Chapter 14
Techniques to Assess Animal Diversity:
Faunal Diversity Assessment

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ABSTRACT

Methods for surveying and monitoring fauna will depend on the types of fauna that the study is looking for. Animal diversity assessment goal is the conservation of animals and their interaction between biodiversity. Assessment also includes their habitat and taking actions to conserve the faunal species. Animal diversity includes vertebrate animals and invertebrate animals. Faunal diversity includes odonate (predators), coleoptera, hymenoptera (pollinators), herpetofauna, avifauna, fish, mammals, and butterflies. Animal diversity assessment describes their food, habitat, ecology, and their population. Animal diversity assessment technique describes impact of pollution on their environment. In this chapter, the authors have elaborated about the techniques of faunal biodiversity in the field.

INTRODUCTION

Biodiversity is the variety of different forms of life on earth, including the different plants, animals, micro-organisms, the genes they contain and the ecosystem they form. Assessment method is the implementation of the management plan for the interaction between biodiversity, the different human activities and the physical environment. It is identified and implement actions to conserve faunal species and habitats. It refers to genetic variation, ecosystem variation, species variation (number of species) within an area, biome or planet (Rawat & Agarwal, 2015). Fauna resources are the entire wild animal of any

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particular region or ecosystem. These wild animals can be found in all ecosystems including forests, grasslands, plains, wetlands and deserts. Fauna species assessment has more concentration to national parks or wildlife parks. Many local rangeland communities support unique flora and fauna species making them important in terms of conservation and scientific interest (Yager et al., 2018). Biodiversity assessment is the first stage in the process of defining the biodiversity management objectives for an area. Its purpose is to gather and assess the information required to make decisions and recommendations for the future. The diversity of animal forms and highlights their distribution, life cycle, structure, and economic significance. Animal diversity include vertebrates and invertebrates. Vertebrates are those animals that have vertebrae and invertebrates are those animals that lack vertebrae. The main characteristics of vertebrate's animal is their backbone. Backbone is start from head and along to the tail. Backbone is the core of the endoskeleton it allows vertebrates to hold its shape. The vertebrate column is made up of repeating units of vertebrae. Classification of vertebrate's animals are fish, amphibians, reptiles and mammals. Methods for surveying and monitoring fauna will depend on the types of fauna and study. During the reconnaissance survey, it may be that the researcher would be looking for evidences of all mammals in the form of tracks, dung, and sightings. The methods for carrying out faunal studies will vary depending on the researcher, but such studies may involve establishing various forms of transects, using PCQ (point centered quadrates) and quadrat methods, laying traps for insects or small mammals, or simply walking and counting in the case of certain bird surveys.

Diversity and distribution of vertebrates are clearly better documented than for other groups and even though it can be seen that new species of freshwater fish or even amphibians are still being described regularly, experts of all vertebrate groups are able to supply a fairly reliable estimate of the true number of extant species.

BACKGROUND

At the beginning of the present century, was an expressive study of nature, a sort of natural history, which drew inspiration from the works of explorers and naturalists. Biodiversity is well-defined as the variability among living organisms from all sources, including, terrestrial, marine, other aquatic ecosystems, the ecological complexes of which they are part this contains diversity within species, between species and ecosystems (OECD, 2014). Biodiversity has evolved over the last 3.8 billion years or so of the planet's approximately 5 billion-year history. Although five major extinction events have been recorded over this period, the large number, variety of genes, species and ecosystems in existence today are the ones with which human societies have developed, and on which people depend. As the basis for all ecosystem services, and the foundation for truly sustainable development, biodiversity plays fundamental roles in maintaining and enhancing the well-being of the world's more than 6.7 billion people, rich, poor, rural and urban alike. Biodiversity comprises much of the renewable natural capital on which livelihoods and development are grounded biodiversity, encompassing variety and variability of all life on earth, is the product of over 3.5 billion years of evolutionary history. A process of assessment of existing status and change in the condition of biodiversity, as measured against a set of criteria and indicators. The faunal biodiversity to be assessed at species level, ecosystem level and genetic level. The oldest method to assess faunal diversity were direct count and indirect count.