Ants, Moths, Beetles And Dragonflies. They Sometimes Fly Close To Tree Branches, Attempting To Disturb Any Insects That May Be Present. **Habitat :** Savanna, Fields, And Urban Habitats (Mitchell Waite, 2002-2008) (Kasambe, May 2017)
- 13. White-Browed Fantail:** (6- 8in Small) - **Food:**Small Insects And Invertebrates. **Habitat :** Forest And Other Woodland. (Mitchell Waite, 2002-2008) (Mayntz, 2019)
- 14. Indian Paradise Flycatcher:** (7.5–8.7 in Small) - **Food:** Insects, Which They Capture In The Air Often Below A Densely Canopied Tree. **Habitat :** Thick Forests And Well-Wooded Habitats (Mitchell Waite, 2002-2008)
- 15. Magpie Robins:** (7 in Small) - **Food:** Insects And Other Invertebrates. Known To Occasionally Take Flower Nectar, Geckos, Leeches, Centipedes And Even Fish. **Habitat :** Open Woodland, Cultivated Areas Often Close To Human Habitations. They Prefer Open Areas Such As Mangroves, Gardens, Cultivated Areas. (Mitchell Waite, 2002-2008)
- 16. Large Grey Babblers :** (11-11 Inch Medium) - **Food:** Insects Of Which Grasshoppers, Caterpillars. Beetles And Ants Were Taken In Significant Quantities. **Habitat :** They Are Locally Common In The Scrub, Open Forest And Garden land (Mitchell Waite, 2002-2008) (Kasambe, May 2017)
- 17. Ashy Prinia:** (9 inches Small) - **Food:** Insects **Habitat :** Dry Open Grass Land, Open Woodland, Scrub And In Home Gardens In Many Cities. Usually It Is Seen Clambering About Or Hopping On The Ground. (Mitchell Waite, 2002-2008)

18. Red Wattleed Lapwing : (13-14 Inch Medium) - **Food:** Insects, Snails And Other Invertebrates, Mostly Picked From The Ground. They May Also Feed On Some Grains. They Feed Mainly During The Day But They May Also Feed At Night. **Habitat :** Well-Watered Open Country, Ploughed Fields, Grazing Land, And Margins And Dry Beds Of Tanks And Puddles. Also Found In Forest Clearings Around Rain-Filled Depressions. (Mitchell Waite, 2002-2008) (Kasambe, May 2017)

19. Common Tailorbird: (3.9 to 5.5 in Small) - **Food:** A Mixture Of Caterpillars (Top) (And Other Worm Like Invertebrates) And Many Different Insects – Small Crickets (Second Row, Right), Spiders (Third Row, Left), Etc. No Vegetable Matter. **Habitat :** Open Farmland, Scrub, Forest Edges And Gardens. (Mitchell Waite, 2002-2008)

20. Purple-Rumped Sunbird : (4 inches Very Small) - **Food:** Nectar But Sometimes Take Insects. **Habitat :** Disturbed Secondary Forest, Open Woodland, Open Scrub And Savannah, Coastal Scrub And Alpine Forest. (Mitchell Waite, 2002-2008) (Kasambe, May 2017)

21. Purple-Sunbird: (4 inches Very Small) - **Food:** Nectar But Sometimes Take Insects. **Habitat :** Disturbed Secondary Forest, Open Woodland, Open Scrub And Savannah, Coastal Scrub And Alpine Forest. (Mitchell Waite, 2002-2008)

22. Carrion : (22 inches Large) - **Food:** insects, earthworms, grain, fruits, seeds, small mammals, amphibians, scraps ,eggs. **Habitat :** Near areas of human activity or habitation including cities, moors, woodland, sea cliffs and farmland (Mitchell Waite, 2002-2008)

23. Crested Myna: (9.5 - 10.2 inches Medium) - **Food:** Worms, Grubs, Grains, Fruit, And Even Garbage. It Is A Highly Beneficial Bird To Farmers, As It Feeds On Insects And Does Not Attack Crops. **Habitat :** Urban To Rural Areas. In Cities, In The Eaves Of Buildings, Along Roads And Alleys, Near Gardens And Parks, In Parking Lots. It Can Be Found Under Bridges, In Trees, In Chimneys, And On Roofs. (Mitchell Waite, 2002-2008) (Kasambe, May 2017)

24. Asian Koel: (18 to 24 in Large) - **Food:** Variety Of Insects, Caterpillars, Eggs And Small Vertebrates. Adults Feed Mainly On Fruit. **Habitat :** Light Woodland And Cultivation. (Mitchell Waite, 2002-2008)

25. Shikra : (10-12 inches Medium) - **Food:** Reptiles, Small Mammals, Small Birds, Frogs And Insects. **Habitat :** Forests, Deciduous Woodland, Plains, Farmlands, Savanna, Arid Steppe And Urban Areas. (Mitchell Waite, 2002-2008)

26. Hawk: (18 to 24 in Large) - **Food:** Smaller Animals Some Of These Small Animals Include Snakes, Lizards, Fish, Mice, Rabbits, Squirrels, Birds, And Any Other Type Of Small Game That Is Found On The Ground. **Habitat :** Fields Or Deserts, With High Perching Places Nearby From Which They Can Watch For Prey. Adaptable And Also Dwell In Mountains And Tropical Rain Forests. (Mitchell Waite, 2002-2008) (Kasambe, May 2017)

27. White Throated Kingfisher : (10.6–11.0 in Medium) - **Food:** Fish, Frogs And Other Amphibians, Annelid Worms, Molluscs, Insects, Spiders, Centipedes, Reptiles (Including Snakes), And Even Birds And Mammals. **Habitat :** They Are Found In Wetlands And On The Shores Streams, Ponds And Lakes. (Mayntz, 2019)

ANALYSIS:

A. VERY SMALL (3 - 5 in) TYPE A

TYPOLOGY	VERY SMALL (3 - 5 in) TYPE A		
No	1	2	3
BIRD NAME	Scaly Breasted Munia	Purple-Rumped Sunbird	Purple-Sunbird

PARAMETERS	Food Type	Granivore	Nectivore	Nectivore
	Month	March-July	March-July	March-July
	Time	Evening	Morning , Afternoon, Evening	Morning , Afternoon, Evening
	Season	Summer, Rain	Summer, Rain	Summer, Rain
	Ground Cover/ Ground	Spotted	Not Spotted	Not Spotted
	Shrub/ Bushes	Not Spotted	Spotted	Spotted
	Small fruit Tree	Not Spotted	Spotted	Spotted
	Small Flowering Tree	Spotted	Spotted	Spotted
	Big Fruit Trees	Spotted	Spotted	Spotted
	Big Trees(Non Flowering, Non Fruit Bearing)	Not Spotted	Spotted	Spotted
	Flowering Climber/Flowering Liana	Spotted	Spotted	Spotted
	Near Manmade Water Feature	Not Spotted	Not Spotted	Not Spotted
	On Built For/ Manmade Things	Spotted	Not Spotted	Not Spotted
	Human Friendly	Yes	Yes	Yes

Table No-1: Showing Analysis Of Very Small Birds (3 - 5 In) Type A

B. SMALL (5 - 9 in) -TYPE B

TYOLOGY		SMALL (5 - 9 in) -TYPE B								
No		1	2	3	4	5	6	7	8	9
BIRD NAME		Coppersmith Barbet	Red-Vented Bulbul	Common Iora	Brahminy Starling	White-Browed Fantail	Indian Paradise Flycatcher	Magpie-Robins	Ashy Prinia	Common Tailorbird
PARAMETERS	Food Type	Frugivorous	Frugivorous	Frugivorous	Frugivorous	Insectivorous	Insectivorous	Insectivorous	Insectivorous	Insectivorous
	Month	March-May	March-July	March-July	March-July	March-July	May-July	March-July	June-July	March-July
	Time	Evening	Morning, Afternoon, Evening	Morning Afternoon Evening	Evening	Afternoon, Evening	Evening	Morning, Afternoon, Evening	Morning Evening	Morning, Evening
	Season	Summer	Summer, Rain	Summer, Rain	Summer, Rain	Summer, Rain	Summer, Rain	Summer, Rain	Rain	Summer, Rain
	Ground Cover/ Ground	Not Spotted	Spotted	Not Spotted	Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Not Spotted

Shrub/ Bushes	Not Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Spotted	Spotted	Spotted	Spotted
Small fruit Tree	Not Spotted	Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Spotted
Small Flowering Tree	Not Spotted	Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Spotted	Spotted
Big Fruit Trees	Spotted	Spotted	Spotted	Not Spotted	Spotted	Spotted	Spotted	Spotted	Spotted
Big Trees(Non Flowering, Non Fruit Bearing)	Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Not Spotted	Not Spotted
Flowering Climber/Flowering Liana	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Spotted	Spotted
Near Manmade Water Feature	Not Spotted	Spotted	Not Spotted	Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Not Spotted
On Built For/ Manmade Things	Not Spotted	Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Spotted	Not Spotted	Not Spotted
Human Friendly	Not Spotted	Yes	No	No	No	No	Yes	No	No

Table No-2 : Showing Analysis Of Small Birds (5 - 9 In) -Type B

C. MEDIUM (9 - 16 in) -TYPE C

TYPOLOGY		MEDIUM (9 - 16 in) -TYPE C									
No		1	2	3	4	5	6	7	8	9	10
BIRD NAME		Laughing Dove	Parakeets	White-Breasted Waterhen	Green Bee-Eater	Black Drongo	Large Grey Babblers	Red Wattle Lapwing	Crested Myna	Shikra	White Throated Kingfisher
PARAMETERS	Food Type	Granivore	Granivore	Granivore	Insectivorous	Insectivorous	Insectivorous	Insectivorous	Omnivores	Carnivorous	Carnivorous
	Month	March-July	March-July	March-July	March-July	March-July	March-July	March-July	March-July	June-July	March-July
	Time	Evening	Morning, Evening	Evening	Morning, Evening	Morning, Evening	Morning, Afternoon, Evening	Morning, Evening	Morning, Afternoon, Evening	Evening	Morning, Evening
	Season	Summer, Rain	Summer, Rain	Summer, Rain	Summer, Rain	Summer, Rain	Summer, Rain	Summer, Rain	Summer, Rain	Rain	Summer, Rain

Ground Cover/ Ground	Spotted	Not Spotted	Spotted	Spotted	Not Spotted	Spotted	Spotted	Spotted	Not Spotted	Not Spotted
Shrub/ Bushes	Not Spotted	Not Spotted	Spotted	Spotted	Not Spotted	Not Spotted	Not Spotted	Spotted	Not Spotted	Not Spotted
Small fruit Tree	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Not Spotted
Small Flowering Tree	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted
Big Fruit Trees	Not Spotted	Spotted	Not Spotted	Spotted	Spotted	Spotted	Not Spotted	Spotted	Spotted	Spotted
Big Trees(Non Flowering, Non Fruit Bearing)	Not Spotted	Spotted	Not Spotted	Spotted	Spotted	Spotted	Not Spotted	Spotted	Spotted	Spotted
Flowering Climber/Flowering Liana	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted	Not Spotted
Near Manmade Water Feature	Spotted	Not Spotted	Spotted	Not Spotted	Not Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Not Spotted
On Built For/ Manmade Things	Spotted	Spotted	Spotted	Spotted	Spotted	Spotted	Not Spotted	Spotted	Not Spotted	Spotted
Human Friendly	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No

Table No-3: Showing Analysis Of Medium Birds (9 - 16 In) -Type C

D. LARGE (16 - 32 in) -TYPE D

TYPOLOGY		LARGE (16 - 32 in) -TYPE D			
No		1	2	3	4
BIRD NAME		Asian Koel	Greater Coucal Or Crow Pheasant	Carrion	Hawk
PARAMETERS	Food Type	Frugivorous	Insectivorous	Omnivores	Carnivorous
	Month	April-July	March-July	March-July	June-July
	Time	Afternoon, Evening	Morning, Afternoon, Evening	Afternoon	Evening
	Season	Summer, Rain	Summer, Rain	Summer, Rain	Rain
	Ground Cover/ Ground	Not Spotted	Spotted	Not Spotted	Not Spotted

Shrub/ Bushes	Not Spotted	Spotted	Not Spotted	Not Spotted
Small fruit Tree		Spotted	Not Spotted	Not Spotted
Small Flowering Tree	Not Spotted	Not Spotted	Not Spotted	Not Spotted
Big Fruit Trees	Spotted	Not Spotted	Spotted	Spotted
Big Trees(Non Flowering, Non Fruit Bearing)	Spotted	Not Spotted	Spotted	Spotted
Flowering Climber/Flowering Liana	Not Spotted	Not Spotted	Not Spotted	Not Spotted
Near Manmade Water Feature	Not Spotted	Spotted	Spotted	Not Spotted
On Built For/ Manmade Things	Not Spotted	Spotted	Spotted	Not Spotted
Human Friendly	No	Yes	Yes	No

Table No-4: Showing Analysis Of Large Birds (16 - 32 In) -Type D

1	TPOLOGY	VERY SMALL (3 - 5 in) TYPE A	SMALL (5 - 9 in) -TYPE B	MEDIUM (9 - 16 in) -TYPE C	LARGE (16 - 32 in) -TYPE D	INFERENCE	
2	TOTAL BIRD COUNT (26)	3	9	10	4	<p>i. VERY SMALL (3 - 5 in) TYPE A : Found in landscape of residential yards are mostly nectivorous or Granivore. Prominantly seen on Small Flowering Tree, Big Fruit Trees, Flowering Climber/Flowering Liana in summer and rain, they are human friendly.</p> <p>ii. SMALL (5 - 9 in) -TYPE B : Found in landscape of residential yards are mostly Insectivorous or Frugivorous. Prominantly seen on Shrub/ Bushes, Big Fruit Trees, Small fruit Trees in summer and rain, very few of them are human friendly.</p> <p>iii. MEDIUM (9 - 16 in) -TYPE C : Found in landscape of residential yards are mostly Insectivorous , Frugivorous very few of them are Omnivores and Carnivorous. Prominantly seen on Ground Cover/ Ground, Big Fruit Trees, Big Trees(Non Flowering, Non Fruit Bearing)</p>	
3	FOOD TYPE	Granivore	1	0	3		0
		Nectivore	2	0	0		0
		Insectivorous	0	5	4		1
		Omnivores	0	0	1		1
		Carnivorous	0	0	2		1
	Frugivorous	0	4	0	1		
4	MONTH	March	3	8	9		2
		April	3	8	9		3
		May	3	8	9		3
		June	3	9	10		4
		July	3	9	10		4
5	TIME	Morning	2	5	7		1
		Afternoon	2	4	2		3
		Evening	3	9	10		3
6	SEA SO	Summer	3	9	9		3
		Rain	3	9	10		4
7	PLANT TYPE	Ground Cover/ Ground	1	4	6	1	
		Shrub/ Bushes	2	6	3	1	
		Small fruit Tree	2	5	3	1	
		Small Flowering Tree	3	3	1	0	
		Big Fruit Trees	3	8	7	3	
	Big Trees(Non Flowering, Non Fruit Bearing)	2	4	7	3		

		Flowering Climber/Flowering Liana	3	2	0	0	Flowering, Non Fruit Bearing) , On Built For/ Manmade Things in summer and rain, Most of them are human friendly. iv. LARGE (16 - 32 in) -TYPE D : Found in landscape of residential yards are mostly Insectivorous, Omnivores, Carnivorous, Frugivorous. Prominantly seen on Big Fruit Trees, Big Trees(Non Flowering, Non Fruit Bearing) in summer and rain, Few of them are human friendly.
		Near Manmade Water Feature	0	4	4	2	
		On Built For/ Manmade Things	1	2	8	2	
8	ASSOCIATION WITH HUMAN	Human Friendly	3	2	6	2	

Table No-5: Showing Summary of analysis and Inferences of study (i.e. Table No-2,3,4,5)

CONCLUSION:

Small Flowering Tree, Big Fruit Trees, Flowering Climber/Flowering Liana are recommended near human activity areas like seating, patios, gazebos, pavilions etc for attracting **very small size birds**, most of them are human friendly and could be found on lower canopy of vegetation. **Shrub/ Bushes, Big Fruit Trees, Small fruit Trees** are recommended near human activity areas like pathways, Water bodies, Windows, Near Balconies, terraces etc for attracting **small size birds**, As very few of them are human friendly and could be found on middle canopy of vegetation, hence difficult to notice. **Ground Cover/ Ground, Big Fruit Trees, Big Trees(Non Flowering, Non Fruit Bearing)** are recommended near human activity areas like seating, patios, gazebos, pavilions, Water bodies, Near Balconies, terraces etc for attracting **Medium size birds**, As most of them are human friendly and could be found on Upper canopy of vegetation. **Big Fruit Trees, Big Trees(Non Flowering, Non Fruit Bearing)** are recommended near wall compounds, Avenues, Near Balconies, terraces, Window etc for attracting **Large size birds**.

Bibliography

- Group, M.W., 2002-2008. *What Bird.com*.
- Kasambe, D.R., May 2017. 100 Common Birds of Maharashtra. ISBN No. 978-93-5235-553-2. (F. No.5235/2015-ISBN).
- Mayntz, M., 2019. *The Sprus*.
- Mitchell Waite, 2002-2008. *What Bird.com*.
- Nimmi, 2009. Tamilnadu: <https://www.indianmirror.com/aboutus.html>.