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EDITORS NOTE

Similar to earlier issues, the present issue of *guide.net* carries many diverse articles. In this beginning of the year, I would also like to summarize some major events that have happened in GUIDE since the publication of our previous newsletter highlighting GUIDE's growing scientific prowess such as acceptance of our scientist's article in internationally renowned journal 'Nature'; visit of our joint Director to the Desert Research, Monitoring and Control Centre (DRMCC) of Yobe University of Nigeria, our endeavour to create a centre of excellence for terrestrial biodiversity under the fold of State

Biodiversity Board. As pointed out earlier, upgrading and striving for a sustainable environment in Kachchh is high on our agenda. Creativity and innovation strengthened by material facility, infrastructure and congenial and encouraging atmosphere are key factors for advancement of science. In tune with this mantra, new scientific talents are added to our scientific manpower with the joining of 4 new scientists.

Similarly, a new concept on Banni grassland formulated by one of our senior scientist is accepted in the renowned journal 'Nature'. The long felt gap of inventorying the terrestrial biodiversity in terms of

flora, fauna, agro-biodiversity and domestic biodiversity and the traditional knowledge linked with it, is being filled by GUIDE through our panchayat based biodiversity register with the financial support of state biodiversity board. This endeavour initially plans to cover 10 villages will be expanded in future to cover more number of villages of Kachchh in a phased manner. Initiation of documentation of tree grooves of Kachchh is also underway and our core scientific team is working on it. A mangrove restoration model involving coastal community, industries is also

being contemplated through IFFCO mangrove plantation project. The scientific vibrancy and air prevailing in GUIDE campus is again attested by the fact that a record number of students have taken up their MSc dissertation at GUIDE in the last few months under the guidance of our scientists.

Similar to previous years, it is earnestly hoped that 2013 will also be productive in the annals of GUIDE.

Editor

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Collaborative Research Project with STEPS centre of Sussex University, UK

GUIDE has initiated a collaborative research programme on “Climate Change and Uncertainty from Below and Above” with STEPS centre of Sussex University, UK. As part of this initiative, a workshop was organized between 25th and 28th January 2013 at Hotel Fern, Ahmedabad for finalizing a common methodology for the study areas in India. The workshop was attended by Dr. Lyla Metha, IDS, Sussex University, UK; Mrs. Uapsona Ghosh, IMHR, Kolkata; Dr. Alankar, JNU, Delhi; Ms. Sh. Shibaji Bose and GUIDE represented by Director, Joint Director and Scientists.

After the meeting at Ahmedabad, a field



trip to project locations in Kachchh was organized between 31st January and 4th February 2013. The team consisting of Dr. Lyla Metha, Director and Joint Director of GUIDE has visited Kanmer village at Rapar taluka,

Jakhau village at Jakhau and Bhirandiyara village in Banni in connection with the project.



Vibrant Gujarat - “International Academic Institutions”

Director and Jt. Director have attended the meeting of “International Academic Institutions” on 9th and 10th January

2013 as part of Vibrant Gujarat. GUIDE has signed MoUs with Pandit Deenadayal Petroleum University, Gandhinagar; Gujarat National Law University, Ahmedabad; SANDHAN, Gandhinagar and Knowledge Consortium of Gujarat,

Gandhinagar in areas of research, technical, training, faculty and students exchange programme.

GUIDE has arranged a stall in the Education Pavilion during the Vibrant Gujarat event. The stall was manned by Dr. Pranav Pandya, Sh. Nikunj Gajera and Sh. Ninesh Patel.

MoU with DRMCC, Yobe State University, Nigeria

As a follow-up of MoU signed between GUIDE and Desert Research Monitoring and Control

Centre (DRMCC) of Yobe State University, Nigeria; Dr. V. Vijay Kumar has visited DRMCC during the period between 16th and 26th

February 2013 in connection with initiating future collaborative research and training programmes.

Prof. Musa Alabe, ^{Decorative flourish} Vice Chancellor, Yobe State University has arranged meetings with high level officials at DRMCC, Yobe State University and Government of Nigeria.



As part of the trip, Dr. V. Vijay Kumar has visited DRMCC, Yobe State University, desert areas and Oasis in Gaidem, Abuja and Kano. After a detailed meetings and discussions, it was decided to prioritise a diploma study programme and desert development programmes in Yobe State. The further actions on the above are in pipeline and which may necessitate one or two further trips to Nigeria.



Dr. V. Vijay Kumar has attended the consultation workshop on “Strategies for disaster risk reduction of vulnerable occupations” at Ahmedabad jointly organised by CEPT university, Ahmedabad and Kyoto university, Japan



*Dr. Vijay Kumar
has attended the consultation workshop on
“Strategies for disaster risk reduction of vulnerable
occupations” at Ahmedabad jointly organised by
CEPT university, Ahmedabad and Kyoto university, Japan*

Assessment of Climate change impact on bio-resources and livelihoods in Kachchh region.

Traditional communities who lives in marginal lands of different villages and whose livelihoods are highly dependent on natural resources and livestock are among the most vulnerable to uncertainty of climate change. These indigenous people are directly or indirectly dependent on different natural resources for their livelihoods. On one hand, huge body of scientific knowledge in natural resource management is created, transmitted and applied whereas, on the other hand global climate change and related extreme events continue to pose a more serious challenge to the existence of the essential ecological processes and life

support systems. A complex problem requires multiplicity of approaches and multiple stocks of knowledge. Management of natural resources, biodiversity, agriculture, mangroves etc.

against climate change requires a better understanding of the relationship of human and ecosystem. Comprehensive studies are lacking on the patterns of adaptation and mitigation strategies developed by traditional inhabitants after closely monitoring nature for millennia that are site specific and effective. In this context Gujarat Institute of desert Ecology (GUIDE) and Institute of Development Studies, Sussex University, UK has initiated an in-depth study in Kachchh district to understand the impact of climate change related uncertainty from above, middle and below level people. Besides, adaptations and mitigation approaches developed by the local population of the region will also be studied by GUIDE. All the study will be carried out with the help of standard methodologies, semi-structured questionnaires, People Rural Appraisal survey, discussions etc. This study can

serve as baseline information and would be useful in predicting the future course of changes and adaptations accordingly in dry lands of Kachchh and other part of the world.

Dr. D. Dhyani
Project Scientist



Handwritten text in Gujarati script, partially obscured by a vertical line. The text appears to be a list or notes related to the project.

+ Facility Management in **+** Health Care

With the increasing incidents of health deterioration, the need for comfort zone maximizes with the system which has been delivered so far. Increase in population growth and unavailability of the proper health facilities has resulted in unsatisfactory performance within the health sector. A normal person, in the present day is very busy in his/her day to day life. Once a man become medically unfit, she/he has to bear a lot for searching better medical facilities within his reach. Often, identifying the correct and authentic medical facilities become difficult for us.

Why Facility Management? Let us think about a location from where we can find the entire health information within our fingertip. GIS can make such a great platform through real time information and updating through network analysis and GPS sim card locators. The underlying principle is to gather the

entire health facilities by monitoring and surveying the area. Fitting the standard sim coded transmitters in the Ambulance



of the nearby locations can bring the entire health point of interest on Google map or topo sheets. Another activity in this line would be framing a network diagram based on roads for reachable hospitals

and other medical facilities. Integrating these with ARC pad extensions or making an application with the ARC object in Microsoft visual studio will give real information that can be quite

useful for general public in need of immediate medical care. With advancing Android, iPhones and other Java enabled mobile phones, we can use this information as an application. We can also track the locations of ambulances nearby us saving precious life. This system, called Health Care Facility

Management will enable more people to avail quality health care without losing



precious time during emergency.

*SO KEEP IN TOUCH, WHERE THE IDEAS GENERATES THE COMFORT FOR ALL;
BETTER THE FACILITIES, SMOOTHER THE SERVICE, GIVES FREEDOM TO HEALTH;*

KEEP ON SMILING



*Raushan Kr. Raman
JRF-GIS & RS*

Unusual Inland mangrove: A rare site

During my field visit to once Asia's biggest grassland Banni in Kachchh and adjoining areas, I got an interesting opportunity to visit the Inland mangrove site of Shravan Kavadia, a biodiversity heritage site. The unique natural treasures lie scattered like oasis in arid deserts of Gujarat. These unique sites and areas make the state a rich bio diverse and cultural spot. Spread over 7506 sq. km the Kachchh Wildlife Sanctuary of Gujarat alone hosts several rare archaeological and ecological wonders. One among many such treasures is the existence of a unique mangrove grove at Shravan Kavadia. It is the only such inland mangrove site in the world, away and entirely cut off from the sea and over a 100 km inland of it.

Only single mangrove species *Avicennia marina* can be seen in this stand. Amazingly, the *Avicennia marina* mangroves stand high in a cluster, resembling banyan trees in height and are dependent on underground supply of

saline water, which in turn is dependent on the annual influx from the sea. Shravan Kavadia is located on the fringe area of Banni grassland (once this grassland used to be the biggest grassland in entire Asia and habitat of Cheetah). Kachchh, is a high risk earthquake zone and seismologists had always been expressing their concern about the danger, basing their view on mountain-building activity in the area. The area has been driven by seismic activity for millennia. Land, like a port at Sindree, has sunk below sea level; or, like the Shravan Kavadiya area near Bhuj may have, raised above it. The



unique inland mangrove patch is an evidence of the ancient shoreline

proving the historical evidence for geomorphologic change in the region is obvious due to the Holocene transgression of the sea. Most of the trees of this site were badly damaged during 1998 cyclone. The remaining and partially damaged majorly top broken surviving trees count very less.



However, in 1998-2000 when the area was demarcated as an inland mangrove site about 100 mangroves were reported surviving. There is a need to conserve such unique sites from natural and anthropogenic interference if any so, that our coming generations can also feel proud after seeing such natural treasures of India.

Dr. Shalini Dhyani

Project Scientist



*Dr. Dhyani
occasional - now have
top broke, size of
even more jagged - It's*

**Marine and organic WASTES:
Scope for 'EUREKA' in drylands
of Kachchh?**

WASTES and EUREKA!! What the terms sound? How can these two be correlated and be complementary to each other? To a layman it may seem to be an inexplicable fiction story. The reason is quite genuine. Though explored fragmentarily, somehow, there is a gap in insights on the utilization potential of marine and organic waste materials, which can be a boon for deserts and other dry tropical degraded systems.

Drylands of Kachchh represent one of the most fragile and fascinating ecosystems of world and have drawn the attention of researchers not only from India but throughout the world. Notwithstanding, soil and water salinity are the major problems of Kachchh, which lead to invasion of exotic species. Cumulatively, these conditions pose the primary threat to native plant species of the area for primary succession in this unique terrestrial ecosystem. The situation would further aggravate with

the changing climatic conditions including high temperature and erratic rainfall.

Rejuvenation of salinity affected lands is a major challenge for the researchers and scientists engaged in biodiversity conservation. To address this problem a "Bio Approach" may serve as a harbinger in desert ecosystem. The chemical ameliorants have been tried by several workers to reduce the gigantic salinity problem, but they pose several other environmental and ecological threats in one or other ways by reducing soil microbial activity, polluting soil, and ultimately enhancing ground water



Synergistic formulation (A)

toxicity through leaching. Newly prepared bio-material, or fair enough to say *bio-nano-material*, developed from abundantly present bio waste, may be used in saline soils for effective and sustainable management of salinity and toxicity problems.

In this context, a novel synergistic material has been formulated using the marine and other natural nano-materials accruing new technology at laboratory scale. Results of pilot phase experimentation with different doses of amendments indicated gradual decline of soil salinities. Albeit, the study is in primary stage, as several *in situ* and *ex situ* trial phases are yet to be designed

and implemented at different levels of salinity concentration in the field. However, based on the first phase results, it could be undoubtedly affirmed that we are moving a leap forward to say



Synergistic formulation (B)

EUREKA!! Definitely, the credit goes to the bio WASTE materials which were left out as refuse and of no use!



Pot experiment

Ameliorations in soil

Nimisha Tripathi, Khayali Vaidya and Deepa Lalwani
Integrated Environment and Ecology Division

Glimpses of Workshop on “Biodiversity Conservation and Management with some emphasis on *Guggal*”

Biological resources are fundamental and important natural resources to the human being, for their sustenance and socio-economic development. Biodiversity provides us food, fresh air, cloth, medicine and many ecological services to mankind and other living creature. At present time, various means of developmental activities cause degradation and fragmentation of habitats which possess severe threats on biodiversity. Now-a-days, a large number of floral and faunal species of Kachchh region of Gujarat are facing threats due to unfavourable anthropogenic activities. In



view of the above, a one day national workshop on “Biodiversity conservation and management with some emphasis on *Guggal*” was organized by Gujarat Institute of Desert Ecology (GUIDE) in collaboration with Department of Chemistry, KSKV Kachchh University. This workshop was funded by Gujarat Biodiversity Board, Gandhinagar.

The major objectives of the workshop was to generate awareness on biodiversity and its importance for human being and environment, spread awareness amongst participants about the Biological Diversity Act, 2002 and Biological Diversity Rule, 2004, awareness on formation of Biodiversity Management Committee (BMC) and People's Biodiversity Register (PBR) in villages and municipalities level, to give overview about status and importance of threatened biodiversity with some emphasis on 'Guggal' for its conservation and to strengthen the link between govt. officials, scientist, NGOs and local communities for conservation of biodiversity.

The workshop was inaugurated by Shri Rajeeva, IFS, PCCF and Chairmen, Gujarat Biodiversity Board and Guest of honours, Dr. Tushar Hati, Vice Chancellor (in-charge), KSKV Kachchh

University, Dr. A. P. Singh, Member Secretary, Gujarat Biodiversity Board, Shri. R.V. Asari, IFS (Retd.) Director, Gujarat Institute of Desert Ecology, Bhuj, Dr. Ramakrishna, Ex-Director, Zoological Survey of India, Kolkata



and Prof. V. C. Soni, Department of Bioscience, Saurashtra University, Rajkot. The workshop was attended by academicians, scientists, researchers, Forest Officials, representative from NGOs, local people of different villages of Kachchh and media from various parts of the Gujarat as well as from the country.

The keynote speaker of the session Shri Rajeeva, IFS, PCCF and Chairmen, Gujarat Biodiversity Board addressed the importance of Biological Diversity Act, 2002 for conservation of biodiversity. Dr. A. P. Singh, IFS, Member Secretary, Gujarat

Biodiversity Board has provided detailed information about the formation of Biodiversity Management Committee (BMC) at village level. He also highlighted about the formation of BMCs, its structure, function and power and also gave emphasis on implementation of act at local, state and national levels.

Dr. Ramakrishna, Ex-Director, Zoological Survey of India, Kolkata has delivered a lecture on “Acts and Conventions in Indian Biodiversity”. He highlighted some important issues of biodiversity, economic importance of biodiversity, convention of biodiversity, etc. He presented some updated information to the participants on controlling and regulating factors of hot spots, ecological niches, habitat heterogeneity, mega biodiversity, cultural diversity, etc. He further added insight into the threatened biodiversity, policy and politics behind intellectual sharing of benefits on international level and Kyoto protocol.

Prof. V. C. Soni, Saurashtra University, Rajkot has pointed out some examples about the loss of biodiversity under the name of development i.e. loss of insect diversity by usage of enormous amount of pesticides, loss of coral reefs by oil carrying ships, etc. Dr. I. R. Gadhvi, Bhavnagar University provided an overview of grassland ecosystem, wetlands and threatened species of Kachchh region.

Shri. A. C. Sampat, DCF, Kachchh circle, highlighted the nursery techniques and plantations of *Commiphora wightii*. He also highlighted the medicinal and other cosmetic uses along with economic value of this species. Dr. Rohit Patel, Project Scientist from GUIDE presented a scientific overview of the status of *Commiphora stocksiana* (Mitho Guggal) in Kachchh.

In workshop it was concluded that conservation and management of biodiversity is very important for present time and for the future development and sustenance of living beings. The socio-economic development of human being and for maintenance of suitable environment depends upon sustainable utilization of biodiversity.

Dr. Arun Kumar Roy Mahato

Scientist

Marine microbes - Promising candidates for bioactive potential: Need of the Hour

Marine environment represents the chief component of the Earth's biosphere and it also represents a huge and extensive resource of natural products in the globe, harboring the most diverse groups of flora and fauna including microbial life. In the beginning, the marine environment has been focused for its potential on marine macro life forms such as whales, lobsters, fishes, coral reefs etc. and now Researchers has started to explore the hidden potential of invisible creatures of the sea that harbors enormous prospective in industrial applications.

Why Marine?

Tiny, however extremely adaptable, marine microbes promise to be the next great source of new biotechnology products since it has unique metabolic and physiological capabilities to survive in extreme environments such as salinity, light,

pressure, temperature and other nutrient conditions. Organisms adapting to such harsh environments is said to have rich biological and genetic diversity and hence marine borne microbes has gained attraction in production of biotechnological products such as antibiotics, enzymes, vitamins, drugs, biosurfactants, bioemulsifiers, probiotics, phytohormones, bio-control activity and other priceless compounds of commercial importance. Several genera of marine microbial communities such as *Bacillus*, *Micrococcus*, *Nocardia*, *Acinetobacter*, *Arthrobacter*, *Pseudomonas*, *Halomonas*, *Myroides*, and *Corynebacteria* sp., are some examples of organisms of bioactive potential.

Researchers have just begun to recognize the significant role of microbes in marine environment. A recent preliminary study conducted at

GUIDE revealed that Gulf of Kachchh waters harbor Antagonistic Actinomycetes and its proven to have broad spectrum antibacterial activity against human pathogens (Plate a and b). Exploitation of novel compounds from marine microbes has not only is limiting itself to commercial application but it still has an immense role to play in environmental cleanup mechanisms and development of such novel and commercially viable technologies for assessing, monitoring and reclaiming polluted environments which is essential.

Bottle necks

In spite of a huge microbial diversity, many hurdles are being faced in isolation

and culturing of microbes. Employing effective screening methods and enhanced purification techniques will help in order to reach desired microbial strains and in turn the compounds too. Nevertheless, this area of research is an important and attractive science because of their broad spectrum activities. With the aid of special molecular techniques, hidden potential of marine microbes is yet to be realized and also in most cases, microorganisms identified from marine origin have been proven to be capable of tolerating toxics and hence Genetic Engineering of such potent candidates would be more effective for various applications.

(a)



(b)



Plates showing (a) Antagonistic activity of Actinomycetes strain isolated from Gulf of Kachchh waters and (b) its broad spectrum antibacterial activity against Human pathogen.

Moreover, innovative approaches in research, education, and training pertaining to Marine Science should be made for taking this field to the next level as well as students and researchers working in this field should be encouraged. Considering these points, oceans can be made as a source for valuable substances for the benefit of the

environment. As a whole, marine microbial diversity and their products are fascinating and such studies should be broadened on a global scale.

Karthikeyan, K.
Scientist

[Faint handwritten text in a cursive script, likely in Tamil, is visible in the background of the page.]

Plastic waste: Menace to Society and Environment

I remember my childhood days when I used to go with my father for shopping, the shopkeeper used to pack the grocery in paper packets. During those days biscuits, chocolates, etc. were available in paper packets and even cloths were also packed in brown colored paper packets. But, as I grew up the paper packets are replaced by polybags. In course of time, paper bag makers became unemployed. I remember a day when my mother was selling old newspaper, she asked the person, why price of paper/kg has reduced? He answered; it is not of much use because now no paper bags are prepared. Poly bags were inexpensive and easy in handling, which attracted the people to use it compared to paper packet. Poly bags are strong and light weight, resistant to water and other chemicals, sunlight and even bacteria, and are thermally and chemically insulated. Nowadays from *Gutka* to dry fruits, everything is available in plastic packets, leading to increased plastic waste. Health drink like Horlicks was earlier available in glass bottle but now it turned into plastic bottles. Likewise, so many examples could be quoted and now plastic bags became a menace to the society and environment. Plastic bags are now seen strewn everywhere from dumps to street to choked drain and even in stomach of livestock. When filled with rainwater, plastic bags become breeding grounds for mosquitoes, which cause malaria. In addition, plastics take many years (20-1000) to degrade and hence pose a disposal challenge. Most important is that they are seen in our homes from where they ultimately come. After cleaning our home we are dumping the waste in the pit of our campus and felt very happy after returning home to see it cleaned. We are never bothered to think about the waste. Actually this mixed waste is useless. Last month I was reading an article in "Down to earth" magazine. There was an article informing that Himanchal Pradesh govt. has banned packaging of junk food in non-

biodegradable plastic bags and it will be applicable from 1st April 2013. But the thing is whether companies will bother to avoid plastics. Lot many times I have heard in my native state (Jharkhand) that usage of polybags has been banned but still people are using it indiscriminately. We are habituated to using polybags in such a way that we find almost impossible to say 'no' to plastics. Our dependency on plastic bags has to be reduced gradually to the point that the earlier degradable paper bags replace plastic bags. This can be achieved only through a change in our lifestyle and habits.



Mixed waste dumped in pit



Leftover of waste after burning

Here are some of my personal suggestions to the people to minimize plastic waste in our locality:-

- Try to use cloth/jute bag whenever you go for shopping, take vegetables, fruits, etc directly into your bag, tell the shopkeeper that you don't need polybag.
- I have seen at the corner of our campus a pit has been dug where residents used to dump their household waste, whether they are polybags, wrappers or leftover food and sweepers used to burn the whole waste. But burning plastics is not a good practice. Burning of plastics releases toxic heavy metals and emits noxious gasses

- like dioxins and furans. The latter two are the most toxic and poisonous substances on earth and can cause a variety of health problems including damage
- To the reproductive and immune system, respiratory difficulties and cancer. Dioxin has been shown to interfere with hormonal activity and is an endocrine disruptor. Unfortunate part is that people are not aware of these bad effects.
- Minimize the use of polybags as far as possible.
- Unavoidable plastic wastes such as biscuit, chocolate, namkeen wrappers, packets of food items should be separated from biodegradable wastes at home itself.
- Avoid throwing polybags in dustbin because if one polybag comes from one house, then in a month 30 polybags will come out and further it will get multiplied.
- Keep separate bin for biodegradable and non-biodegradable wastes and dispose it separately.
- The non-biodegradable waste can be handed over to Municipal Corporation from where it will be sent for responsible disposal and recycling processes.
- Public awareness is mandatory about the advantage and disadvantage of plastics.
- The raw food waste can be collected for further natural decomposition to be used as it as compost for plants.

These are some of the simplest change in our habit and by following it in our daily life a cleaner environment can be ensured. Let us try to return back to our old practices, let's try to replace plastic by leaf, cloth, jute or paper packaging. This traditional practice of recycling nutrients to soil is sustainable, profitable and nuisance- free.

Sudha K. Mahato
Chemist

છારીઢંઢ ખાતે પક્ષીનિરીક્ષણ નુ આયોજન

છારીઢંઢ :- છારી એટલે કે છીછરું, ઢંઢ એટલે એવો વિસ્તાર કે જ્યાં પાણી જોવા મળે, આવા વિસ્તાર ઢંઢ, જીલ કે તળાવ તરીકે ઓળખવામાં આવે છે. (કચ્છી ભાષામાં 'ઢંઢ' એટલે એક તાસક (તાસળી) આકારની કુદરતી રચના થયેલ હોય તેને ઢંઢ કહેવામાં આવે છે. આથી આ વિસ્તાર એ તાસળી આકારનો છે અને તેની અંદર છીછરું પાણી ભરાય છે આથી આ વિસ્તારને છારીઢંઢના નામથી ઓળખવામાં આવે છે.



છારીઢંઢ એ કચ્છ જીલ્લાના અને એશિયાના સૌથી મોટા એવા બન્ની ઘાસીયા વિસ્તારના કિનારા ઉપર આવેલ છે. જેનો વિસ્તાર લગભગ ૧૦ ચોરસ કિલોમીટર જેટલો છે. આ વિસ્તારને ગુજરાત વનવિભાગ તરફથી નવો રક્ષિત વન વિસ્તાર જાહેર કરવામાં આવેલ છે. તે નખત્રાણા થી ૩૦ કિલોમીટરના અંતરે ઉત્તર-પૂર્વ (ઈશાન ખૂણા) માં આવેલ છે તેમજ ધોરડો થી ૫૦ કિલોમીટરના અંતરે દક્ષિણ-પશ્ચિમ (નૈઋત્ય

ખૂણા) માં, હાજીપીરથી લગભગ ૩૦ કિલોમીટરના અંતરે ઉત્તર દિશામાં આવેલ છે. જ્યારે ભુજ થી લગભગ ૮૦ કિલોમીટરના અંતરે ઉત્તર-પશ્ચિમ (વાયવ્ય ખૂણા) માં આવેલ છે. કુલાય ગામથી ૫ થી ૬ કિલોમીટરના અંતરે ઉત્તર-પૂર્વ (ઈશાન ખૂણા) માં આવેલ છે. આમ છારીઢંઢ એ ભુજ, નખત્રાણા અને લખપત એમ ત્રણ તાલુકાના જમીન વિસ્તાર સાથે સંકલન ધરાવે છે. આ વિસ્તારમાં છીછરું પાણી ભરાય છે. જો વરસાદ સારો હોય તો સારા પ્રમાણમાં પાણી ભરાય છે અને ઓછો હોય તો ઓછું પાણી ભરાય છે. આ વિસ્તારમાં શિયાળાની ઋતુ દરમિયાન પાણી જોવા મળે છે જે પાણી છીછરું હોવાથી અહીંયાં ખાસ કરીને સ્થળાંતર કરીને આવતા પક્ષીઓ શિયાળાની ઋતુ દરમિયાન આ વિસ્તારમાં પોતાનું રહેણાંક (પડાવ) બનાવે છે. ખાસ કરીને સાયબેરીયાથી આવતા કુંજ (કેન) નામના પક્ષીઓ અહીંયાં સૌથી વધારે પ્રમાણમાં જોવા મળે છે તેનું મુખ્ય કારણ છે બન્ની ઘાસીયા મેદાનનો વિસ્તાર. આ વિસ્તારમાંથી પક્ષીઓને ખોરાક મળી રહે છે તેમજ પાણીની સગવડ પૂરી થતી હોવાથી નવેમ્બર થી માર્ચ મહિના ના સમય ગાળા દરમિયાન સ્થળાંતર કરીને આવતા પક્ષીઓ અહીંયા જોવા મળે છે. ખાસ કરીને અન્ય જગ્યાએ સ્થળાંતર કરનારા પક્ષીઓ અહીંયા આવતા અને અહીંયાથી પાછા જતી વખતે છારીઢંઢમાં રોકાણ કરતાં જોવા મળે છે, આથી જ જેમ અમદાવાદ જીલ્લામાં પક્ષીઓ માટે નળ



Crane (કુંજ)

સરોવર આવેલ છે તેજ રીતે છારીઢંઢ એ કચ્છના નળ સરોવર તરીકે ઓળખવામાં આવે છે. આથી છારીઢંઢની મુલાકાત લેવી અને ખાસ કરીને પક્ષીઓનું નિરીક્ષણ કરવું એ જીવનનો એક અનમોલ લ્હાવો ગણવામાં આવે છે. આવો જ પક્ષીઓના નિરીક્ષણ માટેનો એક કાર્યક્રમ અમારી ઓફીસમાથી એટલે કે ગુજરાત ઈન્સ્ટીટ્યુટ ઓફ ડેઝર્ટ ઈકોલોજી (ગાઈડ) માંથી તારીખ ૩૦/૦૧/૧૩ ને બુધવારના રોજ બપોર પછી કરવામાં આવેલ, જેમા હું અને મારી સાથે અમારી સંસ્થાના ચેરમેન શ્રી સુધીર માંકડ સાહેબ સહ પરિવાર, શ્રી હર્ષદભાઈ અને તેમના પત્ની, ગાઈડના નિયામક શ્રી આર. વી. અસારી સાહેબ અને નાયબ નિયામક ડો. વિ. વિજયકુમાર સાહેબ, આમ અમો સાત પ્રકૃતિ પ્રેમીઓ છારીઢંઢ ખાતે પક્ષીનિરીક્ષણ માટે ગયા અને સાંજે ૪.૩૦ થી ૬.૩૦ કલાક સુધી બે કલાકના સમય ગાળામાં પક્ષીઓ જોયા. આ સમય દરમિયાન ઘણાંબધા પક્ષીઓ જોવા મળ્યા હતા. ખાસ કરીને સૌથી વધારે પક્ષીઓની સંખ્યા કુંજ (કેન) નામના પક્ષીની હતી. જે અંદાજત ૪૦,૦૦૦ થી ૫૦,૦૦૦ ની સંખ્યામાં જોવા મળ્યા હતાં. આ પક્ષીઓ સ્થળાંતર કરીને આવનારા પક્ષીઓ છે. ત્યારબાદ જે પક્ષીની સંખ્યા જોવા મળતી હતી તે નિલજળ



Eurasian Eagle-Owl (મોટો ઘુવડ)

મુરઘો (પરપલ મુરહેન) ની છે, જેમની સંખ્યા પણ આશરે ૨૦૦ થી ૩૦૦ ની હતી. આ ઉપરાંત આ વિસ્તારમા ઘણા બધા પક્ષીઓ જોવા મળ્યા હતા જેમની યાદી નીચેના ટેબલમા આપેલ છે.

ખાસ કરીને આ વિસ્તારમાં પક્ષીઓના અવાજથી એવો કુદરતી માહોલ સર્જાયેલો હતો કે જે સાંભળવો પણ એક અનેરો લ્હાવો છે. ખાસ કરીને કુંજનાં કૂક, કૂક અવાજ થી આખો વિસ્તાર ગુંજી ઉઠતો હતો અને આખા વિસ્તારમાં રંગ બે રંગી કલરનો નજારો જોવા મળતો હતો. જેમ કોઈ ચિત્રમાં અલગ-અલગ કલર પૂરવામાં આવે અને ચિત્રને આબેહૂબ બનાવવામાં આવે તેમ ભગવાને આ વિસ્તારને પણ રંગોથી આબેહૂબ બનાવી દિધો હતો અને સ્થળને રમણીય બનાવી દિધું હતું. જે જોઈ અમોને ઘણો આનંદ થયો. ઉપરાંત આ સ્થળની મુલાકાત લઈને કુદરતી વાતાવરણમાં ફરવાની અમને બહુ જ મજા પડી હતી. જે કદી પણ ભુલાય તેમ નથી.

મુકેશકુમાર એચ. કોલડીયા
ગુજરાત ઈન્સ્ટીટ્યુટ ઓફ ડેઝર્ટ ઈકોલોજી
મુન્દ્રા રોડ,
ભુજ - કચ્છ, ગુજરાત.

છારીઢંઢ ખાતે જોયેલા પક્ષીની યાદી

Sr. No	Scientific Name	English Name	Local Name
1	<i>Aquila heliaca</i>	Eastern Imperial Eagle	Shahi Jummas (શાહી જુમ્મસ)
2	<i>Falco tinnunculus</i>	Common Kestrel	Moti Larjee (મોટી લરજ)
3	<i>Vanellus indicus</i>	Red-wattled Lapwing	Titodi (ટિટોડી)
4	<i>Vanellus malabaricus</i>	Yellow-wattled Lapwing	Parasna Titodi (પારાસના ટિટોડી)
5	<i>Pterocles exustus</i>	Chestnut-bellied Sandgrouse	Deshi Batavdo (દેશી બટાવડો)
6	<i>Francolinus pondicerianus</i>	Grey Francolin	Khadiya Tetar (ખાદીયો તેતર)
7	<i>Grus grus</i>	Common Crane	Samany Kunj (સામાન કુંજ)
8	<i>Columba livia</i>	Blue Rock Pigeon	Kabootar (કબૂતર કે પારેવ)
9	<i>Streptopelia decaocto</i>	Eurasian Collared-dove	Holo (હોલો)
10	<i>Streptopelia senegalensis</i>	Little Brown Dove	Khumadi Holi (ખુમડી હોલી)
11	<i>Psittacula krameri</i>	Rose-ringed Parakeet	Popat (પોપટ કે સુડો)
12	<i>Centropus sinensis</i>	Greater Coucal	Kukadiyo Kunbhar (કુકડીયો કુંબાર)
13	<i>Bubo bubo</i>	Eurasian Eagle-Owl	Moto Ghuvad (મોટો ઘુવડ)
14	<i>Asio flammeus</i>	Short-eared Owl	Ravaeido Ghuwad (રવાઈડો ઘુવડ)
15	<i>Merops orientalis</i>	Little Green Bee-eater	Nano Patrango (નાનો પતરંગો)
16	<i>Coracias benghalensis</i>	Indian Roller	Deshi Nilkanth (દેશી નિલકંઠ)
17	<i>Upupa epops</i>	Common Hoopoe	Ghanti Tankno (ઘંટી ટાંકણો કે હુદહુદ)
18	<i>Eremopterix grisea</i>	Ashy-crowned Sparrow-Lark	Bhonyachakli (બોયાચકલી)
19	<i>Calandrella raytal</i>	Indian Short-toed Lark	Ret Chandul (રેત ચંડુલ)
20	<i>Galerida cristata</i>	Crested Lark	Moto Chandul (મોટો ચંડુલ)
21	<i>Hirundo rustica</i>	Barn Swallow	Shiyalu Tarodiyu (શિયાળુ તારોડિયુ)
22	<i>Hirundo smithii</i>	Wire-tailed Swallow	Tarpoonchh Tarodiyu (તારપુંજ તારોડિયુ)
23	<i>Lanius vittatus</i>	Bay-backed Shrike	Pachanak Latoro (પચનક લટોરો)
24	<i>Lanius cristatus</i>	Brown Shrike	Badami Latoro (બદામી લટોરો)
25	<i>Dicrurus macrocercus</i>	Black Drongo	Kaliyo Koshi (કાળો કોશિ)
26	<i>Corvus splendens</i>	House Crow	Kagdo (કાગડો)
27	<i>Sturnus roseus</i>	Rosy Starling	Gulabi Vaiyu (ગુલાબી વૈયુ)
28	<i>Acridotheres tristis</i>	Common Myna	Kabar (કાબર)
29	<i>Pycnonotus leucotis</i>	White-eared Bulbul	Savetkarn Bulbul (સવેતકંઠ બુલબુલ)
30	<i>Pycnonotus cafer</i>	Red-vented Bulbul	Hadiyo Bulbul (હાદીયો બુલબુલ)
31	<i>Turdoides caudatus</i>	Common Babbler	Thoriyu Lela (થોરિયુ લેલા)
32	<i>Turdoides malcolmi</i>	Large Grey Babbler	Motu Lela (મોટુ લેલા)
33	<i>Copsychus saularis</i>	Oriental Magpie-Robin	Daiyad (દાયડ)
34	<i>Phoenicurus ochruros</i>	Black Redstart	Kalo Thartharo (કાળો થાર્થારો)
35	<i>Oenanthe deserti</i>	Desert Wheatear	Rann Piddo (રણ પિદ્દો)
36	<i>Oenanthe picata</i>	Variable Wheatear	Striklendno Piddo (સ્ટ્રિકલેન્ડનો પિદ્દો)
37	<i>Saxicoloides fulicata</i>	Indian Robin	Kalidev (કાલીદેવ)
38	<i>Nectarinia asiatica</i>	Purple Sunbird	Sakkarkhoro (સકકરખોરો)

39	<i>Passer domesticus</i>	House Sparrow	Chakali (ચકલી)
40	<i>Motacilla flava</i>	Yellow Wagtail	Rakhodi Pilakiyo (રાખોડી પિળકીયો)
41	<i>Motacilla cinerea</i>	Grey Wagtail	Van Pilakiyo (વન પિળકીયો)
42	<i>Motacilla alba</i>	White Wagtail	Diwali Ghodo (દિવાલી ઘોડો)
43	<i>Anas acuta</i>	Northern Pintail	Singpar (સીંગપર)
44	<i>Anas poecilorhyncha</i>	Western Spot-billed Duck	Tilavali Batak (ટીલાવાળી બતક)
45	<i>Anas penelope</i>	Eurasian Wigeon	Piyasan (પિયાસણ)
46	<i>Anas clypeata</i>	Northern Shoveler	Gayano (ગયણો)
47	<i>Aythya ferina</i>	Common Pochard	Rakhodi Karchiyo (રાખોડી કરચીયો)
48	<i>Sarkidiornis melanotos</i>	Comb Duck	Nakto (નકટો)
49	<i>Ceryle rudis</i>	Pied Kingfisher	Kabro Kalkaliyo (કાબરો કલકલીયો)
50	<i>Halcyon smyrnensis</i>	White-throated Kingfisher	Savet Kanth Kalkaliyo (સવેત કંઠ કલકલીયો)
51	<i>Porphyrio porphyrio</i>	Purple Swamp-hen	Nil Jal Murgho (નિલ જલ મુરઘો)
52	<i>Gallinula chloropus</i>	Common Moorhen	Jal Kookdi (જલ કુકડી)
53	<i>Fulica atra</i>	Common Coot	Bhagatdu (ભગતડું)
54	<i>Tachybaptus ruficollis</i>	Little Grebe	Nani Dubki (નાની ડુબકી)
55	<i>Pelecanus onocrotalus</i>	Great White Pelican	Gulabi Pen (ગુલાબી પેણ)
56	<i>Phalacrocorax fuscicollis</i>	Indian Cormorant	Vachet Kajeeyo (વચેટ કાજયો)
57	<i>Anhinga melanogaster</i>	Darter	Sarpgriv (સર્પગ્રીવા)
58	<i>Ardea cinerea</i>	Grey Heron	Kaboot Baglo (કબૂત બગલો)
59	<i>Ardea purpurea</i>	Purple Heron	Nadi Baglo (નાડી બગલો)
60	<i>Ardeola grayii</i>	Indian Pond-Heron	Kani Bagli (કાણી બગલી)
61	<i>Bubulcus ibis</i>	Cattle Egret	Dhor Baglo (ઢોર બગલો)
62	<i>Mesophoyx intermedia</i>	Intermediate Egret	Dholo Baglo (ધોળો બગલો)
63	<i>Egretta garzetta</i>	Little Egret	Nano Dhor Baglo (નાનો ઢોર બગલો)
64	<i>Egretta gularis</i>	Western Reef-Egret	Dariyay Baglo (દરિયાઈ બગલો)
65	<i>Mycteria leucocephala</i>	Painted Stork	Pili Chanch Dhonk (પિલી ચાંચ ઢોક)
66	<i>Threskiornis melanocephalus</i>	White Ibis	Safed Kankansar (સફેદ કાંકણસાર)
67	<i>Pseudibis papillosa</i>	Black Ibis	Kali Kankansar (કાળી કાંકણસાર)
68	<i>Plegadis falcinellus</i>	Glossy Ibis	Pan-nani Kankansar (પાન-નાની કાંકણસાર)
69	<i>Platalea leucorodia</i>	Eurasian Spoonbill	Chamcha (ચમચા)
70	<i>Phoenicopterus ruber</i>	Greater Flamingo	Moto Hanj (મોટો હંજ)
71	<i>Phoenicopterus minor</i>	Lesser Flamingo	Nano Hanj (નાનો હંજ)
72	<i>Hydrophasianus chirurgus</i>	Pheasant-tailed Jacana	Katthaei Jalmanjar (કથથઈ જલમાંજર)
73	<i>Himantopus himantopus</i>	Black-winged Stilt	Gajpauv (ગજપાઉ)
74	<i>Actitis hypoleucos</i>	Common Sandpiper	Samany Tutvari (સામાન્ય તુતવારી)
75	<i>Calidris minuta</i>	Little Stint	Nano Kichadiyo (નાનો કિચડીયો)
76	<i>Charadrius mongolus</i>	Lesser Sand Plover	Nani Dhongili (નાની ઢોંગીલિ)
77	<i>Larus brunicephalus</i>	Brown-headed Gull	Ladakhi Dhomado (લડાખી ધોમડો)
78	<i>Sterna aurantia</i>	River Tern	Kenchi Poonchh Vabagli (કેચિપૂંજ વાબગલી)

Upcoming Events in dry land Science

1. Conference on Bio-Meets. Hydrology: "Water for life", 21-24th May 2013.
Landau in der Pfalz, Germany.
2. Conference on Climate Change and Regional Response 2013 (CCRR-2013), May
27, 2013 - Wed, May 29, 2013, Germany.
3. 4th International Symposium on Soil Organic Matter 2013 (SOM 2013) , May
5th to May 10th 2013, Nanjing, China
4. Fourth International Conference on Aceh and Indian Ocean Studies (ICAIOS)
9-10th June, 2013, Banda Aceh, Aceh, Indonesia.
5. IUSS Global SOILCARBON CONFERENCE, 3-6 June 2013 / Madison, Wisconsin
USA.
6. International Workshop at the crossroad of Earth Information, Technology and
Social Sciences: Information for Innovation and Socioeconomic Development,
June 23, 2013-June 24, 2013, Florence, Italy.

7. Symposium for Research in Protected Areas, June 10th –June 12th, 2013, Mittersill, Salzburg, Austria.
8. "2nd International Conference and Exhibition on Nutritional Science & Therapy" (Nutritional Science- 2013); July 15-17, 2013 at Philadelphia, USA.
9. Annual International Conference on Ecology, Ecosystems and Climate Change, 15-18 July 2013, Athens, Greece
10. 2013 2nd International Conference on Geological and Environmental Sciences (ICGES 2013), 6th to 7th July 2013, Hong Kong, China.
11. 3rd Session of the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM3), 24 July, 2013- 26 July, 2013, Cambridge, United Kingdom
12. XVII conference of the international soil conservation organisation "Environmental sustainability through soil conservation", 8-12th July, 2013, Medellin, Colombia.
13. International Conference on Integrative Biology Summit, August 05-07, 2013, Las Vegas, USA



14. 2nd International Conference on Biodiversity & Sustainable Energy Development, August 12-14 2013, Raleigh, USA
15. 2nd International Conference on Hydrology & Ground Water Expo ,August 26-27, 2013, Raleigh, USA
16. INTECOL & British Ecological Society Congress 8th- 23rd August, 2013. International Convention Centre at ExCeL, London, United Kingdom.
17. Second International Conference on Biodiversity & Sustainable Energy Development, 12-14th August, 2013. Raleigh, United States.
18. International Conference on Oceanography, August 21-23, 2013, Holiday Inn Orlando International Airport, Orlando-Florida, USA.
19. 48th Annual European Marine Biology Symposium, August 19-23, 2013, National University of Ireland, Galway, Ireland.
20. Utilization and protection of halophytes and salt-affected landscapes. 4th-6th September, 2013, Kecskemet, Hungary.



21. First Inter-Regional Conference on Land and Water Challenges” Water Environment and Agricultural Challenges for Sustainable Development. 10-14th September, 2013. Bari, Italy.
22. Conference on “Coasts, Marine Structures and Breakwaters”. 17-20th September, 2013, Edinburgh, United Kingdom.
23. Conference on Plants for a Greening Economy, Sep 01, 2013 - Sep 04, 2013, Greece
24. First International Conference on Global Food Security, Sep 29, 2013 - Oct 02, 2013, Netherland.
25. Geoform+ 2013 - 10th International Exhibition of Geodesy Cartography and Geoinformation, October 15, 2013 – Oct 17, 2013, Moscow, Russia.
26. 9th International Soil Science Congress on “The Soul of Soil and Civilization” October 14-Oct 16 2014, Antalya / Turkey.
27. International Conference and Exhibition on Traditional & Alternative Medicine, December 09-11, 2013, Hyderabad, India.



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