

CCAL's BIODIVERSITY

CCAL



BIODIVERSITY

- *Biodiversity also refers to the number, or abundance of different species living within a particular region. It represents the wealth of biological resources available to us.*



“Carbon sequestration potential and biodiversity assessment from plantation activities of Chemfab Alkalis Limited, Puducherry”

Prepared for
Chemfab Alkalis Limited, Puducherry



...towards global
sustainable development



PLANTATION ASSESSMENT

- Total number of trees in the campus : 41000 nos (2018)
- Total carbon sink : 6600 MTCO₂e.
- Total offset : 400 MTCO₂e/annum



species etc. This has resulted huge increase in the dense forest area of the Chemfab campus as compared to 1990. The satellite images below clearly indicate that most of the degraded forest and open land in 1990 has been converted into the dense forest in 2014. It has been estimated that there is an increase of 440% in the dense forest cover from 1990 to 2014. While, the degraded forest and open land has decreased 65% and 79% respectively within the Chemfab premises from 1990 to 2014 due to large scale plantation activities.

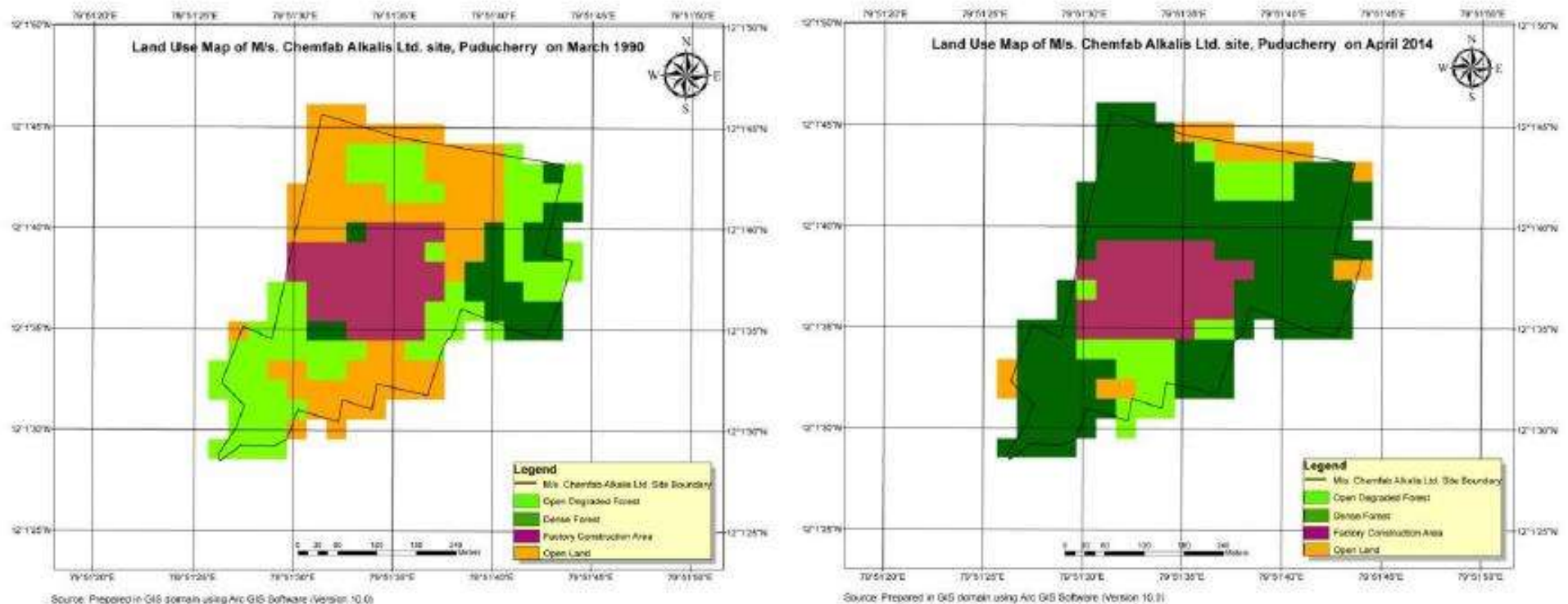


Figure 4.1 Comparative analysis of land use change map of Chemfab from 1990 to 2014



Biodiversity and Ecological Analysis

1. The dense vegetation on the campus is an important indicator of perfect functioning of the industry without any chemical leakages, which would otherwise affect the vegetation in the immediate surroundings.
2. The vegetation is dominated by individuals of few species of mixed nature – exotic and indigenous. This is suggested by lower Shanon- Weiner index and higher Simpson's index.
3. Even though there are large numbers of indigenous species nurtured on the campus, their individuals are relatively less in comparison to the individuals of planted exotic species.
4. The girth class distribution shows Reverse J shaped curve i.e. presence of more number of individuals in growing stages. This is an opportunity to sequester more carbon till the vegetation reaches maturity and can be harvested sustainably.
5. Occurrence of bird nests and termite mounds are indicators of ecologically active ecosystem. For an industrial campus like Chemfab this is an extremely good indicator suggesting that company is following all the safety and pollution control measures.
6. The Chemfab vegetation is immediately surrounded by the landscape dominated by habitations and hence it is an important green cover available in the locality along with the green campus of the Pondicherry University.



The greenbelt of CCAL provides ex-situ conservation of the following species listed in the IUCN Red List of Threatened Species:

Sl. No.	Common Name	Botanical Name
1	Mandari	Bauhinia purpurea
2	Manchari	Bauhinia variegata
3	Cordia	Cordia sebestena
4	Gulmohar (Flame Tree)	Delonix regia
5	Poonga	Pongamia glabra
6	Mango	Mangifera indica
7	Pomegranate	Punica granatum
8	Papaya	Carica papaya
9	Palmyra	Borassus flabellifer
10	Khaya	Khaya senegalensis
11	Red sandal	Pterocarpus santalinus
12	Manjal Kondrai	Cassia spectabilis
13	Shenbagam	Michelia champaca
14	Indian satin wood	Chloroxylon swietenia
15	Vengai	Pterocarpus marsupium
16	Sandal wood	Santalum album
17	Asoka	Saraca asoca
18	Nut meg	Myristica fragrans
19	Punnai	Calophyllum inophyllum
20	White gulmohur	Delonix elata
21	Ebony tree (Karungalli)	Diospyros ebenum/Diospyros celibica
22	Santhana vembu	Toona ciliata



FAUNAL DIVERSITY DOCUMENTATION



Salim Ali Centre for Ornithology and Natural History

(A Centre of Excellence under the Ministry of Environment, Forest and Climate Change, Government of India),
Anaikatty (P.O), Coimbatore – 641 108, Tamil Nadu

April 2018



DOCUMENTATION

- Study conducted for six months covering Spring, Rainy, Winter and beginning of Summer.
- Whole of 37 acres were considered for the study including collection of samples from outside the campus.
- Fixed radius count point method was used for sampling birds and butterflies.



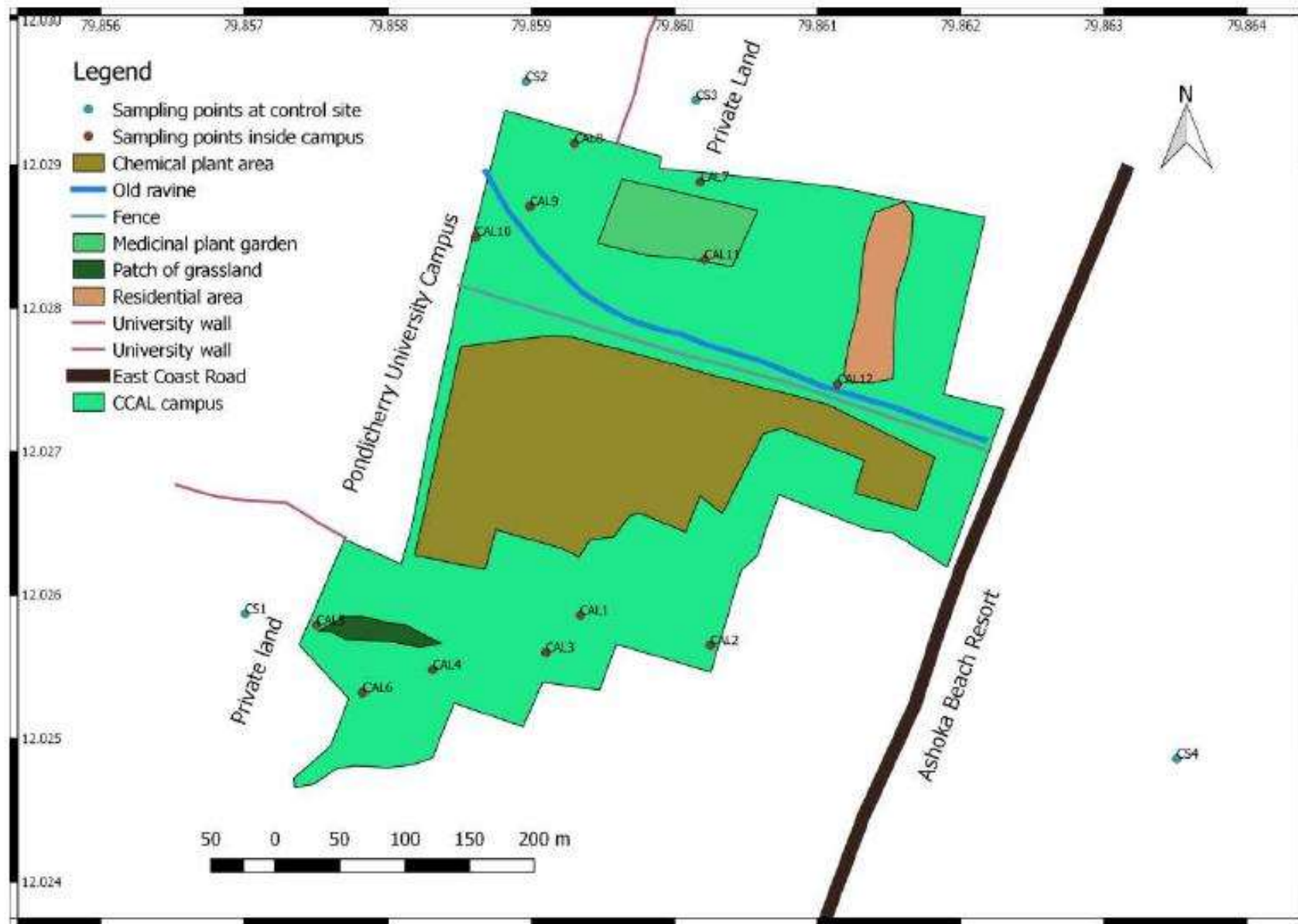


Figure 1. Study area showing the sampling locations



- 108 faunal species were recorded within the campus :
 - a) Birds : 41 species
 - b) Butterflies : 37 species
 - c) Mammals : 4 species
 - d) Reptiles : 4 species
 - e) Amphibians : 2 species
 - f) Dragon flies : 6 species
 - g) Spiders : 8 species
 - h) Other insects : 6 species



Faunal diversity of Chemfab Campus

Know Your Campus Biodiversity



Rufous Treepie
(*Dendrocitta vagabunda*)

Reported So far from the campus

- 41 species of birds
- 37 species of butterflies
- 8 species of spiders
- 5 species of ants
- 5 species of odonates
- 4 species of reptiles
- 4 species of mammals



Lime butterfly
(*Papilio demoleus*)



Wandering glider
(*Pantala flavescens*)



Weaver ants
(*Oecophylla smaragdina*)



Jewel Bug - *Chrysocoris* sp.
(*Herpessura scutellendae*)



Signature Spider
(*Argiope* spp.)

Faunal diversity documentation study by Salim Ali Centre for Ornithology and Natural History, Coimbatore 641108



- Avian density inside the campus was 25/acre.
- Birds assemblage included rare and uncommon species.
- Butterflies assemblage has rare and protected species belonging Schedule I & II of the Indian wildlife protection act.





1. Common Grass Yellow (*Eurema hecabe*); 2. Common Mormon (*Papilio polytes*); 3. Common Cerulean (*Jamides celena*);
4. Common Crow (*Euploea crow*); 5. Angled Castor (*Ariadne ariadne*); 6. Mottled Emigrant (*Catopsilia pyranthe*);
7. Common Sailer (*Neptis hylas*); 8. Psyche (*Leptasia nina*)



Table 4. Comparison of diversity between Chemfab campus and Control sites

Parameters	Chemfab Campus	Control site
Richness of birds	41	16
Density of birds (per ha)	63.96	90.76
Diversity index of birds (H)	2.51	2.19
Richness of butterflies	37	24
Density of butterfly (per ha)	178.87	681.53
Diversity index of butterfly (H)	2.87	2.36



CONCLUSION

- Presence of high density of butterflies is an indication of a good & healthy eco-system.
- The study revealed that due to the presence of diverse and well maintained heterogenous vegetation cover has supported presence of a wide variety of avian species.



Species of Conservation Significance in the Campus

Know Your Campus, Conserve Biodiversity



- 1a – Griseon Rose (*Pachioptia heclo*) (Sch I)
- 1b – Common Parrot (*Castalius rosamon*) (Sch I)
- 1c – Darkbrand Bushbrown (*Mycalopsis mineus*) (Sch II of Part II)
- 1d – Danaid Eggfly (*Hypolimnas missipus*) (Sch II of Part II)

- 2a – Shikra (*Accipiter badius*) (Sch I)
- 2b – Black-naped Oriole (*Oriolus chinensis*) –Rare Winter migrant
- 2c – Greenish Warbler (*Phylloscopus trochiloides*) -Rare Winter migrant
- 2d – Forest Wagtail (*Dendronanthus indicus*) -Uncommon

Faunal diversity documentation study by Salim Ali Centre for Ornithology and Natural History, Coimbatore 641108





Tawny Coster



Common Mormon



Indian Grizzled Skipper



Common Sailer



Angled Castor



Dark Grass Blue





Asian Koel



Black Drongo



Blue Rock Pigeon



Large-billed Crow



Indian Pond Heron



Purple Sunbird



PLATE 2 Common Bird species of the Chemfab Campus



Indian Golden Oriole



Common Myna



House Crow



Common Iora



White-browed Bulbul



Purple-rumped Sunbird





Ashy Woodswallow



Blyth's Reed Warbler



Rose-ringed Parakeet



Asian Brown Flycatcher



White-browed Wagtail



Greater Coucal





Shikra



Lesser Golden-backed Woodpecker



PLATE 4. Odonates recorded in Chemfab Campus



Senegal Golden Dartlet



Coromandel Marsh Dartlet



Pygmy Dartlet (female)



Pygmy Dartlet (male)



Ground Skimmer



Wandering Glider



Table 7 Comparison of Chemfab and GAIL campuses

	Chemfab Campus		GAIL campus
Area (in Acres)	37		1,438
No. of Avifaunal species	40		65
No. of Butterfly species	37		11
No. of Reptiles and Amphibians	06		00
Mammals	04		05



Glimpses of the Chemfab Campus Biodiversity

Know Your Campus, Conserve the Diversity



A pair of Rose-ringed Parakeets nesting on a Coconut tree. 03/01/20



A Green Vine Snake predates on a Common Tree-frog.



A Seven Spotted Roach (*Therea petiveriana*) feeding on a Neem fruit.



Land Snails feeding on a dead Jewel beetle (*Coleoptera: Buprestidae*)



Coromandel Marsh Dartlet

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Why are butterflies important?

Butterflies are important because they are the third most populace pollinator behind bees/wasps and flies. The world's food supply depends on pollinators. 80 % of food crops are pollinated by insects such as bees, moths and butterflies, according to scientists. Butterflies are considered indicator species, one that tells us about the health of our environment.

These creatures are sensitive to changes in climate, the presence of harmful chemicals, pollution in the air and water, and any other changes in the environment. We look to these indicator species to help us determine how healthy our surroundings are. Butterflies have been widely used by ecologists as model organisms to study the impact of habitat loss and fragmentation, and climate change.





**The Forests cut
down will come
back to haunt
those who cut it**

Sloganshub.com

CCAL

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