PORTFOLIO

Design. Plan. Regenerate

Advancing Multidisciplinary Environmental and Sustainability
Thinking n Urban Planning, Environmental Design, and Architecture

Sai Pravallika Allu

156-1128 Mckercher Dr,
Saskatoon, Saskatchewan,
Canada, SH7 4Y7

allusaipravallika2010@gmail.com

+1 306 880 0895

www.linkedin.com/in/sai-pravallika-allu

Personal Statement

I am a multidisciplinary professional with a background in Architecture and a Master's in Regenerative Sustainability from the University of Saskatchewan. My expertise bridges urban planning, architectural and environmental design, supported by hands-on experience in GIS, remote sensing, and spatial analysis. I take a data-driven and regenerative approach to designing inclusive, climate-resilient cities, aligning my work with the UN Sustainable Development Goals. Passionate about long-term planning and equitable development, I seek to collaborate with like-minded professionals and organizations committed to shaping sustainable urban futures

Work Experience

July 2022 – August 2023

Architect

Worked on sustainable residential projects in Tamil Nadu. Created 3D and CAD drawings, sustainable design concepts, and client presentations.

June 2021 – October 2021

Intern Architect

Contributed to architectural, interior, and landscape design development. Created CAD drawings, resolved design issues, and supported team coordination.

Education

September 2023 - April 2025

Master of Sustainability (Regenerative Sustainability)
School of Environment and Sustainability, University of Saskatchewan, Saskatoon, SK, Canada

September 2017 - September 2022

Bachelor of Architecture
Adhiyamaan College of Engineering, Hosur, Affiliated to Anna University, Chennai, Tamil Nadu, India.

Skills

Technical skills

- GIS and Mapping: ArcGIS Pro, Google Earth Pro, GPS Receiver
- Drafting and Drawing: Autodesk AutoCAD, Hand Drafting, Sketching
- Spatial Analysis: GIS, Data Management
- 3D Modeling and Visualization: SketchUp, Revit, Lumion
- Other Tools: Microsoft Office Suite, Adobe Photoshop

Personal Skills

Problem-solving, listening, communication, creativity, curiosity, design thinking, systems thinking, concept development, drafting, strategic thinking, model-making, research, time management, teamwork, and dedication.

Extracurricular activities

Volunteer and membership

- Volunteering for Bird-Window Collision project (Present)
- Canadian Water Resource Association (CWRA) and volunteered for the CWRA 2024 National Conference
- Youth Nature Keeper, Canadian Council of Invasive Species, and volunteered for the YNK 2024 Conference
- Saskatoon Climate Hub

Certifications

- Certificate of Workshop on Acoustic Ecology and Sonic Architecture held during the 61st Annual NASA (National Association of Students of Architecture) Convention (2018-2019)
- Certificate of Completion in Basic building designing software by CADD Center
- Certificate of Completion in Photoshop Masterclass, Urban mapping and 3D visualization
- Certificate of Completion in Basic to Advanced Interior Design Training
- Certificate of Completion of Course in Adobe Photoshop • Certificate of Completion of Course in SketchUp

References

Available upon request.

Remote Sensing

University Of Saskatchewan

GIS

University Of Saskatchewan

Page 9

Field project

University Of Saskatchewan

Team Work

Page 13

Public Park

Adhiyamaan College of Engineering

Page 13

Volunteer Project

Canadian Council of Invasive Species

Team Work

Thesis

Adhiyamaan College of Engineering

Urban Design Proposal

Adhiyamaan College of Engineering

Hobbies and Interests

Remote Sensing

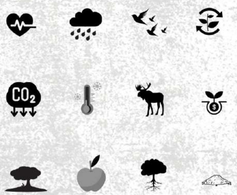
Assessing the Impact of Land Use and Land Cover (LULC) Changes on Urban Forests in Langford, Vancouver Island Using Sentinel 2 Imagery

This project applies Sentinel-2 imagery and Random Forest classification to analyze Land Use and Land Cover (LULC) change in Langford, BC, from 2019 to 2024.

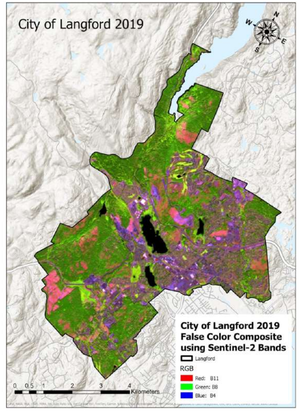
It identifies urban expansion and its impact on urban forests using NDVI, EVI, and NDBI indices. The study combines remote sensing, urban planning, and sustainability for evidence-based urban planning.

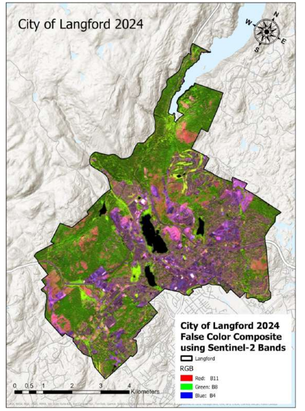
The project, which is run in Google Earth Engine, provides high-accuracy output through supervised classification.
The project aligns with SDG 11 and SDG 15, emphasizing green space conservation. It showcases the multidisciplinary value of geospatial tools in regenerative urban development.

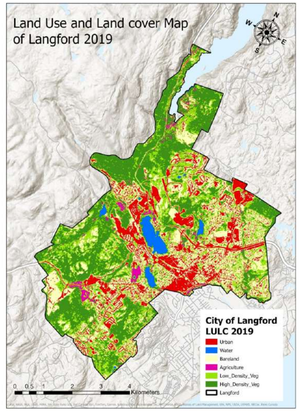
Benefits of Urban Forest

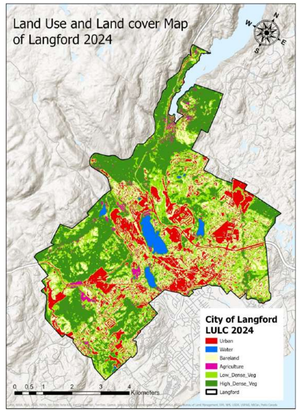


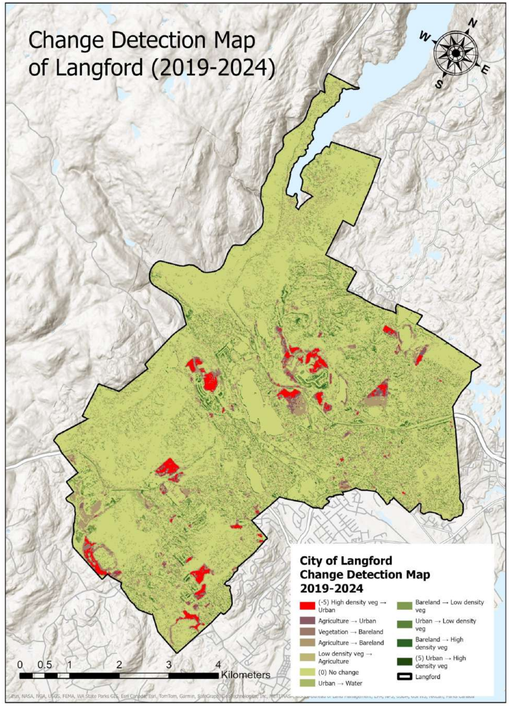
Langford boundary











The project used post-classification comparison with Random Forest to detect land cover changes and urban forest loss in Langford between 2019 and 2024.

Accuracy Assessment/Matrix Error 2019 Langford

Classes	Urban	Water	Bareland	Agriculture	Low Density Veg.	High Density Veg.	Row total
Urban	**20**	0	0	0	0	0	20
Water	0	**20**	0	0	0	0	20
Bareland	0	0	**20**	0	0	0	20
Agriculture	0	0	0	**18**	2	0	20
Low Density Veg.	0	0	1	2	**17**	0	20
High Density Veg.	0	0	0	0	1	**19**	20
Column total	20	20	21	20	20	19	**120**

Overall Accuracy = 114/120 = 95 % and Kappa = 94 %

2019

	Classes	Producer's Accuracy (%)	Omission Error (%)
2019	Urban	100%	0%
	Water	100%	0%
	Bareland	100%	0%
	Agriculture	90%	10%
	Low Density Veg.	85%	15%
	High Density Veg.	95%	5%

	Classes	User's Accuracy (%)	Commission Error (%)
2019	Urban	100%	0%
	Water	100%	0%
	Bareland	95%	5%
	Agriculture	90%	10%
	Low Density Veg.	85%	15%
	High Density Veg.	100%	0%

Accuracy Assessment/Matrix Error 2024 Langford

Classes	Urban	Water	Bareland	Agriculture	Low Density Veg.	High Density Veg.	Row total
Urban	**18**	0	2	0	0	0	20
Water	0	**20**	0	0	0	0	20
Bareland	0	0	**20**	0	0	0	20
Agriculture	0	0	0	**18**	2	0	20
Low Density Veg.	0	0	0	3	**17**	0	20
High Density Veg.	0	0	0	0	0	**20**	20
Column total	18	20	22	21	19	20	**120**

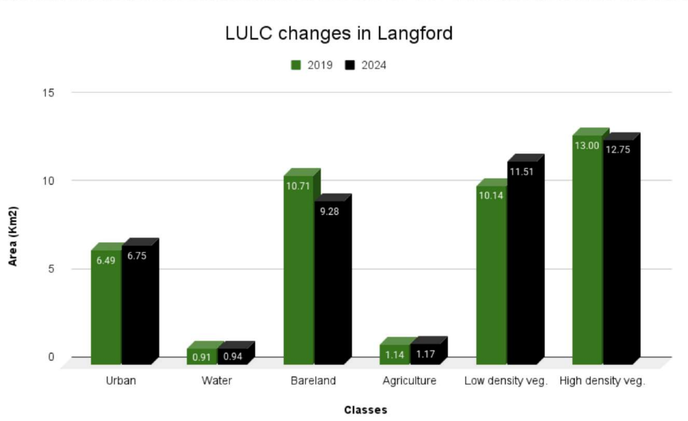
Overall Accuracy = 113/120 = 94 % and Kappa = 93 %

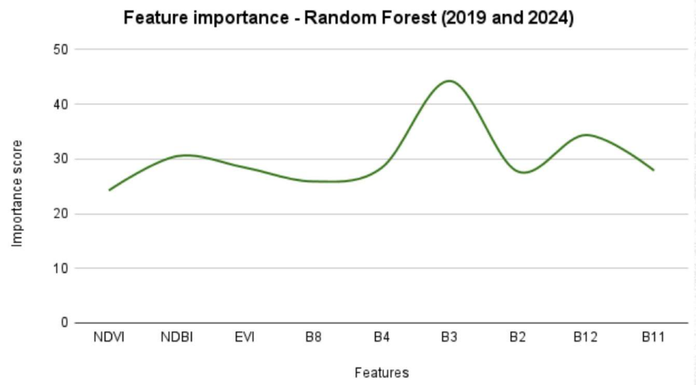
2024

	Classes	Producer's Accuracy (%)	Omission Error (%)
2024	Urban	90%	10%
	Water	100%	0%
	Bareland	100%	0%
	Agriculture	90%	10%
	Low Density Veg.	85%	15%
	High Density Veg.	100%	0%

	Classes	User's Accuracy (%)	Commission Error (%)
2024	Urban	100%	0%
	Water	100%	0%
	Bareland	91%	9%
	Agriculture	86%	14%
	Low Density Veg.	89%	11%
	High Density Veg.	100%	0%

Accuracy assessment was conducted using an error matrix and reference data to validate classification results.
Overall accuracy and the Kappa coefficient were calculated for both 2019 and 2024 classifications.
These metrics ensured reliability in detecting land cover changes and urban forest loss.





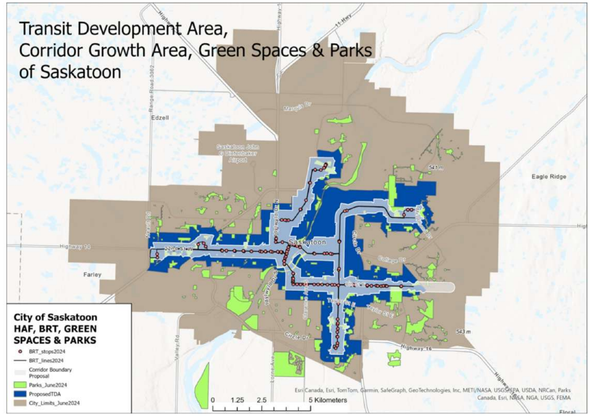
Random Forest classification identified the most important spectral properties for LULC classification. Band 3 (Green), SWIR bands (B12 and B11), NDBI, and EVI performed well, improving the model's capacity to differentiate between urban and vegetated environments. When it came to recognizing built-up area, NDBI was very useful, but in areas with thick urban forest, EVI performed better. Feature significance analysis helped choose the best input characteristics for upcoming evaluations of urban sustainability while also increasing classification accuracy.

Geographic Information System

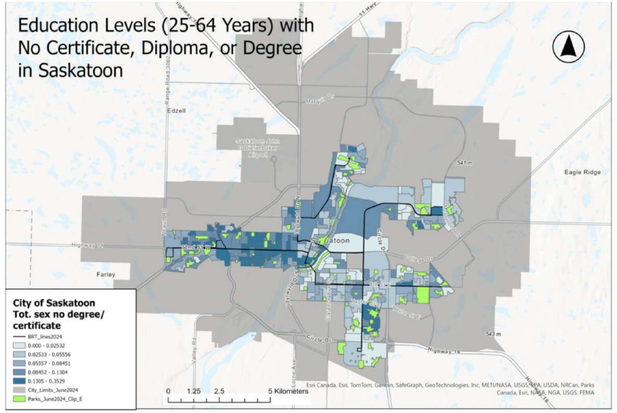
ArcGIS PRO Story Map Link

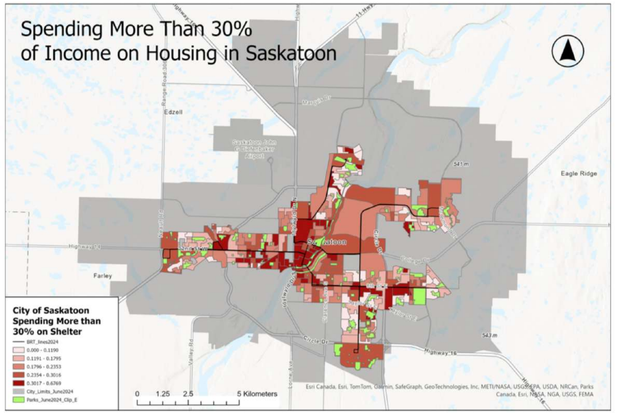
Transforming Saskatoon: A Vision Developing for Sustainable Accessibility

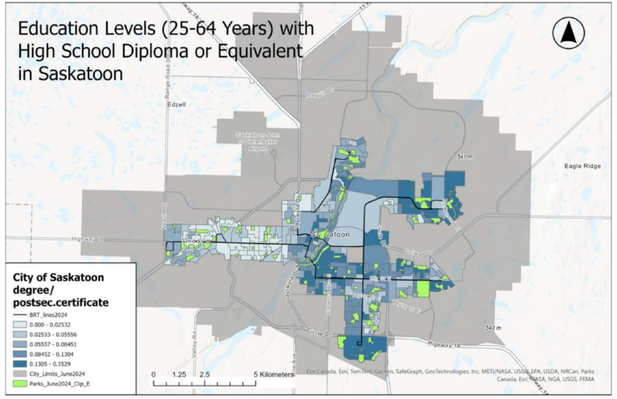
Conceptual Map focusing on Transit Development Area (TDA) Saskatoon

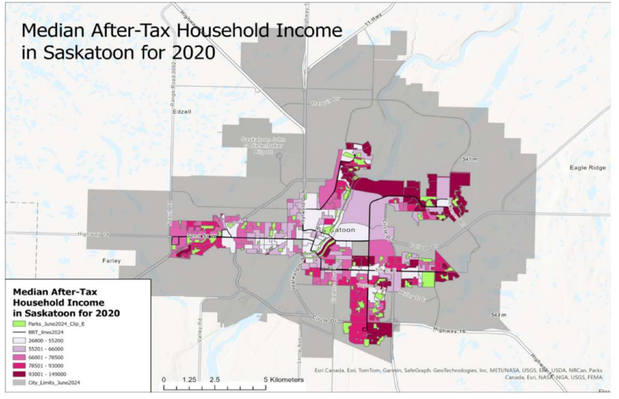


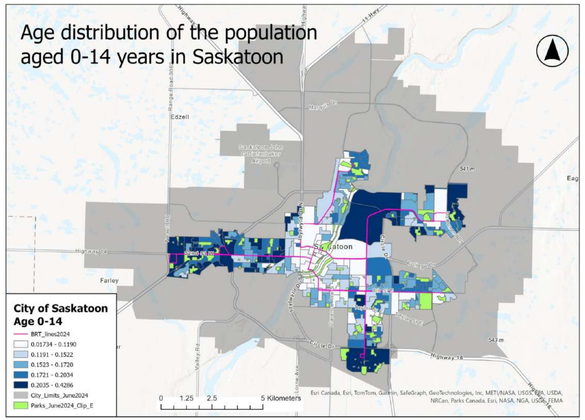
As Saskatoon experiences ongoing urban growth, ensuring equitable access to green spaces and public transit has become increasingly important. This research, through the lens of socioeconomic factors such as education, income, and age, uncovers notable inequalities in accessibility between neighborhoods. While residents on the east side of the city benefit from better transit connections and nearby parks, those living west of the river often face higher housing costs and fewer green spaces. These findings emphasize the urgent need for equitable urban planning that aligns with SDG 11 to create more resilient, inclusive, and sustainable cities.

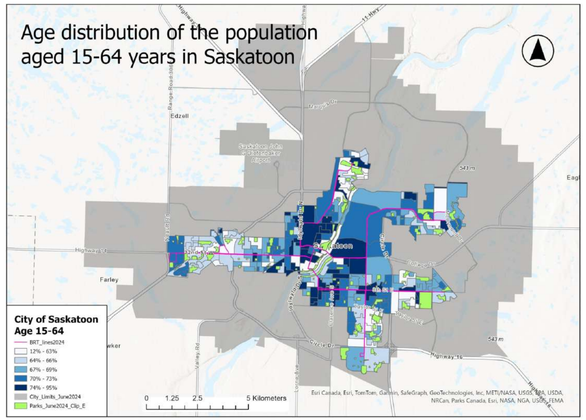


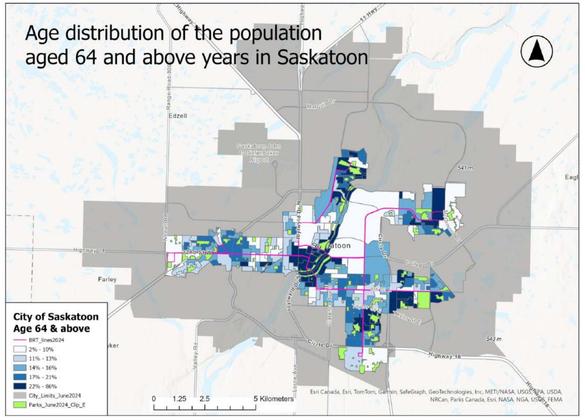


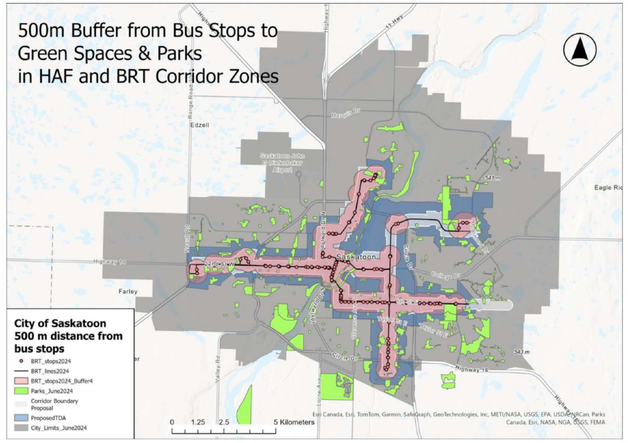


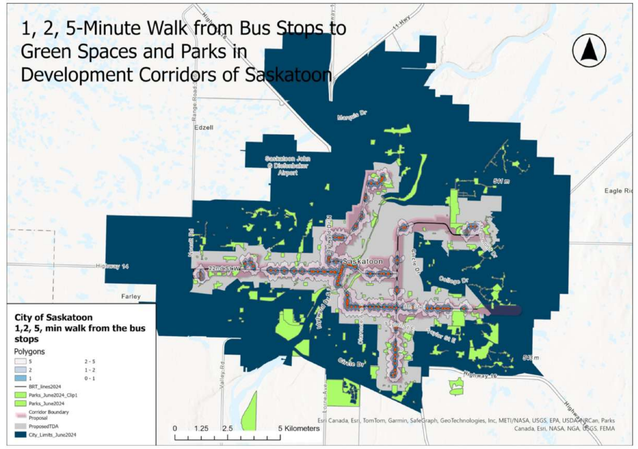












This study used ArcGIS Pro tools to assess park accessibility in Saskatoon's Transit Development Area (TDA) and growth corridors. While many parks are within a 6-minute walk from bus stops, gaps remain only 83 of 125 parks intersect the 500 m buffer. With projected population growth, parkland per capita will fall below national standards, highlighting the need for more equitable planning aligned with SDG 11.

Field Work

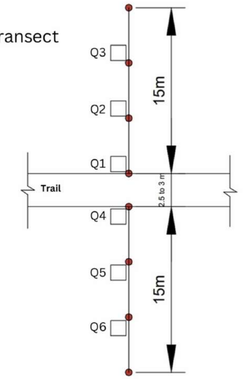
Course Project, University of Saskatchewan

Analysis of Plant Biodiversity in Northeast Swale Grassland: Comparison between Recreation Zone and Ecological Core

Canada

Saskatchewan

Saskatoon
Northeast Swale



This field-based study analyzed plant biodiversity in Saskatoon's Northeast Swale by comparing two zones: the Recreation Zone, which is open to public use, and the Ecological Core, a protected area. Using transect-quadrat sampling and biodiversity indices such as the Shannon-Wiener and Jaccard Similarity Index, the study assessed species diversity, composition, and relative cover.

Findings showed that the Recreation Zone exhibited higher species abundance but also greater disturbance, including a higher proportion of invasive species. The Ecological Core demonstrated slightly higher biodiversity and more stable vegetation structure. The study highlights the importance of targeted invasive species management, ground layer restoration, and continued monitoring to support long-term ecological health and resilience of the Northeast Swale.

Field Images

RECREATIONAL ZONE ECOLOGICAL CORE

Source: Google Earth pro

ECOLOGICAL CORE

Source: Google Earth pro

No	Type of Species	Common Name	Scientific Name	Species Status	Family
1	Shrubs	Prairie rose	*Rosa arkansana*	Native	Rosaceae
2	Shrubs	Snow berry	*Symphoricarpos albus*	Native	Caprifoliaceae
3	Shrubs	Wolf willow	*Elaeagnus commutata*	Native	Elaeagnaceae
4	Shrubs	Saskatoon	*Amelanchier alnifolia*	Native	Rosaceae
5	Shrubs	Canada blueberry	*Vaccinium myrtilloides*	Native	Ericaceae
6	Shrubs	Blue honeysuckle	*Lonicera caerulea*	Native	Caprifoliaceae
7	Sedges	Carex	*Carex spp.*	Native	Cyperaceae
8	Grasses	Kentucky bluegrass	*Poa pratensis*	Invasive	Poaceae
9	Grasses	Smooth brome	*Bromus inermis*	Invasive	Poaceae
10	Grasses	Crested wheatgrass	*Agropyron cristatum*	Invasive	Poaceae
11	Grasses	Prairie peppergrass	*Lepidium densiflorum*	Native	Brassicaceae
12	Grasses	Prairie sandreed	*Calamovilfa longifolia*	Native	Poaceae
13	Forbes	Dandelion	*Taraxacum officinale*	Invasive	Asteraceae
14	Forbes	Northern bedstraw	*Galium boreale*	Native	Rubiacea
15	Forbes	Field chickweed	*Cerastium arvense*	Native	Caryophyllaceae
16	Forbes	Sage	*Artemisia spp.*	Native	Asteraceae
17	Forbes	Buffalo bean	*Thermopsis rhombifolia*	Native	Fabaceae
18	Forbes	Canada golden rod	*Solidago canadensis*	Native	Asteraceae
19	Forbes	Nothern bedstraw	*Galium boreale*	Native	Rubiacea
20	Forbes	Crowfoot violet	*Viola pedatifida*	Native	Violaceae
21	Forbes	Prairie smoke	*Geum triflorum*	Native	Rosaceae
22	Forbes	Silverweed	*Argentina anserina*	Native	Rosaceae
23	Forbes	Western gromwell	*Lithospermum ruderale*	Native	Boraginaceae
24	Forbes	Canadian milkvetch	*Astragalus canadensis*	Native	Fabaceae
25	Forbes	Yellow toadflax	*Linaria vulgaris*	Invasive	Plantaginaceae
26	Forbes	Canada Thistle	*Cirsium arvense*	Invasive	Asteraceae
27	Forbes	Prairie sage	*Artemisia ludoviciana*	Native	Asteraceae
28	Forbes	Small leaved everlasting	*Antennaria parvifolia*	Native	Asteraceae
29	Forbes	American vetch	*Viola pedatifida*	Native	Fabaceae
30	Forbes	Canada Goldenrod	*Solidago canadensis*	Native	Asteraceae
31	Forbes	Field milkvetch	Astragalus agrestis	Native	Fabaceae
32	Forbes	Bastard toadflax	Comandra umbellata	Native	Santalaceae

The study found that the Recreation Zone had more plant species but a higher presence of invasive species, while the Ecological Core showed slightly greater biodiversity and ecological stability. Ground layer vegetation differed most between zones, indicating the impact of human and pet activity. The results highlight the need for invasive species control, native plant restoration, and ongoing monitoring to protect the Northeast Swale's ecosystem.

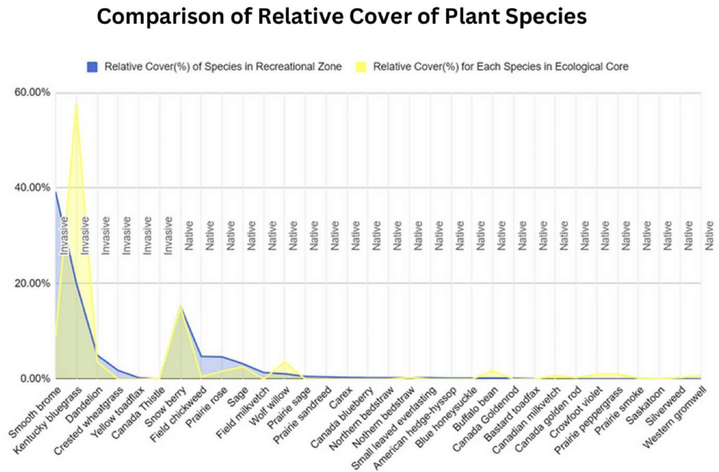


Figure: Relative cover of plant species in recreational zone and ecological core

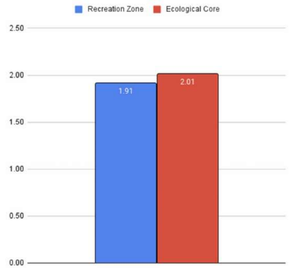
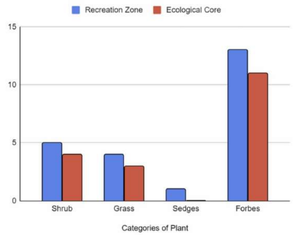
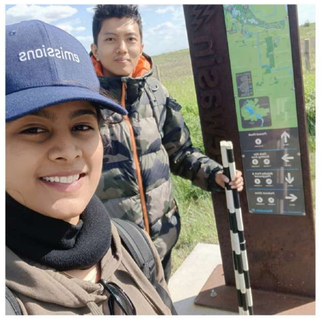


Figure: Shannon Weiner Diversity Index in two zone





Field Images

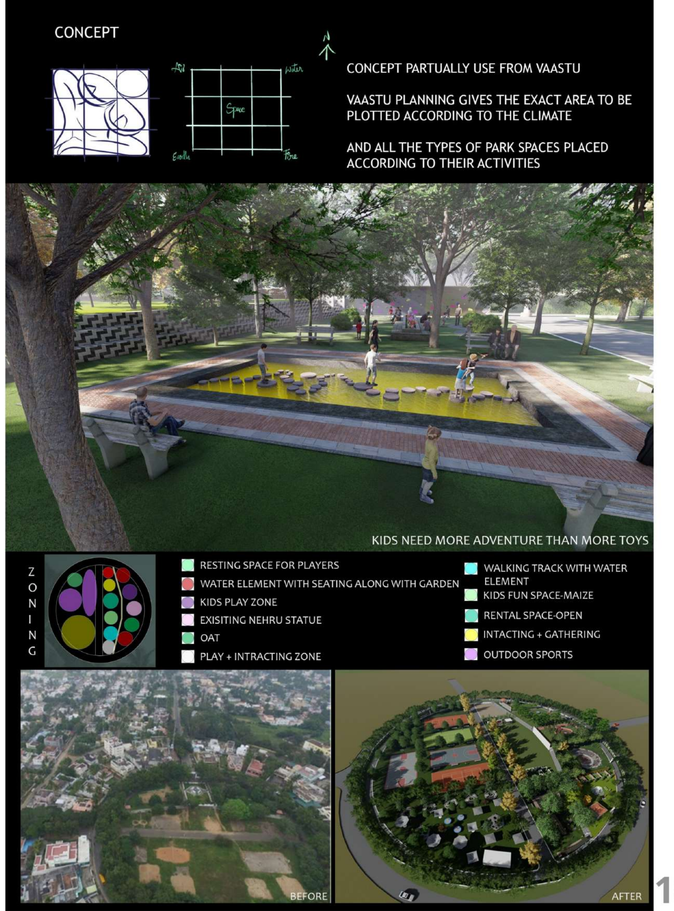
Public Park

Revitalizing a Public Park in Pollachi with Sustainable Design Principles

This public park project demonstrates a balanced approach to sustainable design, environmental responsibility, and community well-being. Motion sensor lighting and rainwater harvesting systems are integrated to reduce resource use while maintaining a safe and welcoming environment. The layout is guided by climate responsive and passive design strategies, creating thermally comfortable zones that support natural airflow and shade.

The park encourages biophilic engagement through interactive water features, sensory mazes, and native planting, allowing visitors to connect meaningfully with nature. Shaded gazebos, accessible pathways, and a small amphitheatre provide inclusive spaces for rest, recreation, and cultural activities. By preserving existing trees and introducing diverse vegetation, the design enhances local biodiversity and ecological health.

Overall, the project reimagines urban green space as a multisensory, inclusive, and environmentally conscious destination that fosters both human connection and ecological resilience.



This park design is guided by Vaastu principles to naturally align each space with sunlight, wind, and seasonal comfort. The clock-inspired layout helps people, especially children and elders, easily find their way, making the park feel intuitive and welcoming.

Open spaces like the amphitheatre and gazebos offer places to gather, rest, and connect. Shaded areas provide calm and cool spots for older visitors to relax among trees and gardens that support clean air and biodiversity.

BEFORE

AFTER

Interactive elements like the shallow pond and nature maze invite kids to explore safely while learning through play. Paths, seating, and open zones are designed to blend with nature, creating moments for community without disturbing the existing landscape.

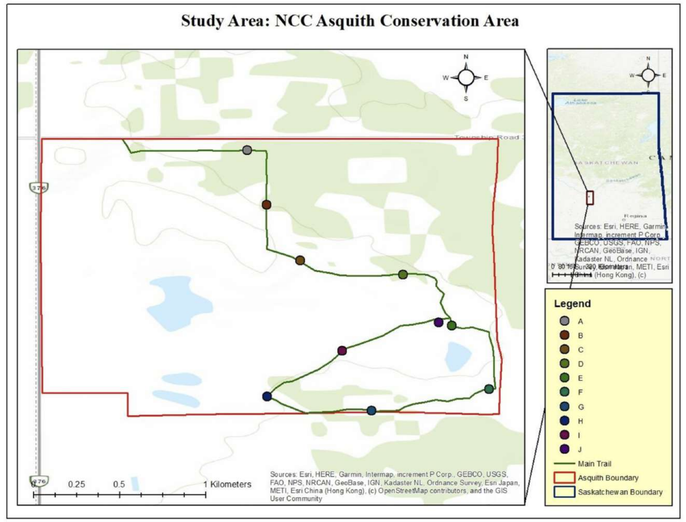
Native plants are preserved and new ones are added to boost ecological health. Altogether, the park becomes a shared green space that supports wellness, connection, and a deeper relationship with the environment.

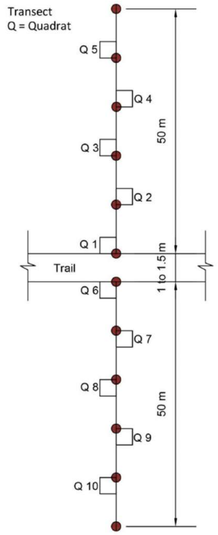
This public park design balances sustainability, comfort, and community well-being. Motion sensor lighting and rainwater harvesting reduce resource use, while climate-responsive planning creates naturally cool, shaded spaces.

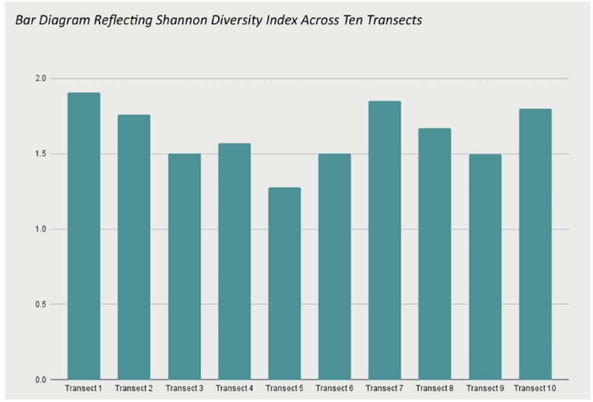
Biophilic features like water elements, mazes, and native plants invite connection with nature. Inclusive zones such as gazebos, pathways, and an amphitheatre support rest, play, and gathering. Preserving trees and enhancing biodiversity, the park becomes a vibrant, resilient green space for all.

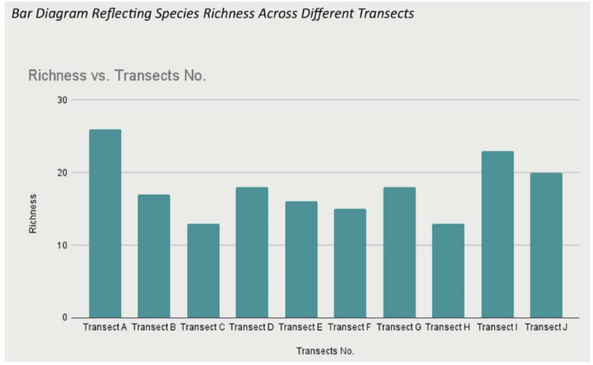
Volunteer Project

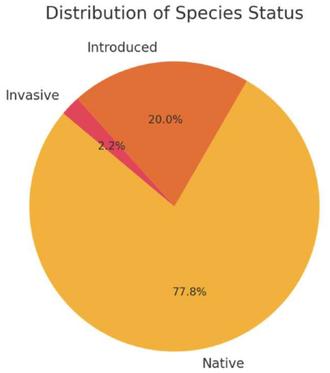
Assessing Plant Diversity and the Impact of Invasive Species in the Asquith Conservation Area

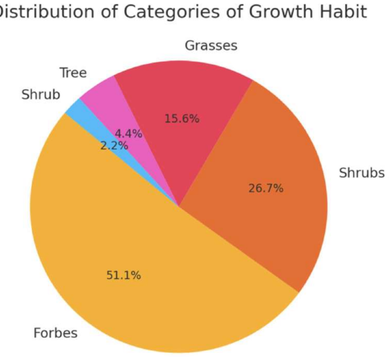












FUNDED BY CANADA SERVICE CORPS | Canada

Thesis

Urban Centre of Excellence

The Urban Centre of Excellence @ Hyderabad is a sustainable campus designed to bring together thinkers, planners, and communities to solve urban challenges. It blends learning, research, and innovation in one space, supporting collaboration across sectors. The design focuses on green mobility, passive cooling, and inclusive spaces, with IGBC Platinum goals in mind. With open greens, co-working zones, and accessible public areas, the centre becomes a lively, climate-friendly hub that inspires better city-making for the future.

MASTER PLAN

LOCATION - HYDERABAD
SITE - 44 ACRES
BUILT UP AREA - 13 ACRES

LEGENDS

1. MAIN ENTRY
2. PARKING A
3. ADMIN, AUDITORIUM, EXHIBITION, CONVENTION CENTER
4. U-HUB
5. PARKING B
6. RESTAURENT
7. INDOOR, LAUNDRY, STORE
8. HOTEL
9. ACCOMODATION- RESIDENCE
10. OUTDOOR GAME
11. OAT 1
12. OAT 2
13. OAT 3
14. SERVICES
15. ELECTRICAL VEHICLE - CHARGE POINT
16. SECONDARY ENTRY (SERVICE)

SCALE 1: 1500
ALL DIMENSIONS ARE IN METERS

ELECTRIC VEHICLES

Electric vehicles are more efficient, and that combined with the electricity cost means that charging an electric vehicle is cheaper than filling petrol or diesel for your travel requirements. Using renewable energy sources can make the use of electric vehicles more eco-friendly.

VEGETATION

State forest department, Hyderabad Metropolitan development authority (HMDA), Greater Hyderabad Municipal Corporation (GHMC), Faculty of Botany from Osmania university, Central Institute for Medicinal and Aromatic Plants (CIMAP) have introduced many plants in Hyderabad at Sanjeevaiah park, Indira park, Theme garden for Ficus species at Jubilee hills near Durgam cheruvu, Botanical and experimental gardens and Arboretum at Dulapally.
Sterculia foetida (Adavi babam)

- Delonix regia (Th urai) • Bauhinia purpurea (Deva Kanchanamu) • Albizia saman (Rain tree)
- Th espesia populnea (Ganga raavi) • Terminalia catappa (Badam)
- Pongamia pinnata (Karuga) • Dalbergia sissoo (Sissu)

CONCEPTIONAL ROAD SKETCH

VIEW 4 VIEW 5 VIEW 6

USING COLORS - WAY FINDING

CONCEPTIONAL ROAD SKETCH

VIEW 1 VIEW 2 VIEW 3

PARKING

VEHICULAR ACCESS

PEDESTRIAN & CYCLE MOVEMENT

PUBLIC ACCESS ZONE

SEMIPUBLIC
PRIVATE ZONE

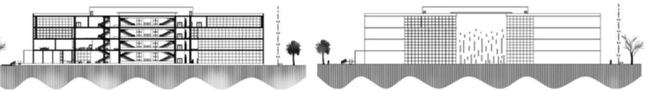
LANDSCAPE ZONE

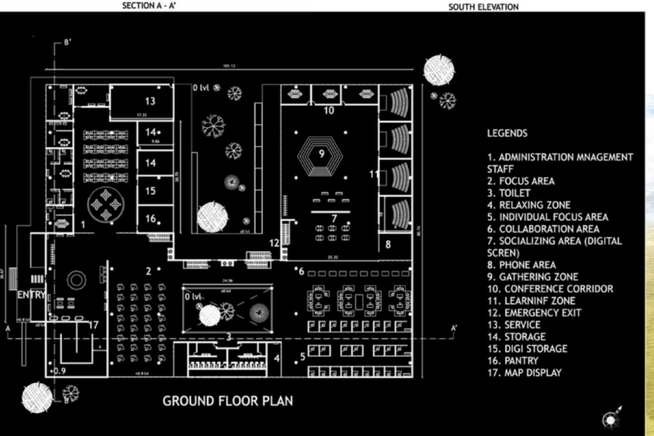
SERVICE ZONE

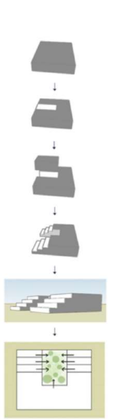
GRID GARDEN

OAT ZONE

WAY FINDING - INCLUSIVE - SENSORS- TECHNOLOGY







CONCEPT

THE CONCEPT IS DEVELOPED IN ORDER TO PRODUCE THE CONNECTION BETWEEN INDOOR AND OUTDOOR.

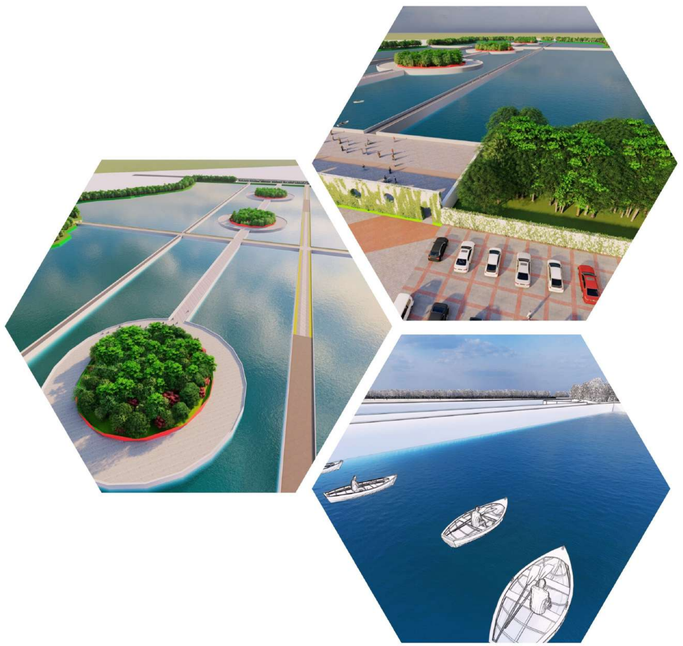
THE SUBTRACTION DONE HERE PLAYS DIFFERENT RATIO IN EACH FLOOR. THIS IS DONE TO CREATE OUT DOOR RELAXING SPACES - FIRST FLOOR, LIBRARY READING SPACE AND OUTDOOR FOOD COURT - SECONF FLOOR, ENTERTAINMENT BALCONY - THIRD FLOOR.

ALSO IT (BALCONY) WORKS AS MULTI -PURPOSE ZONE.

THE LOCATION OF THIS U-HUB IS AT HIGH CONTOUR LEVEL ON THE SITE, WHICH ALSO ACT AS THE SPACE - WITH THE VIEWS OF BALCONY TO OBSERVE THE PUBLIC PEOPLE ACTIVITIES. THIS WILL HELP URBAN PLANNER, URBAN DESIGNER, AND URBAN SPECIALIST TO GENERATE NEW IDEAS ON DEVELOPING THE SCHEME.

Urban Design Proposal

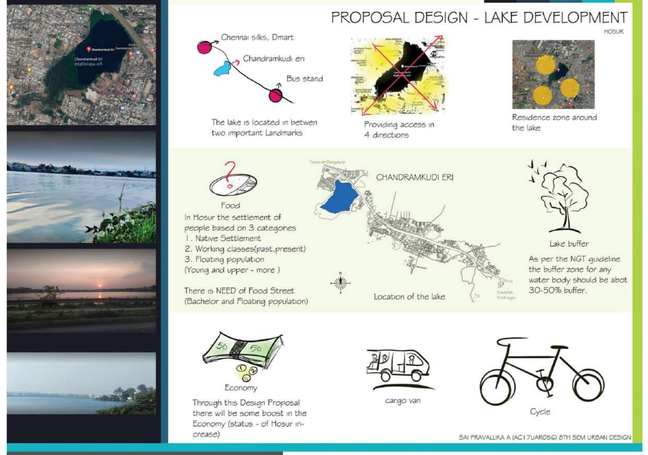
Lake Development

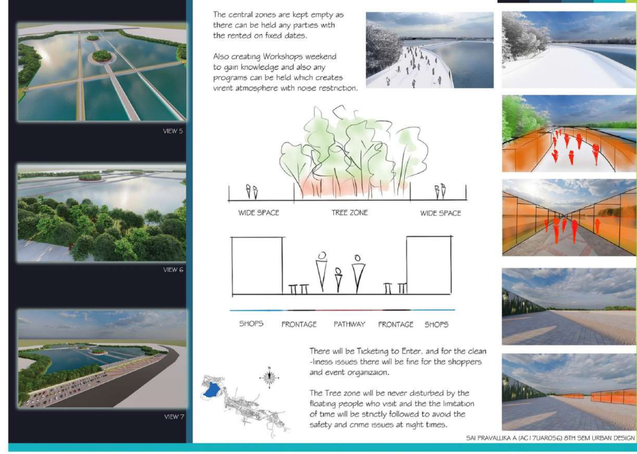


This urban design proposal reimagines Chandrakudi Lake as a multifunctional, inclusive, and environmentally responsive public space. Located between key city landmarks in Hosur, India, the site addresses the needs of various user groups including residents, floating populations, and vendors by creating flexible zones for recreation, commerce, and mobility. The design draws from spatial connectivity principles using symbolic geometry and a three-circle concept that reflects local cultural values and movement patterns.

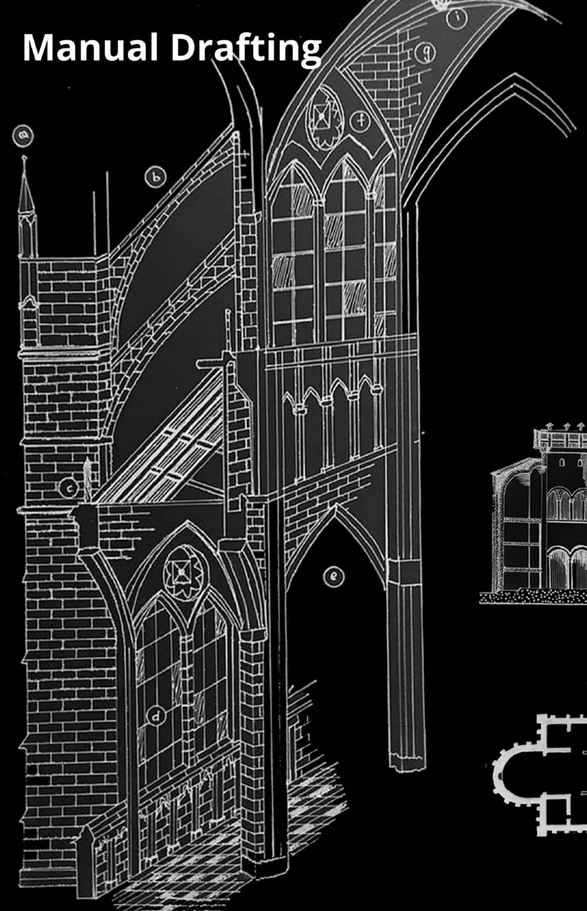
Sustainable strategies include maintaining a natural buffer around the lake to enhance flood resilience, promoting pedestrian and cycle-friendly access through shared mobility corridors, and introducing tree-lined zones to regulate the microclimate.

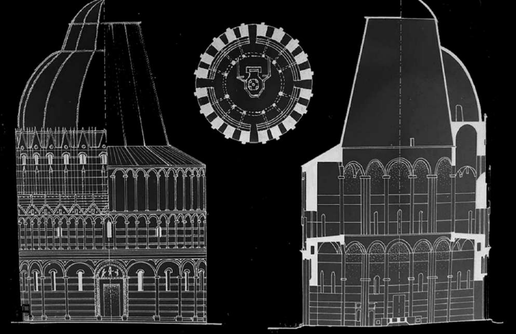
The proposal preserves the site's natural features such as open water views and tree cover while incorporating green infrastructure to manage stormwater. By activating the lakefront with markets, gathering spaces, and educational nodes, the project supports economic development, social inclusion, and environmental care for the long term.

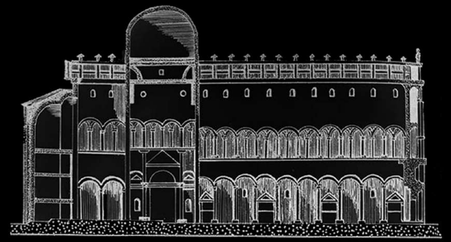


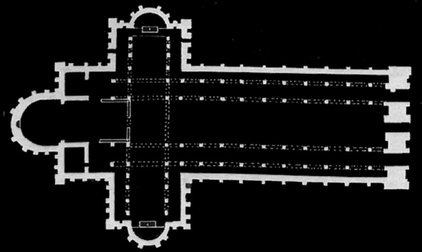


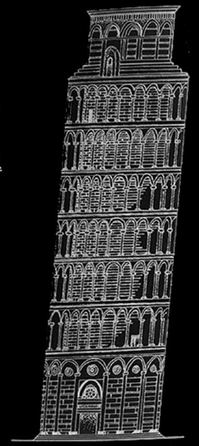
Manual Drafting

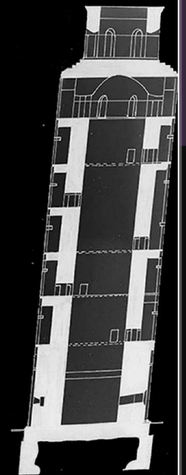




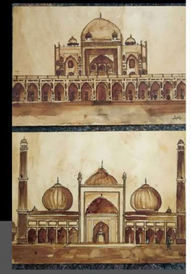


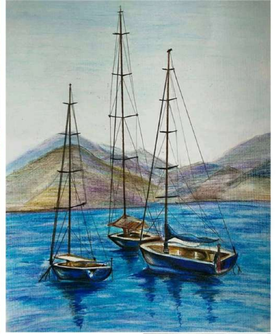




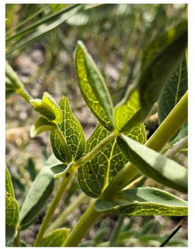


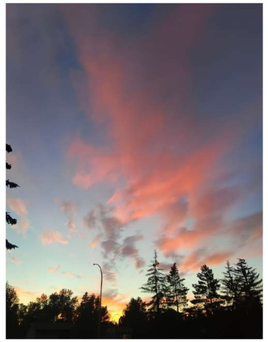
ARTWORKS





Photography





THANK YOU

allusaipravallika2010@gmail.com

+1 306 880 0895