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Survey of the Family Orchidaceae, their Habitat Ecology and Conservation in Arunachal Pradesh, India

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***Abstract* – Arunachal Pradesh is known for rich diversity of orchid species, yet needs further exploration. There is a likelihood of occurrence of species having elements of neighboring countries. Base on field trip a number of species and an observation of ecological importance have been collected.**

***Keywords* – Arunachal Pradesh, Orchid, Habitat, Lost, Ecology, Conservation.**

I. INTRODUCTION

Arunachal Pradesh is well known for orchid diversity. The state is geographically a largest in NE India which has the maximum forest coverage of 51540 km2 from total land mass of 83743 km2 which needs further survey and exploration in the far flung area specially in the hills up to the snow capped peaks. The state lies between 26028" to 29030"N latitudes and 91030" to 97030"E longitudes.

Several field trips have been conducted to different parts of Arunachal Pradesh. It is found that diversity is not uniform probably because of having variable climatic conditions, unequal and incomplete collection, wrong identification, insufficient search etc. It is evident that Arunachal Pradesh is a meeting place for western (Bhutan), northern China (Tibet) and eastern (Myanmar) elements of vegetation. Habitat ecology of last 25-30 years is not comparable to the current trends may be due to the developmental activities. Hence, conservative measures may be enhanced.

II. SURVEY AND EXPLORATION

Survey on orchids have been conducted with consultation of literature, herbarium specimens, experts etc. it has been experienced that successful recollection and collection of species depends on habitat changes, previous collection experience, local contact etc. Such example of species collection is Diplomeris hirsute (Lindl.) Lindl., Cymbidium grandiflorum Griff., Arachnis labrosa (Lindl. & Paxton) Rchb.f., Dendrobium hookerianum Lindl., Cremastra appendiculata (D.Don) Makino, Rhyncostylis retusa (L.) Blume , Galeola falconeri Hook.f., Satyrium nepalense D.Don, Tropidia curculigoides Lindl. etc. from different parts of the state. Similarly, some of the species were collected from unexplored region such as Paphiopedilum fairrieanum (Lindl.) Stein (Tenga valley), Malaxis muscifera (Lind.) Kuntze (Tawang), Thrixspermum saruwatarii (Hayata) Schltr. (Mechuka), Dendrobium ruckeri Lindl. (Tuting), Calanthe kasabi Lucksom (Kurung Kumey), Pleione maculata (Lindl.) Lindl. & Paxton and Vanda coerulea Griff. ex Lindl. (Tirap). One of the botanical interest of the state is the rich distribution of endemic species of 32, out of 59 of the country.

III. CONSERVATION AND HABITAT ECOLOGY

Rich diversity of orchid is due to the presence of forests which have been classified into sanctuaries, biosphere, national park, community forest etc. This protected areas have been surveyed and explored by

scientists, researchers, forester etc. and made good progress in geographical location of topography, ecology, description of new taxa, making of a GI representative of flora in Orchid Herbarium Tippi (OHT) etc. Assuming the changes in habitat, species is conserved under in-situ and to a certain extent ex-situ conservation conditions by the government department and academic institutions. For some species it is a case of rehabilitation under ex-situ conservation collected from degraded forest land which are maintained at different altitudinal zones at Tippi, Sessa, Dirang, Jengging, Roing etc. Habitat is lost in different ways such as highway, road, hydro-power dam construction activities which has the adverse environmental impact. Common species such as Didymoplex--is pallens Griff., Corymborkis veratrifolia (Reinw.) Blume, Arundina graminifolia (D. Don) Hochr., Tropidia angulosa (Lindl.) Blume etc. that have been lost due to road construction and other developmental activities observed recently. The emerging trends of environmental impact on species distribution is due to the global warming and indiscriminate tree felling by the people triggering food, landslide, natural catastrophy. Dying-Ering wildlife sanctuary is such one example of habitat lost where the population of Nervilia holochila (F. Muell.) Schltr. has been lost annually due to the flood of Siang river. The species was found in flowering under the dried bushes of Chrysopogon zizanioides (L.) Roberty, Imperata brasiliensis Trin, Saccharum spontaneum L. etc.

Habitat view of Nervilia holochila (F. Muell.) Schltr.

Habitat lost of N. holochila

Habitat of Epipogium roseum (D. Don) Lindl.

Epipogium roseum (D. Don) Lindl. is a saprophytic orchid growing in organic decayed matter under tropical forest floor. The habitat of the species is ecologically disturbed by human activities.

IV. CONCLUSION

Although Arunachal Pradesh is known for diversity of the family Orchidaceae, it is not exceptional of becoming a diversity of hotspot in the state which happens to a greater extent in other part of the country and the world. So, distribution and threat happens most in tropical forest zone to subtropical and temperate forest. Population of orchid is depleting at an alarming rate due to the developmental activities, shifting cultivation, loss of pollinator, natural calamities etc. There is a likelihood of becoming extinct from the wild and many are on the verge of extinction. Orchids are most threatened species among the flowering plant, hence their conservation under sanctuary and other protected areas may be strengthened and explored.

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