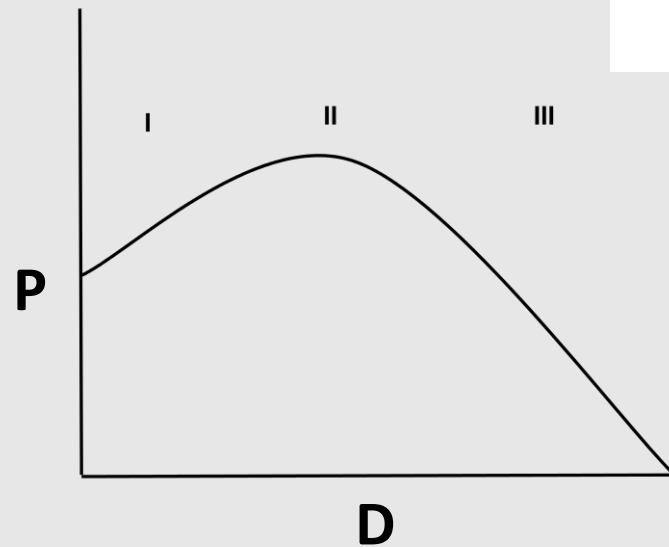


Rapid Land Use Change



Nature Just Development



LEED

LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN

Infrastructure



Native Vegetation



Ecological Indicators

Native Vegetation

Northern Tropical Dry Deciduous/Thorn Vegetation

Why Native Species:

- Well adapted (Soil, Terrain and Moisture)
- Passive to maintain (low water and nutrients)
- Integral to Ecosystem
- Critical role
- Socio-economic interface

Invasive Species:

Vilayati kikar- Prosopis Juliflora

- Large scale social plantation
- Fast growing and more biomass

Massive spread

Triggered collapse of Aravalli Ecosystem



Native Vegetation

Native Plants

Khejri/खेजर, जाटी- *Prosopis cineraria*
Babool/बबूल/देशी कीकर- *Vachellia nilotica*
Indian Laburnum/अमलतास- *Cassia fistula*
Dhau/धाउ- *Anogeissus pendula*
Dhak/धाक -*Butea monosperma*
Salai/सलाई- *Boswellia serrata*
Burflower/कदम्ब- *Neolamarckia cadamba*
Bombay Ebony/बिस्तेन्दु- *Diospyros montana*
Basa/काली सिरिस- *Albizia odoratissima*
Tamarind/इमली- *Tamarindus indica*
Neem/नीम- *Azadirachta indica*
Ullu Neem/ उल्लू नीम
Sacred fig/पीपल- *Ficus religiosa*
Banyan/बरगद- *Ficus benghalensis*
Banyan/बडबेर- *Ficus sp.*
Gular/गुलर- *Ficus racemose*
Khair/खैर- *Acacia catechu*
Papdi/पापड़ी, करंज- *Millettia pinnata*
Lasoda/लेसुआ: *Cordia dichotoma*

Campus Vegetation Plan





Project: Awareness and Ex-situ Conservation through Establishing Demo Medicinal Plants Gardens, Distribution of MAPs & Extension Activities

LIST OF MEDICINAL PLANTS

Abelmoschus manihot जगली मिंडी SWEET HIBISCUS	Acacia catechu खैर CATECHU PASTE	Commiphora mukul गुग्गुलु INDIAN BOELLING-TREE	Euphorbia thymaloides विलायती शेर DEVIL'S BACKBONE	Mimosa pudica छुई - मुई TOUCH-ME-NOT PLANT	Prunus dulcis बादाम ALMOND	Terminalia arjuna अर्जुन ARJUNA
Achyranthes aspera लटजीरा CHAFF-FLOWER	Aristolochia indica L हुक्का बेल INDIAN BIRTHWORT	Convulvulus pluricaulis शंख पुष्पी PROSTRATE BINDWEED	Euphorbia trigona त्रिजिरा AFRICAN MILK TREE	Moringa oleifera सेंजन DRUMSTICK TREE	Psidium guajava अमरुद GUAVA	Terminalia bellerica बहेडा BAHEDA
Acorus calamus बाख SWEET FLAG	Bacopa monnieri ब्राह्मी BRAHMI	Caesalpinia sappan पतंग SAPPAN WOOD	Ficus racemosa गुलर CLUSTER FIG	Mucuna pruriens कौब VELVET BEAN	Punica granatum अनार POMEGRANATE	Terminalia chebula हरड़ MYROBALAN
Adansonia digitata कल्पवृक्ष BAOBAB	Barleria cristata नील झिण्टी PHILIPPINE VIOLET	Calophyllum inophyllum सुलतान चम्पा ALEXANDRIAN LAUREL	Ginkgo biloba बलकुसारी MAIDENHAIR TREE	Murraya koenigii करी पत्ता CURRY LEAF	Rauwolfia serpentina सर्पगंधा INDIAN SNAKEROOT	Tinospora cordifolia शिलीय GULBEL
Adhatoda vasica अडुसा MALABAR NUT	Barleria prionitis कला बसा VAURADANTI	Cardiospermum halicacabum कानफूटा KANKHATA	Gmelina arborea गम्हड़ GAMHAR	Nyctanthes arbor-tristis पारिजात PARIJAT	Ricinus communis अरंडी CASTOR BEAN	Tinospora cordifolia शिलीय GULBEL
Aegle marmelos बेल BAEL	Bixa orellana लटकन LIPSTICK TREE	Clitoria ternatea कोयला ASIAN PIGEONWINGS	Gymnema sylvestre गुडमार COWPLANT	Nymphaea nouchali नीलकमल BLUE WATER LILY	Rosa indica गुलाब CYME ROSE	Tribulus terrestris गोखर PUNCTURE VINE
Alocasia macrorrhizos मनकदा GIANT TARO	Bryophyllum pinnatum अमर पौई AIR PLANT	Costus speciosus (Koenig) क्रेपे गिंजर CREPE GINGER	Gloriosa superba बचनाग GLORY LILY	Ocimum gratissimum राम तुलसी AFRICAN BASIL	Sambucus nigra एल्डरबेरी ELDERBERRY	Tylophora indica दमबेल INDIAN IPECAC
Aloe barbadensis घीकुमारी ALOE VERA	Biophytum sensitivum लज्जालू LITTLE TREE PLANT	Cynodon dactylon दूब घास BERMUDA GRASS	Hemidesmus indicus अनंतमूल INDIAN SANSAPARILLA	Ocimum sanctum तुलसी KRISHNA TULSI	Sansevieria trifasciata नाग पीधा SNAKE PLANT	Vachellia nilotica बबूल BABUL
Anacyclus pyrethrum अकरकरा SPANISH CHAMOMILE	Boerhavia repens पुनर्नया RED HOGWEED	Curcuma longa हल्दी TURMERIC	Hibiscus rosa-sinensis लुन्दी CHINA ROSE	Ocimum tenuiflorum तुलसी TULSI	Sansevieria zeylanica मरुल CEYLON BOWSTRING HEMP	Vinca rosea सदाबहार PERIWINKLE
Andrographis paniculata करीयात KARIYAT	Carica papaya पपीया PAPAYA	Cymbopogon citrates गंधत्रिण LEMON GRASS	Holarthena pubescens कडवा INDRAJAO	Opuntia ficus indica काटेघार नाशपाती SWEET PRICKLY PEAR	Santalum album चंदन SANDALWOOD	Vitex negundo निगुण्डी FIVE LEAVED CHASED TREE
Annona reticulata रामफल NETTED CUSTARD APPLE	Cassia angustifolia सेनाई TINNEVELLY SENNA	Cymbopogon martini गंधत्रिण PALM ROSE	Ixora coccinea रूमिनी JUNGLE GERANIUM	Phyllanthus niruri भूई आबला STONE BREAKER	Senna auriculata तरबड़ TANNER'S CASSIA	Vitis vinifera द्राक्षा COMMON GRAPE VINE
Argyrea nervosa विधर ELEPHANT CREEPER	Centella asiatica बल्लारि INDIAN PENNYWORT	Cyperus rotundus मोथा NUT GRASS	Jasminum officinale चमेली JASMINE	Piper nigrum काली मिर्च BLACK PEPPER	Sesbania grandiflora अगरिस्त VEGETABLE HUMMINGBIRD	Withania somnifera अश्वगंधा ASHWAGANDHA
Aristolochia bracteolata कीटमार WORM KILLER	Chlorophyllum comosum मुस्तली SPIDER PLANT	Desmodium gangeticum घुवा SAL LEAVED DESMODIUM	Jatropha cuneata जमाल घोट PHYSIC NUT	Pongamia pinnata करंग PONGAM TREE	Solanum virginianum कटेली YELLOW BERRIED NIGHTSHADE	Zingiber officinale अदरक GINGER
Allium sativum लहसुन GARLIC	Cichorium intybus कारसनी CHICORY	Eclipta alba भ्रिंगराज AIR PLANT	Kalanchoe pinnata अमर पौई INDIAN PLANTAGO	Plantago ovata ईसबगोल INDIAN PLANTAGO	Stevia rebaudiana मीठे पत्ते SWEET LEAF	
Asparagus racemosus शतावरी INDIAN ASPERAGUS	Cinnamomum camphora कम्पूर CAMPHOR TREE	Embliba officinalis आंवला AMLA	Lawsonia inermis मेहंदी HENNA	Plectranthus barbatus पत्थरचूर INDIAN COLEUS	Syzygium cumini जामुन JAMUN	
Azadirachta indica नीम NEEM	Cinnamomum zeylanicum तेजपत्ता INDIAN BAY LEAF	Elettaria cardamomum इलारकी LESSER CARDAMOM	Magnolia champaca चम्पा CHAMPA	Plumbago zeylanica विजक LEADWORT	Tephrosia purpurea शरपुखा FISH POISON	
Abrus precatorius रत्ती CORAL BEAD VINE	Cinnamomum zeylanicum तेजपत्ता INDIAN BAY LEAF	Euphorbia hirta बड़ा दुधी GARDEN SPURGE	Mentha longifolia पीदानी HORSE MINT	Plumeria rubra गुलाबिन FRANGIPANI	Tabernaemontana divaricata चादनी CHADANI	
Abutilon indicum (L.) Sweet आतिवत् COUNTRY MALLOW	Cissus quadrangularis हदजोद VELDT-GRAPE	Euphorbia tirucalli सिंहुड़ FIRESTICK PLANT	Mentha piperita पेपरमिंट PEPPERMINT	Polyalthia longifolia अशोक ASHOK	Tamarindus indica इमली TAMARIND	

Principal Investigator:
Dr. Swati Madan

Co-Principal Investigator:
Dr. Satyendra Kr. Rajput



प्रायोजित / SPONSORED



Common Name	Hindi Name
SWEET HIBISCUS	जंगली भिंडी
CHAFF-FLOWER	लटजीरा
SWEET FLAG	बाख
BAOBAB	कल्पवृक्ष
MALABAR NUT	अडूसा
BAEL	बेल
GIANT TARO	मनकंदा
ALOE VERA	घी कुमारी
SPANISH CHAMOMILE	अकरकरा
KARIYAT	करियात
NETTED CUSTARD APPLE	रामफल
ELEPHANT CREEPER	विघर
WORM KILLER	कीटमार
GARLIC	लहसुन
INDIAN ASPERAGUS	शतावरी
NEEM	नीम
CORAL BEAD VINE	रबी
COUNTRY MALLOW	अतिबल
CATECHU PASTE	खैर
INDIAN BIRTHWORT	हुक्का बेल
BRAHMI	ब्राहमी
PHILIPPINE VIOLET	नील झिंटी

VAJRADANTI	कला बंसा
LIPSTICK TREE	लटकन
AIR PLANT	अमर पोई
LITTLE TREE PLANT	लजालू
RED HOGWEED	पुनर्नवा
PAPAYA	पपीता
TINNEVELLY SENNA	सेनाइ
INDIAN PENNYWORT	बल्लरि
SPIDER PLANT	मुस्ली
CHICORY	कासनी
CAMPHOR TREE	कपूर
INDIAN BAY LEAF	तेजपत्ता
CHIMMON	दालचीनी
VELOT GRAPE	हदजोद
INDIAN BDELLIUM-TREE	गुग्गुल
PROSTRATE BINDWEED	शंखपुष्पी
SAPPAN WOOD	पतंग
ALEXANDRIAN LAUREL	सुल्तान चंपा
	कानफूटा
ASIAN PIGEONWINGS	कोयला
CREPE GINGER	कुशठ
BERMUDA GRASS	दूब घास
TURMERIC	हल्दी
LEMON GRASS	गंधत्रिन
PALM ROSE	गंधत्रिन

NUT GRASS	मोथा
SAL LEAVED DESMODIUM	धुवा
BHRINGRAJ	भृंगराज
AMLA	आंवला
LESSER CARDAMOM	इलाइची
GARDEN SPURGE	बड़ा दुधी
FIRESTICK PLANT	सेहुड़
DEVIL's BACKBONE	विलायती शेर
AFRICAN MILK TREE	त्रिधार
CLUSTER FIG	गूलर
MAIDenHAIR TREE	बलकुवारी
GAMHAR	गम्हड़
COWPLANT	गुड़मार
GLORY LILY	बचनाग
INDIAN SARSAPARILLA	अनंतमूल
CHINA ROSE	गुढल
INDRAJAO	कड़वा
JUNGLE GERMANIUM	रुग्मिनी
JASMINE	चमेली
PHYSIC NUT	जमाल घोटा
AIR PLANT	अमर पोई
HENNA	मेहँदी
CHAMPA	चम्पा
HORSE MINT	पौदीना
PEPPERMINT	पेपरमिंट

TOUCH-ME-NOT PLANT	छुई मुई
DRUMSTICK TREE	सैंजन
VELVET BEAN	कौंच
CURRY LEAF	करी पत्ता
PARIJAT	पारिजात
BLUE WATER LILY	नीलकमल
AFRICAN BASIL	राम तुलसी
KRISHNA TULSI	तुलसी
TULSI	तुलसी
SWEET PRICKLY PEAR	कांटेदार नाशपाती
STONE BREAKER	भुई आँवला
BLACK PEPPER	काली मिर्च
PONGAM TREE	करंज
INDIAN PLANTAGO	ईसबगोल
INDIAN COLEUS	पत्थर चूर
LEADWORT	चित्रक
FRANGIPANI	गुलाचिन
ASHOK	अशोक
ALMOND	बादाम
GUAVA	अमरुद
POMEGRANATE	अनार
INDIAN SHAKEROOT	अनार
CASTOR BEAN	अरंडी
CYME ROSE	गुलाब
ELDERBERRY	ऐलुरबेरी

SNAKE PLANT	नाग पौधा
CEYLON BOWSTRING HEMP	मरुल
SANDALWOOD	चन्दन
TANNER'S CASSIA	तरवड़
VEGETABLE HUMMINGBIRD	अगस्ति
YELLOW BERRIED NIGHTSHADE	कटेली
SWEET LEAF	मीठे पत्ते
JAMUN	जामुन
FISH POISON	शरपुंखा
	चांदनी
TAMARIND	ईमली
ARJUNA	अर्जुन
BAHEDA	बहेड़ा
MYROBALAN	हरड़
GULBEL	गिलोय
AJWAIN	अजवाइन
PUNCTURE VINE	गोखरू
INDIAN IPECAC	दमबेल
BABUL	बबूल
PERIWINKLE	सदाबहार
FIVE LEAVED CHASED TREE	निर्गुण्डी
COMMON GRAPE VINE	द्राक्षा
ASHWAGANDHA	अश्वगंधा
GINGER	अदरक

Orchard and Organic Form

Crop and Dairy production

(organic practices without chemical fertilizers and pesticides).

Plantation of Multipurpose Trees

(Fruit beating)

Papaya/पपीता

Mango/आम

Black Plum/जामुन

Guava/अमरूद

Jack Fruit/कटहल

Mulberry/शहतूत

Wood Apple/बेल

Litchi/लीची

Kinnow/किन्नू

Gooseberry/आवला

Sapodilla/चीकू

Peach/आडू

Plum/आलू बुखारा

Pomegranate/अनार

Citrus/निम्बू

Tamarind/इमली



Roadside & Boundary Plantation



Multipurpose Trees

(Shadow, Aesthetics, Timber, Native, Fast growing)

Alstonia/सप्तपर्ण

Shisham/शीशम

Neem/नीम

Peepal

Ficus/फाईकस

Sagwan/सागवान

Poplar/पोपलर

Indian Mahogany/चिकरासी

Frangipani/चंपा

Pilkhan/पिलकन

Aesthetics and decoration





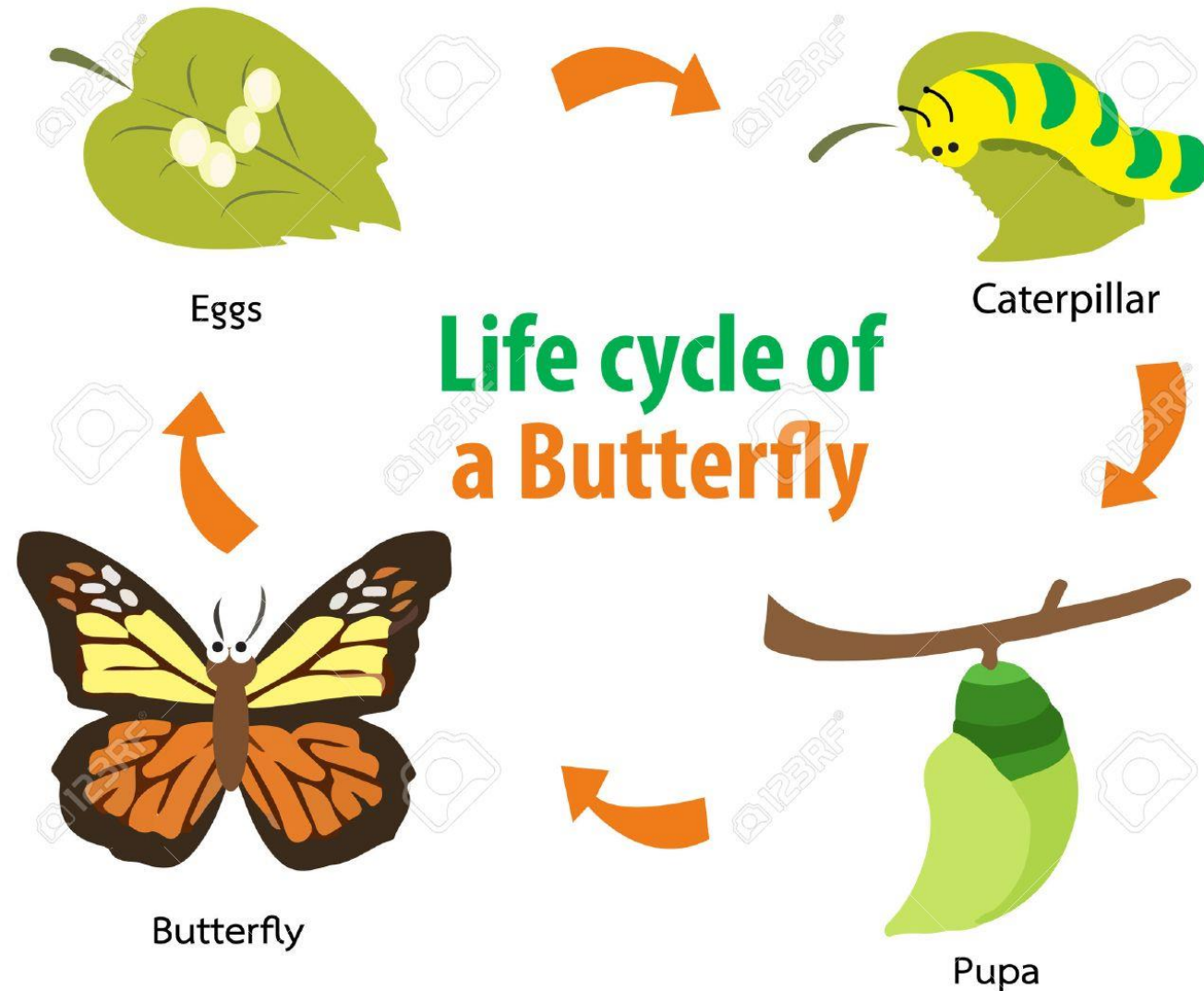
Ecological Indicators

Organism that react extremely quickly to even **minor changes in the environment**, making them both a **good indicator of biodiversity** and providing an early warning system for **degradation of Ecosystem**.



Butterfly

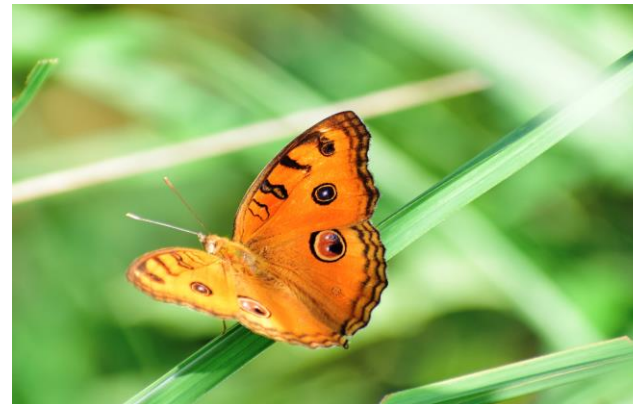
- Extremely sensitive to changes in Environment
- Native plants are Host/Nectar Plant
- Rarely harbour on non-native plants
- Main host plants:
 - Mulberry
 - Natural Herbs & Shurbs
 - Wild Flowers
 - Fruit Bearing Plants
 - Few crops



Butterfly@AUH

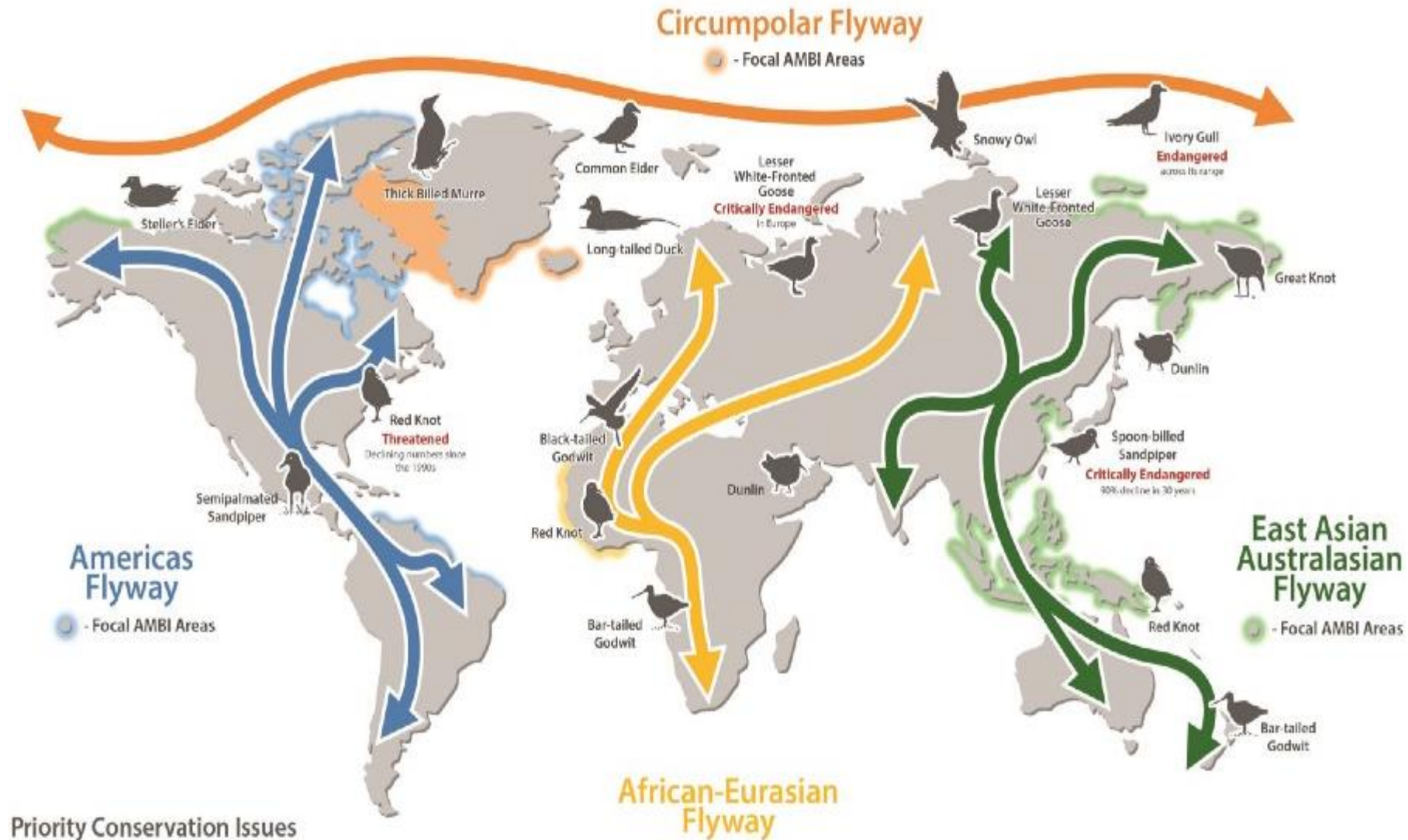


Rich diversity of Butterfly
In 49 species in Gurgaon region
40 species @AUH



Birds

- Ecologically sensitive
 - Diverse Habitat Range
 - Male are prettiest
 - Migrate
- (Summer Migration/Winter Migration)
- Flyways: Highways in sky
 - India: Central Asian Flyway (Central Asia/Siberia)
 - Winter migration
 - Indicator: Seasonal Shift
 - Harbinger of Monsoon
 - India: 1313 Species
 - Haryana: 516 Species
 - Gurgaon: 383 Species
 - AUH: 139 Species
 - South Haryana (Flat bed of seasonal rivers; Birds habitat)



Avifauna@AUH

- A Bird Habitat
 - Natural Vegetation
 - Water Environment
 - Pollution Free
 - Open space
 - Fruit and Nut Plantation
- Regular Survey & Documentation: 57
- Birds Diversity: 139 Species
- Campus Bird Count (most diverse in NCR)
 - 2017- 53 Species
 - 2018- 71 Species
 - 2019- 83 Species
 - 2020- 97 Species
- Diverse Avifauna
 - Native/Migratory(Summer/Winter)
 - Waterfowl/Herons/Shorebirds
 - Pigeons/Doves/Cuckoos/Barbets
 - Bird of Pray/Owls/Crows/Hornbills
 - Mynas/Wegtail/Flycatchers
 - Babblers/Parrots/Shirkes/Drongo
- Unique Birds
 - (Indian Pitta, Small Minivet, Knob billed duck
 - Spotted Owlet, Red Avadavat, Peafowl)



Avifauna@AUH



Water Birds

- Lesser Whistling-Duck
- Bar-headed Goose
- Knob-billed Duck
- Northern Shoveler
- Gadwall
- Eurasian Wigeon
- Indian Spot-billed Duck
- Green-winged Teal

Shorebirds

- Indian Thick-knee
- Black-winged Stilt
- Red-wattled Lapwing
- Pheasant-tailed Jacana
- Common Snipe
- Common Sandpiper
- Green Sandpiper
- Spotted Redshank
- Marsh Sandpiper
- Wood Sandpiper
- Common Redshank
- Barred Buttonquail





Avifauna@AUH

Mynas/Wegtail/Flycatcher

- Common Myna
- Asian Pied Sterling
- Brahmny Myna
- Bank Myna
- Paradise-Flycatcher
- White Wegtail
- Citrine Wagtail
- White-browed Wagtail
- Yellow Wagtail

Barbets/Woodpecker/Parakeets

- Coppersmith Barbet
- Brown-headed Barbet
- Yellow-crowned Woodpecker
- Black-rumped Flameback
- Plum headed Parakeet
- Rose-ringed Parakeet
- Alexandrine Parakeet

Babbler

- Large Gray Babbler
- Large Gray Babbler
- Common Gray Babbler



Avifauna@AUH

.... many more





