# VEGETATION STUDIES OF ZUARINAGAR

- Mr. H. N. Nyabuto[+] & Dr. B. F. Rodrigues[*]

## INTRODUCTION:

The term natural vegetation is commonly used to describe the natural plant growth as distinct from the cultivated plant growth, which covers the earth's surface. The study of vegetation constitutes a science essentially involving plant cover which is an important element of landscape and delimiter of regions. In a broad way it may be said that vegetation is essentially a response to climate. Of the climatic factors, temperature and moisture, whether by actual amount or seasonal incidence, are of dominant influence.

Recent estimates by satellite imagery shows that India's forest cover at present is 15%, which also includes the artificial plantations. It is indeed fortunate that tropical forests in the third world countries still posses some primary vegetation. However, the western industrialized countries have only denuded secondary vegetation. Most people here regret as deforestation was being done without any prior maintainance of the eco-development along with the industrial activities. The recent environmental enthusiasm and awareness may create a better move to sustain some of the remaining tropical rich flora and fauna forests.

## DESCRIPTION OF ZUARI AGRO CHEMICALS LTD. AREA:

Zuari Agro Chemicals, established in 1972, is a fertilizer manufacturing firm situated on the Margao-Vasco main road, about 7 Km from Vasco city. The Zuari Agro-Chemicals compound is intersected by the main road and is a vast land of about 558 hectares (1380 acres).

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It lies at Latitude: 15°22'42" N and 15°24'06" N, and Longitude: 73°51'24" E and 73°55'08" E. The west zone of ZACL is bordered by Dabolim National Airport, to the South by Arabian sea, but only a small portion touches the sea; just at the railway loading/off-loading point, to the north it is bordered by the Zuari river and to the east by the Zuari lake/dam that provides water to the factory needs and its residents.

LIST OF IMPORTANT PLANT SPECIES FOUND AT ZUARI AGRO-CHEMICALS LIMITED - SURVEY CONDUCTED IN OCT/NOV.'91.

* Key: Tree(T); Shrub(S); Herb(H); Naturally occuring(N.O.) Cultigen (C).

| Sr. No. | Taxon | Habit | Family | Chromosome number |
|---|---|---|---|---|
| 1. | Abrus precatorius L. | S/N.O. | Fabaceae | 22 |
| 2. | Dalbergia sissoo Roxb. | T/C | " | 20 |
| 3. | Erythrina indica Lam. | T/C | " | 42 |
| 4. | Erythrina stricta Roxb. | T/C | " | 40-126 |
| 5. | Aeschynomene aspera | H/N.O. | " | 20-40 |
| 6. | Atylosia scarabaeioides | H/N.O. | " | 22 |
| 7. | Atylosia crassa | H/N.O. | " | 20 |
| 8. | Clitoria ternatea | H/C | " | 16-32 |
| 9. | Crotalaria epunctata | H/C | " | 16-32 |
| 10. | Desmodium triquetrum | H/N.O. | " | 22 |
| 11. | Desmodium polycarpum | H/N.O. | " | 20-22 |
| 12. | Phaseolus mungo | H/N.O. | " | 22 |
| 13. | Sesbania bispinosa | H/N.O. | " | 12 |
| 14. | Smithia conferta | H/N.O. | " | 32 |

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|---|---|---|---|---|
| 15. | Tephrosia tinctoria | H/N.O. | Fabaceae | 22 |
| 16. | Teramnus labialis | H/N.O. | " | 28 |
| 17. | Acacia auriculiformis A. Cunn. | T/C | Mimosaceae | 26 |
| 18. | Acacia arabica Willd | S/N.O. | " | 44 |
| 19. | Acacia chundra Roxb. | T/N.O. | " | 26 |
| 20. | Leucaena leucocephala (Lam) de Wit.) | T/C | " | 36-104 |
| 21. | Pithecellobium dulce Benth. | T/C | " | 26 |
| 22. | Samanea saman Willd. | T/C | " | 26 |
| 23. | Mimosa pudica | S/N.O. | " | 52 |
| 24. | Adenanthera pavonina L. | T/C | " | 24 |
| 25. | Achras sapota L. | T/C | Sapotaceae | 26 |
| 26. | Adhatoda vasica Nees. | S/N.O. | Acanthaceae | 34 |
| 27. | Andrographis paniculata | H/N.O. | " | 28 |
| 28. | Lepidagathis cristata | H/N.O. | " | 22 |
| 29. | Lepidagathis cuspidata | H/N.O. | " | 22 |
| 30. | Lepidogathis prostrata | H/N.O. | " | 22 |
| 31. | Neuracanthes sphaerostachyus | H/N.O. | " | 22 |
| 32. | Rungia linifolia | H/N.O. | " | 20 |
| 33. | Allamanda cathartica L. | S/C | Apocynaceae | 18 |
| 34. | Alstonia scholaris L. | T/N.O. | " | 44 |
| 35. | Ervatamia heyneana (Wall). Cooke. | T/N.O. | " | 22 |
| 36. | Holarrhena antidysenterica (Roth) DC. | S/N.O. | " | 22 |
| 37. | Nerium odorum Soland. | S/C | " | 22 |
| 38. | Plumeria rubra L. | T/C | " | 36 |
| 39. | Thevetia peruviana Schum. | S/C | " | 18 |

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|---|---|---|---|---|
| 40. | Vinca rosea L. | S/C | Apocynaceae | 16, 32 |
| 41. | Rauwolfia serpentina | H/N.O. | " | 20 |
| 42. | Allophylus cobbe R. Br. | T/N.O. | Sapindaceae | 22-32 |
| 43. | Anacardium occidentale L. | T/C | Anacardiaceae | 42 |
| 44. | Buchanania lanzan Spreng. | T/N.O. | " | -- |
| 45. | Lennea coromandelica (Hout.) Merr. | T/N.O. | " | 28-40 |
| 46. | Mangifera indica L. | T/C | " | 40 |
| 47. | Artocarpus heterophyllus Lam. | T/C | Moraceae | 28-56 |
| 48. | Ficus bengalensis L. | T/N.O. | " | 26 |
| 49. | Ficus glomerata Roxb. | T/N.O. | " | 26 |
| 50. | Ficus asperrima L. | T/N.O. | " | 26 |
| 51. | Ficus rumphii Blume | T/N.O. | " | 26 |
| 52. | Ficus elastica Roxb. | T/C | " | 26 |
| 53. | Azadirachta indica Juss. | T/C | Meliaceae | 30 |
| 54. | Melia azadirachta L. | T/C | " | 28 |
| 55. | Naregamia alata | H/N.O. | " | - |
| 56. | Bauhinia purpurea L. | T/C | Caesalpiniaceae | 28 |
| 57. | Bauhinia variegata L. | T/C | " | 28 |
| 58. | Caesalpinia pulcherrima Swarz. | T/C | " | 24 |
| 59. | Cassia angustifolia Vahl. | T/C | " | 26 |
| 60. | Cassia fistula L. | T/C | " | 24 |
| 61. | Cassia glauca Lam. | T/C | " | 28 |
| 62. | Cassia javanica L. | T/C | " | 28 |
| 63. | Delonix regia Ratin | T/C | " | 24 |
| 64. | Peltophorum pterocarpum (DC.)Backer | T/C | " | 26-28 |

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|---|---|---|---|---|
| 65. | Saraca indica | T/C | Caesalpiniaceae | 24 |
| 66. | Tamarindus indica L. | T/C | " | 24 |
| 67. | Wagatea spicata Dalz. | S/N.O. | " | - |
| 68. | Barringtonia racemosa (L.) Spreng | T/N.O. | Myrtaceae | 26 |
| 69. | Callistemon lanceolatus DC. | T/C | " | 22 |
| 70. | Careya arborea Roxb. | T/N.O. | " | 26 |
| 71. | Eucalyptus globulus Labill | T/C | " | 20 |
| 72. | Psidium guajava L. | T/C | " | 22 |
| 73. | Syzygium cumini (L.) Skeels | T/N.O. | " | 44 |
| 74. | Bomabx ceiba Mill. | T/N.O. | Bombacaceae | 88 |
| 75. | Ceiba pentandra Gaert. | T/C | " | 72-80 |
| 76. | Bougainvillea spectabilis Willd. | S/C | Nyctaginaceae | 20, 34 |
| 77. | Bridelia retusa Spreng. Willd. | T/N.O. | Euphorbiaceae | 28 |
| 78. | Bridelia scandens (Roxb.) Spreng. | T/N.O. | " | 26-28 |
| 79. | Codiceum variegatum Bl. | S/C | " | 32-72 |
| 80. | Emblica officinalis L. | T/C | " | 98 |
| 81. | Mallotus albus L. | T/C | " | 40 |
| 82. | Phyllanthus reticulatus Poir | S/N.O. | " | 26 |
| 83. | Euphorbia notoptera | H/N.O. | " | 12-200 |
| 84. | Callicarpa tomentosa Murr. | T/N.O. | Verbenaceae | 22 |
| 85. | Clerodendrum thomsonae Balf. | S/C | " | 42, 46 |
| 86. | Gmelina arborea Roxb. | T/N.O. | " | 36 |
| 87. | Lantana camara | H/N.O. | " | 22, 33 |
| 88. | Calycopteris floribunda (Roxb.) Poir. | S/N.O. | Combretaceae | 48 |

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|---|---|---|---|---|
| 89. | Quisqualis indica L. | S/C | Combretaceae | 22, 24, 26 |
| 90. | Carica papaya L. | T/C | Caricaceae | 18 |
| 91. | Casuarina equisetifolia L. | T/C | Casuarinaceae | 18 |
| 92. | Cocos nucifera L. | T/C | Palmaceae | 32 |
| 93. | Cordia sebestena L. | T/C | Boraginaceae | 32-72 |
| 94. | Flacourtia montana Graham. | T/N.O. | Flacourtiaceae | 22 |
| 95. | Grewia tilifolia Vahl. | T/N.O. | Tiliaceae | 18-36 |
| 96. | Grewia umbellifera Bedd. | T/N.O. | " | 18-36 |
| 97. | Microcos paniculata L. | S/N.O. | " | 18-36 |
| 98. | Hamelia patens Jacq. | S/C | Rubiaceae | 24 |
| 99. | Mussaenda frondosa L. | S/C | " | 22 |
| 100. | Randia dumatorum Lam. | S/N.O. | " | 22 |
| 101. | Mussaenda laxa | H/N.O. | " | 22 |
| 102. | Spermaeoce hispida | H/N.O. | " | 28 |
| 103. | Spermaeoce verticillatus | H/N.O. | " | 56 |
| 104. | Helicteres isora | S/N.O. | Sterculiaceae | 18,24 |
| 105. | Sterculia urens Roxb. | T/N.O. | " | 40 |
| 106. | Heterophragma quadrangularia | T/N.O. | Bignoniaceae | 40 |
| 107. | Millingtonia hortensis L. | T/C | " | 30 |
| 108. | Spathodea campanulata Beauv. | T/C | " | 26 |
| 109. | Hibiscus roseus Thore | S/C | Malvaceae | 38 |
| 110. | Thespesia populnea Soland | T/C | " | 26 |
| 111. | Malvastrum coromandelianum | H/N.O. | " | 24 |
| 112. | Sida rhombifolia | H/N.O. | " | 14 |
| 113. | Urena lobata | H/N.O. | " | 28 |
| 114. | Lawsonia alba L. | T/C | Lythraceae | - |
| 115. | Lagerstroemia flosreginae Retz. | T/C | " | 44 |

116. Lagerstroemia parriflora T/C Lythraceae 44-50

117. Lagerstroemia thorelli Gag. T/C " 44-50

118. Rosa indica L. S/C Rosaceae 14

119. Memecylon umbellatum L. T/C Melastomaceae 28

120. Moringa oleifera Lam. T/C Moringaceae 28

121. Strychnos collubrina L. T/N.O. Loganiaceae 24-28

122. Strychnos nux-vomica L. T/N.O. " 24

123. Trema orentalis Br. T/N.O. Ulmaceae 20-40

124. Ziziphus mouritiana Lam. T/N.O. Rhamnaceae 24,40,48

125. Ziziphus oenoplia S/N.O. " 20, 48

126. Ziziphus rugosa S/N.O. " 20, 96

127. Ziziphus xylopyra T/N.O. " 20, 96

128. Acanthospermum hispidum H/N.O. Asteraceae 22

129. Ageratum conyzoides H/N.O. " 20

130. Alternanthera sessilis H/N.O. Amaranthaceae 34

131. Amaranthus viridis H/N.O. " 28

132. Anisochilus verticillatus H/N.O. Lamiaceae -

133. Canscora decurrens H/N.O. Gentianaceae 72

134. Canscora diffusa H/N.O. " 72

135. Celosia argentea H/N.O. Amaranthaceae 36

136. Chromolaena odorata H/N.O. Asteraceae 58

137. Cleome viscosa H/N.O. Capparidaceae -

138. Dactyloctenium aegyptium H/N.O. Poaceae 20

139. Dioscorea bulbifera H/N.O. Dioscoreaceae 60

140. Eriocaulon diannae H/N.O. Eriocaulaceae 32-64

141. Passiflora foetida N.O. Passifloraceae 18

142. Portulaca oleracea H/N.O. Portulacaceae 14, 18

143. Sesamum mulayanum H/N.O. Pedaliaceae 26,64

144. Ludwigia parviflora H/N.O. Onagraceae 16-48

## CONCLUSION:

The glamour of beautiful bird population like the peacocks around the protected compound and freely moving large monkeys gives a grotesque that this formerly called "rocky Plateau" is slowly turning to a balanced ecosystem where both plant and animal communities could co-exist and replenish for their nourishment.

This is truely one of the industrial firms that has showed a good example to improve its greenery unlike most other institutions of the same kind where there has been a gradual degradation even within the protected fence.

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