

CHAPTER - III

Methodology.

CHAPTER - 3

METHODOLOGY

3.1 The present work is based on the results of nearly six years of extensive field work and intensive laboratory studies of the vegetation of the area under consideration.

The project was undertaken in 1976, although officially it started in July 1977. The exhaustive survey was carried out on Kanakeshwar Hills to explore the area so as to collect representatives, so as to identify the floristic pattern, till February 1983. Subsequently, the work was extended to adjoining hilly regions of Karli Khind, Siddheshwar and Chaul, the coastal plains from Revas to Revdanda in order to correlate the vegetation types and floristic patterns. Compilation of floristic data in this unexplored area has been a difficult task, which became possible with the help of colleagues and Forest Officials.

3.2 Representative sectors of the area under studies

For the sake of convenience, the area is divided into following six vegetation types :

i) Forests of the hill tops, ii) General vegetation of the plains, iii) Flora of the cultivated lands, secondary

successions in cultivated lands, iv) Coastal vegetation of the mangroves, v) Pond vegetation, vi) Special plantation. The different localities were covered in different seasons by keeping a base-camp at suitable places and an exhaustive collection of specimens was done in all sectors.

3.3 Working Schedule

During the period mentioned above following collection trips were arranged.

Sr. No.	Year	Month	Duration (days)	Sectors visited	No. of specimens collected
1.	1977	August	2	Kanakeshwar Hills, Alibag	193
2.	1977	October	3	Revas, Alibag, Kihim, Kanakeshwar Hills, Karli Khind	378
3.	1977	December	3	Kanakeshwar Hills, Alibag, Revas	175
4.	1978	June	3	Alibag, Revas, Kanakeshwar Hills	228
5.	1978	September	3	Alibag, Revas, Kanakeshwar Hills	197
6.	1978	December	2	Kanakeshwar Hills, Alibag	211
7.	1979	April	2	Kanakeshwar Hills, Alibag, Revas	105
8.	1980	February	4	Revas, Revdanda, Alibag, Karli Khind, Chaul	256

Sr. No.	Year	Month	Duration (days)	Sectors visited	No. of specimens Collected
9.	1980	October	4	Revas, Revdanda, Alibag, Karli Khind, Kanakeshwar Hills	326
10.	1981	June	3	Alibag, Revas, Revdanda, Karli Khind, Chaul	225
11.	1982	January	4	Alibag, Revas, Revdanda, Siddheshwar, Karli Khind	165
12.	1982	September	3	Kanakeshwar Hills, Alibag	188
13.	1983	February	2	Alibag, Karli Khind, Kanakeshwar Hills	146
14.	1983	March	3	Siddheshwar, Karli Khind, Alibag	122

While compiling floristic work, special attention was paid to the actual uses of plants by the local people. Exploration of the area has revealed interesting data and gave new sources of information. During the successive botanical visits to the area, as shown in the table, specimens were collected and then preserved in the MACS Herbarium.

3.4 Constraints faced during the field work

To begin with, the field work appeared to be difficult

as the work was begun in the monsoon.

This was particularly true in the hilly regions, as there is heavy ^{downpour} rain in the months of June, July, August and September. Local people ^{disuaded} visits during July as rain was heavy.

In early June it was not difficult to get into the forest. But, in the months of August and September, the whole area is green, but impenetrable and unsafe.

Till the end of October this greenery persists. In that late phase the area becomes a veritable carpet as herbaceous flora bloom all over.

In the entire monsoon period, the tiny jungle paths get lost in the thickets of herbaceous flora and lushy grass meadows. Even if, one penetrates the woods, the chances of getting lost are not few.

Stinging plants like Mucuna, Traggia, Boehmeria make the jungle ^{brightening} and scrubby growth of Carissa, Lantana, Zizyphus, Flacourtia add more discomfort.

One meets snakes. Horrid-looking crabs crawl all over especially on rocks throughout the wet season. Their camoufflage is so perfect that one has to be very careful. Jungle spiders, mosquitoes, different types of ants, bees, dragon flies and others enjoy warmth and the humid climate of the monsoon.

There are reports from local people regarding the regular visits of the tiger, during winter and summer, such visits are mainly in search of water.

Previously, coolies were available to carry luggage from the foot of Kanakeshwar to the Hill tops. But now-a-days, this also has become a problem due to new job opportunities available at Thal-Wayshet Project.

On the plains, these difficulties were not encountered except during heavy rains.

3.5 Field work

Actual field work consisted of not only collection of the specimens but also numbering of them, and more to collect the necessary information regarding the specimens.

a) Collection

A strong knife, a pair of pruning shears and a long stick were the musts during the field trips. The field notebook was more important than food.

During the visits, arranged in the different seasons, fresh live specimens were collected from different sectors of the area under consideration. The specimens were collected mostly in triplicates. Herbaceous plants were picked along with their roots in a flowering state. For shrubs and trees, branches were selected bearing flowers and/or fruits.

A vasculum or a sufficiently large polythene bag was used for temporary storage of the collected specimens.

Delicate specimens like different members of Commelinaceae, species of Cassia, Begonia, Impatiens, Ipomoea, Merremia etc., were pressed on the spot in old news-papers. Likewise, delicate aquatic plants like Najas, Utricularia, Nechamandra were pressed on the spot by spreading them properly over blotting papers.

b) Field notes

While collecting the specimens, field notes were made. The following details of every specimen were noted down -

i) Habit of the plant, ii) Habitat, iii) Flower colour, odour if any, iv) Flowering and fruiting period, v) Association, vi) Relative local abundance.

The information furnished by local persons such as the local name, its economic importance etc., were also recorded in the field notes. Ecological surroundings and adaptations, morphological peculiarities if present, were the additional features of the field notes.

c) Enlisting and numbering

Simultaneously, enlisting and numbering of collected specimens was also carried out.

d) Drying

At the camping site, the specimens were assorted. They were properly spread over old news-papers or blotters. The specimens were then arranged serially and were pressed in a light field press.

For succulent specimens, the method given by Jain & Rao (1977) was found to be quite useful.

Before the specimen got fully dried, its morphological details were noted down. Whenever necessary and possible, rough sketches were made. This was essential for the later correct identification of the plant.

The drying papers were normally changed at an interval of twenty-four hours. If necessary, two changes were given per day in order to facilitate quick drying, particularly during monsoon. Nature of the specimens was another factor for carrying out change of the papers.

The procedure of changing the papers carrying the specimens was continued till the specimens were completely dry.

This method was followed for all vascular plants.

3.6 Laboratory work

a) Drying

These collections, duly numbered and with details

of field notes were brought to the laboratories for further study.

Specimens were thoroughly dried by changing the blotters or news-papers as usual at the interval of twenty-four hours. The bundles of folders containing drying specimens were now kept under heavy weight.

If necessary drying was accelerated by putting the specimens in a hot air oven. This was particularly essential during the monsoon, when humidity halted drying. Succulents needed this sort of treatment most.

b) Preservation

Thoroughly dried specimens were then poisoned by treating them with a saturated solution of mercuric chloride. The procedure was carried out with due care. The specimens were then dried under the light press.

c) Mounting

Dried papers were stiched in the proper way on 40 x 25 cms herbarium sheets. Extra loose flowers, fruits and seeds were put up in small plastic bags and the bags were then fixed to the concerned herbarium sheets. These specimens were dusted with Benzene Hexa-chloride to avoid an attack of pests and moulds.

The relevant field information was entered on the herbarium sheets.

The specimens were sorted out into respective species and then into genera. For each taxon an independent folder was used. These were then enclosed in the family folder. All the family folders were arranged according to Bentham and Hooker's system of classification.

The voucher specimens on which the work has been carried out are being deposited at Maharashtra Association for the Cultivation of Science, Botany Department Herbarium.

For ready reference, index cards have been prepared. Following points of information have been jotted down on the reference cards.

i) Flower colour, ii) Flowering and fruiting period, iii) Date of collection, iv) Name of the collector, v) Original citation giving description, vi) Locality.

d) Herbaria consulted

Identification of doubtful specimens was confirmed by comparing them with earlier identified specimens from i) MACS Herbarium, Pune, ii) Botanical Survey of India, Western Circle, Pune.

e) Nomenclature

Library facilities of MACS were available for the reference work, particularly for nomenclature. Local floras such as "Flora of Khandala" Santapau (1967); "Flora

of Bangalore District", Ramaswamy S.V., & Razi B.A. (1973); "Flora of Hassan District", Saldhana C.J. & Nicolson D.H. (1976); and "Flora of Eastern Karnatak", Singh N.P. (unpublished thesis, 1982) were specially consulted for the latest nomenclatural changes.

3.7 Presentation of data

The account of different species collected and identified has been given in the following pages, which forms the main bulk of the project.

The families are arranged according to Bentham & Hooker's system of classification with slight modifications. Within every family, genera and species are arranged alphabetically for the sake of convenience. Artificial keys for easy identification, have been computed for different families, genera and species.

The account of different species presented is based on actual observation of the specimens collected from the area under investigation. It is with respect to the following points.

Botanical name : The latest, valid, scientific name alongwith the authority has been given with the help of the latest available literature. Relevant synonyms are also given, if and when, necessary.

Citation : Along with the original reference of the valid name, appropriate citation from "Flora of British India" by J.D. Hooker, and "Flora of Bombay Presidency" by T. Cooke are given. Further, relevant references from other published monographs and floristic work have been cited.

Morphological description : Only very special characters of the plant, based on the observation of the specimens collected from the area have been given.

Flowering & fruiting period : Months for flowering and fruiting have been mentioned.

Ecological observations : Relative abundance and associations have been indicated with the help of field notes. 9

Local names : Vernacular names given in the flora have been correlated with those mentioned by the local people.

Reference specimens : Citation of the voucher specimens have been given alongwith the accession number.

Illustrations : Whenever possible, line drawings or photographs are presented to illustrate and amplify the features of the species or of vegetation or of the site.